

10 INDUSTRIAL AVE,  
SUITE 3  
MAHWAH NJ 07430

PHONE: 201.684.0055  
FAX: 201.684.0066



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October 8, 2021

Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE: Notice of Exempt Modification  
405 Brushy Plain Road, Branford, CT 06405  
Latitude: 41.31680556  
Longitude: -72.8197  
T-Mobile Site#: CTNH102C - Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 140-foot level of the existing 164-foot monopole at 405 Brushy Plain Road, Branford, CT. The 164-foot monopole is owned and operated by American Tower Corporation. The property is owned by Kristine and Edward Jaconette. T-Mobile now intends to remove six (6) existing antennas and add three (3) new 5G antennas. The new antennas will be installed at the same 140-foot level of the tower.

**Planned Modifications:**

**Tower:**

Remove

- (6) AIR21 B4A B2P Antennas
- (3) KRY112 114/1 TMAs
- (6) 1-5/8" Coax Cables
- (1) 1 5/8" Hybrid Cables
- (3) Radio 4449 B12 B71

Install New:

- (3) AIR6449 B41 Antennas
- (3) Radio 4460 B25+B66
- (3) Radio 4449 B71 B85A
- (1) 1.99" Hybrid Cable

Existing to Remain:

(3) RFS APRXVAARR24 43-U-NA20 Antennas

(3) 1 ¼" Hybrid Cables

**Ground:**

Install New:

(1) Enclosure 6160 and (1) B160

Remove:

(1) S12000

This tower was originally approved by the Connecticut Siting Council in Docket #44 dated July 24, 1984. T-Mobile has been approved for subsequent modifications at their facility. This proposed modification complies with the original approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to First Selectman - James Cosgrove, Elected Official, and Harry Smith, Town Planner, as well as the tower and property owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

**Eric Breun**

Transcend Wireless

Cell: 201-658-7728

Email: [ebreun@transcendwireless.com](mailto:ebreun@transcendwireless.com)

Attachments

cc: James Cosgrove - First Selectman of Branford

Harry Smith – Town Planner

American Tower Corporation – Tower Owner

Edward and Kristine Jaconette - Property Owner

ERIC BREUN  
2016587728  
10 INDUSTRIAL AVE  
MAHWAH NJ 07430

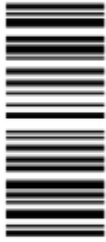
1 LBS

1 OF 1

**SHIP TO:**  
TOWN PLANNER HARRY SMITH  
1019 MAIN STREET  
BRANFORD CT 06405



**CT 065 2-01**



**UPS GROUND**

TRACKING #: 1Z V25 742 03 9566 5802



BILLING: P/P

Reference #1: CTNH102C

XOL 21.09.12 NV45-41.0A 10/2021\*



TM

ERIC BREUN  
2016587728  
10 INDUSTRIAL AVE  
MAHWAH NJ 07430

1 LBS

1 OF 1

**SHIP TO:**  
JAMES COSGROVE  
1019 MAIN STREET  
BRANFORD CT 06405



**CT 065 2-01**



**UPS GROUND**

TRACKING #: 1Z V25 742 03 9018 2833



BILLING: P/P

Reference #1: CTNH102C

XOL 21.09.12 NV45-41.0A 10/2021\*



TM



ERIC BREUN  
2016587728  
10 INDUSTRIAL AVE  
MAHWAH NJ 07430

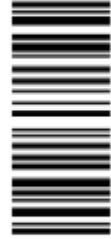
1 LBS

1 OF 1

**SHIP TO:**  
EDWARD AND KRISTINE JACONETTE  
405 BRUSHY PLAIN ROAD  
**BRANFORD CT 06405**



**CT 065 2-01**



**UPS GROUND**

TRACKING #: 1Z V25 742 03 9894 5825



BILLING: P/P

Reference #1: CTNH102C

XOL 21.09.12 NV45-41.0A 10/2021\*



TM

ERIC BREUN  
2016587728  
10 INDUSTRIAL AVE  
MAHWAH NJ 07430

1 LBS

1 OF 1

**SHIP TO:**  
AMERICAN TOWER CORPORATION  
10 PRESIDENTIAL WAY  
**WOBURN MA 01801**



**MA 018 9-04**



**UPS GROUND**

TRACKING #: 1Z V25 742 03 9729 5815



BILLING: P/P

Reference #1: CTNH102C

XOL 21.09.12 NV45-41.0A 10/2021\*



TM

**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 10/06/2021

**Delivery Time:** 11:42 AM

**Left At:** FRONT DESK

**Signed by:** ANCRI

**TRANSCEND WIRELESS**

**Tracking Number:** [1ZV257420397295815](#)

**Ship To:** AMERICAN TOWER CORPORATION  
10 PRESIDENTIAL WAY  
WOBURN, MA 01801  
US

**Number of Packages:** 1

**UPS Service:** UPS Ground

**Package Weight:** 1.0 LBS

**Reference Number:** [CTNH102C](#)

**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 10/06/2021

**Delivery Time:** 2:16 PM

**Left At:** FRONT DOOR

**Experience UPS My Choice® Premium Today**

Be in total control of how, when and where your packages are delivered.

[Upgrade to Premium Now](#)



[Set Delivery Instructions](#)

[Manage Preferences](#)

[View](#)

**TRANSCEND WIRELESS**

**Tracking Number:** [1ZV257420398945825](#)

**Ship To:** EDWARD AND KRISTINE JACONETTE  
405 BRUSHY PLAIN ROAD  
BRANFORD, CT 06405  
US

**Number of Packages:** 1

**UPS Service:** UPS Ground

**Package Weight:** 1.0 LBS

**Reference Number:** [CTNH102C](#)

**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 10/06/2021

**Delivery Time:** 4:23 PM

**Left At:** RECEPTION

**Signed by:** MILICI

**TRANSCEND WIRELESS**

**Tracking Number:** [1ZV257420395665802](#)  
**Ship To:** TOWN PLANNER HARRY SMITH  
1019 MAIN STREET  
BRANFORD, CT 06405  
US  
**Number of Packages:** 1  
**UPS Service:** UPS Ground  
**Package Weight:** 1.0 LBS  
**Reference Number:** [CTNH102C](#)

**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 10/06/2021

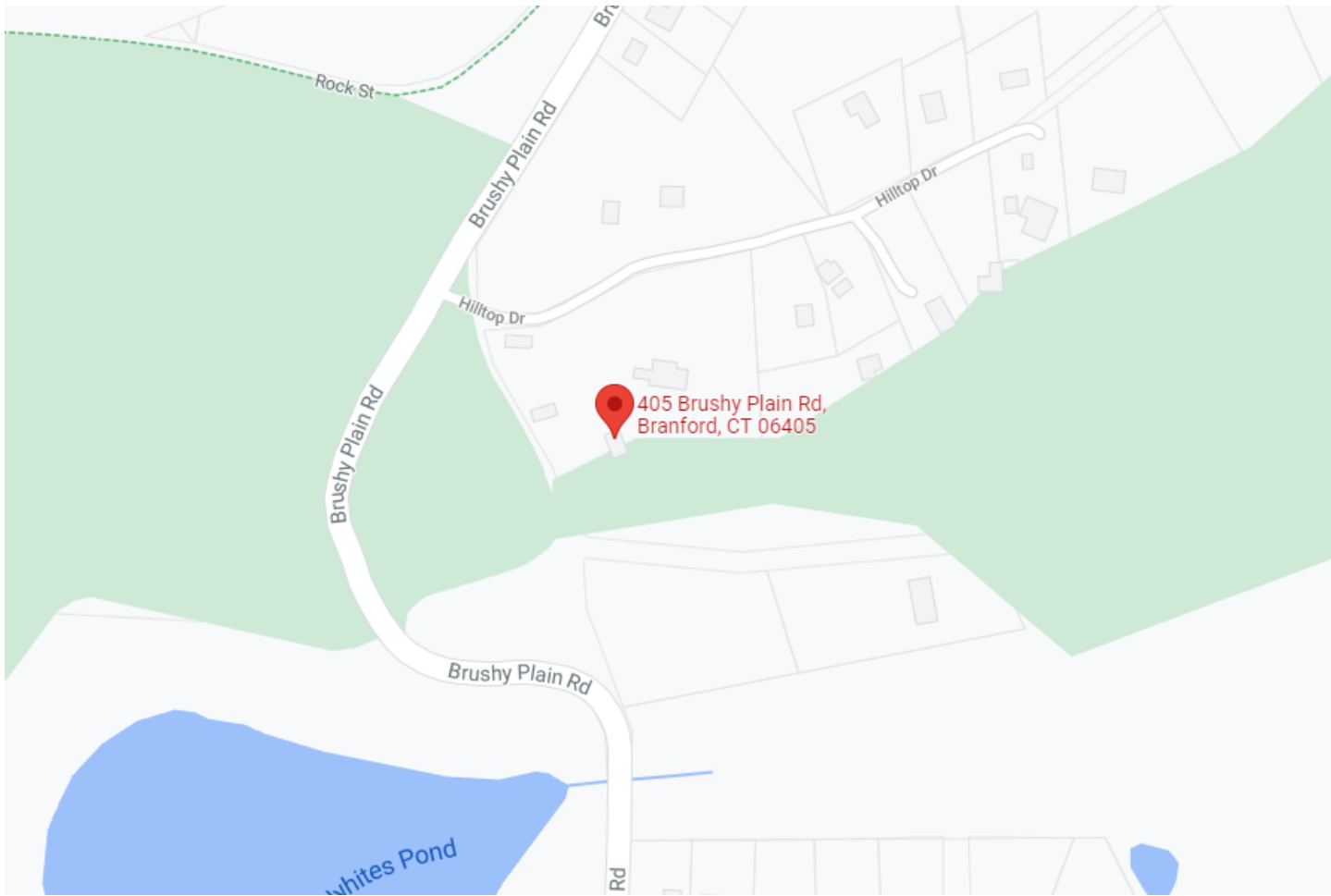
**Delivery Time:** 4:23 PM

**Left At:** RECEPTION

**Signed by:** COSGROVE

**TRANSCEND WIRELESS**

**Tracking Number:** [1ZV257420390182833](#)  
**Ship To:** JAMES COSGROVE  
1019 MAIN STREET  
BRANFORD, CT 06405  
US  
**Number of Packages:** 1  
**UPS Service:** UPS Ground  
**Package Weight:** 1.0 LBS  
**Reference Number:** [CTNH102C](#)



CURRENT OWNER		TOPO.	UTILITIES	STRT./ROAD	LOCATION	CURRENT ASSESSMENT			
JACONETTE EDWARD F JR & JACONETTE KRISTIN L (SUR) 405 BRUSHY PLAIN RD		4 Rolling	5 Well	1 Paved	2 Suburban	Description	Code	Appraised Value	Assessed Value
			3 Public Sewer			UTL LAND	4-1	362,200	253,500
						UTL BLDG	4-2	177,400	124,200
BRANFORD, CT 06405 Additional Owners:		SUPPLEMENTAL DATA				UTL OUTBL	4-3	1,800	1,300
		Other ID: D02/000/003/00001/ CONDO BLDG CONDO UNIT CONDO FLOOR		HLDG TK SEPTIC SEWER DISTRICT CENSUS TR 1847		Total		541,400	379,000
PARCEL DESC GIS ID: D02/000/003/00001		ASSOC PID#							

**VISION**

6014  
BRANFORD, CT

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.	PREVIOUS ASSESSMENTS (HISTORY)								
JACONETTE EDWARD F JR & ADAMS MARSHA ADAMS MARSHA		0788/1038	11/18/2002	U	I		25	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
		442/ 252	12/22/1987	U	V			2019	4-1	253,500	2019	4-1	253,500	2018	4-1	253,500
			12/22/1987					2019	4-2	124,200	2019	4-2	124,200	2018	4-2	119,900
								2019	4-3	1,300	2019	4-3	1,300	2018	4-3	1,300
Total:								379,000		Total:	379,000		Total:	374,700		

EXEMPTIONS				OTHER ASSESSMENTS				This signature acknowledges a visit by a Data Collector or Assessor												
Year	Type	Description	Amount	Code	Description	Number	Amount	Comm. Int.												
Total:																				

ASSESSING NEIGHBORHOOD					APPRAISED VALUE SUMMARY											
NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch												
0050/A					Appraised Bldg. Value (Card) 21,900 Appraised XF (B) Value (Bldg) 4,000 Appraised OB (L) Value (Bldg) 1,800 Appraised Land Value (Bldg) 362,200 Special Land Value 0 Total Appraised Parcel Value 541,400 Valuation Method: C Adjustment: 0 Net Total Appraised Parcel Value 541,400											

BUILDING PERMIT RECORD										VISIT/ CHANGE HISTORY					
Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments	Date	Type	IS	ID	Cd.	Purpose/Result	
19-00285	03/26/2019	EL	Electric	9,100	08/27/2019	100		ADD 25KW DIESEL GEN	10/01/2019			SPB	11	Field Review	
13-01490	12/13/2013	CM	Commercial	8,500	07/16/2014	100		UPGRADE TO EXISTING	08/27/2019			ECS	37	Bldg Permit	
00864-2012	11/05/2013	CO	CO ISSUED	0	07/16/2014	100		ADDING THREE LTE	01/07/2019			ECS	02	1st Callback	
01070-2013	10/10/2013	CO	CO ISSUED	0	07/16/2014	100		MODIFICATIONS TO	01/02/2019			ECS	01	Measured	
0900291	04/29/2009	CM	Commercial	20,000		100	07/28/2009	REPL 3 EXISTING ANTENNA	10/15/2014			DV	11	Field Review	

LAND LINE VALUATION SECTION																					
B #	Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Value		
1	0431	TEL REL TW MDL96	R-4				0.46 AC	109,600.00	2.0152	5	1.0000	1.00	0050	1.00			1.00		101,600		
1	0431	TEL REL TW MDL96	R-4				4.04 AC	15,000.00	1.0000	0	1.0000	1.00	0050	1.00			1.00		60,600		
1	0431	TEL REL TW MDL96					1.00 BL	200,000.00	1.0000	0	1.0000	1.00		0.00	CELL SITE		1.00		200,000		
Total Card Land Units:							4.50 AC	Parcel Total Land Area:							4.5 AC	Total Land Value:					362,200

CONSTRUCTION DETAIL				CONSTRUCTION DETAIL (CONTINUED)			
Element	Cd.	Ch.	Description	Element	Cd.	Ch.	Description
Style	48		Warehouse				
Model	96		Ind/Comm				
Grade	03		C				
Stories	1						
Occupancy	1						
Exterior Wall 1	22		Precast Panel				
Exterior Wall 2							
Roof Structure	02		Shed				
Roof Cover	04		T&G/Rubber				
Interior Wall 1	01		Minim/Masonry				
Interior Wall 2							
Interior Floor 1	03		Concr-Finished				
Interior Floor 2							
Heating Fuel	04		Electric				
Heating Type	03		Hot Air-no Duc				
AC Type	02		Heat Pump				
Bldg Use	0431		TEL REL TW MDL96				
Total Rooms							
Total Bedrms	00						
Total Baths	0						
Heat/AC	01		HEAT/AC PKGS				
Frame Type	03		MASONRY				
Baths/Plumbing	00		NONE				
Ceiling/Wall	02		CEILING ONLY				
Rooms/Prtns	02		AVERAGE				
Wall Height	9						
% Conn Wall							

MIXED USE		
Code	Description	Percentage
0431	TEL REL TW MDL96	100

COST/MARKET VALUATION		
Adj. Base Rate:		49.70
Replace Cost		27,335
AYB		1992
Dep Code		A
Remodel Rating		
Year Remodeled		
Dep %		20
Functional Obslnc		0
External Obslnc		0
Cost Trend Factor		
Condition		
% Complete		
Overall % Cond		80
Apprais Val		21,900
Dep % Ovr		0
Dep Ovr Comment		
Misc Imp Ovr		0
Misc Imp Ovr Comment		
Cost to Cure Ovr		0
Cost to Cure Ovr Comment		

OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)												
Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
FN3	FENCE-6' CH/			L	260	9.90	2002		0		50	1,300
PAV2	PAVING-CON			L	137	3.30	2014		0		100	500
GEN2	GEN 15-30KW			B	1	5,000.00	1999		1		100	4,000

BUILDING SUB-AREA SUMMARY SECTION						
Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	550	550	550	49.70	27,335
SLB	Slab	0	550	0	0.00	0
<b>Ttl. Gross Liv/Lease Area:</b>		<b>550</b>	<b>1,100</b>	<b>550</b>		<b>27,335</b>



CURRENT OWNER		TOPO.	UTILITIES	STRT./ROAD	LOCATION	CURRENT ASSESSMENT			
JACONETTE EDWARD F JR & JACONETTE KRISTIN L (SUR) 405 BRUSHY PLAIN RD		4 Rolling	5 Well	1 Paved	2 Suburban	Description	Code	Appraised Value	Assessed Value
			3 Public Sewer			UTL LAND	4-1	362,200	253,500
						UTL BLDG	4-2	177,400	124,200
						UTL OUTBL	4-3	1,800	1,300
<b>SUPPLEMENTAL DATA</b>									
Other ID: D02/000/003/00001/		HLDG TK							
CONDO BLDG		SEPTIC							
CONDO UNIT		SEWER							
CONDO FLOOR		DISTRICT			<b>VISION</b> 6014 BRANFORD, CT				
PARCEL DESC		CENSUS TR 1847							
GIS ID: D02/000/003/00001		ASSOC PID#			Total		541,400	379,000	

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.	PREVIOUS ASSESSMENTS (HISTORY)									
JACONETTE EDWARD F JR & ADAMS MARSHA ADAMS MARSHA		0788/1038	11/18/2002	U	I		25	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	
		442/ 252	12/22/1987	U	V			2019	4-1	253,500	2019	4-1	253,500	2018	4-1	253,500	
			12/22/1987	U	V			2019	4-2	124,200	2019	4-2	124,200	2018	4-2	119,900	
								2019	4-3	1,300	2019	4-3	1,300	2018	4-3	1,300	
Total:										379,000	Total:		379,000		Total:		374,700

EXEMPTIONS				OTHER ASSESSMENTS				This signature acknowledges a visit by a Data Collector or Assessor								
Year	Type	Description	Amount	Code	Description	Number	Amount	Comm. Int.								
Total:																

ASSESSING NEIGHBORHOOD					APPRAISED VALUE SUMMARY					
NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch						
0050/A										
NOTES										
BLDG 2 LABELED SITE 120 800-852-2671 120 FT MONOPOLE SITE 2019- VERIZON, T-MOBILE, CLEANWIRE ALMA RADIO										
					Appraised Bldg. Value (Card)					18,500
					Appraised XF (B) Value (Bldg)					0
					Appraised OB (L) Value (Bldg)					0
					Appraised Land Value (Bldg)					0
					Special Land Value					0
					Total Appraised Parcel Value					541,400
					Valuation Method:					C
					Adjustment:					0
					Net Total Appraised Parcel Value					541,400

BUILDING PERMIT RECORD										VISIT/ CHANGE HISTORY					
Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments	Date	Type	IS	ID	Cd.	Purpose/Result	
									10/01/2019			SPB	11	Field Review	
									08/27/2019			ECS	37	Bldg Permit	
									01/07/2019			ECS	02	1st Callback	
									01/02/2019			ECS	01	Measured	
									10/15/2014			DV	11	Field Review	

LAND LINE VALUATION SECTION																						
B #	Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Value			
2	0431	TEL REL TW MDL96	R-4				0.00	AC	0.00	1.0000	0	1.0000	1.00	0050	1.00			.00		0		
Total Card Land Units:							0.00	AC	Parcel Total Land Area:							4.5 AC	Total Land Value:					0



CONSTRUCTION DETAIL				CONSTRUCTION DETAIL (CONTINUED)			
Element	Cd.	Ch.	Description	Element	Cd.	Ch.	Description
Style	48		Warehouse				
Model	96		Ind/Comm				
Grade	03		C				
Stories	1						
Occupancy	4						
Exterior Wall 1	22		Precast Panel				
Exterior Wall 2							
Roof Structure	02		Shed				
Roof Cover	04		T&G/Rubber				
Interior Wall 1	01		Minim/Masonry				
Interior Wall 2							
Interior Floor 1	03		Concr-Finished				
Interior Floor 2							
Heating Fuel	04		Electric				
Heating Type	03		Hot Air-no Duc				
AC Type	02		Heat Pump				
Bldg Use	0431		TEL REL TW MDL96				
Total Rooms							
Total Bedrms	00						
Total Baths	0						
Heat/AC	01		HEAT/AC PKGS				
Frame Type	03		MASONRY				
Baths/Plumbing	00		NONE				
Ceiling/Wall	02		CEILING ONLY				
Rooms/Prtns	02		AVERAGE				
Wall Height	9						
% Conn Wall							

BAS

SLB

27

16

**OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)**

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value

**BUILDING SUB-AREA SUMMARY SECTION**

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	432	432	432	49.70	21,470
SLB	Slab	0	432	0	0.00	0
<b>Ttl. Gross Liv/Lease Area:</b>		<b>432</b>	<b>864</b>	<b>432</b>		<b>21,470</b>





CURRENT OWNER		TOPO.	UTILITIES	STRT./ROAD	LOCATION	CURRENT ASSESSMENT			
JACONETTE EDWARD F JR & JACONETTE KRISTIN L (SUR) 405 BRUSHY PLAIN RD		4 Rolling	5 Well	1 Paved	2 Suburban	Description	Code	Appraised Value	Assessed Value
			3 Public Sewer			UTL LAND	4-1	362,200	253,500
						UTL BLDG	4-2	177,400	124,200
						UTL OUTBL	4-3	1,800	1,300
BRANFORD, CT 06405 Additional Owners: Other ID: D02/000/003/00001/ CONDO BLDG CONDO UNIT CONDO FLOOR PARCEL DESC GIS ID: D02/000/003/00001									
SUPPLEMENTAL DATA HLDG TK SEPTIC SEWER DISTRICT CENSUS TR 1847 ASSOC PID#									
						Total		541,400	379,000

6014  
BRANFORD, CT  
  
**VISION**

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.	PREVIOUS ASSESSMENTS (HISTORY)								
JACONETTE EDWARD F JR & ADAMS MARSHA ADAMS MARSHA		0788/1038	11/18/2002	U	I		25	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
		442/ 252	12/22/1987	U	V			2019	4-1	253,500	2019	4-1	253,500	2018	4-1	253,500
			12/22/1987	U	V			2019	4-2	124,200	2019	4-2	124,200	2018	4-2	119,900
								2019	4-3	1,300	2019	4-3	1,300	2018	4-3	1,300
Total:										379,000	Total:			379,000	Total:	374,700

EXEMPTIONS				OTHER ASSESSMENTS				
Year	Type	Description	Amount	Code	Description	Number	Amount	Comm. Int.
Total:								

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD				
NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0050/A				

APPRAISED VALUE SUMMARY	
Appraised Bldg. Value (Card)	128,900
Appraised XF (B) Value (Bldg)	4,100
Appraised OB (L) Value (Bldg)	0
Appraised Land Value (Bldg)	0
Special Land Value	0
Total Appraised Parcel Value	541,400
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	541,400

NOTES									
DK BROWN IA 1STKLRDR3 BR2 BTHS BSMTR ECO=RESALE WDK - FAIR , LQ									

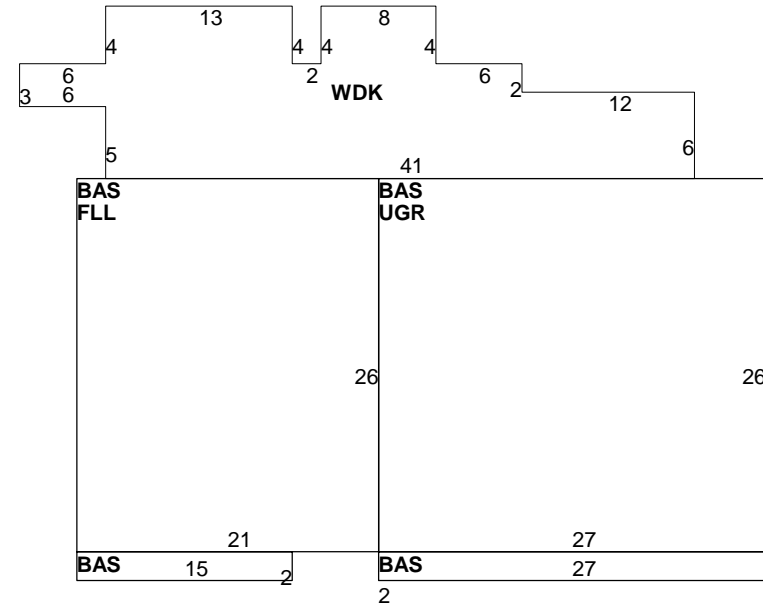
BUILDING PERMIT RECORD										VISIT/ CHANGE HISTORY					
Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments	Date	Type	IS	ID	Cd.	Purpose/Result	
									10/01/2019			SPB	11	Field Review	
									08/27/2019			ECS	37	Bldg Permit	
									01/07/2019			ECS	02	1st Callback	
									01/02/2019			ECS	01	Measured	
									10/15/2014			DV	11	Field Review	

LAND LINE VALUATION SECTION																			
B #	Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Value
3	043R	TEL REL TW MDL01	R-4				0.00 AC	0.00	1.0000	0	1.0000	1.00	0050	1.00			.00		0

CONSTRUCTION DETAIL				CONSTRUCTION DETAIL (CONTINUED)			
Element	Cd.	Ch.	Description	Element	Cd.	Ch.	Description
Style	08		Raised Ranch				
Model	01		Residential				
Grade	04		C +				
Stories	1		1 Story				
Occupancy	1						
Exterior Wall 1	14		Wood Shingle				
Exterior Wall 2							
Roof Structure	03		Gable/Hip				
Roof Cover	03		Asphalt				
Interior Wall 1	05		Drywall				
Interior Wall 2							
Interior Flr 1	14		Carpet				
Interior Flr 2							
Heat Fuel	02		Oil				
Heat Type	05		Hot Water				
AC Type	03		Central				
Total Bedrooms	03		3 Bedrooms				
Total Bthrms	2						
Total Half Baths	0						
Total Xtra Fixtrs							
Total Rooms	7		7 Rooms				
Bath Style	02		Average				
Kitchen Style	02		Average				
Cottage Cmplx							
Cottage Adj							

MIXED USE		
Code	Description	Percentage
043R	TEL REL TW MDL01	100

COST/MARKET VALUATION		
Adj. Base Rate:		97.96
Replace Cost		195,337
AYB		1975
Dep Code		A
Remodel Rating		
Year Remodeled		
Dep %		24
Functional Obslnc		0
External Obslnc		10
Cost Trend Factor		
Condition		
% Complete		
Overall % Cond		66
Apprais Val		128,900
Dep % Ovr		0
Dep Ovr Comment		
Misc Imp Ovr		0
Misc Imp Ovr Comment		
Cost to Cure Ovr		0
Cost to Cure Ovr Comment		



OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)												
Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
FPL2	FIREPLACE 1			B	1	5,000.00	1995		1		100	3,300
FPO	EXTRA FPL O			B	1	1,200.00	1995		1		100	800

BUILDING SUB-AREA SUMMARY SECTION						
Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	1,332	1,332	1,332	97.96	130,486
FLL	Finished Lower Level	410	546	410	73.56	40,165
UGR	Garage Under	0	702	211	29.44	20,670
WDK	Deck, Wood	0	406	41	9.89	4,016
<b>Ttl. Gross Liv/Lease Area:</b>		<b>1,742</b>	<b>2,986</b>	<b>1,994</b>		<b>195,337</b>



DOCKET NO. 44

AN APPLICATION SUBMITTED BY THE SOUTHERN : CONNECTICUT SITING  
NEW ENGLAND TELEPHONE COMPANY FOR A :  
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY : COUNCIL  
AND PUBLIC NEED FOR THE CONSTRUCTION,  
MAINTENANCE AND OPERATION OF FACILITIES TO  
PROVIDE CELLULAR SERVICE IN NEW HAVEN COUNTY : July 24, 1984

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to the Southern New England Telephone Company for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Jasudowich tract, Brushy Plain Road, Branford, Connecticut;  
Town of Guilford tract, Tanner Marsh Road, Guilford, Connecticut;  
Bridgeport Avenue, Milford, Connecticut;  
Quagliaro tract, Farmdale Drive, Waterbury, Connecticut;  
Pease Road, Woodbridge, Connecticut; and  
Dwight Street, North Haven, Connecticut.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions:

1. The towers including antennas shall be no taller than necessary to provide the proposed service and in no event shall exceed
  - a) 167' at the Branford site,
  - b) 167' at the Guilford site,
  - c) 117' at the Milford site,
  - d) 167' at the Waterbury site,
  - e) 167' at the Woodbridge site,
  - f) 167' at the North Haven site;
2. A fence not lower than eight feet shall surround each tower and its associated equipment;

3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities;
4. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the facilities, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing;
5. Unless necessary to comply with condition number six, below, no lights shall be installed on any of these towers;
6. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations;
7. The applicant shall submit a development and management plan (D&M) for the Branford, Milford, Woodbridge, and North Haven sites pursuant to sections 16-50j-85 through 16-50j-87 of the regulations of state agencies, except that irrelevant items in section 16-50j-86 need only be identified as such. The D&M plans shall include appropriate evergreen screening of the sites, erosion control measures, reseeding plans, and tree removal plans. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites;
8. Construction activities shall take place during daylight working hours;
9. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed, or reapplication for any new use shall be made to the Connecticut

Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction;

10. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, New Haven Register, and the Waterbury Republican.

The parties to this proceeding are

The Southern New England Telephone Company (Applicant)  
Room 314  
227 Church Street  
New Haven, Connecticut 06506

ATTENTION: Mr. Peter J. Tyrrell (its attorney)  
Senior Attorney

Town of Hamden represented by:  
Peter F. Villano, Mayor  
Shirley Gonzales, Town Planner  
Mr. Hugh Manke, Esquire  
Office of the Town Attorney  
Memorial Town Hall  
2372 Whitney Avenue  
Hamden, Connecticut 06518

Inland Wetlands Agency represented by:  
Town of Woodbridge  
Robert J. Klancko  
Chairman  
Town Hall  
11 Meeting House Lane  
Woodbridge, Connecticut 06525

Town Plan and Zoning  
Commission  
Town of Woodbridge

represented by:

Norman Fineberg  
Chairman  
Town Hall  
11 Meeting House Lane  
Woodbridge, Connecticut 06525

The Honorable Peter M. Lerner  
State Representative  
State of Connecticut  
House of Representatives  
State Capitol  
Hartford, Connecticut 06115

John Menta  
Felicia Tencza

represented by:

Ms. Felicia Tencza  
580 Gaylord Mountain Road  
Hamden, Connecticut 06518

Ms. Renee Robinson  
265 Blue Trail  
Hamden, Connecticut 06518

(service waived)

Irene L. Wong  
Edson H. Mount  
Dr. & Mrs. H.M. Fiskio  
Dr. & Mrs. Alexander Gottschalk

represented by:

Dr. & Mrs. Alexander Gottschalk  
230 Six Rod Highway  
Hamden, Connecticut 06518

The Sleeping Giant Park Association

represented by:

Mr. Dag Pfeiffer  
President  
Box 14  
Quinnipiac College  
Hamden, Connecticut 06518

West Rock Ridge Park Association

represented by:

Mr. William L. Dohney, Jr., D.D.S.  
President  
220 Mountain Road  
Hamden, Connecticut 06514

Sierra Club

represented by:

Ms. M. Kim Yanoshick  
Executive Director  
Hartford Chapter  
118 Oak Street  
Hartford, Connecticut 06106

Quinnipiac College

represented by:

Mr. Richard A. Terry  
President  
Hamden, Connecticut 06518

Guilford Conservation Commission

represented by:

Ms. Carolyn K. Evans  
Chairman  
Town Hall  
Park Street  
Guilford, Connecticut 06437

Mrs. Barbara R. Peterson  
Mary & Phil Faust  
Anita L. & Richard M. Sullivan

represented by:

Anita L. & Richard M. Sullivan  
315 Chestnut Lane  
Hamden, Connecticut 06518

Mrs. Pauline H. Hoff

represented by:

Herbert L. Emanuelson, Jr.  
Emanuelson and Wynne  
205 Church Street  
New Haven, Connecticut 06510

Hamden League of Women Voters

represented by:

Mrs. Sherrill Zoller  
605 West Woods Road  
Hamden, Connecticut 06518  
(service waived)

Joan Rosenberg  
230 Ridewood Avenue  
Hamden, Connecticut 06517

Mr. & Mrs. Richard Sykes  
110 Blue Trail  
Hamden, Connecticut 06518

Thomas & Claudia Sullivan, Jr.  
100 Blue Trail  
Hamden, Connecticut 06518

Mr. William N. Pantalone  
27 Pease Road  
Woodbridge, Connecticut 06525

(service waived)

INTERVENORS

Metromedia TeleCommunications  
Nutmeg Telecommunications, Inc.  
CSI of New Haven  
CSI of Stamford  
Cellular Communications, Inc.  
LIN Cellular Corp.  
Cellular Mobile Services  
Maxcell TeleCommunications, Inc.  
Mobile Cellular Telephone, Inc.  
Cellular Dynamics  
Connecticut Corridor Cellular  
Chase/Post Cellular

represented by:

Dwight A. Johnson  
Murtha, Cullina, Richter  
and Pinney  
101 Pearl Street  
P.O. Box 3197  
Hartford, Connecticut 06103-0197



C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:


Dated at New Britain, Connecticut, this 24th day of July, 1984.

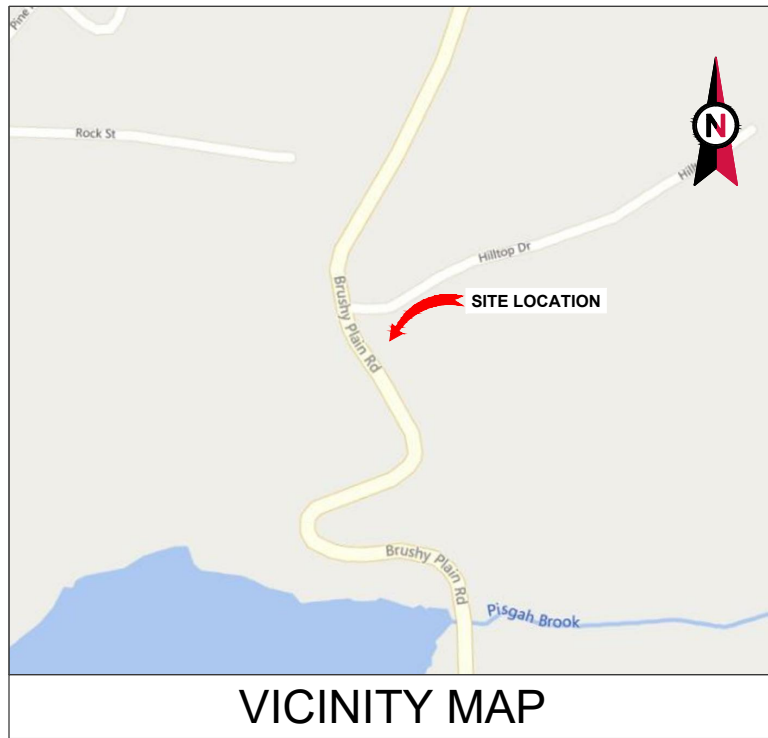
<u>Council Members</u>	<u>Vote Cast</u>
_____) Gloria Dibble Pond Chairperson	Absent
_____) Commissioner John Downey Designee: Commissioner Peter G. Boucher	Absent
<i>Brian Emerick</i> _____) Commissioner Stanley Pac Designee: Brian Emerick	<del>Yes</del> Absent Abstain
<i>Owen L. Clark</i> _____) Owen L. Clark	Yes
<i>Fred J. Doocy</i> _____) Fred J. Doocy	Yes
<i>Mortimer A. Gelston</i> _____) Mortimer A. Gelston	Yes
<i>James G. Horsfall</i> _____) James G. Horsfall	Yes
_____) Janet Sitty	Absent
<i>Colin C. Tait</i> _____) Colin C. Tait Acting Chairperson	Yes

STATE OF CONNECTICUT            )  
  :  
COUNTY OF HARTFORD            )            ss.            New Britain, July 24, 1984

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

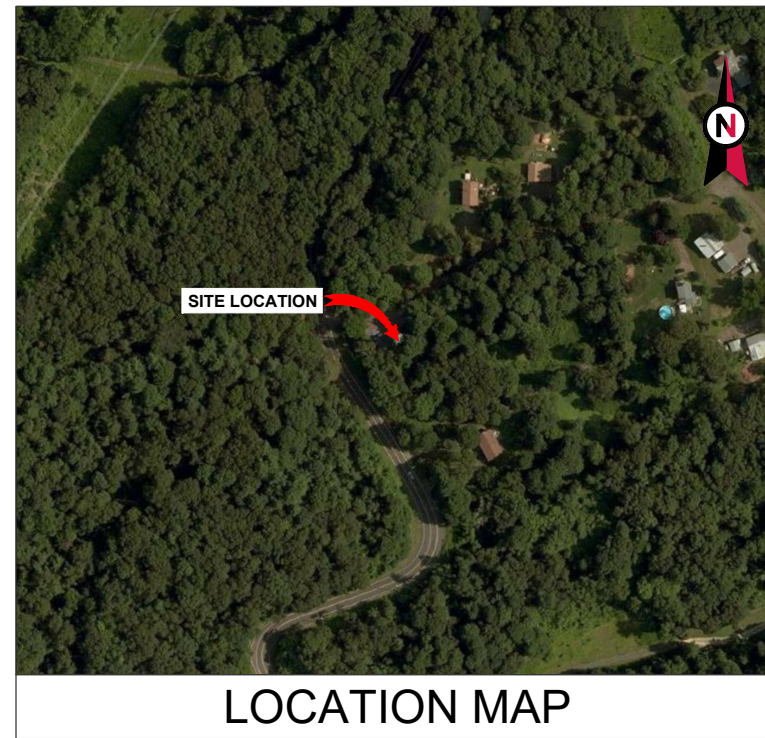
ATTEST:

  
\_\_\_\_\_  
Christopher S. Wood, Executive Director  
Connecticut Siting Council



**AMERICAN TOWER®**

ATC SITE NAME: BRANFORD CT 6  
 ATC SITE NUMBER: 302484  
 T-MOBILE SITE NAME: CT102/BRANFORD  
 AMERICANTWR  
 T-MOBILE SITE NUMBER: CTNH102C  
 SITE ADDRESS: 405 BRUSHY PLAIN RD  
 BRANFORD, CT 06405



LOCATION MAP

**T-MOBILE ANCHOR ANTENNA AMENDMENT PLAN  
 67D5A998E CONFIGURATION**



**Colliers Engineering & Design**

www.colliersengineering.com  
 Doing Business as MASER  
 MADISON  
 135 New Road  
 Madison, CT 06443  
 Phone: 860.395.0055  
 COLLIERS ENGINEERING & DESIGN CT, P.C.  
 DOING BUSINESS AS MASER CONSULTING

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/13/21
0	FOR CONSTRUCTION	RMD	09/10/21

ATC SITE NUMBER:  
**302484**  
 ATC SITE NAME:  
**BRANFORD CT 6**  
 T-MOBILE SITE NAME:  
**CT102/BRANFORD  
 AMERICANTWR**  
 SITE ADDRESS:  
 405 BRUSHY PLAIN RD  
 BRANFORD, CT 06405

SEAL:  
  
 Petros Tsoukalas  
 CONNECTICUT LICENSED PROFESSIONAL ENGINEER  
 LICENSE NUMBER: 32577  
 COLLIERS ENGINEERING & DESIGN CT, P.C.  
 Digitally signed by Petros Tsoukalas  
 Date: 2021.09.10 16:13:45 -0400



DATE DRAWN: 08/12/21  
 ATC JOB NO: 13711882\_G3  
 CUSTOMER ID: CT102/BRANFORD  
 AMERICANTWR  
 CUSTOMER #: CTNH102C

**TITLE SHEET**

SHEET NUMBER:  
**G-001**  
 REVISION:  
**0**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.  1. 2018 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE 2015 IBC. 2. 2017 NATIONAL ELECTRICAL CODE - NFPA 70 3. 2015 NFPA 101 4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION 360-10 5. AMERICAN CONCRETE INSTITUTE 6. 2017 NATIONAL ELECTRICAL SAFETY CODE (NESC) 7. TIA 607 FOR GROUNDING 8. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81 IEEE C2 9. TELCORDIA GR-1275 10. ANSI T1.311	<u>SITE ADDRESS:</u> 405 BRUSHY PLAIN RD BRANFORD, CT 06405 COUNTY: NEW HAVEN <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.31680556 LONGITUDE: -72.8197 GROUND ELEVATION: 240' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (6) ANTENNA(s), (3) RRH(s), (3) TTA(s), (6) COAX CABLE(s) AND (1) HYBRID CABLE(s)  INSTALL (3) ANTENNA(s), (6) RRH(s) AND (1) HYBRID CABLE(s)  EXISTING (3) ANTENNA(s) AND (3) HYBRID CABLE(s) TO REMAIN <u>GROUND WORK:</u> REMOVE (1) S12000  INSTALL (1) ENCLOSURE 6160 AND (1) B160  EXISTING (1) RBS 6131 TO REMAIN	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u>  <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801  <u>ENGINEER:</u> COLLIERS ENGINEERING & DESIGN CT, P.C. 135 NEW ROAD MADISON, CT 06443  PROJECT #: 21904303A  <u>PROPERTY OWNER:</u> KRISTEN JACONETTE 405 BRUSHY PLAIN RD BRANFORD, CT 06405	<u>PROJECT NOTES</u> 1. THE FACILITY IS UNMANNED. 2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. 3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. 4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. 5. HANDICAP ACCESS IS NOT REQUIRED. 6. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).	G-001	TITLE SHEET	0	09/10/21	DEH
<u>UTILITY COMPANIES</u>  POWER COMPANY: EVERSOURCE PHONE: (877) 659-6326  TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (899) 376-6843	<u>PROJECT TEAM</u>  <u>APPLICANT:</u> T-MOBILE	<u>PROJECT LOCATION DIRECTIONS</u>  FROM HARTFORD TAKE I-91 SOUTH TO I 95 NORTH. TAKE EXIT 24, TURN LEFT AT END OF RAMP. FOLLOW FOR ABOUT 2 MILES. ROAD WILL WIND UP A HILL AND THE TOWER WILL BE SEEN ON THE RIGHT. TURN RIGHT ONTO HILLTOP ROAD. COMPOUND IS AT CORNER OF BRUSHY PLAIN RD. AND HILLTOP RD. ACCESS SITE FROM HILLTOP ROAD.	G-002	GENERAL NOTES	0	09/10/21	DEH
			C-101	DETAILED SITE PLAN	0	09/10/21	DEH
			C-102	DETAILED GROUND PLAN	0	09/10/21	DEH
			C-201	TOWER ELEVATION	0	09/10/21	DEH
			C-401	ANTENNA INFORMATION & SCHEDULE	0	09/10/21	DEH
			C-501	CONSTRUCTION DETAILS	0	09/10/21	DEH
			E-501	GROUNDING DETAILS	0	09/10/21	DEH
			R-601	SUPPLEMENTAL			
			R-602	SUPPLEMENTAL			
			R-603	SUPPLEMENTAL			
			R-604	SUPPLEMENTAL			
			R-605	SUPPLEMENTAL			
			R-606	SUPPLEMENTAL			
			R-607	SUPPLEMENTAL			



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**GENERAL CONSTRUCTION NOTES:**

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
  - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
  - B. AC/TELCO INTERFACE BOX (PPC)
  - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
  - D. TOWERS, MONOPOLES
  - E. TOWER LIGHTING
  - F. GENERATORS & LIQUID PROPANE TANK
  - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
  - H. ANTENNAS (INSTALLED BY OTHERS)
  - I. TRANSMISSION LINE
  - J. TRANSMISSION LINE JUMPERS
  - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
  - L. TRANSMISSION LINE GROUND KITS
  - M. HANGERS
  - N. HOISTING GRIPS
  - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSIEIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

**SPECIAL CONSTRUCTION**

**ANTENNA INSTALLATION NOTES:**

1. WORK INCLUDED:
  - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
  - B. INSTALL ANTENNA AS INDICATE ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
  - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
  - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.
  - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
  - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
  - G. ANTENNA AND COAXIAL CABLE GROUNDING:
2. ALL EXTERIOR #6 GREED GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

**ELECTRICAL NOTES:**

1. ELECTRICAL DESIGN SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. STRUCTURAL DESIGN SHALL BE PERFORMED BY GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL AND STATE CODES AND NATIONAL ELECTRICAL CODE.
2. ALL SUGGESTED ELECTRICAL ELEMENTS (SUCH AS BREAKER SIZES, WIRE SIZES, CONDUITS SIZES ARE FOR ZONING PURPOSES ONLY. IT IS THE RESPONSIBILITY TO OF THE ELECTRICAL CONTRACTOR TO CONFIRM COMPLIANCE WITH LOCAL ELECTRICAL CODES AND PASS ALL APPLICABLE AND NECESSARY INSPECTIONS. IN SOME EVENTS, IT MAY BE NECESSARY TO PERFORM AN ELECTRICAL LOAD STUDY TO VERIFY THE CAPACITY OF THE EXISTING SERVICE. THIS IS NOT THE RESPONSIBILITY OF CONCORDIA. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
3. CONTRACTOR SHALL FIELD LOCATE ALL BELOW GRADE GROUND LINES AND UTILITY LINES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR RELOCATION OF ALL UTILITIES AND GROUND LINES THAT MAY BECOME DISTURBED OR CONFLICTING IN THE COURSE OF CONSTRUCTION.

**ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.**



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/13/21
0	FOR CONSTRUCTION	RMD	09/10/21

ATC SITE NUMBER:  
**302484**

ATC SITE NAME:  
**BRANFORD CT 6**

T-MOBILE SITE NAME:  
**CT102/BRANFORD AMERICANTWR**

SITE ADDRESS:  
405 BRUSHY PLAIN RD  
BRANFORD, CT 06405

SEAL:

**Petros Tsoukalas**  
 CONNECTICUT LICENSED PROFESSIONAL ENGINEER  
 LICENSE NUMBER: 32577  
 COLLIERS ENGINEERING & DESIGN CT, P.C.  
 Digitally signed by Petros Tsoukalas  
 Date: 2021.09.10 16:13:53-04'00'



DATE DRAWN:	08/12/21
ATC JOB NO:	13711882_G3
CUSTOMER ID:	CT102/BRANFORD AMERICANTWR
CUSTOMER #:	CTNH102C

GENERAL NOTES	
SHEET NUMBER: <b>G-002</b>	REVISION: <b>0</b>

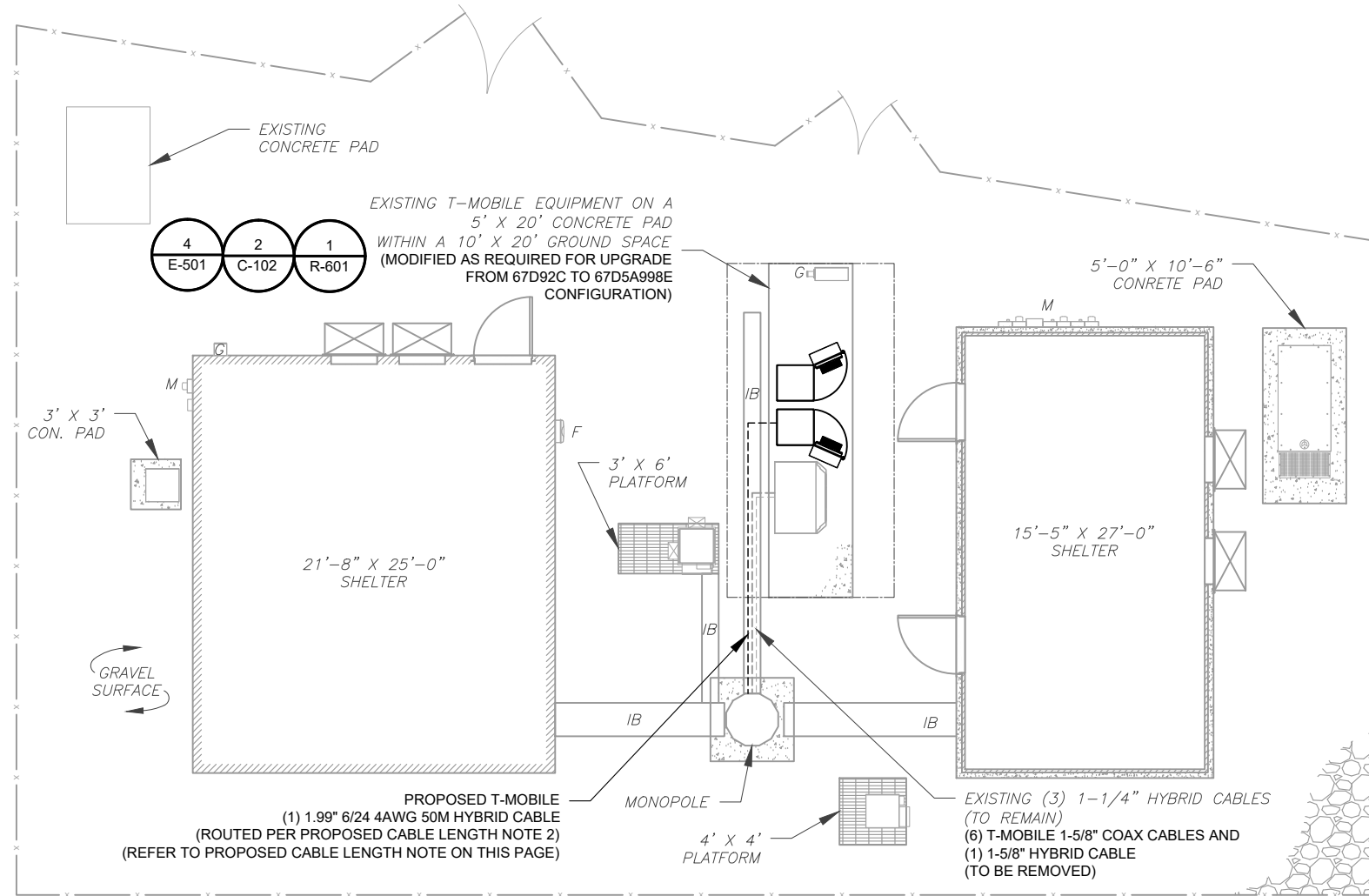
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**SITE PLAN NOTES:**

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.

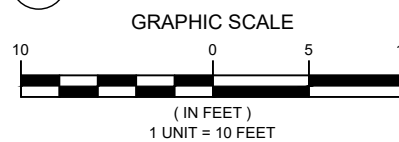
LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
— x —	CHAINLINK FENCE



**PROPOSED CABLE LENGTH:**

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **184'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES). CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

**1 DETAILED SITE PLAN**



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A	PRELIM	DEH	08/13/21
0	FOR CONSTRUCTION	RMD	09/10/21

ATC SITE NUMBER:  
**302484**

ATC SITE NAME:  
**BRANFORD CT 6**

T-MOBILE SITE NAME:  
**CT102/BRANFORD AMERICANTWR**

SITE ADDRESS:  
405 BRUSHY PLAIN RD  
BRANFORD, CT 06405

SEAL:

**Petros Tsoukalas**  
 CONNECTICUT LICENSED PROFESSIONAL ENGINEER  
 LICENSE NUMBER: 32577  
 COLLIERS ENGINEERING & DESIGN CT, P.C.  
 Digitally signed by Petros Tsoukalas  
 Date: 2021.09.10 16:13:53-04'00'



DATE DRAWN:	08/12/21
ATC JOB NO:	13711882_G3
CUSTOMER ID:	CT102/BRANFORD AMERICANTWR
CUSTOMER #:	CTNH102C

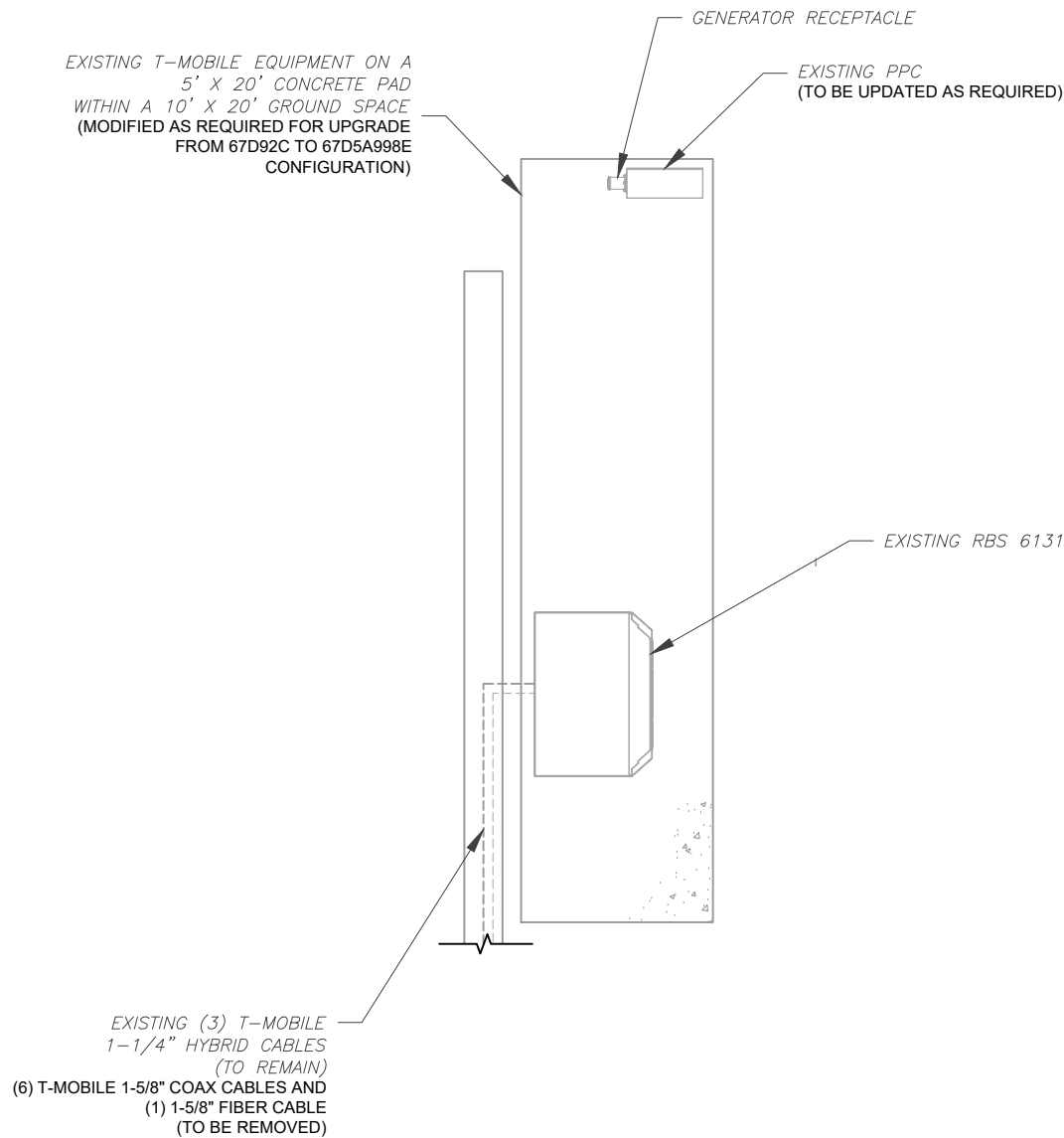
<b>DETAILED SITE PLAN</b>	
SHEET NUMBER: <b>C-101</b>	REVISION: <b>0</b>

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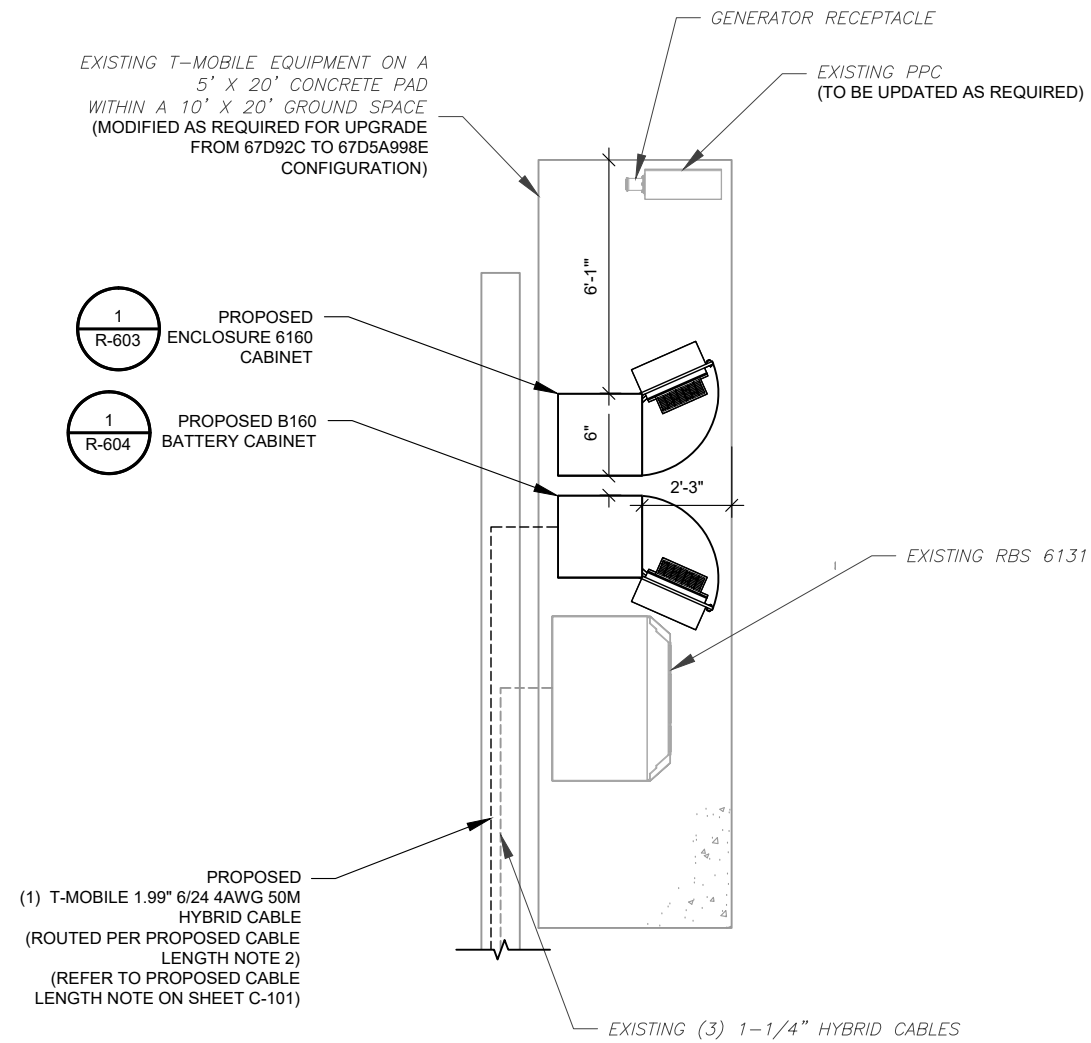
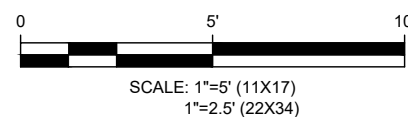
**SITE PLAN NOTES:**

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.

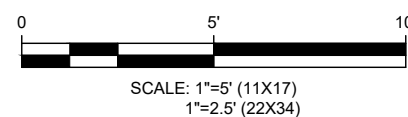
T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



1 EXISTING GROUND EQUIPMENT LAYOUT



2 PROPOSED GROUND EQUIPMENT LAYOUT



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BRANFORD, CT 06405

SEAL:

**Petros Tsoukalas**  
CONNECTICUT LICENSED PROFESSIONAL ENGINEER  
LICENSE NUMBER: 32577  
COLLIERS ENGINEERING & DESIGN CT, P.C.  
C.T. JRC.00001

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Date: 2021.09.10 16:13:54 -0400



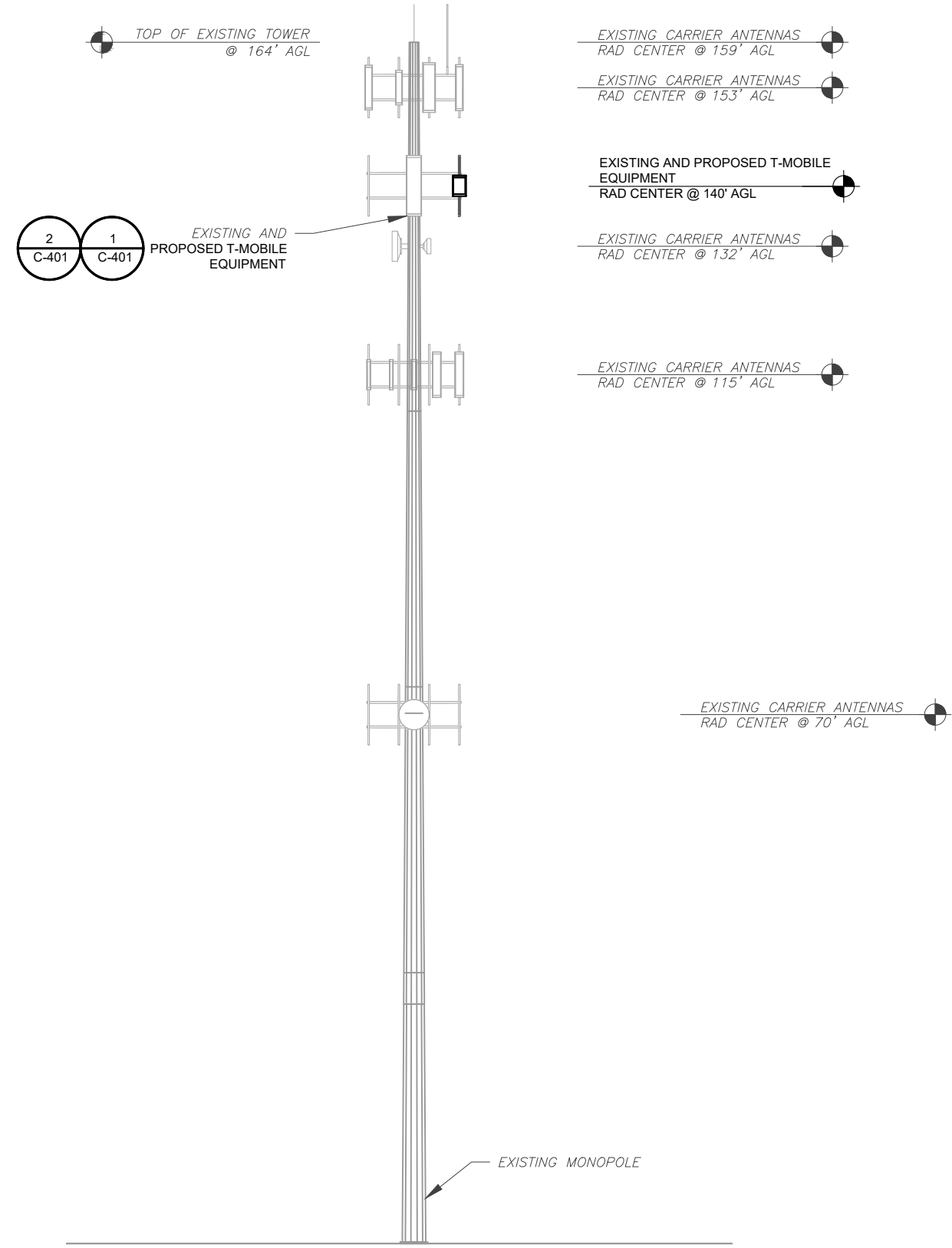
DATE DRAWN:	08/12/21
ATC JOB NO:	13711882_G3
CUSTOMER ID:	CT102/BRANFORD AMERICANTWR
CUSTOMER #:	CTNH102C

**DETAILED GROUND PLAN**

SHEET NUMBER: <b>C-102</b>	REVISION: <b>0</b>
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PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 08/11/21, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



1 TOWER ELEVATION  
SCALE: N.T.S.

- TOWER NOTE:**
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
  - WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
  - ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
  - TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)



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ATC SITE NUMBER:  
302484

ATC SITE NAME:  
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CT102/BRANFORD  
AMERICANTWR

SITE ADDRESS:  
405 BRUSHY PLAIN RD  
BRANFORD, CT 06405

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 LICENSE NUMBER: 32577  
 COLLIERS ENGINEERING & DESIGN CT, P.C.  
 Digitally signed by Petros Tsoukalas  
 Date: 2021.09.10 16:13:54 -0400



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ATC JOB NO:	13711882_G3
CUSTOMER ID:	CT102/BRANFORD AMERICANTWR
CUSTOMER #:	CTNH102C

<b>TOWER ELEVATION</b>	
SHEET NUMBER: <b>C-201</b>	REVISION: <b>0</b>

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AMERICANTWR

SITE ADDRESS:  
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BRANFORD, CT 06405

SEAL:



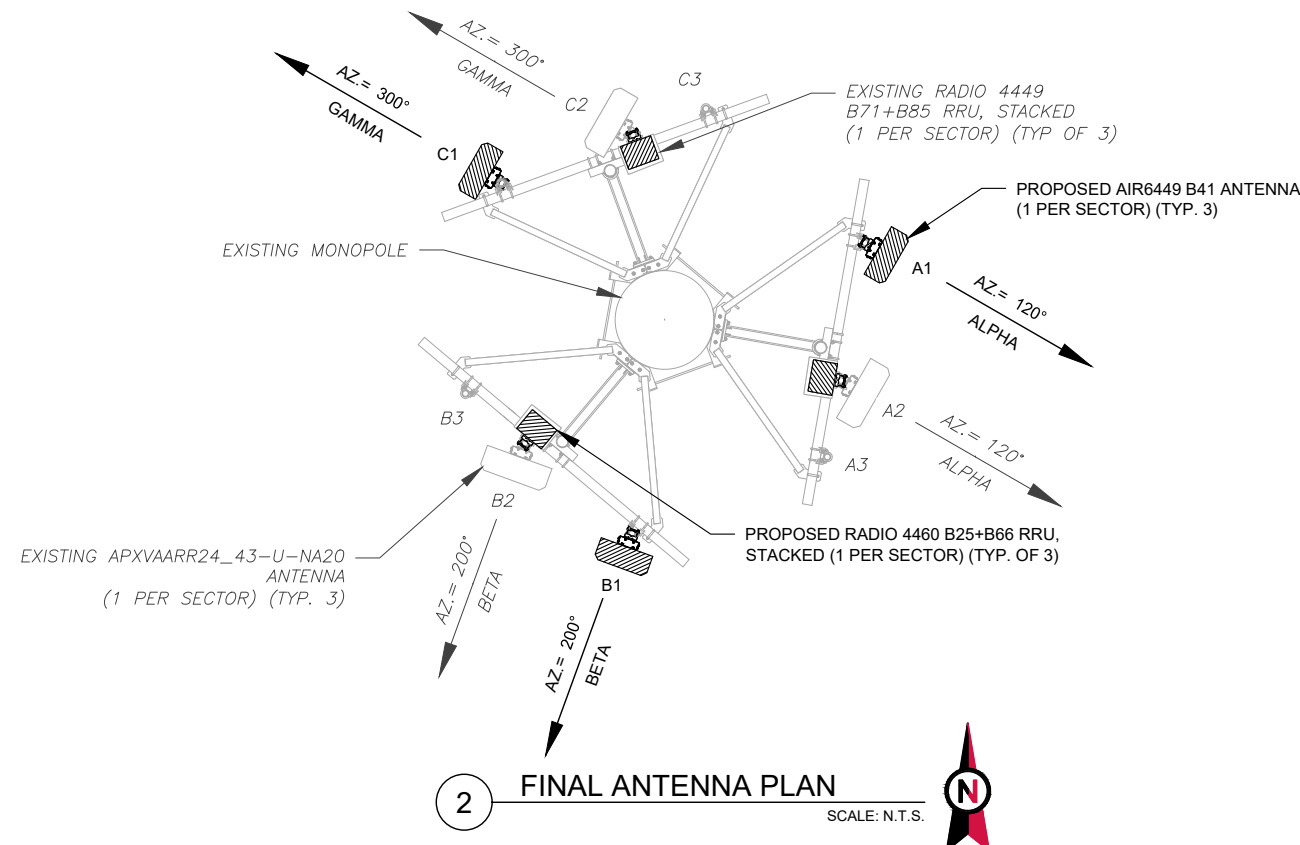
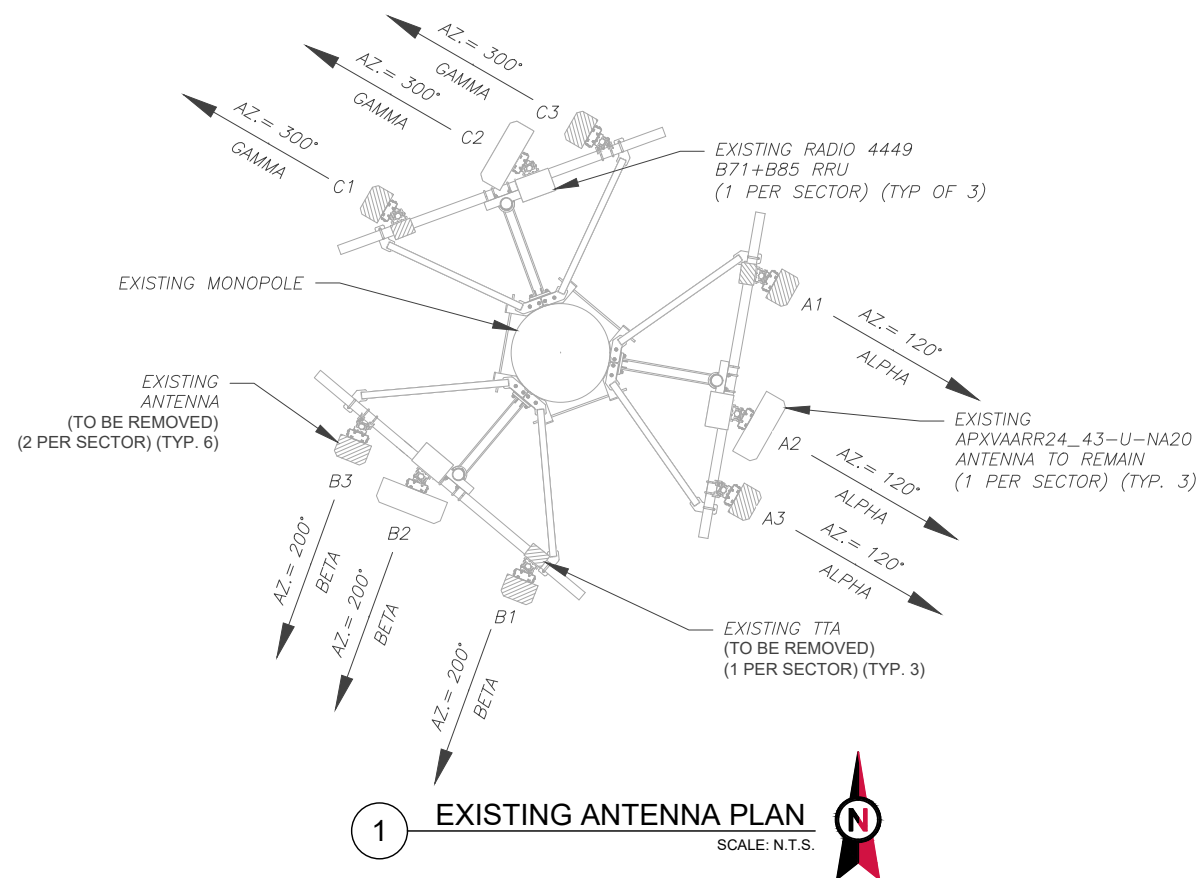
DATE DRAWN:	08/12/21
ATC JOB NO:	13711882_G3
CUSTOMER ID:	CT102/BRANFORD AMERICANTWR
CUSTOMER #:	CTNH102C

**ANTENNA INFORMATION & SCHEDULE**

SHEET NUMBER:  
**C-401**

REVISION:  
**0**

ATC IS ANALYZING THE ANTENNA MOUNT UNDER A SEPARATE PROJECT. CONSTRUCTION IS NOT TO PROCEED UNTIL THE MOUNT ANALYSIS IS COMPLETE AND INDICATES THE ADDITIONAL LOADING DOES NOT OVERSTRESS THE MOUNT.



EXISTING ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	120°	A1	AIR 21 B4A B2P	L1900/G1900/U2100	0/8/8	RMV	KRY 112 144/1 TMA	RMV
			A2	APXVAARR24_43-U-NA 20	L700/L600/N600	0/2/2	RMN	Radio 4449 B12,B71	RMV
			A3	AIR 21 B4A B2P	L2100	0/7	RMV	-	-
BETA	140'	200°	B1	AIR 21 B4A B2P	L1900/G1900/U2100	0/8/8	RMV	KRY 112 144/1 TMA	RMV
			B2	APXVAARR24_43-U-NA 20	L700/L600/N600	0/2/2	RMN	Radio 4449 B12,B71	RMV
			B3	AIR 21 B4A B2P	L2100	0/7	RMV	-	-
GAMMA	140'	300°	C1	AIR 21 B4A B2P	L1900/G1900/U2100	0/8/8	RMV	KRY 112 144/1 TMA	RMV
			C2	APXVAARR24_43-U-NA 20	L700/L600/N600	0/2/2	RMN	Radio 4449 B12,B71	RMV
			C3	AIR 21 B4A B2P	L2100	0/7	RMV	-	-

**NOTES**

- CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

**STATUS ABBREVIATIONS**

RMV: TO BE REMOVED  
 RMN: TO REMAIN  
 REL: TO BE RELOCATED  
 ADD: TO BE ADDED

**CABLE LENGTHS FOR JUMPERS**

JUNCTION BOX TO RRU: 15'  
 RRU TO ANTENNA: 10'

FINAL ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	120°	A1	AIR6449 B41	5G	0/0	ADD	-	-
			A2	APXVAARR24_43-U-NA 20	L700/L600/N600	0/3/3/3	RMN	RADIO 4449 B71 B85A RADIO 4460 B25+B66	ADD
			A3	-	-	-	-	-	-
BETA	140'	200°	B1	AIR6449 B41	5G	0/0	ADD	-	-
			B2	APXVAARR24_43-U-NA 20	L700/L600/N600	0/3/3/3	RMN	RADIO 4449 B71 B85A RADIO 4460 B25+B66	ADD
			B3	-	-	-	-	-	-
GAMMA	140'	300°	C1	AIR6449 B41	5G	0/0	ADD	-	-
			C2	APXVAARR24_43-U-NA 20	L700/L600/N600	0/3/3/3	RMN	RADIO 4449 B71 B85A RADIO 4460 B25+B66	ADD
			C3	-	-	-	-	-	-

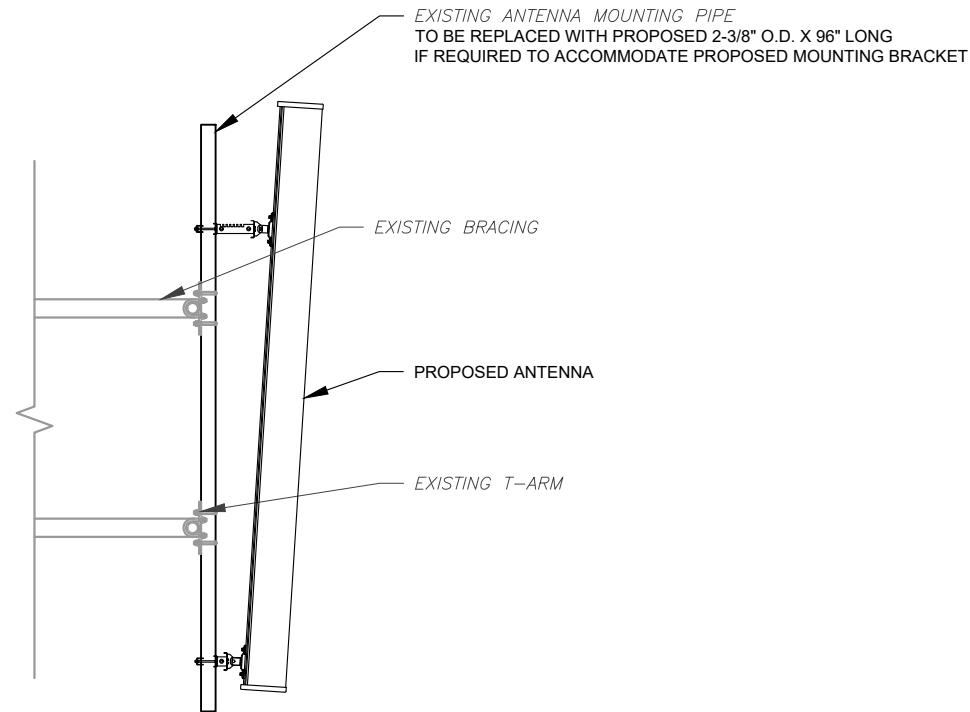
EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	(1) 1-5/8"	RMV
-	-	-	(3) 1-1/4"	RMN

**3 EQUIPMENT SCHEDULES**

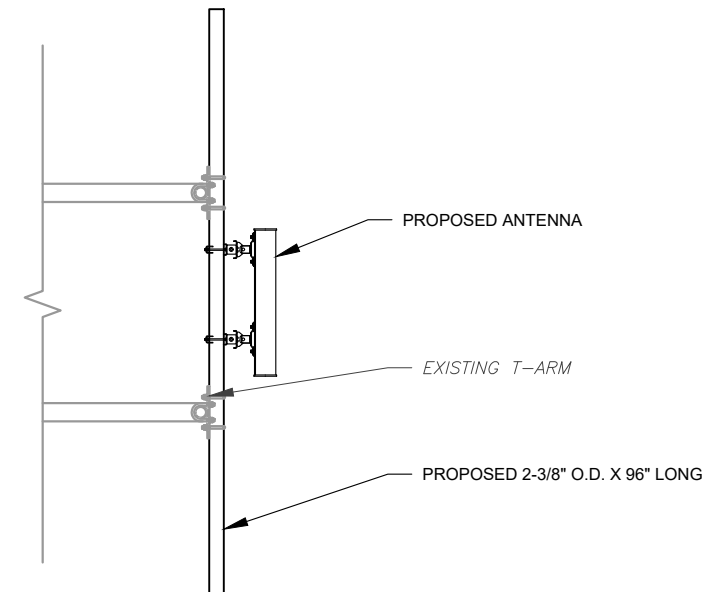
FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 1-1/4"	RMN
-	-	-	(1) 1.99"	ADD

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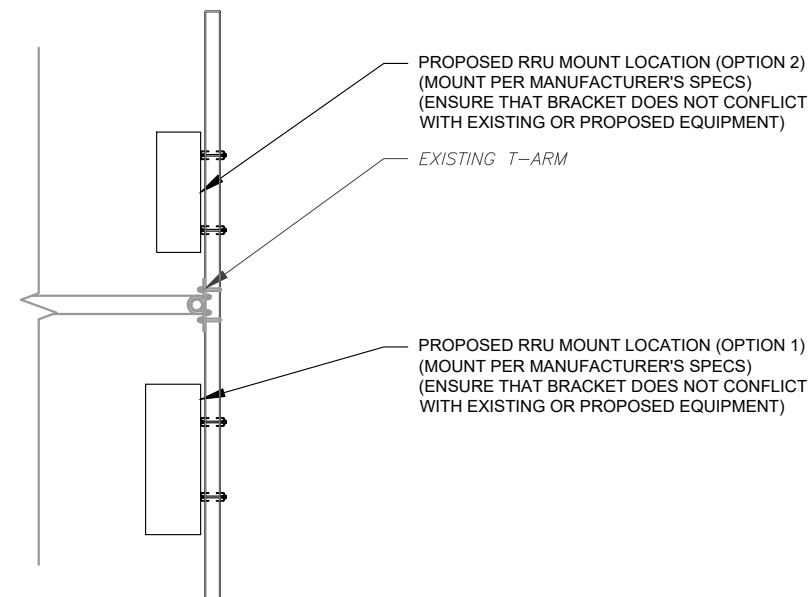




1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



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T-MOBILE SITE NAME:  
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C.T. J.P.C. 00001  
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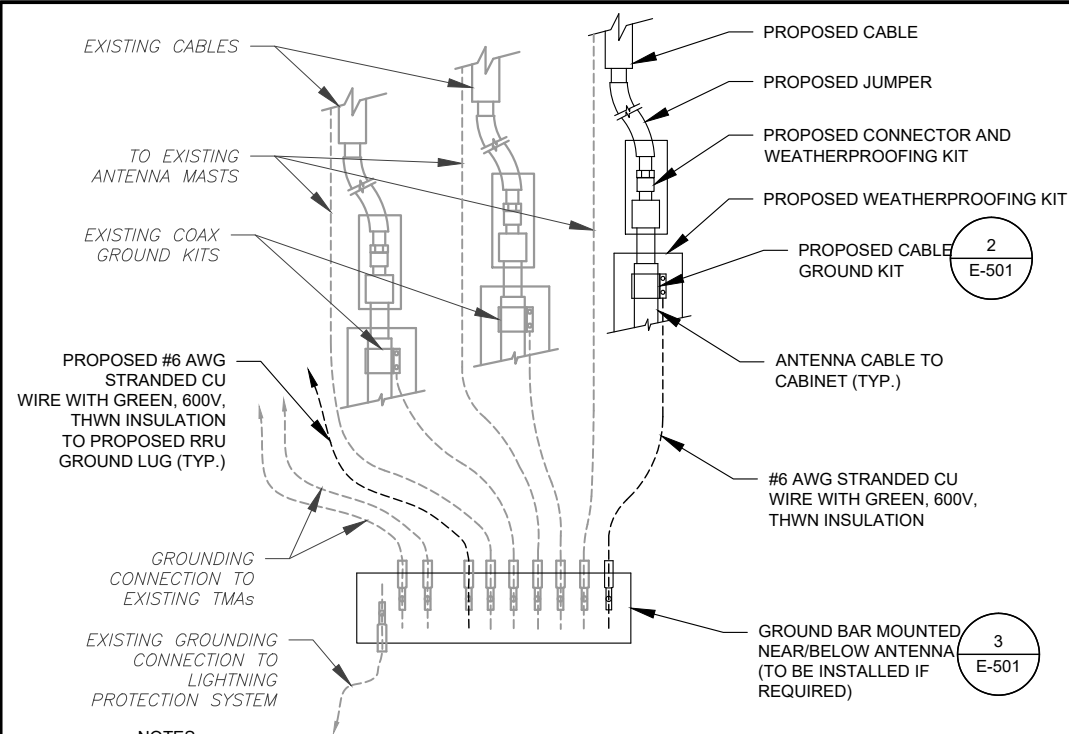
DATE DRAWN:	08/12/21
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CUSTOMER ID:	CT102/BRANFORD AMERICANTWR
CUSTOMER #:	CTNH102C

CONSTRUCTION  
DETAILS

SHEET NUMBER:  
**C-501**

REVISION:  
**0**

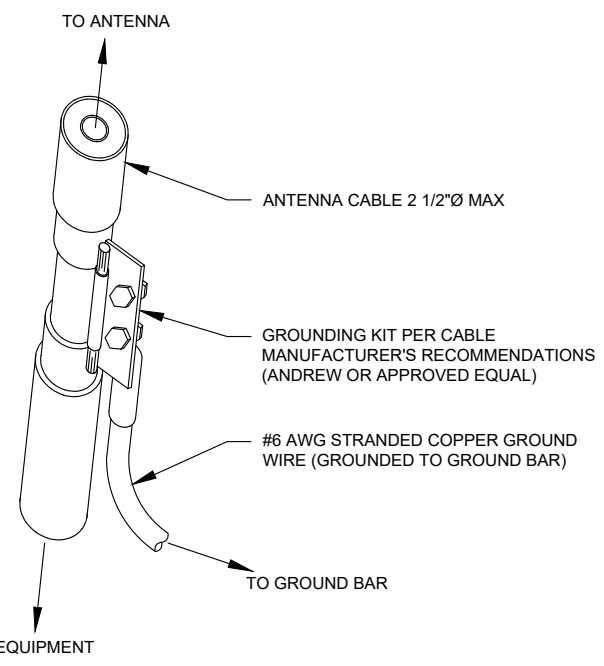
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**NOTES:**

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

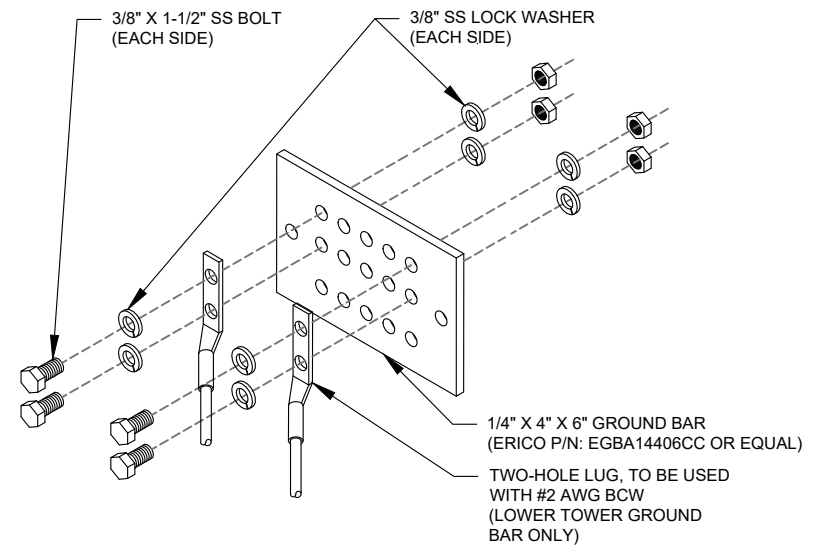
**1 TYPICAL ANTENNA GROUNDING DIAGRAM**  
SCALE: N.T.S.



**GROUND KIT NOTES:**

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

**2 CABLE GROUND KIT CONNECTION DETAIL**  
SCALE: N.T.S.



**GROUND BAR NOTES:**

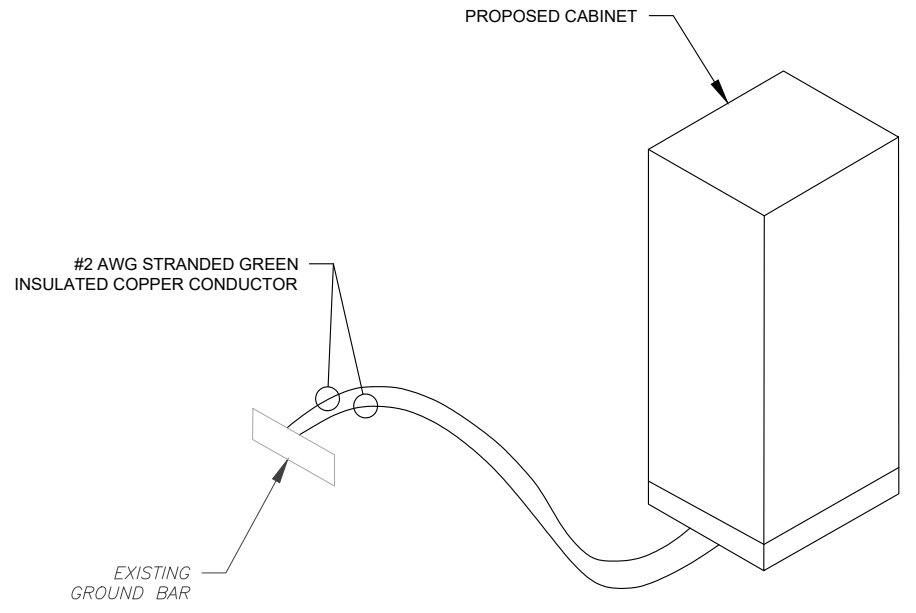
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

**3 TOWER GROUND BAR DETAIL**  
SCALE: N.T.S.

**ELECTRICAL NOTES:**

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"



**4 CABINET GROUNDING DETAIL**  
SCALE: N.T.S.



**Colliers Engineering & Design**

www.colliersengineering.com  
 Doing Business as MASER  
 MADISON  
 135 New Road  
 Madison, CT 06443  
 Phone: 860.395.0055  
 COLLIER'S ENGINEERING & DESIGN CT, P.C.  
 DOING BUSINESS AS MASER CONSULTING

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/13/21
0	FOR CONSTRUCTION	RMD	09/10/21

ATC SITE NUMBER:  
**302484**  
 ATC SITE NAME:  
**BRANFORD CT 6**  
 T-MOBILE SITE NAME:  
**CT102/BRANFORD AMERICANTWR**  
 SITE ADDRESS:  
 405 BRUSHY PLAIN RD  
 BRANFORD, CT 06405

SEAL:  
  
**Petros Tsoukalas**  
 CONNECTICUT LICENSED PROFESSIONAL ENGINEER  
 LICENSE NUMBER: 32577  
 COLLIER'S ENGINEERING & DESIGN CT, P.C.  
 Digitally signed by Petros Tsoukalas  
 Date: 2021.09.10 16:13:54 -0400



DATE DRAWN:	08/12/21
ATC JOB NO:	13711882_G3
CUSTOMER ID:	CT102/BRANFORD AMERICANTWR
CUSTOMER #:	CTNH102C

**GROUNDING DETAILS**

SHEET NUMBER:  
**E-501**  
 REVISION:  
**0**

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7/26/2021

CTNH102C\_Anchor\_8\_draft\_2021-07-26

<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
---	--

CTNH102C\_Anchor\_8\_draft

Print Name: Preliminary (RFDS\_for\_Scoping)  
PORs: Anchor\_Phase 3  
Radio Upgrade\_CMP4 AIR32

Section 5 - RAN Equipment

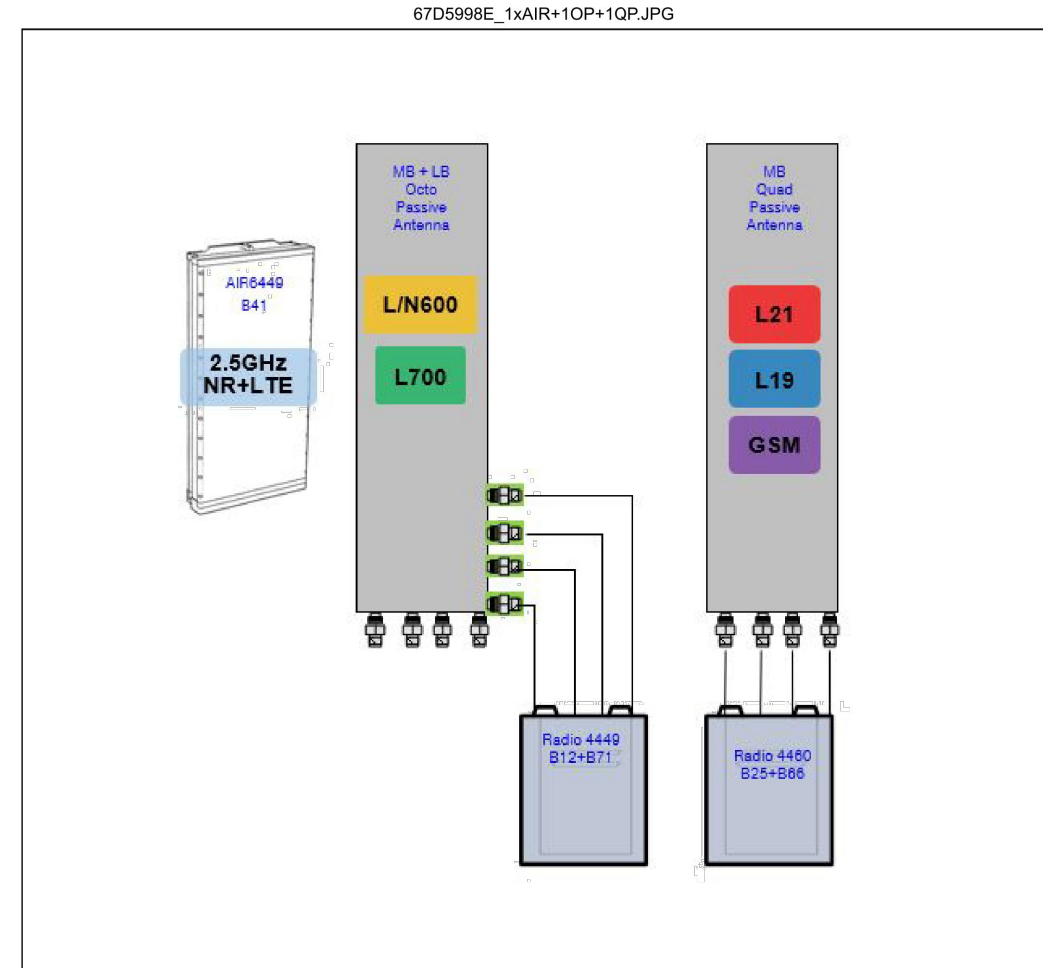
Existing RAN Equipment		
Template: 67D92C Outdoor		
Enclosure	1	2
Enclosure Type	RBS 6131	S12000 Outdoor
Baseband	DUW30 U2100 DUW30 DUG20 G1900 BB 6630 L1900 L2100 BB 6630 L700 L600 N600	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 3) Ericsson 9x18 HCS *Select Length*	
Radio	RU22 (x 6) U2100	

Proposed RAN Equipment			
Template: 67D5A998E Outdoor			
Enclosure	1	2	3
Enclosure Type	RBS 6131	Enclosure 6160	B160
Baseband	DUW30 U2100 DUG20 G1900 BB 6630 L2100 L1900 BB 6630 L700 L600 N600	BB 6648 L2500 N2500	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 3)	Ericsson Hybrid Trunk 6/24 4AWG 50m PSU 4813	
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

- Nortel Cabinet has already been removed.
- Remove and return all cabinet radios from existing base station cabinet.
- Add (1) Enclosure 6160.
- Add (1) iXRe Router to new Enclosure 6160.
- Add (1) BB6648 for L2500 and N2500 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.
- Add (1) PSU4813 Voltage Booster to new Enclosure 6160.
- Add (1) Battery Cabinet B160.
- Add (1) 6X24 HCS terminating at the Enclosure 6160. Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster.
- Remove 1 - 9 x18.

1 CABINET CONFIGURATION  
SCALE: NOT TO SCALE



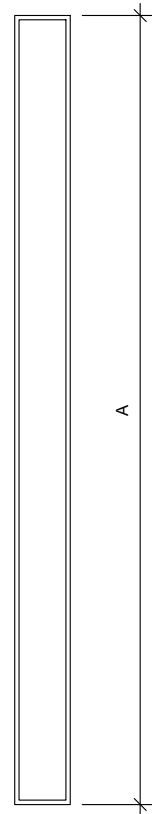
Notes:

2 ANTENNA CONFIGURATION  
SCALE: NOT TO SCALE

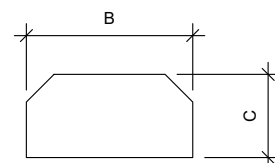
SUPPLEMENTAL

SHEET NUMBER: R-601  
REVISION: -

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



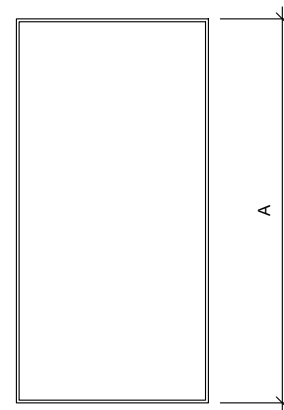
FRONT VIEW



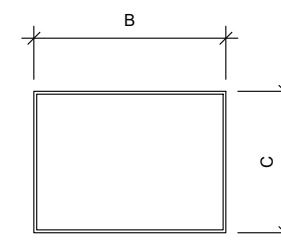
TOP VIEW

**1 ANTENNA SPECIFICATIONS**  
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR6449 B41	33.1"	20.6"	8.6"	104.0



FRONT VIEW



TOP VIEW

**2 RRU SPECIFICATIONS**  
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RADIO 4449 B71 B85A	15.0"	13.2"	10.5"	75.0
RADIO 4460 B25+B66	19.6"	15.7"	12.1"	109

SUPPLEMENTAL

SHEET NUMBER:  
**R-602**

REVISION:  
**-**





# Enclosure 6160 AC

The Enclosure 6160 is a multi-purpose site cabinet designed to support a multitude of equipment such as ERS Baseband, Transport, Li-Ion battery and 3PP vendor equipment. It also provides a highly capable power system and battery back-up - all in a streamlined design and minimized footprint to support cost efficient expansion of mobile broadband.

Being an all-in-one enclosure, the Enclosure 6160 is a very fitting choice for all types of sites where the capacity need is large or room for future expansion is needed. It is ideally used for modernizing existing sites or in greenfield scenarios to match both current and future needs.

With a robust design, IP65 compliance and a sealed Heat Exchanger (HEX) climate system the Enclosure 6160 ensures optimal environmental protection of the active equipment - enabling them for a long-lasting service. The complete system is also integrated and verified for the entire Ericsson Radio System and ensures best-in-class service.

The power system offers 31,5kW of power in total and provides 24kW of -48V DC power for both internal and external consumers.

The equipment space allows 19U of rack space ensuring well enough capacity for existing need and future expansion.

One of the main advantages of the Enclosure 6160 is its default integration with ENM - allowing for advanced remote monitoring and control such a fault management (alarms), inventory management and performance measurements. The cabinet also provides an open O&M interface for integration to 3PP O&M systems.



## Preliminary technical specification for Enclosure 6160 AC

### CAPACITY

Rack space user equipment	19U (19" rack)
Hardware capabilities	Power and CPRI support for multi-standard remote radios (RRU or AIR) ERS Baseband and Transport units Li-Ion batteries 3PP equipment Additional power feed available as option

### MECHANICAL SPECIFICATION

Weight	145 kg (excluding active equipment) 320 lbs (excluding active equipment)
Dimension (H x W x D)	1600 x 650 x 650 mm (incl. Base frame) 63 x 26 x 26 in. (incl. Base frame)
Base frame height	150 mm 6 in.
Mounting position	Ground
Enclosure material	Aluminum
Color	Power paint NCS 2002-B
Door	Front access
Rack type	19" (IEC 60297-3-100)
Locking type	Pad lock or Cylinder

### POWER SYSTEM

Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 VAC 1P+N+PE: 200-250 VAC
Input power	<33kW
Output load (-48VDC)	24kW
Total capacity (-48VDC)	31.5kW
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
PSU Slots	9x
Service outlet	Optional
Priority load	8x Circuit Breaker
LLVD 1	6x Circuit Breaker
LLVD 2	6x Circuit Breaker
CB ratings	3A / 5A / 10A / 15A / 20A / 25A / 30A / 40A / 50A / 60A / 80A / 100A
Battery Interface	2x Circuit Breaker
Battery Circuit Breaker rating	125A 2pol (200A)
PSU capacity	3500W

SUPPLEMENTAL

SHEET NUMBER:

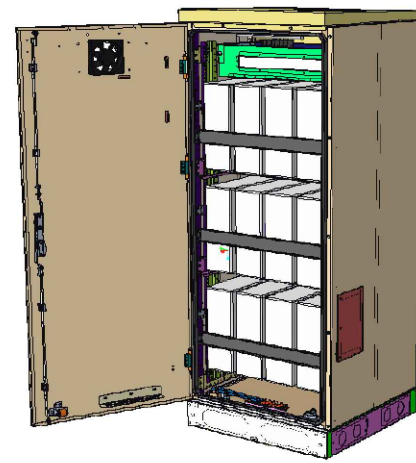
R-603

REVISION:

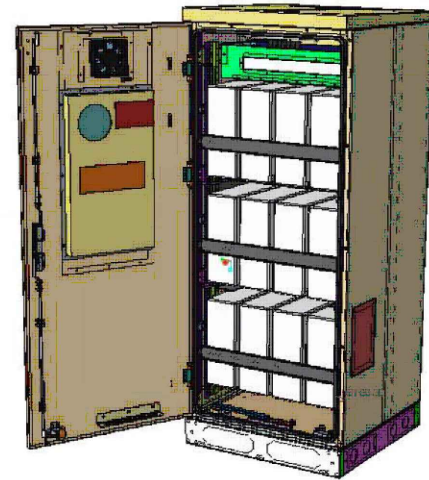
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NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

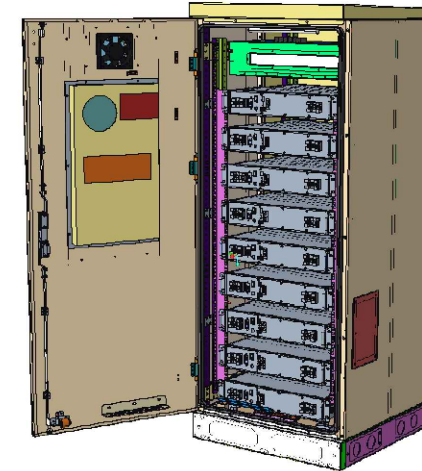
# Enclosure B160



Enclosure B160  
AirCon + VRLA



Enclosure B160  
AirCon + Li-Ion



Enclosure B160  
Convection Cooling  
+ VRLA

PA1 | 2019-02-03 | Ericsson Confidential | Page 1

# Enclosure B160

## Capacity

- VRLA 12V: 100Ah / 150Ah / 170Ah / 190Ah / 210Ah
- Li-Ion: 24U 19" / 23"
- Sodium-Nickel: 3x FIAMM

## Electrical specification

- DC Output: -48VDC/200A
- Battery breakers: 2x 125/2p
- Alarms: Door open, Climate failure, MCB Connection

## Mechanical specification

- Weight: 134kg
- Dimensions: 63 x 26 x 26 in. (incl. Base frame)
- Base frame height: 6 in.
- Material: Galvanized steel (180g/m<sup>2</sup>)
- Color: Powder paint NCS 2002-B
- Door: Front access
- Locking type: Pad lock / cylinder

## Environmental specification

- Ingress protection: VRLA/Sodium IP44  
Li-Ion IP55
  - Relative humidity: 15-100%
- ## Climate system
- Air Conditioner
  - Fan type: DC
  - Cooling capacity: 500W @L35/L35
  - Convection cooling
  - Emergency fan

PA1 | 2019-02-03 | Ericsson Confidential | Page 2

SUPPLEMENTAL

SHEET NUMBER:

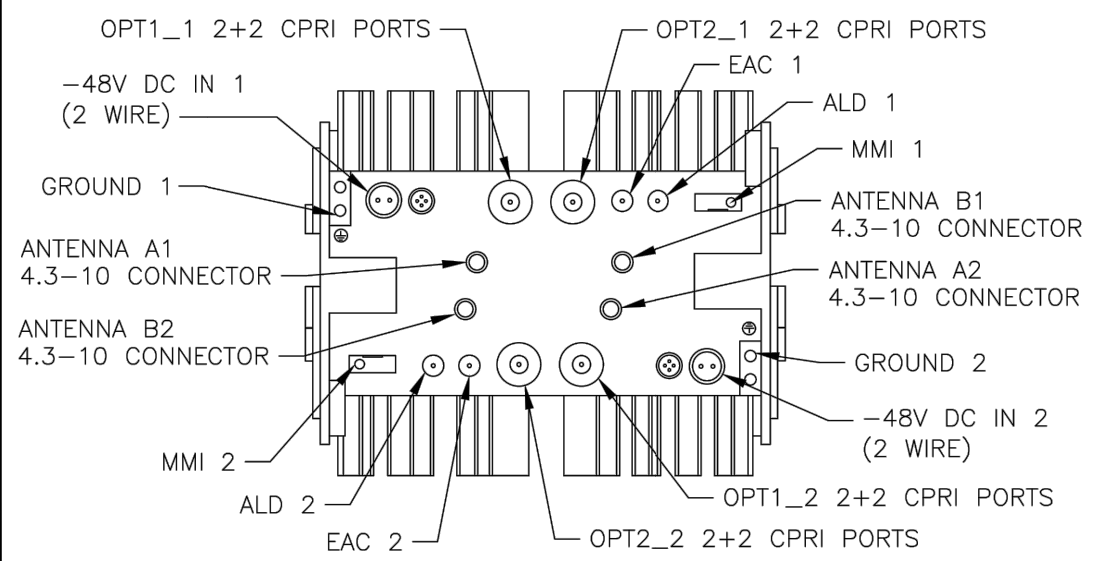
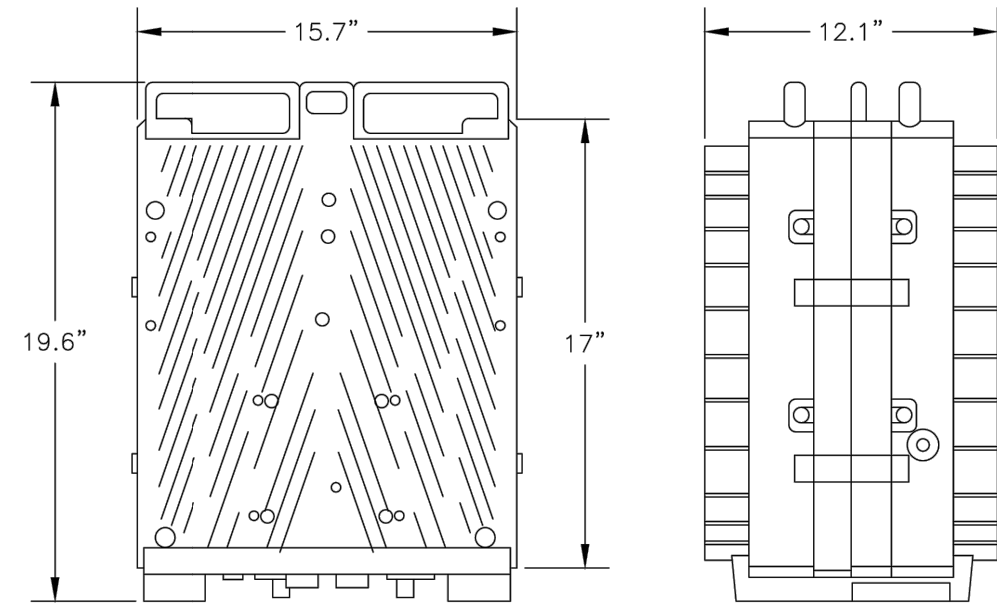
R-604

REVISION:

-

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

MANUFACTURER:	ERICSSON
MODEL:	4460 RADIO B2/25 B66 (KRC 161 912/3)
DIMENSIONS:	19.6" x 15.7" x 12.1" (H" x W" x D")
WEIGHT:	109 LBS



34373 - ERICSSON 4460 RADIO B2/25 B66 DUAL BAND

6/17/2021 2:39:42 PM

8.5" x 11" SCALE N.T.S.

11" x 17" SCALE N.T.S.

1

## Radio 4449 B71 B85A

- > 4TX/4RX – 320W FDD
  - 4x40W B71 + 4x40W B85A
- > IBW:
  - Full band support in each of the bands
- > 4 Antenna ports, each port shared by two bands
  - 4.3-10 plus (f) or equivalent
- > LTE, NR, NB-IoT
- > Carrier per port per band:
  - Up to 4 carriers (DL/UL) in each band
    - Up to 4 LTE carriers
    - NB-IoT
      - Up to 2 Standalone carrier
      - In-Band & Guard Band as per legacy requirements
    - NR carrier up to 35 MHz (B71)
- > 2.5; 4.9; 9.8; 10.1 Gbit/s CPRI
- > 380mm x 335mm x 267mm (< 34 liter, < 75 lb (34 kg))
- > -48 VDC (Two DC feeds, 2x 20A Breakers)
- > AISG TMA & RET support
- > Convection cooling
- > 2 external alarms supported
- > IP 65, -40 to +55°C




SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-605	-



Site configurations that are designed with AIR6449 B41 will have a "5A" (5 for 2.5GHz + A for AIR6449) after the low-band indicator and/or before L19 indicator in the naming convention e.g., 67D92DB => 67D5A992DB, 92DB => 5A992DB, etc.

### PRODUCT DESCRIPTION

<b>Frequency Range</b>	LTE TDD B41: 2496 – 2690 MHz	
<b>Instantaneous BW</b>	DL 194 MHz	
<b>Antenna Ports</b>	64T64R	
<b>Technology</b>	NR, LTE and NR+LTE MSMM	
<b>Antenna Elements</b>	192	
<b>Output RF Power</b>	300 W (=64 TRX x 4.6875W)	
<b>Data Ports</b>	4 x 25Gb/s CPRI	
<b>5G NR Support</b>	YES	
<b>DC Feed</b>	-48V DC power connector	
<b>Cooling</b>	Passive cooling (vs. active cooling on AIR32 DB)	
<b>Dimensions (H x W x D)</b>	33.1" x 20.6" x 8.6" inches (=841 x 524 x 217 mm)	
<b>Weight</b>	104 lbs (=47 kg)	
<b>Electrical downtilt</b>	-3 to 11 degrees	
<b>Horizontal beamwidth</b>	+/- 65 degrees	
<b>HW/SW Availability</b>	July 2020	
<b>Material SAP #</b>	34105 – AIR 6449 B41	

**WARRANTY:** 1 Year

**SPARES:** 2% of install base. Additional units can be requested as per need.

### Baseband Requirements

For a typical 3-sector site,

- LTE: one dedicated BB6630 per site
- NR: one dedicated BB6648 (see [its NPI](#)) per site

### Supplementary/Ancillary Materials

SKU	Description	Qty
34106	AIR6449 mandatory install kit	1 per AIR6449
34110	AIR6449 25G SFP	8 per AIR6449

The AIR6449 requires a voltage booster (i.e., PSU 4813) in almost all cases when using the current HCS 6x12. Please refer to [Voltage Booster design doc](#) for its usage guidance (depending on the HCS length and gauge). Note the installation kit is different for each cabinet type.

SKU	Description	Qty
34132	PSU 4813 main unit	1
34133	PSU installation kit for RBS61xx	Choose 1 per cabinet type
34134	PSU installation kit for PBC6200	
34135	PSU installation kit for E6x60/P6230	

SUPPLEMENTAL

SHEET NUMBER:  
**R-606**

REVISION:  
-





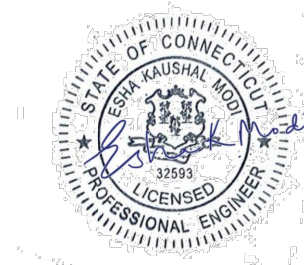
Eng. Number 13711882\_C8\_03  
August 11, 2021  
Page 2

### Mount Analysis Report

ATC Site Name : Branford CT 6, CT  
 ATC Site Number : 302484  
 Engineering Number : 13711882\_C8\_03  
 Mount Elevation : 139 ft  
 Carrier : T-Mobile  
 Carrier Site Name : CT102/BranfordAmericanTwr  
 Carrier Site Number : CTNH102C  
 Site Location : 405 Brushy Plain Rd  
 Branford, CT 06405-2308  
 41.31680556 , -72.8197  
 County : New Haven  
 Date : August 11, 2021  
 Max Usage : 84%  
 Result : Pass

Prepared By:  
Jayon Woodard  
Structural Engineer

Reviewed By:



Authorized by "EOR"  
11 Aug 2021 09:37:15



COA: PEC.0001553

### Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
139.0	140.0	3	RFS APXVAARR24_43-U-NA20
		3	Ericsson Air6449 B41
		3	Ericsson Radio 4449 B71 B85A
		3	Ericsson Radio 4460 B25+B66

### Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	84%	Pass
Verticals	13%	Pass
Tie-Backs	7%	Pass
Mount Pipes	35%	Pass
Serviceability	N/A	Pass

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

SUPPLEMENTAL

SHEET NUMBER: <b>R-607</b>	REVISION: -
-------------------------------	----------------



**AMERICAN TOWER®**  
CORPORATION

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## Mount Analysis Report

**ATC Site Name** : Branford CT 6, CT  
**ATC Site Number** : 302484  
**Engineering Number** : 13711882\_C8\_03  
**Mount Elevation** : 139 ft  
**Carrier** : T-Mobile  
**Carrier Site Name** : CT102/BranfordAmericanTwr  
**Carrier Site Number** : CTNH102C  
**Site Location** : 405 Brushy Plain Rd  
Branford, CT 06405-2308  
41.31680556 , -72.8197  
**County** : New Haven  
**Date** : August 11, 2021  
**Max Usage** : 84%  
**Result** : Pass

Prepared By:  
Jayon Woodard  
Structural Engineer

*Jayon Woodard*

Reviewed By:



Authorized by "EOR"  
11 Aug 2021 09:37:15

**cosign**

**COA: PEC.0001553**



**Table of Contents**

Introduction ..... 1

Supporting Documents ..... 1

Analysis ..... 1

Conclusion ..... 1

Application Loading ..... 2

Structure Usages ..... 2

Mount Layout ..... 3

Equipment Layout ..... 4

Standard Conditions ..... 5

Calculations ..... Attached



## Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 139 ft.

## Supporting Documents

<b>Previous Analysis</b>	CENTEK Engineering Project #20127.00, dated August 20, 2020
<b>Radio Frequency Data Sheet</b>	RFDS ID #CTNH102C, dated July 26, 2021
<b>Reference Photos</b>	Site photos from 2021

## Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

<b>Basic Wind Speed:</b>	121 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Codes:</b>	ANSI/TIA-222-H
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 2
<b>Feature:</b>	Flat
<b>Crest Height (H):</b>	0 ft
<b>Crest Length (L):</b>	0 ft
<b>Spectral Response:</b>	Ss = 0.203, S1 = 0.054
<b>Site Class:</b>	D - Stiff Soil
<b>Live Loads:</b>	Lm = 500 lbs, Lv = 250 lbs

## Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

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



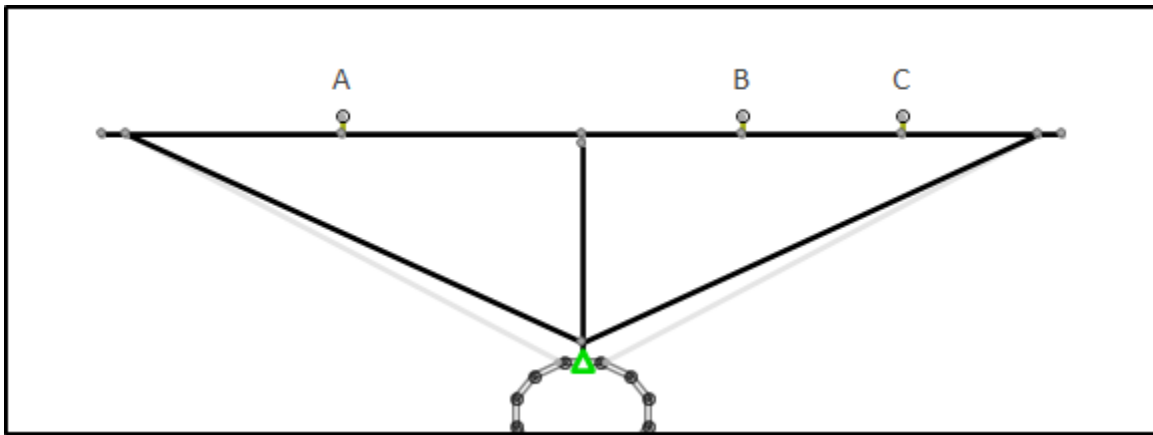
**Application Loading**

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
139.0	140.0	3	RFS APXVAARR24_43-U-NA20
		3	Ericsson Air6449 B41
		3	Ericsson Radio 4449 B71 B85A
		3	Ericsson Radio 4460 B25+B66

**Structure Usages**

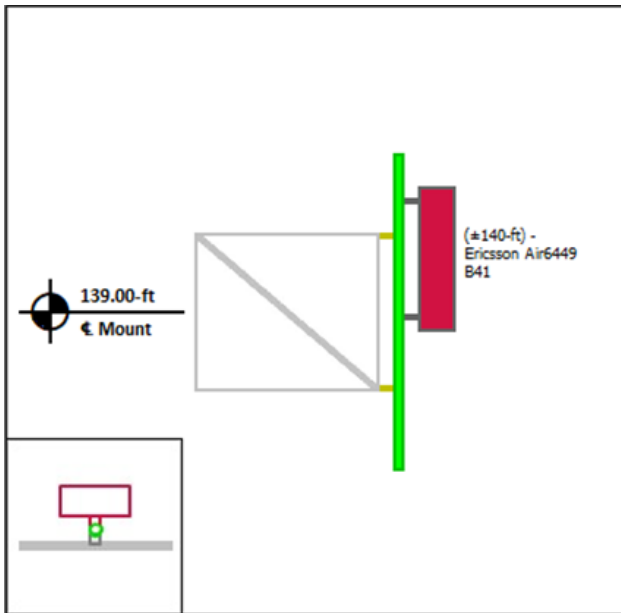
Structural Component	Controlling Usage	Pass/Fail
Horizontals	84%	Pass
Verticals	13%	Pass
Tie-Backs	7%	Pass
Mount Pipes	35%	Pass
Serviceability	N/A	Pass

**Mount Layout**

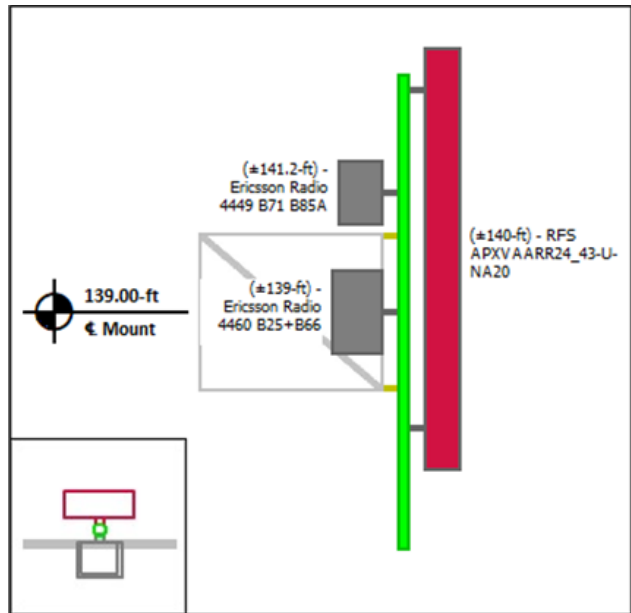


**Equipment Layout**

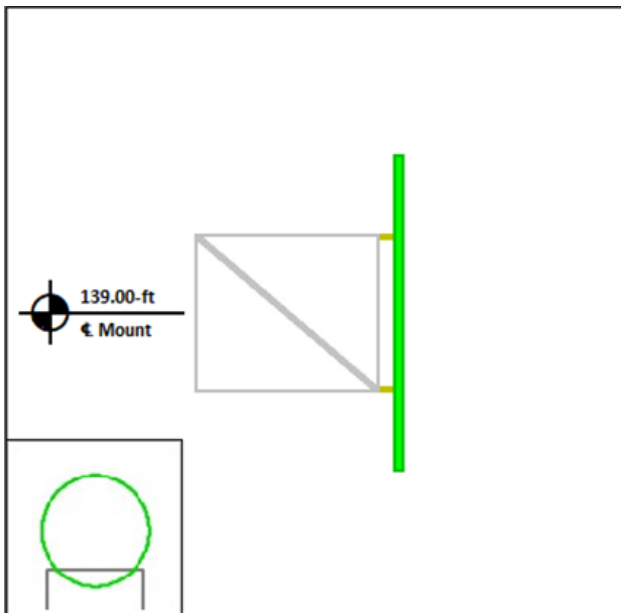
**Mount Pipe A**



**Mount Pipe B**



**Mount Pipe C**





### **Standard Conditions**

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

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

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

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

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

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

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





Site Number: 302484  
 Project Number: 13711882\_C8\_03  
 Carrier: T-Mobile  
 Mount Elevation: 139 ft  
 Date: 8/11/2021

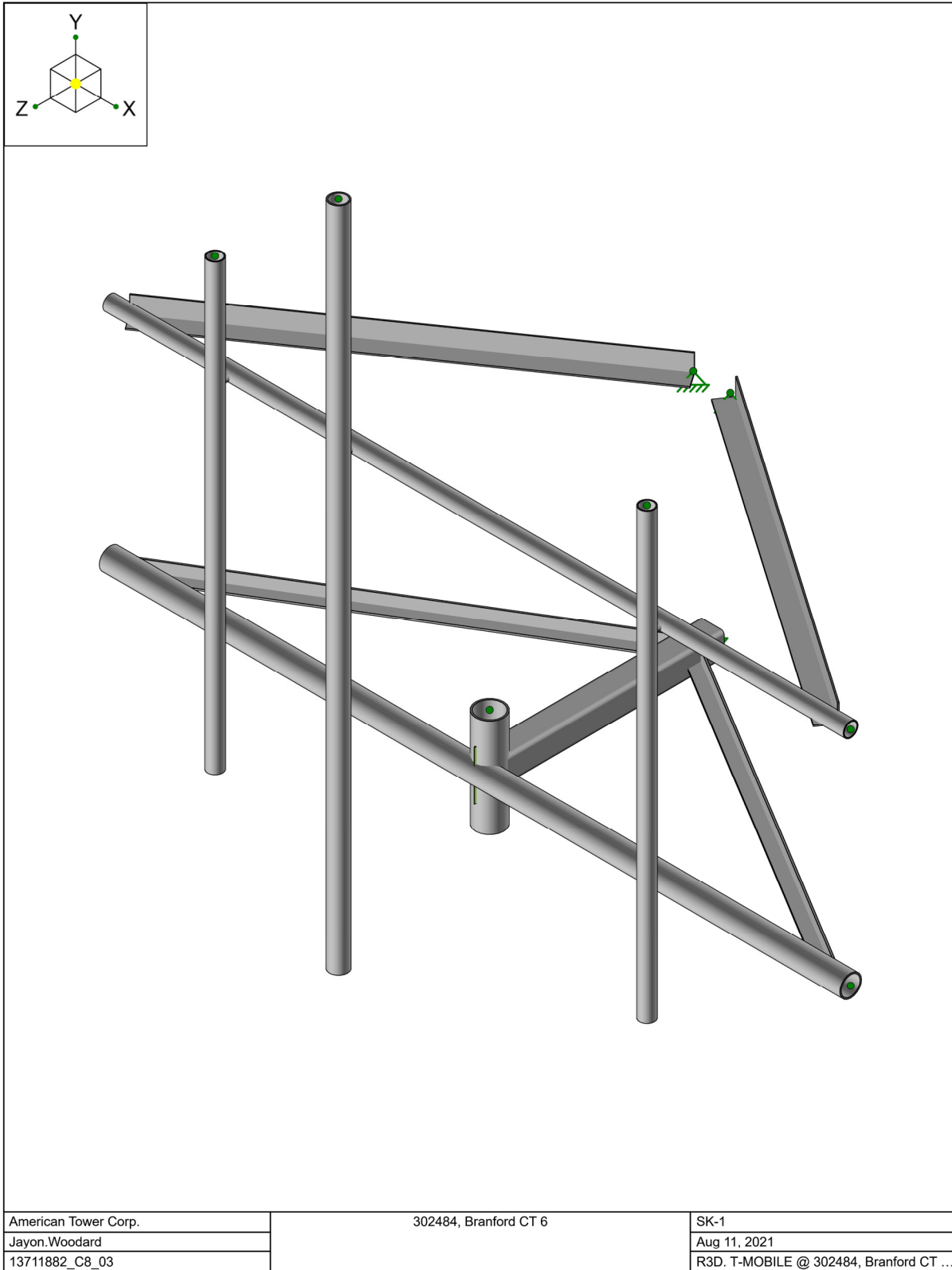
## Mount Analysis Force Calculations

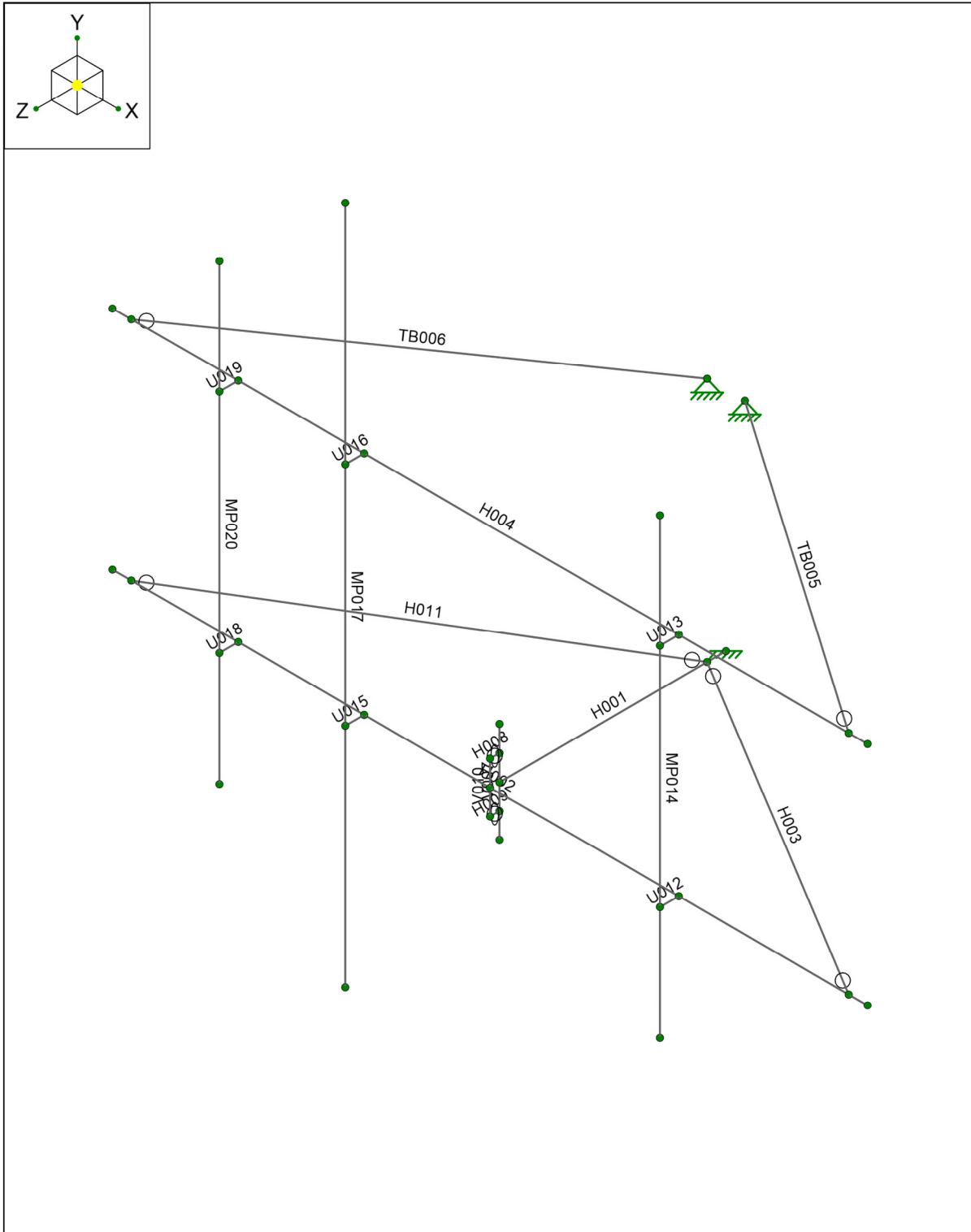
Wind & Ice Load Calculations			
Velocity Pressure Coefficient	$K_z$	1.09	
Topographic Factor	$K_{zt}$	1.00	
Rooftop Wind Speed-up Factor	$K_s$	1.00	
Shielding Factor	$K_a$	0.90	
Ground Elevation Factor	$K_e$	0.99	
Wind Direction Probability Factor	$K_d$	0.95	
Basic Wind Speed	$V$	121	mph
Velocity Pressure	$q_z$	38.1	psf
Height Escalation Factor	$K_{iz}$	1.15	
Thickness of Radial Glaze Ice	$T_{iz}$	1.15	in

Seismic Load Calculations			
Short Period DSRAP	$S_{Ds}$	0.217	
1 Second DSRAP	$S_{D1}$	0.086	
Importance Factor	$I$	1.0	
Response Modification Coefficient	$R$	2.0	
Seismic Response Coefficient	$C_s$	0.108	
Amplification Factor	$A$	1.0	
Total Weight	$W$	754.6	lbs
Total Shear Force	$V_s$	81.7	lbs
Horizontal Seismic Load	$E_h$	81.7	lbs
Vertical Seismic Load	$E_v$	32.7	lbs

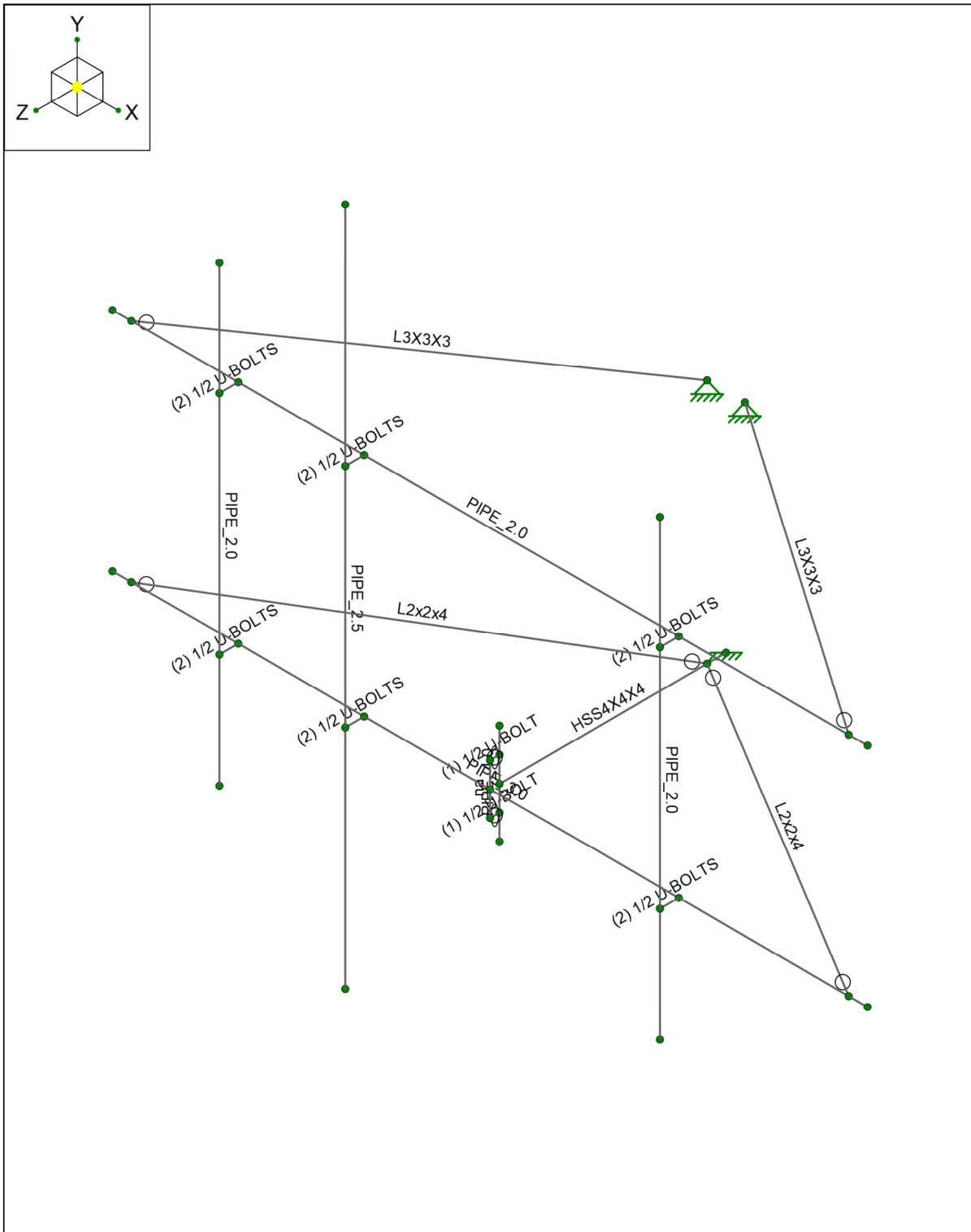
Antenna Calculations (Elevations per Application/RFDS)*								
Equipment	Height	Width	Depth	Weight	$EPA_N$	$EPA_T$	$EPA_{Ni}$	$EPA_{Ti}$
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
RFS APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	20.24	3.48	22.72	4.51
Ericsson Air6449 B41	33.1	20.6	8.6	104.0	5.68	1.56	6.76	2.12
Ericsson Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	1.65	1.31	2.24	1.85
Ericsson Radio 4460 B25+B66	19.6	15.7	12.1	109.0	2.56	1.98	3.29	2.63

\* Equipment with EPA values N/A were not considered in the mount analysis

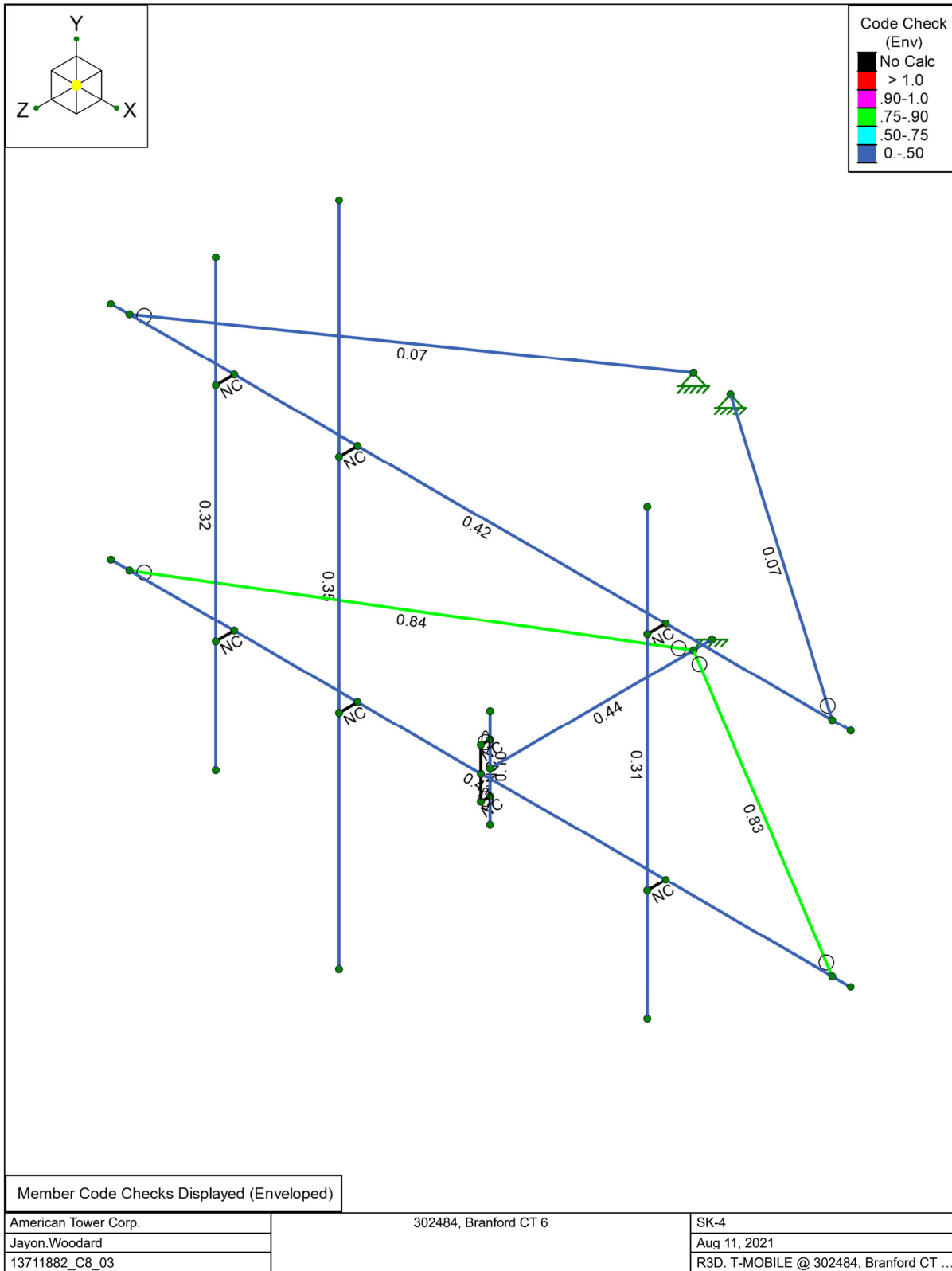


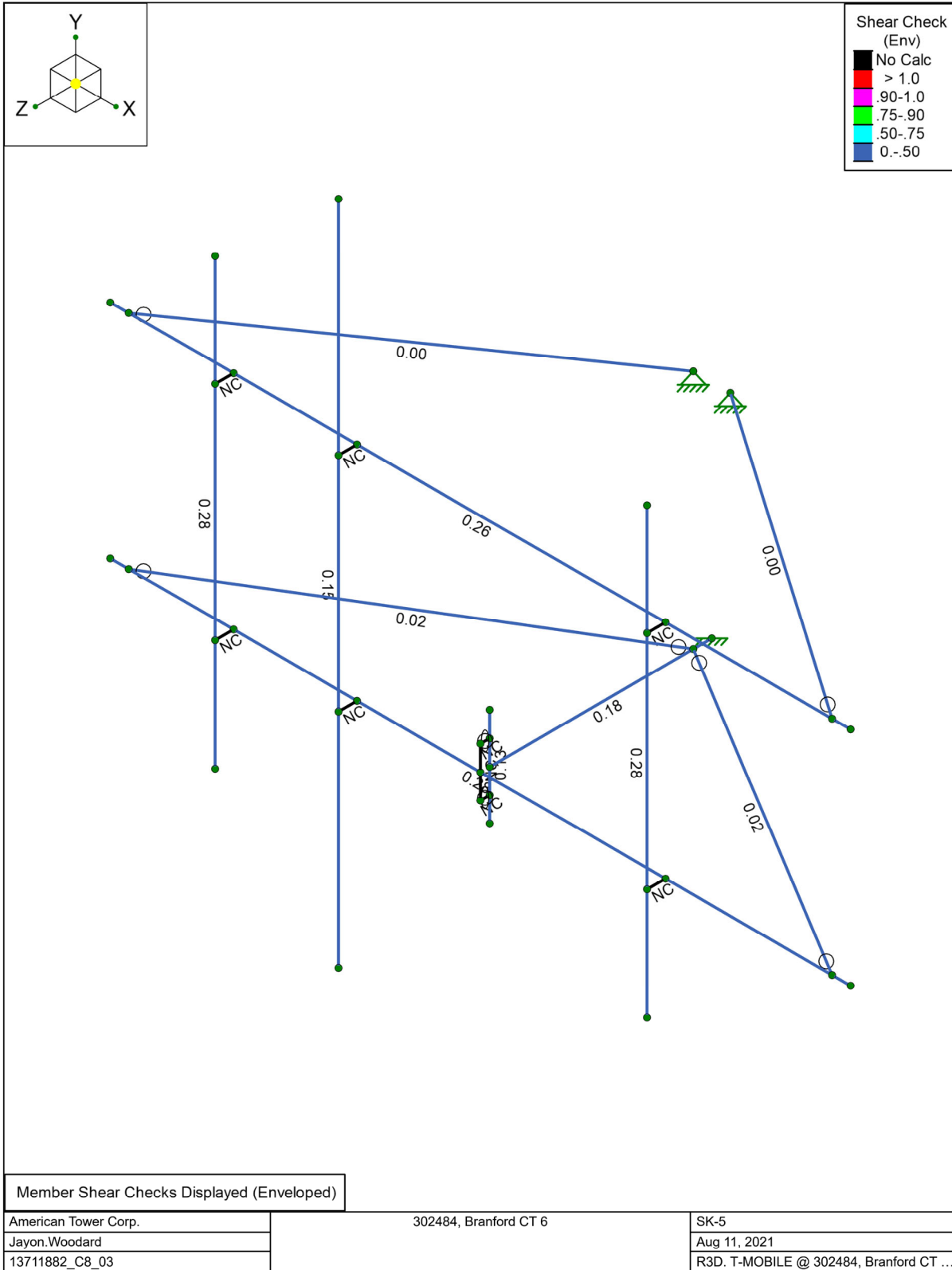


American Tower Corp.	302484, Branford CT 6	SK-2
Jayon.Woodard		Aug 11, 2021
13711882_C8_03		R3D. T-MOBILE @ 302484, Branford CT ...



American Tower Corp.	302484, Branford CT 6	SK-3
Jayon.Woodard		Aug 11, 2021
13711882_C8_03		R3D. T-MOBILE @ 302484, Branford CT ...







**Node Boundary Conditions**

Node Label	X [lb/in]	Y [lb/in]	Z [lb/in]	X Rot [k-in/rad]	Y Rot [k-in/rad]	Z Rot [k-in/rad]
1 N001	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2 N012	Reaction	Reaction	Reaction			
3 N013	Reaction	Reaction	Reaction			

**Member Primary Data**

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1 H001	N002	N001		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
2 H002	N003	N004		PIPE 3.0	Beam	None	A53 Gr. B	Typical
3 H003	N005	N007	270	L2x2x4	Beam	Single Angle	A36	Typical
4 H004	N008	N009		PIPE 2.0	Beam	None	A53 Gr. B	Typical
5 TB005	N010	N012	270	L3X3X3	Beam	None	A36	Typical
6 TB006	N011	N013		L3X3X3	Beam	None	A36	Typical
7 V007	N015	N014		PIPE 4.0	Column	None	A53 Gr. B	Typical
8 H008	N016	N017		(1) 1/2 U-BOLT	Beam	None	A36	Typical
9 H009	N018	N019		(1) 1/2 U-BOLT	Beam	None	A36	Typical
10 V010	N019	N017		RIGID	None	None	RIGID	Typical
11 H011	N006	N007		L2x2x4	Beam	Single Angle	A36	Typical
12 U012	N024	N025		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
13 U013	N021	N026		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
14 MP014	N027	N028		PIPE 2.0	Column	None	A53 Gr. B	Typical
15 U015	N029	N030		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
16 U016	N022	N031		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
17 MP017	N032	N033		PIPE 2.5	Column	None	A53 Gr. B	Typical
18 U018	N034	N035		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
19 U019	N023	N036		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
20 MP020	N037	N038		PIPE 2.0	Column	None	A53 Gr. B	Typical

**Member Advanced Data**

Label	I Release	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1 H001			Yes			None
2 H002			Yes	Default		None
3 H003	BenPIN	BenPIN	Yes	Default		None
4 H004			Yes	Default		None
5 TB005	BenPIN		Yes	Default		None
6 TB006	BenPIN		Yes	Default		None
7 V007			Yes	** NA **		None
8 H008	OOOXOX		Yes		Exclude	None
9 H009	OOOXOX		Yes		Exclude	None
10 V010			Yes	** NA **		None
11 H011	BenPIN	BenPIN	Yes	Default		None
12 U012			Yes		Exclude	None
13 U013			Yes		Exclude	None
14 MP014			Yes	** NA **		None
15 U015			Yes		Exclude	None
16 U016			Yes		Exclude	None
17 MP017			Yes	** NA **		None
18 U018			Yes		Exclude	None
19 U019			Yes		Exclude	None
20 MP020			Yes	** NA **		None

**Hot Rolled Steel Design Parameters**

Label	Shape	Length [in]	Lcomp top [in]	K y-y	K z-z	Function
1 H001	HSS4X4X4	36	Lbyy	2.1	2.1	Lateral
2 H002	PIPE 3.0	120	Lbyy	1	1	Lateral
3 H003	L2x2x4	66.628	Lbyy	1	1	Lateral
4 H004	PIPE 2.0	120	Lbyy	1	1	Lateral
5 TB005	L3X3X3	65.744	Lbyy	1	1	Lateral
6 TB006	L3X3X3	65.744	Lbyy	1	1	Lateral
7 V007	PIPE 4.0	16	Lbyy	2.1	2.1	Lateral
8 H008	(1) 1/2 U-BOLT	1.5	Lbyy	2.1	2.1	Lateral
9 H009	(1) 1/2 U-BOLT	1.5	Lbyy	2.1	2.1	Lateral
10 H011	L2x2x4	66.628	Lbyy	1	1	Lateral
11 U012	(2) 1/2 U-BOLTS	3	Lbyy	0.5	0.5	Lateral
12 U013	(2) 1/2 U-BOLTS	3	Lbyy	0.5	0.5	Lateral
13 MP014	PIPE 2.0	72	Lbyy	2.1	2.1	Lateral
14 U015	(2) 1/2 U-BOLTS	3	Lbyy	0.5	0.5	Lateral
15 U016	(2) 1/2 U-BOLTS	3	Lbyy	0.5	0.5	Lateral
16 MP017	PIPE 2.5	108	Lbyy	2.1	2.1	Lateral
17 U018	(2) 1/2 U-BOLTS	3	Lbyy	0.5	0.5	Lateral
18 U019	(2) 1/2 U-BOLTS	3	Lbyy	0.5	0.5	Lateral
19 MP020	PIPE 2.0	72	Lbyy	2.1	2.1	Lateral



Company : American Tower Corp.  
 Designer : Jayon.Woodard  
 Job Number : 13711882\_C8\_03  
 Model Name : 302484, Branford CT 6

8/11/2021  
 5:32:17 PM  
 Checked By : -

**Hot Rolled Steel Properties**

Label	E [psi]	G [psi]	Nu	Therm. Coeff. [ $1e^{-6}F^{-1}$ ]	Density [lb/ft <sup>3</sup> ]	Yield [psi]	Ry	Fu [psi]	Rt
1 A500 Gr. B [SQR]	2.9e+07	1.115e+07	0.3	0.65	527	46000	1.4	58000	1.3
2 A53 Gr. B	2.9e+07	1.115e+07	0.3	0.65	490	35000	1.6	60000	1.2
3 A36	2.9e+07	1.115e+07	0.3	0.65	490	36000	1.5	58000	1.2

**Envelope Node Reactions**

Node Label	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1 N001	max	650.345	16	1714.245	37	919.443	2	-742.996	14	3958.986	4	1164.825	77
2	min	-768.015	10	646.523	19	-749.531	20	-4991.373	33	-3942.39	22	-1829.903	95
3 N012	max	432.055	15	33.812	33	317.455	15	0	104	0	104	0	104
4	min	-502.869	9	8.589	25	-351.882	9	0	1	0	1	0	1
5 N013	max	743.337	7	35.645	31	400.264	25	0	104	0	104	0	104
6	min	-556.205	25	7.551	14	-520.845	7	0	1	0	1	0	1
7 Totals:	max	1112.607	18	1781.046	33	1538.037	2						
8	min	-1112.607	12	668.741	14	-1538.037	20						

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

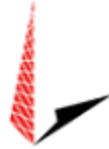
Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1 H001	HSS4X4X4	0.437	36	9	0.176	36	y	95	118165.609	139518	16180.5	16180.5	1.4	H1-1b
2 H002	PIPE 3.0	0.408	60	95	0.276	60		3	38176.7	65205	5748.75	5748.75	1.868	H1-1b
3 H003	L2x2x4	0.825	33.314	64	0.023	66.628	z	64	7194.89	30585.6	690.934	1416.777	1.31	H2-1
4 H004	PIPE 2.0	0.424	30	9	0.26	100		7	9836.597	32130	1871.625	1871.625	2.222	H1-1b
5 TB005	L3X3X3	0.069	32.872	13	0.004	65.744	y	7	18205.29	35316	1320.097	2319.282	1.136	H2-1
6 TB006	L3X3X3	0.069	33.557	14	0.004	65.744	z	3	18205.29	35316	1320.097	2319.282	1.136	H2-1
7 V007	PIPE 4.0	0.103	8	3	0.127	8		3	90930.746	93240	10631.25	10631.25	1.923	H1-1b
8 H011	L2x2x4	0.845	33.314	66	0.025	66.628	y	66	7194.89	30585.6	690.934	1416.777	1.31	H2-1
9 MP014	PIPE 2.0	0.307	54	80	0.279	36		9	6195.892	32130	1871.625	1871.625	1.541	H1-1b
10 MP017	PIPE 2.5	0.349	72	2	0.154	36		7	6368.274	50715	3596.25	3596.25	2.237	H1-1b
11 MP020	PIPE 2.0	0.318	54	94	0.281	18		7	6195.892	32130	1871.625	1871.625	1.471	H1-1b





**AMERICAN TOWER®**  
CORPORATION

This report was prepared for American Tower Corporation by



**TOWER  
ENGINEERING  
PROFESSIONALS**

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## Structural Analysis Report

**Structure** : 150 ft Monopole  
**ATC Site Name** : Branford CT 6,CT  
**ATC Site Number** : 302484  
**Engineering Number** : 13711882\_C3\_02  
**Proposed Carrier** : T-MOBILE  
**Carrier Site Name** : CT102/BranfordAmericanTwr  
**Carrier Site Number** : CTNH102C  
**Site Location** : 405 Brushy Plain Rd  
Branford, CT 06405-2308  
41.3168, -72.8197  
**County** : New Haven  
**Date** : September 20, 2021  
**Max Usage** : 95%  
**Result** : Pass

Prepared By:

Jack Davis  
TEP

Reviewed By:



09/20/2021

**COA : PEC.0001553**



## **Table of Contents**

Introduction .....	3
Supporting Documents .....	3
Analysis .....	3
Conclusion .....	3
Existing and Reserved Equipment.....	4
Equipment to be Removed .....	5
Proposed Equipment .....	5
Structure Usages.....	6
Foundations .....	6
Deflection, Twist and Sway* .....	6
Standard Conditions .....	7
Calculations .....	Attached



## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft Monopole to reflect the change in loading by T-Mobile.

## Supporting Documents

<b>Tower Drawings</b>	PJF Job # 29297-629, dated October 2, 1997 SpectraSite Drawing #CT-0020/15, dated December 13, 2000
<b>Foundation Drawing</b>	Mapped by ATC Tower ID #302484, dated February 13, 2009
<b>Geotechnical Report</b>	Clarence Welti Geotechnical Engineering ID #CT-0020, dated October 8, 1996
<b>Modifications</b>	SpectraSite Drawing CT-0020 M1, dated March 26, 2004 ATC Job # 26487334, dated September 15, 2006 ATC Job # 53055832, dated June 2, 2013
<b>Mount Analysis Report</b>	ATC Job # 13711882_C8_03, dated August 11, 2021

## Analysis

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

<b>Basic Wind Speed:</b>	121 mph (3-second gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-second gust) w/ 1.00" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Spectral Response:</b>	$S_s = 0.20$ , $S_i = 0.05$
<b>Site Class:</b>	D - Stiff Soil - Default

**\*\*Wind load and Ice thickness have been reduced by applicable existing structure load modification factors in accordance with TIA-222-H, Annex S.**

## Conclusion

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

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



**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
160.0	1	11' Dipole	Platform with Handrails	(3) 7/8" Coax (1) 1 5/8" Coax	OTHER
159.0	1	4' Omni			
153.0	6	Powerwave Allgon LGP21401			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4449 B5, B12			
	3	Kathrein Scala 782-10250			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	1	Raycap DC6-48-60-18-8C			
	3	Kathrein Scala 80010965			
	3	Commscope SBNHH-1D65B			
	3	Ericsson RRUS 32 B30 (53 lbs)			
1	Raycap DC6-48-60-18-8C-EV				
3	Powerwave Allgon 7770.00				
3	CCI HPA65R-BU6A				
150.0	1	GPS	Flush	(1) 1/2" Coax	VERIZON WIRELESS
140.0	3	RFS APXVAARR24_43-U-NA20	PerfectVision PV-RP14M-9-96 Platform with Handrails	(1) 1 1/4" (1.25"-31.8mm) Fiber	T-MOBILE
132.0	1	12" x 12" Junction Box	Side Arm	(4) 1/2" Coax (2) 2" conduit (6) 5/16" (0.31"-7.9mm) Coax	CLEARWIRE CORPORATION
130.0	2	DragonWave Horizon Compact			
	1	DragonWave A-ANT-23G-1-C			
	1	DragonWave A-ANT-18G-2.5-C			
	3	Argus LLPX310R			
	3	NextNet BTS-2500			
122.0	1	SWR FMEC/1	Flush	(3) 1/2" Coax	ALMA RADIO INC.
113.0	3	Commscope CBC78-DS-43	T-Arms	(6) 1 1/4" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	6	Commscope JAHH-65B-R3B			
	2	RFS DB-T1-6Z-8AB-0Z			
	3	Samsung MT6407-77A			
	2	RFS APL866513-12T0-00			
	3	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna			
	3	Samsung RT4401-48A			
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung B5/B13 RRH-BR04C			
	4	RFS APL868013-12T0			
103.0	3	JMA Wireless MX08FRO665-21	Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	1	Commscope RDIDC-9181-PF-48			
	3	Fujitsu TA08025-B604			
	3	Fujitsu TA08025-B605			
70.0	1	4' Std. Dish	Flush	(1) 0.28" (7mm) RG-6	OTHER



**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson KRY 112 144/1	-	(3) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	T-MOBILE
	3	Ericsson AIR 21, 1.3M, B4A B2P			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson Radio 4449 B12,B71			

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson Radio 4449 B71 B85A	PerfectVision PV-RP14M-9-96 Platform with Handrails	(2) 1 1/4" (1.25"-31.8mm) Fiber (1) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Ericsson Radio 4460 B25+B66			
	3	Ericsson Air6449 B41			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines outside the pole shaft. Stacking lines is not allowed.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	83%	Pass
Shaft	93%	Pass
Base Plate	56%	Pass
Flange	22%	Pass
Reinforcement	95%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,091.9	54%
Axial (Kips)	61.1	7%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

**Deflection, Twist and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Ericsson Radio 4449 B71 B85A	T-MOBILE	2.002	1.810
	Ericsson Radio 4460 B25+B66			
	Ericsson Air6449 B41			
130.0	DragonWave A-ANT-23G-1-C	CLEARWIRE CORPORATION	1.700	1.630
	DragonWave A-ANT-18G-2.5-C			
70.0	4' Std. Dish	OTHER	0.468	0.800

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



## **Standard Conditions**

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

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

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

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

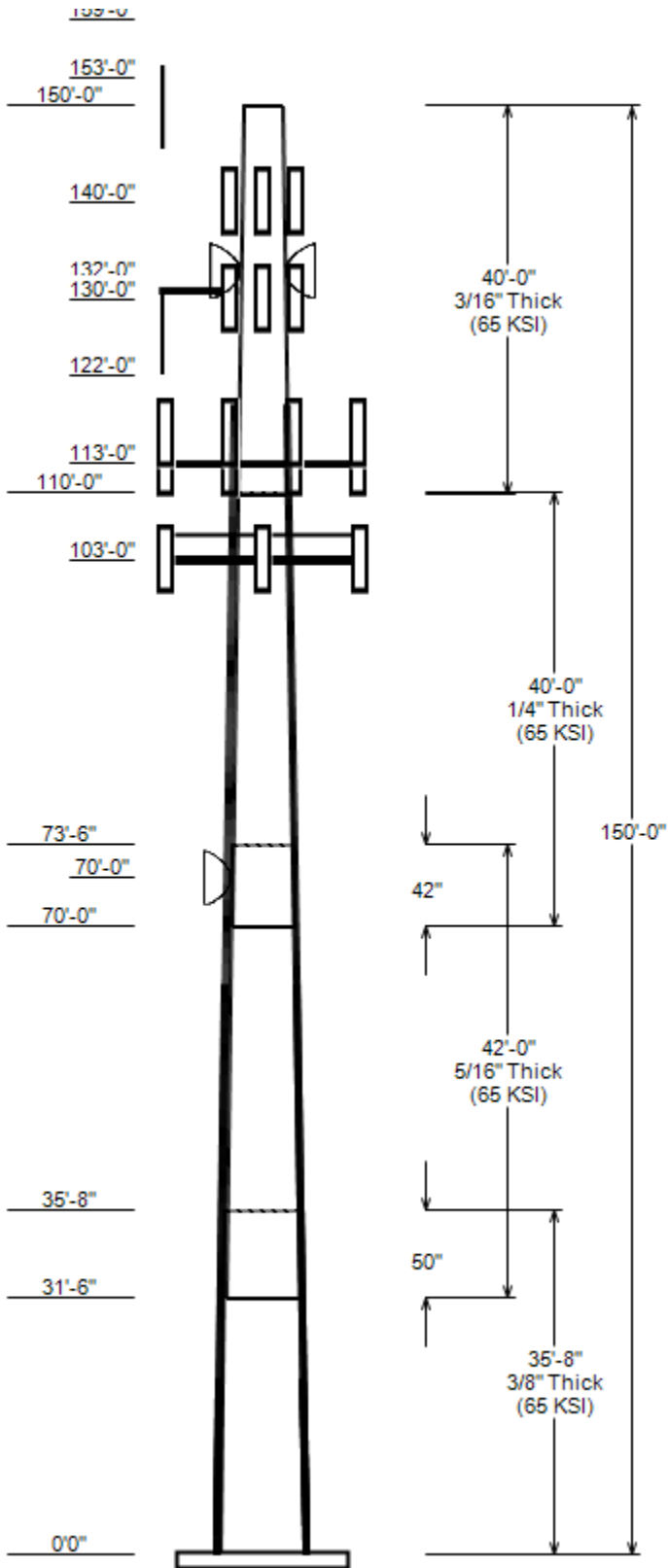
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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



Asset : 302484, Branford CT 6  
 Client : T-MOBILE  
 Code : ANSI/TIA-222-H

Height : 150 ft  
 Base Width : 37.38  
 Shape : 12 Sides



SITE PARAMETERS

Base Elev (ft): 0.00 Structure Class: II  
 Taper : 0.15700 (In/ft) Exposure : B  
 Topographic Category : 1 Topographic Feature:  
 Topo Method : Method 1

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Overlap Length (in)	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom			
1	35.667	31.79	37.38	0.375	0.000	65
2	42.000	26.49	33.07	0.313	50.000	65
3	40.000	21.27	27.54	0.250	42.000	65
4	40.000	15.00	21.27	0.188	0.000	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
160.0	160.0	1	Generic 11' Dipole
159.0	159.0	1	Generic 4' Omni
153.0	151.0	6	Powerwave Allgon 7020.00 Dual
153.0	153.0	3	Kathrein Scala 782-10250
153.0	151.0	6	Powerwave Allgon LGP21401
153.0	151.0	1	Raycap DC6-48-60-18-8F ("Squid
153.0	153.0	3	Ericsson RRUS 8843 B2, B66A
153.0	153.0	3	Ericsson RRUS 4449 B5, B12
153.0	153.0	1	Raycap DC6-48-60-18-8C
153.0	153.0	3	Ericsson RRUS 32 B30 (53 lbs)
153.0	153.0	1	Raycap DC6-48-60-18-8C-EV
153.0	151.0	3	Powerwave Allgon 7770.00
153.0	153.0	3	CCI HPA65R-BU6A
153.0	153.0	3	Commscope SBNHH-1D65B
153.0	153.0	3	Kathrein Scala 80010965
153.0	153.0	1	Generic Round Platform with Ha
150.0	150.0	1	Generic GPS
140.0	140.0	3	Ericsson Radio 4449 B71 B85A
140.0	140.0	3	Ericsson Radio 4460 B25+B66
140.0	140.0	3	Ericsson Air6449 B41
140.0	140.0	3	RFS APXVAARR24_43-U-NA20
140.0	140.0	1	PerfectVision PV-RP14M-9-96 Ro
132.0	132.0	1	Generic 12" x 12" Junction Box
131.0	131.0	1	Side Arms
130.0	132.0	2	DragonWave Horizon Compact
130.0	132.0	1	DragonWave A-ANT-23G-1-C
130.0	130.0	3	NextNet BTS-2500
130.0	130.0	3	Argus LLPX310R
130.0	132.0	1	DragonWave A-ANT-18G-2.5-C
122.0	123.0	1	SWR FMEC/1
113.0	113.0	3	Commscope CBC78-DS-43
113.0	113.0	3	Samsung Outdoor CBRS 20W RRH -
113.0	113.0	3	Samsung RT4401-48A
113.0	113.0	3	Samsung B5/B13 RRH-BR04C
113.0	113.0	3	Samsung B2/B66A RRH-BR049
113.0	115.0	4	RFS APL868013-12T0
113.0	115.0	2	RFS APL866513-12T0-00
113.0	113.0	3	Samsung MT6407-77A
113.0	115.0	2	RFS DB-T1-6Z-8AB-OZ
113.0	115.0	6	Commscope JAHH-65B-R3B
113.0	113.0	3	Round T-Arm
103.0	103.0	1	Commscope RDIDC-9181-PF-48
103.0	103.0	3	Fujitsu TA08025-B605
103.0	103.0	3	Fujitsu TA08025-B604

JOB INFORMATION

Asset : 302484, Branford CT 6  
 Client : T-MOBILE  
 Code : ANSI/TIA-222-H

Height : 150 ft  
 Base Width : 37.38  
 Shape : 12 Sides

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
103.0	103.0	3	JMA Wireless MX08FRO665-21
103.0	103.0	1	Generic Flat Platform with Han
70.0	70.0	1	Generic 4' Std. Dish

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	160.0	7/8" Coax	No
0.0	159.0	1 5/8" Coax	No
0.0	153.0	3/8" (0.38"- 9.5mm) RET Control Cable	No
0.0	153.0	3" conduit	No
0.0	153.0	1 5/8" Coax	No
0.0	153.0	0.78" (19.7mm) 8 AWG 6	No
0.0	153.0	0.39" (10mm) Fiber Trunk	No
0.0	150.0	1/2" Coax	No
128.0	143.0	#18 w/ Angle Bracket	Yes
128.0	143.0	#18 w/ Angle Bracket	Yes
128.0	143.0	#18 w/ Angle Bracket	Yes
0.0	140.0	1.99" (50.7mm) Hybrid	Yes
0.0	140.0	1 1/4" (1.25"- 31.8mm) Fiber	Yes
0.0	140.0	1 1/4" (1.25"- 31.8mm) Fiber	Yes
115.5	133.0	#18 w/ Angle Bracket	Yes
115.5	133.0	#18 w/ Angle Bracket	Yes
115.5	133.0	#18 w/ Angle Bracket	Yes
0.0	132.0	2" conduit	Yes
0.0	132.0	1/2" Coax	Yes
0.0	130.0	5/16" (0.31"-7.9mm) Coax	Yes
0.0	130.0	1/2" Coax	Yes
0.0	123.2	W5 Brackets for #18	Yes
0.0	123.2	W5 Brackets for #18	Yes
0.0	123.2	W5 Brackets for #18	Yes
0.0	123.2	W5 Brackets for #18	Yes
0.0	123.2	#18 w/ W Bracket	Yes
0.0	123.2	#18 w/ W Bracket	Yes
0.0	123.2	#18 w/ W Bracket	Yes
0.0	123.2	#18 w/ W Bracket	Yes
0.0	122.0	1/2" Coax	No
0.0	113.0	1 5/8" Hybriflex	No
0.0	113.0	1 1/4" Coax	No
0.0	103.0	1.60" (40.6mm) Hybrid	No
0.0	70.0	0.28" (7mm) RG-6	No
0.0	65.5	#18 w/ Angle Brackets	Yes
0.0	65.5	#18 w/ Angle Brackets	Yes
0.0	65.5	#18 w/ Angle Brackets	Yes
0.0	65.5	#18 w/ Angle Brackets	Yes
0.0	20.0	1" Thick Flat Plate	Yes
0.0	20.0	1" Thick Flat Plate	Yes
0.0	20.0	1" Thick Flat Plate	Yes
0.0	20.0	1" Thick Flat Plate	Yes

LOAD CASES

1.2D + 1.0W Normal	117.94 mph wind with no ice
0.9D + 1.0W Normal	117.94 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	48.73 mph wind with 0.850" radial
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

JOB INFORMATION

Asset : 302484, Branford CT 6  
 Client : T-MOBILE  
 Code : ANSI/TIA-222-H

Height : 150 ft  
 Base Width : 37.38  
 Shape : 12 Sides

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	3091.85	29.09	61.13
0.9D + 1.0W Normal	3030.97	29.07	45.84
1.2D + 1.0Di + 1.0Wi Normal	765.16	6.77	78.40
1.2D + 1.0Ev + 1.0Eh Normal	198.09	1.53	62.48
0.9D - 1.0Ev + 1.0Eh Normal	193.00	1.53	43.05
1.0D + 1.0W Service Normal	710.16	6.75	50.96

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W Service Normal	70.00	5.607	0.800
1.0D + 1.0W Service Normal	130.00	20.400	1.629
1.0D + 1.0W Service Normal	130.00	20.400	1.629

ASSET: 302484, Branford CT 6  
CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
ENG NO: 13711882\_C3\_02

#### ANALYSIS PARAMETERS

Location:	New Haven County,CT	Height:	150 ft
Type and Shape:	Taper, 12 Sides	Base Diameter:	37.38 in
Manufacturer:	ITT Meyer	Top Diameter:	15.00 in
K <sub>d</sub> (non-service):	0.95	Taper:	0.1570 in/ft
K <sub>e</sub> :	0.99	Rotation:	0.000°

#### ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	118 mph
Risk Category:	II	Design Wind Speed w/Ice:	49 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	0.85 in
Crest Height:	0 ft	HMSL:	240.00 ft

#### SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	3.05		
T <sub>L</sub> (sec):	6	P:	1	C <sub>s</sub> :	0.030
S <sub>s</sub> :	0.203	S <sub>1</sub> :	0.054	C <sub>s</sub> Max:	0.030
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400	C <sub>s</sub> Min:	0.030
S <sub>ds</sub> :	0.217	S <sub>d1</sub> :	0.086		

#### LOAD CASES

1.2D + 1.0W Normal	117.94 mph wind with no ice
0.9D + 1.0W Normal	117.94 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	48.73 mph wind with 0.850" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

ASSET: 302484, Branford CT 6  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711882\_C3\_02

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Bottom							Top						
						Weight (lb)	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	35.67	0.3750	65		0.00	5,014	37.38	0.003	44.68	7,810.1	24.03	99.68	31.79	35.67	37.93	4,778.9	20.04	84.78	0.1567
2-12	42.00	0.3130	65	Slip	50.00	4,244	33.07	31.500	33.01	4,521.6	25.63	105.65	26.49	73.50	26.38	2,307.1	20.00	84.63	0.1567
3-12	40.00	0.2500	65	Slip	42.00	2,646	27.54	70.000	21.97	2,087.6	26.83	110.15	21.27	110.00	16.92	954.2	20.12	85.08	0.1567
4-12	40.00	0.1880	65	Butt	0.00	1,479	21.27	110.000	12.76	723.9	27.63	113.13	15.00	150.00	8.97	251.1	18.70	79.79	0.1567

Shaft Weight 13,383

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
160.00	Generic 11' Dipole	1	0.75	0.000	40.00	3.580	1.00	110.33	8.410	1.00
159.00	Generic 4' Omni	1	0.75	0.000	10.00	1.000	1.00	27.69	1.489	1.00
153.00	Commscope SBNHH-1D65B	3	0.75	0.000	50.70	8.173	0.69	150.19	9.777	0.69
153.00	CCI HPA65R-BU6A	3	0.75	0.000	41.90	7.864	0.70	141.25	9.429	0.70
153.00	Powerwave Allgon 7770.00	3	0.75	-2.000	35.00	5.508	0.65	104.05	6.086	0.65
153.00	Raycap DC6-48-60-18-8C-EV	1	0.75	0.000	16.00	4.788	1.00	89.20	5.622	1.00
153.00	Ericsson RRUS 32 B30 (53 lbs)	3	0.75	0.000	53.00	2.743	0.50	94.69	3.406	0.50
153.00	Raycap DC6-48-60-18-8C	1	0.75	0.000	16.00	2.030	1.00	49.00	2.461	1.00
153.00	Kathrein Scala 80010965	3	0.75	0.000	97.60	13.814	0.62	248.73	15.543	0.62
153.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3418.18	41.057	1.00
153.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	107.54	2.498	0.50
153.00	Powerwave Allgon 7020.00 Dual	6	0.75	-2.000	2.20	0.339	0.50	7.99	0.571	0.50
153.00	Kathrein Scala 782-10250	3	0.75	0.000	6.40	0.449	0.50	13.63	0.727	0.50
153.00	Powerwave Allgon LGP21401	6	0.75	-2.000	14.10	1.104	0.50	28.24	1.509	0.50
153.00	Raycap DC6-48-60-18-8F ("Squid	1	0.75	-2.000	31.80	1.470	1.00	66.78	1.866	1.00
153.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	106.75	2.118	0.50
150.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	26.59	1.263	1.00
140.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.50	158.76	3.157	0.50
140.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	180.71	6.576	0.63
140.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.243	0.63	348.89	22.331	0.63
140.00	PerfectVision PV-RP14M-9-96 Ro	1	1.00	0.000	2972.00	36.600	1.00	4137.48	50.953	1.00
140.00	Ericsson Radio 4449 B71 B85A	3	0.75	0.000	75.00	1.650	0.50	108.85	2.128	0.50
132.00	Generic 12" x 12" Junction Box	1	1.00	0.000	10.00	1.200	1.00	33.34	1.607	1.00
131.00	Side Arms	1	1.00	0.000	560.00	8.500	1.00	822.15	12.479	1.00
130.00	NextNet BTS-2500	3	1.00	0.000	35.00	1.817	0.50	60.91	2.329	0.50
130.00	Argus LLPX310R	3	1.00	0.000	28.60	4.292	0.63	78.95	5.216	0.63
130.00	DragonWave A-ANT-18G-2.5-C	1	1.00	2.000	47.60	8.430	0.76	143.84	9.381	0.76
130.00	DragonWave A-ANT-23G-1-C	1	1.00	2.000	15.00	1.610	0.68	34.74	2.033	0.68
130.00	DragonWave Horizon Compact	2	1.00	2.000	10.60	0.721	0.50	23.16	1.039	0.50
122.00	SWR FMEC/1	1	1.00	1.000	15.00	2.500	1.00	60.51	4.707	1.00
113.00	Samsung MT6407-77A	3	0.80	0.000	81.60	4.709	0.61	137.79	5.546	0.61
113.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	2.000	44.00	4.800	0.72	113.38	5.583	0.72
113.00	Commscope JAHH-65B-R3B	6	0.80	2.000	60.60	9.113	0.69	172.12	10.642	0.69
113.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	365.21	14.245	0.67
113.00	RFS APL866513-12T0-00	2	0.80	2.000	15.70	4.050	0.82	75.77	5.075	0.82
113.00	Commscope CBC78-DS-43	3	0.80	0.000	6.00	0.368	0.50	12.22	0.597	0.50
113.00	Samsung Outdoor CBRS 20W RRH -	3	0.80	0.000	4.40	0.892	0.50	14.32	1.244	0.50
113.00	Samsung RT4401-48A	3	0.80	0.000	18.60	0.996	0.50	33.49	1.373	0.50
113.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	119.57	2.373	0.50
113.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	101.83	2.373	0.50
113.00	RFS APL868013-12T0	4	0.80	2.000	6.30	3.615	0.50	54.87	4.645	0.50
103.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	95.75	2.464	0.50
103.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	109.21	2.464	0.50
103.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	204.86	14.024	0.64
103.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3470.10	53.852	1.00
103.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	52.98	2.359	1.00
70.00	Generic 4' Std. Dish	1	1.00	0.000	188.00	20.910	0.76	299.58	22.521	0.76

Totals Num Loadings: 47 116 14,457.90 24,031.14

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00\_

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax/ Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face	Dist Exposed To Wind	Carrier
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ASSET: 302484, Branford CT 6  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711882\_C3\_02

(in)

0.00	160.00	3	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	OTHER
0.00	159.00	1	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	OTHER
0.00	153.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	3	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	1	3/8" (0.38"- 9.5mm) R	0.38	0.23	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	1	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	VERIZON WIREL
128.0	143.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	240	0	Y	
0													
128.0	143.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	120	0	Y	
0													
128.0	143.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	0	0	Y	
0													
0.00	140.00	2	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	2	1	1	80	1	Y	T-MOBILE
0.00	140.00	1	1.99" (50.7mm) Hybrid	1.99	1.9	N	1	1	1	90	1	Y	T-MOBILE
0.00	140.00	1	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	1	1	1	85	1	Y	T-MOBILE
115.5	133.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	335	0	Y	
0													
115.5	133.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	90	0	Y	
0													
115.5	133.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	210	0	Y	
0													
0.00	132.00	2	1/2" Coax	0.63	0.15	N	2	0	0	200	0.25	Y	CLEARWIRE COR
0.00	132.00	2	2" conduit	2.38	3.65	N	2	0	0	190	0.25	Y	CLEARWIRE COR
0.00	130.00	6	5/16" (0.31"-7.9mm) C	0.31	0.05	N	6	0	0	205	0.25	Y	CLEARWIRE COR
0.00	130.00	2	1/2" Coax	0.63	0.15	N	2	0	0	200	0.25	Y	CLEARWIRE COR
0.00	123.20	1	#18 w/ W Bracket	2.25	0	N	1	0	0	45	5.15	Y	
0.00	123.20	1	#18 w/ W Bracket	2.25	0	N	1	0	0	135	5.15	Y	
0.00	123.20	1	#18 w/ W Bracket	2.25	0	N	1	0	0	225	5.15	Y	
0.00	123.20	1	W5 Brackets for #18	1.55	5.7	Y	1	0	0	315	1.8	Y	
0.00	123.20	1	#18 w/ W Bracket	2.25	0	N	1	0	0	315	5.15	Y	
0.00	123.20	1	W5 Brackets for #18	1.55	5.7	Y	1	0	0	45	1.8	Y	
0.00	123.20	1	W5 Brackets for #18	1.55	5.7	Y	1	0	0	225	1.8	Y	
0.00	123.20	1	W5 Brackets for #18	1.55	5.7	Y	1	0	0	135	1.8	Y	
0.00	122.00	3	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	ALMA RADIO IN
0.00	113.00	6	1 1/4" Coax	1.55	0.63	N	0	0	0	0	0	N	VERIZON WIREL
0.00	113.00	2	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	VERIZON WIREL
0.00	103.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS
0.00	70.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0	0	0	0	0	N	OTHER
0.00	65.50	1	#18 w/ Angle Bracket	3.75	4.68	N	1	0	0	180	0	Y	
0.00	65.50	1	#18 w/ Angle Bracket	3.75	4.68	N	1	0	0	90	0	Y	
0.00	65.50	1	#18 w/ Angle Brackets	3.75	4.68	N	1	0	0	0	0	Y	
0.00	65.50	1	#18 w/ Angle Bracket	3.75	4.68	N	1	0	0	270	0	Y	
0.00	20.00	1	1" Thick Flat Plate	1	0	Y	1	0	0	285	0	Y	
0.00	20.00	1	1" Thick Flat Plate	1	0	Y	1	0	0	15	0	Y	
0.00	20.00	1	1" Thick Flat Plate	1	0	Y	1	0	0	195	0	Y	
0.00	20.00	1	1" Thick Flat Plate	1	0	Y	1	0	0	105	0	Y	

ADDITIONAL STEEL

Intermediate Connectors

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	119.00	4	SOL #18 All Thread Bar	75	5.15	6" T Bracket	30.00	3.50	5/8" A36 U-Bolt	N
0.00	59.00	4	SOL #18 All Thread Bar	75	2.22	6" Angle Bracket	30.00	3.50	5/8" A36 U-Bolt	N
2.00	18.00	2	PL PL 5" x 1"	50	0.00	5/8" Hollo Bolt	12.00	3.00	5/8" Hollo Bolt	N
2.00	18.00	2	PL PL 4" x 1"	50	0.00	5/8" Hollo Bolt	12.00	3.00	5/8" Hollo Bolt	N

SEGMENT PROPERTIES

(Max Len: 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
0.00		0.3750	37.380	44.684	7,810.10	24.03	99.68	78.5	403.6	0.0	0.0	32.000	9,070.90	0.0
2.00	Reinf Bottom Reinf Bottom	0.3750	37.067	44.305	7,613.30	23.81	98.84	78.8	396.8	0.0	302.8	32.000	8,950.20	217.6
5.00		0.3750	36.597	43.737	7,324.40	23.47	97.59	79.1	386.6	0.0	449.4	50.000	11,967.50	510.1
10.00		0.3750	35.813	42.791	6,859.30	22.91	95.50	79.7	370.0	0.0	736.1	50.000	11,541.10	850.2
15.00		0.3750	35.030	41.845	6,414.30	22.35	93.41	80.3	353.7	0.0	720.0	50.000	11,122.50	850.2
18.00	Reinf. Top Reinf. Top	0.3750	34.559	41.278	6,156.80	22.01	92.16	80.7	344.2	0.0	424.3	50.000	10,875.20	510.1
20.00		0.3750	34.246	40.899	5,989.00	21.79	91.32	80.9	337.8	0.0	279.6	32.000	7,900.20	217.6
25.00		0.3750	33.463	39.953	5,583.00	21.23	89.23	81.6	322.3	0.0	687.8	32.000	7,620.30	544.0
30.00		0.3750	32.679	39.007	5,195.70	20.67	87.14	81.9	307.1	0.0	671.7	32.000	7,345.40	544.0
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.10	20.50	86.52	81.9	302.7	0.0	198.4	32.000	7,263.90	163.2
35.00		0.3750	31.896	38.061	4,826.70	20.11	85.05	81.9	292.3	0.0	847.1	32.000	7,290.80	380.8
35.67	Top - Section 1	0.3130	32.417	32.356	4,256.60	25.07	103.57	77.4	253.7	0.0	159.7	32.000	7,254.60	72.5
40.00		0.3130	31.738	31.672	3,992.20	24.49	101.40	78	243.0	0.0	472.1	32.000	7,022.00	471.5
45.00		0.3130	30.955	30.882	3,701.00	23.82	98.90	78.7	231.0	0.0	532.1	32.000	6,758.40	544.0
50.00		0.3130	30.171	30.093	3,424.30	23.15	96.39	79.5	219.3	0.0	518.7	32.000	6,499.80	544.0
55.00		0.3130	29.388	29.303	3,161.70	22.48	93.89	80.2	207.8	0.0	505.3	32.000	6,246.30	544.0
59.00	Reinf. Top	0.3130	28.761	28.671	2,961.60	21.94	91.89	80.8	198.9	0.0	394.5	32.000	6,047.20	435.2
60.00		0.3130	28.604	28.513	2,912.90	21.81	91.39	80.9	196.7	0.0	97.3	16.000	3,423.30	54.4
65.00		0.3130	27.821	27.724	2,677.60	21.14	88.88	81.7	185.9	0.0	478.4	16.000	3,295.00	272.0
70.00	Bot - Section 3	0.3130	27.037	26.934	2,455.20	20.47	86.38	81.9	175.4	0.0	465.0	16.000	3,169.10	272.0
73.50	Top - Section 2	0.2500	26.989	21.525	1,964.20	26.25	107.95	76.1	140.6	0.0	576.5	16.000	3,161.40	190.4
75.00		0.2500	26.754	21.335	1,912.90	25.99	107.01	76.4	138.1	0.0	109.4	16.000	3,124.10	81.6
80.00		0.2500	25.970	20.705	1,748.20	25.16	103.88	77.3	130.0	0.0	357.6	16.000	3,001.60	272.0
85.00		0.2500	25.187	20.074	1,593.30	24.32	100.75	78.2	122.2	0.0	346.9	16.000	2,881.50	272.0
90.00		0.2500	24.403	19.443	1,447.80	23.48	97.61	79.1	114.6	0.0	336.2	16.000	2,763.90	272.0
95.00		0.2500	23.620	18.812	1,311.40	22.64	94.48	80	107.3	0.0	325.4	16.000	2,648.70	272.0
100.00		0.2500	22.836	18.182	1,183.90	21.80	91.34	80.9	100.2	0.0	314.7	16.000	2,536.00	272.0
103.00		0.2500	22.366	17.803	1,111.50	21.29	89.46	81.5	96.0	0.0	183.7	16.000	2,469.60	163.2
105.00		0.2500	22.053	17.551	1,064.90	20.96	88.21	81.9	93.3	0.0	120.3	16.000	2,425.80	108.8
110.00	Top - Section 3	0.2500	21.269	16.920	954.20	20.12	85.08	81.9	86.7	0.0	293.2	16.000	2,318.00	272.0
110.00	Bot - Section 4	0.1880	21.269	12.762	723.90	27.63	113.13	74.6	65.8	0.0		16.000	2,318.00	
113.00		0.1880	20.799	12.477	676.50	26.96	110.63	75.3	62.8	0.0	128.8	16.000	2,254.50	163.2
115.00		0.1880	20.486	12.287	646.10	26.52	108.97	75.8	60.9	0.0	84.3	16.000	2,212.60	108.8
119.00	Reinf. Top	0.1880	19.859	11.908	588.10	25.62	105.63	76.8	57.2	0.0	164.7	16.000	2,130.10	217.6
120.00		0.1880	19.702	11.813	574.20	25.40	104.80	77	56.3	0.0	40.4			
122.00		0.1880	19.389	11.623	546.90	24.95	103.13	77.5	54.5	0.0	79.7			
125.00		0.1880	18.919	11.339	507.70	24.28	100.63	78.2	51.8	0.0	117.2			
130.00		0.1880	18.135	10.864	446.70	23.17	96.46	79.4	47.6	0.0	188.9			
131.00		0.1880	17.978	10.770	435.10	22.94	95.63	79.7	46.7	0.0	36.8			
132.00		0.1880	17.822	10.675	423.70	22.72	94.80	79.9	45.9	0.0	36.5			
135.00		0.1880	17.352	10.390	390.70	22.05	92.30	80.7	43.5	0.0	107.5			
140.00		0.1880	16.568	9.916	339.60	20.93	88.13	81.9	39.6	0.0	172.7			
145.00		0.1880	15.785	9.441	293.10	19.82	83.96	81.9	35.9	0.0	164.7			
150.00		0.1880	15.001	8.967	251.10	18.70	79.79	81.9	32.3	0.0	156.6			

Totals: 13,383.0 10,663.0



Load Case: 1.2D + 1.0W Normal	117.94 mph wind with no ice	26 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.20		
Wind Load Factor: 1.00		

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-61.13	-29.09	0.00	-3,091.8	0.00	3,091.85	3,157.17	784.20	2,737.77	2,376.61	0	0	0.615
2.00	-60.21	-28.91	0.00	-3,033.7	0.00	3,033.67	3,140.17	777.55	2,691.61	2,343.59	0.02	-0.1	0.608
5.00	-58.62	-28.58	0.00	-2,947.0	0.00	2,946.96	3,114.35	767.59	2,623.11	2,294.24	0.14	-0.26	0.498
10.00	-56.04	-28.12	0.00	-2,804.0	0.00	2,804.04	3,070.50	750.99	2,510.89	2,212.51	0.52	-0.47	0.482
15.00	-53.50	-27.78	0.00	-2,663.4	0.00	2,663.42	3,025.61	734.39	2,401.13	2,131.46	1.13	-0.68	0.467
18.00	-51.99	-27.57	0.00	-2,580.1	0.00	2,580.08	2,998.18	724.42	2,336.45	2,083.18	1.6	-0.81	0.457
18.00	-51.99	-27.57	0.00	-2,580.1	0.00	2,580.08	2,998.18	724.42	2,336.45	2,083.18	1.6	-0.81	0.549
20.00	-51.08	-27.35	0.00	-2,524.9	0.00	2,524.94	2,979.68	717.78	2,293.82	2,051.14	1.96	-0.89	0.542
25.00	-48.92	-26.99	0.00	-2,388.2	0.00	2,388.18	2,932.71	701.18	2,188.97	1,971.59	3.03	-1.15	0.523
30.00	-46.82	-26.69	0.00	-2,253.2	0.00	2,253.25	2,875.21	684.57	2,086.57	1,886.65	4.36	-1.4	0.505
31.50	-46.16	-26.52	0.00	-2,213.2	0.00	2,213.22	2,854.29	679.59	2,056.33	1,859.14	4.81	-1.47	0.500
35.00	-44.24	-26.29	0.00	-2,120.4	0.00	2,120.39	2,805.48	667.97	1,986.62	1,795.73	5.96	-1.65	0.480
35.67	-43.84	-26.13	0.00	-2,102.9	0.00	2,102.86	2,253.08	567.85	1,719.88	1,471.98	6.19	-1.68	0.540
40.00	-42.12	-25.73	0.00	-1,989.6	0.00	1,989.62	2,223.50	555.84	1,647.92	1,421.63	7.81	-1.89	0.519
45.00	-40.16	-25.27	0.00	-1,861.0	0.00	1,860.96	2,188.39	541.99	1,566.79	1,363.96	9.92	-2.14	0.494
50.00	-38.23	-24.78	0.00	-1,734.6	0.00	1,734.62	2,152.25	528.13	1,487.72	1,306.78	12.29	-2.38	0.469
55.00	-36.33	-24.30	0.00	-1,610.7	0.00	1,610.73	2,115.06	514.27	1,410.69	1,250.16	14.92	-2.62	0.443
59.00	-34.84	-23.98	0.00	-1,513.5	0.00	1,513.52	2,084.57	503.18	1,350.55	1,205.28	17.2	-2.81	0.423
59.00	-34.84	-23.98	0.00	-1,513.5	0.00	1,513.52	2,084.57	503.18	1,350.55	1,205.28	17.2	-2.81	0.593
60.00	-34.48	-23.77	0.00	-1,489.6	0.00	1,489.55	2,076.84	500.41	1,335.71	1,194.13	17.79	-2.86	0.586
65.00	-32.90	-23.29	0.00	-1,370.7	0.00	1,370.69	2,037.58	486.55	1,262.78	1,138.75	20.95	-3.18	0.552
70.00	-31.28	-22.32	0.00	-1,254.2	0.00	1,254.22	1,985.31	472.69	1,191.90	1,077.58	24.45	-3.49	0.520
73.50	-29.99	-22.11	0.00	-1,176.1	0.00	1,176.09	1,474.00	377.76	952.88	802.36	27.09	-3.71	0.577
75.00	-29.56	-21.92	0.00	-1,142.9	0.00	1,142.93	1,466.32	374.43	936.20	791.10	28.27	-3.8	0.564
80.00	-28.26	-21.57	0.00	-1,033.3	0.00	1,033.34	1,440.03	363.37	881.69	753.74	32.41	-4.1	0.519
85.00	-26.98	-21.24	0.00	-925.5	0.00	925.47	1,412.71	352.30	828.81	716.70	36.87	-4.4	0.474
90.00	-25.72	-20.90	0.00	-819.3	0.00	819.29	1,384.35	341.23	777.56	680.02	41.62	-4.68	0.428
95.00	-24.48	-20.54	0.00	-714.8	0.00	714.81	1,354.95	330.16	727.95	643.77	46.65	-4.93	0.381
100.00	-23.28	-20.22	0.00	-612.1	0.00	612.10	1,324.51	319.09	679.97	607.99	51.94	-5.17	0.334
103.00	-19.05	-17.25	0.00	-551.4	0.00	551.42	1,305.75	312.45	651.97	586.76	55.23	-5.31	0.302
105.00	-18.58	-17.00	0.00	-516.9	0.00	516.93	1,293.03	308.02	633.63	572.72	57.47	-5.39	0.286
110.00	-17.44	-16.65	0.00	-431.9	0.00	431.91	1,247.19	296.95	588.93	532.34	63.22	-5.58	0.247
110.00	-17.44	-16.65	0.00	-431.9	0.00	431.91	856.53	223.97	445.40	367.75	63.22	-5.58	0.294
113.00	-14.64	-13.34	0.00	-378.4	0.00	378.40	845.64	218.97	425.76	354.91	66.76	-5.69	0.257
115.00	-14.25	-13.05	0.00	-351.7	0.00	351.72	838.16	215.64	412.92	346.37	69.15	-5.76	0.241
119.00	-13.38	-12.70	0.00	-299.5	0.00	299.52	822.72	208.98	387.82	329.40	74.03	-5.89	0.207
119.00	-13.38	-12.70	0.00	-299.5	0.00	299.52	822.72	208.98	387.82	329.40	74.03	-5.89	0.929
120.00	-13.20	-12.57	0.00	-286.8	0.00	286.82	818.76	207.32	381.66	325.17	75.27	-5.92	0.902
122.00	-12.84	-12.25	0.00	-261.6	0.00	261.59	810.71	203.99	369.51	316.76	77.8	-6.19	0.845
125.00	-12.36	-11.96	0.00	-224.8	0.00	224.85	798.31	198.99	351.64	304.20	81.81	-6.57	0.758
130.00	-11.41	-10.80	0.00	-164.4	0.00	164.39	776.83	190.67	322.85	283.51	88.98	-7.12	0.598
131.00	-10.63	-10.29	0.00	-153.6	0.00	153.59	772.41	189.01	317.24	279.41	90.48	-7.22	0.566
132.00	-10.46	-10.08	0.00	-143.3	0.00	143.30	767.94	187.34	311.67	275.32	92	-7.32	0.537
135.00	-10.08	-9.73	0.00	-113.0	0.00	113.05	754.30	182.35	295.28	263.15	96.67	-7.58	0.446
140.00	-4.95	-5.43	0.00	-64.4	0.00	64.41	730.89	174.02	268.95	243.21	104.77	-7.9	0.273
145.00	-4.52	-4.98	0.00	-37.2	0.00	37.23	695.93	165.70	243.85	220.38	113.13	-8.11	0.176
150.00	0.00	-4.29	0.00	-12.3	0.00	12.32	660.97	157.37	219.97	198.67	121.67	-8.23	0.063

ASSET: 302484, Branford CT 6  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711882\_C3\_02

Load Case: 0.9D + 1.0W Normal	117.94 mph wind with no ice	26 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 0.90		
Wind Load Factor: 1.00		

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.84	-29.07	0.00	-3,031.0	0.00	3,030.97	3,157.17	784.20	2,737.77	2,376.61	0	0	0.600
2.00	-45.14	-28.85	0.00	-2,972.8	0.00	2,972.83	3,140.17	777.55	2,691.61	2,343.59	0.02	-0.1	0.593
5.00	-43.92	-28.48	0.00	-2,886.3	0.00	2,886.27	3,114.35	767.59	2,623.11	2,294.24	0.14	-0.25	0.486
10.00	-41.97	-27.97	0.00	-2,743.8	0.00	2,743.85	3,070.50	750.99	2,510.89	2,212.51	0.51	-0.46	0.470
15.00	-40.05	-27.60	0.00	-2,604.0	0.00	2,603.98	3,025.61	734.39	2,401.13	2,131.46	1.1	-0.67	0.454
18.00	-38.90	-27.36	0.00	-2,521.2	0.00	2,521.19	2,998.18	724.42	2,336.45	2,083.18	1.56	-0.79	0.445
18.00	-38.90	-27.36	0.00	-2,521.2	0.00	2,521.19	2,998.18	724.42	2,336.45	2,083.18	1.56	-0.79	0.535
20.00	-38.21	-27.11	0.00	-2,466.5	0.00	2,466.47	2,979.68	717.78	2,293.82	2,051.14	1.91	-0.87	0.527
25.00	-36.56	-26.69	0.00	-2,330.9	0.00	2,330.93	2,932.71	701.18	2,188.97	1,971.59	2.96	-1.12	0.508
30.00	-34.97	-26.37	0.00	-2,197.5	0.00	2,197.47	2,875.21	684.57	2,086.57	1,886.65	4.27	-1.36	0.491
31.50	-34.46	-26.18	0.00	-2,157.9	0.00	2,157.91	2,854.29	679.59	2,056.33	1,859.14	4.71	-1.44	0.486
35.00	-33.02	-25.94	0.00	-2,066.3	0.00	2,066.28	2,805.48	667.97	1,986.62	1,795.73	5.83	-1.61	0.466
35.67	-32.70	-25.76	0.00	-2,049.0	0.00	2,048.98	2,253.08	567.85	1,719.88	1,471.98	6.05	-1.64	0.524
40.00	-31.40	-25.33	0.00	-1,937.4	0.00	1,937.35	2,223.50	555.84	1,647.92	1,421.63	7.64	-1.84	0.503
45.00	-29.91	-24.83	0.00	-1,810.7	0.00	1,810.71	2,188.39	541.99	1,566.79	1,363.96	9.7	-2.09	0.479
50.00	-28.44	-24.32	0.00	-1,686.5	0.00	1,686.54	2,152.25	528.13	1,487.72	1,306.78	12.02	-2.32	0.454
55.00	-27.00	-23.83	0.00	-1,564.9	0.00	1,564.94	2,115.06	514.27	1,410.69	1,250.16	14.58	-2.56	0.429
59.00	-25.88	-23.50	0.00	-1,469.6	0.00	1,469.64	2,084.57	503.18	1,350.55	1,205.28	16.8	-2.74	0.409
59.00	-25.88	-23.50	0.00	-1,469.6	0.00	1,469.64	2,084.57	503.18	1,350.55	1,205.28	16.8	-2.74	0.573
60.00	-25.60	-23.27	0.00	-1,446.1	0.00	1,446.14	2,076.84	500.41	1,335.71	1,194.13	17.38	-2.79	0.567
65.00	-24.40	-22.76	0.00	-1,329.8	0.00	1,329.80	2,037.58	486.55	1,262.78	1,138.75	20.47	-3.1	0.533
70.00	-23.17	-21.77	0.00	-1,216.0	0.00	1,216.00	1,985.31	472.69	1,191.90	1,077.58	23.87	-3.4	0.502
73.50	-22.20	-21.56	0.00	-1,139.8	0.00	1,139.79	1,474.00	377.76	952.88	802.36	26.45	-3.61	0.556
75.00	-21.87	-21.34	0.00	-1,107.5	0.00	1,107.46	1,466.32	374.43	936.20	791.10	27.59	-3.7	0.543
80.00	-20.87	-20.98	0.00	-1,000.7	0.00	1,000.74	1,440.03	363.37	881.69	753.74	31.63	-4	0.500
85.00	-19.90	-20.63	0.00	-895.8	0.00	895.84	1,412.71	352.30	828.81	716.70	35.96	-4.28	0.456
90.00	-18.94	-20.28	0.00	-792.7	0.00	792.70	1,384.35	341.23	777.56	680.02	40.59	-4.55	0.412
95.00	-18.01	-19.92	0.00	-691.3	0.00	691.31	1,354.95	330.16	727.95	643.77	45.48	-4.8	0.366
100.00	-17.10	-19.61	0.00	-591.7	0.00	591.70	1,324.51	319.09	679.97	607.99	50.63	-5.03	0.320
103.00	-13.97	-16.73	0.00	-532.9	0.00	532.87	1,305.75	312.45	651.97	586.76	53.83	-5.16	0.290
105.00	-13.61	-16.49	0.00	-499.4	0.00	499.41	1,293.03	308.02	633.63	572.72	56.01	-5.24	0.274
110.00	-12.76	-16.15	0.00	-417.0	0.00	416.98	1,247.19	296.95	588.93	532.34	61.59	-5.43	0.237
110.00	-12.76	-16.15	0.00	-417.0	0.00	416.98	856.53	223.97	445.40	367.75	61.59	-5.43	0.282
113.00	-10.72	-12.92	0.00	-365.0	0.00	364.98	845.64	218.97	425.76	354.91	65.03	-5.53	0.246
115.00	-10.43	-12.62	0.00	-339.2	0.00	339.15	838.16	215.64	412.92	346.37	67.36	-5.6	0.230
119.00	-9.78	-12.30	0.00	-288.6	0.00	288.65	822.72	208.98	387.82	329.40	72.1	-5.72	0.198
119.00	-9.78	-12.30	0.00	-288.6	0.00	288.65	822.72	208.98	387.82	329.40	72.1	-5.72	0.892
120.00	-9.65	-12.16	0.00	-276.4	0.00	276.35	818.76	207.32	381.66	325.17	73.3	-5.75	0.865
122.00	-9.37	-11.83	0.00	-252.0	0.00	251.95	810.71	203.99	369.51	316.76	75.76	-6.01	0.810
125.00	-9.00	-11.52	0.00	-216.5	0.00	216.47	798.31	198.99	351.64	304.20	79.65	-6.38	0.726
130.00	-8.31	-10.38	0.00	-158.2	0.00	158.22	776.83	190.67	322.85	283.51	86.61	-6.91	0.572
131.00	-7.73	-9.88	0.00	-147.8	0.00	147.85	772.41	189.01	317.24	279.41	88.07	-7	0.542
132.00	-7.60	-9.68	0.00	-138.0	0.00	137.96	767.94	187.34	311.67	275.32	89.54	-7.1	0.514
135.00	-7.32	-9.32	0.00	-108.9	0.00	108.94	754.30	182.35	295.28	263.15	94.07	-7.35	0.426
140.00	-3.57	-5.22	0.00	-62.4	0.00	62.35	730.89	174.02	268.95	243.21	101.92	-7.66	0.262
145.00	-3.26	-4.78	0.00	-36.2	0.00	36.24	695.93	165.70	243.85	220.38	110.04	-7.86	0.170
150.00	0.00	-4.29	0.00	-12.3	0.00	12.32	660.97	157.37	219.97	198.67	118.32	-7.98	0.063

ASSET: 302484, Branford CT 6  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711882\_C3\_02

Load Case: 1.2D + 1.0Di + 1.0Wi Normal	48.73 mph wind with 0.850" radial ice		25 Iterations
Gust Response Factor: 1.10	Ice Dead Load Factor	1.00	
Dead load Factor: 1.20			Ice Importance Factor 1.00
Wind Load Factor: 1.00			

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-78.40	-6.77	0.00	-765.2	0.00	765.16	3,157.17	784.20	2,737.77	2,376.61	0	0	0.163
2.00	-77.42	-6.76	0.00	-751.6	0.00	751.62	3,140.17	777.55	2,691.61	2,343.59	0.01	-0.03	0.162
5.00	-75.71	-6.74	0.00	-731.3	0.00	731.34	3,114.35	767.59	2,623.11	2,294.24	0.03	-0.06	0.132
10.00	-72.84	-6.70	0.00	-697.6	0.00	697.63	3,070.50	750.99	2,510.89	2,212.51	0.13	-0.12	0.129
15.00	-69.98	-6.66	0.00	-664.1	0.00	664.12	3,025.61	734.39	2,401.13	2,131.46	0.28	-0.17	0.125
18.00	-68.26	-6.63	0.00	-644.1	0.00	644.14	2,998.18	724.42	2,336.45	2,083.18	0.4	-0.2	0.122
18.00	-68.26	-6.63	0.00	-644.1	0.00	644.14	2,998.18	724.42	2,336.45	2,083.18	0.4	-0.2	0.147
20.00	-67.27	-6.61	0.00	-630.9	0.00	630.88	2,979.68	717.78	2,293.82	2,051.14	0.49	-0.22	0.145
25.00	-64.80	-6.57	0.00	-597.8	0.00	597.83	2,932.71	701.18	2,188.97	1,971.59	0.75	-0.29	0.141
30.00	-62.35	-6.52	0.00	-565.0	0.00	565.00	2,875.21	684.57	2,086.57	1,886.65	1.08	-0.35	0.136
31.50	-61.62	-6.50	0.00	-555.2	0.00	555.22	2,854.29	679.59	2,056.33	1,859.14	1.2	-0.37	0.135
35.00	-59.45	-6.46	0.00	-532.5	0.00	532.47	2,805.48	667.97	1,986.62	1,795.73	1.48	-0.41	0.130
35.67	-59.04	-6.44	0.00	-528.2	0.00	528.16	2,253.08	567.85	1,719.88	1,471.98	1.54	-0.42	0.146
40.00	-57.04	-6.38	0.00	-500.2	0.00	500.23	2,223.50	555.84	1,647.92	1,421.63	1.95	-0.47	0.140
45.00	-54.75	-6.31	0.00	-468.3	0.00	468.31	2,188.39	541.99	1,566.79	1,363.96	2.47	-0.53	0.134
50.00	-52.47	-6.23	0.00	-436.8	0.00	436.76	2,152.25	528.13	1,487.72	1,306.78	3.07	-0.6	0.127
55.00	-50.21	-6.13	0.00	-405.6	0.00	405.63	2,115.06	514.27	1,410.69	1,250.16	3.72	-0.66	0.121
59.00	-48.42	-6.05	0.00	-381.1	0.00	381.12	2,084.57	503.18	1,350.55	1,205.28	4.29	-0.7	0.115
59.00	-48.42	-6.05	0.00	-381.1	0.00	381.12	2,084.57	503.18	1,350.55	1,205.28	4.29	-0.7	0.161
60.00	-48.04	-6.03	0.00	-375.1	0.00	375.06	2,076.84	500.41	1,335.71	1,194.13	4.44	-0.72	0.159
65.00	-46.17	-5.93	0.00	-344.9	0.00	344.94	2,037.58	486.55	1,262.78	1,138.75	5.24	-0.8	0.150
70.00	-44.16	-5.74	0.00	-315.3	0.00	315.28	1,985.31	472.69	1,191.90	1,077.58	6.11	-0.88	0.142
73.50	-42.67	-5.67	0.00	-295.2	0.00	295.20	1,474.00	377.76	952.88	802.36	6.77	-0.93	0.158
75.00	-42.20	-5.63	0.00	-286.7	0.00	286.70	1,466.32	374.43	936.20	791.10	7.07	-0.95	0.154
80.00	-40.64	-5.52	0.00	-258.6	0.00	258.56	1,440.03	363.37	881.69	753.74	8.11	-1.03	0.142
85.00	-39.09	-5.41	0.00	-230.9	0.00	230.94	1,412.71	352.30	828.81	716.70	9.23	-1.1	0.130
90.00	-37.57	-5.29	0.00	-203.9	0.00	203.88	1,384.35	341.23	777.56	680.02	10.42	-1.17	0.118
95.00	-36.05	-5.17	0.00	-177.4	0.00	177.41	1,354.95	330.16	727.95	643.77	11.68	-1.24	0.106
100.00	-34.56	-5.05	0.00	-151.6	0.00	151.56	1,324.51	319.09	679.97	607.99	13.01	-1.29	0.093
103.00	-28.73	-4.35	0.00	-136.4	0.00	136.41	1,305.75	312.45	651.97	586.76	13.83	-1.33	0.084
105.00	-28.14	-4.28	0.00	-127.7	0.00	127.72	1,293.03	308.02	633.63	572.72	14.39	-1.35	0.080
110.00	-26.70	-4.14	0.00	-106.3	0.00	106.34	1,247.19	296.95	588.93	532.34	15.83	-1.4	0.069
110.00	-26.70	-4.14	0.00	-106.3	0.00	106.34	856.53	223.97	445.40	367.75	15.83	-1.4	0.083
113.00	-22.01	-3.35	0.00	-93.2	0.00	93.18	845.64	218.97	425.76	354.91	16.72	-1.42	0.072
115.00	-21.49	-3.28	0.00	-86.5	0.00	86.47	838.16	215.64	412.92	346.37	17.32	-1.44	0.068
119.00	-20.32	-3.14	0.00	-73.4	0.00	73.35	822.72	208.98	387.82	329.40	18.54	-1.47	0.059
119.00	-20.32	-3.14	0.00	-73.4	0.00	73.35	822.72	208.98	387.82	329.40	18.54	-1.47	0.248
120.00	-20.09	-3.11	0.00	-70.2	0.00	70.21	818.76	207.32	381.66	325.17	18.85	-1.48	0.241
122.00	-19.57	-3.01	0.00	-64.0	0.00	63.96	810.71	203.99	369.51	316.76	19.48	-1.55	0.226
125.00	-18.97	-2.93	0.00	-54.9	0.00	54.92	798.31	198.99	351.64	304.20	20.48	-1.64	0.205
130.00	-17.41	-2.66	0.00	-40.1	0.00	40.13	776.83	190.67	322.85	283.51	22.27	-1.77	0.164
131.00	-16.33	-2.51	0.00	-37.5	0.00	37.47	772.41	189.01	317.24	279.41	22.65	-1.8	0.155
132.00	-16.10	-2.46	0.00	-35.0	0.00	34.96	767.94	187.34	311.67	275.32	23.03	-1.82	0.148
135.00	-15.59	-2.37	0.00	-27.6	0.00	27.58	754.30	182.35	295.28	263.15	24.19	-1.88	0.126
140.00	-8.08	-1.34	0.00	-15.7	0.00	15.73	730.89	174.02	268.95	243.21	26.21	-1.96	0.076
145.00	-7.47	-1.23	0.00	-9.0	0.00	9.05	695.93	165.70	243.85	220.38	28.29	-2.01	0.052
150.00	0.00	-0.96	0.00	-2.9	0.00	2.92	660.97	157.37	219.97	198.67	30.42	-2.04	0.015

ASSET: 302484, Branford CT 6  
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H  
 ENG NO: 13711882\_C3\_02

Load Case: 1.0D + 1.0W Service Normal	60 mph Wind with No Ice	24 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-50.96	-6.75	0.00	-710.2	0.00	710.16	3,157.17	784.20	2,737.77	2,376.61	0	0	0.148
2.00	-50.25	-6.70	0.00	-696.7	0.00	696.67	3,140.17	777.55	2,691.61	2,343.59	0.01	-0.02	0.146
5.00	-48.99	-6.62	0.00	-676.6	0.00	676.56	3,114.35	767.59	2,623.11	2,294.24	0.03	-0.06	0.119
10.00	-46.92	-6.51	0.00	-643.5	0.00	643.47	3,070.50	750.99	2,510.89	2,212.51	0.12	-0.11	0.116
15.00	-44.86	-6.42	0.00	-610.9	0.00	610.94	3,025.61	734.39	2,401.13	2,131.46	0.26	-0.16	0.112
18.00	-43.64	-6.37	0.00	-591.7	0.00	591.68	2,998.18	724.42	2,336.45	2,083.18	0.37	-0.19	0.109
18.00	-43.64	-6.37	0.00	-591.7	0.00	591.68	2,998.18	724.42	2,336.45	2,083.18	0.37	-0.19	0.132
20.00	-42.94	-6.31	0.00	-578.9	0.00	578.94	2,979.68	717.78	2,293.82	2,051.14	0.45	-0.21	0.130
25.00	-41.23	-6.22	0.00	-547.4	0.00	547.38	2,932.71	701.18	2,188.97	1,971.59	0.69	-0.26	0.125
30.00	-39.52	-6.15	0.00	-516.3	0.00	516.27	2,875.21	684.57	2,086.57	1,886.65	1	-0.32	0.121
31.50	-39.02	-6.11	0.00	-507.0	0.00	507.05	2,854.29	679.59	2,056.33	1,859.14	1.1	-0.34	0.120
35.00	-37.45	-6.05	0.00	-485.7	0.00	485.67	2,805.48	667.97	1,986.62	1,795.73	1.37	-0.38	0.115
35.67	-37.15	-6.01	0.00	-481.6	0.00	481.64	2,253.08	567.85	1,719.88	1,471.98	1.42	-0.39	0.129
40.00	-35.78	-5.92	0.00	-455.6	0.00	455.58	2,223.50	555.84	1,647.92	1,421.63	1.79	-0.43	0.124
45.00	-34.22	-5.80	0.00	-426.0	0.00	426.00	2,188.39	541.99	1,566.79	1,363.96	2.28	-0.49	0.118
50.00	-32.67	-5.69	0.00	-397.0	0.00	396.98	2,152.25	528.13	1,487.72	1,306.78	2.82	-0.55	0.112
55.00	-31.14	-5.58	0.00	-368.5	0.00	368.53	2,115.06	514.27	1,410.69	1,250.16	3.42	-0.6	0.106
59.00	-29.92	-5.50	0.00	-346.2	0.00	346.23	2,084.57	503.18	1,350.55	1,205.28	3.94	-0.64	0.101
59.00	-29.92	-5.50	0.00	-346.2	0.00	346.23	2,084.57	503.18	1,350.55	1,205.28	3.94	-0.64	0.142
60.00	-29.67	-5.45	0.00	-340.7	0.00	340.73	2,076.84	500.41	1,335.71	1,194.13	4.08	-0.65	0.140
65.00	-28.43	-5.34	0.00	-313.5	0.00	313.47	2,037.58	486.55	1,262.78	1,138.75	4.81	-0.73	0.132
70.00	-27.11	-5.11	0.00	-286.8	0.00	286.79	1,985.31	472.69	1,191.90	1,077.58	5.61	-0.8	0.125
73.50	-26.07	-5.06	0.00	-268.9	0.00	268.91	1,474.00	377.76	952.88	802.36	6.21	-0.85	0.139
75.00	-25.76	-5.01	0.00	-261.3	0.00	261.32	1,466.32	374.43	936.20	791.10	6.48	-0.87	0.136
80.00	-24.74	-4.93	0.00	-236.2	0.00	236.24	1,440.03	363.37	881.69	753.74	7.43	-0.94	0.125
85.00	-23.73	-4.85	0.00	-211.6	0.00	211.58	1,412.71	352.30	828.81	716.70	8.45	-1.01	0.115
90.00	-22.73	-4.78	0.00	-187.3	0.00	187.31	1,384.35	341.23	777.56	680.02	9.54	-1.07	0.104
95.00	-21.74	-4.69	0.00	-163.4	0.00	163.43	1,354.95	330.16	727.95	643.77	10.7	-1.13	0.093
100.00	-20.76	-4.62	0.00	-140.0	0.00	139.96	1,324.51	319.09	679.97	607.99	11.91	-1.18	0.082
103.00	-17.06	-3.95	0.00	-126.1	0.00	126.09	1,305.75	312.45	651.97	586.76	12.66	-1.21	0.074
105.00	-16.68	-3.89	0.00	-118.2	0.00	118.20	1,293.03	308.02	633.63	572.72	13.18	-1.23	0.070
110.00	-15.74	-3.81	0.00	-98.7	0.00	98.74	1,247.19	296.95	588.93	532.34	14.49	-1.28	0.061
110.00	-15.74	-3.81	0.00	-98.7	0.00	98.74	856.53	223.97	445.40	367.75	14.49	-1.28	0.072
113.00	-13.19	-3.05	0.00	-86.5	0.00	86.49	845.64	218.97	425.76	354.91	15.3	-1.3	0.063
115.00	-12.86	-2.99	0.00	-80.4	0.00	80.38	838.16	215.64	412.92	346.37	15.85	-1.32	0.059
119.00	-12.12	-2.91	0.00	-68.4	0.00	68.43	822.72	208.98	387.82	329.40	16.97	-1.35	0.051
119.00	-12.12	-2.91	0.00	-68.4	0.00	68.43	822.72	208.98	387.82	329.40	16.97	-1.35	0.223
120.00	-11.98	-2.88	0.00	-65.5	0.00	65.53	818.76	207.32	381.66	325.17	17.26	-1.36	0.216
122.00	-11.70	-2.80	0.00	-59.8	0.00	59.75	810.71	203.99	369.51	316.76	17.84	-1.42	0.203
125.00	-11.35	-2.74	0.00	-51.3	0.00	51.34	798.31	198.99	351.64	304.20	18.76	-1.5	0.183
130.00	-10.49	-2.47	0.00	-37.5	0.00	37.51	776.83	190.67	322.85	283.51	20.4	-1.63	0.146
131.00	-9.81	-2.35	0.00	-35.0	0.00	35.05	772.41	189.01	317.24	279.41	20.74	-1.65	0.138
132.00	-9.67	-2.30	0.00	-32.7	0.00	32.70	767.94	187.34	311.67	275.32	21.09	-1.67	0.132
135.00	-9.35	-2.22	0.00	-25.8	0.00	25.80	754.30	182.35	295.28	263.15	22.16	-1.73	0.111
140.00	-4.68	-1.24	0.00	-14.7	0.00	14.73	730.89	174.02	268.95	243.21	24.02	-1.81	0.067
145.00	-4.29	-1.13	0.00	-8.5	0.00	8.52	695.93	165.70	243.85	220.38	25.94	-1.86	0.045
150.00	0.00	-0.99	0.00	-2.8	0.00	2.85	660.97	157.37	219.97	198.67	27.9	-1.88	0.014

**EQUIVALENT LATERAL FORCES METHOD ANALYSIS**  
*(Based on ASCE7-16 Chapters 11, 12 and 15)*

Spectral Response Acceleration for Short Period ( $S_S$ ):	0.203
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.054
Long-Period Transition Period ( $T_L$ – Seconds):	6
Importance Factor ( $I_e$ ):	1.000
Site Coefficient $F_a$ :	1.600
Site Coefficient $F_v$ :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.217
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.086
Seismic Response Coefficient ( $C_s$ ):	0.030
Upper Limit $C_s$ :	0.030
Lower Limit $C_s$ :	0.030
Period based on Rayleigh Method (sec):	3.050
Redundancy Factor ( $\rho$ ):	1.000
Seismic Force Distribution Exponent ( $k$ ):	2.000
Total Unfactored Dead Load:	50.960 k
Seismic Base Shear (E):	1.530 k

**1.2D + 1.0Ev + 1.0Eh Normal Seismic**

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
42	147.5	318	6,924	0.016	25	396
41	142.5	397	8,066	0.019	29	494
40	137.5	478	9,034	0.021	33	594
39	133.5	314	5,600	0.013	20	391
38	131.5	129	2,226	0.005	8	160
37	130.5	129	2,198	0.005	8	160
36	127.5	582	9,465	0.022	34	724
35	123.5	352	5,372	0.013	19	438
34	121	265	3,875	0.009	14	329
33	119.5	133	1,897	0.004	7	165
32	117	740	10,134	0.024	37	920
31	114	331	4,298	0.010	16	411
30	111.5	518	6,436	0.015	23	644
29	107.5	941	10,878	0.026	39	1,170
28	104	380	4,105	0.010	15	472
27	101.5	580	5,970	0.014	22	721
26	97.5	974	9,263	0.022	34	1,212
25	92.5	985	8,430	0.020	30	1,225
24	87.5	996	7,625	0.018	28	1,238
23	82.5	1,007	6,852	0.016	25	1,252
22	77.5	1,017	6,111	0.014	22	1,265
21	74.25	307	1,694	0.004	6	382
20	71.75	1,038	5,345	0.013	19	1,291
19	67.5	1,134	5,168	0.012	19	1,410
18	62.5	1,232	4,812	0.011	17	1,532
17	59.5	248	878	0.002	3	308
16	57	1,215	3,947	0.009	14	1,511
15	52.5	1,531	4,219	0.010	15	1,903
14	47.5	1,544	3,484	0.008	13	1,920
13	42.5	1,558	2,813	0.007	10	1,937
12	37.8334	1,361	1,948	0.005	7	1,692
11	35.3334	296	370	0.001	1	369
10	33.25	1,565	1,730	0.004	6	1,946
9	30.75	506	478	0.001	2	629

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vz</sub>	Horizontal Force (lb)	Vertical Force (lb)
8	27.5	1,697	1,284	0.003	5	2,110
7	22.5	1,713	867	0.002	3	2,130
6	19	690	249	0.001	1	858
5	16.5	1,223	333	0.001	1	1,521
4	12.5	2,052	321	0.001	1	2,551
3	7.5	2,068	116	0.000	0	2,571
2	3.5	1,248	15	0.000	0	1,552
1	1	713	1	0.000	0	886
Generic 11' Dipole	150	40	900	0.002	3	50
Generic 4' Omni	150	10	225	0.000	1	12
Powerwave Allgon 7020.00 Dual Band RET	150	13	297	0.001	1	16
Kathrein Scala 782-10250	150	19	432	0.001	2	24
Powerwave Allgon LGP21401	150	85	1,904	0.004	7	105
Raycap DC6-48-60-18-8F ("Squid")	150	32	716	0.002	3	40
Ericsson RRUS 8843 B2, B66A	150	216	4,860	0.012	18	269
Ericsson RRUS 4449 B5, B12	150	213	4,792	0.011	17	265
Raycap DC6-48-60-18-8C	150	16	360	0.001	1	20
Ericsson RRUS 32 B30 (53 lbs)	150	159	3,578	0.008	13	198
Raycap DC6-48-60-18-8C-EV	150	16	360	0.001	1	20
Powerwave Allgon 7770.00	150	105	2,362	0.006	9	131
CCI HPA65R-BU6A	150	126	2,828	0.007	10	156
Commscope SBNHH-1D65B	150	152	3,422	0.008	12	189
Kathrein Scala 80010965	150	293	6,588	0.016	24	364
Generic Round Platform with Handrails	150	2,500	56,250	0.133	203	3,108
Generic GPS	150	10	225	0.000	1	12
Ericsson Radio 4449 B71 B85A	140	225	4,410	0.010	16	280
Ericsson Radio 4460 B25+B66	140	327	6,409	0.015	23	407
Ericsson Air6449 B41	140	312	6,115	0.014	22	388
RFS APXVAARR24_43-U-NA20	140	384	7,521	0.018	27	477
PerfectVision PV-RP14M-9-96 Round Platform w/ Handrails	140	2,972	58,251	0.138	211	3,695
Generic 12" x 12" Junction Box	132	10	174	0.000	1	12
Side Arms	131	560	9,610	0.023	35	696
DragonWave Horizon Compact	130	21	358	0.001	1	26
DragonWave A-ANT-23G-1-C	130	15	254	0.001	1	19
NextNet BTS-2500	130	105	1,774	0.004	6	131
Argus LLPX310R	130	86	1,450	0.003	5	107
DragonWave A-ANT-18G-2.5-C	130	48	804	0.002	3	59
SWR FMEC/1	122	15	223	0.000	1	19
Commscope CBC78-DS-43	113	18	230	0.000	1	22
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	113	13	169	0.000	1	16
Samsung RT4401-48A	113	56	713	0.002	3	69
Samsung B2/B66A RRH-BR049	113	253	3,233	0.008	12	315
Samsung B5/B13 RRH-BR04C	113	211	2,693	0.006	10	262
RFS APL868013-12T0	113	25	322	0.001	1	31
RFS APL866513-12T0-00	113	31	401	0.001	1	39
Samsung MT6407-77A	113	245	3,126	0.007	11	304
RFS DB-T1-6Z-8AB-OZ	113	88	1,124	0.003	4	109
Commscope JAHH-65B-R3B	113	364	4,643	0.011	17	452
Round T-Arm	113	750	9,577	0.023	35	932
Commscope RDIDC-9181-PF-48	103	22	232	0.000	1	27
Fujitsu TA08025-B604	103	192	2,034	0.005	7	238
Fujitsu TA08025-B605	103	225	2,387	0.006	9	280
JMA Wireless MX08FRO665-21	103	194	2,053	0.005	7	241
Generic Flat Platform with Handrails	103	2,500	26,522	0.063	96	3,108
Generic 4' Std. Dish	70	188	921	0.002	3	234
		50,964	422,666	1.000	1,529	63,364

**0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
42	147.5	318	6,924	0.016	25	273
41	142.5	397	8,066	0.019	29	340
40	137.5	478	9,034	0.021	33	409
39	133.5	314	5,600	0.013	20	269
38	131.5	129	2,226	0.005	8	110
37	130.5	129	2,198	0.005	8	111
36	127.5	582	9,465	0.022	34	499
35	123.5	352	5,372	0.013	19	302
34	121	265	3,875	0.009	14	227
33	119.5	133	1,897	0.004	7	114
32	117	740	10,134	0.024	37	634
31	114	331	4,298	0.010	16	283
30	111.5	518	6,436	0.015	23	443
29	107.5	941	10,878	0.026	39	806
28	104	380	4,105	0.010	15	325
27	101.5	580	5,970	0.014	22	496
26	97.5	974	9,263	0.022	34	835
25	92.5	985	8,430	0.020	30	844
24	87.5	996	7,625	0.018	28	853
23	82.5	1,007	6,852	0.016	25	862
22	77.5	1,017	6,111	0.014	22	872
21	74.25	307	1,694	0.004	6	263
20	71.75	1,038	5,345	0.013	19	889
19	67.5	1,134	5,168	0.012	19	972
18	62.5	1,232	4,812	0.011	17	1,055
17	59.5	248	878	0.002	3	212
16	57	1,215	3,947	0.009	14	1,041
15	52.5	1,531	4,219	0.010	15	1,311
14	47.5	1,544	3,484	0.008	13	1,323
13	42.5	1,558	2,813	0.007	10	1,334
12	37.8334	1,361	1,948	0.005	7	1,166
11	35.3334	296	370	0.001	1	254
10	33.25	1,565	1,730	0.004	6	1,341
9	30.75	506	478	0.001	2	434
8	27.5	1,697	1,284	0.003	5	1,454
7	22.5	1,713	867	0.002	3	1,468
6	19	690	249	0.001	1	591
5	16.5	1,223	333	0.001	1	1,048
4	12.5	2,052	321	0.001	1	1,758
3	7.5	2,068	116	0.000	0	1,771
2	3.5	1,248	15	0.000	0	1,070
1	1	713	1	0.000	0	611
Generic 11' Dipole	150	40	900	0.002	3	34
Generic 4' Omni	150	10	225	0.000	1	9
Powerwave Allgon 7020.00 Dual Band RET	150	13	297	0.001	1	11
Kathrein Scala 782-10250	150	19	432	0.001	2	16
Powerwave Allgon LGP21401	150	85	1,904	0.004	7	72
Raycap DC6-48-60-18-8F ("Squid")	150	32	716	0.002	3	27
Ericsson RRUS 8843 B2, B66A	150	216	4,860	0.012	18	185
Ericsson RRUS 4449 B5, B12	150	213	4,792	0.011	17	182
Raycap DC6-48-60-18-8C	150	16	360	0.001	1	14
Ericsson RRUS 32 B30 (53 lbs)	150	159	3,578	0.008	13	136
Raycap DC6-48-60-18-8C-EV	150	16	360	0.001	1	14
Powerwave Allgon 7770.00	150	105	2,362	0.006	9	90
CCI HPA65R-BU6A	150	126	2,828	0.007	10	108
Commscope SBNHH-1D65B	150	152	3,422	0.008	12	130
Kathrein Scala 80010965	150	293	6,588	0.016	24	251
Generic Round Platform with Handrails	150	2,500	56,250	0.133	203	2,142
Generic GPS	150	10	225	0.000	1	9
Ericsson Radio 4449 B71 B85A	140	225	4,410	0.010	16	193
Ericsson Radio 4460 B25+B66	140	327	6,409	0.015	23	280
Ericsson Air6449 B41	140	312	6,115	0.014	22	267
RFS APXVAARR24_43-U-NA20	140	384	7,521	0.018	27	329
PerfectVision PV-RP14M-9-96 Round Platform w/ Handrails	140	2,972	58,251	0.138	211	2,546
Generic 12" x 12" Junction Box	132	10	174	0.000	1	9
Side Arms	131	560	9,610	0.023	35	480
DragonWave Horizon Compact	130	21	358	0.001	1	18
DragonWave A-ANT-23G-1-C	130	15	254	0.001	1	13
NextNet BTS-2500	130	105	1,774	0.004	6	90

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vz</sub>	Horizontal Force (lb)	Vertical Force (lb)
Argus LLPX310R	130	86	1,450	0.003	5	74
DragonWave A-ANT-18G-2.5-C	130	48	804	0.002	3	41
SWR FMEC/1	122	15	223	0.000	1	13
Commscope CBC78-DS-43	113	18	230	0.000	1	15
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	113	13	169	0.000	1	11
Samsung RT4401-48A	113	56	713	0.002	3	48
Samsung B2/B66A RRH-BR049	113	253	3,233	0.008	12	217
Samsung B5/B13 RRH-BR04C	113	211	2,693	0.006	10	181
RFS APL868013-12T0	113	25	322	0.001	1	22
RFS APL866513-12T0-00	113	31	401	0.001	1	27
Samsung MT6407-77A	113	245	3,126	0.007	11	210
RFS DB-T1-6Z-8AB-0Z	113	88	1,124	0.003	4	75
Commscope JAHH-65B-R3B	113	364	4,643	0.011	17	311
Round T-Arm	113	750	9,577	0.023	35	643
Commscope RDIDC-9181-PF-48	103	22	232	0.000	1	19
Fujitsu TA08025-B604	103	192	2,034	0.005	7	164
Fujitsu TA08025-B605	103	225	2,387	0.006	9	193
JMA Wireless MX08FRO665-21	103	194	2,053	0.005	7	166
Generic Flat Platform with Handrails	103	2,500	26,522	0.063	96	2,142
Generic 4' Std. Dish	70	188	921	0.002	3	161
		50,964	422,666	1.000	1,529	43,661

**1.2D + 1.0Ev + 1.0Eh Normal Seismic**

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-62.48	-1.53	0.00	-198.09	0.00	198.09	3,157.17	784.20	2,738	2,376.61	0.00	0.00	0.05
2.00	-60.93	-1.54	0.00	-195.03	0.00	195.03	3,140.17	777.55	2,692	2,343.59	0.00	-0.01	0.05
5.00	-58.35	-1.55	0.00	-190.41	0.00	190.41	3,114.35	767.59	2,623	2,294.24	0.01	-0.02	0.04
10.00	-55.80	-1.56	0.00	-182.65	0.00	182.65	3,070.50	750.99	2,511	2,212.51	0.03	-0.03	0.04
15.00	-54.28	-1.57	0.00	-174.84	0.00	174.84	3,025.61	734.39	2,401	2,131.46	0.07	-0.04	0.04
18.00	-53.42	-1.58	0.00	-170.12	0.00	170.12	2,998.18	724.42	2,336	2,083.18	0.10	-0.05	0.04
18.00	-53.42	-1.58	0.00	-170.12	0.00	170.12	2,998.18	724.42	2,336	2,083.18	0.10	-0.05	0.05
20.00	-51.29	-1.58	0.00	-166.97	0.00	166.97	2,979.68	717.78	2,294	2,051.14	0.13	-0.06	0.05
25.00	-49.18	-1.59	0.00	-159.07	0.00	159.07	2,932.71	701.18	2,189	1,971.59	0.20	-0.07	0.04
30.00	-48.55	-1.59	0.00	-151.13	0.00	151.13	2,875.21	684.57	2,087	1,886.65	0.28	-0.09	0.04
31.50	-46.61	-1.59	0.00	-148.74	0.00	148.74	2,854.29	679.59	2,056	1,859.14	0.31	-0.10	0.04
35.00	-46.24	-1.60	0.00	-143.16	0.00	143.16	2,805.48	667.97	1,987	1,795.73	0.39	-0.11	0.04
35.67	-44.55	-1.59	0.00	-142.10	0.00	142.10	2,253.08	567.85	1,720	1,471.98	0.40	-0.11	0.05
40.00	-42.61	-1.59	0.00	-135.20	0.00	135.20	2,223.50	555.84	1,648	1,421.63	0.51	-0.12	0.04
45.00	-40.69	-1.58	0.00	-127.26	0.00	127.26	2,188.39	541.99	1,567	1,363.96	0.65	-0.14	0.04
50.00	-38.78	-1.58	0.00	-119.34	0.00	119.34	2,152.25	528.13	1,488	1,306.78	0.81	-0.16	0.04
55.00	-37.27	-1.57	0.00	-111.46	0.00	111.46	2,115.06	514.27	1,411	1,250.16	0.98	-0.18	0.04
59.00	-36.97	-1.57	0.00	-105.20	0.00	105.20	2,084.57	503.18	1,351	1,205.28	1.14	-0.19	0.04
59.00	-36.97	-1.57	0.00	-105.20	0.00	105.20	2,084.57	503.18	1,351	1,205.28	1.14	-0.19	0.05
60.00	-35.43	-1.55	0.00	-103.63	0.00	103.63	2,076.84	500.41	1,336	1,194.13	1.18	-0.19	0.05
65.00	-34.02	-1.54	0.00	-95.87	0.00	95.87	2,037.58	486.55	1,263	1,138.75	1.39	-0.21	0.05
70.00	-32.50	-1.52	0.00	-88.15	0.00	88.15	1,985.31	472.69	1,192	1,077.58	1.62	-0.24	0.05
73.50	-32.12	-1.52	0.00	-82.82	0.00	82.82	1,474.00	377.76	953	802.36	1.80	-0.25	0.05
75.00	-30.85	-1.50	0.00	-80.54	0.00	80.54	1,466.32	374.43	936	791.10	1.88	-0.26	0.05
80.00	-29.60	-1.48	0.00	-73.02	0.00	73.02	1,440.03	363.37	882	753.74	2.16	-0.28	0.05
85.00	-28.36	-1.46	0.00	-65.61	0.00	65.61	1,412.71	352.30	829	716.70	2.47	-0.30	0.04
90.00	-27.13	-1.43	0.00	-58.32	0.00	58.32	1,384.35	341.23	778	680.02	2.79	-0.32	0.04
95.00	-25.92	-1.40	0.00	-51.16	0.00	51.16	1,354.95	330.16	728	643.77	3.14	-0.34	0.04
100.00	-25.20	-1.38	0.00	-44.17	0.00	44.17	1,324.51	319.09	680	607.99	3.50	-0.36	0.03
103.00	-20.84	-1.22	0.00	-40.04	0.00	40.04	1,305.75	312.45	652	586.76	3.73	-0.36	0.03
105.00	-19.67	-1.18	0.00	-37.60	0.00	37.60	1,293.03	308.02	634	572.72	3.88	-0.37	0.03
110.00	-19.02	-1.15	0.00	-31.72	0.00	31.72	1,247.19	296.95	589	532.34	4.28	-0.39	0.03
110.00	-19.02	-1.15	0.00	-31.72	0.00	31.72	856.53	223.97	445	367.75	4.28	-0.39	0.03
113.00	-16.06	-1.02	0.00	-28.27	0.00	28.27	845.64	218.97	426	354.91	4.52	-0.39	0.03
115.00	-15.14	-0.98	0.00	-26.22	0.00	26.22	838.16	215.64	413	346.37	4.69	-0.40	0.03
119.00	-14.97	-0.98	0.00	-22.30	0.00	22.30	822.72	208.98	388	329.40	5.03	-0.41	0.02



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
119.00	-14.97	-0.98	0.00	-22.30	0.00	22.30	822.72	208.98	388	329.40	5.03	-0.41	0.09
120.00	-14.64	-0.96	0.00	-21.32	0.00	21.32	818.76	207.32	382	325.17	5.11	-0.41	0.08
122.00	-14.19	-0.94	0.00	-19.40	0.00	19.40	810.71	203.99	370	316.76	5.29	-0.43	0.08
125.00	-13.46	-0.91	0.00	-16.56	0.00	16.56	798.31	198.99	352	304.20	5.57	-0.46	0.07
130.00	-12.96	-0.89	0.00	-12.00	0.00	12.00	776.83	190.67	323	283.51	6.07	-0.50	0.06
131.00	-12.10	-0.84	0.00	-11.11	0.00	11.11	772.41	189.01	317	279.41	6.18	-0.51	0.06
132.00	-11.70	-0.82	0.00	-10.27	0.00	10.27	767.94	187.34	312	275.32	6.28	-0.51	0.05
135.00	-11.11	-0.78	0.00	-7.81	0.00	7.81	754.30	182.35	295	263.15	6.61	-0.53	0.04
140.00	-5.37	-0.40	0.00	-3.89	0.00	3.89	730.89	174.02	269	243.21	7.18	-0.55	0.02
145.00	-4.98	-0.38	0.00	-1.88	0.00	1.88	695.93	165.70	244	220.38	7.76	-0.56	0.02
150.00	0.00	-0.33	0.00	0.00	0.00	0.00	660.97	157.37	220	198.67	8.36	-0.57	0.00

**0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)**

**CALCULATED FORCES**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.05	-1.53	0.00	-193.00	0.00	193.00	3,157.17	784.20	2,738	2,376.61	0.00	0.00	0.05
2.00	-41.98	-1.54	0.00	-189.94	0.00	189.94	3,140.17	777.55	2,692	2,343.59	0.00	-0.01	0.05
5.00	-40.21	-1.54	0.00	-185.33	0.00	185.33	3,114.35	767.59	2,623	2,294.24	0.01	-0.02	0.04
10.00	-38.45	-1.55	0.00	-177.61	0.00	177.61	3,070.50	750.99	2,511	2,212.51	0.03	-0.03	0.04
15.00	-37.40	-1.56	0.00	-169.86	0.00	169.86	3,025.61	734.39	2,401	2,131.46	0.07	-0.04	0.04
18.00	-36.81	-1.56	0.00	-165.19	0.00	165.19	2,998.18	724.42	2,336	2,083.18	0.10	-0.05	0.03
18.00	-36.81	-1.56	0.00	-165.19	0.00	165.19	2,998.18	724.42	2,336	2,083.18	0.10	-0.05	0.04
20.00	-35.34	-1.56	0.00	-162.07	0.00	162.07	2,979.68	717.78	2,294	2,051.14	0.12	-0.06	0.04
25.00	-33.89	-1.56	0.00	-154.26	0.00	154.26	2,932.71	701.18	2,189	1,971.59	0.19	-0.07	0.04
30.00	-33.45	-1.57	0.00	-146.44	0.00	146.44	2,875.21	684.57	2,087	1,886.65	0.28	-0.09	0.04
31.50	-32.11	-1.56	0.00	-144.09	0.00	144.09	2,854.29	679.59	2,056	1,859.14	0.30	-0.09	0.04
35.00	-31.86	-1.57	0.00	-138.61	0.00	138.61	2,805.48	667.97	1,987	1,795.73	0.38	-0.11	0.04
35.67	-30.69	-1.56	0.00	-137.57	0.00	137.57	2,253.08	567.85	1,720	1,471.98	0.39	-0.11	0.04
40.00	-29.36	-1.56	0.00	-130.80	0.00	130.80	2,223.50	555.84	1,648	1,421.63	0.50	-0.12	0.04
45.00	-28.04	-1.55	0.00	-123.02	0.00	123.02	2,188.39	541.99	1,567	1,363.96	0.63	-0.14	0.04
50.00	-26.72	-1.54	0.00	-115.28	0.00	115.28	2,152.25	528.13	1,488	1,306.78	0.79	-0.15	0.04
55.00	-25.68	-1.53	0.00	-107.59	0.00	107.59	2,115.06	514.27	1,411	1,250.16	0.96	-0.17	0.04
59.00	-25.47	-1.53	0.00	-101.48	0.00	101.48	2,084.57	503.18	1,351	1,205.28	1.10	-0.18	0.03
59.00	-25.47	-1.53	0.00	-101.48	0.00	101.48	2,084.57	503.18	1,351	1,205.28	1.10	-0.18	0.05
60.00	-24.41	-1.51	0.00	-99.95	0.00	99.95	2,076.84	500.41	1,336	1,194.13	1.14	-0.19	0.05
65.00	-23.44	-1.50	0.00	-92.40	0.00	92.40	2,037.58	486.55	1,263	1,138.75	1.35	-0.21	0.04
70.00	-22.39	-1.48	0.00	-84.91	0.00	84.91	1,985.31	472.69	1,192	1,077.58	1.58	-0.23	0.04
73.50	-22.13	-1.48	0.00	-79.73	0.00	79.73	1,474.00	377.76	953	802.36	1.75	-0.24	0.05
75.00	-21.26	-1.45	0.00	-77.52	0.00	77.52	1,466.32	374.43	936	791.10	1.83	-0.25	0.05
80.00	-20.39	-1.43	0.00	-70.25	0.00	70.25	1,440.03	363.37	882	753.74	2.10	-0.27	0.04
85.00	-19.54	-1.41	0.00	-63.09	0.00	63.09	1,412.71	352.30	829	716.70	2.39	-0.29	0.04
90.00	-18.69	-1.38	0.00	-56.05	0.00	56.05	1,384.35	341.23	778	680.02	2.71	-0.31	0.04
95.00	-17.86	-1.35	0.00	-49.15	0.00	49.15	1,354.95	330.16	728	643.77	3.04	-0.33	0.03
100.00	-17.36	-1.33	0.00	-42.42	0.00	42.42	1,324.51	319.09	680	607.99	3.39	-0.34	0.03
103.00	-14.36	-1.17	0.00	-38.45	0.00	38.45	1,305.75	312.45	652	586.76	3.61	-0.35	0.03
105.00	-13.55	-1.13	0.00	-36.10	0.00	36.10	1,293.03	308.02	634	572.72	3.76	-0.36	0.03
110.00	-13.11	-1.11	0.00	-30.44	0.00	30.44	1,247.19	296.95	589	532.34	4.14	-0.37	0.02
110.00	-13.11	-1.11	0.00	-30.44	0.00	30.44	856.53	223.97	445	367.75	4.14	-0.37	0.03
113.00	-11.06	-0.99	0.00	-27.11	0.00	27.11	845.64	218.97	426	354.91	4.38	-0.38	0.02
115.00	-10.43	-0.95	0.00	-25.14	0.00	25.14	838.16	215.64	413	346.37	4.54	-0.38	0.02
119.00	-10.32	-0.94	0.00	-21.36	0.00	21.36	822.72	208.98	388	329.40	4.86	-0.39	0.02
119.00	-10.32	-0.94	0.00	-21.36	0.00	21.36	822.72	208.98	388	329.40	4.86	-0.39	0.08
120.00	-10.09	-0.93	0.00	-20.42	0.00	20.42	818.76	207.32	382	325.17	4.95	-0.40	0.08
122.00	-9.77	-0.91	0.00	-18.57	0.00	18.57	810.71	203.99	370	316.76	5.12	-0.42	0.07
125.00	-9.27	-0.88	0.00	-15.84	0.00	15.84	798.31	198.99	352	304.20	5.38	-0.44	0.06
130.00	-8.93	-0.85	0.00	-11.47	0.00	11.47	776.83	190.67	323	283.51	5.87	-0.48	0.05
131.00	-8.34	-0.80	0.00	-10.62	0.00	10.62	772.41	189.01	317	279.41	5.97	-0.49	0.05
132.00	-8.06	-0.78	0.00	-9.81	0.00	9.81	767.94	187.34	312	275.32	6.07	-0.49	0.05
135.00	-7.65	-0.75	0.00	-7.47	0.00	7.47	754.30	182.35	295	263.15	6.39	-0.51	0.04
140.00	-3.70	-0.39	0.00	-3.72	0.00	3.72	730.89	174.02	269	243.21	6.94	-0.53	0.02
145.00	-3.43	-0.36	0.00	-1.79	0.00	1.79	695.93	165.70	244	220.38	7.50	-0.54	0.01
150.00	0.00	-0.33	0.00	0.00	0.00	0.00	660.97	157.37	220	198.67	8.07	-0.55	0.00

ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	29.09	0.00	61.13	0.00	0.00	3091.85	119.00	0.93
0.9D + 1.0W Normal	29.07	0.00	45.84	0.00	0.00	3030.97	119.00	0.89
1.2D + 1.0Di + 1.0Wi Normal	6.77	0.00	78.40	0.00	0.00	765.16	119.00	0.25
1.2D + 1.0Ev + 1.0Eh Normal	1.60	0.00	62.48	0.00	0.00	198.09	119.00	0.09
0.9D - 1.0Ev + 1.0Eh Normal	1.57	0.00	43.05	0.00	0.00	193.00	119.00	0.08
1.0D + 1.0W Service Normal	6.75	0.00	50.96	0.00	0.00	710.16	119.00	0.22

ADDITIONAL STEEL SUMMARY

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors				Max member			
			VQ/I	Shear Applied (kips)	Shear (phiVn) (kips)	Ratio	Pu (kip)	PhiPn (kip)	Ratio	
0.00	59.00	SOL #18 All Thread Bar	191.7	5.7	16.8	0.3421	200.7	249.8	0.8035	
0.00	119.00	SOL #18 All Thread Bar	386.8	11.6	16.8	0.6903	238.3	249.8	0.9539	
2.00	18.00	PL PL 4" x 1"	115.1	1.4	25.3	0.0547	142.2	174.4	0.8156	
2.00	18.00	PL PL 5" x 1"	143.9	1.7	25.3	0.0683	177.8	218.0	0.8156	

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors				Lower Termination Connectors					
			MQ/I	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kip)	Num Reqd	Num Actual	Ratio
0.00	59.00	SOL #18 All Thread Bar	145.1797	12	13	18	0.6721	0	12	0	0	0.0000
0.00	119.00	SOL #18 All Thread Bar	86.2043	12	8	10	0.7184	0	12	0	0	0.0000
2.00	18.00	PL PL 4" x 1"	129.2803	25.27	6	8	0.6395	139.693	25.27	6	8	0.6910
2.00	18.00	PL PL 5" x 1"	161.6004	25.27	7	8	0.7994	174.6162	25.27	7	8	0.8638



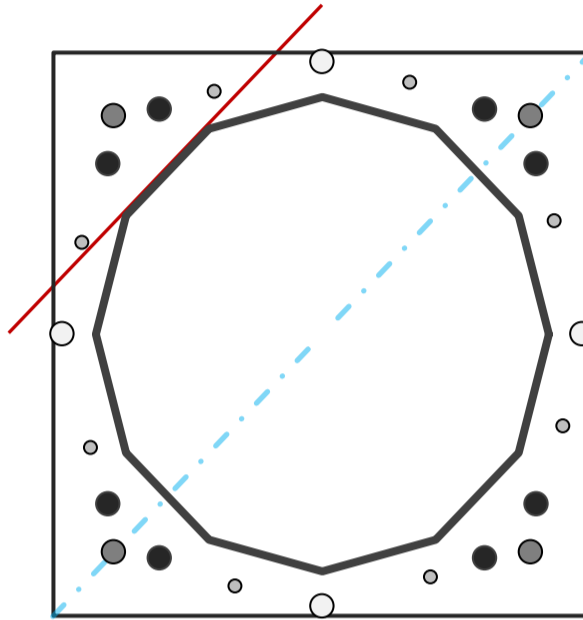
## Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	35.67	in
Thickness	3/8	in
Orientation Offset		°

Base Reactions		
Moment, Mu	3,091.9	k-ft
Axial, Pu	61.1	k
Shear, Vu	29.1	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	56%	Pass
Anchor Rods	83%	Pass
Dwyidag	52%	Pass

Base Plate		
Shape	Square	-
Width	44	in
Thickness	2 1/2	in
Grade	A633 Gr. E	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	0	in
Orientation Offset		°
Anchor Rod Detail	c	$\eta=0.55$
Clear Distance	N/A	in
Applied Moment, Mu	1241.0	k
Bending Stress, $\phi Mn$	2230.1	k



Dwyidag Reinforcement		
Quantity	4	-
Bar Size	#18	in
Diameter, $\phi$	2.25	in
Bracket Type	Angle	-
Circle	42.55	in
Orientation Offset	0	°
Applied Force, Pu	155.4	k
Dwyidag Bar, $\phi Pn$	298.2	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, $\phi$	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	145.1	k
Anchor Rods, $\phi Pn$	243.6	k

Additional Anchor Rods		
Quantity	8	-
Diameter, $\phi$	1 1/4	in
Bolt Circle	41.875	in
Grade	A325	
Yield Strength, Fy	92	ksi
Tensile Strength, Fu	120	ksi
Bypass Base?	No	
Orientation Offset	25	°
Applied Force, Pu	39.1	k
Additional Rod, $\phi Pn$	87.2	k

Additional Dwyidag Reinforcement		
Quantity	4	-
Diameter, $\phi$	2 1/4	in
Bolt Circle	48.22	in
Grade	Other	
Yield Strength, Fy	70	ksi
Tensile Strength, Fu	100	ksi
Bypass Base?	Yes (Dwyidag)	
Orientation Offset	45	°
Applied Force, Pu	247.9	k
Additional Rod, $\phi Pn$	298.2	k

# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	29.1	1352.7	0.44
Anchor Rod Forces	25.7	1065.1	0.34
Additional Bolt (Grp1) Forces	3.4	287.7	0.09
Additional Bolt (Grp2) Forces	0.0	977.6	0.32
Dywidag Forces	0.0	761.5	0.25
Stiffener Forces	0.0	0.0	0.00

## Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	41.1076	3.4256	0.1614		6403.09
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	1.2272	0.9691	0.0747	7	1699.95
Bolt2	3.9761	3.9761	1.2581	4.5	4627.56
Dywidag	3.9761	3.9761	1.2581		3604.38
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	44	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	25.761	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	145.1	k
Applied Shear, Vu	0.8	k
Compressive Capacity, φPn	243.6	k
Tensile Capacity, φRnt	0.596	OK
Interaction Capacity	0.601	OK

External Base Plate		
Chord Length AA	26.430	in
Additional AA	0.000	in
Section Modulus, Z	41.297	in <sup>3</sup>
Applied Moment, Mu	1241.0	k-ft
Bending Capacity, φMn	2230.1	k-ft
Capacity, Mu/φMn	0.556	OK
Chord Length AB	25.168	in
Additional AB	0.000	in
Section Modulus, Z	39.325	in <sup>3</sup>
Applied Moment, Mu	1009.4	k-ft
Bending Capacity, φMn	2123.5	k-ft
Capacity, Mu/φMn	0.475	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Additional Bolt Group 1		
Bolt Quantity, N	8	-
Bolt Diameter, d	1.25	in
Bolt Circle, BC	41.875	in
Yield Strength, Fy	92	ksi
Tensile Strength, Fu	120	ksi
Applied Axial, Pu	39.1	k
Applied Shear, Vu	0.5	k
Compressive Capacity, φPn	87.2	k
Compressive Capacity, φPn	0.448	OK
Interaction Capacity	0.459	OK

Additional Bolt Group 2		
Bolt Quantity, N	4	-
Bolt Diameter, d	2.25	in
Bolt Circle, BC	48.22	in
Yield Strength, Fy	70	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	247.9	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	298.2	k
Compressive Capacity, φPn	0.831	OK
Interaction Capacity	0.831	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.25	in
Bolt Circle, BC	42.55	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	155.4	k
Compressive Capacity, φPn	298.2	k
Capacity, Pu/φPn	0.521	OK

# Flange Plate Analysis

Flange Plate	Plate Type	<b>Flange</b>	<b>@ 110 ft</b>
	Pole Diameter	21.25	in
	Pole Thickness	0.1875	in
	Plate Diameter	28.5	in
	Plate Thickness	1	in
	Plate Fy	60	ksi
	Weld Length	0.1875	in
	f <sub>s</sub> Resistance	125.73	k-in
	Applied	17.03	k-in

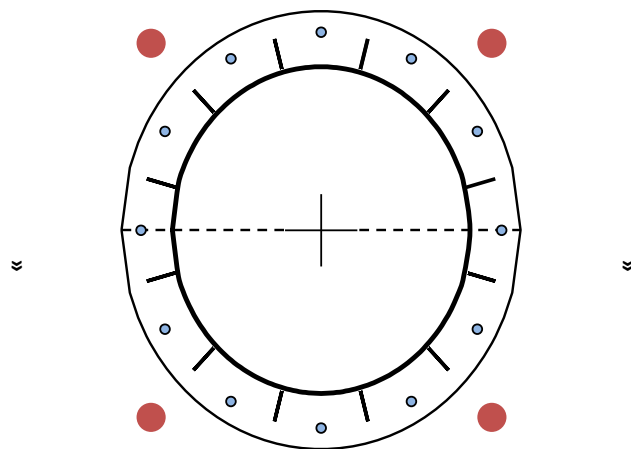
Code Rev. H

Date	9/20/2021
Engineer	JSD
Site #	302484
Carrier	T-MOBILE

Moment 431.9 k-ft  
Axial 17.4 k

Stiffeners	#	<b>12</b>	<b>Show</b>
	Thickness	0.5	in
	Length	3	in
	Height	3	in
	Chamfer	0.5	in
	Offset Angle	0	°
	Fy	36	ksi

Bolts	#	<b>12</b>	
	Bolt Circle (R)adial / (S)quare	25.75	in
	Diameter	1	in
	Hole Diameter	1.125	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	f <sub>s</sub> Resistance	54.52	k
	Applied	11.36	k



Reinforcement	#	<b>4</b>	
	DYW. Circle	34.41	in
	Offset Angle	45	°
	Type	#18	
	Diameter	2.5	in
	Fu	100	ksi
f <sub>s</sub> Resistance	392.70	k	
Applied	85.93	k	

**Plate Stress Ratio:**

14% Pass

**Bolt Stress Ratio:**

21% Pass

**Reinforcement Stress Ratio:**

22% Pass

Extra Bolts	#		
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## Pier Foundation Analysis (ANSI/TIA-222-H)

### Foundation Analysis Parameters

Pier Diameter	$D$	5.00	ft
Pier Embedment	$L-h$	22.2	ft
Pier Height above Ground	$H$	0.50	ft
Water Table Depth [BGL]	$GW$	5	ft
Pullout Angle	$\Theta$	30	°
Unit Weight of Concrete		150	pcf
Uplift Skin Friction Factor		0.890	

### Reactions

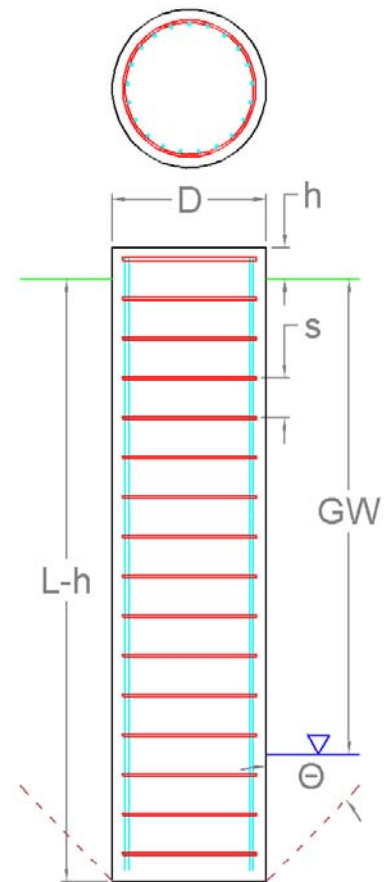
Moment, $M_u$	3,091.8	k-ft
Shear, $V_u$	29.1	k
Axial, $P_u$	61.1	k
Uplift, $T_u$	0.0	k

### Soil Properties

Layer Depth (ft)		Unit Weight	Cohesion	Friction Angle	Ultimate Skin Friction	Ultimate Bearing Pressure
TOP	BTM	pcf	psf	°	psf	psf
0.0	1.0	116	0	0	0	0
1.0	3.0	115	0	30	0	0
3.0	4.5	106	0	29	0	0
4.5	7.0	117	0	31	731	0
7.0	8.0	126	0	34	788	0
8.0	10.0	126	0	34	892	0
10.0	23.3	135	5,112	0	2,300	46,007

### Soil Strength Capacities

Volume of Concrete	446.7	ft <sup>3</sup>
Weight of Concrete [Buoyancy Considered]	45.9	k
Average Soil Unit Weight	78.8	pcf
Skin Friction Resistance	511.7	k
Compressive Bearing Resistance	903.4	k
Pullout Weight [Minus Concrete Weight]	479.8	k
Compressive Force, $P_u$	73.1	k
Nominal Compressive Capacity, $\phi_s P_n$	1,061.3	k
$P_u / \phi_s P_n$	<b>6.9%</b>	
Total Lateral Resistance	2,496.9	k
Inflection Point [BGL]	15.6	ft
Moment at Inflection Point, $M_D$	3,558.8	k-ft
Nominal Moment Capacity, $\phi_s M_n$	6,566.4	k-ft
$M_D / \phi_s M_n$	<b>54.2%</b>	



<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
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CTNH102C\_Anchor\_8\_draft

Print Name: Preliminary (RFDS\_for\_Scoping)  
**PORs:** Anchor\_Phase 3  
 Radio Upgrade\_CMP4 AIR32

Section 1 - Site Information

<b>Site ID:</b> CTNH102C	<b>Site Name:</b> CT102/BranfordAmericanTwr	<b>Latitude:</b> 41.31676000
<b>Status:</b> Draft	<b>Site Class:</b> Monopole	<b>Longitude:</b> -72.81961000
<b>Version:</b> 8	<b>Site Type:</b> Structure Non Building	<b>Address:</b> 405 Brushy Plain Rd
<b>Project Type:</b> Anchor	<b>Plan Year:</b> 2021	<b>City, State:</b> Branford, CT
<b>Approved:</b> Not Approved	<b>Market:</b> CONNECTICUT CT	<b>Region:</b> NORTHEAST
<b>Approved By:</b> Not Approved	<b>Vendor:</b> Ericsson	
<b>Last Modified:</b> 7/8/2021 12:22:45 PM	<b>Landlord:</b> Spectrasite	
<b>Last Modified By:</b> Hansraj.Rana4@T-Mobile.com		

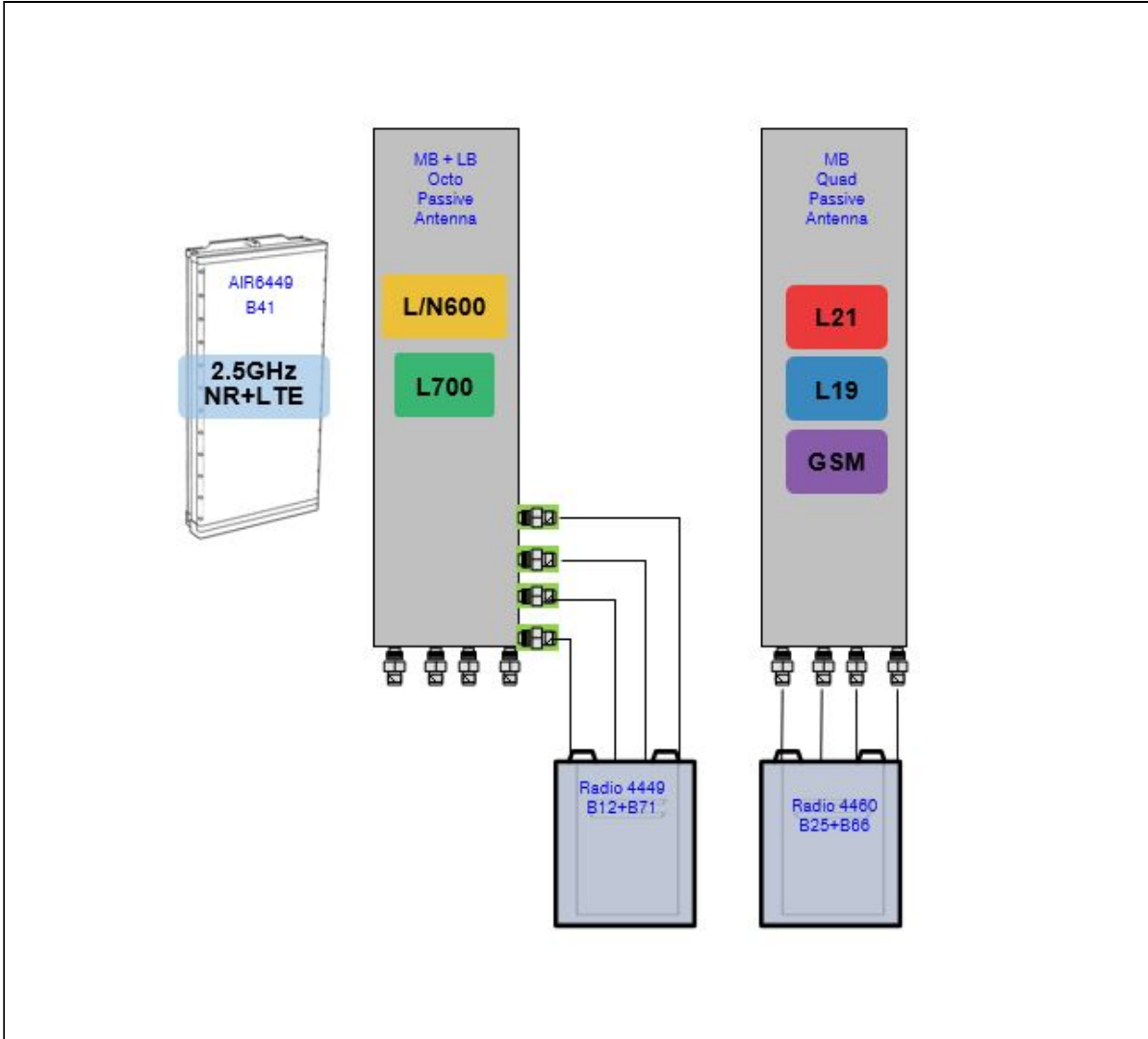
<b>RAN Template:</b> 67D5A998E Outdoor	<b>AL Template:</b> 67D5998E_1xAIR+1OP+1QP			
<b>Sector Count:</b> 3	<b>Antenna Count:</b> 6	<b>Coax Line Count:</b> 0	<b>TMA Count:</b> 0	<b>RRU Count:</b> 6

Section 2 - Existing Template Images

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Section 3 - Proposed Template Images

67D5998E\_1xAIR+1OP+1QP.JPG



Notes:



**Section 4 - Siteplan Images**

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<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
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Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67D92C Outdoor

Enclosure	1	2
Enclosure Type	RBS 6131	S12000 Outdoor
Baseband	DUW30 U2100 DUW30 DUG20 G1900 BB 6630 L1900 L2100 BB 6630 L700 L600 N600	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 3 ) Ericsson 9x18 HCS *Select Length*	
Radio	RU22 (x 6 ) U2100	

Proposed RAN Equipment

Template: 67D5A998E Outdoor

Enclosure	1	2	3
Enclosure Type	RBS 6131	Enclosure 6160	B160
Baseband	DUW30 U2100 DUG20 G1900 BB 6630 L2100 L1900 BB 6630 L700 L600 N600	BB 6648 L2500 N2500	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 3 )	Ericsson Hybrid Trunk 6/24 4AWG 50m PSU 4813	
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

- Nortel Cabinet has already been removed.
- Remove and return all cabinet radios from existing base station cabinet.
- Add (1) Enclosure 6160.
- Add (1) iXRe Router to new Enclosure 6160.
- Add (1) BB6648 for L2500 and N2500 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.
- Add (1) PSU4813 Voltage Booster to new Enclosure 6160.
- Add (1) Battery Cabinet B160.
- Add (1) 6X24 HCS terminating at the Enclosure 6160. Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster.
- Remove 1 - 9 x18.

<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
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Section 6 - A&L Equipment

Existing Template: 67D92C\_2xAIR+1OP  
 Proposed Template: 67D5998E\_1xAIR+1OP+1QP

Sector 1 (Existing) view from behind

<b>Coverage Type</b>	A - Outdoor Macro																
<b>Antenna</b>	1		2			3											
<b>Antenna Model</b>	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)											
<b>Azimuth</b>	120		120			120											
<b>M. Tilt</b>	0		0			0											
<b>Height</b>	140		140			140											
<b>Ports</b>	P1	P2	P3	P4	P5	P6	P7	P8									
<b>Active Tech.</b>	L1900 G1900	U2100	L700 L600 N600	L700 L600 N600			L2100										
<b>Dark Tech.</b>																	
<b>Restricted Tech.</b>																	
<b>Decomm. Tech.</b>																	
<b>E. Tilt</b>	3	3	2	2			3										
<b>Cables</b>	Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 161 ft. (x2)	Coax Jumper - 15 ft. (x2) Fiber Jumper - 15 ft.	Coax Jumper - 15 ft. (x2)			Fiber Jumper - 15 ft. (x2)										
<b>TMA's</b>	Generic Twin Style 1B - AWS (AtAntenna)																
<b>Diplexers / Combiners</b>																	
<b>Radio</b>	<table border="0"> <tr> <td></td> <td></td> <td></td> <td>Radio 4449 B71+B8 5 (At Antenna)</td> <td>SHARED Radio 4449 B71+B8 5 (At Antenna)</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>											Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (At Antenna)				
			Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (At Antenna)													
<b>Sector Equipment</b>																	

Unconnected Equipment:

Scope of Work:

Remove (2) unused coaxial lines. Coaxial Lines and AWS TMA for U2100 in Position 1 will remain.  
 Replace LB Dual in Position 2 with (1) LB/MB Octo.  
 Replace RRUS11 B12 in Position 2 with (1) Radio 4449 B71+B12 for L600 and L700.

\*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
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CTNH102C\_Anchor\_8\_draft

Print Name: Preliminary (RFDS\_for\_Scoping)  
**PORs:** Anchor\_Phase 3  
 Radio Upgrade\_CMP4 AIR32

Sector 1 (Proposed) view from behind						
<b>Coverage Type</b>	A - Outdoor Macro					
<b>Antenna</b>	1			2		
<b>Antenna Model</b>	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)			RFS - APXVAARR24_43-U-NA20 (Octo)		
<b>Azimuth</b>	120			120		
<b>M. Tilt</b>	0			0		
<b>Height</b>	140			140		
<b>Ports</b>	P1	P2	P3	P4	P5	P6
<b>Active Tech.</b>	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900 U2100	L2100 L1900 G1900 U2100
<b>Dark Tech.</b>						
<b>Restricted Tech.</b>						
<b>Decomm. Tech.</b>						
<b>E. Tilt</b>	3	3	3	3	3	3
<b>Cables</b>	Fiber Jumper (x2)	Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper
<b>TMA's</b>						
<b>Diplexers / Combiners</b>						
<b>Radio</b>			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
<b>Sector Equipment</b>						

**Unconnected Equipment:**

**Scope of Work:**

There will be two antennae per sector.  
 Remove all TMA's.  
 Remove all Coaxial Lines.  
 Remove AIR21 B2A/B4P from Position 1.  
 Install (1) Antenna AIR6449 B41 for L2500 and N2500 in Position 1.  
 Add (1) Radio 4460 B25+B66 for L2100, L1900, U2100, and GSM to Position 2 at antenna with Octo Port antenna.  
 Remove AIR21 B2P/B4A from Position 3.  
 Ensure RET control is enabled for all technology layers according to the Design Documents.

\*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+10P+1QP
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CTNH102C\_Anchor\_8\_draft

Print Name: Preliminary (RFDS\_for\_Scoping)  
**PORs:** Anchor\_Phase 3  
 Radio Upgrade\_CMP4 AIR32

Sector 2 (Existing) view from behind									
Coverage Type	A - Outdoor Macro								
Antenna	1		2			3			
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)			
Azimuth	200		200			200			
M. Tilt	0		0			0			
Height	140		140			140			
Ports	P1	P2	P3	P4	P5	P6	P7	P8	
Active Tech.	L1900 G1900	U2100	L700 L600 N600	L700 L600 N600			L2100		
Dark Tech.									
Restricted Tech.									
Decomm. Tech.									
E. Tilt	10	10	2	2			10		
Cables	Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 161 ft. (x2)	Coax Jumper - 15 ft. (x2) Fiber Jumper - 15 ft.	Coax Jumper - 15 ft. (x2)			Fiber Jumper - 15 ft. (x2)		
TMA's		Generic Twin Style 1B - AWS (AtAntenna)							
Diplexers / Combiners									
Radio			Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (At Antenna)					
Sector Equipment									

**Unconnected Equipment:**

**Scope of Work:**

Remove (2) unused coaxial lines. Coaxial Lines and AWS TMA for U2100 in Position 1 will remain.  
 Replace LB Dual in Position 2 with (1) LB/MB Octo.  
 Replace RRUS11 B12 in Position 2 with (1) Radio 4449 B71+B12 for L600 and L700.

\*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
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CTNH102C\_Anchor\_8\_draft

Print Name: Preliminary (RFDS\_for\_Scoping)  
**PORs:** Anchor\_Phase 3  
 Radio Upgrade\_CMP4 AIR32

Sector 2 (Proposed) view from behind						
<b>Coverage Type</b>	A - Outdoor Macro					
<b>Antenna</b>	1			2		
<b>Antenna Model</b>	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)			RFS - APXVAARR24_43-U-NA20 (Octo)		
<b>Azimuth</b>	200			200		
<b>M. Tilt</b>	0			0		
<b>Height</b>	140			140		
<b>Ports</b>	P1	P2	P3	P4	P5	P6
<b>Active Tech.</b>	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900 U2100	L2100 L1900 G1900 U2100
<b>Dark Tech.</b>						
<b>Restricted Tech.</b>						
<b>Decomm. Tech.</b>						
<b>E. Tilt</b>	3	3	3	3	3	3
<b>Cables</b>	Fiber Jumper (x2)	Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper
<b>TMA's</b>						
<b>Diplexers / Combiners</b>						
<b>Radio</b>			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
<b>Sector Equipment</b>						

**Unconnected Equipment:**

**Scope of Work:**

There will be two antennae per sector.  
 Remove all TMA's.  
 Remove all Coaxial Lines.  
 Remove AIR21 B2A/B4P from Position 1.  
 Install (1) Antenna AIR6449 B41 for L2500 and N2500 in Position 1.  
 Add (1) Radio 4460 B25+B66 for L2100, L1900, U2100, and GSM to Position 2 at antenna with Octo Port antenna.  
 Remove AIR21 B2P/B4A from Position 3.  
 Ensure RET control is enabled for all technology layers according to the Design Documents.

\*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
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CTNH102C\_Anchor\_8\_draft

Print Name: Preliminary (RFDS\_for\_Scoping)  
**PORs:** Anchor\_Phase 3  
 Radio Upgrade\_CMP4 AIR32

Sector 3 (Existing) view from behind									
Coverage Type	A - Outdoor Macro								
Antenna	1		2			3			
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)			
Azimuth	300		300			300			
M. Tilt	0		0			0			
Height	140		140			140			
Ports	P1		P2		P3	P4	P5	P6	P7
Active Tech.	L1900	G1900	U2100	L700	L700			L2100	
Dark Tech.				L600	L600				
Restricted Tech.				N600	N600				
Decomm. Tech.									
E. Tilt	8	8	2	2				7	
Cables	Fiber Jumper - 15 ft. (x2)	1-5/8" Coax - 161 ft. (x2)	Coax Jumper - 15 ft. (x2)	Coax Jumper - 15 ft. (x2)				Fiber Jumper - 15 ft. (x2)	
TMA's		Generic Twin Style 1B - AWS (AtAntenna)							
Diplexers / Combiners									
Radio			Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (At Antenna)					
Sector Equipment									

**Unconnected Equipment:**

**Scope of Work:**

Remove (2) unused coaxial lines. Coaxial Lines and AWS TMA for U2100 in Position 1 will remain.  
 Replace LB Dual in Position 2 with (1) LB/MB Octo.  
 Replace RRUS11 B12 in Position 2 with (1) Radio 4449 B71+B12 for L600 and L700.

\*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
---	--

CTNH102C\_Anchor\_8\_draft

Print Name: Preliminary (RFDS\_for\_Scoping)  
**PORs:** Anchor\_Phase 3  
 Radio Upgrade\_CMP4 AIR32

Sector 3 (Proposed) view from behind						
<b>Coverage Type</b>	A - Outdoor Macro					
<b>Antenna</b>	1			2		
<b>Antenna Model</b>	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)			RFS - APXVAARR24_43-U-NA20 (Octo)		
<b>Azimuth</b>	300			300		
<b>M. Tilt</b>	0			0		
<b>Height</b>	140			140		
<b>Ports</b>	P1	P2		P3	P4	P5
<b>Active Tech.</b>	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900 U2100	L2100 L1900 G1900 U2100
<b>Dark Tech.</b>						
<b>Restricted Tech.</b>						
<b>Decomm. Tech.</b>						
<b>E. Tilt</b>	3	3	3	3	3	3
<b>Cables</b>	Fiber Jumper (x2)	Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper
<b>TMA's</b>						
<b>Diplexers / Combiners</b>						
<b>Radio</b>			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
<b>Sector Equipment</b>						

**Unconnected Equipment:**

**Scope of Work:**

There will be two antennae per sector.  
 Remove all TMA's.  
 Remove all Coaxial Lines.  
 Remove AIR21 B2A/B4P from Position 1.  
 Install (1) Antenna AIR6449 B41 for L2500 and N2500 in Position 1.  
 Add (1) Radio 4460 B25+B66 for L2100, L1900, U2100, and GSM to Position 2 at antenna with Octo Port antenna.  
 Remove AIR21 B2P/B4A from Position 3.  
 Ensure RET control is enabled for all technology layers according to the Design Documents.

\*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.



<b>RAN Template:</b> 67D5A998E Outdoor	<b>A&amp;L Template:</b> 67D5998E_1xAIR+1OP+1QP
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<b>Section 7 - Power Systems Equipment</b>
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<b>Existing Power Systems Equipment</b>
----- This section is intentionally blank. -----

<b>Proposed Power Systems Equipment</b>	
<b>Enclosure</b>	1
<b>Enclosure Type</b>	Enclosure 6160

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

T-Mobile Existing Facility

Site ID: CTNHI02C

CTI02/BranfordAmericanTwr  
405 Brushy Plain Road  
Branford, Connecticut 06405

**October 5, 2021**

**EBI Project Number: 6221005851**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>20.55%</b>

October 5, 2021

T-Mobile

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

Emissions Analysis for Site: CTNH102C - CT102/BranfordAmericanTwr

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **405 Brushy Plain Road in Branford, 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 405 Brushy Plain Road in Branford, 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 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 8) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 9) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 10) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 11) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 12) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 13) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 14) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna

selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 15) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).
- 16) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 17) All calculations were done with respect to uncontrolled / general population threshold limits.

## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	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	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 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 AI MPE %:	<b>7.28%</b>	Antenna BI MPE %:	<b>7.28%</b>	Antenna CI MPE %:	<b>7.28%</b>
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd / 16.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	15	Channel Count:	15	Channel Count:	15
Total TX Power (W):	620 Watts	Total TX Power (W):	620 Watts	Total TX Power (W):	620 Watts
ERP (W):	20,641.14	ERP (W):	20,641.14	ERP (W):	20,641.14
Antenna A2 MPE %:	<b>5.26%</b>	Antenna B2 MPE %:	<b>5.26%</b>	Antenna C2 MPE %:	<b>5.26%</b>

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	12.54%
AT&T	3.26%
Clearwire	0.12%
Verizon	3.55%
Branf PD	0.06%
PageNet	1.02%
<b>Site Total MPE % :</b>	<b>20.55%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	12.54%
T-Mobile Sector B Total:	12.54%
T-Mobile Sector C Total:	12.54%
Site Total MPE % :	20.55%

### 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 2500 MHz LTE IC & 2C Traffic	1	11044.63	140.0	22.11	2500 MHz LTE IC & 2C Traffic	1000	2.21%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	140.0	2.15	2500 MHz LTE IC & 2C Broadcast	1000	0.22%
T-Mobile 2500 MHz NR Traffic	1	22089.26	140.0	44.23	2500 MHz NR Traffic	1000	4.42%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	140.0	4.30	2500 MHz NR Broadcast	1000	0.43%
T-Mobile 600 MHz LTE	2	591.73	140.0	2.37	600 MHz LTE	400	0.59%
T-Mobile 600 MHz NR	1	1577.94	140.0	3.16	600 MHz NR	400	0.79%
T-Mobile 700 MHz LTE	2	648.82	140.0	2.60	700 MHz LTE	467	0.56%
T-Mobile 1900 MHz GSM	4	1101.85	140.0	8.82	1900 MHz GSM	1000	0.88%
T-Mobile 1900 MHz LTE	2	2203.69	140.0	8.82	1900 MHz LTE	1000	0.88%
T-Mobile 2100 MHz UMTS	2	1294.56	140.0	5.18	2100 MHz UMTS	1000	0.52%
T-Mobile 2100 MHz LTE	2	2589.11	140.0	10.37	2100 MHz LTE	1000	1.04%
						<b>Total:</b>	<b>12.54%</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:	12.54%
Sector B:	12.54%
Sector C:	12.54%
T-Mobile Maximum MPE % (Sector A):	12.54%
Site Total:	20.55%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **20.55%** 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.