10 [redacted] DUSTRIAL AVE,
St[redacted] 3
M[redacted]VAH NJ 07430

P[redacted]E: 201.684.0055
F[redacted] 201.684.0066

Transcend Wireless

December 8th, 2023

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

RE: Notice of Exempt Modification
14 Old North Road, Barkhamsted, CT 06063
Latitude: 41.914528
Longitude: -73.022222
T-Mobile Site#: CTNH416A - Anchor

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 125-foot level of the existing 148-foot Monopine at 14 Old North Road in Barkhamsted, CT. The 148-foot monopole is owned by American Tower. The property is owned and operated by John Lavieri. T-Mobile now intends to add three (3) antennas and remove and replace (3) antennas at the 139-foot level of the existing tower. The antennas support 5G services. T-Mobile will be installing the associated ground equipment within their existing ground space.

Planned Modifications:
Tower:
Install New:
(3) AIR 6419 B41 Antennas
(3) VV-65A-R1 Antennas
(3) Radio 4460 B25 B66
(3) 6x24 HCS

To Be Removed:
(12) 1 ⅝" Coax Cables
(3) APX16DWV Antennas
(6) KRY 112

To Remain:
(3) APXVAALL24_43-U-NA20 Antennas
(3) Radio 4480 B71
(1) 6x24 HCS

Ground:
Install New:
(1) 6160 Power Enclosure and (1) B160 Battery Cabinet.

This facility was approved by the Connecticut Siting Council in Docket 305 dated November 3, 2005. This project does not violate any of the conditions of this approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman Donald Stein, Elected Official, and Debra Brydon, Zoning Officer, 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

Attachments
cc: Donald Stein - First Selectman of Barkhamsted
Debra Brydon - Zoning Officer
American Tower - Tower Owner
John Lavieri - Property Owner

Hello, your package has been delivered.

Delivery Date: Wednesday, 12/06/2023

Delivery Time: 12:00 PM

Left At: RECEPTION

Signed by: HOLLY

TRANSCEND WIRELESS

Tracking Number:	1ZV257420394237080
Ship To:	DONALD STEIN 67 RIPLEY HILL ROAD BARKHAMSTED, CT 06063 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTNH416A

Hello, your package has been delivered.

Delivery Date: Wednesday, 12/06/2023

Delivery Time: 12:09 PM

Left At: DOCK

Signed by: ARIEL

TRANSCEND WIRELESS

Tracking Number:	1ZV257420399070483
Ship To:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	3.0 LBS
Reference Number:	CTNH543A CT11696E
Reference Number:	CTNH416A

Hello, your package has been delivered.

Delivery Date: Wednesday, 12/06/2023

Delivery Time: 12:00 PM

Left At: RECEPTION

Signed by: HOLLY

TRANSCEND WIRELESS

Tracking Number:	1ZV257420394075095
Ship To:	DEBRA BRYDON 67 RIPLEY HILL ROAD BARKHAMSTED, CT 06063 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTNH416A

Hello, your package has been delivered.

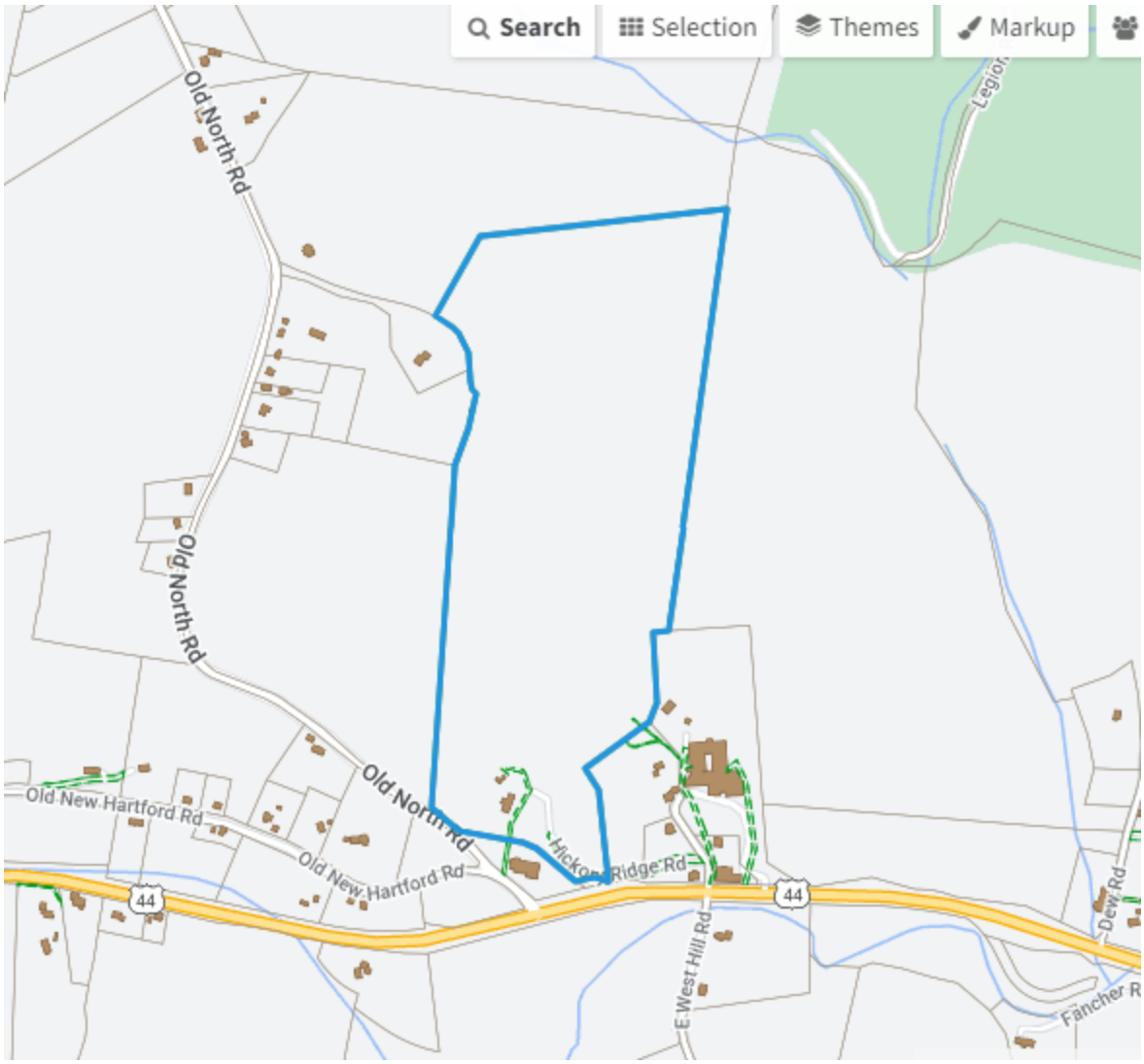
Delivery Date: Wednesday, 12/06/2023

Delivery Time: 10:19 AM

Signed by: GLYNN

TRANSCEND WIRELESS

Tracking Number:	1ZV257420393003075
Ship To:	JOHN LAVIERI 750 WEST CENTER STREET WEST BRIDGEWATER, MA 02379 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTNH416A


Search
Selection
Themes
Markup
Old North Rd
Old North Rd
Old North Rd
Old New Hartford Rd
Old New Hartford Rd
Hickory Ridge Rd
E West Hill Rd
Dew Rd
44
44

Property Location 5 OLD FARM RD | Map ID 29/ 12/ 1A / | Bldg Name | State Use 101
Vision ID 764 | Account # 00076400 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 2 | Print Date 3/25/2023 5:47:39 PM

CURRENT OWNER

LAVIERI JOHN N & ETHEL C

PO BOX 202

BARKHAMSTED CT 06063

TOPO	UTILITIES	STRT / ROAD	LOCATION
2 Above Street			

SUPPLEMENTAL DATA

Alt Prcl ID 29-12-1A	DV Lot #
B.P. Status	Solar Ener
Census Tr.	BAA
Interior	Callback
100 Yr Flo	PA490 Dat
DV Map # 1004; 962: 789	
GIS ID	Assoc Pid#

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
RES LAND	1-1	70,810	49,570
RES EXCES	1-2	18,240	12,770
DWELLING	1-3	212,260	148,580
IND LAND	3-1	250,000	175,000
IND IMPR	3-3	15,600	10,920
FOREST	6-2	456,000	19,150
Total		1,022,910	415,990

6005

BARKHAMSTED, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
LAVIERI JOHN N & ETHEL C	0169	0132	07-11-2018	U	I	0	01
LAVIERI JOHN N & ETHEL C	0169	0130	07-11-2018	U	I	175,000	01
LAVIERI JOHN N & ETHEL C	0157	0681	09-18-2013	U	I	0	04
LAVIERI JOHN N & ETHEL C	0061	0459	03-15-1978		V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2022	1-1	49,570	2021	1-1	49,570	2020	1-1	49,570
	1-2	12,770		1-2	12,770		1-2	12,770
	1-3	148,580		1-3	148,580		1-3	148,580
	3-1	175,000		3-1	175,000		3-1	175,000
	3-3	10,920		3-3	10,920		3-3	10,920
	Total	415,990		Total	415,990		Total	415,990

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	Street Index Name	Tracing	Batch
0001				

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	212,260
Appraised Xf (B) Value (Bldg)	0
Appraised Ob (B) Value (Bldg)	15,600
Appraised Land Value (Card)	795,050
Total Appraised Parcel Value	1,022,910
Valuation Method	C
Total Appraised Parcel Value	1,022,910

NOTES

BOUNDARY LINE AGREEM VOL 157/681
06-02-06 CINGULAR WIRELESS FACILITY
2010 = ADJUST FOR LAND LEASE TO CELL CO.
VERIZON WIRELESS/AMERICAN TOWER

169/130 116.853 XFER TO JOHN N LAVIERI

FR 15 OLD FARM RD 29/12/1-FINAL PIECE
169/132 THEN XFER TO JOHN N & ETHEL C
LAVIERI

2023-181/487 EASEMNT-EIP HOLDINGS II LLC

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments
21-354-E	11-15-2021	EL	Electric	65,000		0	02-21-2023	Verizon - American Tower: mo
21-123-E	05-11-2021	OT	Other	8,000		100	08-04-2021	tie in existing AT&T equip to ex
20-350-B	11-24-2020	RW	Repl Windows	11,472		100		inst 7 repl windows, no struct c
20-266-E	11-05-2020	OT	Other	48,500		100		AT&T mod: repl 6 antennas &
18-296-E	10-25-2018	GN	Generator	13,500		100	04-30-2019	inst backup generator for cell t
14-10-69	10-15-2014	OT	Other	20,000		100		new antennas, swap radio cabi
13-10-65	10-23-2013	RW	Repl Windows	10,405		100		5 basement windows

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result
06-02-2021	AL	4	1	06	Phone Call/Email Verify Inf
06-28-2018	MVS			33	Datamailer sent
10-30-2008	JQ			50	Field Review
08-20-2008	DW	1		00	Meas. and List
05-01-2008	DW	1		01	Measured

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj.	Notes	Special Use		Location Adjustment	Adj Unit Pri	Land Value
1	101	Single Family	I-2		2.000	AC	61,963.00	0.57142	5	1.00	5	1.000			0		1.00	70,810
1	101	Single Family	I-2		4.560	AC	4,000.00	1.00000	0	1.00		1.000			0		1.00	18,240
1	610	Forest	RA-2		114.000	AC	4,000.00	1.00000	0	1.00		1.000	PA490 START DATE 10/1/2018	490	240		1.00	456,000
		Total Card Land Units			120.560	AC	Parcel Total Land Area			120.720		AC				Total Land Value		545,050

Property Location	5 OLD FARM RD		Map ID	29/ 12/ 1A /		Bldg Name	State Use 101
Vision ID 764		Account # 00076400		Bldg # 1	Sec # 1 of 1	Card # 1 of 2	Print Date 3/25/2023 5:47:39 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	01	Ranch
Model	01	Residential
Grade:	09	C+
Occupancy	1	
Exterior Wall 1	08	Wood
Exterior Wall 2		
Roof Structure:	03	Gable
Roof Cover	03	Asphalt Shingl
Interior Wall 1	05	Drywall
Interior Wall 2		
Interior Flr 1	12	Hardwood
Interior Flr 2		
Heat Fuel	02	Oil
Heat Type:	05	Hot Water
AC Type:	01	none
Total Bedrooms	03	3 Bedrooms
Total Bthrms:	3	3 Full
Total Half Baths	1	
Total Rooms:	7	
Bath Style:	02	Average
Kitchen Style:	02	Average
Fireplace	1	
Whirlpool Tubs		
Fin Basement	1600	
Fin Bsmt Qual	5	Average
Bsmt. Garages		

CONSTRUCTION DETAIL (CONTINUED)

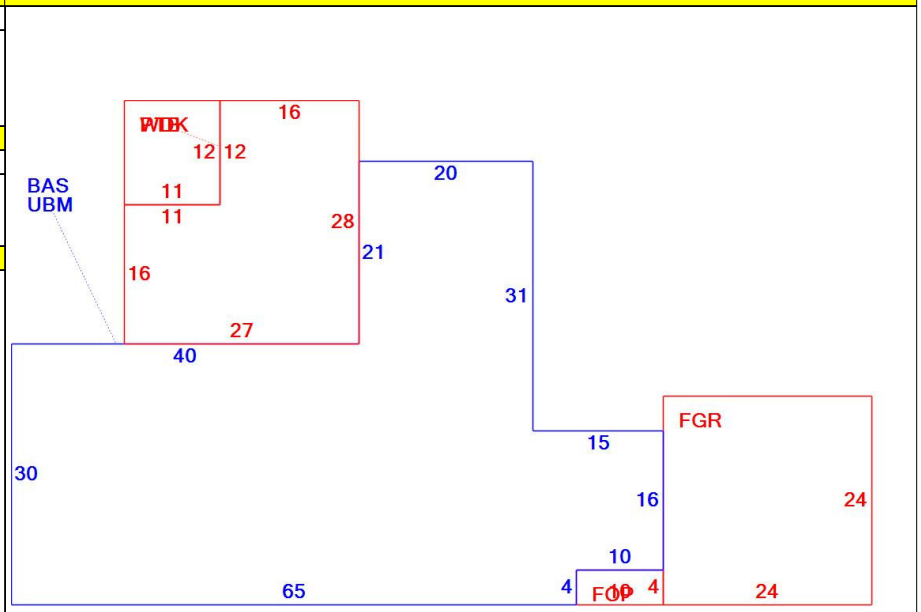
Element	Cd	Description

MIXED USE

Code	Description	Percentage
101	Single Family	100
		0
		0

COST / MARKET VALUATION

RCN	307,621
Year Built	1964
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	31
Functional Obsol	
External Obsol	
Cost Trend Factor	1
Condition	
Condition %	
Percent Good	69
RCNLD	212,260
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	



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

Cod	Description	Sub	Sub Desc	L/B	Units	Unit Price	Yr Blt	Cond.	% Gd	Grade	Grd A	Appr. Valu

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area
BAS	First Floor	2,480	2,480
FGR	Garage	0	576
FOP	Framed Open Porch	0	40
PTB	Brick/Stone Patio	0	132
UBM	Unfin Basement	0	2,480
WDK	Wood Deck	0	624
	Ttl Gross Liv / Lease Area	2,480	6,332

Property Location 5 OLD FARM RD | Map ID 29/ 12/ 1A / | Bldg Name | State Use 101
Vision ID 764 | Account # 00076400 | Bldg # 2 | Sec # 1 of 1 | Card # 2 of 2 | Print Date 3/25/2023 5:47:40 PM

CURRENT OWNER

LAVIERI JOHN N & ETHEL C

PO BOX 202

BARKHAMSTED CT 06063

TOPO	UTILITIES	STRT / ROAD	LOCATION
2 Above Street			

SUPPLEMENTAL DATA

Alt Prcl ID 29-12-1A	DV Lot #
B.P. Status	Solar Ener
Census Tr.	BAA
Interior	Callback
100 Yr Flo	PA490 Dat
DV Map # 1004; 962: 789	
GIS ID	Assoc Pid#

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Description	Code	Appraised	Assessed
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6005

BARKHAMSTED, CT

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	1-3	148,580		1-3	148,580		1-3	148,580
	3-1	175,000		3-1	175,000		3-1	175,000
	3-3	10,920		3-3	10,920		3-3	10,920
	Total	415,990		Total	415,990		Total	415,990

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

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ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	Street Index Name	Tracing	Batch
0001				

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Appraised Ob (B) Value (Bldg)	15,600
Appraised Land Value (Card)	795,050
Total Appraised Parcel Value	1,022,910
Valuation Method	C
Total Appraised Parcel Value	1,022,910

NOTES

LAND LEASE AGREEMENT FOR CELL TOWER VOL
131/46
MONOPOLE W/18 RECEIVERS
75X57 FENCED COMPOUND

2023-181/487 EASEMNT-EIP HOLDINGS II LLC

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj.	Notes	Special Use		Location Adjustment		Adj Unit Pri	Land Value
2	350	Cell Tower	I-2		0.160	AC	0.00	1.00000	0	1.00		1.000	6,750SF LEASE		0		0.00		250,000
		Total Card Land Units			0.160	AC	Parcel Total Land Area			120.720		AC					Total Land Value		250,000

Property Location 5 OLD FARM RD | Map ID 29/ 12/ 1A / | Bldg Name | State Use 101
Vision ID 764 | Account # 00076400 | Bldg # 2 | Sec # 1 of 1 | Card # 2 of 2 | Print Date 3/25/2023 5:47:40 PM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	94	Outbuildings
Model	00	Vacant
Grade:		
Occupancy		
Exterior Wall 1		
Exterior Wall 2		
Roof Structure:		
Roof Cover		
Interior Wall 1		
Interior Wall 2		
Interior Flr 1		
Interior Flr 2		
Heat Fuel		
Heat Type:		
AC Type:		
Total Bedrooms		
Total Bthrms:		
Total Half Baths		
Total Rooms:		
Bath Style:		
Kitchen Style:		
Fireplace		
Whirlpool Tubs		
Fin Basement		
Fin Bsmt Qual		
Bsmt. Garages		

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd	Description

MIXED USE

Code	Description	Percentage
350	Cell Tower	100
		0
		0

COST / MARKET VALUATION

RCN	
Year Built	
Depreciation Code	
Remodel Rating	
Year Remodeled	
Depreciation %	
Functional Obsol	
External Obsol	
Cost Trend Factor	1
Condition	
Condition %	
Percent Good	
RCNLD	
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	

No Sketch

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

Cod	Description	Sub	Sub Desc	L/B	Units	Unit Price	Yr Blt	Cond.	% Gd	Grade	Grd A	Appr. Valu
SHD	Cell Equip	FR	Frame	L	240	26.00	2006		100		0.00	6,240
SHD	Cell Equip	FR	Frame	L	360	26.00	2006		100		0.00	9,360

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area
	Ttl Gross Liv / Lease Area	0	0

DOCKET NO. 305 - Cellco Partnership d/b/a Verizon Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a wireless telecommunications facility located at 5 Old Farm Road or 8 Old New Hartford Road, Barkhamsted, Connecticut.	}	Connecticut Siting Council November 3, 2005

Findings of Fact

Introduction

1. Cellco Partnership d/b/a Verizon Wireless (Verizon), in accordance with provisions of General Statutes §§ 16-50g through 16-50aa, applied to the Connecticut Siting Council (Council) on May 10, 2005 for the construction, operation, and maintenance of a wireless telecommunications facility at 5 Old Farm Road or 8 Old New Hartford Road, Barkhamsted, Connecticut. (Verizon 1, pp. 1-2)

2. The party in this proceeding is the applicant. An intervenor is New Cingular Wireless PCS, LLC (New Cingular). (Transcript 1- 4:00 p.m. [Tr. 1], pp. 4-5)

3. The purpose of the proposed facility is to provide wireless service to coverage gaps identified by Verizon on Route 44 between West Hill Road and Route 318 in Barkhamsted. (Verizon 1, p. 1, Attachment 7)

4. Pursuant to General Statutes § 16-50m, the Council, after giving due notice thereof, held a public hearing on July 19, 2005, beginning at 4:00 p.m. and continuing at 7:00 p.m. at the Barkhamsted Elementary School, 62 Ripley Hill Road, Barkhamsted, Connecticut. (Council's Hearing Notice dated June 15, 2005; Tr. 1, p. 3; Transcript 2 – 7:00 p.m. [Tr. 2], p. 3)

5. The Council and its staff conducted an inspection of the proposed sites on July 19, 2005, beginning at 3:00 p.m. During the field inspection, the applicant flew a four-foot diameter balloon at each site to simulate the heights of the proposed towers: a black balloon was flown to a height of 154 feet at the 5 Old Farm Road site and a red balloon was flown to a height of 124 feet at the 8 Old New Hartford Road site. (Council's Hearing Notice dated June 15, 2005; Tr. 1, p. 14)

6. Notice of the application was provided to all abutting property owners by certified mail. Public notice of the application was published in The Hartford Courant on May 4 and 5, 2005. (Verizon 1, p. 5, Attachment 5)

7. Verizon notified the Barkhamsted First Selectman, Michael D. Fox, of the proposal on March 10, 2005. Mr. Fox did not meet with Verizon representatives to discuss the proposal. (Verizon, p. 18; Tr. 1, pp. 40-41)

8. Verizon would provide lease free space on the tower for any emergency use municipal antenna. The Town of Barkhamsted has not expressed an interest in using the tower. (Verizon 1, p. 11; Tr. 2, pp. 22-23)

9. Pursuant to General Statutes § 16-50j (h), on June 8, 2004 and August 4, 2005, the following State agencies were solicited to submit written comments regarding the proposed facility: Department of Environmental Protection (DEP), Department of Public Health (DPH), Council on Environmental Quality (CEQ), Department of Public Utility Control (DPUC), Office of Policy and Management (OPM), Department of Economic and Community Development (DECD), and the Department of Transportation (DOT). (Record)

10. No state agency responded with comment on the application. (Record)

Telecommunications Act

11. In 1996, the United States Congress recognized a nationwide need for high quality wireless telecommunications services, including cellular telephone service. Through the Federal Telecommunications Act of 1996, Congress seeks to promote competition, encourage technical innovations, and foster lower prices for telecommunications services. (Council Administrative Notice Item No. 7)

12. In issuing cellular licenses, the Federal government has preempted the determination of public need for cellular service by the states, and has established design standards to ensure technical integrity and nationwide compatibility among all systems. Verizon is licensed by the Federal Communications Commission (FCC) to provide personal wireless communication service to Litchfield County, Connecticut. (Council Administrative Notice Item No. 7; Verizon 1, p. 7)

13. The Telecommunications Act of 1996 prohibits local and state entities from discriminating among providers of functionally equivalent services. (Council Administrative Notice Item No. 7)

14. The Telecommunications Act of 1996, a Federal law passed by the United States Congress, prohibits any state or local entity from regulating telecommunications towers on the basis of the environmental effects of radio frequency emissions to the extent that such towers and equipment comply with FCC's regulations concerning such emissions. This Act also blocks the Council from prohibiting or acting with the effect of prohibiting the provision of personal wireless service. (Council Administrative Notice Item No. 7)

Site Selection

15. Verizon established a search ring for the target service area in June of 2003. The search ring consisted of four different areas north and south of Route 44 in the Old New Hartford Road area. No existing structures suitable for telecommunications use were located within the search ring. (Verizon 1, Attachment 9; Verizon 3, Q. 5)

16. The nearest existing tower facility to the search ring is a 180-foot monopole located on Oakdale Avenue in Winchester, approximately 1.3 miles east of the proposed sites. Verizon is located at the 125-foot level of this tower. Verizon would not be able to achieve coverage objectives by increasing the height of the antennas at this location due to signal interruption caused by the hilly topography of the area. (Verizon 1, Attachment 7, Attachment 10; Tr. 1, p. 34; Tr. 2, p. 21)

17. After determining there were no viable structures within the search area, Verizon searched for properties suitable for tower development. Verizon investigated seven parcels and selected two for site development. The five rejected parcels and reasons for their rejection are as follows:
    a) 16 W. West Hill Road – did not meet coverage objectives using an antenna height of 170 feet.
    b) 22 W. West Hill Road – did not meet coverage objectives using an antenna height of 180 feet.
    c) 4 Old North Road – property owner not interested.
    d) 72 Old North Road – development would require extensive site disturbance.
    e) 236 New Hartford Road – site would provide adequate coverage; however, visibility impact would be unacceptable.

    (Verizon 1, Attachment 3)

Site Description – Old Farm Road Facility

18. The proposed Old Farm Road facility is located on a 4.16-acre parcel owned by John N. and Ethel C. Lavieri at 5 Old Farm Road in Barkhamsted. The parcel is north of Route 44 and is developed with a single-family residence. (Verizon 1, p. 2, Attachment 1)

19. The site parcel is zoned Industrial, I-2. The parcel is surrounded by property owned by The Lavieri Group at 15 Old Farm Road. (Verizon 1, p. 2; Attachment 1)

20. The tower site is located in the wooded northwest section of the property on a sloping hillside. The lessor's residence is approximately 115 feet south of the tower site. The tower location is at an elevation of 814 feet above mean sea level (amsl). (Verizon 1, Attachment 1)

21. Verizon would construct a 145-foot monopole at the site designed as a pine tree. The overall height of the tower with simulated branches would be 154 feet above ground level (agl). The tower would be designed to support six levels of antennas with a 10-foot center-to-center vertical separation. The tower would be constructed in accordance with the American National Standards Institute TIA/EIA-222-F "Structural Standards for Steel Antenna Towers and Antenna Support Structures". (Verizon 1, p. 11, Attachment 1)

22. Verizon would install 12 panel antennas on t-arm mounts at a centerline height of 145 feet agl. New Cingular proposes to install six antennas at the 135-foot level of the tower. (Verizon 1, pp. 2, 11, Attachment 1; New Cingular 1, Q. 3)

23. Verizon proposes to construct a 75-foot by 57-foot equipment compound at the base of the tower. Verizon would install a 12-foot by 30-foot equipment shelter on a concrete pad within the compound. A seven-foot high chain link and barbed wire fence would enclose the compound. New Cingular would install a 12-foot by 20-foot equipment shelter on a concrete pad within the compound. (Verizon 1, p. 11, Attachment 1; New Cingular 1, Q. 6)

24. Access to the site would be provided by a 12-foot wide, 250-foot long driveway of new construction extending from an existing paved driveway on the property. Underground utilities would be installed to the compound from a utility pole on the property. A diesel or propane generator would provide emergency power to the site. (Verizon 1, p. 11, Attachment 1; Tr. 1, pp. 11-12)

25. Development of the site would require 350 cubic yards of cut and 350 cubic yards of fill. A retaining wall would be required on the east and south sides of the equipment compound. (Verizon 1, Attachment 1; Tr. 1, p. 44)

26. The nearest abutting property from the tower site is approximately 70 feet to the west owned by The Lavieri Group. The tower setback radius would extend onto The Lavieri Group property by 84 feet. Verizon would construct a tower with a yield point of 65 feet agl to prevent the tower from affecting the abutting property in the event of a tower failure. (Verizon 1, Attachment 1; Tr. 1, p. 31)

27. The nearest off-parcel residential structure from the proposed tower site is approximately 900 feet to the southeast. No other off-parcel residences are located within 1,000 feet of the site. (Verizon 1, Q. 1; Tr. 1, p. 42)

28. Land within a quarter-mile of the site is zoned industrial and residential. Industrially developed parcels are located to the south and east. Low-density residential development occurs throughout the area. (Verizon 1, p. 16)

29. The estimated cost of construction for the Old Farm Road facility is:

Cell site radio equipment	450,000.
Tower, coax, and antenna	200,000.
Utilities	20,000.
Equipment building	50,000.
Site preparation, facility installation	130,000.
Total estimated cost	$850,000.

(Verizon 1, p. 20)

Site Description – Old New Hartford Road Facility

30. The proposed Old New Hartford Road facility is located on a 2.75-acre parcel owned by Peter Lavieri at 8 Old New Hartford Road in Barkhamsted. The undeveloped, wooded parcel is located north of Route 44 and west of the proposed Old Farm Road facility. The triangular parcel borders Old North Road, Old New Hartford Road, and the Salister/Jacobs property. (Verizon 1, p. 2, Attachment 2)

31. The site parcel is zoned residential, RA-2. (Verizon 1, p. 2)

32. The tower site is located in the central portion of the parcel at an elevation of 752 feet amsl. (Verizon 1, Attachment 2)

33. Verizon would construct a 117-foot monopole at the site designed as a pine tree and capable of supporting six levels of antennas with a 10-foot center-to-center vertical separation. The overall height of the tower with simulated branches would 124 feet agl. The tower would be constructed in accordance with the American National Standards Institute TIA/EIA-222-F "Structural Standards for Steel Antenna Towers and Antenna Support Structures". (Verizon 1, p. 11, Attachment 2)

34. Verizon would install 12 panel antennas on t-arm mounts at a centerline height of 115 feet agl. New Cingular proposes to install six antennas at a centerline height of 105 feet agl. (Verizon 1, pp. 3, 11, Attachment 2; New Cingular 1, Q. 3)

35. Verizon proposes to construct a 75-foot by 57-foot equipment compound at the base of the tower. Verizon would install a 12-foot by 30-foot equipment shelter on a concrete pad within the compound. New Cingular proposes to install a 12-foot by 20-foot equipment shelter within the compound. A seven-foot high chain link and barbed wire fence would enclose the compound. (Verizon 1, p. 11, Attachment 2; New Cingular 1, Q. 6)

36. Verizon would construct a 12-foot wide, 100-foot long gravel access road from Old North Road to the site. Underground utilities would be installed along the access road from a utility pole on Old North Road. (Verizon 1, p. 3, Attachment 2)

37. Development of the site would require 921 cubic yards of cut and 339 cubic yards of fill. A retaining wall would be required on the south side of the equipment compound. (Verizon 1, Attachment 2; Tr. 1, pp. 44-45)

38. The nearest property from the tower is site approximately 115 feet to the west. The property is developed with a residence and is owned by Peter Salister and Linda Jacobs. The tower setback radius would extend onto the Salister and Jacobs property by nine feet. The tower would be designed with a yield point of 52 feet agl. (Verizon 1, Attachment 2; Tr. 1, p. 30)

39. There are seven residences within 1,000 feet of the site. The nearest residence is approximately 340 feet west of the tower site (Salister and Jacobs property). (Verizon 1, p. 13; Attachment 2)

40. The estimated cost of construction for the Old New Hartford Road facility is:

Cell site radio equipment	450,000.
Tower, coax, and antenna	180,000.
Utilities	20,000.
Equipment building	50,000.
Site preparation, facility installation	80,000.
Total estimated cost	$780,000.

(Verizon 1, p. 20)

41. Verizon prefers to develop the Old New Hartford Road site since development would require less tree clearing, a shorter access road, and a shorter tower when compared to the Old Farm Road site. (Tr. 1, p. 24)

Environmental Concerns

42. The proposed facilities would have no effect on historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places or upon properties of traditional cultural importance to Connecticut's Native American communities. (Verizon 1, Attachment 11)

43. The proposed sites contain no known existing populations of Federal or State Endangered, Threatened or Special Concern Species. (Verizon 1, Attachment 11)

44. Development of the Old Farm Road site would require the removal of 43 trees with a diameter of ten inches or greater. No trees with a diameter of 10 inches or greater would be removed during development of the Old New Hartford Road site. (Verizon 1, Attachment 1, Attachment 2)

45. Development of either site would not directly affect any wetlands or watercourses. Neither site is located within a flood zone. (Verizon 1, p. 18)

46. Aircraft hazard obstruction marking or lighting would not be required for either site. (Verizon 1, Attachment 11)

47. According to methodology prescribed by the FCC Office of Engineering and Technology Bulletin No. 65E, Edition 97-01 (August 1997), assuming all Verizon and New Cingular antennas are pointed at the base of the tower and all channels are operating simultaneously, the maximum power density at the base of the Old Farm Road tower would be 0.037 mW/cm^2 or 3.7% of the standard for Maximum Permissible Exposure (MPE) as adopted by the FCC. The maximum power density at the base of the Old New Hartford Road facility would be 0.061 mW/cm^2 or 6.1% of the MPE. (Verizon 1, Attachment 11; New Cingular 1, Q. 3)

Visibility

48. The average height of the tree canopy within a two-mile radius of the site is 65 feet agl. The Old Farm Road site would be visible above the tree canopy from approximately 42-acres within a two-mile radius of the site (refer to Figure 1). The Old New Hartford Road site would be visible above the tree canopy from approximately 17-acres within a two-mile radius of the site. Seasonal visibility is expected from an additional 15-acres for each proposed site. (Verizon 1, Attachment 10)

49. Visibility of the proposed Old Farm Road tower from specific locations within a 1.25-mile radius of the site is as follows:

Location	Visible	Approximate Portion of Tower Visible	Distance from Tower
Intersection of Route 44 and Old North Road	No		0.2 miles south
Route 44 in the vicinity of Fancher Road	Yes	30 feet with hillside as backdrop	1.0 miles east
Route 44 east of Old Farm Road	Yes	115 feet - unobstructed	0.3 miles southeast
West Hill Road	Yes	65 feet - unobstructed	0.9 miles west
Old New Hartford Road	Yes	125 feet – through vegetation	1.1 miles west
Route 44 west of the site	Yes	25 feet - unobstructed	0.7 miles west
Residence at 9 Old Farm Road	Yes	80 feet - through vegetation	0.2 miles east

(Verizon 1, Attachment 10)

50. Visibility of the proposed Old New Hartford Road tower from specific locations within a 1.25-mile radius of the site is as follows:

Location	Visible	Approximate Portion of Tower Visible	Distance from Tower
Intersection of Route 44 and Old North Road	Yes	30 feet - unobstructed	0.2 miles southeast
Route 44 east of Old Farm Road	No		0.4 miles southeast
Route 44 in the vicinity of Fancher Road	No		1.1 miles east
West Hill Road	Yes	10 feet with hillside as backdrop	0.8 miles west
Old New Hartford Road	Yes	10 feet – unobstructed with hillside as backdrop	1.0 miles west
Route 44 west of the site	Yes	25 feet - unobstructed	0.6 miles west
Residence at 16 Old New Hartford Road	Yes	Compound and bottom portion of tower through vegetation	0.1 miles west
Residence at 9 Old Farm Road	No		0.3 miles west

(Verizon 1, Attachment 10; Tr. 1, p. 25)

51. The Old Farm Road facility would be visible year-round from three separate sections of Route 44 totaling 0.6 miles near the site. Due to the topography and vegetation within the view-shed area, the upper 100 feet of the tower would be visible from some locations. (Verizon 1, Attachment 10; Tr. 1, pp. 24-25)

52. The Old New Hartford Road facility would be visible year-round from three separate 0.1-mile sections of Route 44 near the site with mostly the upper portion of the tower visible. (Verizon 1, Attachment 10)

53. Both towers would be visible year round from six residences. (Verizon 1, Attachment 10)

54. The towers would not be visible from any hiking trails maintained by the DEP or the Connecticut Forest and Parks Association. (Verizon 1, Attachment 10; Tr. 1, p. 35)

55. The towers would not be visible from Route 318, a state scenic road approximately two miles east of the sites. (Verizon 1, Attachment 10; Tr. 1, p. 35)

Verizon - Existing and Proposed Wireless Coverage

56. Verizon proposes to operate 1900 MHz equipment at this site. Verizon is designing the site for in-vehicle coverage, using a signal level threshold of -85 dBm. (Verizon 1, Attachment 11; Tr. 1, pp. 42-43)

57. Verizon currently experiences an approximate 1.8-mile coverage gap on Route 44 between West Hill Road and Route 318 (refer to Figure 2). (Verizon 1, Attachment 7)

58. Coverage objectives would be met on Route 44 by installing antennas at 145 feet agl at the Old Farm Road site and 115 feet agl at the Old New Hartford Road site (refer to Figure 3). (Verizon 1, Attachment 7)

59. Installing antennas at 135 feet agl at the Old Farm Road site or 105 feet agl at the Old New Hartford Road site would result in a tenth of a mile coverage gap on Route 44 near Dew Road. The frequency of dropped calls would increase in the gap area. (Verizon 3, Q. 2; Tr. 1, pp. 19-22)

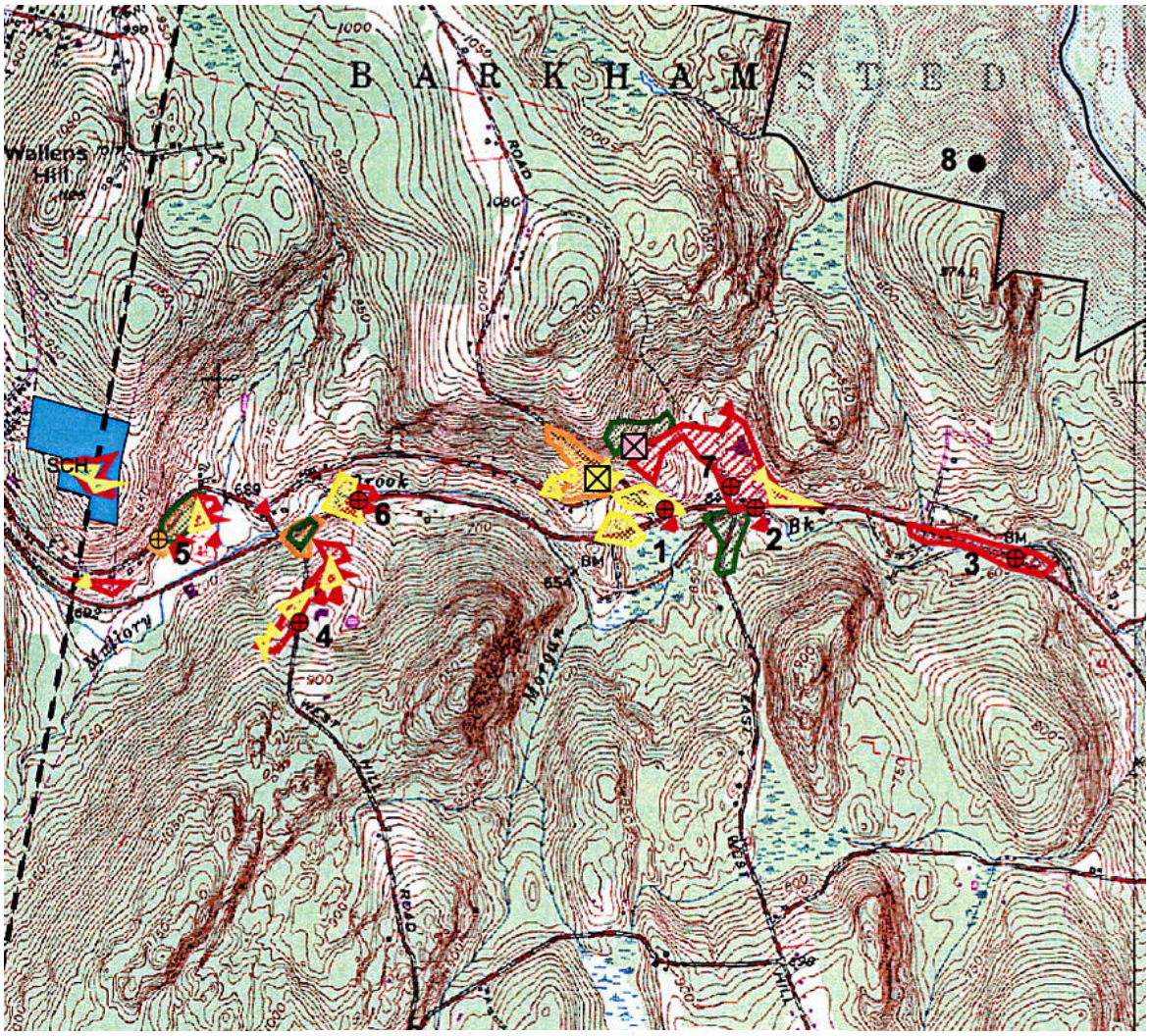
New Cingular - Existing and Proposed Wireless Coverage

60. New Cingular operates in both the 800 and 1900 MHz frequency bands. New Cingular would install 800/1900 MHz dual band antennas at the proposed sites. New Cingular seeks to provide reliable coverage to Route 44 and surrounding roads. (New Cingular 1, Q. 2)

61. New Cingular's existing signal level in the target service area is below -90 dBm at 1900 MHz and in below -80 dBm at 850 MHz. New Cingular seeks to provide coverage at a signal level of -75 dBm (refer to Figure 5). (New Cingular 1, Q. 1, Q. 2)

62. New Cingular would meet coverage objectives with either site at the proposed antenna heights (refer to Figure 6). (New Cingular 1, Q. 5; Tr. 1, p. 48)

FIGURE 1
LOCATION AND VISIBILITY OF PROPOSED SITES



LEGEND

- ☒ *8 Old New Hartford Road Site Location
- ☒ *5 Old Farm Road Site Location

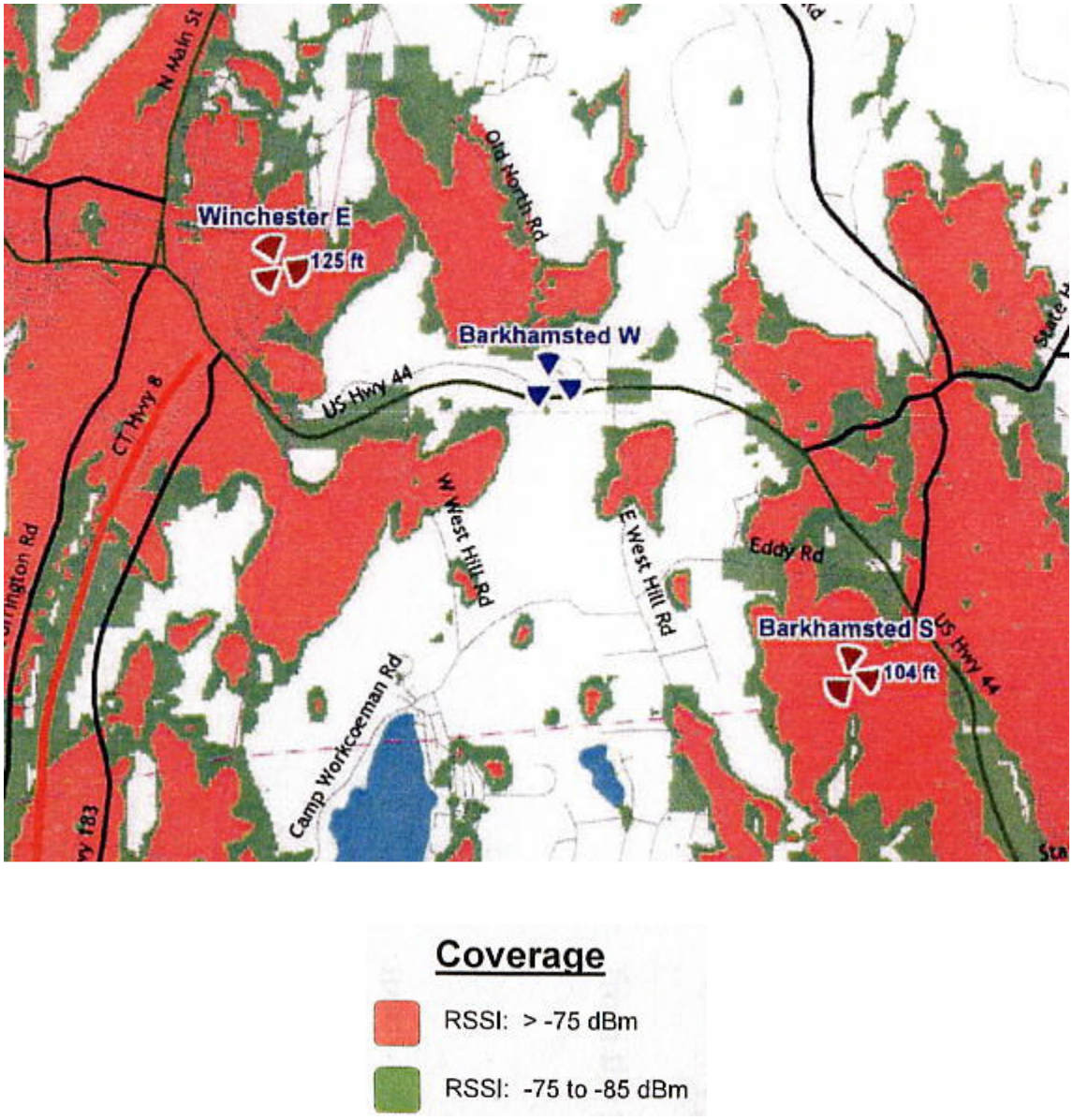
Photopoint Locations - April 6, 2005

- ● Balloon is not visible
- ⊕ Balloon visible through trees
- ⊕ Balloon visible above trees

- Anticipated seasonal visibility - 8 Old New Hartford Road (Approximately 15 acres)
- Anticipated seasonal visibility - 5 Old Farm Road (Approximately 15 acres)
- Year-round visibility 8 Old New Hartford Road (Approximately 17 acres)
- Year-round visibility 5 Old Farm Road (Approximately 42 acres)

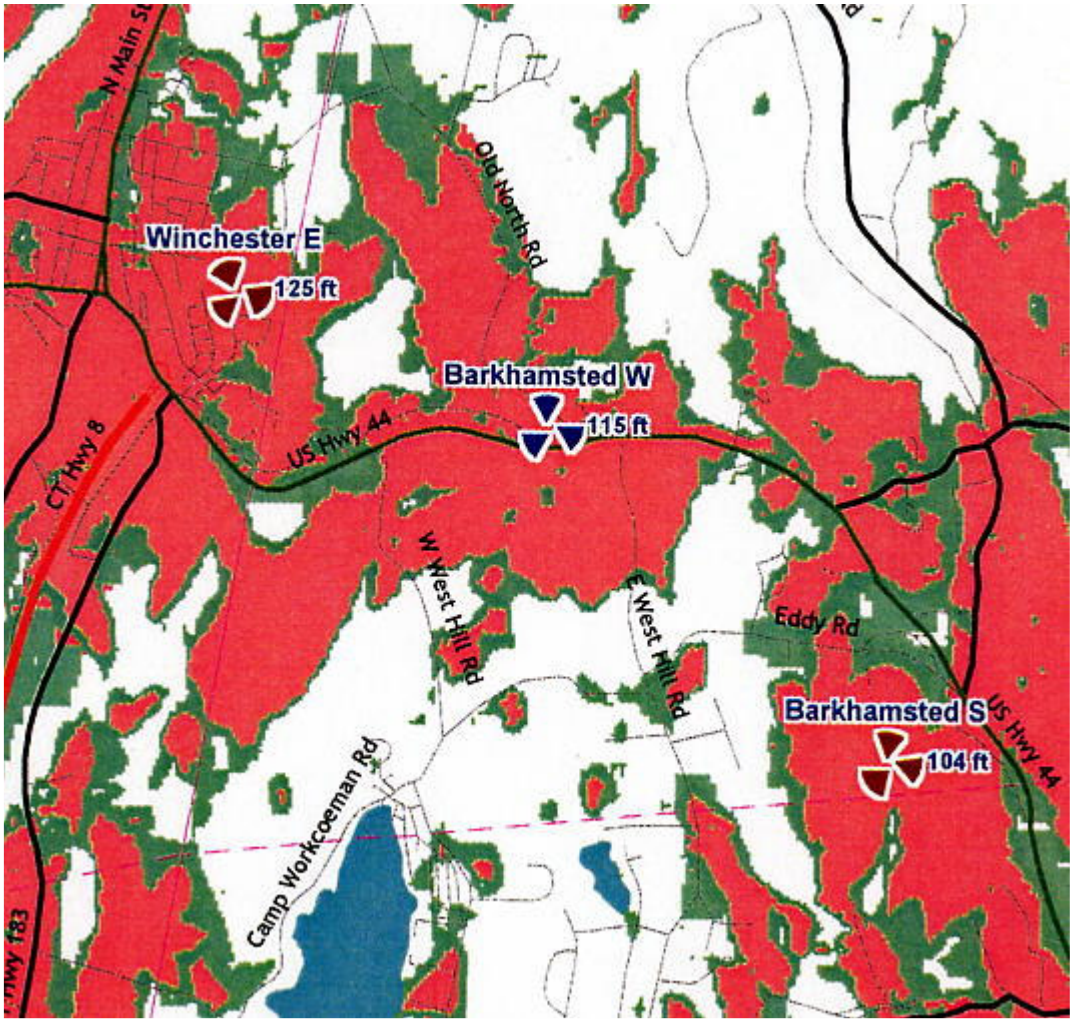
(Verizon 1, Attachment 10)

FIGURE 2
VERIZON EXISTING COVERAGE



(Verizon 1, Attachment 7)

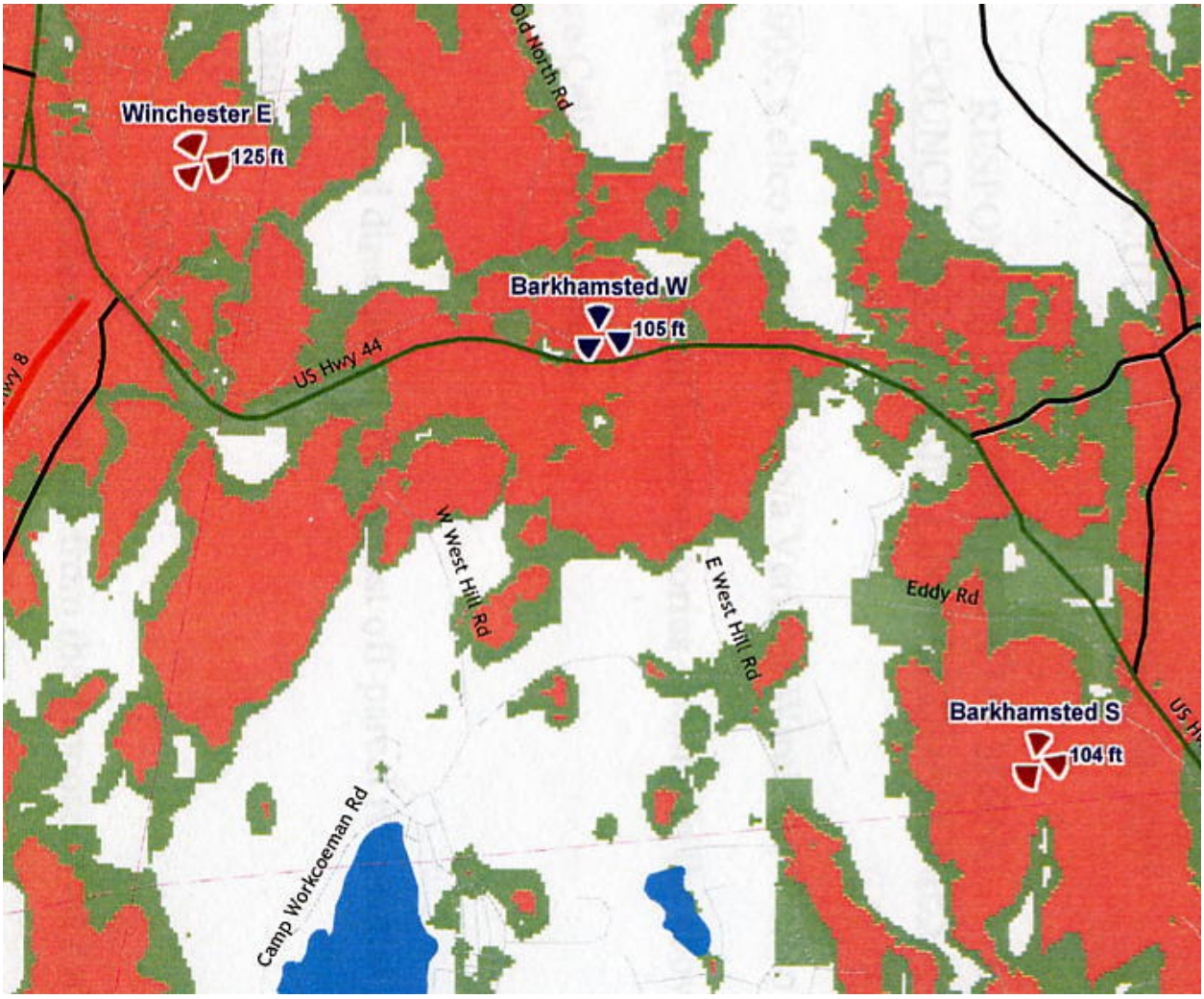
FIGURE 3
VERIZON EXISTING AND PROPOSED COVERAGE FROM THE OLD NEW HARTFORD ROAD SITE AT 115 FEET



*Coverage from the Old Farm Road site with antennas at 145 feet is not significantly different.

(Verizon 1, Attachment 7)

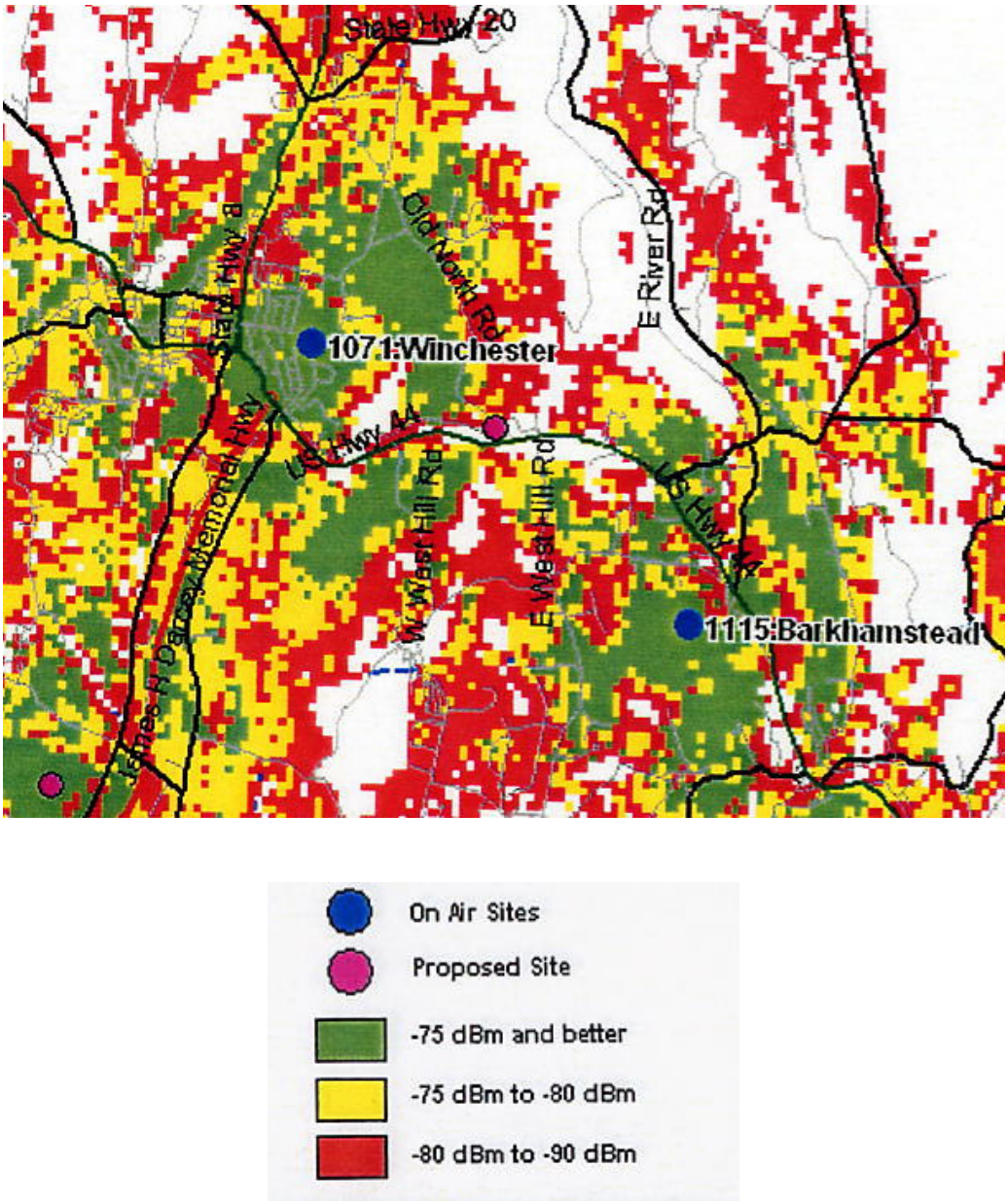
FIGURE 4
VERIZON EXISTING AND PROPOSED COVERAGE FROM
THE OLD NEW HARTFORD ROAD SITE AT 105 FEET



+ Coverage model depicts a tenth of a mile gap on Route 44 east of the site.
*Coverage from the Old Farm Road site with antennas at 135 feet is not significantly different.

(Verizon 3, Q. 2; Tr. 1, pp. 19-22)

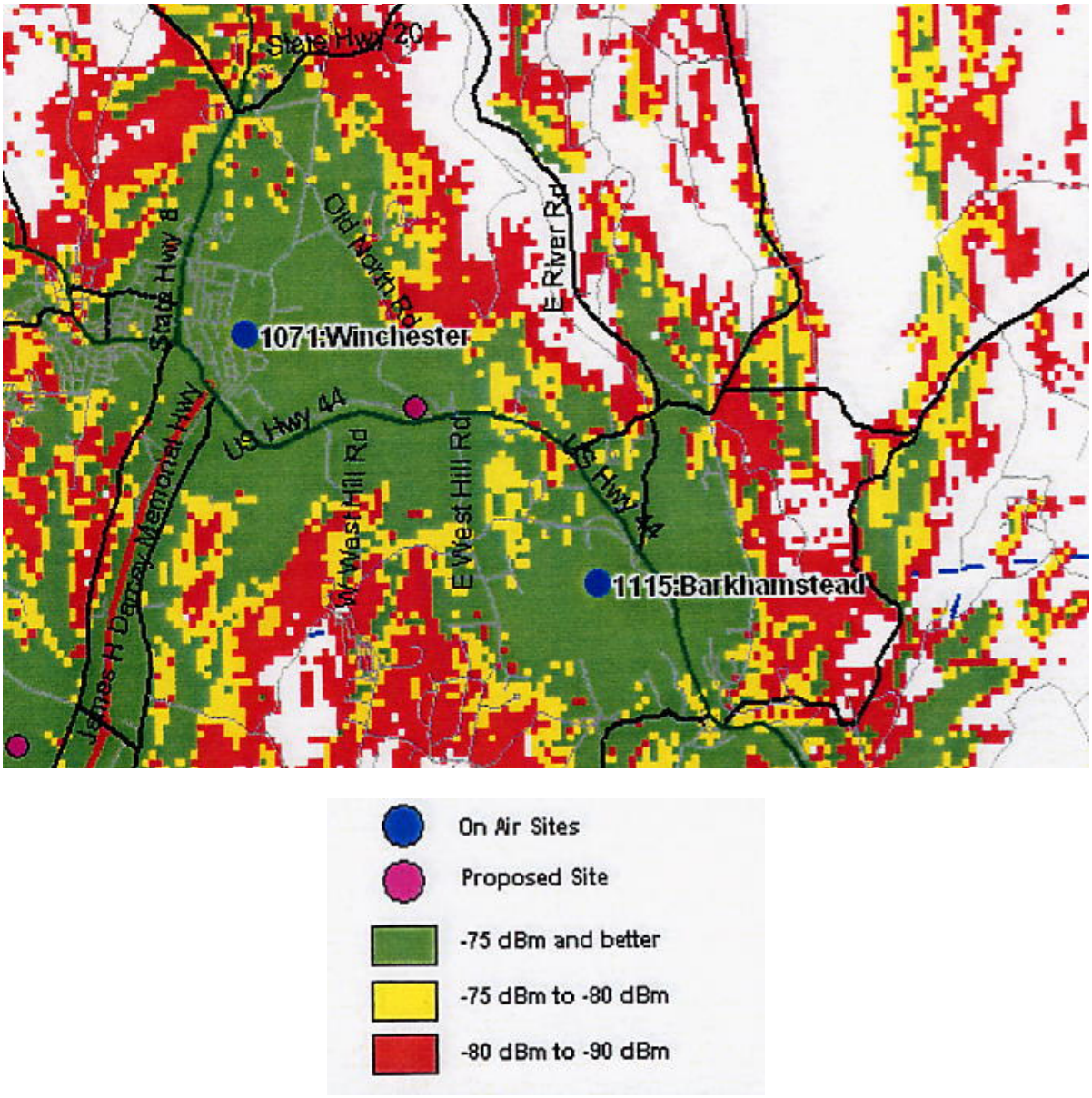
FIGURE 5
NEW CINGULAR EXISTING COVERAGE



* Coverage shown is at 1900 MHz.

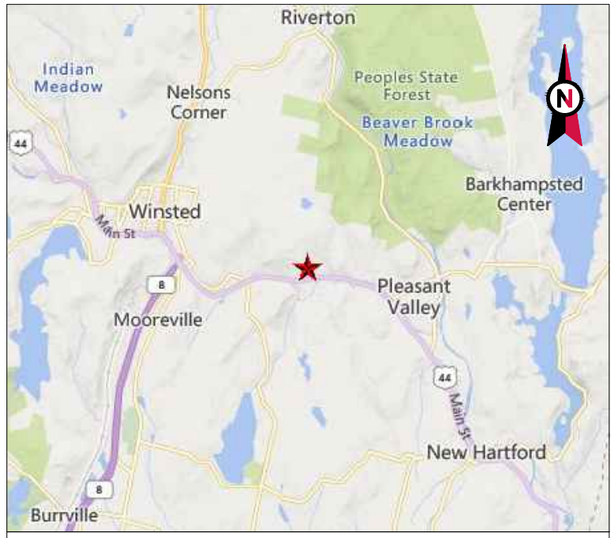
(New Cingular 1, Q. 5)

FIGURE 6
NEW CINGULAR EXISTING AND PROPOSED COVERAGE FROM THE OLD NEW HARTFORD ROAD SITE AT 105 FEET



*Coverage shown is at 1900 MHz. Coverage from the Old Farm Road site with antennas at 135 feet is not significantly different.

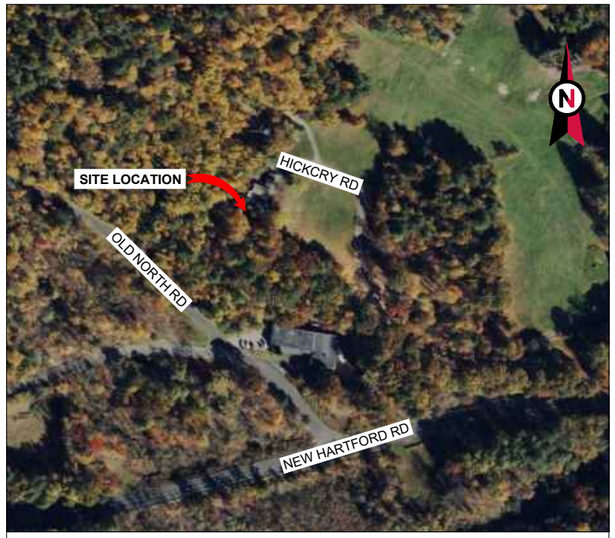
(New Cingular 1, Q. 5)



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: BARKHAMSTEDW CT
ATC SITE NUMBER: 411177
T-MOBILE SITE NAME: OLD FARMS- VERIZON COLO
T-MOBILE SITE NUMBER: CTNH416A
SITE ADDRESS: 14 OLD NORTH ROAD
BARKHAMSTED, CT 06063
SITE CLASS: MONOPOLE



LOCATION MAP

T-MOBILE ANCHOR AMENDMENT PLAN
67E5D998E 6160 CONFIGURATION

COMPLIANCE CODE

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. 2020 NFPA 70, NATIONAL ELECTRIC CODE (NEC)
2. 2022 CONNECTICUT STATE BUILDING CODE
3. 2021 INTERNATIONAL BUILDING CODE (IBC)

DESIGN CRITERIA FROM TOWER STRUCTUAL ANALYSIS:

BASIC WIND SPEED:	115 MPH
BASIC WIND SPEED W/ ICE:	50 MPH
CODE(S):	ANSI/TIA-222-H / 2021 IBC / 2022 CONNECTICUT STATE BUILDING CODE
EXPOSURE CATEGORY:	B
RISK CATEGORY:	II
TOPO FACTOR PROCEDURE:	METHOD 1
TOPOGRAPHIC CATEGORY:	1
SPECTRAL RESPONSE:	S_S=0.17, S_1=0.05
SITE CLASS:	D- STIFF SOIL- DEFAULT

INFORMATION TAKEN FROM STRUCTURAL ANALYSIS COMPLETED BY ATC, DATED 10/04/2023.

UTILITY COMPANIES

POWER COMPANY: NORTHEAST UTILITY SERVICE
PHONE: (800) 286-2000

TELEPHONE COMPANY: UNKNOWN
PHONE: N/A

811 Know what's below. Call before you dig.

PROJECT SUMMARY

SITE ADDRESS:

14 OLD NORTH ROAD
BARKHAMSTED, CT 06063
COUNTY: LITCHFIELD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.914528
LONGITUDE: -73.022222
GROUND ELEVATION: 814' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

APPLICANT:

T-MOBILE

ENGINEER:

ATC TOWER SERVICES, LLC
3500 REGENCY PKWY STE 100
CARY, NC 27518

PROPERTY OWNER:

JOHN N LAVIERI
14 OLD NORTH ROAD
BARKHAMSTED, CT
06063

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

TOWER WORK:
REMOVE (3) ANTENNA(S), (6) TMA(S), AND (12) 1-5/8" COAX CABLE(S)
INSTALL (6) ANTENNA(S), (3) RRU(S), AND (3) HYBRID TRUNK 6/24 4AWG CABLE(S)
EXISTING (3) ANTENNA(S), (3) RRU(S), AND (1) HYBRID TRUNK 6/24 4AWG CABLE(S) TO REMAIN

GROUND WORK:
REMOVE (1) RBS 3106, AND (1) 6131 CABINET
INSTALL (1) 6160 AC V1, (1) B160
EXISTING (1) RBS 6201, CONC. PAD, ICE BRIDGE, (2) H-FRAME, PPC, AND (1) GPS TO REMAIN

PROJECT NOTES

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).

PROJECT LOCATION DIRECTIONS

FROM EAST HARTFORD I-84 WEST TO RT. 44 RT. PAST RT. 318 ON THE RIGHT. LOOK FOR STERLING ENGINEERING. TURN RIGHT IMMEDIATELY AFTER ANTIQUE STORE ONTO OLD FARM RD. THEN TURN LEFT ONTO PRIVATE DRIVE. TURN RIGHT BEFORE HOUSE ONTO STONE DRIVE. TAKE ANOTHER LEFT SITE IS AT END OF ROAD. THIS SITE HAS DIESEL RESTRICTIONS NOTED IN EMIS

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	11/29/2023	JM
G-002	GENERAL NOTES	0	11/29/2023	JM
C-101	DETAILED SITE PLAN	0	11/29/2023	JM
C-102	DETAILED EQUIPMENT PLAN	0	11/29/2023	JM
C-201	TOWER ELEVATION	0	11/29/2023	JM
C-401	ANTENNA INFORMATION & SCHEDULE	0	11/29/2023	JM
C-501	CONSTRUCTION DETAILS	0	11/29/2023	JM
E-501	GROUNDING DETAILS	0	11/29/2023	JM
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			
R-606	SUPPLEMENTAL			
R-607	SUPPLEMENTAL			
R-608	SUPPLEMENTAL			
R-609	SUPPLEMENTAL			

AMERICAN TOWER®
A.T. ENGINEERING SERVICES LLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JM	11/29/2023

ATC SITE NUMBER:
411177
ATC SITE NAME:
BARKHAMSTEDW CT
T-MOBILE SITE NAME:
OLD FARMS- VERIZON COLO
SITE ADDRESS:
14 OLD NORTH ROAD
BARKHAMSTED, CT 06063

SEAL:

STATE OF CONNECTICUT · SCOTT A. WIRGAU · 30575 · LICENSED PROFESSIONAL ENGINEER

Scott Wirgau
Digitally signed by Scott Wirgau
Date: 2023.11.30 14:46:36 -05'00'

T-Mobile

ATC PROJ. #:	14529798_G0
CUST. ID:	OLD FARMS- VERIZON COLO
CUST. #:	CTNH416A

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	0

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 ANSI/EIA/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. WHEN THE PROJECT SCOPE REQUIRES THE USE OF THE SAFETY CLIMB, THE GENERAL CONTRACTOR SHALL ENSURE THE SAFETY CLIMB IS FREE OF OBSTRUCTIONS, NOT RUBBING ON OR TRAPPED BY ANY INSTALLED CUSTOMER EQUIPMENT, IS VISUALLY TAUT, MEETS MANUFACTURER INSTALLATION SPECIFICATIONS, AND IS FIRMLY SECURED AT ALL CABLE GUIDE LOCATIONS UPON PROJECT COMPLETION.
29. COMPLETION OF PROJECT SHALL NOT OBSTRUCT, TRAP, LOOSEN, OR OTHERWISE CAUSE FAILURE TO MEET MANUFACTURER INSTALLATION REQUIREMENTS FOR THE SAFETY CLIMB.
30. 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.
31. 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 NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT 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.
32. 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.
33. 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.
34. 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.
35. 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/HYBRID 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.
   - B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
   - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
   - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
   - E. INSTALL COAXIAL/HYBRID 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/HYBRID CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
2. ANTENNA AND COAXIAL/HYBRID CABLE GROUNDING:
   - A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
   - B. ALL COAXIAL/HYBRID CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL/HYBRID CABLE (NOT WITHIN BENDS)

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.

AMERICAN TOWER®
A.T. ENGINEERING SERVICES LLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JM	11/29/2023

ATC SITE NUMBER:
411177
ATC SITE NAME:

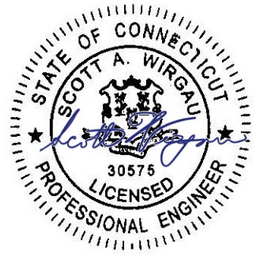
BARKHAMSTEDW CT

T-MOBILE SITE NAME:

OLD FARMS- VERIZON COLO

SITE ADDRESS:
14 OLD NORTH ROAD
BARKHAMSTED, CT 06063

SEAL:



Digitally Signed: 2023-11-30

T-Mobile

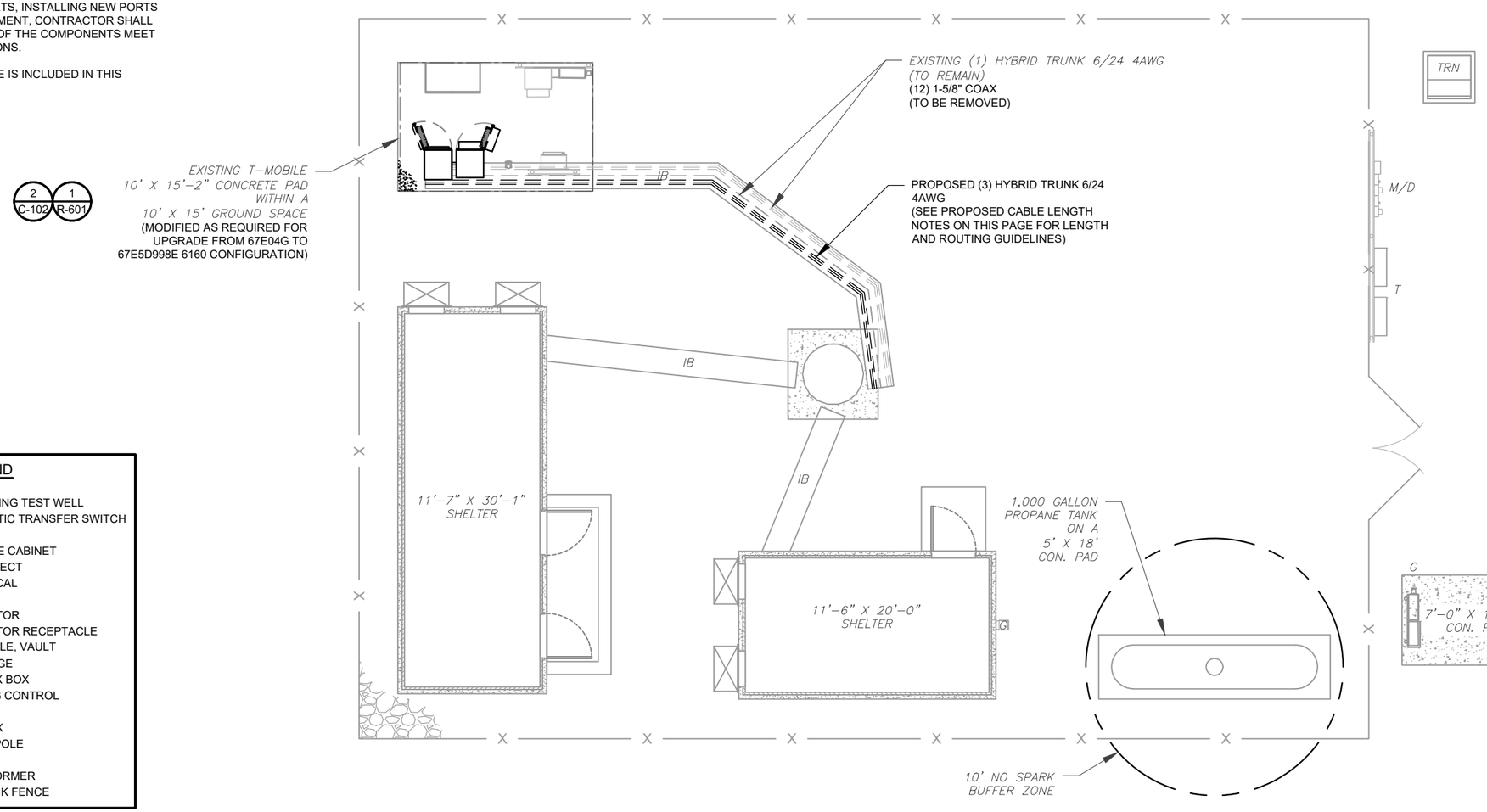
ATC PROJ. #:	14529798_G0
CUST. ID:	OLD FARMS- VERIZON COLO
CUST. #:	CTNH416A

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

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. NO ELECTRICAL SCOPE IS INCLUDED IN 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 RECEPTACLE
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
———	CHAINLINK FENCE

PROPOSED CABLE NOTES:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **197'**. 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

GRAPHIC SCALE

10 0 5 10

(IN FEET)
1 UNIT = 10 FEET

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PHONE: (919) 468-0112
PEC.0001553

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0	FOR CONSTRUCTION	JM	11/29/2023

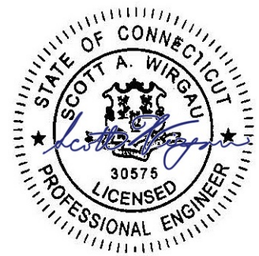
ATC SITE NUMBER:
411177

ATC SITE NAME:
BARKHAMSTEDW CT

T-MOBILE SITE NAME:
OLD FARMS- VERIZON COLO

SITE ADDRESS:
14 OLD NORTH ROAD
BARKHAMSTED, CT 06063

SEAL:



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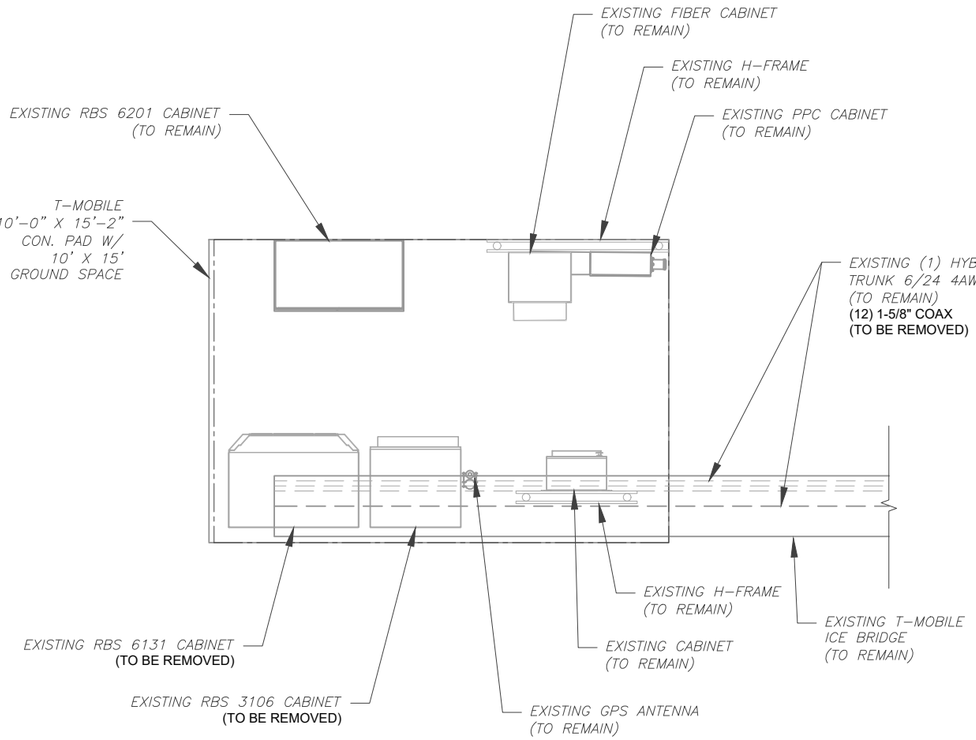
CUST. ID:	OLD FARMS- VERIZON COLO
CUST. #:	CTNH416A

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

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. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
3. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.



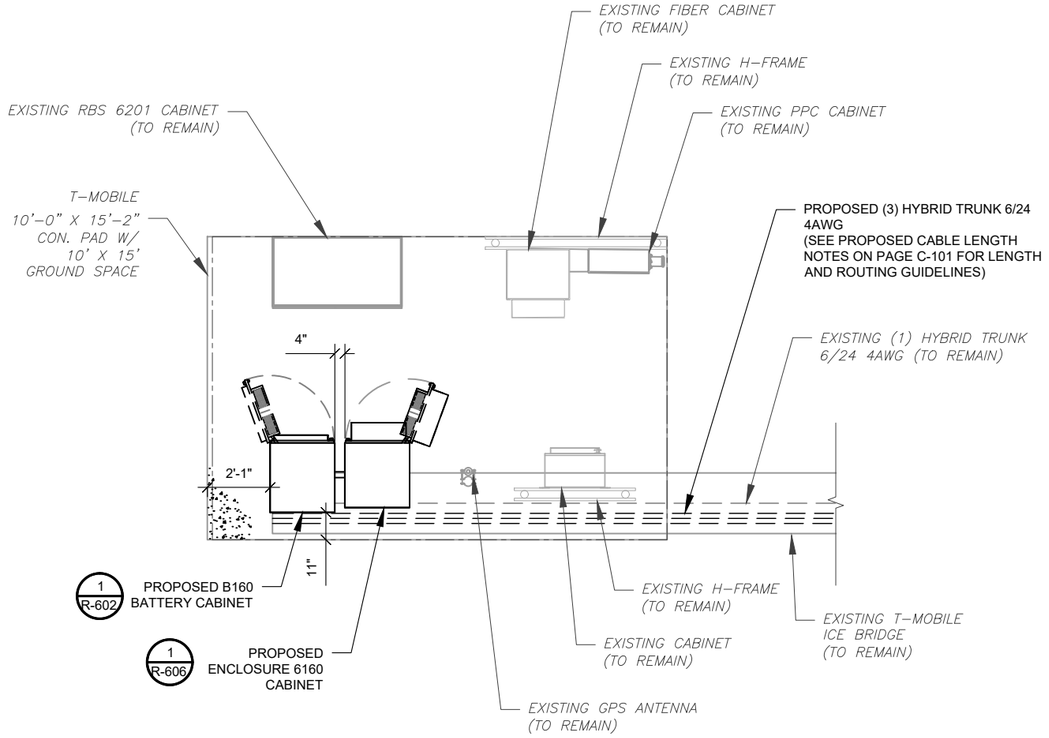
1 EXISTING GROUND EQUIPMENT LAYOUT

GRAPHIC SCALE

5 0 2.5 5

(IN FEET)
1 UNIT = 5 FEET

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS.



2 PROPOSED GROUND EQUIPMENT LAYOUT

GRAPHIC SCALE

5 0 2.5 5

(IN FEET)
1 UNIT = 5 FEET

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BARKHAMSTEDW CT

T-MOBILE SITE NAME:
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SITE ADDRESS:
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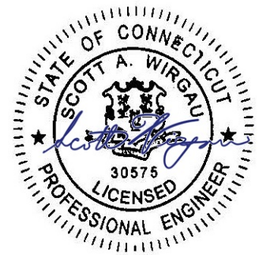
BARKHAMSTED, CT 06063

SEAL:



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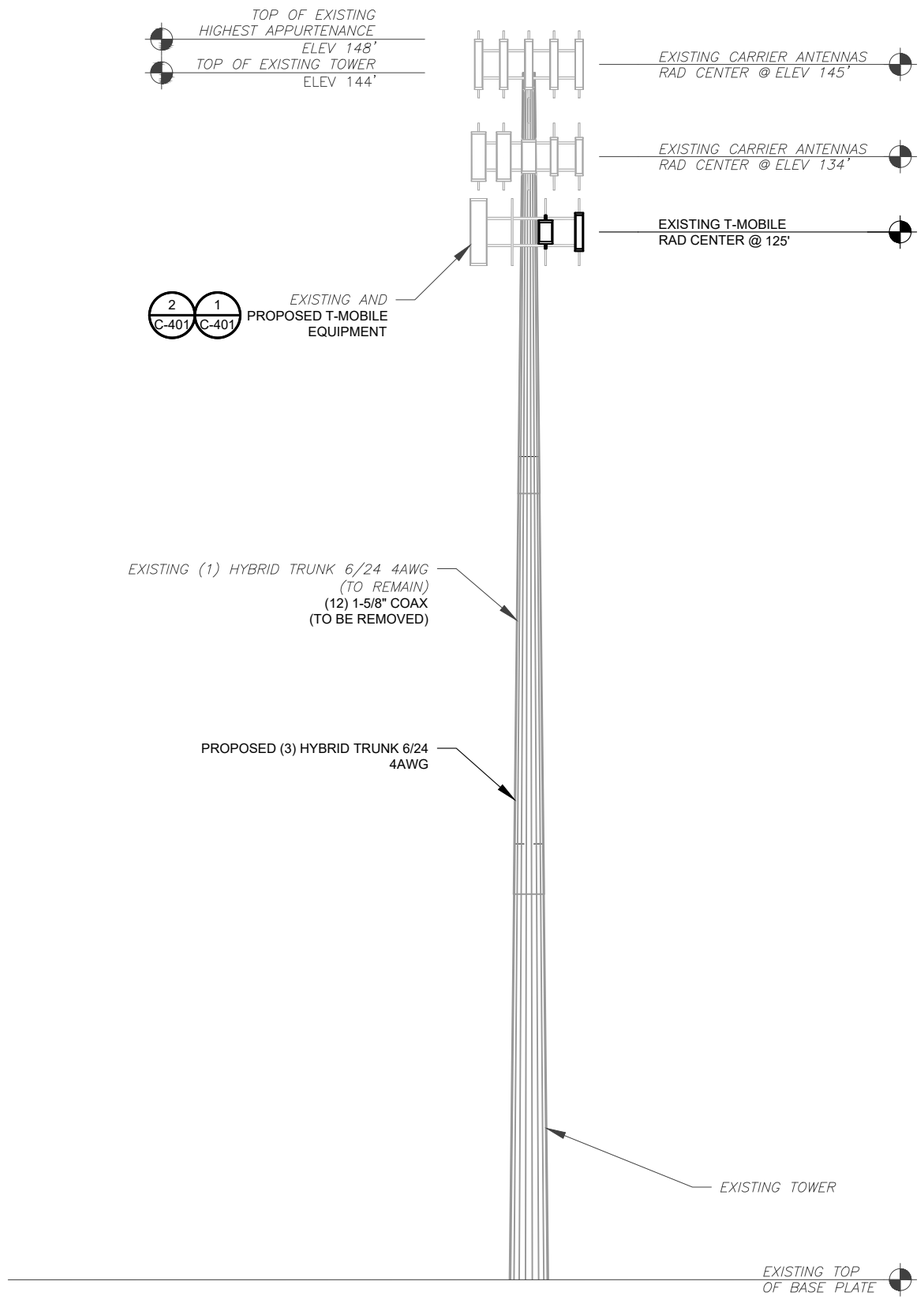
ATC PROJ. #:	14529798_G0
CUST. ID:	OLD FARMS- VERIZON COLO
CUST. #:	CTNH416A

DETAILED EQUIPMENT PLAN

SHEET NUMBER:	REVISION:
C-102	0

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 10/04/2023, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



1 TOWER ELEVATION
SCALE: N.T.S.

TOWER NOTE:

1. 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.
2. 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.
3. 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.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
5. TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.

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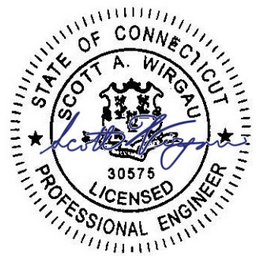
BARKHAMSTED, CT 06063

SEAL:



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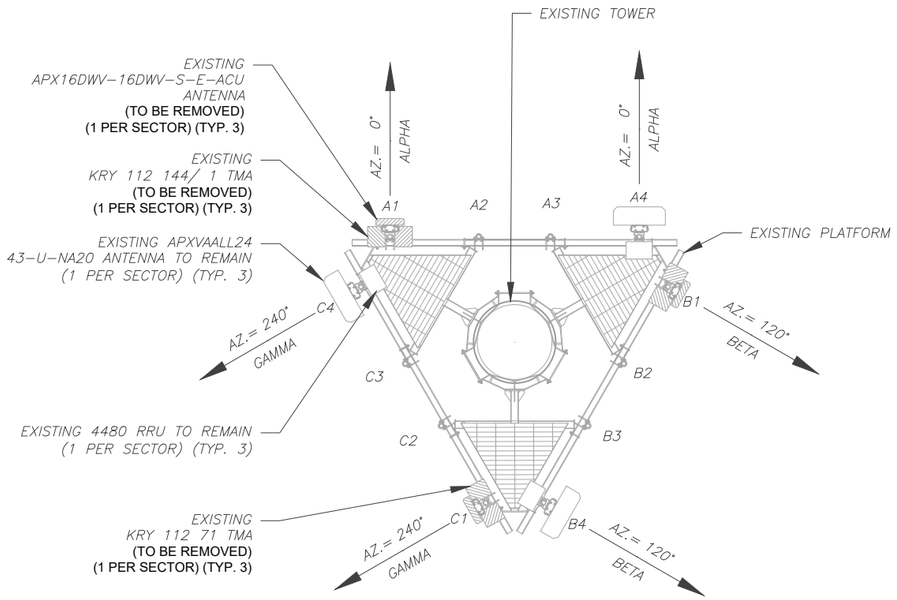
CUST. #:	CTNH416A

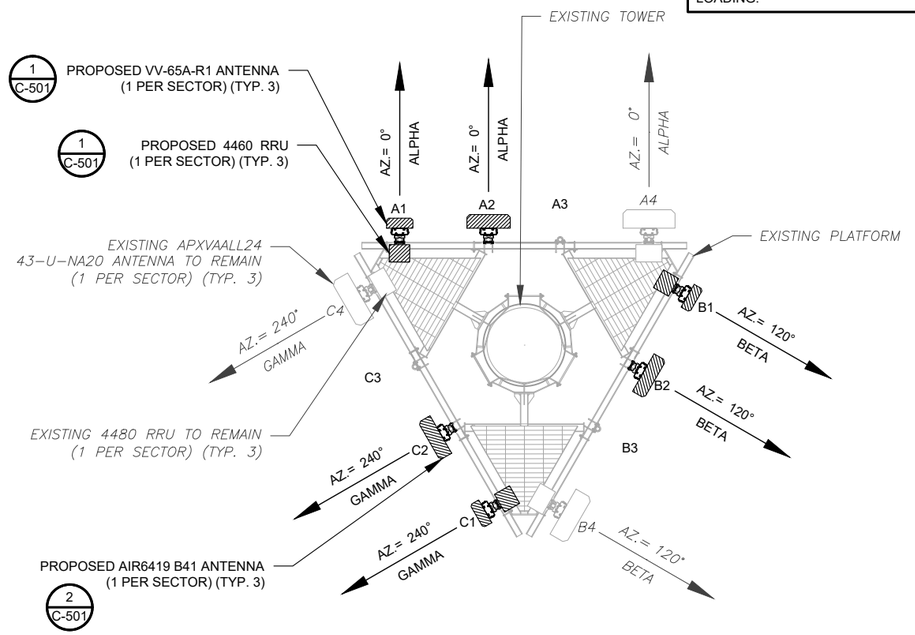
TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-201	0



1 EXISTING ANTENNA PLAN
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 10/04/2023, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



2 FINAL ANTENNA PLAN
SCALE: N.T.S.

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	125'	0°	A1	APX16DWV-16DWV-S-E-ACU	L1900 / G1900	0° / 0°	RMV	KRY 112 144/ 1 KRY 112 71	RMV RMV
			A2	–	–	–	–	–	–
			A3	–	–	–	–	–	–
			A4	APXVAALL24 43-U-NA20	L700/L600/N600	0° / 0°	RMN	4480	RMN
BETA	125'	120°	B1	APX16DWV-16DWV-S-E-ACU	L1900 / G1900	0° / 0°	RMV	KRY 112 144/ 1 KRY 112 71	RMV RMV
			B2	–	–	–	–	–	–
			B3	–	–	–	–	–	–
			B4	APXVAALL24 43-U-NA20	L700/L600/N600	0° / 0°	RMN	4480	RMN
GAMMA	125'	240°	C1	APX16DWV-16DWV-S-E-ACU	L1900 / G1900	0° / 0°	RMV	KRY 112 144/ 1 KRY 112 71	RMV RMV
			C2	–	–	–	–	–	–
			C3	–	–	–	–	–	–
			C4	APXVAALL24 43-U-NA20	L700/L600/N600	0° / 0°	RMN	4480	RMN

NOTES

1. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. 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	125'	0°	A1	VV-65A-R1	L2100 / N1900 / G1900/ L1900	0° / 0°	ADD	4460	ADD
			A2	AIR 6419 B41	N2500	0° / 0°	ADD	-	-
			A3	-	-	-	-	-	-
			A4	APXVAALL24 43-U-NA20	L700/L600/N600	0° / 0°	RMN	4480	RMN
BETA	125'	120°	B1	VV-65A-R1	L2100 / N1900 / G1900/ L1900	0° / 0°	ADD	4460	ADD
			B2	AIR 6419 B41	N2500	0° / 0°	ADD	-	-
			B3	-	-	-	-	-	-
			B4	APXVAALL24 43-U-NA20	L700/L600/N600	0° / 0°	RMN	4480	RMN
GAMMA	125'	240°	C1	VV-65A-R1	L2100 / N1900 / G1900/ L1900	0° / 0°	ADD	4460	ADD
			C2	AIR 6419 B41	N2500	0° / 0°	ADD	-	-
			C3	-	-	-	-	-	-
			C4	APXVAALL24 43-U-NA20	L700/L600/N600	0° / 0°	RMN	4480	RMN

EXISTING FIBER DISTRIBUTION / OVP BOX		EXISTING CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
–	RMN	(1) HYBRID TRUNK 6/24 4AWG	RMN
–	RMV	(12) 1-5/8" COAX	RMV

3 EQUIPMENT SCHEDULES

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
–	RMN	(1) HYBRID TRUNK 6/24 4AWG	RMN
-	ADD	(3) HYBRID TRUNK 6/24 4AWG	ADD

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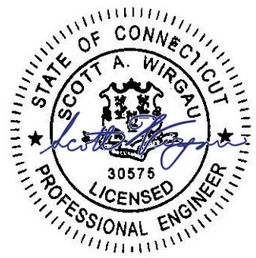

Digitally Signed: 2023-11-30

T-Mobile

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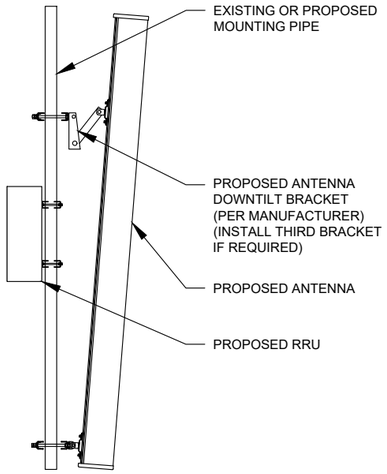
CUST. ID:	OLD FARMS- VERIZON COLO
CUST. #:	CTNH416A

ANTENNA INFORMATION & SCHEDULE

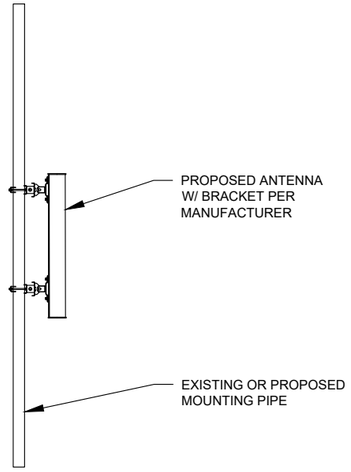
SHEET NUMBER:	REVISION:
C-401	0

EXISTING/PROPOSED MOUNTS AND/OR MOUNT MODIFICATIONS NOT SHOWN FOR CLARITY. REFER TO ANTENNA PLANS, MOUNT ANALYSES AND/OR MOUNT MODIFICATION DOCUMENTS FOR ADDITIONAL DETAIL.



1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.

AMERICAN TOWER®
A.T. ENGINEERING SERVICES LLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JM	11/29/2023

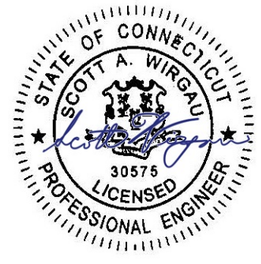
ATC SITE NUMBER:
411177

ATC SITE NAME:
BARKHAMSTEDW CT

T-MOBILE SITE NAME:
OLD FARMS- VERIZON COLO

SITE ADDRESS:
14 OLD NORTH ROAD
BARKHAMSTED, CT 06063

SEAL:



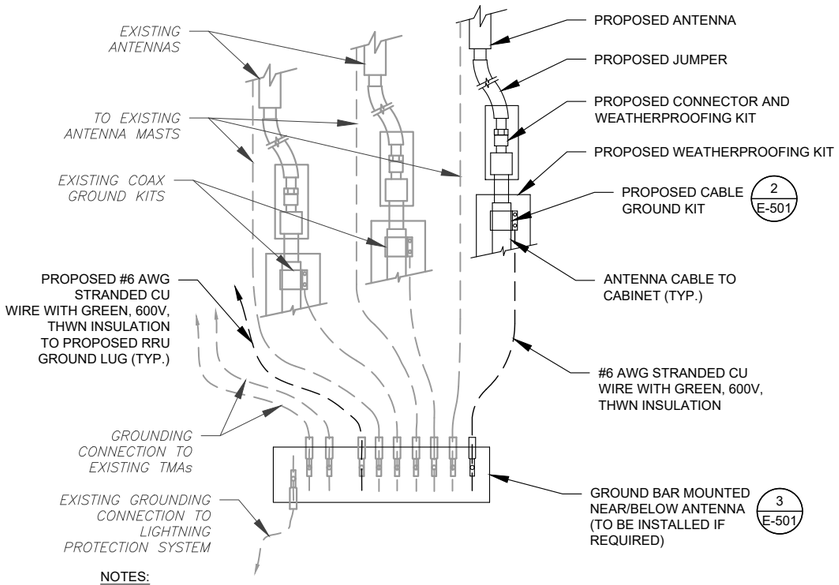
Digitally Signed: 2023-11-30

T-Mobile

ATC PROJ. #:	14529798_G0
CUST. ID:	OLD FARMS- VERIZON COLO
CUST. #:	CTNH416A

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	0

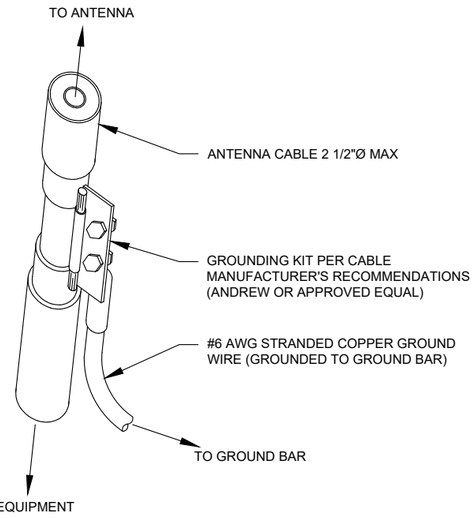


NOTES:

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.

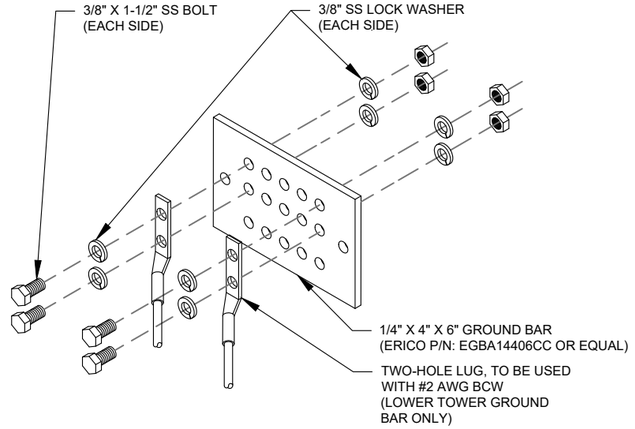


GROUND KIT NOTES:

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.

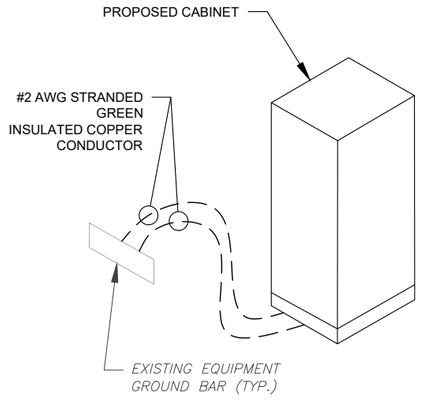
3 TOWER GROUND BAR DETAIL

SCALE: N.T.S.

STANDARD CONDUIT USE TABLE			
CONDUIT TYPE	USE CASE	LOCATION	USE CASE EXAMPLE
RMC (METALLIC)	AC, DC COMM	ABOVE GROUND	ABOVE GROUND PPC TO SSC
PVC	AC POWER	UNDERGROUND	UNDERGROUND PPC TO SSC OR BACKHAUL TRANSPORT HUB TO SSC
LFMC	AC, DC, COMM	MAX 6' PER CONDUIT RUN, ABOVE GROUND ONLY	TIGHT LOCATIONS BETWEEN HUB AND CONDUIT BUT NOT TO BE USED WHERE IT CAN BE STEPPED ON
EMT	INDOOR AC, DC COMM	INDOOR NOT EXPOSED TO THE OUTDOOR ENVIRONMENT (MUST BE DRY)	CIRCUIT PANEL TO JUNCTION BOX
LFNC	GROUND WIRE	CONCEALING AND PROTECTING BTCW RISERS ONLY	GROUND RING TO MGB OR SSC

EXCEPTION CONDUIT USE TABLE			
CONDUIT TYPE	USE CASE	LOCATION	USE CASE EXAMPLE
EMT (NOT PREFERRED)	OUTDOOR DC, COMM	OUTDOOR WHEN USED WITH WATERTIGHT HUBS ONLY	BETWEEN EQUIPMENT AND BATTERY CABINET OR EQUIPMENT TO EQUIPMENT CABINETS FOR INTER CABINET CONNECTION
RMC NONMETALLIC (ALUMINUM)	OUTDOOR/INDOOR PER NEC GUIDLINES	ABOVE GROUND	MAT BE USED AS A LOWER COST ALTERNATIVE TO METALLIC RMC, MUST MEET OR EXCEED FEDERAL SPEC: WW-C-540C, UL-6A, ANSI C80.5, NEC 344.10 (A) ALLOWS THE USE OF EITHER ALUMINUM OR GALVANIZED FITTINGS

4 CONDUIT USE TABLES



5 CABINET GROUNDING 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.

VOLTS	OCPD SIZE	WIRE SIZE	GROUND	CONDUIT
120/240V OR 120/208V	80A/2P	3-#3 AWG	#8 AWG	1-1/4"
	100/2P	3-#2 AWG	#8 AWG	1-1/4"
	125A/2P	3-#3/0 AWG	#6 AWG	2"
	150A/2P	3-#3/0 AWG	#6 AWG	2"
	200A/2P	3-#3/0 AWG	#6 AWG	2"
240V OR 208V	80A/2P	2-#3 AWG	#8 AWG	1-1/4"
	100/2P	2-#2 AWG	#8 AWG	1-1/4"
	125A/2P	2-#3/0 AWG	#6 AWG	2"
	150A/2P	2-#3/0 AWG	#6 AWG	2"
	200A/2P	2-#3/0 AWG	#6 AWG	2"

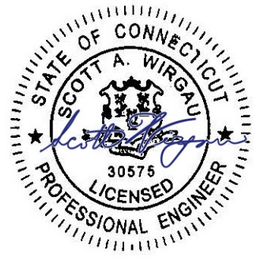
6 ELECTRICAL NOTES

AMERICAN TOWER®
A.T. ENGINEERING SERVICES LLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JM	11/29/2023

ATC SITE NUMBER:
411177
ATC SITE NAME:
BARKHAMSTEDW CT
T-MOBILE SITE NAME:
OLD FARMS- VERIZON COLO
SITE ADDRESS:
14 OLD NORTH ROAD
BARKHAMSTED, CT 06063

SEAL:



Digitally Signed: 2023-11-30

T-Mobile

ATC PROJ. #:	14529798_G0
CUST. ID:	OLD FARMS- VERIZON COLO
CUST. #:	CTNH416A

GROUNDING DETAILS

SHEET NUMBER: E-501
REVISION: 0

Proposed RAN Equipment			
Template: 67E5D998E 6160			
Enclosure	1	2	3
Enclosure Type	Enclosure 6160 AC V1	RBS 6201	B160
Baseband	RP 6651 (N2500) RP 6651 (N1900, L1900, L2100)	DUG20 (G1900) RP 6651 (N600, L600, L700)	
Transport System	CSR IXRe V2 (Gen2)		
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 60m (x3)	Hybrid Trunk 6/24 4AWG 60m PSU 4813 vR4A (Kit)	

RAN Scope of Work:

Remove all unused equipment's from RAN section.

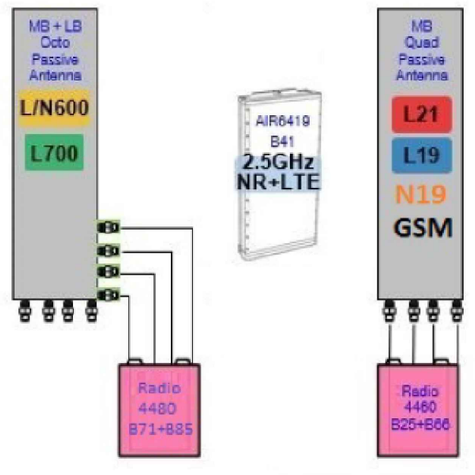
Add (1) 6160 and (1) B160 cabinets.
Add (1) RP6651 for NR2500
Replace BB5216 with RP6651 for midband technology.
Add (1) IXRe router to 6160.
Add (3) Hybrid Trunk 6/24 4AWG 60m confirmed.

Scoping Notes:
Remove existing 8131 Cabinet "dead".

1 CABINET CONFIGURATION

Section 3 - Proposed Template Images

67E5D998E_OP+AIR+QP with GSM.jpg



Notes:

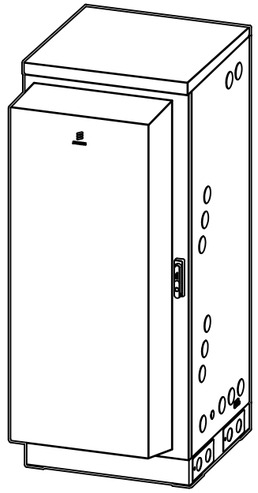
2 ANTENNA CONFIGURATION

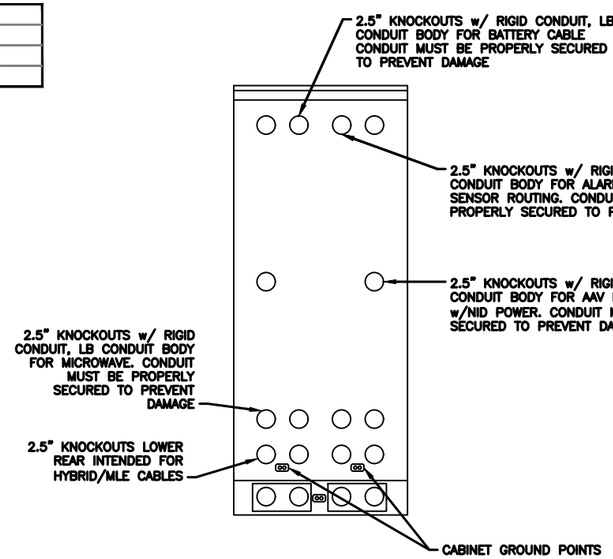
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0

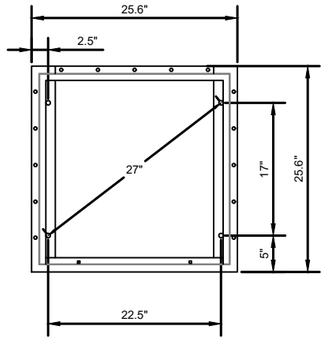
MANUFACTURER:	ERICSSON
MODEL:	6160 SITE SUPPORT CABINET
DIMENSIONS:	63" x 25.6" x 33.6" (H x W x D)
WEIGHT:	373 LBS





REAR VIEW

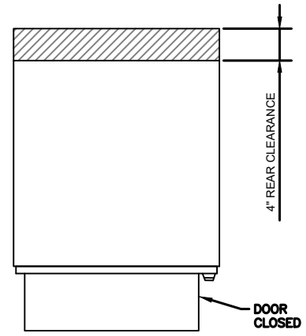
NOTE:
- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING

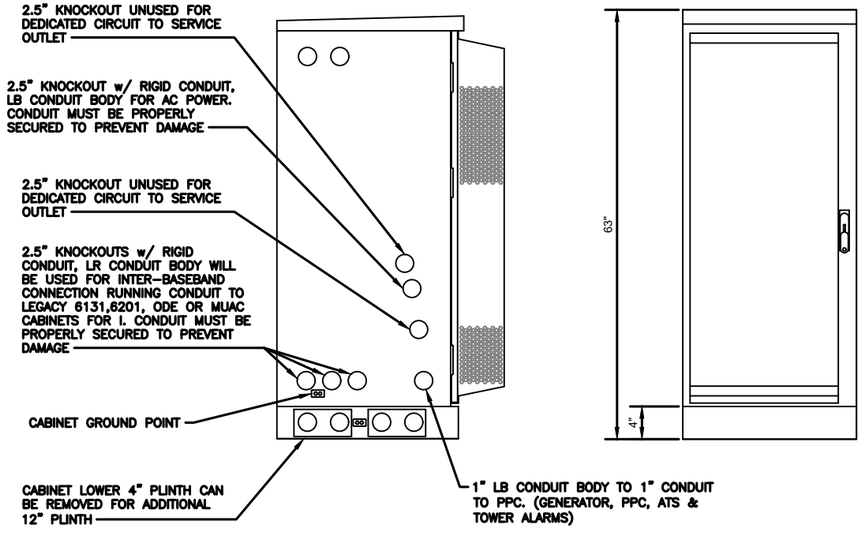


BOLT DOWN PATTERN

GROUNDING NOTE:

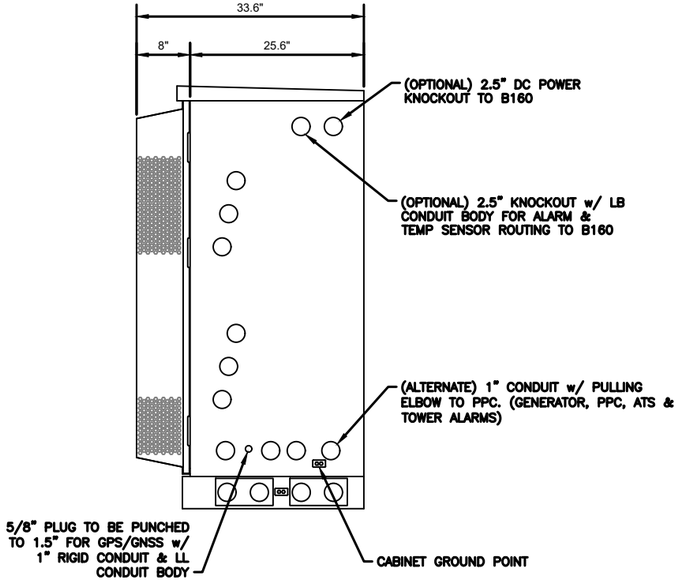
"CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."



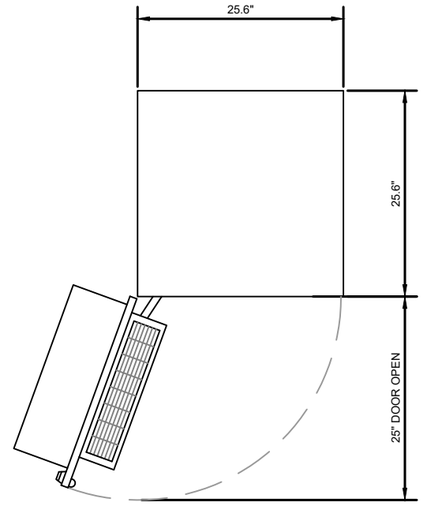


LEFT VIEW

FRONT VIEW



RIGHT VIEW



PLAN VIEW

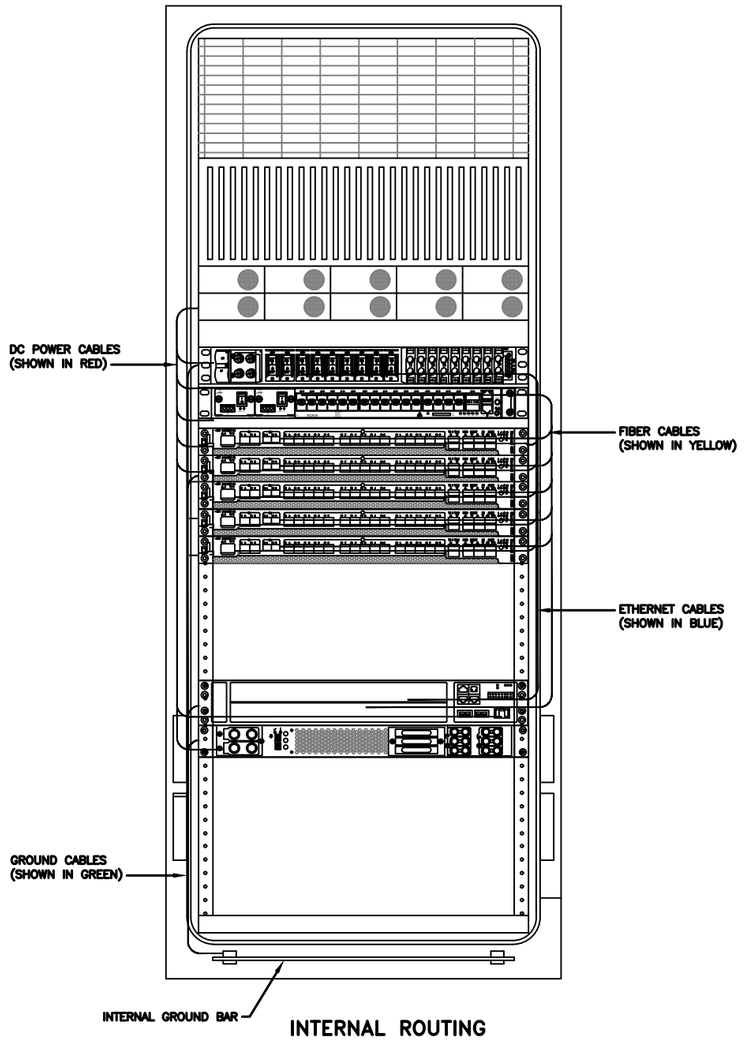
1 ERICSSON 6160 SITE SUPPORT CABINET SPECIFICATIONS

SCALE: N.T.S.

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

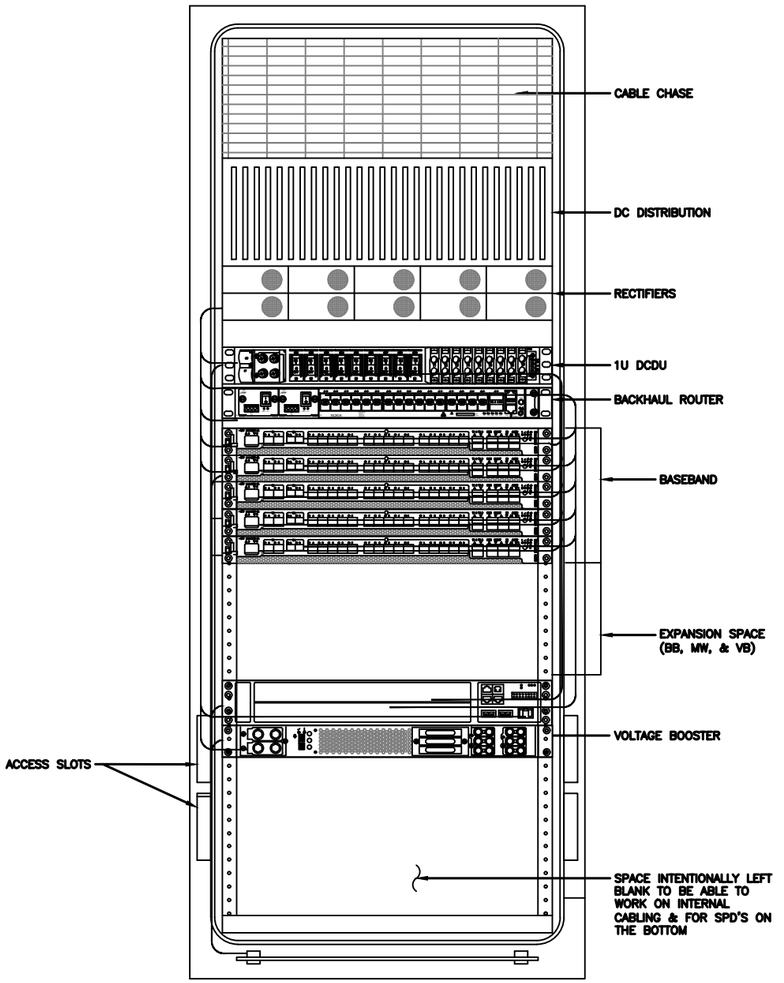
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-602	0



INTERNAL ROUTING
(DOOR OPEN)

RACK ASSIGNMENTS	
RU SLOTS	DESCRIPTION
1	DC DISTRIBUTION
2	
3	
4	
5	RECTIFIER SHELF
6	
7	FIBER BOX
8	DCDU
9	BACKHAUL ROUTER
10	
11	1ST BASEBAND
12	2ND BASEBAND
13	3RD BASEBAND
14	4TH BASEBAND
15	5TH BASEBAND
16	EXPANSION
17	
18	
19	
20	EXPANSION / LEGACY BASEBAND / VOLTAGE BOOSTER
21	
22	VOLTAGE BOOSTER
23	OPEN SPACE FOR SPD ACCESS
24	
25	



FRONT VIEW
(DOOR OPEN)

1 ERICSSON 6160 CABINET DETAILS

SCALE: N.T.S.

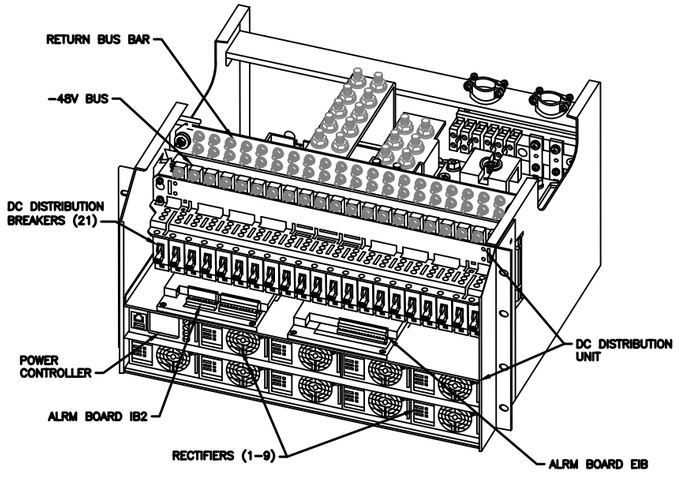
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

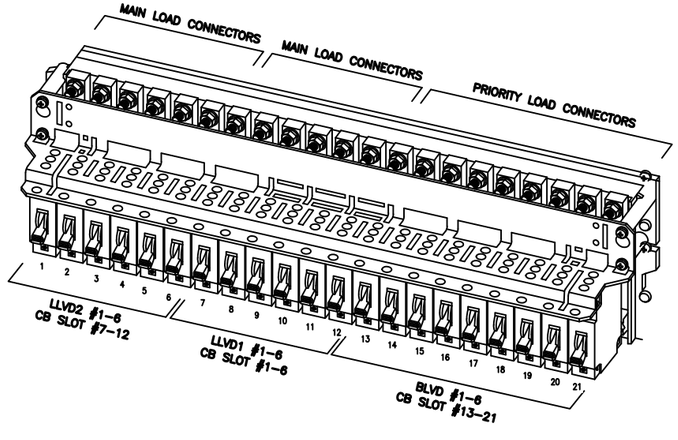
SHEET NUMBER:	REVISION:
R-603	0

NOTE:
THIS IS FOR REFERENCE ONLY, CHECK FOR SPECIFIC DETAIL IN T–MOBILE CABINET SPECIFIC INSTALLATION GUIDES

Breaker Allocation for E6160					
CB SLOT	Ckt #		w/ DCDU Prior to availability of the 4460 and 4480	w/ DCDU Later Design Post-4460 and Post-4480	w/ DCDU 4 and 6 Sector designs
1	LVD1 47.0V	1	Router PS-2*/Future		Radio 4460 B25/66 ζ-1
2		2	Future		Radio 4460 B25/66 ζ-2
3		3	PSU 4813 feeding B25/66 α, β and γ (AIR 1641s)		PSU 4813 feeding B41-δ & B71/12-δ (Air 6449s and Radio 4480s)
4		4			
5		5	PSU 4813 feeding B41 α, β and γ (Air 6449s)		
6		6			
7	LVD2 45.1V	1	PSU 4813 feeding B71/12 α, β and γ (Radio 4449s)	PSU 4813 feeding B71/12 α, β and γ (Radio 4480s)	
8		2			
9		3	Future		Radio 4460 B25/66 δ-1
10		4	Future		Radio 4460 B25/66 δ-2
11		5	Future		Radio 4460 B25/66 ε-1
12		6	Future		Radio 4460 B25/66 ε-2
13	BLVD 43.2V	1	Router PS-1		
14		2	Radio 4415 B25/66 α	Radio 4460 B25/66 α-1	
15		3	Radio 4415 B25/66 β	Radio 4460 B25/66 α-2	
16		4	Radio 4415 B25/66 γ	Radio 4460 B25/66 β-1	
17		5	PSU 4813 feeding B2/25 α, β and γ (Radio 4424s)	Radio 4460 B25/66 β-2	
18		6		Radio 4460 B25/66 γ-1	
19		7	Future	Radio 4460 B25/66 γ-2	
20		8	DCDU		
21		9	AAV		
Sector Identification α = Alpha, β = Beta, γ = Gamma, δ = Delta, ε = Epsilon, ζ = Zeta					



POWER SUBRACK



DC DISTRIBUTION

1 ERICSSON 6160 ELECTRICAL DETAILS

SCALE: N.T.S.

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

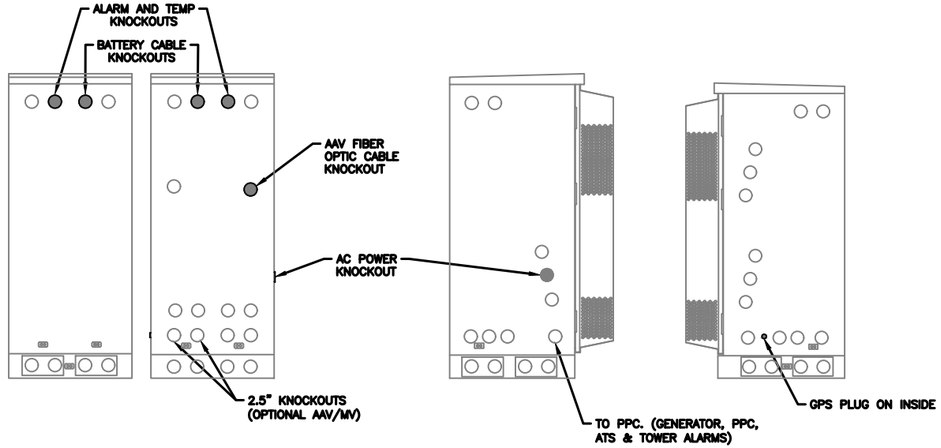
SUPPLEMENTAL

SHEET NUMBER: R-604

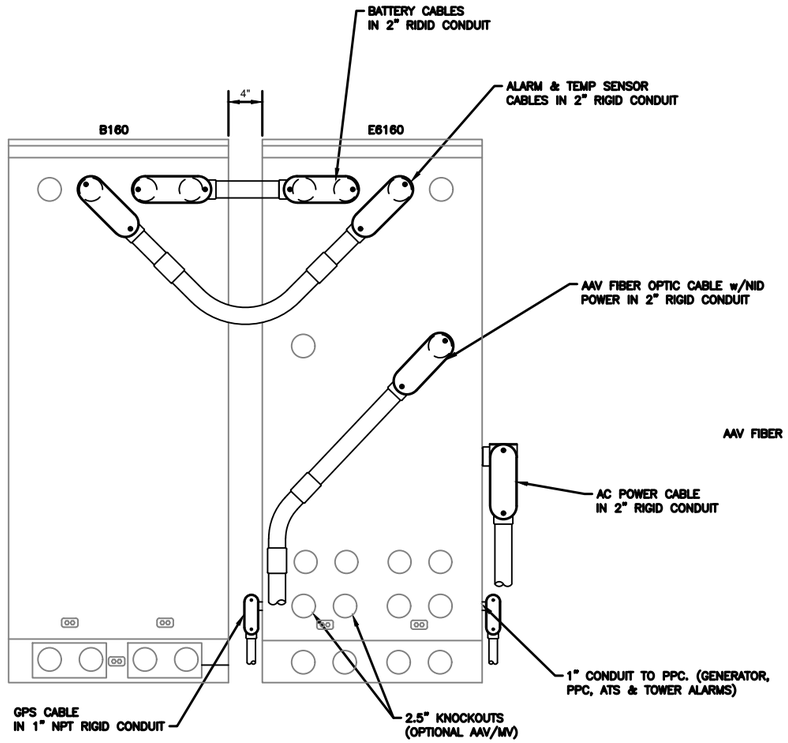
REVISION: 0

NOTE:

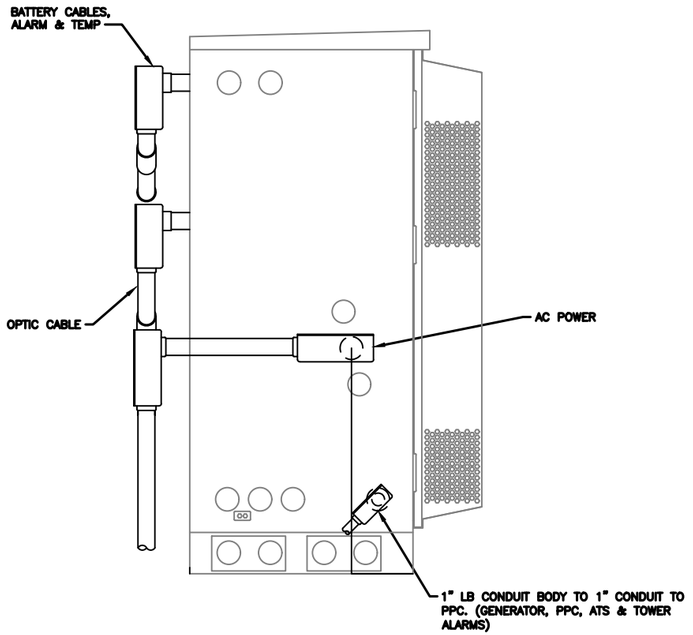
1. ALL CONDUIT AND FITTING ENTRANCES INTO CABINETS AND ENCLOSURES MUST UTILIZE MYERS OR EQUIVALENT HUBS OR SEALING WASHERS TO PREVENT WATER ENTRY/SEEPAGE INTO CABINETS AND ENCLOSURES.
2. (LIQUIDFLEX) FLEXIBLE METALLIC CONDUIT (LFMC) & ASSOCIATED FITTINGS CAN BE USED AS NEEDED BUT ONLY FOR TIGHT CONDUIT BENDS AND RUNS SUBJECT TO UL AND NEC LIMITATIONS. 6' MAX PER CONDUIT RUN.
3. POWER CONDUIT BODY ATTACHED WITH SHORT NIPPLE AND SEALING WASHER INSIDE & OUT. (FOR DOOR HOOD CLEARANCE)
4. PULLING ELBOWS MAY BE USED IN LIEU OF A CONDUIT BODIES WHEN CLEARANCE IS LIMITED.
5. ALL EXTERNAL ALARM CONDUITS ARE TOO TERMINATE AT THE PPC WITH A SINGLE 1" ALARM CONDUIT TO THE 6160.
6. (DO NOT USE CHASE NIPPLES) CONDUIT SHOULD HAVE SEALING WASHERS INSIDE AND OUT w/ LOCK NUT AND CAP.



CONDUIT LOCATIONS



REAR VIEW



SIDE VIEW

1 ERICSSON 6160/B160 CONDUIT ROUTING DETAILS

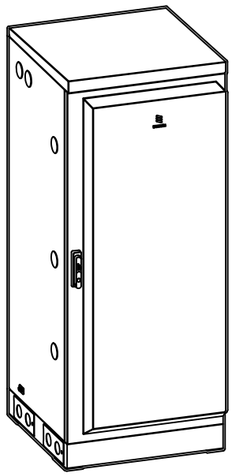
SCALE: N.T.S.

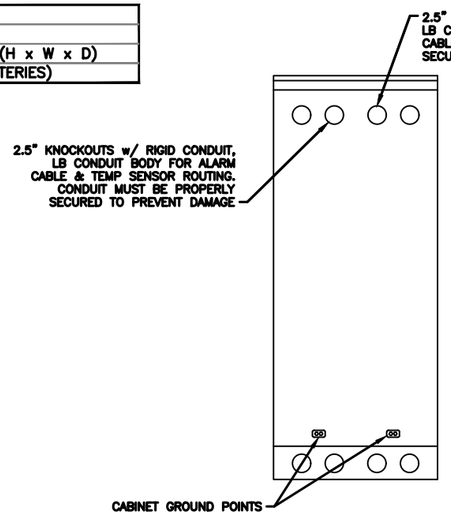
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

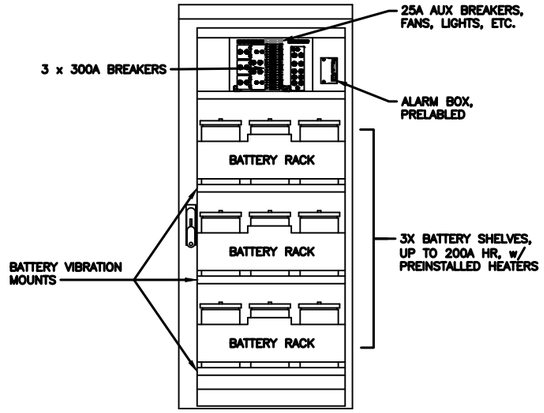
SHEET NUMBER:	REVISION:
R-605	0

MANUFACTURER:	ERICSSON
MODEL:	B160 BATTERY CABINET
DIMENSIONS:	63" x 25.6" x 29.5" (H x W x D)
WEIGHT:	295 LBS (WITHOUT BATTERIES)





REAR VIEW



FRONT VIEW
(DOOR OPEN)

NOTE:
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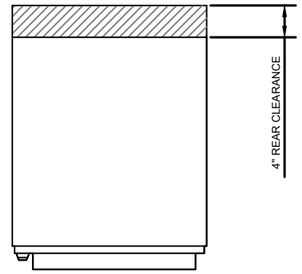
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING



GROUNDING NOTE:

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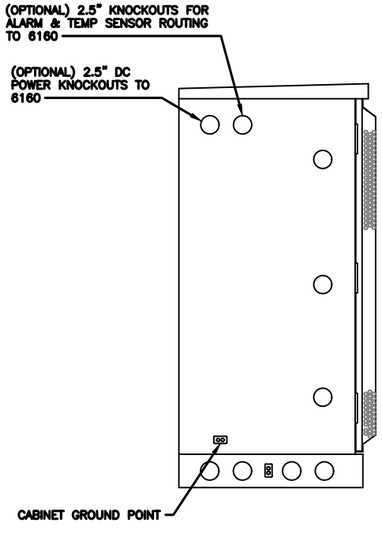
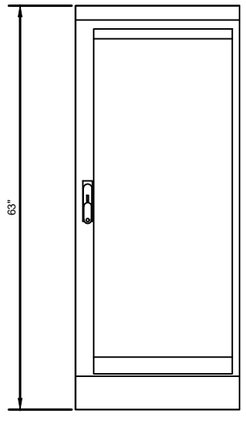
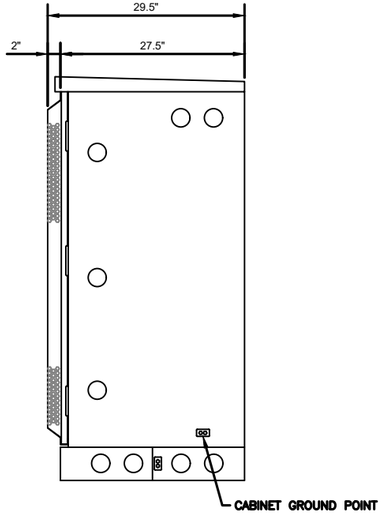


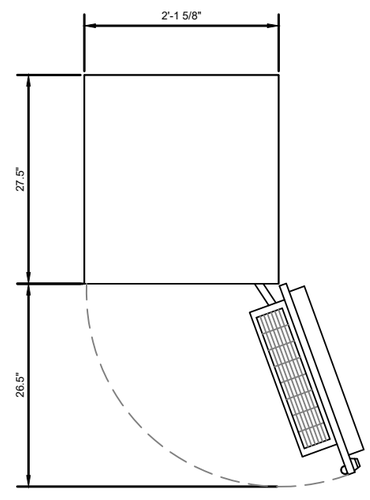
LEFT VIEW



FRONT VIEW



RIGHT VIEW



PLAN VIEW

B160 ERICSSON SITE SUPPORT BATTERY CABINET

1 ERICSSON B160 BATTERY CABINET SPECIFICATIONS

SCALE: N.T.S.

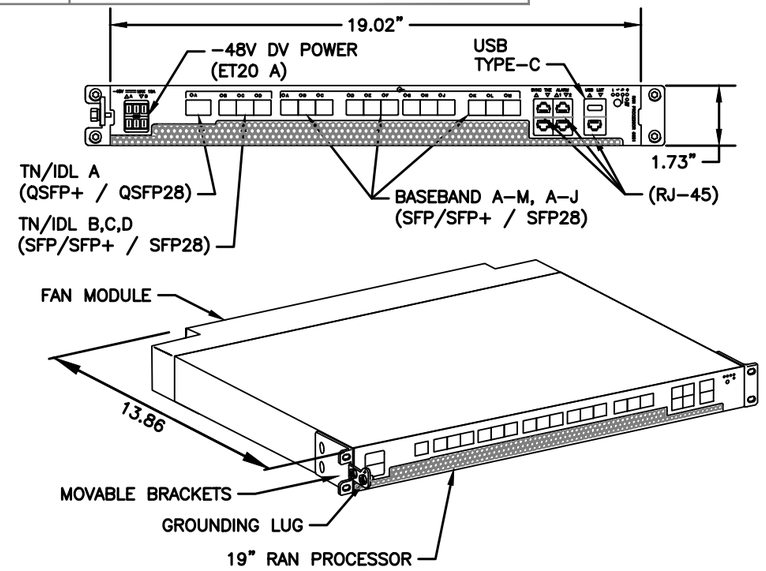
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER: R-606

REVISION: 0

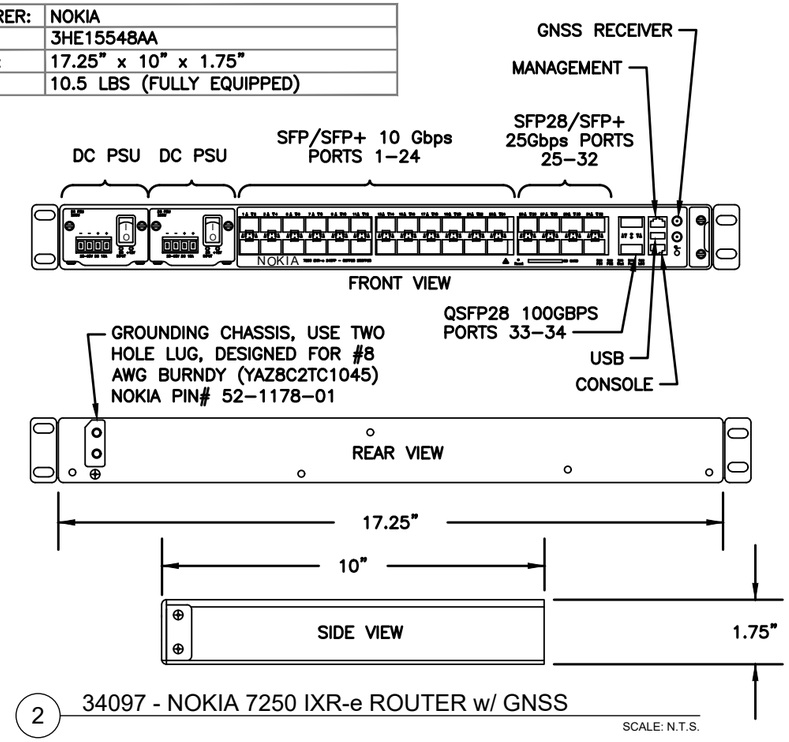
MANUFACTURER:	ERICSSON
MODEL:	6651 RAN PROCESSOR (KDU1370093/11)
DIMENSIONS:	1.73" X 19.02" X 13.86" (H" X W" X D")
WEIGHT:	16.98 LBS



1 34553 - ERICSSON 6651 RAN PROCESSOR

SCALE: N.T.S.

MANUFACTURER:	NOKIA
MODEL:	3HE15548AA
DIMENSIONS:	17.25" x 10" x 1.75"
WEIGHT:	10.5 LBS (FULLY EQUIPPED)



2 34097 - NOKIA 7250 IXR-e ROUTER w/ GNSS

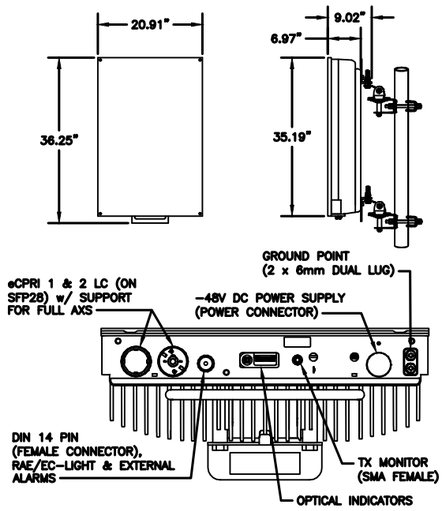
SCALE: N.T.S.

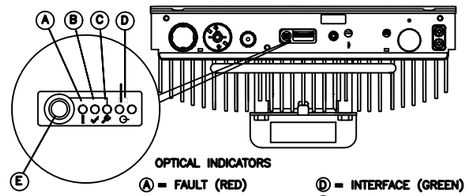
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

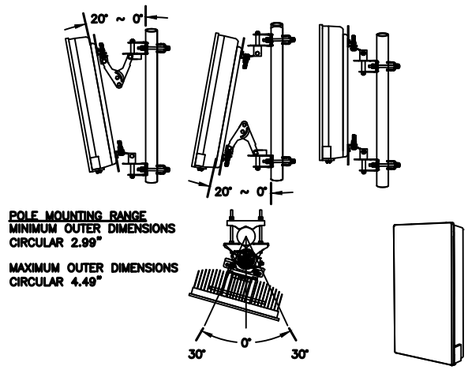
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-607	0

MANUFACTURER:	ERICSSON
MODEL:	AIR 6419 B41 (2.5GHz M-MIMO)
DIMENSIONS:	36.25" x 20.91" x 9.02" NOT TO EXCEED (H x W x D)
WEIGHT:	83 LBS (EXCLUDING MOUNTING KIT)
MOUNT WEIGHT:	13.5 LBS (SXK109 2016/1)



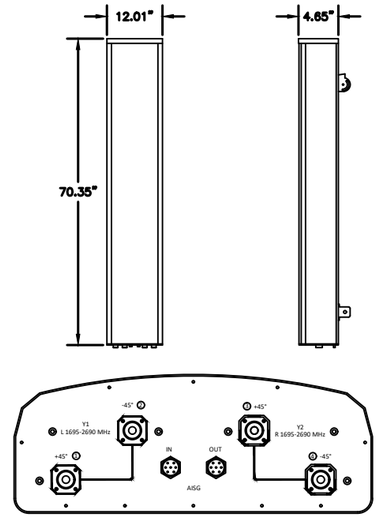




1 34552 - ERICSSON AIR 6419 BAND 41

SCALE: N.T.S.

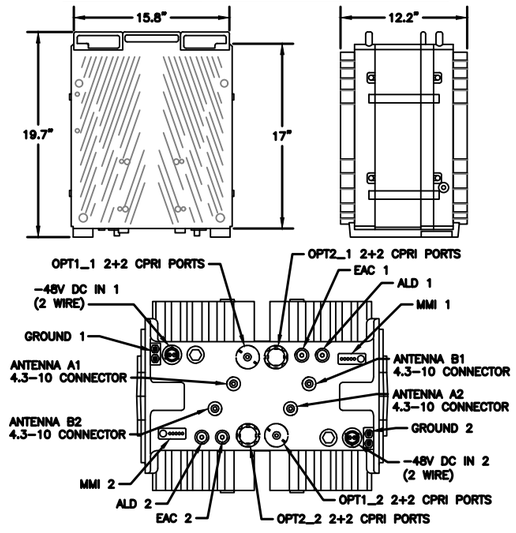
MANUFACTURER:	COMMSCOPE
MODEL:	VV-65B-R1
DIMENSIONS:	70.35" x 12.01" x 4.65" (H x W x D)
WEIGHT:	28 LB
INTERFACE:	4-PORT 4.3-10 FEMALE
MOUNTING KIT:	BSAMNT-3 (INCLUDED) WEIGHT: 13.67 LB



2 34002 - COMMSCOPE VV-65B-R1

SCALE: N.T.S.

MANUFACTURER:	ERICSSON
MODEL:	4460 RADIO B2/25 B66 (KRC 161 912/3)
DIMENSIONS:	19.7" x 15.8" x 12.2" (H" x W" x D")
WEIGHT:	109 LBS
BRACKET WEIGHT:	4.8 LBS (ERS HEAVY #SXK1255993/1)



3 34373 - ERICSSON 4460 RADIO B2/25 B66

SCALE: N.T.S.

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-608	0

Mount Analysis Report

ATC Asset Name	:	BARKHAMSTEDW CT
ATC Asset Number	:	411177
Engineering Number	:	14529798_C8_01
Mount Elevation	:	124 ft
Proposed Carrier	:	T-Mobile
Carrier Site Name	:	Old Farms- Verizon Colo
Carrier Site Number	:	CTNH416A
Site Location	:	14 Old North Road Barkhamsted, CT 06063-3440 41.914528, -73.022222
County	:	Litchfield
Date	:	October 4, 2023
Max Usage	:	71%
Analysis Result	:	Pass

Prepared By:
Joseph Swier
Structural Engineer I

Joseph Swier

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Esha Modi

Digitally signed by Esha Modi
Date: 2023.10.04 17:27:36 -04'00'

COA: PEC.0001553

Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 124 ft.

Supporting Documents

Specifications Sheet:	Site Pro 1 RMQP-4096-HK, dated September 20, 2018
Previous Analysis:	ETS Project #14097411_C8_01, dated May 4, 2022
Radio Frequency Data Sheet:	RFDS ID #CTNH416A, dated August 9, 2023
Reference Photos:	Site photos from 2023

Analysis

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

Basic Wind Speed:	115 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.00'' radial ice concurrent
Codes:	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.169, S1 = 0.054
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs

*** Based on experience, it has been determined that the Lv load cases will not control over Lm load cases in platform mount analyses. Therefore, these load cases have been excluded from this analysis.**

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 reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact MountAnalysis@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

A.T. Engineering Service, PLLC - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com

1 MOUNT ANALYSIS

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 VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-609	0

AMERICAN TOWER®
CORPORATION

Mount Analysis Report

ATC Asset Name	:	BARKHAMSTEDW CT
ATC Asset Number	:	411177
Engineering Number	:	14529798_C8_01
Mount Elevation	:	124 ft
Proposed Carrier	:	T-Mobile
Carrier Site Name	:	Old Farms- Verizon Colo
Carrier Site Number	:	CTNH416A
Site Location	:	14 Old North Road Barkhamsted, CT 06063-3440 41.914528, -73.022222
County	:	Litchfield
Date	:	October 4, 2023
Max Usage	:	71%
Analysis Result	:	Pass

Prepared By:
Joseph Swier
Structural Engineer I

Joseph Swier

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Esha Modi

Digitally signed by Esha Modi
Date: 2023.10.04 17:27:36 -04'00'

COA: PEC.0001553

Table of Contents

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Basic Wind Speed:	115 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.00'' radial ice concurrent
Codes:	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.169, S1 = 0.054
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs

*** Based on experience, it has been determined that the Lv load cases will not control over Lm load cases in platform mount analyses. Therefore, these load cases have been excluded from this analysis.**

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 reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact MountAnalysis@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

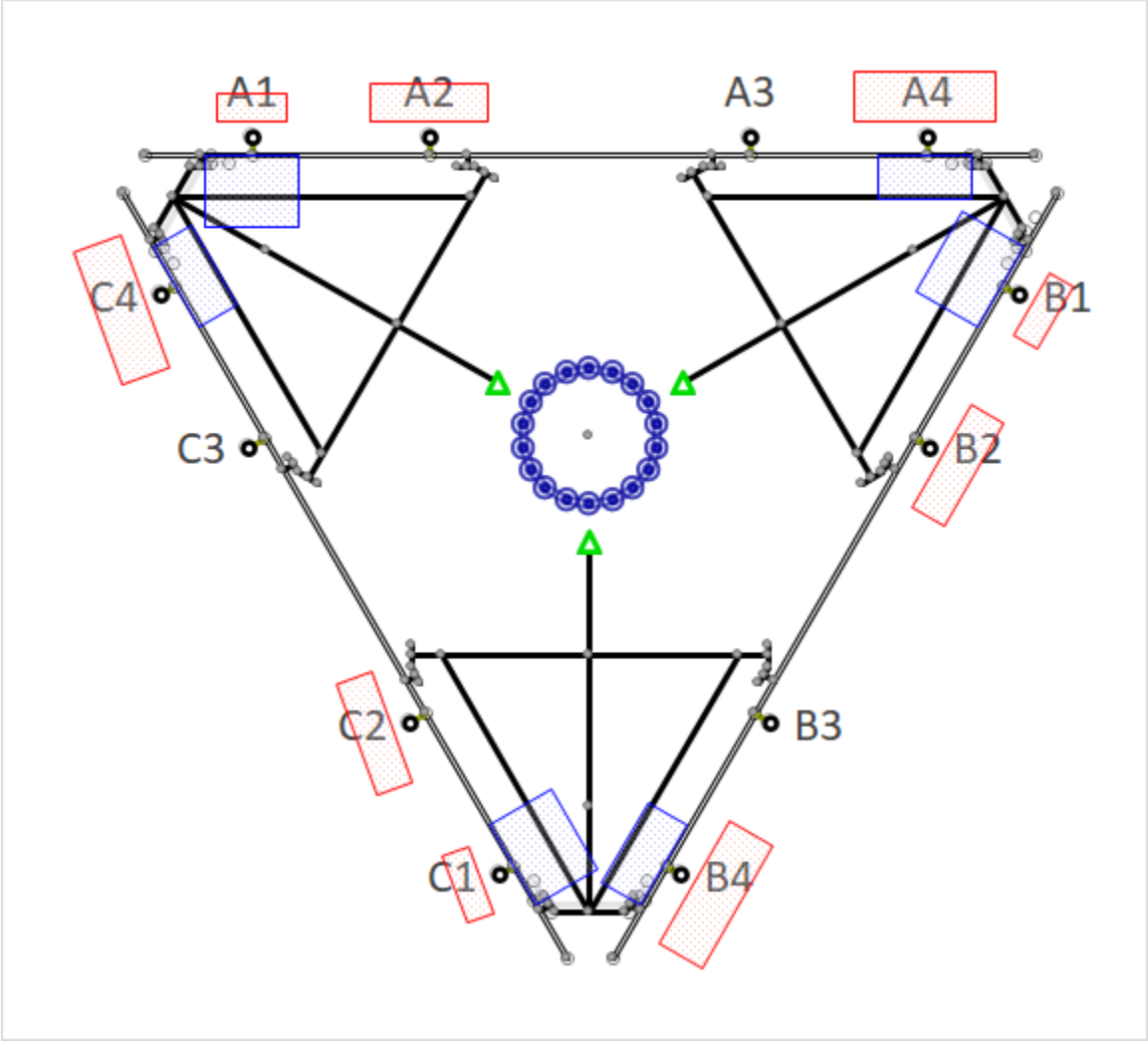
Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
124.0	125.0	3	Commscope VV-65A-R1
		3	Ericsson AIR 6419 B41
		3	RFS APXVAALL24 43-U-NA20
		3	Ericsson 4460 BAND 2/25
		3	Ericsson 4480 BAND 71

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	71%	Pass
Tie-Backs	9%	Pass
Mount Pipes	22%	Pass
Plate Conn Check	30%	Pass

Mount Layout



Equipment Position Table

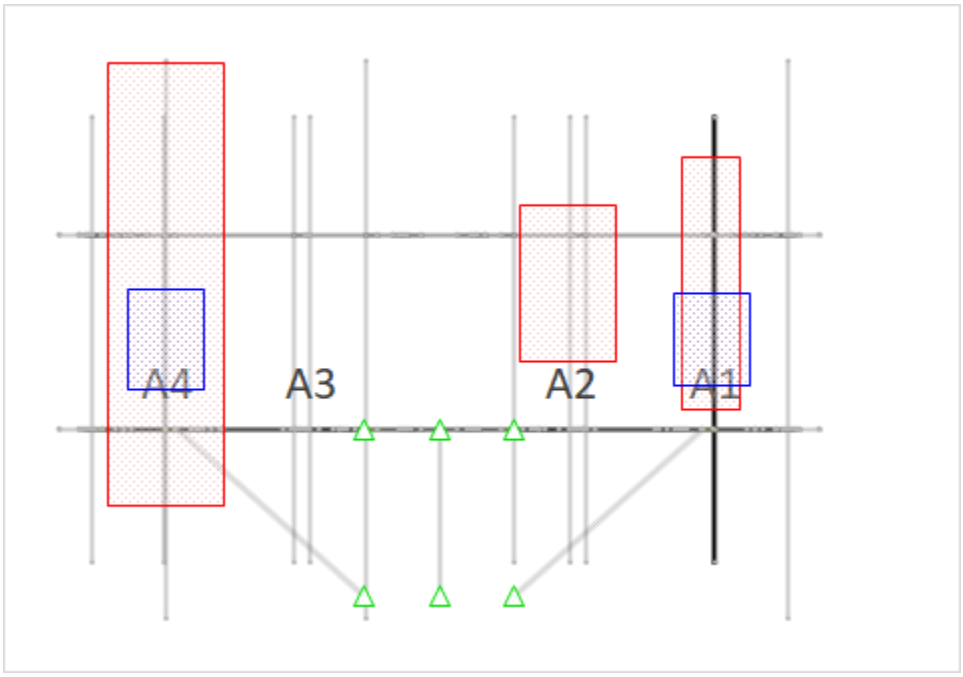
MP	RAD Center (ft)	Qty.	Antenna Model
A1	125.0	1	Commscope VV-65A-R1
	125.0	1	Ericsson 4460 BAND 2/25
A2	125.0	1	Ericsson AIR 6419 B41
A3	-	-	Empty
A4	125.0	1	RFS APXVAALL24 43-U-NA20
	125.0	1	Ericsson 4480 BAND 71
B1	125.0	1	Commscope VV-65A-R1
	125.0	1	Ericsson 4460 BAND 2/25
B2	125.0	1	Ericsson AIR 6419 B41
B3	-	-	Empty

Equipment Position Table Cont.

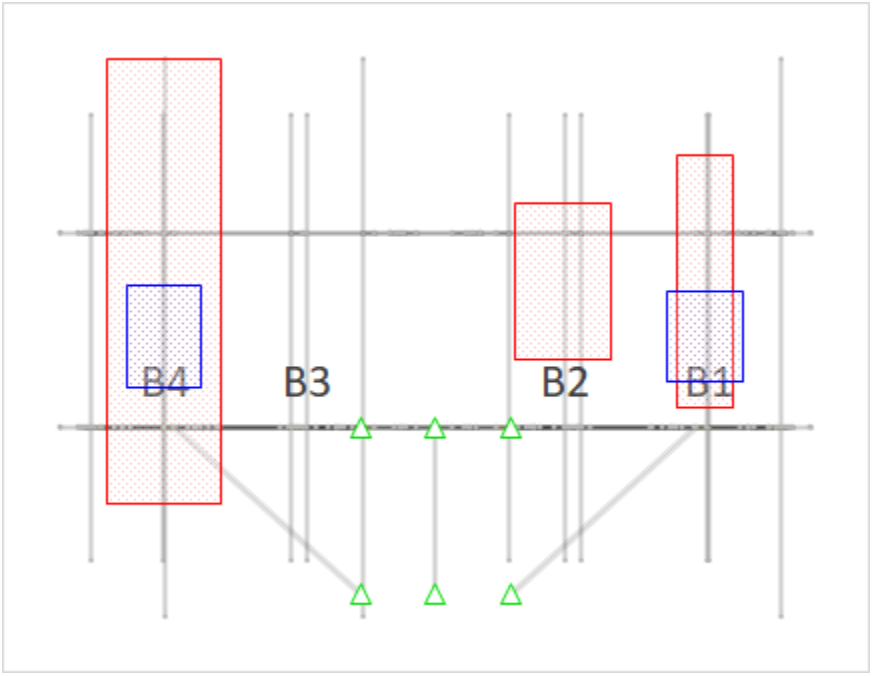
MP	RAD Center (ft)	Qty.	Antenna Model
B4	125.0	1	RFS APXVAALL24 43-U-NA20
	125.0	1	Ericsson 4480 BAND 71
C1	125.0	1	Commscope VV-65A-R1
	125.0	1	Ericsson 4460 BAND 2/25
C2	125.0	1	Ericsson AIR 6419 B41
C3	-	-	Empty
C4	125.0	1	RFS APXVAALL24 43-U-NA20
	125.0	1	Ericsson 4480 BAND 71

Equipment Layout

Front View - Alpha

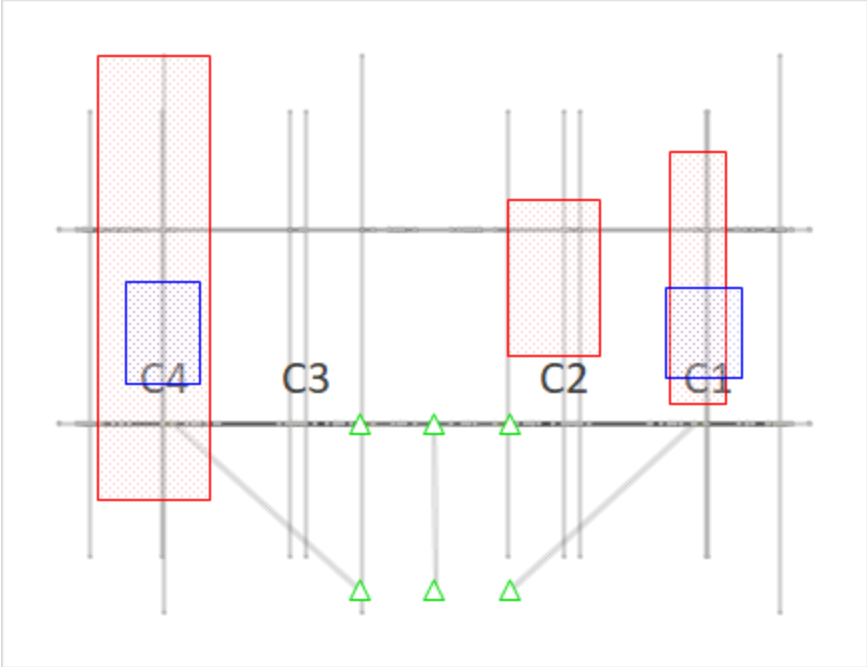


Front View - Beta



Equipment Layout Cont.

Front View - Gamma



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.

AMERICAN TOWER®
CORPORATION

Site Number:	*411177*
Project Number:	*14529798_C8_01*
Carrier:	*T-Mobile*
Mount Elevation:	*124 ft*
Date:	10/4/2023

Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Velocity Pressure Coefficient	K_z	1.05	
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	0.97	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	115	mph
Velocity Pressure	q_z	32.8	psf
Height Escalation Factor	K_{iz}	1.14	
Thickness of Radial Glaze Ice	T_{iz}	1.14	in

Seismic Load Calculations			
Short Period DSRAP	S_{DS}	0.180	
1 Second DSRAP	S_{D1}	0.086	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_S	0.090	
Amplification Factor	A	1.0	
Total Weight	W	2916.8	lbs
Total Shear Force	V_S	262.9	lbs
Horizontal Seismic Load	Eh	262.9	lbs
Vertical Seismic Load	Ev	105.2	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
Commscope VV-65A-R1	54.7	12.1	4.6	23.8	5.93	1.46	7.34	2.28
Ericsson AIR 6419 B41	33.6	20.0	6.3	68.5	5.60	0.92	6.66	1.34
RFS APXVAALL24 43-U-NA20	95.9	24.0	8.5	122.8	20.24	3.40	22.70	4.41
Ericsson 4460 BAND 2/25	19.6	15.7	12.1	109.0	2.56	1.98	3.28	2.62
Ericsson 4480 BAND 71	22.0	15.7	7.5	81.0	2.88	1.40	3.64	2.01

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

AMERICAN TOWER®
CORPORATION

Site Number:	*411177*
Project Number:	*14529798_C8_01*
Carrier:	*T-Mobile*
Mount Elevation:	*124 ft*
Date:	10/4/2023

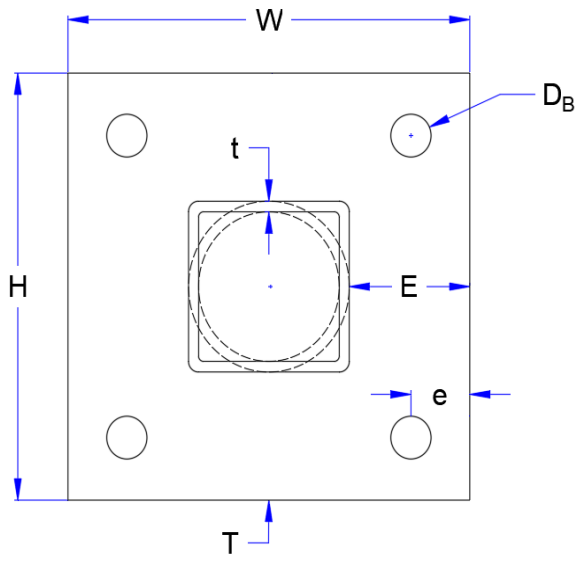
Mount-to-Tower Connection Analysis

Applied Loads from RISA 3D			
Controlling Load Combination		23	
Node Label/ Orientation (Degrees)		N002	180
Force in X	Fx	-1299.1	lbs
Force in Y	Fy	109.3	lbs
Force in Z	Fz	755.1	lbs
Moment about X	Mx	119.1	lb-ft
Moment about Y	My	1767.7	lb-ft
Moment about Z	Mz	961.7	lb-ft

Bolt Shear and Tensile Capacity			
Bolt Quantity	n	4	
Bolt Diameter	D_B	5/8	in
Bolt Horiz. Edge Distance	e_h	1	in
Bolt Vert. Edge Distance	e_v	1	in
Bolt Grade		A325	
Bolt Fy	Fy_B	92	ksi
Bolt Fu	Fu_B	120	ksi
Applied Shear	Vu	0.02	k
Applied Tension	Tu	1.64	k
Tensile Strength	ϕTn	20.3	k
Shear Strength	ϕVn	13.8	k
Interaction Capacity	(Vu/ϕVn)2+(Tu/ϕTn)2	1%	Pass

Plate Flexural Capacity			
Plate Height	H	8	in
Plate Width	W	8	in
Plate Thickness	T	1/2	in
Plate Grade		A36	
Plate Fy	Fy_P	36	ksi
Plate Fu	Fu_P	58	ksi
Shear Capacity	ϕVn	30.6	k
Applied Moment	Mu	1.8	k-in
Flexural Strength	ϕMn	6.1	k-in
Flexural Capacity	Mu/ϕMn	30%	Pass

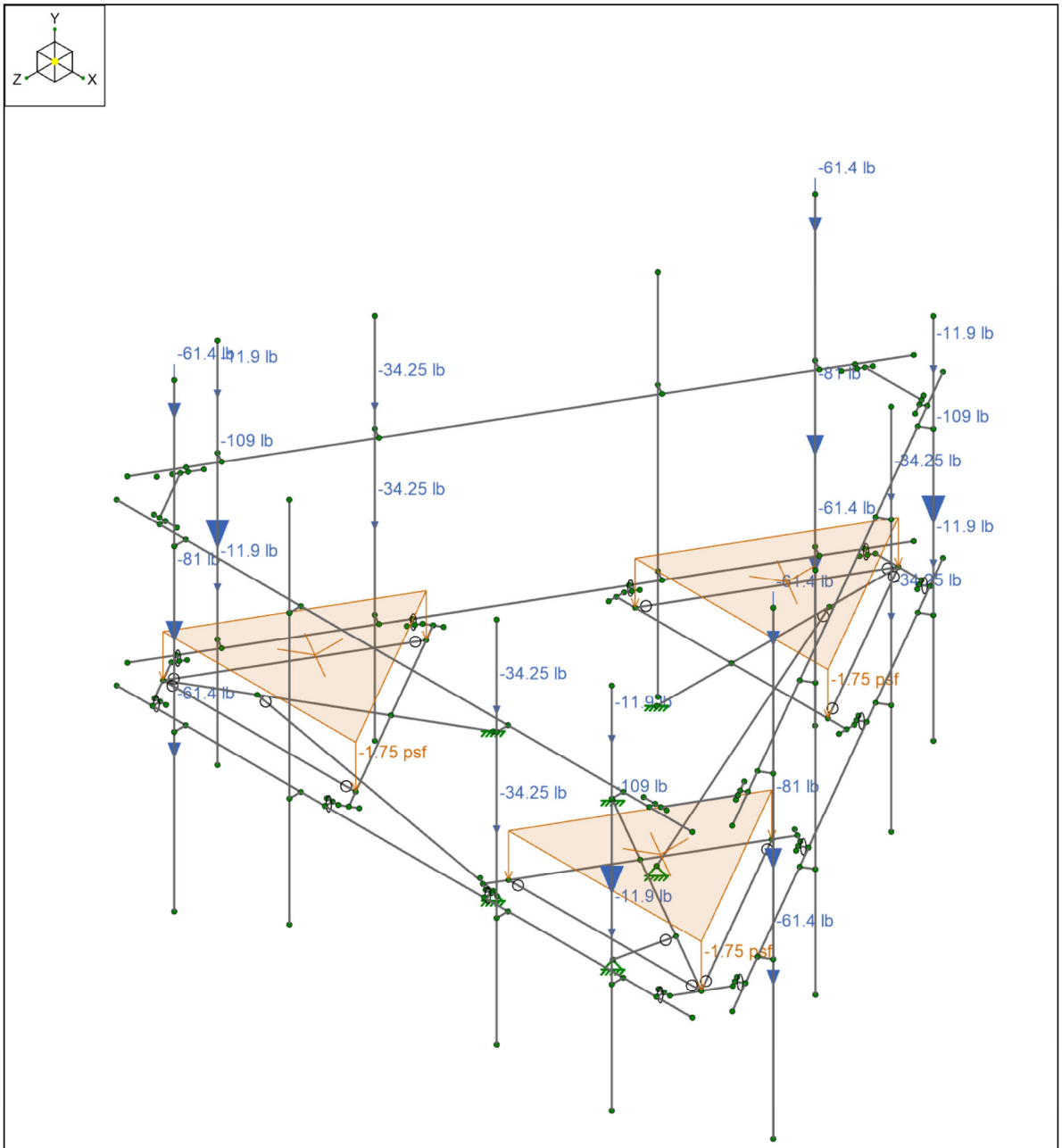
Base Metal Checks		
Minimum Base Metal Thickness	0.206	in
Controlling Base Metal Thickness	0.250	in



Weld Capacity			
Standoff Type		Tube	
Standoff Member		HSS4x4x4	
Member Edge Distance	E	2	in
Member Height	h	4	in
Member Width	w	4	in
Member Thickness	t	0.250	in
Member Grade		A53 Gr. B	
Member Fy	Fy_M	35	ksi
Member Fu	Fu_M	60	ksi
Weld Size	a	1/4	in
Weld Section Modulus	S	3.7	in^3
Applied Weld Stress	σu	5.9	ksi
Capacity Weld Stress	ϕσn	31.5	ksi
Weld Utilization	σu/ϕσn	19%	Pass

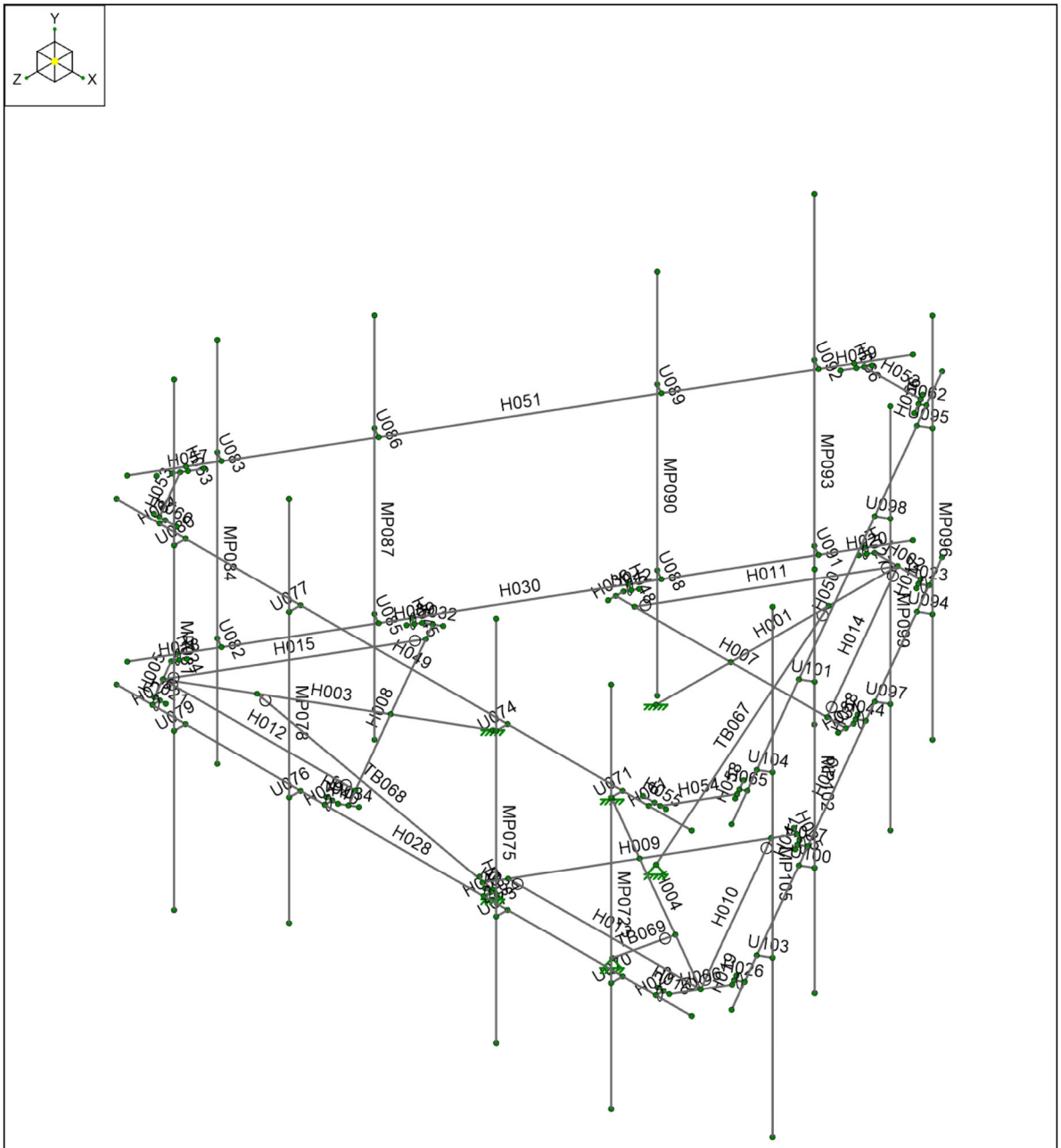
Prying Action Considerations			
Moment Arm	b	1.12	in
Effective Moment Arm	b'	0.81	in
Tributary Length	p	3.03	in
Effective Edge Distance	a'	1.31	in
Minimum Thickness	t_{min}	0.14	in
No Prying Thickness	t_{np}	0.18	in
Min Bolt Strength Thickness	t_c	0.64	k-in

American Tower Corp.	411177, BARKHAMSTEDW CT	SK-1
Joseph.Swier		Oct 04, 2023
14529798_C8_01		R3D. T-MOBILE @ 411177, BARK…



Loads: BLC 1, D

American Tower Corp.	411177, BARKHAMSTEDW CT	SK-2
Joseph.Swier		Oct 04, 2023
14529798_C8_01		R3D. T-MOBILE @ 411177, BARK…



American Tower Corp.	411177, BARKHAMSTEDW CT	SK-3
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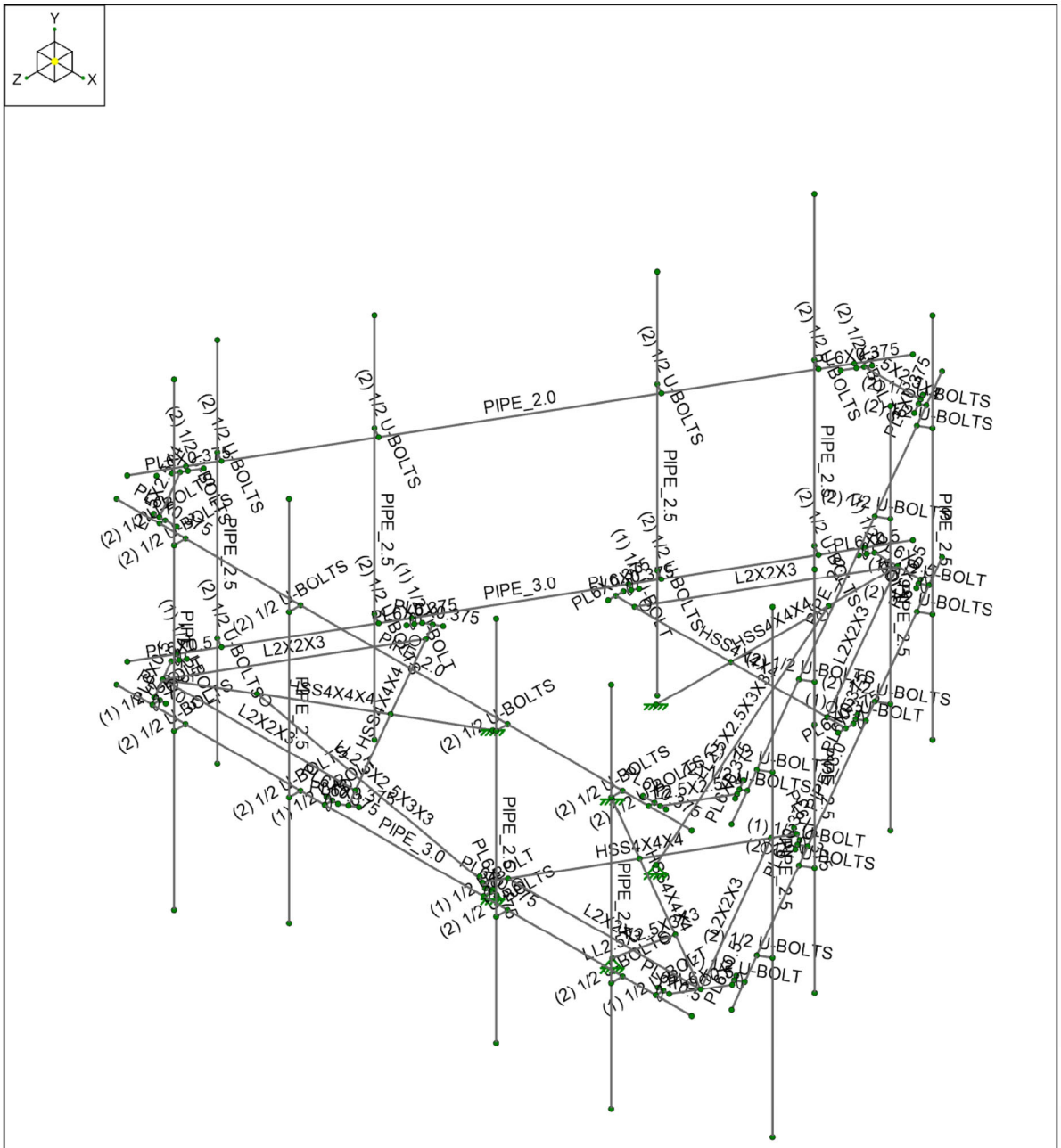

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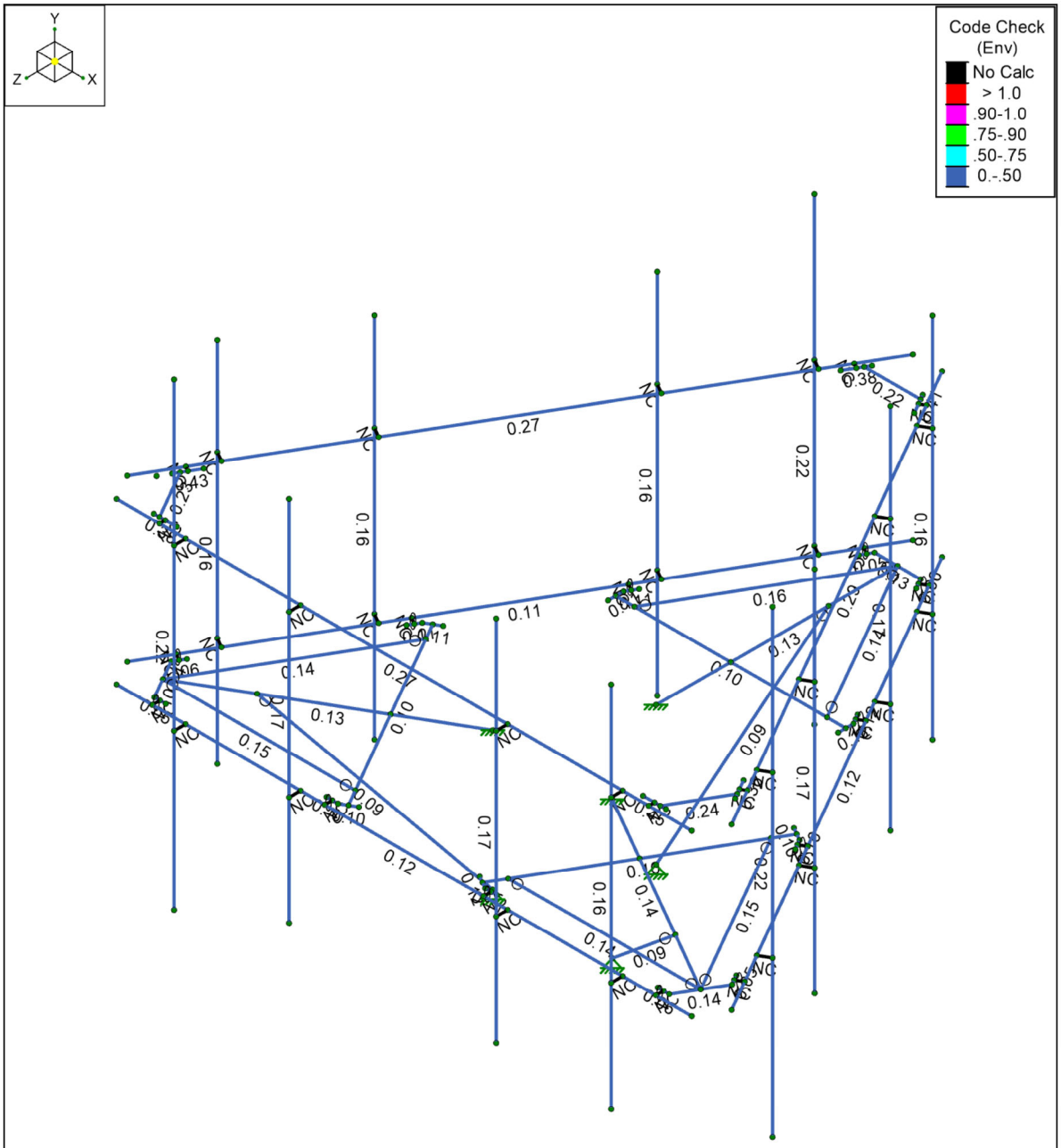

American Tower Corp.	411177, BARKHAMSTEDW CT	SK-5
Joseph.Swier		Oct 04, 2023
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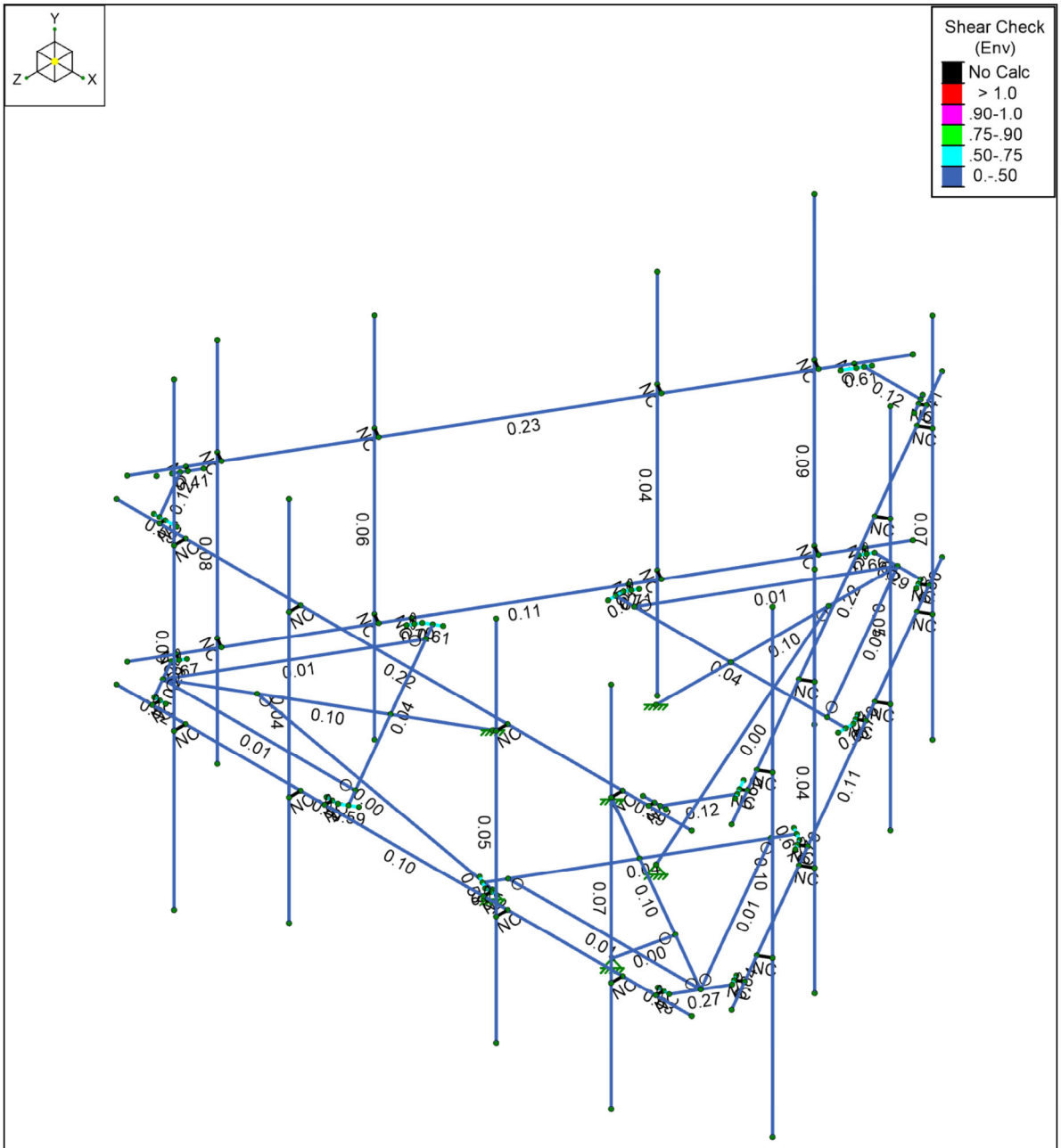


American Tower Corp.	411177, BARKHAMSTEDW CT	SK-6
Joseph.Swier		Oct 04, 2023
14529798_C8_01		R3D. T-MOBILE @ 411177, BARK…

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	D	DL		-1			24		3
2	Di	IL					24	63	3
3	W 0	WL					24	105	
4	W 30	WL					48	210	
5	W 60	WL					48	210	
6	W 90	WL					24	108	
7	W 120	WL					48	210	
8	W 150	WL					48	210	
9	W 180	WL					24	105	
10	W 210	WL					48	210	
11	W 240	WL					48	210	
12	W 270	WL					24	108	
13	W 300	WL					48	210	
14	W 330	WL					48	210	
15	Wi 0	WL					24	105	
16	Wi 30	WL					48	210	
17	Wi 60	WL					48	210	
18	Wi 90	WL					24	108	
19	Wi 120	WL					48	210	
20	Wi 150	WL					48	210	
21	Wi 180	WL					24	105	
22	Wi 210	WL					48	210	
23	Wi 240	WL					48	210	
24	Wi 270	WL					24	108	
25	Wi 300	WL					48	210	
26	Wi 330	WL					48	210	
27	Ws 0	WL					24	105	
28	Ws 30	WL					48	210	
29	Ws 60	WL					48	210	
30	Ws 90	WL					24	108	
31	Ws 120	WL					48	210	
32	Ws 150	WL					48	210	
33	Ws 180	WL					24	105	
34	Ws 210	WL					48	210	
35	Ws 240	WL					48	210	
36	Ws 270	WL					24	108	
37	Ws 300	WL					48	210	
38	Ws 330	WL					48	210	
39	Ev -Y	ELY		-0.036			24		3
40	Eh -Z	ELZ			-0.09		24		3
41	Eh -X	ELX	-0.09				24		3
42	Lm (1)	LL				1			
43	Lm (2)	LL				1			
44	Lm (3)	LL				1			
45	Lm (4)	LL				1			
46	Lm (5)	LL				1			
47	Lm (6)	LL				1			
48	Lm (7)	LL				1			
49	Lm (8)	LL				1			
50	Lm (9)	LL				1			
51	Lm (10)	LL				1			
52	Lm (11)	LL				1			
53	Lm (12)	LL				1			
54	BLC 1 Transient Area Loads	None						96	
55	BLC 2 Transient Area Loads	None						96	

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
56	BLC 39 Transient Area Loads	None						96	
57	BLC 40 Transient Area Loads	None						96	
58	BLC 41 Transient Area Loads	None						96	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y	DL	1.4						
2	1.2D + 1.0W [0°]	Yes	Y	DL	1.2	3	1				
3	1.2D + 1.0W [30°]	Yes	Y	DL	1.2	4	1				
4	1.2D + 1.0W [60°]	Yes	Y	DL	1.2	5	1				
5	1.2D + 1.0W [90°]	Yes	Y	DL	1.2	6	1				
6	1.2D + 1.0W [120°]	Yes	Y	DL	1.2	7	1				
7	1.2D + 1.0W [150°]	Yes	Y	DL	1.2	8	1				
8	1.2D + 1.0W [180°]	Yes	Y	DL	1.2	9	1				
9	1.2D + 1.0W [210°]	Yes	Y	DL	1.2	10	1				
10	1.2D + 1.0W [240°]	Yes	Y	DL	1.2	11	1				
11	1.2D + 1.0W [270°]	Yes	Y	DL	1.2	12	1				
12	1.2D + 1.0W [300°]	Yes	Y	DL	1.2	13	1				
13	1.2D + 1.0W [330°]	Yes	Y	DL	1.2	14	1				
14	0.9D + 1.0W [0°]	Yes	Y	DL	0.9	3	1				
15	0.9D + 1.0W [30°]	Yes	Y	DL	0.9	4	1				
16	0.9D + 1.0W [60°]	Yes	Y	DL	0.9	5	1				
17	0.9D + 1.0W [90°]	Yes	Y	DL	0.9	6	1				
18	0.9D + 1.0W [120°]	Yes	Y	DL	0.9	7	1				
19	0.9D + 1.0W [150°]	Yes	Y	DL	0.9	8	1				
20	0.9D + 1.0W [180°]	Yes	Y	DL	0.9	9	1				
21	0.9D + 1.0W [210°]	Yes	Y	DL	0.9	10	1				
22	0.9D + 1.0W [240°]	Yes	Y	DL	0.9	11	1				
23	0.9D + 1.0W [270°]	Yes	Y	DL	0.9	12	1				
24	0.9D + 1.0W [300°]	Yes	Y	DL	0.9	13	1				
25	0.9D + 1.0W [330°]	Yes	Y	DL	0.9	14	1				
26	1.2D + 1.0Di + 1.0Wi [0°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	15	1		
27	1.2D + 1.0Di + 1.0Wi [30°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	16	1		
28	1.2D + 1.0Di + 1.0Wi [60°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	17	1		
29	1.2D + 1.0Di + 1.0Wi [90°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	18	1		
30	1.2D + 1.0Di + 1.0Wi [120°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	19	1		
31	1.2D + 1.0Di + 1.0Wi [150°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	20	1		
32	1.2D + 1.0Di + 1.0Wi [180°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	21	1		
33	1.2D + 1.0Di + 1.0Wi [210°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	22	1		
34	1.2D + 1.0Di + 1.0Wi [240°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	23	1		
35	1.2D + 1.0Di + 1.0Wi [270°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	24	1		
36	1.2D + 1.0Di + 1.0Wi [300°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	25	1		
37	1.2D + 1.0Di + 1.0Wi [330°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	26	1		
38	1.2D + 1.0Ev + 1.0Eh [0°]	Yes	Y	DL	1.2	ELY	1	ELZ	1	ELX	0.001
39	1.2D + 1.0Ev + 1.0Eh [30°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.866	ELX	0.5
40	1.2D + 1.0Ev + 1.0Eh [60°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.5	ELX	0.866
41	1.2D + 1.0Ev + 1.0Eh [90°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.001	ELX	1
42	1.2D + 1.0Ev + 1.0Eh [120°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.5	ELX	0.866
43	1.2D + 1.0Ev + 1.0Eh [150°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.866	ELX	0.5
44	1.2D + 1.0Ev + 1.0Eh [180°]	Yes	Y	DL	1.2	ELY	1	ELZ	-1	ELX	0.001
45	1.2D + 1.0Ev + 1.0Eh [210°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.866	ELX	-0.5
46	1.2D + 1.0Ev + 1.0Eh [240°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.5	ELX	-0.866
47	1.2D + 1.0Ev + 1.0Eh [270°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.001	ELX	-1
48	1.2D + 1.0Ev + 1.0Eh [300°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.5	ELX	-0.866
49	1.2D + 1.0Ev + 1.0Eh [330°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.866	ELX	-0.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
50	0.9D + 1.0Ev + 1.0Eh [0°]	Yes	Y	DL	0.9	ELY	1	ELZ	1	ELX	0.001
51	0.9D + 1.0Ev + 1.0Eh [30°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.866	ELX	0.5
52	0.9D + 1.0Ev + 1.0Eh [60°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.5	ELX	0.866
53	0.9D + 1.0Ev + 1.0Eh [90°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.001	ELX	1
54	0.9D + 1.0Ev + 1.0Eh [120°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.5	ELX	0.866
55	0.9D + 1.0Ev + 1.0Eh [150°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.866	ELX	0.5
56	0.9D + 1.0Ev + 1.0Eh [180°]	Yes	Y	DL	0.9	ELY	1	ELZ	-1	ELX	0.001
57	0.9D + 1.0Ev + 1.0Eh [210°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.866	ELX	-0.5
58	0.9D + 1.0Ev + 1.0Eh [240°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.5	ELX	-0.866
59	0.9D + 1.0Ev + 1.0Eh [270°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.001	ELX	-1
60	0.9D + 1.0Ev + 1.0Eh [300°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.5	ELX	-0.866
61	0.9D + 1.0Ev + 1.0Eh [330°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.866	ELX	-0.5
62	1.2D + 1.5Lm(1) + 1.0Wm [0°]	Yes	Y	DL	1.2	42	1.5	27	1		
63	1.2D + 1.5Lm(1) + 1.0Wm [30°]	Yes	Y	DL	1.2	42	1.5	28	1		
64	1.2D + 1.5Lm(1) + 1.0Wm [60°]	Yes	Y	DL	1.2	42	1.5	29	1		
65	1.2D + 1.5Lm(1) + 1.0Wm [90°]	Yes	Y	DL	1.2	42	1.5	30	1		
66	1.2D + 1.5Lm(1) + 1.0Wm [120°]	Yes	Y	DL	1.2	42	1.5	31	1		
67	1.2D + 1.5Lm(1) + 1.0Wm [150°]	Yes	Y	DL	1.2	42	1.5	32	1		
68	1.2D + 1.5Lm(1) + 1.0Wm [180°]	Yes	Y	DL	1.2	42	1.5	33	1		
69	1.2D + 1.5Lm(1) + 1.0Wm [210°]	Yes	Y	DL	1.2	42	1.5	34	1		
70	1.2D + 1.5Lm(1) + 1.0Wm [240°]	Yes	Y	DL	1.2	42	1.5	35	1		
71	1.2D + 1.5Lm(1) + 1.0Wm [270°]	Yes	Y	DL	1.2	42	1.5	36	1		
72	1.2D + 1.5Lm(1) + 1.0Wm [300°]	Yes	Y	DL	1.2	42	1.5	37	1		
73	1.2D + 1.5Lm(1) + 1.0Wm [330°]	Yes	Y	DL	1.2	42	1.5	38	1		
74	1.2D + 1.5Lm(2) + 1.0Wm [0°]	Yes	Y	DL	1.2	43	1.5	27	1		
75	1.2D + 1.5Lm(2) + 1.0Wm [30°]	Yes	Y	DL	1.2	43	1.5	28	1		
76	1.2D + 1.5Lm(2) + 1.0Wm [60°]	Yes	Y	DL	1.2	43	1.5	29	1		
77	1.2D + 1.5Lm(2) + 1.0Wm [90°]	Yes	Y	DL	1.2	43	1.5	30	1		
78	1.2D + 1.5Lm(2) + 1.0Wm [120°]	Yes	Y	DL	1.2	43	1.5	31	1		
79	1.2D + 1.5Lm(2) + 1.0Wm [150°]	Yes	Y	DL	1.2	43	1.5	32	1		
80	1.2D + 1.5Lm(2) + 1.0Wm [180°]	Yes	Y	DL	1.2	43	1.5	33	1		
81	1.2D + 1.5Lm(2) + 1.0Wm [210°]	Yes	Y	DL	1.2	43	1.5	34	1		
82	1.2D + 1.5Lm(2) + 1.0Wm [240°]	Yes	Y	DL	1.2	43	1.5	35	1		
83	1.2D + 1.5Lm(2) + 1.0Wm [270°]	Yes	Y	DL	1.2	43	1.5	36	1		
84	1.2D + 1.5Lm(2) + 1.0Wm [300°]	Yes	Y	DL	1.2	43	1.5	37	1		
85	1.2D + 1.5Lm(2) + 1.0Wm [330°]	Yes	Y	DL	1.2	43	1.5	38	1		
86	1.2D + 1.5Lm(3) + 1.0Wm [0°]	Yes	Y	DL	1.2	44	1.5	27	1		
87	1.2D + 1.5Lm(3) + 1.0Wm [30°]	Yes	Y	DL	1.2	44	1.5	28	1		
88	1.2D + 1.5Lm(3) + 1.0Wm [60°]	Yes	Y	DL	1.2	44	1.5	29	1		
89	1.2D + 1.5Lm(3) + 1.0Wm [90°]	Yes	Y	DL	1.2	44	1.5	30	1		
90	1.2D + 1.5Lm(3) + 1.0Wm [120°]	Yes	Y	DL	1.2	44	1.5	31	1		
91	1.2D + 1.5Lm(3) + 1.0Wm [150°]	Yes	Y	DL	1.2	44	1.5	32	1		
92	1.2D + 1.5Lm(3) + 1.0Wm [180°]	Yes	Y	DL	1.2	44	1.5	33	1		
93	1.2D + 1.5Lm(3) + 1.0Wm [210°]	Yes	Y	DL	1.2	44	1.5	34	1		
94	1.2D + 1.5Lm(3) + 1.0Wm [240°]	Yes	Y	DL	1.2	44	1.5	35	1		
95	1.2D + 1.5Lm(3) + 1.0Wm [270°]	Yes	Y	DL	1.2	44	1.5	36	1		
96	1.2D + 1.5Lm(3) + 1.0Wm [300°]	Yes	Y	DL	1.2	44	1.5	37	1		
97	1.2D + 1.5Lm(3) + 1.0Wm [330°]	Yes	Y	DL	1.2	44	1.5	38	1		
98	1.2D + 1.5Lm(4) + 1.0Wm [0°]	Yes	Y	DL	1.2	45	1.5	27	1		
99	1.2D + 1.5Lm(4) + 1.0Wm [30°]	Yes	Y	DL	1.2	45	1.5	28	1		
100	1.2D + 1.5Lm(4) + 1.0Wm [60°]	Yes	Y	DL	1.2	45	1.5	29	1		
101	1.2D + 1.5Lm(4) + 1.0Wm [90°]	Yes	Y	DL	1.2	45	1.5	30	1		
102	1.2D + 1.5Lm(4) + 1.0Wm [120°]	Yes	Y	DL	1.2	45	1.5	31	1		
103	1.2D + 1.5Lm(4) + 1.0Wm [150°]	Yes	Y	DL	1.2	45	1.5	32	1		
104	1.2D + 1.5Lm(4) + 1.0Wm [180°]	Yes	Y	DL	1.2	45	1.5	33	1		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
105	1.2D + 1.5Lm(4) + 1.0Wm [210°]	Yes	Y	DL	1.2	45	1.5	34	1		
106	1.2D + 1.5Lm(4) + 1.0Wm [240°]	Yes	Y	DL	1.2	45	1.5	35	1		
107	1.2D + 1.5Lm(4) + 1.0Wm [270°]	Yes	Y	DL	1.2	45	1.5	36	1		
108	1.2D + 1.5Lm(4) + 1.0Wm [300°]	Yes	Y	DL	1.2	45	1.5	37	1		
109	1.2D + 1.5Lm(4) + 1.0Wm [330°]	Yes	Y	DL	1.2	45	1.5	38	1		
110	1.2D + 1.5Lm(5) + 1.0Wm [0°]	Yes	Y	DL	1.2	46	1.5	27	1		
111	1.2D + 1.5Lm(5) + 1.0Wm [30°]	Yes	Y	DL	1.2	46	1.5	28	1		
112	1.2D + 1.5Lm(5) + 1.0Wm [60°]	Yes	Y	DL	1.2	46	1.5	29	1		
113	1.2D + 1.5Lm(5) + 1.0Wm [90°]	Yes	Y	DL	1.2	46	1.5	30	1		
114	1.2D + 1.5Lm(5) + 1.0Wm [120°]	Yes	Y	DL	1.2	46	1.5	31	1		
115	1.2D + 1.5Lm(5) + 1.0Wm [150°]	Yes	Y	DL	1.2	46	1.5	32	1		
116	1.2D + 1.5Lm(5) + 1.0Wm [180°]	Yes	Y	DL	1.2	46	1.5	33	1		
117	1.2D + 1.5Lm(5) + 1.0Wm [210°]	Yes	Y	DL	1.2	46	1.5	34	1		
118	1.2D + 1.5Lm(5) + 1.0Wm [240°]	Yes	Y	DL	1.2	46	1.5	35	1		
119	1.2D + 1.5Lm(5) + 1.0Wm [270°]	Yes	Y	DL	1.2	46	1.5	36	1		
120	1.2D + 1.5Lm(5) + 1.0Wm [300°]	Yes	Y	DL	1.2	46	1.5	37	1		
121	1.2D + 1.5Lm(5) + 1.0Wm [330°]	Yes	Y	DL	1.2	46	1.5	38	1		
122	1.2D + 1.5Lm(6) + 1.0Wm [0°]	Yes	Y	DL	1.2	47	1.5	27	1		
123	1.2D + 1.5Lm(6) + 1.0Wm [30°]	Yes	Y	DL	1.2	47	1.5	28	1		
124	1.2D + 1.5Lm(6) + 1.0Wm [60°]	Yes	Y	DL	1.2	47	1.5	29	1		
125	1.2D + 1.5Lm(6) + 1.0Wm [90°]	Yes	Y	DL	1.2	47	1.5	30	1		
126	1.2D + 1.5Lm(6) + 1.0Wm [120°]	Yes	Y	DL	1.2	47	1.5	31	1		
127	1.2D + 1.5Lm(6) + 1.0Wm [150°]	Yes	Y	DL	1.2	47	1.5	32	1		
128	1.2D + 1.5Lm(6) + 1.0Wm [180°]	Yes	Y	DL	1.2	47	1.5	33	1		
129	1.2D + 1.5Lm(6) + 1.0Wm [210°]	Yes	Y	DL	1.2	47	1.5	34	1		
130	1.2D + 1.5Lm(6) + 1.0Wm [240°]	Yes	Y	DL	1.2	47	1.5	35	1		
131	1.2D + 1.5Lm(6) + 1.0Wm [270°]	Yes	Y	DL	1.2	47	1.5	36	1		
132	1.2D + 1.5Lm(6) + 1.0Wm [300°]	Yes	Y	DL	1.2	47	1.5	37	1		
133	1.2D + 1.5Lm(6) + 1.0Wm [330°]	Yes	Y	DL	1.2	47	1.5	38	1		
134	1.2D + 1.5Lm(7) + 1.0Wm [0°]	Yes	Y	DL	1.2	48	1.5	27	1		
135	1.2D + 1.5Lm(7) + 1.0Wm [30°]	Yes	Y	DL	1.2	48	1.5	28	1		
136	1.2D + 1.5Lm(7) + 1.0Wm [60°]	Yes	Y	DL	1.2	48	1.5	29	1		
137	1.2D + 1.5Lm(7) + 1.0Wm [90°]	Yes	Y	DL	1.2	48	1.5	30	1		
138	1.2D + 1.5Lm(7) + 1.0Wm [120°]	Yes	Y	DL	1.2	48	1.5	31	1		
139	1.2D + 1.5Lm(7) + 1.0Wm [150°]	Yes	Y	DL	1.2	48	1.5	32	1		
140	1.2D + 1.5Lm(7) + 1.0Wm [180°]	Yes	Y	DL	1.2	48	1.5	33	1		
141	1.2D + 1.5Lm(7) + 1.0Wm [210°]	Yes	Y	DL	1.2	48	1.5	34	1		
142	1.2D + 1.5Lm(7) + 1.0Wm [240°]	Yes	Y	DL	1.2	48	1.5	35	1		
143	1.2D + 1.5Lm(7) + 1.0Wm [270°]	Yes	Y	DL	1.2	48	1.5	36	1		
144	1.2D + 1.5Lm(7) + 1.0Wm [300°]	Yes	Y	DL	1.2	48	1.5	37	1		
145	1.2D + 1.5Lm(7) + 1.0Wm [330°]	Yes	Y	DL	1.2	48	1.5	38	1		
146	1.2D + 1.5Lm(8) + 1.0Wm [0°]	Yes	Y	DL	1.2	49	1.5	27	1		
147	1.2D + 1.5Lm(8) + 1.0Wm [30°]	Yes	Y	DL	1.2	49	1.5	28	1		
148	1.2D + 1.5Lm(8) + 1.0Wm [60°]	Yes	Y	DL	1.2	49	1.5	29	1		
149	1.2D + 1.5Lm(8) + 1.0Wm [90°]	Yes	Y	DL	1.2	49	1.5	30	1		
150	1.2D + 1.5Lm(8) + 1.0Wm [120°]	Yes	Y	DL	1.2	49	1.5	31	1		
151	1.2D + 1.5Lm(8) + 1.0Wm [150°]	Yes	Y	DL	1.2	49	1.5	32	1		
152	1.2D + 1.5Lm(8) + 1.0Wm [180°]	Yes	Y	DL	1.2	49	1.5	33	1		
153	1.2D + 1.5Lm(8) + 1.0Wm [210°]	Yes	Y	DL	1.2	49	1.5	34	1		
154	1.2D + 1.5Lm(8) + 1.0Wm [240°]	Yes	Y	DL	1.2	49	1.5	35	1		
155	1.2D + 1.5Lm(8) + 1.0Wm [270°]	Yes	Y	DL	1.2	49	1.5	36	1		
156	1.2D + 1.5Lm(8) + 1.0Wm [300°]	Yes	Y	DL	1.2	49	1.5	37	1		
157	1.2D + 1.5Lm(8) + 1.0Wm [330°]	Yes	Y	DL	1.2	49	1.5	38	1		
158	1.2D + 1.5Lm(9) + 1.0Wm [0°]	Yes	Y	DL	1.2	50	1.5	27	1		
159	1.2D + 1.5Lm(9) + 1.0Wm [30°]	Yes	Y	DL	1.2	50	1.5	28	1		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
160	1.2D + 1.5Lm(9) + 1.0Wm [60°]	Yes	Y	DL	1.2	50	1.5	29	1		
161	1.2D + 1.5Lm(9) + 1.0Wm [90°]	Yes	Y	DL	1.2	50	1.5	30	1		
162	1.2D + 1.5Lm(9) + 1.0Wm [120°]	Yes	Y	DL	1.2	50	1.5	31	1		
163	1.2D + 1.5Lm(9) + 1.0Wm [150°]	Yes	Y	DL	1.2	50	1.5	32	1		
164	1.2D + 1.5Lm(9) + 1.0Wm [180°]	Yes	Y	DL	1.2	50	1.5	33	1		
165	1.2D + 1.5Lm(9) + 1.0Wm [210°]	Yes	Y	DL	1.2	50	1.5	34	1		
166	1.2D + 1.5Lm(9) + 1.0Wm [240°]	Yes	Y	DL	1.2	50	1.5	35	1		
167	1.2D + 1.5Lm(9) + 1.0Wm [270°]	Yes	Y	DL	1.2	50	1.5	36	1		
168	1.2D + 1.5Lm(9) + 1.0Wm [300°]	Yes	Y	DL	1.2	50	1.5	37	1		
169	1.2D + 1.5Lm(9) + 1.0Wm [330°]	Yes	Y	DL	1.2	50	1.5	38	1		
170	1.2D + 1.5Lm(10) + 1.0Wm [0°]	Yes	Y	DL	1.2	51	1.5	27	1		
171	1.2D + 1.5Lm(10) + 1.0Wm [30°]	Yes	Y	DL	1.2	51	1.5	28	1		
172	1.2D + 1.5Lm(10) + 1.0Wm [60°]	Yes	Y	DL	1.2	51	1.5	29	1		
173	1.2D + 1.5Lm(10) + 1.0Wm [90°]	Yes	Y	DL	1.2	51	1.5	30	1		
174	1.2D + 1.5Lm(10) + 1.0Wm [120°]	Yes	Y	DL	1.2	51	1.5	31	1		
175	1.2D + 1.5Lm(10) + 1.0Wm [150°]	Yes	Y	DL	1.2	51	1.5	32	1		
176	1.2D + 1.5Lm(10) + 1.0Wm [180°]	Yes	Y	DL	1.2	51	1.5	33	1		
177	1.2D + 1.5Lm(10) + 1.0Wm [210°]	Yes	Y	DL	1.2	51	1.5	34	1		
178	1.2D + 1.5Lm(10) + 1.0Wm [240°]	Yes	Y	DL	1.2	51	1.5	35	1		
179	1.2D + 1.5Lm(10) + 1.0Wm [270°]	Yes	Y	DL	1.2	51	1.5	36	1		
180	1.2D + 1.5Lm(10) + 1.0Wm [300°]	Yes	Y	DL	1.2	51	1.5	37	1		
181	1.2D + 1.5Lm(10) + 1.0Wm [330°]	Yes	Y	DL	1.2	51	1.5	38	1		
182	1.2D + 1.5Lm(11) + 1.0Wm [0°]	Yes	Y	DL	1.2	52	1.5	27	1		
183	1.2D + 1.5Lm(11) + 1.0Wm [30°]	Yes	Y	DL	1.2	52	1.5	28	1		
184	1.2D + 1.5Lm(11) + 1.0Wm [60°]	Yes	Y	DL	1.2	52	1.5	29	1		
185	1.2D + 1.5Lm(11) + 1.0Wm [90°]	Yes	Y	DL	1.2	52	1.5	30	1		
186	1.2D + 1.5Lm(11) + 1.0Wm [120°]	Yes	Y	DL	1.2	52	1.5	31	1		
187	1.2D + 1.5Lm(11) + 1.0Wm [150°]	Yes	Y	DL	1.2	52	1.5	32	1		
188	1.2D + 1.5Lm(11) + 1.0Wm [180°]	Yes	Y	DL	1.2	52	1.5	33	1		
189	1.2D + 1.5Lm(11) + 1.0Wm [210°]	Yes	Y	DL	1.2	52	1.5	34	1		
190	1.2D + 1.5Lm(11) + 1.0Wm [240°]	Yes	Y	DL	1.2	52	1.5	35	1		
191	1.2D + 1.5Lm(11) + 1.0Wm [270°]	Yes	Y	DL	1.2	52	1.5	36	1		
192	1.2D + 1.5Lm(11) + 1.0Wm [300°]	Yes	Y	DL	1.2	52	1.5	37	1		
193	1.2D + 1.5Lm(11) + 1.0Wm [330°]	Yes	Y	DL	1.2	52	1.5	38	1		
194	1.2D + 1.5Lm(12) + 1.0Wm [0°]	Yes	Y	DL	1.2	53	1.5	27	1		
195	1.2D + 1.5Lm(12) + 1.0Wm [30°]	Yes	Y	DL	1.2	53	1.5	28	1		
196	1.2D + 1.5Lm(12) + 1.0Wm [60°]	Yes	Y	DL	1.2	53	1.5	29	1		
197	1.2D + 1.5Lm(12) + 1.0Wm [90°]	Yes	Y	DL	1.2	53	1.5	30	1		
198	1.2D + 1.5Lm(12) + 1.0Wm [120°]	Yes	Y	DL	1.2	53	1.5	31	1		
199	1.2D + 1.5Lm(12) + 1.0Wm [150°]	Yes	Y	DL	1.2	53	1.5	32	1		
200	1.2D + 1.5Lm(12) + 1.0Wm [180°]	Yes	Y	DL	1.2	53	1.5	33	1		
201	1.2D + 1.5Lm(12) + 1.0Wm [210°]	Yes	Y	DL	1.2	53	1.5	34	1		
202	1.2D + 1.5Lm(12) + 1.0Wm [240°]	Yes	Y	DL	1.2	53	1.5	35	1		
203	1.2D + 1.5Lm(12) + 1.0Wm [270°]	Yes	Y	DL	1.2	53	1.5	36	1		
204	1.2D + 1.5Lm(12) + 1.0Wm [300°]	Yes	Y	DL	1.2	53	1.5	37	1		
205	1.2D + 1.5Lm(12) + 1.0Wm [330°]	Yes	Y	DL	1.2	53	1.5	38	1		

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	H001	N002	N003		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
2	H002	N004	N005		PL6X0.5	Beam	None	A36	Typical
3	H003	N006	N012		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
4	H004	N007	N013		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
5	H005	N008	N010		PL6X0.5	Beam	None	A36	Typical
6	H006	N009	N011		PL6X0.5	Beam	None	A36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
7	H007	N015	N016		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
8	H008	N021	N023		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
9	H009	N022	N024		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
10	H010	N033	N013		L2X2X3	Beam	None	A36	Typical
11	H011	N034	N003		L2X2X3	Beam	None	A36	Typical
12	H012	N029	N012		L2X2X3	Beam	None	A36	Typical
13	H013	N030	N013	270	L2X2X3	Beam	None	A36	Typical
14	H014	N031	N003	270	L2X2X3	Beam	None	A36	Typical
15	H015	N032	N012	270	L2X2X3	Beam	None	A36	Typical
16	H016	N009	N036		PL6X0.5	Beam	None	A36	Typical
17	H017	N004	N042		PL6X0.5	Beam	None	A36	Typical
18	H018	N008	N043		PL6X0.5	Beam	None	A36	Typical
19	H019	N011	N048		PL6X0.5	Beam	None	A36	Typical
20	H020	N005	N049		PL6X0.5	Beam	None	A36	Typical
21	H021	N010	N037		PL6X0.5	Beam	None	A36	Typical
22	H022	N038	N040		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
23	H023	N044	N050		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
24	H024	N045	N051		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
25	H025	N039	N041		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
26	H026	N046	N052		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
27	H027	N047	N053		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
28	H028	N017	N018		PIPE_3.0	Beam	None	A53 Gr. B	Typical
29	H029	N025	N027		PIPE_3.0	Beam	None	A53 Gr. B	Typical
30	H030	N026	N028		PIPE_3.0	Beam	None	A53 Gr. B	Typical
31	H031	N054	N055		PL6X0.375	Beam	None	A36	Typical
32	H032	N056	N058		PL6X0.375	Beam	None	A36	Typical
33	H033	N057	N059		PL6X0.375	Beam	None	A36	Typical
34	H034	N060	N062		PL6X0.375	Beam	None	A36	Typical
35	H035	N061	N063		PL6X0.375	Beam	None	A36	Typical
36	H036	N064	N035		PL6X0.375	Beam	None	A36	Typical
37	H037	N059	N065		PL6X0.375	Beam	None	A36	Typical
38	H038	N055	N071		PL6X0.375	Beam	None	A36	Typical
39	H039	N058	N072		PL6X0.375	Beam	None	A36	Typical
40	H040	N062	N066		PL6X0.375	Beam	None	A36	Typical
41	H041	N063	N073		PL6X0.375	Beam	None	A36	Typical
42	H042	N035	N074		PL6X0.375	Beam	None	A36	Typical
43	H043	N067	N069		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
44	H044	N075	N079		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
45	H045	N076	N080		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
46	H046	N068	N070		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
47	H047	N077	N081		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
48	H048	N078	N082		(1) 1/2 U-BOLT	Beam	None	SAE J429 Gr. 2	Typical
49	H049	N083	N084		PIPE_2.0	Beam	None	A53 Gr. B	Typical
50	H050	N085	N087		PIPE_2.0	Beam	None	A53 Gr. B	Typical
51	H051	N086	N088		PIPE_2.0	Beam	None	A53 Gr. B	Typical
52	H052	N094	N095	90	L2.5X2.5X4	Beam	None	A36	Typical
53	H053	N091	N092	90	L2.5X2.5X4	Beam	None	A36	Typical
54	H054	N090	N093	90	L2.5X2.5X4	Beam	None	A36	Typical
55	H055	N096	N099		PL6X0.375	Beam	None	A36	Typical
56	H056	N097	N100		PL6X0.375	Beam	None	A36	Typical
57	H057	N098	N101		PL6X0.375	Beam	None	A36	Typical
58	H058	N103	N106		PL6X0.375	Beam	None	A36	Typical
59	H059	N104	N107		PL6X0.375	Beam	None	A36	Typical
60	H060	N102	N105		PL6X0.375	Beam	None	A36	Typical
61	H061	N108	N114		(2) 1/2 U-BOLTS	Beam	None	SAE J429 Gr. 2	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
62	H062	N109	N115		(2) 1/2 U-BOLTS	Beam	None	SAE J429 Gr. 2	Typical
63	H063	N110	N116		(2) 1/2 U-BOLTS	Beam	None	SAE J429 Gr. 2	Typical
64	H064	N111	N117		(2) 1/2 U-BOLTS	Beam	None	SAE J429 Gr. 2	Typical
65	H065	N112	N118		(2) 1/2 U-BOLTS	Beam	None	SAE J429 Gr. 2	Typical
66	H066	N113	N119		(2) 1/2 U-BOLTS	Beam	None	SAE J429 Gr. 2	Typical
67	TB067	N120	N123		LL2.5X2.5X3X3	Column	None	A36	Typical
68	TB068	N121	N124		LL2.5X2.5X3X3	Column	None	A36	Typical
69	TB069	N122	N125		LL2.5X2.5X3X3	Column	None	A36	Typical
70	U070	N128	N138		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
71	U071	N139	N140		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
72	MP072	N141	N142		PIPE_2.5	Column	None	A53 Gr. B	Typical
73	U073	N126	N143		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
74	U074	N144	N145		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
75	MP075	N146	N147		PIPE_2.5	Column	None	A53 Gr. B	Typical
76	U076	N127	N148		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
77	U077	N149	N150		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
78	MP078	N151	N152		PIPE_2.5	Column	None	A53 Gr. B	Typical
79	U079	N129	N153		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
80	U080	N154	N155		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
81	MP081	N156	N157		PIPE_2.5	Column	None	A53 Gr. B	Typical
82	U082	N131	N158		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
83	U083	N159	N160		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
84	MP084	N161	N162		PIPE_2.5	Column	None	A53 Gr. B	Typical
85	U085	N133	N163		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
86	U086	N164	N165		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
87	MP087	N166	N167		PIPE_2.5	Column	None	A53 Gr. B	Typical
88	U088	N135	N168		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
89	U089	N169	N170		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
90	MP090	N171	N172		PIPE_2.5	Column	None	A53 Gr. B	Typical
91	U091	N137	N173		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
92	U092	N174	N175		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
93	MP093	N176	N177		PIPE_2.5	Column	None	A53 Gr. B	Typical
94	U094	N130	N178		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
95	U095	N179	N180		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
96	MP096	N181	N182		PIPE_2.5	Column	None	A53 Gr. B	Typical
97	U097	N132	N183		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
98	U098	N184	N185		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
99	MP099	N186	N187		PIPE_2.5	Column	None	A53 Gr. B	Typical
100	U100	N134	N188		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
101	U101	N189	N190		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
102	MP102	N191	N192		PIPE_2.5	Column	None	A53 Gr. B	Typical
103	U103	N136	N193		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
104	U104	N194	N195		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
105	MP105	N196	N197		PIPE_2.5	Column	None	A53 Gr. B	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
1	H001	HSS4X4X4	63			Lbyy		1	1	Lateral
2	H002	PL6X0.5	12			Lbyy		0.65	0.65	Lateral
3	H003	HSS4X4X4	63			Lbyy		1	1	Lateral
4	H004	HSS4X4X4	63			Lbyy		1	1	Lateral
5	H005	PL6X0.5	12			Lbyy		0.65	0.65	Lateral
6	H006	PL6X0.5	12			Lbyy		0.65	0.65	Lateral
7	H007	HSS4X4X4	60			Lbyy		0.65	0.65	Lateral
8	H008	HSS4X4X4	60			Lbyy		0.65	0.65	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
9	H009	HSS4X4X4	60			Lbyy		0.65	0.65	Lateral
10	H010	L2X2X3	50.229			Lbyy		1	1	Lateral
11	H011	L2X2X3	50.229			Lbyy		1	1	Lateral
12	H012	L2X2X3	50.229			Lbyy		1	1	Lateral
13	H013	L2X2X3	50.229			Lbyy		1	1	Lateral
14	H014	L2X2X3	50.229			Lbyy		1	1	Lateral
15	H015	L2X2X3	50.229			Lbyy		1	1	Lateral
16	H016	PL6X0.5	3			Lbyy		1	1	Lateral
17	H017	PL6X0.5	3			Lbyy		1	1	Lateral
18	H018	PL6X0.5	3			Lbyy		1	1	Lateral
19	H019	PL6X0.5	3			Lbyy		1	1	Lateral
20	H020	PL6X0.5	3			Lbyy		1	1	Lateral
21	H021	PL6X0.5	3			Lbyy		1	1	Lateral
22	H022	(1) 1/2 U-BOLT	2			Lbyy		0.65	0.65	Lateral
23	H023	(1) 1/2 U-BOLT	2			Lbyy		0.65	0.65	Lateral
24	H024	(1) 1/2 U-BOLT	2			Lbyy		0.65	0.65	Lateral
25	H025	(1) 1/2 U-BOLT	2			Lbyy		0.65	0.65	Lateral
26	H026	(1) 1/2 U-BOLT	2			Lbyy		0.65	0.65	Lateral
27	H027	(1) 1/2 U-BOLT	2			Lbyy		0.65	0.65	Lateral
28	H028	PIPE_3.0	150			Lbyy		1	1	Lateral
29	H029	PIPE_3.0	150			Lbyy		1	1	Lateral
30	H030	PIPE_3.0	150			Lbyy		1	1	Lateral
31	H031	PL6X0.375	4			Lbyy		0.65	0.65	Lateral
32	H032	PL6X0.375	4			Lbyy		0.65	0.65	Lateral
33	H033	PL6X0.375	4			Lbyy		0.65	0.65	Lateral
34	H034	PL6X0.375	4			Lbyy		0.65	0.65	Lateral
35	H035	PL6X0.375	4			Lbyy		0.65	0.65	Lateral
36	H036	PL6X0.375	4			Lbyy		0.65	0.65	Lateral
37	H037	PL6X0.375	3			Lbyy		1	1	Lateral
38	H038	PL6X0.375	3			Lbyy		1	1	Lateral
39	H039	PL6X0.375	3			Lbyy		1	1	Lateral
40	H040	PL6X0.375	3			Lbyy		1	1	Lateral
41	H041	PL6X0.375	3			Lbyy		1	1	Lateral
42	H042	PL6X0.375	3			Lbyy		1	1	Lateral
43	H043	(1) 1/2 U-BOLT	1.965			Lbyy		0.65	0.65	Lateral
44	H044	(1) 1/2 U-BOLT	1.965			Lbyy		0.65	0.65	Lateral
45	H045	(1) 1/2 U-BOLT	1.965			Lbyy		0.65	0.65	Lateral
46	H046	(1) 1/2 U-BOLT	1.965			Lbyy		0.65	0.65	Lateral
47	H047	(1) 1/2 U-BOLT	1.965			Lbyy		0.65	0.65	Lateral
48	H048	(1) 1/2 U-BOLT	1.965			Lbyy		0.65	0.65	Lateral
49	H049	PIPE_2.0	150			Lbyy		0.65	0.65	Lateral
50	H050	PIPE_2.0	150			Lbyy		0.65	0.65	Lateral
51	H051	PIPE_2.0	150			Lbyy		0.65	0.65	Lateral
52	H052	L2.5X2.5X4	14.71			Lbyy		0.65	0.65	Lateral
53	H053	L2.5X2.5X4	14.71			Lbyy		0.65	0.65	Lateral
54	H054	L2.5X2.5X4	14.71			Lbyy		0.65	0.65	Lateral
55	H055	PL6X0.375	6			Lbyy		0.65	0.65	Lateral
56	H056	PL6X0.375	6			Lbyy		0.65	0.65	Lateral
57	H057	PL6X0.375	6			Lbyy		0.65	0.65	Lateral
58	H058	PL6X0.375	6			Lbyy		0.65	0.65	Lateral
59	H059	PL6X0.375	6			Lbyy		0.65	0.65	Lateral
60	H060	PL6X0.375	6			Lbyy		0.65	0.65	Lateral
61	H061	(2) 1/2 U-BOLTS	1.5			Lbyy		0.65	0.65	Lateral
62	H062	(2) 1/2 U-BOLTS	1.5			Lbyy		0.65	0.65	Lateral
63	H063	(2) 1/2 U-BOLTS	1.5			Lbyy		0.65	0.65	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
64	H064	(2) 1/2 U-BOLTS	1.5			Lbyy		0.65	0.65	Lateral
65	H065	(2) 1/2 U-BOLTS	1.5			Lbyy		0.65	0.65	Lateral
66	H066	(2) 1/2 U-BOLTS	1.5			Lbyy		0.65	0.65	Lateral
67	TB067	LL2.5X2.5X3X3	57.628			Lbyy		1	1	Lateral
68	TB068	LL2.5X2.5X3X3	57.628			Lbyy		1	1	Lateral
69	TB069	LL2.5X2.5X3X3	57.628			Lbyy		1	1	Lateral
70	U070	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
71	U071	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
72	MP072	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
73	U073	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
74	U074	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
75	MP075	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
76	U076	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
77	U077	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
78	MP078	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
79	U079	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
80	U080	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
81	MP081	PIPE_2.5	120	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
82	U082	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
83	U083	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
84	MP084	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
85	U085	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
86	U086	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
87	MP087	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
88	U088	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
89	U089	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
90	MP090	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
91	U091	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
92	U092	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
93	MP093	PIPE_2.5	120	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
94	U094	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
95	U095	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
96	MP096	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
97	U097	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
98	U098	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
99	MP099	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
100	U100	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
101	U101	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
102	MP102	PIPE_2.5	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
103	U103	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
104	U104	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
105	MP105	PIPE_2.5	120	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral

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	N002	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N006	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N007	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N120	Reaction	Reaction	Reaction			
5	N121	Reaction	Reaction	Reaction			
6	N122	Reaction	Reaction	Reaction			

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1	H001			Yes	N/A		None
2	H002			Yes	N/A		None
3	H003			Yes	N/A		None
4	H004			Yes	N/A		None
5	H005			Yes	N/A		None
6	H006			Yes	N/A		None
7	H007			Yes	N/A		None
8	H008			Yes	N/A		None
9	H009			Yes	N/A		None
10	H010	BenPIN	BenPIN	Yes	N/A		None
11	H011	BenPIN	BenPIN	Yes	N/A		None
12	H012	BenPIN	BenPIN	Yes	N/A		None
13	H013	BenPIN	BenPIN	Yes	N/A		None
14	H014	BenPIN	BenPIN	Yes	N/A		None
15	H015	BenPIN	BenPIN	Yes	N/A		None
16	H016			Yes	N/A		None
17	H017			Yes	N/A		None
18	H018			Yes	N/A		None
19	H019			Yes	N/A		None
20	H020			Yes	N/A		None
21	H021			Yes	N/A		None
22	H022		OOOXOO	Yes	N/A	Exclude	None
23	H023		OOOXOO	Yes	N/A	Exclude	None
24	H024		OOOXOO	Yes	N/A	Exclude	None
25	H025		OOOXOO	Yes	N/A	Exclude	None
26	H026		OOOXOO	Yes	N/A	Exclude	None
27	H027		OOOXOO	Yes	N/A	Exclude	None
28	H028			Yes	N/A		None
29	H029			Yes	N/A		None
30	H030			Yes	N/A		None
31	H031			Yes	N/A		None
32	H032			Yes	N/A		None
33	H033			Yes	N/A		None
34	H034			Yes	N/A		None
35	H035			Yes	N/A		None
36	H036			Yes	N/A		None
37	H037			Yes	N/A		None
38	H038			Yes	N/A		None
39	H039			Yes	N/A		None
40	H040			Yes	N/A		None
41	H041			Yes	N/A		None
42	H042			Yes	N/A		None
43	H043		OOOXOO	Yes	N/A	Exclude	None
44	H044		OOOXOO	Yes	N/A	Exclude	None
45	H045		OOOXOO	Yes	N/A	Exclude	None
46	H046		OOOXOO	Yes	N/A	Exclude	None
47	H047		OOOXOO	Yes	N/A	Exclude	None
48	H048		OOOXOO	Yes	N/A	Exclude	None
49	H049			Yes	N/A		None
50	H050			Yes	N/A		None
51	H051			Yes	N/A		None
52	H052			Yes	N/A		None
53	H053			Yes	N/A		None
54	H054			Yes	N/A		None
55	H055			Yes	N/A		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
56	H056			Yes	N/A		None
57	H057			Yes	N/A		None
58	H058			Yes	N/A		None
59	H059			Yes	N/A		None
60	H060			Yes	N/A		None
61	H061			Yes	N/A	Exclude	None
62	H062			Yes	N/A	Exclude	None
63	H063			Yes	N/A	Exclude	None
64	H064			Yes	N/A	Exclude	None
65	H065			Yes	N/A	Exclude	None
66	H066			Yes	N/A	Exclude	None
67	TB067		BenPIN	Yes	** NA **		None
68	TB068		BenPIN	Yes	** NA **		None
69	TB069		BenPIN	Yes	** NA **		None
70	U070			Yes	N/A	Exclude	None
71	U071			Yes	N/A	Exclude	None
72	MP072			Yes	** NA **		None
73	U073			Yes	N/A	Exclude	None
74	U074			Yes	N/A	Exclude	None
75	MP075			Yes	** NA **		None
76	U076			Yes	N/A	Exclude	None
77	U077			Yes	N/A	Exclude	None
78	MP078			Yes	** NA **		None
79	U079			Yes	N/A	Exclude	None
80	U080			Yes	N/A	Exclude	None
81	MP081			Yes	** NA **		None
82	U082			Yes	N/A	Exclude	None
83	U083			Yes	N/A	Exclude	None
84	MP084			Yes	** NA **		None
85	U085			Yes	N/A	Exclude	None
86	U086			Yes	N/A	Exclude	None
87	MP087			Yes	** NA **		None
88	U088			Yes	N/A	Exclude	None
89	U089			Yes	N/A	Exclude	None
90	MP090			Yes	** NA **		None
91	U091			Yes	N/A	Exclude	None
92	U092			Yes	N/A	Exclude	None
93	MP093			Yes	** NA **		None
94	U094			Yes	N/A	Exclude	None
95	U095			Yes	N/A	Exclude	None
96	MP096			Yes	** NA **		None
97	U097			Yes	N/A	Exclude	None
98	U098			Yes	N/A	Exclude	None
99	MP099			Yes	** NA **		None
100	U100			Yes	N/A	Exclude	None
101	U101			Yes	N/A	Exclude	None
102	MP102			Yes	** NA **		None
103	U103			Yes	N/A	Exclude	None
104	U104			Yes	N/A	Exclude	None
105	MP105			Yes	** NA **		None

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [lb/ft^{3}]	Yield [psi]	Ry	Fu [psi]	Rt
1	A500 Gr. B [SQR]	2.9e+07	1.115e+07	0.3	0.65	490	46000	1.4	58000	1.3
2	A36	2.9e+07	1.115e+07	0.3	0.65	490	36000	1.5	58000	1.2

Hot Rolled Steel Properties (Continued)

	Label	E [psi]	G [psi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [lb/ft³]	Yield [psi]	Ry	Fu [psi]	Rt
3	SAE J429 Gr. 2	2.9e+07	1.115e+07	0.3	0.65	490	57000	1.1	74000	1.1
4	A53 Gr. B	2.9e+07	1.115e+07	0.3	0.65	490	35000	1.6	60000	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	N002	max	1300.518	5	448.163	8	4681.826	2	439.532	176	1767.709	23	964.137	11
2		min	-1299.176	11	-234.166	14	-2776.183	20	-169.642	14	-1770.162	17	-954.287	5
3	N006	max	4206.106	6	465.859	12	1441.296	24	780.086	15	1634.884	15	459.595	20
4		min	-2555.986	24	-251.777	18	-2394.672	6	-889.603	9	-1637.036	21	-731.793	146
5	N007	max	2611.908	16	481.617	4	1572.787	16	754.224	24	1690.826	19	721.72	158
6		min	-4262.603	10	-267.49	22	-2525.358	10	-880.533	6	-1693.059	25	-384.211	20
7	N120	max	28.893	17	2370.524	26	394.276	20	0	205	0	205	0	205
8		min	-28.926	23	-316.986	20	-2911.368	26	0	1	0	1	0	1
9	N121	max	396.358	24	2382.381	30	1461.065	30	0	205	0	205	0	205
10		min	-2533.641	30	-370.012	24	-221.071	24	0	1	0	1	0	1
11	N122	max	2542.219	34	2390.344	34	1466.128	34	0	205	0	205	0	205
12		min	-439.203	16	-409.557	16	-245.706	16	0	1	0	1	0	1
13	Totals:	max	4606.685	17	6946.405	36	4771.468	14						
14		min	-4606.685	23	2557.698	18	-4771.468	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	0.129	44.625	2	0.104	0	z	11	124317.885	139518	16180.5	16180.5	1.733	H1-1b
2	H002	PL6X0.5	0.134	6	2	0.287	6	y	6	83348.625	97200	1012.5	12150	1.171	H1-1b
3	H003	HSS4X4X4	0.133	44.625	6	0.103	0	z	3	124317.885	139518	16180.5	16180.5	1.729	H1-1b
4	H004	HSS4X4X4	0.135	44.625	10	0.1	0	z	7	124317.885	139518	16180.5	16180.5	1.725	H1-1b
5	H005	PL6X0.5	0.137	6	6	0.29	6	y	10	83348.625	97200	1012.5	12150	1.166	H1-1b
6	H006	PL6X0.5	0.143	6	10	0.274	6	y	2	83348.625	97200	1012.5	12150	1.17	H1-1b
7	H007	HSS4X4X4	0.098	30	135	0.039	55.625	z	3	133484.923	139518	16180.5	16180.5	1.406	H1-1b
8	H008	HSS4X4X4	0.098	30	151	0.037	55.625	z	7	133484.923	139518	16180.5	16180.5	1.406	H1-1b
9	H009	HSS4X4X4	0.098	30	71	0.038	55.625	z	11	133484.923	139518	16180.5	16180.5	1.406	H1-1b
10	H010	L2X2X3	0.153	25.115	23	0.007	50.229	z	12	9724.796	23392.8	557.717	1071.527	1.133	H2-1
11	H011	L2X2X3	0.155	25.115	15	0.007	50.229	z	4	9724.796	23392.8	557.717	1071.527	1.133	H2-1
12	H012	L2X2X3	0.15	25.115	19	0.007	50.229	z	8	9724.796	23392.8	557.717	1071.527	1.133	H2-1
13	H013	L2X2X3	0.145	25.115	21	0.007	50.229	y	13	9724.796	23392.8	557.717	1071.529	1.133	H2-1
14	H014	L2X2X3	0.139	25.115	24	0.007	50.229	y	5	9724.796	23392.8	557.717	1071.796	1.134	H2-1
15	H015	L2X2X3	0.142	25.115	17	0.007	50.229	y	9	9724.796	23392.8	557.717	1071.529	1.133	H2-1
16	H016	PL6X0.5	0.059	0	10	0.631	0	y	8	95014.386	97200	1012.5	12150	3	H1-1b
17	H017	PL6X0.5	0.056	0	2	0.664	0	y	12	95014.386	97200	1012.5	12150	3	H1-1b
18	H018	PL6X0.5	0.056	0	6	0.671	0	y	4	95014.386	97200	1012.5	12150	3	H1-1b
19	H019	PL6X0.5	0.051	0	3	0.64	0	y	12	95014.386	97200	1012.5	12150	3	H1-1b
20	H020	PL6X0.5	0.053	1.5	10	0.658	0	y	4	95014.386	97200	1012.5	12150	3	H1-1b
21	H021	PL6X0.5	0.051	0	11	0.625	0	y	8	95014.386	97200	1012.5	12150	3	H1-1b
22	H028	PIPE_3.0	0.115	48.438	6	0.104	140.625		8	28250.554	65205	5748.75	5748.75	2.658	H1-1b
23	H029	PIPE_3.0	0.12	48.438	10	0.107	9.375		12	28250.554	65205	5748.75	5748.75	2.688	H1-1b
24	H030	PIPE_3.0	0.113	48.438	2	0.109	140.625		4	28250.554	65205	5748.75	5748.75	2.652	H1-1b
25	H031	PL6X0.375	0.122	2	11	0.606	2	y	6	70719.442	72900	569.531	9112.5	1.346	H1-1b
26	H032	PL6X0.375	0.113	2	3	0.612	2	y	10	70719.442	72900	569.531	9112.5	1.346	H1-1b
27	H033	PL6X0.375	0.117	2	7	0.582	2	y	2	70719.442	72900	569.531	9112.5	1.347	H1-1b
28	H034	PL6X0.375	0.101	2	9	0.589	2	y	2	70719.442	72900	569.531	9112.5	1.342	H1-1b
29	H035	PL6X0.375	0.104	2	13	0.606	2	y	6	70719.442	72900	569.531	9112.5	1.343	H1-1b
30	H036	PL6X0.375	0.109	2	5	0.617	2	y	10	70719.442	72900	569.531	9112.5	1.342	H1-1b
31	H037	PL6X0.375	0.114	1.5	13	0.669	0	y	8	70011.374	72900	569.531	9112.5	3	H1-1b

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

	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
32	H038	PL6X0.375	0.119	1.5	5	0.696	0	y	12	70011.374	72900	569.531	9112.5	3	H1-1b
33	H039	PL6X0.375	0.109	1.5	9	0.705	0	y	4	70011.374	72900	569.531	9112.5	3	H1-1b
34	H040	PL6X0.375	0.1	1.5	3	0.674	0	y	8	70011.374	72900	569.531	9112.5	3	H1-1b
35	H041	PL6X0.375	0.104	1.5	7	0.695	0	y	12	70011.374	72900	569.531	9112.5	3	H1-1b
36	H042	PL6X0.375	0.11	1.5	11	0.708	0	y	4	70011.374	72900	569.531	9112.5	3	H1-1b
37	H049	PIPE_2.0	0.271	131.25	12	0.218	137.5		2	14559.939	32130	1871.625	1871.625	3	H1-1b
38	H050	PIPE_2.0	0.291	131.25	4	0.222	137.5		6	14559.939	32130	1871.625	1871.625	3	H1-1b
39	H051	PIPE_2.0	0.272	131.25	9	0.225	137.5		10	14559.939	32130	1871.625	1871.625	3	H1-1b
40	H052	L2.5X2.5X4	0.219	0	3	0.121	14.71	z	5	37765.457	38556	1113.554	2537.388	1.5	H2-1
41	H053	L2.5X2.5X4	0.228	0	7	0.121	14.71	z	9	37765.457	38556	1113.554	2537.388	1.5	H2-1
42	H054	L2.5X2.5X4	0.238	0	11	0.116	14.71	z	13	37765.457	38556	1113.554	2537.388	1.5	H2-1
43	H055	PL6X0.375	0.445	1.5	11	0.393	1.5	y	13	68085.235	72900	569.531	9112.5	1.317	H1-1b
44	H056	PL6X0.375	0.411	1.5	3	0.411	1.5	y	5	68085.235	72900	569.531	9112.5	1.4	H1-1b
45	H057	PL6X0.375	0.428	1.5	7	0.414	1.5	y	10	68085.235	72900	569.531	9112.5	1.344	H1-1b
46	H058	PL6X0.375	0.363	3	7	0.599	1.5	y	6	68085.235	72900	569.531	9112.5	1.443	H1-1b
47	H059	PL6X0.375	0.38	3	11	0.612	1.5	y	10	68085.235	72900	569.531	9112.5	1.442	H1-1b
48	H060	PL6X0.375	0.375	3	3	0.588	1.5	y	2	68085.235	72900	569.531	9112.5	1.442	H1-1b
49	TB067	LL2.5X2.5X3X3	0.086	0	26	0.002	57.628	y	26	43459.736	58320	3954.307	2549.586	1	H1-1b*
50	TB068	LL2.5X2.5X3X3	0.087	0	30	0.002	57.628	y	30	43459.736	58320	3954.307	2549.586	1.136	H1-1b*
51	TB069	LL2.5X2.5X3X3	0.087	0	34	0.002	57.628	y	34	43459.736	58320	3954.307	2549.586	1.136	H1-1b*
52	MP072	PIPE_2.5	0.158	67	12	0.072	67		9	32594.036	50715	3596.25	3596.25	3	H1-1b
53	MP075	PIPE_2.5	0.168	67	12	0.055	67		9	32594.036	50715	3596.25	3596.25	3	H1-1b
54	MP078	PIPE_2.5	0.166	67	12	0.042	67		7	32594.036	50715	3596.25	3596.25	3	H1-1b
55	MP081	PIPE_2.5	0.22	37.5	8	0.092	37.5		7	35651.398	50715	3596.25	3596.25	3	H1-1b
56	MP084	PIPE_2.5	0.155	67	8	0.076	67		5	32594.036	50715	3596.25	3596.25	2.148	H1-1b
57	MP087	PIPE_2.5	0.165	67	9	0.057	67		5	32594.036	50715	3596.25	3596.25	2.467	H1-1b
58	MP090	PIPE_2.5	0.163	67	8	0.042	67		3	32594.036	50715	3596.25	3596.25	1.938	H1-1b
59	MP093	PIPE_2.5	0.219	37.5	4	0.089	37.5		3	35651.398	50715	3596.25	3596.25	2.153	H1-1b
60	MP096	PIPE_2.5	0.163	67	4	0.072	67		13	32594.036	50715	3596.25	3596.25	2.681	H1-1b
61	MP099	PIPE_2.5	0.175	67	4	0.054	67		13	32594.036	50715	3596.25	3596.25	2.39	H1-1b
62	MP102	PIPE_2.5	0.175	67	4	0.044	67		11	32594.036	50715	3596.25	3596.25	2.238	H1-1b
63	MP105	PIPE_2.5	0.221	37.5	12	0.095	37.5		11	35651.398	50715	3596.25	3596.25	2.014	H1-1b

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	144 ft Monopole
ATC Asset Name	:	BARKHAMSTEDW CT
ATC Asset Number	:	411177
Engineering Number	:	14529798_C3_02
Proposed Carrier	:	T-MOBILE
Carrier Site Name	:	Old Farms- Verizon Colo
Carrier Site Number	:	CTNH416A
Site Location	:	14 Old North Road Barkhamsted, CT 06063-3440 41.9145° N, 73.0222° W
County	:	Litchfield
Date	:	October 4, 2023
Max Usage	:	79%
Analysis Result	:	Pass

Created By:

Nathan Lyle
Structural Engineer I

Nathan Lyle

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Esha Modi

Digitally signed by Esha Modi
Date: 2023.10.04 15:39:31 -04'00'

COA: PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 144 ft Monopole tower to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower:	EEI Project #13841, dated December 8, 2005
Foundation:	EEI Project #13841, dated December 8, 2005
Geotechnical:	JGI Project #05704G, dated November 30, 2005
Modification:	Centeck Project #12063.CO32 Rev. 1, dated November 29, 2012

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.

Basic Wind Speed:	115 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code(s):	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	Ss = 0.17, S_1 = 0.05
Site Class:	D - Stiff Soil - Default

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 reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact **Engineering@americantower.com** Please include the American Tower asset name, asset number, and engineering number in the subject line for any questions.

Structure Usages

Structural Component	Usage	Control	Result
Pole Shaft	68.6%	1.2D + 1.0W	Pass
Reinforcement	79.4%	94.75 ft to 109.75 ft	Pass
Upper Termination	24.2%	94.75 ft to 109.75 ft	Pass
Intermediate Connector	8.5%	94.75 ft to 109.75 ft	Pass
Lower Termination	22.2%	94.75 ft to 109.75 ft	Pass
Serviceability Usage	40.7%	1.0D + 1.0W	Pass
Base Plate @ 0.0 ft	46.4%	Rods	Pass
Mat & Pier	44.7%	Moment [Soil]	Pass

Maximum Reactions

Foundation	Moment (k-ft)	Axial (k)	Shear (k)
Monopole Base	2,353.9	43.2	20.9

Reactions shown reflect the results from the Load Case with maximum Moment

Structure base reactions were analyzed using available geotechnical and foundation information.

T-MOBILE Final Loading

Elev (ft)	Qty	Equipment	Lines
125.0	1	Platform with Handrails	(4) 1.99" (50.7mm) Hybrid
	3	Commscope VV-65A-R1	
	3	Ericsson 4460 BAND 2/25	
	3	Ericsson 4480 BAND 71	
	3	Ericsson AIR 6419 B41	
	3	Mount Reinforcement	
	3	RFS APXVAALL24 43-U-NA20	

Install proposed lines inside the pole shaft.

Other Existing/Reserved Loading

Elev (ft)	Qty	Equipment	Lines	Carrier
146.0	1	Unused Reserve (4347.4400 sqin)	-	VERIZON WIRELESS
145.0	1	Platform with Handrails	(15) 1 5/8" Coax (2) 2.02 (51.2mm) Hybrid	VERIZON WIRELESS
	1	RFS DB-C1-12C-24AB-0Z		
	3	Mount Reinforcement		
	3	Samsung B2/B66A RRH-BR049		
	3	Samsung B5/B13 RRH-BR04C		
	3	Samsung MT6407-77A		
	4	Kaelus KA-6030		
	6	Antel LPA-70063-6CF-EDIN-X		
	6	Quintel QS6656-5D		
134.0	1	CCI DMP65R-BU4D	(2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (6) 1 5/8" Coax (2) 2" conduit (6) 3/8" (0.38"- 9.5mm) RET Control Cable	AT&T MOBILITY
	1	CCI OPA65R-BU4DA-K		
	1	Platform with Handrails		
	2	CCI DMP65R-BU6DA		
	2	CCI OPA65R-BU6D		
	2	Raycap DC6-48-60-18-8F(32.8 lbs)		
	3	Ericsson RRUS 4449 B5, B12		
	3	Ericsson RRUS 4478 B14		
	3	Powerwave Allgon 7770.00		
	3	Powerwave Allgon LGP13519		
	6	Powerwave Allgon LGP21401		

(If table breaks across pages, please see previous page for data in merged cells)

Standard Conditions

All engineering services performed by A.T. Engineering Services LLC 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 Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC 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 Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

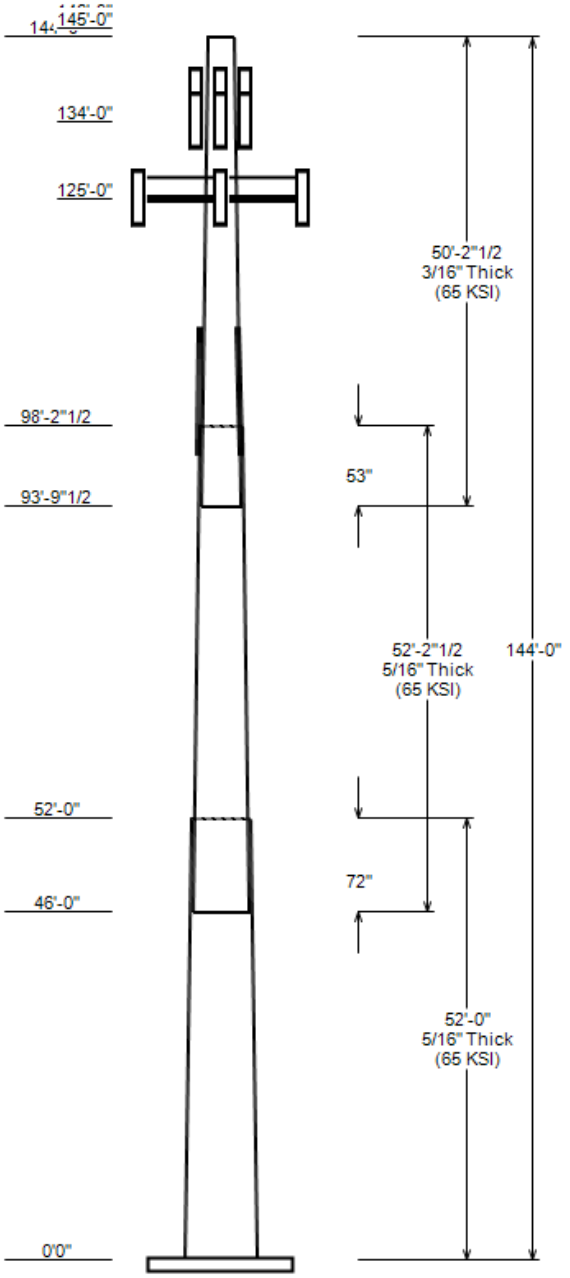
All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

ANALYSIS PARAMETERS

Nominal Wind:	115 mph	**Ice Wind:**	50 mph w/ 1" ice	**Service Wind:**	60 mph
Risk Category:	II	**Exposure:**	B	**S_s:** 0.169	**S_1:** 0.054
Topo Category:	1	**Topo Factor:**	Method 1	**Topo Feature:**	
Structure Height:	144 ft	**Base Elevation:**	0.00 ft	**Structure Type:**	Taper
Base Diameter:	55 in	**Base Rotation:**	0°	**Taper:**	0.2670 (in/ft)

POLE SECTION PROPERTIES

Section	Length (ft)	Flat Diameter (in) Top	Flat Diameter (in) Bottom	Thick (in)	Joint Type	Joint Length (in)	Pole Shape	Yield Strength (ksi)
1	52.000	41.10	55.00	0.312		0.000	18 Sides	65
2	52.210	29.37	43.33	0.312	Slip Joint	72.000	18 Sides	65
3	50.207	17.50	30.92	0.188	Slip Joint	53.000	18 Sides	65



DISCRETE APPURTENANCE

Elev (ft)	Description
146.0	(1) Unused Reserve (4347.4400 sqin
145.0	(4) Kaelus KA-6030
145.0	(3) Samsung B5/B13 RRH-BR04C
145.0	(3) Samsung B2/B66A RRH-BR049
145.0	(1) RFS DB-C1-12C-24AB-0Z
145.0	(3) Samsung MT6407-77A
145.0	(3) Generic Mount Reinforcement
145.0	(6) Quintel QS6656-5D
145.0	(6) Antel LPA-70063-6CF-EDIN-X
145.0	(1) Flat Platform with Round Handr
134.0	(3) Powerwave Allgon LGP13519
134.0	(6) Powerwave Allgon LGP21401
134.0	(2) Raycap DC6-48-60-18-8F(32.8 lb
134.0	(3) Ericsson RRUS 4478 B14
134.0	(3) Ericsson RRUS 4449 B5, B12
134.0	(3) Powerwave Allgon 7770.00
134.0	(1) CCI DMP65R-BU4D
134.0	(1) CCI OPA65R-BU4DA-K
134.0	(2) CCI DMP65R-BU6DA
134.0	(2) CCI OPA65R-BU6D
134.0	(1) Flat Platform with Round Handr
125.0	(3) Ericsson 4460 BAND 2/25
125.0	(3) Ericsson 4480 BAND 71
125.0	(3) Generic Mount Reinforcement
125.0	(3) Ericsson AIR 6419 B41
125.0	(3) Commscope VV-65A-R1
125.0	(3) RFS APXVAALL24 43-U-NA20
125.0	(1) Generic Round Platform with Ha

LINEAR APPURTENANCE

Elev To (ft)	Description
145.0	(2) 2.02 (51.2mm) Hybrid
145.0	(6) 1 5/8" Coax
145.0	(9) 1 5/8" Coax
134.0	(3) 3/8" (0.38"- 9.5mm) RET Control Cabl
134.0	(3) 3/8" (0.38"- 9.5mm) RET Control Cabl
134.0	(2) 2" conduit
134.0	(6) 1 5/8" Coax
134.0	(4) 0.78" (19.7mm) 8 AWG 6
134.0	(2) 0.39" (10mm) Fiber Trunk
125.0	(1) 1.99" (50.7mm) Hybrid
125.0	(3) 1.99" (50.7mm) Hybrid
109.8	(1) Plate
109.8	(1) Plate
109.8	(1) Plate

GLOBAL BASE REACTIONS

Load Case	Moment (kip-ft)	Axial (kip)	Shear (kip)
1.2D + 1.0W	2353.90	43.21	20.92
0.9D + 1.0W	2315.62	32.40	20.91
1.2D + 1.0Di + 1.0Wi	664.90	57.75	5.98
1.2D + 1.0Ev + 1.0Eh	140.49	43.15	1.08
0.9D - 1.0Ev + 1.0Eh	137.69	30.16	1.08
1.0D + 1.0W	567.76	36.03	5.09

ANALYSIS PARAMETERS

Location:	Litchfield County,CT	**Height:**	144 ft
Type and Shape:	Taper, 18 Sides	**Base Diameter:**	55.00 in
Manufacturer:	Undetermined	**Top Diameter:**	17.50 in
K_d (non-service):	0.95	**Taper:**	0.2670 in/ft
K_e:	0.97	**Rotation:**	0.000º

ICE & WIND PARAMETERS

Risk Category:	II	**Design Wind Speed:**	115 mph
Exposure Category:	B	**Design Wind Speed w/ Ice:**	50 mph
Topo Factor Procedure:	Method 1	**Design Ice Thickness:**	1.00 in
Topographic Category:	1	**Service Wind Speed:**	60 mph
Crest Height:	0 ft	**HMSL:**	814.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil		**Period Based on Rayleigh Method (sec):**		2.79
T_L (sec):	6	**P:**	1	**C_s:**	0.030
S_s:	0.169	**S_1:**	0.054	**C_s Max:**	0.030
F_a:	1.600	**F_v:**	2.400	**C_s Min:**	0.030
S_{ds}:	0.180	**S_{d1}:**	0.086		

LOAD CASES

1.2D + 1.0W	115 mph Wind with No Ice
0.9D + 1.0W	115 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph Wind with 1" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

							Bottom						Top						
Section	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	52.00	0.3125	65		0.00	8,378	55.00	0.000	54.24	20,495.5	29.62	176.00	41.10	52.00	40.45	8,501.4	21.78	131.51	0.2674
2-18	52.21	0.3125	65	Slip	72.00	6,350	43.33	46.000	42.66	9,972.9	23.04	138.64	29.37	98.21	28.82	3,073.7	15.16	93.98	0.2674
3-18	50.21	0.1875	65	Slip	53.00	2,443	30.92	93.793	18.29	2,183.2	27.67	164.92	17.50	144.00	10.30	390.2	15.05	93.33	0.2674
			Total Shaft Weight			**17,171**													

DISCRETE APPURTENANCE PROPERTIES

					No Ice			Ice		
Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	EPAa (sf)	Orientation Factor	Weight (lb)	EPAa (sf)	Orientation Factor
146.00	Unused Reserve (4347.4400 sqin	1	0.75	0.000	166.20	30.191	0.90	243.13	44.165	0.90
145.00	Kaelus KA-6030	4	0.75	0.000	17.60	0.963	0.50	33.26	1.397	0.50
145.00	Quintel QS6656-5D	6	0.75	0.000	88.00	8.133	0.74	220.37	9.985	0.74
145.00	Antel LPA-70063-6CF-EDIN-X	6	0.75	0.000	27.00	9.732	0.75	200.37	11.552	0.75
145.00	Generic Mount Reinforcement	3	0.75	0.000	200.00	4.980	0.67	328.58	8.283	0.67
145.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	126.78	2.475	0.50
145.00	RFS DB-C1-12C-24AB-0Z	1	0.75	0.000	32.00	4.056	0.50	116.44	4.963	0.50
145.00	Samsung MT6407-77A	3	0.75	0.000	81.60	4.709	0.61	149.32	5.718	0.61
145.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	108.30	2.475	0.50
145.00	Flat Platform with Round Handr	1	1.00	0.000	2500.00	34.800	1.00	3657.12	50.907	1.00
134.00	Flat Platform with Round Handr	1	1.00	0.000	2500.00	34.800	1.00	3648.70	50.790	1.00
134.00	CCI OPA65R-BU6D	2	0.75	0.000	63.20	12.871	0.72	235.58	14.716	0.72
134.00	CCI DMP65R-BU6DA	2	0.75	0.000	79.40	12.709	0.72	249.30	14.548	0.72
134.00	CCI OPA65R-BU4DA-K	1	0.75	0.000	52.50	8.435	1.00	173.40	9.780	1.00
134.00	Powerwave Allgon 7770.00	3	0.75	3.000	35.00	5.508	0.65	109.97	6.910	0.65
134.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	113.51	2.584	0.50
134.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.90	1.842	0.50	96.37	2.434	0.50
134.00	Raycap DC6-48-60-18-8F(32.8 lb	2	0.75	3.000	32.80	1.470	0.50	73.49	1.931	0.50
134.00	Powerwave Allgon LGP21401	6	0.75	0.000	14.10	1.104	0.50	30.56	1.575	0.50
134.00	Powerwave Allgon LGP13519	3	0.75	0.000	5.30	0.290	0.50	11.55	0.545	0.50
134.00	CCI DMP65R-BU4D	1	0.75	0.000	67.90	8.280	1.00	187.02	9.615	1.00
125.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	377.79	22.671	0.63
125.00	Commscope VV-65A-R1	3	0.75	0.000	23.80	5.928	0.63	100.67	7.315	0.63
125.00	Ericsson AIR 6419 B41	3	0.75	0.000	68.50	5.600	0.60	147.60	6.637	0.60
125.00	Generic Mount Reinforcement	3	0.75	0.000	200.00	4.980	0.67	326.69	8.235	0.67
125.00	Ericsson 4480 BAND 71	3	0.75	0.000	81.00	2.878	0.67	130.83	3.613	0.67
125.00	Ericsson 4460 BAND 2/25	3	0.75	0.000	109.00	2.564	0.67	166.86	3.254	0.67
125.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3560.34	43.202	1.00
Totals	**Row Count: 28**	**77**			**12,652.20**			**22,428.19**		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg): 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Diameter (in)	Weight (lb/ft)	Flat	Max/ Row	Distance Between Rows(in)	Distance Between Cols(in)	Azimuth (deg)	Distance From Face (in)	Exposed To Wind	Carrier
0.00	145.00	9	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIRELESS
0.00	145.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIRELESS
0.00	145.00	2	2.02 (51.2mm) Hybrid	2.02	3.04	N	0	0	0	0	0	N	VERIZON WIRELESS
0.00	134.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	134.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	134.00	3	3/8" (0.38"- 9.5mm) R	0.38	0.23	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	134.00	3	3/8" (0.38"- 9.5mm) R	0.38	0.23	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	134.00	2	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	134.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	125.00	3	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE
0.00	125.00	1	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE
94.80	109.80	1	Plate	0.75	0	Y	1	0	0	120	0	Y	
94.80	109.80	1	Plate	0.75	0	Y	1	0	0	240	0	Y	
94.80	109.80	1	Plate	0.75	0	Y	1	0	0	0	0	Y	

ADDITIONAL STEEL

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Intermediate Connectors Offset (in)	Intermediate Connectors Bracket Type	Intermediate Connectors Spacing (in)	Intermediate Connectors Length (in)	Connectors	Continuation?
94.75	109.75	3	PL PL 4 x 0.75"	50	0.00	AJAX M20 Class 8.8	12.00		AJAX M20 Class 8.8	N

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description (Max Length: 5 ft)	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3125	55.000	54.241	20,495.5	29.62	176.00	66.6	734.0	0.0	0.0			
5.00		0.3125	53.663	52.915	19,028.9	28.87	171.72	67.4	698.4	0.0	911.6			
10.00		0.3125	52.326	51.589	17,634.1	28.11	167.44	68.3	663.8	0.0	889.0			
15.00		0.3125	50.990	50.264	16,309.1	27.36	163.17	69.2	630.0	0.0	866.5			
20.00		0.3125	49.653	48.938	15,052.2	26.61	158.89	70.1	597.1	0.0	843.9			
25.00		0.3125	48.316	47.612	13,861.6	25.85	154.61	71	565.1	0.0	821.3			
30.00		0.3125	46.979	46.286	12,735.5	25.10	150.33	71.9	533.9	0.0	798.8			
35.00		0.3125	45.642	44.960	11,672.1	24.34	146.06	72.8	503.7	0.0	776.2			
40.00		0.3125	44.306	43.634	10,669.6	23.59	141.78	73.7	474.3	0.0	753.7			
45.00		0.3125	42.969	42.308	9,726.20	22.83	137.50	74.5	445.8	0.0	731.1			
46.00	Bot - Section 2	0.3125	42.701	42.043	9,544.50	22.68	136.64	74.7	440.2	0.0	143.5			
50.00		0.3125	41.632	40.982	8,840.10	22.08	133.22	75.4	418.2	0.0	1,138.5			
52.00	Top - Section 1	0.3125	41.722	41.072	8,898.20	22.13	133.51	75.4	420.1	0.0	558.4			
55.00		0.3125	40.920	40.276	8,391.10	21.68	130.94	75.9	403.9	0.0	415.2			
60.00		0.3125	39.583	38.950	7,589.40	20.92	126.67	76.8	377.6	0.0	674.0			
65.00		0.3125	38.247	37.625	6,840.40	20.17	122.39	77.7	352.3	0.0	651.4			
70.00		0.3125	36.910	36.299	6,142.40	19.42	118.11	78.6	327.8	0.0	628.9			
75.00		0.3125	35.573	34.973	5,493.60	18.66	113.83	79.5	304.2	0.0	606.3			
80.00		0.3125	34.236	33.647	4,892.20	17.91	109.56	80.3	281.4	0.0	583.7			
85.00		0.3125	32.899	32.321	4,336.30	17.15	105.28	81.2	259.6	0.0	561.2			
90.00		0.3125	31.563	30.995	3,824.30	16.40	101.00	82.1	238.6	0.0	538.6			
93.79	Bot - Section 3	0.3125	30.548	29.989	3,463.90	15.83	97.75	82.6	223.3	0.0	393.6			
94.75	Reinf Bottom	0.3125	30.293	29.735	3,376.70	15.68	96.94	82.6	219.6	0.0	156.5			
95.00		0.3125	30.226	29.669	3,354.20	15.64	96.72	82.6	218.6	0.0	40.7	9.000	1,111.90	7.7
98.21	Top - Section 2	0.1875	29.743	17.588	1,941.10	26.56	158.63	70.2	128.5	0.0	514.3	9.000	1,052.20	98.3
100.00		0.1875	29.264	17.304	1,848.30	26.11	156.07	70.7	124.4	0.0	106.3	9.000	1,019.70	54.8
105.00		0.1875	27.927	16.508	1,604.90	24.85	148.95	72.2	113.2	0.0	287.6	9.000	931.40	153.1
109.75	Reinf. Top	0.1875	26.657	15.752	1,394.40	23.66	142.17	73.6	103.0	0.0	260.7	9.000	851.30	145.5
110.00		0.1875	26.590	15.712	1,383.90	23.60	141.82	73.6	102.5	0.0	13.4			
115.00		0.1875	25.254	14.917	1,184.10	22.34	134.69	75.1	92.4	0.0	260.6			
120.00		0.1875	23.917	14.121	1,004.60	21.08	127.56	76.6	82.7	0.0	247.0			
125.00		0.1875	22.580	13.326	844.20	19.82	120.43	78.1	73.6	0.0	233.5			
130.00		0.1875	21.243	12.530	701.90	18.57	113.30	79.6	65.1	0.0	220.0			
134.00		0.1875	20.174	11.894	600.30	17.56	107.59	80.7	58.6	0.0	166.2			
135.00		0.1875	19.906	11.735	576.50	17.31	106.17	81	57.0	0.0	40.2			
140.00		0.1875	18.570	10.939	467.00	16.05	99.04	82.5	49.5	0.0	192.9			
144.00		0.1875	17.500	10.303	390.20	15.05	93.33	82.6	43.9	0.0	144.6			
									Totals:		**17,169.9**			**459.4**

CALCULATED FORCES

Load Case: 1.2D + 1.0W — 115 mph Wind with No Ice — 24 Iterations

Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

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	-43.21	-20.92	0.00	-2,353.9	0.00	2,353.90	3,249.22	951.93	4,701.78	3,663.92	0	0	0.656
5.00	-41.81	-20.64	0.00	-2,249.3	0.00	2,249.30	3,212.04	928.66	4,474.75	3,532.96	0.09	-0.16	0.650
10.00	-40.43	-20.36	0.00	-2,146.1	0.00	2,146.10	3,172.75	905.39	4,253.33	3,401.79	0.34	-0.32	0.644
15.00	-39.08	-20.09	0.00	-2,044.3	0.00	2,044.29	3,131.34	882.13	4,037.53	3,270.59	0.77	-0.49	0.638
20.00	-37.76	-19.83	0.00	-1,943.8	0.00	1,943.83	3,087.81	858.86	3,827.35	3,139.53	1.38	-0.67	0.632
25.00	-36.46	-19.57	0.00	-1,844.7	0.00	1,844.69	3,042.17	835.59	3,622.79	3,008.79	2.18	-0.85	0.626

CALCULATED FORCES

30.00	-35.19	-19.31	0.00	-1,746.9	0.00	1,746.86	2,994.41	812.32	3,423.84	2,878.54	3.16	-1.03	0.619
35.00	-33.95	-19.05	0.00	-1,650.3	0.00	1,650.31	2,944.53	789.05	3,230.51	2,748.97	4.34	-1.22	0.612
40.00	-32.74	-18.78	0.00	-1,555.1	0.00	1,555.08	2,892.53	765.78	3,042.80	2,620.24	5.72	-1.42	0.605
45.00	-31.58	-18.60	0.00	-1,461.2	0.00	1,461.20	2,838.42	742.51	2,860.71	2,492.54	7.31	-1.62	0.598
46.00	-31.33	-18.47	0.00	-1,442.6	0.00	1,442.60	2,827.34	737.85	2,824.97	2,467.14	7.66	-1.66	0.596
50.00	-29.73	-18.27	0.00	-1,368.7	0.00	1,368.73	2,782.19	719.24	2,684.24	2,366.04	9.12	-1.83	0.590
52.00	-28.93	-18.12	0.00	-1,332.2	0.00	1,332.20	2,786.05	720.81	2,695.98	2,374.54	9.9	-1.91	0.572
55.00	-28.23	-17.89	0.00	-1,277.8	0.00	1,277.85	2,751.38	706.85	2,592.56	2,299.23	11.15	-2.04	0.567
60.00	-27.12	-17.59	0.00	-1,188.4	0.00	1,188.40	2,691.91	683.58	2,424.70	2,174.91	13.4	-2.25	0.557
65.00	-26.04	-17.29	0.00	-1,100.4	0.00	1,100.44	2,630.31	660.31	2,262.45	2,052.24	15.88	-2.47	0.547
70.00	-24.98	-17.00	0.00	-1,014.0	0.00	1,013.97	2,566.60	637.04	2,105.82	1,931.38	18.58	-2.69	0.535
75.00	-23.95	-16.70	0.00	-929.0	0.00	928.99	2,500.77	613.77	1,954.81	1,812.53	21.51	-2.91	0.523
80.00	-22.95	-16.41	0.00	-845.5	0.00	845.48	2,432.83	590.50	1,809.42	1,695.84	24.69	-3.14	0.509
85.00	-21.98	-16.12	0.00	-763.4	0.00	763.44	2,362.77	567.23	1,669.64	1,581.51	28.1	-3.38	0.493
90.00	-21.05	-15.86	0.00	-682.9	0.00	682.86	2,290.59	543.96	1,535.49	1,469.71	31.76	-3.61	0.475
93.79	-20.36	-15.70	0.00	-622.7	0.00	622.71	2,228.05	526.31	1,437.45	1,382.72	34.71	-3.8	0.460
94.75	-20.12	-15.66	0.00	-607.7	0.00	607.69	2,209.20	521.86	1,413.24	1,359.31	35.47	-3.85	0.457
95.00	-20.04	-15.57	0.00	-603.8	0.00	603.77	2,204.27	520.69	1,406.95	1,353.22	35.67	-3.86	0.343
98.21	-19.13	-15.39	0.00	-553.8	0.00	553.79	1,110.63	308.68	823.97	676.41	38.31	-3.98	0.545
100.00	-18.82	-15.21	0.00	-526.2	0.00	526.25	1,100.89	303.68	797.50	659.55	39.81	-4.04	0.528
105.00	-18.00	-14.94	0.00	-450.2	0.00	450.19	1,072.24	289.72	725.86	612.66	44.18	-4.29	0.478
109.75	-17.26	-14.77	0.00	-379.2	0.00	379.23	1,043.07	276.45	660.93	568.53	48.55	-4.51	0.428
109.75	-17.26	-14.77	0.00	-379.2	0.00	379.23	1,043.07	276.45	660.93	568.53	48.55	-4.51	0.686
110.00	-17.19	-14.68	0.00	-375.5	0.00	375.54	1,041.48	275.75	657.60	566.22	48.79	-4.52	0.683
115.00	-16.57	-14.45	0.00	-302.2	0.00	302.15	1,008.60	261.79	592.70	520.38	53.71	-4.87	0.600
120.00	-15.97	-14.23	0.00	-229.9	0.00	229.88	973.60	247.83	531.17	475.34	58.98	-5.19	0.503
125.00	-10.56	-10.34	0.00	-158.7	0.00	158.74	936.49	233.87	473.02	431.26	64.56	-5.46	0.381
130.00	-10.08	-10.11	0.00	-107.1	0.00	107.07	897.25	219.91	418.23	388.32	70.4	-5.69	0.289
134.00	-5.80	-6.18	0.00	-65.6	0.00	65.63	864.34	208.74	376.83	354.91	75.22	-5.83	0.192
135.00	-5.73	-6.05	0.00	-59.4	0.00	59.45	855.90	205.95	366.82	346.70	76.44	-5.86	0.179
140.00	-5.40	-5.83	0.00	-29.2	0.00	29.22	812.44	191.98	318.78	306.57	82.63	-5.97	0.103
144.00	0.00	-5.23	0.00	-5.9	0.00	5.92	765.45	180.81	282.77	271.87	87.64	-6.01	0.023

CALCULATED FORCES

Load Case: 0.9D + 1.0W — 115 mph Wind with No Ice (Reduced DL) — 24 Iterations

Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

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	-32.40	-20.91	0.00	-2,315.6	0.00	2,315.62	3,249.22	951.93	4,701.78	3,663.92	0	0	0.642
5.00	-31.33	-20.59	0.00	-2,211.1	0.00	2,211.09	3,212.04	928.66	4,474.75	3,532.96	0.08	-0.16	0.636
10.00	-30.29	-20.29	0.00	-2,108.1	0.00	2,108.13	3,172.75	905.39	4,253.33	3,401.79	0.34	-0.32	0.630
15.00	-29.26	-19.99	0.00	-2,006.7	0.00	2,006.69	3,131.34	882.13	4,037.53	3,270.59	0.76	-0.48	0.623
20.00	-28.26	-19.69	0.00	-1,906.8	0.00	1,906.76	3,087.81	858.86	3,827.35	3,139.53	1.36	-0.66	0.617
25.00	-27.27	-19.41	0.00	-1,808.3	0.00	1,808.29	3,042.17	835.59	3,622.79	3,008.79	2.14	-0.83	0.611
30.00	-26.31	-19.13	0.00	-1,711.2	0.00	1,711.25	2,994.41	812.32	3,423.84	2,878.54	3.11	-1.01	0.604
35.00	-25.37	-18.84	0.00	-1,615.6	0.00	1,615.62	2,944.53	789.05	3,230.51	2,748.97	4.26	-1.2	0.597
40.00	-24.45	-18.54	0.00	-1,521.4	0.00	1,521.43	2,892.53	765.78	3,042.80	2,620.24	5.62	-1.39	0.590
45.00	-23.57	-18.36	0.00	-1,428.7	0.00	1,428.72	2,838.42	742.51	2,860.71	2,492.54	7.18	-1.58	0.582
46.00	-23.37	-18.21	0.00	-1,410.4	0.00	1,410.36	2,827.34	737.85	2,824.97	2,467.14	7.52	-1.63	0.581
50.00	-22.17	-18.01	0.00	-1,337.5	0.00	1,337.52	2,782.19	719.24	2,684.24	2,366.04	8.95	-1.79	0.574
52.00	-21.56	-17.85	0.00	-1,301.5	0.00	1,301.51	2,786.05	720.81	2,695.98	2,374.54	9.72	-1.88	0.556
55.00	-21.03	-17.60	0.00	-1,248.0	0.00	1,247.97	2,751.38	706.85	2,592.56	2,299.23	10.94	-2	0.551
60.00	-20.19	-17.29	0.00	-1,160.0	0.00	1,159.95	2,691.91	683.58	2,424.70	2,174.91	13.14	-2.21	0.541
65.00	-19.36	-16.97	0.00	-1,073.5	0.00	1,073.51	2,630.31	660.31	2,262.45	2,052.24	15.57	-2.42	0.531
70.00	-18.56	-16.66	0.00	-988.6	0.00	988.64	2,566.60	637.04	2,105.82	1,931.38	18.21	-2.63	0.520
75.00	-17.78	-16.35	0.00	-905.3	0.00	905.33	2,500.77	613.77	1,954.81	1,812.53	21.09	-2.85	0.507
80.00	-17.02	-16.05	0.00	-823.6	0.00	823.57	2,432.83	590.50	1,809.42	1,695.84	24.19	-3.07	0.493
85.00	-16.28	-15.75	0.00	-743.3	0.00	743.33	2,362.77	567.23	1,669.64	1,581.51	27.53	-3.3	0.478
90.00	-15.57	-15.48	0.00	-664.6	0.00	664.60	2,290.59	543.96	1,535.49	1,469.71	31.11	-3.53	0.460
93.79	-15.06	-15.33	0.00	-605.9	0.00	605.89	2,228.05	526.31	1,437.45	1,382.72	33.99	-3.71	0.446
94.75	-14.87	-15.28	0.00	-591.2	0.00	591.23	2,209.20	521.86	1,413.24	1,359.31	34.74	-3.76	0.443
95.00	-14.81	-15.19	0.00	-587.4	0.00	587.41	2,204.27	520.69	1,406.95	1,353.22	34.94	-3.77	0.332
98.21	-14.13	-15.01	0.00	-538.7	0.00	538.66	1,110.63	308.68	823.97	676.41	37.51	-3.89	0.527
100.00	-13.89	-14.83	0.00	-511.8	0.00	511.79	1,100.89	303.68	797.50	659.55	38.98	-3.95	0.511
105.00	-13.27	-14.55	0.00	-437.6	0.00	437.65	1,072.24	289.72	725.86	612.66	43.24	-4.19	0.463
109.75	-12.71	-14.39	0.00	-368.6	0.00	368.55	1,043.07	276.45	660.93	568.53	47.52	-4.4	0.413
109.75	-12.71	-14.39	0.00	-368.6	0.00	368.55	1,043.07	276.45	660.93	568.53	47.52	-4.4	0.663
110.00	-12.65	-14.28	0.00	-365.0	0.00	364.95	1,041.48	275.75	657.60	566.22	47.75	-4.41	0.659
115.00	-12.17	-14.04	0.00	-293.6	0.00	293.56	1,008.60	261.79	592.70	520.38	52.55	-4.75	0.579
120.00	-11.71	-13.80	0.00	-223.4	0.00	223.37	973.60	247.83	531.17	475.34	57.7	-5.06	0.485
125.00	-7.72	-10.04	0.00	-154.4	0.00	154.37	936.49	233.87	473.02	431.26	63.14	-5.33	0.368
130.00	-7.36	-9.81	0.00	-104.2	0.00	104.18	897.25	219.91	418.23	388.32	68.84	-5.55	0.278
134.00	-4.22	-6.01	0.00	-63.9	0.00	63.92	864.34	208.74	376.83	354.91	73.54	-5.68	0.186
135.00	-4.17	-5.87	0.00	-57.9	0.00	57.92	855.90	205.95	366.82	346.70	74.74	-5.71	0.173
140.00	-3.93	-5.66	0.00	-28.6	0.00	28.55	812.44	191.98	318.78	306.57	80.77	-5.82	0.099
144.00	0.00	-5.23	0.00	-5.9	0.00	5.92	765.45	180.81	282.77	271.87	85.66	-5.86	0.023

CALCULATED FORCES

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph Wind with 1" Radial Ice — 23 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

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	-57.75	-5.98	0.00	-664.9	0.00	664.90	3,249.22	951.93	4,701.78	3,663.92	0	0	0.199
5.00	-56.14	-5.90	0.00	-635.0	0.00	634.98	3,212.04	928.66	4,474.75	3,532.96	0.02	-0.05	0.197
10.00	-54.53	-5.82	0.00	-605.5	0.00	605.48	3,172.75	905.39	4,253.33	3,401.79	0.1	-0.09	0.195
15.00	-52.93	-5.74	0.00	-576.4	0.00	576.39	3,131.34	882.13	4,037.53	3,270.59	0.22	-0.14	0.193
20.00	-51.37	-5.66	0.00	-547.7	0.00	547.71	3,087.81	858.86	3,827.35	3,139.53	0.39	-0.19	0.191
25.00	-49.83	-5.58	0.00	-519.4	0.00	519.41	3,042.17	835.59	3,622.79	3,008.79	0.61	-0.24	0.189
30.00	-48.32	-5.51	0.00	-491.5	0.00	491.50	2,994.41	812.32	3,423.84	2,878.54	0.89	-0.29	0.187
35.00	-46.84	-5.43	0.00	-464.0	0.00	463.98	2,944.53	789.05	3,230.51	2,748.97	1.22	-0.34	0.185
40.00	-45.39	-5.35	0.00	-436.8	0.00	436.85	2,892.53	765.78	3,042.80	2,620.24	1.61	-0.4	0.182
45.00	-43.97	-5.29	0.00	-410.1	0.00	410.12	2,838.42	742.51	2,860.71	2,492.54	2.06	-0.46	0.180
46.00	-43.69	-5.25	0.00	-404.8	0.00	404.83	2,827.34	737.85	2,824.97	2,467.14	2.16	-0.47	0.180
50.00	-41.90	-5.19	0.00	-383.8	0.00	383.83	2,782.19	719.24	2,684.24	2,366.04	2.57	-0.51	0.177
52.00	-41.01	-5.15	0.00	-373.4	0.00	373.44	2,786.05	720.81	2,695.98	2,374.54	2.79	-0.54	0.172
55.00	-40.19	-5.08	0.00	-358.0	0.00	358.01	2,751.38	706.85	2,592.56	2,299.23	3.14	-0.58	0.170
60.00	-38.86	-4.99	0.00	-332.6	0.00	332.62	2,691.91	683.58	2,424.70	2,174.91	3.78	-0.63	0.167
65.00	-37.56	-4.89	0.00	-307.7	0.00	307.69	2,630.31	660.31	2,262.45	2,052.24	4.47	-0.69	0.164
70.00	-36.29	-4.80	0.00	-283.2	0.00	283.21	2,566.60	637.04	2,105.82	1,931.38	5.23	-0.76	0.161
75.00	-35.06	-4.71	0.00	-259.2	0.00	259.20	2,500.77	613.77	1,954.81	1,812.53	6.06	-0.82	0.157
80.00	-33.86	-4.62	0.00	-235.6	0.00	235.64	2,432.83	590.50	1,809.42	1,695.84	6.95	-0.88	0.153
85.00	-32.70	-4.53	0.00	-212.5	0.00	212.53	2,362.77	567.23	1,669.64	1,581.51	7.91	-0.95	0.148
90.00	-31.57	-4.45	0.00	-189.9	0.00	189.87	2,290.59	543.96	1,535.49	1,469.71	8.93	-1.01	0.143
93.79	-30.74	-4.40	0.00	-173.0	0.00	172.99	2,228.05	526.31	1,437.45	1,382.72	9.76	-1.06	0.139
94.75	-30.46	-4.39	0.00	-168.8	0.00	168.78	2,209.20	521.86	1,413.24	1,359.31	9.97	-1.08	0.138
95.00	-30.38	-4.36	0.00	-167.7	0.00	167.68	2,204.27	520.69	1,406.95	1,353.22	10.03	-1.08	0.104
98.21	-29.34	-4.30	0.00	-153.7	0.00	153.68	1,110.63	308.68	823.97	676.41	10.77	-1.11	0.165
100.00	-28.97	-4.25	0.00	-146.0	0.00	145.98	1,100.89	303.68	797.50	659.55	11.19	-1.13	0.160
105.00	-27.97	-4.16	0.00	-124.7	0.00	124.74	1,072.24	289.72	725.86	612.66	12.41	-1.2	0.146
109.75	-27.04	-4.11	0.00	-105.0	0.00	104.97	1,043.07	276.45	660.93	568.53	13.64	-1.26	0.131
109.75	-27.04	-4.11	0.00	-105.0	0.00	104.97	1,043.07	276.45	660.93	568.53	13.64	-1.26	0.211
110.00	-27.00	-4.08	0.00	-103.9	0.00	103.94	1,041.48	275.75	657.60	566.22	13.71	-1.26	0.210
115.00	-26.24	-4.01	0.00	-83.5	0.00	83.53	1,008.60	261.79	592.70	520.38	15.08	-1.36	0.187
120.00	-25.51	-3.94	0.00	-63.5	0.00	63.47	973.60	247.83	531.17	475.34	16.56	-1.45	0.160
125.00	-17.32	-2.86	0.00	-43.8	0.00	43.75	936.49	233.87	473.02	431.26	18.12	-1.52	0.120
130.00	-16.69	-2.78	0.00	-29.4	0.00	29.45	897.25	219.91	418.23	388.32	19.75	-1.59	0.095
134.00	-9.80	-1.73	0.00	-18.1	0.00	18.07	864.34	208.74	376.83	354.91	21.1	-1.63	0.062
135.00	-9.70	-1.68	0.00	-16.3	0.00	16.34	855.90	205.95	366.82	346.70	21.44	-1.63	0.059
140.00	-9.22	-1.60	0.00	-7.9	0.00	7.93	812.44	191.98	318.78	306.57	23.17	-1.66	0.037
144.00	0.00	-1.33	0.00	-1.5	0.00	1.52	765.45	180.81	282.77	271.87	24.57	-1.67	0.006

CALCULATED FORCES

Load Case: 1.0D + 1.0W 60 mph Wind with No Ice 23 Iterations

Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

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	-36.03	-5.09	0.00	-567.8	0.00	567.76	3,249.22	951.93	4,701.78	3,663.92	0	0	0.166
5.00	-34.91	-5.02	0.00	-542.3	0.00	542.30	3,212.04	928.66	4,474.75	3,532.96	0.02	-0.04	0.164
10.00	-33.80	-4.95	0.00	-517.2	0.00	517.20	3,172.75	905.39	4,253.33	3,401.79	0.08	-0.08	0.163
15.00	-32.72	-4.88	0.00	-492.5	0.00	492.47	3,131.34	882.13	4,037.53	3,270.59	0.19	-0.12	0.161
20.00	-31.67	-4.81	0.00	-468.1	0.00	468.08	3,087.81	858.86	3,827.35	3,139.53	0.33	-0.16	0.159
25.00	-30.63	-4.74	0.00	-444.0	0.00	444.05	3,042.17	835.59	3,622.79	3,008.79	0.52	-0.2	0.158
30.00	-29.62	-4.67	0.00	-420.4	0.00	420.35	2,994.41	812.32	3,423.84	2,878.54	0.76	-0.25	0.156
35.00	-28.63	-4.61	0.00	-397.0	0.00	396.98	2,944.53	789.05	3,230.51	2,748.97	1.05	-0.29	0.154
40.00	-27.66	-4.54	0.00	-374.0	0.00	373.95	2,892.53	765.78	3,042.80	2,620.24	1.38	-0.34	0.152
45.00	-26.72	-4.49	0.00	-351.3	0.00	351.27	2,838.42	742.51	2,860.71	2,492.54	1.76	-0.39	0.150
46.00	-26.53	-4.46	0.00	-346.8	0.00	346.78	2,827.34	737.85	2,824.97	2,467.14	1.84	-0.4	0.150
50.00	-25.22	-4.41	0.00	-328.9	0.00	328.94	2,782.19	719.24	2,684.24	2,366.04	2.2	-0.44	0.148
52.00	-24.58	-4.37	0.00	-320.1	0.00	320.13	2,786.05	720.81	2,695.98	2,374.54	2.39	-0.46	0.144
55.00	-24.03	-4.31	0.00	-307.0	0.00	307.02	2,751.38	706.85	2,592.56	2,299.23	2.69	-0.49	0.142
60.00	-23.15	-4.24	0.00	-285.4	0.00	285.45	2,691.91	683.58	2,424.70	2,174.91	3.23	-0.54	0.140
65.00	-22.28	-4.16	0.00	-264.3	0.00	264.26	2,630.31	660.31	2,262.45	2,052.24	3.82	-0.59	0.137
70.00	-21.44	-4.09	0.00	-243.4	0.00	243.44	2,566.60	637.04	2,105.82	1,931.38	4.47	-0.65	0.134
75.00	-20.62	-4.02	0.00	-223.0	0.00	222.99	2,500.77	613.77	1,954.81	1,812.53	5.18	-0.7	0.131
80.00	-19.82	-3.94	0.00	-202.9	0.00	202.91	2,432.83	590.50	1,809.42	1,695.84	5.94	-0.76	0.128
85.00	-19.05	-3.87	0.00	-183.2	0.00	183.20	2,362.77	567.23	1,669.64	1,581.51	6.76	-0.81	0.124
90.00	-18.30	-3.81	0.00	-163.8	0.00	163.84	2,290.59	543.96	1,535.49	1,469.71	7.65	-0.87	0.120
93.79	-17.74	-3.77	0.00	-149.4	0.00	149.40	2,228.05	526.31	1,437.45	1,382.72	8.35	-0.91	0.116
94.75	-17.55	-3.76	0.00	-145.8	0.00	145.79	2,209.20	521.86	1,413.24	1,359.31	8.54	-0.92	0.115
95.00	-17.49	-3.74	0.00	-144.8	0.00	144.85	2,204.27	520.69	1,406.95	1,353.22	8.59	-0.93	0.087
98.21	-16.74	-3.69	0.00	-132.9	0.00	132.86	1,110.63	308.68	823.97	676.41	9.22	-0.96	0.137
100.00	-16.50	-3.65	0.00	-126.2	0.00	126.24	1,100.89	303.68	797.50	659.55	9.58	-0.97	0.133
105.00	-15.85	-3.58	0.00	-108.0	0.00	107.99	1,072.24	289.72	725.86	612.66	10.63	-1.03	0.121
109.75	-15.24	-3.54	0.00	-91.0	0.00	90.96	1,043.07	276.45	660.93	568.53	11.68	-1.08	0.109
109.75	-15.24	-3.54	0.00	-91.0	0.00	90.96	1,043.07	276.45	660.93	568.53	11.68	-1.08	0.175
110.00	-15.22	-3.52	0.00	-90.1	0.00	90.08	1,041.48	275.75	657.60	566.22	11.74	-1.09	0.174
115.00	-14.74	-3.46	0.00	-72.5	0.00	72.48	1,008.60	261.79	592.70	520.38	12.92	-1.17	0.154
120.00	-14.28	-3.41	0.00	-55.2	0.00	55.15	973.60	247.83	531.17	475.34	14.19	-1.25	0.131
125.00	-9.54	-2.48	0.00	-38.1	0.00	38.11	936.49	233.87	473.02	431.26	15.53	-1.31	0.099
130.00	-9.15	-2.42	0.00	-25.7	0.00	25.72	897.25	219.91	418.23	388.32	16.94	-1.37	0.077
134.00	-5.29	-1.48	0.00	-15.8	0.00	15.77	864.34	208.74	376.83	354.91	18.1	-1.4	0.051
135.00	-5.24	-1.45	0.00	-14.3	0.00	14.29	855.90	205.95	366.82	346.70	18.39	-1.41	0.047
140.00	-4.95	-1.40	0.00	-7.0	0.00	7.03	812.44	191.98	318.78	306.57	19.88	-1.43	0.029
144.00	0.00	-1.27	0.00	-1.4	0.00	1.44	765.45	180.81	282.77	271.87	21.09	-1.44	0.005

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.169
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}):	0.180
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):	2.790
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	36.030 k
Seismic Base Shear (E):	1.080 k

SEISMIC FORCES

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
36	142	218	4,397	0.013	14	270
35	137.5	285	5,384	0.016	17	352
34	134.5	59	1,060	0.003	3	72
33	132	304	5,298	0.015	17	376
32	127.5	392	6,377	0.018	20	485
31	122.5	444	6,660	0.019	21	549
30	117.5	457	6,314	0.018	20	565
29	112.5	471	5,959	0.017	19	582
28	109.875	24	289	0.001	1	30
27	107.375	606	6,986	0.020	22	749
26	102.5	651	6,840	0.020	21	805
25	99.105	236	2,322	0.007	7	292
24	96.605	748	6,977	0.020	22	924
23	94.875	59	530	0.002	2	73
22	94.2717	197	1,748	0.005	5	243
21	91.8967	553	4,671	0.014	15	684
20	87.5	749	5,734	0.017	18	926
19	82.5	771	5,251	0.015	16	954
18	77.5	794	4,769	0.014	15	981
17	72.5	817	4,292	0.012	13	1,009
16	67.5	839	3,823	0.011	12	1,037
15	62.5	862	3,366	0.010	11	1,065
14	57.5	884	2,924	0.008	9	1,093
13	53.5	541	1,550	0.004	5	669
12	51	643	1,671	0.005	5	794
11	48	1,307	3,011	0.009	9	1,615
10	45.5	186	384	0.001	1	229
9	42.5	941	1,700	0.005	5	1,164
8	37.5	964	1,356	0.004	4	1,192
7	32.5	987	1,042	0.003	3	1,219
6	27.5	1,009	763	0.002	2	1,247
5	22.5	1,032	522	0.002	2	1,275
4	17.5	1,054	323	0.001	1	1,303
3	12.5	1,077	168	0.000	1	1,331
2	7.5	1,099	62	0.000	0	1,359
1	2.5	1,122	7	0.000	0	1,387
Unused Reserve (4347.4400 sqin)	144	166	3,446	0.010	11	205
Kaelus KA-6030	144	70	1,460	0.004	5	87

SEISMIC FORCES

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
Samsung B5/B13 RRH-BR04C	144	211	4,373	0.013	14	261
Samsung B2/B66A RRH-BR049	144	253	5,250	0.015	16	313
RFS DB-C1-12C-24AB-0Z	144	32	664	0.002	2	40
Samsung MT6407-77A	144	245	5,076	0.015	16	303
Generic Mount Reinforcement	144	600	12,442	0.036	39	742
Generic Mount Reinforcement	125	600	9,375	0.027	29	742
Quintel QS6656-5D	144	528	10,949	0.032	34	653
Antel LPA-70063-6CF-EDIN-X	144	162	3,359	0.010	11	200
Flat Platform with Round Handrails	144	2,500	51,840	0.150	162	3,090
Flat Platform with Round Handrails	134	2,500	44,890	0.130	141	3,090
Powerwave Allgon LGP13519	134	16	286	0.001	1	20
Powerwave Allgon LGP21401	134	85	1,519	0.004	5	105
Raycap DC6-48-60-18-8F(32.8 lbs)	134	66	1,178	0.003	4	81
Ericsson RRUS 4478 B14	134	180	3,227	0.009	10	222
Ericsson RRUS 4449 B5, B12	134	213	3,825	0.011	12	263
Powerwave Allgon 7770.00	134	105	1,885	0.006	6	130
CCI DMP65R-BU4D	134	68	1,219	0.004	4	84
CCI OPA65R-BU4DA-K	134	52	943	0.003	3	65
CCI DMP65R-BU6DA	134	159	2,851	0.008	9	196
CCI OPA65R-BU6D	134	126	2,270	0.007	7	156
Ericsson 4460 BAND 2/25	125	327	5,109	0.015	16	404
Ericsson 4480 BAND 71	125	243	3,797	0.011	12	300
Ericsson AIR 6419 B41	125	206	3,211	0.009	10	254
Commscope VV-65A-R1	125	71	1,116	0.003	3	88
RFS APXVAALL24 43-U-NA20	125	368	5,756	0.017	18	455
Generic Round Platform with Handrails	125	2,500	39,062	0.113	122	3,090
	Totals:	**36,033**	**344,909**	**1.000**	**1,081**	**44,539**

SEISMIC FORCES

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
36	142	218	4,397	0.013	14	188
35	137.5	285	5,384	0.016	17	246
34	134.5	59	1,060	0.003	3	51
33	132	304	5,298	0.015	17	263
32	127.5	392	6,377	0.018	20	339
31	122.5	444	6,660	0.019	21	383
30	117.5	457	6,314	0.018	20	395
29	112.5	471	5,959	0.017	19	407
28	109.875	24	289	0.001	1	21
27	107.375	606	6,986	0.020	22	524
26	102.5	651	6,840	0.020	21	562
25	99.105	236	2,322	0.007	7	204
24	96.605	748	6,977	0.020	22	646
23	94.875	59	530	0.002	2	51
22	94.2717	197	1,748	0.005	5	170
21	91.8967	553	4,671	0.014	15	478
20	87.5	749	5,734	0.017	18	647
19	82.5	771	5,251	0.015	16	667
18	77.5	794	4,769	0.014	15	686
17	72.5	817	4,292	0.012	13	706
16	67.5	839	3,823	0.011	12	725
15	62.5	862	3,366	0.010	11	744
14	57.5	884	2,924	0.008	9	764
13	53.5	541	1,550	0.004	5	468
12	51	643	1,671	0.005	5	555
11	48	1,307	3,011	0.009	9	1,129
10	45.5	186	384	0.001	1	160
9	42.5	941	1,700	0.005	5	813
8	37.5	964	1,356	0.004	4	833

SEISMIC FORCES

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
7	32.5	987	1,042	0.003	3	852
6	27.5	1,009	763	0.002	2	872
5	22.5	1,032	522	0.002	2	891
4	17.5	1,054	323	0.001	1	911
3	12.5	1,077	168	0.000	1	930
2	7.5	1,099	62	0.000	0	950
1	2.5	1,122	7	0.000	0	969
Unused Reserve (4347.4400 sqin)	144	166	3,446	0.010	11	144
Kaelus KA-6030	144	70	1,460	0.004	5	61
Samsung B5/B13 RRH-BR04C	144	211	4,373	0.013	14	182
Samsung B2/B66A RRH-BR049	144	253	5,250	0.015	16	219
RFS DB-C1-12C-24AB-0Z	144	32	664	0.002	2	28
Samsung MT6407-77A	144	245	5,076	0.015	16	211
Generic Mount Reinforcement	144	600	12,442	0.036	39	518
Generic Mount Reinforcement	125	600	9,375	0.027	29	518
Quintel QS6656-5D	144	528	10,949	0.032	34	456
Antel LPA-70063-6CF-EDIN-X	144	162	3,359	0.010	11	140
Flat Platform with Round Handrails	144	2,500	51,840	0.150	162	2,160
Flat Platform with Round Handrails	134	2,500	44,890	0.130	141	2,160
Powerwave Allgon LGP13519	134	16	286	0.001	1	14
Powerwave Allgon LGP21401	134	85	1,519	0.004	5	73
Raycap DC6-48-60-18-8F(32.8 lbs)	134	66	1,178	0.003	4	57
Ericsson RRUS 4478 B14	134	180	3,227	0.009	10	155
Ericsson RRUS 4449 B5, B12	134	213	3,825	0.011	12	184
Powerwave Allgon 7770.00	134	105	1,885	0.006	6	91
CCI DMP65R-BU4D	134	68	1,219	0.004	4	59
CCI OPA65R-BU4DA-K	134	52	943	0.003	3	45
CCI DMP65R-BU6DA	134	159	2,851	0.008	9	137
CCI OPA65R-BU6D	134	126	2,270	0.007	7	109
Ericsson 4460 BAND 2/25	125	327	5,109	0.015	16	283
Ericsson 4480 BAND 71	125	243	3,797	0.011	12	210
Ericsson AIR 6419 B41	125	206	3,211	0.009	10	178
Commscope VV-65A-R1	125	71	1,116	0.003	3	62
RFS APXVAALL24 43-U-NA20	125	368	5,756	0.017	18	318
Generic Round Platform with Handrails	125	2,500	39,062	0.113	122	2,160
	Totals:	**36,033**	**344,909**	**1.000**	**1,081**	**31,130**

1.2D + 1.0Ev + 1.0Eh **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	-43.15	-1.08	0.00	-140.49	0.00	140.49	3,249.22	951.93	4,702	3,663.92	0.00	0.00	0.05
5.00	-41.79	-1.09	0.00	-135.07	0.00	135.07	3,212.04	928.66	4,475	3,532.96	0.01	-0.01	0.05
10.00	-40.46	-1.10	0.00	-129.62	0.00	129.62	3,172.75	905.39	4,253	3,401.79	0.02	-0.02	0.05
15.00	-39.16	-1.10	0.00	-124.14	0.00	124.14	3,131.34	882.13	4,038	3,270.59	0.05	-0.03	0.05
20.00	-37.88	-1.11	0.00	-118.63	0.00	118.63	3,087.81	858.86	3,827	3,139.53	0.08	-0.04	0.05
25.00	-36.64	-1.11	0.00	-113.10	0.00	113.10	3,042.17	835.59	3,623	3,008.79	0.13	-0.05	0.05
30.00	-35.42	-1.11	0.00	-107.54	0.00	107.54	2,994.41	812.32	3,424	2,878.54	0.19	-0.06	0.05
35.00	-34.22	-1.11	0.00	-101.98	0.00	101.98	2,944.53	789.05	3,231	2,748.97	0.26	-0.07	0.05
40.00	-33.06	-1.11	0.00	-96.41	0.00	96.41	2,892.53	765.78	3,043	2,620.24	0.35	-0.09	0.05
45.00	-32.83	-1.12	0.00	-90.83	0.00	90.83	2,838.42	742.51	2,861	2,492.54	0.44	-0.10	0.05
46.00	-31.22	-1.11	0.00	-89.72	0.00	89.72	2,827.34	737.85	2,825	2,467.14	0.46	-0.10	0.05
50.00	-30.42	-1.11	0.00	-85.28	0.00	85.28	2,782.19	719.24	2,684	2,366.04	0.55	-0.11	0.05
52.00	-29.75	-1.10	0.00	-83.07	0.00	83.07	2,786.05	720.81	2,696	2,374.54	0.60	-0.12	0.05
55.00	-28.66	-1.10	0.00	-79.76	0.00	79.76	2,751.38	706.85	2,593	2,299.23	0.68	-0.13	0.05
60.00	-27.59	-1.09	0.00	-74.27	0.00	74.27	2,691.91	683.58	2,425	2,174.91	0.82	-0.14	0.04
65.00	-26.56	-1.08	0.00	-68.82	0.00	68.82	2,630.31	660.31	2,262	2,052.24	0.97	-0.15	0.04
70.00	-25.55	-1.07	0.00	-63.41	0.00	63.41	2,566.60	637.04	2,106	1,931.38	1.14	-0.17	0.04
75.00	-24.56	-1.06	0.00	-58.05	0.00	58.05	2,500.77	613.77	1,955	1,812.53	1.32	-0.18	0.04

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
80.00	-23.61	-1.05	0.00	-52.74	0.00	52.74	2,432.83	590.50	1,809	1,695.84	1.51	-0.19	0.04
85.00	-22.68	-1.03	0.00	-47.51	0.00	47.51	2,362.77	567.23	1,670	1,581.51	1.72	-0.21	0.04
90.00	-22.00	-1.02	0.00	-42.35	0.00	42.35	2,290.59	543.96	1,535	1,469.71	1.95	-0.22	0.04
93.79	-21.76	-1.02	0.00	-38.48	0.00	38.48	2,228.05	526.31	1,437	1,382.72	2.13	-0.23	0.04
94.75	-21.68	-1.01	0.00	-37.51	0.00	37.51	2,209.20	521.86	1,413	1,359.31	2.18	-0.24	0.04
95.00	-20.76	-0.99	0.00	-37.26	0.00	37.26	2,204.27	520.69	1,407	1,353.22	2.19	-0.24	0.03
98.21	-20.47	-0.98	0.00	-34.08	0.00	34.08	1,110.63	308.68	824	676.41	2.36	-0.25	0.05
100.00	-19.66	-0.96	0.00	-32.32	0.00	32.32	1,100.89	303.68	798	659.55	2.45	-0.25	0.04
105.00	-18.91	-0.94	0.00	-27.50	0.00	27.50	1,072.24	289.72	726	612.66	2.72	-0.26	0.04
109.75	-18.88	-0.94	0.00	-23.03	0.00	23.03	1,043.07	276.45	661	568.53	2.99	-0.28	0.04
109.75	-18.88	-0.94	0.00	-23.03	0.00	23.03	1,043.07	276.45	661	568.53	2.99	-0.28	0.06
110.00	-18.30	-0.93	0.00	-22.80	0.00	22.80	1,041.48	275.75	658	566.22	3.00	-0.28	0.06
115.00	-17.74	-0.91	0.00	-18.17	0.00	18.17	1,008.60	261.79	593	520.38	3.31	-0.30	0.05
120.00	-17.19	-0.89	0.00	-13.62	0.00	13.62	973.60	247.83	531	475.34	3.63	-0.32	0.05
125.00	-11.37	-0.63	0.00	-9.17	0.00	9.17	936.49	233.87	473	431.26	3.98	-0.34	0.03
130.00	-11.00	-0.61	0.00	-6.03	0.00	6.03	897.25	219.91	418	388.32	4.33	-0.35	0.03
134.00	-6.51	-0.38	0.00	-3.58	0.00	3.58	864.34	208.74	377	354.91	4.63	-0.36	0.02
135.00	-6.16	-0.36	0.00	-3.20	0.00	3.20	855.90	205.95	367	346.70	4.71	-0.36	0.02
140.00	-5.89	-0.35	0.00	-1.39	0.00	1.39	812.44	191.98	319	306.57	5.08	-0.36	0.01
144.00	0.00	-0.31	0.00	0.00	0.00	0.00	765.45	180.81	283	271.87	5.39	-0.36	0.00

0.9D - 1.0Ev + 1.0Eh **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	-30.16	-1.08	0.00	-137.69	0.00	137.69	3,249.22	951.93	4,702	3,663.92	0.00	0.00	0.05
5.00	-29.21	-1.09	0.00	-132.28	0.00	132.28	3,212.04	928.66	4,475	3,532.96	0.01	-0.01	0.05
10.00	-28.28	-1.09	0.00	-126.84	0.00	126.84	3,172.75	905.39	4,253	3,401.79	0.02	-0.02	0.05
15.00	-27.37	-1.09	0.00	-121.39	0.00	121.39	3,131.34	882.13	4,038	3,270.59	0.05	-0.03	0.05
20.00	-26.48	-1.10	0.00	-115.92	0.00	115.92	3,087.81	858.86	3,827	3,139.53	0.08	-0.04	0.05
25.00	-25.61	-1.10	0.00	-110.43	0.00	110.43	3,042.17	835.59	3,623	3,008.79	0.13	-0.05	0.05
30.00	-24.75	-1.10	0.00	-104.94	0.00	104.94	2,994.41	812.32	3,424	2,878.54	0.19	-0.06	0.05
35.00	-23.92	-1.10	0.00	-99.44	0.00	99.44	2,944.53	789.05	3,231	2,748.97	0.26	-0.07	0.04
40.00	-23.11	-1.10	0.00	-93.94	0.00	93.94	2,892.53	765.78	3,043	2,620.24	0.34	-0.08	0.04
45.00	-22.95	-1.10	0.00	-88.45	0.00	88.45	2,838.42	742.51	2,861	2,492.54	0.43	-0.10	0.04
46.00	-21.82	-1.09	0.00	-87.35	0.00	87.35	2,827.34	737.85	2,825	2,467.14	0.45	-0.10	0.04
50.00	-21.26	-1.09	0.00	-82.99	0.00	82.99	2,782.19	719.24	2,684	2,366.04	0.54	-0.11	0.04
52.00	-20.79	-1.08	0.00	-80.82	0.00	80.82	2,786.05	720.81	2,696	2,374.54	0.59	-0.11	0.04
55.00	-20.03	-1.08	0.00	-77.57	0.00	77.57	2,751.38	706.85	2,593	2,299.23	0.66	-0.12	0.04
60.00	-19.29	-1.07	0.00	-72.18	0.00	72.18	2,691.91	683.58	2,425	2,174.91	0.80	-0.14	0.04
65.00	-18.56	-1.06	0.00	-66.84	0.00	66.84	2,630.31	660.31	2,262	2,052.24	0.95	-0.15	0.04
70.00	-17.85	-1.05	0.00	-61.55	0.00	61.55	2,566.60	637.04	2,106	1,931.38	1.11	-0.16	0.04
75.00	-17.17	-1.04	0.00	-56.31	0.00	56.31	2,500.77	613.77	1,955	1,812.53	1.29	-0.18	0.04
80.00	-16.50	-1.02	0.00	-51.13	0.00	51.13	2,432.83	590.50	1,809	1,695.84	1.48	-0.19	0.04
85.00	-15.85	-1.00	0.00	-46.03	0.00	46.03	2,362.77	567.23	1,670	1,581.51	1.68	-0.20	0.04
90.00	-15.38	-0.99	0.00	-41.00	0.00	41.00	2,290.59	543.96	1,535	1,469.71	1.90	-0.22	0.04
93.79	-15.21	-0.99	0.00	-37.24	0.00	37.24	2,228.05	526.31	1,437	1,382.72	2.08	-0.23	0.03
94.75	-15.16	-0.99	0.00	-36.30	0.00	36.30	2,209.20	521.86	1,413	1,359.31	2.13	-0.23	0.03
95.00	-14.51	-0.96	0.00	-36.05	0.00	36.05	2,204.27	520.69	1,407	1,353.22	2.14	-0.23	0.03
98.21	-14.31	-0.96	0.00	-32.96	0.00	32.96	1,110.63	308.68	824	676.41	2.30	-0.24	0.04
100.00	-13.74	-0.93	0.00	-31.25	0.00	31.25	1,100.89	303.68	798	659.55	2.39	-0.24	0.04
105.00	-13.22	-0.91	0.00	-26.58	0.00	26.58	1,072.24	289.72	726	612.66	2.65	-0.26	0.04
109.75	-13.20	-0.91	0.00	-22.24	0.00	22.24	1,043.07	276.45	661	568.53	2.91	-0.27	0.03
109.75	-13.20	-0.91	0.00	-22.24	0.00	22.24	1,043.07	276.45	661	568.53	2.91	-0.27	0.05
110.00	-12.79	-0.90	0.00	-22.02	0.00	22.02	1,041.48	275.75	658	566.22	2.93	-0.27	0.05
115.00	-12.40	-0.88	0.00	-17.54	0.00	17.54	1,008.60	261.79	593	520.38	3.22	-0.29	0.05
120.00	-12.01	-0.86	0.00	-13.15	0.00	13.15	973.60	247.83	531	475.34	3.54	-0.31	0.04
125.00	-7.95	-0.61	0.00	-8.85	0.00	8.85	936.49	233.87	473	431.26	3.87	-0.33	0.03
130.00	-7.68	-0.59	0.00	-5.82	0.00	5.82	897.25	219.91	418	388.32	4.22	-0.34	0.02

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
134.00	-4.55	-0.37	0.00	-3.46	0.00	3.46	864.34	208.74	377	354.91	4.51	-0.35	0.02
135.00	-4.31	-0.35	0.00	-3.09	0.00	3.09	855.90	205.95	367	346.70	4.58	-0.35	0.01
140.00	-4.12	-0.34	0.00	-1.34	0.00	1.34	812.44	191.98	319	306.57	4.95	-0.35	0.01
144.00	0.00	-0.31	0.00	0.00	0.00	0.00	765.45	180.81	283	271.87	5.24	-0.35	0.00

ANALYSIS SUMMARY

Load Case	Base Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.0W	20.92	0.00	43.21	0.00	0.00	2353.90	109.75	0.69
0.9D + 1.0W	20.91	0.00	32.40	0.00	0.00	2315.62	109.75	0.66
1.2D + 1.0Di + 1.0Wi	5.98	0.00	57.75	0.00	0.00	664.90	109.75	0.21
1.2D + 1.0Ev + 1.0Eh	1.12	0.00	43.15	0.00	0.00	140.49	109.75	0.06
0.9D - 1.0Ev + 1.0Eh	1.10	0.00	30.16	0.00	0.00	137.69	109.75	0.05
1.0D + 1.0W	5.09	0.00	36.03	0.00	0.00	567.76	109.75	0.17

ADDITIONAL STEEL SUMMARY

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (k/in)	Shear Applied (kips)	phiVn (kips)	Ratio	Max Member Pu (kip)	phiPn (kip)	Ratio
94.75	109.75	PL PL 4 x 0.75"	270.4	3.2	38.3	0.0848	101.3	127.6	

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Number Required	Number Actual	Ratio	Lower Termination Connectors MQ/I (kips)	phiVn (kip)	Number Required	Number Actual	Ratio
94.75	109.75	PL PL 4 x 0.75"	83.3091	38.27	3	9	0.2419	76.4806	38.27	2	9	0.2220

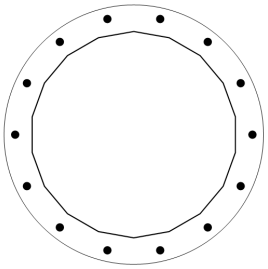
BASE PLATE ANALYSIS @ 0 FT

APPLIED REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
2353.9	43.21	20.92

PLATE PARAMETERS (ID# 26562)

Width:	70	in
Shape:	Round	
Thickness:	1.75	in
Grade:	A572-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Rod Detail Type:	d	
Clear Distance	3.5	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	90	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	F_y (ksi)	F_u (ksi)	Spacing (in)	Offset (°)
Original [ID#27259]	Radial	14	2.25	64	A615-75	75	100	-	-

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	55"ø x 0.3125" (18 Sides)	53.4172	-	-	19971.23	-
Bolt Group	Original (14) 2.25"ø	3.9761	3.2477	0.8393	21420.71	4.5

REACTION DISTRIBUTION

Component	ID	Moment M_u (k-ft)	Axial Load P_u (k)	Shear V_u (k)	Moment Factor
Pole	55"ø x 0.3125" (18 Sides)	2353.9	43.21	20.92	1.000
Bolt Group	Original (14) 2.25"ø	2353.9	-	20.92	1.000

BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	55.12	in	Flat Width:	9.720	in	Neutral Axis:	90	°
Point-to-Point Diameter:	55.98	in	Flat Radians:	0.349	rad	Bend Line Limits:	2.409 to 3.874	rad
Orientation Offset:	10	°						

PLATE PROPERTIES

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment M_u (k-in)	Moment Capacity ΦM_n (k-in)	Flexure Result $M_u/\Phi M_n$	
Flats	38.764	0.00	29.679	441.2	1602.6	27.5%	✓
Corners	37.526	0.00	28.731	363.1	1551.4	23.4%	✓
Circumferential	58.316	0.00	44.648	1019.2	2411.0	42.3%	✓

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load P_u (k)	Applied Shear Load V_u (k)	Compressive Capacity ΦP_n (k)	Interaction Result	
Original	14	2.25	108.6	2.3	243.6	46.4%	✓

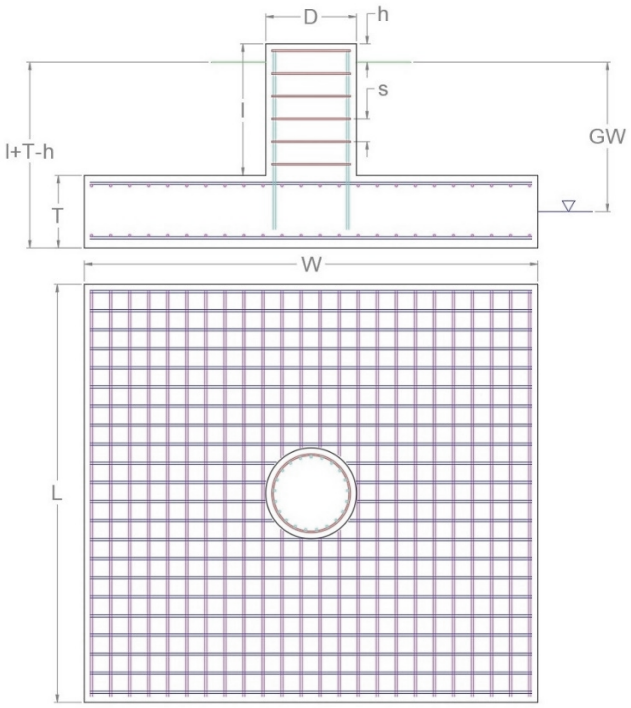
[redacted]

APPLIED GLOBAL REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
2,353.90	43.21	20.92

FOUNDATION PARAMETERS

Mat Length:	L	21.5	ft
Mat Width:	W	21.5	ft
Mat Thickness:	T	3.5	ft
Base Depth:	L+T-h	8	ft
Pier Shape:		Square	
Pier Width:	D	7	ft
Pier Height above Grade:	h	1	ft
Concrete Compressive Strength:		4,000	psi
Mat Top Rebar:		(22) #8 bars [60 ksi]	
Mat Bottom Rebar:		(22) #8 bars [60 ksi]	
Pier Vertical Rebar:		(46) #8 bars [60 ksi]	
Pier Rebar Ties:	s	#4 bars @ 12.0" c/c [60 ksi]	
Rebar Clear Cover:		3.0	in
Tower Eccentricity:	ecc	0	ft
Tower Leg Count		1	



SOIL PARAMETERS

Water Table Depth [BGL]:	GW		ft
Soil Unit Weight:		120	pcf
Ultimate Skin Friction:		0	psf
Ultimate Bearing Pressure:		16,000	psf
Bearing Pressure Type:		Net	
Coefficient of Shear Friction:		0.3	

SOIL STRENGTH ANALYSIS

Soil Strength Reduction Factor, Φ_s	Uplift Strength Reduction Factor, Φ_s	Asset Dead Load Factor	Dead Load Factor
0.75	0.75	0.9	1.2

SOIL OVERTURNING ANALYSIS

Design Moment, $M_{u,Design}$ (k-ft)	Nominal Overturning Capacity, $\Phi_m M_n$ (k-ft)	Soil Overturning Usage, $M_{u,Design} / \Phi_m M_n$	
2,542.18	5,689.10	**44.7%**	✓

SOIL BEARING ANALYSIS

Net Bearing Pressure, $P_{u,Net}$ (psf)	Nominal Bearing Capacity, $\Phi_b P_n$ (k-ft)	Bearing Pressure Controlling Load Direction	Soil Bearing Usage, $P_{u,net} / \Phi_b P_n$	
2,016.00	12,720.00	Diagonal to Pad Edge	**15.8%**	✓

SOIL SLIDING SHEAR ANALYSIS

Applied Shear Force, V_u (k)	Friction Resistance (k)	Passive Pressure (psf)	Passive Pressure Resistance (k)	Nominal Shear Capacity, $\Phi_s V_n$ (k)	Soil Sliding Shear Usage, $V_u / \Phi_s V_n$	
20.92	0.00	750.0	56.44	164.34	**13.0%**	✓

MAT REINFORCING STEEL STRENGTH ANALYSIS

Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
29,000	0.9	0.75	0.65

MAT REINFORCING ONE WAY SHEAR ANALYSIS

One Way Design Shear, V_u (k)	Nominal One Way Shear Capacity, $\Phi_c V_n$ (k)	One Way Shear Controlling Load Direction	Mat One Way Shear Usage, $V_u / \Phi_c V_n$	
76.95	738.55	Diagonal to Pad Edge	**10.4%**	✓

MAT REINFORCING PUNCHING SHEAR ANALYSIS

Punching Shear Design Stress, v_u (psi)	Nominal Punching Shear Capacity, $\Phi_c v_n$ (psi)	Mat Punching Shear Usage, $v_u / \Phi_c v_n$	
20.0	189.7	**10.5%**	✓

MAT REINFORCING MOMENT TRANSFER ANALYSIS

Moment Transfer Effective Flexural Width, w_f (in)	Neutral Axis Depth (in)	Pier Moment at Joint, M_{ut} (k-in)	Nominal Moment Transfer Capacity, $\Phi M_{sc,f}$ (k-in)	Mat Moment Transfer Usage, $0.6\ M_{ut} / \Phi M_{sc,f}$	
17.50	1.23	0.00	29,632.9	**0.0%**	✓

MAT REINFORCING FLEXURE ANALYSIS – UPPER STEEL

Factored Moment, M_u (k-ft)	Nominal Flexural Capacity, ΦM_n (k-ft)	Flexural Steel Controlling Load Direction	Mat Upper Rebar Flexure Usage, $M_u / \Phi M_n$	
601.77	2,932.47	Parallel to Pad Edge	**20.5%**	✓

MAT REINFORCING FLEXURE ANALYSIS – LOWER STEEL

Factored Moment, M_u (k-ft)	Nominal Flexural Capacity, ΦM_n (k-ft)	Flexural Steel Controlling Load Direction	Mat Lower Rebar Flexure Usage, $M_u / \Phi M_n$	
799.00	2,932.47	Parallel to Pad Edge	**27.2%**	✓

PIER REINFORCING STEEL STRENGTH ANALYSIS

Rebar Cage Diameter (in)	Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
76.00	29,000	0.9	0.75	0.65

PIER REINFORCING MOMENT ANALYSIS

Design Moment, M_u (k-ft)	Nominal Moment Capacity, $\Phi_b M_n$ (k-ft)	Bending Reinforcement Ratio	Pier Rebar Flexure Usage, $M_u/\Phi_b M_n$	
2,468.96	6,078.96	0.005	**40.6%**	✓

PIER REINFORCING COMPRESSION ANALYSIS

Design Compression, P_u (k)	Nominal Compressive Capacity, $\Phi_p P_n$ (k)	Pier Rebar Compressive Usage, $P_u / \Phi_p P_n$	
43.21	12,435.41	**0.3%**	✓

PIER REINFORCING SHEAR ANALYSIS

Design Shear, V_u (k)	Nominal Shear Capacity, $\Phi_v V_n$ (k)	Pier Rebar Shear Usage, $V_u / \Phi_v V_n$	
20.92	772.24	**2.7%**	✓

Radio Frequency Exposure Analysis Report

November 29, 2023

T-Mobile

Site Name: Old Farms -Verizon Colo
Site Number: CTNH416A

Site Address: 14 Old North Road, Barkamsted, CT 06063-3440

Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2024

Signed 30 November 2023

Site Compliance Summary

T-Mobile Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	27.86951 µW/cm²
Cumulative General Population % MPE (Ground Level):	2.78726%
Cumulative Calculated Power Density (24'Adjacent Rooftop Level):	7.88911 µW/cm²
Cumulative General Population % MPE (24' Adjacent Rooftop Level):	0.85704%

November 29, 2023

Centerline
Attn: Peter Fales, Vice President - Site Acquisition
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **Old Farms -Verizon Colo**

Centerline was contracted to analyze the proposed T-Mobile facility at **14 Old North Road, Barkamsted, CT 06063-3440** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{MHz}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of 1 mW/cm^2 (1000 $\mu W/cm^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.

Calculation Methodology

Centerline has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

Data & Results

The following table details the antennas and operating parameters for the T-Mobile antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at ground level and the adjacent 24' rooftop level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level and the adjacent 24' rooftop level (0-6' spatial average). The results from highest cumulative sample point at ground level and the adjacent 24' rooftop level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table(s) below. The cumulative power density and cumulative % MPE are displayed at the bottom of the table(s) below.

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Maximum Calculated Cumulative Power Density (Location: approximately 350' East of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (µW/cm²)	General Population MPE Limit (µW/cm²)	General Population % MPE
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	20.00	1577.94	0.00000	400.00	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	40.00	3155.88	0.00000	400.00	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	700	13.65	125.00	4.00	20.00	1853.92	0.00000	466.67	0.00000
T-Mobile A 2	ERICSSON SON_AIR6419 LTE MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile A 2	ERICSSON SON_AIR6419 NR MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile A 2	ERICSSON SON_AIR6419 B41 LTE T	2500	22.05	125.00	1.00	90.00	14429.21	0.29287	1000.00	0.02929
T-Mobile A 2	ERICSSON SON_AIR6419 B41 NR TB	2500	22.05	125.00	1.00	90.00	14429.21	0.29287	1000.00	0.02929
T-Mobile A 3	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	2.00	10.00	654.68	0.00000	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	35.00	4582.77	0.00000	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	40.00	5237.45	0.00000	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65A-R1B	2100	15.80	125.00	4.00	60.00	9124.55	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	20.00	1577.94	0.00009	400.00	0.00002
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	40.00	3155.88	0.00018	400.00	0.00005
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	700	13.65	125.00	4.00	20.00	1853.92	0.00009	466.67	0.00002
T-Mobile B 5	ERICSSON SON_AIR6419 LTE MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00016	1000.00	0.00002
T-Mobile B 5	ERICSSON SON_AIR6419 NR MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00016	1000.00	0.00002
T-Mobile B 5	ERICSSON SON_AIR6419 B41 LTE T	2500	22.05	125.00	1.00	90.00	14429.21	13.57320	1000.00	1.35732
T-Mobile B 5	ERICSSON SON_AIR6419 B41 NR TB	2500	22.05	125.00	1.00	90.00	14429.21	13.57320	1000.00	1.35732
T-Mobile B 6	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	2.00	10.00	654.68	0.00002	1000.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	35.00	4582.77	0.00015	1000.00	0.00002
T-Mobile B 6	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	40.00	5237.45	0.00017	1000.00	0.00002
T-Mobile B 6	COMMSCOPE VV-65A-R1B	2100	15.80	125.00	4.00	60.00	2281.14	0.00027	1000.00	0.00003
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	20.00	394.48	0.00000	400.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	40.00	788.97	0.00000	400.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	700	13.65	125.00	4.00	20.00	463.48	0.00000	466.67	0.00000
T-Mobile C 8	ERICSSON SON_AIR6419 LTE MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile C 8	ERICSSON SON_AIR6419 NR MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile C 8	ERICSSON SON_AIR6419 B41 LTE T	2500	22.05	125.00	1.00	90.00	14429.21	0.06482	1000.00	0.00648
T-Mobile C 8	ERICSSON SON_AIR6419 B41 NR TB	2500	22.05	125.00	1.00	90.00	14429.21	0.06482	1000.00	0.00648
T-Mobile C 9	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	2.00	10.00	327.34	0.00000	1000.00	0.00000
T-Mobile C 9	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	35.00	1145.69	0.00000	1000.00	0.00000
T-Mobile C 9	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
T-Mobile C 9	COMMSCOPE VV-65A-R1B	2100	15.80	125.00	4.00	60.00	2281.14	0.00000	1000.00	0.00000
Verizon A 10	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon A 11	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00000	466.67	0.00000
Verizon A 11	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00001	566.67	0.00000
Verizon A 11	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00000	1000.00	0.00000
Verizon A 11	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00000	1000.00	0.00000
Verizon A 12	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00000	466.67	0.00000
Verizon A 12	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00001	566.67	0.00000
Verizon A 12	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00000	1000.00	0.00000
Verizon A 12	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00000	1000.00	0.00000
Verizon A 13	SAMSUNG SON_MT6407 TB	3700	23.34	145.00	2.00	100.00	21577.44	0.00007	1000.00	0.00001
Verizon A 14	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon B 15	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon B 16	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00046	466.67	0.00010
Verizon B 16	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00049	566.67	0.00009
Verizon B 16	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00017	1000.00	0.00002
Verizon B 16	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00018	1000.00	0.00002
Verizon B 17	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00046	466.67	0.00010
Verizon B 17	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00049	566.67	0.00009
Verizon B 17	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00017	1000.00	0.00002
Verizon B 17	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00018	1000.00	0.00002
Verizon B 18	SAMSUNG SON_MT6407 TB	3700	23.34	145.00	2.00	100.00	21577.44	0.00292	1000.00	0.00029

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Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (µW/cm²)	General Population MPE Limit (µW/cm²)	General Population % MPE
Verizon B 19	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon C 20	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon C 21	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00000	466.67	0.00000
Verizon C 21	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00000	566.67	0.00000
Verizon C 21	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00000	1000.00	0.00000
Verizon C 21	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00000	1000.00	0.00000
Verizon C 22	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00000	466.67	0.00000
Verizon C 22	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00000	566.67	0.00000
Verizon C 22	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00000	1000.00	0.00000
Verizon C 22	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00000	1000.00	0.00000
Verizon C 23	SAMSUNG SON_MT6407 TB	3700	23.34	145.00	2.00	100.00	21577.44	0.00007	1000.00	0.00001
Verizon C 24	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
AT&T A 25	CCI DMP65R-BU4D	700	9.95	134.00	4.00	40.00	395.42	0.00000	466.67	0.00000
AT&T A 25	CCI DMP65R-BU4D	1900	13.45	134.00	2.00	40.00	885.24	0.00000	1000.00	0.00000
AT&T A 25	CCI DMP65R-BU4D	2100	14.05	134.00	4.00	40.00	1016.39	0.00000	1000.00	0.00000
AT&T A 26	CCI OPA65R-BU4	850	11.05	134.00	4.00	40.00	509.40	0.00000	566.67	0.00000
AT&T A 26	CCI OPA65R-BU4D	2300	14.55	134.00	4.00	25.00	712.75	0.00000	1000.00	0.00000
AT&T A 27	POWERWAVE 7770 00	1900	13.35	134.00	2.00	40.00	865.09	0.00000	1000.00	0.00000
AT&T B 28	CCI DMP65R-BU6D	700	11.75	134.00	4.00	40.00	598.49	0.00018	466.67	0.00004
AT&T B 28	CCI DMP65R-BU6D	1900	14.05	134.00	2.00	40.00	1016.39	0.00007	1000.00	0.00001
AT&T B 28	CCI DMP65R-BU6D	2100	14.75	134.00	4.00	40.00	1194.15	0.00014	1000.00	0.00001
AT&T B 29	CCI OPA65R-BU6D	850	11.95	134.00	4.00	40.00	626.70	0.00019	566.67	0.00003
AT&T B 29	CCI OPA65R-BU6D	2300	14.25	134.00	4.00	25.00	665.18	0.00013	1000.00	0.00001
AT&T B 30	POWERWAVE 7770 00	1900	13.35	134.00	2.00	40.00	865.09	0.00005	1000.00	0.00001
AT&T C 31	CCI DMP65R-BU6D	700	11.75	134.00	4.00	40.00	598.49	0.00000	466.67	0.00000
AT&T C 31	CCI DMP65R-BU6D	1900	14.05	134.00	2.00	40.00	1016.39	0.00000	1000.00	0.00000
AT&T C 31	CCI DMP65R-BU6D	2100	14.75	134.00	4.00	40.00	1194.15	0.00000	1000.00	0.00000
AT&T C 32	CCI OPA65R-BU6D	850	11.95	134.00	4.00	40.00	626.70	0.00000	566.67	0.00000
AT&T C 32	CCI OPA65R-BU6D	2300	14.25	134.00	4.00	25.00	665.18	0.00000	1000.00	0.00000
AT&T C 33	POWERWAVE 7770 00	1900	13.35	134.00	2.00	40.00	865.09	0.00000	1000.00	0.00000
							Cumulative Power Density:	**27.86951 µW/cm²**	**Cumulative % MPE:**	**2.78726%**

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Maximum Calculated Cumulative Power Density (Location: Adjacent 24' Rooftop)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (μW/cm²)	General Population MPE Limit (μW/cm²)	General Population % MPE
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	20.00	1577.94	0.00002	400.00	0.00001
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	40.00	3155.88	0.00005	400.00	0.00001
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	700	13.65	125.00	4.00	20.00	1853.92	0.00002	466.67	0.00001
T-Mobile A 2	ERICSSON SON_AIR6419 LTE MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00332	1000.00	0.00033
T-Mobile A 2	ERICSSON SON_AIR6419 NR MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00332	1000.00	0.00033
T-Mobile A 2	ERICSSON SON_AIR6419 B41 LTE T	2500	22.05	125.00	1.00	90.00	14429.21	0.04362	1000.00	0.00436
T-Mobile A 2	ERICSSON SON_AIR6419 B41 NR TB	2500	22.05	125.00	1.00	90.00	14429.21	0.04362	1000.00	0.00436
T-Mobile A 3	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	2.00	10.00	654.68	0.00001	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	35.00	4582.77	0.00004	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	40.00	5237.45	0.00004	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65A-R1B	2100	15.80	125.00	4.00	60.00	9124.55	0.00007	1000.00	0.00001
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	20.00	1577.94	0.00000	400.00	0.00000
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	40.00	3155.88	0.00000	400.00	0.00000
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	700	13.65	125.00	4.00	20.00	1853.92	0.00000	466.67	0.00000
T-Mobile B 5	ERICSSON SON_AIR6419 LTE MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile B 5	ERICSSON SON_AIR6419 NR MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile B 5	ERICSSON SON_AIR6419 B41 LTE T	2500	22.05	125.00	1.00	90.00	14429.21	0.00006	1000.00	0.00001
T-Mobile B 5	ERICSSON SON_AIR6419 B41 NR TB	2500	22.05	125.00	1.00	90.00	14429.21	0.00006	1000.00	0.00001
T-Mobile B 6	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	2.00	10.00	654.68	0.00000	1000.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	35.00	4582.77	0.00000	1000.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	40.00	5237.45	0.00000	1000.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65A-R1B	2100	15.80	125.00	4.00	60.00	2281.14	0.00000	1000.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	20.00	394.48	0.00000	400.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	600	12.95	125.00	4.00	40.00	788.97	0.00000	400.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	700	13.65	125.00	4.00	20.00	463.48	0.00000	466.67	0.00000
T-Mobile C 8	ERICSSON SON_AIR6419 LTE MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00004	1000.00	0.00000
T-Mobile C 8	ERICSSON SON_AIR6419 NR MACRO	2500	15.55	125.00	1.00	30.00	1076.77	0.00004	1000.00	0.00000
T-Mobile C 8	ERICSSON SON_AIR6419 B41 LTE T	2500	22.05	125.00	1.00	90.00	14429.21	0.00162	1000.00	0.00016
T-Mobile C 8	ERICSSON SON_AIR6419 B41 NR TB	2500	22.05	125.00	1.00	90.00	14429.21	0.00162	1000.00	0.00016
T-Mobile C 9	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	2.00	10.00	327.34	0.00000	1000.00	0.00000
T-Mobile C 9	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	35.00	1145.69	0.00000	1000.00	0.00000
T-Mobile C 9	COMMSCOPE VV-65A-R1B	1900	15.15	125.00	4.00	40.00	1309.36	0.00000	1000.00	0.00000
T-Mobile C 9	COMMSCOPE VV-65A-R1B	2100	15.80	125.00	4.00	60.00	2281.14	0.00000	1000.00	0.00000
Verizon A 10	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon A 11	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.17510	466.67	0.03752
Verizon A 11	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.17362	566.67	0.03064
Verizon A 11	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00236	1000.00	0.00024
Verizon A 11	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00341	1000.00	0.00034
Verizon A 12	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.17510	466.67	0.03752
Verizon A 12	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.17362	566.67	0.03064
Verizon A 12	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00236	1000.00	0.00024
Verizon A 12	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00341	1000.00	0.00034
Verizon A 13	SAMSUNG SON_MT6407 TB	3700	23.34	145.00	2.00	100.00	21577.44	6.76645	1000.00	0.67665
Verizon A 14	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon B 15	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon B 16	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00073	466.67	0.00016
Verizon B 16	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00046	566.67	0.00008
Verizon B 16	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00000	1000.00	0.00000
Verizon B 16	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00001	1000.00	0.00000
Verizon B 17	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00073	466.67	0.00016
Verizon B 17	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00046	566.67	0.00008
Verizon B 17	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00000	1000.00	0.00000
Verizon B 17	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00001	1000.00	0.00000

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (µW/cm²)	General Population MPE Limit (µW/cm²)	General Population % MPE
Verizon B 18	SAMSUNG SON_MT6407 TB	3700	23.34	145.00	2.00	100.00	21577.44	0.05500	1000.00	0.00550
Verizon B 19	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon C 20	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
Verizon C 21	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00420	466.67	0.00090
Verizon C 21	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00214	566.67	0.00038
Verizon C 21	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00001	1000.00	0.00000
Verizon C 21	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00002	1000.00	0.00000
Verizon C 22	QUINTEL SON_QS6656-5D V3	700	11.35	145.00	2.00	40.00	545.83	0.00420	466.67	0.00090
Verizon C 22	QUINTEL SON_QS6656-5D V3	850	11.35	145.00	2.00	40.00	545.83	0.00214	566.67	0.00038
Verizon C 22	QUINTEL SON_QS6656-5D V3	1900	15.25	145.00	2.00	40.00	1339.86	0.00001	1000.00	0.00000
Verizon C 22	QUINTEL SON_QS6656-5D V3	2100	15.65	145.00	2.00	40.00	1469.13	0.00002	1000.00	0.00000
Verizon C 23	SAMSUNG SON_MT6407 TB	3700	23.34	145.00	2.00	100.00	21577.44	0.24567	1000.00	0.02457
Verizon C 24	AMPHENOL LPA-70063-6CF-EDIN-0	850	14.50	145.00	0.00	0.00	0.00 (Not in Use)	0.00000	566.67	0.00000
AT&T A 25	CCI DMP65R-BU4D	700	9.95	134.00	4.00	40.00	395.42	0.00007	466.67	0.00002
AT&T A 25	CCI DMP65R-BU4D	1900	13.45	134.00	2.00	40.00	885.24	0.00004	1000.00	0.00000
AT&T A 25	CCI DMP65R-BU4D	2100	14.05	134.00	4.00	40.00	1016.39	0.00007	1000.00	0.00001
AT&T A 26	CCI OPA65R-BU4	850	11.05	134.00	4.00	40.00	509.40	0.00007	566.67	0.00001
AT&T A 26	CCI OPA65R-BU4D	2300	14.55	134.00	4.00	25.00	712.75	0.00004	1000.00	0.00000
AT&T A 27	POWERWAVE 7770 00	1900	13.35	134.00	2.00	40.00	865.09	0.00001	1000.00	0.00000
AT&T B 28	CCI DMP65R-BU6D	700	11.75	134.00	4.00	40.00	598.49	0.00000	466.67	0.00000
AT&T B 28	CCI DMP65R-BU6D	1900	14.05	134.00	2.00	40.00	1016.39	0.00000	1000.00	0.00000
AT&T B 28	CCI DMP65R-BU6D	2100	14.75	134.00	4.00	40.00	1194.15	0.00000	1000.00	0.00000
AT&T B 29	CCI OPA65R-BU6D	850	11.95	134.00	4.00	40.00	626.70	0.00000	566.67	0.00000
AT&T B 29	CCI OPA65R-BU6D	2300	14.25	134.00	4.00	25.00	665.18	0.00000	1000.00	0.00000
AT&T B 30	POWERWAVE 7770 00	1900	13.35	134.00	2.00	40.00	865.09	0.00000	1000.00	0.00000
AT&T C 31	CCI DMP65R-BU6D	700	11.75	134.00	4.00	40.00	598.49	0.00000	466.67	0.00000
AT&T C 31	CCI DMP65R-BU6D	1900	14.05	134.00	2.00	40.00	1016.39	0.00000	1000.00	0.00000
AT&T C 31	CCI DMP65R-BU6D	2100	14.75	134.00	4.00	40.00	1194.15	0.00000	1000.00	0.00000
AT&T C 32	CCI OPA65R-BU6D	850	11.95	134.00	4.00	40.00	626.70	0.00000	566.67	0.00000
AT&T C 32	CCI OPA65R-BU6D	2300	14.25	134.00	4.00	25.00	665.18	0.00000	1000.00	0.00000
AT&T C 33	POWERWAVE 7770 00	1900	13.35	134.00	2.00	40.00	865.09	0.00000	1000.00	0.00000
							Cumulative Power Density:	**7.88911 µW/cm²**	**Cumulative % MPE:**	**0.85704%**

Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level and the adjacent 24' rooftop level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **compliant** with FCC rules and regulations.

Samuel Cosgrove
RF EME Technical Writer
Centerline

RAN Template:	A&L Template:
67E5D998E 6160	67E5998E_1xAIR+1OP+1QP

CTNH416A_Anchor_4_preliminary

Print Name: Standard
PORs: Anchor_Phase 3

Section 1 - Site Information

Site ID: CTNH416A
Status: Preliminary
Version: 4
Project Type: Anchor
Approved: 08/09/2023 10:59:58 AM
Approved By: Marissa.Flores164@T-Mobile.com
Last Modified: 08/09/2023 10:59:58 AM
Last Modified By: Marissa.Flores164@T-Mobile.com

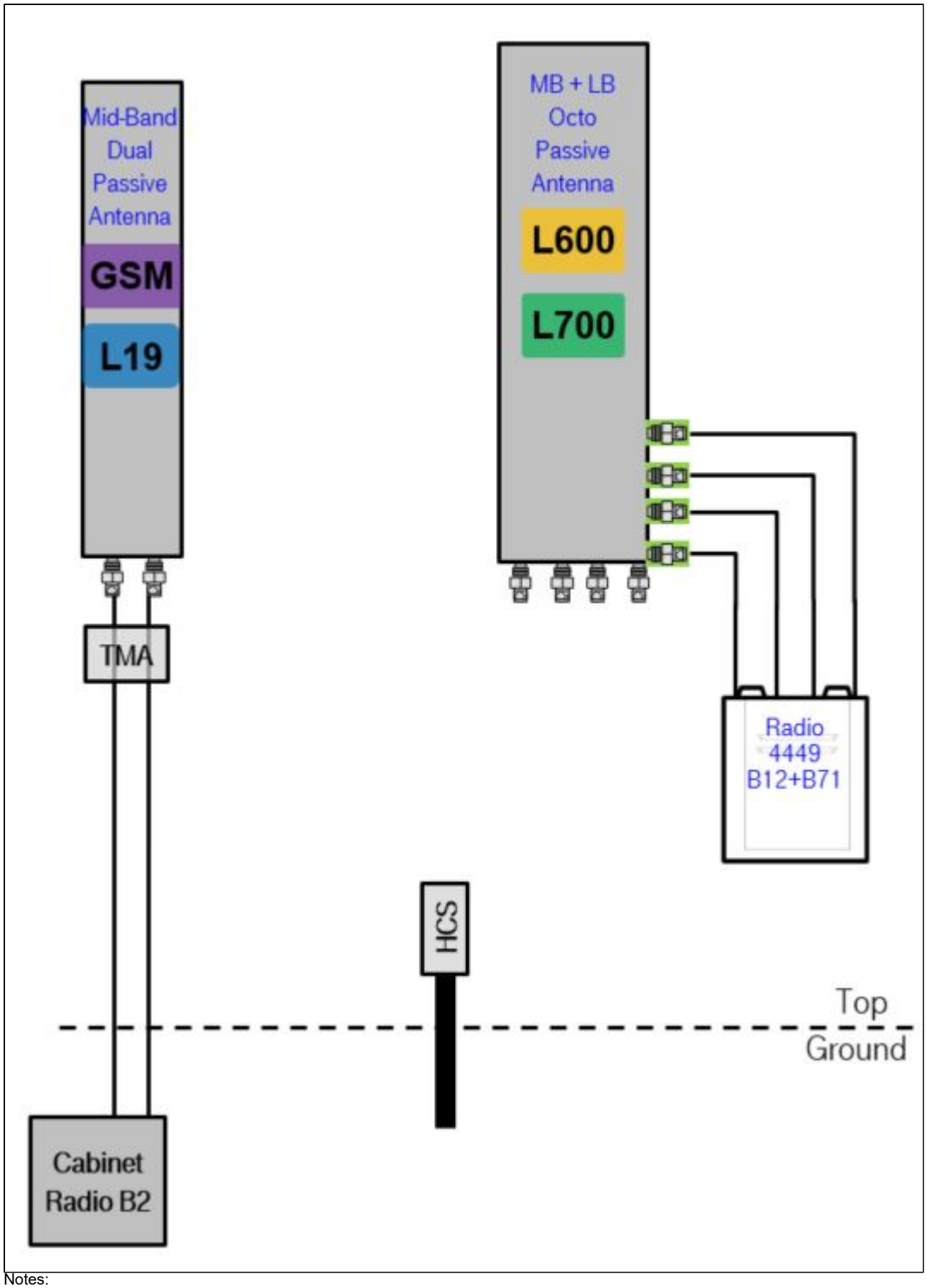
Site Name: Old Farms- Verizon Colo
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2023
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: American Tower

Latitude: 41.91449
Longitude: -73.0223
Address: Hickory Ridge Rd
City, State: Barkhamsted, CT
Region: NORTHEAST

RAN Template: 67E5D998E 6160			**AL Template:** 67E5998E_1xAIR+1OP+1QP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

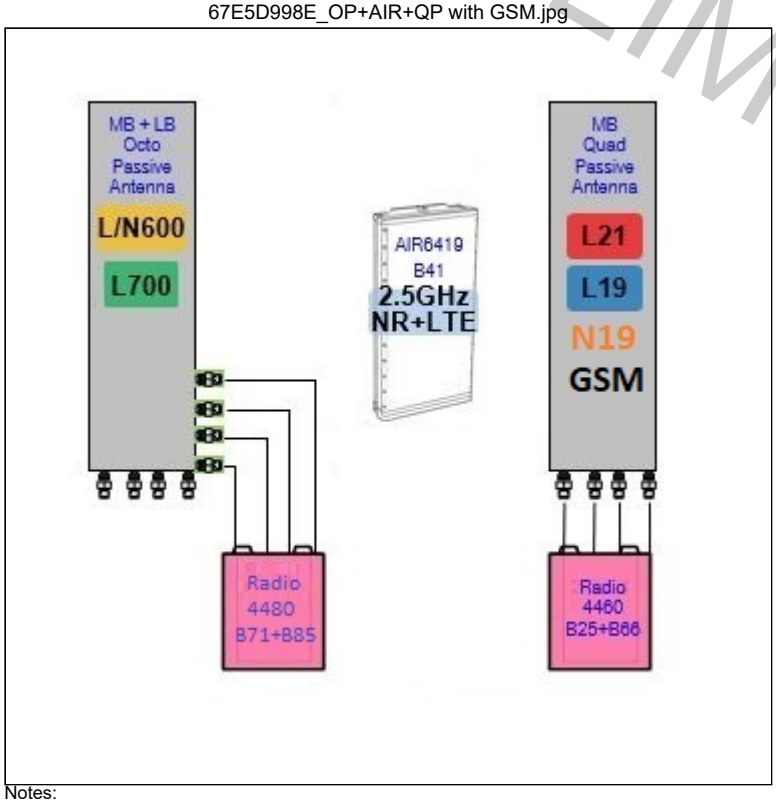
Capture.JPG


Mid-Band
Dual
Passive
Antenna
GSM
L19
MB + LB
Octo
Passive
Antenna
L600
L700
TMA
Radio
4449
B12+B71
HCS
Top
Ground
Cabinet
Radio B2

Notes:

Section 3 - Proposed Template Images

67E5D998E_OP+AIR+QP with GSM.jpg



Notes:

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

RAN Template:	A&L Template:
67E5D998E 6160	67E5998E_1xAIR+1OP+1QP

CTNH416A_Anchor_4_preliminary

Print Name: Standard
PORs: Anchor_Phase 3

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67E04G

Enclosure	1	2
Enclosure Type	RBS 3106	RBS 6201
Radio	RUS01 B2 (x3) [L1900, G1900]; RUS01 B2 (x3) [L1900]	
Baseband	BB 5216 [L1900]; DUW30; RP 6651 [N600, L600, L700]	DUG20 [G1900]
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 60m; PSU 4813 vR4A (Kit)	

Proposed RAN Equipment

Template: 67E5D998E 6160

Enclosure	1	2	3
Enclosure Type	Enclosure 6160 AC V1	RBS 6201	B160
Baseband	RP 6651 [N2500]; RP 6651 [N1900, L1900, L2100]	DUG20 [G1900]; RP 6651 [N600, L600, L700]	
Transport System	CSR IXRe V2 (Gen2)		
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 60m (x3)	Hybrid Trunk 6/24 4AWG 60m; PSU 4813 vR4A (Kit)	

RAN Scope of Work:

Remove all unused equipment's from RAN section.

Add (1) 6160 and (1) B160 cabinets.
Add (1) RP6651 for NR2500
Replace BB5216 with RP6651 for midband technology.
Add (1) IXRe router to 6160.
Add (3) Hybrid Trunk 6/24 4AWG 60m confirmed.

Scoping Notes:
Remove existing 6131 Cabinet "dead".

RAN Template:	A&L Template:
67E5D998E 6160	67E5998E_1xAIR+1OP+1QP

CTNH416A_Anchor_4_preliminary

Print Name: Standard
PORs: Anchor_Phase 3

Section 6 - A&L Equipment

Existing Template: 67E04G_1DP+1OP
Proposed Template: 67E5998E_1xAIR+1OP+1QP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2	3	4			
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)		Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)	RFS - APXVAALL24_43-U-NA20 (Octo)			
Azimuth	0				0			
M. Tilt								
Height (ft)	125				125			
Ports	P1	P2			P3	P4	P5	P6
Active Tech	L1900 G1900				L700 L600 N600	L700 L600 N600		
Dark Tech								
Restricted Tech								
Decomm. Tech								
E. Tilt								
Cables	1-5/8" Coax - 160 ft.	1-5/8" Coax - 160 ft.			Coax Jumper (x2)	Coax Jumper (x2)		
TMAs	Generic Twin Style 1A - PCS (At Antenna)	Generic Twin Style 1B - AWS (At Antenna)						
Diplexer / Combiners								
Radio					Radio 4480 B71+B85 (At Antenna)	Radio 4480 B71+B85 (At Antenna)		
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Add PSU 4813
Add Radio 4480
Add BB 6648 for L600 / N600 / L700
Antenna Swap from Andrew - LNX-6515DS-A1M to RFS - APXVAALL24_43-U-NA20
Existing BB 5216 with L1900 remains
Add 40 meter (125') Hybrid

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

RAN Template:	A&L Template:
67E5D998E 6160	67E5998E_1xAIR+1OP+1QP

CTNH416A_Anchor_4_preliminary

Print Name: Standard
PORs: Anchor_Phase 3

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro								
Antenna	1		2		3	4			
Antenna Model	Commscope_VV-65A-R1 (Quad)		AIR 6419 B41 (Active Antenna - Massive MIMO)		Empty Antenna Mount (Empty mount)	RFS - APXVAALL24_43-U-NA20 (Octo)			
Azimuth	0		0			0			
M. Tilt									
Height (ft)	125		125			125			
Ports	P1	P2	P3	P4		P5	P6	P7	P8
Active Tech	L2100 N1900 G1900 L1900	L2100 N1900 L1900	N2500	N2500		L700 L600 N600	L700 L600 N600		
Dark Tech									
Restricted Tech									
Decomm. Tech									
E. Tilt									
Cables	Coax Jumper **(x2)** Fiber Jumper **(x2)**	Coax Jumper **(x2)**	Fiber Jumper **(x4)**	Fiber Jumper **(x4)**		Coax Jumper **(x2)** Fiber Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs									
Diplexer / Combiners									
Radio	Radio 4460 B25+B66 (At Antenna)	Radio 4460 B25+B66 (At Antenna)				Radio 4480 B71+B85 (At Antenna)	Radio 4480 B71+B85 (At Antenna)		
Sector Equipment									

Unconnected Equipment:

Scope of Work:

Replace APX16DWV-16DWV-S-E-A20 with VV-65A-R1 at P1.
Add AIR6419 at P2.
Add (1) 4460 Radio and connect it to quad antenna at P1.
Remove all unused material.

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

RAN Template:	A&L Template:
67E5D998E 6160	67E5998E_1xAIR+1OP+1QP

CTNH416A_Anchor_4_preliminary

Print Name: Standard
PORs: Anchor_Phase 3

Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2	3	4			
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)		Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)	RFS - APXVAALL24_43-U-NA20 (Octo)			
Azimuth	120				120			
M. Tilt								
Height (ft)	125				125			
Ports	P1	P2			P3	P4	P5	P6
Active Tech	L1900 G1900				L700 L600 N600	L700 L600 N600		
Dark Tech								
Restricted Tech								
Decomm. Tech								
E. Tilt								
Cables	1-5/8" Coax - 160 ft.	1-5/8" Coax - 160 ft.			Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs	Generic Twin Style 1A - PCS (At Antenna)	Generic Twin Style 1B - AWS (At Antenna)						
Diplexer / Combiners								
Radio					Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)		
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Add PSU 4813
Add Radio 4480
Add BB 6648 for L600 / N600 / L700
Antenna Swap from Andrew - LNX-6515DS-A1M to RFS - APXVAALL24_43-U-NA20
Existing BB 5216 with L1900 remains
Add 40 meter (125') Hybrid

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

RAN Template:	A&L Template:
67E5D998E 6160	67E5998E_1xAIR+1OP+1QP

CTNH416A_Anchor_4_preliminary

Print Name: Standard
PORs: Anchor_Phase 3

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro								
Antenna	1		2		3	4			
Antenna Model	Commscope_VV-65A-R1 (Quad)		AIR 6419 B41 (Active Antenna - Massive MIMO)		Empty Antenna Mount (Empty mount)	RFS - APXVAALL24_43-U-NA20 (Octo)			
Azimuth	120		120			120			
M. Tilt									
Height (ft)	125		125			125			
Ports	P1	P2	P3	P4		P5	P6	P7	P8
Active Tech	G1900 L1900 L2100 N1900	L1900 L2100 N1900	N2500	N2500		L600 L700 N600	L600 L700 N600		
Dark Tech									
Restricted Tech									
Decomm. Tech									
E. Tilt									
Cables	Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2)	Fiber Jumper (x4)	SHARED Fiber Jumper (x4)		Coax Jumper (x2) Fiber Jumper (x2)	Coax Jumper (x2)		
TMAs									
Diplexer / Combiners									
Radio	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)				Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)		
Sector Equipment									

Unconnected Equipment:

Scope of Work:

Replace APX16DWV-16DWV-S-E-A20 with VV-65A-R1 at P1.
Add AIR6419 at P2.
Add (1) 4460 Radio and connect it to quad antenna at P1.
Remove all unused material.

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

RAN Template:	A&L Template:
67E5D998E 6160	67E5998E_1xAIR+1OP+1QP

CTNH416A_Anchor_4_preliminary

Print Name: Standard
PORs: Anchor_Phase 3

Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2	3	4			
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)		Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)	RFS - APXVAALL24_43-U-NA20 (Octo)			
Azimuth	250				250			
M. Tilt								
Height (ft)	125				125			
Ports	P1	P2			P3	P4	P5	P6
Active Tech	L1900 G1900				L700 L600 N600	L700 L600 N600		
Dark Tech								
Restricted Tech								
Decomm. Tech								
E. Tilt								
Cables	1-5/8" Coax - 160 ft.	1-5/8" Coax - 160 ft.			Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs	Generic Twin Style 1A - PCS (At Antenna)	Generic Twin Style 1B - AWS (At Antenna)						
Diplexer / Combiners								
Radio					Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)		
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Add PSU 4813
Add Radio 4480
Add BB 6648 for L600 / N600 / L700
Antenna Swap from Andrew - LNX-6515DS-A1M to RFS - APXVAALL24_43-U-NA20
Existing BB 5216 with L1900 remains
Add 40 meter (125') Hybrid

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

RAN Template:	A&L Template:
67E5D998E 6160	67E5998E_1xAIR+1OP+1QP

CTNH416A_Anchor_4_preliminary

Print Name: Standard
PORs: Anchor_Phase 3

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro								
Antenna	1		2		3	4			
Antenna Model	Commscope_VV-65A-R1 (Quad)		AIR 6419 B41 (Active Antenna - Massive MIMO)		Empty Antenna Mount (Empty mount)	RFS - APXVAALL24_43-U-NA20 (Octo)			
Azimuth	250		250			250			
M. Tilt									
Height (ft)	125		125			125			
Ports	P1	P2	P3	P4		P5	P6	P7	P8
Active Tech	L2100 G1900 N1900 L1900	L2100 N1900 L1900	N2500	N2500		L600 N600 L700	L600 N600 L700		
Dark Tech									
Restricted Tech									
Decomm. Tech									
E. Tilt									
Cables	Coax Jumper **(x2)** Fiber Jumper **(x2)**	Coax Jumper **(x2)**	Fiber Jumper **(x4)**	Fiber Jumper **(x4)**		Coax Jumper **(x2)** Fiber Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs									
Diplexer / Combiners									
Radio	Radio 4460 B25+B66 (At Antenna)	Radio 4460 B25+B66 (At Antenna)				Radio 4480 B71+B85 (At Antenna)	Radio 4480 B71+B85 (At Antenna)		
Sector Equipment									

Unconnected Equipment:

Scope of Work:

Replace APX16DWV-16DWV-S-E-A20 with VV-65A-R1 at P1.
Add AIR6419 at P2.
Add (1) 4460 Radio and connect it to quad antenna at P1.
Remove all unused material.

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