10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Transcend Wireless

September 17, 2021

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

RE: Notice of Exempt Modification
47 Inwood Road, Rocky Hill, CT 06067497 Old Post Road, Tolland, CT, 06084
Latitude: 41.63858611
Longitude: -72.67928889
T-Mobile Site#: CTHA859A – Sprint Keep Project

Dear Ms. Bachman:

T-Mobile/Sprint currently maintains six (6) antennas at the 140-foot level of the existing 184-foot monopole at 47 Inwood Road, Rocky Hill, CT. The 184-foot monopole is owned by American Tower. The property is owned by Merrifield LLC. T-Mobile now intends to remove all existing Sprint equipment including antennas, cables, and ground equipment. T-Mobile will be adding six (6) antennas. The new antennas will be installed at the same 184-foot level of the tower. The new antennas support 5G services.

Planned Modifications:
Tower:
Remove
(6) Sprint Antennas
(12) Sprint RRHs
(4) Hybrid Cables

Install New:
(3) Ericsson AIR 6449 B41 Antennas
(3) RFS-APXVAALL24 Antennas
(3) Radio 4460 B25 + B65
(3) Radio 4480 B71+B85
(3) 6/24 4AWG Hybrid Cables

Ground:

Install New:
(1) Enclosure 6160 Cabinet, (1) Battery Cabinet, (3) BB 6648s, (1) DUG20, (1) RBS 6601, and (1) PSU 4813

Remove:
All Sprint Ground Equipment

This tower was not originally approved by the Connecticut Siting Council and the Town of Rocky Hill has indicated the town does not retain records for the original approval of this tower.

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 Mayor Lisa Marotta, Elected Official, and Kim Ricci, Zoning Enforcement Officer, as well as the Tower Owner and the 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: Lisa Marotta - Mayor of Rocky Hill
Kim Ricci - Zoning Enforcement Officer
American Tower - Tower Owner
Merrifield LLC - Land Owner


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
MERRIFIELD LLC
10 TALCOTT PLACE
WETHERSFIELD CT 06109
CT 061 9-02
UPS GROUND
TRACKING #: 1Z V25 742 03 9423 2405
BILLING: P/P
Reference #1: CTHA859A
XOL 21.09.06 NV45 35.0A 08/2021*


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801
MA 018 9-04
UPS GROUND
TRACKING #: 1Z V25 742 03 9769 5419
BILLING: P/P
Reference #1: CTHA859A
XOL 21.09.06 NV45 37.0A 09/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS 1 OF 1

SHIP TO:
MAYOR LISA MAROTTA
761 OLD MAIN STREET
ROCKY HILL CT 06067

CT 061 9-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9156 8424

BILLING: P/P

Reference #1: CTHA859A

XOL 21.09.06 NV45 35.0A 08/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS 1 OF 1

SHIP TO:
PLANNING AND ZONING
KIM RUCCI
761 OLD MAIN STREET
ROCKY HILL CT 06067

CT 061 9-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9219 8411

BILLING: P/P

Reference #1: CTHA829A

XOL 21.09.06 NV45 35.0A 08/2021*

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/15/2021

Delivery Time: 3:32 PM

Left At: FRONT DOOR

TRANSCEND WIRELESS

Tracking Number:	1ZV257420394232405
Ship To:	MERRIFIELD LLC 10 TALCOTT PLACE WETHERSFIELD, CT 06109 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA859A

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/15/2021

Delivery Time: 12:12 PM

Left At: OFFICE

Signed by: SANDY

TRANSCEND WIRELESS

Tracking Number:	1ZV257420391568424
Ship To:	MAYOR LISA MAROTTA 761 OLD MAIN STREET ROCKY HILL, CT 06067 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA859A

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/15/2021

Delivery Time: 11:47 AM

Left At: FRONT DESK

Signed by: ID Verified

TRANSCEND WIRELESS

Tracking Number:	1ZV257420397695419
Ship To:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA859A

Your shipment
1ZV257420392198411

Delivered On
Wednesday, September 15 at 12:12 P.M. at Office

Delivered To
ROCKY HILL, CT US

Received By:
SANDY
Proof of Delivery

Get Updates View Details


COLD SPRING RD
OLD COLD SPRING RD
INTERSTATE 91
CROMWELL AV
3


COLD SPRING RD
OLD COLD SPRING RD
INTERSTATE 91
CROMWELL AV
3

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2019

TOWN OF ROCKY HILL

Situs : 47 INWOOD ROAD | **PARCEL ID: 4145** | **Class: 300** | Card: 1 of 1 | Printed: March 5, 2020

CURRENT OWNER

MERRIFIELD LLC
10 TALCOTT PLACE
WETHERSFIELD CT 06109
503/959 05/08/2006

GENERAL INFORMATION

Living Units	
Neighborhood	I
Alternate ID	004208
Vol / Pg	503/959
Map/Lot	16-296
Zoning	BP
Class	INDUSTRIAL

Property Notes

16-296-001 12/09/2012

Land Information

Type		Size	Influence Factors	Influence %	Value
Primary	AC	1.0000			200,000

Total Acres: 1
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	140,000	200,000	200,000	200,000	0
Building	228,830	326,900	326,900	56,400	0
Total	368,830	526,900	526,900	256,400	0

Value Flag COST APPROACH
Gross Building:
Manual Override Reason
Base Date of Value
Effective Date of Value

Entrance Information

Date	ID	Entry Code	Source
10/05/12	ST	Measured + 1visit	From Conversion
02/20/09	ST	Hearing No Change	From Conversion
08/19/08	ST	Reval Inspection	Owner

Permit Information

Date Issued	Number	Price	Purpose		% Complete
05/09/18	2018-459	20,000	CM	Scope Of Work Includes Upgradin	0
10/23/17	2018-189	25,000	CM	Empire Telecom For At&T, An Exis	0
11/08/16	2017-213	25,000	MS	Swap At&T'S Equipment On Existi	0
08/15/14	2015-75	27,000	MS	Upgrade And Replace Antennas A	100
04/16/14	2014-356	12,500	CM	Prep And Concrete Pad For New C	100

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
05/08/06		Improved - L&B Sale	No Consideration	503/959	No Consideration	MERRIFIELD LLC
06/24/98		Improved - L&B Sale		346/452		MERRIFIELD BEVERLY

Inspection Witnessed By _____

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2019

TOWN OF ROCKY HILL

Situs : 47 INWOOD ROAD	Parcel Id: 4145	Class: 300	Card: 1 of 1	Printed: March 5, 2020

Building Information

Year Built/Eff Year	1962 /
Building #	1
Structure Type	Warehouse
Identical Units	1
Total Units	1
Grade	C
# Covered Parking	
# Uncovered Parking	
DBA	

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units	Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units
1	Ovrhd Dr 12'		2	1		1							

Interior/Exterior Information

Line	Level From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	01	01		448	84	Warehouse	16	Concrete Bl	Wood Frame/Joist/B	Normal	Hot Air	None	Normal	2	3
2	01	01		4,550	270	Warehouse	16	Concrete Bl	Wood Frame/Joist/B	Normal	Hot Air	None	Normal	2	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	448	Warehouse	40		22,990
2	4,550	Warehouse	40		111,800

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value
1	Tower Cell	2005			1	150	C	G	186,000
2	Asph Pav	1962			1	6,300	C	P	6,070

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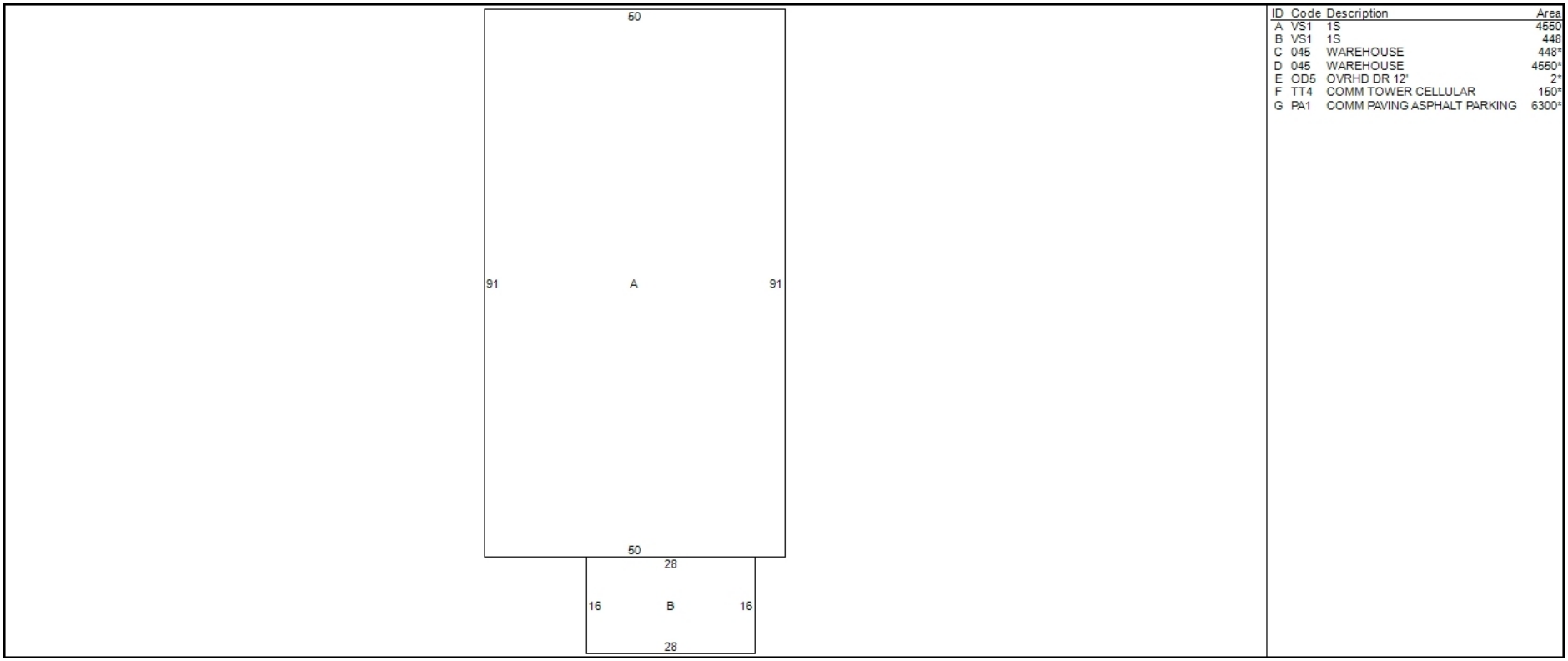
COMMERCIAL PROPERTY RECORD CARD 2019

TOWN OF ROCKY HILL

Situs : 47 INWOOD ROAD	Parcel Id: 4145	Class: 300	Card: 1 of 1	Printed: March 5, 2020



ID	Code	Description	Area
A	VS1	1S	4550
B	VS1	1S	448
C	045	WAREHOUSE	448*
D	045	WAREHOUSE	4550*
E	OD5	OVRHD DR 12'	2*
F	TT4	COMM TOWER CELLULAR	150*
G	PA1	COMM PAVING ASPHALT PARKING	6300*

Addtional Property Photos

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2019

TOWN OF ROCKY HILL

Situs : 47 INWOOD ROAD	Parcel Id: 4145	Class: 300	Card: 1 of 1	Printed: March 5, 2020

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
07	S	1	Lt Manufacturing	0	4,998	6.00		29,988	5		0	28,489	10			2,849	2,849	25,640

Apartment Detail - Building 1 of 1

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

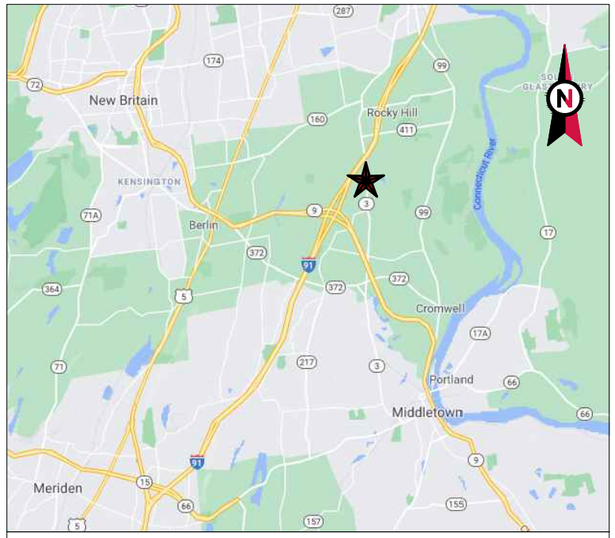
Building Cost Detail - Building 1 of 1

Total Gross Building Area	4,998
Replace, Cost New Less Depr	134,790
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	134,790
Value per SF	26.97

Notes - Building 1 of 1

Income Summary (Includes all Building on Parcel)

Total Net Income	25,640
Capitalization Rate	0.100000
Sub total	256,400
Residual Land Value	
Final Income Value	256,400
Total Gross Rent Area	4,998
Total Gross Building Area	4,998



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: MIDDLETOWN CT 3
ATC SITE NUMBER: 302537
T-MOBILE SITE NAME: CTHA859A
T-MOBILE SITE NUMBER: CTHA859A
SITE ADDRESS: 47 INWOOD ROAD
ROCKY HILL, CT 06067

LOCATION MAP

T-MOBILE SPRINT RETAIN ANTENNA AMENDMENT PLAN
67D5998C 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. 2015 INTERNATIONAL BUILDING CODE (IBC)
2. 2017 NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: EVER SOURCE
PHONE: (800) 286-2000

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (866) 604-1892

CBYD.COM 811 Call Before You Dig, Inc.

PROJECT SUMMARY

SITE ADDRESS:

47 INWOOD ROAD

ROCKY HILL, CT 06067

COUNTY: HARTFORD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.63858611

LONGITUDE: -72.67928889

GROUND ELEVATION: 140' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

KIMLEY-HORN
& ASSOCIATES, INC.
421 FAYETTEVILLE ST, STE 600
RALEIGH, NC 27601
COA: PEC.0000738

PROPERTY OWNER:

MERRIFIELD LLC
10 TALCOTT PLACE
WETHERSFIELD, CT 06109

APPLICANT:
T-MOBILE
WHITNEY JONES
WJONES@TRANSCENDWIRELESS.COM

PROJECT DESCRIPTION

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

TOWER WORK:

REMOVE (3) APXVSPP18-C-A20 ANTENNA(s), (3) DT465B-2XR ANTENNA(s), (3) 800MHZ 2X50W RRH(s), (3) RRH2X50-08 RRH(s), (3) 4X40W RRH(s), (3) TD-RRH8X20-25 RRH(s), AND (4) 1-1/4" HYBRID CABLE(s)

INSTALL (3) APXVAALL24 43-U-NA20 ANTENNA(s), (3) AIR6449 ANTENNA(s), (3) RADIO 4480 B71+B85 RRH(s), (3) RRUS 4460 B25+B66A RRH(s), AND (3) 1-5/8" HYBRID CABLE(s)

EXISTING PLATFORM MOUNT TO REMAIN

GROUND WORK:

REMOVE (2) CABINET(s) AND (1) EQUIPMENT ENCLOSURE

INSTALL (1) ENCLOSURE 6160, (1) B160 ENCLOSURE, (3) BB 6648(s), (1) DUG20, (1) RBS 6601, AND (1) PSU 4813

THE PROPOSED PROJECT DOES NOT INCLUDE ELECTRICAL SCOPE

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

PROCEED FROM ROCKY HILL, CT HEAD SOUTHWEST ON OLD MAIN ST TOWARD WASHINGTON ST 0.2 MI TURN RIGHT ONTO CT-160 / ELM ST, THEN IMMEDIATELY TURN LEFT ONTO CT-99 / MAIN ST 1.4 MI TURN RIGHT ONTO BROOK ST 1.7 MI TURN LEFT ONTO CT-3 / CROMWELL AVE 0.2 MI TURN RIGHT ONTO INWOOD RD 0.1 MI ARRIVE AT INWOOD RD THE LAST INTERSECTION BEFORE YOUR DESTINATION IS CT-3 / CROMWELL AVE 47 INWOOD RD, ROCKY HILL, CT 06067

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	1	08/19/21	JJR
G-002	GENERAL NOTES	1	08/19/21	JJR
C-101	DETAILED SITE PLAN	1	08/19/21	JJR
C-102	DETAILED GROUND PLAN	1	08/19/21	JJR
C-201	TOWER ELEVATION	1	08/19/21	JJR
C-401	ANTENNA INFORMATION & SCHEDULE	1	08/19/21	JJR
C-501	CONSTRUCTION DETAILS	1	08/19/21	JJR
E-501	GROUNDING DETAILS	1	08/19/21	JJR
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			

AMERICAN TOWER®

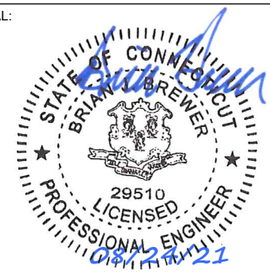
Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	GC	04/28/21
0	ISSUED FOR CONSTRUCTION	WCE	06/02/21
1	REVISED FOR CONSTRUCTION	JJR	08/19/21

ATC SITE NUMBER:
302537
ATC SITE NAME:
MIDDLETOWN CT 3
T-MOBILE SITE NAME:
CTHA859A
SITE ADDRESS:
47 INWOOD ROAD
ROCKY HILL, CT 06067

SEAL:



T-Mobile

DATE DRAWN:	08/19/21
ATC JOB NO:	13668065
CUSTOMER ID:	CTHA859A
CUSTOMER #:	CTHA859A

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	1

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. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY 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.

30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.

31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.

33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:

   A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.

   B. INSTALL ANTENNA 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. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.

   F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.

   G. ANTENNA AND COAXIAL CABLE GROUNDING:

i. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

ii. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL 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®

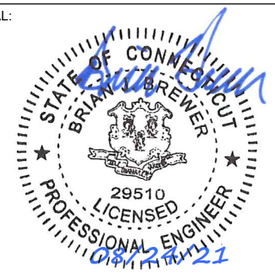
Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	GC	04/28/21
0	ISSUED FOR CONSTRUCTION	WCE	06/02/21
1	REVISED FOR CONSTRUCTION	JJR	08/19/21

ATC SITE NUMBER:
302537
ATC SITE NAME:
MIDDLETOWN CT 3
T-MOBILE SITE NAME:
CTHA859A
SITE ADDRESS:
47 INWOOD ROAD
ROCKY HILL, CT 06067

SEAL:



T-Mobile

DATE DRAWN:	08/19/21
ATC JOB NO:	13668065
CUSTOMER ID:	CTHA859A
CUSTOMER #:	CTHA859A

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	1

SITE PLAN NOTES:

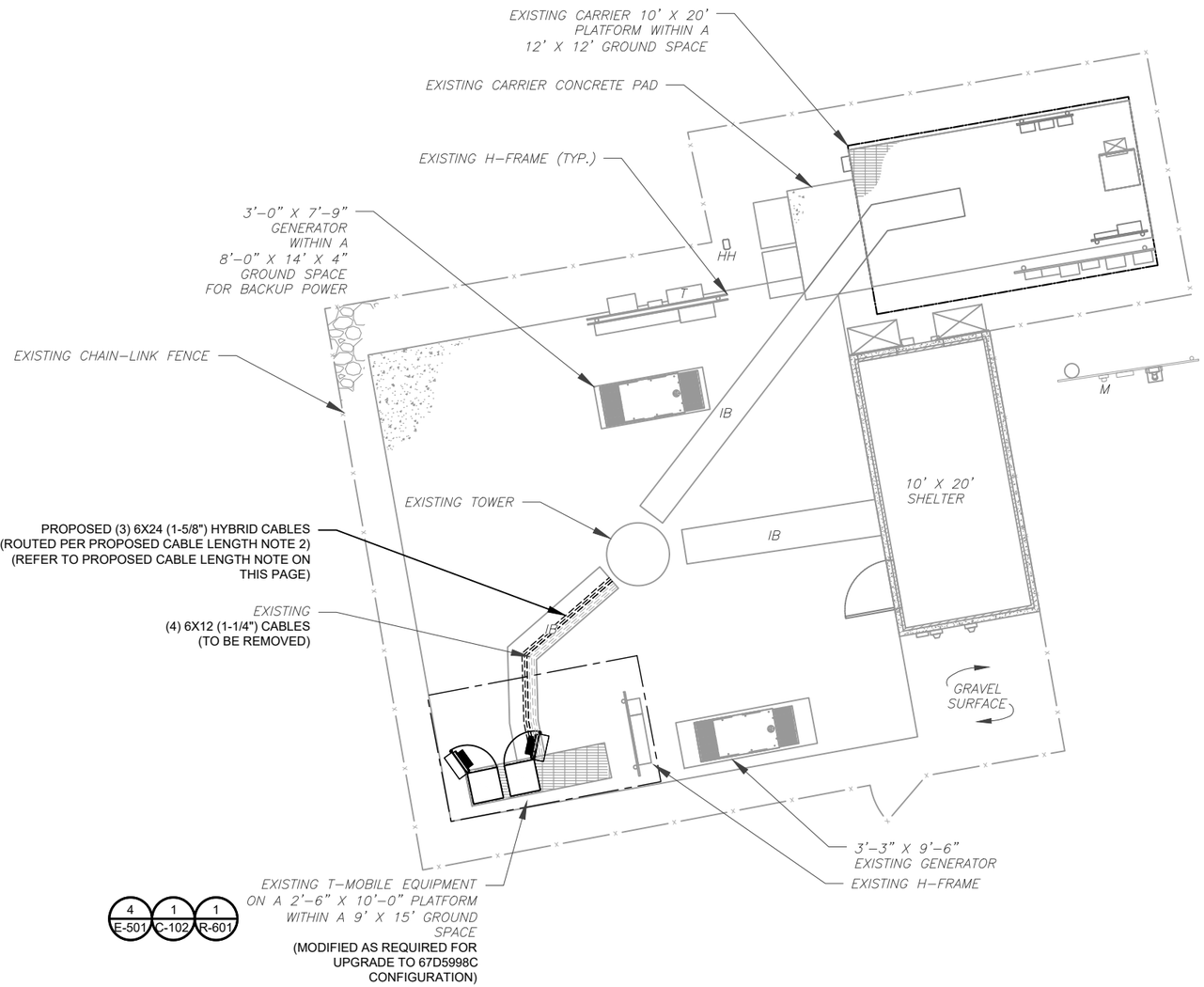
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

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 RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
——x——	CHAINLINK FENCE



1 DETAILED SITE PLAN

0 10' 20'

SCALE: 1"=10' (11X17)
1"=5' (22X34)

PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **179'**. 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.

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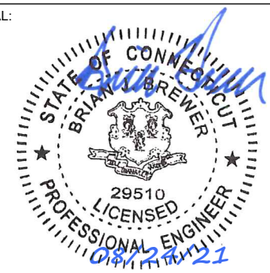
302537
ATC SITE NAME:
MIDDLETOWN CT 3
T-MOBILE SITE NAME:
CTHA859A
SITE ADDRESS:
47 INWOOD ROAD
ROCKY HILL, CT 06067

SEAL:



T-Mobile

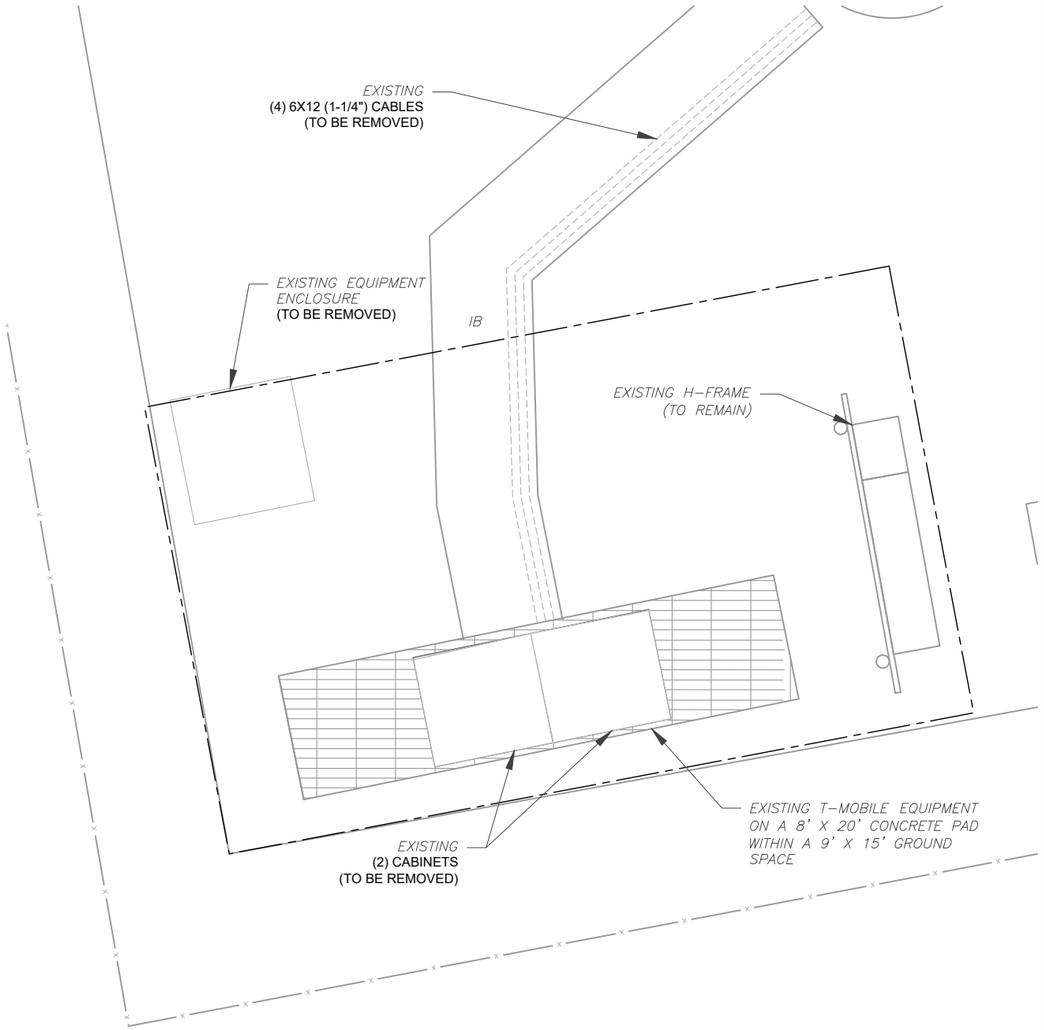
DATE DRAWN:	08/19/21
ATC JOB NO:	13668065
CUSTOMER ID:	CTHA859A
CUSTOMER #:	CTHA859A

DETAILED SITE PLAN

SHEET NUMBER: C-101
REVISION: 1

SITE PLAN NOTES:

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

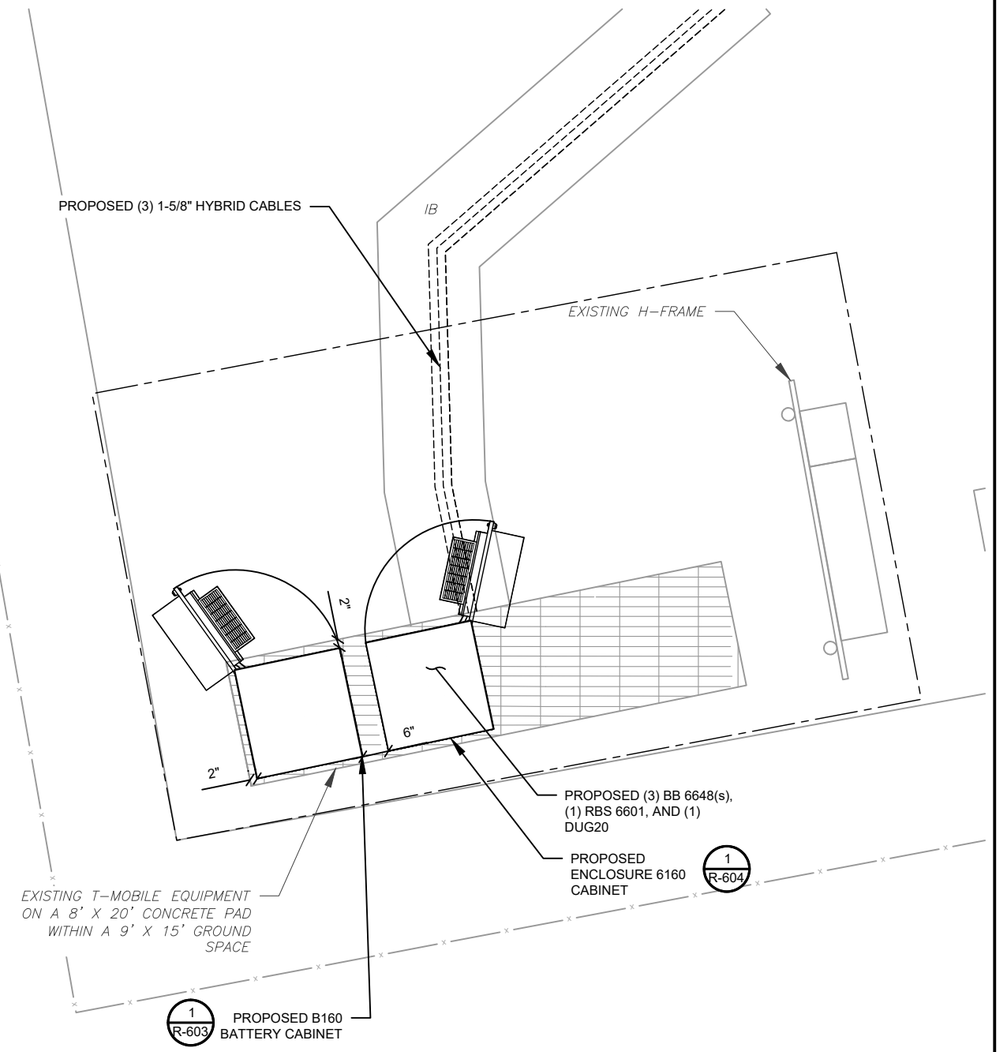


1 EXISTING GROUND EQUIPMENT LAYOUT

0 5' 10'

SCALE: 1"=5' (11X17)
1"=2.5' (22X34)

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



2 PROPOSED GROUND EQUIPMENT LAYOUT

0 5' 10'

SCALE: 1"=5' (11X17)
1"=2.5' (22X34)

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ATC SITE NAME:
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T-MOBILE SITE NAME:
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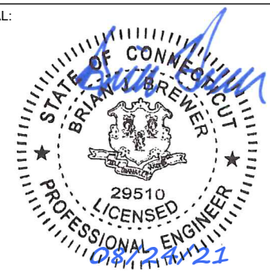
SITE ADDRESS:
47 INWOOD ROAD
ROCKY HILL, CT 06067

SEAL:

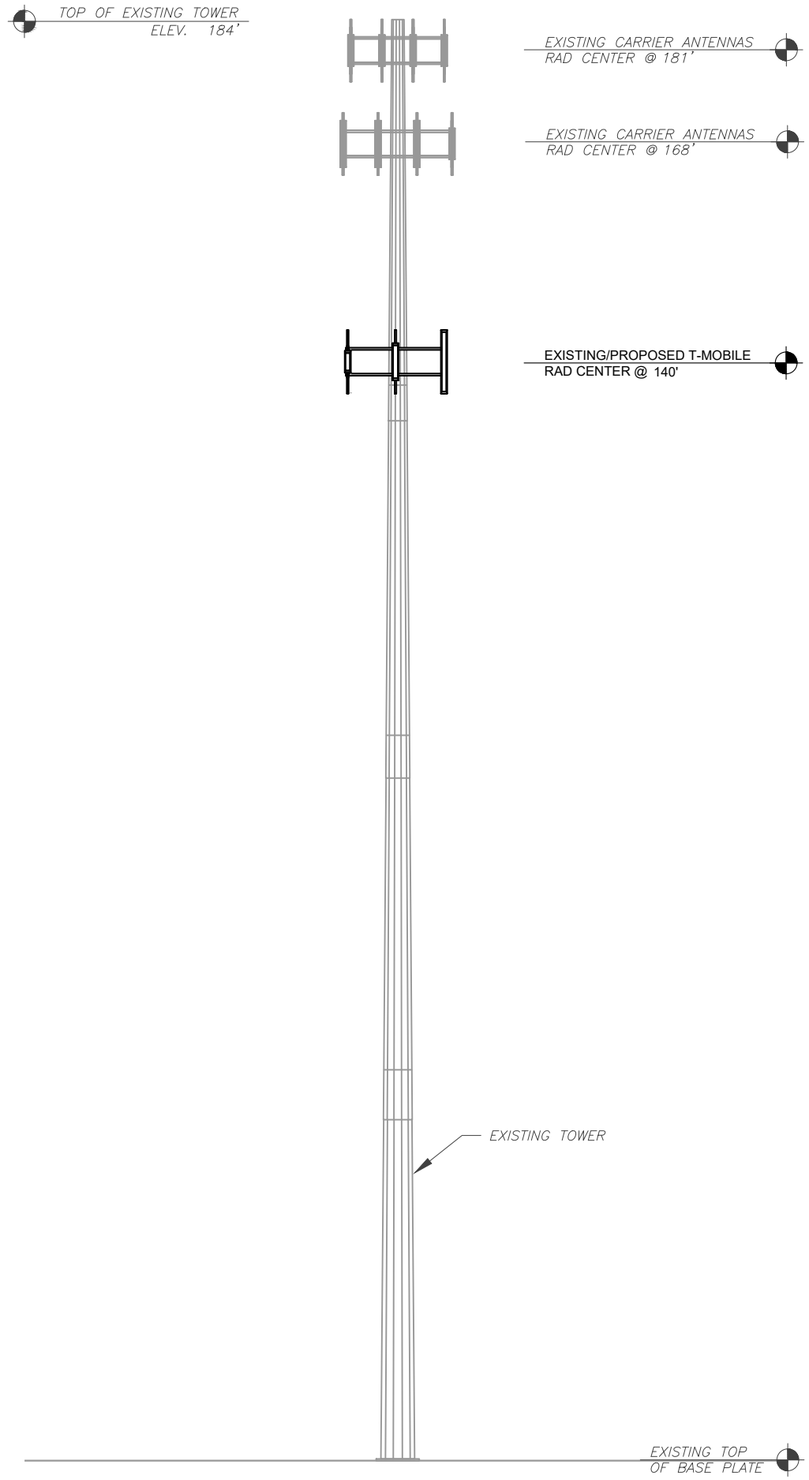


T-Mobile

DATE DRAWN:	08/19/21
ATC JOB NO:	13668065
CUSTOMER ID:	CTHA859A
CUSTOMER #:	CTHA859A

DETAILED GROUND PLAN

SHEET NUMBER:	REVISION:
C-102	1



1 TOWER ELEVATION
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING PLLC, DATED 08/13/21, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

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.)

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SITE ADDRESS:
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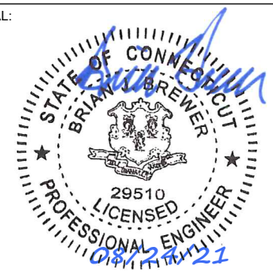
SEAL:

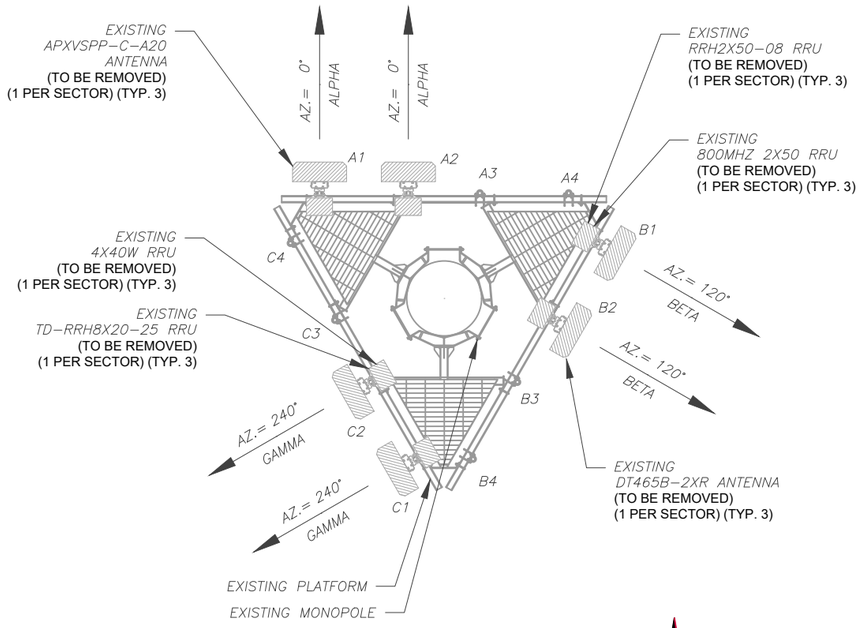


T-Mobile

DATE DRAWN:	08/19/21
ATC JOB NO:	13668065
CUSTOMER ID:	CTHA859A
CUSTOMER #:	CTHA859A

TOWER ELEVATION

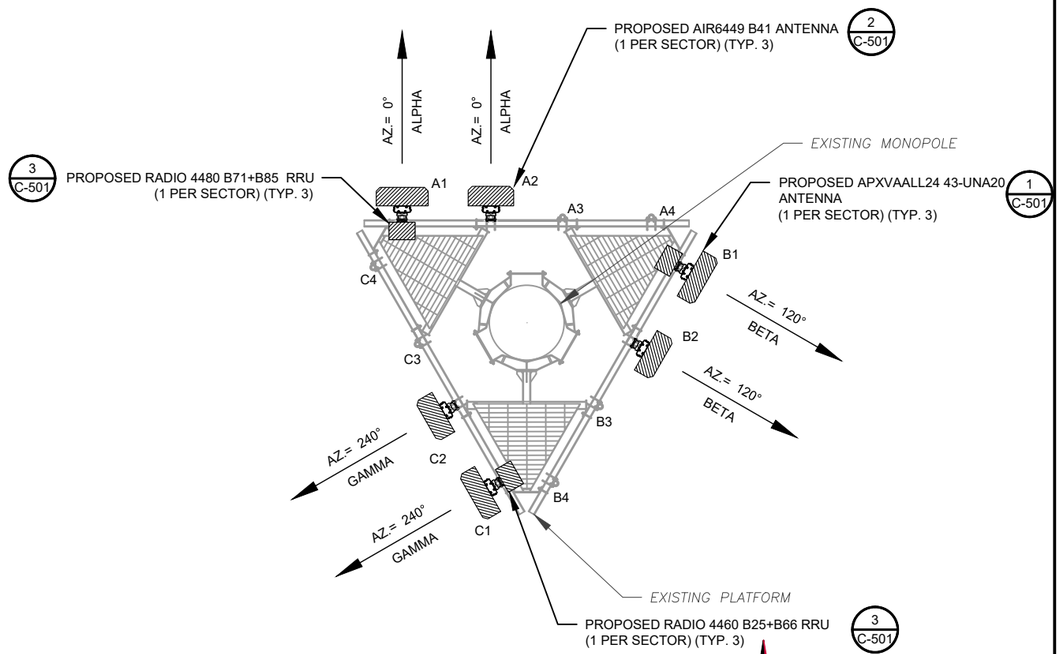
SHEET NUMBER:	REVISION:
C-201	1



1 EXISTING ANTENNA PLAN

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING PLLC, DATED 08/13/21, 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	140'	0°	A1	APXVSPP-C-A20	–	–	RMV	800MHZ 2X50 RRH2X50-08	RMV
			A2	DT465B-2XR	–	–	RMV	4X40W TD-RRH8X20-25	RMV
			A3	–	–	–	–	–	–
			A4	–	–	–	–	–	–
BETA	140'	120°	B1	APXVSPP-C-A20	–	–	RMV	800MHZ 2X50 RRH2X50-08	RMV
			B2	DT465B-2XR	–	–	RMV	4X40W TD-RRH8X20-25	RMV
			B3	–	–	–	–	–	–
			B4	–	–	–	–	–	–
GAMMA	140'	240°	C1	APXVSPP-C-A20	–	–	RMV	800MHZ 2X50 RRH2X50-08	RMV
			C2	DT465B-2XR	–	–	RMV	4X40W TD-RRH8X20-25	RMV
			C3	–	–	–	–	–	–
			C4	–	–	–	–	–	–

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.
3. ROUTE HYBRID JUMPERS TO AVOID DAMAGE FROM BEING STEPPED UPON.

STATUS ABBREVIATIONS

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

CABLE LENGTHS FOR JUMPERS

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

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	0°	A1	APXVAALL24 43-U-NA20	L700, L600, N600	0°/2°	ADD	RADIO 4480 B71+B85 RADIO 4460 B25+B66	ADD
			A2	AIR6449	L2500, N2500	0°/2°	ADD	-	-
			A3	-	-	-	-	-	-
			A4	-	-	-	-	-	-
BETA	140'	120°	B1	APXVAALL24 43-U-NA20	L700, L600, N600	0°/2°	ADD	RADIO 4480 B71+B85 RADIO 4460 B25+B66	ADD
			B2	AIR6449	L2500, N2500	0°/2°	ADD	-	-
			B3	-	-	-	-	-	-
			B4	-	-	-	-	-	-
GAMMA	140'	240°	C1	APXVAALL24 43-U-NA20	L700, L600, N600	0°/2°	ADD	RADIO 4480 B71+B85 RADIO 4460 B25+B66	ADD
			C2	AIR6449	L2500, N2500	0°/2°	ADD	-	-
			C3	-	-	-	-	-	-
			C4	-	-	-	-	-	-

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	–	(4) 6X12 (1-1/4")	RMV

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 6X24 (1-5/8")	ADD

3 EQUIPMENT SCHEDULES

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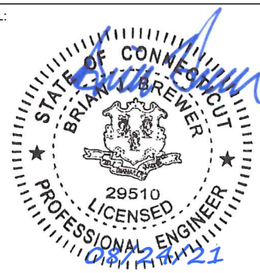

T-Mobile

DATE DRAWN:	08/19/21
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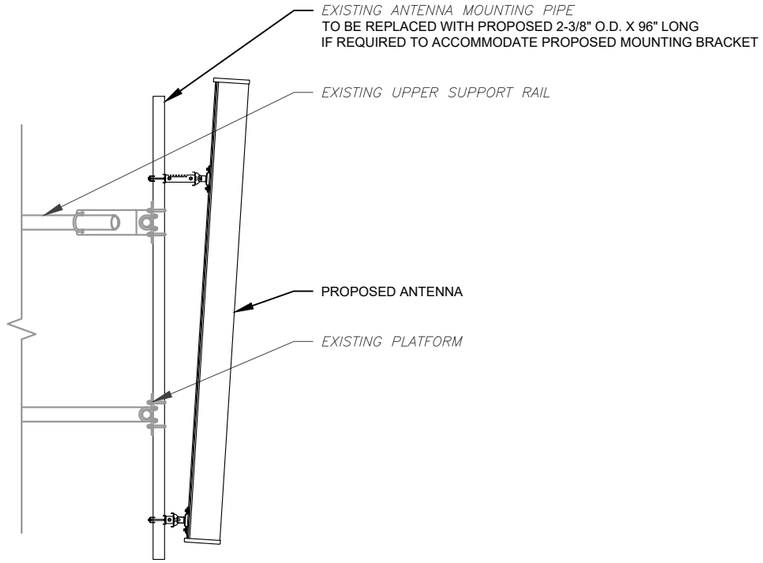
CUSTOMER ID:	CTHA859A
CUSTOMER #:	CTHA859A

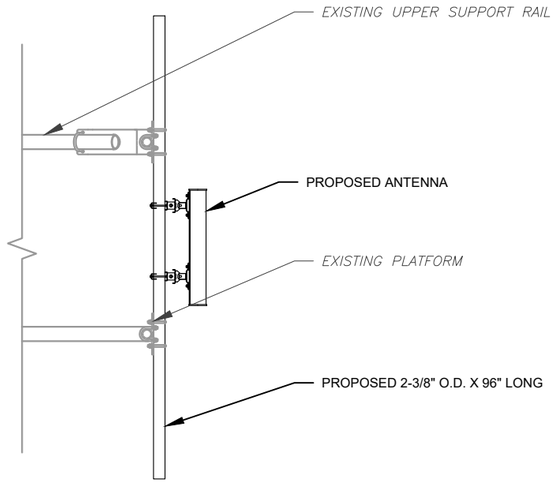
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-401	1



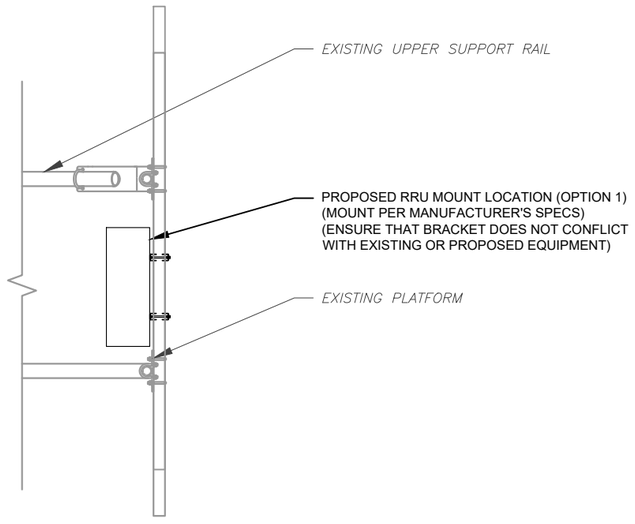
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



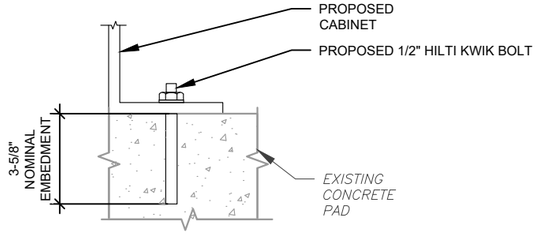
2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



NOTE:

INSTALL HILTI KWIK BOLT ANCHORS STRICTLY PER INSTALLATION INSTRUCTIONS INCLUDED WITH PRODUCT OR FOUND ONLINE AT WWW.US.HILTI.COM. PROPER INSTALLATION IS CRITICAL FOR FULL PERFORMANCE.

4 CABINET ATTACHMENT DETAIL

SCALE: NOT TO SCALE

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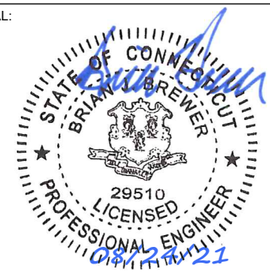
302537

ATC SITE NAME:
MIDDLETOWN CT 3

T-MOBILE SITE NAME:
CTHA859A

SITE ADDRESS:
47 INWOOD ROAD
ROCKY HILL, CT 06067

SEAL:

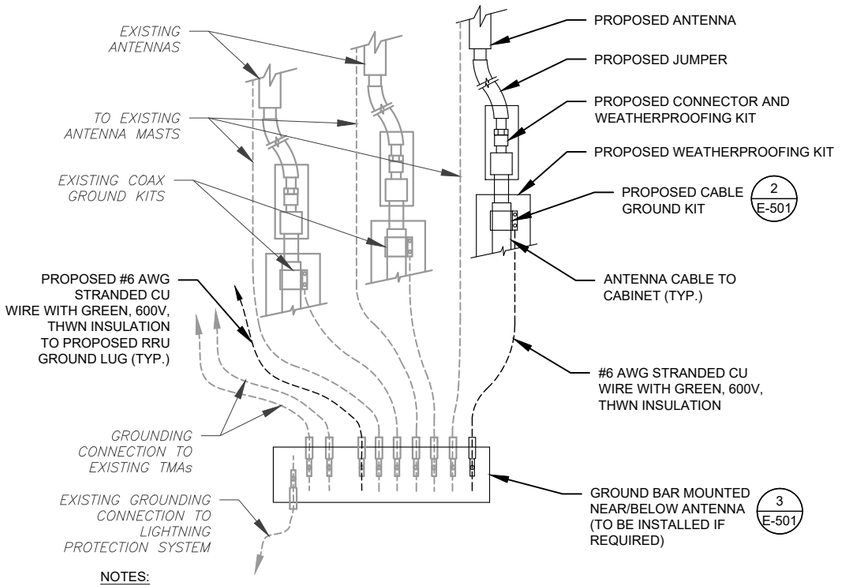


T-Mobile

DATE DRAWN:	08/19/21
ATC JOB NO:	13668065
CUSTOMER ID:	CTHA859A
CUSTOMER #:	CTHA859A

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	1

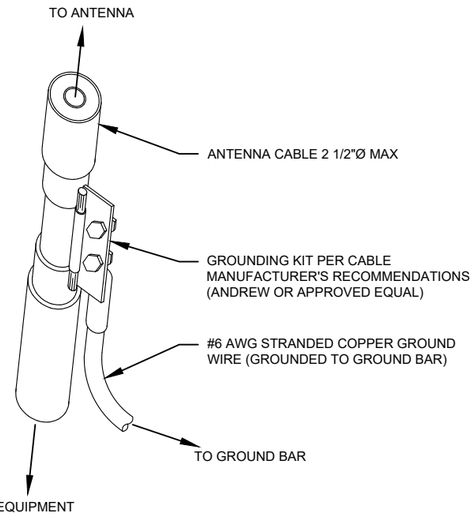


NOTES:

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.

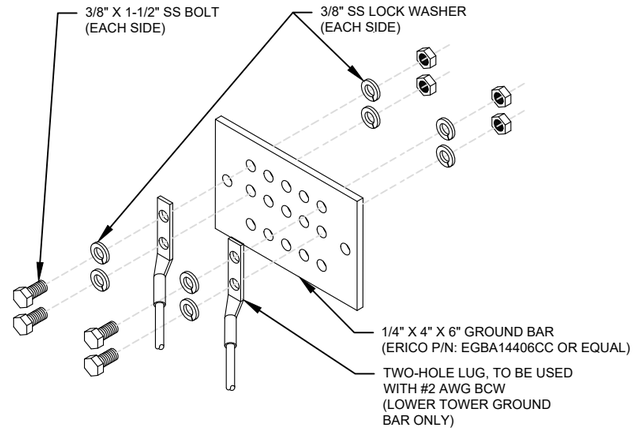


GROUND KIT NOTES:

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.

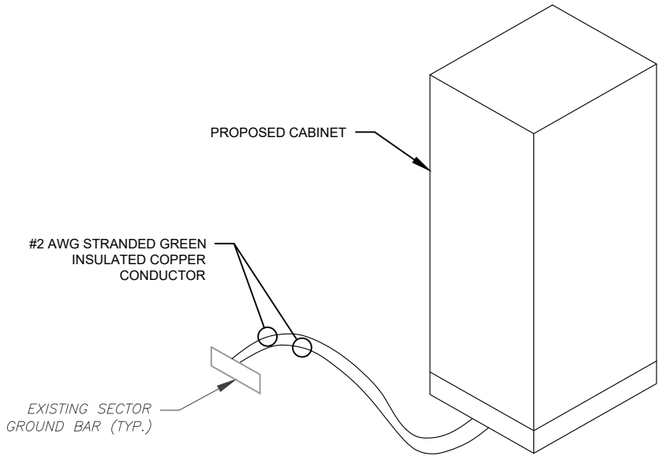


GROUND BAR NOTES:

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.



4 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.

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

AMERICAN TOWER®

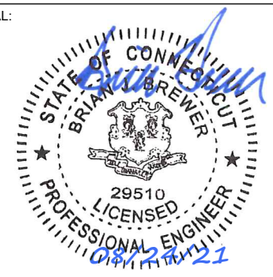
Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	GC	04/28/21
0	ISSUED FOR CONSTRUCTION	WCE	06/02/21
1	REVISED FOR CONSTRUCTION	JJR	08/19/21

ATC SITE NUMBER:
302537
ATC SITE NAME:
MIDDLETOWN CT 3
T-MOBILE SITE NAME:
CTHA859A
SITE ADDRESS:
47 INWOOD ROAD
ROCKY HILL, CT 06067

SEAL:



T-Mobile

DATE DRAWN:	08/19/21
ATC JOB NO:	13668065
CUSTOMER ID:	CTHA859A
CUSTOMER #:	CTHA859A

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	1

4/6/2021 CTHA859A_Sprint Retain_1_draft_2021-04-06

RAN Template:	A&L Template:
67D5A998C 6160 (GSM only)	67D5998C_1xAIR+1QP+1OP (GSM only)

CTHA859A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 5 - RAN Equipment

Existing RAN Equipment

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

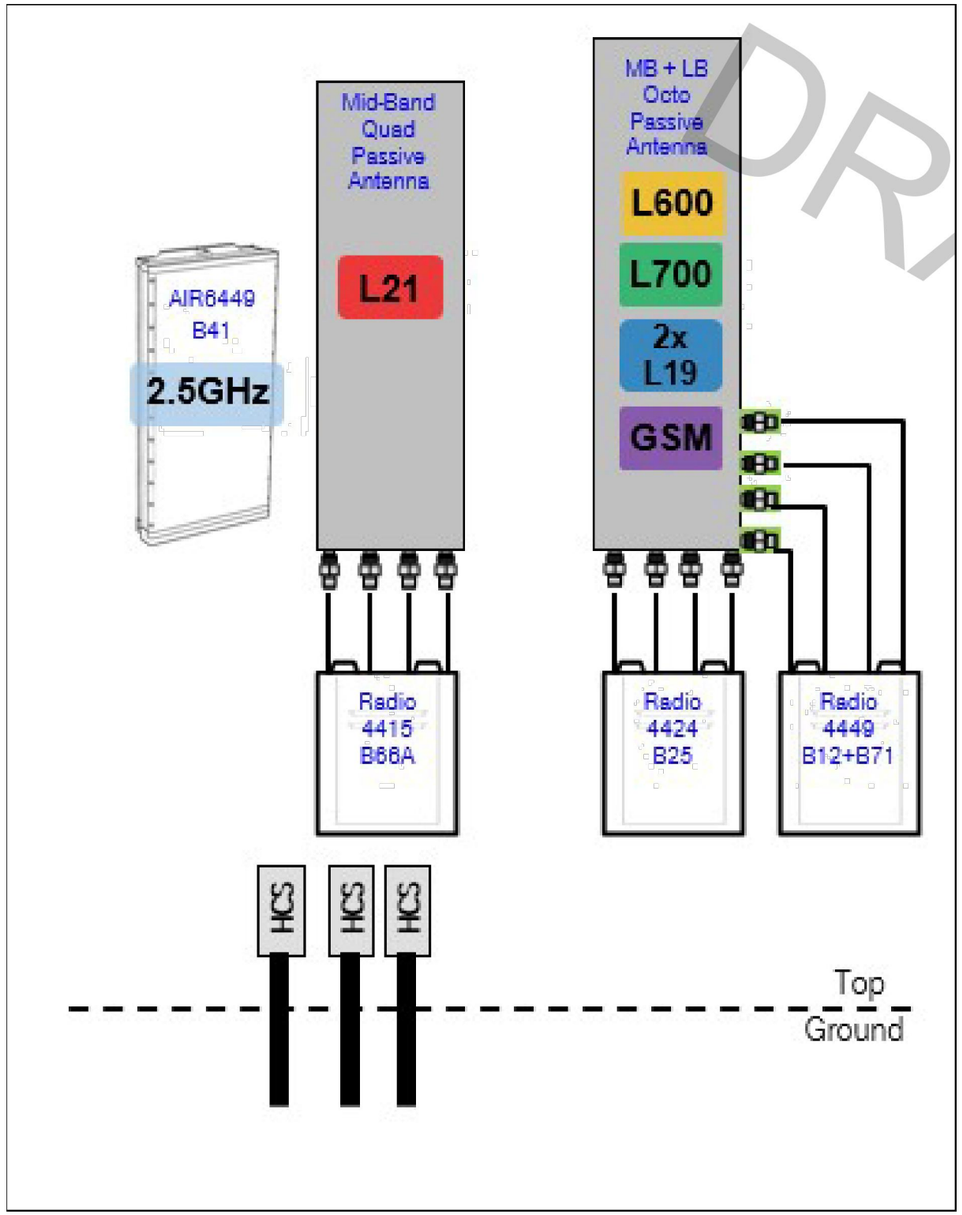
Proposed RAN Equipment

Template: 67D5A998C 6160 (GSM only)

Enclosure	1	2	3	4
Enclosure Type	Ancillary Equipment (Ericsson)	Enclosure 6160	B160	RBS 6601
Baseband		BB 6648 (L2500, N2500); BB 6648 (L2100, L1900); BB 6648 (L700, L600, N600)		DUG20 (G1900)
Hybrid Cable System	PSU 4813; Ericsson Hybrid Trunk 6/24 4AWG 100m (x 3)			
Transport System		CSR IXRe V2 (Gen2)		

RAN Scope of Work:

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

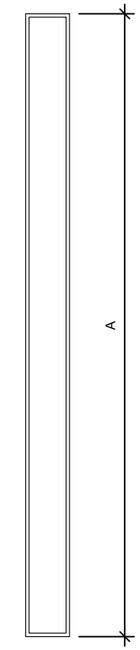


2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

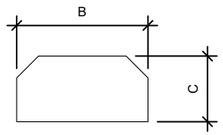
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	1



FRONT VIEW

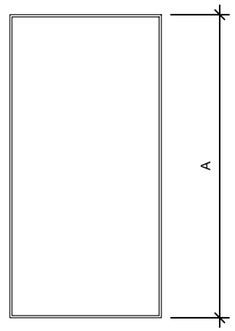


TOP VIEW

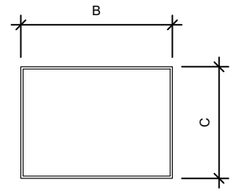
1 ANTENNA SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
APXVAALL24 43-U-NA20	95.9"	24.0"	8.5"	122.8
AIR6449 B41	33.1"	20.6"	8.6"	104.0



FRONT VIEW



TOP VIEW

2 RRU SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

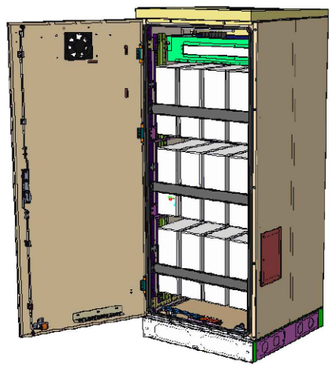
RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RADIO 4480 B71 B85A	15.0"	13.2"	10.5"	75
RRUS 4460 B25+B66	15.0"	13.2"	5.4"	46

SUPPLEMENTAL

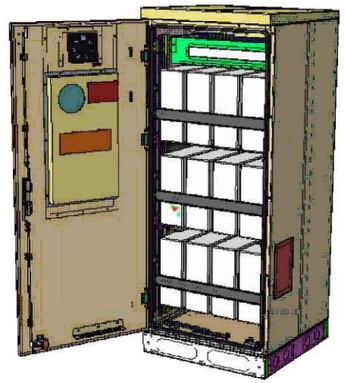
SHEET NUMBER: R-602

REVISION: 1

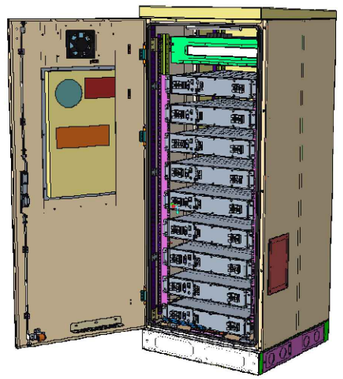
Enclosure B160



Enclosure B160
AirCon + VRLA



Enclosure B160
AirCon + Li-Ion



Enclosure B160
Convection Cooling
+ VRLA

Enclosure B160

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

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

Mechanical specification
- Weight: 134kg
- Dimensions: 63 x 26 x 26 in. (incl. Base frame)
- Base frame height: 6 in.
- Material: Galvanized steel (180g/m²)
- Color: Powder paint NCS 2002-B
- Door: Front access
- Locking type: Pad lock / cylinder

Environmental specification
- Ingress protection: VRLA/Sodium IP44
Li-Ion IP55
- Relative humidity: 15-100%

Climate system
- Air Conditioner
  - Fan type: DC
  - Cooling capacity: 500W @L35/L35
- Convection cooling
  - Emergency fan

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	1

Enclosure 6160 AC

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

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

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

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

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

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

Preliminary technical specification for Enclosure 6160 AC

CAPACITY	
Rack space user equipment	19U (19" rack)
Hardware capabilities	Power and CPRI support for multi-standard remote radios (RRU or AIR)
	ERS Baseband and Transport units
	Li-Ion batteries
	3PP equipment
	Additional power feed available as option
MECHANICAL SPECIFICATION	
Weight	145 kg (excluding active equipment) 320 lbs (excluding active equipment)
Dimension (H x W x D)	1600 x 650 x 650 mm (incl. Base frame) 63 x 26 x 26 in. (incl. Base frame)
Base frame height	150 mm 6 in.
Mounting position	Ground
Enclosure material	Aluminum
Color	Power paint NCS 2002-B
Door	Front access
Rack type	19" (IEC 60297-3-100)
Locking type	Pad lock or Cylinder
POWER SYSTEM	
Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 VAC 1P+N+PE: 200-250 VAC
Input power	<33kW
Output load (-48VDC)	24kW
Total capacity (-48VDC)	31.5kW
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
PSU Slots	9x
Service outlet	Optional
Priority load	8x Circuit Breaker
LLVD 1	6x Circuit Breaker
LLVD 2	6x Circuit Breaker
CB ratings	3A / 5A / 10A / 15A / 20A / 25A / 30A / 40A / 50A / 60A / 80A / 100A
Battery Interface	2x Circuit Breaker
Battery Circuit Breaker rating	125A 2pol (200A)
PSU capacity	3500W

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

SUPPLEMENTAL

SHEET NUMBER: R-604

REVISION: 1

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Middletown CT 3**
ATC Asset Number	:	**302537**
Engineering Number	:	**13668065_C8_05**
Mount Elevation	:	**140 ft**
Carrier	:	**Sprint Nextel**
Carrier Site Name	:	**CTHA859A**
Carrier Site Number	:	**CTHA859A**
Site Location	:	**47 Inwood Road** **Rocky Hill, CT 06067-3453** **41.63858611, -72.67928889**
County	:	**Hartford**
Date	:	**August 13, 2021**
Max Usage	:	**80%**
Result	:	**Pass**

Prepared By:
Pooja Bodkhe
CLS Engineering PLLC

Reviewed By:
Tyler M. Barker, P.E.
CLS Engineering PLLC

Introduction

The proposed equipment is to be mounted to the existing Platform w/ Support Rails. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos dated August 29, 2018 Spec Sheet for Site Pro 1 RMQP-496-HK Platform Mount
Previous Analyses	Tower SA by ATC, Eng. #13668065_C3_02, dated April 27, 2021
Loading Data	ATC Application, Project #13668065, dated August 09, 2021 T-Mobile RFDS Site ID #CTHA859A, Version 1.00, dated July 26, 2021

Analysis

Codes	TIA-222-H
Basic Wind Speed	118 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1.5" Radial Ice (Escalating)
Exposure Category	B
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.20; S_1: 0.06; Site Class: D

Conclusion

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

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

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-605	1

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**185 ft Monopole**
ATC Site Name	:	**Middletown CT 3, CT**
ATC Site Number	:	**302537**
Engineering Number	:	**13714290_C3_01**
Proposed Carrier	:	**SPRINT NEXTEL**
Carrier Site Name	:	**CTHA859A**
Carrier Site Number	:	**CTHA859A**
Site Location	:	**47 Inwood Road** **Rocky Hill, CT 06067-3453** **41.6386, -72.6793**
County	:	**Hartford**
Date	:	**August 20, 2021**
Max Usage	:	**78%**
Result	:	**Pass**

Prepared By:
Lucas Santos
Structural Engineer

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
20 Aug 2021 04:12:13 cosign

COA : PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 185 ft Monopole to reflect the change in loading by SPRINT NEXTEL.

Supporting Documents

Tower Drawings	Valmont Drawing #DC1646Z, dated November 2, 1993
Foundation Drawing	H. Edmund Bergeron Civil Engineers Project #93127, dated December 21, 1993
Geotechnical Report	Materials Testing Inc File #99 GT 93, dated December 2, 1993
Modifications	ATC Project #51430332, dated December 12, 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:	118 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.50" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.20, S_1 = 0.06
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 contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
185.1	4	Decibel DB844H90E-XY	Triangular Platform with Handrails	(12) 1 5/8" Coax	SPRINT NEXTEL
	3	Decibel 844G65VTZASX			
185.0	4	Decibel 844G90VTA-SX			
177.8	3	Ericsson RRUS 4415 (PCS)	Triangular Platform with Handrails	(6) 1 5/8" Coax (2) 0.96" (24.3mm) Cable (3) 3" conduit (3) 3/8" Coax (3) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (3) 2" conduit	AT&T MOBILITY
177.7	3	Ericsson RRUS 4478 B14			
175.8	3	Ericsson RRUS 32 B30			
174.9	3	Ericsson RRUS E2 B29			
174.4	3	Ericsson RRUS 32 B66			
174.3	3	Powerwave Allgon 7770.00			
174.0	1	Raycap DC6-48-60-0-8F			
173.6	2	Raycap DC6-48-60-18-8F (23.5" Height)			
	3	CCI DMP65R-BU6DA			
173.5	3	CCI OPA65R-BU6D			
173.4	3	Quintel QS66512-2			
173.3	3	Ericsson RRUS 4449 B5, B12			
168.0	6	Powerwave Allgon LGP21401			
140.0	3	Ericsson Air6449 B41	Triangular Platform with Handrails	-	SPRINT NEXTEL
	3	RFS APXVAALL24 43-U-NA20			
99.8	1	Generic 2" x 4" GPS	Stand-Off	-	OTHER

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson Radio 4449 B71 B85A	-	(3) 1 5/8" Hybriflex	SPRINT NEXTEL
	3	RFS APX16DWV-16DWVS-E-A20			
	3	Ericsson 4424 B25			
	3	Ericsson RRUS 4415 B66			

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson Radio 4460 B25+B66	Triangular Platform with Handrails	(3) 1.99" (50.7mm) Hybrid	SPRINT NEXTEL
	3	Ericsson Radio 4480 B71+B85A			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	62%	Pass
Shaft	78%	Pass
Base Plate	16%	Pass
Reinforcement	62%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3821.4	5158.9	3874.0	75%
Shear (Kips)	32.2	43.4	32.8	76%
* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2				

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Ericsson Radio 4480 B71+B85A	SPRINT NEXTEL	1.548	1.460
	Ericsson Radio 4460 B25+B66			

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

Standard Conditions

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

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

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

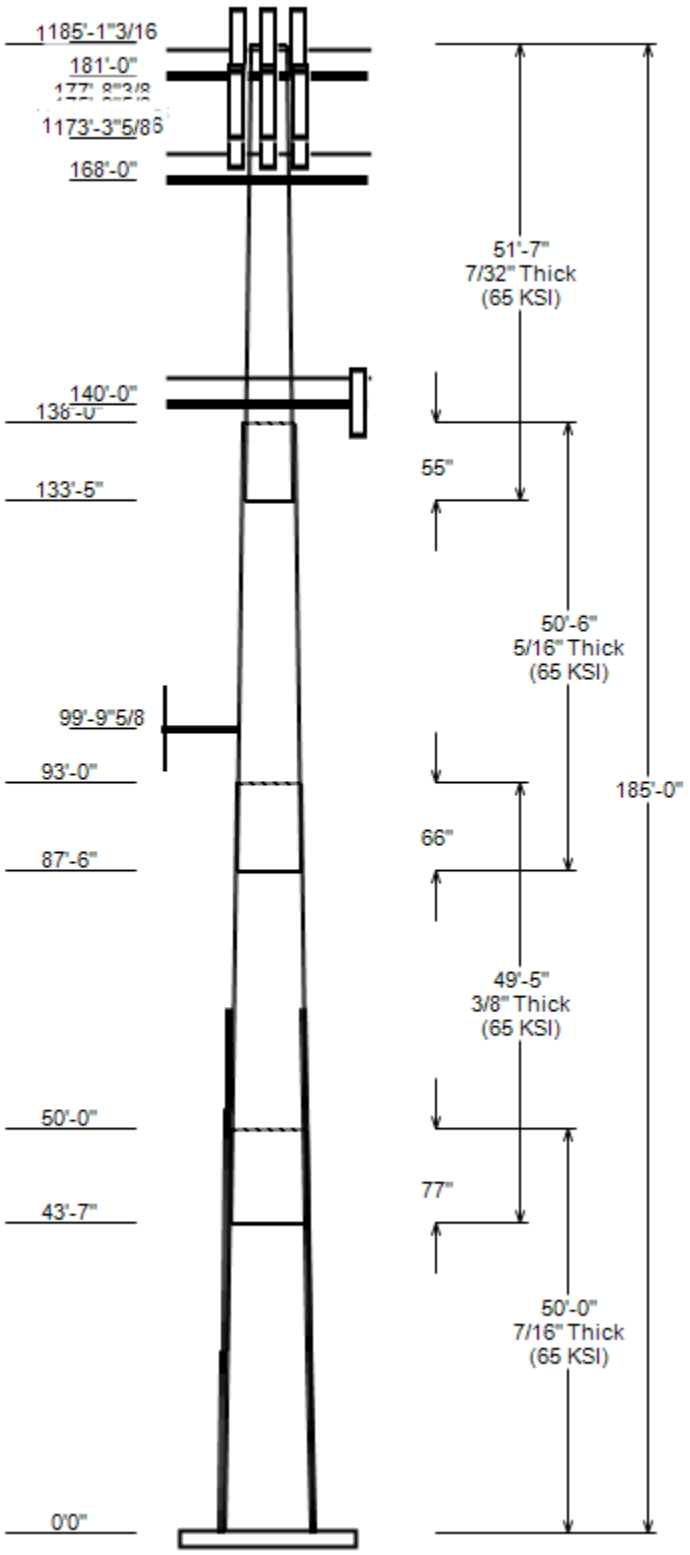
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

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

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

JOB INFORMATION

Asset :	302537, Middletown CT 3	Height :	185 ft
Client :	SPRINT NEXTEL	Base Width :	52
Code :	ANSI/TIA-222-H	Shape :	12 Sides



SITE PARAMETERS

Base Elev (ft):	0.00	Structure Class:	II
Taper :	0.18800 (In/ft)	Exposure :	B
Topographic Category :	1	Topographic Feature:	
Topo Method :	Method 1		

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Diameter (in) Across Flats Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	50.000	42.60	52.00	0.438		0.000	12 Sides	65
2	49.417	35.26	44.56	0.375	Slip Joint	77.000	12 Sides	65
3	50.500	27.43	36.92	0.312	Slip Joint	66.000	12 Sides	65
4	51.583	19.03	28.73	0.219	Slip Joint	55.000	12 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
185.1	185.1	4	Decibel DB844H90E-XY
185.1	185.1	3	Decibel 844G65VTZASX
185.0	185.0	4	Decibel 844G90VTA-SX
181.0	181.0	1	Generic Heavy Platform with Ha
177.8	177.8	3	Ericsson RRUS 4415 (PCS)
177.7	177.7	3	Ericsson RRUS 4478 B14
175.8	175.8	3	Ericsson RRUS 32 B30
174.9	174.9	3	Ericsson RRUS E2 B29
174.4	175.4	3	Ericsson RRUS 32 B66
174.3	175.3	3	Powerwave Allgon 7770.00
174.0	175.0	1	Raycap DC6-48-60-0-8F
173.6	173.6	2	Raycap DC6-48-60-18-8F (23.5"
173.6	173.6	3	CCI DMP65R-BU6DA
173.5	173.5	3	CCI OPA65R-BU6D
173.4	174.4	3	Quintel QS66512-2
173.3	173.3	3	Ericsson RRUS 4449 B5, B12
168.0	169.0	6	Powerwave Allgon LGP21401
168.0	168.0	1	Generic Round Platform with Ha
140.0	140.0	3	Ericsson Radio 4460 B25+B66
140.0	140.0	3	Ericsson Radio 4480 B71+B85A
140.0	140.0	3	Ericsson Air6449 B41
140.0	140.0	3	RFS APXVAALL24 43-U-NA20
140.0	140.0	1	Generic Round Platform with Ha
99.8	99.8	1	Generic 2" x 4" GPS
99.8	99.8	1	Generic Round Stand-Off

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	185.0	1 5/8" Coax	No
0.0	174.0	1 5/8" Coax	Yes
0.0	172.0	3/8" Coax	No
0.0	172.0	3" conduit	No
0.0	172.0	0.96" (24.3mm) Cable	No
0.0	168.0	2" conduit	Yes
0.0	168.0	0.78" (19.7mm) 8 AWG 6	Yes
0.0	168.0	0.39" (10mm) Fiber Trunk	Yes
0.0	140.0	1.99" (50.7mm) Hybrid	No
0.0	73.6	#20 w/ Angle Brackets	Yes
0.0	73.6	#20 w/ Angle Brackets	Yes
0.0	73.6	#20 w/ Angle Brackets	Yes
0.0	73.6	#20 w/ Angle Brackets	Yes

JOB INFORMATION			
Asset :	302537, Middletown CT 3	Height :	185 ft
Client :	SPRINT NEXTEL	Base Width :	52
Code :	ANSI/TIA-222-H	Shape :	12 Sides

LOAD CASES	
1.2D + 1.0W Normal	118 mph wind with no ice
0.9D + 1.0W Normal	118 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	50 mph wind with 1.5" radial ice
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	3873.98	32.83	67.19
0.9D + 1.0W Normal	3801.26	32.81	50.38
1.2D + 1.0Di + 1.0Wi Normal	1013.72	7.38	101.58
1.2D + 1.0Ev + 1.0Eh Normal	263.77	1.69	67.23
0.9D - 1.0Ev + 1.0Eh Normal	256.90	1.68	46.34
1.0D + 1.0W Service Normal	886.54	7.59	56.03

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)

ANALYSIS PARAMETERS

Location:	Hartford County,CT	Height:	185 ft
Type and Shape:	Taper, 12 Sides	Base Diameter:	52.00 in
Manufacturer:	Valmont	Top Diameter:	19.03 in
K_d (non-service):	0.95	Taper:	0.1880 in/ft
K_e:	0.99	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	118 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.50 in
Crest Height:	0 ft	HMSL:	145.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			Period Based on Rayleigh Method (sec):	3.36
T_L (sec):	6	P:	1	$C_{s:}$	0.030
$S_{s:}$	0.202	$S_{1:}$	0.055	C_s Max:	0.030
$F_{a:}$	1.600	$F_{v:}$	2.400	C_s Min:	0.030
$S_{ds:}$	0.215	$S_{d1:}$	0.088		

LOAD CASES

1.2D + 1.0W Normal	118 mph wind with no ice
0.9D + 1.0W Normal	118 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1.5" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (in)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	50.00	0.4375	65		0.00	11,232	52.00	0.000	72.64	24,650.3	29.17	118.86	42.60	50.00	59.40	13,476.5	23.41	97.37	0.1880
2-12	49.42	0.3750	65	Slip	77.00	8,028	44.56	43.583	53.35	13,291.4	29.16	118.82	35.26	93.00	42.13	6,545.8	22.52	94.04	0.1880
3-12	50.50	0.3125	65	Slip	66.00	5,510	36.92	87.500	36.84	6,302.8	28.98	118.16	27.43	138.00	27.29	2,560.9	20.84	87.77	0.1880
4-12	51.58	0.2188	65	Slip	55.00	2,925	28.73	133.417	20.09	2,083.8	32.50	131.30	19.03	185.00	13.25	598.6	20.63	86.97	0.1880
				Shaft Weight		27,695													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
185.10	Decibel 844G65VTZASX	3	0.75	0.000	16.00	5.310	0.67	175.80	6.335	0.67
185.10	Decibel DB844H90E-XY	4	0.75	0.000	14.00	3.615	0.67	127.45	3.941	0.67
185.00	Decibel 844G90VTA-SX	4	0.75	0.000	11.50	3.615	0.67	105.14	5.525	0.67
181.00	Generic Heavy Platform with Ha	1	1.00	0.000	3750.00	59.800	1.00	6496.73	86.591	1.00
177.80	Ericsson RRUS 4415 (PCS)	3	0.75	0.000	46.00	1.650	0.50	90.29	2.513	0.50
177.70	Ericsson RRUS 4478 B14	3	0.75	0.000	59.90	1.842	0.50	116.22	2.756	0.50
175.80	Ericsson RRUS 32 B30	3	0.75	0.000	60.00	2.743	0.67	134.88	3.933	0.67
174.90	Ericsson RRUS E2 B29	3	0.75	0.000	60.00	3.145	0.67	142.29	4.324	0.67
174.40	Ericsson RRUS 32 B66	3	0.75	1.000	53.00	2.743	0.67	127.82	3.933	0.67
174.30	Powerwave Allgon 7770.00	3	0.75	1.000	35.00	5.508	0.65	172.68	6.582	0.65
174.00	Raycap DC6-48-60-0-8F	1	0.75	1.000	32.80	1.360	1.00	91.91	2.034	1.00
173.60	CCI DMP65R-BU6DA	3	0.75	0.000	79.40	12.709	0.63	341.32	15.545	0.63
173.60	Raycap DC6-48-60-18-8F (23.5"	2	0.75	0.000	20.00	1.260	1.00	73.54	1.929	1.00
173.50	CCI OPA65R-BU6D	3	0.75	0.000	63.20	12.871	0.63	328.92	15.715	0.63
173.40	Quintel QS66512-2	3	0.75	1.000	111.00	8.133	0.67	313.60	10.967	0.67
173.30	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	136.46	2.916	0.50
168.00	Powerwave Allgon LGP21401	6	0.75	1.000	14.10	1.104	0.50	39.36	1.827	0.50
168.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	4140.08	51.951	1.00
140.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.67	196.90	3.612	0.67
140.00	Ericsson Radio 4480 B71+B85A	3	0.75	0.000	84.00	2.852	0.67	159.13	3.962	0.67
140.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	510.14	23.931	0.63
140.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	4110.74	51.509	1.00
140.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	239.53	7.261	0.63
99.80	Generic 2" x 4" GPS	1	1.00	0.000	5.00	0.040	1.00	7.47	0.157	1.00
99.80	Generic Round Stand-Off	1	1.00	0.000	187.50	5.200	1.00	275.25	7.807	1.00
Totals	Num Loadings: 25	67			12,424.80			25,993.72		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	185.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	174.00	6	1 5/8" Coax	1.98	0.82	N	6	0.5	0.5	0	0.5	Y	AT&T MOBILITY
0.00	172.00	3	3/8" Coax	0.44	0.08	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	172.00	3	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	172.00	2	0.96" (24.3mm) Cable	0.96	0.88	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	168.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	6	0.5	0.5	22	0.5	Y	AT&T MOBILITY
0.00	168.00	3	0.39" (10mm) Fiber Tr	0.39	0.06	N	3	0.5	0.5	15	0.5	Y	AT&T MOBILITY
0.00	168.00	3	2" conduit	2.38	3.65	N	3	0.5	0.5	30	0.5	Y	AT&T MOBILITY
0.00	140.00	3	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	73.60	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	0	0	Y	
0.00	73.60	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	180	0	Y	
0.00	73.60	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	90	0	Y	
0.00	73.60	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	270	0	Y	

ADDITIONAL STEEL

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connectors Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	22.50	4	SOL #20 All Thread Bar	80	2.19	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	N
22.50	52.50	4	SOL #20 All Thread Bar	80	2.19	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	Y
52.50	65.00	4	SOL #20 All Thread Bar	80	2.19	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	Y

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	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		0.4375	52.000	72.639	24,650.30	29.17	118.86	72.9	915.8	0.0	0.0	19.640	8,518.80	0.0
5.00		0.4375	51.060	71.314	23,326.50	28.59	116.71	73.5	882.6	0.0	1,224.6	19.640	8,249.20	334.0
10.00		0.4375	50.120	69.990	22,050.90	28.02	114.56	74.2	849.9	0.0	1,202.1	19.640	7,983.90	334.0
15.00		0.4375	49.180	68.666	20,822.70	27.44	112.41	74.8	817.9	0.0	1,179.5	19.640	7,723.00	334.0
20.00		0.4375	48.240	67.341	19,641.00	26.87	110.26	75.4	786.6	0.0	1,157.0	19.640	7,466.40	334.0
22.50	Reinf. Top Reinf Bottom	0.4375	47.770	66.679	19,067.30	26.58	109.19	75.7	771.1	0.0	570.1	19.640	7,339.70	167.0
25.00		0.4375	47.300	66.017	18,504.90	26.29	108.11	76	755.8	0.0	564.4	19.640	7,214.20	167.0
30.00		0.4375	46.360	64.693	17,413.50	25.71	105.96	76.7	725.6	0.0	1,111.9	19.640	6,966.30	334.0
35.00		0.4375	45.420	63.368	16,365.80	25.14	103.82	77.3	696.1	0.0	1,089.4	19.640	6,722.70	334.0
40.00		0.4375	44.479	62.044	15,361.00	24.56	101.67	77.9	667.2	0.0	1,066.9	19.640	6,483.50	334.0
43.58	Bot - Section 2	0.4375	43.806	61.095	14,666.80	24.15	100.13	78.4	646.8	0.0	750.7	19.640	6,314.70	239.4
45.00		0.4375	43.539	60.720	14,398.20	23.99	99.52	78.6	638.9	0.0	550.0	19.640	6,435.60	94.6
50.00	Top - Section 1	0.3750	43.349	51.891	12,232.10	28.29	115.60	73.9	545.1	0.0	1,914.3	19.640	6,201.60	334.0
52.50	Reinf. Top Reinf Bottom	0.3750	42.879	51.324	11,835.10	27.96	114.34	74.2	533.2	0.0	439.0	19.640	6,086.20	167.0
55.00		0.3750	42.409	50.756	11,446.80	27.62	113.09	74.6	521.4	0.0	434.2	19.640	5,971.90	167.0
60.00		0.3750	41.469	49.621	10,695.80	26.95	110.58	75.3	498.3	0.0	853.9	19.640	5,746.60	334.0
65.00	Reinf. Top	0.3750	40.529	48.486	9,978.50	26.28	108.08	76.1	475.6	0.0	834.6	19.640	5,525.60	334.0
70.00		0.3750	39.589	47.351	9,293.90	25.61	105.57	76.8	453.5	0.0	815.3			
75.00		0.3750	38.649	46.216	8,641.40	24.94	103.06	77.5	431.9	0.0	796.0			
80.00		0.3750	37.709	45.081	8,020.20	24.26	100.56	78.3	410.9	0.0	776.7			
85.00		0.3750	36.769	43.946	7,429.50	23.59	98.05	79	390.3	0.0	757.3			
87.50	Bot - Section 3	0.3750	36.299	43.378	7,145.30	23.26	96.80	79.3	380.3	0.0	371.5			
90.00		0.3750	35.829	42.810	6,868.50	22.92	95.54	79.7	370.3	0.0	677.9			
93.00	Top - Section 2	0.3125	35.890	35.800	5,783.70	28.09	114.85	74.1	311.3	0.0	802.0			
95.00		0.3125	35.514	35.421	5,602.30	27.77	113.64	74.4	304.7	0.0	242.3			
99.80		0.3125	34.611	34.513	5,182.40	27.00	110.76	75.3	289.3	0.0	571.1			
100.00		0.3125	34.574	34.475	5,165.30	26.97	110.64	75.3	288.6	0.0	23.5			
105.00		0.3125	33.634	33.529	4,751.70	26.16	107.63	76.2	272.9	0.0	578.5			
110.00		0.3125	32.694	32.583	4,360.80	25.35	104.62	77.1	257.7	0.0	562.4			
115.00		0.3125	31.753	31.637	3,991.90	24.55	101.61	77.9	242.9	0.0	546.3			
120.00		0.3125	30.813	30.692	3,644.40	23.74	98.60	78.8	228.5	0.0	530.2			
125.00		0.3125	29.873	29.746	3,317.70	22.94	95.59	79.7	214.6	0.0	514.1			
130.00		0.3125	28.933	28.800	3,011.20	22.13	92.59	80.6	201.1	0.0	498.0			
133.42	Bot - Section 4	0.3125	28.291	28.153	2,812.90	21.58	90.53	81.2	192.1	0.0	331.1			
135.00		0.3125	27.993	27.854	2,724.10	21.32	89.58	81.5	188.0	0.0	258.5			
138.00	Top - Section 3	0.2188	27.867	19.479	1,900.50	31.45	127.36	70.4	131.8	0.0	482.4			
140.00		0.2188	27.491	19.214	1,824.00	30.99	125.64	70.9	128.2	0.0	131.6			
145.00		0.2188	26.551	18.552	1,641.80	29.84	121.35	72.2	119.5	0.0	321.3			
150.00		0.2188	25.611	17.889	1,472.20	28.68	117.05	73.4	111.1	0.0	310.0			
155.00		0.2188	24.671	17.227	1,314.70	27.53	112.75	74.7	102.9	0.0	298.7			
160.00		0.2188	23.730	16.565	1,168.80	26.38	108.46	75.9	95.1	0.0	287.5			
165.00		0.2188	22.790	15.902	1,034.10	25.23	104.16	77.2	87.7	0.0	276.2			
168.00		0.2188	22.226	15.505	958.50	24.54	101.58	78	83.3	0.0	160.3			
170.00		0.2188	21.850	15.240	910.20	24.08	99.86	78.5	80.5	0.0	104.6			
173.30		0.2188	21.230	14.803	834.10	23.32	97.03	79.3	75.9	0.0	168.7			
173.40		0.2188	21.211	14.790	831.90	23.30	96.94	79.3	75.8	0.0	5.0			
173.50		0.2188	21.192	14.777	829.70	23.27	96.86	79.3	75.6	0.0	5.0			
173.60		0.2188	21.173	14.763	827.40	23.25	96.77	79.4	75.5	0.0	5.0			
174.00		0.2188	21.098	14.710	818.60	23.16	96.43	79.5	75.0	0.0	20.1			
174.30		0.2188	21.042	14.671	811.90	23.09	96.17	79.5	74.5	0.0	15.0			
174.40		0.2188	21.023	14.657	809.70	23.07	96.08	79.6	74.4	0.0	5.0			
174.90		0.2188	20.929	14.591	798.80	22.95	95.65	79.7	73.7	0.0	24.9			
175.00		0.2188	20.910	14.578	796.60	22.93	95.57	79.7	73.6	0.0	5.0			
175.80		0.2188	20.760	14.472	779.40	22.74	94.88	79.9	72.5	0.0	39.5			
177.70		0.2188	20.403	14.220	739.40	22.31	93.25	80.4	70.0	0.0	92.8			
177.80		0.2188	20.384	14.207	737.40	22.28	93.16	80.4	69.9	0.0	4.8			
180.00		0.2188	19.970	13.916	692.90	21.78	91.27	81	67.0	0.0	105.3			
181.00		0.2188	19.782	13.783	673.30	21.55	90.41	81.2	65.8	0.0	47.1			
185.00		0.2188	19.030	13.253	598.60	20.63	86.97	81.9	60.8	0.0	184.0			

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	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)
								Totals:			27,695.1			4,342.0

Load Case: 1.2D + 1.0W Normal 118 mph wind with no ice 32 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-67.19	-32.83	0.00	-3,874.0	0.00	3,873.98	4,765.98	1,274.81	6,200.72	5,007.21	0	0	0.587
5.00	-64.76	-32.29	0.00	-3,709.8	0.00	3,709.83	4,719.39	1,251.57	5,976.75	4,867.10	0.09	-0.16	0.575
10.00	-62.36	-31.74	0.00	-3,548.4	0.00	3,548.38	4,671.31	1,228.33	5,756.90	4,727.28	0.35	-0.33	0.562
15.00	-59.99	-31.18	0.00	-3,389.7	0.00	3,389.69	4,621.73	1,205.08	5,541.16	4,587.84	0.78	-0.49	0.550
20.00	-57.66	-30.74	0.00	-3,233.8	0.00	3,233.81	4,570.65	1,181.84	5,329.55	4,448.85	1.38	-0.66	0.537
22.50	-56.50	-30.46	0.00	-3,157.0	0.00	3,156.95	4,544.55	1,170.22	5,225.29	4,379.56	1.74	-0.74	0.531
25.00	-55.33	-30.03	0.00	-3,080.8	0.00	3,080.81	4,518.07	1,158.60	5,122.06	4,310.41	2.15	-0.82	0.524
30.00	-53.05	-29.43	0.00	-2,930.7	0.00	2,930.67	4,464.00	1,135.36	4,918.68	4,172.60	3.11	-0.99	0.511
35.00	-50.80	-28.80	0.00	-2,783.5	0.00	2,783.53	4,408.43	1,112.12	4,719.43	4,035.51	4.23	-1.16	0.498
40.00	-48.59	-28.22	0.00	-2,639.5	0.00	2,639.54	4,351.37	1,088.87	4,524.29	3,899.22	5.53	-1.32	0.485
43.58	-47.04	-27.86	0.00	-2,538.4	0.00	2,538.43	4,309.55	1,072.22	4,386.98	3,802.09	6.57	-1.44	0.476
45.00	-46.09	-27.40	0.00	-2,499.0	0.00	2,498.96	4,292.80	1,065.63	4,333.28	3,763.83	7.01	-1.49	0.468
50.00	-42.88	-26.80	0.00	-2,362.0	0.00	2,361.95	3,449.19	910.70	3,691.93	3,019.48	8.66	-1.66	0.529
52.50	-41.89	-26.42	0.00	-2,295.0	0.00	2,294.96	3,428.39	900.74	3,611.63	2,968.15	9.55	-1.74	0.520
55.00	-40.90	-25.86	0.00	-2,228.9	0.00	2,228.91	3,407.21	890.77	3,532.22	2,916.91	10.49	-1.83	0.512
60.00	-38.95	-25.06	0.00	-2,099.6	0.00	2,099.62	3,363.73	870.85	3,376.04	2,814.72	12.5	-2.01	0.494
65.00	-37.04	-24.24	0.00	-1,974.3	0.00	1,974.31	3,318.75	850.93	3,223.39	2,712.97	14.7	-2.19	0.477
65.00	-37.04	-24.24	0.00	-1,974.3	0.00	1,974.31	3,318.75	850.93	3,223.39	2,712.97	14.7	-2.19	0.740
70.00	-35.53	-23.46	0.00	-1,853.1	0.00	1,853.09	3,272.27	831.01	3,074.28	2,611.78	17.09	-2.36	0.721
75.00	-34.06	-22.86	0.00	-1,735.8	0.00	1,735.81	3,224.30	811.09	2,928.69	2,511.21	19.7	-2.64	0.703
80.00	-32.68	-22.42	0.00	-1,621.5	0.00	1,621.52	3,174.83	791.17	2,786.64	2,411.36	22.61	-2.91	0.684
85.00	-31.36	-22.07	0.00	-1,509.4	0.00	1,509.41	3,123.86	771.24	2,648.12	2,312.31	25.81	-3.19	0.664
87.50	-30.70	-21.85	0.00	-1,454.2	0.00	1,454.22	3,097.81	761.28	2,580.17	2,263.11	27.52	-3.33	0.653
90.00	-29.66	-21.58	0.00	-1,399.6	0.00	1,399.60	3,071.40	751.32	2,513.13	2,214.15	29.3	-3.47	0.643
93.00	-28.45	-21.32	0.00	-1,334.8	0.00	1,334.85	2,386.65	628.28	2,108.62	1,729.58	31.53	-3.64	0.785
95.00	-27.96	-21.04	0.00	-1,292.2	0.00	1,292.23	2,372.63	621.64	2,064.30	1,701.09	33.08	-3.76	0.773
99.80	-26.68	-20.57	0.00	-1,191.3	0.00	1,191.26	2,338.02	605.71	1,959.84	1,632.92	37.02	-4.06	0.742
100.00	-26.60	-20.38	0.00	-1,187.2	0.00	1,187.15	2,336.55	605.04	1,955.55	1,630.09	37.19	-4.07	0.741
105.00	-25.48	-19.93	0.00	-1,085.3	0.00	1,085.27	2,298.97	588.44	1,849.74	1,559.47	41.62	-4.39	0.708
110.00	-24.38	-19.47	0.00	-985.6	0.00	985.64	2,259.89	571.84	1,746.88	1,489.31	46.37	-4.7	0.674
115.00	-23.31	-19.02	0.00	-888.3	0.00	888.27	2,219.31	555.24	1,646.95	1,419.70	51.45	-5	0.637
120.00	-22.27	-18.56	0.00	-793.2	0.00	793.19	2,177.24	538.64	1,549.97	1,350.73	56.84	-5.3	0.599
125.00	-21.25	-18.10	0.00	-700.4	0.00	700.40	2,133.67	522.03	1,455.93	1,282.49	62.54	-5.59	0.557
130.00	-20.27	-17.69	0.00	-609.9	0.00	609.92	2,088.60	505.43	1,364.84	1,215.06	68.54	-5.87	0.513
133.42	-19.61	-17.44	0.00	-549.5	0.00	549.48	2,056.94	494.09	1,304.27	1,169.49	72.81	-6.06	0.481
135.00	-19.18	-17.22	0.00	-521.9	0.00	521.87	2,042.04	488.83	1,276.68	1,148.53	74.83	-6.15	0.465
138.00	-18.38	-16.95	0.00	-470.2	0.00	470.20	1,234.49	341.86	891.56	695.83	78.73	-6.3	0.693
140.00	-13.90	-13.26	0.00	-436.3	0.00	436.31	1,226.38	337.21	867.48	681.79	81.39	-6.4	0.653
145.00	-13.18	-12.81	0.00	-370.0	0.00	369.99	1,205.07	325.58	808.73	646.66	88.25	-6.72	0.585
150.00	-12.48	-12.36	0.00	-305.9	0.00	305.93	1,182.27	313.96	752.03	611.59	95.43	-7.01	0.512
155.00	-11.80	-11.91	0.00	-244.1	0.00	244.12	1,157.96	302.34	697.39	576.65	102.9	-7.28	0.435
160.00	-11.14	-11.46	0.00	-184.6	0.00	184.55	1,132.16	290.71	644.81	541.94	110.63	-7.51	0.352
165.00	-10.51	-11.09	0.00	-127.2	0.00	127.24	1,104.87	279.09	594.30	507.53	118.57	-7.7	0.262
168.00	-7.24	-9.18	0.00	-93.9	0.00	93.87	1,087.77	272.11	564.98	487.07	123.43	-7.79	0.201
170.00	-7.04	-8.96	0.00	-75.5	0.00	75.50	1,076.07	267.47	545.84	473.52	126.69	-7.84	0.167
173.30	-6.49	-8.66	0.00	-45.9	0.00	45.93	1,056.25	259.79	514.99	451.33	132.12	-7.9	0.109
173.40	-6.16	-8.08	0.00	-44.5	0.00	44.54	1,055.64	259.56	514.07	450.66	132.28	-7.9	0.106
173.50	-6.04	-7.27	0.00	-43.7	0.00	43.73	1,055.03	259.33	513.15	449.99	132.45	-7.9	0.104
173.60	-5.82	-6.36	0.00	-43.0	0.00	43.01	1,054.41	259.10	512.23	449.32	132.61	-7.91	0.102
174.00	-5.76	-6.28	0.00	-40.4	0.00	40.42	1,051.96	258.17	508.56	446.65	133.27	-7.91	0.097
174.30	-5.66	-5.90	0.00	-38.2	0.00	38.19	1,050.11	257.47	505.82	444.65	133.77	-7.92	0.092
174.40	-5.49	-5.68	0.00	-37.4	0.00	37.42	1,049.50	257.24	504.90	443.98	133.93	-7.92	0.090
174.90	-5.27	-5.42	0.00	-34.6	0.00	34.58	1,046.40	256.07	500.35	440.65	134.76	-7.92	0.084
175.00	-5.27	-5.38	0.00	-34.0	0.00	34.04	1,045.78	255.84	499.44	439.99	134.93	-7.93	0.083
175.80	-5.04	-5.07	0.00	-29.7	0.00	29.74	1,040.80	253.98	492.21	434.68	136.25	-7.93	0.074
177.70	-4.71	-4.87	0.00	-20.1	0.00	20.10	1,028.80	249.56	475.25	422.12	139.4	-7.95	0.053
177.80	-4.56	-4.68	0.00	-19.6	0.00	19.61	1,028.17	249.33	474.36	421.46	139.57	-7.95	0.051
180.00	-4.43	-4.55	0.00	-9.3	0.00	9.31	1,013.99	244.22	455.11	407.03	143.22	-7.96	0.028
181.00	-0.29	-1.17	0.00	-4.8	0.00	4.76	1,007.46	241.89	446.49	400.51	144.89	-7.97	0.012
185.00	0.00	-1.12	0.00	-0.1	0.00	0.07	976.90	232.59	412.83	373.27	151.54	-7.97	0.000

Load Case: 0.9D + 1.0W Normal 118 mph wind with no ice 31 Iterations
Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-50.38	-32.81	0.00	-3,801.3	0.00	3,801.26	4,765.98	1,274.81	6,200.72	5,007.21	0	0	0.573
5.00	-48.54	-32.22	0.00	-3,637.2	0.00	3,637.23	4,719.39	1,251.57	5,976.75	4,867.10	0.09	-0.16	0.561
10.00	-46.72	-31.62	0.00	-3,476.2	0.00	3,476.16	4,671.31	1,228.33	5,756.90	4,727.28	0.34	-0.32	0.548
15.00	-44.92	-31.02	0.00	-3,318.1	0.00	3,318.06	4,621.73	1,205.08	5,541.16	4,587.84	0.76	-0.48	0.536
20.00	-43.16	-30.55	0.00	-3,163.0	0.00	3,162.99	4,570.65	1,181.84	5,329.55	4,448.85	1.35	-0.64	0.523
22.50	-42.29	-30.25	0.00	-3,086.6	0.00	3,086.60	4,544.55	1,170.22	5,225.29	4,379.56	1.71	-0.72	0.517
25.00	-41.39	-29.79	0.00	-3,011.0	0.00	3,010.98	4,518.07	1,158.60	5,122.06	4,310.41	2.11	-0.81	0.510
30.00	-39.67	-29.16	0.00	-2,862.0	0.00	2,862.02	4,464.00	1,135.36	4,918.68	4,172.60	3.04	-0.97	0.497
35.00	-37.97	-28.50	0.00	-2,716.2	0.00	2,716.21	4,408.43	1,112.12	4,719.43	4,035.51	4.15	-1.13	0.484
40.00	-36.30	-27.90	0.00	-2,573.7	0.00	2,573.72	4,351.37	1,088.87	4,524.29	3,899.22	5.42	-1.29	0.471
43.58	-35.12	-27.53	0.00	-2,473.7	0.00	2,473.74	4,309.55	1,072.22	4,386.98	3,802.09	6.44	-1.41	0.462
45.00	-34.41	-27.06	0.00	-2,434.7	0.00	2,434.74	4,292.80	1,065.63	4,333.28	3,763.83	6.86	-1.46	0.454
50.00	-31.99	-26.45	0.00	-2,299.4	0.00	2,299.45	3,449.19	910.70	3,691.93	3,019.48	8.48	-1.62	0.513
52.50	-31.24	-26.06	0.00	-2,233.3	0.00	2,233.32	3,428.39	900.74	3,611.63	2,968.15	9.35	-1.7	0.504
55.00	-30.49	-25.48	0.00	-2,168.2	0.00	2,168.16	3,407.21	890.77	3,532.22	2,916.91	10.26	-1.79	0.496
60.00	-29.02	-24.67	0.00	-2,040.8	0.00	2,040.75	3,363.73	870.85	3,376.04	2,814.72	12.23	-1.96	0.479
65.00	-27.57	-23.84	0.00	-1,917.4	0.00	1,917.39	3,318.75	850.93	3,223.39	2,712.97	14.38	-2.13	0.462
65.00	-27.57	-23.84	0.00	-1,917.4	0.00	1,917.39	3,318.75	850.93	3,223.39	2,712.97	14.38	-2.13	0.716
70.00	-26.43	-23.03	0.00	-1,798.2	0.00	1,798.19	3,272.27	831.01	3,074.28	2,611.78	16.7	-2.3	0.697
75.00	-25.31	-22.40	0.00	-1,683.0	0.00	1,683.05	3,224.30	811.09	2,928.69	2,511.21	19.26	-2.57	0.679
80.00	-24.27	-21.94	0.00	-1,571.0	0.00	1,571.05	3,174.83	791.17	2,786.64	2,411.36	22.09	-2.84	0.660
85.00	-23.26	-21.58	0.00	-1,461.4	0.00	1,461.36	3,123.86	771.24	2,648.12	2,312.31	25.21	-3.11	0.640
87.50	-22.76	-21.34	0.00	-1,407.4	0.00	1,407.42	3,097.81	761.28	2,580.17	2,263.11	26.87	-3.24	0.630
90.00	-21.98	-21.06	0.00	-1,354.1	0.00	1,354.07	3,071.40	751.32	2,513.13	2,214.15	28.6	-3.38	0.619
93.00	-21.06	-20.80	0.00	-1,290.9	0.00	1,290.88	2,386.65	628.28	2,108.62	1,729.58	30.78	-3.55	0.756
95.00	-20.69	-20.50	0.00	-1,249.3	0.00	1,249.29	2,372.63	621.64	2,064.30	1,701.09	32.29	-3.66	0.744
99.80	-19.72	-20.03	0.00	-1,150.9	0.00	1,150.91	2,338.02	605.71	1,959.84	1,632.92	36.11	-3.95	0.714
100.00	-19.65	-19.82	0.00	-1,146.9	0.00	1,146.91	2,336.55	605.04	1,955.55	1,630.09	36.28	-3.96	0.713
105.00	-18.80	-19.35	0.00	-1,047.8	0.00	1,047.82	2,298.97	588.44	1,849.74	1,559.47	40.59	-4.26	0.681
110.00	-17.97	-18.88	0.00	-951.1	0.00	951.07	2,259.89	571.84	1,746.88	1,489.31	45.21	-4.56	0.648
115.00	-17.15	-18.41	0.00	-856.7	0.00	856.67	2,219.31	555.24	1,646.95	1,419.70	50.14	-4.86	0.612
120.00	-16.36	-17.94	0.00	-764.6	0.00	764.61	2,177.24	538.64	1,549.97	1,350.73	55.38	-5.15	0.575
125.00	-15.60	-17.48	0.00	-674.9	0.00	674.90	2,133.67	522.03	1,455.93	1,282.49	60.91	-5.43	0.535
130.00	-14.85	-17.07	0.00	-587.5	0.00	587.52	2,088.60	505.43	1,364.84	1,215.06	66.73	-5.7	0.492
133.42	-14.36	-16.82	0.00	-529.2	0.00	529.20	2,056.94	494.09	1,304.27	1,169.49	70.87	-5.88	0.461
135.00	-14.03	-16.61	0.00	-502.6	0.00	502.57	2,042.04	488.83	1,276.68	1,148.53	72.83	-5.96	0.446
138.00	-13.43	-16.35	0.00	-452.7	0.00	452.74	1,234.49	341.86	891.56	695.83	76.62	-6.11	0.664
140.00	-10.14	-12.79	0.00	-420.0	0.00	420.05	1,226.38	337.21	867.48	681.79	79.2	-6.21	0.626
145.00	-9.60	-12.34	0.00	-356.1	0.00	356.10	1,205.07	325.58	808.73	646.66	85.85	-6.51	0.560
150.00	-9.07	-11.89	0.00	-294.4	0.00	294.40	1,182.27	313.96	752.03	611.59	92.81	-6.79	0.490
155.00	-8.56	-11.45	0.00	-234.9	0.00	234.94	1,157.96	302.34	697.39	576.65	100.04	-7.05	0.416
160.00	-8.08	-11.01	0.00	-177.7	0.00	177.68	1,132.16	290.71	644.81	541.94	107.53	-7.27	0.336
165.00	-7.61	-10.65	0.00	-122.6	0.00	122.62	1,104.87	279.09	594.30	507.53	115.23	-7.45	0.250
168.00	-5.19	-8.87	0.00	-90.6	0.00	90.56	1,087.77	272.11	564.98	487.07	119.93	-7.54	0.192
170.00	-5.04	-8.66	0.00	-72.8	0.00	72.81	1,076.07	267.47	545.84	473.52	123.09	-7.59	0.159
173.30	-4.64	-8.38	0.00	-44.2	0.00	44.24	1,056.25	259.79	514.99	451.33	128.34	-7.65	0.103
173.40	-4.41	-7.81	0.00	-42.9	0.00	42.87	1,055.64	259.56	514.07	450.66	128.5	-7.65	0.100
173.50	-4.34	-7.01	0.00	-42.1	0.00	42.09	1,055.03	259.33	513.15	449.99	128.66	-7.65	0.098
173.60	-4.20	-6.11	0.00	-41.4	0.00	41.39	1,054.41	259.10	512.23	449.32	128.82	-7.66	0.097
174.00	-4.16	-6.03	0.00	-38.9	0.00	38.90	1,051.96	258.17	508.56	446.65	129.46	-7.66	0.092
174.30	-4.10	-5.66	0.00	-36.8	0.00	36.75	1,050.11	257.47	505.82	444.65	129.94	-7.66	0.087
174.40	-3.98	-5.44	0.00	-36.0	0.00	36.00	1,049.50	257.24	504.90	443.98	130.1	-7.67	0.085
174.90	-3.82	-5.19	0.00	-33.3	0.00	33.28	1,046.40	256.07	500.35	440.65	130.9	-7.67	0.080
175.00	-3.82	-5.16	0.00	-32.8	0.00	32.76	1,045.78	255.84	499.44	439.99	131.06	-7.67	0.079
175.80	-3.65	-4.86	0.00	-28.6	0.00	28.63	1,040.80	253.98	492.21	434.68	132.35	-7.68	0.070
177.70	-3.41	-4.67	0.00	-19.4	0.00	19.40	1,028.80	249.56	475.25	422.12	135.4	-7.7	0.050
177.80	-3.30	-4.49	0.00	-18.9	0.00	18.93	1,028.17	249.33	474.36	421.46	135.56	-7.7	0.048
180.00	-3.21	-4.36	0.00	-9.1	0.00	9.06	1,013.99	244.22	455.11	407.03	139.1	-7.71	0.026
181.00	-0.18	-1.16	0.00	-4.7	0.00	4.70	1,007.46	241.89	446.49	400.51	140.71	-7.71	0.012
185.00	0.00	-1.12	0.00	-0.1	0.00	0.07	976.90	232.59	412.83	373.27	147.15	-7.72	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi Normal		50 mph wind with 1.5" radial ice			32 Iterations
Gust Response Factor:	1.10	Ice Dead Load Factor	1.00		
Dead load Factor:	1.20			Ice Importance Factor	1.00
Wind Load Factor:	1.00				

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-101.58	-7.38	0.00	-1,013.7	0.00	1,013.72	4,765.98	1,274.81	6,200.72	5,007.21	0	0	0.167
5.00	-98.62	-7.33	0.00	-976.8	0.00	976.80	4,719.39	1,251.57	5,976.75	4,867.10	0.02	-0.04	0.165
10.00	-95.63	-7.27	0.00	-940.2	0.00	940.16	4,671.31	1,228.33	5,756.90	4,727.28	0.09	-0.09	0.162
15.00	-92.63	-7.21	0.00	-903.8	0.00	903.81	4,621.73	1,205.08	5,541.16	4,587.84	0.2	-0.13	0.159
20.00	-89.65	-7.16	0.00	-867.8	0.00	867.76	4,570.65	1,181.84	5,329.55	4,448.85	0.36	-0.17	0.157
22.50	-88.16	-7.13	0.00	-849.9	0.00	849.86	4,544.55	1,170.22	5,225.29	4,379.56	0.46	-0.2	0.155
25.00	-86.67	-7.09	0.00	-832.0	0.00	832.04	4,518.07	1,158.60	5,122.06	4,310.41	0.57	-0.22	0.154
30.00	-83.73	-7.02	0.00	-796.6	0.00	796.60	4,464.00	1,135.36	4,918.68	4,172.60	0.82	-0.26	0.151
35.00	-80.80	-6.95	0.00	-761.5	0.00	761.51	4,408.43	1,112.12	4,719.43	4,035.51	1.12	-0.31	0.148
40.00	-77.91	-6.88	0.00	-726.8	0.00	726.77	4,351.37	1,088.87	4,524.29	3,899.22	1.47	-0.36	0.145
43.58	-75.85	-6.83	0.00	-702.1	0.00	702.12	4,309.55	1,072.22	4,386.98	3,802.09	1.75	-0.39	0.142
45.00	-74.72	-6.78	0.00	-692.4	0.00	692.44	4,292.80	1,065.63	4,333.28	3,763.83	1.87	-0.4	0.140
50.00	-70.80	-6.70	0.00	-658.5	0.00	658.53	3,449.19	910.70	3,691.93	3,019.48	2.31	-0.45	0.160
52.50	-69.46	-6.65	0.00	-641.8	0.00	641.78	3,428.39	900.74	3,611.63	2,968.15	2.56	-0.47	0.157
55.00	-68.13	-6.59	0.00	-625.2	0.00	625.15	3,407.21	890.77	3,532.22	2,916.91	2.81	-0.5	0.155
60.00	-65.48	-6.49	0.00	-592.2	0.00	592.21	3,363.73	870.85	3,376.04	2,814.72	3.36	-0.55	0.151
65.00	-62.86	-6.39	0.00	-559.8	0.00	559.76	3,318.75	850.93	3,223.39	2,712.97	3.96	-0.6	0.146
65.00	-62.86	-6.39	0.00	-559.8	0.00	559.76	3,318.75	850.93	3,223.39	2,712.97	3.96	-0.6	0.225
70.00	-60.67	-6.30	0.00	-527.8	0.00	527.83	3,272.27	831.01	3,074.28	2,611.78	4.61	-0.65	0.221
75.00	-58.56	-6.23	0.00	-496.3	0.00	496.32	3,224.30	811.09	2,928.69	2,511.21	5.33	-0.72	0.216
80.00	-56.63	-6.15	0.00	-465.2	0.00	465.20	3,174.83	791.17	2,786.64	2,411.36	6.13	-0.8	0.211
85.00	-54.74	-6.08	0.00	-434.5	0.00	434.46	3,123.86	771.24	2,648.12	2,312.31	7.01	-0.88	0.205
87.50	-53.80	-6.04	0.00	-419.3	0.00	419.26	3,097.81	761.28	2,580.17	2,263.11	7.48	-0.92	0.203
90.00	-52.49	-5.99	0.00	-404.2	0.00	404.17	3,071.40	751.32	2,513.13	2,214.15	7.98	-0.97	0.200
93.00	-50.93	-5.93	0.00	-386.2	0.00	386.21	2,386.65	628.28	2,108.62	1,729.58	8.6	-1.01	0.245
95.00	-50.25	-5.88	0.00	-374.4	0.00	374.36	2,372.63	621.64	2,064.30	1,701.09	9.03	-1.05	0.241
99.80	-48.32	-5.77	0.00	-346.1	0.00	346.12	2,338.02	605.71	1,959.84	1,632.92	10.13	-1.14	0.233
100.00	-48.25	-5.74	0.00	-345.0	0.00	344.97	2,336.55	605.04	1,955.55	1,630.09	10.18	-1.14	0.232
105.00	-46.58	-5.65	0.00	-316.3	0.00	316.27	2,298.97	588.44	1,849.74	1,559.47	11.42	-1.23	0.223
110.00	-44.94	-5.56	0.00	-288.0	0.00	288.01	2,259.89	571.84	1,746.88	1,489.31	12.76	-1.32	0.213
115.00	-43.33	-5.47	0.00	-260.2	0.00	260.20	2,219.31	555.24	1,646.95	1,419.70	14.19	-1.41	0.203
120.00	-41.75	-5.37	0.00	-232.9	0.00	232.88	2,177.24	538.64	1,549.97	1,350.73	15.71	-1.5	0.192
125.00	-40.20	-5.26	0.00	-206.0	0.00	206.04	2,133.67	522.03	1,455.93	1,282.49	17.33	-1.58	0.180
130.00	-38.67	-5.17	0.00	-179.7	0.00	179.73	2,088.60	505.43	1,364.84	1,215.06	19.03	-1.67	0.167
133.42	-37.64	-5.10	0.00	-162.1	0.00	162.07	2,056.94	494.09	1,304.27	1,169.49	20.24	-1.72	0.157
135.00	-37.04	-5.05	0.00	-154.0	0.00	153.99	2,042.04	488.83	1,276.68	1,148.53	20.82	-1.75	0.152
138.00	-35.91	-4.99	0.00	-138.8	0.00	138.83	1,234.49	341.86	891.56	695.83	21.93	-1.79	0.229
140.00	-27.76	-3.90	0.00	-128.9	0.00	128.86	1,226.38	337.21	867.48	681.79	22.69	-1.82	0.212
145.00	-26.50	-3.79	0.00	-109.4	0.00	109.35	1,205.07	325.58	808.73	646.66	24.65	-1.92	0.191
150.00	-25.26	-3.67	0.00	-90.4	0.00	90.40	1,182.27	313.96	752.03	611.59	26.7	-2	0.169
155.00	-24.05	-3.55	0.00	-72.0	0.00	72.04	1,157.96	302.34	697.39	576.65	28.84	-2.08	0.146
160.00	-22.86	-3.43	0.00	-54.3	0.00	54.28	1,132.16	290.71	644.81	541.94	31.05	-2.15	0.120
165.00	-21.69	-3.32	0.00	-37.1	0.00	37.14	1,104.87	279.09	594.30	507.53	33.34	-2.2	0.093
168.00	-16.38	-2.64	0.00	-27.2	0.00	27.16	1,087.77	272.11	564.98	487.07	34.73	-2.23	0.071
170.00	-16.02	-2.58	0.00	-21.9	0.00	21.88	1,076.07	267.47	545.84	473.52	35.67	-2.25	0.061
173.30	-15.04	-2.48	0.00	-13.4	0.00	13.39	1,056.25	259.79	514.99	451.33	37.23	-2.26	0.044
173.40	-14.11	-2.31	0.00	-13.0	0.00	13.01	1,055.64	259.56	514.07	450.66	37.27	-2.26	0.042
173.50	-13.19	-2.10	0.00	-12.8	0.00	12.78	1,055.03	259.33	513.15	449.99	37.32	-2.26	0.041
173.60	-12.09	-1.86	0.00	-12.6	0.00	12.57	1,054.41	259.10	512.23	449.32	37.37	-2.26	0.039
174.00	-11.94	-1.84	0.00	-11.8	0.00	11.81	1,051.96	258.17	508.56	446.65	37.56	-2.27	0.038
174.30	-11.36	-1.74	0.00	-11.2	0.00	11.19	1,050.11	257.47	505.82	444.65	37.7	-2.27	0.036
174.40	-10.97	-1.67	0.00	-11.0	0.00	10.97	1,049.50	257.24	504.90	443.98	37.75	-2.27	0.035
174.90	-10.48	-1.60	0.00	-10.1	0.00	10.13	1,046.40	256.07	500.35	440.65	37.99	-2.27	0.033
175.00	-10.47	-1.59	0.00	-10.0	0.00	9.97	1,045.78	255.84	499.44	439.99	38.03	-2.27	0.033
175.80	-9.97	-1.50	0.00	-8.7	0.00	8.70	1,040.80	253.98	492.21	434.68	38.41	-2.27	0.030
177.70	-9.38	-1.43	0.00	-5.9	0.00	5.86	1,028.80	249.56	475.25	422.12	39.32	-2.28	0.023
177.80	-9.09	-1.37	0.00	-5.7	0.00	5.72	1,028.17	249.33	474.36	421.46	39.37	-2.28	0.022
180.00	-8.83	-1.33	0.00	-2.7	0.00	2.69	1,013.99	244.22	455.11	407.03	40.42	-2.28	0.015
181.00	-1.88	-0.34	0.00	-1.4	0.00	1.36	1,007.46	241.89	446.49	400.51	40.89	-2.28	0.005
185.00	0.00	-0.26	0.00	-0.0	0.00	0.01	976.90	232.59	412.83	373.27	42.81	-2.28	0.000

Load Case: 1.0D + 1.0W Service Normal 60 mph Wind with No Ice 30 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.03	-7.59	0.00	-886.5	0.00	886.54	4,765.98	1,274.81	6,200.72	5,007.21	0	0	0.141
5.00	-54.08	-7.46	0.00	-848.6	0.00	848.59	4,719.39	1,251.57	5,976.75	4,867.10	0.02	-0.04	0.138
10.00	-52.14	-7.32	0.00	-811.3	0.00	811.30	4,671.31	1,228.33	5,756.90	4,727.28	0.08	-0.07	0.135
15.00	-50.23	-7.19	0.00	-774.7	0.00	774.69	4,621.73	1,205.08	5,541.16	4,587.84	0.18	-0.11	0.132
20.00	-48.34	-7.08	0.00	-738.8	0.00	738.75	4,570.65	1,181.84	5,329.55	4,448.85	0.32	-0.15	0.129
22.50	-47.41	-7.01	0.00	-721.0	0.00	721.05	4,544.55	1,170.22	5,225.29	4,379.56	0.4	-0.17	0.127
25.00	-46.48	-6.91	0.00	-703.5	0.00	703.51	4,518.07	1,158.60	5,122.06	4,310.41	0.49	-0.19	0.125
30.00	-44.63	-6.77	0.00	-669.0	0.00	668.96	4,464.00	1,135.36	4,918.68	4,172.60	0.71	-0.23	0.122
35.00	-42.81	-6.62	0.00	-635.1	0.00	635.13	4,408.43	1,112.12	4,719.43	4,035.51	0.97	-0.26	0.119
40.00	-41.02	-6.48	0.00	-602.0	0.00	602.04	4,351.37	1,088.87	4,524.29	3,899.22	1.26	-0.3	0.116
43.58	-39.74	-6.40	0.00	-578.8	0.00	578.82	4,309.55	1,072.22	4,386.98	3,802.09	1.5	-0.33	0.113
45.00	-38.99	-6.29	0.00	-569.8	0.00	569.76	4,292.80	1,065.63	4,333.28	3,763.83	1.6	-0.34	0.112
50.00	-36.34	-6.15	0.00	-538.3	0.00	538.32	3,449.19	910.70	3,691.93	3,019.48	1.98	-0.38	0.126
52.50	-35.54	-6.06	0.00	-523.0	0.00	522.96	3,428.39	900.74	3,611.63	2,968.15	2.18	-0.4	0.124
55.00	-34.74	-5.93	0.00	-507.8	0.00	507.81	3,407.21	890.77	3,532.22	2,916.91	2.4	-0.42	0.122
60.00	-33.16	-5.74	0.00	-478.2	0.00	478.18	3,363.73	870.85	3,376.04	2,814.72	2.86	-0.46	0.118
65.00	-31.59	-5.55	0.00	-449.5	0.00	449.47	3,318.75	850.93	3,223.39	2,712.97	3.36	-0.5	0.113
65.00	-31.59	-5.55	0.00	-449.5	0.00	449.47	3,318.75	850.93	3,223.39	2,712.97	3.36	-0.5	0.175
70.00	-30.38	-5.36	0.00	-421.7	0.00	421.73	3,272.27	831.01	3,074.28	2,611.78	3.9	-0.54	0.171
75.00	-29.21	-5.22	0.00	-394.9	0.00	394.90	3,224.30	811.09	2,928.69	2,511.21	4.5	-0.6	0.166
80.00	-28.13	-5.12	0.00	-368.8	0.00	368.79	3,174.83	791.17	2,786.64	2,411.36	5.16	-0.66	0.162
85.00	-27.07	-5.04	0.00	-343.2	0.00	343.20	3,123.86	771.24	2,648.12	2,312.31	5.89	-0.73	0.157
87.50	-26.55	-4.98	0.00	-330.6	0.00	330.61	3,097.81	761.28	2,580.17	2,263.11	6.28	-0.76	0.155
90.00	-25.72	-4.92	0.00	-318.2	0.00	318.15	3,071.40	751.32	2,513.13	2,214.15	6.69	-0.79	0.152
93.00	-24.74	-4.86	0.00	-303.4	0.00	303.39	2,386.65	628.28	2,108.62	1,729.58	7.2	-0.83	0.186
95.00	-24.37	-4.79	0.00	-293.7	0.00	293.67	2,372.63	621.64	2,064.30	1,701.09	7.55	-0.86	0.183
99.80	-23.32	-4.69	0.00	-270.7	0.00	270.67	2,338.02	605.71	1,959.84	1,632.92	8.45	-0.93	0.176
100.00	-23.28	-4.64	0.00	-269.7	0.00	269.73	2,336.55	605.04	1,955.55	1,630.09	8.49	-0.93	0.175
105.00	-22.40	-4.53	0.00	-246.5	0.00	246.54	2,298.97	588.44	1,849.74	1,559.47	9.5	-1	0.168
110.00	-21.54	-4.43	0.00	-223.9	0.00	223.88	2,259.89	571.84	1,746.88	1,489.31	10.58	-1.07	0.160
115.00	-20.69	-4.32	0.00	-201.7	0.00	201.74	2,219.31	555.24	1,646.95	1,419.70	11.74	-1.14	0.151
120.00	-19.86	-4.21	0.00	-180.1	0.00	180.14	2,177.24	538.64	1,549.97	1,350.73	12.97	-1.21	0.143
125.00	-19.04	-4.11	0.00	-159.1	0.00	159.06	2,133.67	522.03	1,455.93	1,282.49	14.27	-1.27	0.133
130.00	-18.24	-4.02	0.00	-138.5	0.00	138.52	2,088.60	505.43	1,364.84	1,215.06	15.64	-1.34	0.123
133.42	-17.71	-3.96	0.00	-124.8	0.00	124.80	2,056.94	494.09	1,304.27	1,169.49	16.61	-1.38	0.115
135.00	-17.35	-3.91	0.00	-118.5	0.00	118.54	2,042.04	488.83	1,276.68	1,148.53	17.07	-1.4	0.112
138.00	-16.69	-3.85	0.00	-106.8	0.00	106.81	1,234.49	341.86	891.56	695.83	17.96	-1.43	0.167
140.00	-12.70	-3.01	0.00	-99.1	0.00	99.11	1,226.38	337.21	867.48	681.79	18.57	-1.46	0.156
145.00	-12.10	-2.91	0.00	-84.0	0.00	84.05	1,205.07	325.58	808.73	646.66	20.13	-1.53	0.140
150.00	-11.52	-2.81	0.00	-69.5	0.00	69.51	1,182.27	313.96	752.03	611.59	21.77	-1.6	0.123
155.00	-10.95	-2.70	0.00	-55.5	0.00	55.48	1,157.96	302.34	697.39	576.65	23.47	-1.66	0.106
160.00	-10.40	-2.60	0.00	-42.0	0.00	41.96	1,132.16	290.71	644.81	541.94	25.24	-1.71	0.087
165.00	-9.85	-2.52	0.00	-29.0	0.00	28.95	1,104.87	279.09	594.30	507.53	27.05	-1.75	0.066
168.00	-6.95	-2.09	0.00	-21.4	0.00	21.38	1,087.77	272.11	564.98	487.07	28.16	-1.77	0.050
170.00	-6.77	-2.04	0.00	-17.2	0.00	17.19	1,076.07	267.47	545.84	473.52	28.9	-1.78	0.043
173.30	-6.29	-1.98	0.00	-10.4	0.00	10.45	1,056.25	259.79	514.99	451.33	30.14	-1.8	0.029
173.40	-5.96	-1.84	0.00	-10.1	0.00	10.13	1,055.64	259.56	514.07	450.66	30.18	-1.8	0.028
173.50	-5.77	-1.65	0.00	-9.9	0.00	9.94	1,055.03	259.33	513.15	449.99	30.21	-1.8	0.028
173.60	-5.49	-1.44	0.00	-9.8	0.00	9.78	1,054.41	259.10	512.23	449.32	30.25	-1.8	0.027
174.00	-5.43	-1.43	0.00	-9.2	0.00	9.19	1,051.96	258.17	508.56	446.65	30.4	-1.8	0.026
174.30	-5.31	-1.34	0.00	-8.7	0.00	8.68	1,050.11	257.47	505.82	444.65	30.52	-1.8	0.025
174.40	-5.15	-1.29	0.00	-8.5	0.00	8.51	1,049.50	257.24	504.90	443.98	30.55	-1.8	0.024
174.90	-4.94	-1.23	0.00	-7.9	0.00	7.86	1,046.40	256.07	500.35	440.65	30.74	-1.8	0.023
175.00	-4.93	-1.22	0.00	-7.7	0.00	7.74	1,045.78	255.84	499.44	439.99	30.78	-1.8	0.022
175.80	-4.71	-1.15	0.00	-6.8	0.00	6.76	1,040.80	253.98	492.21	434.68	31.08	-1.81	0.020
177.70	-4.42	-1.10	0.00	-4.6	0.00	4.58	1,028.80	249.56	475.25	422.12	31.8	-1.81	0.015
177.80	-4.28	-1.06	0.00	-4.5	0.00	4.47	1,028.17	249.33	474.36	421.46	31.84	-1.81	0.015
180.00	-4.15	-1.03	0.00	-2.1	0.00	2.13	1,013.99	244.22	455.11	407.03	32.67	-1.81	0.009
181.00	-0.36	-0.27	0.00	-1.1	0.00	1.10	1,007.46	241.89	446.49	400.51	33.05	-1.81	0.003
185.00	0.00	-0.26	0.00	-0.0	0.00	0.02	976.90	232.59	412.83	373.27	34.57	-1.81	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

Spectral Response Acceleration for Short Period (S_S):	0.202
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
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}):	0.215
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_S:	0.030
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	3.360
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	56.030 k
Seismic Base Shear (E):	1.680 k

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
58	183	223	7,480	0.012	20	278
57	180.5	57	1,856	0.003	5	71
56	178.9	127	4,062	0.006	11	158
55	177.75	6	184	0.000	0	7
54	176.75	111	3,482	0.006	9	139
53	175.4	47	1,459	0.002	4	59
52	174.95	6	182	0.000	0	7
51	174.65	30	909	0.001	2	37
50	174.35	6	182	0.000	0	7
49	174.15	18	544	0.001	1	22
48	173.8	26	784	0.001	2	32
47	173.55	7	196	0.000	1	8
46	173.45	7	196	0.000	1	8
45	173.35	7	196	0.000	1	8
44	171.65	267	7,863	0.012	21	332
43	169	184	5,244	0.008	14	228
42	166.5	323	8,949	0.014	24	401
41	162.5	547	14,445	0.023	38	680
40	157.5	558	13,850	0.022	37	694
39	152.5	570	13,246	0.021	35	708
38	147.5	581	12,637	0.020	33	722
37	142.5	592	12,024	0.019	32	736
36	139.0002	251	4,857	0.008	13	312
35	136.5002	662	12,335	0.019	33	823
34	134.2085	353	6,363	0.010	17	439
33	131.7085	536	9,292	0.015	25	666
32	127.5	797	12,963	0.020	34	991
31	122.5	813	12,207	0.019	32	1,011
30	117.5	830	11,453	0.018	30	1,031
29	112.5	846	10,703	0.017	28	1,051
28	107.5	862	9,959	0.016	26	1,071
27	102.5	878	9,223	0.014	24	1,091
26	99.9	35	354	0.001	1	44
25	97.4	859	8,144	0.013	22	1,067

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
24	94.0002	362	3,199	0.005	8	450
23	91.5002	982	8,218	0.013	22	1,220
22	88.7502	828	6,518	0.010	17	1,029
21	86.2502	521	3,877	0.006	10	648
20	82.5	1,057	7,192	0.011	19	1,314
19	77.5	1,076	6,463	0.010	17	1,338
18	72.5	1,163	6,111	0.010	16	1,445
17	67.5	1,208	5,505	0.009	15	1,502
16	62.5	1,562	6,100	0.010	16	1,941
15	57.5	1,581	5,227	0.008	14	1,965
14	53.75	798	2,305	0.004	6	992
13	51.25	802	2,108	0.003	6	998
12	47.5	2,641	5,959	0.009	16	3,283
11	44.2917	756	1,483	0.002	4	940
10	41.7917	1,272	2,221	0.004	6	1,581
9	37.5	1,794	2,523	0.004	7	2,230
8	32.5	1,816	1,919	0.003	5	2,258
7	27.5	1,839	1,391	0.002	4	2,286
6	23.75	928	523	0.001	1	1,153
5	21.25	934	422	0.001	1	1,160
4	17.5	1,884	577	0.001	2	2,342
3	12.5	1,906	298	0.000	1	2,370
2	7.5	1,929	109	0.000	0	2,398
1	2.5	1,952	12	0.000	0	2,426
Decibel DB844H90E-XY	185	56	1,917	0.003	5	70
Decibel 844G65VTZASX	185	48	1,643	0.003	4	60
Decibel 844G90VTA-SX	185	46	1,574	0.002	4	57
Generic Heavy Platform with Handrails	181	3,750	122,854	0.193	325	4,662
Ericsson RRUS 4415 (PCS)	177.8	138	4,363	0.007	12	172
Ericsson RRUS 4478 B14	177.7	180	5,674	0.009	15	223
Ericsson RRUS 32 B30	175.8	180	5,563	0.009	15	224
Ericsson RRUS E2 B29	174.9	180	5,506	0.009	15	224
Ericsson RRUS 32 B66	174.4	159	4,836	0.008	13	198
Powerwave Allgon 7770.00	174.3	105	3,190	0.005	8	131
Raycap DC6-48-60-0-8F	174	33	993	0.002	3	41
Raycap DC6-48-60-18-8F (23.5" Height)	173.6	40	1,205	0.002	3	50
CCI DMP65R-BU6DA	173.6	238	7,179	0.011	19	296
CCI OPA65R-BU6D	173.5	190	5,707	0.009	15	236
Quintel QS66512-2	173.4	333	10,012	0.016	26	414
Ericsson RRUS 4449 B5, B12	173.3	213	6,397	0.010	17	265
Powerwave Allgon LGP21401	168	85	2,388	0.004	6	105
Generic Round Platform with Handrails	168	2,500	70,560	0.111	187	3,108
Generic Round Platform with Handrails	140	2,500	49,000	0.077	130	3,108
Ericsson Radio 4460 B25+B66	140	327	6,409	0.010	17	406
Ericsson Radio 4480 B71+B85A	140	252	4,939	0.008	13	313
Ericsson Air6449 B41	140	312	6,115	0.010	16	388
RFS APXVAALL24 43-U-NA20	140	368	7,221	0.011	19	458
Generic 2" x 4" GPS	99.8	5	50	0.000	0	6
Generic Round Stand-Off	99.8	188	1,868	0.003	5	233
		56,034	635,244	1.000	1,681	69,656

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
58	183	223	7,480	0.012	20	191
57	180.5	57	1,856	0.003	5	49
56	178.9	127	4,062	0.006	11	109
55	177.75	6	184	0.000	0	5
54	176.75	111	3,482	0.006	9	95
53	175.4	47	1,459	0.002	4	41
52	174.95	6	182	0.000	0	5
51	174.65	30	909	0.001	2	26

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
50	174.35	6	182	0.000	0	5
49	174.15	18	544	0.001	1	15
48	173.8	26	784	0.001	2	22
47	173.55	7	196	0.000	1	6
46	173.45	7	196	0.000	1	6
45	173.35	7	196	0.000	1	6
44	171.65	267	7,863	0.012	21	229
43	169	184	5,244	0.008	14	157
42	166.5	323	8,949	0.014	24	277
41	162.5	547	14,445	0.023	38	469
40	157.5	558	13,850	0.022	37	478
39	152.5	570	13,246	0.021	35	488
38	147.5	581	12,637	0.020	33	498
37	142.5	592	12,024	0.019	32	507
36	139.0002	251	4,857	0.008	13	215
35	136.5002	662	12,335	0.019	33	567
34	134.2085	353	6,363	0.010	17	303
33	131.7085	536	9,292	0.015	25	459
32	127.5	797	12,963	0.020	34	683
31	122.5	813	12,207	0.019	32	697
30	117.5	830	11,453	0.018	30	711
29	112.5	846	10,703	0.017	28	725
28	107.5	862	9,959	0.016	26	738
27	102.5	878	9,223	0.014	24	752
26	99.9	35	354	0.001	1	30
25	97.4	859	8,144	0.013	22	736
24	94.0002	362	3,199	0.005	8	310
23	91.5002	982	8,218	0.013	22	841
22	88.7502	828	6,518	0.010	17	709
21	86.2502	521	3,877	0.006	10	447
20	82.5	1,057	7,192	0.011	19	905
19	77.5	1,076	6,463	0.010	17	922
18	72.5	1,163	6,111	0.010	16	996
17	67.5	1,208	5,505	0.009	15	1,035
16	62.5	1,562	6,100	0.010	16	1,338
15	57.5	1,581	5,227	0.008	14	1,355
14	53.75	798	2,305	0.004	6	684
13	51.25	802	2,108	0.003	6	688
12	47.5	2,641	5,959	0.009	16	2,263
11	44.2917	756	1,483	0.002	4	648
10	41.7917	1,272	2,221	0.004	6	1,090
9	37.5	1,794	2,523	0.004	7	1,537
8	32.5	1,816	1,919	0.003	5	1,556
7	27.5	1,839	1,391	0.002	4	1,576
6	23.75	928	523	0.001	1	795
5	21.25	934	422	0.001	1	800
4	17.5	1,884	577	0.001	2	1,614
3	12.5	1,906	298	0.000	1	1,634
2	7.5	1,929	109	0.000	0	1,653
1	2.5	1,952	12	0.000	0	1,672
Decibel DB844H90E-XY	185	56	1,917	0.003	5	48
Decibel 844G65VTZASX	185	48	1,643	0.003	4	41
Decibel 844G90VTA-SX	185	46	1,574	0.002	4	39
Generic Heavy Platform with Handrails	181	3,750	122,854	0.193	325	3,213
Ericsson RRUS 4415 (PCS)	177.8	138	4,363	0.007	12	118
Ericsson RRUS 4478 B14	177.7	180	5,674	0.009	15	154
Ericsson RRUS 32 B30	175.8	180	5,563	0.009	15	154
Ericsson RRUS E2 B29	174.9	180	5,506	0.009	15	154
Ericsson RRUS 32 B66	174.4	159	4,836	0.008	13	136
Powerwave Allgon 7770.00	174.3	105	3,190	0.005	8	90
Raycap DC6-48-60-0-8F	174	33	993	0.002	3	28
Raycap DC6-48-60-18-8F (23.5" Height)	173.6	40	1,205	0.002	3	34
CCI DMP65R-BU6DA	173.6	238	7,179	0.011	19	204
CCI OPA65R-BU6D	173.5	190	5,707	0.009	15	162
Quintel QS66512-2	173.4	333	10,012	0.016	26	285
Ericsson RRUS 4449 B5, B12	173.3	213	6,397	0.010	17	183
Powerwave Allgon LGP21401	168	85	2,388	0.004	6	72
Generic Round Platform with Handrails	168	2,500	70,560	0.111	187	2,142
Generic Round Platform with Handrails	140	2,500	49,000	0.077	130	2,142
Ericsson Radio 4460 B25+B66	140	327	6,409	0.010	17	280

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
Ericsson Radio 4480 B71+B85A	140	252	4,939	0.008	13	216
Ericsson Air6449 B41	140	312	6,115	0.010	16	267
RFS APXVAALL24 43-U-NA20	140	368	7,221	0.011	19	316
Generic 2" x 4" GPS	99.8	5	50	0.000	0	4
Generic Round Stand-Off	99.8	188	1,868	0.003	5	161
		56,034	635,244	1.000	1,681	48,016

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

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-67.23	-1.69	0.00	-263.77	0.00	263.77	4,765.98	1,274.81	6,201	5,007.21	0.00	0.00	0.05
5.00	-64.83	-1.70	0.00	-255.34	0.00	255.34	4,719.39	1,251.57	5,977	4,867.10	0.01	-0.01	0.05
10.00	-62.46	-1.71	0.00	-246.84	0.00	246.84	4,671.31	1,228.33	5,757	4,727.28	0.02	-0.02	0.05
15.00	-60.12	-1.72	0.00	-238.29	0.00	238.29	4,621.73	1,205.08	5,541	4,587.84	0.05	-0.03	0.05
20.00	-58.96	-1.73	0.00	-229.70	0.00	229.70	4,570.65	1,181.84	5,330	4,448.85	0.10	-0.05	0.05
22.50	-57.80	-1.73	0.00	-225.38	0.00	225.38	4,544.55	1,170.22	5,225	4,379.56	0.12	-0.05	0.05
22.50	-57.80	-1.73	0.00	-225.38	0.00	225.38	4,544.55	1,170.22	5,225	4,379.56	0.12	-0.05	0.05
25.00	-55.52	-1.73	0.00	-221.06	0.00	221.06	4,518.07	1,158.60	5,122	4,310.41	0.15	-0.06	0.05
30.00	-53.26	-1.74	0.00	-212.39	0.00	212.39	4,464.00	1,135.36	4,919	4,172.60	0.22	-0.07	0.05
35.00	-51.03	-1.74	0.00	-203.71	0.00	203.71	4,408.43	1,112.12	4,719	4,035.51	0.30	-0.08	0.05
40.00	-49.45	-1.74	0.00	-195.02	0.00	195.02	4,351.37	1,088.87	4,524	3,899.22	0.39	-0.09	0.04
43.58	-48.51	-1.74	0.00	-188.79	0.00	188.79	4,309.55	1,072.22	4,387	3,802.09	0.46	-0.10	0.04
45.00	-45.22	-1.72	0.00	-186.32	0.00	186.32	4,292.80	1,065.63	4,333	3,763.83	0.49	-0.11	0.04
50.00	-44.23	-1.72	0.00	-177.71	0.00	177.71	3,449.19	910.70	3,692	3,019.48	0.61	-0.12	0.05
52.50	-43.24	-1.72	0.00	-173.40	0.00	173.40	3,428.39	900.74	3,612	2,968.15	0.67	-0.13	0.05
52.50	-43.24	-1.72	0.00	-173.40	0.00	173.40	3,428.39	900.74	3,612	2,968.15	0.67	-0.13	0.05
55.00	-41.27	-1.71	0.00	-169.10	0.00	169.10	3,407.21	890.77	3,532	2,916.91	0.74	-0.13	0.05
60.00	-39.33	-1.70	0.00	-160.56	0.00	160.56	3,363.73	870.85	3,376	2,814.72	0.89	-0.15	0.05
65.00	-37.83	-1.69	0.00	-152.07	0.00	152.07	3,318.75	850.93	3,223	2,712.97	1.05	-0.16	0.04
65.00	-37.83	-1.69	0.00	-152.07	0.00	152.07	3,318.75	850.93	3,223	2,712.97	1.05	-0.16	0.07
70.00	-36.38	-1.68	0.00	-143.64	0.00	143.64	3,272.27	831.01	3,074	2,611.78	1.22	-0.17	0.07
75.00	-35.04	-1.67	0.00	-135.25	0.00	135.25	3,224.30	811.09	2,929	2,511.21	1.41	-0.19	0.07
80.00	-33.73	-1.66	0.00	-126.90	0.00	126.90	3,174.83	791.17	2,787	2,411.36	1.63	-0.22	0.06
85.00	-33.08	-1.66	0.00	-118.60	0.00	118.60	3,123.86	771.24	2,648	2,312.31	1.87	-0.24	0.06
87.50	-32.05	-1.64	0.00	-114.46	0.00	114.46	3,097.81	761.28	2,580	2,263.11	1.99	-0.25	0.06
90.00	-30.83	-1.62	0.00	-110.36	0.00	110.36	3,071.40	751.32	2,513	2,214.15	2.13	-0.26	0.06
93.00	-30.38	-1.62	0.00	-105.50	0.00	105.50	2,386.65	628.28	2,109	1,729.58	2.29	-0.27	0.07
95.00	-29.31	-1.60	0.00	-102.27	0.00	102.27	2,372.63	621.64	2,064	1,701.09	2.41	-0.28	0.07
99.80	-29.03	-1.60	0.00	-94.61	0.00	94.61	2,338.02	605.71	1,960	1,632.92	2.71	-0.31	0.07
100.00	-27.94	-1.57	0.00	-94.29	0.00	94.29	2,336.55	605.04	1,956	1,630.09	2.72	-0.31	0.07
105.00	-26.87	-1.55	0.00	-86.43	0.00	86.43	2,298.97	588.44	1,850	1,559.47	3.05	-0.33	0.07
110.00	-25.81	-1.53	0.00	-78.67	0.00	78.67	2,259.89	571.84	1,747	1,489.31	3.42	-0.36	0.06
115.00	-24.78	-1.50	0.00	-71.04	0.00	71.04	2,219.31	555.24	1,647	1,419.70	3.80	-0.38	0.06
120.00	-23.77	-1.47	0.00	-63.53	0.00	63.53	2,177.24	538.64	1,550	1,350.73	4.21	-0.41	0.06
125.00	-22.78	-1.44	0.00	-56.17	0.00	56.17	2,133.67	522.03	1,456	1,282.49	4.65	-0.43	0.05
130.00	-22.11	-1.42	0.00	-48.97	0.00	48.97	2,088.60	505.43	1,365	1,215.06	5.11	-0.45	0.05
133.42	-21.67	-1.40	0.00	-44.13	0.00	44.13	2,056.94	494.09	1,304	1,169.49	5.44	-0.47	0.05
135.00	-20.85	-1.36	0.00	-41.91	0.00	41.91	2,042.04	488.83	1,277	1,148.53	5.60	-0.47	0.05
138.00	-20.54	-1.35	0.00	-37.82	0.00	37.82	1,234.49	341.86	892	695.83	5.90	-0.49	0.07
140.00	-15.13	-1.08	0.00	-35.11	0.00	35.11	1,226.38	337.21	867	681.79	6.10	-0.49	0.06
145.00	-14.41	-1.05	0.00	-29.69	0.00	29.69	1,205.07	325.58	809	646.66	6.63	-0.52	0.06
150.00	-13.70	-1.01	0.00	-24.44	0.00	24.44	1,182.27	313.96	752	611.59	7.19	-0.54	0.05
155.00	-13.01	-0.98	0.00	-19.36	0.00	19.36	1,157.96	302.34	697	576.65	7.77	-0.56	0.05
160.00	-12.33	-0.93	0.00	-14.49	0.00	14.49	1,132.16	290.71	645	541.94	8.37	-0.58	0.04
165.00	-11.93	-0.91	0.00	-9.81	0.00	9.81	1,104.87	279.09	594	507.53	8.99	-0.60	0.03
168.00	-8.49	-0.67	0.00	-7.09	0.00	7.09	1,087.77	272.11	565	487.07	9.36	-0.60	0.02
170.00	-8.15	-0.64	0.00	-5.75	0.00	5.75	1,076.07	267.47	546	473.52	9.62	-0.61	0.02
173.30	-7.88	-0.62	0.00	-3.63	0.00	3.63	1,056.25	259.79	515	451.33	10.04	-0.61	0.02
173.40	-7.46	-0.59	0.00	-3.57	0.00	3.57	1,055.64	259.56	514	450.66	10.05	-0.61	0.02
173.50	-7.22	-0.57	0.00	-3.51	0.00	3.51	1,055.03	259.33	513	449.99	10.07	-0.61	0.02
173.60	-6.84	-0.55	0.00	-3.45	0.00	3.45	1,054.41	259.10	512	449.32	10.08	-0.61	0.01
174.00	-6.78	-0.54	0.00	-3.24	0.00	3.24	1,051.96	258.17	509	446.65	10.13	-0.61	0.01
174.30	-6.64	-0.53	0.00	-3.07	0.00	3.07	1,050.11	257.47	506	444.65	10.17	-0.61	0.01

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
174.40	-6.40	-0.51	0.00	-3.02	0.00	3.02	1,049.50	257.24	505	443.98	10.18	-0.61	0.01
174.90	-6.17	-0.49	0.00	-2.76	0.00	2.76	1,046.40	256.07	500	440.65	10.25	-0.61	0.01
175.00	-6.11	-0.49	0.00	-2.71	0.00	2.71	1,045.78	255.84	499	439.99	10.26	-0.61	0.01
175.80	-5.75	-0.46	0.00	-2.32	0.00	2.32	1,040.80	253.98	492	434.68	10.36	-0.61	0.01
177.70	-5.52	-0.44	0.00	-1.44	0.00	1.44	1,028.80	249.56	475	422.12	10.61	-0.62	0.01
177.80	-5.19	-0.42	0.00	-1.40	0.00	1.40	1,028.17	249.33	474	421.46	10.62	-0.62	0.01
180.00	-5.12	-0.41	0.00	-0.48	0.00	0.48	1,013.99	244.22	455	407.03	10.90	-0.62	0.01
181.00	-0.19	-0.02	0.00	-0.06	0.00	0.06	1,007.46	241.89	446	400.51	11.03	-0.62	0.00
185.00	0.00	-0.01	0.00	0.00	0.00	0.00	976.90	232.59	413	373.27	11.55	-0.62	0.00

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

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.34	-1.68	0.00	-256.90	0.00	256.90	4,765.98	1,274.81	6,201	5,007.21	0.00	0.00	0.05
5.00	-44.69	-1.69	0.00	-248.48	0.00	248.48	4,719.39	1,251.57	5,977	4,867.10	0.01	-0.01	0.05
10.00	-43.06	-1.70	0.00	-240.02	0.00	240.02	4,671.31	1,228.33	5,757	4,727.28	0.02	-0.02	0.04
15.00	-41.44	-1.70	0.00	-231.52	0.00	231.52	4,621.73	1,205.08	5,541	4,587.84	0.05	-0.03	0.04
20.00	-40.64	-1.71	0.00	-223.00	0.00	223.00	4,570.65	1,181.84	5,330	4,448.85	0.09	-0.04	0.04
22.50	-39.85	-1.71	0.00	-218.73	0.00	218.73	4,544.55	1,170.22	5,225	4,379.56	0.12	-0.05	0.04
22.50	-39.85	-1.71	0.00	-218.73	0.00	218.73	4,544.55	1,170.22	5,225	4,379.56	0.12	-0.05	0.04
25.00	-38.27	-1.71	0.00	-214.45	0.00	214.45	4,518.07	1,158.60	5,122	4,310.41	0.15	-0.06	0.04
30.00	-36.71	-1.71	0.00	-205.89	0.00	205.89	4,464.00	1,135.36	4,919	4,172.60	0.21	-0.07	0.04
35.00	-35.18	-1.71	0.00	-197.33	0.00	197.33	4,408.43	1,112.12	4,719	4,035.51	0.29	-0.08	0.04
40.00	-34.09	-1.71	0.00	-188.77	0.00	188.77	4,351.37	1,088.87	4,524	3,899.22	0.38	-0.09	0.04
43.58	-33.44	-1.71	0.00	-182.64	0.00	182.64	4,309.55	1,072.22	4,387	3,802.09	0.45	-0.10	0.04
45.00	-31.17	-1.69	0.00	-180.22	0.00	180.22	4,292.80	1,065.63	4,333	3,763.83	0.48	-0.10	0.04
50.00	-30.49	-1.69	0.00	-171.76	0.00	171.76	3,449.19	910.70	3,692	3,019.48	0.59	-0.12	0.04
52.50	-29.80	-1.69	0.00	-167.53	0.00	167.53	3,428.39	900.74	3,612	2,968.15	0.66	-0.12	0.04
52.50	-29.80	-1.69	0.00	-167.53	0.00	167.53	3,428.39	900.74	3,612	2,968.15	0.66	-0.12	0.04
55.00	-28.45	-1.67	0.00	-163.32	0.00	163.32	3,407.21	890.77	3,532	2,916.91	0.72	-0.13	0.04
60.00	-27.11	-1.66	0.00	-154.94	0.00	154.94	3,363.73	870.85	3,376	2,814.72	0.86	-0.14	0.04
65.00	-26.07	-1.65	0.00	-146.63	0.00	146.63	3,318.75	850.93	3,223	2,712.97	1.02	-0.15	0.04
65.00	-26.07	-1.65	0.00	-146.63	0.00	146.63	3,318.75	850.93	3,223	2,712.97	1.02	-0.15	0.06
70.00	-25.08	-1.64	0.00	-138.38	0.00	138.38	3,272.27	831.01	3,074	2,611.78	1.19	-0.17	0.06
75.00	-24.15	-1.63	0.00	-130.19	0.00	130.19	3,224.30	811.09	2,929	2,511.21	1.37	-0.19	0.06
80.00	-23.25	-1.61	0.00	-122.05	0.00	122.05	3,174.83	791.17	2,787	2,411.36	1.58	-0.21	0.06
85.00	-22.80	-1.61	0.00	-113.98	0.00	113.98	3,123.86	771.24	2,648	2,312.31	1.81	-0.23	0.06
87.50	-22.09	-1.59	0.00	-109.96	0.00	109.96	3,097.81	761.28	2,580	2,263.11	1.93	-0.24	0.06
90.00	-21.25	-1.57	0.00	-105.98	0.00	105.98	3,071.40	751.32	2,513	2,214.15	2.06	-0.25	0.06
93.00	-20.94	-1.57	0.00	-101.27	0.00	101.27	2,386.65	628.28	2,109	1,729.58	2.22	-0.26	0.07
95.00	-20.20	-1.55	0.00	-98.14	0.00	98.14	2,372.63	621.64	2,064	1,701.09	2.33	-0.27	0.07
99.80	-20.01	-1.54	0.00	-90.72	0.00	90.72	2,338.02	605.71	1,960	1,632.92	2.62	-0.30	0.06
100.00	-19.26	-1.52	0.00	-90.41	0.00	90.41	2,336.55	605.04	1,956	1,630.09	2.63	-0.30	0.06
105.00	-18.52	-1.50	0.00	-82.82	0.00	82.82	2,298.97	588.44	1,850	1,559.47	2.96	-0.32	0.06
110.00	-17.79	-1.47	0.00	-75.34	0.00	75.34	2,259.89	571.84	1,747	1,489.31	3.30	-0.34	0.06
115.00	-17.08	-1.44	0.00	-67.98	0.00	67.98	2,219.31	555.24	1,647	1,419.70	3.68	-0.37	0.06
120.00	-16.38	-1.41	0.00	-60.76	0.00	60.76	2,177.24	538.64	1,550	1,350.73	4.07	-0.39	0.05
125.00	-15.70	-1.38	0.00	-53.70	0.00	53.70	2,133.67	522.03	1,456	1,282.49	4.50	-0.41	0.05
130.00	-15.24	-1.36	0.00	-46.80	0.00	46.80	2,088.60	505.43	1,365	1,215.06	4.94	-0.43	0.05
133.42	-14.94	-1.34	0.00	-42.16	0.00	42.16	2,056.94	494.09	1,304	1,169.49	5.26	-0.45	0.04
135.00	-14.37	-1.31	0.00	-40.04	0.00	40.04	2,042.04	488.83	1,277	1,148.53	5.41	-0.46	0.04
138.00	-14.15	-1.29	0.00	-36.13	0.00	36.13	1,234.49	341.86	892	695.83	5.70	-0.47	0.06
140.00	-10.43	-1.04	0.00	-33.54	0.00	33.54	1,226.38	337.21	867	681.79	5.89	-0.47	0.06
145.00	-9.93	-1.01	0.00	-28.34	0.00	28.34	1,205.07	325.58	809	646.66	6.40	-0.50	0.05
150.00	-9.44	-0.97	0.00	-23.32	0.00	23.32	1,182.27	313.96	752	611.59	6.94	-0.52	0.05
155.00	-8.96	-0.93	0.00	-18.47	0.00	18.47	1,157.96	302.34	697	576.65	7.49	-0.54	0.04
160.00	-8.49	-0.89	0.00	-13.81	0.00	13.81	1,132.16	290.71	645	541.94	8.07	-0.56	0.03
165.00	-8.22	-0.87	0.00	-9.36	0.00	9.36	1,104.87	279.09	594	507.53	8.67	-0.57	0.03
168.00	-5.85	-0.64	0.00	-6.76	0.00	6.76	1,087.77	272.11	565	487.07	9.03	-0.58	0.02
170.00	-5.62	-0.61	0.00	-5.49	0.00	5.49	1,076.07	267.47	546	473.52	9.27	-0.58	0.02
173.30	-5.43	-0.59	0.00	-3.47	0.00	3.47	1,056.25	259.79	515	451.33	9.68	-0.59	0.01
173.40	-5.14	-0.56	0.00	-3.41	0.00	3.41	1,055.64	259.56	514	450.66	9.69	-0.59	0.01
173.50	-4.97	-0.55	0.00	-3.35	0.00	3.35	1,055.03	259.33	513	449.99	9.70	-0.59	0.01
173.60	-4.71	-0.52	0.00	-3.30	0.00	3.30	1,054.41	259.10	512	449.32	9.71	-0.59	0.01
174.00	-4.67	-0.52	0.00	-3.09	0.00	3.09	1,051.96	258.17	509	446.65	9.76	-0.59	0.01
174.30	-4.57	-0.51	0.00	-2.93	0.00	2.93	1,050.11	257.47	506	444.65	9.80	-0.59	0.01

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
174.40	-4.41	-0.49	0.00	-2.88	0.00	2.88	1,049.50	257.24	505	443.98	9.81	-0.59	0.01
174.90	-4.25	-0.47	0.00	-2.64	0.00	2.64	1,046.40	256.07	500	440.65	9.87	-0.59	0.01
175.00	-4.21	-0.47	0.00	-2.59	0.00	2.59	1,045.78	255.84	499	439.99	9.89	-0.59	0.01
175.80	-3.96	-0.44	0.00	-2.22	0.00	2.22	1,040.80	253.98	492	434.68	9.99	-0.59	0.01
177.70	-3.80	-0.42	0.00	-1.38	0.00	1.38	1,028.80	249.56	475	422.12	10.22	-0.59	0.01
177.80	-3.58	-0.40	0.00	-1.33	0.00	1.33	1,028.17	249.33	474	421.46	10.23	-0.59	0.01
180.00	-3.53	-0.39	0.00	-0.45	0.00	0.45	1,013.99	244.22	455	407.03	10.51	-0.59	0.01
181.00	-0.13	-0.01	0.00	-0.06	0.00	0.06	1,007.46	241.89	446	400.51	10.63	-0.59	0.00
185.00	0.00	-0.01	0.00	0.00	0.00	0.00	976.90	232.59	413	373.27	11.13	-0.59	0.00

ANALYSIS SUMMARY

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	32.83	0.00	67.19	0.00	0.00	3873.98	93.00	0.78
0.9D + 1.0W Normal	32.81	0.00	50.38	0.00	0.00	3801.26	93.00	0.76
1.2D + 1.0Di + 1.0Wi Normal	7.38	0.00	101.58	0.00	0.00	1013.72	93.00	0.24
1.2D + 1.0Ev + 1.0Eh Normal	1.74	0.00	67.23	0.00	0.00	263.77	93.00	0.07
0.9D - 1.0Ev + 1.0Eh Normal	1.71	0.00	46.34	0.00	0.00	256.90	93.00	0.07
1.0D + 1.0W Service Normal	7.59	0.00	56.03	0.00	0.00	886.54	93.00	0.19

ADDITIONAL STEEL SUMMARY

			Intermediate Connectors				Max member		
Elev From (ft)	Elev To (ft)	Member	VQ/I	Shear Applied (kips)	Shear (phiVn) (kips)	Ratio	Pu (kip)	PhiPn (kip)	Ratio
0.00	22.50	SOL #20 All Thread Bar	154.7	4.6	16.8	0.2761	206.2	330.5	0.6238
22.50	52.50	SOL #20 All Thread Bar	180.1	5.4	16.8	0.3214	195.7	330.5	0.5921
52.50	65.00	SOL #20 All Thread Bar	182.0	5.5	16.8	0.3248	190.6	330.5	0.5768

			Upper Termination Connectors					Lower Termination Connectors				
Elev From (ft)	Elev To (ft)	Member	MQ/I	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kip)	Num Reqd	Num Actual	Ratio
0.00	22.50	SOL #20 All Thread Bar	0	12	0	0	0.0000	0	12	0	0	0.0000
22.50	52.50	SOL #20 All Thread Bar	0	12	0	0	0.0000	0	12	0	0	0.0000
52.50	65.00	SOL #20 All Thread Bar	177.8546	12	15	24	0.6176	0	12	0	0	0.0000

Base Plate & Anchor Rod Analysis

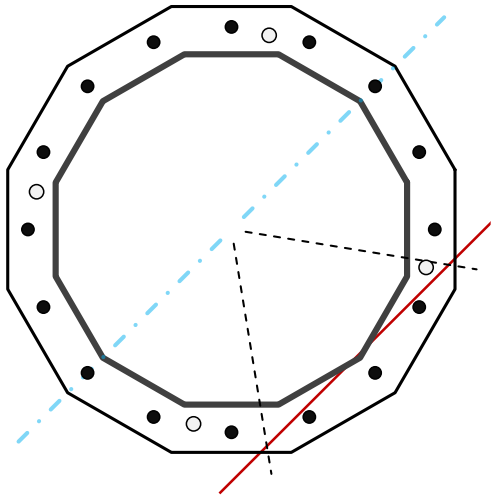
Pole Dimensions		
Number of Sides	12	-
Diameter	52	in
Thickness	7/16	in
Orientation Offset	15	°

Base Reactions		
Moment, Mu	3874.0	k-ft
Axial, Pu	67.2	k
Shear, Vu	32.8	k
Neutral Axis	225	°

Report Capacities		
Component	Capacity	Result
Base Plate	16%	Pass
Anchor Rods	62%	Pass
Dwyidag	49%	Pass

Base Plate		
Number of Sides	12	-
Diameter, ø	66.34	in
Thickness	2 3/4	in
Grade	A871-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	15	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	635.3	k
Bending Stress, ϕMn	3998.8	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	60.34	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	11.8	in
Orientation Offset	0	°
Applied Force, Pu	149.8	k
Anchor Rods, ϕPn	243.6	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	58.88	in
Orientation Offset	79	°
Applied Force, Pu	179.6	k
Dywidag Bar, ϕPn	368.2	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	32.8	2836.6	0.73
Anchor Rod Forces	32.8	2836.6	0.73
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1037.3	0.27
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	70.0631	5.8386	0.3741		23289.02
Bolt	3.9761	3.2477	0.8393	4.5	21837.52
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		8516.61
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	12	-
Width, W	66.34	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	41.195	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	60.34	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	149.8	k
Applied Shear, Vu	1.0	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.615	OK
Interaction Capacity	0.622	OK

External Base Plate		
Chord Length AA	41.694	in
Additional AA	5.500	in
Section Modulus, Z	89.226	in^3
Applied Moment, Mu	635.3	k-ft
Bending Capacity, ϕMn	4818.2	k-ft
Capacity, Mu/ϕMn	0.132	OK
Chord Length AB	39.855	in
Additional AB	5.500	in
Section Modulus, Z	85.750	in^3
Applied Moment, Mu	299.7	k-ft
Bending Capacity, ϕMn	4630.5	k-ft
Capacity, Mu/ϕMn	0.065	OK
Bend Line Length	39.168	in
Additional Bend Line	0.000	in
Section Modulus, Z	74.052	in^3
Applied Moment, Mu	635.3	k-ft
Bending Capacity, ϕMn	3998.8	k-ft
Capacity, Mu/ϕMn	0.159	OK

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

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	58.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	179.6	k
Compressive Capacity, ϕPn	368.2	k
Capacity, Pu/ϕPn	0.488	OK

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Middletown CT 3**
ATC Asset Number	:	**302537**
Engineering Number	:	**13668065_C8_05**
Mount Elevation	:	**140 ft**
Carrier	:	**Sprint Nextel**
Carrier Site Name	:	**CTHA859A**
Carrier Site Number	:	**CTHA859A**
Site Location	:	**47 Inwood Road** **Rocky Hill, CT 06067-3453** **41.63858611, -72.67928889**
County	:	**Hartford**
Date	:	**August 13, 2021**
Max Usage	:	**80%**
Result	:	**Pass**

Digitally signed by Tyler M. Barker PE
Date: 2021.08.13 14:51:50-04'00'

STATE OF CONNECTICUT
TYLER M BARKER
No. 32402
LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2022
COA # PEC.001833 Exp. 8/14/2022
08/13/2021

Prepared By:
Pooja Bodkhe
CLS Engineering PLLC

Reviewed By:
Tyler M. Barker, P.E.
CLS Engineering PLLC

Table of Contents

Introduction

The proposed equipment is to be mounted to the existing Platform w/ Support Rails. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos dated August 29, 2018 Spec Sheet for Site Pro 1 RMQP-496-HK Platform Mount
Previous Analyses	Tower SA by ATC, Eng. #13668065_C3_02, dated April 27, 2021
Loading Data	ATC Application, Project #13668065, dated August 09, 2021 T-Mobile RFDS Site ID #CTHA859A, Version 1.00, dated July 26, 2021

Analysis

Codes	TIA-222-H
Basic Wind Speed	118 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1.5" Radial Ice (Escalating)
Exposure Category	B
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.20; S_1: 0.06; Site Class: D

Conclusion

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

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

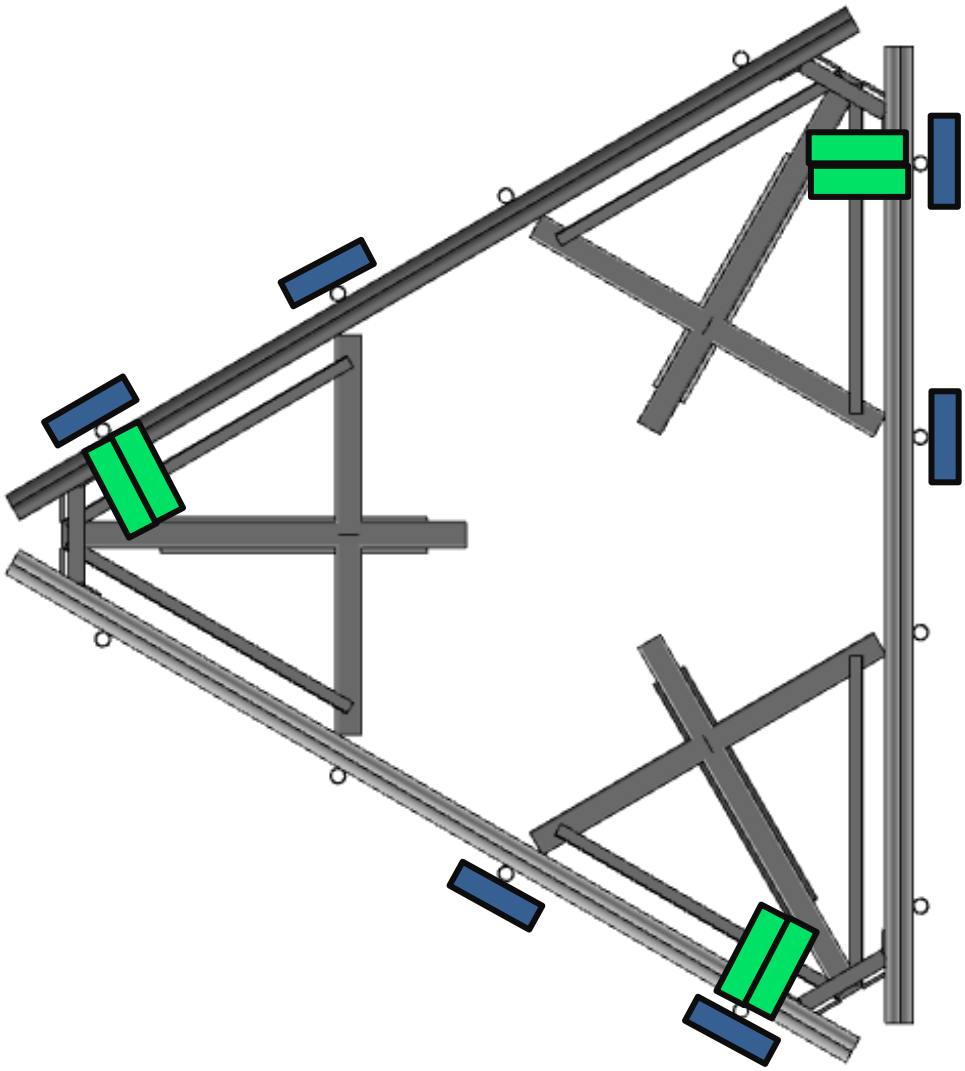
Antenna Loading

Elevation (ft)		Antennas	
Mount	**Rad.**	**#**	**Name**
140.0	140.0	3	RFS APXVAALL24 43-UNA20
		3	Ericsson AIR6449 B41
		3	Ericsson Radio 4460 B25+B66
		3	Ericsson Radio 4480 B71+B85A

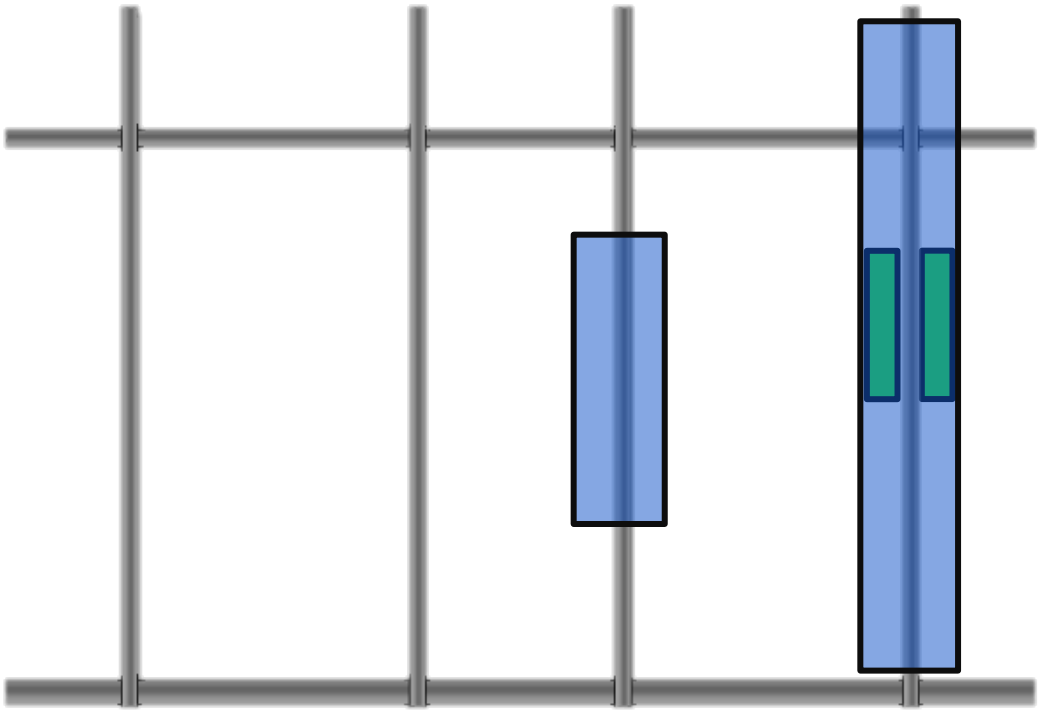
Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Offset Side Plate	80%	Pass
Mount Pipes	44%	Pass
Support Rail	37%	Pass
Tower Mount Connection	19%	Pass
Stand-Off Horizontals	15%	Pass
Platform Base	13%	Pass

Equipment Layout Plan View



Equipment Layout Front Elevation View



Standard Conditions

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering PLLC should be notified immediately to revise results.

This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.
7. Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	140 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	140 ft	K_d	0.95
Elevation AMSL (ft)	140 ft	K_e	0.99
TIA Standard	H	K_z	1.09
Basic Wind Speed, V_{ult} (bare)	118 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	1.00
Design Ice Thickness, t_i	1 1/2 in	t_{iz}	1.73 in
Exposure Category	B	G_h	1.00
Risk Category	II	q_z (bare)	36.7 psf
Seismic Response Coeff., C_s	0.11	q_z (ice)	6.6 psf

Live Loading

At Mount Pipes, L_M	500lb
Joint Labels Considered	1_M1
	1_M2
	1_M3
	1_M4

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Offset End Plate	0.5 x 6 Plate	32.99	5.62	12.43
Offset Side Plate	0.38 X 6 Plate	32.99	5.61	12.27
Platform Horzontal Pipe	PIPE_3.0	11.55	4.13	11.08
Offset Tube	HSS4X4X4	21.99	2.35	14.45
Grating Angle	L2x2x3	11.00	2.20	8.81
PRK-1245	L2.5x2.5x3	13.75	2.24	10.16
HRKPlate	0.38 X 6 Plate	32.99	5.61	12.27
HRKAngle	L2.5x2.5x4	13.75	2.24	10.16
HRK12-U	PIPE_2.0	7.84	3.46	8.70
MOUNT_PIPE_2.0	PIPE_2.0	7.84	3.46	8.70

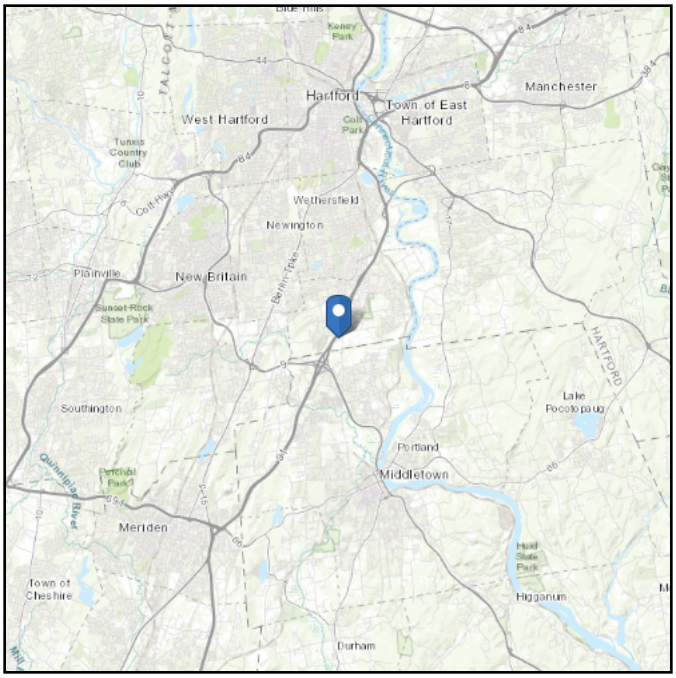
Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
APXVAALL24 43-UNA20				☐			1	1	1	3	A1	A2	A5	A6	A9	A10	95.9	24	8.5	122.8	Flat	424.40	20.24	8.73	23.69	11.92	667.80	288.10	140.29	70.60
AIR6449 B41				☐			1	1	1	3	A3	A4	A7	A8	A11	A12	33.1	20.6	8.6	104	Flat	135.59	5.68	2.49	7.33	3.75	187.45	82.17	43.44	22.21
Radio 4460 B25+B66				☑		0.5	1	1	1	3	R1		R2		R3		19.6	15.7	12.1	109	Flat	102.36	1.98	1.28	2.99	1.84	65.20	42.30	17.72	10.91
Radio 4480 B71+B85A				☑		0.5	1	1	1	3	R1		R2		R3		21.8	15.7	7.5	84	Flat	88.92	1.38	1.43	2.31	2.02	45.63	47.05	13.68	11.95

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	139.95 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.638586
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-72.679289



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu May 06 2021

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

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

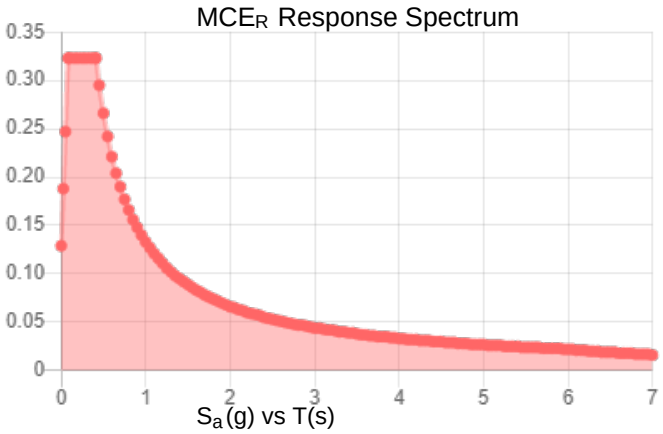
Seismic

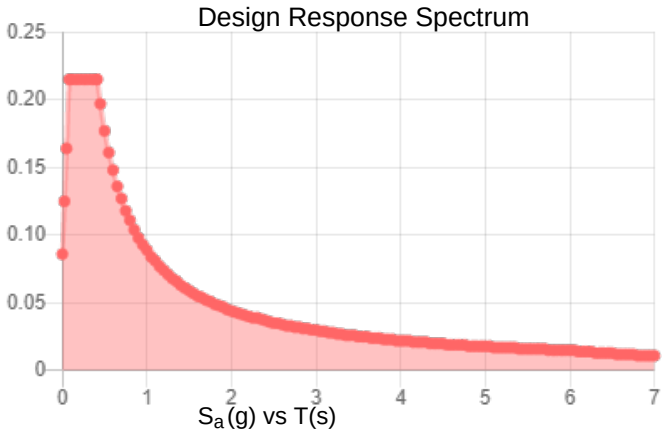
Site Soil Class: D - Default (see Section 11.4.3)

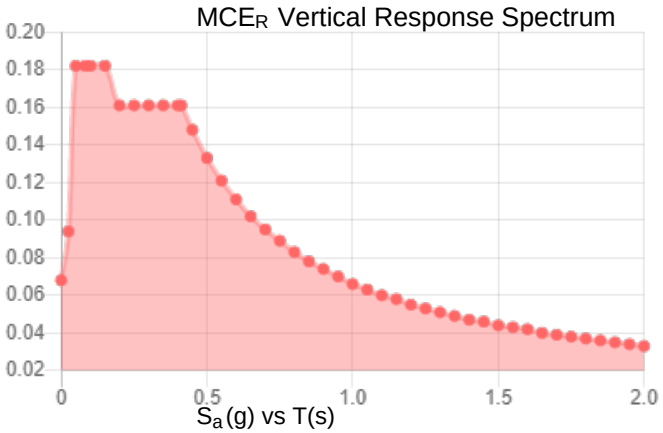
Results:

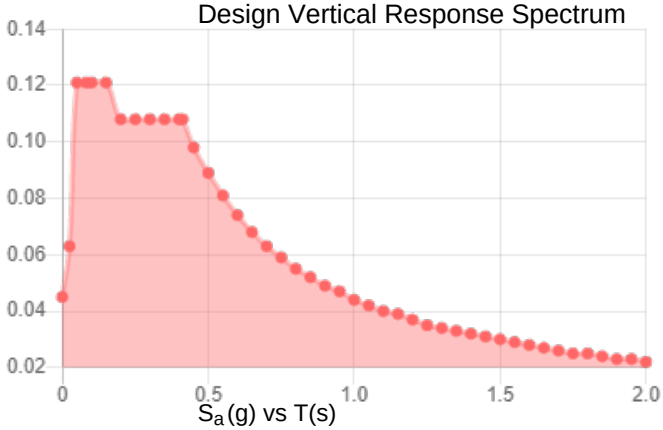
S_S :	0.202	S_{D1} :	0.089
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.111
F_v :	2.4	PGA_M :	0.175
S_{MS} :	0.323	F_{PGA} :	1.578
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.215	C_v :	0.703

Seismic Design Category B









Data Accessed: Thu May 06 2021

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

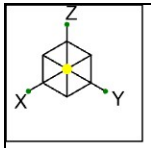
Ice

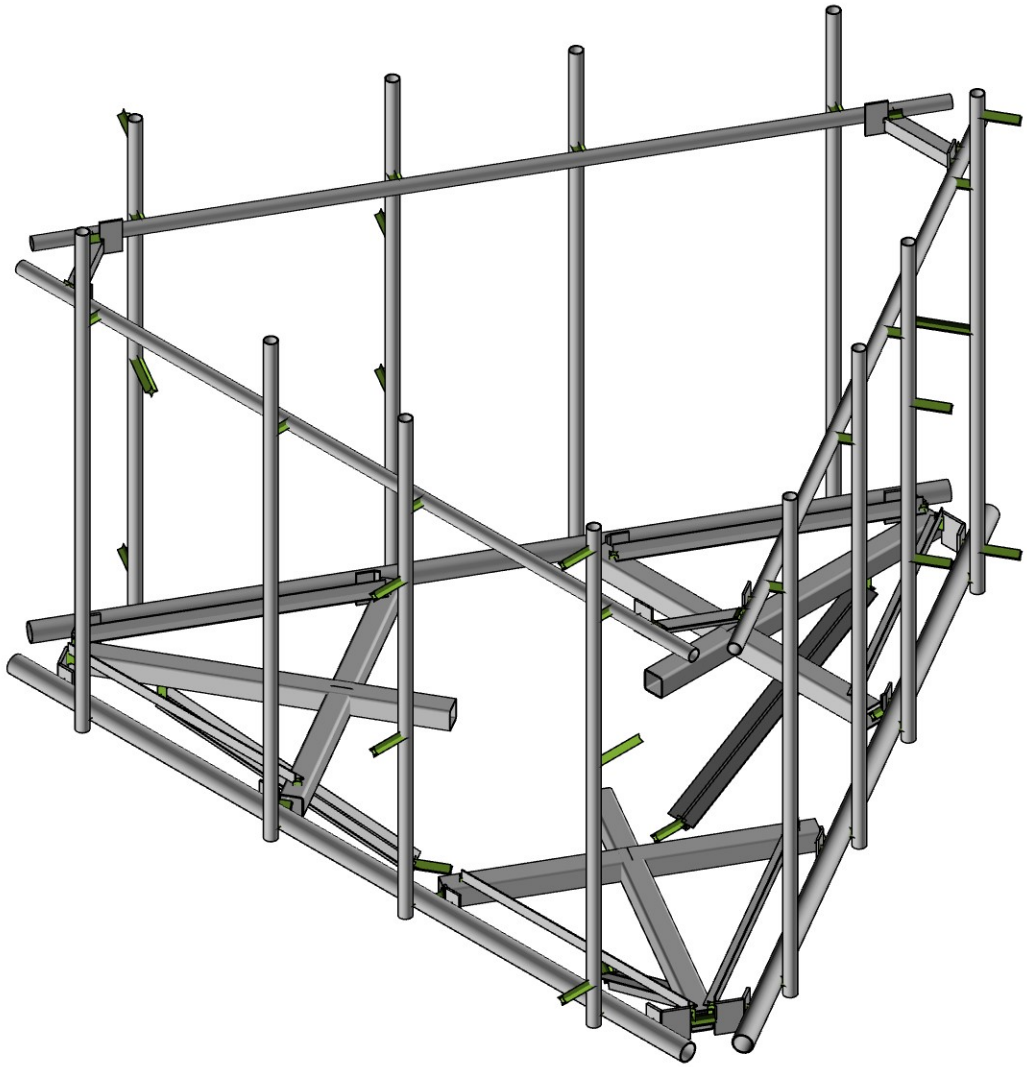
Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu May 06 2021

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

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





Envelope Only Solution

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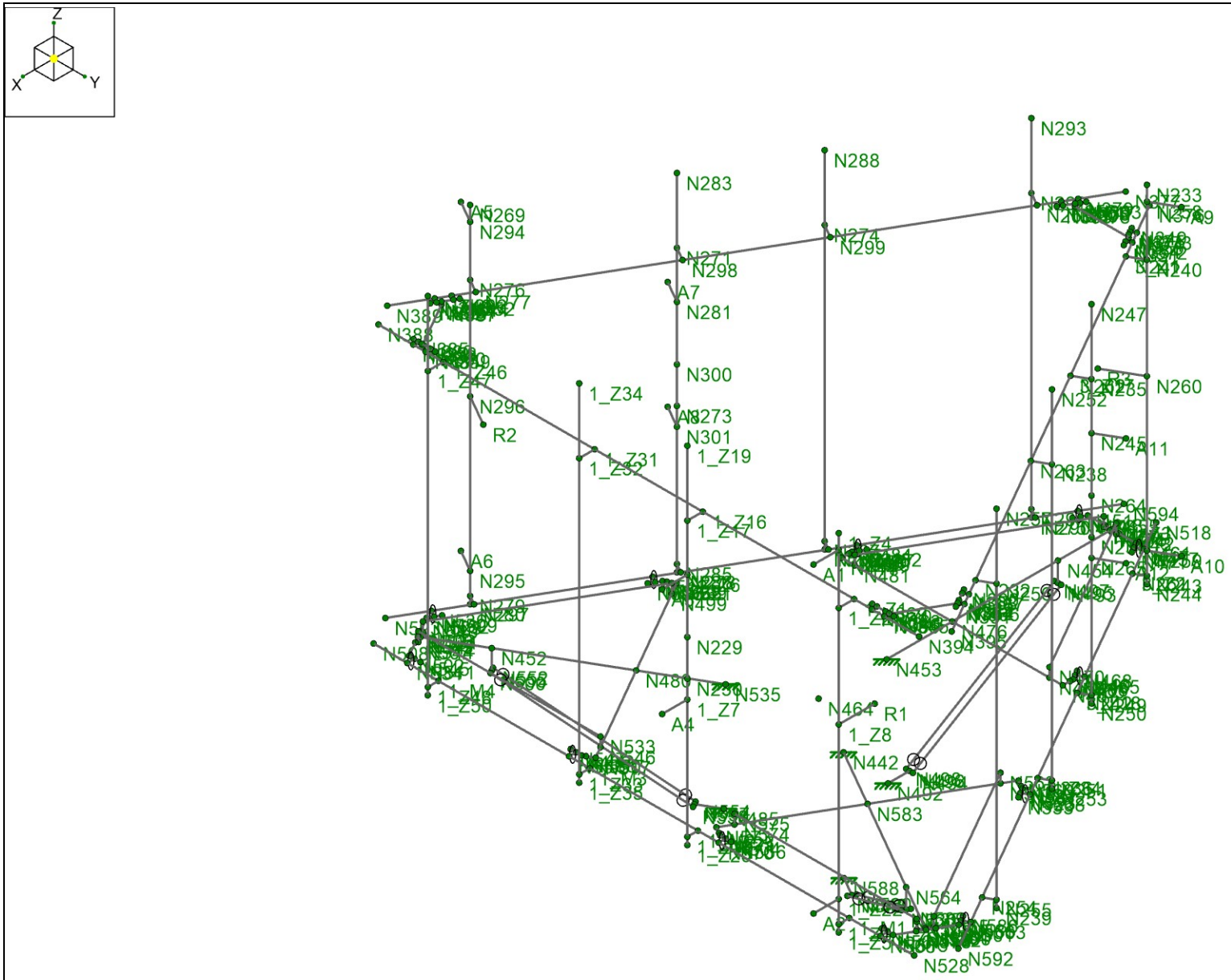

Envelope Only Solution

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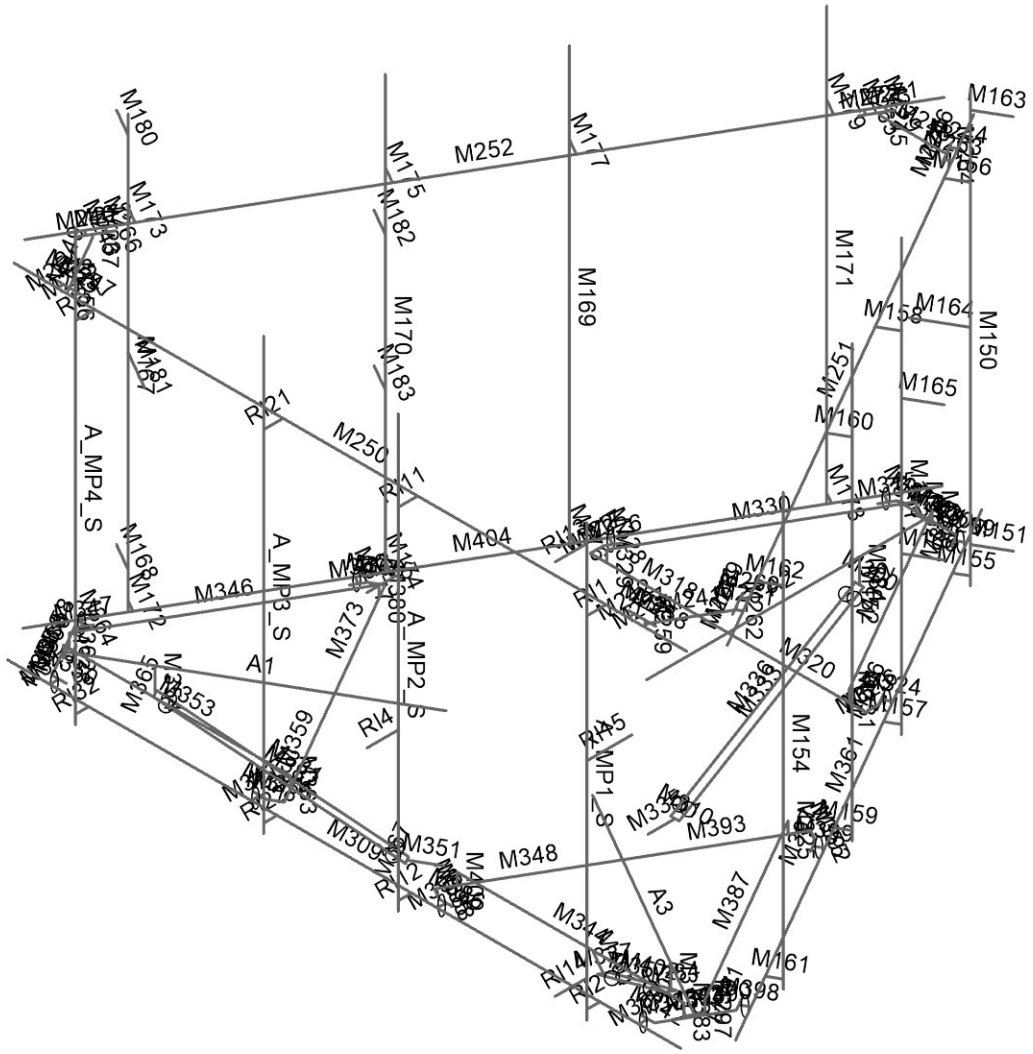

Envelope Only Solution

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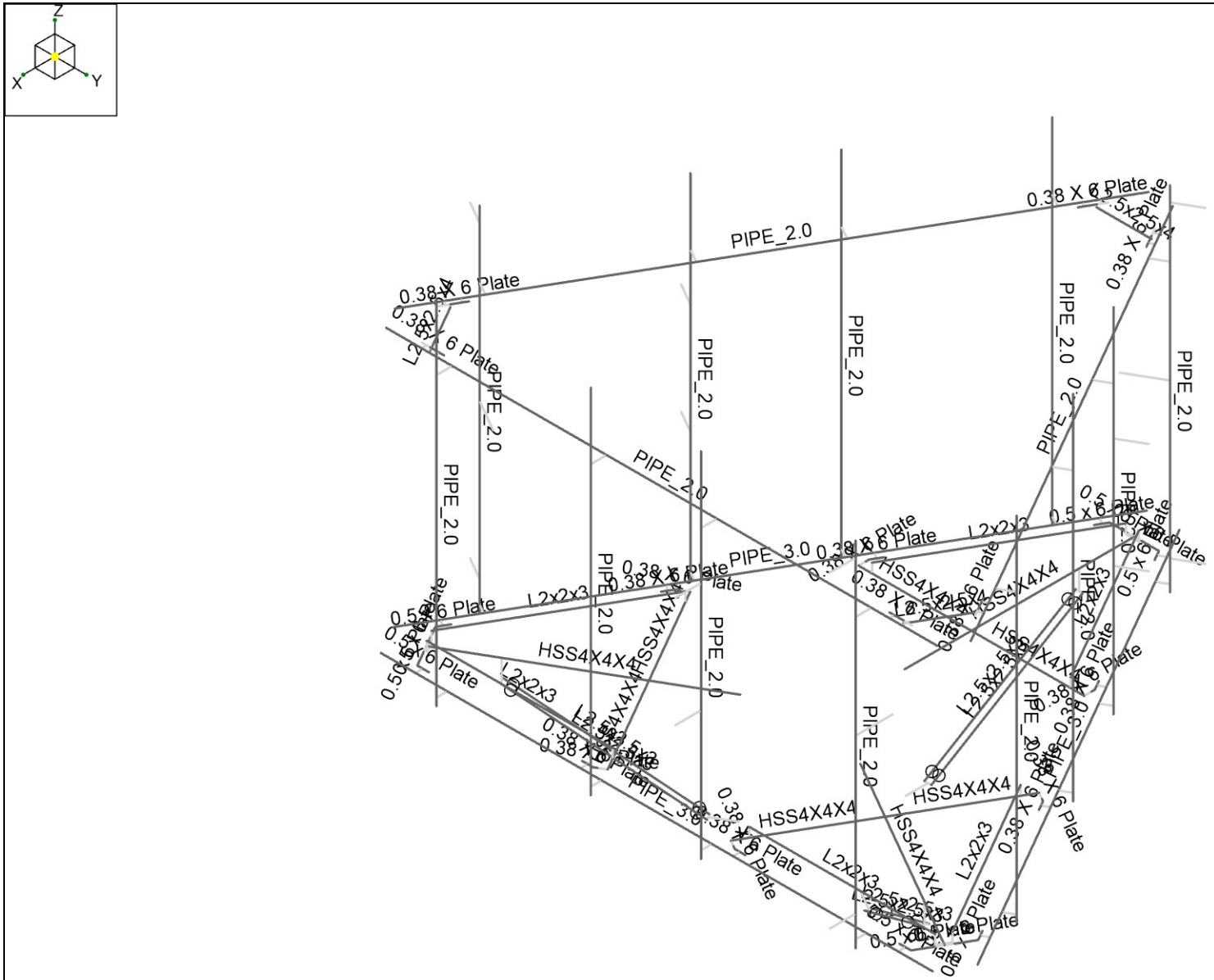

Envelope Only Solution

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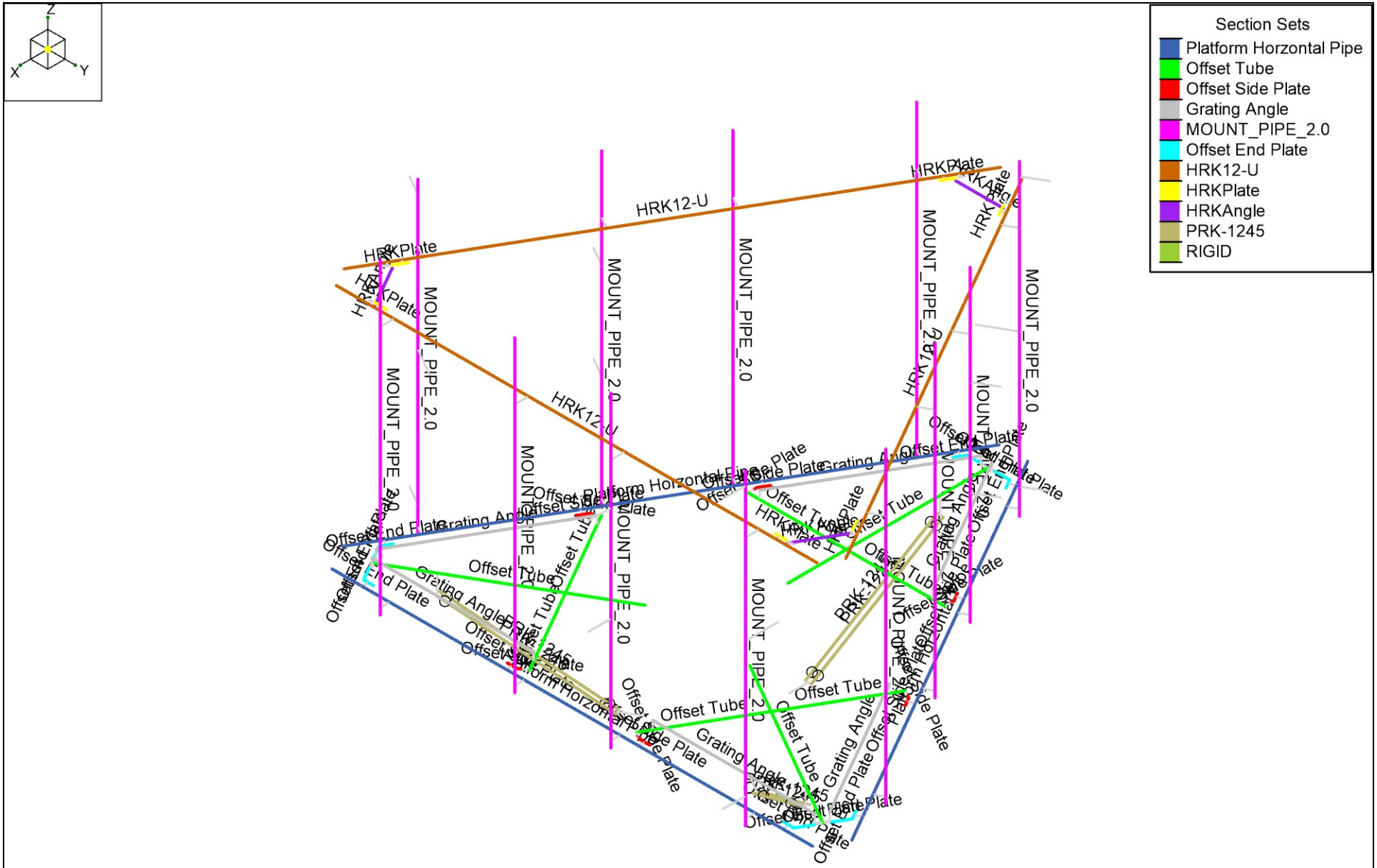

Envelope Only Solution

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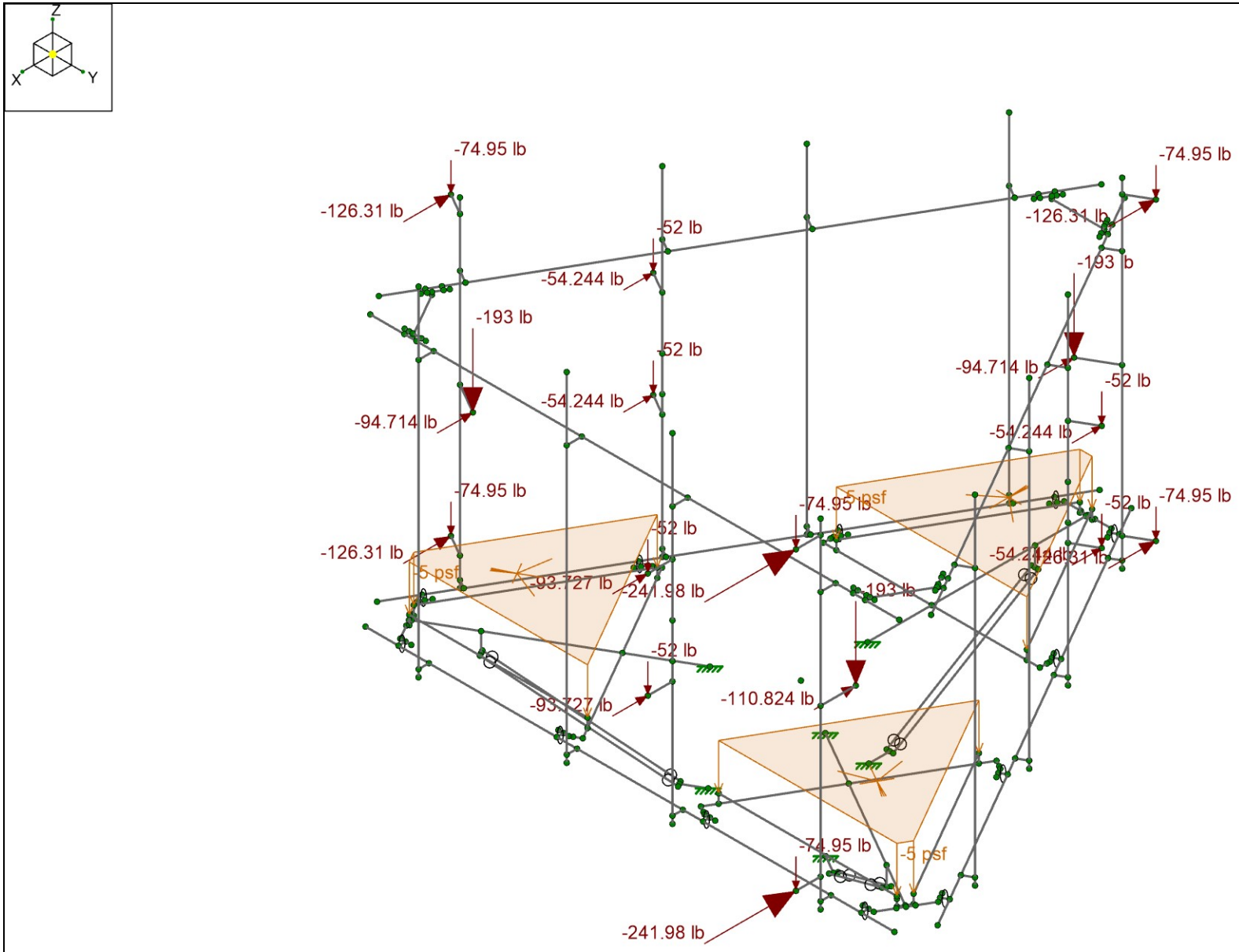

Loads: LC 1, DISPLAY (1.0D + 1.0W_0)
Envelope Only Solution

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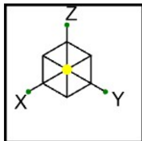

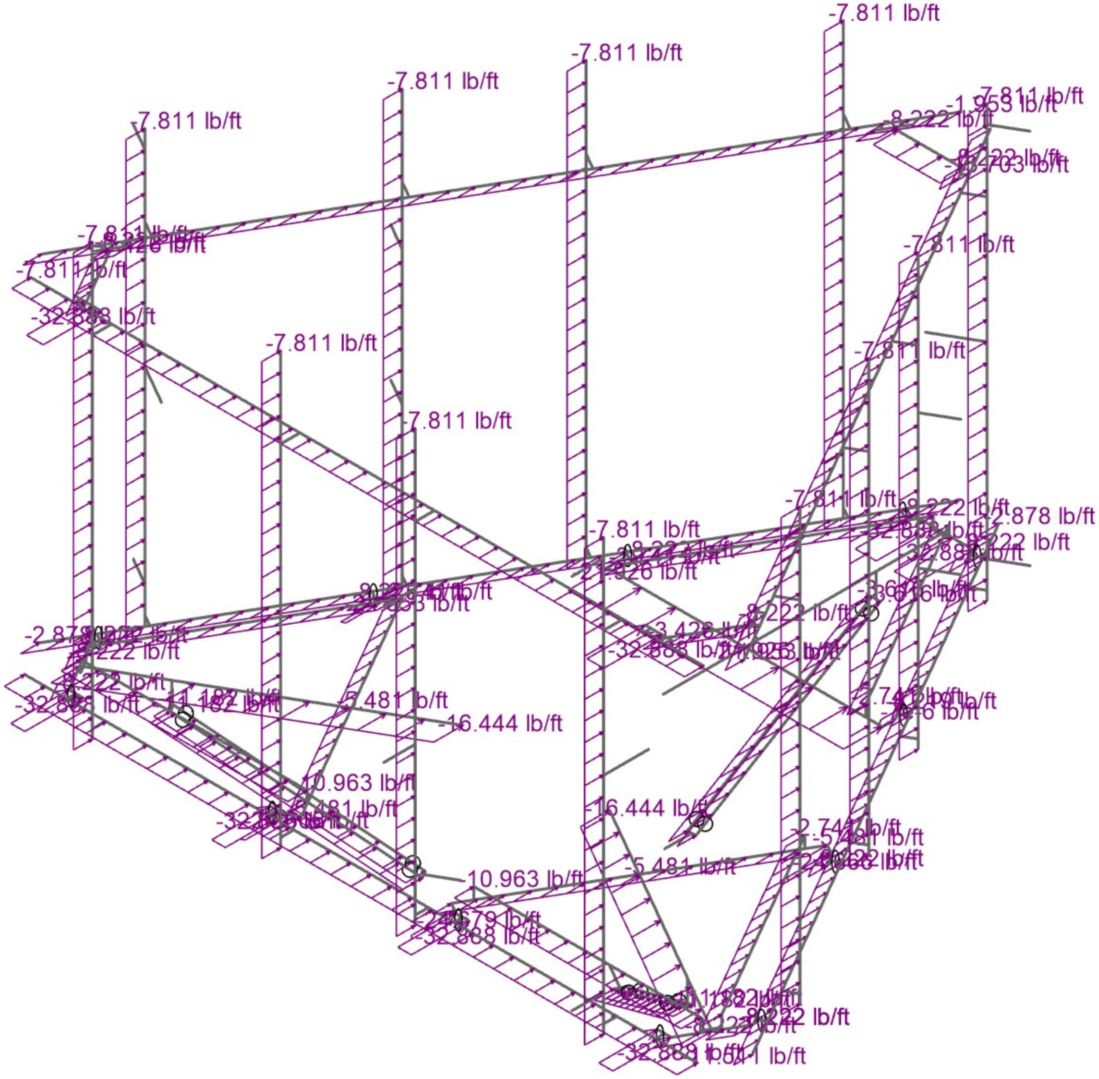

Loads: BLC 5, Structure Wind 0
Envelope Only Solution

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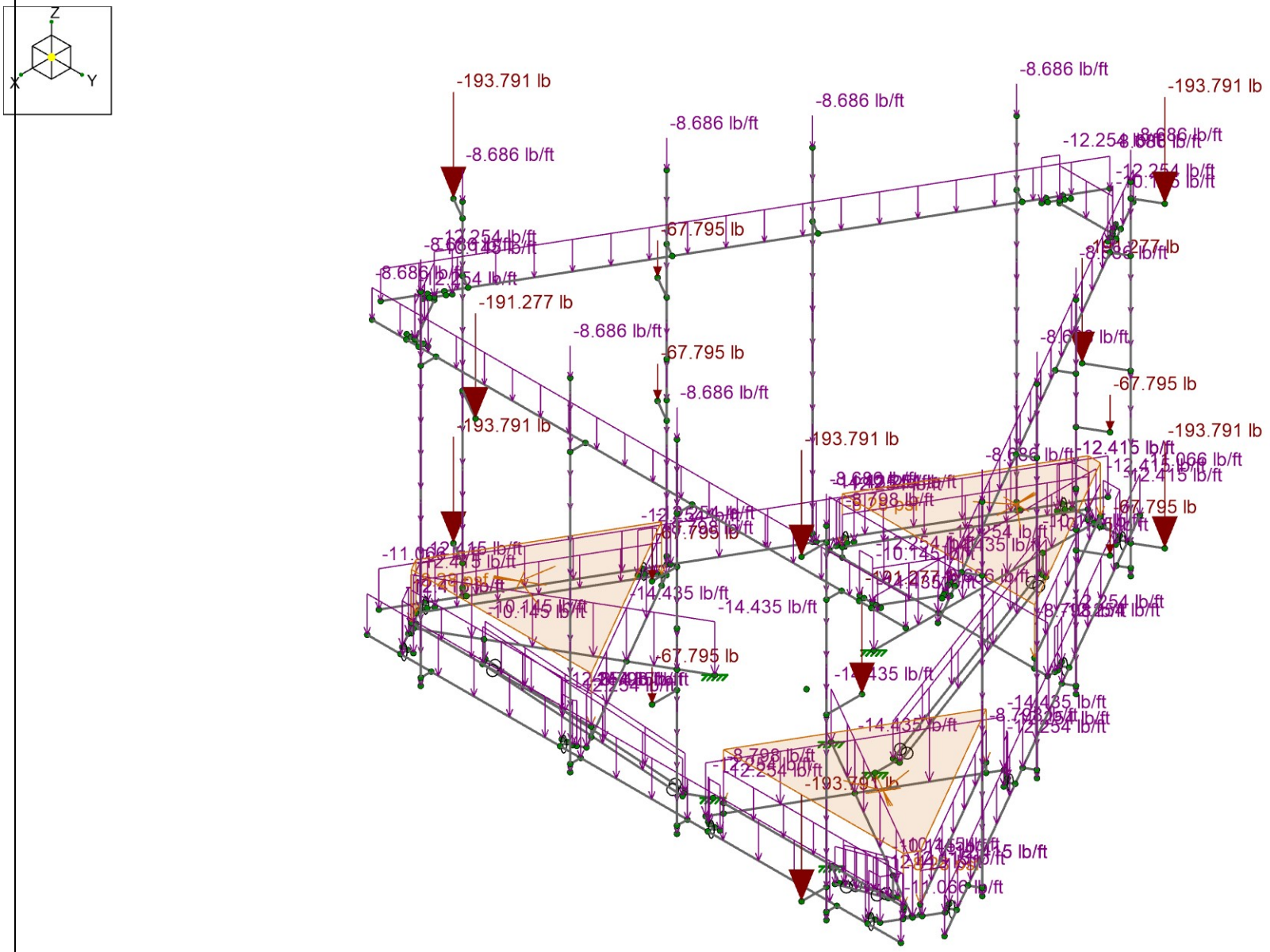

Loads: BLC 2, Ice Dead
Envelope Only Solution

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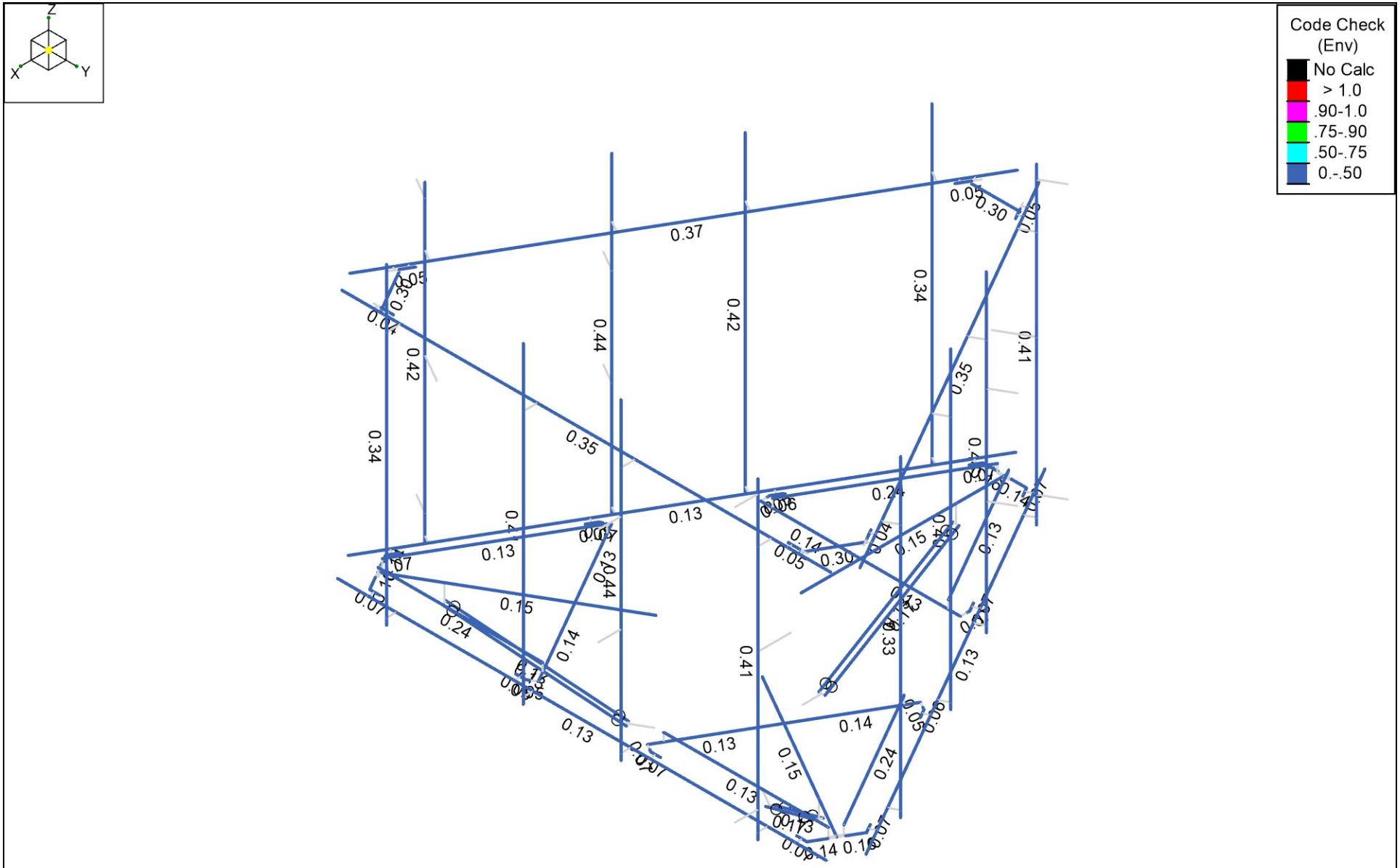

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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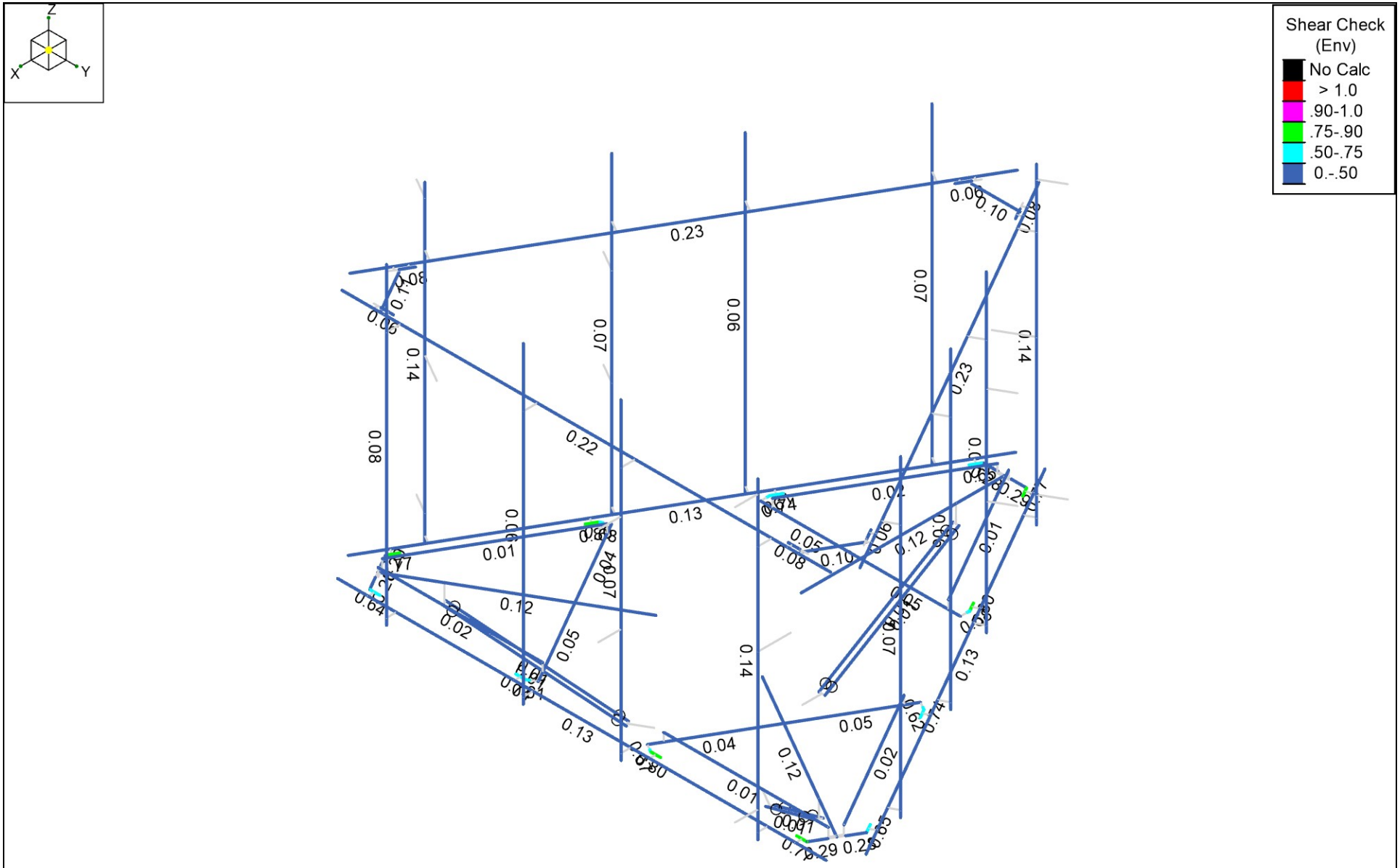

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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Basic Load Cases

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
1	Dead	DL	-1	18		3
2	Ice Dead	RL		18	72	3
3	BLC 1 Transient Area Loads	None			30	
4	BLC 2 Transient Area Loads	None			30	
5	Structure Wind 0°	None			70	
6	Structure Wind 30°	None			114	
7	Structure Wind 45°	None			144	
8	Structure Wind 60°	None			140	
9	Structure Wind 90°	None			57	
10	Structure Wind 120°	None			140	
11	Structure Wind 135°	None			144	
12	Structure Wind 150°	None			114	
13	Structure Wind 180°	None			70	
14	Structure Wind 210°	None			114	
15	Structure Wind 225°	None			144	
16	Structure Wind 240°	None			140	
17	Structure Wind 270°	None			57	
18	Structure Wind 300°	None			140	
19	Structure Wind 315°	None			144	
20	Structure Wind 330°	None			114	
21	Structure Wind w/ Ice 0°	None			70	
22	Structure Wind w/ Ice 30°	None			118	
23	Structure Wind w/ Ice 45°	None			144	
24	Structure Wind w/ Ice 60°	None			140	
25	Structure Wind w/ Ice 90°	None			59	
26	Structure Wind w/ Ice 120°	None			140	
27	Structure Wind w/ Ice 135°	None			144	
28	Structure Wind w/ Ice 150°	None			118	
29	Structure Wind w/ Ice 180°	None			70	
30	Structure Wind w/ Ice 210°	None			118	
31	Structure Wind w/ Ice 225°	None			144	
32	Structure Wind w/ Ice 240°	None			140	
33	Structure Wind w/ Ice 270°	None			59	
34	Structure Wind w/ Ice 300°	None			140	
35	Structure Wind w/ Ice 315°	None			144	
36	Structure Wind w/ Ice 330°	None			118	
37	Antenna Wind 0°	None		18		
38	Antenna Wind 30°	None		36		
39	Antenna Wind 45°	None		36		
40	Antenna Wind 60°	None		36		
41	Antenna Wind 90°	None		18		
42	Antenna Wind 120°	None		36		
43	Antenna Wind 135°	None		36		
44	Antenna Wind 150°	None		36		
45	Antenna Wind 180°	None		18		
46	Antenna Wind 210°	None		36		
47	Antenna Wind 225°	None		36		
48	Antenna Wind 240°	None		36		
49	Antenna Wind 270°	None		18		
50	Antenna Wind 300°	None		36		
51	Antenna Wind 315°	None		36		
52	Antenna Wind 330°	None		36		
53	Antenna Wind w/ Ice 0°	None		18		
54	Antenna Wind w/ Ice 30°	None		36		
55	Antenna Wind w/ Ice 45°	None		36		
56	Antenna Wind w/ Ice 60°	None		36		
57	Antenna Wind w/ Ice 90°	None		18		
58	Antenna Wind w/ Ice 120°	None		36		

Basic Load Cases (Continued)

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
59	Antenna Wind w/ Ice 135°	None		36		
60	Antenna Wind w/ Ice 150°	None		36		
61	Antenna Wind w/ Ice 180°	None		18		
62	Antenna Wind w/ Ice 210°	None		36		
63	Antenna Wind w/ Ice 225°	None		36		
64	Antenna Wind w/ Ice 240°	None		36		
65	Antenna Wind w/ Ice 270°	None		18		
66	Antenna Wind w/ Ice 300°	None		36		
67	Antenna Wind w/ Ice 315°	None		36		
68	Antenna Wind w/ Ice 330°	None		36		
69	Seismic X	ELX		18	72	
70	Seismic Y	ELY		18	72	
71	Seismic Z	ELZ		18	72	
72	Maintenance Live 500 (1)	OL1		1		
73	Maintenance Live 500 (2)	OL2		1		
74	Maintenance Live 500 (3)	OL3		1		
75	Maintenance Live 500 (4)	OL4		1		

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DISPLAY (1.0D + 1.0W_0°)	Yes	Y	DL	1	37	1				
2	1.4D	Yes	Y	DL	1.4						
3	1.2D + 1.0W_0°	Yes	Y	DL	1.2	5	1	37	1		
4	1.2D + 1.0W_30°	Yes	Y	DL	1.2	6	1	38	1		
5	1.2D + 1.0W_45°	Yes	Y	DL	1.2	7	1	39	1		
6	1.2D + 1.0W_60°	Yes	Y	DL	1.2	8	1	40	1		
7	1.2D + 1.0W_90°	Yes	Y	DL	1.2	9	1	41	1		
8	1.2D + 1.0W_120°	Yes	Y	DL	1.2	10	1	42	1		
9	1.2D + 1.0W_135°	Yes	Y	DL	1.2	11	1	43	1		
10	1.2D + 1.0W_150°	Yes	Y	DL	1.2	12	1	44	1		
11	1.2D + 1.0W_180°	Yes	Y	DL	1.2	13	-1	45	-1		
12	1.2D + 1.0W_210°	Yes	Y	DL	1.2	14	-1	46	-1		
13	1.2D + 1.0W_225°	Yes	Y	DL	1.2	15	-1	47	-1		
14	1.2D + 1.0W_240°	Yes	Y	DL	1.2	16	-1	48	-1		
15	1.2D + 1.0W_270°	Yes	Y	DL	1.2	17	-1	49	-1		
16	1.2D + 1.0W_300°	Yes	Y	DL	1.2	18	-1	50	-1		
17	1.2D + 1.0W_315°	Yes	Y	DL	1.2	19	-1	51	-1		
18	1.2D + 1.0W_330°	Yes	Y	DL	1.2	20	-1	52	-1		
19	1.2D + 1.0Di + 1.0Wi_0°	Yes	Y	DL	1.2	21	1	53	1	RL	1
20	1.2D + 1.0Di + 1.0Wi_30°	Yes	Y	DL	1.2	22	1	54	1	RL	1
21	1.2D + 1.0Di + 1.0Wi_45°	Yes	Y	DL	1.2	23	1	55	1	RL	1
22	1.2D + 1.0Di + 1.0Wi_60°	Yes	Y	DL	1.2	24	1	56	1	RL	1
23	1.2D + 1.0Di + 1.0Wi_90°	Yes	Y	DL	1.2	25	1	57	1	RL	1
24	1.2D + 1.0Di + 1.0Wi_120°	Yes	Y	DL	1.2	26	1	58	1	RL	1
25	1.2D + 1.0Di + 1.0Wi_135°	Yes	Y	DL	1.2	27	1	59	1	RL	1
26	1.2D + 1.0Di + 1.0Wi_150°	Yes	Y	DL	1.2	28	1	60	1	RL	1
27	1.2D + 1.0Di + 1.0Wi_180°	Yes	Y	DL	1.2	29	-1	61	-1	RL	1
28	1.2D + 1.0Di + 1.0Wi_210°	Yes	Y	DL	1.2	30	-1	62	-1	RL	1
29	1.2D + 1.0Di + 1.0Wi_225°	Yes	Y	DL	1.2	31	-1	63	-1	RL	1
30	1.2D + 1.0Di + 1.0Wi_240°	Yes	Y	DL	1.2	32	-1	64	-1	RL	1
31	1.2D + 1.0Di + 1.0Wi_270°	Yes	Y	DL	1.2	33	-1	65	-1	RL	1
32	1.2D + 1.0Di + 1.0Wi_300°	Yes	Y	DL	1.2	34	-1	66	-1	RL	1
33	1.2D + 1.0Di + 1.0Wi_315°	Yes	Y	DL	1.2	35	-1	67	-1	RL	1
34	1.2D + 1.0Di + 1.0Wi_330°	Yes	Y	DL	1.2	36	-1	68	-1	RL	1
35	1.2D + 1.0Ev + 1.0Eh_0°	Yes	Y	DL	1.243	ELX	-1	ELY			
36	1.2D + 1.0Ev + 1.0Eh_30°	Yes	Y	DL	1.243	ELX	-0.866	ELY	0.5		
37	1.2D + 1.0Ev + 1.0Eh_45°	Yes	Y	DL	1.243	ELX	-0.707	ELY	0.707		
38	1.2D + 1.0Ev + 1.0Eh_60°	Yes	Y	DL	1.243	ELX	-0.5	ELY	0.866		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
39	1.2D + 1.0Ev + 1.0Eh_90°	Yes	Y	DL	1.243	ELX		ELY	1		
40	1.2D + 1.0Ev + 1.0Eh_120°	Yes	Y	DL	1.243	ELX	0.5	ELY	0.866		
41	1.2D + 1.0Ev + 1.0Eh_135°	Yes	Y	DL	1.243	ELX	0.707	ELY	0.707		
42	1.2D + 1.0Ev + 1.0Eh_150°	Yes	Y	DL	1.243	ELX	0.866	ELY	0.5		
43	1.2D + 1.0Ev + 1.0Eh_180°	Yes	Y	DL	1.243	ELX	1	ELY			
44	1.2D + 1.0Ev + 1.0Eh_210°	Yes	Y	DL	1.243	ELX	0.866	ELY	-0.5		
45	1.2D + 1.0Ev + 1.0Eh_225°	Yes	Y	DL	1.243	ELX	0.707	ELY	-0.707		
46	1.2D + 1.0Ev + 1.0Eh_240°	Yes	Y	DL	1.243	ELX	0.5	ELY	-0.866		
47	1.2D + 1.0Ev + 1.0Eh_270°	Yes	Y	DL	1.243	ELX		ELY	-1		
48	1.2D + 1.0Ev + 1.0Eh_300°	Yes	Y	DL	1.243	ELX	-0.5	ELY	-0.866		
49	1.2D + 1.0Ev + 1.0Eh_315°	Yes	Y	DL	1.243	ELX	-0.707	ELY	-0.707		
50	1.2D + 1.0Ev + 1.0Eh_330°	Yes	Y	DL	1.243	ELX	-0.866	ELY	-0.5		
51	0.9D - 1.0Ev + 1.0Eh_0°	Yes	Y	DL	0.857	ELX	-1	ELY			
52	0.9D - 1.0Ev + 1.0Eh_30°	Yes	Y	DL	0.857	ELX	-0.866	ELY	0.5		
53	0.9D - 1.0Ev + 1.0Eh_45°	Yes	Y	DL	0.857	ELX	-0.707	ELY	0.707		
54	0.9D - 1.0Ev + 1.0Eh_60°	Yes	Y	DL	0.857	ELX	-0.5	ELY	0.866		
55	0.9D - 1.0Ev + 1.0Eh_90°	Yes	Y	DL	0.857	ELX		ELY	1		
56	0.9D - 1.0Ev + 1.0Eh_120°	Yes	Y	DL	0.857	ELX	0.5	ELY	0.866		
57	0.9D - 1.0Ev + 1.0Eh_135°	Yes	Y	DL	0.857	ELX	0.707	ELY	0.707		
58	0.9D - 1.0Ev + 1.0Eh_150°	Yes	Y	DL	0.857	ELX	0.866	ELY	0.5		
59	0.9D - 1.0Ev + 1.0Eh_180°	Yes	Y	DL	0.857	ELX	1	ELY			
60	0.9D - 1.0Ev + 1.0Eh_210°	Yes	Y	DL	0.857	ELX	0.866	ELY	-0.5		
61	0.9D - 1.0Ev + 1.0Eh_225°	Yes	Y	DL	0.857	ELX	0.707	ELY	-0.707		
62	0.9D - 1.0Ev + 1.0Eh_240°	Yes	Y	DL	0.857	ELX	0.5	ELY	-0.866		
63	0.9D - 1.0Ev + 1.0Eh_270°	Yes	Y	DL	0.857	ELX		ELY	-1		
64	0.9D - 1.0Ev + 1.0Eh_300°	Yes	Y	DL	0.857	ELX	-0.5	ELY	-0.866		
65	0.9D - 1.0Ev + 1.0Eh_315°	Yes	Y	DL	0.857	ELX	-0.707	ELY	-0.707		
66	0.9D - 1.0Ev + 1.0Eh_330°	Yes	Y	DL	0.857	ELX	-0.866	ELY	-0.5		
67	1.2D + 1.5Lm_1 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.068	37	0.068	OL1	1.5
68	1.2D + 1.5Lm_1 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.068	38	0.068	OL1	1.5
69	1.2D + 1.5Lm_1 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.068	39	0.068	OL1	1.5
70	1.2D + 1.5Lm_1 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.068	40	0.068	OL1	1.5
71	1.2D + 1.5Lm_1 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.068	41	0.068	OL1	1.5
72	1.2D + 1.5Lm_1 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.068	42	0.068	OL1	1.5
73	1.2D + 1.5Lm_1 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.068	43	0.068	OL1	1.5
74	1.2D + 1.5Lm_1 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.068	44	0.068	OL1	1.5
75	1.2D + 1.5Lm_1 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.068	45	-0.068	OL1	1.5
76	1.2D + 1.5Lm_1 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.068	46	-0.068	OL1	1.5
77	1.2D + 1.5Lm_1 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.068	47	-0.068	OL1	1.5
78	1.2D + 1.5Lm_1 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.068	48	-0.068	OL1	1.5
79	1.2D + 1.5Lm_1 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.068	49	-0.068	OL1	1.5
80	1.2D + 1.5Lm_1 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.068	50	-0.068	OL1	1.5
81	1.2D + 1.5Lm_1 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.068	51	-0.068	OL1	1.5
82	1.2D + 1.5Lm_1 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.068	52	-0.068	OL1	1.5
83	1.2D + 1.5Lm_2 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.068	37	0.068	OL2	1.5
84	1.2D + 1.5Lm_2 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.068	38	0.068	OL2	1.5
85	1.2D + 1.5Lm_2 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.068	39	0.068	OL2	1.5
86	1.2D + 1.5Lm_2 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.068	40	0.068	OL2	1.5
87	1.2D + 1.5Lm_2 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.068	41	0.068	OL2	1.5
88	1.2D + 1.5Lm_2 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.068	42	0.068	OL2	1.5
89	1.2D + 1.5Lm_2 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.068	43	0.068	OL2	1.5
90	1.2D + 1.5Lm_2 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.068	44	0.068	OL2	1.5
91	1.2D + 1.5Lm_2 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.068	45	-0.068	OL2	1.5
92	1.2D + 1.5Lm_2 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.068	46	-0.068	OL2	1.5
93	1.2D + 1.5Lm_2 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.068	47	-0.068	OL2	1.5
94	1.2D + 1.5Lm_2 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.068	48	-0.068	OL2	1.5
95	1.2D + 1.5Lm_2 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.068	49	-0.068	OL2	1.5
96	1.2D + 1.5Lm_2 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.068	50	-0.068	OL2	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
97	1.2D + 1.5Lm_2 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.068	51	-0.068	OL2	1.5
98	1.2D + 1.5Lm_2 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.068	52	-0.068	OL2	1.5
99	1.2D + 1.5Lm_3 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.068	37	0.068	OL3	1.5
100	1.2D + 1.5Lm_3 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.068	38	0.068	OL3	1.5
101	1.2D + 1.5Lm_3 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.068	39	0.068	OL3	1.5
102	1.2D + 1.5Lm_3 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.068	40	0.068	OL3	1.5
103	1.2D + 1.5Lm_3 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.068	41	0.068	OL3	1.5
104	1.2D + 1.5Lm_3 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.068	42	0.068	OL3	1.5
105	1.2D + 1.5Lm_3 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.068	43	0.068	OL3	1.5
106	1.2D + 1.5Lm_3 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.068	44	0.068	OL3	1.5
107	1.2D + 1.5Lm_3 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.068	45	-0.068	OL3	1.5
108	1.2D + 1.5Lm_3 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.068	46	-0.068	OL3	1.5
109	1.2D + 1.5Lm_3 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.068	47	-0.068	OL3	1.5
110	1.2D + 1.5Lm_3 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.068	48	-0.068	OL3	1.5
111	1.2D + 1.5Lm_3 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.068	49	-0.068	OL3	1.5
112	1.2D + 1.5Lm_3 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.068	50	-0.068	OL3	1.5
113	1.2D + 1.5Lm_3 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.068	51	-0.068	OL3	1.5
114	1.2D + 1.5Lm_3 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.068	52	-0.068	OL3	1.5
115	1.2D + 1.5Lm_4 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.068	37	0.068	OL4	1.5
116	1.2D + 1.5Lm_4 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.068	38	0.068	OL4	1.5
117	1.2D + 1.5Lm_4 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.068	39	0.068	OL4	1.5
118	1.2D + 1.5Lm_4 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.068	40	0.068	OL4	1.5
119	1.2D + 1.5Lm_4 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.068	41	0.068	OL4	1.5
120	1.2D + 1.5Lm_4 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.068	42	0.068	OL4	1.5
121	1.2D + 1.5Lm_4 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.068	43	0.068	OL4	1.5
122	1.2D + 1.5Lm_4 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.068	44	0.068	OL4	1.5
123	1.2D + 1.5Lm_4 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.068	45	-0.068	OL4	1.5
124	1.2D + 1.5Lm_4 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.068	46	-0.068	OL4	1.5
125	1.2D + 1.5Lm_4 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.068	47	-0.068	OL4	1.5
126	1.2D + 1.5Lm_4 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.068	48	-0.068	OL4	1.5
127	1.2D + 1.5Lm_4 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.068	49	-0.068	OL4	1.5
128	1.2D + 1.5Lm_4 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.068	50	-0.068	OL4	1.5
129	1.2D + 1.5Lm_4 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.068	51	-0.068	OL4	1.5
130	1.2D + 1.5Lm_4 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.068	52	-0.068	OL4	1.5

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	Platform Horzontal Pipe	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Offset Tube	HSS4X4X4	Beam	None	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
3	Offset Side Plate	0.38 X 6 Plate	Beam	None	A36 Gr.36	Typical	2.28	0.027	6.84	0.105
4	Grating Angle	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
5	MOUNT_PIPE_2.0	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
6	Offset End Plate	0.5 x 6 Plate	Beam	None	A36 Gr.36	Typical	3	0.063	9	0.237
7	HRK12-U	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	HRKPlate	0.38 X 6 Plate	Beam	None	A36 Gr.36	Typical	2.28	0.027	6.84	0.105
9	HRKAngle	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	0.692	0.692	0.026

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
10	PRK-1245	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	0.901	0.535	0.535	0.011

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	M297			Yes	** NA **	None
2	M298			Yes	** NA **	None
3	M299		OOOXOO	Yes	** NA **	None
4	M300			Yes	** NA **	None
5	M302			Yes	** NA **	None
6	M305			Yes		None
7	M306			Yes		None
8	M308			Yes	** NA **	None
9	M309			Yes	Default	None
10	M310			Yes	** NA **	None
11	M311			Yes	** NA **	None
12	A2			Yes	Default	None
13	M313			Yes		None
14	M314			Yes		None
15	M315			Yes		None
16	M316			Yes		None
17	M317			Yes		None
18	M318			Yes		None
19	M319			Yes	** NA **	None
20	M320			Yes		None
21	M321			Yes	** NA **	None
22	M322			Yes	** NA **	None
23	M323			Yes	** NA **	None
24	M324		OOOXOO	Yes	** NA **	None
25	M325			Yes	** NA **	None
26	M326			Yes		None
27	M327		OOOXOO	Yes	** NA **	None
28	M328		OOOXOO	Yes	** NA **	None
29	M329			Yes	** NA **	None
30	M330			Yes		None
31	M331			Yes	** NA **	None
32	M332			Yes		None
33	M333	BenPIN	BenPIN	Yes		None
34	M334			Yes	** NA **	None
35	M335			Yes	** NA **	None
36	M336	BenPIN	BenPIN	Yes		None
37	M337			Yes	** NA **	None
38	M338			Yes	** NA **	None
39	M339		OOOXOO	Yes	** NA **	None
40	M340		OOOXOO	Yes	** NA **	None
41	M341		OOOXOO	Yes	** NA **	None
42	M342			Yes		None
43	M343			Yes	** NA **	None
44	M344			Yes		None
45	A1			Yes	Default	None
46	M346			Yes		None
47	M347			Yes		None
48	M348			Yes		None
49	M350			Yes		None
50	M351			Yes	** NA **	None
51	M353			Yes		None
52	M354			Yes	** NA **	None
53	M355			Yes	** NA **	None
54	M357	BenPIN	BenPIN	Yes		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
55	M358			Yes		None
56	M359			Yes		None
57	M360			Yes		None
58	M361			Yes	Default	None
59	M362			Yes	** NA **	None
60	M363			Yes	** NA **	None
61	M364		OOOXOO	Yes	** NA **	None
62	M365			Yes	** NA **	None
63	M366			Yes	** NA **	None
64	M367			Yes	** NA **	None
65	M368			Yes		None
66	M369			Yes		None
67	M371			Yes		None
68	M373			Yes		None
69	M374			Yes	** NA **	None
70	M375			Yes	** NA **	None
71	M377		OOOXOO	Yes	** NA **	None
72	M378			Yes		None
73	M380			Yes	** NA **	None
74	M381	BenPIN	BenPIN	Yes		None
75	M382	BenPIN	BenPIN	Yes		None
76	M383			Yes	** NA **	None
77	M384			Yes	** NA **	None
78	M385			Yes		None
79	M386			Yes		None
80	M387			Yes		None
81	M388			Yes		None
82	A3			Yes	Default	None
83	M390			Yes		None
84	M391			Yes		None
85	M392			Yes		None
86	M393			Yes		None
87	M394			Yes	** NA **	None
88	M395			Yes	** NA **	None
89	M396		OOOXOO	Yes	** NA **	None
90	M397			Yes		None
91	M398		OOOXOO	Yes	** NA **	None
92	M399		OOOXOO	Yes	** NA **	None
93	M400			Yes	** NA **	None
94	M401			Yes	** NA **	None
95	M402	BenPIN	BenPIN	Yes		None
96	M404			Yes	Default	None
97	M238			Yes		None
98	M239			Yes	** NA **	None
99	M240			Yes	** NA **	None
100	M241			Yes		None
101	M242			Yes	** NA **	None
102	M243			Yes	** NA **	None
103	M244			Yes	** NA **	None
104	M245			Yes	** NA **	None
105	M246			Yes	** NA **	None
106	M247			Yes		None
107	M248			Yes		None
108	M249			Yes		None
109	M250			Yes		None
110	M251			Yes		None
111	M252			Yes		None
112	M253			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
113	M254			Yes	** NA **	None
114	M255			Yes	** NA **	None
115	M256			Yes	** NA **	None
116	M257			Yes	** NA **	None
117	M258			Yes	** NA **	None
118	M259			Yes	** NA **	None
119	M260			Yes	** NA **	None
120	M261			Yes	** NA **	None
121	M262			Yes	** NA **	None
122	M263			Yes	** NA **	None
123	M264			Yes	** NA **	None
124	M265			Yes	** NA **	None
125	M266			Yes	** NA **	None
126	M267			Yes	** NA **	None
127	M268			Yes	** NA **	None
128	M269			Yes		None
129	M270			Yes		None
130	M271			Yes	** NA **	None
131	M272			Yes		None
132	M273			Yes		None
133	RI2			Yes	** NA **	None
134	RI1			Yes	** NA **	None
135	A_MP1_S			Yes	** NA **	None
136	RI3			Yes	** NA **	None
137	RI4			Yes	** NA **	None
138	RI12			Yes	** NA **	None
139	RI11			Yes	** NA **	None
140	A_MP2_S			Yes	** NA **	None
141	RI13			Yes	** NA **	None
142	RI14			Yes	** NA **	None
143	RI15			Yes	** NA **	None
144	RI22			Yes	** NA **	None
145	RI21			Yes	** NA **	None
146	A_MP3_S			Yes	** NA **	None
147	RI32			Yes	** NA **	None
148	RI31			Yes	** NA **	None
149	A_MP4_S			Yes	** NA **	None
150	M150			Yes	** NA **	None
151	M151			Yes	** NA **	None
152	M152			Yes	** NA **	None
153	M153			Yes	** NA **	None
154	M154			Yes	** NA **	None
155	M155			Yes	** NA **	None
156	M156			Yes	** NA **	None
157	M157			Yes	** NA **	None
158	M158			Yes	** NA **	None
159	M159			Yes	** NA **	None
160	M160			Yes	** NA **	None
161	M161			Yes	** NA **	None
162	M162			Yes	** NA **	None
163	M163			Yes	** NA **	None
164	M164			Yes	** NA **	None
165	M165			Yes	** NA **	None
166	M166			Yes	** NA **	None
167	M167			Yes	** NA **	None
168	M168			Yes	** NA **	None
169	M169			Yes	** NA **	None
170	M170			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
171	M171			Yes	** NA **	None
172	M172			Yes	** NA **	None
173	M173			Yes	** NA **	None
174	M174			Yes	** NA **	None
175	M175			Yes	** NA **	None
176	M176			Yes	** NA **	None
177	M177			Yes	** NA **	None
178	M178			Yes	** NA **	None
179	M179			Yes	** NA **	None
180	M180			Yes	** NA **	None
181	M181			Yes	** NA **	None
182	M182			Yes	** NA **	None
183	M183			Yes	** NA **	None

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N442	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N453	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N485	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N492	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N535	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N588	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

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	N442	max	1216.3647	16	2065.8764	16	896.6251	24	872.5811	21	245.1868	4	1182.3106	12
2		min	-2155.4232	8	-3742.5413	8	256.1309	64	-62.5768	12	-1165.2089	92	-1169.8856	4
3	N453	max	4296.2298	3	952.725	15	896.952	19	879.3549	7	1127.1521	19	1203.4764	7
4		min	-2375.5556	11	-929.173	7	255.6497	91	-558.048	15	314.0584	59	-1190.9521	15
5	N485	max	1811.5772	30	398.0531	6	2225.0783	30	110.7076	6	77.3531	6	131.4897	18
6		min	-229.7582	6	-3136.0905	30	-269.1042	6	-975.5383	30	-535.3963	30	-99.0305	10
7	N492	max	444.5854	11	54.3327	15	2222.0304	19	64.1684	7	1111.0152	19	132.3382	7
8		min	-3616.6287	19	-54.5111	7	-260.1132	11	-44.2423	15	-130.0566	11	-99.8474	15
9	N535	max	1186.6148	6	3736.1698	14	896.1843	29	-109.7764	9	539.2391	18	1200.0158	17
10		min	-2168.916	14	-2085.0149	6	255.8119	53	-1252.0347	33	-887.0423	106	-1189.4601	9
11	N588	max	1810.5212	24	3137.5391	24	2225.5125	24	951.6345	24	57.0734	16	131.0129	12
12		min	-229.4583	16	-397.3446	16	-268.6472	16	-122.1522	16	-577.2331	24	-98.5696	4
13	Totals:	max	3632.4235	3	3653.8226	15	8311.5488	22						
14		min	-3632.5177	11	-3653.9774	7	2377.7508	62						

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	M306	0.38 X 6 Plate	0.073	1.4999	15	0.8048	2.9998	y	6	71020.2581	73872	584.82	9234	3	H1-1b
2	M360	0.38 X 6 Plate	0.0777	1.4999	9	0.8046	2.9998	y	16	71020.2581	73872	584.82	9234	3	H1-1b
3	M386	0.38 X 6 Plate	0.0717	1.4999	4	0.7998	2.9998	y	11	71020.2581	73872	584.82	9234	3	H1-1b
4	M347	0.5 x 6 Plate	0.0683	0	4	0.7727	0	y	16	94834.571	97200	1012.5	12150	3	H1-1b
5	M313	0.5 x 6 Plate	0.0684	0	10	0.7715	0	y	6	94834.571	97200	1012.5	12150	3	H1-1b
6	M342	0.5 x 6 Plate	0.0688	0	15	0.7683	0	y	11	94834.571	97200	1012.5	12150	3	H1-1b
7	M326	0.38 X 6 Plate	0.0637	1.5	7	0.7401	3	y	16	71019.8853	73872	584.82	9234	3	H1-1b
8	M397	0.38 X 6 Plate	0.0623	1.5	12	0.7386	3	y	6	71019.8853	73872	584.82	9234	3	H1-1b
9	M378	0.38 X 6 Plate	0.0631	1.5	18	0.7354	3	y	11	71019.8853	73872	584.82	9234	3	H1-1b
10	M316	0.38 X 6 Plate	0.0726	0.875	6	0.6765	0.875	y	6	73624.9781	73872	584.82	9234	1.0222	H1-1b
11	M369	0.38 X 6 Plate	0.0723	0.875	16	0.6763	0.875	y	16	73624.9781	73872	584.82	9234	1.0223	H1-1b
12	M388	0.38 X 6 Plate	0.072	0.875	11	0.6723	0.875	y	11	73624.9781	73872	584.82	9234	1.0224	H1-1b
13	M315	0.5 x 6 Plate	0.07	0	4	0.6473	0	y	16	94834.571	97200	1012.5	12150	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
14	M391	0.5 x 6 Plate	0.0734	0	9	0.6465	0	y	6	94834.571	97200	1012.5	12150	3	H1-1b
15	M350	0.5 x 6 Plate	0.0707	0	15	0.6436	0	y	11	94834.571	97200	1012.5	12150	3	H1-1b
16	M392	0.38 X 6 Plate	0.051	0	7	0.6166	0.875	y	5	73624.9782	73872	584.82	9234	1.0504	H1-1b
17	M317	0.38 X 6 Plate	0.0507	0	17	0.6142	0.875	y	16	73624.9782	73872	584.82	9234	1.0392	H1-1b
18	M371	0.38 X 6 Plate	0.0505	0	12	0.61	0.875	y	11	73624.9782	73872	584.82	9234	1.0506	H1-1b
19	M358	0.5 x 6 Plate	0.1364	0	14	0.2927	0	y	16	91950.0929	97200	1012.5	12150	1.22	H1-1b
20	M305	0.5 x 6 Plate	0.1357	0	3	0.2925	0	y	6	91950.0929	97200	1012.5	12150	1.2206	H1-1b
21	M385	0.5 x 6 Plate	0.1366	0	8	0.291	0	y	11	91950.0929	97200	1012.5	12150	1.2204	H1-1b
22	M314	0.5 x 6 Plate	0.1554	4.6876	3	0.2784	4.6876	y	16	91950.0929	97200	1012.5	12150	1.171	H1-1b
23	M390	0.5 x 6 Plate	0.1564	4.6876	8	0.2777	4.6876	y	6	91950.0929	97200	1012.5	12150	1.1707	H1-1b
24	M368	0.5 x 6 Plate	0.1567	4.6876	14	0.2767	4.6876	y	11	91950.0929	97200	1012.5	12150	1.1711	H1-1b
25	M252	PIPE_2.0	0.3666	11.8421	5	0.2349	134.2105		9	6295.4223	32130	1871.625	1871.625	3	H1-1a
26	M251	PIPE_2.0	0.3539	11.8421	10	0.2259	134.2105		15	6295.4223	32130	1871.625	1871.625	3	H1-1a
27	M250	PIPE_2.0	0.353	11.8421	15	0.2227	134.2105		4	6295.4223	32130	1871.625	1871.625	3	H1-1a
28	M167	PIPE_2.0	0.4165	93.4737	13	0.1385	93.4737		15	14916.0955	32130	1871.625	1871.625	2.2754	H1-1b
29	A_MP1_S	PIPE_2.0	0.4103	93.4737	8	0.1379	93.4737		10	14916.0955	32130	1871.625	1871.625	2.1903	H1-1b
30	M150	PIPE_2.0	0.407	93.4737	3	0.1373	93.4737		4	14916.0955	32130	1871.625	1871.625	1.5504	H1-1b
31	M404	PIPE_3.0	0.1256	19.7366	19	0.1277	11.8419		16	28251.1924	65205	5748.75	5748.75	2.6407	H1-1b
32	M361	PIPE_3.0	0.126	19.7366	8	0.1275	11.8419		6	28251.1924	65205	5748.75	5748.75	2.8828	H1-1b
33	M309	PIPE_3.0	0.1257	19.7366	30	0.127	11.8419		11	28251.1924	65205	5748.75	5748.75	2.6415	H1-1b
34	A2	HSS4X4X4	0.1524	47.6971	19	0.1186	62.4997	y	6	99905.4289	109188	12663	12663	3	H1-1b
35	A1	HSS4X4X4	0.1527	47.6971	30	0.1185	62.4997	y	16	99905.4289	109188	12663	12663	3	H1-1b
36	A3	HSS4X4X4	0.1527	47.6971	24	0.118	62.4997	y	11	99905.4289	109188	12663	12663	3	H1-1b
37	M249	L2.5x2.5x4	0.2995	14.9018	15	0.1078	14.9018	z	9	36663.9	38556	1113.5545	2537.3882	1.5	H2-1
38	M248	L2.5x2.5x4	0.297	14.9018	4	0.1038	14.9018	z	15	36663.9	38556	1113.5545	2537.3882	1.5	H2-1
39	M241	L2.5x2.5x4	0.3005	14.9018	10	0.1025	14.9018	z	4	36663.9	38556	1113.5545	2537.3882	1.5	H2-1
40	M273	0.38 X 6 Plate	0.055	2.3438	9	0.0793	0	y	9	69552.7225	73872	584.82	9234	1.6327	H1-1b
41	M270	0.38 X 6 Plate	0.0527	2.3438	14	0.0774	0	y	15	69552.7225	73872	584.82	9234	1.6292	H1-1b
42	M238	0.38 X 6 Plate	0.0522	2.3438	3	0.0764	0	y	4	69552.7225	73872	584.82	9234	1.6289	H1-1b
43	A_MP4_S	PIPE_2.0	0.3363	93.4737	16	0.0752	93.4737		9	14916.0955	32130	1871.625	1871.625	1.8135	H1-1b
44	M171	PIPE_2.0	0.3376	93.4737	5	0.0746	93.4737		15	14916.0955	32130	1871.625	1871.625	1.9485	H1-1b
45	M154	PIPE_2.0	0.3332	93.4737	11	0.0742	93.4737		4	14916.0955	32130	1871.625	1871.625	1.7037	H1-1b
46	M170	PIPE_2.0	0.4417	93.4737	6	0.0716	93.4737		14	14916.0955	32130	1871.625	1871.625	2.2387	H1-1b
47	A_MP2_S	PIPE_2.0	0.4414	93.4737	16	0.0711	93.4737		8	14916.0955	32130	1871.625	1871.625	1.9188	H1-1b
48	M153	PIPE_2.0	0.4375	93.4737	11	0.0707	93.4737		3	14916.0955	32130	1871.625	1871.625	1.6936	H1-1b
49	M272	0.38 X 6 Plate	0.0452	0	5	0.0641	2.3438	y	15	69552.7225	73872	584.82	9234	1.6411	H1-1b
50	M247	0.38 X 6 Plate	0.0433	0	16	0.0632	2.3438	y	10	69552.7225	73872	584.82	9234	1.6431	H1-1b
51	M269	0.38 X 6 Plate	0.0434	0	11	0.0631	2.3438	y	4	69552.7225	73872	584.82	9234	1.6427	H1-1b
52	M152	PIPE_2.0	0.4041	93.4737	11	0.0614	93.4737		7	14916.0955	32130	1871.625	1871.625	1.7255	H1-1b
53	M169	PIPE_2.0	0.4153	93.4737	5	0.0607	93.4737		17	14916.0955	32130	1871.625	1871.625	2.0641	H1-1b
54	A_MP3_S	PIPE_2.0	0.4078	93.4737	16	0.0601	93.4737		12	14916.0955	32130	1871.625	1871.625	1.857	H1-1b
55	M393	HSS4X4X4	0.1356	30.6875	24	0.0485	30.6875	y	24	106874.1062	109188	12663	12663	1.7146	H1-1b
56	M359	HSS4X4X4	0.1363	30.6875	29	0.0485	30.6875	y	30	106874.1062	109188	12663	12663	1.6972	H1-1b
57	M318	HSS4X4X4	0.1354	30.6875	19	0.0484	30.6875	y	19	106874.1062	109188	12663	12663	1.715	H1-1b
58	M320	HSS4X4X4	0.1278	0	19	0.0451	27.4569	z	5	106874.1659	109188	12663	12663	1.6646	H1-1b
59	M373	HSS4X4X4	0.1278	0	30	0.0449	0	y	29	106874.1659	109188	12663	12663	1.6639	H1-1b
60	M348	HSS4X4X4	0.1286	0	25	0.0448	0	y	23	106874.1659	109188	12663	12663	1.6475	H1-1b
61	M330	L2x2x3	0.2436	50.5418	22	0.0177	50.5418	y	22	9618.8883	23392.8	557.7166	1137.5872	1.5	H2-1
62	M353	L2x2x3	0.2437	50.5418	32	0.0176	50.5418	y	32	9618.8883	23392.8	557.7166	1137.5872	1.5	H2-1
63	M387	L2x2x3	0.2435	50.5418	27	0.0176	50.5418	y	27	9618.8883	23392.8	557.7166	1137.5872	1.5	H2-1
64	M332	L2x2x3	0.1314	0	5	0.0099	50.5416	z	31	9618.9559	23392.8	557.7166	1137.5881	1.5	H2-1
65	M344	L2x2x3	0.1309	50.5416	21	0.0099	50.5416	z	21	9618.9559	23392.8	557.7166	1137.5881	1.5	H2-1
66	M346	L2x2x3	0.1302	50.5416	27	0.0098	50.5416	z	26	9618.9559	23392.8	557.7166	1137.5881	1.5	H2-1
67	M333	L2.5x2.5x3	0.1728	23.9698	21	0.0077	47.9396	z	7	17342.0931	29192.4	872.5738	1713.7482	1.1368	H2-1
68	M336	L2.5x2.5x3	0.1337	23.9698	19	0.0077	47.9396	y	7	17342.0931	29192.4	872.5738	1713.7482	1.1368	H2-1
69	M381	L2.5x2.5x3	0.1721	23.9698	32	0.0076	47.9396	z	18	17342.0931	29192.4	872.5738	1713.7482	1.1368	H2-1
70	M382	L2.5x2.5x3	0.1343	23.9698	29	0.0076	47.9396	y	18	17342.0931	29192.4	872.5738	1713.7482	1.1368	H2-1
71	M357	L2.5x2.5x3	0.172	23.9698	27	0.0076	47.9396	z	12	17342.0931	29192.4	872.5738	1713.7482	1.1368	H2-1

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
72	M402	L2.5x2.5x3	0.134	23.9698	24	0.0076	47.9396	y	12	17342.0931	29192.4	872.5738	1713.7482	1.1368	H2-1

TOWER-MOUNT CONNECTION ANALYSIS

v.1.0.0

telamon CLS
319 Chapanoke Road, Suite 118
Raleigh, NC 27603
Office: (405) 348-5460
Fax: (405) 341-6334

SITE INFORMATION	
Site ID	302537
Site Name	Middletown CT 3
Project ID	41124-13668065_C8_05-02-MA

ANALYSIS PARAMETERS	
TIA Revision	H

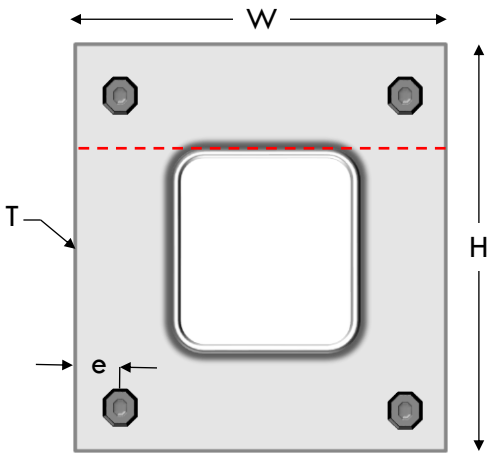
APPLIED FORCES FROM R3D		
Member Label		A2
Member End Label		I
Force-X	Fx, lbs	-4296.2
Force-Y	Fy, lbs	895.4
Force-Z	Fz, lbs	952.3
Moment X-X	Mx, lbs-ft	-879.4
Moment Y-Y	My, lbs-ft	1203.5
Moment Z-Z	Mz, lbs-ft	1127.2

STANDOFF MEMBER PROPERTIES	
Standoff Member Type	Square/Rect. HSS
Standoff Member Shape	HSS4X4X1/4
Standoff Member Grade	A36
Member to Plate Weld Size, in	3/16

BOLT & PLATE PROPERTIES	
Bolt Quantity	4
Bolt Edge Distance (e), in	1.00
Nominal Bolt Diameter (ØDb), in	0.625
Bolt Grade	A325
Plate Height (H), in	8.00
Plate Width (W), in	8.00
Plate Thickness (T), in	0.75
Plate Grade	A36

BOLT ANALYSIS		
Shear Demand (Vu), k	0.48	
Shear Capacity (ΦRnv), k	13.81	
Tension Demand (Tu), k	3.41	
Tension Capacity (ΦRnt), k	20.34	
Shear Utilization	3.5%	
Tension Utilization	16.7%	PASS
Interaction Utilization	2.9%	

PLATE ANALYSIS		
Moment Demand (Mu), k-in	4.82	
Flexural Capacity (ΦMn), k-in	25.77	
Plate Utilization	18.7%	PASS



MATERIAL PROPERTIES	
Standoff Member - Yield Strength (Fy), ksi	36
Standoff Member - Ultimate Strength (Fu), ksi	58
Bolt - Yield Strength (Fy), ksi	92
Bolt - Tensile Strength (Fu), ksi	120
Plate - Yield Strength (Fy), ksi	36
Plate - Ultimate Strength (Fu), ksi	58

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA859A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 1 - Site Information

Site ID: CTHA859A
Status: Draft
Version: 1
Project Type: Sprint Retain
Approved: Not Approved
Approved By: Not Approved
Last Modified: 7/26/2021 3:40:12 PM
Last Modified By: ANKIT.JAISWAL20@T-Mobile.com

Site Name: CTHA859A
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Not Specified

Latitude: 41.63858611
Longitude: -72.67928888
Address: 47 Inwood Rd
City, State: Rocky Hill, CT
Region: NORTHEAST

RAN Template: 67E5A998E 6160			AL Template: 67E5998E_1xAIR+1OP	
Sector Count: 3	**Antenna Count:** 6	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

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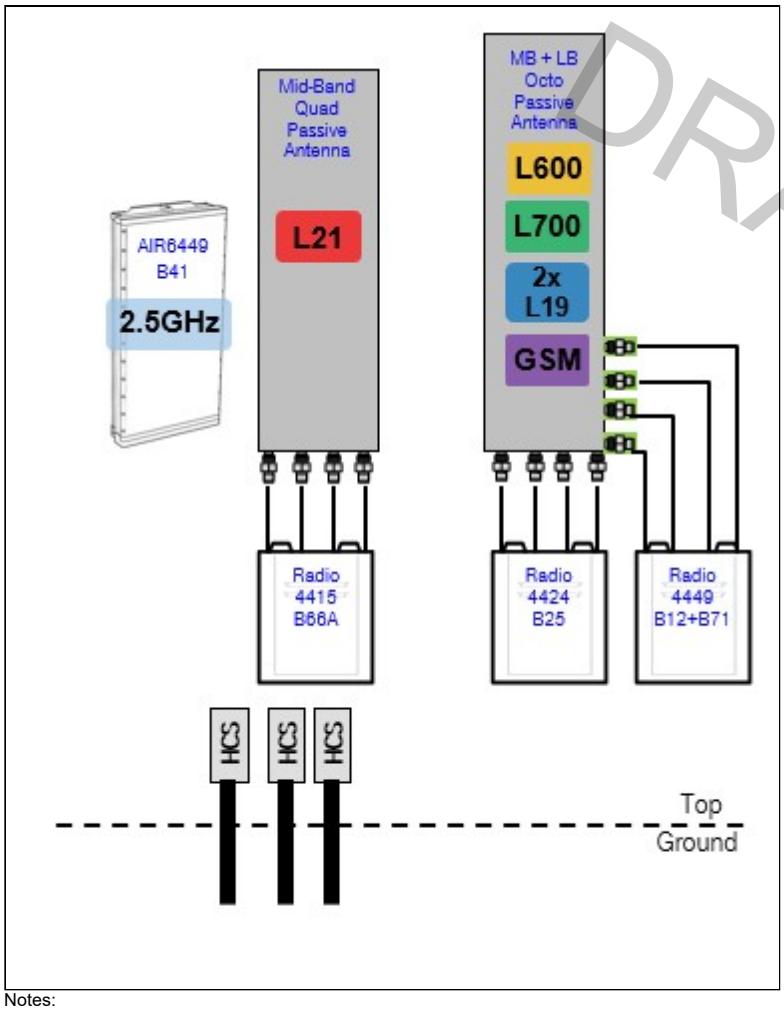
Section 3 - Proposed Template Images

67D5A998C_1xAIR+1xQP+1xOP.jpg



Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA859A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 5 - RAN Equipment

Existing RAN Equipment

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

Proposed RAN Equipment

Template: 67E5A998E 6160

Enclosure	1	2	3	4
Enclosure Type	Ancillary Equipment (Ericsson)	Enclosure 6160	B160	RBS 6601
Baseband		BB 6648 L2500 N2500; BB 6648 L1900 L2100; BB 6648 L700 L600 N600		DUG20 G1900
Hybrid Cable System	PSU 4813; Ericsson Hybrid Trunk 6/24 4AWG 100m **(x 3)**			
Transport System		CSR IXRe V2 (Gen2)		

RAN Scope of Work:

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA859A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 6 - A&L Equipment

Existing Template: Custom
Proposed Template: 67E5998E_1xAIR+1OP

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	0				0	
M. Tilt						
Height	140				140	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600	L1900 G1900 L2100	L1900 G1900 L2100	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2		2		2	2
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

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

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA859A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	120				120	
M. Tilt						
Height	140				140	
Ports	P1	P2	P3	P4	P5	P6
Active Tech.	L700 L600 N600	L700 L600 N600	L1900 G1900 L2100	L1900 G1900 L2100	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2		2		2	2
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

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

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA859A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	240				240	
M. Tilt						
Height	140				140	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600	L1900 G1900 L2100	L1900 G1900 L2100	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2		2		2	2
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

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

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA859A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 7 - Power Systems Equipment

Existing Power Systems Equipment
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	Proposed Power Systems Equipment
Enclosure	1
Enclosure Type	Enclosure 6160

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA859A

47 Inwood Road
Rocky Hill, Connecticut 06067

September 9, 2021

EBI Project Number: 6221005076

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**18.65%**

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

September 9, 2021

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

Emissions Analysis for Site: CTHA859A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **47 Inwood Road** in **Rocky Hill, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 47 Inwood Road in Rocky Hill, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

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

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

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

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

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

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

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

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

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

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

11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

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

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

14) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).

15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	**4.72%**	Antenna B1 MPE %:	**4.72%**	Antenna C1 MPE %:	**4.72%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**7.28%**	Antenna B2 MPE %:	**7.28%**	Antenna C2 MPE %:	**7.28%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	12.00%
Nextel	0.79%
Sprint	2.73%
AT&T	3.13%
Site Total MPE % :	18.65%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	12.00%
T-Mobile Sector B Total:	12.00%
T-Mobile Sector C Total:	12.00%
Site Total MPE % :	18.65%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	140.0	2.37	600 MHz LTE	400	0.59%
T-Mobile 600 MHz NR	1	1577.94	140.0	3.16	600 MHz NR	400	0.79%
T-Mobile 700 MHz LTE	2	695.22	140.0	2.78	700 MHz LTE	467	0.60%
T-Mobile 1900 MHz GSM	4	1052.26	140.0	8.43	1900 MHz GSM	1000	0.84%
T-Mobile 1900 MHz LTE	2	2104.51	140.0	8.43	1900 MHz LTE	1000	0.84%
T-Mobile 2100 MHz LTE	2	2649.42	140.0	10.61	2100 MHz LTE	1000	1.06%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	140.0	22.11	2500 MHz LTE 1C & 2C Traffic	1000	2.21%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	140.0	2.15	2500 MHz LTE 1C & 2C Broadcast	1000	0.22%
T-Mobile 2500 MHz NR Traffic	1	22089.26	140.0	44.23	2500 MHz NR Traffic	1000	4.42%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	140.0	4.30	2500 MHz NR Broadcast	1000	0.43%
						Total:	**12.00%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	12.00%
Sector B:	12.00%
Sector C:	12.00%
T-Mobile Maximum MPE % (Sector A):	12.00%
Site Total:	18.65%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **18.65%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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