10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Transcend Wireless

April 21, 2021

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

RE: Notice of Exempt Modification
605 Willard Avenue, Newington, CT 06111
Latitude: 41.6983722222
Longitude: -72.7371472222
T-Mobile Site#: CTHA342A – Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 170-foot level of the existing 180-foot Monopole at 605 Willard Avenue, in Newington, Connecticut. The 180-foot Monopole is owned and operated by American Tower. The property is owned by the Town of Newington. T-Mobile now intends to swap three (3) existing antennas and with three (3) new 2500 MHz antennas. The new antennas support 5G services and will be installed at the same 170-foot level of the tower. Mount modifications are also required as detailed in the enclosed mount analysis.

Planned Modifications:
Tower:
Remove
(6) 1-5/8" coax
(1) 9x18 HCS
(3) KRY 112 TMAs

Remove and Replace:
(3) Ericsson AIR 21 antennas for (3) Ericsson AIR 6449 2500 MHz antennas

Install New:
(3) Ericsson Radio 4415 B25 RRU
(1) 6x12 HCS
(1) Trunk 6/24 4AWG

Existing to Remain:
(2) 6x12 HCS
(3) APXVAARR24 Antennas
(3) AIR32 Antennas
(3) Radio 4449

Ground:
Install New:
3'8" X 10' Concrete Pad
(1) 6160 Cabinet and (1) B160 Battery Cabinet

This tower was originally approved by the Connecticut Siting Council prior to 2004 as shown in the included email from the Newington Town Planner. T-Mobile has been approved for subsequent modifications at their facility. This proposed modification complies with the original approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- 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 -Beth DelBuono, Elected Official, and Renata Bertotti, Acting Director of Planning, Development, and Enforcement, as well as the tower and property owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Eric Breun
Transcend Wireless
Cell: 201-658-7728

Email: ebreun@transcendwireless.com

Attachments
cc: Beth DelBuono – as Mayor of the Town of Newington, and Land Owner
Renata Bertotti – Town Planner
American Tower - Tower Owner


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
RENATA BERTOTTI
NEWINGTON TOWN PLANNER
200 GARFIELD STREET
NEWINGTON CT 06111
CT 061 9-02
UPS GROUND
TRACKING #: 1Z V25 742 43 9131 8146
BILLING: P/P
Reference #1: CTHA342A
XOL 21.03.15
NV45 45.0A 04/2021*


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
MAYOR BETH DELBUONO
327 WALSH AVENUE
NEWINGTON CT 06111
CT 061 9-02
UPS GROUND
TRACKING #: 1Z V25 742 43 9546 3204
BILLING: P/P
Reference #1: CTHA342A
XOL 21.03.15
NV45 45.0A 04/2021*
TM


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801
MA 018 9-04
UPS GROUND
TRACKING #: 1Z V25 742 43 9834 3221
BILLING: P/P
XOL 21.03.15
NV45 45.0A 04/2021*


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
10 FRANKLIN SQUARE
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE
NEW BRITAIN CT 06051
CT 067 9-06
UPS GROUND
TRACKING #: 1Z V25 742 43 9981 3239
BILLING: P/P
Reference #1: CTHA342A
XOL 21.03.15
NV45 45.0A 04/2021*
TM

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2020.

Information on the Property Records for the Municipality of Newington was last updated on 4/20/2021.

Property Summary Information

Parcel Data And Values | Building | Outbuildings | Sales | Permits

Parcel Information

Location:	605 WILLARD AVE	Property Use:	School	Primary Use:	Elementary School
Unique ID:	N0046500	Map Block Lot:	09/300/000	Acres:	80.59
490 Acres:	0.00	Zone:	R-12/	Volume / Page:	189/67
Developers Map / Lot:	N/W 1860 & 1969	Census:			

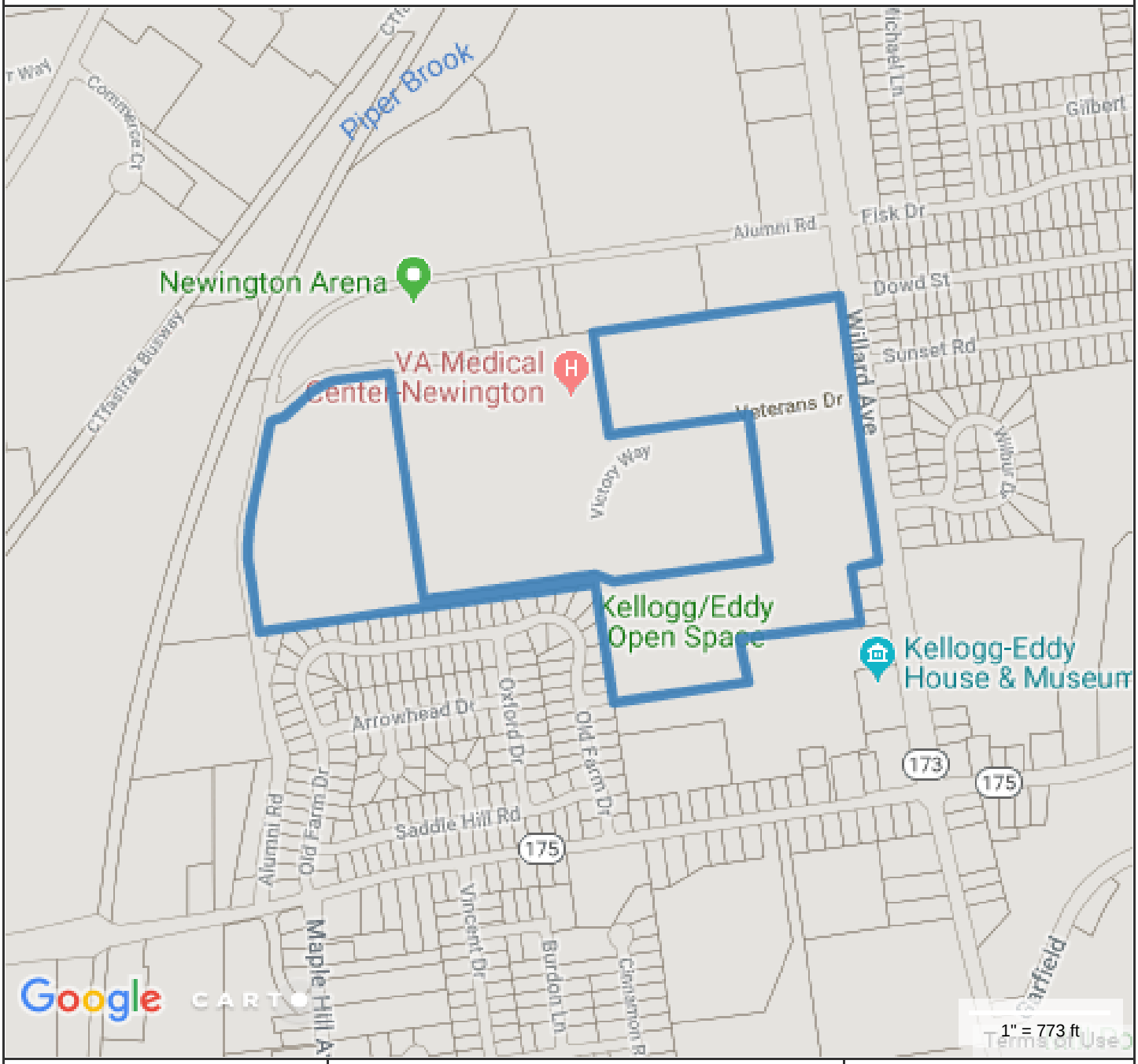
Value Information

	Appraised Value	Assessed Value
Land	8,147,790	5,703,460
Buildings	23,874,620	16,712,230
Detached Outbuildings	407,900	285,530
Total	32,430,310	22,701,220

Owner's Information

Owner's Data
NEWINGTON TOWN OF NEWINGTON HIGH SCHOOL 200 GARFIELD ST NEWINGTON, CT 06111

605 Willard Ave Newington CT



Property Information

Property ID	09003094-09/300/000
Location	605 WILLARD AVE
Owner	Current Owner

CRCOG CAPITOL REGION COUNCIL OF GOVERNMENTS
Working together for a better region.

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Jennifer Ardis

Subject: RE: 605 Willard Ave. - Sprint Monopole - CT60XC018

-----Original Message-----
From: Minor, Craig [mailto:CMinor@NewingtonCT.Gov]
Sent: Wednesday, September 14, 2016 11:01 AM
To: Jennifer Ardis <jardis@transcendwireless.com>
Subject: RE: 605 Willard Ave. - Sprint Monopole - CT60XC018

Jennifer:

I do not have a copy of the original approval, which apparently took place prior to 2004.

Craig Minor, AICP
Town Planner

-----Original Message-----
From: Jennifer Ardis [mailto:jardis@transcendwireless.com]
Sent: Wednesday, September 14, 2016 10:18 AM
To: Minor, Craig <CMinor@NewingtonCT.Gov>
Subject: 605 Willard Ave. - Sprint Monopole - CT60XC018
Importance: High

Good Morning Craig,

A newer requirement of the Connecticut Siting Council (CSC) is to provide them with the original conditions of approval for the site. Can you kindly send this over to me, as we'll need it in order to proceed with Connecticut Siting Council (CSC). Site address is in the subject line of the e-mail.

Please let me know and thank you in advance for the assistance.

Thanks,

Jennifer Ardis

Transcend Wireless

10 Industrial Ave., Suite 3

Mahwah, NJ 07430

Cell: 201-704-8157

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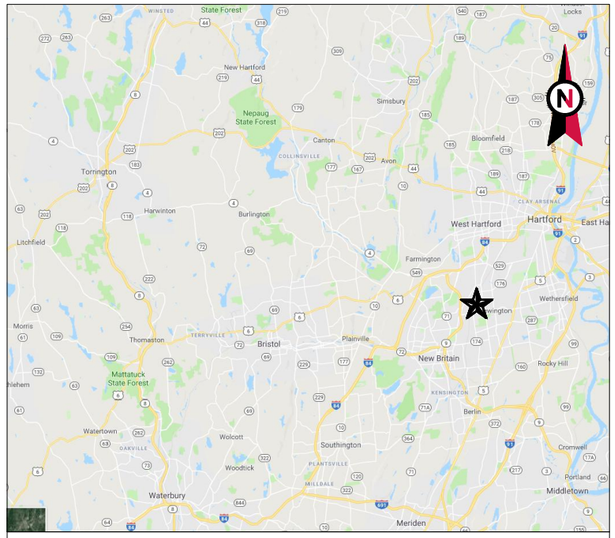


VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: NEWINGTON CT
ATC SITE NUMBER: 370627
T-MOBILE SITE NAME: CTHA342A
T-MOBILE SITE NUMBER: CTHA342A
SITE ADDRESS: 605 WILLARD AVE.
NEWINGTON, CT 06111

LOCATION MAP

T-MOBILE ANCHOR ANTENNA AMENDMENT PLAN
67D5A997DB OUTDOOR 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. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: CONNECTICUT LIGHT AND POWER
PHONE: (888) 783-6617

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (800) 921-8102

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

PROJECT SUMMARY

SITE ADDRESS:

605 WILLARD AVE.

NEWINGTON, CT 06111

COUNTY: HARTFORD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.69837222

LONGITUDE: -72.73714722

GROUND ELEVATION: 103' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

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

PROPERTY OWNER:

TOWN OF NEWINGTON
605 WILLARD AVE.
NEWINGTON, CT 06111

APPLICANT:

T-MOBILE NORTHEAST LLC

PROJECT DESCRIPTION

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

TOWER WORK:

REMOVE (3) ANTENNA(s), (3) TTA(s), (1) 9X18 HCS HYBRID CABLE(s), AND (6) 1-5/8" COAX CABLE(s)

INSTALL (3) ANTENNA(s), (3) RRH(s), HAND RAIL KIT, (1) 6X12 AWG HYBRID CABLE(s), AND (1) HYBRID TRUNK 6/24 4AWG HYBRID CABLE(s)

EXISTING (6) ANTENNA(s), (3) RRH(s), AND (2) 6X12 AWG HYBRID CABLE(s) TO REMAIN

GROUND WORK:

INSTALL (1) ENCLOSURE 6160 AND (1) B160 BATTERY CABINET

EXISTING (1) RBS 6131 CABINET TO REMAIN

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

FROM DOWNTOWN HARTFORD START OUT GOING SOUTH ON MAIN ST TOWARD WELLS ST. TURN LEFT ONTO SHELDON ST. TURN SLIGHT LEFT ONTO RAMP. MERGE ONTO WHITEHEAD HWY E. MERGE ONTO I-91 S TOWARD NEW HAVEN. MERGE ONTO US-5 S/CT-15 S VIA EXIT 28 TOWARD BERLIN TPKE/WETHERSFIELD/NEWINGTON. TAKE THE CT-175 E EXIT TOWARD WETHERSFIELD. TURN LEFT ONTO E CEDAR ST/CT-175. TURN RIGHT ONTO OLD FARM DR. 60 OLD FARM DR IS ON THE RIGHT.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	04/02/21	JP
G-002	GENERAL NOTES	0	04/02/21	JP
C-101	DETAILED SITE PLAN	0	04/02/21	JP
C-102	DETAILED GROUND PLAN	0	04/02/21	JP
C-201	TOWER ELEVATION	0	04/02/21	JP
C-401	ANTENNA INFORMATION & SCHEDULE	0	04/02/21	JP
C-501	CONSTRUCTION DETAILS	0	04/02/21	JP
E-501	GROUNDING DETAILS	0	04/02/21	JP
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JP	04/02/21

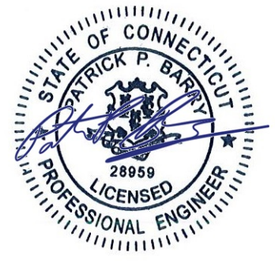
ATC SITE NUMBER:
370627

ATC SITE NAME:
NEWINGTON CT

T-MOBILE SITE NAME:
CTHA342A

SITE ADDRESS:
605 WILLARD AVE.
NEWINGTON, CT 06111

SEAL:



Authorized by "EOR"
06 Apr 2021 05:58:35

T-Mobile cosign

DATE DRAWN:	04/02/21
ATC JOB NO:	13337527_G3
CUSTOMER ID:	CTHA342A
CUSTOMER #:	CTHA342A

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	0

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
   - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   - B. AC/TELCO INTERFACE BOX (PPC)
   - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   - D. TOWERS, MONOPOLES
   - E. TOWER LIGHTING
   - F. GENERATORS & LIQUID PROPANE TANK
   - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
   - H. ANTENNAS (INSTALLED BY OTHERS)
   - I. TRANSMISSION LINE
   - J. TRANSMISSION LINE JUMPERS
   - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   - L. TRANSMISSION LINE GROUND KITS
   - M. HANGERS
   - N. HOISTING GRIPS
   - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. 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 OD COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
   - B. INSTALL ANTENNA AS INDICATE ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
   - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
   - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
   - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
   - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
   - G. ANTENNA AND COAXIAL CABLE GROUNDING:
2. ALL EXTERIOR #6 GREED GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

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

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JP	04/02/21

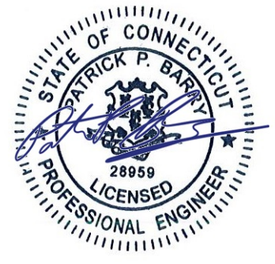
ATC SITE NUMBER:
370627

ATC SITE NAME:
NEWINGTON CT

T-MOBILE SITE NAME:
CTHA342A

SITE ADDRESS:
605 WILLARD AVE.
NEWINGTON, CT 06111

SEAL:



Authorized by "EOR"
06 Apr 2021 05:58:35

T-Mobile

DATE DRAWN:	04/02/21
ATC JOB NO:	13337527_G3
CUSTOMER ID:	CTHA342A
CUSTOMER #:	CTHA342A

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

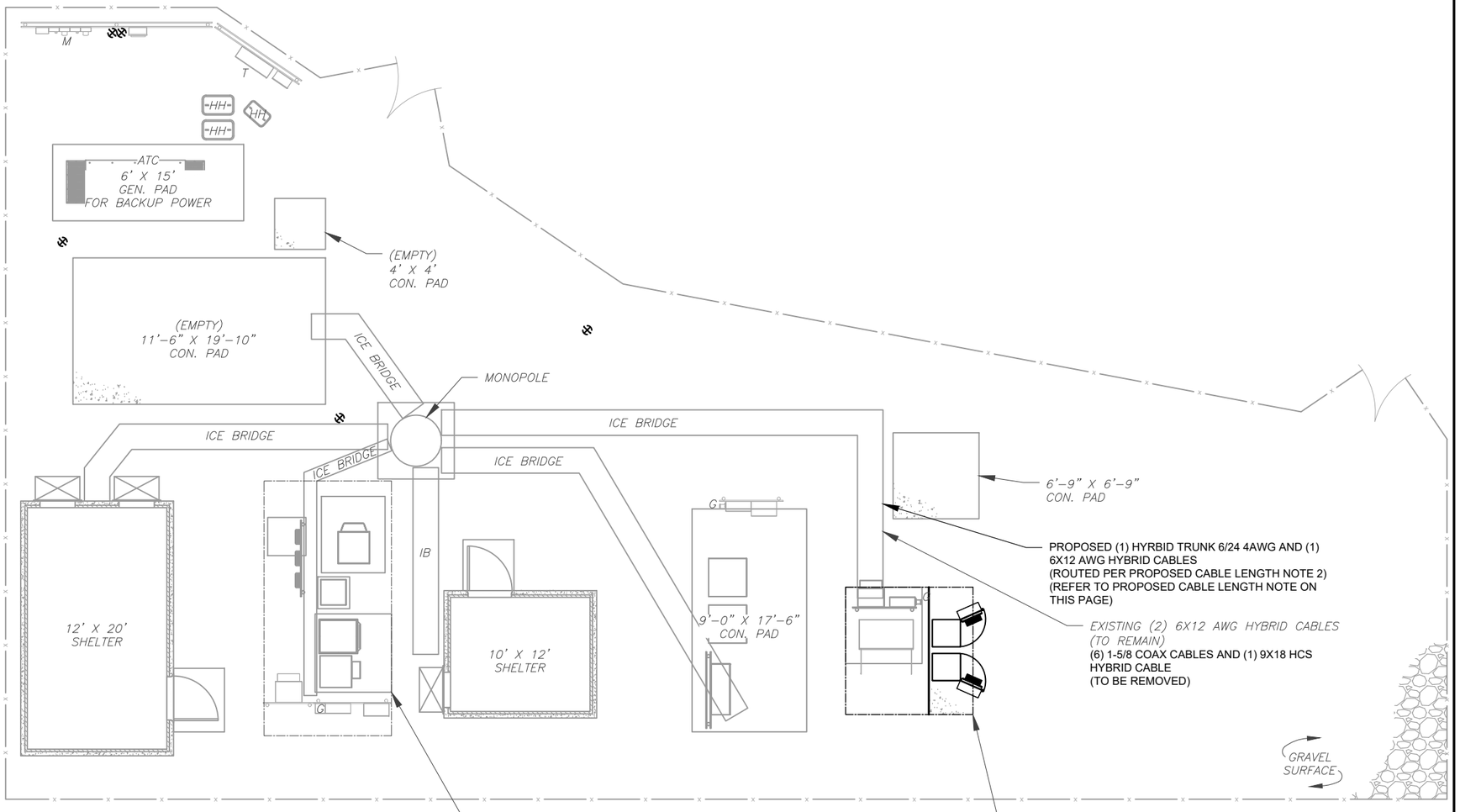
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.

LEGEND

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



PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **255'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

1 DETAILED SITE PLAN

GRAPHIC SCALE

10 0 5 10

(IN FEET)
1 UNIT = 10 FEET

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JP	04/02/21

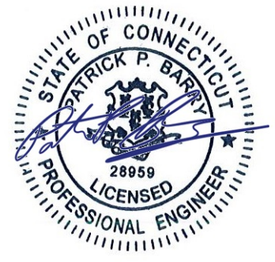
ATC SITE NUMBER:
370627

ATC SITE NAME:
NEWINGTON CT

T-MOBILE SITE NAME:
CTHA342A

SITE ADDRESS:
605 WILLARD AVE.
NEWINGTON, CT 06111

SEAL:



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06 Apr 2021 05:58:35

T-Mobile cosign

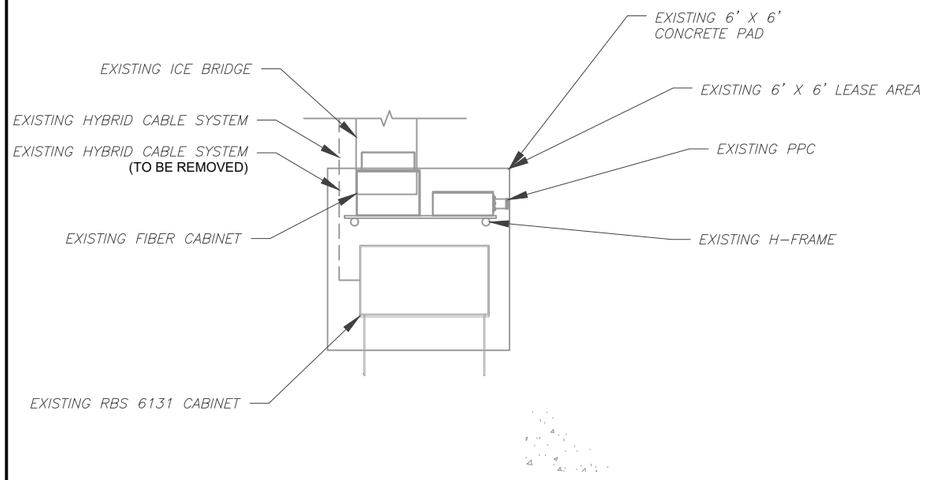
DATE DRAWN:	04/02/21
ATC JOB NO:	13337527_G3
CUSTOMER ID:	CTHA342A
CUSTOMER #:	CTHA342A

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

SITE PLAN NOTES:

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. 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.

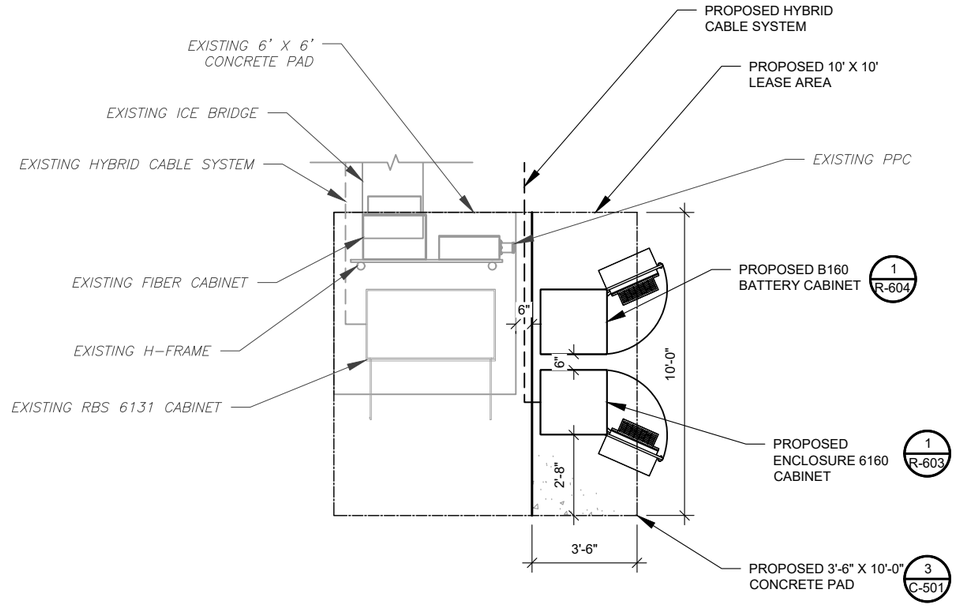


1 EXISTING GROUND EQUIPMENT LAYOUT

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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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JP	04/02/21

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370627

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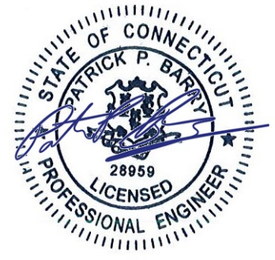
CTHA342A

SITE ADDRESS:
605 WILLARD AVE.
NEWINGTON, CT 06111

SEAL:



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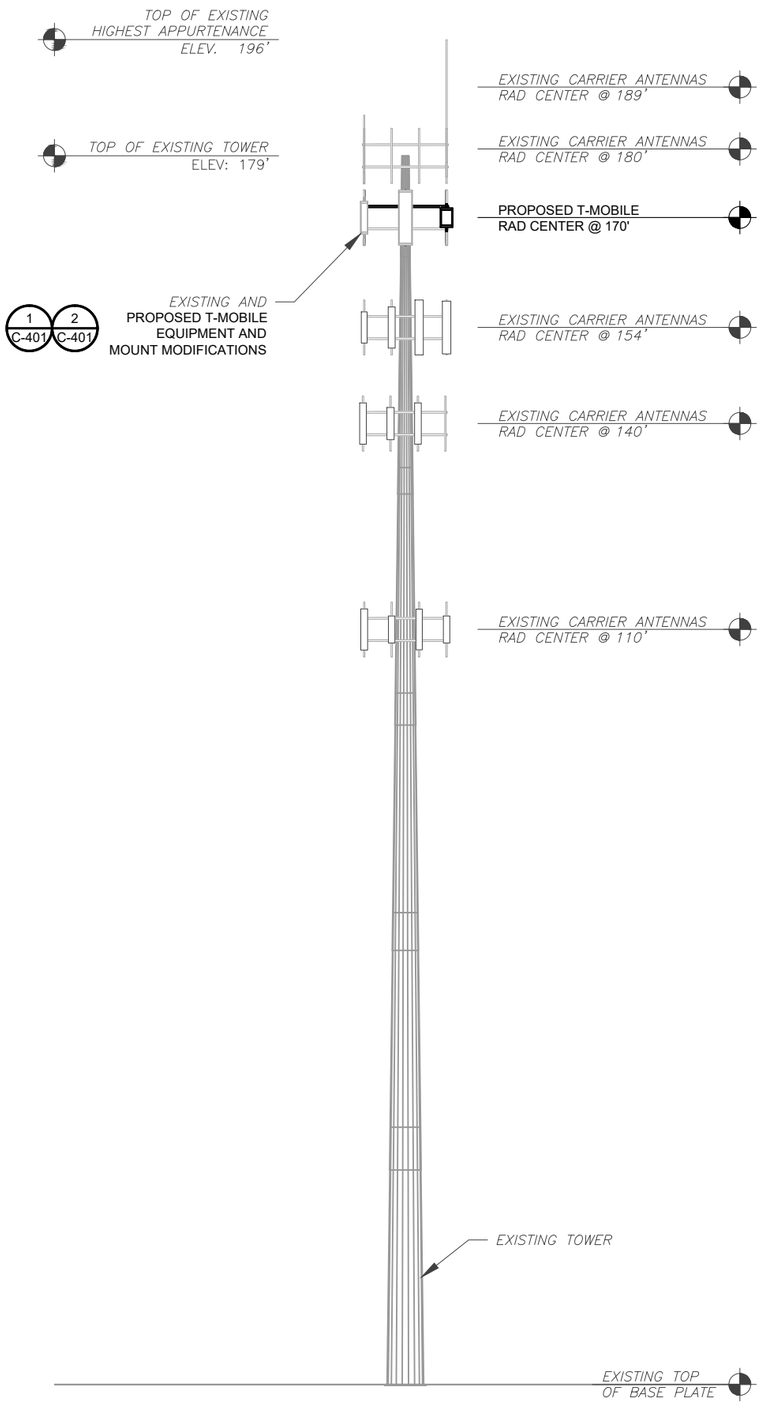
ATC JOB NO:	13337527_G3
CUSTOMER ID:	CTHA342A
CUSTOMER #:	CTHA342A

DETAILED GROUND PLAN

SHEET NUMBER:	REVISION:
C-102	0



1 TOWER ELEVATION
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 02/16/21, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT

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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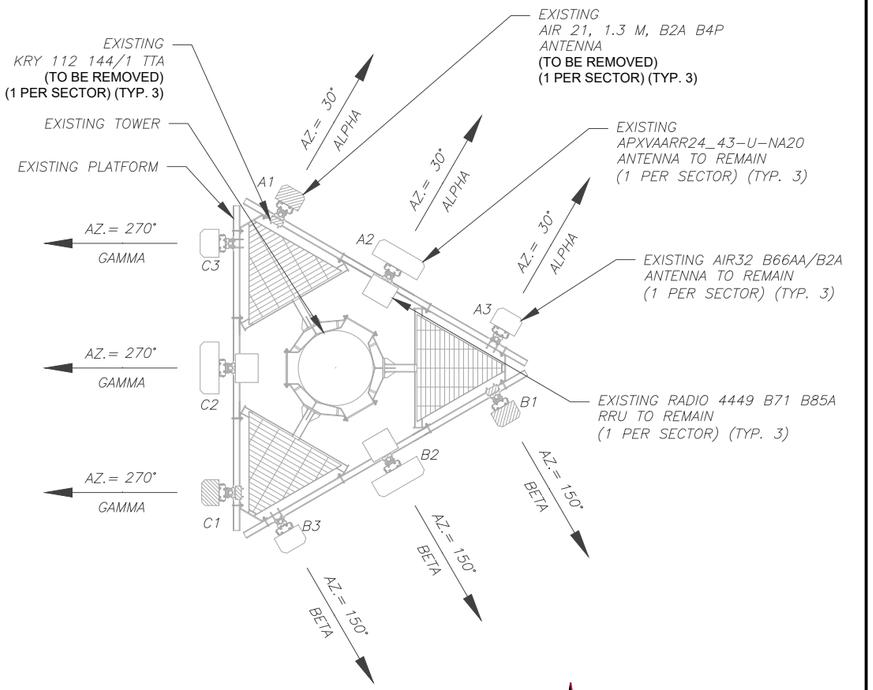
CUSTOMER ID:	CTHA342A
CUSTOMER #:	CTHA342A

TOWER ELEVATION

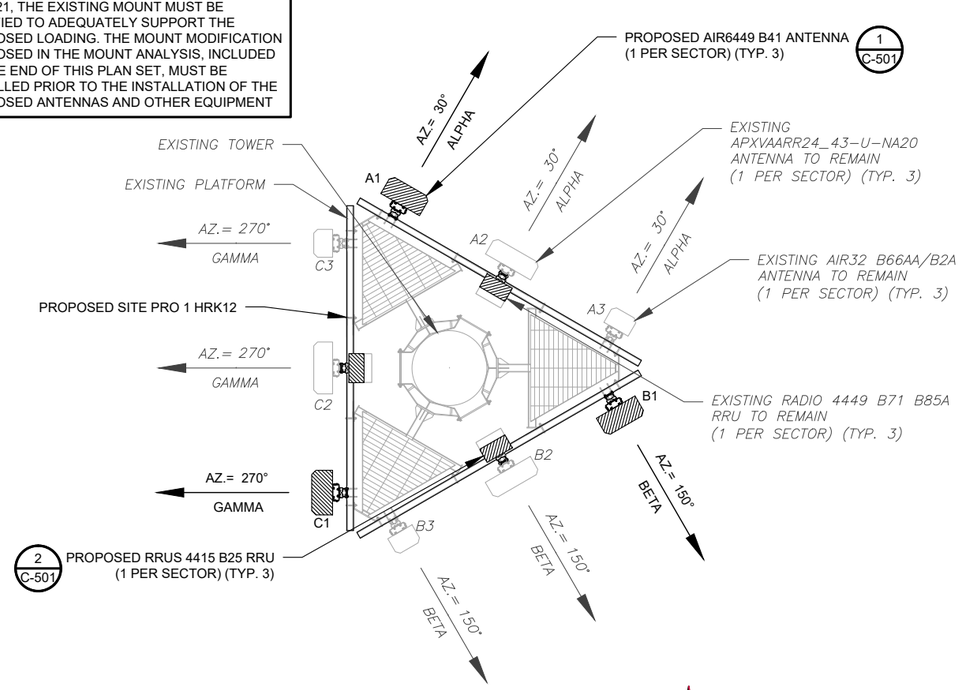
SHEET NUMBER:	REVISION:
C-201	0



1 EXISTING ANTENNA PLAN

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 02/16/21, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



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	170'	30°	A1	AIR 21, 1.3 M, B2A B4P	G1900/U2100	-/2°	RMV	KRY 112 144/1	RMV
			A2	APXVAARR24_43-U-NA20	L700/L600/N600	-/2°	RMN	RADIO 4449 B71 B85A	RMN
			A3	AIR32 B66AA/B2A	L2100/L1900	-/2°	RMN	-	-
BETA	170'	150°	B1	AIR 21, 1.3 M, B2A B4P	G1900/U2100	-/2°	RMV	KRY 112 144/1	RMV
			B2	APXVAARR24_43-U-NA20	L700/L600/N600	-/2°	RMN	RADIO 4449 B71 B85A	RMN
			B3	AIR32 B66AA/B2A	L2100/L1900	-/2°	RMN	-	-
GAMMA	170'	270°	C1	AIR 21, 1.3 M, B2A B4P	G1900/U2100	-/2°	RMV	KRY 112 144/1	RMV
			C2	APXVAARR24_43-U-NA20	L700/L600/N600	-/2°	RMN	RADIO 4449 B71 B85A	RMN
			C3	AIR32 B66AA/B2A	L2100/L1900	-/2°	RMN	-	-

NOTES

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

STATUS ABBREVIATIONS

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

CABLE LENGTHS FOR JUMPERS

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

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	170'	30°	A1	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			A2	APXVAARR24_43-U-NA20	L700/L600/N600/L1900	0°/2°	RMN	RRUS 4415 B25 RADIO 4449 B71 B85A	ADD RMN
			A3	AIR32 B66AA/B2A	L2100/L1900/G1900	0°/2°	RMN	-	-
BETA	170'	150°	B1	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			B2	APXVAARR24_43-U-NA20	L700/L600/N600/L1900	0°/2°	RMN	RRUS 4415 B25 RADIO 4449 B71 B85A	ADD RMN
			B3	AIR32 B66AA/B2A	L2100/L1900/G1900	0°/2°	RMN	-	-
GAMMA	170'	270°	C1	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			C2	APXVAARR24_43-U-NA20	L700/L600/N600/L1900	0°/2°	RMN	RRUS 4415 B25 RADIO 4449 B71 B85A	ADD RMN
			C3	AIR32 B66AA/B2A	L2100/L1900/G1900	0°/2°	RMN	-	-

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	9X18 HCS	RMV
-	-	-	(2) 6X12 AWG	RMN

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	TRUNK 6/24 4AWG 6X12 AWG	ADD
-	-	-	(2) 6X12	RMN

3 EQUIPMENT SCHEDULES

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JP	04/02/21

ATC SITE NUMBER:
370627

ATC SITE NAME:
NEWINGTON CT

T-MOBILE SITE NAME:
CTHA342A

SITE ADDRESS:
605 WILLARD AVE.
NEWINGTON, CT 06111

SEAL:

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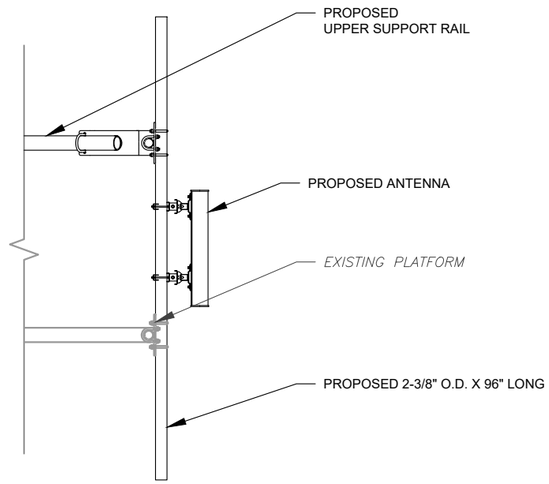
06 Apr 2021 05:58:35

T-Mobile cosign

DATE DRAWN:	04/02/21
ATC JOB NO:	13337527_G3
CUSTOMER ID:	CTHA342A
CUSTOMER #:	CTHA342A

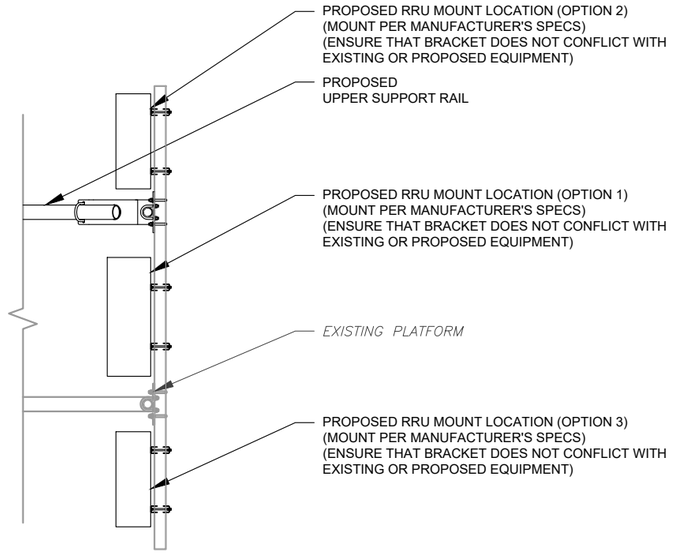
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-401	0



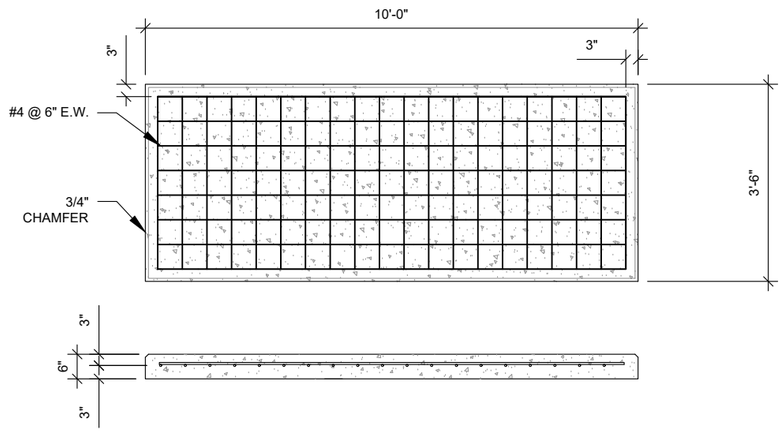
1 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



2 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



PAD NOTES:

1. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL. DELETERIOUS MATERIAL AND ORGANICS SHALL BE REMOVED.
2. COMPACT SUBGRADE TO 95%.
3. USE GALVANIZED HILTI EXPANSION ANCHORS OR, APPROVED EQUAL, FOR EQUIPMENT ANCHORAGE.
4. FOR SIZE AND LOCATION OF ANCHORS AND OTHER REQUIREMENT, SEE EQUIPMENT VENDOR DRAWINGS.
5. DETAIL FOR ILLUSTRATIVE PURPOSES ONLY, MODIFY PER GENERATOR MANUFACTURER SPECIFICATIONS TO ACCOMMODATE STUB UP.

3 PROPOSED CONCRETE PAD

SCALE: NOT TO SCALE

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REV.	DESCRIPTION	BY	DATE
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CTHA342A

SITE ADDRESS:
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NEWINGTON, CT 06111

SEAL:

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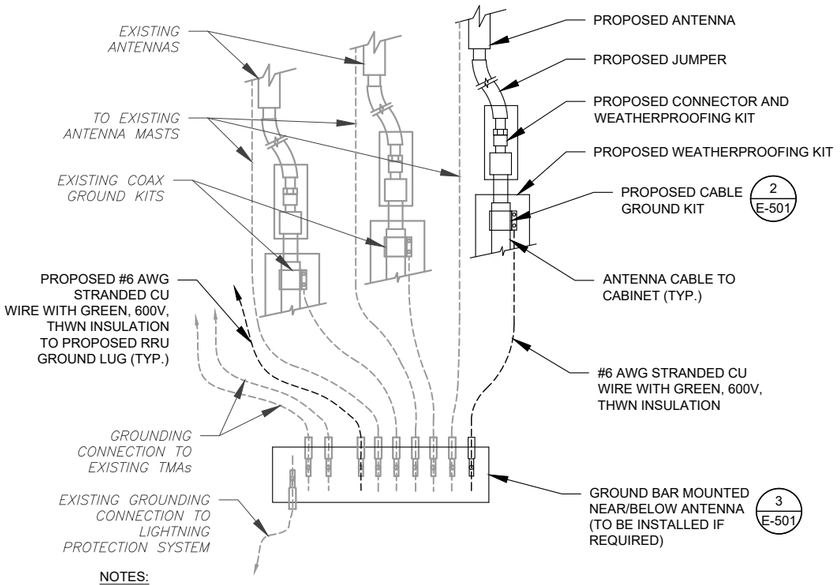
T-Mobile

DATE DRAWN:	04/02/21
ATC JOB NO:	13337527_G3
CUSTOMER ID:	CTHA342A
CUSTOMER #:	CTHA342A

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	0

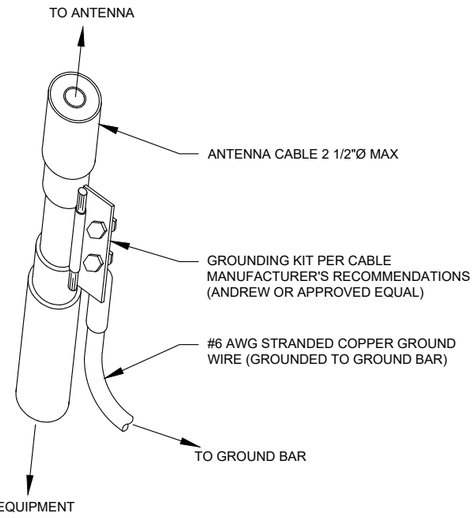


NOTES:

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

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: N.T.S.

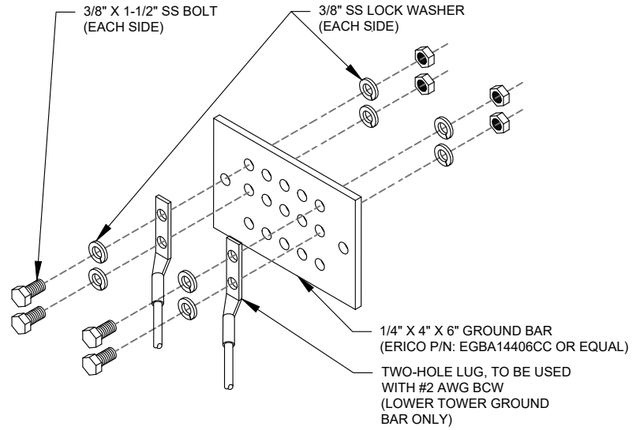


GROUND KIT NOTES:

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

2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: N.T.S.



GROUND BAR NOTES:

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

3 TOWER GROUND BAR DETAIL

SCALE: N.T.S.

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:
3. FOR SPECIFIC CABINET/ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE THE T-MOBILE DESIGN DOCUMENTS 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"

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GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Proposed RAN Equipment

Template: 67D5A997DB Outdoor

Enclosure	1	2	3
Enclosure Type	RBS 6131	Enclosure 6160	B160
Baseband	DUW30; DUG20 (G1900); BB 6630 (L2100, L1900); BB 6630 (L700, L600, N600)	BB 6630 (L2500); BB 6648 (N2500)	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 2); Ericsson 6x12 HCS *Select AWG & Length*	Ericsson Hybrid Trunk 6/24 4AWG 70m; PSU 4813	
Radio	RU22 (x 6)		
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Pad will need to be extended. Location of new cabinets to be determined.

Add (1) Enclosure 6160.

Add (1) Battery Cabinet B160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) BB6630 for L2500 to new Enclosure 6160.

Add (1) BB6648 for N2500 to new Enclosure 6160.

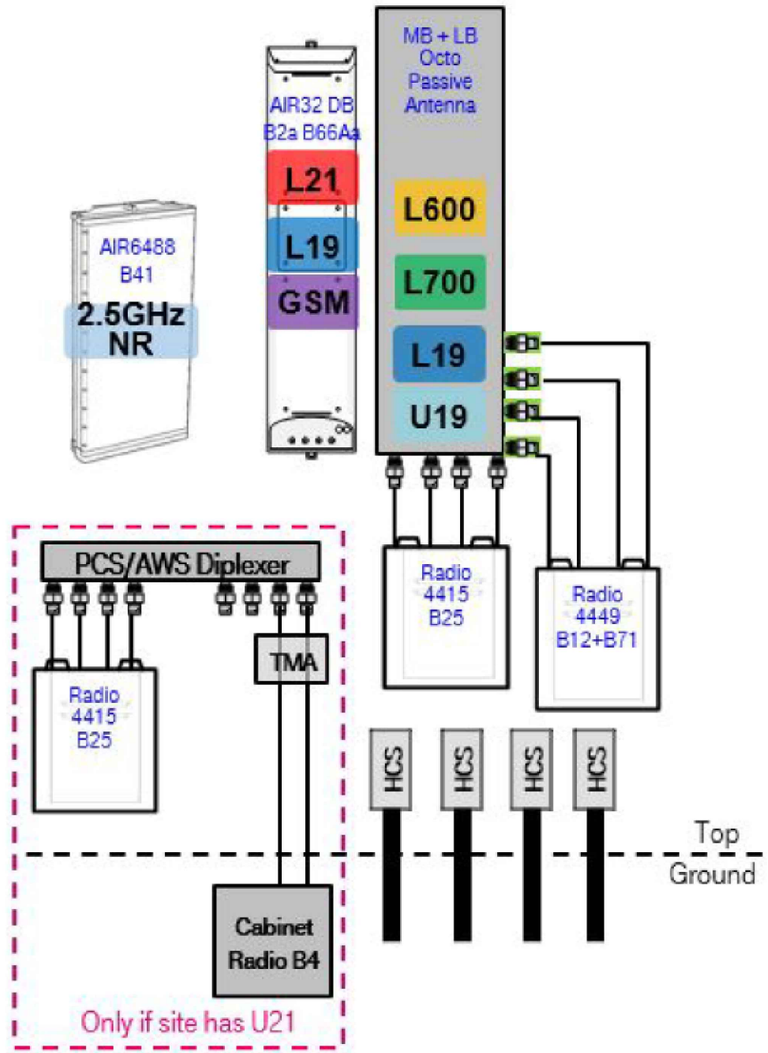
Add (1) PSU4813 Voltage Booster to new Enclosure 6160.

Existing: (6) Coaxial Lines; (3) 6X12 HCS.

Remove all coaxial lines.

Add (1) 6X24 HCS terminating at the Enclosure 6160. Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE



2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

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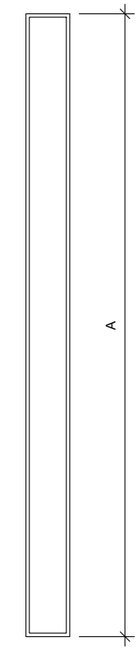
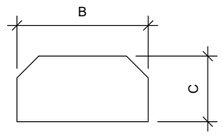
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0



FRONT VIEW

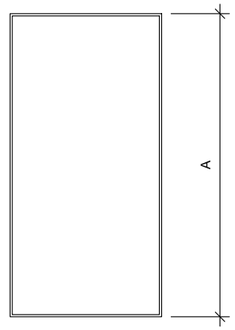


TOP VIEW

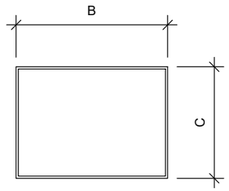
1 ANTENNA SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

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



FRONT VIEW



TOP VIEW

2 RRU SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RRUS 4415 B25	16.5"	13.4"	5.9"	46.0

SUPPLEMENTAL

SHEET NUMBER: R-602

REVISION: 0

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

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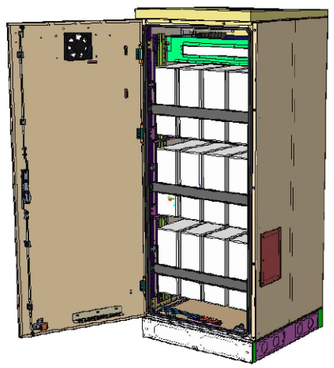
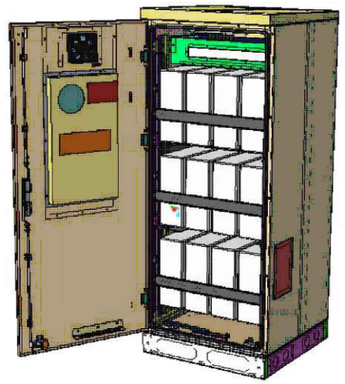
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0

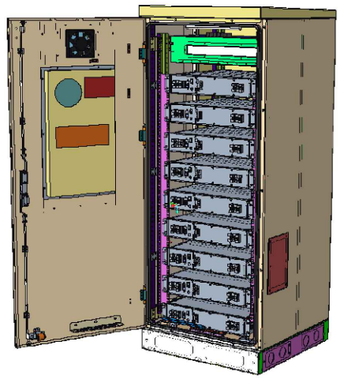
Enclosure B160



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/m^2)
- 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

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SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-604	0

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This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Newington CT**
ATC Asset Number	:	**370627**
Engineering Number	:	**13337527_C8_01**
Mount Elevation	:	**169 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**CTHA342A**
Carrier Site Number	:	**CTHA342A**
Site Location	:	**605 Willard Ave.** **Newington, CT 06111-0000** **41.698372, -72.737147**
County	:	**Hartford**
Date	:	**February 16, 2021**
Max Usage	:	**52%**
Result	:	**Pass (Add Support Rail)**

Prepared By:
Jennifer Soza
CLS Engineering PLLC

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

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

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

02/16/2021

Digitally signed by Tyler M. Barker PE
Date: 2021.02.16 15:16:15-05'00'

Introduction

The proposed equipment is to be mounted to the existing Platform w/ Proposed Site Pro 1 HRK12. 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 November 14, 2019 Site Pro 1 Assembly Drawings, Part #HRK12 Rev. A, dated July 10, 2014
Previous Analyses	Structural Analysis by American Tower Corporation, Engineering #13222844, dated September 23, 2020
Loading Data	ATC Application, Project #13337527 T-Mobile RFDS, Site ID: CTHA342A Version: 4, dated January 19, 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
Max. Topographic Factor, K_{zt}	1.00
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.19; 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 mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- **Install (1) proposed Site Pro 1 HRK12 support rail kit at ±2'-6" above the Platform Base as shown. Connect to all mount pipes using Site Pro 1 SCX1 crossover plate (9 total) included in the support rail kit.**

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	0

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Structural Analysis Report

Structure	:	**179 ft Monopole**
ATC Site Name	:	**Newington CT, CT**
ATC Asset Number	:	**370627**
Engineering Number	:	**13337527_C3_02**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**CTHA342A**
Carrier Site Number	:	**CTHA342A**
Site Location	:	**605 Willard Ave.** **Newington, CT 06111-0000** **41.698400,-72.737100**
County	:	**Hartford**
Date	:	**February 17, 2021**
Max Usage	:	**67%**
Result	:	**Pass**

Prepared By:
Rebecca Malz
Structural Engineer

Reviewed By:

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 179 ft monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	PiRod Engineering File #A-118092, dated August 10, 2001
Foundation Drawing	PiRod Engineering File #A-118092, dated August 10, 2001
Geotechnical Report	Clarence Welti, dated August 1, 2001
Mount Analysis	ATC Project #13337527_C8_01, dated February 16, 2021

Analysis

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

Basic Wind Speed:	118 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.5" 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
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

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	Antenna	Mount Type	Lines	Carrier
189.0	1	Generic 18' Dipole	Low Profile Platform	(3) 7/8" Coax	TOWN OF NEWINGTON, CT
180.0	1	Generic 8' Yagi			
	1	Generic 10' Omni			
	1	Generic 5' Dipole			
170.0	3	RFS APXVAARR24_43-U-NA20	-	(2) 1 1/4" (1.25"-31.8mm) Fiber	T-MOBILE
154.0	2	CCI DMP65R-BU8D	Platform with Handrails	(4) 0.39" (10mm) Fiber Trunk (8) 0.78" (19.7mm) 8 AWG 6 (6) 1 5/8" Coax (3) 2" conduit (1) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	2	CCI OPA-65R-LCUU-H8 (92.7")			
	2	CCI TPA-65R-LCUUUU-H8			
	1	CCI DMP65R-BU6DA			
	1	CCI OPA-65R-LCUU-H6			
	1	Quintel QS66512-2			
	3	Kathrein Scala 800 10121			
	1	Raycap DC6-48-60-0-8F (31.4" Height)			
	3	Ericsson RRUS 32 B30			
	3	Ericsson RRUS 32 B2			
	3	Ericsson RRUS 4449 B5, B12			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 8843 B2, B66A			
	6	Powerwave Allgon LGP21401			
	2	Raycap DC6-48-60-18-8F ("Squid")			
140.0	1	RFS APXV9ERR18-C-A20	Low Profile Platform	(4) 1 1/4" Hybriflex Cable	SPRINT NEXTEL
	3	RFS APXVTM14-C-I20 (56.2 lbs)			
	3	Alcatel-Lucent TD-RRH8x20			
	3	Alcatel-Lucent 1900MHz RRH			
	3	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter			
	2	RFS APXVSPP18-C-A20			
110.0	3	Samsung B2/B66A RRH-BR049	Platform with Handrails	(12) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Samsung B5/B13 RRH-BR04C			
	3	Antel BXA-70063/4CF			
	3	Antel BXA-80063/4CF ___ 5°			
	2	RFS DB-T1-6Z-8AB-0Z			
	6	Commscope SBNHH-1D65B (40.6 lbs)			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
170.0	3	Ericsson KRY 112 144/1	-	(1) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	T-MOBILE
	3	Ericsson AIR-32 B2A/B66Aa			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson Radio 4449 B12,B71			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
170.0	3	Ericsson Radio 4449 B71 B85A	Low Profile Platform w/ Proposed Site Pro 1 HRK12 Support Handrail Rail Kit	(1) 1 1/4" (1.25"-31.8mm) Fiber (1) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson RRUS 4415 B25			
	3	Ericsson Air6449 B41			
	3	Ericsson AIR32 B66Aa/B2a			

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

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	67%	Pass
Shaft	64%	Pass
Base Plate	55%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	4,601.2	6,211.6	3,723.2	60%
Shear (Kips)	37.2	50.2	29.4	59%
* 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 and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
170.0	Ericsson Radio 4449 B71 B85A	T-MOBILE	2.277	1.669
	Ericsson RRUS 4415 B25			
	Ericsson Air6449 B41			
	Ericsson AIR32 B66Aa/B2a			

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

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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:

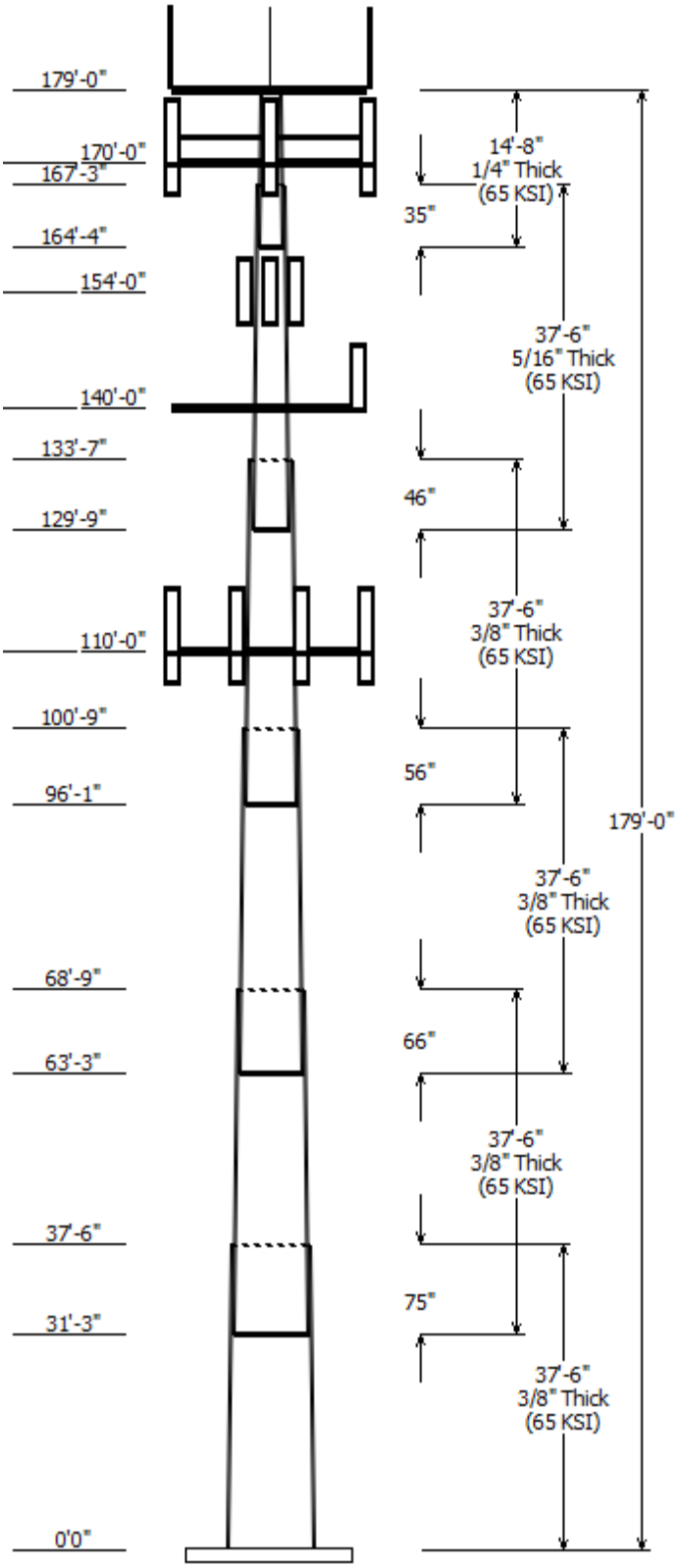
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

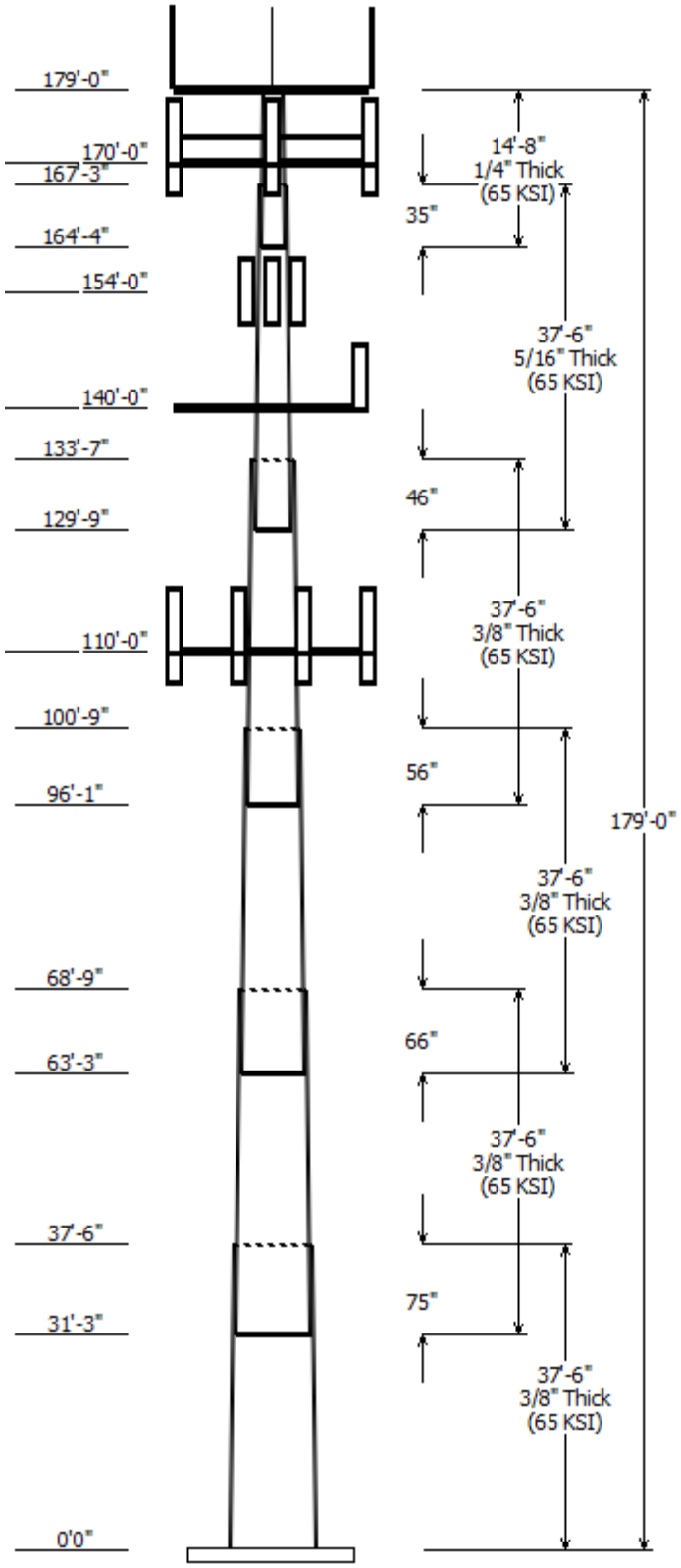
Client :	T-MOBILE		
Pole :	370627	Code:	ANSI/TIA-222-H
Location :	Newington CT, CT		
Description :	179' Pirod Monopole	Risk Category :	II
Shape :	18 Sides	Exposure :	B
Height :	179.00 (ft)	Topo Method :	Method 1
Base Elev (ft):	0.00	Topographic Category :	1
Taper:	0.303771 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	37.500	51.60	63.00	0.375		0.000	18 Sides	65
2	37.500	42.86	54.25	0.375	Slip Joint	75.000	18 Sides	65
3	37.500	33.89	45.28	0.375	Slip Joint	66.000	18 Sides	65
4	37.500	24.67	36.06	0.375	Slip Joint	56.000	18 Sides	65
5	37.500	15.06	26.46	0.313	Slip Joint	46.000	18 Sides	65
6	14.667	12.00	16.45	0.250	Slip Joint	35.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
179.000	180.000	1	Generic 8' Yagi
179.000	180.000	1	Generic 10' Omni
179.000	180.000	1	Generic 5' Dipole
179.000	189.000	1	Generic 18' Dipole
179.000	179.000	1	Round Low Profile Platform
170.000	173.000	3	RFS APXVAARR24_43-U-NA20
170.000	170.000	3	Ericsson AIR32 B66Aa/B2a
170.000	170.000	3	Ericsson Air6449 B41
170.000	170.000	3	Ericsson RRUS 4415 B25
170.000	170.000	3	Ericsson Radio 4449 B71 B85A
170.000	170.000	1	Round Platform w/ Handrails
154.000	154.000	2	CCI TPA-65R-LCUUUU-H8
154.000	154.000	2	CCI OPA-65R-LCUU-H8 (92.7")
154.000	154.000	1	CCI DMP65R-BU6DA
154.000	154.000	1	CCI OPA-65R-LCUU-H6
154.000	154.000	1	Quintel QS66512-2
154.000	154.000	3	Kathrein Scala 800 10121
154.000	154.000	1	Raycap DC6-48-60-0-8F (31.4" H
154.000	154.000	3	Ericsson RRUS 32 B30
154.000	154.000	3	Ericsson RRUS 32 B2
154.000	154.000	3	Ericsson RRUS 4449 B5, B12
154.000	154.000	3	Ericsson RRUS 4478 B14
154.000	154.000	3	Ericsson RRUS 8843 B2, B66A
154.000	154.000	2	Raycap DC6-48-60-18-8F
154.000	154.000	6	Powerwave Allgon LGP21401
154.000	154.000	1	Site Pro 1 RMQLP-4120-H10 Plat
154.000	154.000	2	CCI DMP65R-BU8D
140.000	140.000	1	Round Low Profile Platform
140.000	143.000	2	RFS APXVSPP18-C-A20
140.000	143.000	1	RFS APXV9ERR18-C-A20
140.000	143.000	3	RFS APXVTM14-C-I20 (56.2 lbs)
140.000	143.000	3	Alcatel-Lucent TD-RRH8x20
140.000	143.000	3	Alcatel-Lucent 1900MHz RRH
140.000	143.000	3	Alcatel-Lucent 800 MHz 2X50W
110.000	110.000	1	Flat Low Profile Platform
110.000	113.000	6	Commscope SBNHH-1D65B
110.000	114.000	2	RFS DB-T1-6Z-8AB-0Z
110.000	113.000	3	Antel BXA-80063/4CF ___ 5°
110.000	110.000	3	Antel BXA-70063/4CF
110.000	110.000	3	Samsung B5/B13 RRH-BR04C
110.000	110.000	3	Samsung B2/B66A RRH-BR049



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	110.0	1 5/8" Coax	No
0.000	110.0	1 5/8" Hybriflex	No
0.000	140.0	1 1/4" Hybriflex	No
0.000	154.0	0.39" (10mm)	No
0.000	154.0	0.39" (10mm)	No
0.000	154.0	0.78" (19.7mm) 8	No
0.000	154.0	0.78" (19.7mm) 8	No
0.000	154.0	1 5/8" Coax	No
0.000	154.0	2" conduit	No
0.000	154.0	2" conduit	No
0.000	154.0	3/8" (0.38"-	No
0.000	170.0	1 1/4" (1.25"-	No
0.000	170.0	1 1/4" (1.25"-	No
0.000	170.0	1 5/8" Hybriflex	No
0.000	179.0	7/8" Coax	No

Load Cases

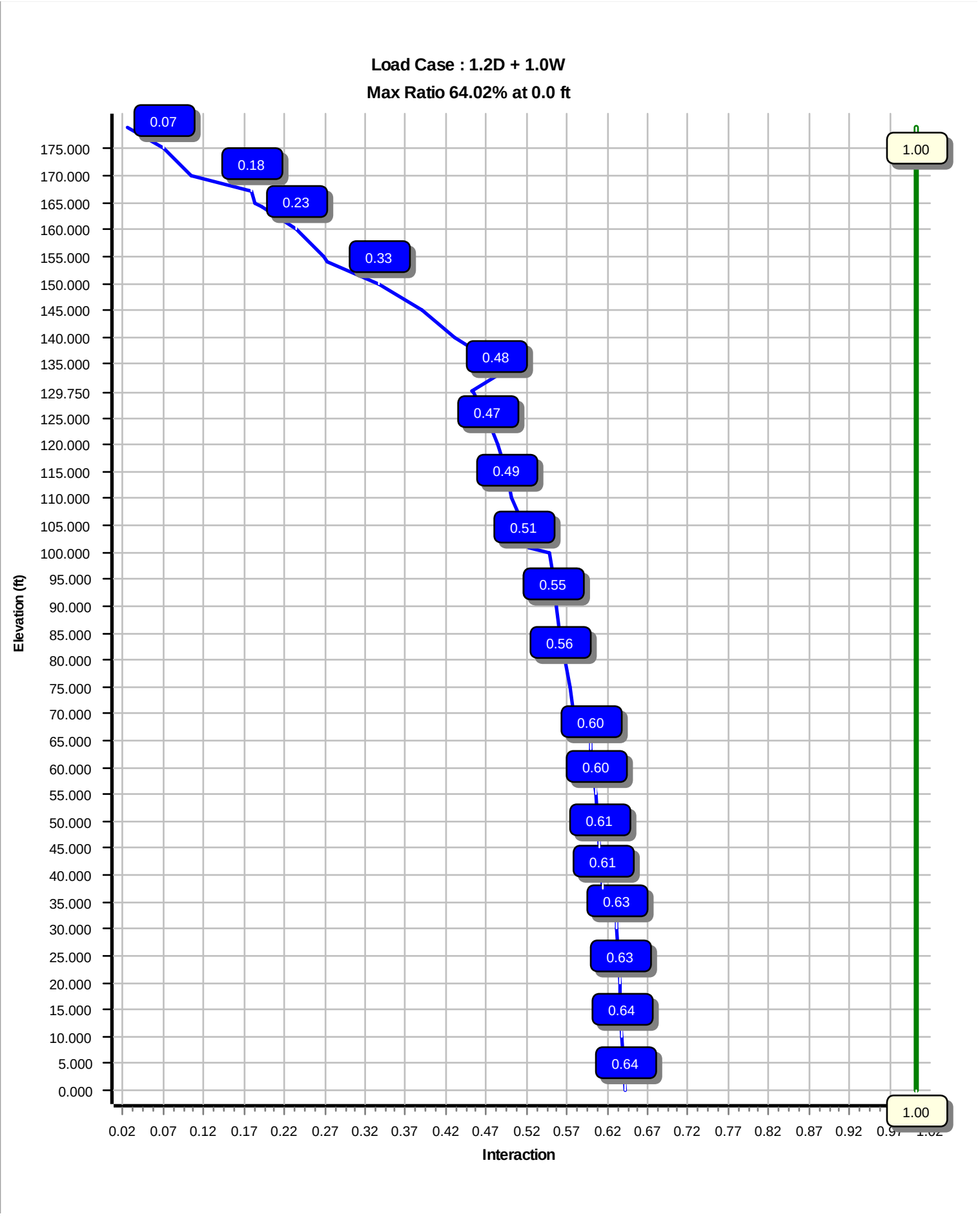
1.2D + 1.0W	118 mph with No Ice
0.9D + 1.0W	118 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.50 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	3723.16	29.43	60.95
0.9D + 1.0W	3660.35	29.41	45.70
1.2D + 1.0Di + 1.0Wi	1183.77	8.94	88.39
1.2D + 1.0Ev + 1.0Eh	227.07	1.53	61.14
0.9D - 1.0Ev + 1.0Eh	222.20	1.53	42.50
1.0D + 1.0W	853.44	6.81	50.82

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.0W
Max Ratio 64.02% at 0.0 ft
0.07
0.18
0.23
0.33
0.48
0.47
0.49
0.51
0.55
0.56
0.60
0.60
0.61
0.61
0.63
0.63
0.64
0.64
1.00
1.00
Elevation (ft)
175.000
170.000
165.000
160.000
155.000
150.000
145.000
140.000
135.000
129.750
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02
0.07
0.12
0.17
0.22
0.27
0.32
0.37
0.42
0.47
0.52
0.57
0.62
0.67
0.72
0.77
0.82
0.87
0.92
Interaction

Site Number: 370627 | Code: ANSI/TIA-222-H |

Site Name: Newington CT, CT | Engineering Number:13337527_C3_02 | 2/17/2021 9:26:57 AM

Customer: T-MOBILE

Analysis Parameters

Location :	Hartford County, CT	Height (ft) :	179
Code :	ANSI/TIA-222-H	Base Diameter (in) :	63.00
Shape :	18 Sides	Top Diameter (in) :	12.00
Pole Type :	Taper	Taper (in/ft) :	0.304
Pole Manfacturer :	Pirod	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	1.00

Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	118 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.50 in
Crest Height:	0 ft	HMSL:	101.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	3.07				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.182	S_1:	0.064	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.194	S_{d1}:	0.102		

Load Cases

1.2D + 1.0W	118 mph with No Ice
0.9D + 1.0W	118 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.50 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

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 (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	37.500	0.3750	65		0.00	8,646	63.00	0.00	74.54	36933.4	27.86	168.00	51.60	37.50	60.98	20222.7	22.50	137.62	0.303771
2-18	37.500	0.3750	65	Slip	75.00	7,318	54.25	31.25	64.13	23524.0	23.75	144.69	42.86	68.75	50.57	11536.1	18.39	114.31	0.303771
3-18	37.500	0.3750	65	Slip	66.00	5,956	45.28	63.25	53.45	13622.2	19.53	120.76	33.89	100.75	39.90	5663.6	14.17	90.39	0.303771
4-18	37.500	0.3750	65	Slip	56.00	4,555	36.06	96.08	42.48	6834.9	15.19	96.17	24.67	133.58	28.92	2156.7	9.84	65.79	0.303771
5-18	37.500	0.3125	65	Slip	46.00	2,589	26.46	129.75	25.93	2240.4	13.17	84.67	15.06	167.25	14.64	402.7	6.74	48.22	0.303771
6-18	14.667	0.2500	65	Slip	35.00	554	16.45	164.33	12.86	426.6	9.84	65.82	12.00	179.00	9.32	162.6	6.70	48.00	0.303771
				Shaft Weight		29,617													

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
179.00	Generic 5' Dipole	1	1.00	1.000	15.00	1.740	1.00	72.45	4.037	1.00
179.00	Generic 10' Omni	1	1.00	1.000	25.00	3.000	1.00	102.33	6.666	1.00
179.00	Generic 18' Dipole	1	1.00	10.000	55.00	6.770	1.00	258.06	17.658	1.00
179.00	Generic 8' Yagi	1	1.00	1.000	30.00	12.000	1.00	375.04	46.025	1.00
179.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,160.05	41.260	1.00
170.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	135.97	2.511	0.50
170.00	Ericsson RRUS 4415 B25	3	0.80	0.000	46.00	1.842	0.50	95.71	2.751	0.50
170.00	Ericsson Air6449 B41	3	0.80	0.000	104.00	5.682	0.63	242.17	7.291	0.63
170.00	Ericsson AIR32 B66Aa/B2a	3	0.80	0.000	132.20	6.510	0.71	294.02	8.731	0.71
170.00	RFS APXVAARR24_43-U-NA20	3	0.80	3.000	127.90	20.243	0.63	525.92	24.003	0.63
170.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,313.73	51.983	1.00
154.00	Powerwave Allgon LGP21401	6	0.75	0.000	14.10	1.104	0.50	39.13	1.820	0.50
154.00	Raycap DC6-48-60-18-8F	2	0.75	0.000	31.80	1.470	1.00	93.71	2.171	1.00
154.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	133.50	2.487	0.50
154.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.90	1.842	0.50	115.38	2.742	0.50
154.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	135.67	2.905	0.50
154.00	Ericsson RRUS 32 B2	3	0.75	0.000	53.00	2.743	0.67	126.80	3.916	0.67
154.00	Ericsson RRUS 32 B30	3	0.75	0.000	60.00	2.743	0.67	133.82	3.916	0.67
154.00	Raycap DC6-48-60-0-8F (31.4"	1	0.75	0.000	16.00	4.788	1.00	145.97	6.264	1.00
154.00	Kathrein Scala 800 10121	3	0.75	0.000	46.30	5.162	0.68	161.32	7.276	0.68
154.00	Quintel QS66512-2	1	0.75	0.000	111.00	8.133	1.00	310.95	10.930	1.00
154.00	CCI OPA-65R-LCUU-H6	1	0.75	0.000	73.00	9.658	1.00	277.21	12.439	1.00
154.00	CCI DMP65R-BU6DA	1	0.75	0.000	79.40	12.709	1.00	337.87	15.507	1.00
154.00	CCI OPA-65R-LCUU-H8 (92.7")	2	0.75	0.000	88.00	12.746	0.75	337.13	16.354	0.75
154.00	CCI TPA-65R-LCUUUU-H8	2	0.75	0.000	81.60	13.298	0.77	359.32	17.044	0.77
154.00	CCI DMP65R-BU8D	2	0.75	0.000	95.70	17.871	0.72	436.73	21.569	0.72
154.00	Site Pro 1 RMQLP-4120-H10	1	1.00	0.000	3,250.00	27.200	1.00	5,362.76	51.727	1.00
140.00	Alcatel-Lucent 800 MHz 2X50W	3	0.80	3.000	64.00	2.058	0.67	140.53	3.009	0.67
140.00	Alcatel-Lucent 1900MHz RRH	3	0.80	3.000	44.00	3.258	0.72	152.22	4.439	0.72
140.00	Alcatel-Lucent TD-RRH8x20	3	0.80	3.000	66.10	3.690	0.60	148.99	4.951	0.60
140.00	RFS APXVTM14-C-I20 (56.2 lbs)	3	0.80	3.000	56.20	6.342	0.66	192.91	8.506	0.66
140.00	RFS APXV9ERR18-C-A20	1	0.80	3.000	62.00	8.024	1.00	241.91	10.795	1.00
140.00	RFS APXVSPP18-C-A20	2	0.80	3.000	57.00	8.024	0.77	228.35	10.795	0.77
140.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,143.60	40.772	1.00
110.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	146.23	2.750	0.50
110.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	125.74	2.750	0.50
110.00	Antel BXA-70063/4CF	3	0.75	0.000	9.90	4.708	0.65	107.11	6.491	0.65
110.00	Antel BXA-80063/4CF ___ 5°	3	0.75	3.000	9.90	4.708	0.64	121.39	5.634	0.64
110.00	RFS DB-T1-6Z-8AB-0Z	2	0.75	4.000	44.00	4.800	0.72	165.99	6.177	0.72
110.00	Commscope SBNHH-1D65B	6	0.75	3.000	40.60	8.079	0.69	209.58	10.779	0.69
110.00	Flat Low Profile Platform	1	1.00	0.000	1,500.00	26.100	1.00	2,127.95	44.604	1.00
Totals	Num Loadings:41	95			15,097.10			31,670.79		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

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	179.00	3	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	0.00	N	TOWN OF
0.00	170.00	2	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	170.00	1	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	170.00	1	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	154.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	154.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	154.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	154.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	154.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	154.00	1	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	154.00	2	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	154.00	1	3/8" (0.38"- 9.5mm)	0.38	0.23	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	140.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	110.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	110.00	2	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS

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)
0.00		0.3750	63.000	74.537	36,933.4	27.86	168.00	68.6	1154.	0.0	0.0
5.00		0.3750	61.481	72.729	34,310.8	27.15	163.95	69.5	1099.	0.0	1,252.8
10.00		0.3750	59.962	70.921	31,815.3	26.43	159.90	70.3	1045.	0.0	1,222.0
15.00		0.3750	58.443	69.113	29,443.9	25.72	155.85	71.2	992.3	0.0	1,191.3
20.00		0.3750	56.925	67.306	27,193.4	25.00	151.80	72.0	940.9	0.0	1,160.5
25.00		0.3750	55.406	65.498	25,060.6	24.29	147.75	72.8	890.9	0.0	1,129.8
30.00		0.3750	53.887	63.690	23,042.3	23.57	143.70	73.7	842.2	0.0	1,099.0
31.25	Bot - Section 2	0.3750	53.507	63.238	22,555.3	23.40	142.69	73.9	830.3	0.0	269.9
35.00		0.3750	52.368	61.882	21,135.4	22.86	139.65	74.5	794.9	0.0	1,608.0
37.50	Top - Section 1	0.3750	52.359	61.871	21,123.9	22.86	139.62	74.5	794.6	0.0	1,052.8
40.00		0.3750	51.599	60.967	20,211.6	22.50	137.60	74.9	771.5	0.0	522.5
45.00		0.3750	50.080	59.160	18,466.5	21.78	133.55	75.8	726.3	0.0	1,021.9
50.00		0.3750	48.561	57.352	16,824.8	21.07	129.50	76.6	682.4	0.0	991.2
55.00		0.3750	47.043	55.544	15,283.5	20.36	125.45	77.5	639.9	0.0	960.4
60.00		0.3750	45.524	53.736	13,839.3	19.64	121.40	78.3	598.8	0.0	929.6
63.25	Bot - Section 3	0.3750	44.536	52.561	12,951.1	19.18	118.76	78.8	572.8	0.0	587.8
65.00		0.3750	44.005	51.929	12,489.0	18.93	117.35	79.1	559.0	0.0	627.5
68.75	Top - Section 2	0.3750	43.616	51.465	12,157.8	18.75	116.31	79.4	549.0	0.0	1,319.4
70.00		0.3750	43.236	51.014	11,840.3	18.57	115.30	79.6	539.4	0.0	217.9
75.00		0.3750	41.717	49.206	10,625.7	17.85	111.25	80.4	501.7	0.0	852.6
80.00		0.3750	40.198	47.398	9,497.0	17.14	107.20	81.2	465.3	0.0	821.8
85.00		0.3750	38.679	45.590	8,451.3	16.42	103.15	82.1	430.4	0.0	791.0
90.00		0.3750	37.161	43.783	7,485.3	15.71	99.09	82.6	396.7	0.0	760.3
95.00		0.3750	35.642	41.975	6,595.9	15.00	95.04	82.6	364.5	0.0	729.5
96.08	Bot - Section 4	0.3750	35.313	41.583	6,412.9	14.84	94.17	82.6	357.7	0.0	154.0
100.0		0.3750	34.123	40.167	5,779.8	14.28	90.99	82.6	333.6	0.0	1,101.4
100.7	Top - Section 3	0.3750	34.645	40.788	6,052.3	14.53	92.39	82.6	344.1	0.0	206.6
105.0		0.3750	33.354	39.252	5,393.7	13.92	88.94	82.6	318.5	0.0	578.8
110.0		0.3750	31.835	37.444	4,682.3	13.21	84.89	82.6	289.7	0.0	652.4
115.0		0.3750	30.316	35.636	4,036.4	12.49	80.84	82.6	262.2	0.0	621.7
120.0		0.3750	28.797	33.829	3,452.7	11.78	76.79	82.6	236.2	0.0	590.9
125.0		0.3750	27.279	32.021	2,928.3	11.06	72.74	82.6	211.4	0.0	560.2
129.7	Bot - Section 5	0.3750	25.836	30.304	2,481.9	10.38	68.90	82.6	189.2	0.0	503.7
130.0		0.3750	25.760	30.213	2,459.8	10.35	68.69	82.6	188.1	0.0	47.8
133.5	Top - Section 4	0.3125	25.296	24.780	1,954.2	12.51	80.95	82.6	152.2	0.0	669.2
135.0		0.3125	24.866	24.353	1,854.9	12.27	79.57	82.6	146.9	0.0	118.4
140.0		0.3125	23.347	22.847	1,531.6	11.41	74.71	82.6	129.2	0.0	401.5
145.0		0.3125	21.828	21.340	1,248.1	10.55	69.85	82.6	112.6	0.0	375.9
150.0		0.3125	20.309	19.834	1,002.0	9.70	64.99	82.6	97.2	0.0	350.3
154.0		0.3125	19.094	18.629	830.2	9.01	61.10	82.6	85.6	0.0	261.8
155.0		0.3125	18.791	18.327	790.6	8.84	60.13	82.6	82.9	0.0	62.9
160.0		0.3125	17.272	16.821	611.2	7.98	55.27	82.6	69.7	0.0	299.0
164.3	Bot - Section 6	0.3125	15.955	15.515	479.7	7.24	51.06	82.6	59.2	0.0	238.4
165.0		0.3125	15.753	15.314	461.3	7.13	50.41	82.6	57.7	0.0	64.0
167.2	Top - Section 5	0.2500	15.569	12.155	360.4	9.22	62.28	82.6	45.6	0.0	209.8
170.0		0.2500	14.734	11.493	304.6	8.63	58.94	82.6	40.7	0.0	110.6
175.0		0.2500	13.215	10.287	218.5	7.56	52.86	82.6	32.6	0.0	185.3
179.0		0.2500	12.000	9.323	162.6	6.70	48.00	82.6	26.7	0.0	133.5
											29,617.5

Load Case: 1.2D + 1.0W — 118 mph with No Ice — 27 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		249.7	0.0					0.0	0.0	249.7	0.0	0.0	0.0
5.00		493.3	1,503.3					0.0	257.6	493.3	1,761.0	0.0	0.0
10.00		481.1	1,466.4					0.0	257.6	481.1	1,724.1	0.0	0.0
15.00		468.9	1,429.5					0.0	257.6	468.9	1,687.2	0.0	0.0
20.00		456.8	1,392.6					0.0	257.6	456.8	1,650.3	0.0	0.0
25.00		444.6	1,355.7					0.0	257.6	444.6	1,613.3	0.0	0.0
30.00		273.5	1,318.8					0.0	257.6	273.5	1,576.4	0.0	0.0
31.25	Bot - Section 2	220.5	323.9					0.0	64.4	220.5	388.3	0.0	0.0
35.00		278.1	1,929.6					0.0	193.2	278.1	2,122.8	0.0	0.0
37.50	Top - Section 1	224.0	1,263.3					0.0	128.8	224.0	1,392.1	0.0	0.0
40.00		337.8	627.0					0.0	128.8	337.8	755.8	0.0	0.0
45.00		451.3	1,226.3					0.0	257.6	451.3	1,483.9	0.0	0.0
50.00		451.1	1,189.4					0.0	257.6	451.1	1,447.0	0.0	0.0
55.00		449.0	1,152.5					0.0	257.6	449.0	1,410.1	0.0	0.0
60.00		368.2	1,115.6					0.0	257.6	368.2	1,373.2	0.0	0.0
63.25	Bot - Section 3	223.0	705.3					0.0	167.5	223.0	872.8	0.0	0.0
65.00		245.9	753.0					0.0	90.2	245.9	843.2	0.0	0.0
68.75	Top - Section 2	222.7	1,583.2					0.0	193.2	222.7	1,776.5	0.0	0.0
70.00		274.9	261.5					0.0	64.4	274.9	325.9	0.0	0.0
75.00		435.2	1,023.1					0.0	257.6	435.2	1,280.7	0.0	0.0
80.00		427.1	986.2					0.0	257.6	427.1	1,243.8	0.0	0.0
85.00		418.2	949.3					0.0	257.6	418.2	1,206.9	0.0	0.0
90.00		408.4	912.3					0.0	257.6	408.4	1,170.0	0.0	0.0
95.00		244.6	875.4					0.0	257.6	244.6	1,133.1	0.0	0.0
96.08	Bot - Section 4	199.4	184.8					0.0	55.8	199.4	240.6	0.0	0.0
100.00		186.0	1,321.7					0.0	201.8	186.0	1,523.5	0.0	0.0
100.75	Top - Section 3	194.6	247.9					0.0	38.6	194.6	286.6	0.0	0.0
105.00		353.5	694.5					0.0	219.0	353.5	913.5	0.0	0.0
110.00	Appurtenance(s)	370.5	782.9	2,809.8	0.0	4,420.2	2,826.1	0.0	257.6	3,180.3	3,866.7	0.0	0.0
115.00		357.3	746.0					0.0	183.0	357.3	929.0	0.0	0.0
120.00		343.6	709.1					0.0	183.0	343.6	892.1	0.0	0.0
125.00		321.4	672.2					0.0	183.0	321.4	855.2	0.0	0.0
129.75	Bot - Section 5	161.2	604.4					0.0	173.9	161.2	778.3	0.0	0.0
130.00		121.6	57.3					0.0	9.2	121.6	66.5	0.0	0.0
133.58	Top - Section 4	157.3	803.1					0.0	131.1	157.3	934.2	0.0	0.0
135.00		193.3	142.1					0.0	51.9	193.3	194.0	0.0	0.0
140.00	Appurtenance(s)	291.1	481.8	2,525.6	0.0	4,948.3	2,840.3	0.0	183.0	2,816.7	3,505.1	0.0	0.0
145.00		274.9	451.1					0.0	159.0	274.9	610.1	0.0	0.0
150.00		234.0	420.3					0.0	159.0	234.0	579.3	0.0	0.0
154.00	Appurtenance(s)	124.9	314.1	5,379.6	0.0	0.0	6,353.8	0.0	127.2	5,504.5	6,795.1	0.0	0.0
155.00		140.6	75.5					0.0	6.5	140.6	82.0	0.0	0.0
160.00		209.9	358.8					0.0	32.6	209.9	391.4	0.0	0.0
164.33	Bot - Section 6	107.9	286.1					0.0	28.3	107.9	314.4	0.0	0.0
165.00		61.1	76.7					0.0	4.4	61.1	81.1	0.0	0.0
167.25	Top - Section 5	101.7	251.8					0.0	14.7	101.7	266.4	0.0	0.0
170.00	Appurtenance(s)	147.3	132.8	3,492.8	0.0	3,938.7	4,146.4	0.0	18.0	3,640.1	4,297.1	0.0	0.0
175.00		159.7	222.3					0.0	5.9	159.7	228.3	0.0	0.0
179.00	Appurtenance(s)	67.2	160.2	1,964.0	0.0	3,704.5	1,950.0	0.0	4.8	2,031.2	2,114.9	0.0	0.0

Load Case: 1.2D + 1.0W — 118 mph with No Ice — 27 Iterations

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

Totals:	29,599.8	60,983.9	0.00	0.00

Load Case: 1.2D + 1.0W — 118 mph with No Ice — 27 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	-60.95	-29.43	0.00	-3,723.16	0.00	3,723.16	4,604.11	1,308.12	7,398.90	5,943.65	0.00	0.00	0.640
5.00	-59.11	-29.08	0.00	-3,576.03	0.00	3,576.03	4,547.42	1,276.39	7,044.39	5,727.25	0.08	-0.14	0.638
10.00	-57.32	-28.74	0.00	-3,430.65	0.00	3,430.65	4,488.01	1,244.67	6,698.58	5,511.07	0.30	-0.29	0.636
15.00	-55.56	-28.41	0.00	-3,286.96	0.00	3,286.96	4,425.86	1,212.94	6,361.48	5,295.36	0.68	-0.44	0.634
20.00	-53.83	-28.08	0.00	-3,144.92	0.00	3,144.92	4,360.98	1,181.22	6,033.07	5,080.38	1.22	-0.59	0.632
25.00	-52.15	-27.77	0.00	-3,004.51	0.00	3,004.51	4,293.36	1,149.49	5,713.38	4,866.38	1.93	-0.75	0.630
30.00	-50.53	-27.57	0.00	-2,865.66	0.00	2,865.66	4,223.01	1,117.76	5,402.38	4,653.64	2.80	-0.92	0.628
31.25	-50.10	-27.42	0.00	-2,831.20	0.00	2,831.20	4,205.00	1,109.83	5,325.99	4,600.68	3.05	-0.96	0.628
35.00	-47.93	-27.19	0.00	-2,728.39	0.00	2,728.39	4,149.93	1,086.04	5,100.09	4,442.40	3.86	-1.09	0.626
37.50	-46.50	-27.02	0.00	-2,660.41	0.00	2,660.41	4,149.47	1,085.84	5,098.24	4,441.10	4.46	-1.18	0.611
40.00	-45.69	-26.77	0.00	-2,592.88	0.00	2,592.88	4,111.89	1,069.98	4,950.38	4,336.13	5.10	-1.28	0.610
45.00	-44.13	-26.42	0.00	-2,459.03	0.00	2,459.03	4,034.69	1,038.25	4,661.20	4,127.64	6.54	-1.46	0.607
50.00	-42.61	-26.07	0.00	-2,326.92	0.00	2,326.92	3,954.76	1,006.53	4,380.71	3,921.32	8.16	-1.64	0.605
55.00	-41.13	-25.72	0.00	-2,196.56	0.00	2,196.56	3,872.09	974.80	4,108.94	3,717.40	9.98	-1.83	0.602
60.00	-39.69	-25.42	0.00	-2,067.96	0.00	2,067.96	3,786.70	943.07	3,845.86	3,516.15	12.00	-2.03	0.599
63.25	-38.78	-25.24	0.00	-1,985.34	0.00	1,985.34	3,729.72	922.45	3,679.52	3,386.89	13.43	-2.16	0.597
65.00	-37.90	-25.04	0.00	-1,941.17	0.00	1,941.17	3,698.56	911.35	3,591.48	3,317.83	14.24	-2.24	0.596
68.75	-36.09	-24.81	0.00	-1,847.28	0.00	1,847.28	3,675.54	903.22	3,527.71	3,267.52	16.06	-2.40	0.576
70.00	-35.71	-24.61	0.00	-1,816.26	0.00	1,816.26	3,652.91	895.29	3,466.04	3,218.63	16.70	-2.46	0.575
75.00	-34.36	-24.25	0.00	-1,693.22	0.00	1,693.22	3,560.66	863.56	3,224.77	3,025.21	19.39	-2.67	0.570
80.00	-33.05	-23.89	0.00	-1,572.00	0.00	1,572.00	3,465.68	831.83	2,992.21	2,835.36	22.30	-2.89	0.565
85.00	-31.77	-23.53	0.00	-1,452.56	0.00	1,452.56	3,367.96	800.11	2,768.35	2,649.35	25.44	-3.11	0.559
90.00	-30.53	-23.19	0.00	-1,334.89	0.00	1,334.89	3,252.82	768.38	2,553.19	2,456.33	28.83	-3.35	0.554
95.00	-29.35	-22.95	0.00	-1,218.95	0.00	1,218.95	3,118.51	736.66	2,346.73	2,256.70	32.47	-3.59	0.551
96.08	-29.08	-22.80	0.00	-1,194.09	0.00	1,194.09	3,089.41	729.78	2,303.15	2,214.56	33.29	-3.65	0.550
100.00	-27.52	-22.57	0.00	-1,104.78	0.00	1,104.78	2,984.21	704.93	2,148.98	2,065.52	36.36	-3.85	0.545
100.75	-27.20	-22.42	0.00	-1,087.85	0.00	1,087.85	3,030.38	715.84	2,215.99	2,130.29	36.97	-3.89	0.521
105.00	-26.22	-22.12	0.00	-992.55	0.00	992.55	2,916.22	688.87	2,052.20	1,971.97	40.53	-4.11	0.513
110.00	-22.52	-18.76	0.00	-877.55	0.00	877.55	2,781.91	657.14	1,867.55	1,793.54	44.96	-4.36	0.498
115.00	-21.54	-18.42	0.00	-783.77	0.00	783.77	2,647.61	625.42	1,691.61	1,623.57	49.66	-4.61	0.492
120.00	-20.59	-18.10	0.00	-691.65	0.00	691.65	2,513.30	593.69	1,524.37	1,462.07	54.62	-4.87	0.482
125.00	-19.69	-17.80	0.00	-601.13	0.00	601.13	2,378.99	561.97	1,365.83	1,309.02	59.86	-5.14	0.469
129.75	-18.89	-17.61	0.00	-516.59	0.00	516.59	2,251.40	531.83	1,223.29	1,171.46	65.09	-5.39	0.450
130.00	-18.80	-17.52	0.00	-512.19	0.00	512.19	2,244.69	530.24	1,216.00	1,164.43	65.38	-5.41	0.449
133.58	-17.84	-17.32	0.00	-449.41	0.00	449.41	1,841.02	434.89	981.50	942.04	69.51	-5.61	0.488
135.00	-17.61	-17.16	0.00	-424.88	0.00	424.88	1,809.31	427.40	947.99	909.67	71.18	-5.69	0.478
140.00	-14.34	-14.08	0.00	-334.11	0.00	334.11	1,697.39	400.96	834.35	799.95	77.29	-5.98	0.427
145.00	-13.70	-13.80	0.00	-263.73	0.00	263.73	1,585.46	374.52	727.97	697.27	83.70	-6.26	0.388
150.00	-13.09	-13.56	0.00	-194.72	0.00	194.72	1,473.54	348.08	628.84	601.65	90.38	-6.52	0.334
154.00	-6.97	-7.32	0.00	-140.49	0.00	140.49	1,384.00	326.93	554.76	530.23	95.92	-6.71	0.270
155.00	-6.88	-7.19	0.00	-133.17	0.00	133.17	1,361.62	321.64	536.96	513.08	97.33	-6.76	0.265
160.00	-6.50	-6.95	0.00	-97.24	0.00	97.24	1,249.70	295.20	452.34	431.55	104.50	-6.97	0.231
164.33	-6.19	-6.82	0.00	-67.11	0.00	67.11	1,152.70	272.29	384.86	366.60	110.89	-7.13	0.189

Load Case: 1.2D + 1.0W 118 mph with No Ice 27 Iterations

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

165.00	-6.11	-6.75	0.00	-62.57	0.00	62.57	1,137.78	268.77	374.96	357.08	111.89	-7.16	0.181
167.25	-5.85	-6.62	0.00	-47.38	0.00	47.38	903.09	213.33	295.25	282.29	115.27	-7.23	0.175
170.00	-2.04	-2.47	0.00	-25.22	0.00	25.22	853.84	201.69	263.94	252.11	119.45	-7.31	0.103
175.00	-1.83	-2.29	0.00	-12.85	0.00	12.85	764.30	180.54	211.50	201.60	127.13	-7.40	0.066
179.00	0.00	-2.03	0.00	-3.70	0.00	3.70	692.67	163.62	173.72	165.26	133.34	-7.44	0.023

Load Case: 0.9D + 1.0W — 118 mph with No Ice (Reduced DL) — 27 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		249.7	0.0					0.0	0.0	249.7	0.0	0.0	0.0
5.00		493.3	1,127.5					0.0	193.2	493.3	1,320.7	0.0	0.0
10.00		481.1	1,099.8					0.0	193.2	481.1	1,293.1	0.0	0.0
15.00		468.9	1,072.1					0.0	193.2	468.9	1,265.4	0.0	0.0
20.00		456.8	1,044.5					0.0	193.2	456.8	1,237.7	0.0	0.0
25.00		444.6	1,016.8					0.0	193.2	444.6	1,210.0	0.0	0.0
30.00		273.5	989.1					0.0	193.2	273.5	1,182.3	0.0	0.0
31.25	Bot - Section 2	220.5	242.9					0.0	48.3	220.5	291.3	0.0	0.0
35.00		278.1	1,447.2					0.0	144.9	278.1	1,592.1	0.0	0.0
37.50	Top - Section 1	224.0	947.5					0.0	96.6	224.0	1,044.1	0.0	0.0
40.00		337.8	470.2					0.0	96.6	337.8	566.9	0.0	0.0
45.00		451.3	919.7					0.0	193.2	451.3	1,113.0	0.0	0.0
50.00		451.1	892.0					0.0	193.2	451.1	1,085.3	0.0	0.0
55.00		449.0	864.4					0.0	193.2	449.0	1,057.6	0.0	0.0
60.00		368.2	836.7					0.0	193.2	368.2	1,029.9	0.0	0.0
63.25	Bot - Section 3	223.0	529.0					0.0	125.6	223.0	654.6	0.0	0.0
65.00		245.9	564.8					0.0	67.6	245.9	632.4	0.0	0.0
68.75	Top - Section 2	222.7	1,187.4					0.0	144.9	222.7	1,332.3	0.0	0.0
70.00		274.9	196.2					0.0	48.3	274.9	244.5	0.0	0.0
75.00		435.2	767.3					0.0	193.2	435.2	960.5	0.0	0.0
80.00		427.1	739.6					0.0	193.2	427.1	932.9	0.0	0.0
85.00		418.2	711.9					0.0	193.2	418.2	905.2	0.0	0.0
90.00		408.4	684.3					0.0	193.2	408.4	877.5	0.0	0.0
95.00		244.6	656.6					0.0	193.2	244.6	849.8	0.0	0.0
96.08	Bot - Section 4	199.4	138.6					0.0	41.9	199.4	180.5	0.0	0.0
100.00		186.0	991.3					0.0	151.4	186.0	1,142.6	0.0	0.0
100.75	Top - Section 3	194.6	185.9					0.0	29.0	194.6	214.9	0.0	0.0
105.00		353.5	520.9					0.0	164.2	353.5	685.1	0.0	0.0
110.00	Appurtenance(s)	370.5	587.2	2,809.8	0.0	4,420.2	2,119.6	0.0	193.2	3,180.3	2,900.0	0.0	0.0
115.00		357.3	559.5					0.0	137.2	357.3	696.8	0.0	0.0
120.00		343.6	531.8					0.0	137.2	343.6	669.1	0.0	0.0
125.00		321.4	504.2					0.0	137.2	321.4	641.4	0.0	0.0
129.75	Bot - Section 5	161.2	453.3					0.0	130.4	161.2	583.7	0.0	0.0
130.00		121.6	43.0					0.0	6.9	121.6	49.9	0.0	0.0
133.58	Top - Section 4	157.3	602.3					0.0	98.4	157.3	700.7	0.0	0.0
135.00		193.3	106.6					0.0	38.9	193.3	145.5	0.0	0.0
140.00	Appurtenance(s)	291.1	361.4	2,525.6	0.0	4,948.3	2,130.2	0.0	137.2	2,816.7	2,628.8	0.0	0.0
145.00		274.9	338.3					0.0	119.2	274.9	457.6	0.0	0.0
150.00		234.0	315.2					0.0	119.2	234.0	434.5	0.0	0.0
154.00	Appurtenance(s)	124.9	235.6	5,379.6	0.0	0.0	4,765.3	0.0	95.4	5,504.5	5,096.3	0.0	0.0
155.00		140.6	56.6					0.0	4.9	140.6	61.5	0.0	0.0
160.00		209.9	269.1					0.0	24.5	209.9	293.6	0.0	0.0
164.33	Bot - Section 6	107.9	214.6					0.0	21.2	107.9	235.8	0.0	0.0
165.00		61.1	57.6					0.0	3.3	61.1	60.8	0.0	0.0
167.25	Top - Section 5	101.7	188.8					0.0	11.0	101.7	199.8	0.0	0.0
170.00	Appurtenance(s)	147.3	99.6	3,492.8	0.0	3,938.7	3,109.8	0.0	13.5	3,640.1	3,222.8	0.0	0.0
175.00		159.7	166.8					0.0	4.5	159.7	171.2	0.0	0.0
179.00	Appurtenance(s)	67.2	120.1	1,964.0	0.0	3,704.5	1,462.5	0.0	3.6	2,031.2	1,586.2	0.0	0.0

Load Case: 0.9D + 1.0W — 118 mph with No Ice (Reduced DL) — 27 Iterations

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

Totals:	29,599.8	45,737.9	0.00	0.00

Load Case: 0.9D + 1.0W — 118 mph with No Ice (Reduced DL) — 27 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.70	-29.41	0.00	-3,660.35	0.00	3,660.35	4,604.11	1,308.12	7,398.90	5,943.65	0.00	0.00	0.626
5.00	-44.31	-29.02	0.00	-3,513.32	0.00	3,513.32	4,547.42	1,276.39	7,044.39	5,727.25	0.07	-0.14	0.624
10.00	-42.95	-28.64	0.00	-3,368.22	0.00	3,368.22	4,488.01	1,244.67	6,698.58	5,511.07	0.30	-0.28	0.621
15.00	-41.61	-28.28	0.00	-3,225.01	0.00	3,225.01	4,425.86	1,212.94	6,361.48	5,295.36	0.67	-0.43	0.619
20.00	-40.30	-27.92	0.00	-3,083.64	0.00	3,083.64	4,360.98	1,181.22	6,033.07	5,080.38	1.20	-0.58	0.617
25.00	-39.02	-27.57	0.00	-2,944.06	0.00	2,944.06	4,293.36	1,149.49	5,713.38	4,866.38	1.89	-0.74	0.615
30.00	-37.79	-27.34	0.00	-2,806.22	0.00	2,806.22	4,223.01	1,117.76	5,402.38	4,653.64	2.75	-0.90	0.613
31.25	-37.46	-27.18	0.00	-2,772.04	0.00	2,772.04	4,205.00	1,109.83	5,325.99	4,600.68	3.00	-0.94	0.612
35.00	-35.83	-26.94	0.00	-2,670.13	0.00	2,670.13	4,149.93	1,086.04	5,100.09	4,442.40	3.79	-1.07	0.610
37.50	-34.74	-26.75	0.00	-2,602.79	0.00	2,602.79	4,149.47	1,085.84	5,098.24	4,441.10	4.38	-1.16	0.595
40.00	-34.12	-26.48	0.00	-2,535.92	0.00	2,535.92	4,111.89	1,069.98	4,950.38	4,336.13	5.01	-1.25	0.594
45.00	-32.94	-26.10	0.00	-2,403.54	0.00	2,403.54	4,034.69	1,038.25	4,661.20	4,127.64	6.41	-1.43	0.591
50.00	-31.79	-25.72	0.00	-2,273.03	0.00	2,273.03	3,954.76	1,006.53	4,380.71	3,921.32	8.00	-1.61	0.588
55.00	-30.66	-25.35	0.00	-2,144.41	0.00	2,144.41	3,872.09	974.80	4,108.94	3,717.40	9.79	-1.79	0.585
60.00	-29.57	-25.03	0.00	-2,017.69	0.00	2,017.69	3,786.70	943.07	3,845.86	3,516.15	11.77	-1.99	0.582
63.25	-28.88	-24.83	0.00	-1,936.35	0.00	1,936.35	3,729.72	922.45	3,679.52	3,386.89	13.17	-2.12	0.580
65.00	-28.21	-24.62	0.00	-1,892.89	0.00	1,892.89	3,698.56	911.35	3,591.48	3,317.83	13.96	-2.19	0.579
68.75	-26.84	-24.40	0.00	-1,800.57	0.00	1,800.57	3,675.54	903.22	3,527.71	3,267.52	15.74	-2.35	0.559
70.00	-26.55	-24.17	0.00	-1,770.07	0.00	1,770.07	3,652.91	895.29	3,466.04	3,218.63	16.37	-2.41	0.558
75.00	-25.52	-23.79	0.00	-1,649.22	0.00	1,649.22	3,560.66	863.56	3,224.77	3,025.21	18.99	-2.61	0.553
80.00	-24.52	-23.41	0.00	-1,530.28	0.00	1,530.28	3,465.68	831.83	2,992.21	2,835.36	21.84	-2.82	0.548
85.00	-23.55	-23.04	0.00	-1,413.23	0.00	1,413.23	3,367.96	800.11	2,768.35	2,649.35	24.92	-3.04	0.541
90.00	-22.61	-22.67	0.00	-1,298.04	0.00	1,298.04	3,252.82	768.38	2,553.19	2,456.33	28.22	-3.27	0.536
95.00	-21.72	-22.43	0.00	-1,184.67	0.00	1,184.67	3,118.51	736.66	2,346.73	2,256.70	31.78	-3.51	0.533
96.08	-21.50	-22.27	0.00	-1,160.37	0.00	1,160.37	3,089.41	729.78	2,303.15	2,214.56	32.58	-3.56	0.532
100.00	-20.33	-22.05	0.00	-1,073.14	0.00	1,073.14	2,984.21	704.93	2,148.98	2,065.52	35.58	-3.76	0.527
100.75	-20.08	-21.89	0.00	-1,056.60	0.00	1,056.60	3,030.38	715.84	2,215.99	2,130.29	36.17	-3.80	0.504
105.00	-19.33	-21.57	0.00	-963.57	0.00	963.57	2,916.22	688.87	2,052.20	1,971.97	39.65	-4.01	0.496
110.00	-16.59	-18.26	0.00	-851.31	0.00	851.31	2,781.91	657.14	1,867.55	1,793.54	43.98	-4.25	0.481
115.00	-15.85	-17.92	0.00	-760.03	0.00	760.03	2,647.61	625.42	1,691.61	1,623.57	48.56	-4.50	0.475
120.00	-15.13	-17.59	0.00	-670.44	0.00	670.44	2,513.30	593.69	1,524.37	1,462.07	53.40	-4.75	0.465
125.00	-14.44	-17.28	0.00	-582.50	0.00	582.50	2,378.99	561.97	1,365.83	1,309.02	58.50	-5.01	0.452
129.75	-13.83	-17.10	0.00	-500.44	0.00	500.44	2,251.40	531.83	1,223.29	1,171.46	63.61	-5.26	0.434
130.00	-13.76	-17.00	0.00	-496.16	0.00	496.16	2,244.69	530.24	1,216.00	1,164.43	63.88	-5.27	0.433
133.58	-13.04	-16.80	0.00	-435.26	0.00	435.26	1,841.02	434.89	981.50	942.04	67.91	-5.46	0.471
135.00	-12.86	-16.64	0.00	-411.46	0.00	411.46	1,809.31	427.40	947.99	909.67	69.54	-5.54	0.461
140.00	-10.46	-13.63	0.00	-323.31	0.00	323.31	1,697.39	400.96	834.35	799.95	75.49	-5.83	0.411
145.00	-9.97	-13.35	0.00	-255.18	0.00	255.18	1,585.46	374.52	727.97	697.27	81.73	-6.10	0.374
150.00	-9.52	-13.11	0.00	-188.42	0.00	188.42	1,473.54	348.08	628.84	601.65	88.24	-6.35	0.321
154.00	-5.06	-7.08	0.00	-135.99	0.00	135.99	1,384.00	326.93	554.76	530.23	93.63	-6.53	0.261
155.00	-5.00	-6.94	0.00	-128.91	0.00	128.91	1,361.62	321.64	536.96	513.08	95.00	-6.58	0.255
160.00	-4.71	-6.71	0.00	-94.21	0.00	94.21	1,249.70	295.20	452.34	431.55	101.99	-6.78	0.223
164.33	-4.48	-6.58	0.00	-65.13	0.00	65.13	1,152.70	272.29	384.86	366.60	108.20	-6.94	0.182

Load Case: 0.9D + 1.0W 118 mph with No Ice (Reduced DL) 27 Iterations

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

165.00	-4.42	-6.52	0.00	-60.74	0.00	60.74	1,137.78	268.77	374.96	357.08	109.17	-6.96	0.175
167.25	-4.22	-6.40	0.00	-46.07	0.00	46.07	903.09	213.33	295.25	282.29	112.46	-7.04	0.169
170.00	-1.47	-2.39	0.00	-24.53	0.00	24.53	853.84	201.69	263.94	252.11	116.53	-7.11	0.099
175.00	-1.32	-2.21	0.00	-12.56	0.00	12.56	764.30	180.54	211.50	201.60	124.01	-7.20	0.064
179.00	0.00	-2.03	0.00	-3.70	0.00	3.70	692.67	163.62	173.72	165.26	130.04	-7.24	0.023

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.50 in Radial Ice — 27 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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		76.4	0.0					0.0	0.0	76.4	0.0	0.0	0.0
5.00		151.3	1,958.1					0.0	257.6	151.3	2,215.8	0.0	0.0
10.00		148.2	1,962.8					0.0	257.6	148.2	2,220.4	0.0	0.0
15.00		144.9	1,939.5					0.0	257.6	144.9	2,197.1	0.0	0.0
20.00		141.5	1,907.0					0.0	257.6	141.5	2,164.7	0.0	0.0
25.00		138.0	1,869.8					0.0	257.6	138.0	2,127.4	0.0	0.0
30.00		85.0	1,829.6					0.0	257.6	85.0	2,087.2	0.0	0.0
31.25	Bot - Section 2	68.7	452.2					0.0	64.4	68.7	516.6	0.0	0.0
35.00		86.6	2,314.6					0.0	193.2	86.6	2,507.9	0.0	0.0
37.50	Top - Section 1	69.9	1,518.8					0.0	128.8	69.9	1,647.6	0.0	0.0
40.00		105.6	880.6					0.0	128.8	105.6	1,009.4	0.0	0.0
45.00		141.3	1,723.7					0.0	257.6	141.3	1,981.4	0.0	0.0
50.00		141.6	1,677.7					0.0	257.6	141.6	1,935.4	0.0	0.0
55.00		141.3	1,630.9					0.0	257.6	141.3	1,888.6	0.0	0.0
60.00		116.1	1,583.4					0.0	257.6	116.1	1,841.1	0.0	0.0
63.25	Bot - Section 3	70.4	1,005.2					0.0	167.5	70.4	1,172.7	0.0	0.0
65.00		77.8	916.0					0.0	90.2	77.8	1,006.1	0.0	0.0
68.75	Top - Section 2	70.5	1,925.2					0.0	193.2	70.5	2,118.4	0.0	0.0
70.00		87.2	375.0					0.0	64.4	87.2	439.4	0.0	0.0
75.00		138.3	1,463.6					0.0	257.6	138.3	1,721.2	0.0	0.0
80.00		136.2	1,414.2					0.0	257.6	136.2	1,671.8	0.0	0.0
85.00		133.8	1,364.4					0.0	257.6	133.8	1,622.0	0.0	0.0
90.00		131.1	1,314.3					0.0	257.6	131.1	1,571.9	0.0	0.0
95.00		78.7	1,263.9					0.0	257.6	78.7	1,521.5	0.0	0.0
96.08	Bot - Section 4	64.3	268.5					0.0	55.8	64.3	324.3	0.0	0.0
100.00		60.0	1,621.6					0.0	201.8	60.0	1,823.4	0.0	0.0
100.75	Top - Section 3	63.0	305.1					0.0	38.6	63.0	343.8	0.0	0.0
105.00		114.7	1,007.9					0.0	219.0	114.7	1,226.9	0.0	0.0
110.00	Appurtenance(s)	120.8	1,137.3	737.1	0.0	1,033.1	5,208.2	0.0	257.6	857.9	6,603.2	0.0	0.0
115.00		117.1	1,085.9					0.0	183.0	117.1	1,268.9	0.0	0.0
120.00		113.2	1,034.4					0.0	183.0	113.2	1,217.4	0.0	0.0
125.00		106.6	982.6					0.0	183.0	106.6	1,165.6	0.0	0.0
129.75	Bot - Section 5	53.6	885.8					0.0	173.9	53.6	1,059.6	0.0	0.0
130.00		40.6	72.5					0.0	9.2	40.6	81.6	0.0	0.0
133.58	Top - Section 4	52.6	1,011.9					0.0	131.1	52.6	1,143.1	0.0	0.0
135.00		65.1	223.5					0.0	51.9	65.1	275.4	0.0	0.0
140.00	Appurtenance(s)	98.5	753.4	697.1	0.0	1,204.5	4,875.7	0.0	183.0	795.6	5,812.2	0.0	0.0
145.00		93.9	707.2					0.0	159.0	93.9	866.2	0.0	0.0
150.00		80.7	660.8					0.0	159.0	80.7	819.8	0.0	0.0
154.00	Appurtenance(s)	43.4	496.5	1,388.7	0.0	0.0	11,707.9	0.0	127.2	1,432.0	12,331.6	0.0	0.0
155.00		49.4	120.5					0.0	6.5	49.4	127.0	0.0	0.0
160.00		74.3	567.6					0.0	32.6	74.3	600.2	0.0	0.0
164.33	Bot - Section 6	38.5	455.0					0.0	28.3	38.5	483.3	0.0	0.0
165.00		22.0	103.2					0.0	4.4	22.0	107.6	0.0	0.0
167.25	Top - Section 5	36.7	337.8					0.0	14.7	36.7	352.5	0.0	0.0
170.00	Appurtenance(s)	54.0	233.0	924.8	0.0	838.5	7,142.7	0.0	18.0	978.7	7,393.6	0.0	0.0
175.00		59.5	388.2					0.0	5.9	59.5	394.2	0.0	0.0
179.00	Appurtenance(s)	25.4	282.4	902.2	0.0	1,836.6	3,103.7	0.0	4.8	927.6	3,390.9	0.0	0.0

Code: ANSI/TIA-222-H
Engineering Number:13337527_C3_02

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.50 in Radial Ice — 27 Iterations

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

Ice Dead Load Factor :1.00

Ice Importance Factor :1.00

Totals:	8,977.89	88,398.0	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.50 in Radial Ice 27 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	-88.39	-8.94	0.00	-1,183.77	0.00	1,183.77	4,604.11	1,308.12	7,398.90	5,943.65	0.00	0.00	0.218
5.00	-86.17	-8.85	0.00	-1,139.09	0.00	1,139.09	4,547.42	1,276.39	7,044.39	5,727.25	0.02	-0.04	0.218
10.00	-83.94	-8.77	0.00	-1,094.83	0.00	1,094.83	4,488.01	1,244.67	6,698.58	5,511.07	0.10	-0.09	0.217
15.00	-81.74	-8.69	0.00	-1,050.97	0.00	1,050.97	4,425.86	1,212.94	6,361.48	5,295.36	0.22	-0.14	0.217
20.00	-79.57	-8.61	0.00	-1,007.52	0.00	1,007.52	4,360.98	1,181.22	6,033.07	5,080.38	0.39	-0.19	0.217
25.00	-77.43	-8.54	0.00	-964.45	0.00	964.45	4,293.36	1,149.49	5,713.38	4,866.38	0.61	-0.24	0.216
30.00	-75.34	-8.49	0.00	-921.75	0.00	921.75	4,223.01	1,117.76	5,402.38	4,653.64	0.90	-0.29	0.216
31.25	-74.82	-8.45	0.00	-911.14	0.00	911.14	4,205.00	1,109.83	5,325.99	4,600.68	0.97	-0.31	0.216
35.00	-72.31	-8.40	0.00	-879.44	0.00	879.44	4,149.93	1,086.04	5,100.09	4,442.40	1.23	-0.35	0.215
37.50	-70.66	-8.35	0.00	-858.45	0.00	858.45	4,149.47	1,085.84	5,098.24	4,441.10	1.42	-0.38	0.210
40.00	-69.64	-8.30	0.00	-837.56	0.00	837.56	4,111.89	1,069.98	4,950.38	4,336.13	1.63	-0.41	0.210
45.00	-67.65	-8.21	0.00	-796.09	0.00	796.09	4,034.69	1,038.25	4,661.20	4,127.64	2.09	-0.47	0.210
50.00	-65.71	-8.12	0.00	-755.05	0.00	755.05	3,954.76	1,006.53	4,380.71	3,921.32	2.61	-0.53	0.209
55.00	-63.82	-8.03	0.00	-714.45	0.00	714.45	3,872.09	974.80	4,108.94	3,717.40	3.20	-0.59	0.209
60.00	-61.97	-7.95	0.00	-674.30	0.00	674.30	3,786.70	943.07	3,845.86	3,516.15	3.85	-0.65	0.208
63.25	-60.79	-7.91	0.00	-648.45	0.00	648.45	3,729.72	922.45	3,679.52	3,386.89	4.31	-0.70	0.208
65.00	-59.78	-7.86	0.00	-634.62	0.00	634.62	3,698.56	911.35	3,591.48	3,317.83	4.57	-0.72	0.208
68.75	-57.66	-7.79	0.00	-605.16	0.00	605.16	3,675.54	903.22	3,527.71	3,267.52	5.16	-0.78	0.201
70.00	-57.21	-7.74	0.00	-595.42	0.00	595.42	3,652.91	895.29	3,466.04	3,218.63	5.36	-0.79	0.201
75.00	-55.49	-7.65	0.00	-556.70	0.00	556.70	3,560.66	863.56	3,224.77	3,025.21	6.23	-0.86	0.200
80.00	-53.81	-7.56	0.00	-518.45	0.00	518.45	3,465.68	831.83	2,992.21	2,835.36	7.17	-0.93	0.198
85.00	-52.18	-7.46	0.00	-480.68	0.00	480.68	3,367.96	800.11	2,768.35	2,649.35	8.19	-1.01	0.197
90.00	-50.60	-7.37	0.00	-443.36	0.00	443.36	3,252.82	768.38	2,553.19	2,456.33	9.29	-1.09	0.196
95.00	-49.07	-7.31	0.00	-406.48	0.00	406.48	3,118.51	736.66	2,346.73	2,256.70	10.47	-1.17	0.196
96.08	-48.74	-7.27	0.00	-398.57	0.00	398.57	3,089.41	729.78	2,303.15	2,214.56	10.74	-1.19	0.196
100.00	-46.92	-7.21	0.00	-370.08	0.00	370.08	2,984.21	704.93	2,148.98	2,065.52	11.74	-1.25	0.195
100.75	-46.57	-7.17	0.00	-364.68	0.00	364.68	3,030.38	715.84	2,215.99	2,130.29	11.94	-1.27	0.187
105.00	-45.34	-7.09	0.00	-334.19	0.00	334.19	2,916.22	688.87	2,052.20	1,971.97	13.10	-1.34	0.185
110.00	-38.75	-6.13	0.00	-297.69	0.00	297.69	2,781.91	657.14	1,867.55	1,793.54	14.55	-1.43	0.180
115.00	-37.47	-6.04	0.00	-267.03	0.00	267.03	2,647.61	625.42	1,691.61	1,623.57	16.09	-1.51	0.179
120.00	-36.25	-5.95	0.00	-236.83	0.00	236.83	2,513.30	593.69	1,524.37	1,462.07	17.72	-1.60	0.177
125.00	-35.08	-5.87	0.00	-207.07	0.00	207.07	2,378.99	561.97	1,365.83	1,309.02	19.45	-1.69	0.173
129.75	-34.01	-5.81	0.00	-179.20	0.00	179.20	2,251.40	531.83	1,223.29	1,171.46	21.18	-1.78	0.168
130.00	-33.93	-5.79	0.00	-177.75	0.00	177.75	2,244.69	530.24	1,216.00	1,164.43	21.27	-1.79	0.168
133.58	-32.79	-5.73	0.00	-157.01	0.00	157.01	1,841.02	434.89	981.50	942.04	22.64	-1.86	0.185
135.00	-32.51	-5.69	0.00	-148.90	0.00	148.90	1,809.31	427.40	947.99	909.67	23.19	-1.88	0.182
140.00	-26.71	-4.75	0.00	-119.24	0.00	119.24	1,697.39	400.96	834.35	799.95	25.22	-1.99	0.165
145.00	-25.84	-4.67	0.00	-95.51	0.00	95.51	1,585.46	374.52	727.97	697.27	27.36	-2.09	0.153
150.00	-25.02	-4.59	0.00	-72.18	0.00	72.18	1,473.54	348.08	628.84	601.65	29.59	-2.18	0.137
154.00	-12.75	-2.69	0.00	-53.81	0.00	53.81	1,384.00	326.93	554.76	530.23	31.45	-2.25	0.111
155.00	-12.63	-2.65	0.00	-51.12	0.00	51.12	1,361.62	321.64	536.96	513.08	31.93	-2.27	0.109
160.00	-12.03	-2.57	0.00	-37.87	0.00	37.87	1,249.70	295.20	452.34	431.55	34.35	-2.35	0.097
164.33	-11.54	-2.51	0.00	-26.76	0.00	26.76	1,152.70	272.29	384.86	366.60	36.52	-2.42	0.083

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.50 in Radial Ice 27 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

165.00	-11.44	-2.49	0.00	-25.08	0.00	25.08	1,137.78	268.77	374.96	357.08	36.85	-2.43	0.080
167.25	-11.08	-2.45	0.00	-19.47	0.00	19.47	903.09	213.33	295.25	282.29	38.01	-2.46	0.081
170.00	-3.74	-1.15	0.00	-11.91	0.00	11.91	853.84	201.69	263.94	252.11	39.43	-2.49	0.052
175.00	-3.35	-1.08	0.00	-6.15	0.00	6.15	764.30	180.54	211.50	201.60	42.06	-2.53	0.035
179.00	0.00	-0.93	0.00	-1.84	0.00	1.84	692.67	163.62	173.72	165.26	44.19	-2.55	0.011

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		57.8	0.0					0.0	0.0	57.8	0.0	0.0	0.0
5.00		114.1	1,252.8					0.0	214.7	114.1	1,467.5	0.0	0.0
10.00		111.3	1,222.0					0.0	214.7	111.3	1,436.7	0.0	0.0
15.00		108.5	1,191.3					0.0	214.7	108.5	1,406.0	0.0	0.0
20.00		105.7	1,160.5					0.0	214.7	105.7	1,375.2	0.0	0.0
25.00		102.8	1,129.8					0.0	214.7	102.8	1,344.5	0.0	0.0
30.00		63.3	1,099.0					0.0	214.7	63.3	1,313.7	0.0	0.0
31.25	Bot - Section 2	51.0	269.9					0.0	53.7	51.0	323.6	0.0	0.0
35.00		64.3	1,608.0					0.0	161.0	64.3	1,769.0	0.0	0.0
37.50	Top - Section 1	51.8	1,052.8					0.0	107.3	51.8	1,160.1	0.0	0.0
40.00		78.1	522.5					0.0	107.3	78.1	629.8	0.0	0.0
45.00		104.4	1,021.9					0.0	214.7	104.4	1,236.6	0.0	0.0
50.00		104.3	991.2					0.0	214.7	104.3	1,205.9	0.0	0.0
55.00		103.9	960.4					0.0	214.7	103.9	1,175.1	0.0	0.0
60.00		85.2	929.6					0.0	214.7	85.2	1,144.3	0.0	0.0
63.25	Bot - Section 3	51.6	587.8					0.0	139.6	51.6	727.3	0.0	0.0
65.00		56.9	627.5					0.0	75.1	56.9	702.7	0.0	0.0
68.75	Top - Section 2	51.5	1,319.4					0.0	161.0	51.5	1,480.4	0.0	0.0
70.00		63.6	217.9					0.0	53.7	63.6	271.6	0.0	0.0
75.00		100.7	852.6					0.0	214.7	100.7	1,067.3	0.0	0.0
80.00		98.8	821.8					0.0	214.7	98.8	1,036.5	0.0	0.0
85.00		96.7	791.0					0.0	214.7	96.7	1,005.7	0.0	0.0
90.00		94.5	760.3					0.0	214.7	94.5	975.0	0.0	0.0
95.00		56.6	729.5					0.0	214.7	56.6	944.2	0.0	0.0
96.08	Bot - Section 4	46.1	154.0					0.0	46.5	46.1	200.5	0.0	0.0
100.00		43.0	1,101.4					0.0	168.2	43.0	1,269.6	0.0	0.0
100.75	Top - Section 3	45.0	206.6					0.0	32.2	45.0	238.8	0.0	0.0
105.00		81.8	578.8					0.0	182.5	81.8	761.3	0.0	0.0
110.00	Appurtenance(s)	85.7	652.4	650.0	0.0	1,022.5	2,355.1	0.0	214.7	735.7	3,222.2	0.0	0.0
115.00		82.7	621.7					0.0	152.5	82.7	774.2	0.0	0.0
120.00		79.5	590.9					0.0	152.5	79.5	743.4	0.0	0.0
125.00		74.4	560.2					0.0	152.5	74.4	712.7	0.0	0.0
129.75	Bot - Section 5	37.3	503.7					0.0	144.9	37.3	648.6	0.0	0.0
130.00		28.1	47.8					0.0	7.6	28.1	55.4	0.0	0.0
133.58	Top - Section 4	36.4	669.2					0.0	109.3	36.4	778.5	0.0	0.0
135.00		44.7	118.4					0.0	43.2	44.7	161.6	0.0	0.0
140.00	Appurtenance(s)	67.3	401.5	584.3	0.0	1,144.7	2,366.9	0.0	152.5	651.6	2,920.9	0.0	0.0
145.00		63.6	375.9					0.0	132.5	63.6	508.4	0.0	0.0
150.00		54.1	350.3					0.0	132.5	54.1	482.8	0.0	0.0
154.00	Appurtenance(s)	28.9	261.8	1,244.5	0.0	0.0	5,294.8	0.0	106.0	1,273.4	5,662.6	0.0	0.0
155.00		32.5	62.9					0.0	5.4	32.5	68.3	0.0	0.0
160.00		48.6	299.0					0.0	27.2	48.6	326.2	0.0	0.0
164.33	Bot - Section 6	25.0	238.4					0.0	23.6	25.0	262.0	0.0	0.0
165.00		14.1	64.0					0.0	3.6	14.1	67.6	0.0	0.0
167.25	Top - Section 5	23.5	209.8					0.0	12.2	23.5	222.0	0.0	0.0
170.00	Appurtenance(s)	34.5	110.6	808.0	0.0	911.1	3,455.3	0.0	15.0	842.5	3,580.9	0.0	0.0
175.00		38.8	185.3					0.0	5.0	38.8	190.2	0.0	0.0
179.00	Appurtenance(s)	17.0	133.5	454.3	0.0	857.0	1,625.0	0.0	4.0	471.3	1,762.4	0.0	0.0

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

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

Totals:	6,851.04	50,819.9	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-50.82	-6.81	0.00	-853.44	0.00	853.44	4,604.11	1,308.12	7,398.90	5,943.65	0.00	0.00	0.155
5.00	-49.35	-6.72	0.00	-819.41	0.00	819.41	4,547.42	1,276.39	7,044.39	5,727.25	0.02	-0.03	0.154
10.00	-47.91	-6.64	0.00	-785.81	0.00	785.81	4,488.01	1,244.67	6,698.58	5,511.07	0.07	-0.07	0.153
15.00	-46.50	-6.55	0.00	-752.63	0.00	752.63	4,425.86	1,212.94	6,361.48	5,295.36	0.16	-0.10	0.153
20.00	-45.12	-6.47	0.00	-719.86	0.00	719.86	4,360.98	1,181.22	6,033.07	5,080.38	0.28	-0.14	0.152
25.00	-43.77	-6.40	0.00	-687.49	0.00	687.49	4,293.36	1,149.49	5,713.38	4,866.38	0.44	-0.17	0.151
30.00	-42.45	-6.35	0.00	-655.51	0.00	655.51	4,223.01	1,117.76	5,402.38	4,653.64	0.64	-0.21	0.151
31.25	-42.13	-6.31	0.00	-647.58	0.00	647.58	4,205.00	1,109.83	5,325.99	4,600.68	0.70	-0.22	0.151
35.00	-40.36	-6.26	0.00	-623.92	0.00	623.92	4,149.93	1,086.04	5,100.09	4,442.40	0.88	-0.25	0.150
37.50	-39.19	-6.21	0.00	-608.29	0.00	608.29	4,149.47	1,085.84	5,098.24	4,441.10	1.02	-0.27	0.146
40.00	-38.56	-6.15	0.00	-592.76	0.00	592.76	4,111.89	1,069.98	4,950.38	4,336.13	1.17	-0.29	0.146
45.00	-37.32	-6.07	0.00	-562.00	0.00	562.00	4,034.69	1,038.25	4,661.20	4,127.64	1.50	-0.33	0.145
50.00	-36.11	-5.98	0.00	-531.66	0.00	531.66	3,954.76	1,006.53	4,380.71	3,921.32	1.87	-0.38	0.145
55.00	-34.93	-5.90	0.00	-501.75	0.00	501.75	3,872.09	974.80	4,108.94	3,717.40	2.28	-0.42	0.144
60.00	-33.78	-5.83	0.00	-472.26	0.00	472.26	3,786.70	943.07	3,845.86	3,516.15	2.75	-0.46	0.143
63.25	-33.05	-5.78	0.00	-453.32	0.00	453.32	3,729.72	922.45	3,679.52	3,386.89	3.07	-0.50	0.143
65.00	-32.35	-5.74	0.00	-443.20	0.00	443.20	3,698.56	911.35	3,591.48	3,317.83	3.26	-0.51	0.142
68.75	-30.87	-5.68	0.00	-421.70	0.00	421.70	3,675.54	903.22	3,527.71	3,267.52	3.68	-0.55	0.137
70.00	-30.59	-5.63	0.00	-414.59	0.00	414.59	3,652.91	895.29	3,466.04	3,218.63	3.82	-0.56	0.137
75.00	-29.52	-5.55	0.00	-386.43	0.00	386.43	3,560.66	863.56	3,224.77	3,025.21	4.44	-0.61	0.136
80.00	-28.48	-5.46	0.00	-358.69	0.00	358.69	3,465.68	831.83	2,992.21	2,835.36	5.10	-0.66	0.135
85.00	-27.47	-5.38	0.00	-331.38	0.00	331.38	3,367.96	800.11	2,768.35	2,649.35	5.82	-0.71	0.133
90.00	-26.49	-5.30	0.00	-304.49	0.00	304.49	3,252.82	768.38	2,553.19	2,456.33	6.60	-0.77	0.132
95.00	-25.55	-5.24	0.00	-278.01	0.00	278.01	3,118.51	736.66	2,346.73	2,256.70	7.43	-0.82	0.131
96.08	-25.35	-5.21	0.00	-272.33	0.00	272.33	3,089.41	729.78	2,303.15	2,214.56	7.62	-0.83	0.131
100.00	-24.07	-5.16	0.00	-251.94	0.00	251.94	2,984.21	704.93	2,148.98	2,065.52	8.32	-0.88	0.130
100.75	-23.83	-5.12	0.00	-248.07	0.00	248.07	3,030.38	715.84	2,215.99	2,130.29	8.46	-0.89	0.124
105.00	-23.07	-5.05	0.00	-226.32	0.00	226.32	2,916.22	688.87	2,052.20	1,971.97	9.27	-0.94	0.123
110.00	-19.86	-4.28	0.00	-200.06	0.00	200.06	2,781.91	657.14	1,867.55	1,793.54	10.28	-1.00	0.119
115.00	-19.08	-4.20	0.00	-178.68	0.00	178.68	2,647.61	625.42	1,691.61	1,623.57	11.36	-1.05	0.117
120.00	-18.33	-4.13	0.00	-157.68	0.00	157.68	2,513.30	593.69	1,524.37	1,462.07	12.49	-1.11	0.115
125.00	-17.62	-4.06	0.00	-137.05	0.00	137.05	2,378.99	561.97	1,365.83	1,309.02	13.69	-1.17	0.112
129.75	-16.97	-4.01	0.00	-117.79	0.00	117.79	2,251.40	531.83	1,223.29	1,171.46	14.89	-1.23	0.108
130.00	-16.91	-3.99	0.00	-116.78	0.00	116.78	2,244.69	530.24	1,216.00	1,164.43	14.95	-1.23	0.108
133.58	-16.13	-3.95	0.00	-102.48	0.00	102.48	1,841.02	434.89	981.50	942.04	15.90	-1.28	0.118
135.00	-15.97	-3.91	0.00	-96.89	0.00	96.89	1,809.31	427.40	947.99	909.67	16.28	-1.30	0.115
140.00	-13.06	-3.21	0.00	-76.19	0.00	76.19	1,697.39	400.96	834.35	799.95	17.68	-1.37	0.103
145.00	-12.55	-3.14	0.00	-60.16	0.00	60.16	1,585.46	374.52	727.97	697.27	19.14	-1.43	0.094
150.00	-12.06	-3.09	0.00	-44.44	0.00	44.44	1,473.54	348.08	628.84	601.65	20.67	-1.49	0.082
154.00	-6.44	-1.67	0.00	-32.09	0.00	32.09	1,384.00	326.93	554.76	530.23	21.94	-1.53	0.065
155.00	-6.37	-1.64	0.00	-30.42	0.00	30.42	1,361.62	321.64	536.96	513.08	22.26	-1.54	0.064
160.00	-6.04	-1.59	0.00	-22.23	0.00	22.23	1,249.70	295.20	452.34	431.55	23.90	-1.59	0.056
164.33	-5.78	-1.56	0.00	-15.36	0.00	15.36	1,152.70	272.29	384.86	366.60	25.36	-1.63	0.047

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

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

165.00	-5.71	-1.54	0.00	-14.32	0.00	14.32	1,137.78	268.77	374.96	357.08	25.59	-1.63	0.045
167.25	-5.49	-1.51	0.00	-10.85	0.00	10.85	903.09	213.33	295.25	282.29	26.37	-1.65	0.045
170.00	-1.94	-0.57	0.00	-5.78	0.00	5.78	853.84	201.69	263.94	252.11	27.32	-1.67	0.025
175.00	-1.75	-0.52	0.00	-2.95	0.00	2.95	764.30	180.54	211.50	201.60	29.08	-1.69	0.017
179.00	0.00	-0.47	0.00	-0.86	0.00	0.86	692.67	163.62	173.72	165.26	30.50	-1.70	0.005

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	3.07
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	2.00
Total Unfactored Dead Load:	50.82 k
Seismic Base Shear (E):	1.52 k

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
47	177.00	137	4,305	0.007	11	170
46	172.50	190	5,661	0.010	15	236
45	168.63	126	3,571	0.006	9	156
44	166.13	222	6,128	0.010	16	275
43	164.67	68	1,833	0.003	5	84
42	162.17	262	6,889	0.012	18	325
41	157.50	326	8,092	0.014	21	404
40	154.50	68	1,631	0.003	4	85
39	152.00	368	8,497	0.014	22	456
38	147.50	483	10,503	0.018	27	598
37	142.50	508	10,324	0.017	27	630
36	137.50	554	10,475	0.018	27	686
35	134.29	162	2,915	0.005	8	200
34	131.79	779	13,522	0.023	35	964
33	129.88	55	934	0.002	2	69
32	127.38	649	10,522	0.018	27	803
31	122.50	713	10,695	0.018	28	883
30	117.50	743	10,264	0.017	27	921
29	112.50	774	9,798	0.017	25	959
28	107.50	867	10,021	0.017	26	1,074
27	102.88	761	8,057	0.014	21	943
26	100.38	239	2,406	0.004	6	296
25	98.04	1,270	12,204	0.021	32	1,573
24	95.54	201	1,830	0.003	5	248
23	92.50	944	8,079	0.014	21	1,170

22	87.50	975	7,465	0.013	19	1,208
21	82.50	1,006	6,845	0.012	18	1,246
20	77.50	1,037	6,225	0.011	16	1,284
19	72.50	1,067	5,610	0.010	14	1,322
18	69.38	272	1,307	0.002	3	336
17	66.88	1,480	6,621	0.011	17	1,834
16	64.13	703	2,889	0.005	7	871
15	61.63	727	2,762	0.005	7	901
14	57.50	1,144	3,783	0.006	10	1,418
13	52.50	1,175	3,239	0.005	8	1,456
12	47.50	1,206	2,721	0.005	7	1,494
11	42.50	1,237	2,234	0.004	6	1,532
10	38.75	630	946	0.002	2	780
9	36.25	1,160	1,524	0.003	4	1,437
8	33.13	1,769	1,941	0.003	5	2,191
7	30.63	324	304	0.001	1	401
6	27.50	1,314	993	0.002	3	1,627
5	22.50	1,344	681	0.001	2	1,666
4	17.50	1,375	421	0.001	1	1,704
3	12.50	1,406	220	0.000	1	1,742
2	7.50	1,437	81	0.000	0	1,780
1	2.50	1,467	9	0.000	0	1,818
Generic 5' Dipole	179.00	15	481	0.001	1	19
Generic 10' Omni	179.00	25	801	0.001	2	31
Generic 18' Dipole	179.00	55	1,762	0.003	5	68
Generic 8' Yagi	179.00	30	961	0.002	2	37
Round Low Profile Pl	179.00	1,500	48,062	0.081	124	1,858
Ericsson Radio 4449	170.00	225	6,503	0.011	17	279
Ericsson RRUS 4415 B	170.00	138	3,988	0.007	10	171
Ericsson Air6449 B41	170.00	312	9,017	0.015	23	387
Ericsson AIR32 B66Aa	170.00	397	11,462	0.019	30	491
RFS APXVAARR24_43-U-	170.00	384	11,089	0.019	29	475
Round Platform w/ Ha	170.00	2,000	57,800	0.098	149	2,478
Powerwave Allgon LGP	154.00	85	2,006	0.003	5	105
Raycap DC6-48-60-18-	154.00	64	1,508	0.003	4	79
Ericsson RRUS 8843 B	154.00	216	5,123	0.009	13	268
Ericsson RRUS 4478 B	154.00	180	4,262	0.007	11	223
Ericsson RRUS 4449 B	154.00	213	5,052	0.009	13	264
Ericsson RRUS 32 B2	154.00	159	3,771	0.006	10	197
Ericsson RRUS 32 B30	154.00	180	4,269	0.007	11	223
Raycap DC6-48-60-0-8	154.00	16	379	0.001	1	20
Kathrein Scala 800 1	154.00	139	3,294	0.006	9	172
Quintel QS66512-2	154.00	111	2,632	0.004	7	138
CCI OPA-65R-LCUU-H6	154.00	73	1,731	0.003	4	90
CCI DMP65R-BU6DA	154.00	79	1,883	0.003	5	98
CCI OPA-65R-LCUU-H8	154.00	176	4,174	0.007	11	218
CCI TPA-65R-LCUUUU-H	154.00	163	3,870	0.007	10	202
CCI DMP65R-BU8D	154.00	191	4,539	0.008	12	237
Site Pro 1 RMQLP-412	154.00	3,250	77,077	0.131	199	4,026
Alcatel-Lucent 800 M	140.00	192	3,763	0.006	10	238
Alcatel-Lucent 1900M	140.00	132	2,587	0.004	7	164
Alcatel-Lucent TD-RR	140.00	198	3,887	0.007	10	246
RFS APXVTM14-C-I20 (	140.00	169	3,305	0.006	9	209
RFS APXV9ERR18-C-A20	140.00	62	1,215	0.002	3	77
RFS APXVSPP18-C-A20	140.00	114	2,234	0.004	6	141
Round Low Profile Pl	140.00	1,500	29,400	0.050	76	1,858
Samsung B2/B66A RRH-	110.00	253	3,064	0.005	8	314
Samsung B5/B13 RRH-B	110.00	211	2,552	0.004	7	261
Antel BXA-70063/4CF	110.00	30	359	0.001	1	37
Antel BXA-80063/4CF	110.00	30	359	0.001	1	37
RFS DB-T1-6Z-8AB-0Z	110.00	88	1,065	0.002	3	109
Commscope SBNHH-1D65	110.00	244	2,948	0.005	8	302
Flat Low Profile Pla	110.00	1,500	18,150	0.031	47	1,858

		50,820	590,361	1.000	1,525	62,957

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
47	177.00	137	4,305	0.007	11	118
46	172.50	190	5,661	0.010	15	164
45	168.63	126	3,571	0.006	9	108
44	166.13	222	6,128	0.010	16	191
43	164.67	68	1,833	0.003	5	58
42	162.17	262	6,889	0.012	18	226
41	157.50	326	8,092	0.014	21	281
40	154.50	68	1,631	0.003	4	59
39	152.00	368	8,497	0.014	22	317
38	147.50	483	10,503	0.018	27	416
37	142.50	508	10,324	0.017	27	438
36	137.50	554	10,475	0.018	27	477
35	134.29	162	2,915	0.005	8	139
34	131.79	779	13,522	0.023	35	670
33	129.88	55	934	0.002	2	48
32	127.38	649	10,522	0.018	27	559
31	122.50	713	10,695	0.018	28	614
30	117.50	743	10,264	0.017	27	640
29	112.50	774	9,798	0.017	25	667
28	107.50	867	10,021	0.017	26	747
27	102.88	761	8,057	0.014	21	656
26	100.38	239	2,406	0.004	6	206
25	98.04	1,270	12,204	0.021	32	1,093
24	95.54	201	1,830	0.003	5	173
23	92.50	944	8,079	0.014	21	813
22	87.50	975	7,465	0.013	19	840
21	82.50	1,006	6,845	0.012	18	866
20	77.50	1,037	6,225	0.011	16	893
19	72.50	1,067	5,610	0.010	14	919
18	69.38	272	1,307	0.002	3	234
17	66.88	1,480	6,621	0.011	17	1,275
16	64.13	703	2,889	0.005	7	605
15	61.63	727	2,762	0.005	7	626
14	57.50	1,144	3,783	0.006	10	985
13	52.50	1,175	3,239	0.005	8	1,012
12	47.50	1,206	2,721	0.005	7	1,038
11	42.50	1,237	2,234	0.004	6	1,065
10	38.75	630	946	0.002	2	542
9	36.25	1,160	1,524	0.003	4	999
8	33.13	1,769	1,941	0.003	5	1,523
7	30.63	324	304	0.001	1	279
6	27.50	1,314	993	0.002	3	1,131
5	22.50	1,344	681	0.001	2	1,158
4	17.50	1,375	421	0.001	1	1,184
3	12.50	1,406	220	0.000	1	1,211
2	7.50	1,437	81	0.000	0	1,237
1	2.50	1,467	9	0.000	0	1,264
Generic 5' Dipole	179.00	15	481	0.001	1	13
Generic 10' Omni	179.00	25	801	0.001	2	22
Generic 18' Dipole	179.00	55	1,762	0.003	5	47
Generic 8' Yagi	179.00	30	961	0.002	2	26
Round Low Profile Pl	179.00	1,500	48,062	0.081	124	1,292
Ericsson Radio 4449	170.00	225	6,503	0.011	17	194
Ericsson RRUS 4415 B	170.00	138	3,988	0.007	10	119
Ericsson Air6449 B41	170.00	312	9,017	0.015	23	269

Ericsson AIR32 B66Aa	170.00	397	11,462	0.019	30	342
RFS APXVAARR24_43-U-	170.00	384	11,089	0.019	29	330
Round Platform w/ Ha	170.00	2,000	57,800	0.098	149	1,722
Powerwave Allgon LGP	154.00	85	2,006	0.003	5	73
Raycap DC6-48-60-18-	154.00	64	1,508	0.003	4	55
Ericsson RRUS 8843 B	154.00	216	5,123	0.009	13	186
Ericsson RRUS 4478 B	154.00	180	4,262	0.007	11	155
Ericsson RRUS 4449 B	154.00	213	5,052	0.009	13	183
Ericsson RRUS 32 B2	154.00	159	3,771	0.006	10	137
Ericsson RRUS 32 B30	154.00	180	4,269	0.007	11	155
Raycap DC6-48-60-0-8	154.00	16	379	0.001	1	14
Kathrein Scala 800 1	154.00	139	3,294	0.006	9	120
Quintel QS66512-2	154.00	111	2,632	0.004	7	96
CCI OPA-65R-LCUU-H6	154.00	73	1,731	0.003	4	63
CCI DMP65R-BU6DA	154.00	79	1,883	0.003	5	68
CCI OPA-65R-LCUU-H8	154.00	176	4,174	0.007	11	152
CCI TPA-65R-LCUUUU-H	154.00	163	3,870	0.007	10	141
CCI DMP65R-BU8D	154.00	191	4,539	0.008	12	165
Site Pro 1 RMQLP-412	154.00	3,250	77,077	0.131	199	2,799
Alcatel-Lucent 800 M	140.00	192	3,763	0.006	10	165
Alcatel-Lucent 1900M	140.00	132	2,587	0.004	7	114
Alcatel-Lucent TD-RR	140.00	198	3,887	0.007	10	171
RFS APXVTM14-C-I20 (	140.00	169	3,305	0.006	9	145
RFS APXV9ERR18-C-A20	140.00	62	1,215	0.002	3	53
RFS APXVSPP18-C-A20	140.00	114	2,234	0.004	6	98
Round Low Profile Pl	140.00	1,500	29,400	0.050	76	1,292
Samsung B2/B66A RRH-	110.00	253	3,064	0.005	8	218
Samsung B5/B13 RRH-B	110.00	211	2,552	0.004	7	182
Antel BXA-70063/4CF	110.00	30	359	0.001	1	26
Antel BXA-80063/4CF	110.00	30	359	0.001	1	26
RFS DB-T1-6Z-8AB-0Z	110.00	88	1,065	0.002	3	76
Commscope SBNHH-1D65	110.00	244	2,948	0.005	8	210
Flat Low Profile Pla	110.00	1,500	18,150	0.031	47	1,292
		50,820	590,361	1.000	1,525	43,765

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-61.14	-1.53	0.00	-227.07	0.00	227.07	4,604.11	1,308.12	7,398.90	5,943.65	0.00	0.00	0.051
5.00	-59.36	-1.54	0.00	-219.43	0.00	219.43	4,547.42	1,276.39	7,044.39	5,727.25	0.00	-0.01	0.051
10.00	-57.62	-1.55	0.00	-211.75	0.00	211.75	4,488.01	1,244.67	6,698.58	5,511.07	0.02	-0.02	0.051
15.00	-55.91	-1.55	0.00	-204.02	0.00	204.02	4,425.86	1,212.94	6,361.48	5,295.36	0.04	-0.03	0.051
20.00	-54.25	-1.56	0.00	-196.26	0.00	196.26	4,360.98	1,181.22	6,033.07	5,080.38	0.08	-0.04	0.051
25.00	-52.62	-1.56	0.00	-188.46	0.00	188.46	4,293.36	1,149.49	5,713.38	4,866.38	0.12	-0.05	0.051
30.00	-52.22	-1.57	0.00	-180.64	0.00	180.64	4,223.01	1,117.76	5,402.38	4,653.64	0.17	-0.06	0.051
31.25	-50.03	-1.57	0.00	-178.68	0.00	178.68	4,205.00	1,109.83	5,325.99	4,600.68	0.19	-0.06	0.051
35.00	-48.59	-1.57	0.00	-172.80	0.00	172.80	4,149.93	1,086.04	5,100.09	4,442.40	0.24	-0.07	0.051
37.50	-47.81	-1.57	0.00	-168.88	0.00	168.88	4,149.47	1,085.84	5,098.24	4,441.10	0.28	-0.07	0.050
40.00	-46.28	-1.57	0.00	-164.96	0.00	164.96	4,111.89	1,069.98	4,950.38	4,336.13	0.32	-0.08	0.049
45.00	-44.78	-1.57	0.00	-157.12	0.00	157.12	4,034.69	1,038.25	4,661.20	4,127.64	0.41	-0.09	0.049
50.00	-43.33	-1.57	0.00	-149.28	0.00	149.28	3,954.76	1,006.53	4,380.71	3,921.32	0.51	-0.10	0.049
55.00	-41.91	-1.56	0.00	-141.44	0.00	141.44	3,872.09	974.80	4,108.94	3,717.40	0.62	-0.12	0.049
60.00	-41.01	-1.56	0.00	-133.63	0.00	133.63	3,786.70	943.07	3,845.86	3,516.15	0.75	-0.13	0.049
63.25	-40.14	-1.56	0.00	-128.55	0.00	128.55	3,729.72	922.45	3,679.52	3,386.89	0.84	-0.14	0.049
65.00	-38.30	-1.54	0.00	-125.83	0.00	125.83	3,698.56	911.35	3,591.48	3,317.83	0.89	-0.14	0.048
68.75	-37.97	-1.54	0.00	-120.05	0.00	120.05	3,675.54	903.22	3,527.71	3,267.52	1.01	-0.15	0.047
70.00	-36.64	-1.53	0.00	-118.12	0.00	118.12	3,652.91	895.29	3,466.04	3,218.63	1.05	-0.16	0.047
75.00	-35.36	-1.52	0.00	-110.48	0.00	110.48	3,560.66	863.56	3,224.77	3,025.21	1.22	-0.17	0.046
80.00	-34.11	-1.50	0.00	-102.89	0.00	102.89	3,465.68	831.83	2,992.21	2,835.36	1.40	-0.18	0.046
85.00	-32.90	-1.49	0.00	-95.37	0.00	95.37	3,367.96	800.11	2,768.35	2,649.35	1.60	-0.20	0.046
90.00	-31.73	-1.47	0.00	-87.91	0.00	87.91	3,252.82	768.38	2,553.19	2,456.33	1.82	-0.21	0.046
95.00	-31.49	-1.47	0.00	-80.55	0.00	80.55	3,118.51	736.66	2,346.73	2,256.70	2.05	-0.23	0.046
96.08	-29.91	-1.44	0.00	-78.95	0.00	78.95	3,089.41	729.78	2,303.15	2,214.56	2.10	-0.23	0.045
100.00	-29.62	-1.44	0.00	-73.31	0.00	73.31	2,984.21	704.93	2,148.98	2,065.52	2.30	-0.25	0.045
100.75	-28.67	-1.42	0.00	-72.23	0.00	72.23	3,030.38	715.84	2,215.99	2,130.29	2.34	-0.25	0.043
105.00	-27.60	-1.39	0.00	-66.21	0.00	66.21	2,916.22	688.87	2,052.20	1,971.97	2.57	-0.26	0.043
110.00	-23.72	-1.28	0.00	-59.25	0.00	59.25	2,781.91	657.14	1,867.55	1,793.54	2.86	-0.28	0.042
115.00	-22.80	-1.26	0.00	-52.83	0.00	52.83	2,647.61	625.42	1,691.61	1,623.57	3.16	-0.30	0.041
120.00	-21.92	-1.23	0.00	-46.54	0.00	46.54	2,513.30	593.69	1,524.37	1,462.07	3.48	-0.32	0.041
125.00	-21.11	-1.21	0.00	-40.37	0.00	40.37	2,378.99	561.97	1,365.83	1,309.02	3.82	-0.33	0.040
129.75	-21.05	-1.21	0.00	-34.64	0.00	34.64	2,251.40	531.83	1,223.29	1,171.46	4.16	-0.35	0.039
130.00	-20.08	-1.17	0.00	-34.33	0.00	34.33	2,244.69	530.24	1,216.00	1,164.43	4.18	-0.35	0.038
133.58	-19.88	-1.16	0.00	-30.14	0.00	30.14	1,841.02	434.89	981.50	942.04	4.45	-0.37	0.043
135.00	-19.19	-1.14	0.00	-28.49	0.00	28.49	1,809.31	427.40	947.99	909.67	4.56	-0.37	0.042
140.00	-15.63	-0.97	0.00	-22.80	0.00	22.80	1,697.39	400.96	834.35	799.95	4.96	-0.39	0.038
145.00	-15.04	-0.95	0.00	-17.94	0.00	17.94	1,585.46	374.52	727.97	697.27	5.38	-0.41	0.035
150.00	-14.58	-0.92	0.00	-13.21	0.00	13.21	1,473.54	348.08	628.84	601.65	5.82	-0.43	0.032
154.00	-7.94	-0.55	0.00	-9.51	0.00	9.51	1,384.00	326.93	554.76	530.23	6.18	-0.44	0.024
155.00	-7.53	-0.52	0.00	-8.96	0.00	8.96	1,361.62	321.64	536.96	513.08	6.27	-0.44	0.023
160.00	-7.21	-0.51	0.00	-6.34	0.00	6.34	1,249.70	295.20	452.34	431.55	6.74	-0.46	0.020
164.33	-7.13	-0.50	0.00	-4.15	0.00	4.15	1,152.70	272.29	384.86	366.60	7.16	-0.47	0.018
165.00	-6.85	-0.48	0.00	-3.81	0.00	3.81	1,137.78	268.77	374.96	357.08	7.23	-0.47	0.017
167.25	-6.70	-0.47	0.00	-2.73	0.00	2.73	903.09	213.33	295.25	282.29	7.45	-0.47	0.017
170.00	-2.18	-0.16	0.00	-1.42	0.00	1.42	853.84	201.69	263.94	252.11	7.72	-0.48	0.008
175.00	-2.01	-0.15	0.00	-0.61	0.00	0.61	764.30	180.54	211.50	201.60	8.23	-0.48	0.006

179.00	0.00	-0.13	0.00	0.00	0.00	0.00	692.67	163.62	173.72	165.26	8.63	-0.48	0.000

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (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	-42.50	-1.53	0.00	-222.20	0.00	222.20	4,604.11	1,308.12	7,398.90	5,943.65	0.00	0.00	0.047
5.00	-41.26	-1.53	0.00	-214.57	0.00	214.57	4,547.42	1,276.39	7,044.39	5,727.25	0.00	-0.01	0.047
10.00	-40.05	-1.54	0.00	-206.91	0.00	206.91	4,488.01	1,244.67	6,698.58	5,511.07	0.02	-0.02	0.046
15.00	-38.87	-1.54	0.00	-199.22	0.00	199.22	4,425.86	1,212.94	6,361.48	5,295.36	0.04	-0.03	0.046
20.00	-37.71	-1.55	0.00	-191.50	0.00	191.50	4,360.98	1,181.22	6,033.07	5,080.38	0.07	-0.04	0.046
25.00	-36.58	-1.55	0.00	-183.77	0.00	183.77	4,293.36	1,149.49	5,713.38	4,866.38	0.12	-0.05	0.046
30.00	-36.30	-1.55	0.00	-176.02	0.00	176.02	4,223.01	1,117.76	5,402.38	4,653.64	0.17	-0.06	0.046
31.25	-34.78	-1.55	0.00	-174.08	0.00	174.08	4,205.00	1,109.83	5,325.99	4,600.68	0.18	-0.06	0.046
35.00	-33.78	-1.55	0.00	-168.27	0.00	168.27	4,149.93	1,086.04	5,100.09	4,442.40	0.23	-0.07	0.046
37.50	-33.23	-1.55	0.00	-164.40	0.00	164.40	4,149.47	1,085.84	5,098.24	4,441.10	0.27	-0.07	0.045
40.00	-32.17	-1.55	0.00	-160.53	0.00	160.53	4,111.89	1,069.98	4,950.38	4,336.13	0.31	-0.08	0.045
45.00	-31.13	-1.54	0.00	-152.79	0.00	152.79	4,034.69	1,038.25	4,661.20	4,127.64	0.40	-0.09	0.045
50.00	-30.12	-1.54	0.00	-145.07	0.00	145.07	3,954.76	1,006.53	4,380.71	3,921.32	0.50	-0.10	0.045
55.00	-29.13	-1.53	0.00	-137.37	0.00	137.37	3,872.09	974.80	4,108.94	3,717.40	0.61	-0.11	0.044
60.00	-28.51	-1.53	0.00	-129.70	0.00	129.70	3,786.70	943.07	3,845.86	3,516.15	0.73	-0.12	0.044
63.25	-27.90	-1.53	0.00	-124.72	0.00	124.72	3,729.72	922.45	3,679.52	3,386.89	0.82	-0.13	0.044
65.00	-26.63	-1.51	0.00	-122.05	0.00	122.05	3,698.56	911.35	3,591.48	3,317.83	0.87	-0.14	0.044
68.75	-26.39	-1.51	0.00	-116.39	0.00	116.39	3,675.54	903.22	3,527.71	3,267.52	0.98	-0.15	0.043
70.00	-25.47	-1.50	0.00	-114.51	0.00	114.51	3,652.91	895.29	3,466.04	3,218.63	1.02	-0.15	0.043
75.00	-24.58	-1.48	0.00	-107.03	0.00	107.03	3,560.66	863.56	3,224.77	3,025.21	1.19	-0.16	0.042
80.00	-23.71	-1.47	0.00	-99.62	0.00	99.62	3,465.68	831.83	2,992.21	2,835.36	1.37	-0.18	0.042
85.00	-22.87	-1.45	0.00	-92.28	0.00	92.28	3,367.96	800.11	2,768.35	2,649.35	1.56	-0.19	0.042
90.00	-22.06	-1.43	0.00	-85.02	0.00	85.02	3,252.82	768.38	2,553.19	2,456.33	1.77	-0.21	0.041
95.00	-21.89	-1.43	0.00	-77.85	0.00	77.85	3,118.51	736.66	2,346.73	2,256.70	2.00	-0.22	0.042
96.08	-20.79	-1.40	0.00	-76.30	0.00	76.30	3,089.41	729.78	2,303.15	2,214.56	2.05	-0.23	0.041
100.00	-20.59	-1.40	0.00	-70.82	0.00	70.82	2,984.21	704.93	2,148.98	2,065.52	2.24	-0.24	0.041
100.75	-19.93	-1.37	0.00	-69.77	0.00	69.77	3,030.38	715.84	2,215.99	2,130.29	2.28	-0.24	0.039
105.00	-19.18	-1.35	0.00	-63.93	0.00	63.93	2,916.22	688.87	2,052.20	1,971.97	2.50	-0.26	0.039
110.00	-16.49	-1.24	0.00	-57.17	0.00	57.17	2,781.91	657.14	1,867.55	1,793.54	2.78	-0.27	0.038
115.00	-15.85	-1.22	0.00	-50.96	0.00	50.96	2,647.61	625.42	1,691.61	1,623.57	3.07	-0.29	0.037
120.00	-15.24	-1.19	0.00	-44.86	0.00	44.86	2,513.30	593.69	1,524.37	1,462.07	3.39	-0.31	0.037
125.00	-14.68	-1.17	0.00	-38.90	0.00	38.90	2,378.99	561.97	1,365.83	1,309.02	3.72	-0.32	0.036
129.75	-14.63	-1.17	0.00	-33.35	0.00	33.35	2,251.40	531.83	1,223.29	1,171.46	4.05	-0.34	0.035
130.00	-13.96	-1.13	0.00	-33.06	0.00	33.06	2,244.69	530.24	1,216.00	1,164.43	4.06	-0.34	0.035
133.58	-13.82	-1.12	0.00	-29.02	0.00	29.02	1,841.02	434.89	981.50	942.04	4.32	-0.35	0.038
135.00	-13.34	-1.10	0.00	-27.43	0.00	27.43	1,809.31	427.40	947.99	909.67	4.43	-0.36	0.038
140.00	-10.87	-0.94	0.00	-21.95	0.00	21.95	1,697.39	400.96	834.35	799.95	4.82	-0.38	0.034
145.00	-10.45	-0.91	0.00	-17.26	0.00	17.26	1,585.46	374.52	727.97	697.27	5.22	-0.40	0.031
150.00	-10.13	-0.89	0.00	-12.71	0.00	12.71	1,473.54	348.08	628.84	601.65	5.65	-0.41	0.028
154.00	-5.52	-0.53	0.00	-9.15	0.00	9.15	1,384.00	326.93	554.76	530.23	6.00	-0.43	0.021
155.00	-5.24	-0.51	0.00	-8.63	0.00	8.63	1,361.62	321.64	536.96	513.08	6.09	-0.43	0.021
160.00	-5.01	-0.49	0.00	-6.10	0.00	6.10	1,249.70	295.20	452.34	431.55	6.55	-0.44	0.018
164.33	-4.95	-0.48	0.00	-3.99	0.00	3.99	1,152.70	272.29	384.86	366.60	6.95	-0.45	0.015
165.00	-4.76	-0.47	0.00	-3.67	0.00	3.67	1,137.78	268.77	374.96	357.08	7.01	-0.45	0.014
167.25	-4.65	-0.46	0.00	-2.62	0.00	2.62	903.09	213.33	295.25	282.29	7.23	-0.46	0.014
170.00	-1.52	-0.16	0.00	-1.37	0.00	1.37	853.84	201.69	263.94	252.11	7.49	-0.46	0.007
175.00	-1.40	-0.15	0.00	-0.58	0.00	0.58	764.30	180.54	211.50	201.60	7.98	-0.47	0.005

179.00	0.00	-0.13	0.00	0.00	0.00	0.00	692.67	163.62	173.72	165.26	8.37	-0.47	0.000

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	29.43	0.00	60.95	0.00	0.00	3723.16	0.00	0.64
0.9D + 1.0W	29.41	0.00	45.70	0.00	0.00	3660.35	0.00	0.63
1.2D + 1.0Di + 1.0Wi	8.94	0.00	88.39	0.00	0.00	1183.77	0.00	0.22
1.2D + 1.0Ev + 1.0Eh	1.53	0.00	61.14	0.00	0.00	227.07	0.00	0.05
0.9D - 1.0Ev + 1.0Eh	1.53	0.00	42.50	0.00	0.00	222.20	0.00	0.05
1.0D + 1.0W	6.81	0.00	50.82	0.00	0.00	853.44	0.00	0.15

Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	63	in
Thickness	3/8	in
Orientation Offset		°

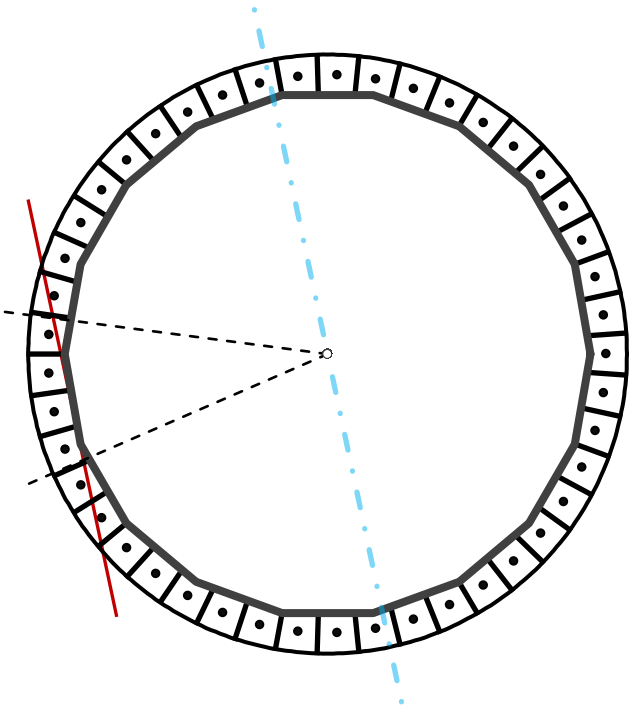
Base Reactions		
Moment, Mu	3,723.2	k-ft
Axial, Pu	61.0	k
Shear, Vu	29.4	k
Neutral Axis	102	°

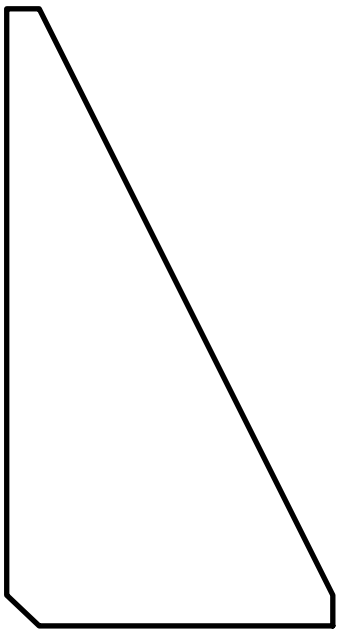
Report Capacities		
Component	Capacity	Result
Base Plate	55%	Pass
Anchor Rods	67%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	73	in
Thickness	1	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	332.7	k
Bending Stress, ϕMn	599.9	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	45	-
Diameter, ø	1 1/4	in
Bolt Circle	68	in
Grade	A687	
Yield Strength, Fy	105	ksi
Tensile Strength, Fu	125	ksi
Spacing	4.7	in
Orientation Offset		°
Applied Force, Pu	61.0	k
Anchor Rods, ϕPn	90.9	k

Stiffeners		
Arrangement	Radial	-
Quantity	45	-
Height	10	in
Width	5	in
Effective Width	5.000	in
Thickness	3/4	in
Effective Thickness	0.750	in
Notch	0.5	in
Flat Edge	0.5	in
Grade	A36	-
Yield Strength, Fy	36	ksi
Tensile Strength, Fu	58	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	5/16	in
Bevel Depth	0	in
Vertical Weld	Fillet	
Vertical Fillet Size	5/16	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset		°
Vertical Weld, ϕRn	137.6	k
Horz. Weld, ϕRn	73.9	k
Ten. Capacity, ϕTn	109.4	k
Comp. Capacity, ϕPn	992.8	k





Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	29.4	3723.2	1.00
Anchor Rod Forces	29.4	3723.2	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	20.2	2559.8	0.69

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	73.4043	4.0780	0.1917		35988.93
Bolt	1.2272	0.9691	0.0747	7	24200.88
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	3.3750	3.0375	31.2500		79185.11

Base Plate

Shape	Round	-
Diameter, D	73	in
Thickness, t	1	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	36.878	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

External Base Plate

Chord Length AA	29.077	in
Additional AA	24.245	in
Section Modulus, Z	13.331	in^3
Applied Moment, Mu	332.7	k-ft
Bending Capacity, ϕMn	599.9	k-ft
Capacity, Mu/ϕMn	0.555	OK
Chord Length AB	26.862	in
Additional AB	17.302	in
Section Modulus, Z	11.041	in^3
Applied Moment, Mu	190.4	k-ft
Bending Capacity, ϕMn	496.8	k-ft
Capacity, Mu/ϕMn	0.383	OK
Bend Line Length	20.725	in
Additional Bend Line	258.750	in
Section Modulus, Z	69.869	in^3
Applied Moment, Mu	278.8	k-ft
Bending Capacity, ϕMn	3144.1	k-ft
Capacity, Mu/ϕMn	0.089	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		

Anchor Rods

Anchor Rod Quantity, N	45	-
Rod Diameter, d	1.25	in
Bolt Circle, BC	68	in
Yield Strength, Fy	105	ksi
Tensile Strength, Fu	125	ksi
Applied Axial, Pu	61.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	90.9	k
Tensile Capacity, ϕRnt	0.671	OK
Interaction Capacity	0.453	OK

Base Plate Stiffeners

Applied Axial Force, Pu	40.9	k
Applied Horizontal Force, Vu	0.22	k

Vertical Weld

Vert.-to-Stiffener a=e_x/l	0.167	-
Spacing Ratio, k	0.075	-
Weld Coefficient, C	3.670	-
Compressive Capacity, ϕPn	137.6	k
Vert.-to-Plate a=e_x/l	0.333	-
Spacing Ratio, k	0.075	-
Weld Coefficient, C	2.940	-
Shear Capacity, ϕVn	110.3	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.299	OK

Horizontal Weld

Horz.-to-Stiffener a=e_x/l	0.167	-
Spacing Ratio, k	0.150	-
Weld Coefficient, C	3.940	-
Effective Fillet	0.313	in
Compressive Capacity, ϕPn	73.9	k
Horz.-to-Pole a=e_x/l	0.333	-
Spacing Ratio, k	0.150	-
Weld Coefficient, C	3.090	-
Shear Capacity, ϕVn	57.9	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.557	OK

Plate Tension

Gross Cross Section	3.375	in^2
Net Cross Section	3.038	in^2
Tensile Capacity, ϕTn	109.4	k
Capacity, Tu/ϕTn	0.187	OK

Plate Compression

Radius of Gyration	0.217	in^3
kl/r	27.71	-
4.71 $\sqrt{}$(E/Fy)	133.68	-
Buckling Stress(Fe)	372.7	-
Crit. Buckling Stress(Fcr)	326.8	ksi
Compressive Capacity, ϕPn	992.8	k
Capacity, Pu/ϕPn	0.021	OK

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Newington CT**
ATC Asset Number	:	**370627**
Engineering Number	:	**13337527_C8_01**
Mount Elevation	:	**169 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**CTHA342A**
Carrier Site Number	:	**CTHA342A**
Site Location	:	**605 Willard Ave.** **Newington, CT 06111-0000** **41.698372, -72.737147**
County	:	**Hartford**
Date	:	**February 16, 2021**
Max Usage	:	**52%**
Result	:	**Pass (Add Support Rail)**

Prepared By:
Jennifer Soza
CLS Engineering PLLC

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

Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022
02/16/2021

GlobalSign

Digitally signed by Tyler M. Barker PE
Date: 2021.02.16 15:16:15-05'00'

Table of Contents

Introduction

The proposed equipment is to be mounted to the existing Platform w/ Proposed Site Pro 1 HRK12. 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 November 14, 2019 Site Pro 1 Assembly Drawings, Part #HRK12 Rev. A, dated July 10, 2014
Previous Analyses	Structural Analysis by American Tower Corporation, Engineering #13222844, dated September 23, 2020
Loading Data	ATC Application, Project #13337527 T-Mobile RFDS, Site ID: CTHA342A Version: 4, dated January 19, 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
Max. Topographic Factor, K_{zt}	1.00
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.19; 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 mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- **Install (1) proposed Site Pro 1 HRK12 support rail kit at ±2'-6" above the Platform Base as shown. Connect to all mount pipes using Site Pro 1 SCX1 crossover plate (9 total) included in the support rail kit.**

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
169.0	170.0	3	RFS Celwave APXVAARR24_43-U-NA20
		3	Ericsson AIR 32 B66Aa/B2a
		3	Ericsson AIR 6449 B41
		3	Ericsson RRUS 4415 B25
		3	Ericsson RADIO 4449 B71/B85A

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Tower Connection	52%	Pass
Stand-Off Horizontals	51%	Pass
Mount Pipes	48%	Pass
Support Rail	20%	Pass
Platform Base	17%	Pass

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.

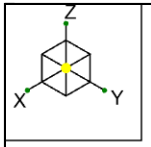
This analysis assumes the following:

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.

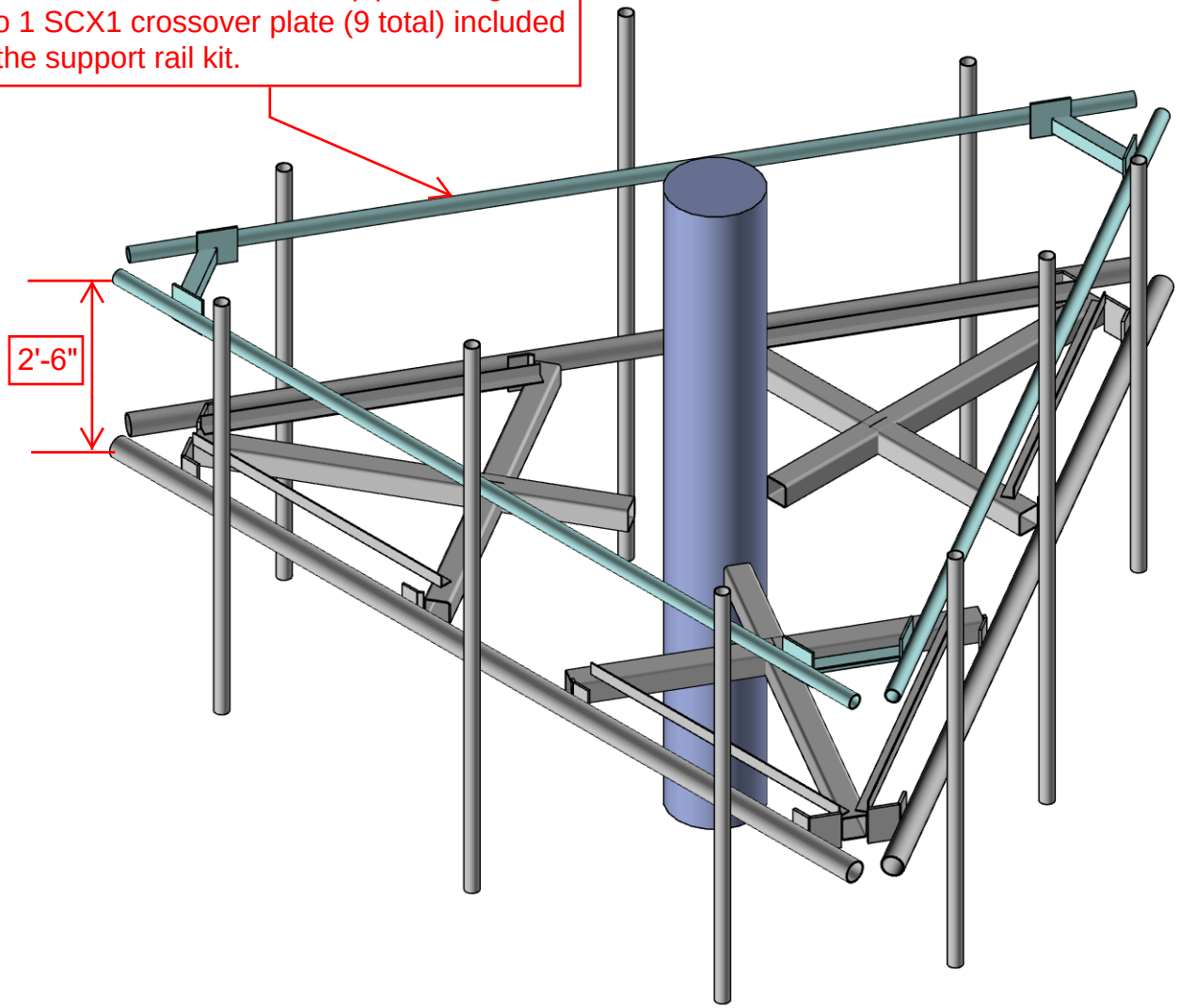
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided 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.

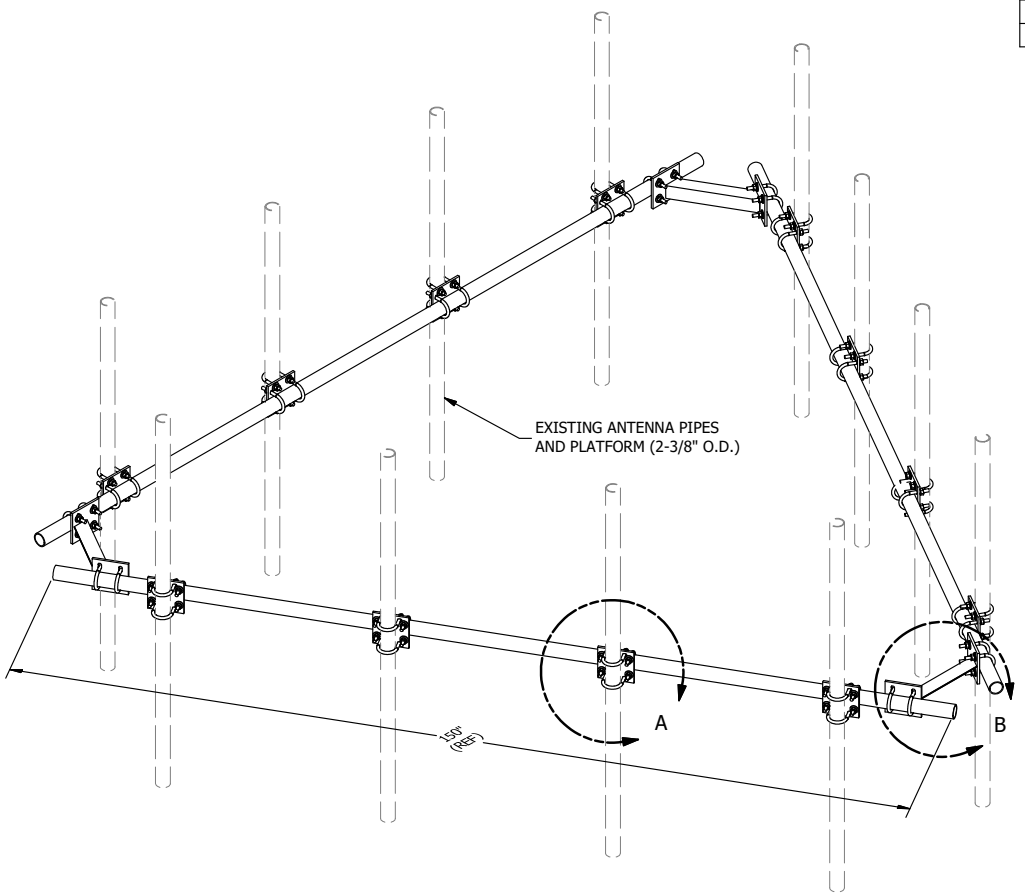


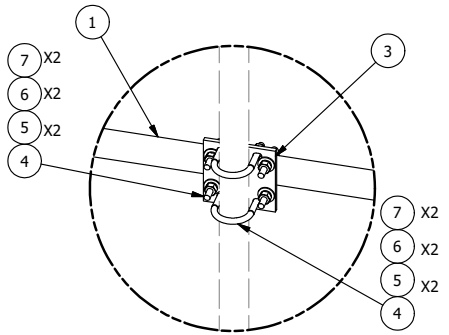
Install (1) proposed Site Pro 1 HRK12 support rail kit at ±2’-6" above the Platform Base as shown. Connect to all mount pipes using Site Pro 1 SCX1 crossover plate (9 total) included in the support rail kit.



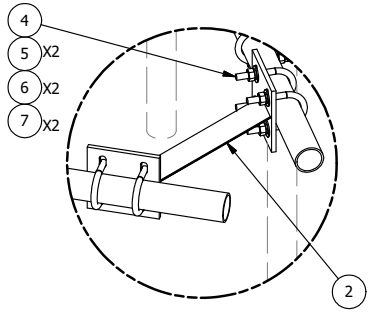
CLS	41124-13337527_C8_01-Newington CT	IN-1
ADK		Feb 12, 2021
41124-13337527_C8_01-01-MA	Proposed Modification - Rendered	41124-13337527_C8_01-01-MA.r3d

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	44.50
4	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	37.51
5	120	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	4.09
6	120	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
					TOTAL WT. #	272.43





DETAIL A



DETAIL B

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP		CEK	7/10/2014

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION: **HANDRAIL KIT FOR 12'-6" FACE**

SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	KC8 5/30/2012		HRK12

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 7/13/2014	HRK12

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	169 ft	**K_a**	0.90
Nominal Rad Elevation (AGL), z_{rad}	170 ft	**K_d**	0.95
Elevation AMSL (ft)	101 ft	**K_e**	1.00
TIA Standard	H	**K_z**	1.15
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}**	1.77 in
Exposure Category	B	**G_h**	1.00
Risk Category	II	**q_z (bare)**	38.7 psf
Seismic Response Coeff., C_s	0.10	**q_z (ice)**	7.0 psf

Live Loading

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

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	34.86	5.98	12.74
Offset Side Plate	0.38 X 6 Plate	34.86	5.97	12.57
Offset Tube	HSS4X4X4	23.24	2.52	14.80
Platform Horzontal Pipe	PIPE_3.0	12.20	4.40	11.36
Grating Angle	L2x2x3	11.62	2.37	9.05
MOD Support Rail	PIPE_2.0	8.28	3.70	8.94
MOD SR Conn Plate	PL6x0.375	34.86	5.97	12.57
MOD SR Conn Angle	L2.5x2.5x4	14.53	2.41	10.42
MOUNT_PIPE_2.0	PIPE_2.0	8.28	3.70	8.94

Appurtenances

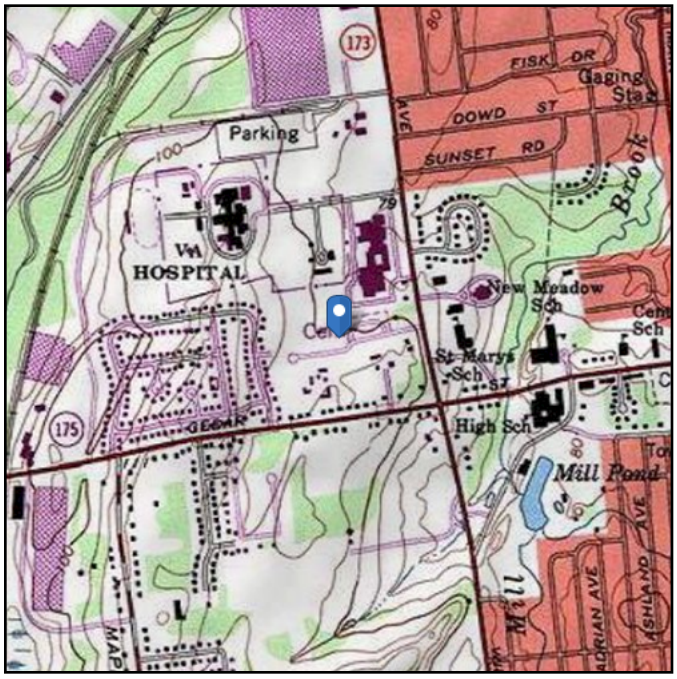
Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft²)		EPA_A (Ice) (ft²)		F_A (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
AIR 32 B66Aa/B2a				☐			1	1	1		1_A3T	1_A3B	2_A3T	2_A3B	3_A3T	3_A3B	56.6	12.9	8.7	132.2	Flat	185.98	6.51	4.71	8.59	6.68	227.33	164.55	53.85	41.88
APXVAARR24_43-U-NA20				☐			1	1	1		1_A2T	1_A2B	2_A2T	2_A2B	3_A2T	3_A2B	95.9	24	8.7	153.3	Generic	397.94	14.67	5.32	17.36	7.69	512.28	185.77	108.82	48.20
AIR 6449 B41				☐			1	1	1		1_A1T	1_A1B	2_A1T	2_A1B	3_A1T	3_A1B	33	20	8.5	101.6	Flat	153.53	5.50	2.46	7.17	3.74	192.06	85.80	44.92	23.43
RRUS 4415 B25				☑	0.5	0.5	1	1	1		1_R2TT		2_R2TT		3_R2TT		14.96	13.19	5.39	44	Flat	43.94	0.34	0.82	0.69	1.29	11.85	28.71	4.31	8.08
RADIO 4449 B71/B85A				☑	0.5	0.5	1	1	1		1_R2TT		2_R2TT		3_R2TT		14.96	13.19	10.51	74.95	Flat	61.03	0.66	0.82	1.08	1.29	22.88	28.71	6.79	8.08

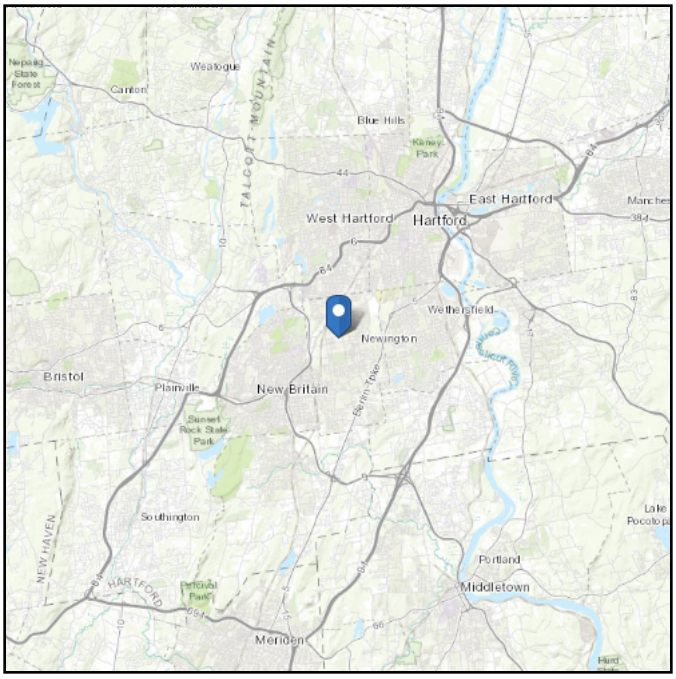
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 101.49 ft (NAVD 88)
Latitude: 41.698372
Longitude: -72.737147





Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

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

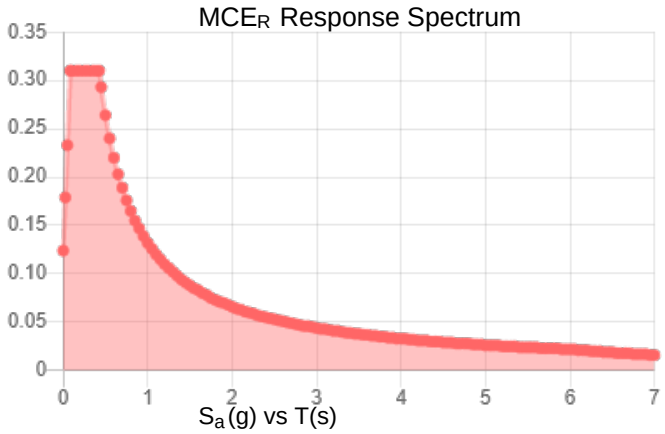
Seismic

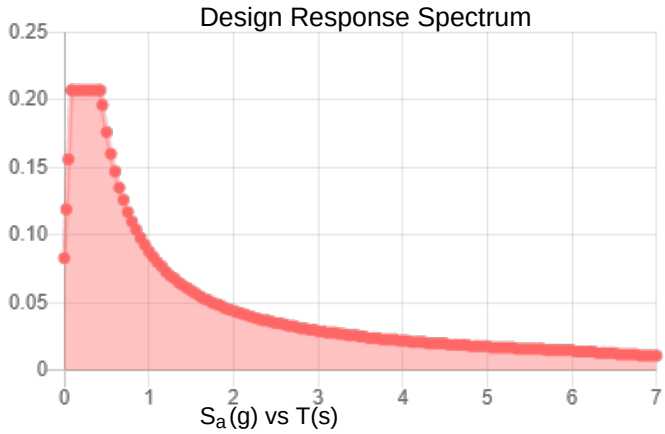
Site Soil Class: D - Default (see Section 11.4.3)

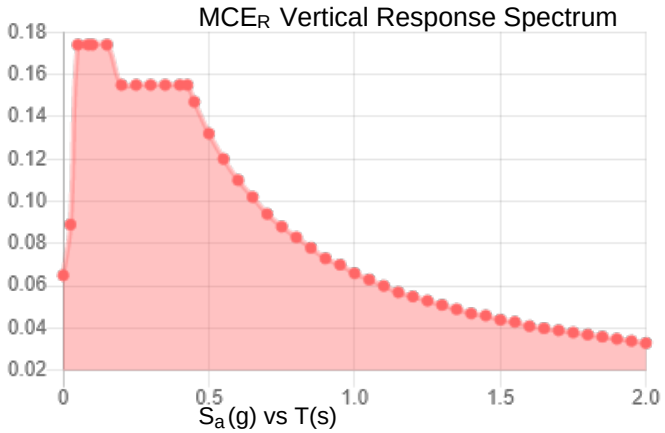
Results:

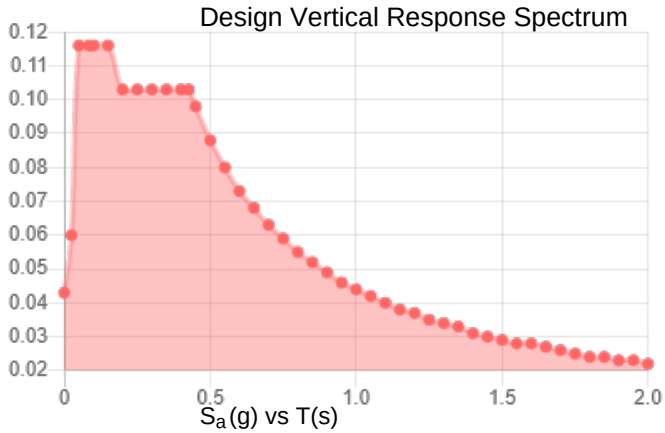
S_S :	0.194	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.105
F_v :	2.4	PGA_M :	0.168
S_{MS} :	0.31	F_{PGA} :	1.589
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.207	C_v :	0.7

Seismic Design Category B









Data Accessed: Tue Feb 16 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.

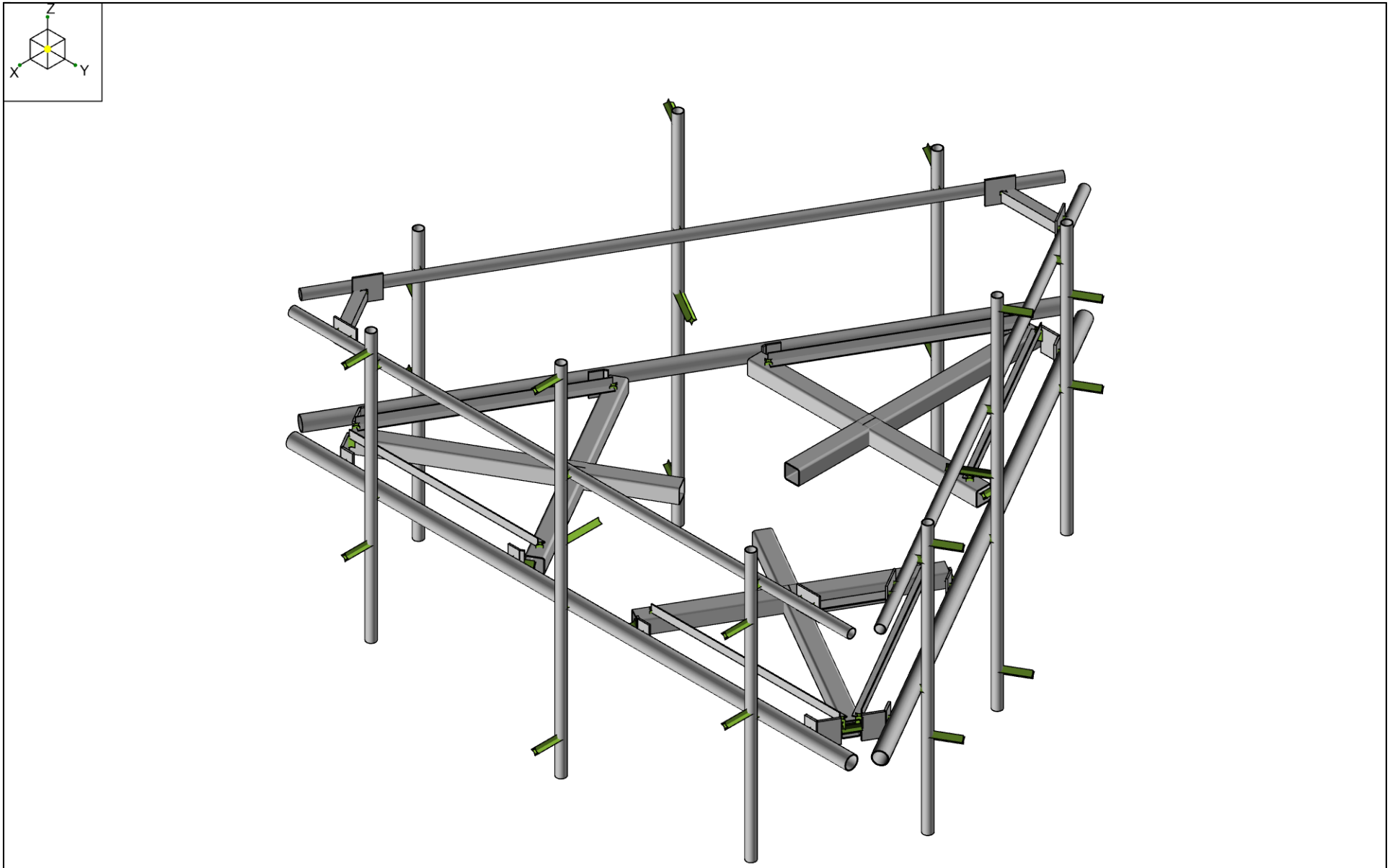
Ice

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:	Tue Feb 16 2021

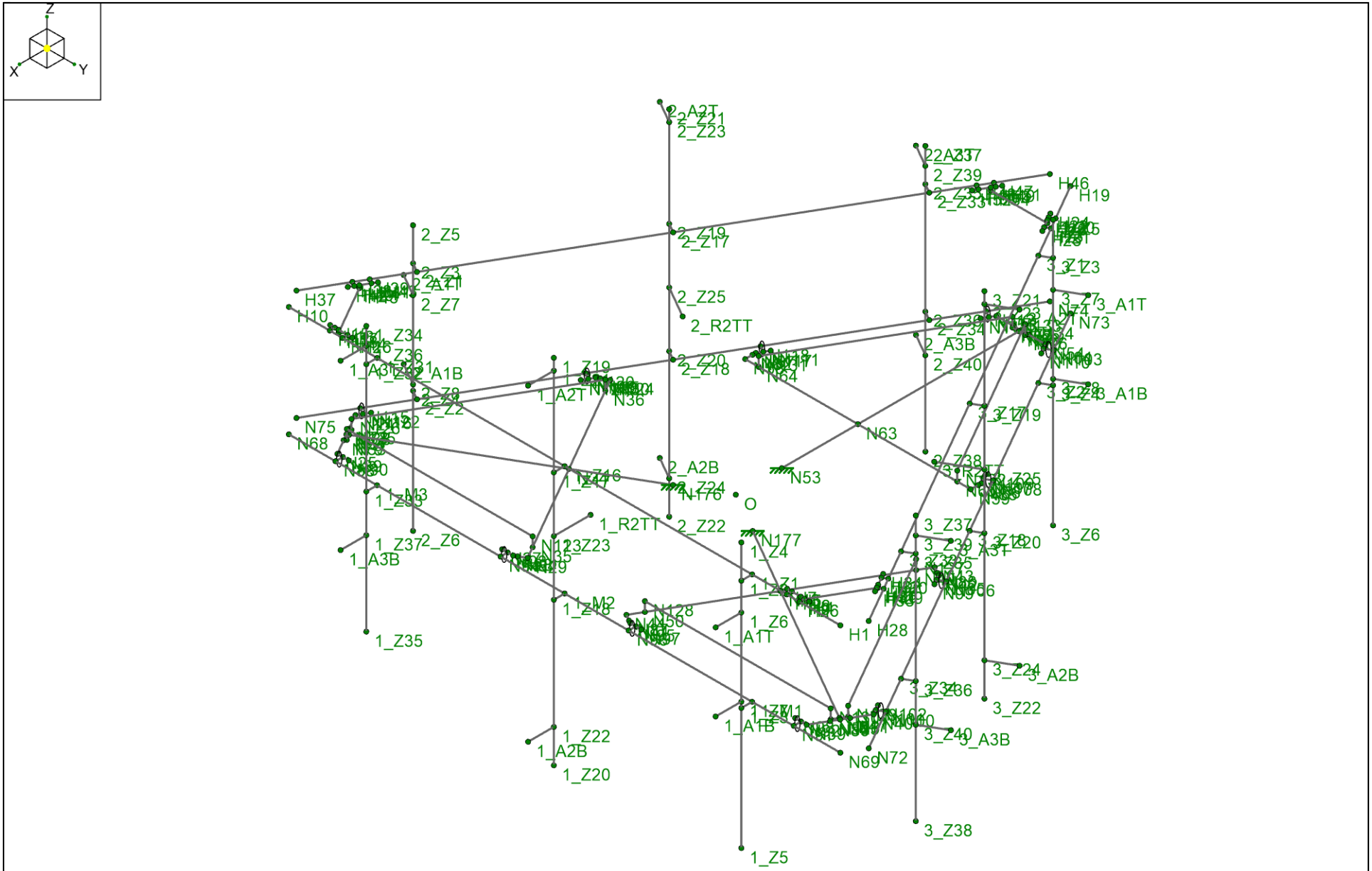
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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

CLS	41124-13337527_C8_01-Newington CT	SK-1
JLS		Feb 16, 2021
41124-13337527_C8_01-01-MA-R1	Rendered	41124-13337527_C8_01-01-MA-R1.r3d



Envelope Only Solution

CLS	41124-13337527_C8_01-Newington CT	SK-2
JLS		Feb 16, 2021
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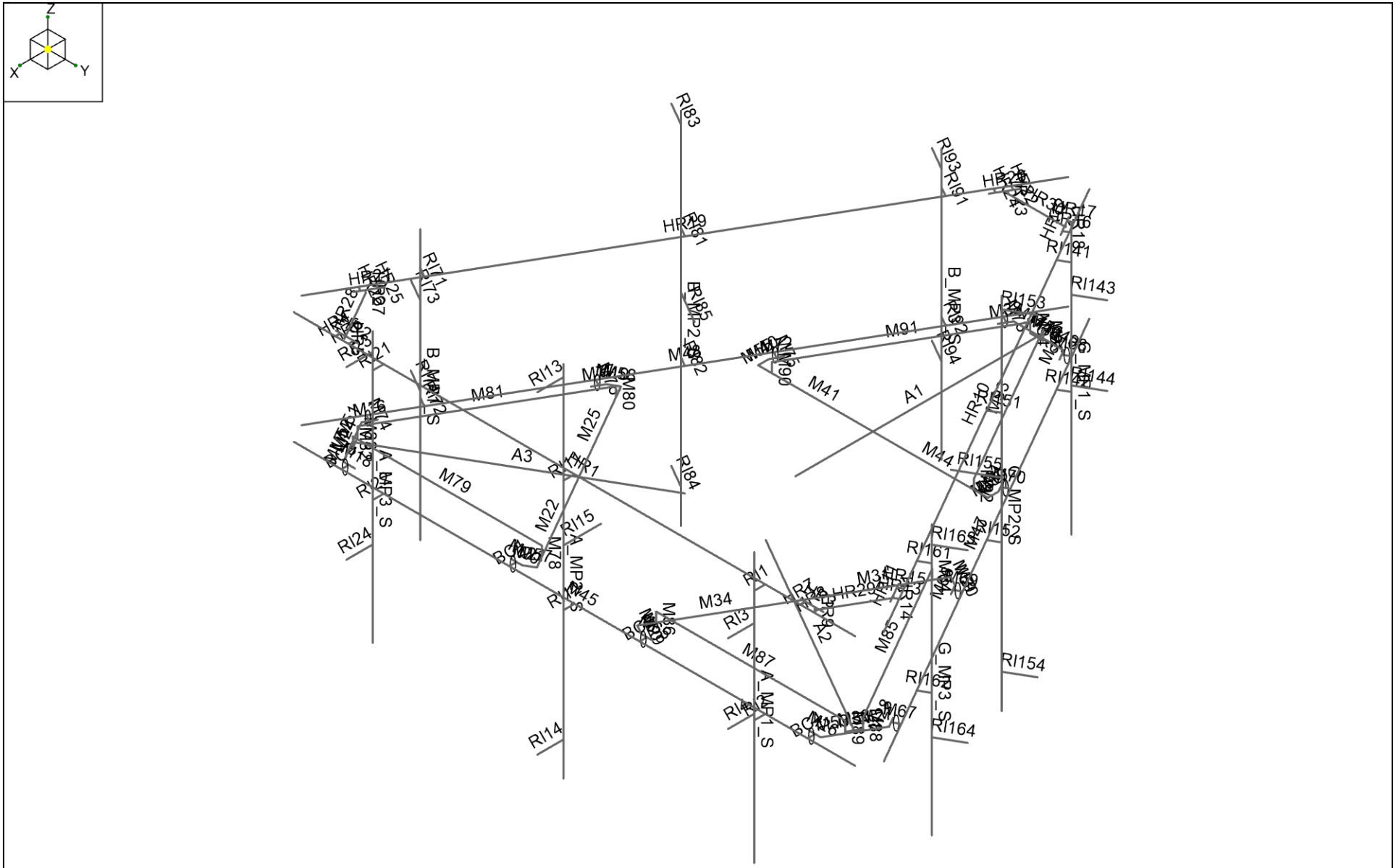
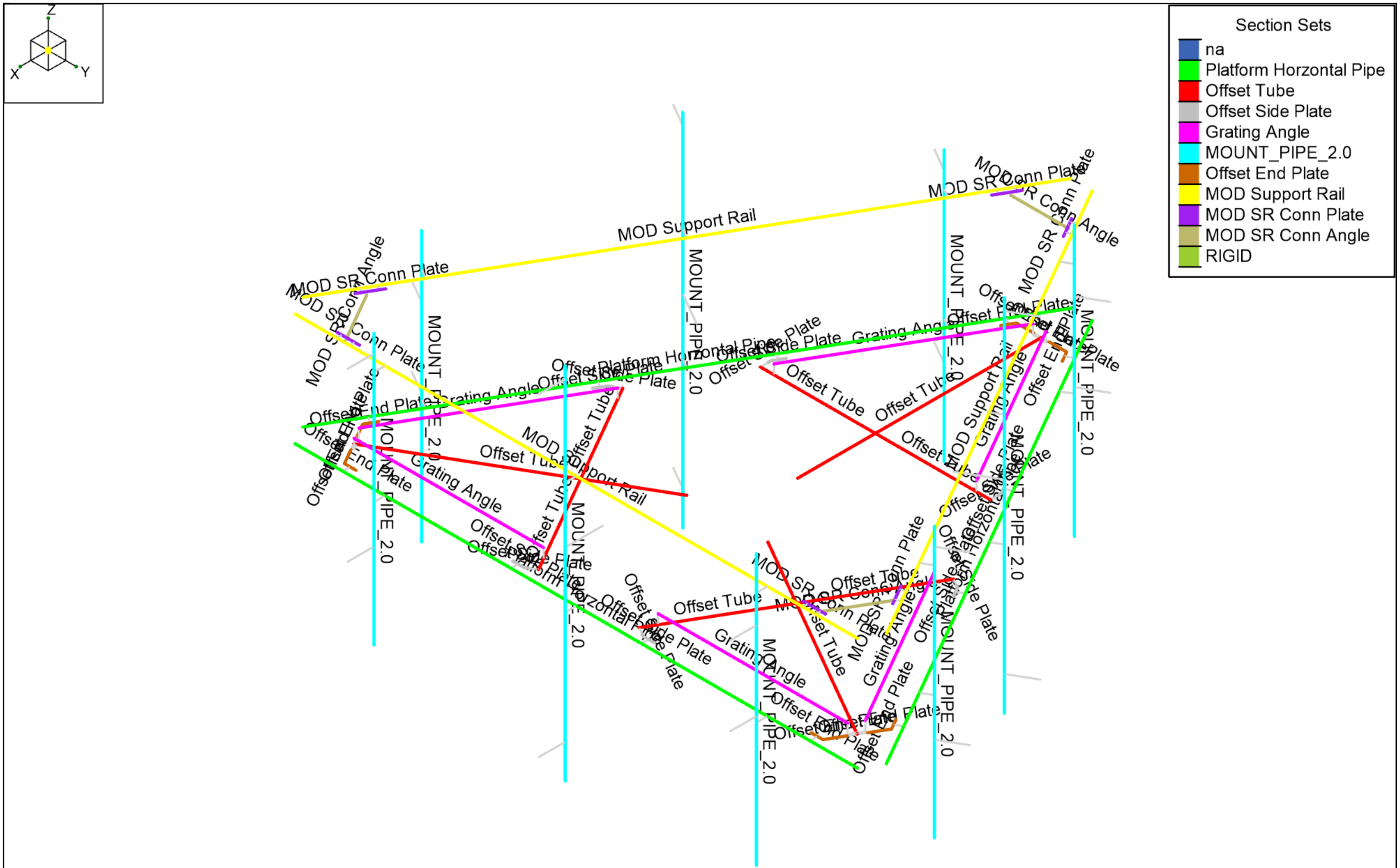


CLS	41124-13337527_C8_01-Newington CT	SK-3
JLS		Feb 16, 2021
41124-13337527_C8_01-01-MA-R1	Member Labels	41124-13337527_C8_01-01-MA-R1.r3d



Envelope Only Solution

CLS	41124-13337527_C8_01-Newington CT	SK-4
JLS		Feb 16, 2021
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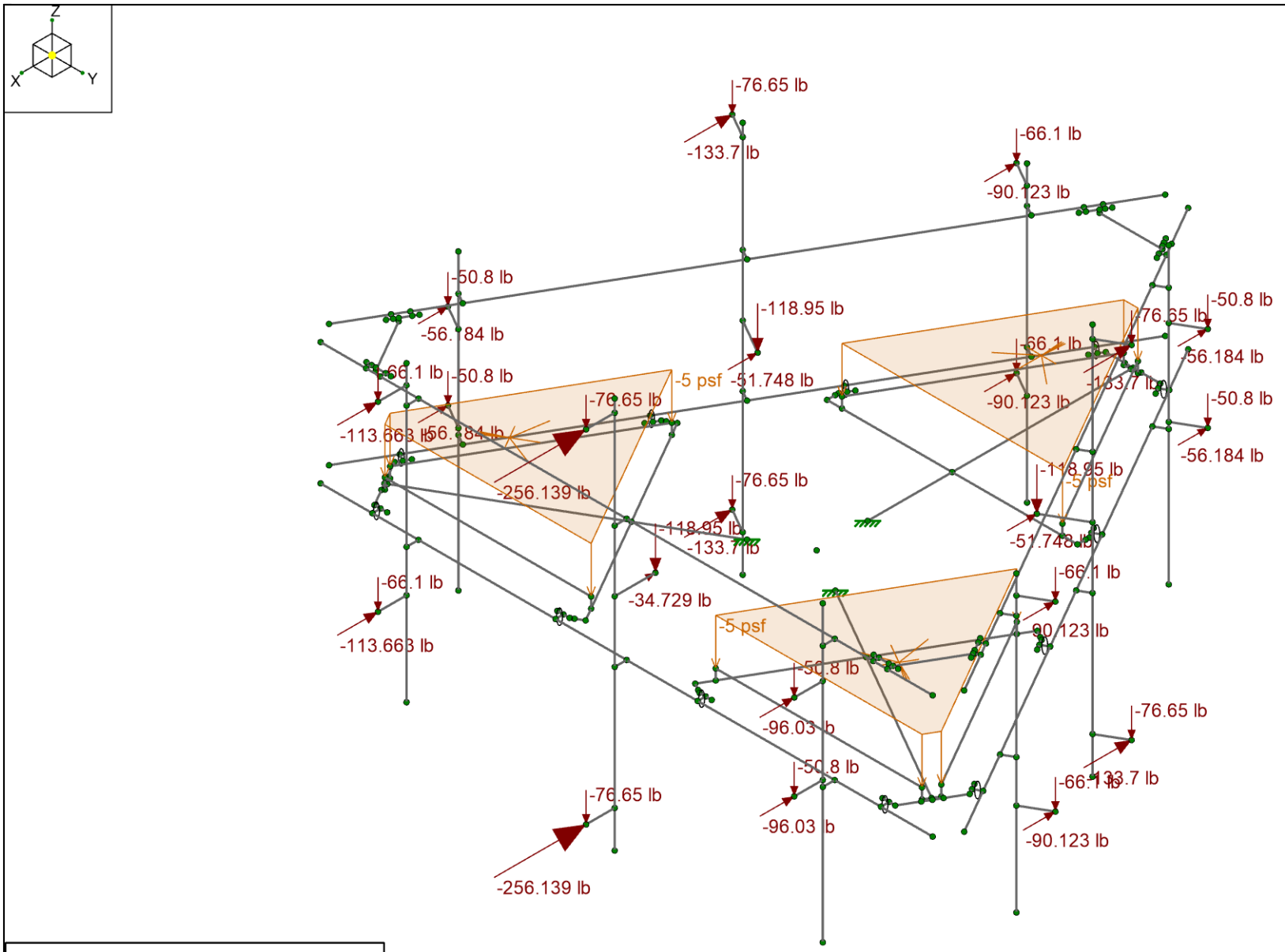

Loads: LC 1, DISPLAY (1.0D + 1.0W_0)

Envelope Only Solution

CLS	41124-13337527_C8_01-Newington CT	SK-5
JLS		Feb 16, 2021
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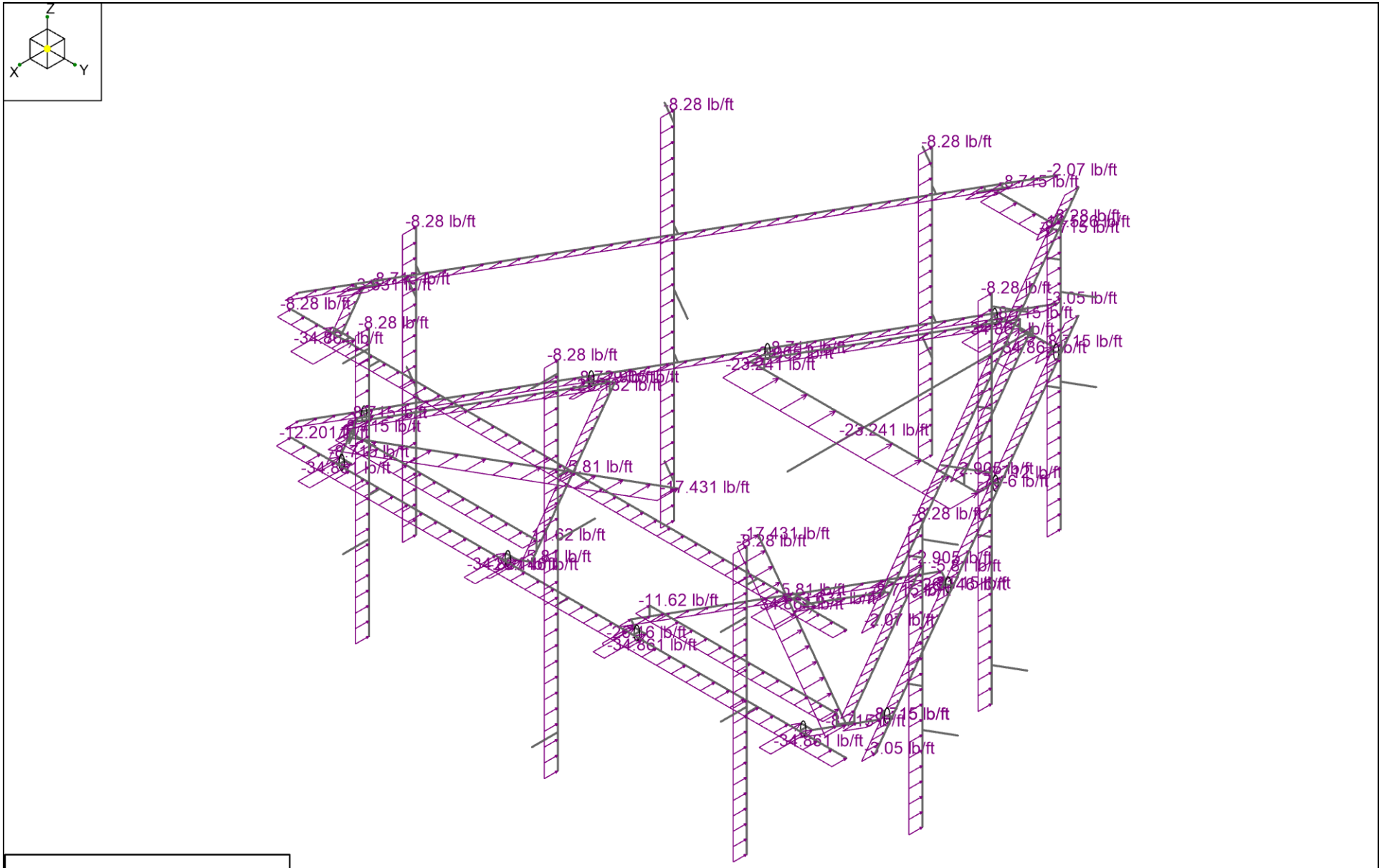
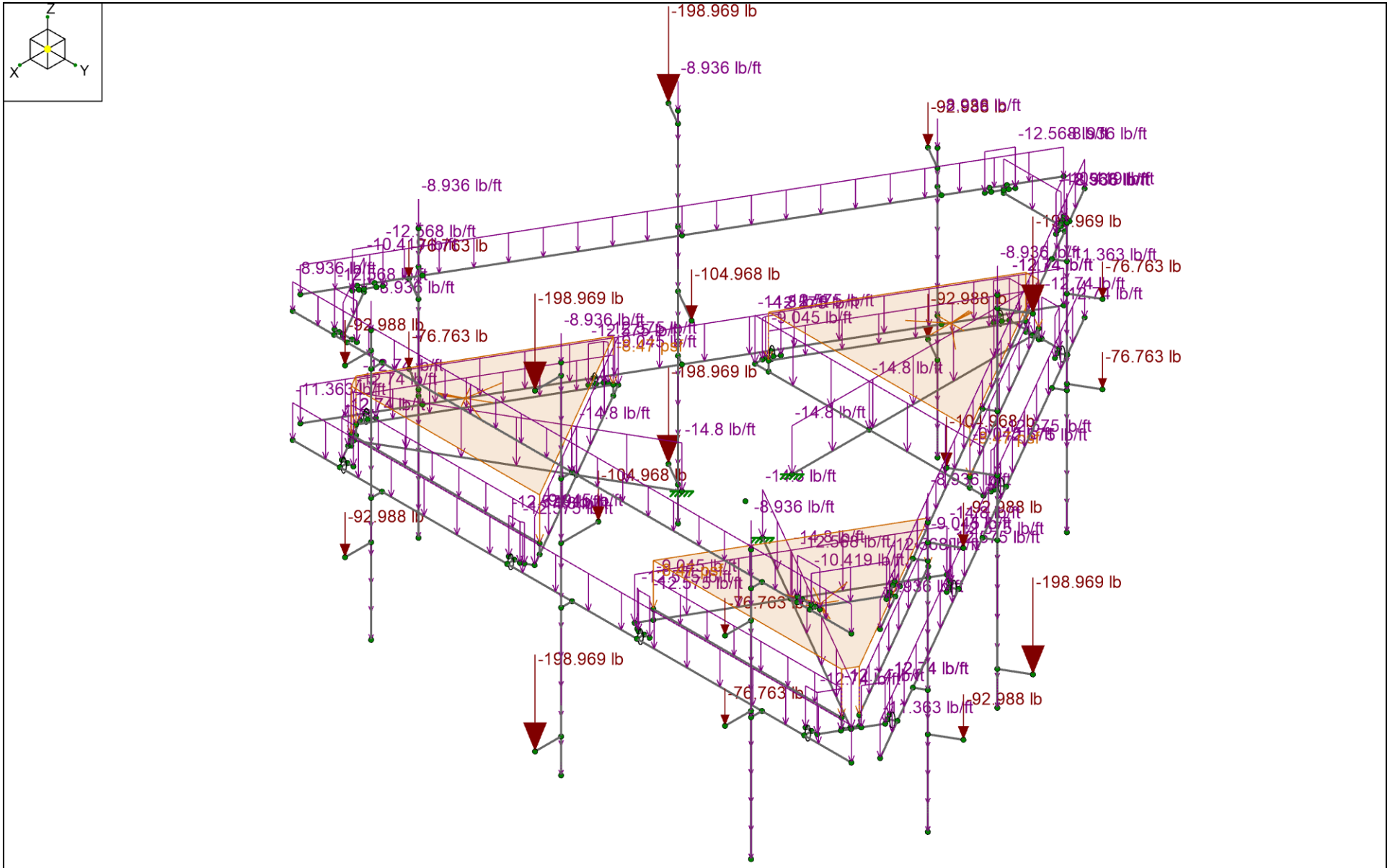


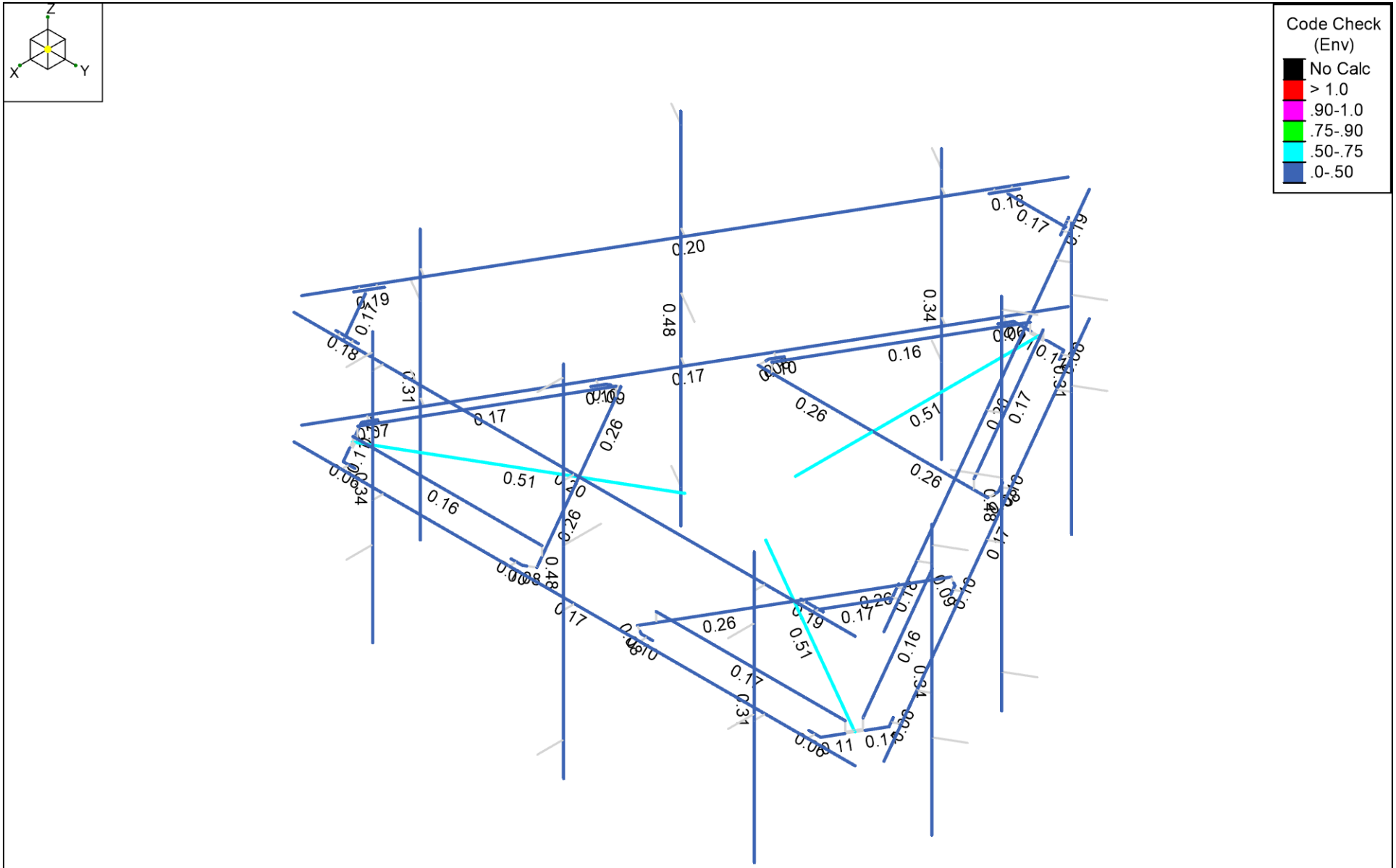
Loads: BLC 5, Structure Wind 0

Envelope Only Solution

CLS	41124-13337527_C8_01-Newington CT	SK-6
JLS		Feb 16, 2021
41124-13337527_C8_01-01-MA-R1	Distributed Load – Normal Wind	41124-13337527_C8_01-01-MA-R1.r3d

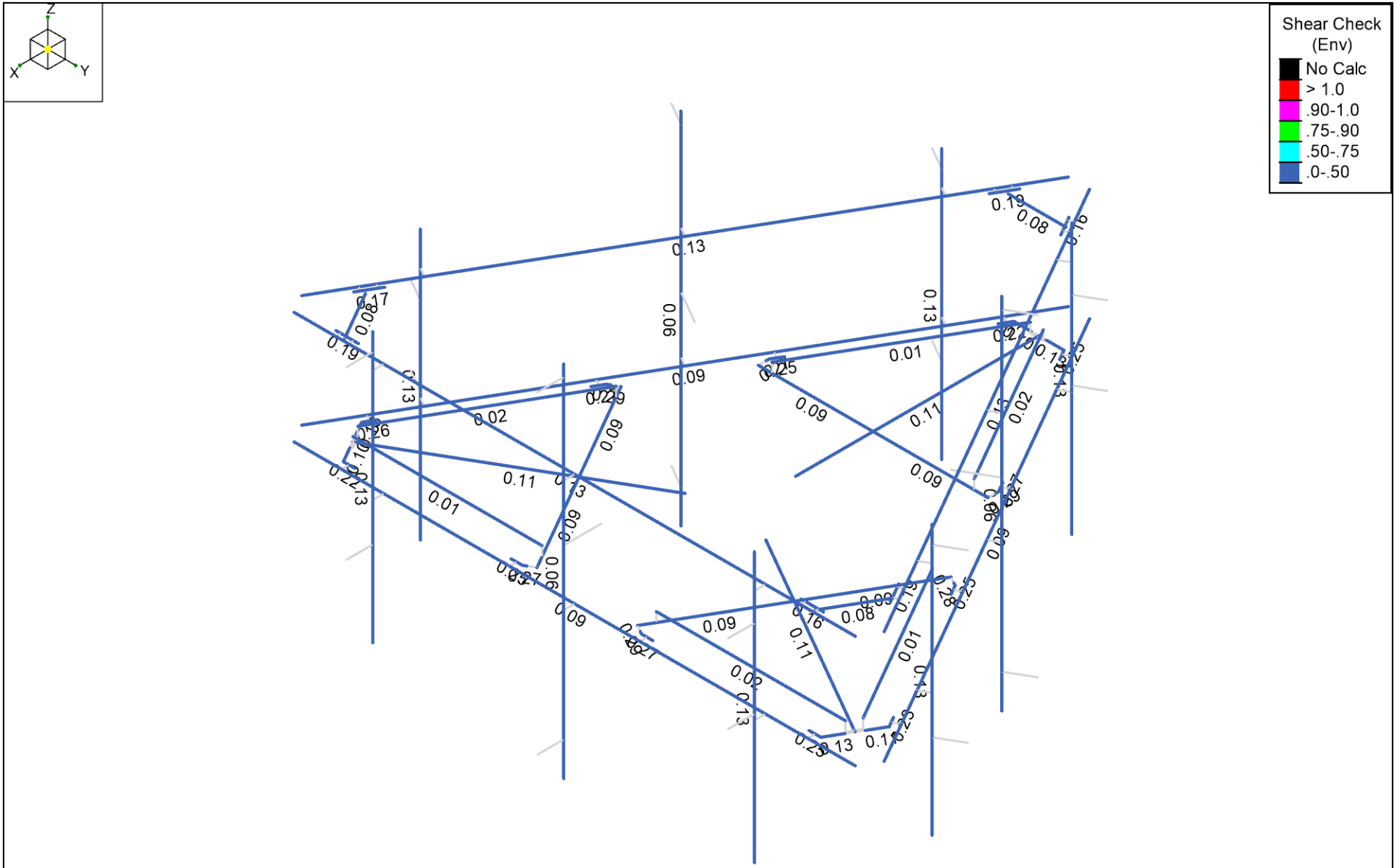


CLS	41124-13337527_C8_01-Newington CT	SK-7
JLS		Feb 16, 2021
41124-13337527_C8_01-01-MA-R1	Ice Dead Loads	41124-13337527_C8_01-01-MA-R1.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-13337527_C8_01-Newington CT	SK-8
JLS		Feb 16, 2021
41124-13337527_C8_01-01-MA-R1	Envelope Member Unity Check Results – Bending	41124-13337527_C8_01-01-MA-R1.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-13337527_C8_01-Newington CT	SK-9
JLS		Feb 16, 2021
41124-13337527_C8_01-01-MA-R1	Envelope Member Check Results – Shear	41124-13337527_C8_01-01-MA-R1.r3d

Basic Load Cases

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
1	Dead	DL	-1	24		3
2	Ice Dead	RL		24	63	3
3	BLC 1 Transient Area Loads	None			60	
4	BLC 2 Transient Area Loads	None			60	
5	Structure Wind 0°	None			61	
6	Structure Wind 30°	None			96	
7	Structure Wind 45°	None			126	
8	Structure Wind 60°	None			122	
9	Structure Wind 90°	None			48	
10	Structure Wind 120°	None			122	
11	Structure Wind 135°	None			126	
12	Structure Wind 150°	None			96	
13	Structure Wind 180°	None			61	
14	Structure Wind 210°	None			96	
15	Structure Wind 225°	None			126	
16	Structure Wind 240°	None			122	
17	Structure Wind 270°	None			48	
18	Structure Wind 300°	None			122	
19	Structure Wind 315°	None			126	
20	Structure Wind 330°	None			96	
21	Structure Wind w/ Ice 0°	None			61	
22	Structure Wind w/ Ice 30°	None			100	
23	Structure Wind w/ Ice 45°	None			126	
24	Structure Wind w/ Ice 60°	None			122	
25	Structure Wind w/ Ice 90°	None			50	
26	Structure Wind w/ Ice 120°	None			122	
27	Structure Wind w/ Ice 135°	None			126	
28	Structure Wind w/ Ice 150°	None			100	
29	Structure Wind w/ Ice 180°	None			61	
30	Structure Wind w/ Ice 210°	None			100	
31	Structure Wind w/ Ice 225°	None			126	
32	Structure Wind w/ Ice 240°	None			122	
33	Structure Wind w/ Ice 270°	None			50	
34	Structure Wind w/ Ice 300°	None			122	
35	Structure Wind w/ Ice 315°	None			126	
36	Structure Wind w/ Ice 330°	None			100	
37	Antenna Wind 0°	None		24		
38	Antenna Wind 30°	None		48		
39	Antenna Wind 45°	None		48		
40	Antenna Wind 60°	None		48		
41	Antenna Wind 90°	None		24		
42	Antenna Wind 120°	None		48		
43	Antenna Wind 135°	None		48		
44	Antenna Wind 150°	None		48		
45	Antenna Wind 180°	None		24		
46	Antenna Wind 210°	None		48		
47	Antenna Wind 225°	None		48		
48	Antenna Wind 240°	None		48		
49	Antenna Wind 270°	None		24		
50	Antenna Wind 300°	None		48		
51	Antenna Wind 315°	None		48		
52	Antenna Wind 330°	None		48		
53	Antenna Wind w/ Ice 0°	None		24		
54	Antenna Wind w/ Ice 30°	None		48		
55	Antenna Wind w/ Ice 45°	None		48		
56	Antenna Wind w/ Ice 60°	None		48		
57	Antenna Wind w/ Ice 90°	None		24		
58	Antenna Wind w/ Ice 120°	None		48		

Basic Load Cases (Continued)

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
59	Antenna Wind w/ Ice 135°	None		48		
60	Antenna Wind w/ Ice 150°	None		48		
61	Antenna Wind w/ Ice 180°	None		24		
62	Antenna Wind w/ Ice 210°	None		48		
63	Antenna Wind w/ Ice 225°	None		48		
64	Antenna Wind w/ Ice 240°	None		48		
65	Antenna Wind w/ Ice 270°	None		24		
66	Antenna Wind w/ Ice 300°	None		48		
67	Antenna Wind w/ Ice 315°	None		48		
68	Antenna Wind w/ Ice 330°	None		48		
69	Seismic X	ELX		24	63	
70	Seismic Y	ELY		24	63	
71	Seismic Z	ELZ		24	63	
72	Maintenance Live 500 (1)	OL1		1		
73	Maintenance Live 500 (2)	OL2		1		
74	Maintenance Live 500 (3)	OL3		1		

Load Combinations

	Description	Solve	PDelta	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	1.241	ELX	-1	ELY			
36	1.2D + 1.0Ev + 1.0Eh_30°	Yes	Y	DL	1.241	ELX	-0.866	ELY	0.5		
37	1.2D + 1.0Ev + 1.0Eh_45°	Yes	Y	DL	1.241	ELX	-0.707	ELY	0.707		
38	1.2D + 1.0Ev + 1.0Eh_60°	Yes	Y	DL	1.241	ELX	-0.5	ELY	0.866		
39	1.2D + 1.0Ev + 1.0Eh_90°	Yes	Y	DL	1.241	ELX		ELY	1		

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
40	1.2D + 1.0Ev + 1.0Eh_120°	Yes	Y	DL	1.241	ELX	0.5	ELY	0.866		
41	1.2D + 1.0Ev + 1.0Eh_135°	Yes	Y	DL	1.241	ELX	0.707	ELY	0.707		
42	1.2D + 1.0Ev + 1.0Eh_150°	Yes	Y	DL	1.241	ELX	0.866	ELY	0.5		
43	1.2D + 1.0Ev + 1.0Eh_180°	Yes	Y	DL	1.241	ELX	1	ELY			
44	1.2D + 1.0Ev + 1.0Eh_210°	Yes	Y	DL	1.241	ELX	0.866	ELY	-0.5		
45	1.2D + 1.0Ev + 1.0Eh_225°	Yes	Y	DL	1.241	ELX	0.707	ELY	-0.707		
46	1.2D + 1.0Ev + 1.0Eh_240°	Yes	Y	DL	1.241	ELX	0.5	ELY	-0.866		
47	1.2D + 1.0Ev + 1.0Eh_270°	Yes	Y	DL	1.241	ELX		ELY	-1		
48	1.2D + 1.0Ev + 1.0Eh_300°	Yes	Y	DL	1.241	ELX	-0.5	ELY	-0.866		
49	1.2D + 1.0Ev + 1.0Eh_315°	Yes	Y	DL	1.241	ELX	-0.707	ELY	-0.707		
50	1.2D + 1.0Ev + 1.0Eh_330°	Yes	Y	DL	1.241	ELX	-0.866	ELY	-0.5		
51	0.9D - 1.0Ev + 1.0Eh_0°	Yes	Y	DL	0.859	ELX	-1	ELY			
52	0.9D - 1.0Ev + 1.0Eh_30°	Yes	Y	DL	0.859	ELX	-0.866	ELY	0.5		
53	0.9D - 1.0Ev + 1.0Eh_45°	Yes	Y	DL	0.859	ELX	-0.707	ELY	0.707		
54	0.9D - 1.0Ev + 1.0Eh_60°	Yes	Y	DL	0.859	ELX	-0.5	ELY	0.866		
55	0.9D - 1.0Ev + 1.0Eh_90°	Yes	Y	DL	0.859	ELX		ELY	1		
56	0.9D - 1.0Ev + 1.0Eh_120°	Yes	Y	DL	0.859	ELX	0.5	ELY	0.866		
57	0.9D - 1.0Ev + 1.0Eh_135°	Yes	Y	DL	0.859	ELX	0.707	ELY	0.707		
58	0.9D - 1.0Ev + 1.0Eh_150°	Yes	Y	DL	0.859	ELX	0.866	ELY	0.5		
59	0.9D - 1.0Ev + 1.0Eh_180°	Yes	Y	DL	0.859	ELX	1	ELY			
60	0.9D - 1.0Ev + 1.0Eh_210°	Yes	Y	DL	0.859	ELX	0.866	ELY	-0.5		
61	0.9D - 1.0Ev + 1.0Eh_225°	Yes	Y	DL	0.859	ELX	0.707	ELY	-0.707		
62	0.9D - 1.0Ev + 1.0Eh_240°	Yes	Y	DL	0.859	ELX	0.5	ELY	-0.866		
63	0.9D - 1.0Ev + 1.0Eh_270°	Yes	Y	DL	0.859	ELX		ELY	-1		
64	0.9D - 1.0Ev + 1.0Eh_300°	Yes	Y	DL	0.859	ELX	-0.5	ELY	-0.866		
65	0.9D - 1.0Ev + 1.0Eh_315°	Yes	Y	DL	0.859	ELX	-0.707	ELY	-0.707		
66	0.9D - 1.0Ev + 1.0Eh_330°	Yes	Y	DL	0.859	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
97	1.2D + 1.5Lm_2 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.068	51	-0.068	OL2	1.5

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	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 [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	Platform Horzontal Pipe	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Offset Tube	HSS4X4X4	Beam	SquareTube	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
3	Offset Side Plate	0.38 X 6 Plate	Beam	RECT	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	RECT	A36 Gr.36	Typical	3	0.063	9	0.237
7	MOD Support Rail	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	MOD SR Conn Plate	PL6x0.375	Beam	None	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
9	MOD SR Conn Angle	L2.5x2.5x4	Beam	None	A36 Gr.36	Typical	1.19	0.692	0.692	0.026
10	MOD SR Bracing	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Function
1	M16	Offset End Plate	3.122			Lateral
2	M17	Offset End Plate	4.688			Lateral
3	M18	Offset End Plate	3.122			Lateral
4	M19	Offset Side Plate	0.875			Lateral
5	M20	Offset Side Plate	3			Lateral
6	M21	Offset Side Plate	0.875			Lateral
7	M22	Offset Tube	30.688			Lateral
8	M25	Offset Tube	30.687			Lateral
9	M26	Offset End Plate	3.122			Lateral
10	M27	Offset End Plate	4.688			Lateral
11	M28	Offset End Plate	3.122			Lateral
12	M29	Offset Side Plate	0.875			Lateral
13	M30	Offset Side Plate	0.875			Lateral
14	M31	Offset Tube	30.688			Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Function
15	M34	Offset Tube	30.687			Lateral
16	A1	Offset Tube	65.04			Lateral
17	M36	Offset End Plate	3.122			Lateral
18	M37	Offset End Plate	4.688			Lateral
19	M38	Offset End Plate	3.122			Lateral
20	M39	Offset Side Plate	0.875			Lateral
21	M40	Offset Side Plate	0.875			Lateral
22	M41	Offset Tube	30.688			Lateral
23	M44	Offset Tube	30.687			Lateral
24	M45	Platform Horzontal Pipe	150	45	51	Lateral
25	M47	Platform Horzontal Pipe	150	45	51	Lateral
26	M48	Platform Horzontal Pipe	150	45	51	Lateral
27	M49	Offset End Plate	4.688			Lateral
28	M51	Offset End Plate	4.688			Lateral
29	M53	Offset End Plate	4.688			Lateral
30	M65	Offset Side Plate	3			Lateral
31	M66	Offset Side Plate	3			Lateral
32	M71	Offset Side Plate	3			Lateral
33	M72	Offset Side Plate	3			Lateral
34	M77	Offset Side Plate	3			Lateral
35	M79	Grating Angle	50.542			Lateral
36	M81	Grating Angle	50.542			Lateral
37	M85	Grating Angle	50.542			Lateral
38	M87	Grating Angle	50.542			Lateral
39	M91	Grating Angle	50.542			Lateral
40	M93	Grating Angle	50.542			Lateral
41	A3	Offset Tube	65.04			Lateral
42	A2	Offset Tube	65.04			Lateral
43	HR1	MOD Support Rail	150		51	Lateral
44	HR2	MOD SR Conn Plate	6			Lateral
45	HR3	MOD SR Conn Plate	6			Lateral
46	HR10	MOD Support Rail	150		51	Lateral
47	HR11	MOD SR Conn Plate	6			Lateral
48	HR12	MOD SR Conn Plate	6			Lateral
49	HR19	MOD Support Rail	150		51	Lateral
50	HR20	MOD SR Conn Plate	6			Lateral
51	HR21	MOD SR Conn Plate	6			Lateral
52	HR28	MOD SR Conn Angle	15.408			Lateral
53	HR29	MOD SR Conn Angle	15.408			Lateral
54	HR30	MOD SR Conn Angle	15.408			Lateral
55	A_MP1_S	MOUNT_PIPE_2.0	72			Lateral
56	A_MP2_S	MOUNT_PIPE_2.0	96			Lateral
57	A_MP3_S	MOUNT_PIPE_2.0	72			Lateral
58	B_MP1_S	MOUNT_PIPE_2.0	72			Lateral
59	B_MP2_S	MOUNT_PIPE_2.0	96			Lateral
60	B_MP3_S	MOUNT_PIPE_2.0	72			Lateral
61	G_MP1_S	MOUNT_PIPE_2.0	72			Lateral
62	G_MP2_S	MOUNT_PIPE_2.0	96			Lateral
63	G_MP3_S	MOUNT_PIPE_2.0	72			Lateral

Member Advanced Data

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
1	M16		Yes		None
2	M17		Yes		None
3	M18		Yes		None
4	M19		Yes		None
5	M20		Yes		None
6	M21		Yes		None

Member Advanced Data (Continued)

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
7	M22		Yes		None
8	M24		Yes	** NA **	None
9	M25		Yes		None
10	M26		Yes		None
11	M27		Yes		None
12	M28		Yes		None
13	M29		Yes		None
14	M30		Yes		None
15	M31		Yes		None
16	M33		Yes	** NA **	None
17	M34		Yes		None
18	A1		Yes	Default	None
19	M36		Yes		None
20	M37		Yes		None
21	M38		Yes		None
22	M39		Yes		None
23	M40		Yes		None
24	M41		Yes		None
25	M43		Yes	** NA **	None
26	M44		Yes		None
27	M45		Yes		None
28	M47		Yes		None
29	M48		Yes		None
30	M49		Yes		None
31	M50		Yes	** NA **	None
32	M51		Yes		None
33	M52		Yes	** NA **	None
34	M53		Yes		None
35	M54		Yes	** NA **	None
36	M55		Yes	** NA **	None
37	M56		Yes	** NA **	None
38	M57		Yes	** NA **	None
39	M58		Yes	** NA **	None
40	M59		Yes	** NA **	None
41	M60		Yes	** NA **	None
42	BC3	OOOXOO	Yes	** NA **	None
43	BC4	OOOXOO	Yes	** NA **	None
44	BC1	OOOXOO	Yes	** NA **	None
45	BC2	OOOXOO	Yes	** NA **	None
46	M65		Yes		None
47	M66		Yes		None
48	M67	OOOXOO	Yes	** NA **	None
49	M68	OOOXOO	Yes	** NA **	None
50	M69	OOOXOO	Yes	** NA **	None
51	M70	OOOXOO	Yes	** NA **	None
52	M71		Yes		None
53	M72		Yes		None
54	M73	OOOXOO	Yes	** NA **	None
55	M74	OOOXOO	Yes	** NA **	None
56	M75	OOOXOO	Yes	** NA **	None
57	M76	OOOXOO	Yes	** NA **	None
58	M77		Yes		None
59	M78		Yes	** NA **	None
60	M79		Yes		None
61	M80		Yes	** NA **	None
62	M81		Yes		None
63	M82		Yes	** NA **	None
64	M83		Yes	** NA **	None

Member Advanced Data (Continued)

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
65	M84		Yes	** NA **	None
66	M85		Yes		None
67	M86		Yes	** NA **	None
68	M87		Yes		None
69	M88		Yes	** NA **	None
70	M89		Yes	** NA **	None
71	M90		Yes	** NA **	None
72	M91		Yes		None
73	M92		Yes	** NA **	None
74	M93		Yes		None
75	M94		Yes	** NA **	None
76	M95		Yes	** NA **	None
77	A3		Yes	Default	None
78	A2		Yes	Default	None
79	HR1		Yes		None
80	HR2		Yes		None
81	HR3		Yes		None
82	HR4		Yes	** NA **	None
83	HR5		Yes	** NA **	None
84	HR6		Yes	** NA **	None
85	HR7		Yes	** NA **	None
86	HR8		Yes	** NA **	None
87	HR9		Yes	** NA **	None
88	HR10		Yes		None
89	HR11		Yes		None
90	HR12		Yes		None
91	HR13		Yes	** NA **	None
92	HR14		Yes	** NA **	None
93	HR15		Yes	** NA **	None
94	HR16		Yes	** NA **	None
95	HR17		Yes	** NA **	None
96	HR18		Yes	** NA **	None
97	HR19		Yes		None
98	HR20		Yes		None
99	HR21		Yes		None
100	HR22		Yes	** NA **	None
101	HR23		Yes	** NA **	None
102	HR24		Yes	** NA **	None
103	HR25		Yes	** NA **	None
104	HR26		Yes	** NA **	None
105	HR27		Yes	** NA **	None
106	HR28		Yes		None
107	HR29		Yes		None
108	HR30		Yes		None
109	RI2		Yes	** NA **	None
110	RI1		Yes	** NA **	None
111	A_MP1_S		Yes	** NA **	None
112	RI3		Yes	** NA **	None
113	RI4		Yes	** NA **	None
114	RI12		Yes	** NA **	None
115	RI11		Yes	** NA **	None
116	A_MP2_S		Yes	** NA **	None
117	RI13		Yes	** NA **	None
118	RI14		Yes	** NA **	None
119	RI15		Yes	** NA **	None
120	RI22		Yes	** NA **	None
121	RI21		Yes	** NA **	None
122	A_MP3_S		Yes	** NA **	None

Member Advanced Data (Continued)

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
123	RI23		Yes	** NA **	None
124	RI24		Yes	** NA **	None
125	RI72		Yes	** NA **	None
126	RI71		Yes	** NA **	None
127	B_MP1_S		Yes	** NA **	None
128	RI73		Yes	** NA **	None
129	RI74		Yes	** NA **	None
130	RI82		Yes	** NA **	None
131	RI81		Yes	** NA **	None
132	B_MP2_S		Yes	** NA **	None
133	RI83		Yes	** NA **	None
134	RI84		Yes	** NA **	None
135	RI85		Yes	** NA **	None
136	RI92		Yes	** NA **	None
137	RI91		Yes	** NA **	None
138	B_MP3_S		Yes	** NA **	None
139	RI93		Yes	** NA **	None
140	RI94		Yes	** NA **	None
141	RI142		Yes	** NA **	None
142	RI141		Yes	** NA **	None
143	G_MP1_S		Yes	** NA **	None
144	RI143		Yes	** NA **	None
145	RI144		Yes	** NA **	None
146	RI152		Yes	** NA **	None
147	RI151		Yes	** NA **	None
148	G_MP2_S		Yes	** NA **	None
149	RI153		Yes	** NA **	None
150	RI154		Yes	** NA **	None
151	RI155		Yes	** NA **	None
152	RI162		Yes	** NA **	None
153	RI161		Yes	** NA **	None
154	G_MP3_S		Yes	** NA **	None
155	RI163		Yes	** NA **	None
156	RI164		Yes	** NA **	None

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	N177	max	1156.177	3	1510.812	16	2852.347	24	5484.76	24	-501.264	1	1506.554	12
2		min	-1022.25	11	-1275.301	8	741.995	16	1107.196	16	-3163.063	26	-1508.676	4
3	N176	max	1157.539	3	1241.729	14	2852.721	30	-1116.428	6	-483.689	1	1506.517	18
4		min	-1020.521	11	-1475.516	6	742.049	6	-5456.218	30	-3215.34	28	-1508.643	10
5	N53	max	1453.174	3	1215.056	15	2852.53	19	550.359	7	6316.698	19	1506.385	7
6		min	-1724.116	11	-1216.812	7	742.053	11	-575.577	15	1283.889	11	-1508.517	15
7	Totals:	max	3766.889	3	3766.898	15	8218.485	31						
8		min	-3766.887	11	-3766.895	7	2378.093	55						

Envelope AISC 15th (360-16): LRFD 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	A2	HSS4X4X4	0.507	0	21	0.109	0	y	21	99172.004	109188	12663	12663	3	H1-1b
2	A3	HSS4X4X4	0.506	0	33	0.108	0	y	26	99172.004	109188	12663	12663	3	H1-1b
3	A1	HSS4X4X4	0.506	0	31	0.108	0	y	31	99172.004	109188	12663	12663	3	H1-1b
4	B_MP2_S	PIPE_2.0	0.479	56.589	8	0.063	57.095		10	14916.096	32130	1871.625	1871.625	1.48	H1-1b
5	A_MP2_S	PIPE_2.0	0.479	56.589	3	0.064	57.095		5	14916.096	32130	1871.625	1871.625	3	H1-1b
6	G_MP2_S	PIPE_2.0	0.479	56.589	14	0.063	57.095		15	14916.096	32130	1871.625	1871.625	1.49	H1-1b
7	A_MP3_S	PIPE_2.0	0.34	38.653	21	0.127	9.095		11	20866.733	32130	1871.625	1871.625	1.996	H1-1b
8	B_MP3_S	PIPE_2.0	0.34	38.653	26	0.127	9.095		16	20866.733	32130	1871.625	1871.625	1.82	H1-1b
9	G_MP3_S	PIPE_2.0	0.34	38.653	31	0.127	38.653		5	20866.733	32130	1871.625	1871.625	2.068	H1-1b

Envelope AISC 15th (360-16): LRFD 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
10	B_MP1_S	PIPE_2.0	0.312	38.653	22	0.132	9.095		17	20866.733	32130	1871.625	1871.625	1.937	H1-1b
11	A_MP1_S	PIPE_2.0	0.312	38.653	32	0.127	38.653		11	20866.733	32130	1871.625	1871.625	1.985	H1-1b
12	G_MP1_S	PIPE_2.0	0.312	38.653	27	0.127	38.653		6	20866.733	32130	1871.625	1871.625	1.996	H1-1b
13	M25	HSS4X4X4	0.258	0	31	0.088	0	y	28	106874.166	109188	12663	12663	1.708	H1-1b
14	M44	HSS4X4X4	0.258	0	20	0.088	0	y	34	106874.166	109188	12663	12663	1.708	H1-1b
15	M34	HSS4X4X4	0.258	0	26	0.088	0	y	23	106874.166	109188	12663	12663	1.708	H1-1b
16	M22	HSS4X4X4	0.257	30.688	28	0.088	30.688	y	31	106874.106	109188	12663	12663	1.715	H1-1b
17	M41	HSS4X4X4	0.257	30.688	34	0.088	30.688	y	20	106874.106	109188	12663	12663	1.715	H1-1b
18	M31	HSS4X4X4	0.257	30.688	23	0.088	30.688	y	26	106874.106	109188	12663	12663	1.715	H1-1b
19	HR1	PIPE_2.0	0.196	75	25	0.13	125.526		11	6295.422	32130	1871.625	1871.625	1.503	H1-1b
20	HR19	PIPE_2.0	0.196	75	30	0.13	125.526		16	6295.422	32130	1871.625	1871.625	1.498	H1-1b
21	HR10	PIPE_2.0	0.196	75	19	0.13	125.526		6	6295.422	32130	1871.625	1871.625	1.498	H1-1b
22	HR12	PL6x0.375	0.188	3.695	33	0.162	4.705	y	15	61872.819	72900	569.7	9112.5	1.319	H1-1b
23	HR21	PL6x0.375	0.187	3.695	28	0.168	4.705	y	9	61872.819	72900	569.7	9112.5	1.264	H1-1b
24	HR3	PL6x0.375	0.187	3.695	23	0.162	4.705	y	4	61872.819	72900	569.7	9112.5	1.264	H1-1b
25	HR20	PL6x0.375	0.183	2.305	21	0.186	1.295	y	7	61872.819	72900	569.7	9112.5	1.313	H1-1b
26	HR2	PL6x0.375	0.181	2.305	32	0.186	1.295	y	18	61872.819	72900	569.7	9112.5	1.346	H1-1b
27	HR11	PL6x0.375	0.181	2.305	27	0.193	1.295	y	13	61872.819	72900	569.7	9112.5	1.346	H1-1b
28	M87	L2x2x3	0.174	50.542	21	0.016	50.542	z	20	9618.956	23392.8	557.717	1137.588	1.5	H2-1
29	M93	L2x2x3	0.173	50.542	32	0.016	50.542	z	31	9618.956	23392.8	557.717	1137.588	1.5	H2-1
30	M81	L2x2x3	0.173	50.542	27	0.016	50.542	z	26	9618.956	23392.8	557.717	1137.588	1.5	H2-1
31	M45	PIPE_3.0	0.171	92.368	25	0.085	93.158		20	59195.507	65205	5748.75	5748.75	3	H1-1b
32	M48	PIPE_3.0	0.171	92.368	30	0.085	93.158		26	59195.507	65205	5748.75	5748.75	3	H1-1b
33	M47	PIPE_3.0	0.171	92.368	19	0.085	93.158		31	59195.507	65205	5748.75	5748.75	3	H1-1b
34	HR29	L2.5x2.5x4	0.169	0	23	0.075	15.408	z	4	36536.53	38556	1113.554	2537.388	1.115	H2-1
35	HR30	L2.5x2.5x4	0.169	0	34	0.075	15.408	z	15	36536.53	38556	1113.554	2537.388	1.115	H2-1
36	HR28	L2.5x2.5x4	0.169	0	28	0.075	15.408	z	10	36536.53	38556	1113.554	2537.388	1.115	H2-1
37	M79	L2x2x3	0.165	50.542	33	0.015	50.542	y	34	9618.888	23392.8	557.717	1137.587	1.5	H2-1
38	M91	L2x2x3	0.164	50.542	22	0.015	50.542	y	23	9618.888	23392.8	557.717	1137.587	1.5	H2-1
39	M85	L2x2x3	0.164	50.542	27	0.015	50.542	y	28	9618.888	23392.8	557.717	1137.587	1.5	H2-1
40	M51	0.5 x 6 Plate	0.112	0	14	0.128	0	y	17	91950.093	97200	1012.5	12150	1.065	H1-1b
41	M53	0.5 x 6 Plate	0.112	0	8	0.125	0	y	12	91950.093	97200	1012.5	12150	1.065	H1-1b
42	M49	0.5 x 6 Plate	0.112	0	3	0.125	0	y	7	91950.093	97200	1012.5	12150	1.065	H1-1b
43	M17	0.5 x 6 Plate	0.11	4.688	14	0.103	4.688	y	10	91950.093	97200	1012.5	12150	1.11	H1-1b
44	M37	0.5 x 6 Plate	0.11	4.688	3	0.103	4.688	y	15	91950.093	97200	1012.5	12150	1.11	H1-1b
45	M27	0.5 x 6 Plate	0.11	4.688	8	0.106	4.688	y	5	91950.093	97200	1012.5	12150	1.11	H1-1b
46	M77	0.38 X 6 Plate	0.098	1.5	9	0.271	3	y	9	71020.258	73872	584.82	9234	3	H1-1b
47	M65	0.38 X 6 Plate	0.098	1.5	4	0.267	3	y	3	71020.258	73872	584.82	9234	3	H1-1b
48	M71	0.38 X 6 Plate	0.098	1.5	15	0.267	3	y	14	71020.258	73872	584.82	9234	3	H1-1b
49	M66	0.38 X 6 Plate	0.097	1.5	12	0.253	3	y	6	71019.885	73872	584.82	9234	3	H1-1b
50	M20	0.38 X 6 Plate	0.097	1.5	18	0.253	3	y	11	71019.885	73872	584.82	9234	3	H1-1b
51	M72	0.38 X 6 Plate	0.097	1.5	7	0.253	3	y	16	71019.885	73872	584.82	9234	3	H1-1b
52	M19	0.38 X 6 Plate	0.088	0.875	17	0.293	0.875	y	9	73624.978	73872	584.82	9234	1.11	H1-1b
53	M30	0.38 X 6 Plate	0.087	0.875	5	0.277	0.875	y	13	73624.978	73872	584.82	9234	1.112	H1-1b
54	M29	0.38 X 6 Plate	0.083	0.875	11	0.287	0.875	y	4	73624.978	73872	584.82	9234	1.113	H1-1b
55	M39	0.38 X 6 Plate	0.083	0.875	6	0.287	0.875	y	15	73624.978	73872	584.82	9234	1.113	H1-1b
56	M21	0.38 X 6 Plate	0.082	0.875	11	0.272	0.875	y	3	73624.978	73872	584.82	9234	1.115	H1-1b
57	M40	0.38 X 6 Plate	0.082	0.875	16	0.272	0.875	y	8	73624.978	73872	584.82	9234	1.115	H1-1b
58	M16	0.5 x 6 Plate	0.065	0	13	0.264	0	y	17	94834.571	97200	1012.5	12150	2.608	H1-1b
59	M28	0.5 x 6 Plate	0.063	0	9	0.229	0	y	5	94834.571	97200	1012.5	12150	2.984	H1-1b
60	M36	0.5 x 6 Plate	0.063	0	18	0.255	0	y	7	94834.571	97200	1012.5	12150	3	H1-1b
61	M26	0.5 x 6 Plate	0.063	0	7	0.255	0	y	12	94834.571	97200	1012.5	12150	3	H1-1b
62	M18	0.5 x 6 Plate	0.06	0	15	0.223	0	y	11	94834.571	97200	1012.5	12150	2.168	H1-1b
63	M38	0.5 x 6 Plate	0.06	0	4	0.223	0	y	16	94834.571	97200	1012.5	12150	2.17	H1-1b

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	370627
Site Name	Newington CT
Project ID	41124-13337527_C8_01-01-MA-R1

ANALYSIS PARAMETERS	
TIA Revision	H

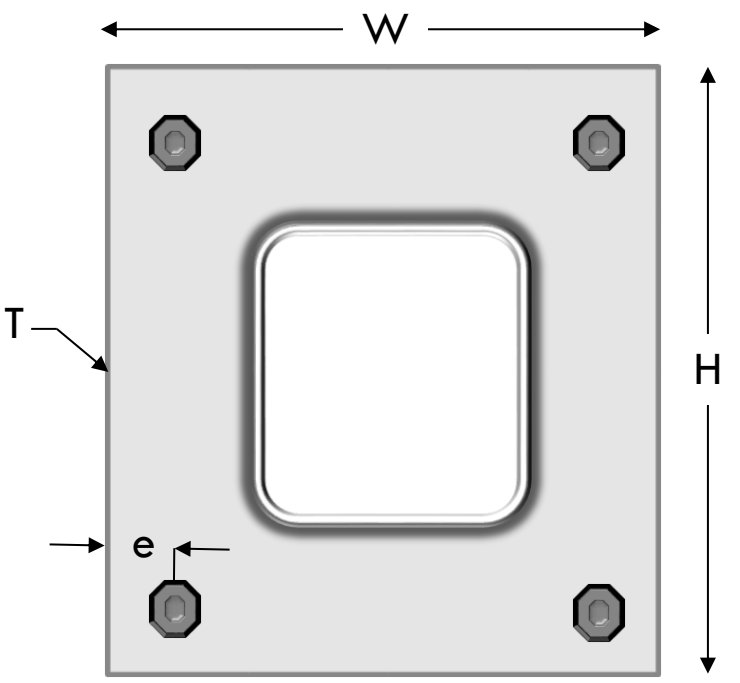
APPLIED FORCES FROM R3D		
Member Label		A1
Member End Label		I
Force-X	Fx, lbs	-1453.2
Force-Y	Fy, lbs	2852.1
Force-Z	Fz, lbs	-1216.9
Moment X-X	Mx, lbs-ft	575.6
Moment Y-Y	My, lbs-ft	-1508.5
Moment Z-Z	Mz, lbs-ft	6316.7

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	0.88	
Shear Capacity (ΦRnv), k	13.81	
Tension Demand (Tu), k	9.55	
Tension Capacity (ΦRnt), k	20.34	
Shear Utilization	6.4%	
Tension Utilization	46.9%	PASS
Interaction Utilization	22.4%	

PLATE ANALYSIS		
Moment Demand (Mu), k-in	13.50	
Flexural Capacity (ΦMn), k-in	25.77	
Plate Utilization	52.4%	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:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Section 1 - Site Information

Site ID: CTHA342A
Status: Draft
Version: 4
Project Type: Anchor
Approved: Not Approved
Approved By: Not Approved
Last Modified: 1/19/2021 6:35:51 PM
Last Modified By: Dominic.Kallas2@T-Mobile.com

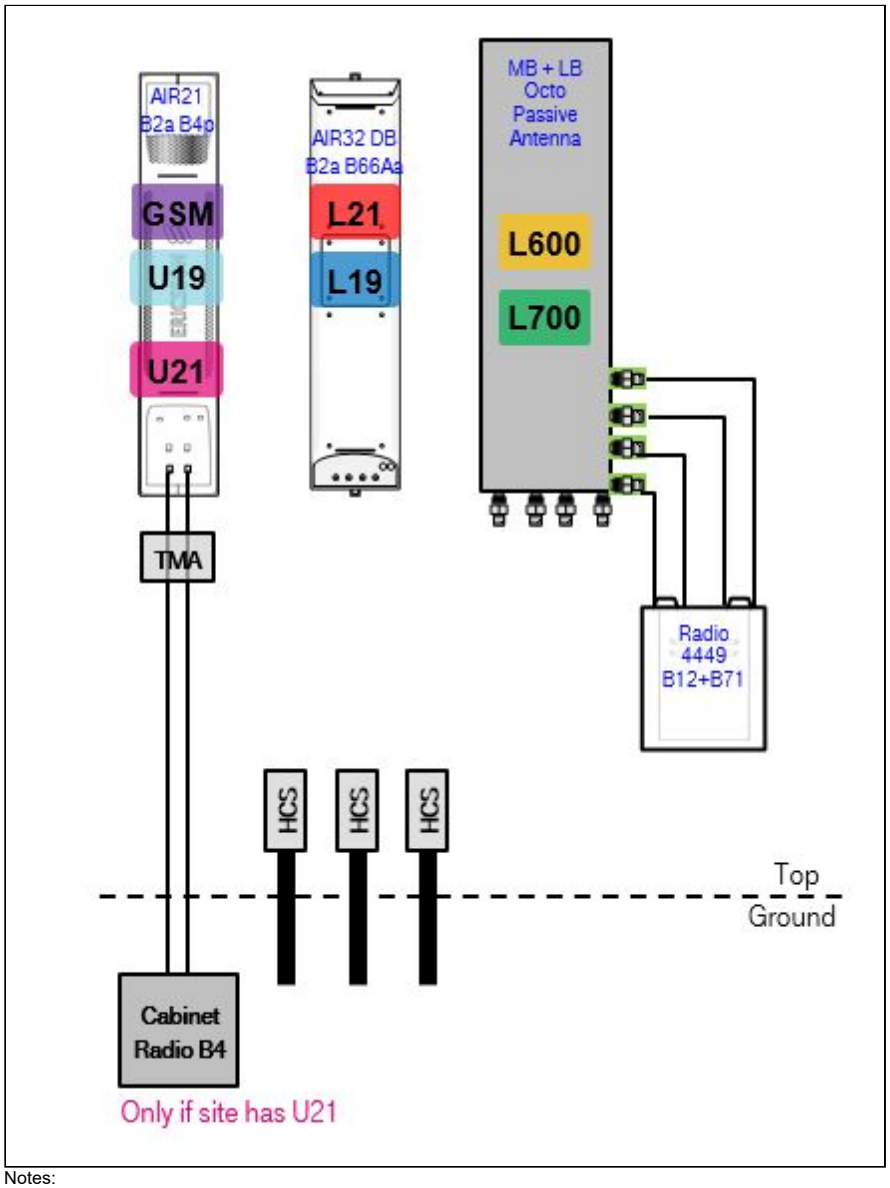
Site Name: CTHA342A
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2020
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: <undefined>

Latitude: 41.70066497
Longitude: -72.73769304
Address: 605 Willard Ave
City, State: Newington, CT
Region: NORTHEAST

RAN Template: 67D5A997DB Outdoor			AL Template: 67D5997DB_2xAIR+1OP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

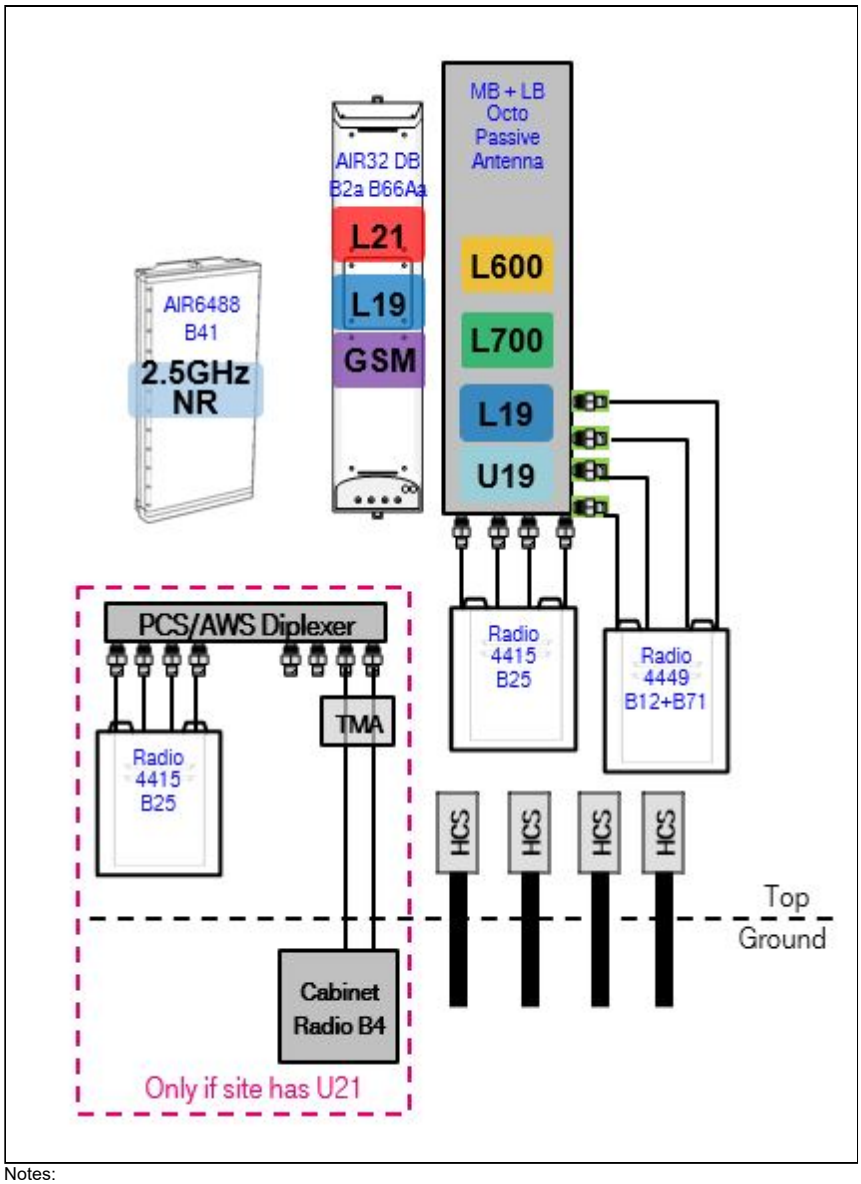
67D92DB_2xAIR+1OP.JPG



Notes:

Section 3 - Proposed Template Images

67D5997DB_2xAIR+1OP.JPG



Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67D92DB Outdoor

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

Proposed RAN Equipment

Template: 67D5A997DB Outdoor

Enclosure	1	2	3
Enclosure Type	RBS 6131	Enclosure 6160	B160
Baseband	DUW30; DUG20 (G1900); BB 6630 (L2100, L1900); BB 6630 (L700, L600, N600)	BB 6630 (L2500); BB 6648 (N2500)	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* **(x 2)** Ericsson 6x12 HCS *Select AWG & Length*	Ericsson Hybrid Trunk 6/24 4AWG 70m PSU 4813	
Radio	RU22 **(x 6)**		
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Pad will need to be extended. Location of new cabinets to be determined.

Add (1) Enclosure 6160.

Add (1) Battery Cabinet B160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) BB6630 for L2500 to new Enclosure 6160.

Add (1) BB6648 for N2500 to new Enclosure 6160.

Add (1) PSU4813 Voltage Booster to new Enclosure 6160.

Existing: (6) Coaxial Lines; (3) 6X12 HCS.

Remove all coaxial lines.

Add (1) 6X24 HCS terminating at the Enclosure 6160. Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster.

RAN Template:	A&L Template:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Section 6 - A&L Equipment

Existing Template: 67D92DB_2xAIR+1OP
Proposed Template: 67D5997DB_2xAIR+1OP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro									
Antenna	1		2				3			
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)			
Azimuth	30		30				30			
M. Tilt										
Height	170		170				170			
Ports	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Active Tech.	G1900	U2100	L700 L600 N600	L700 L600 N600			L2100	L2100	L1900	L1900
Dark Tech.										
Restricted Tech.										
Decomm. Tech.										
E. Tilt	2	2	2		2		2		2	
Cables		1-5/8" Coax - 200 ft. **(x2)** Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**						
TMAs		Generic Twin Style 1B - AWS (AtAntenna)								
Diplexers / Combiners										
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (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:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro										
Antenna	1		2				3				
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)				
Azimuth	30		30				30				
M. Tilt	0		0				0				
Height	170		170				170				
Ports	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L1900	L1900	L2100	L2100	G1900 L1900	L1900	
Dark Tech.											
Restricted Tech.											
Decomm. Tech.											
E. Tilt	2	2	2	2	2	2	2	2	2	2	
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Fiber Jumper	Fiber Jumper	Fiber Jumper	Fiber Jumper	
TMAs											
Diplexers / Combiners											
Radio			Radio 4449 B71+B85 (Antenna)	SHARED Radio 4449 B71+B85 (Antenna)	Radio 4415 B25 (Antenna)	SHARED Radio 4415 B25 (Antenna)					
Sector Equipment											

Unconnected Equipment:

Scope of Work:

Add handrail kit.

Remove AIR21 B2A/B4P from Position 1.

Remove AWS TMA from Position 1.

Remove all Coaxial Lines.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.

Move GSM to AIR32 Dual Band antenna in Position 3. GSM will share B2 radios with L1900 1st Carrier.

Add (1) Radio 4415 B25 for L1900 2nd Carrier to Position 2 at antenna, and connect its ports to the Mid-Band ports of the Octo Antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents.

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

RAN Template:	A&L Template:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro									
Antenna	1		2				3			
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)			
Azimuth	150		150				150			
M. Tilt										
Height	170		170				170			
Ports	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Active Tech.	G1900	U2100	L700 L600 N600	L700 L600 N600			L2100	L2100	L1900	L1900
Dark Tech.										
Restricted Tech.										
Decomm. Tech.										
E. Tilt	2	2	2		2		2		2	
Cables		1-5/8" Coax - 200 ft. **(x2)** Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**						
TMAs		Generic Twin Style 1B - AWS (AtAntenna)								
Diplexers / Combiners										
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (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:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro									
Antenna	1		2				3			
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)			
Azimuth	150		150				150			
M. Tilt	0		0				0			
Height	170		170				170			
Ports	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L1900	L1900	L2100	L2100	L1900 G1900	L1900
Dark Tech.										
Restricted Tech.										
Decomm. Tech.										
E. Tilt	2	2	2	2	2	2	2	2	2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Fiber Jumper	Fiber Jumper	Fiber Jumper	Fiber Jumper
TMAs										
Diplexers / Combiners										
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4415 B25 (At Antenna)	SHARED Radio 4415 B25 (At Antenna)				
Sector Equipment										

Unconnected Equipment:

Scope of Work:

Add handrail kit.

Remove AIR21 B2A/B4P from Position 1.

Remove AWS TMA from Position 1.

Remove all Coaxial Lines.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.

Move GSM to AIR32 Dual Band antenna in Position 3. GSM will share B2 radios with L1900 1st Carrier.

Add (1) Radio 4415 B25 for L1900 2nd Carrier to Position 2 at antenna, and connect its ports to the Mid-Band ports of the Octo Antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents.

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

RAN Template:	A&L Template:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro									
Antenna	1		2				3			
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)			
Azimuth	270		270				270			
M. Tilt										
Height	170		170				170			
Ports	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Active Tech.	G1900	U2100	L700 L600 N600	L700 L600 N600			L2100	L2100	L1900	L1900
Dark Tech.										
Restricted Tech.										
Decomm. Tech.										
E. Tilt	2	2	2		2		2		2	
Cables		1-5/8" Coax - 200 ft. **(x2)** Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**						
TMAs		Generic Twin Style 1B - AWS (AtAntenna)								
Diplexers / Combiners										
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (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:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro									
Antenna	1		2				3			
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)			
Azimuth	270		270				270			
M. Tilt	0		0				0			
Height	170		170				170			
Ports	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L1900	L1900	L2100	L2100	L1900 G1900	L1900
Dark Tech.										
Restricted Tech.										
Decomm. Tech.										
E. Tilt	2	2	2	2	2	2	2	2	2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Fiber Jumper	Fiber Jumper	Fiber Jumper	Fiber Jumper
TMAs										
Diplexers / Combiners										
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4415 B25 (At Antenna)	SHARED Radio 4415 B25 (At Antenna)				
Sector Equipment										

Unconnected Equipment:

Scope of Work:

Add handrail kit.

Remove AIR21 B2A/B4P from Position 1.

Remove AWS TMA from Position 1.

Remove all Coaxial Lines.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.

Move GSM to AIR32 Dual Band antenna in Position 3. GSM will share B2 radios with L1900 1st Carrier.

Add (1) Radio 4415 B25 for L1900 2nd Carrier to Position 2 at antenna, and connect its ports to the Mid-Band ports of the Octo Antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents.

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

RAN Template:	A&L Template:
67D5A997DB Outdoor	67D5997DB_2xAIR+1OP

CTHA342A_Anchor_4_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3

Section 7 - Power Systems Equipment

Existing Power Systems Equipment

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

Proposed Power Systems Equipment

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: CTHA342A

605 Willard Avenue
Newington, Connecticut 06111

March 18, 2021

EBI Project Number: 6221001299

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**21.04%**

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

March 18, 2021

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

Emissions Analysis for Site: CTHA342A -

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **605 Willard Avenue** in **Newington, 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 605 Willard Avenue in Newington, 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) 4 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 channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

9) 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.

10) 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.

11) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antenna mounting height centerline of the proposed antennas is 170 feet above ground level (AGL).

13) 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.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd
Height (AGL):	170 feet	Height (AGL):	170 feet	Height (AGL):	170 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	12,888.76	ERP (W):	12,888.76	ERP (W):	12,888.76
Antenna A1 MPE %:	**1.72%**	Antenna B1 MPE %:	**1.72%**	Antenna C1 MPE %:	**1.72%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd
Height (AGL):	170 feet	Height (AGL):	170 feet	Height (AGL):	170 feet
Channel Count:	7	Channel Count:	7	Channel Count:	7
Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts
ERP (W):	8,466.41	ERP (W):	8,466.41	ERP (W):	8,466.41
Antenna A2 MPE %:	**1.88%**	Antenna B2 MPE %:	**1.88%**	Antenna C2 MPE %:	**1.88%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	170 feet	Height (AGL):	170 feet	Height (AGL):	170 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,841.53	ERP (W):	12,841.53	ERP (W):	12,841.53
Antenna A3 MPE %:	**1.72%**	Antenna B3 MPE %:	**1.72%**	Antenna C3 MPE %:	**1.72%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	5.32%
Nextel	0.44%
Town of Newington	0.03%
Verizon	7.85%
Clearwire	0.08%
AT&T	4.52%
Sprint	2.8%
Site Total MPE % :	21.04%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	5.32%
T-Mobile Sector B Total:	5.32%
T-Mobile Sector C Total:	5.32%
Site Total MPE % :	21.04%

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 2500 MHz LTE	1	6444.38	170.0	8.61	2500 MHz LTE	1000	0.86%
T-Mobile 2500 MHz NR	1	6444.38	170.0	8.61	2500 MHz NR	1000	0.86%
T-Mobile 600 MHz LTE	2	591.73	170.0	1.58	600 MHz LTE	400	0.40%
T-Mobile 600 MHz NR	1	1577.94	170.0	2.11	600 MHz NR	400	0.53%
T-Mobile 700 MHz LTE	2	648.82	170.0	1.73	700 MHz LTE	467	0.37%
T-Mobile 1900 MHz LTE	2	2203.69	170.0	5.89	1900 MHz LTE	1000	0.59%
T-Mobile 1900 MHz GSM	4	1028.30	170.0	5.50	1900 MHz GSM	1000	0.55%
T-Mobile 1900 MHz LTE	2	2056.61	170.0	5.50	1900 MHz LTE	1000	0.55%
T-Mobile 2100 MHz LTE	2	2307.55	170.0	6.17	2100 MHz LTE	1000	0.62%
						Total:	**5.32%**

• 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:	5.32%
Sector B:	5.32%
Sector C:	5.32%
T-Mobile Maximum MPE % (Sector A):	5.32%
Site Total:	21.04%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **21.04%** 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.