INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

Transcend Wireless

September 21, 2021

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

RE: Notice of Exempt Modification
309 East Hill Road (aka 4 Hoffman Road), Canton, CT 06019
Latitude: 41.855277778
Longitude: -72.89250000
T-Mobile Site#: CTHA532A - Anchor/L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 140' level of the 150' monopole located at 4 Hoffman Road in Canton, CT. The monopole is owned by American Tower and the property is owned by Brian and Kelly Biskupiak. T-Mobile now intends to replace nine (9) of its existing antennas with nine (9) L700/L600/N600/L1900/L2100/U2100/L2500/N2500 antennas. The new antennas would be installed at the same 140' level of the tower. The new antennas support 5G services.

Planned Modifications:
Tower:
Install New:
(3) Ericsson AIR6449 B41 Antennas
(3) RFS APXVAALL24 43-U-NA20 Antennas
(3) RFS APX16DWV-16DWV-S-E-A20 Antennas
(3) Radio 4480 B71 B85
(3) Radio 4460 B25 B66
(3) 1 ⅝" Hybrid Cables

To Be Removed:
(6) Ericsson AIR21 KRC118023-1 Antennas
(3) LNX-6515DS-A1M Antennas
(1) 1 ⅝" Hybrid Cable
(1) 1 ¼" Hybrid Cable

(6) ⅞" Coax Cables

Ground Work:
Remove (1) Generic Cabinet, (1) DUW30, (6) RUS01s RRUs, (1) BB5216, (1) XMU
Install (1) 6160 Equipment Cabinet, (1) B160 Battery Cabinet, (3) BB6648, (1) DUG20, (1) PSU4813, (1) CSR IXRe V2, and (1) Concrete Pad Extension

This facility was approved by the Connecticut Siting Council in Docket No. 62 on August 4, 1986. The Docket is attached. None of the modifications break the conditions given.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman Robert Bessel, Elected Official, Neil Pade, Director of Planning and Community Development, as well as the property and tower 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: Robert Bessel - First Selectman of Canton
Neil Pade - Director of Planning and Community Development
Town of Enfield - Property Owner
American Towers - Tower Owner

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
PLANNING AND DEVELOPMENT
NEIL PADE
CANTON TOWN HALL
4 MARKET STREET
COLLINSVILLE CT 06019

CT 067 9-03

UPS GROUND

TRACKING #: 1Z V25 742 03 9869 5579

BILLING: P/P

Reference #1: CTHA532A

XOL 21.09.06 NV45 38.0A 09/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
FIRST SELECTMAN ROBERT BESSEL
CANTON TOWN HALL
4 MARKET STREET
COLLINSVILLE CT 06019

CT 067 9-03

UPS GROUND

TRACKING #: 1Z V25 742 03 9754 5563

BILLING: P/P

Reference #1: CTHA532A

XOL 21.09.06 NV45 38.0A 09/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

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

MA 018 9-04

UPS GROUND
TRACKING #: 1Z V25 742 03 9605 5595

BILLING: P/P

Reference #1: CTHA532A

XOL 21.09.06 NV45 38.0A 09/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
BRIAN & KELLY BISKUPIAK
14 CROWN POINT
CANTON CT 06019

CT 067 9-03

UPS GROUND
TRACKING #: 1Z V25 742 03 9986 5580

BILLING: P/P

Reference #1: CTHA532A

XOL 21.09.06 NV45 38.0A 09/2021*

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/22/2021

Delivery Time: 12:50 PM

Left At: RECEIVER

Signed by: SMITH

TRANSCEND WIRELESS

Tracking Number:	1ZV257420398695579
Ship To:	NEIL PADE 4 MARKET STREET CANTON TOWN HALL COLLINSVILLE, CT 06019 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA532A

Your shipment
1ZV257420397545563

Delivered On
Wednesday, September 22 at 12:50 P.M. at Receiver

Delivered To
COLLINSVILLE, CT US

Received By:
SMITH
Proof of Delivery

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/22/2021

Delivery Time: 3:04 PM

Left At: FRONT DOOR

Experience UPS My Choice® Premium Today

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

Upgrade to Premium Now

Set Delivery Instructions | Manage Preferences | V

TRANSCEND WIRELESS

Tracking Number:	1ZV257420399865580
Ship To:	BRIAN & KELLY BISKUPIAK 14 CROWN POINT CANTON, CT 06019 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA532A

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/22/2021

Delivery Time: 11:03 AM

Left At: DOCK

Signed by: ANCRI

TRANSCEND WIRELESS

Tracking Number:	1ZV257420396055595
Ship To:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA532A

Parcel Information

Location:	4 HOFFMANN ROAD	Property Use:	Vacant Land	Primary Use:	Residential
Unique ID:	3200004	Map Block Lot:	23/320/0004	Acres:	6.88
490 Acres:	0.00	Zone:	R-3	Volume / Page:	0421/1046
Developers Map / Lot:	A	Census:			
Location:	4 HOFFMANN ROAD	Property Use:	Vacant Land	Primary Use:	Residential
Unique ID:	3200004	Map Block Lot:	23/320/0004	Acres:	6.88
490 Acres:	0.00	Zone:	R-3	Volume / Page:	0421/1046
Developers Map / Lot:	A	Census:			

Value Information

	Appraised Value	Assessed Value
Land	264,347	185,040
Buildings	0	0
Detached Outbuildings	12,499	8,750
Total	276,846	193,790

Owner's Information

Owner's Data
BISKUPIAK BRIAN & BISKUPIAK KELLEY 14 CROWN POINT CANTON, CT 09019

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Detatched Frame Garage	1985	31.00	24.00	744

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
BISKUPIAK BRIAN &	0421	1046	09/23/2015		$300,000
MACK IV LLC	0403	1013	04/23/2013		$260,000
HART JAMES H &	0360	0841			$0
HOFFMANN EDITH L	0123	0628			$0
HOFFMANN HERMAN A &	0123	0628			$0
HOFFMANN HERMAN A - ESTATE OF &	0123	0628			$0

Town of Canton, Connecticut

2021 Assessment Parcel Map

Legend

- Historic Parcel Boundary
- Easement Line
- 27 Property Lot Number
- Property Boundary
- MapGrid
- 1850371 Unique ID
- Roads
- Water

0 250 500 750 1,000

Feet

1 inch = 200 feet

Print Date:June 2021
for Grand List 2020

Map 23 Location

Map 14	Map 15	Map 16
Map 18	Map 19	Map 20
Map 22	Map 23	Map 24
Map 26	Map 27	Map 28
Map 30	Map 31	Map 32

N W E S

Map Coordinated based on NAD 83 Connecticut State Plane Feet

NEGEO New England Geosystems www.negeosystems.com

Disclaimer
This map is for informational purposes only. All information is subject to verification by any user. The Town of Canton and its mapping contractors assume no legal responsibility for the information contained within.

Map 23

DOCKET NO. 62

AN APPLICATION OF THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN THE TOWN OF CANTON, CONNECTICUT.	:	CONNECTICUT SITING COUNCIL
	:	August 4, 1986

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

Pursuant to the foregoing Opinion, the Connecticut Siting Council (Council) hereby directs that a certificate of environmental compatibility and public need (certificate) as provided by section 16-50k of the General Statutes of Connecticut (CGS) be issued to the Southern New England Telephone Company (SNET) for the construction, maintenance, and operation of a cellular mobile telephone telecommunication tower and associated equipment in the Town of Canton, subject to the conditions below.

1. The tower shall be no taller than necessary to provide the proposed service, and in no event shall exceed 167', including antennas, at the Hoffmann Road site.
2. A fence not lower than eight feet shall surround the tower and associated equipment building.
3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to these facilities.
4. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the tower, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

5. Unless necessary to comply with condition number six, below, no lights shall be installed on this tower.
6. The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.
7. The applicant shall submit a Development and Management Plan (D&M) for the tower site pursuant to sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies, except that irrelevant items in section 16-50j-76 need only be identified as such. In addition to the requirements of section 16-50j-76, the D&M plan shall provide a plan for evergreen screening around the fenced perimeter of the tower site. The D&M plan must be approved prior to facility construction. Any changes to specifications in the D&M plan must be approved by the Council prior to facility operation.
8. Construction activities shall take place during daylight working hours.
9. The certificate holder shall comply with any future radiofrequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facilities granted in this decision shall comply with such standards.
10. This decision and order shall be void and the towers and associated equipment shall be dismantled and removed, or reapplication for any new use shall be made to the Council before any such new use is made, if the tower does not provide or permanently ceases to provide cellular service following completion of construction.

11. This Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this decision, or within three years of the completion of any appeal if appeal of this decision is taken, unless otherwise approved by the Council.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the Decision and Order shall be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant and the Farmington Valley Herald.

The parties to the proceeding are:

Southern New England Telephone Company (Applicant)
c/o Peter J. Tyrrell
Senior Attorney
Room 1021
227 Church Street
New Haven, Connecticut 06506
(203) 771-7381

The Hartford Cellular Company represented by:

Howard L. Slater
Byrne, Slater, Sandler, Shulman & Rouse, P.C.
111 Pearl Street
P.O. Box 3216
Hartford, Connecticut 06103

Town of Simsbury represented by:

Mr. Leonard D. Tolisano
Town Planner
Town of Simsbury
P.O. Box 495
Simsbury, Connecticut 06070

Town of Canton represented by:

Mr. Marshall K. Berger, Jr.
Attorney at Law
Suite 308
60 Washington Street
Hartford, Connecticut 06106

Ms. Karen Berger	represented by: Mr. Marshall K. Berger, Jr. Attorney at Law Suite 308 60 Washington Street Hartford, Connecticut 06106 (service waived)
Mr. Harvey Jassem 243 East Hill Road Canton, Connecticut 06019	
Ms. Judy Friedman 101 Lawton Road Canton, Connecticut 06019	(service waived)
Mr. Gilbert Small 315 East Hill Road Canton, Connecticut 06019	(service waived)
John G. Petrasch 330 East Hill Road Canton, Connecticut 06019	(service waived)

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

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

Dated at New Britain, Connecticut, this 4th day of August, 1986.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner John Downey Designee: Edward Moehringer	Yes
Commissioner Stanley Pac Designee: Brian Emerick	Abstain
Owen L. Clark	Yes
Mortimer A. Gelston	Absent
James G. Horsfall	Absent
Pamela B. Katz	No
William H. Smith	Absent
Colin C. Tait	Yes

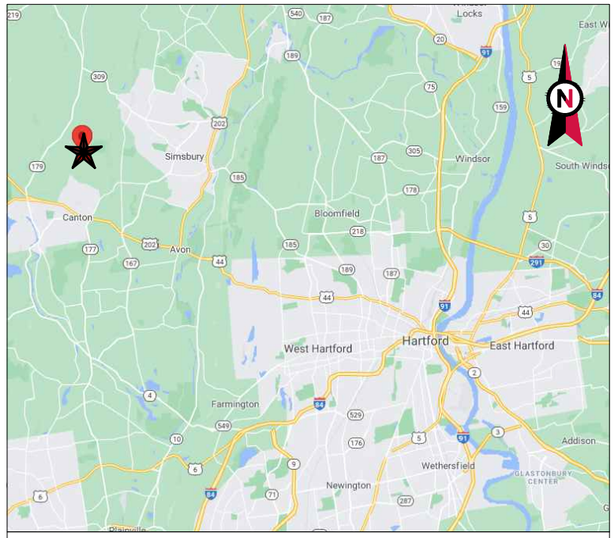
STATE OF CONNECTICUT)
: ss. New Britain, August 4, 1986
COUNTY OF HARTFORD)

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

ATTEST:

Gloria Dibble Pond

Gloria Dibble Pond, Chairperson
Connecticut Siting Council



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: CNTN - CANTON
ATC SITE NUMBER: 302488
T-MOBILE SITE NAME: ATC CANTON MONOPOLE
T-MOBILE SITE NUMBER: CTHA532A
SITE ADDRESS: 4 HOFFMANN ROAD CANTON CT, 06019

LOCATION MAP

T-MOBILE AMENDMENT ANTENNA AMENDMENT PLAN
67E5A998E ODE+6160 CONFIGURATION

COMPLIANCE CODE

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

1. 2015 INTERNATIONAL BUILDING CODE (IBC)
2. 2014 NATIONAL ELECTRIC CODE (NEC)
3. BASIC WIND SPEED 115 MPH (3-SECODN GUST, VULT) / EXPOSURE CATEGORY: B / RISK CATEGORY: II
4. LOCAL BUILDING CODE
5. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: TBD
PHONE: N/A

TELEPHONE COMPANY: TBD
PHONE: N/A

CBYD.COM 811 Call Before You Dig, Inc.

PROJECT SUMMARY

SITE ADDRESS:

4 HOFFMANN ROAD

CANTON CT, 06019

COUNTY: HARTFORD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.85527778

LONGITUDE: -72.89250000

GROUND ELEVATION: 784' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

APPLICANT:

T-MOBILE
SUE EMERY
SUSAN.EMERY@T-MOBILE.COM

ENGINEER:

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

PROPERTY OWNER:

BISKUPIAK BRIAN
14 CROWN POINT,
CANTON, CT 09019

PROJECT DESCRIPTION

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

TOWER WORK:

REMOVE (6) AIR21 KRC118023-1_B2P_B4A ANTENNA(s), (3) LNX-6515DS-A1M ANTENNAS, (1) 6X12 1 ¼" HYBRID CABLE, (1) 9X18 1 5/8" HYBRID CABLE(s), AND (6) 7/8" COAX CABLE(s)

INSTALL (3) APXVAALL24_43-U-NA20 ANTENNA(s), (3) AIR6449 B41 ANTENNA(s), (3) APX16DWV-S-E-A20 ANTENNAS (3) RADIO 4460 B25+B66 RRU(s), (3) RADIO 4480 B71+B85 RRU(s), AND (3) 6X24 1 5/8" HYBRID CABLE(s)

GROUND WORK:

REMOVE (1) GENERIC BATTERY CABINET, (1) DUW30, (1) BB 5216, (1) XMU, AND (6) RUS01 B12 RRU(s) AND (1) CORNER HAND RAIL

INSTALL (1) ENCLOSURE 6160, (1) B160 BATTERY CABINET, (3) BB 6648, (1) DUG20, (1) PSU 4813, (1) CSR IXRe V2 AND (1) CONCRETE PAD EXTENSION AND (1) HANDRAIL

EXISTING (1) RBS 6201 AND (1) HANDRAIL TO REMAIN

THE PROPOSED PROJECT DOES NOT INCLUDE ELECTRICAL SCOPE

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.
6. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION REMOVAL AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

PROJECT LOCATION DIRECTIONS

FROM CANTON:

I-84 TO RT 179 N. FOLLOW 179 TO CANTON CENTER. TURN RIGHT ON EAST HILL RD. FOLLOW FOR A COUPLE OF MILES. TOWER IS ON THE RIGHT.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	2	9/8/2021	SM
G-002	GENERAL NOTES	2	9/8/2021	SM
C-101	DETAILED SITE PLAN	2	9/8/2021	SM
C-102	DETAILED GROUND PLAN	2	9/8/2021	SM
C-201	TOWER ELEVATION	2	9/8/2021	SM
C-401	ANTENNA INFORMATION & SCHEDULE	2	9/8/2021	SM
C-501	CONSTRUCTION DETAILS	2	9/8/2021	SM
C-502	CONCRETE PAD DETAILS	2	9/8/2021	SM
E-501	GROUNDING DETAILS	2	9/8/2021	SM
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			

AMERICAN TOWER®

Kimley»Horn

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

REV.	DESCRIPTION	BY	DATE
A	PRELIM	CCG	06/03/21
0	ISSUED FOR CONSTRUCTION	RCG	07/09/21
1	REVISED PER CLIENT	JW	07/21/21
2	REVISED FOR CONSTRUCTION	SM	09/08/21

ATC SITE NUMBER:
302488
ATC SITE NAME:
CNTN - CANTON
T-MOBILE SITE NAME:
ATC CANTON MONOPOLE
SITE ADDRESS:
4 HOFFMANN ROAD
CANTON CT, 06019

SEAL:

STATE OF CONNECTICUT · KYLE JENSEN FREEHART · 34906 LICENSED PROFESSIONAL ENGINEER

DocuSigned by: Kyle Freehart
D8BEE252A3804C1...

T-Mobile

DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

TITLE SHEET

SHEET NUMBER: G-001
REVISION: 2

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GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
   - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   - B. AC/TELCO INTERFACE BOX (PPC)
   - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   - D. TOWERS, MONOPOLES
   - E. TOWER LIGHTING
   - F. GENERATORS & LIQUID PROPANE TANK
   - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
   - H. ANTENNAS (INSTALLED BY OTHERS)
   - I. TRANSMISSION LINE
   - J. TRANSMISSION LINE JUMPERS
   - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   - L. TRANSMISSION LINE GROUND KITS
   - M. HANGERS
   - N. HOISTING GRIPS
   - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION ANTENNA INSTALLATION NOTES:

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

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

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

CONCRETE AND REINFORCING STEEL NOTES:

2. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF ALL APPLICABLE CODES INCLUDING: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 117 "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS", AND ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
3. MIX DESIGN SHALL BE APPROVED BY T-MOBILE REP PRIOR TO PLACING CONCRETE.
4. CONCRETE SHALL BE NORMAL WEIGHT, 6 % AIR ENTRAINED (+/- 1.5%) WITH A SLUMP RANGE OF 3-6" AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI UNLESS OTHERWISE NOTED.
5. THE FOLLOWING MATERIALS SHALL BE USED:

PORTLAND CEMENT:	ASTM C150, TYPE 2
REINFORCEMENT:	ASTM A185, PLAIN STEEL WELDED WIRE FABRIC
REINFORCEMENT BARS:	ASTM A615, GRADE 60, DEFORMED
NORMAL WEIGHT AGGREGATE:	ASTM C33
WATER:	ASTM C 94/C 94M
WELDED WIRE FABRIC:	ASTM A185
ADMIXTURES:	
-WATER-REDUCING AGENT:	ASTM C 494/C 494M, TYPE A
-AIR-ENTERING AGENT:	ASTM C 260/C 260M
-SUPERPLASTICIZER:	ASTM C494, TYPE F OR TYPE G
-RETARDING:	ASTM C 494/C 494M, TYPE B

6. MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE NO LESS THAN 3".
7. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE IN ACCORDANCE WITH ACI 301 SECTION 4.2.4, UNLESS NOTED OTHERWISE.
8. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL, OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR APPROVAL FROM AN ATC ENGINEER WHEN DRILLING HOLES IN CONCRETE.
9. ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN "METHOD 1" OF ACI 301.
10. DO NOT WELD OR TACK WELD REINFORCING STEEL.
11. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
12. REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
13. DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
14. FOR COLD-WEATHER (ACI 306) AND HOT-WEATHER (ACI 301M) CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS, MINIMUM.
15. ALL CONCRETE SHALL HAVE A "SMOOTH FORM FINISH."
16. SPLICING OF REINFORCEMENT IS PERMITTED ONLY AT LOCATIONS SHOWN IN THE CONTRACT DRAWINGS OR AS ACCEPTED BY THE ENGINEER. UNLESS OTHERWISE SHOWN OR NOTED REINFORCING STEEL SHALL BE SPLICED TO DEVELOP ITS FULL TENSILE CAPACITY (CLASS A) IN ACCORDANCE WITH ACI 318.
17. DETAILING OF REINFORCING STEEL SHALL CONFORM TO "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315).
18. ALL SLAB CONSTRUCTION SHALL BE CAST MONOLITHICALLY WITHOUT HORIZONTAL CONSTRUCTION JOINTS, UNLESS SHOWN IN THE CONTRACT DRAWINGS.
19. LOCATION OF ALL CONSTRUCTION JOINTS ARE SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONFORMANCE WITH ACI 318, AND ACCEPTANCE OF THE ENGINEER. DRAWINGS SHOWING LOCATION OF DETAILS OF THE PROPOSED CONSTRUCTION JOINTS SHALL BE SUBMITTED WITH REINFORCING STEEL PLACEMENT DRAWINGS.
20. SPLICES OF WWF, AT ALL SPLICED EDGES, SHALL BE SUCH THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRE PLUS 2 INCHES, NOR LESS THAN 6".
21. BAR SUPPORTS SHALL BE ALL-GALVANIZED METAL WITH PLASTIC TIPS.
22. ALL REINFORCEMENT SHALL BE SECURELY TIED IN PLACE TO PREVENT DISPLACEMENT BY CONSTRUCTION TRAFFIC OR CONCRETE. TIE WIRE SHALL BE OF SUFFICIENT STRENGTH FOR INTENDED PURPOSE, BUT NOT LESS THAN NO. 18 GAUGE.
23. SLAB ON GROUND: COMPACT STRUCTURAL FILL TO 95% DENSITY AND THEN PLACE 6" GRAVEL BENEATH SLAB.

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®

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RALEIGH, NC 27601

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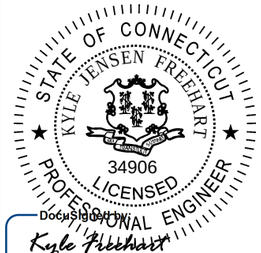
A	PRELIM	CCG	06/03/21
0	ISSUED FOR CONSTRUCTION	RCG	07/09/21
1	REVISED PER CLIENT	JW	07/21/21
2	REVISED FOR CONSTRUCTION	SM	09/08/21

ATC SITE NUMBER:
302488
ATC SITE NAME:
CNTN - CANTON
T-MOBILE SITE NAME:
ATC CANTON MONOPOLE
SITE ADDRESS:
4 HOFFMANN ROAD
CANTON CT, 06019

SEAL:



DocuSigned by:
Kyle Freehart
D8BEE252A3804C1...

T-Mobile

DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	2

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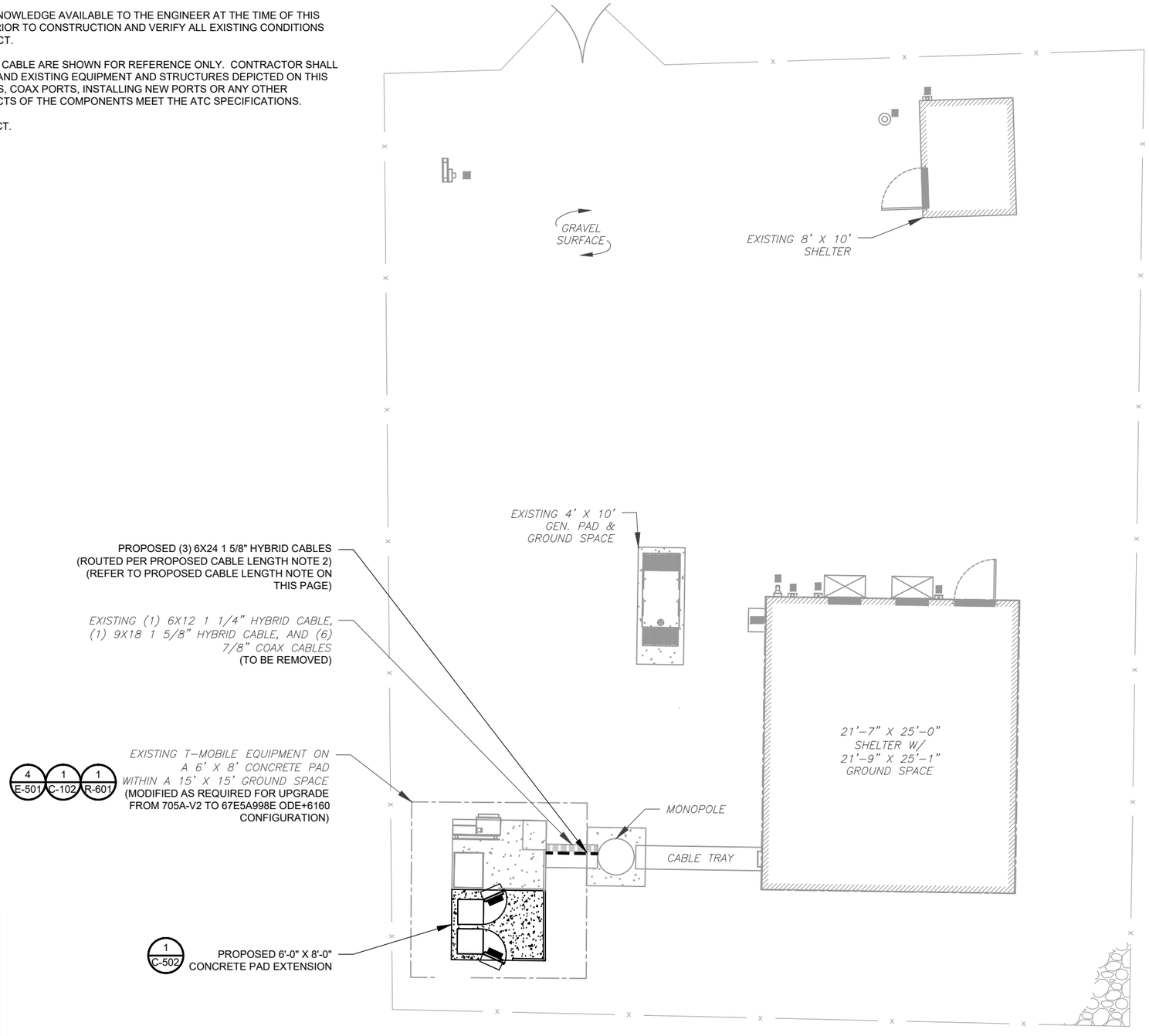
SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. NO ELECTRICAL SCOPE IS INCLUDED IN THIS PROJECT.

LEGEND

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



1 DETAILED SITE PLAN

0 10' 20'

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

PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **166'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

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421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	CCG	06/03/21
0	ISSUED FOR CONSTRUCTION	RCG	07/09/21
1	REVISED PER CLIENT	JW	07/21/21
2	REVISED FOR CONSTRUCTION	SM	09/08/21

ATC SITE NUMBER:
302488

ATC SITE NAME:
CNTN - CANTON

T-MOBILE SITE NAME:
ATC CANTON MONOPOLE

SITE ADDRESS:
4 HOFFMANN ROAD
CANTON CT, 06019

SEAL:

STATE OF CONNECTICUT · KYLE JENSEN FREEHART · 34906 · LICENSED PROFESSIONAL ENGINEER

Docusigned by:
Kyle Freehart
D8BEE252A3804C1...

T-Mobile

DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

DETAILED SITE PLAN

SHEET NUMBER: C-101

REVISION: 2

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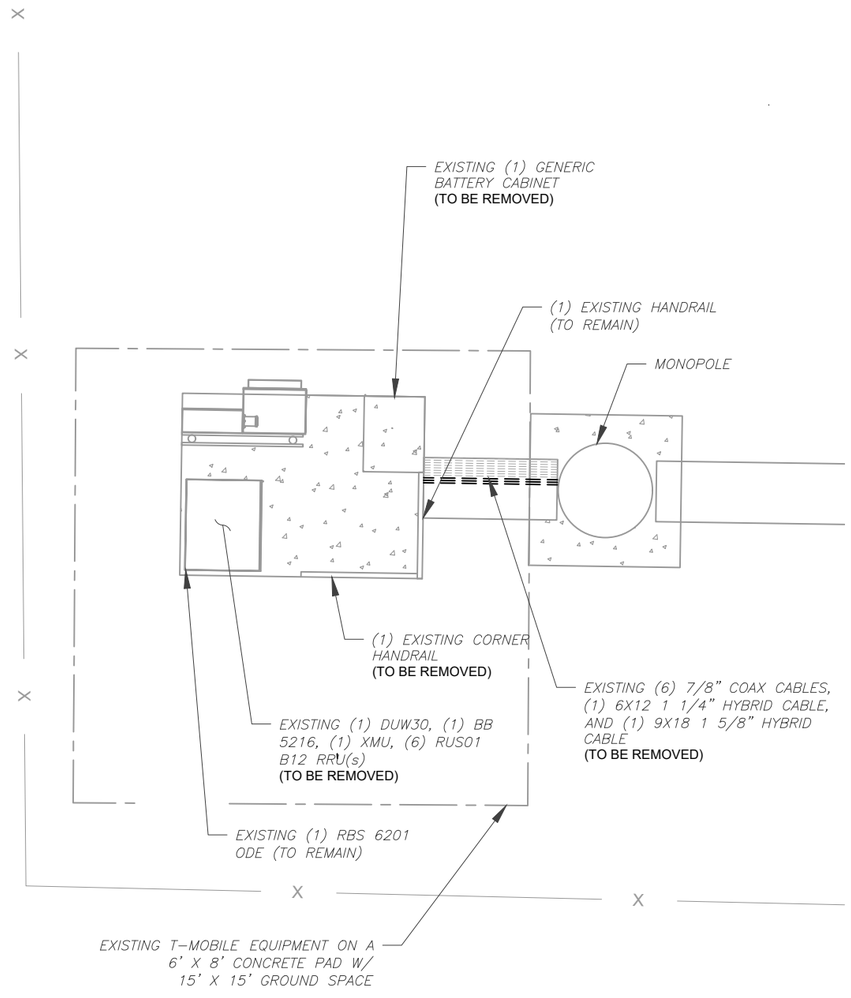
SITE PLAN NOTES:

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

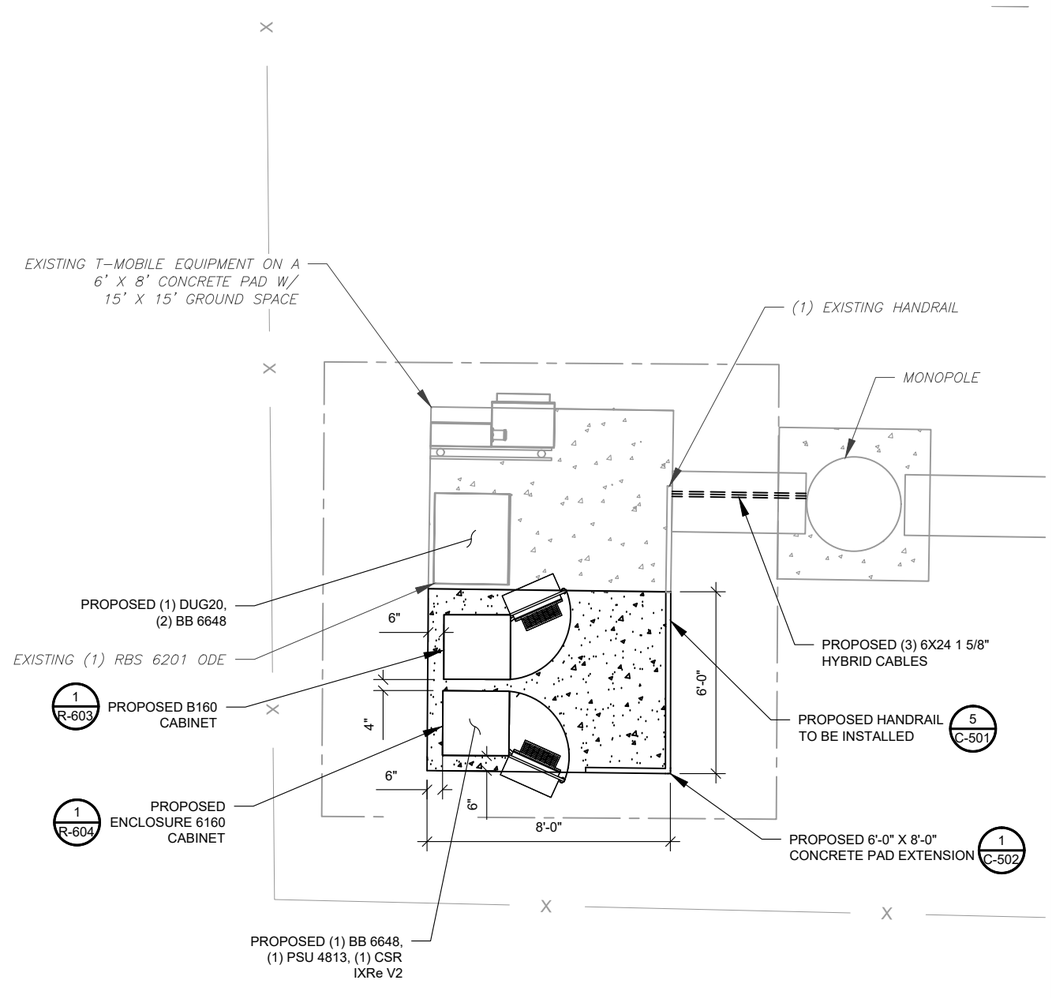


1 EXISTING GROUND EQUIPMENT LAYOUT

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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SITE ADDRESS:
4 HOFFMANN ROAD
CANTON CT, 06019

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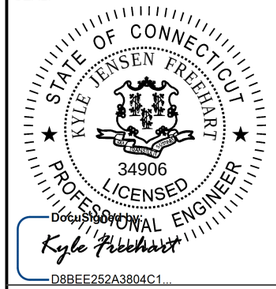

T-Mobile

DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

DETAILED GROUND PLAN

SHEET NUMBER:	REVISION:
C-102	2

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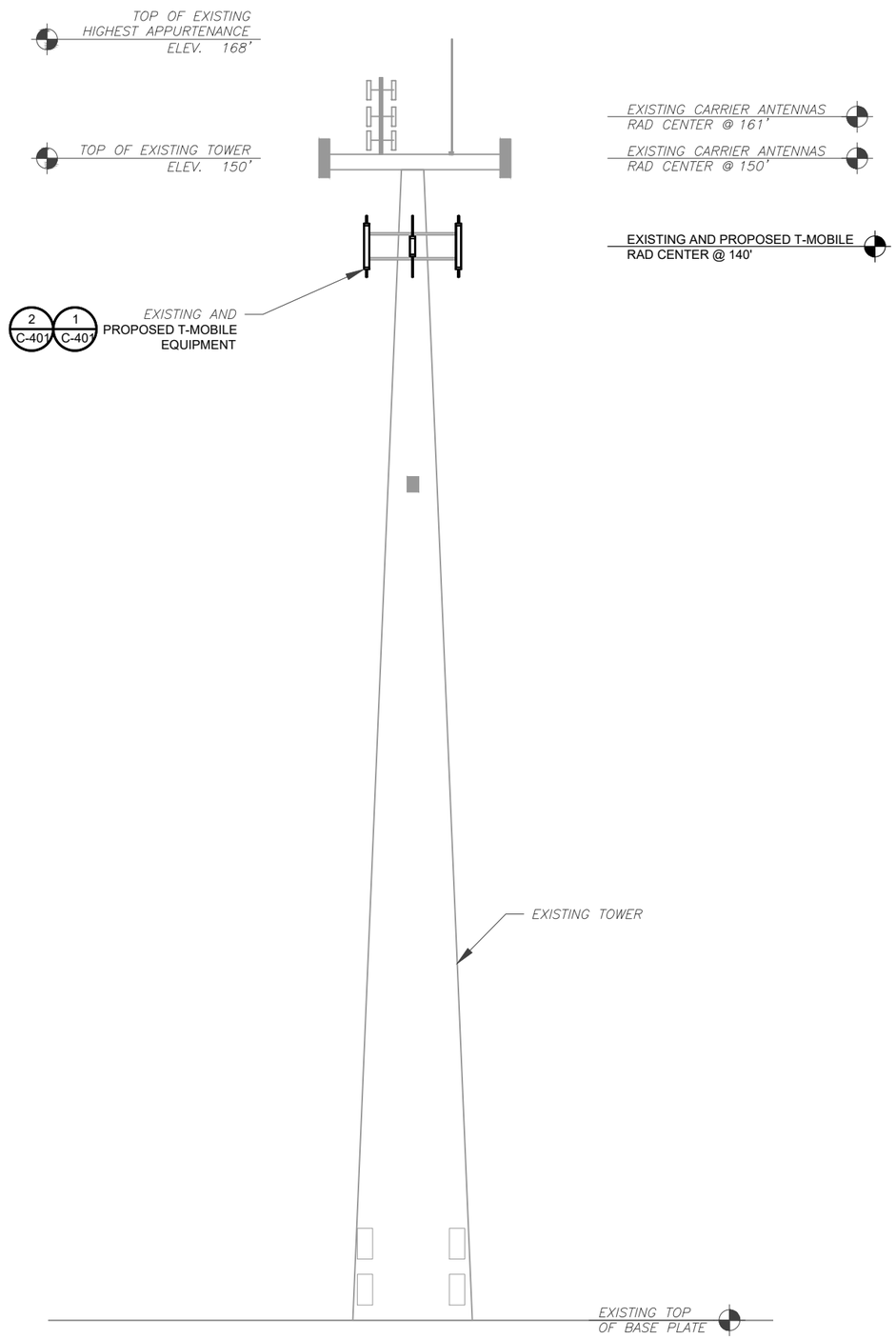

1 TOWER ELEVATION

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 05/20/21, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

TOWER NOTE:

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

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ATC CANTON MONOPOLE

SITE ADDRESS:
4 HOFFMANN ROAD
CANTON CT, 06019

SEAL:

STATE OF CONNECTICUT
KYLE JENSEN FREEHART
34906
LICENSED PROFESSIONAL ENGINEER

DocuSigned by:
Kyle Freehart
D8BEE252A3804C1...

T-Mobile

DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-201	2

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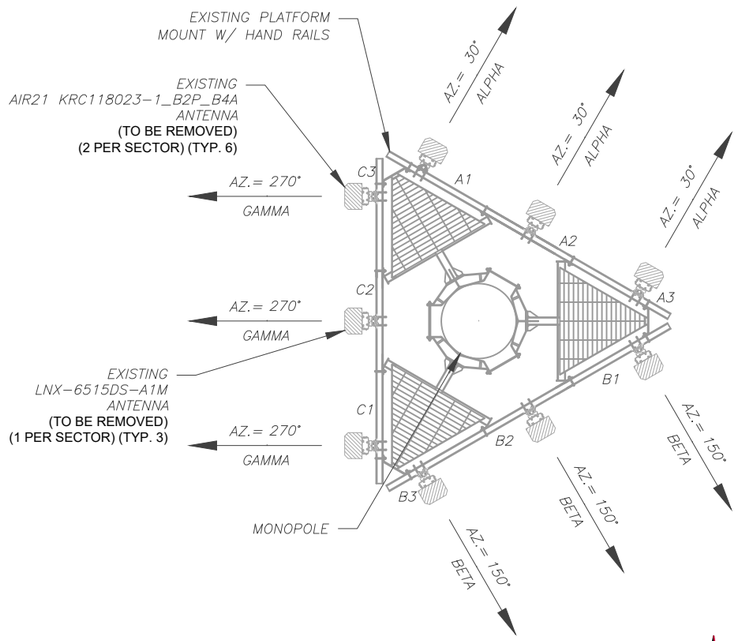
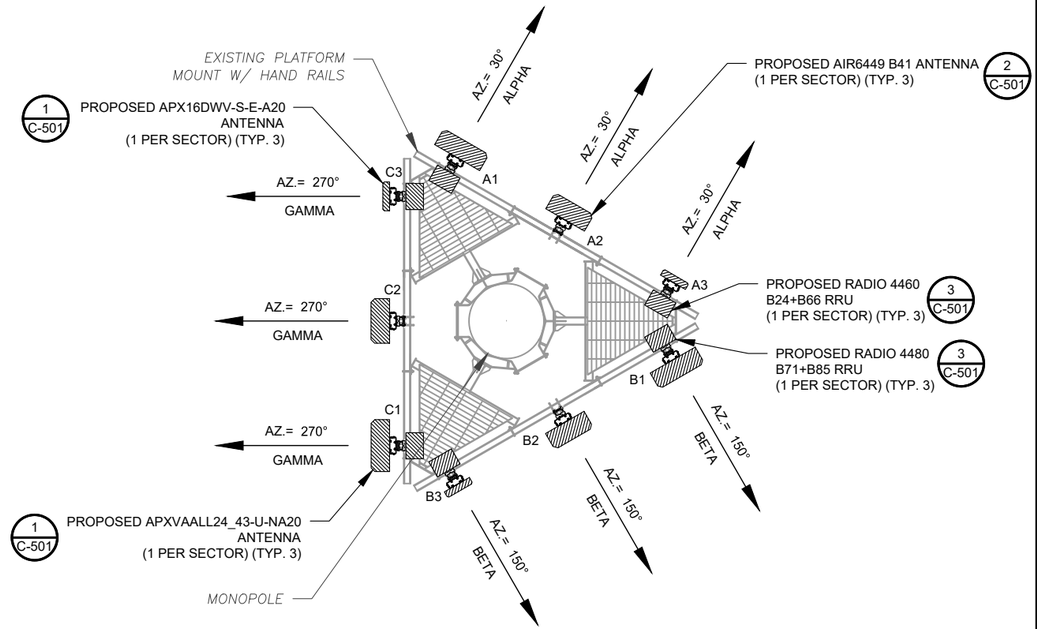


1 EXISTING ANTENNA PLAN

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 05/20/21, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



2 FINAL ANTENNA PLAN

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	30°	A1	AIR21 KRC118023-1_B2P_B4A	U2100	2°	RMV	–	–
			A2	LNX-6515DS-A1M	L700	2°	RMV	–	–
			A3	AIR21 KRC118023-1_B2P_B4A	L2100	2°	RMV	–	–
BETA	140'	150°	B1	AIR21 KRC118023-1_B2P_B4A	U2100	2°	RMV	–	–
			B2	LNX-6515DS-A1M	L700	2°	RMV	–	–
			B3	AIR21 KRC118023-1_B2P_B4A	L2100	2°	RMV	–	–
GAMMA	140'	270°	C1	AIR21 KRC118023-1_B2P_B4A	U2100	2°	RMV	–	–
			C2	LNX-6515DS-A1M	L700	2°	RMV	–	–
			C3	AIR21 KRC118023-1_B2P_B4A	L2100	2°	RMV	–	–

NOTES

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

STATUS ABBREVIATIONS

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

CABLE LENGTHS FOR JUMPERS

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

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	30°	A1	APXVAALL24_43-U-NA20	L700/L600/N600	0°	ADD	RADIO 4480 B71+B85	ADD
			A2	AIR6449 B41	L2500/N2500	0°	ADD	-	-
			A3	APX16DWV-S-E-A20	L2100/L1900/G1900	0°	ADD	RADIO 4460 B25+B66	ADD
BETA	140'	150°	B1	APXVAALL24_43-U-NA20	L700/L600/N600	0°	ADD	RADIO 4480 B71+B85	ADD
			B2	AIR6449 B41	L2500/N2500	0°	ADD	-	-
			B3	APX16DWV-S-E-A20	L2100/L1900/G1900	0°	ADD	RADIO 4460 B25+B66	ADD
GAMMA	140'	270°	C1	APXVAALL24_43-U-NA20	L700/L600/N600	0°	ADD	RADIO 4480 B71+B85	ADD
			C2	AIR6449 B41	L2500/N2500	0°	ADD	-	-
			C3	APX16DWV-S-E-A20	L2100/L1900/G1900	0°	ADD	RADIO 4460 B25+B66	ADD

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	(6) 7/8"	(1) 9X18 1 5/8"	RMV
–	–	–	(1) 6X12 1 1/4"	RMV

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

3 EQUIPMENT SCHEDULES

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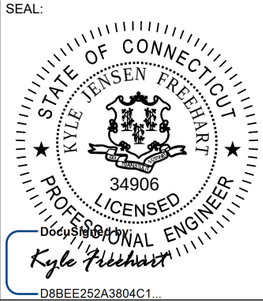
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	CCG	06/03/21
0	ISSUED FOR CONSTRUCTION	RCG	07/09/21
1	REVISED PER CLIENT	JW	07/21/21
2	REVISED FOR CONSTRUCTION	SM	09/08/21

ATC SITE NUMBER:
302488
ATC SITE NAME:
CNTN - CANTON
T-MOBILE SITE NAME:
ATC CANTON MONOPOLE
SITE ADDRESS:
4 HOFFMANN ROAD
CANTON CT, 06019

SEAL:



T-Mobile

DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-401	2

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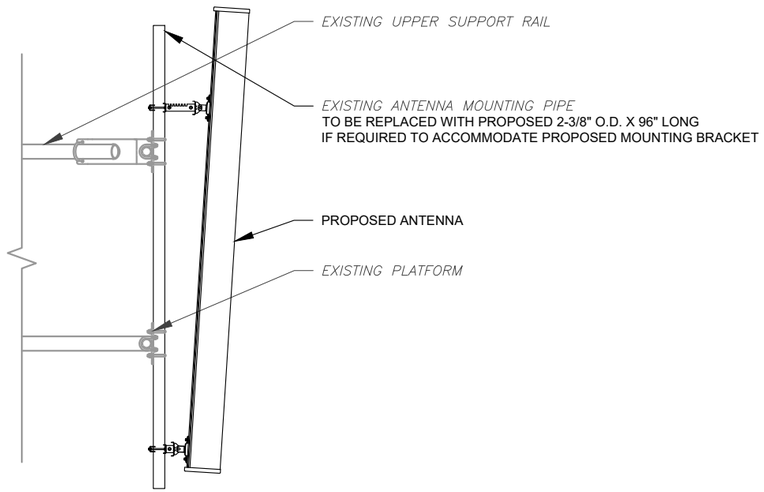
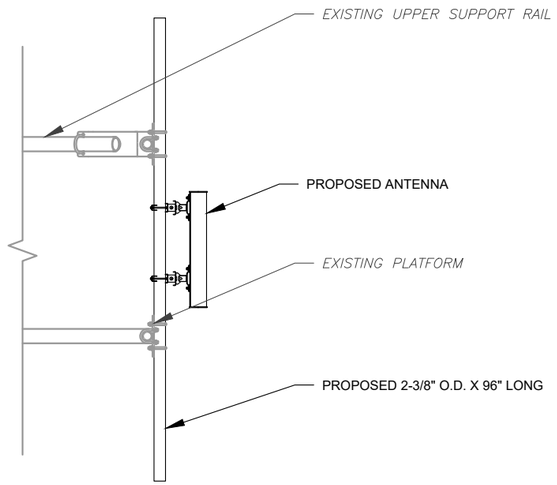


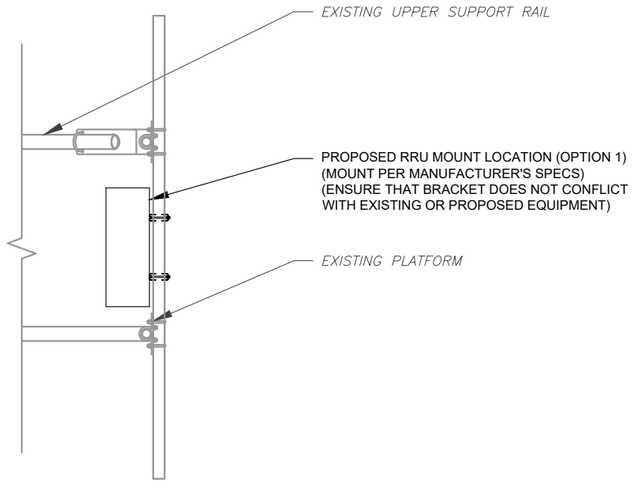
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



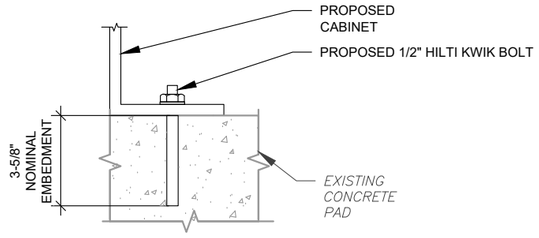
2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.

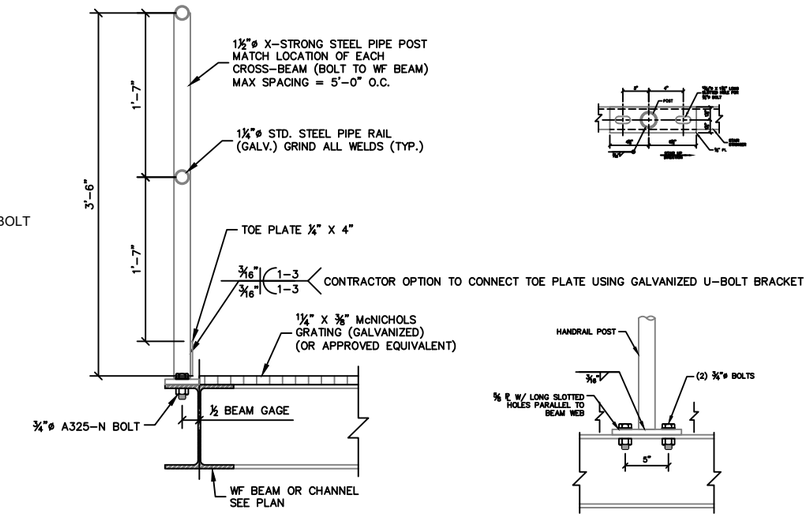


NOTE:

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

4 CABINET ATTACHMENT DETAIL

SCALE: NOT TO SCALE



5 HAND RAIL DETAIL

SCALE: NOT TO SCALE

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REV.	DESCRIPTION	BY	DATE
A	PRELIM	CCG	06/03/21
0	ISSUED FOR CONSTRUCTION	RCG	07/09/21
1	REVISED PER CLIENT	JW	07/21/21
2	REVISED FOR CONSTRUCTION	SM	09/08/21

ATC SITE NUMBER:
302488

ATC SITE NAME:
CNTN - CANTON

T-MOBILE SITE NAME:
ATC CANTON MONOPOLE

SITE ADDRESS:
4 HOFFMANN ROAD
CANTON CT, 06019

SEAL:

STATE OF CONNECTICUT
KYLE JENSEN FREEHART
34906
LICENSED
PROFESSIONAL ENGINEER

Docusigned by:
Kyle Freehart
D8BEE252A3804C1...

T-Mobile

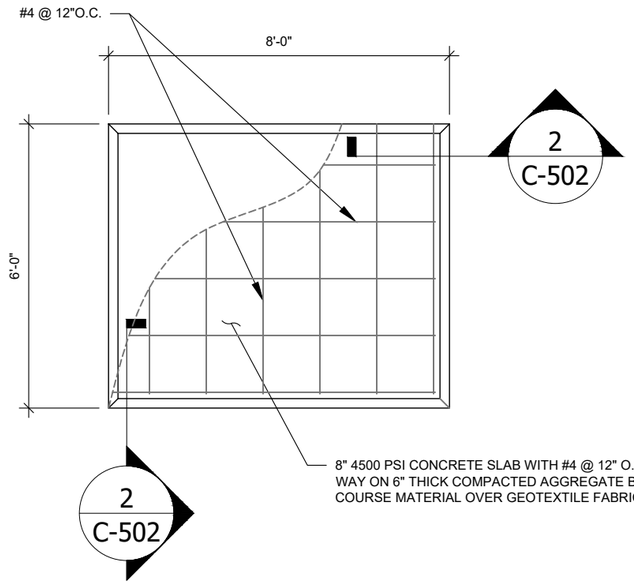
DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

CONSTRUCTION DETAILS

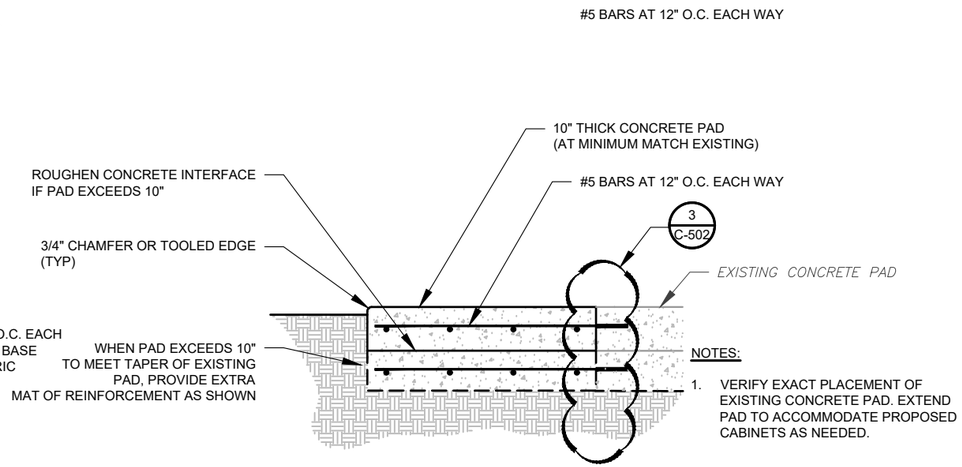
SHEET NUMBER:	REVISION:
C-501	2

STRUCTURAL NOTES:

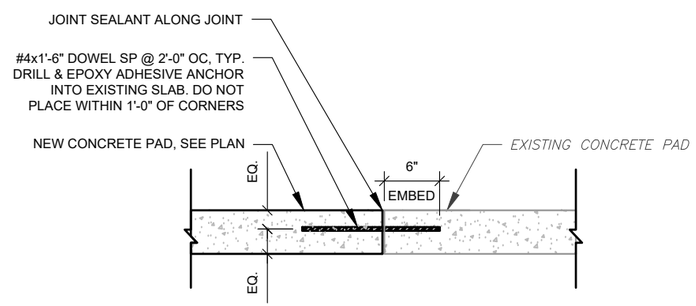
1. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH CONSTRUCTION.
2. THE GENERAL CONTRACTOR AND HIS SUB CONSULTANTS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK.
3. STRUCTURAL STEEL SHALL CONFORM TO SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, AISC 360-05 INCLUDING THE COMMENTARY AND THE AISC CODE OF STANDARD PRACTICE.
4. STRUCTURAL STEEL PLATES, ANGLES, AND CHANNELS SHALL CONFORM TO ASTM A36. STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. STRUCTURAL STEEL BEAMS SHALL CONFORM TO ASTM A992, GRADE 50. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED-ASTM A123 AFTER FABRICATION. FIELD TOUCH UP WITH 3 COATS OF ZINC RICH PAINT ALL RAW EDGES AND/OR AREAS WHERE THE GALVANIZED FINISH HAS BEEN DISTURBED (ALL EXISTING AND NEW AREAS).
5. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS D1.1). STRUCTURAL WELDING CODE-STEEL WELD ELECTRODES SHALL BE E70XX. FIELD TOUCH UP WITH ZINC RICH PAINT (ALL EXISTING AND NEW AREAS) AFTER WELDING IS COMPLETE.
6. ALL THREADED STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLIES SHALL CONFORM TO ASTM A307 OR ASTM A36. ALL STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8 INCH MIN. UNLESS NOTED OTHERWISE, DIAMETER BEARING TYPE CONNECTIONS WITH THREADS EXCLUDED IN THE SHEAR PLANE. ALL EXPOSED FASTENERS, NUTS AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. CONCRETE EXPANSION ANCHORS SHALL BE HILTI KWIK BOLTS UNLESS OTHERWISE NOTED. ALL ANCHORS INTO CONCRETE SHALL BE STAINLESS STEEL.
7. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, DEFORMED BILLET STEEL BARS. WELDED WIRE FABRIC REINFORCING SHALL CONFORM TO ASTM A185.
8. CONCRETE FOR THE FOUNDATION PAD SHALL BE 4500 PSI NORMAL WEIGHT CONCRETE. CONCRETE STRENGTH SHALL BE VERIFIED BY CONCRETE CYLINDER TESTS (A MINIMUM SET OF FOUR CYLINDERS). PROVIDE 4 TO 6% AIR ENTRAINMENT FOR ALL CONCRETE SUBJECT TO FREEZE - THAW CYCLE.
9. MINIMUM CONCRETE COVER REINFORCEMENT SHALL BE 2" UNLESS NOTED OTHERWISE. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH SHALL HAVE A MINIMUM CONCRETE COVER OF 3".
10. CONTRACTOR SHALL COORDINATE ALL PENETRATIONS, CONDUIT, CHAMFERS, AND EMBEDDED ITEMS PRIOR TO CONCRETE PLACEMENT AND/OR STEEL ERECTION. CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS.
11. DO NOT IMPOSE SERVICE LOAD (i.e. FLOOR DEAD AND LIVE LOADS, BACKFILL. ETC.) UNTIL THE CONCRETE HAS REACHED ITS SPECIFIED MINIMUM COMPRESSIVE STRENGTH.
12. BACKFILL SHALL BE CLEAN SAND FILL APPROVED FOR USE BY THE ENGINEER. NO UNAPPROVED MATERIAL WILL BE ALLOWED. CLEAN SAND FILL SHALL BE FREE OF ALL ROOTS, BOULDERS, OR OTHER DELETERIOUS MATERIAL.
13. SOIL SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY TO A MINIMUM OF 2 FEET BELOW THE BOTTOM OF THE FOOTINGS, AND SHALL OBTAIN A 2000 PSF MINIMUM ALLOWABLE BEARING CAPACITY.



1 EQUIPMENT CONCRETE PAD PLAN
SCALE: NOT TO SCALE



2 CONCRETE PAD EXTENSION DETAIL
SCALE: NOT TO SCALE



3 CONCRETE PAD CONNECTION DETAIL
SCALE: NOT TO SCALE

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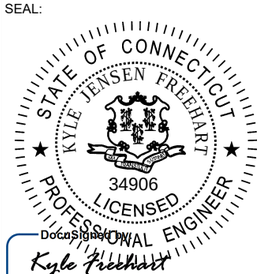
302488
ATC SITE NAME:
CNTN - CANTON
T-MOBILE SITE NAME:
ATC CANTON MONOPOLE
SITE ADDRESS:
4 HOFFMANN ROAD
CANTON CT, 06019

SEAL:



T-Mobile

DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

CONCRETE PAD DETAILS

SHEET NUMBER:	REVISION:
C-502	2

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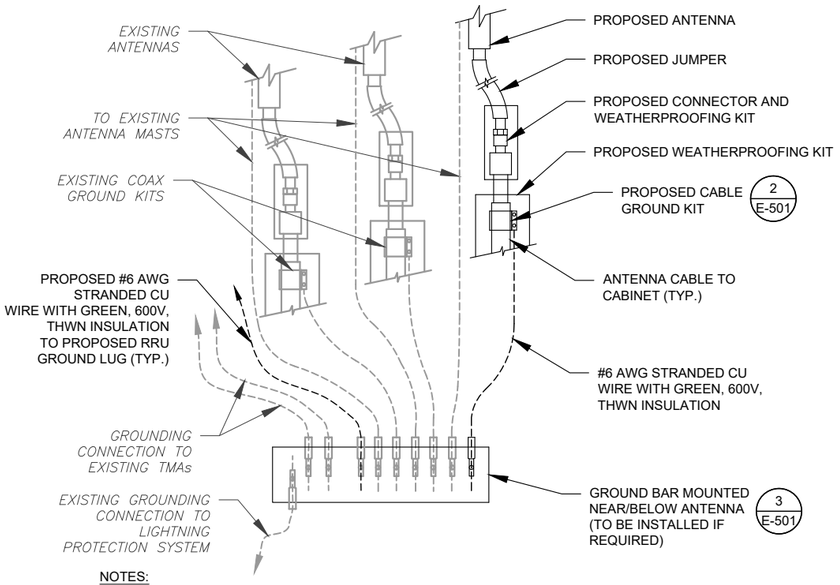
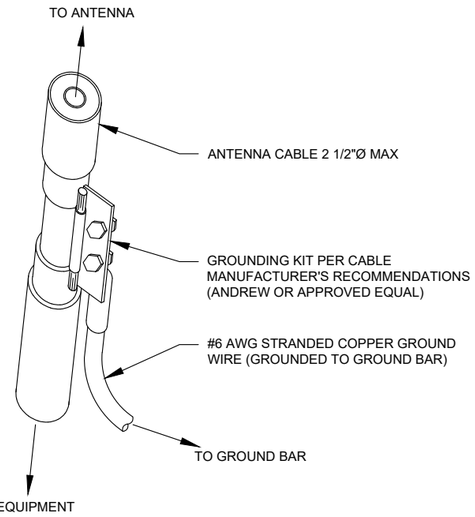


NOTES:

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

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: N.T.S.

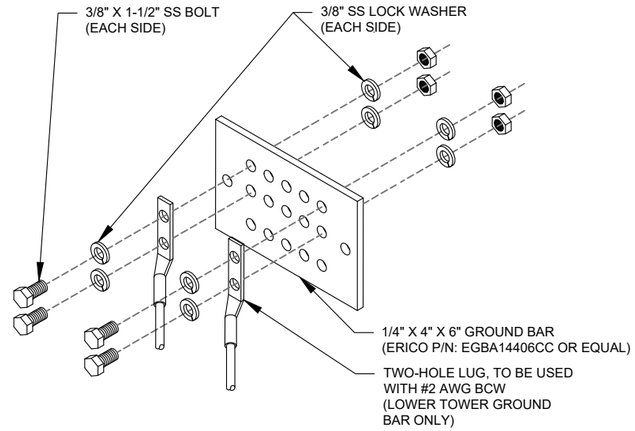


GROUND KIT NOTES:

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

2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: N.T.S.

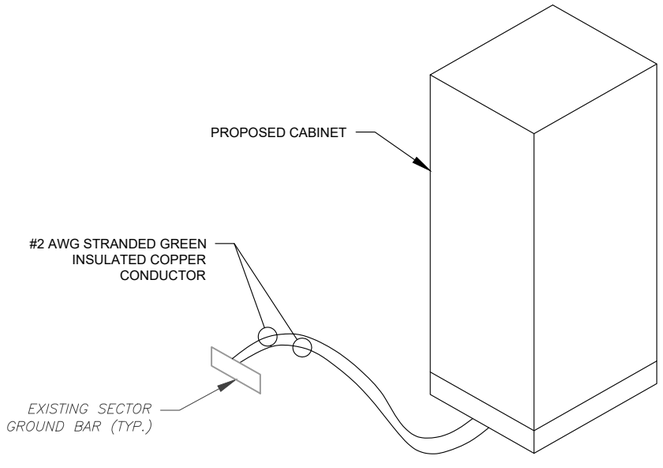


GROUND BAR NOTES:

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

3 TOWER GROUND BAR DETAIL

SCALE: N.T.S.



4 CABINET GROUNDING DETAIL

SCALE: N.T.S.

ELECTRICAL NOTES:

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

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

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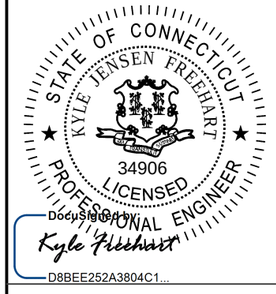

T-Mobile

DATE DRAWN:	09/08/21
ATC JOB NO:	13678007
CUSTOMER ID:	ATC CANTON MONOPOLE
CUSTOMER #:	CTHA532A

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	2

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

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 705A-V2

Enclosure	1	2	3
Enclosure Type	RBS 6201 ODE	Ancillary Equipment (Ericsson)	Battery Cabinet
Baseband	DUW30 (U2100); BB 5216 (L700, L2100)		
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG*	
Multiplexer	XMU (L700, L2100)		
Radio	RUS01 B12 **(x 6)** (L700)		

Proposed RAN Equipment

Template: 67E5A998E ODE+6160

Enclosure	1	2	3
Enclosure Type	RBS 6201 ODE	Enclosure 6160	B160
Baseband	DUG20 (G1900); BB 6648 (L1900, L2100); BB 6648 (L700, L600, N600)	BB 6648 (L2500, N2500)	
Hybrid Cable System	Ericsson Hybrid Trunk 6/24 4AWG 70m **(x 2)**	Ericsson Hybrid Trunk 6/24 4AWG 70m; PSU 4813	
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Legacy Battery Cabinet at Site.

U2100 will be decommissioned. Remove DUW30 from existing ODE base station cabinet.

Cabinet radios will become unused. Remove all cabinet radios from existing ODE base station cabinet.

GSM will be added to the site. Add (1) DUG20 for GSM to existing ODE base station cabinet.

Replace BB5216 and XMU with (1) BB6648 for L2100 and L1900 (both carriers) in existing ODE base station cabinet.

Add (1) BB6648 for L600, L700, and N600 (MMBB - Mixed Mode Baseband) to existing ODE Base Station Cabinet.

Add (1) Enclosure 6160.

Add (1) Battery Cabinet B160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) BB6648 for L2500 and N2500 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.

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

Existing: (6) Coaxial Lines; (1) 9X18 HCS

Remove all coaxial lines

Remove 9X18 HCS.

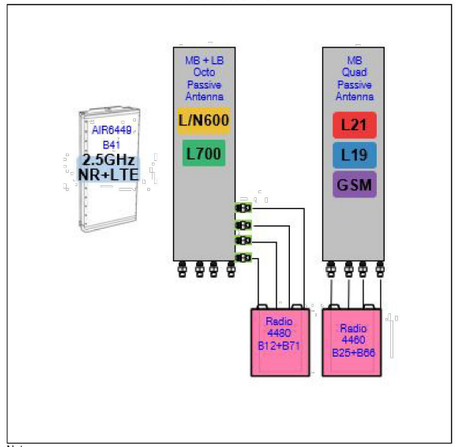
Add (3) 6X24 HCS as follows: (2) 6X24 HCS terminating at the ODE; (1) 6X24 HCS terminating at the Enclosure 6160 (Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster).

Make sure that there is an additional rectifier for RRUs.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

Section 3 - Proposed Template Images

67E5A998E.JPG



Notes:

67D5998C_1xAIR+1QP+1OP.PNG

Notes:

2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

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

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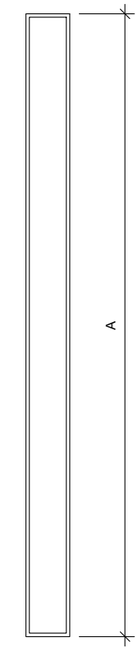
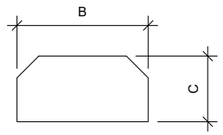
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	2



FRONT VIEW

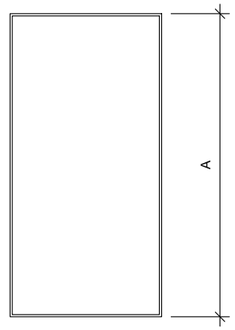


TOP VIEW

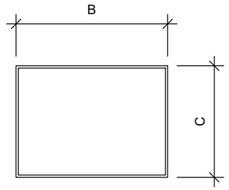
1 ANTENNA SPECIFICATIONS

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
APXVAALL24_43-U-NA20	95.9"	24.0"	8.5"	122.8
APX16DWV-S-E-A20	55.9"	13.3"	3.1"	40.7



FRONT VIEW



TOP VIEW

2 RRU SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RADIO 4480 B71+B85	15.0"	13.2"	10.4"	84
RADIO 4460 B25+B66	19.6"	15.7"	12.1"	109

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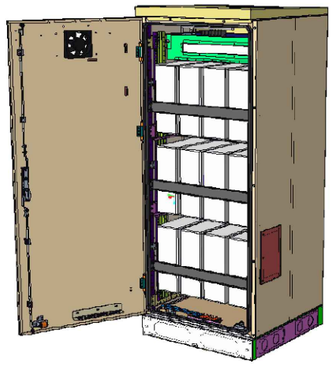
SUPPLEMENTAL

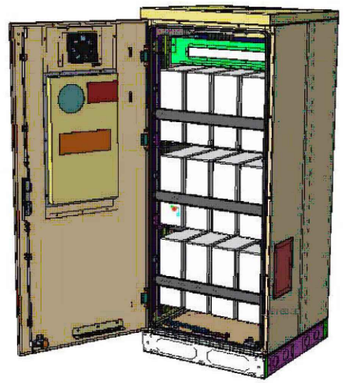
SHEET NUMBER: R-602

REVISION: 2

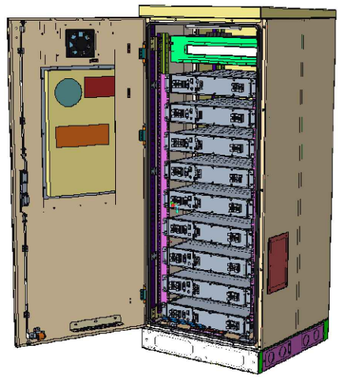
Enclosure B160



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: R-603

REVISION: 2

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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: R-604

REVISION: 2

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AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Cntn - Canton**
ATC Asset Number	:	**302488**
Engineering Number	:	**13678007_C8_02**
Mount Elevation	:	**138.5 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**ATC Canton Monopole**
Carrier Site Number	:	**CTHA532A**
Site Location	:	**4 Hoffmann Road** **Canton, CT 06019-2122** **41.85527778, -72.8925**
County	:	**Hartford**
Date	:	**May 20, 2021**
Max Usage	:	**92%**
Result	:	**Pass**

Prepared By:
Gunjan Donode
CLS Engineering PLLC

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

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

Digitally signed by Tyler M. Barker PE
Date: 2021.05.20 19:39:05-04'00'

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

05/20/2021

Antenna Loading

Elevation (ft)		Antennas	
Mount	Rad.	#	Name
138.5	140.0	3	RFS Celwave APXVAALL24_43-U-NA20
		3	RFS Celwave APX16DWV-16DWVS-E-A20
		3	Ericsson AIR6449 B41
		3	Ericsson RADIO 4480 B71+B85A
		3	Ericsson RADIO 4460 B25+B66

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Corner Plates	92%	Pass
Stand-Off Horizontals	81%	Pass
Tower to Mount Connection	80%	Pass
Mount Pipes	58%	Pass
Support Rail	45%	Pass
Bracing Members	33%	Pass
Platform Base	29%	Pass

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 VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

SUPPLEMENTAL

SHEET NUMBER: R-605

REVISION: 2

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CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Cntn - Canton**
ATC Asset Number	:	**302488**
Engineering Number	:	**13678007_C8_02**
Mount Elevation	:	**138.5 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**ATC Canton Monopole**
Carrier Site Number	:	**CTHA532A**
Site Location	:	**4 Hoffmann Road** **Canton, CT 06019-2122** **41.85527778, -72.8925**
County	:	**Hartford**
Date	:	**May 20, 2021**
Max Usage	:	**92%**
Result	:	**Pass**

Digitally signed by Tyler M. Barker PE
Date: 2021.05.20 19:39:05-04'00'

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
05/20/2021

Prepared By:
Gunjan Donode
CLS Engineering PLLC

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

Table of Contents

Introduction

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

Supporting Documents

Structural Data	Site Photos dated April 05, 2018 Spec Sheet for Site Pro 1 RMQLP Platform Mount
Previous Analyses	Structural Analysis by ATC, Eng. #13201406_C3_02, dated May 19, 2020
Loading Data	ATC Application, Project #13678007 T-Mobile RFDS ID CTHA532A, Version 6.0, dated April 23, 2021

Analysis

Codes	TIA-222-H
Basic Wind Speed	115 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1.5" Radial Ice (Escalating)
Exposure Category	B
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.18; S_1: 0.05; Site Class: D

Conclusion

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

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

Antenna Loading

Elevation (ft)		Antennas	
Mount	**Rad.**	**#**	**Name**
138.5	140.0	3	RFS Celwave APXVAALL24_43-U-NA20
		3	RFS Celwave APX16DWV-16DWVS-E-A20
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Structure Usages

Structural Component	Controlling Usage	Pass/Fail
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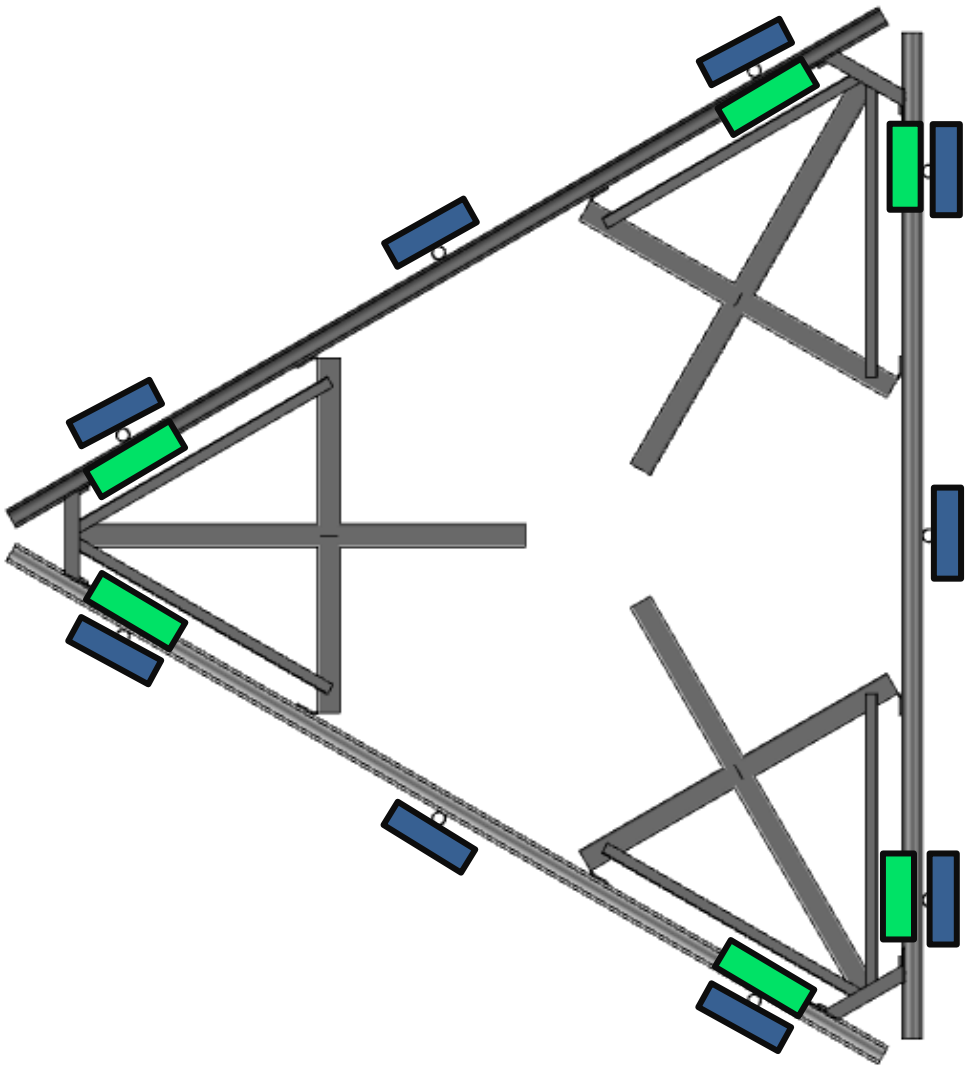
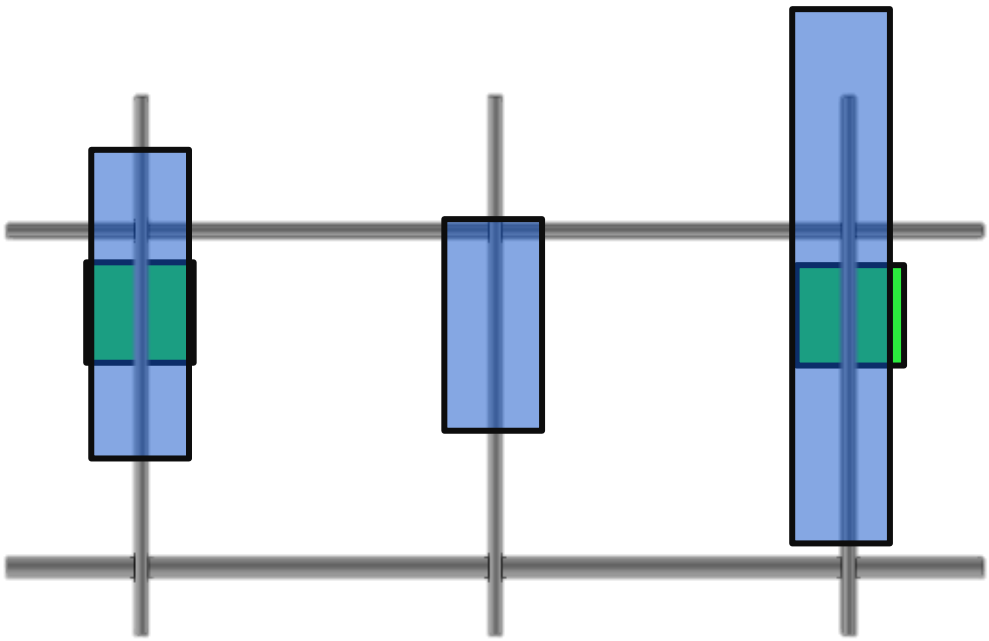
Tower to Mount Connection	80%	Pass
Mount Pipes	58%	Pass
Support Rail	45%	Pass
Bracing Members	33%	Pass
Platform Base	29%	Pass

Equipment Layout Plan View



Equipment Layout Front Elevation View



Standard Conditions

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

This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

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

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

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

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	139 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	140 ft	K_d	0.95
Elevation AMSL (ft)	788 ft	K_e	0.97
TIA Standard	H	K_z	1.08
Basic Wind Speed, V_{ult} (bare)	115 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	1.00
Design Ice Thickness, t_i	1 1/2 in	t_{iz}	1.73 in
Exposure Category	B	G_h	1.00
Risk Category	II	q_z (bare)	33.9 psf
Seismic Response Coeff., C_s	0.09	q_z (ice)	6.4 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) Bare	F_A (lb/ft) Ice	Ice Wt. (lb/ft)
Offset Tube	HSS4X4X4	20.34	2.29	14.44
Offset End Plate	0.5 x 6 Plate	30.51	5.47	12.42
Offset Side Plate	0.38 X 6 Plate	30.51	5.47	12.25
Grating Angle	L2x2x3	10.17	2.14	8.80
Platform Horzontal Pipe	PIPE_3.0	10.68	4.02	11.07
Support Rail	PIPE_2.0	7.25	3.37	8.69
SR Conn Plate	PL6x0.375	30.51	5.46	12.25
SR Conn Angle	L2.5x2.5x4	12.71	2.18	10.15
MOUNT_PIPE_2.0	PIPE_2.0	7.25	3.37	8.69

Appurtenances

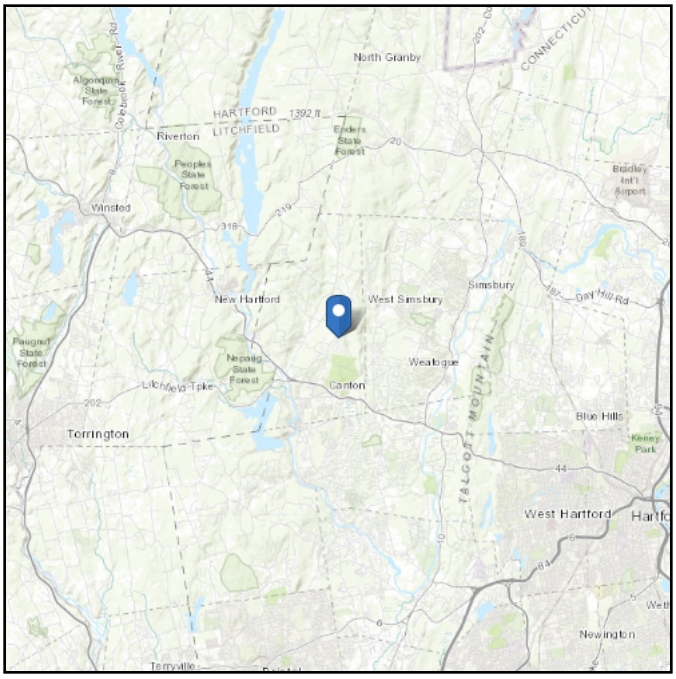
Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor Front	Area Factor Side	Qty. per Azimuth 0°	Qty. per Azimuth 120°	Qty. per Azimuth 240°	Total Qty. Override	0° Joints 1	0° Joints 2	120° Joints 1	120° Joints 2	240° Joints 1	240° Joints 2	Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2) N	EPA_A (Bare) (ft^2) T	EPA_A (Ice) (ft^2) N	EPA_A (Ice) (ft^2) T	F_A (Bare) (lb) N	F_A (Bare) (lb) T	F_A (Ice) (lb) N	F_A (Ice) (lb) T
APX16DWV-16DWVS-E-A20				☐			1	1	1	3	1_A3T	1_A3B	2_A3T	2_A3B	3_A3T	3_A3B	55.9	13.3	3.15	40.7	Generic	116.26	6.26	1.50	8.31	3.23	191.60	45.91	48.05	18.71
APXVAALL24_43-U-NA20				☐			1	1	1	3	1_A1T	1_A1B	2_A1T	2_A1B	3_A1T	3_A1B	95.9	24	8.5	149.9	Generic	387.58	14.67	5.32	17.30	7.64	449.00	162.83	100.12	44.22
AIR6449 B41				☐			1	1	1	3	1_A2T	1_A2B	2_A2T	2_A2B	3_A2T	3_A2B	33.1	20.6	8.6	104	Flat	135.59	5.68	2.49	7.33	3.75	173.91	76.23	42.43	21.69
RADIO 4480 B71+B85A				☐	0.5		1	1	1	3	1_R1TN		2_R1TN		3_R1TN		21.8	15.7	7.5	92.6	Flat	88.92	1.43	1.38	2.02	2.31	43.65	42.33	11.67	13.36
RADIO 4460 B25+B66				☐	0.5		1	1	1	3	1_R3TN		2_R3TN		3_R3TN		17	15.1	11.9	109	Flat	90.23	1.07	1.69	1.58	2.62	32.74	51.60	9.16	15.16

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: 788.41 ft (NAVD 88)
Latitude: 41.855278
Longitude: -72.8925



Wind

Results:

Wind Speed:	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 Vmph
100-year MRI	96 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu May 20 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.

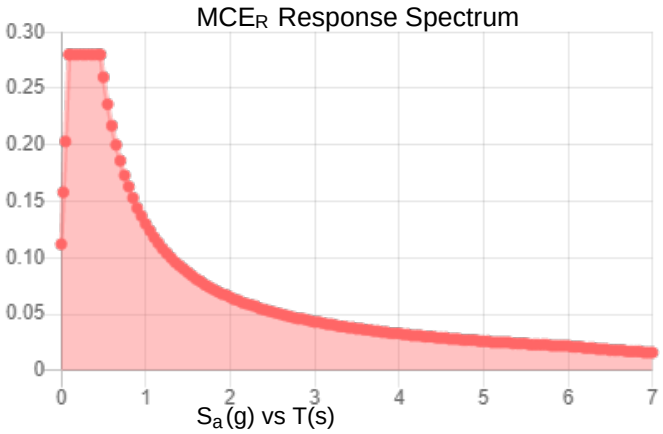
Seismic

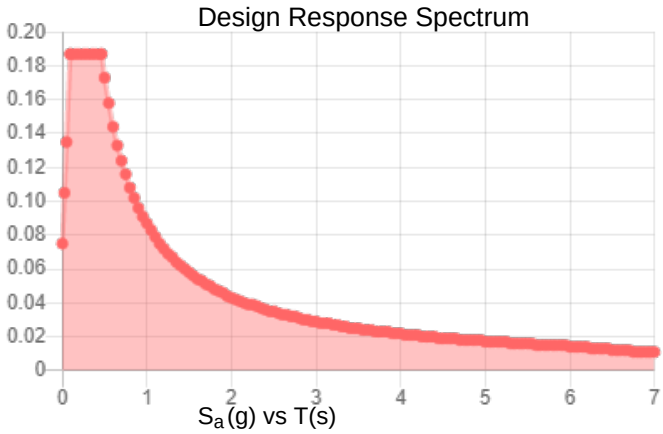
Site Soil Class: D - Default (see Section 11.4.3)

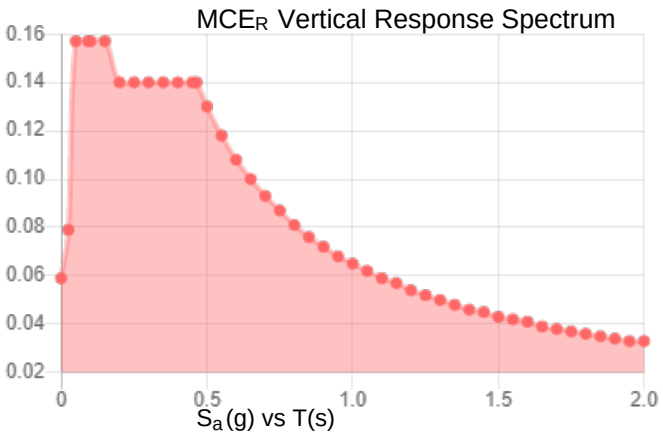
Results:

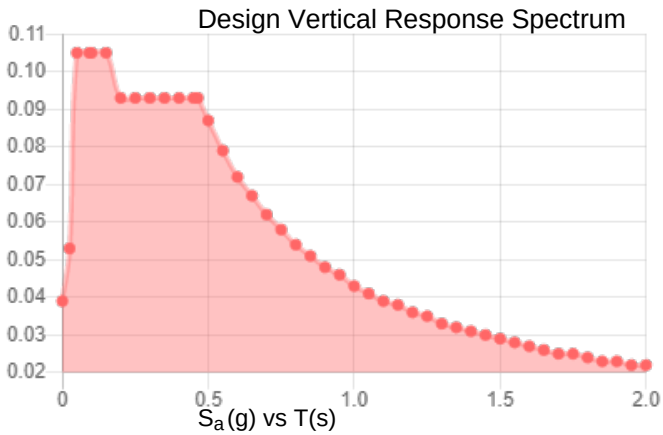
S_S :	0.175	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.093
F_v :	2.4	PGA_M :	0.148
S_{MS} :	0.28	F_{PGA} :	1.6
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.187	C_v :	0.7

Seismic Design Category B









Data Accessed: Thu May 20 2021

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

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu May 20 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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

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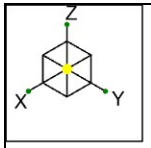

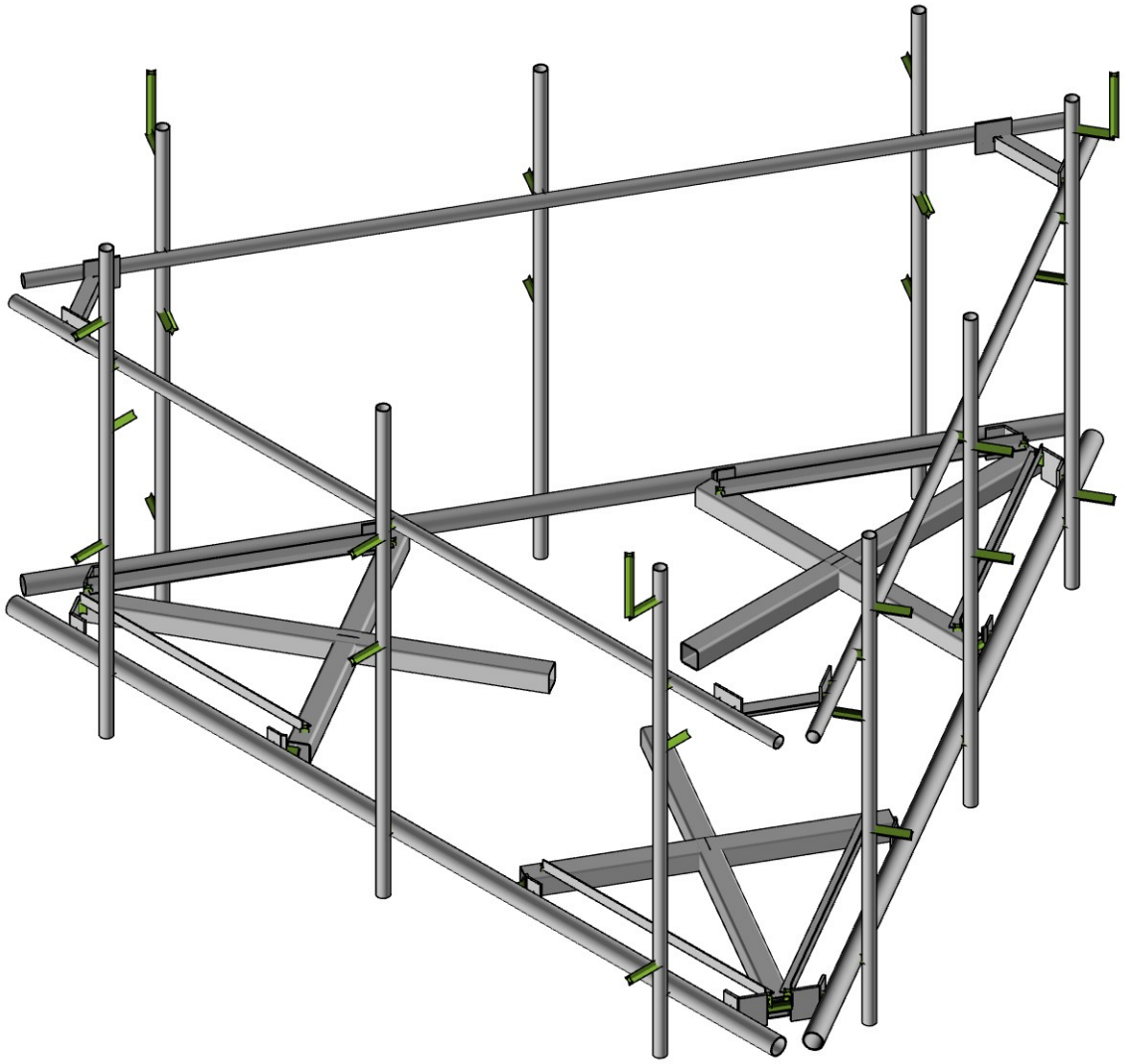

Envelope Only Solution

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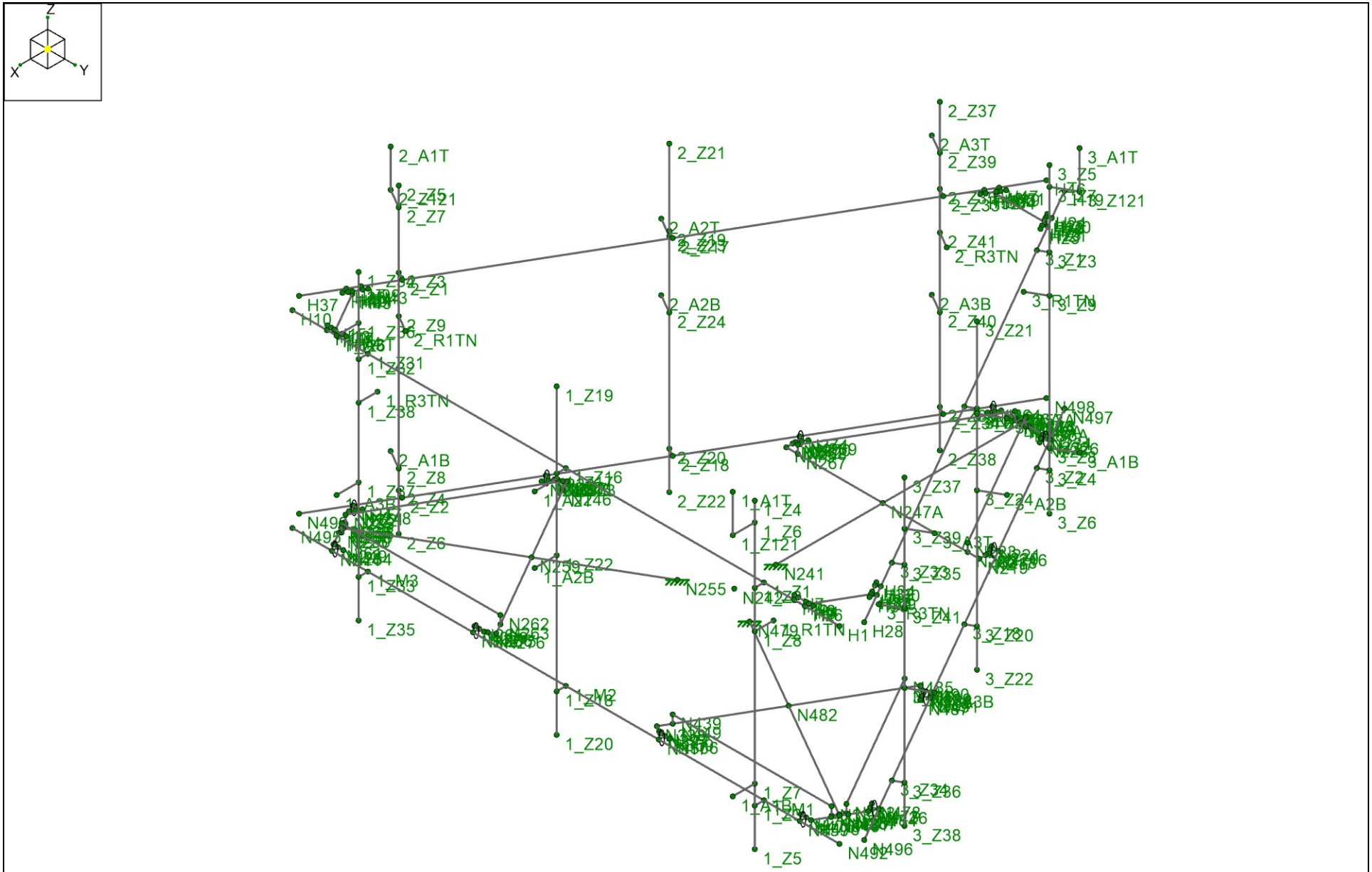

Envelope Only Solution

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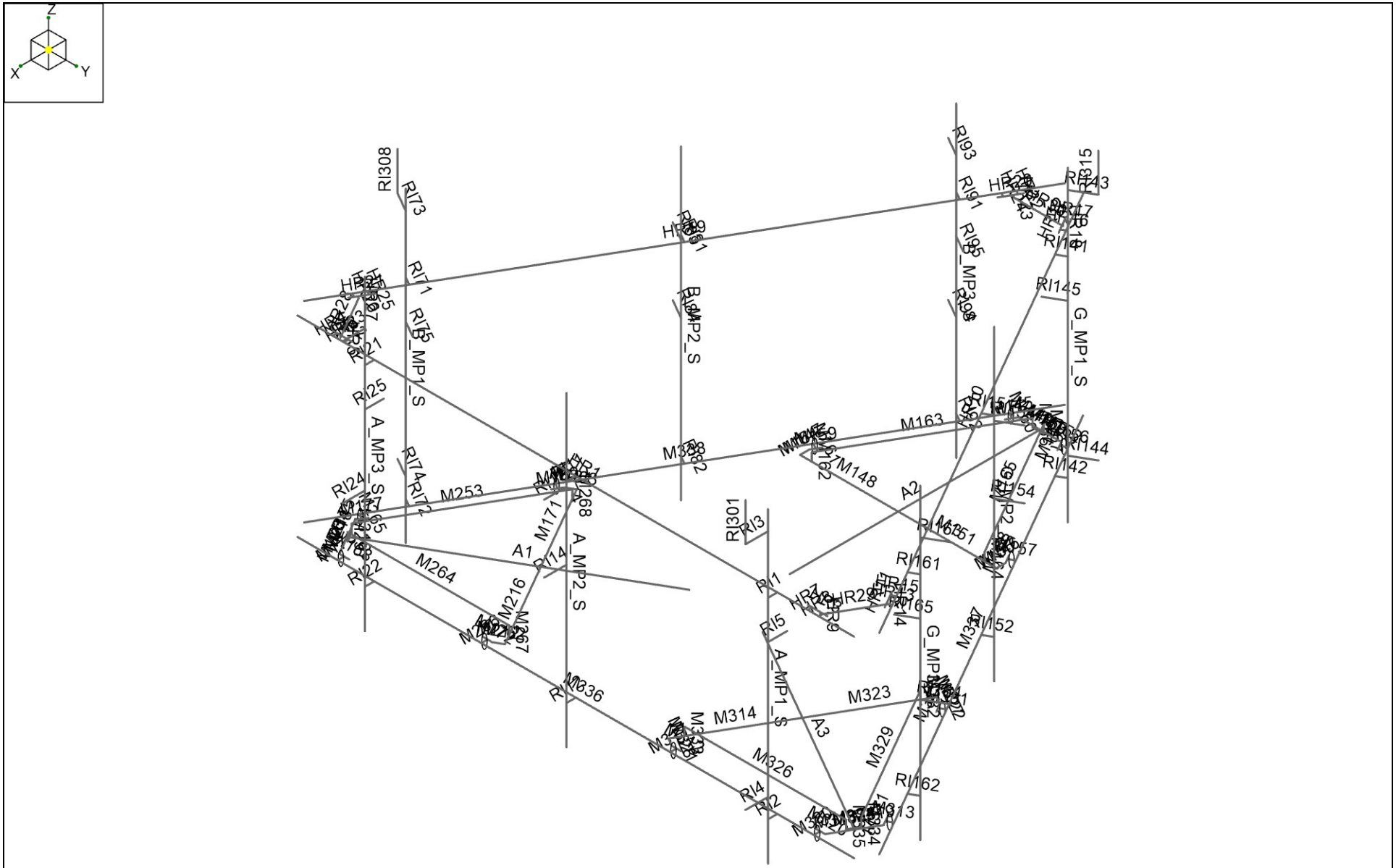
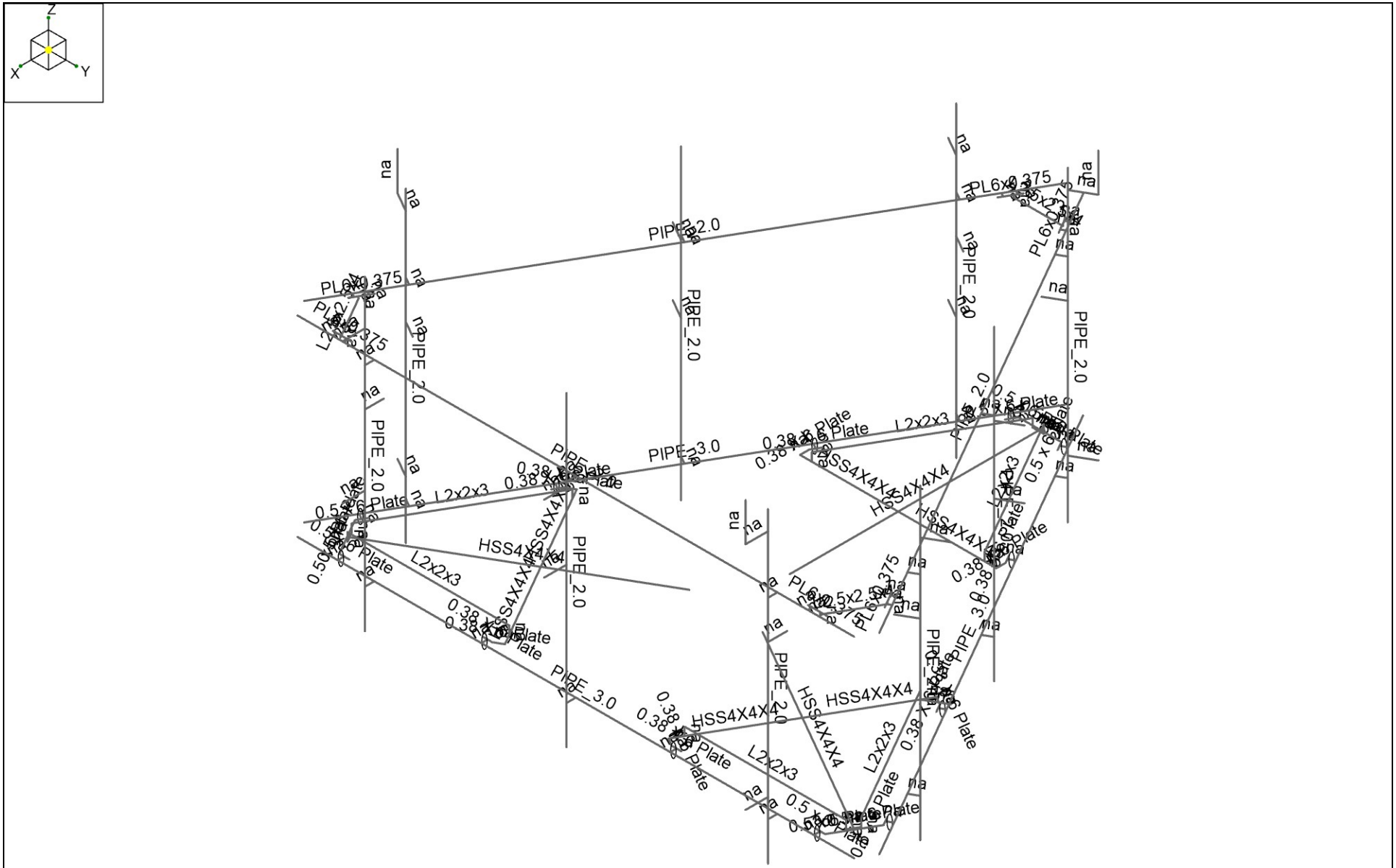
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Joint Labels	41124-13678007_C8_02-01-MA.r3d

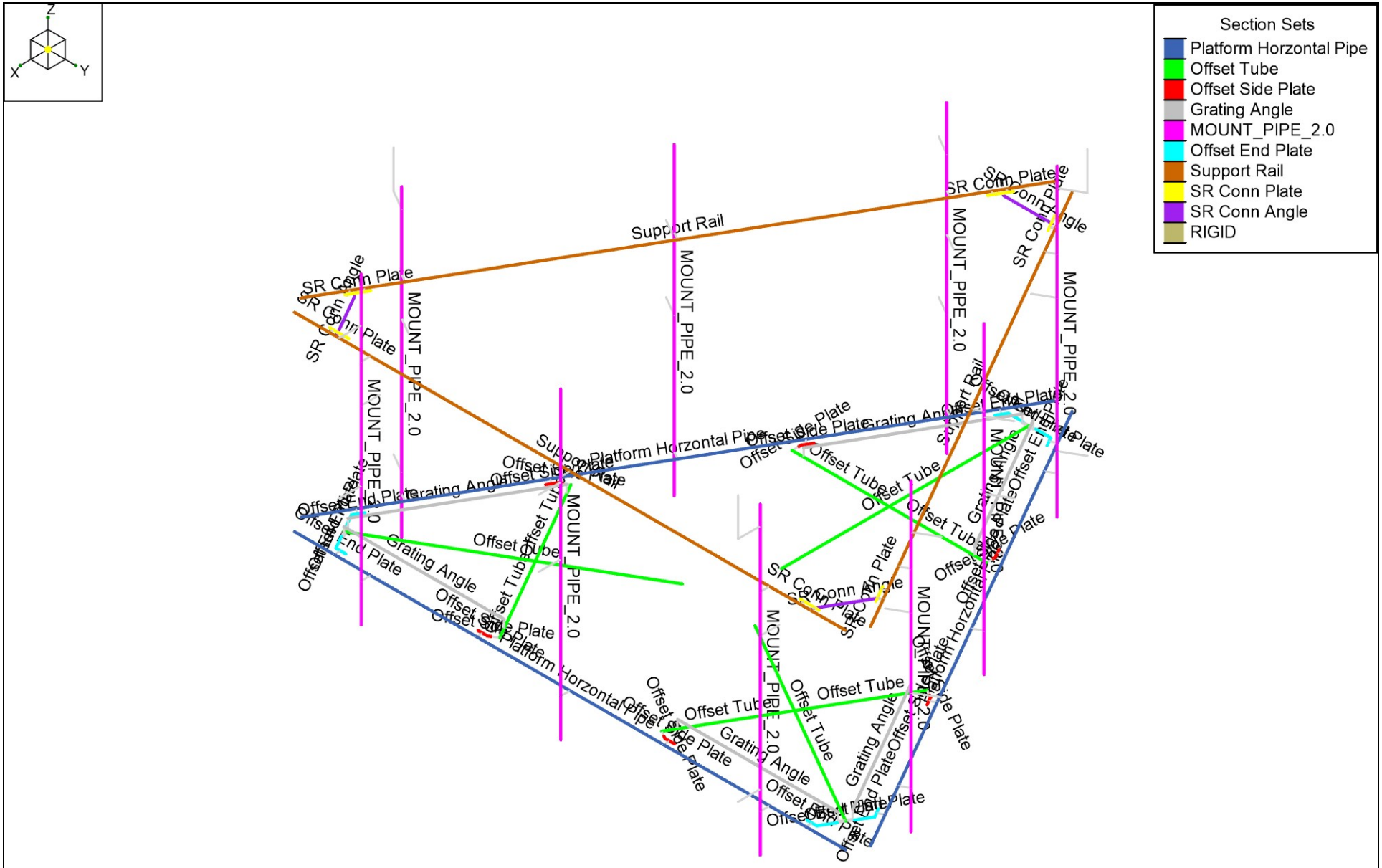


CLS	41124-13678007_C8_02-Cntn - Canton	SK-3
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Member Labels	41124-13678007_C8_02-01-MA.r3d



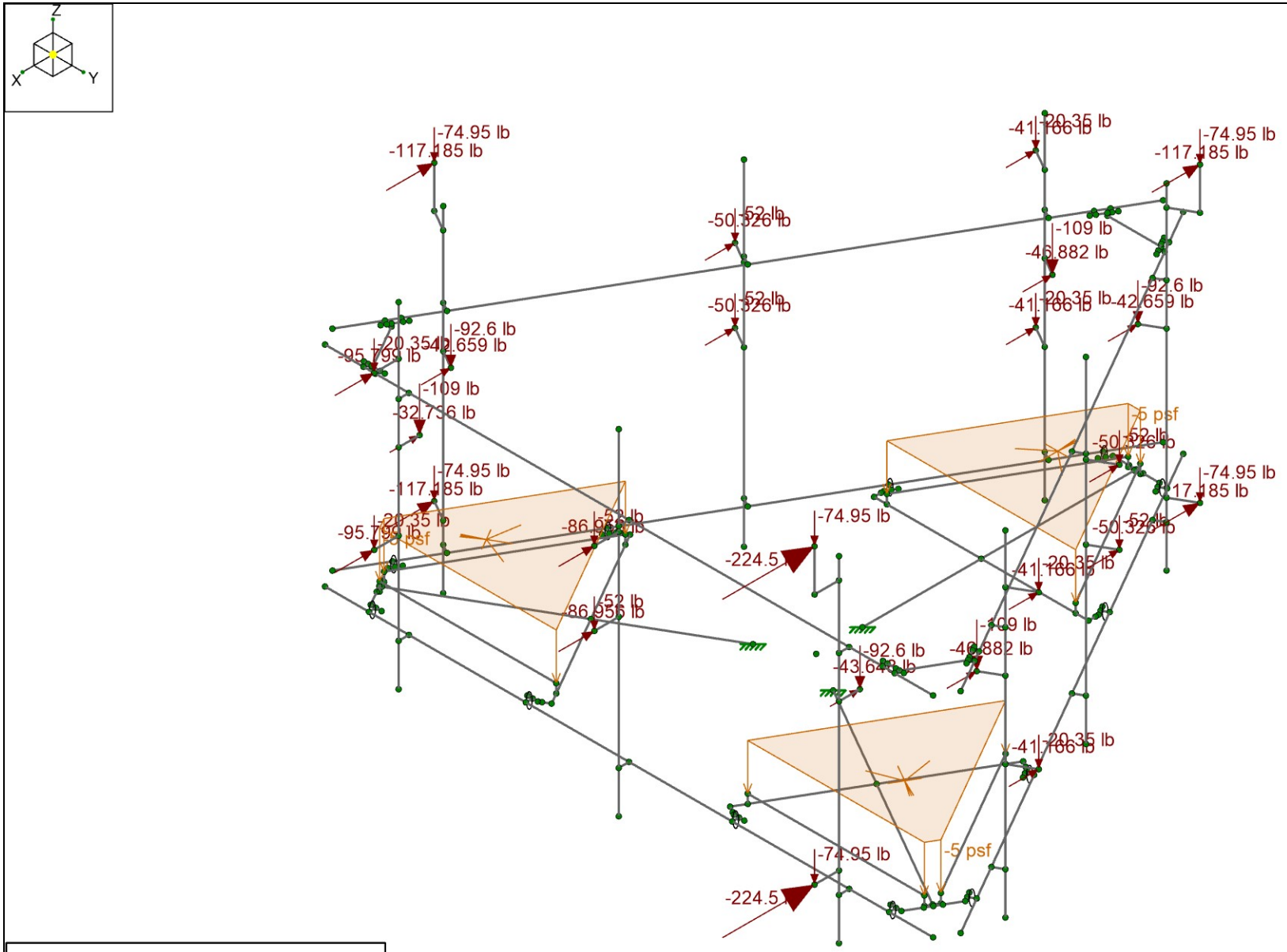
Envelope Only Solution

CLS	41124-13678007_C8_02-Cntn - Canton	SK-3.1
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Member Shapes	41124-13678007_C8_02-01-MA.r3d



Envelope Only Solution

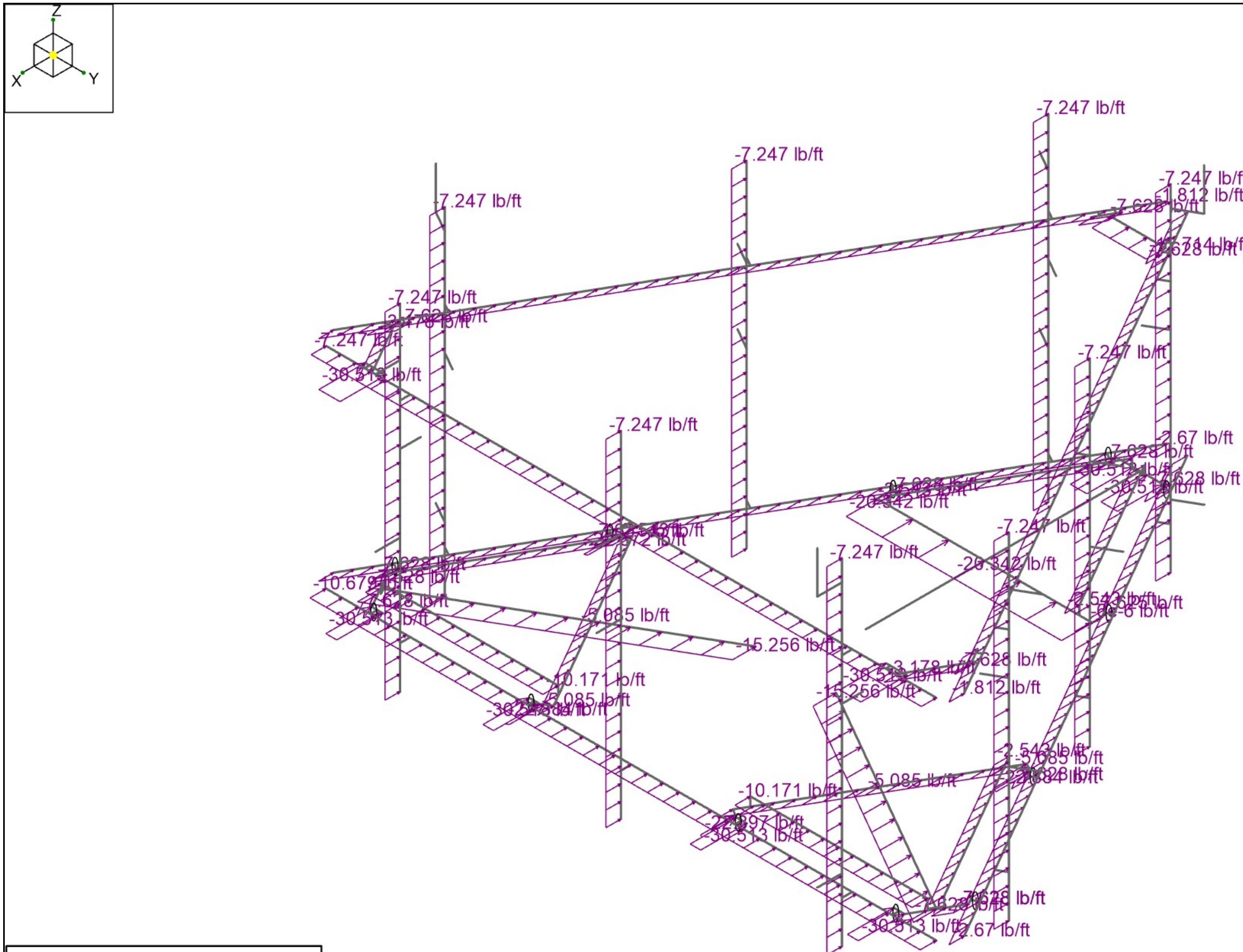
CLS	41124-13678007_C8_02-Cntn - Canton	SK-4
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Section Sets	41124-13678007_C8_02-01-MA.r3d



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

Envelope Only Solution

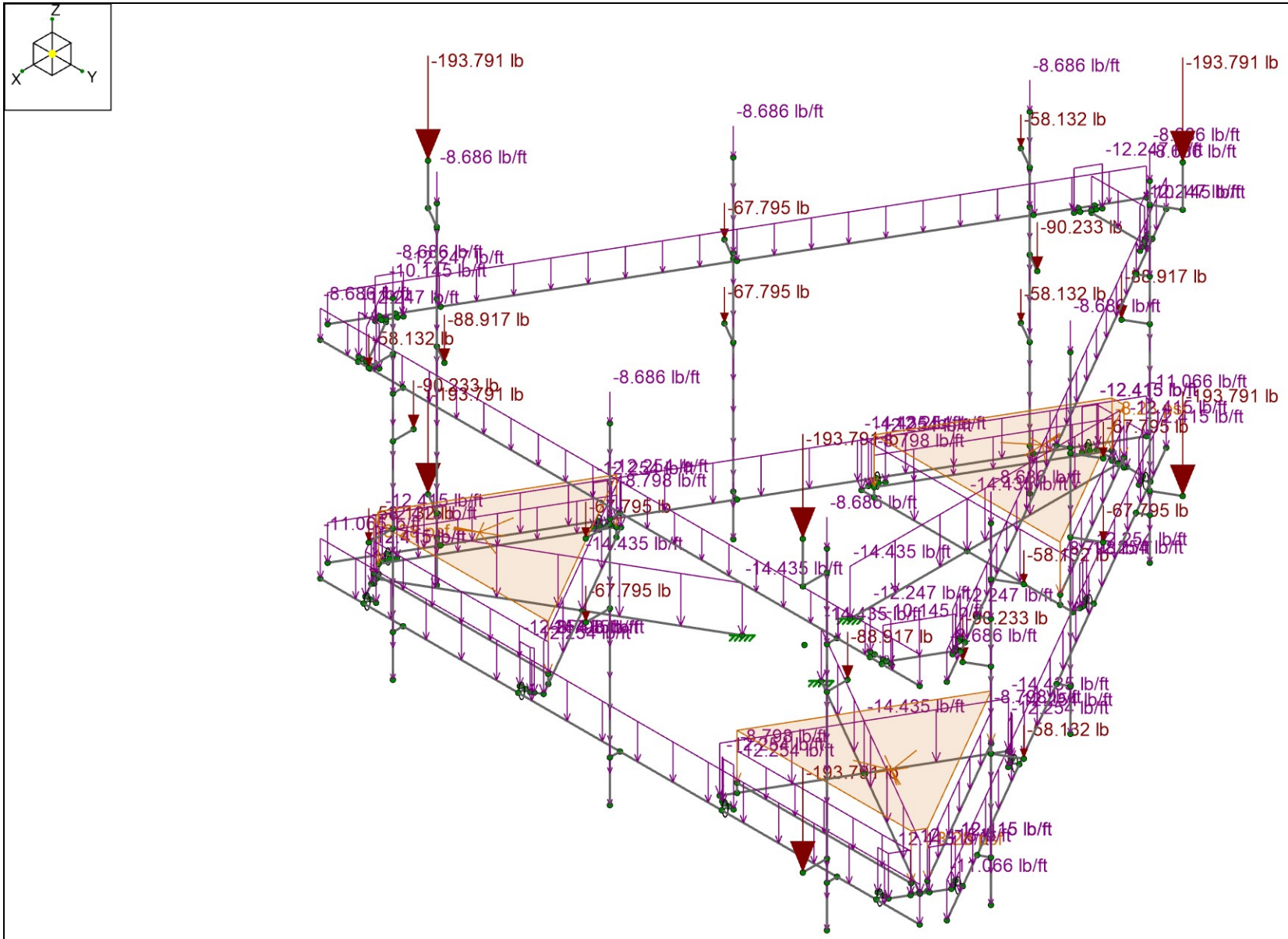
CLS	41124-13678007_C8_02-Cntn - Canton	SK-5
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Joint Loads - Dead and Normal Wind	41124-13678007_C8_02-01-MA.r3d



Loads: BLC 5, Structure Wind 0

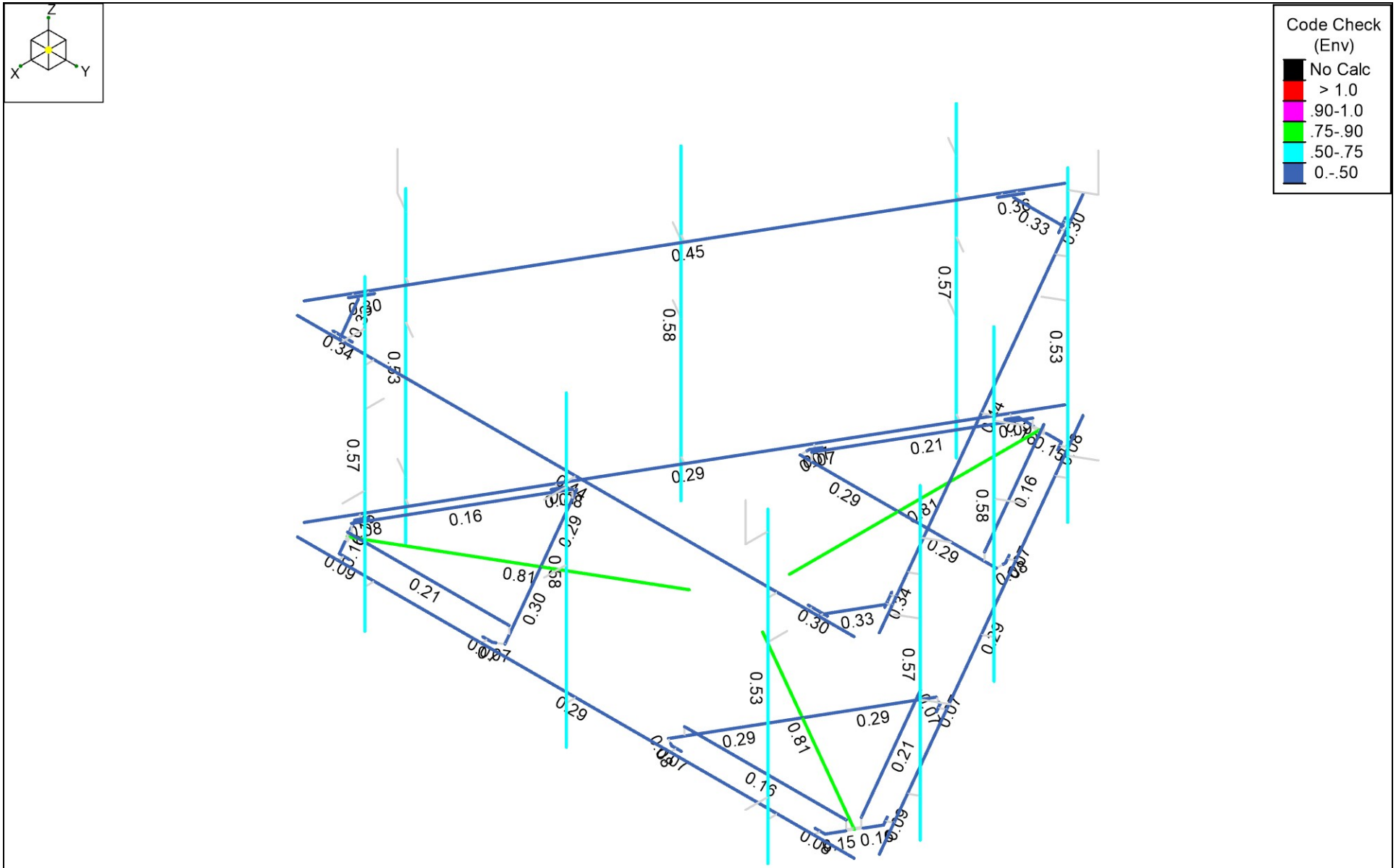
Envelope Only Solution

CLS	41124-13678007_C8_02-Cntn - Canton	SK-6
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Distribute Load - Normal Wind	41124-13678007_C8_02-01-MA.r3d



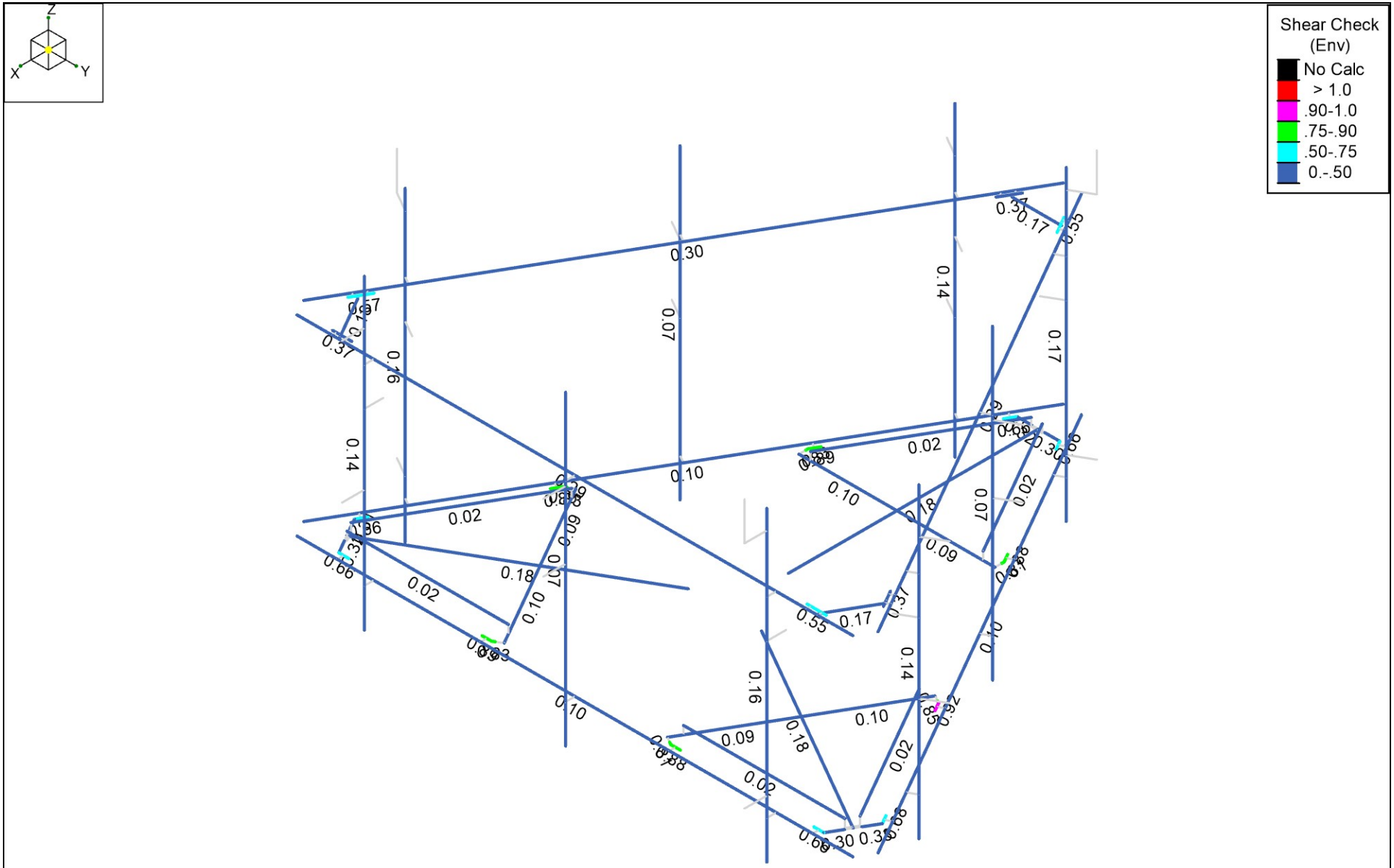
Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS	41124-13678007_C8_02-Cntn - Canton	SK-7
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Ice Dead Loads	41124-13678007_C8_02-01-MA.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-13678007_C8_02-Cntn - Canton	SK-8
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Envelope Member Unity Check Results - Bending	41124-13678007_C8_02-01-MA.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-13678007_C8_02-Cntn - Canton	SK-9
GD		May 20, 2021
41124-13678007_C8_02-01-MA	Envelope Member Unity Check Results - Shear	41124-13678007_C8_02-01-MA.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			30	
4	BLC 2 Transient Area Loads	None			30	
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	1.237	ELX	-1	ELY			
36	1.2D + 1.0Ev + 1.0Eh_30°	Yes	Y	DL	1.237	ELX	-0.866	ELY	0.5		
37	1.2D + 1.0Ev + 1.0Eh_45°	Yes	Y	DL	1.237	ELX	-0.707	ELY	0.707		
38	1.2D + 1.0Ev + 1.0Eh_60°	Yes	Y	DL	1.237	ELX	-0.5	ELY	0.866		
39	1.2D + 1.0Ev + 1.0Eh_90°	Yes	Y	DL	1.237	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	1.237	ELX	0.5	ELY	0.866		
41	1.2D + 1.0Ev + 1.0Eh_135°	Yes	Y	DL	1.237	ELX	0.707	ELY	0.707		
42	1.2D + 1.0Ev + 1.0Eh_150°	Yes	Y	DL	1.237	ELX	0.866	ELY	0.5		
43	1.2D + 1.0Ev + 1.0Eh_180°	Yes	Y	DL	1.237	ELX	1	ELY			
44	1.2D + 1.0Ev + 1.0Eh_210°	Yes	Y	DL	1.237	ELX	0.866	ELY	-0.5		
45	1.2D + 1.0Ev + 1.0Eh_225°	Yes	Y	DL	1.237	ELX	0.707	ELY	-0.707		
46	1.2D + 1.0Ev + 1.0Eh_240°	Yes	Y	DL	1.237	ELX	0.5	ELY	-0.866		
47	1.2D + 1.0Ev + 1.0Eh_270°	Yes	Y	DL	1.237	ELX		ELY	-1		
48	1.2D + 1.0Ev + 1.0Eh_300°	Yes	Y	DL	1.237	ELX	-0.5	ELY	-0.866		
49	1.2D + 1.0Ev + 1.0Eh_315°	Yes	Y	DL	1.237	ELX	-0.707	ELY	-0.707		
50	1.2D + 1.0Ev + 1.0Eh_330°	Yes	Y	DL	1.237	ELX	-0.866	ELY	-0.5		
51	0.9D - 1.0Ev + 1.0Eh_0°	Yes	Y	DL	0.863	ELX	-1	ELY			
52	0.9D - 1.0Ev + 1.0Eh_30°	Yes	Y	DL	0.863	ELX	-0.866	ELY	0.5		
53	0.9D - 1.0Ev + 1.0Eh_45°	Yes	Y	DL	0.863	ELX	-0.707	ELY	0.707		
54	0.9D - 1.0Ev + 1.0Eh_60°	Yes	Y	DL	0.863	ELX	-0.5	ELY	0.866		
55	0.9D - 1.0Ev + 1.0Eh_90°	Yes	Y	DL	0.863	ELX		ELY	1		
56	0.9D - 1.0Ev + 1.0Eh_120°	Yes	Y	DL	0.863	ELX	0.5	ELY	0.866		
57	0.9D - 1.0Ev + 1.0Eh_135°	Yes	Y	DL	0.863	ELX	0.707	ELY	0.707		
58	0.9D - 1.0Ev + 1.0Eh_150°	Yes	Y	DL	0.863	ELX	0.866	ELY	0.5		
59	0.9D - 1.0Ev + 1.0Eh_180°	Yes	Y	DL	0.863	ELX	1	ELY			
60	0.9D - 1.0Ev + 1.0Eh_210°	Yes	Y	DL	0.863	ELX	0.866	ELY	-0.5		
61	0.9D - 1.0Ev + 1.0Eh_225°	Yes	Y	DL	0.863	ELX	0.707	ELY	-0.707		
62	0.9D - 1.0Ev + 1.0Eh_240°	Yes	Y	DL	0.863	ELX	0.5	ELY	-0.866		
63	0.9D - 1.0Ev + 1.0Eh_270°	Yes	Y	DL	0.863	ELX		ELY	-1		
64	0.9D - 1.0Ev + 1.0Eh_300°	Yes	Y	DL	0.863	ELX	-0.5	ELY	-0.866		
65	0.9D - 1.0Ev + 1.0Eh_315°	Yes	Y	DL	0.863	ELX	-0.707	ELY	-0.707		
66	0.9D - 1.0Ev + 1.0Eh_330°	Yes	Y	DL	0.863	ELX	-0.866	ELY	-0.5		
67	1.2D + 1.5Lm_1 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.072	37	0.072	OL1	1.5
68	1.2D + 1.5Lm_1 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.072	38	0.072	OL1	1.5
69	1.2D + 1.5Lm_1 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.072	39	0.072	OL1	1.5
70	1.2D + 1.5Lm_1 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.072	40	0.072	OL1	1.5
71	1.2D + 1.5Lm_1 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.072	41	0.072	OL1	1.5
72	1.2D + 1.5Lm_1 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.072	42	0.072	OL1	1.5
73	1.2D + 1.5Lm_1 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.072	43	0.072	OL1	1.5
74	1.2D + 1.5Lm_1 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.072	44	0.072	OL1	1.5
75	1.2D + 1.5Lm_1 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.072	45	-0.072	OL1	1.5
76	1.2D + 1.5Lm_1 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.072	46	-0.072	OL1	1.5
77	1.2D + 1.5Lm_1 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.072	47	-0.072	OL1	1.5
78	1.2D + 1.5Lm_1 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.072	48	-0.072	OL1	1.5
79	1.2D + 1.5Lm_1 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.072	49	-0.072	OL1	1.5
80	1.2D + 1.5Lm_1 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.072	50	-0.072	OL1	1.5
81	1.2D + 1.5Lm_1 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.072	51	-0.072	OL1	1.5
82	1.2D + 1.5Lm_1 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.072	52	-0.072	OL1	1.5
83	1.2D + 1.5Lm_2 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.072	37	0.072	OL2	1.5
84	1.2D + 1.5Lm_2 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.072	38	0.072	OL2	1.5
85	1.2D + 1.5Lm_2 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.072	39	0.072	OL2	1.5
86	1.2D + 1.5Lm_2 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.072	40	0.072	OL2	1.5
87	1.2D + 1.5Lm_2 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.072	41	0.072	OL2	1.5
88	1.2D + 1.5Lm_2 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.072	42	0.072	OL2	1.5
89	1.2D + 1.5Lm_2 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.072	43	0.072	OL2	1.5
90	1.2D + 1.5Lm_2 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.072	44	0.072	OL2	1.5
91	1.2D + 1.5Lm_2 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.072	45	-0.072	OL2	1.5
92	1.2D + 1.5Lm_2 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.072	46	-0.072	OL2	1.5
93	1.2D + 1.5Lm_2 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.072	47	-0.072	OL2	1.5
94	1.2D + 1.5Lm_2 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.072	48	-0.072	OL2	1.5
95	1.2D + 1.5Lm_2 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.072	49	-0.072	OL2	1.5
96	1.2D + 1.5Lm_2 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.072	50	-0.072	OL2	1.5
97	1.2D + 1.5Lm_2 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.072	51	-0.072	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	-0.072	52	-0.072	OL2	1.5
99	1.2D + 1.5Lm_3 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.072	37	0.072	OL3	1.5
100	1.2D + 1.5Lm_3 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.072	38	0.072	OL3	1.5
101	1.2D + 1.5Lm_3 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.072	39	0.072	OL3	1.5
102	1.2D + 1.5Lm_3 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.072	40	0.072	OL3	1.5
103	1.2D + 1.5Lm_3 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.072	41	0.072	OL3	1.5
104	1.2D + 1.5Lm_3 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.072	42	0.072	OL3	1.5
105	1.2D + 1.5Lm_3 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.072	43	0.072	OL3	1.5
106	1.2D + 1.5Lm_3 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.072	44	0.072	OL3	1.5
107	1.2D + 1.5Lm_3 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.072	45	-0.072	OL3	1.5
108	1.2D + 1.5Lm_3 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.072	46	-0.072	OL3	1.5
109	1.2D + 1.5Lm_3 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.072	47	-0.072	OL3	1.5
110	1.2D + 1.5Lm_3 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.072	48	-0.072	OL3	1.5
111	1.2D + 1.5Lm_3 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.072	49	-0.072	OL3	1.5
112	1.2D + 1.5Lm_3 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.072	50	-0.072	OL3	1.5
113	1.2D + 1.5Lm_3 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.072	51	-0.072	OL3	1.5
114	1.2D + 1.5Lm_3 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.072	52	-0.072	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	Support Rail	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	SR Conn Plate	PL6x0.375	Beam	None	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
9	SR Conn Angle	L2.5x2.5x4	Beam	None	A36 Gr.36	Typical	1.19	0.692	0.692	0.026

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb z-z [in]	Function
1	A2	Offset Tube	78.3		Lateral
2	M143	Offset End Plate	3.122		Lateral
3	M144	Offset End Plate	4.688		Lateral
4	M145	Offset End Plate	3.122		Lateral
5	M146	Offset Side Plate	0.875		Lateral
6	M147	Offset Side Plate	0.875		Lateral
7	M148	Offset Tube	30.688		Lateral
8	M151	Offset Tube	30.687		Lateral
9	M152	Offset End Plate	4.688		Lateral
10	M158	Offset Side Plate	3		Lateral
11	M159	Offset Side Plate	3		Lateral
12	M163	Grating Angle	50.542		Lateral
13	M165	Grating Angle	50.542		Lateral
14	M168	Offset End Plate	3.122		Lateral
15	M169	Offset Side Plate	3		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb z-z [in]	Function
16	M171	Offset Tube	30.687		Lateral
17	M172	Offset Side Plate	3		Lateral
18	A1	Offset Tube	78.3		Lateral
19	M175	Offset End Plate	4.688		Lateral
20	M176	Offset End Plate	4.688		Lateral
21	M177	Offset End Plate	3.122		Lateral
22	M181	Offset Side Plate	0.875		Lateral
23	M212	Offset Side Plate	0.875		Lateral
24	M216	Offset Tube	30.688		Lateral
25	M253	Grating Angle	50.542		Lateral
26	M264	Grating Angle	50.542		Lateral
27	M311	Offset End Plate	3.122		Lateral
28	M312	Offset Side Plate	3		Lateral
29	M314	Offset Tube	30.687		Lateral
30	M315	Offset Side Plate	3		Lateral
31	A3	Offset Tube	78.3		Lateral
32	M318	Offset End Plate	4.688		Lateral
33	M319	Offset End Plate	4.688		Lateral
34	M320	Offset End Plate	3.122		Lateral
35	M321	Offset Side Plate	0.875		Lateral
36	M322	Offset Side Plate	0.875		Lateral
37	M323	Offset Tube	30.688		Lateral
38	M326	Grating Angle	50.542		Lateral
39	M329	Grating Angle	50.542		Lateral
40	M336	Platform Horzontal Pipe	174	63	Lateral
41	M337	Platform Horzontal Pipe	174	63	Lateral
42	M338	Platform Horzontal Pipe	174	63	Lateral
43	HR1	Support Rail	174	63	Lateral
44	HR2	SR Conn Plate	6		Lateral
45	HR3	SR Conn Plate	6		Lateral
46	HR10	Support Rail	174	63	Lateral
47	HR11	SR Conn Plate	6		Lateral
48	HR12	SR Conn Plate	6		Lateral
49	HR19	Support Rail	174	63	Lateral
50	HR20	SR Conn Plate	6		Lateral
51	HR21	SR Conn Plate	6		Lateral
52	HR28	SR Conn Angle	15.408		Lateral
53	HR29	SR Conn Angle	15.408		Lateral
54	HR30	SR Conn Angle	15.408		Lateral
55	A_MP1_S	MOUNT_PIPE_2.0	96		Lateral
56	A_MP2_S	MOUNT_PIPE_2.0	96		Lateral
57	A_MP3_S	MOUNT_PIPE_2.0	96		Lateral
58	B_MP1_S	MOUNT_PIPE_2.0	96		Lateral
59	B_MP2_S	MOUNT_PIPE_2.0	96		Lateral
60	B_MP3_S	MOUNT_PIPE_2.0	96		Lateral
61	G_MP1_S	MOUNT_PIPE_2.0	96		Lateral
62	G_MP2_S	MOUNT_PIPE_2.0	96		Lateral
63	G_MP3_S	MOUNT_PIPE_2.0	96		Lateral

Member Advanced Data

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
1	A2		Yes	Default	None
2	M143		Yes		None
3	M144		Yes		None
4	M145		Yes		None
5	M146		Yes		None
6	M147		Yes		None
7	M148		Yes		None

Member Advanced Data (Continued)

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
8	M150		Yes	** NA **	None
9	M151		Yes		None
10	M152		Yes		None
11	M153		Yes	** NA **	None
12	M154		Yes	** NA **	None
13	M155		Yes	** NA **	None
14	M156	OOOXOO	Yes	** NA **	None
15	M157	OOOXOO	Yes	** NA **	None
16	M158		Yes		None
17	M159		Yes		None
18	M160	OOOXOO	Yes	** NA **	None
19	M161	OOOXOO	Yes	** NA **	None
20	M162		Yes	** NA **	None
21	M163		Yes		None
22	M164		Yes	** NA **	None
23	M165		Yes		None
24	M166		Yes	** NA **	None
25	M167		Yes	** NA **	None
26	M168		Yes		None
27	M169		Yes		None
28	M170	OOOXOO	Yes	** NA **	None
29	M171		Yes		None
30	M172		Yes		None
31	A1		Yes	Default	None
32	M174	OOOXOO	Yes	** NA **	None
33	M175		Yes		None
34	M176		Yes		None
35	M177		Yes		None
36	M181		Yes		None
37	M212		Yes		None
38	M216		Yes		None
39	M218		Yes	** NA **	None
40	M234		Yes	** NA **	None
41	M253		Yes		None
42	M262		Yes	** NA **	None
43	M263		Yes	** NA **	None
44	M264		Yes		None
45	M265	OOOXOO	Yes	** NA **	None
46	M266	OOOXOO	Yes	** NA **	None
47	M267		Yes	** NA **	None
48	M268		Yes	** NA **	None
49	M297		Yes	** NA **	None
50	M310		Yes	** NA **	None
51	M311		Yes		None
52	M312		Yes		None
53	M313	OOOXOO	Yes	** NA **	None
54	M314		Yes		None
55	M315		Yes		None
56	A3		Yes	Default	None
57	M317	OOOXOO	Yes	** NA **	None
58	M318		Yes		None
59	M319		Yes		None
60	M320		Yes		None
61	M321		Yes		None
62	M322		Yes		None
63	M323		Yes		None
64	M324		Yes	** NA **	None
65	M325		Yes	** NA **	None

Member Advanced Data (Continued)

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
66	M326		Yes		None
67	M327		Yes	** NA **	None
68	M328		Yes	** NA **	None
69	M329		Yes		None
70	M330	OOOXOO	Yes	** NA **	None
71	M331	OOOXOO	Yes	** NA **	None
72	M332		Yes	** NA **	None
73	M333		Yes	** NA **	None
74	M334		Yes	** NA **	None
75	M335		Yes	** NA **	None
76	M336		Yes	Default	None
77	M337		Yes	Default	None
78	M338		Yes	Default	None
79	HR1		Yes	Default	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	RI5		Yes	** NA **	None
115	RI12		Yes	** NA **	None
116	RI11		Yes	** NA **	None
117	A_MP2_S		Yes	** NA **	None
118	RI13		Yes	** NA **	None
119	RI14		Yes	** NA **	None
120	RI22		Yes	** NA **	None
121	RI21		Yes	** NA **	None
122	A_MP3_S		Yes	** NA **	None
123	RI23		Yes	** NA **	None

Member Advanced Data (Continued)

	Label	J Release	Physical	Deflection Ratio Options	Seismic DR
124	RI24		Yes	** NA **	None
125	RI25		Yes	** NA **	None
126	RI72		Yes	** NA **	None
127	RI71		Yes	** NA **	None
128	B_MP1_S		Yes	** NA **	None
129	RI73		Yes	** NA **	None
130	RI74		Yes	** NA **	None
131	RI75		Yes	** NA **	None
132	RI82		Yes	** NA **	None
133	RI81		Yes	** NA **	None
134	B_MP2_S		Yes	** NA **	None
135	RI83		Yes	** NA **	None
136	RI84		Yes	** NA **	None
137	RI92		Yes	** NA **	None
138	RI91		Yes	** NA **	None
139	B_MP3_S		Yes	** NA **	None
140	RI93		Yes	** NA **	None
141	RI94		Yes	** NA **	None
142	RI95		Yes	** NA **	None
143	RI142		Yes	** NA **	None
144	RI141		Yes	** NA **	None
145	G_MP1_S		Yes	** NA **	None
146	RI143		Yes	** NA **	None
147	RI144		Yes	** NA **	None
148	RI145		Yes	** NA **	None
149	RI152		Yes	** NA **	None
150	RI151		Yes	** NA **	None
151	G_MP2_S		Yes	** NA **	None
152	RI153		Yes	** NA **	None
153	RI154		Yes	** NA **	None
154	RI162		Yes	** NA **	None
155	RI161		Yes	** NA **	None
156	G_MP3_S		Yes	** NA **	None
157	RI163		Yes	** NA **	None
158	RI164		Yes	** NA **	None
159	RI165		Yes	** NA **	None
160	RI301		Yes	** NA **	None
161	RI308		Yes	** NA **	None
162	RI315		Yes	** NA **	None

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N241	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N255	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N479	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N241	max	1653.923	3	822.333	15	3173.226	19	1477.181	7	10200.022	19	1646.95	7
2		min	-1815.208	11	-818.25	7	90.193	11	-1394.892	15	-836.851	11	-1638.62	15
3	N255	max	915.172	6	1426.092	14	3173.568	30	713.046	6	724.164	4	1646.351	18
4		min	-838.014	14	-1567.776	6	89.978	6	-8905.162	30	-5050.071	28	-1638.028	10
5	N479	max	989.891	3	1576.327	16	3173.461	24	8763.888	24	717.493	18	1646.007	12
6		min	-905.366	11	-1438.667	8	90.02	16	-737.889	16	-5300.671	26	-1637.684	4
7	Totals:	max	3460.249	3	3460.665	15	8491.417	28						
8		min	-3460.249	11	-3460.669	7	2487.009	52						

Envelope AISC 14TH (360-10): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	M315	0.38 X 6 Plate	0.074	1.5	12	0.916	3	y	13	71019.885	73872	584.82	9234	3	H1-1b
2	M159	0.38 X 6 Plate	0.074	1.5	7	0.89	3	y	8	71019.885	73872	584.82	9234	3	H1-1b
3	M172	0.38 X 6 Plate	0.074	1.5	18	0.89	3	y	3	71019.885	73872	584.82	9234	3	H1-1b
4	M169	0.38 X 6 Plate	0.073	1.5	9	0.886	3	y	9	71020.258	73872	584.82	9234	3	H1-1b
5	M158	0.38 X 6 Plate	0.072	1.5	15	0.88	3	y	14	71020.258	73872	584.82	9234	3	H1-1b
6	M312	0.38 X 6 Plate	0.072	1.5	4	0.88	3	y	3	71020.258	73872	584.82	9234	3	H1-1b
7	M322	0.38 X 6 Plate	0.071	0	7	0.853	0.875	y	13	73624.978	73872	584.82	9234	1.098	H1-1b
8	M147	0.38 X 6 Plate	0.072	0	17	0.833	0.875	y	7	73624.978	73872	584.82	9234	1.083	H1-1b
9	M212	0.38 X 6 Plate	0.071	0	12	0.832	0.875	y	18	73624.978	73872	584.82	9234	1.098	H1-1b
10	M181	0.38 X 6 Plate	0.078	0	15	0.825	0.875	y	9	73624.978	73872	584.82	9234	1.094	H1-1b
11	M146	0.38 X 6 Plate	0.078	0	4	0.806	0.875	y	14	73624.978	73872	584.82	9234	1.094	H1-1b
12	M321	0.38 X 6 Plate	0.078	0	10	0.806	0.875	y	3	73624.978	73872	584.82	9234	1.094	H1-1b
13	M311	0.5 x 6 Plate	0.092	0	9	0.676	0	y	5	94834.571	97200	1012.5	12150	3	H1-1b
14	M145	0.5 x 6 Plate	0.092	0	4	0.662	0	y	16	94834.571	97200	1012.5	12150	3	H1-1b
15	M168	0.5 x 6 Plate	0.092	0	15	0.661	0	y	11	94834.571	97200	1012.5	12150	3	H1-1b
16	M177	0.5 x 6 Plate	0.082	0	12	0.66	0	y	17	94834.571	97200	1012.5	12150	3	H1-1b
17	M143	0.5 x 6 Plate	0.082	0	18	0.66	0	y	6	94834.571	97200	1012.5	12150	3	H1-1b
18	M320	0.5 x 6 Plate	0.082	0	7	0.66	0	y	11	94834.571	97200	1012.5	12150	3	H1-1b
19	HR21	PL6x0.375	0.302	3.632	11	0.574	4.579	y	9	61901.829	72900	569.533	9112.5	1.455	H1-1b
20	HR12	PL6x0.375	0.302	3.632	16	0.551	4.579	y	15	61901.829	72900	569.533	9112.5	1.455	H1-1b
21	HR3	PL6x0.375	0.302	3.632	6	0.55	4.579	y	4	61901.829	72900	569.533	9112.5	1.455	H1-1b
22	HR11	PL6x0.375	0.343	2.368	11	0.373	1.421	y	13	61901.829	72900	569.533	9112.5	1.518	H1-1b
23	HR20	PL6x0.375	0.355	2.368	5	0.371	1.421	y	7	61901.829	72900	569.533	9112.5	1.53	H1-1b
24	HR2	PL6x0.375	0.343	2.368	16	0.371	1.421	y	18	61901.829	72900	569.533	9112.5	1.518	H1-1b
25	M319	0.5 x 6 Plate	0.16	4.688	8	0.329	4.688	y	5	91950.093	97200	1012.5	12150	1.025	H1-1b
26	M144	0.5 x 6 Plate	0.16	4.688	3	0.321	4.688	y	16	91950.093	97200	1012.5	12150	1.025	H1-1b
27	M176	0.5 x 6 Plate	0.16	4.688	14	0.321	4.688	y	11	91950.093	97200	1012.5	12150	1.025	H1-1b
28	M175	0.5 x 6 Plate	0.149	0	6	0.306	0	y	17	91950.093	97200	1012.5	12150	1.095	H1-1b
29	M152	0.5 x 6 Plate	0.149	0	11	0.303	0	y	6	91950.093	97200	1012.5	12150	1.095	H1-1b
30	M318	0.5 x 6 Plate	0.149	0	16	0.303	0	y	11	91950.093	97200	1012.5	12150	1.095	H1-1b
31	HR19	PIPE_2.0	0.447	151.105	9	0.296	155.684		9	4678.524	32130	1871.625	1871.625	1.963	H3-6
32	HR10	PIPE_2.0	0.441	151.105	15	0.286	155.684		15	4678.524	32130	1871.625	1871.625	1.818	H3-6
33	HR1	PIPE_2.0	0.441	151.105	4	0.286	155.684		4	4678.524	32130	1871.625	1871.625	1.818	H3-6
34	A1	HSS4X4X4	0.808	0	30	0.182	0	y	17	94976.036	109188	12663	12663	2.987	H1-1b
35	A2	HSS4X4X4	0.808	0	19	0.177	0	y	6	94976.036	109188	12663	12663	2.988	H1-1b
36	A3	HSS4X4X4	0.808	0	25	0.177	0	y	11	94976.036	109188	12663	12663	2.993	H1-1b
37	HR28	L2.5x2.5x4	0.329	0	8	0.175	0	z	17	36536.53	38556	1113.554	2537.388	1.5	H2-1
38	HR30	L2.5x2.5x4	0.329	0	14	0.168	0	z	6	36536.53	38556	1113.554	2537.388	1.5	H2-1
39	HR29	L2.5x2.5x4	0.329	0	3	0.168	0	z	11	36536.53	38556	1113.554	2537.388	1.5	H2-1
40	G_MP1_S	PIPE_2.0	0.534	83.368	8	0.167	83.368		5	14916.096	32130	1871.625	1871.625	2.118	H1-1b
41	B_MP1_S	PIPE_2.0	0.534	83.368	3	0.159	83.368		16	14916.096	32130	1871.625	1871.625	2.366	H1-1b
42	A_MP1_S	PIPE_2.0	0.534	83.368	13	0.159	83.368		11	14916.096	32130	1871.625	1871.625	2.236	H1-1b
43	G_MP3_S	PIPE_2.0	0.567	83.368	3	0.14	55.579		5	14916.096	32130	1871.625	1871.625	2.629	H1-1b
44	B_MP3_S	PIPE_2.0	0.567	83.368	14	0.138	83.368		16	14916.096	32130	1871.625	1871.625	2.402	H1-1b
45	A_MP3_S	PIPE_2.0	0.568	83.368	9	0.138	83.368		11	14916.096	32130	1871.625	1871.625	2.473	H1-1b
46	M337	PIPE_3.0	0.293	59.526	24	0.105	22.895		13	21265.969	65205	5748.75	5748.75	1.934	H1-1b
47	M338	PIPE_3.0	0.293	59.526	19	0.102	160.263		17	21265.969	65205	5748.75	5748.75	1.934	H1-1b
48	M336	PIPE_3.0	0.293	59.526	30	0.102	160.263		11	21265.969	65205	5748.75	5748.75	1.934	H1-1b
49	M216	HSS4X4X4	0.295	30.688	29	0.096	30.688	y	30	106874.106	109188	12663	12663	1.73	H1-1b
50	M323	HSS4X4X4	0.294	30.688	23	0.096	30.688	y	24	106874.106	109188	12663	12663	1.721	H1-1b
51	M148	HSS4X4X4	0.294	30.688	34	0.096	30.688	y	19	106874.106	109188	12663	12663	1.721	H1-1b
52	M171	HSS4X4X4	0.288	0	31	0.095	0	y	30	106874.166	109188	12663	12663	1.682	H1-1b
53	M314	HSS4X4X4	0.289	0	25	0.095	0	y	24	106874.166	109188	12663	12663	1.689	H1-1b
54	M151	HSS4X4X4	0.288	0	20	0.095	0	y	19	106874.166	109188	12663	12663	1.682	H1-1b
55	A_MP2_S	PIPE_2.0	0.577	83.368	16	0.074	83.368		13	14916.096	32130	1871.625	1871.625	2.579	H1-1b
56	B_MP2_S	PIPE_2.0	0.577	83.368	6	0.073	83.368		6	14916.096	32130	1871.625	1871.625	2.797	H1-1b
57	G_MP2_S	PIPE_2.0	0.577	83.368	11	0.073	83.368		11	14916.096	32130	1871.625	1871.625	2.934	H1-1b
58	M264	L2x2x3	0.208	50.542	32	0.019	50.542	y	33	9618.888	23392.8	557.717	1157.455	1.5	H2-1

Envelope AISC 14TH (360-10): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
59	M163	L2x2x3	0.208	50.542	22	0.019	50.542	y	23	9618.888	23392.8	557.717	1157.455	1.5	H2-1
60	M329	L2x2x3	0.208	50.542	27	0.019	50.542	y	28	9618.888	23392.8	557.717	1157.455	1.5	H2-1
61	M165	L2x2x3	0.162	50.542	32	0.016	50.542	z	31	9618.956	23392.8	557.717	1157.456	1.5	H2-1
62	M326	L2x2x3	0.163	50.542	21	0.016	50.542	z	20	9618.956	23392.8	557.717	1157.456	1.5	H2-1
63	M253	L2x2x3	0.162	50.542	27	0.016	50.542	z	26	9618.956	23392.8	557.717	1157.456	1.5	H2-1

TOWER-MOUNT CONNECTION ANALYSIS

v.1.0.0

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

SITE INFORMATION	
Site ID	302488.0
Site Name	Cntn - Canton
Project ID	41124-13678007_C8_02-01-MA

ANALYSIS PARAMETERS	
TIA Revision	H

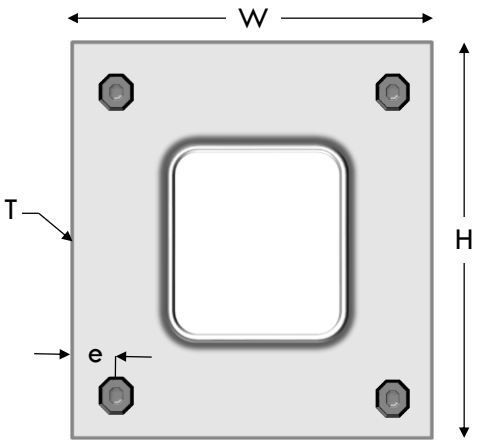
APPLIED FORCES FROM R3D		
Member Label		A1-LC30
Member End Label		I
Force-X	Fx, lbs	-332.7
Force-Y	Fy, lbs	3170.8
Force-Z	Fz, lbs	9.9
Moment X-X	Mx, lbs-ft	-141.0
Moment Y-Y	My, lbs-ft	-9.8
Moment Z-Z	Mz, lbs-ft	10201.4

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	0.82	
Shear Capacity (ΦRnv), k	13.81	
Tension Demand (Tu), k	14.51	
Tension Capacity (ΦRnt), k	20.34	
Shear Utilization	5.9%	
Tension Utilization	71.3%	PASS
Interaction Utilization	51.2%	

PLATE ANALYSIS		
Moment Demand (Mu), k-in	20.52	
Flexural Capacity (ΦMn), k-in	25.77	
Plate Utilization	79.6%	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

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

TOWER ENGINEERING PROFESSIONALS

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Cntn - Canton, CT**
ATC Asset Number	:	**302488**
Engineering Number	:	**13678007_C3_03**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**ATC Canton Monopole**
Carrier Site Number	:	**CTHA532A**
Site Location	:	**4 Hoffmann Road** **Canton, CT 06019-2122** **41.855300,-72.892500**
County	:	**Hartford**
Date	:	**June 3, 2021**
Max Usage	:	**90%**
Result	:	**Pass**

Prepared By:
Colson Teal
TEP

Reviewed By:

STATE OF CONNECTICUT
GRAHAM W. ANDRES
29538
LICENSED
PROFESSIONAL ENGINEER

4/3/21

COA: PEC.0001553

Table of Contents

Introduction

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

Supporting Documents

Tower Drawings	ITT Meyer, AT&T Spec. AT-8935 B, dated April 13, 1984
Foundation Drawing	Girard & Co. Drawing dated April 22, 1986 Mapping by ETS Job #201898, dated April 28, 2020
Geotechnical Report	GEOServices Project #21-07254, dated September 12, 2008
Modifications	ATC Project #51822034, dated March 14, 2013 ATC Project #OAA694941_C6_06, dated May 11, 2017 ATC Project #13201406_C6_05, dated July 8, 2020
Mount Analysis	ATC-CLS Engineering, job #13678007_C8_02, dated May 20, 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:	115 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1 1/2" 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 = 0.05
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	Equipment	Mount Type	Lines	Carrier
163.0	1	Generic 12' Omni	Platform with Handrails	(1) 1 5/8" Coax	SPOK HOLDINGS, INC.
161.0	1	Generic 12' Dipole		(1) 7/8" Coax	TOWN OF CANTON
155.5	1	Generic 6' Yagi		(1) 1/2" Coax	SPOK HOLDINGS, INC.
152.0	3	CCI HPA-65R-BUU-H8		(2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax (2) 3" conduit	AT&T MOBILITY
150.0	3	Ericsson RRUS 11 (Band 12)			
	3	Generic Round Stand-Off			
	6	Powerwave Allgon 7770.00A			
	1	Raycap DC6-48-60-18-8F(32.8 lbs)			
	6	Powerwave Allgon TT19-08BP111-001			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	3	Andrew ABT-DMDF-ADBH			
	3	Ericsson RRUS 32 B2			
140.0	1	-	Platform with Handrails	-	T-MOBILE
123.0	1	Generic 75" x 16.8" Panel	Stand-Off	(1) 7/8" Coax	TOWN OF CANTON
118.0	3	Samsung B2/B66A RRH-BR049	Platform with Handrails	(2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Samsung B5/B13 RRH-BR04C			
	1	Raycap RCMDC-6627-PF-48			
	6	Commscope NHH-65B-R2B			
10.0	1	Channel Master Type 120	Flush	(1) 0.28" (7mm) RG-6	SPOK HOLDINGS, INC.

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson Radio 4460 B25+B66	Platform with Handrails	(3) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson Radio 4480 B71+B85A			
	3	Ericsson Air6449 B41			
	3	RFS APX16DWV-16DWVS-E-A20			
	3	RFS APXVAALL24 43-U-NA20			

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

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

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	85%	Pass
Shaft	84%	Pass
Base Plate	55%	Pass
Reinforcement	90%	Pass
Flange	79%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,461.9	49%
Axial (Kips)	46.7	12%
Shear (Kips)	24.0	21%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Ericsson Radio 4460 B25+B66	T-MOBILE	2.160	1.804
	Ericsson Radio 4480 B71+B85A			
	Ericsson Air6449 B41			
	RFS APX16DWV-16DWVS-E-A20			
	RFS APXVAALL24 43-U-NA20			
10.0	Channel Master Type 120	SPOK HOLDINGS, INC.	0.012	0.131

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

Standard Conditions

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

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

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

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

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

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

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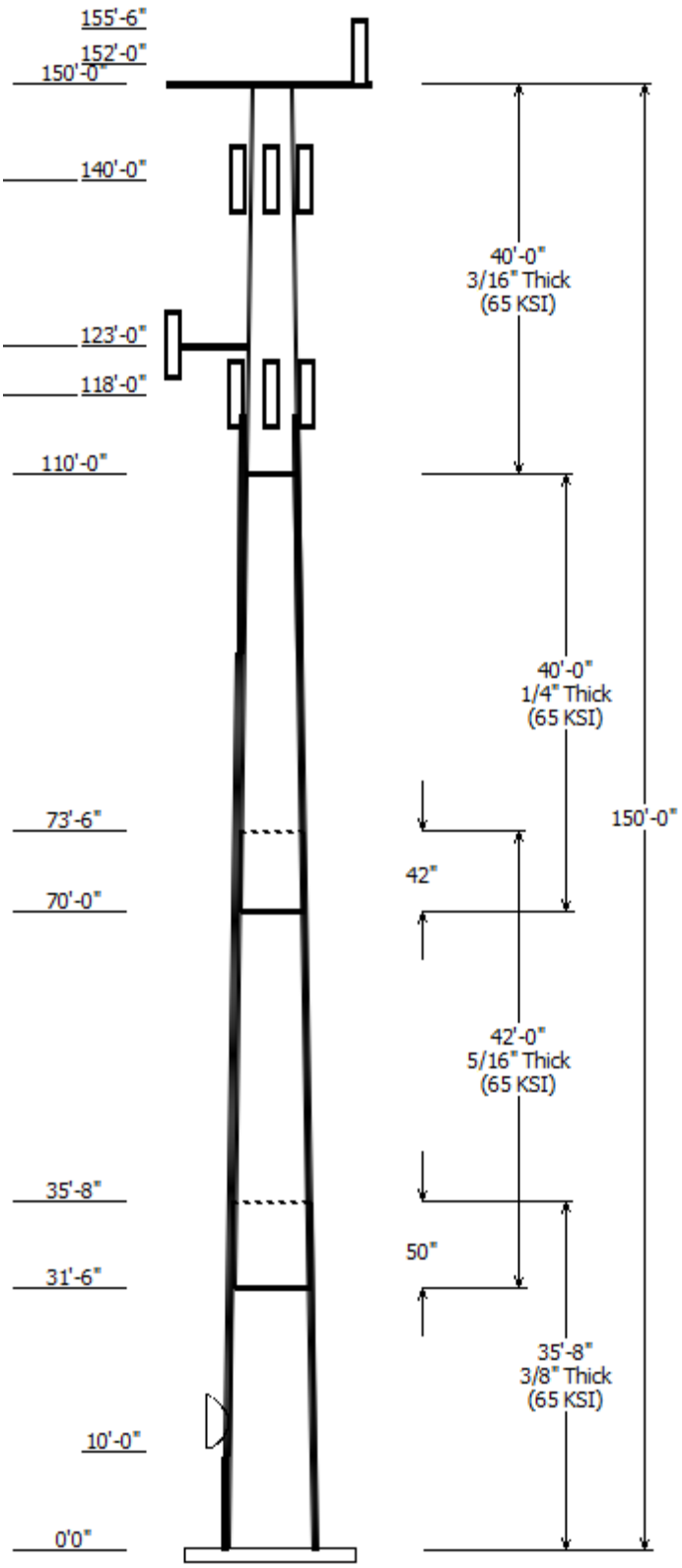


Job Information

Client :	T-MOBILE		
Pole :	302488	Code:	ANSI/TIA-222-H
Location :	Cntn - Canton, CT		
Description :	150 ft ITT Meyer Type "B" Monopole	Risk Category :	II
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo Method :	Method 1
Base Elev (ft):	0.00	Topographic Category :	1
Taper:	0.156707 (in/ft)		

Sections Properties

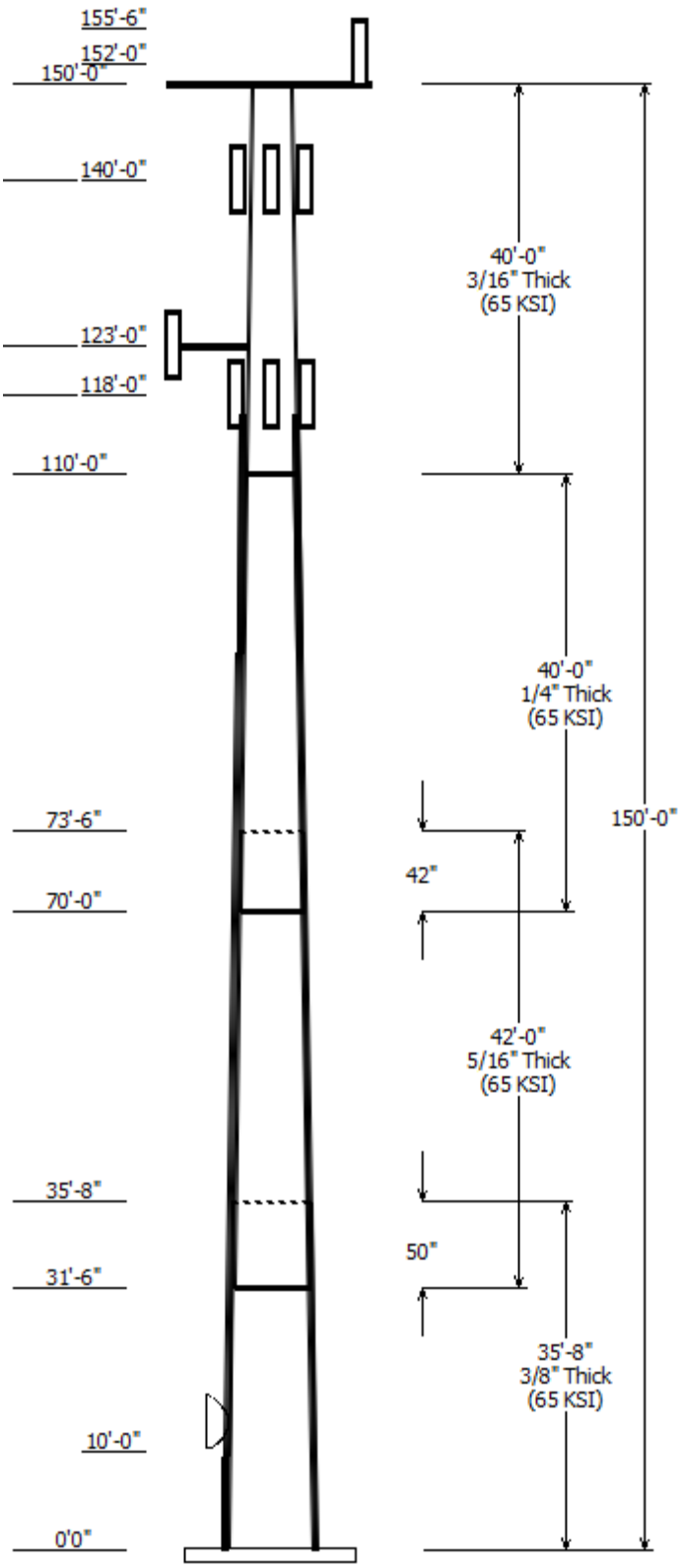
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.666	31.79	37.38	0.375		0.000	12 Sides	65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	12 Sides	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	12 Sides	65
4	40.001	14.99	21.26	0.188	Butt Joint	0.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
163.000	163.000	1	Generic 12' Omni
161.000	161.000	1	Generic 12' Dipole
155.500	155.500	1	Generic 6' Yagi
152.000	153.000	3	CCI HPA-65R-BUU-H8
150.000	150.000	3	Generic Round Stand-Off
150.000	150.000	1	Round Platform w/ Handrails
150.000	153.000	6	Powerwave Allgon 7770.00A
150.000	153.000	3	Ericsson RRUS 32 B2
150.000	153.000	3	Ericsson RRUS 11 (Band 12)
150.000	153.000	1	Raycap DC6-48-60-18-8F(32.8 lb
150.000	153.000	6	Powerwave Allgon TT19-
150.000	150.000	6	Powerwave Allgon 7020.00
150.000	150.000	3	Andrew ABT-DMDF-ADBH
140.000	140.000	1	Generic Round Platform with
140.000	140.000	3	RFS APXVAALL24 43-U-NA20
140.000	140.000	3	RFS APX16DWV-16DWVS-E-A20
140.000	140.000	3	Ericsson Air6449 B41
140.000	140.000	3	Ericsson Radio 4480 B71+B85A
140.000	140.000	3	Ericsson Radio 4460 B25+B66
123.000	123.000	1	Stand-Off
123.000	123.000	1	Generic 75" x 16.8" Panel
118.000	118.000	1	Generic Round Platform with
118.000	118.000	6	Commscope NHH-65B-R2B
118.000	118.000	1	Raycap RCMDC-6627-PF-48
118.000	118.000	3	Samsung B5/B13 RRH-BR04C
118.000	118.000	3	Samsung B2/B66A RRH-BR049
10.000	11.000	1	Channel Master Type 120

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
84.920	120.5	Reinforcement	Yes
84.920	120.5	Reinforcement	Yes
84.920	120.5	Reinforcement	Yes
84.920	120.5	Reinforcement	Yes
84.920	120.5	Reinforcement	Yes
84.920	120.5	Reinforcement	Yes
0.000	123.0	7/8" Coax	No
0.000	140.0	1 5/8" Hybriflex	Yes
0.000	150.0	0.39" (10mm)	No



0.000	150.0	0.78" (19.7mm) 8	No
0.000	150.0	1 1/4" Coax	No
0.000	150.0	3" conduit	No
0.000	155.5	1/2" Coax	No
0.000	161.0	7/8" Coax	No
0.000	163.0	1 5/8" Coax	No
0.000	10.000	0.28" (7mm) RG-6	No
0.000	95.500	Reinforcement	Yes
0.000	95.500	Reinforcement	Yes
0.000	95.500	Reinforcement	Yes
0.000	95.500	Reinforcement	Yes
0.000	118.0	1 5/8" Hybriflex	No

Load Cases

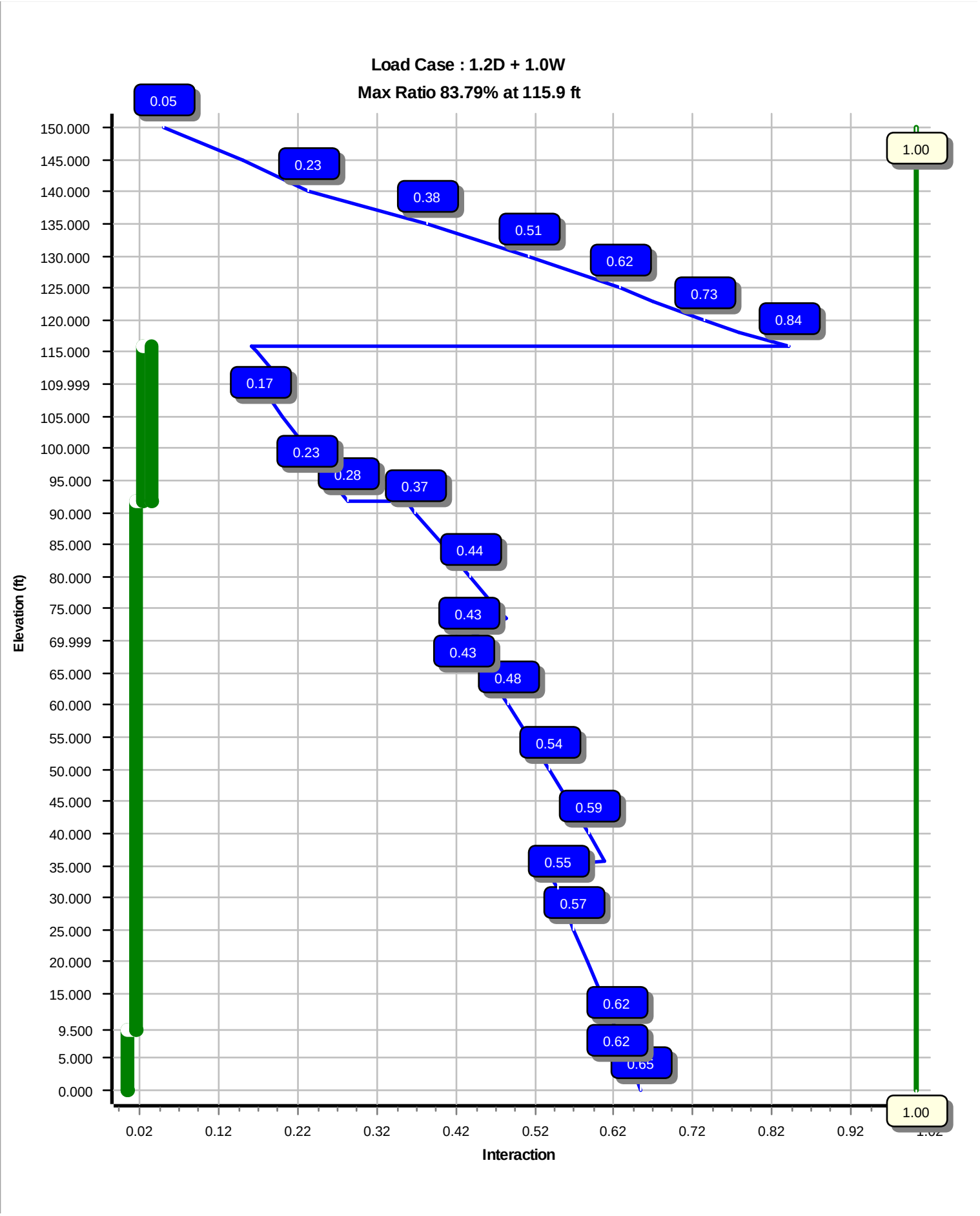
1.2D + 1.0W	115 mph with No Ice
0.9D + 1.0W	115 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.50 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	2461.86	24.02	46.65
0.9D + 1.0W	2409.78	23.99	34.98
1.2D + 1.0Di + 1.0Wi	816.64	6.69	70.01
1.2D + 1.0Ev + 1.0Eh	200.64	1.53	46.50
0.9D - 1.0Ev + 1.0Eh	195.22	1.52	32.42
1.0D + 1.0W	592.21	5.84	38.92

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	10.00	0.138	0.131


Load Case : 1.2D + 1.0W
Max Ratio 83.79% at 115.9 ft
0.05
0.23
0.38
0.51
0.62
0.73
0.84
0.17
0.23
0.28
0.37
0.44
0.43
0.43
0.48
0.54
0.59
0.55
0.57
0.62
0.62
0.65
1.00
1.00
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
109.999
105.000
100.000
95.000
90.000
85.000
80.000
75.000
69.999
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
9.500
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 302488 Code: ANSI/TIA-222-H © 2007 - 2021 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT Engineering Number:13678007_C3_03 6/3/2021 1:20:00 PM

Customer: T-MOBILE

Analysis Parameters

Location :	Hartford County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-H	Base Diameter (in) :	37.38
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.157
Pole Manfacturer :	ITT Meyer	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.97

Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	115 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:	788.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	3.18				
T_L (sec):	6	p:	1.3	C_s:	0.030
S_s:	0.175	S_1:	0.054	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.187	S_{d1}:	0.086		

Load Cases

1.2D + 1.0W	115 mph with No Ice
0.9D + 1.0W	115 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

Site Number: 302488 Code: ANSI/TIA-222-H © 2007 - 2021 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT Engineering Number:13678007_C3_03 6/3/2021 1:20:00 PM

Customer: T-MOBILE

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)
1-12	35.666	0.3750	65		0.00	5,013	37.38	0.00	44.68	7810.1	24.03	99.68	31.79	35.67	37.93	4778.8	20.04	84.78	0.156707
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4514.2	25.67	105.82	26.48	73.50	26.34	2303.2	20.03	84.76	0.156707
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.96	2087.3	26.83	110.14	21.26	110.00	16.92	953.9	20.11	85.07	0.156707
4-12	40.001	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.8	27.71	113.43	14.99	150.00	8.94	250.4	18.75	79.99	0.156707
				Shaft Weight		13,372													

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
163.00	Generic 12' Omni	1	0.75	0.000	40.00	3.600	1.00	130.82	7.898	1.00
161.00	Generic 12' Dipole	1	0.75	0.000	40.00	4.510	1.00	173.39	11.670	1.00
155.50	Generic 6' Yagi	1	0.75	0.000	25.00	8.950	1.00	279.55	32.814	1.00
152.00	CCI HPA-65R-BUU-H8	3	0.75	1.000	68.00	12.976	0.67	325.04	16.557	0.67
150.00	Andrew ABT-DMDF-ADBH	3	0.75	0.000	1.10	0.045	0.50	3.33	0.218	0.50
150.00	Powerwave Allgon 7020.00 Dual	6	0.75	0.000	2.20	0.339	0.50	12.42	0.748	0.50
150.00	Powerwave Allgon TT19-	6	0.75	3.000	16.00	0.553	0.50	36.20	1.064	0.50
150.00	Raycap DC6-48-60-18-8F(32.8	1	0.75	3.000	32.80	1.470	1.00	94.52	2.169	1.00
150.00	Ericsson RRUS 11 (Band 12)	3	0.75	3.000	50.00	2.566	0.50	118.19	3.614	0.50
150.00	Ericsson RRUS 32 B2	3	0.75	3.000	53.00	2.743	0.50	126.58	3.913	0.50
150.00	Generic Round Stand-Off	3	1.00	0.000	187.50	5.200	0.67	278.97	7.918	0.67
150.00	Powerwave Allgon 7770.00A	6	0.75	3.000	27.00	5.555	0.65	141.10	7.692	0.65
150.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,296.26	51.653	1.00
140.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.50	196.80	3.611	0.50
140.00	Ericsson Radio 4480 B71+B85A	3	0.75	0.000	84.00	2.852	0.50	159.05	3.961	0.50
140.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	239.38	7.259	0.63
140.00	RFS APX16DWV-16DWVS-E-A20	3	0.75	0.000	40.70	6.586	0.60	156.74	8.737	0.60
140.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	509.72	23.927	0.63
140.00	Generic Round Platform with	1	1.00	0.000	2,500.00	27.200	1.00	4,108.99	51.482	1.00
123.00	Stand-Off	1	1.00	0.000	100.00	3.000	0.67	147.85	4.538	0.67
123.00	Generic 75" x 16.8" Panel	1	1.00	0.000	31.20	11.264	1.00	258.11	14.097	1.00
118.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	146.76	2.757	0.50
118.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	126.21	2.757	0.50
118.00	Raycap RCMDC-6627-PF-48	1	0.75	0.000	32.00	4.056	1.00	156.22	5.390	1.00
118.00	Commscope NHH-65B-R2B	6	0.75	0.000	43.70	8.079	0.67	214.12	10.802	0.67
118.00	Generic Round Platform with	1	1.00	0.000	2,500.00	27.200	1.00	4,083.18	51.093	1.00
10.00	Channel Master Type 120	1	1.00	1.000	126.00	20.190	1.00	282.80	22.485	1.00
Totals	Num Loadings:27	71			10,884.80			22,595.09		

Linear Appurtenance Properties

Load Case Azimuth (deg) : 0

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	163.00	1	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	SPOK HOLDINGS,
0.00	161.00	1	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	0.00	N	TOWN OF CANTON
0.00	155.50	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	SPOK HOLDINGS,
0.00	150.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	150.00	4	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	150.00	12	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	150.00	2	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	140.00	3	1 5/8" Hybriflex	1.98	1.30	N	3	1.00	1.00	225	1.00	Y	T-MOBILE

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0.00	123.00	1	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	0.00	N	TOWN OF CANTON
84.92	120.50	1	Reinforcement	4.00	0.00	N	1	0.00	0.00	0	8.28	Y	
84.92	120.50	1	Reinforcement	4.00	0.00	N	1	0.00	0.00	240	8.28	Y	
84.92	120.50	1	Reinforcement	4.00	0.00	N	1	0.00	0.00	120	8.28	Y	
84.92	120.50	1	Reinforcement	2.49	6.30	N	1	0.00	0.00	0	2.90	Y	
84.92	120.50	1	Reinforcement	2.49	6.30	N	1	0.00	0.00	120	2.90	Y	
84.92	120.50	1	Reinforcement	2.49	6.30	N	1	0.00	0.00	240	2.90	Y	
0.00	118.00	2	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	95.50	1	Reinforcement	4.00	4.68	N	1	0.00	0.00	0	0.00	Y	
0.00	95.50	1	Reinforcement	4.00	4.68	N	1	0.00	0.00	90	0.00	Y	
0.00	95.50	1	Reinforcement	4.00	4.68	N	1	0.00	0.00	180	0.00	Y	
0.00	95.50	1	Reinforcement	4.00	4.68	N	1	0.00	0.00	270	0.00	Y	
0.00	10.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0	0.00	0.00	0	0.00	N	SPOK HOLDINGS,

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections			Connectors	Continuation?
						Description	Spacing (in)	Len (in)		
0.00	9.50	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	40.0	3.31	5/8" A36 U-Bolt	No
9.50	91.67	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes
91.67	115.9	2	SOL #20 All Thread	80	8.25	6" T Bracket	30.0	3.31	5/8" A36 U-Bolt	No
91.67	115.9	1	SOL #20 All Thread	80	8.25	6" T Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes

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Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.380	44.684	7,810.1	24.03	99.68	78.5	403.6	0.0	0.0	19.64	4,816	0.0
5.00		0.3750	36.596	43.737	7,324.4	23.47	97.59	79.1	386.6	0.0	752.2	19.64	4,648	334.0
9.50	Reinf. Top Reinf	0.3750	35.891	42.886	6,904.9	22.97	95.71	79.7	371.7	0.0	663.2	19.64	4,498	300.6
10.00		0.3750	35.813	42.791	6,859.3	22.91	95.50	79.7	370.0	0.0	72.9	19.64	4,482	33.4
15.00		0.3750	35.029	41.845	6,414.3	22.35	93.41	80.3	353.7	0.0	720.0	19.64	4,319	334.0
20.00		0.3750	34.246	40.899	5,989.0	21.79	91.32	80.9	337.8	0.0	703.9	19.64	4,159	334.0
25.00		0.3750	33.462	39.953	5,582.9	21.23	89.23	81.6	322.3	0.0	687.8	19.64	4,003	334.0
30.00		0.3750	32.679	39.007	5,195.6	20.67	87.14	81.9	307.1	0.0	671.7	19.64	3,849	334.0
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.0	20.50	86.52	81.9	302.7	0.0	198.3	19.64	3,804	100.2
35.00		0.3750	31.895	38.061	4,826.6	20.11	85.05	81.9	292.3	0.0	846.7	19.64	3,818	233.8
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.6	25.12	103.73	77.3	253.3	0.0	159.4	19.64	3,798	44.5
40.00		0.3125	31.737	31.621	3,985.5	24.53	101.56	78.0	242.6	0.0	471.4	19.64	3,668	289.5
45.00		0.3125	30.953	30.832	3,694.8	23.86	99.05	78.7	230.6	0.0	531.3	19.64	3,521	334.0
50.00		0.3125	30.170	30.044	3,418.5	23.19	96.54	79.4	218.9	0.0	517.9	19.64	3,377	334.0
55.00		0.3125	29.386	29.255	3,156.4	22.52	94.04	80.2	207.5	0.0	504.5	19.64	3,236	334.0
60.00		0.3125	28.603	28.467	2,908.0	21.85	91.53	80.9	196.4	0.0	491.0	19.64	3,098	334.0
65.00		0.3125	27.819	27.678	2,673.0	21.17	89.02	81.6	185.6	0.0	477.6	19.64	2,963	334.0
70.00	Bot - Section 3	0.3125	27.036	26.890	2,451.1	20.50	86.51	81.9	175.1	0.0	464.2	19.64	2,831	334.0
70.00		0.3125	27.035	26.890	2,451.0	20.50	86.51	81.9	175.1	0.0	0.1	19.64	2,915	0.0
73.50	Top - Section 2	0.2500	26.987	21.523	1,963.9	26.25	107.95	76.1	140.6	0.0	575.8	19.64	2,823	233.8
75.00		0.2500	26.752	21.334	1,912.6	25.99	107.01	76.4	138.1	0.0	109.4	19.64	2,784	100.2
80.00		0.2500	25.968	20.703	1,747.9	25.15	103.87	77.3	130.0	0.0	357.6	19.64	2,656	334.0
85.00		0.2500	25.185	20.073	1,593.0	24.31	100.74	78.2	122.2	0.0	346.9	19.64	2,531	334.0
90.00		0.2500	24.401	19.442	1,447.5	23.47	97.61	79.1	114.6	0.0	336.1	19.64	2,409	334.0
91.67	Reinf. Top Reinf	0.2500	24.140	19.232	1,401.0	23.19	96.56	79.4	112.1	0.0	109.7	19.64	2,370	111.3
95.00		0.2500	23.618	18.811	1,311.1	22.63	94.47	80.0	107.2	0.0	215.8	14.73	3,350	167.0
100.0		0.2500	22.834	18.180	1,183.6	21.79	91.34	80.9	100.1	0.0	314.7	14.73	3,228	250.5
105.0		0.2500	22.051	17.550	1,064.6	20.95	88.20	81.9	93.3	0.0	304.0	14.73	3,108	250.5
110.0	Top - Section 3	0.2500	21.267	16.919	953.9	20.11	85.07	81.9	86.7	0.0	293.2	14.73	2,991	250.5
110.0	Bot - Section 4	0.1875	21.267	12.727	721.8	27.71	113.43	74.5	65.6	0.0		14.73	2,991	
110.0		0.1875	21.267	12.727	721.8	27.71	113.43	74.5	65.6	0.0	0.0	14.73	2,991	0.0
115.0		0.1875	20.484	12.254	644.3	26.59	109.25	75.7	60.8	0.0	212.5	14.73	2,876	250.5
115.9	Reinf. Top Reinf.	0.1875	20.337	12.165	630.4	26.38	108.46	75.9	59.9	0.0	38.9	14.73	2,854	47.0
118.0		0.1875	20.014	11.970	600.6	25.92	106.74	76.4	58.0	0.0	84.7			
120.0		0.1875	19.700	11.781	572.5	25.47	105.07	76.9	56.1	0.0	80.8			
123.0		0.1875	19.230	11.497	532.1	24.80	102.56	77.7	53.5	0.0	118.8			
125.0		0.1875	18.917	11.308	506.3	24.35	100.89	78.2	51.7	0.0	77.6			
130.0		0.1875	18.133	10.835	445.4	23.23	96.71	79.4	47.4	0.0	188.4			
135.0		0.1875	17.350	10.362	389.5	22.11	92.53	80.6	43.4	0.0	180.3			
140.0		0.1875	16.566	9.889	338.6	20.99	88.35	81.8	39.5	0.0	172.3			
145.0		0.1875	15.782	9.415	292.3	19.87	84.17	81.9	35.8	0.0	164.2			
150.0		0.1875	14.999	8.942	250.4	18.75	79.99	81.9	32.3	0.0	156.2			
											13,371.8			7,339.3

Site Number: 302488 Code: ANSI/TIA-222-H © 2007 - 2021 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT Engineering Number:13678007_C3_03 6/3/2021 1:20:00 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0W 115 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		230.4	0.0					0.0	0.0	230.4	0.0	0.0	0.0
5.00		433.6	902.6					96.3	713.3	529.9	1,615.9	0.0	0.0
9.50	Reinf. Top Reinf	225.5	795.9					86.6	641.9	312.2	1,437.8	0.0	0.0
10.00	Appurtenance(s)	243.0	87.5	486.0	0.0	486.0	151.2	9.6	71.3	738.6	310.0	0.0	0.0
15.00		436.4	864.0					96.3	713.1	532.7	1,577.1	0.0	0.0
20.00		426.7	844.7					96.3	713.1	523.0	1,557.8	0.0	0.0
25.00		416.9	825.4					96.3	713.1	513.2	1,538.5	0.0	0.0
30.00		267.3	806.0					96.3	713.1	363.6	1,519.1	0.0	0.0
31.50	Bot - Section 2	208.7	237.9					29.1	213.8	237.8	451.8	0.0	0.0
35.00		175.7	1,016.0					69.5	499.3	245.2	1,515.3	0.0	0.0
35.67	Top - Section 1	213.5	191.3					13.4	95.0	226.9	286.3	0.0	0.0
40.00		401.1	565.6					89.2	618.1	490.4	1,183.8	0.0	0.0
45.00		433.2	637.5					106.4	713.1	539.6	1,350.6	0.0	0.0
50.00		435.1	621.4					109.9	713.1	545.0	1,334.5	0.0	0.0
55.00		435.6	605.3					113.1	713.1	548.6	1,318.4	0.0	0.0
60.00		434.6	589.2					116.0	713.1	550.7	1,302.3	0.0	0.0
65.00		432.5	573.2					118.8	713.1	551.3	1,286.2	0.0	0.0
70.00	Bot - Section 3	215.6	557.0					121.5	713.0	337.1	1,270.0	0.0	0.0
70.00		152.6	0.1					0.0	0.1	152.7	0.2	0.0	0.0
73.50	Top - Section 2	217.8	691.0					86.5	499.1	304.3	1,190.1	0.0	0.0
75.00		280.7	131.3					37.5	214.0	318.2	345.3	0.0	0.0
80.00		428.5	429.1					126.4	713.1	554.8	1,142.2	0.0	0.0
85.00		422.8	416.3					128.7	714.9	551.4	1,131.2	0.0	0.0
90.00		279.1	403.4					130.8	826.5	409.9	1,229.9	0.0	0.0
91.67	Reinf. Top Reinf	206.5	131.6					44.1	275.5	250.6	407.1	0.0	0.0
95.00		340.1	258.9					88.8	484.2	428.9	743.1	0.0	0.0
100.00		401.6	377.6					134.9	625.2	536.5	1,002.8	0.0	0.0
105.00		393.2	364.7					98.7	614.0	491.9	978.7	0.0	0.0
110.00	Top - Section 3	194.5	351.8					101.0	613.9	295.4	965.7	0.0	0.0
110.00		189.9	0.0					0.0	0.1	189.9	0.1	0.0	0.0
115.00		224.9	255.0					103.3	614.0	328.2	869.0	0.0	0.0
115.94	Reinf. Top Reinf.	111.6	46.7					19.6	115.1	131.2	161.9	0.0	0.0
118.00	Appurtenance(s)	150.0	101.6	2,095.4	0.0	0.0	3,910.0	43.4	129.3	2,288.8	4,140.9	0.0	0.0
120.00		182.0	97.0					42.5	119.1	224.5	216.1	0.0	0.0
123.00	Appurtenance(s)	165.1	142.6	478.5	0.0	0.0	157.4	64.4	122.0	708.0	422.0	0.0	0.0
125.00		194.7	93.1					0.0	73.0	194.7	166.1	0.0	0.0
130.00		272.1	226.0					0.0	182.4	272.1	408.4	0.0	0.0
135.00		263.2	216.4					0.0	182.4	263.2	398.8	0.0	0.0
140.00	Appurtenance(s)	253.9	206.7	2,952.8	0.0	0.0	4,657.8	0.0	182.4	3,206.7	5,046.9	0.0	0.0
145.00		244.3	197.1					0.0	159.0	244.3	356.1	0.0	0.0
150.00	Appurtenance(s)	119.7	187.4	2,410.2	0.0	2,828.0	3,814.6	0.0	159.0	2,530.0	4,161.0	0.0	0.0
								Totals:		22,892.4	46,338.9	0.00	0.00

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Load Case: 1.2D + 1.0W 115 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	-46.65	-24.02	0.00	-2,461.86	0.00	2,461.86	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.652
5.00	-44.93	-23.69	0.00	-2,341.76	0.00	2,341.76	3,114.35	767.59	2,623.10	2,294.24	0.15	-0.27	0.635
9.50	-43.44	-23.47	0.00	-2,235.16	0.00	2,235.16	3,074.93	752.65	2,521.99	2,220.65	0.52	-0.52	0.620
9.50	-43.44	-23.47	0.00	-2,235.16	0.00	2,235.16	3,074.93	752.65	2,521.99	2,220.65	0.52	-0.52	0.620
10.00	-43.08	-22.84	0.00	-2,222.94	0.00	2,222.94	3,070.50	750.99	2,510.88	2,212.50	0.57	-0.54	0.618
15.00	-41.40	-22.49	0.00	-2,108.73	0.00	2,108.73	3,025.61	734.38	2,401.12	2,131.45	1.29	-0.81	0.601
20.00	-39.75	-22.13	0.00	-1,996.30	0.00	1,996.30	2,979.67	717.78	2,293.80	2,051.12	2.29	-1.09	0.584
25.00	-38.12	-21.76	0.00	-1,885.66	0.00	1,885.66	2,932.70	701.17	2,188.95	1,971.58	3.57	-1.36	0.567
30.00	-36.54	-21.47	0.00	-1,776.85	0.00	1,776.85	2,875.19	684.57	2,086.54	1,886.63	5.14	-1.63	0.550
31.50	-36.05	-21.31	0.00	-1,744.66	0.00	1,744.66	2,854.28	679.59	2,056.31	1,859.13	5.67	-1.71	0.546
35.00	-34.50	-21.08	0.00	-1,670.07	0.00	1,670.07	2,805.45	667.97	1,986.59	1,795.70	6.99	-1.90	0.528
35.67	-34.17	-20.93	0.00	-1,656.03	0.00	1,656.03	2,248.06	566.94	1,717.06	1,468.69	7.26	-1.94	0.606
40.00	-32.91	-20.54	0.00	-1,565.33	0.00	1,565.33	2,218.58	554.94	1,645.20	1,418.47	9.13	-2.17	0.585
45.00	-31.49	-20.10	0.00	-1,462.62	0.00	1,462.62	2,183.59	541.10	1,564.21	1,360.95	11.56	-2.45	0.560
50.00	-30.08	-19.64	0.00	-1,362.11	0.00	1,362.11	2,147.56	527.27	1,485.26	1,303.92	14.28	-2.73	0.535
55.00	-28.70	-19.17	0.00	-1,263.90	0.00	1,263.90	2,110.50	513.43	1,408.35	1,247.44	17.29	-3.01	0.510
60.00	-27.35	-18.67	0.00	-1,168.07	0.00	1,168.07	2,072.39	499.59	1,333.49	1,191.55	20.58	-3.28	0.484
65.00	-26.01	-18.17	0.00	-1,074.70	0.00	1,074.70	2,033.25	485.76	1,260.68	1,136.31	24.16	-3.54	0.457
70.00	-24.73	-17.80	0.00	-983.89	0.00	983.89	1,982.07	471.92	1,189.91	1,075.81	28.00	-3.80	0.433
70.00	-24.71	-17.69	0.00	-983.88	0.00	983.88	1,982.06	471.92	1,189.90	1,075.80	28.00	-3.80	0.426
73.50	-23.50	-17.36	0.00	-921.98	0.00	921.98	1,473.95	377.74	952.78	802.30	30.86	-3.98	0.482
75.00	-23.13	-17.08	0.00	-895.93	0.00	895.93	1,466.26	374.41	936.10	791.03	32.12	-4.06	0.471
80.00	-21.96	-16.54	0.00	-810.52	0.00	810.52	1,439.98	363.34	881.58	753.66	36.50	-4.31	0.437
85.00	-20.81	-15.99	0.00	-727.80	0.00	727.80	1,412.66	352.27	828.70	716.62	41.15	-4.56	0.402
90.00	-19.57	-15.54	0.00	-647.83	0.00	647.83	1,384.29	341.20	777.45	679.95	46.06	-4.80	0.367
91.67	-19.16	-15.29	0.00	-621.93	0.00	621.93	1,374.61	337.51	760.74	667.81	47.74	-4.88	0.355
91.67	-19.16	-15.29	0.00	-621.93	0.00	621.93	1,374.61	337.51	760.74	667.81	47.74	-4.88	0.280
95.00	-18.41	-14.85	0.00	-570.95	0.00	570.95	1,354.89	330.13	727.84	643.69	51.20	-5.03	0.259
100.00	-17.42	-14.28	0.00	-496.69	0.00	496.69	1,324.45	319.07	679.87	607.91	56.55	-5.19	0.228
105.00	-16.46	-13.74	0.00	-425.31	0.00	425.31	1,292.96	308.00	633.53	572.64	62.06	-5.34	0.198
110.00	-15.51	-13.37	0.00	-356.64	0.00	356.64	1,247.09	296.93	588.83	532.25	67.72	-5.47	0.171
110.00	-15.51	-13.37	0.00	-356.64	0.00	356.64	853.22	223.36	444.16	366.32	67.72	-5.47	0.201
110.00	-15.52	-13.20	0.00	-356.63	0.00	356.63	853.22	223.36	444.16	366.32	67.72	-5.47	0.201
115.00	-14.67	-12.81	0.00	-290.64	0.00	290.64	834.98	215.05	411.76	345.04	73.51	-5.60	0.166
115.94	-14.51	-12.67	0.00	-278.64	0.00	278.64	831.44	213.50	405.83	341.07	74.61	-5.62	0.159
115.94	-14.51	-12.67	0.00	-278.64	0.00	278.64	831.44	213.50	405.83	341.07	74.61	-5.62	0.838
118.00	-10.59	-10.01	0.00	-252.51	0.00	252.51	823.53	210.07	392.92	332.36	77.05	-5.66	0.775
120.00	-10.35	-9.81	0.00	-232.49	0.00	232.49	815.69	206.75	380.59	323.94	79.46	-5.89	0.733
123.00	-9.96	-9.11	0.00	-203.06	0.00	203.06	803.62	201.77	362.48	311.38	83.27	-6.22	0.667
125.00	-9.77	-8.96	0.00	-184.83	0.00	184.83	795.36	198.45	350.65	303.06	85.91	-6.42	0.624
130.00	-9.33	-8.71	0.00	-140.05	0.00	140.05	774.00	190.15	321.94	282.46	92.88	-6.88	0.510
135.00	-8.92	-8.45	0.00	-96.51	0.00	96.51	751.59	181.85	294.45	262.19	100.28	-7.26	0.382
140.00	-4.31	-4.63	0.00	-54.27	0.00	54.27	728.15	173.54	268.18	242.29	108.02	-7.53	0.231

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Load Case: 1.2D + 1.0W 115 mph with No Ice 27 Iterations

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

145.00	-3.98	-4.35	0.00	-31.10	0.00	31.10	694.01	165.24	243.15	219.76	115.99	-7.71	0.148
150.00	0.00	-3.78	0.00	-9.32	0.00	9.32	659.14	156.94	219.34	198.10	124.10	-7.81	0.048

Site Number: 302488 Code: ANSI/TIA-222-H © 2007 - 2021 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT Engineering Number:13678007_C3_03 6/3/2021 1:20:04 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.0W — 115 mph with No Ice (Reduced DL) — 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
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		230.4	0.0					0.0	0.0	230.4	0.0	0.0	0.0
5.00		433.6	677.0					96.3	535.0	529.9	1,211.9	0.0	0.0
9.50	Reinf. Top Reinf	225.5	596.9					86.6	481.5	312.2	1,078.4	0.0	0.0
10.00	Appurtenance(s)	243.0	65.6	486.0	0.0	486.0	113.4	9.6	53.5	738.6	232.5	0.0	0.0
15.00		436.4	648.0					96.3	534.8	532.7	1,182.8	0.0	0.0
20.00		426.7	633.5					96.3	534.8	523.0	1,168.3	0.0	0.0
25.00		416.9	619.0					96.3	534.8	513.2	1,153.8	0.0	0.0
30.00		267.3	604.5					96.3	534.8	363.6	1,139.4	0.0	0.0
31.50	Bot - Section 2	208.7	178.5					29.1	160.4	237.8	338.8	0.0	0.0
35.00		175.7	762.0					69.5	374.4	245.2	1,136.4	0.0	0.0
35.67	Top - Section 1	213.5	143.5					13.4	71.2	226.9	214.7	0.0	0.0
40.00		401.1	424.2					89.2	463.6	490.4	887.8	0.0	0.0
45.00		433.2	478.2					106.4	534.8	539.6	1,013.0	0.0	0.0
50.00		435.1	466.1					109.9	534.8	545.0	1,000.9	0.0	0.0
55.00		435.6	454.0					113.1	534.8	548.6	988.8	0.0	0.0
60.00		434.6	441.9					116.0	534.8	550.7	976.8	0.0	0.0
65.00		432.5	429.9					118.8	534.8	551.3	964.7	0.0	0.0
70.00	Bot - Section 3	215.6	417.7					121.5	534.8	337.1	952.5	0.0	0.0
70.00		152.6	0.1					0.0	0.1	152.7	0.2	0.0	0.0
73.50	Top - Section 2	217.8	518.2					86.5	374.3	304.3	892.5	0.0	0.0
75.00		280.7	98.5					37.5	160.5	318.2	259.0	0.0	0.0
80.00		428.5	321.8					126.4	534.8	554.8	856.7	0.0	0.0
85.00		422.8	312.2					128.7	536.2	551.4	848.4	0.0	0.0
90.00		279.1	302.5					130.8	619.9	409.9	922.4	0.0	0.0
91.67	Reinf. Top Reinf	206.5	98.7					44.1	206.6	250.6	305.3	0.0	0.0
95.00		340.1	194.2					88.8	363.2	428.9	557.3	0.0	0.0
100.00		401.6	283.2					134.9	468.9	536.5	752.1	0.0	0.0
105.00		393.2	273.6					98.7	460.5	491.9	734.0	0.0	0.0
110.00	Top - Section 3	194.5	263.9					101.0	460.4	295.4	724.3	0.0	0.0
110.00		189.9	0.0					0.0	0.1	189.9	0.1	0.0	0.0
115.00		224.9	191.3					103.3	460.5	328.2	651.7	0.0	0.0
115.94	Reinf. Top Reinf.	111.6	35.1					19.6	86.3	131.2	121.4	0.0	0.0
118.00	Appurtenance(s)	150.0	76.2	2,095.4	0.0	0.0	2,932.5	43.4	97.0	2,288.8	3,105.6	0.0	0.0
120.00		182.0	72.7					42.5	89.3	224.5	162.1	0.0	0.0
123.00	Appurtenance(s)	165.1	106.9	478.5	0.0	0.0	118.1	64.4	91.5	708.0	316.5	0.0	0.0
125.00		194.7	69.8					0.0	54.7	194.7	124.6	0.0	0.0
130.00		272.1	169.5					0.0	136.8	272.1	306.3	0.0	0.0
135.00		263.2	162.3					0.0	136.8	263.2	299.1	0.0	0.0
140.00	Appurtenance(s)	253.9	155.0	2,952.8	0.0	0.0	3,493.3	0.0	136.8	3,206.7	3,785.2	0.0	0.0
145.00		244.3	147.8					0.0	119.3	244.3	267.0	0.0	0.0
150.00	Appurtenance(s)	119.7	140.6	2,410.2	0.0	2,828.0	2,860.9	0.0	119.3	2,530.0	3,120.7	0.0	0.0
								Totals:		22,892.4	34,754.2	0.00	0.00

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Load Case: 0.9D + 1.0W — 115 mph with No Ice (Reduced DL) — 26 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.98	-23.99	0.00	-2,409.78	0.00	2,409.78	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.636
5.00	-33.66	-23.61	0.00	-2,289.83	0.00	2,289.83	3,114.35	767.59	2,623.10	2,294.24	0.14	-0.26	0.619
9.50	-32.53	-23.36	0.00	-2,183.61	0.00	2,183.61	3,074.93	752.65	2,521.99	2,220.65	0.51	-0.50	0.604
9.50	-32.53	-23.36	0.00	-2,183.61	0.00	2,183.61	3,074.93	752.65	2,521.99	2,220.65	0.51	-0.50	0.604
10.00	-32.25	-22.70	0.00	-2,171.45	0.00	2,171.45	3,070.50	750.99	2,510.88	2,212.50	0.56	-0.53	0.602
15.00	-30.97	-22.30	0.00	-2,057.93	0.00	2,057.93	3,025.61	734.38	2,401.12	2,131.45	1.26	-0.80	0.585
20.00	-29.71	-21.90	0.00	-1,946.43	0.00	1,946.43	2,979.67	717.78	2,293.80	2,051.12	2.24	-1.06	0.568
25.00	-28.47	-21.49	0.00	-1,836.95	0.00	1,836.95	2,932.70	701.17	2,188.95	1,971.58	3.49	-1.33	0.550
30.00	-27.27	-21.18	0.00	-1,729.49	0.00	1,729.49	2,875.19	684.57	2,086.54	1,886.63	5.02	-1.59	0.534
31.50	-26.89	-21.00	0.00	-1,697.74	0.00	1,697.74	2,854.28	679.59	2,056.31	1,859.13	5.53	-1.67	0.530
35.00	-25.72	-20.77	0.00	-1,624.24	0.00	1,624.24	2,805.45	667.97	1,986.59	1,795.70	6.83	-1.86	0.512
35.67	-25.47	-20.59	0.00	-1,610.41	0.00	1,610.41	2,248.06	566.94	1,717.06	1,468.69	7.09	-1.89	0.587
40.00	-24.51	-20.18	0.00	-1,521.17	0.00	1,521.17	2,218.58	554.94	1,645.20	1,418.47	8.92	-2.12	0.567
45.00	-23.43	-19.71	0.00	-1,420.29	0.00	1,420.29	2,183.59	541.10	1,564.21	1,360.95	11.28	-2.39	0.542
50.00	-22.36	-19.22	0.00	-1,321.75	0.00	1,321.75	2,147.56	527.27	1,485.26	1,303.92	13.93	-2.66	0.518
55.00	-21.31	-18.73	0.00	-1,225.63	0.00	1,225.63	2,110.50	513.43	1,408.35	1,247.44	16.86	-2.93	0.492
60.00	-20.29	-18.22	0.00	-1,132.00	0.00	1,132.00	2,072.39	499.59	1,333.49	1,191.55	20.07	-3.19	0.467
65.00	-19.28	-17.70	0.00	-1,040.92	0.00	1,040.92	2,033.25	485.76	1,260.68	1,136.31	23.55	-3.45	0.441
70.00	-18.31	-17.34	0.00	-952.45	0.00	952.45	1,982.07	471.92	1,189.91	1,075.81	27.29	-3.70	0.417
70.00	-18.29	-17.22	0.00	-952.43	0.00	952.43	1,982.06	471.92	1,189.90	1,075.80	27.30	-3.70	0.411
73.50	-17.39	-16.89	0.00	-892.19	0.00	892.19	1,473.95	377.74	952.78	802.30	30.07	-3.87	0.464
75.00	-17.10	-16.60	0.00	-866.85	0.00	866.85	1,466.26	374.41	936.10	791.03	31.30	-3.94	0.454
80.00	-16.22	-16.06	0.00	-783.83	0.00	783.83	1,439.98	363.34	881.58	753.66	35.56	-4.19	0.420
85.00	-15.35	-15.51	0.00	-703.53	0.00	703.53	1,412.66	352.27	828.70	716.62	40.08	-4.43	0.387
90.00	-14.42	-15.06	0.00	-625.99	0.00	625.99	1,384.29	341.20	777.45	679.95	44.85	-4.66	0.353
91.67	-14.11	-14.82	0.00	-600.89	0.00	600.89	1,374.61	337.51	760.74	667.81	46.49	-4.74	0.341
91.67	-14.11	-14.82	0.00	-600.89	0.00	600.89	1,374.61	337.51	760.74	667.81	46.49	-4.74	0.269
95.00	-13.55	-14.38	0.00	-551.50	0.00	551.50	1,354.89	330.13	727.84	643.69	49.84	-4.88	0.249
100.00	-12.82	-13.81	0.00	-479.60	0.00	479.60	1,324.45	319.07	679.87	607.91	55.04	-5.04	0.219
105.00	-12.10	-13.29	0.00	-410.54	0.00	410.54	1,292.96	308.00	633.53	572.64	60.39	-5.19	0.190
110.00	-11.39	-12.94	0.00	-344.12	0.00	344.12	1,247.09	296.93	588.83	532.25	65.89	-5.31	0.163
110.00	-11.39	-12.94	0.00	-344.12	0.00	344.12	853.22	223.36	444.16	366.32	65.89	-5.31	0.192
110.00	-11.39	-12.76	0.00	-344.11	0.00	344.11	853.22	223.36	444.16	366.32	65.89	-5.31	0.192
115.00	-10.76	-12.39	0.00	-280.30	0.00	280.30	834.98	215.05	411.76	345.04	71.51	-5.43	0.158
115.94	-10.64	-12.25	0.00	-268.69	0.00	268.69	831.44	213.50	405.83	341.07	72.58	-5.45	0.152
115.94	-10.64	-12.25	0.00	-268.69	0.00	268.69	831.44	213.50	405.83	341.07	72.58	-5.45	0.804
118.00	-7.75	-9.69	0.00	-243.42	0.00	243.42	823.53	210.07	392.92	332.36	74.94	-5.50	0.744
120.00	-7.56	-9.49	0.00	-224.03	0.00	224.03	815.69	206.75	380.59	323.94	77.29	-5.72	0.703
123.00	-7.28	-8.79	0.00	-195.56	0.00	195.56	803.62	201.77	362.48	311.38	80.98	-6.03	0.639
125.00	-7.13	-8.62	0.00	-177.99	0.00	177.99	795.36	198.45	350.65	303.06	83.55	-6.23	0.598
130.00	-6.80	-8.36	0.00	-134.89	0.00	134.89	774.00	190.15	321.94	282.46	90.30	-6.67	0.488
135.00	-6.49	-8.10	0.00	-93.08	0.00	93.08	751.59	181.85	294.45	262.19	97.47	-7.03	0.366
140.00	-3.12	-4.46	0.00	-52.57	0.00	52.57	728.15	173.54	268.18	242.29	104.98	-7.30	0.222

Site Number: 302488 Code: ANSI/TIA-222-H © 2007 - 2021 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT Engineering Number:13678007_C3_03 6/3/2021 1:20:09 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.0W 115 mph with No Ice (Reduced DL) 26 Iterations

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

145.00	-2.87	-4.19	0.00	-30.27	0.00	30.27	694.01	165.24	243.15	219.76	112.70	-7.47	0.143
150.00	0.00	-3.78	0.00	-9.32	0.00	9.32	659.14	156.94	219.34	198.10	120.57	-7.57	0.048

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Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.50 in Radial Ice — 26 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		46.6	0.0					0.0	0.0	46.6	0.0	0.0	0.0
5.00		88.2	1,185.9					0.0	822.8	88.2	2,008.7	0.0	0.0
9.50	Reinf. Top Reinf	46.2	1,075.1					0.0	751.8	46.2	1,826.9	0.0	0.0
10.00	Appurtenance(s)	50.2	119.4	102.3	0.0	102.3	278.5	0.0	83.9	152.5	481.8	0.0	0.0
15.00		90.6	1,184.7					0.0	842.2	90.6	2,026.9	0.0	0.0
20.00		89.4	1,169.6					0.0	846.9	89.4	2,016.5	0.0	0.0
25.00		88.1	1,151.5					0.0	850.5	88.1	2,002.0	0.0	0.0
30.00		56.8	1,131.6					0.0	853.5	56.8	1,985.1	0.0	0.0
31.50	Bot - Section 2	44.6	336.0					0.0	256.4	44.6	592.5	0.0	0.0
35.00		37.6	1,247.4					0.0	599.5	37.6	1,847.0	0.0	0.0
35.67	Top - Section 1	45.9	235.5					0.0	114.2	45.9	349.7	0.0	0.0
40.00		86.5	849.3					0.0	744.0	86.5	1,593.3	0.0	0.0
45.00		94.3	961.0					0.0	860.1	94.3	1,821.2	0.0	0.0
50.00		95.6	940.8					0.0	861.9	95.6	1,802.7	0.0	0.0
55.00		96.6	920.1					0.0	863.5	96.6	1,783.6	0.0	0.0
60.00		97.4	899.0					0.0	865.0	97.4	1,764.0	0.0	0.0
65.00		97.9	877.5					0.0	866.4	97.9	1,743.9	0.0	0.0
70.00	Bot - Section 3	49.1	855.6					0.0	867.6	49.1	1,723.1	0.0	0.0
70.00		35.0	0.2					0.0	0.1	35.0	0.3	0.0	0.0
73.50	Top - Section 2	50.0	901.0					6.8	608.0	56.8	1,509.0	0.0	0.0
75.00		64.8	220.9					2.6	260.9	67.5	481.8	0.0	0.0
80.00		99.7	720.8					14.7	870.0	114.5	1,590.9	0.0	0.0
85.00		99.7	701.5					22.4	876.4	122.1	1,578.0	0.0	0.0
90.00		66.4	682.1					127.9	1,207.1	194.2	1,889.2	0.0	0.0
91.67	Reinf. Top Reinf	49.7	223.9					44.1	402.9	93.7	626.8	0.0	0.0
95.00		82.5	440.3					90.2	739.9	172.7	1,180.3	0.0	0.0
100.00		93.6	642.5					110.4	921.9	203.9	1,564.5	0.0	0.0
105.00		87.4	622.5					132.0	902.6	219.5	1,525.1	0.0	0.0
110.00	Top - Section 3	43.4	602.3					134.6	904.1	177.9	1,506.5	0.0	0.0
110.00		42.5	0.1					0.0	0.1	42.6	0.2	0.0	0.0
115.00		50.4	498.2					137.0	905.9	187.4	1,404.0	0.0	0.0
115.94	Reinf. Top Reinf.	25.1	92.2					25.9	170.0	51.0	262.2	0.0	0.0
118.00	Appurtenance(s)	33.7	200.2	632.4	0.0	0.0	6,541.7	57.3	250.2	723.5	6,992.1	0.0	0.0
120.00		41.0	191.4					64.0	236.7	105.0	428.0	0.0	0.0
123.00	Appurtenance(s)	40.3	281.3	116.8	0.0	0.0	392.0	28.9	183.2	186.0	856.5	0.0	0.0
125.00		54.7	184.4					10.3	98.4	65.1	282.9	0.0	0.0
130.00		76.9	446.3					26.3	246.2	103.2	692.5	0.0	0.0
135.00		74.9	428.8					27.0	246.4	101.9	675.3	0.0	0.0
140.00	Appurtenance(s)	72.9	411.2	820.3	0.0	0.0	8,090.6	27.7	246.7	920.9	8,748.5	0.0	0.0
145.00		70.8	393.6					0.0	159.0	70.8	552.6	0.0	0.0
150.00	Appurtenance(s)	34.8	375.8	755.0	0.0	761.3	6,325.5	0.0	159.0	789.9	6,860.3	0.0	0.0
								Totals:		6,208.86	68,576.2	0.00	0.00

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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.50 in Radial Ice 26 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	-70.01	-6.69	0.00	-816.64	0.00	816.64	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.228
5.00	-67.99	-6.70	0.00	-783.21	0.00	783.21	3,114.35	767.59	2,623.10	2,294.24	0.05	-0.09	0.224
9.50	-66.16	-6.70	0.00	-753.07	0.00	753.07	3,074.93	752.65	2,521.99	2,220.65	0.17	-0.17	0.220
9.50	-66.16	-6.70	0.00	-753.07	0.00	753.07	3,074.93	752.65	2,521.99	2,220.65	0.17	-0.17	0.220
10.00	-65.67	-6.61	0.00	-749.62	0.00	749.62	3,070.50	750.99	2,510.88	2,212.50	0.19	-0.18	0.220
15.00	-63.64	-6.61	0.00	-716.59	0.00	716.59	3,025.61	734.38	2,401.12	2,131.45	0.43	-0.27	0.215
20.00	-61.61	-6.61	0.00	-683.55	0.00	683.55	2,979.67	717.78	2,293.80	2,051.12	0.77	-0.37	0.211
25.00	-59.60	-6.60	0.00	-650.51	0.00	650.51	2,932.70	701.17	2,188.95	1,971.58	1.20	-0.46	0.206
30.00	-57.61	-6.59	0.00	-617.49	0.00	617.49	2,875.19	684.57	2,086.54	1,886.63	1.73	-0.55	0.201
31.50	-57.01	-6.59	0.00	-607.61	0.00	607.61	2,854.28	679.59	2,056.31	1,859.13	1.91	-0.58	0.200
35.00	-55.16	-6.57	0.00	-584.55	0.00	584.55	2,805.45	667.97	1,986.59	1,795.70	2.36	-0.65	0.195
35.67	-54.80	-6.56	0.00	-580.17	0.00	580.17	2,248.06	566.94	1,717.06	1,468.69	2.45	-0.66	0.224
40.00	-53.20	-6.54	0.00	-551.73	0.00	551.73	2,218.58	554.94	1,645.20	1,418.47	3.09	-0.74	0.217
45.00	-51.37	-6.51	0.00	-519.02	0.00	519.02	2,183.59	541.10	1,564.21	1,360.95	3.93	-0.84	0.210
50.00	-49.56	-6.47	0.00	-486.46	0.00	486.46	2,147.56	527.27	1,485.26	1,303.92	4.86	-0.94	0.202
55.00	-47.77	-6.43	0.00	-454.09	0.00	454.09	2,110.50	513.43	1,408.35	1,247.44	5.90	-1.04	0.193
60.00	-45.99	-6.37	0.00	-421.96	0.00	421.96	2,072.39	499.59	1,333.49	1,191.55	7.04	-1.14	0.185
65.00	-44.24	-6.31	0.00	-390.08	0.00	390.08	2,033.25	485.76	1,260.68	1,136.31	8.29	-1.23	0.176
70.00	-42.51	-6.26	0.00	-358.52	0.00	358.52	1,982.07	471.92	1,189.91	1,075.81	9.63	-1.33	0.167
70.00	-42.51	-6.25	0.00	-358.51	0.00	358.51	1,982.06	471.92	1,189.90	1,075.80	9.63	-1.33	0.165
73.50	-41.00	-6.19	0.00	-336.64	0.00	336.64	1,473.95	377.74	952.78	802.30	10.63	-1.39	0.187
75.00	-40.51	-6.15	0.00	-327.35	0.00	327.35	1,466.26	374.41	936.10	791.03	11.07	-1.42	0.183
80.00	-38.92	-6.06	0.00	-296.58	0.00	296.58	1,439.98	363.34	881.58	753.66	12.61	-1.52	0.170
85.00	-37.33	-5.96	0.00	-266.27	0.00	266.27	1,412.66	352.27	828.70	716.62	14.25	-1.61	0.157
90.00	-35.44	-5.74	0.00	-236.49	0.00	236.49	1,384.29	341.20	777.45	679.95	15.98	-1.69	0.144
91.67	-34.82	-5.66	0.00	-226.92	0.00	226.92	1,374.61	337.51	760.74	667.81	16.57	-1.72	0.139
91.67	-34.82	-5.66	0.00	-226.92	0.00	226.92	1,374.61	337.51	760.74	667.81	16.57	-1.72	0.113
95.00	-33.64	-5.48	0.00	-208.07	0.00	208.07	1,354.89	330.13	727.84	643.69	17.80	-1.78	0.105
100.00	-32.07	-5.26	0.00	-180.67	0.00	180.67	1,324.45	319.07	679.87	607.91	19.69	-1.84	0.093
105.00	-30.55	-5.02	0.00	-154.38	0.00	154.38	1,292.96	308.00	633.53	572.64	21.64	-1.89	0.082
110.00	-29.05	-4.80	0.00	-129.30	0.00	129.30	1,247.09	296.93	588.83	532.25	23.65	-1.94	0.071
110.00	-29.05	-4.80	0.00	-129.30	0.00	129.30	853.22	223.36	444.16	366.32	23.65	-1.94	0.085
110.00	-29.05	-4.77	0.00	-129.29	0.00	129.29	853.22	223.36	444.16	366.32	23.65	-1.94	0.085
115.00	-27.65	-4.55	0.00	-105.44	0.00	105.44	834.98	215.05	411.76	345.04	25.70	-1.98	0.071
115.94	-27.39	-4.49	0.00	-101.18	0.00	101.18	831.44	213.50	405.83	341.07	26.09	-1.99	0.069
115.94	-27.39	-4.49	0.00	-101.18	0.00	101.18	831.44	213.50	405.83	341.07	26.09	-1.99	0.330
118.00	-20.42	-3.54	0.00	-91.91	0.00	91.91	823.53	210.07	392.92	332.36	26.96	-2.01	0.302
120.00	-19.99	-3.46	0.00	-84.83	0.00	84.83	815.69	206.75	380.59	323.94	27.81	-2.09	0.287
123.00	-19.14	-3.27	0.00	-74.45	0.00	74.45	803.62	201.77	362.48	311.38	29.17	-2.21	0.263
125.00	-18.85	-3.24	0.00	-67.90	0.00	67.90	795.36	198.45	350.65	303.06	30.11	-2.29	0.248
130.00	-18.16	-3.16	0.00	-51.71	0.00	51.71	774.00	190.15	321.94	282.46	32.59	-2.45	0.207
135.00	-17.48	-3.06	0.00	-35.93	0.00	35.93	751.59	181.85	294.45	262.19	35.24	-2.59	0.161
140.00	-8.78	-1.75	0.00	-20.62	0.00	20.62	728.15	173.54	268.18	242.29	38.02	-2.70	0.097

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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.50 in Radial Ice 26 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

145.00	-8.23	-1.66	0.00	-11.87	0.00	11.87	694.01	165.24	243.15	219.76	40.88	-2.77	0.066
150.00	0.00	-1.26	0.00	-3.57	0.00	3.57	659.14	156.94	219.34	198.10	43.80	-2.80	0.018

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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		56.1	0.0					0.0	0.0	56.1	0.0	0.0	0.0
5.00		105.6	752.2					23.4	594.4	129.1	1,346.6	0.0	0.0
9.50	Reinf. Top Reinf	54.9	663.2					21.1	535.0	76.0	1,198.2	0.0	0.0
10.00	Appurtenance(s)	59.2	72.9	118.4	0.0	118.4	126.0	2.3	59.4	179.9	258.3	0.0	0.0
15.00		106.3	720.0					23.4	594.2	129.7	1,314.2	0.0	0.0
20.00		103.9	703.9					23.4	594.2	127.4	1,298.1	0.0	0.0
25.00		101.5	687.8					23.4	594.2	125.0	1,282.1	0.0	0.0
30.00		65.1	671.7					23.4	594.2	88.6	1,266.0	0.0	0.0
31.50	Bot - Section 2	50.8	198.3					7.1	178.2	57.9	376.5	0.0	0.0
35.00		42.8	846.7					16.9	416.1	59.7	1,262.7	0.0	0.0
35.67	Top - Section 1	52.0	159.4					3.3	79.2	55.3	238.6	0.0	0.0
40.00		97.7	471.4					21.7	515.1	119.4	986.5	0.0	0.0
45.00		105.5	531.3					25.9	594.2	131.4	1,125.5	0.0	0.0
50.00		106.0	517.9					26.8	594.2	132.7	1,112.1	0.0	0.0
55.00		106.1	504.5					27.5	594.2	133.6	1,098.7	0.0	0.0
60.00		105.9	491.0					28.3	594.2	134.1	1,085.3	0.0	0.0
65.00		105.3	477.6					28.9	594.2	134.3	1,071.9	0.0	0.0
70.00	Bot - Section 3	52.5	464.2					29.6	594.2	82.1	1,058.3	0.0	0.0
70.00		37.2	0.1					0.0	0.1	37.2	0.2	0.0	0.0
73.50	Top - Section 2	53.0	575.8					21.1	415.9	74.1	991.7	0.0	0.0
75.00		68.4	109.4					9.1	178.4	77.5	287.8	0.0	0.0
80.00		104.4	357.6					30.8	594.2	135.1	951.9	0.0	0.0
85.00		103.0	346.9					31.3	595.8	134.3	942.6	0.0	0.0
90.00		68.0	336.1					31.9	688.7	99.8	1,024.9	0.0	0.0
91.67	Reinf. Top Reinf	50.3	109.7					10.7	229.6	61.0	339.2	0.0	0.0
95.00		82.8	215.8					21.6	403.5	104.5	619.3	0.0	0.0
100.00		97.8	314.7					32.9	521.0	130.7	835.7	0.0	0.0
105.00		95.8	304.0					24.0	511.6	119.8	815.6	0.0	0.0
110.00	Top - Section 3	47.4	293.2					24.6	511.6	72.0	804.8	0.0	0.0
110.00		46.3	0.0					0.0	0.1	46.3	0.1	0.0	0.0
115.00		54.8	212.5					25.2	511.6	79.9	724.2	0.0	0.0
115.94	Reinf. Top Reinf.	27.2	38.9					4.8	95.9	32.0	134.9	0.0	0.0
118.00	Appurtenance(s)	36.5	84.7	510.4	0.0	0.0	3,258.3	10.6	107.7	557.5	3,450.7	0.0	0.0
120.00		44.3	80.8					10.3	99.3	54.7	180.1	0.0	0.0
123.00	Appurtenance(s)	40.2	118.8	116.6	0.0	0.0	131.2	15.7	101.6	172.4	351.7	0.0	0.0
125.00		47.4	77.6					0.0	60.8	47.4	138.4	0.0	0.0
130.00		66.3	188.4					0.0	152.0	66.3	340.4	0.0	0.0
135.00		64.1	180.3					0.0	152.0	64.1	332.3	0.0	0.0
140.00	Appurtenance(s)	61.8	172.3	719.2	0.0	0.0	3,881.5	0.0	152.0	781.0	4,205.8	0.0	0.0
145.00		59.5	164.2					0.0	132.5	59.5	296.7	0.0	0.0
150.00	Appurtenance(s)	29.2	156.2	587.0	0.0	688.8	3,178.8	0.0	132.5	616.2	3,467.5	0.0	0.0
								Totals:		5,575.63	38,615.8	0.00	0.00

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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	-38.92	-5.84	0.00	-592.21	0.00	592.21	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.163
5.00	-37.57	-5.76	0.00	-562.99	0.00	562.99	3,114.35	767.59	2,623.10	2,294.24	0.03	-0.07	0.159
9.50	-36.37	-5.70	0.00	-537.09	0.00	537.09	3,074.93	752.65	2,521.99	2,220.65	0.12	-0.12	0.155
9.50	-36.37	-5.70	0.00	-537.09	0.00	537.09	3,074.93	752.65	2,521.99	2,220.65	0.12	-0.12	0.155
10.00	-36.11	-5.54	0.00	-534.12	0.00	534.12	3,070.50	750.99	2,510.88	2,212.50	0.14	-0.13	0.154
15.00	-34.79	-5.45	0.00	-506.42	0.00	506.42	3,025.61	734.38	2,401.12	2,131.45	0.31	-0.20	0.150
20.00	-33.48	-5.35	0.00	-479.18	0.00	479.18	2,979.67	717.78	2,293.80	2,051.12	0.55	-0.26	0.146
25.00	-32.19	-5.26	0.00	-452.42	0.00	452.42	2,932.70	701.17	2,188.95	1,971.58	0.86	-0.33	0.141
30.00	-30.93	-5.18	0.00	-426.14	0.00	426.14	2,875.19	684.57	2,086.54	1,886.63	1.24	-0.39	0.137
31.50	-30.55	-5.14	0.00	-418.36	0.00	418.36	2,854.28	679.59	2,056.31	1,859.13	1.36	-0.41	0.136
35.00	-29.28	-5.09	0.00	-400.37	0.00	400.37	2,805.45	667.97	1,986.59	1,795.70	1.68	-0.46	0.131
35.67	-29.04	-5.04	0.00	-396.98	0.00	396.98	2,248.06	566.94	1,717.06	1,468.69	1.75	-0.47	0.151
40.00	-28.05	-4.95	0.00	-375.12	0.00	375.12	2,218.58	554.94	1,645.20	1,418.47	2.19	-0.52	0.146
45.00	-26.92	-4.84	0.00	-350.39	0.00	350.39	2,183.59	541.10	1,564.21	1,360.95	2.78	-0.59	0.139
50.00	-25.80	-4.72	0.00	-326.21	0.00	326.21	2,147.56	527.27	1,485.26	1,303.92	3.43	-0.66	0.133
55.00	-24.70	-4.60	0.00	-302.60	0.00	302.60	2,110.50	513.43	1,408.35	1,247.44	4.15	-0.72	0.127
60.00	-23.61	-4.48	0.00	-279.59	0.00	279.59	2,072.39	499.59	1,333.49	1,191.55	4.94	-0.79	0.120
65.00	-22.54	-4.36	0.00	-257.19	0.00	257.19	2,033.25	485.76	1,260.68	1,136.31	5.80	-0.85	0.114
70.00	-21.48	-4.27	0.00	-235.41	0.00	235.41	1,982.07	471.92	1,189.91	1,075.81	6.72	-0.91	0.108
70.00	-21.48	-4.24	0.00	-235.41	0.00	235.41	1,982.06	471.92	1,189.90	1,075.80	6.72	-0.91	0.106
73.50	-20.49	-4.16	0.00	-220.58	0.00	220.58	1,473.95	377.74	952.78	802.30	7.41	-0.95	0.120
75.00	-20.20	-4.09	0.00	-214.33	0.00	214.33	1,466.26	374.41	936.10	791.03	7.71	-0.97	0.118
80.00	-19.24	-3.96	0.00	-193.87	0.00	193.87	1,439.98	363.34	881.58	753.66	8.76	-1.03	0.109
85.00	-18.30	-3.83	0.00	-174.07	0.00	174.07	1,412.66	352.27	828.70	716.62	9.88	-1.09	0.100
90.00	-17.27	-3.72	0.00	-154.93	0.00	154.93	1,384.29	341.20	777.45	679.95	11.05	-1.15	0.092
91.67	-16.93	-3.66	0.00	-148.74	0.00	148.74	1,374.61	337.51	760.74	667.81	11.46	-1.17	0.089
91.67	-16.93	-3.66	0.00	-148.74	0.00	148.74	1,374.61	337.51	760.74	667.81	11.46	-1.17	0.072
95.00	-16.32	-3.55	0.00	-136.54	0.00	136.54	1,354.89	330.13	727.84	643.69	12.29	-1.20	0.067
100.00	-15.48	-3.41	0.00	-118.78	0.00	118.78	1,324.45	319.07	679.87	607.91	13.57	-1.24	0.059
105.00	-14.67	-3.28	0.00	-101.71	0.00	101.71	1,292.96	308.00	633.53	572.64	14.89	-1.28	0.052
110.00	-13.86	-3.20	0.00	-85.29	0.00	85.29	1,247.09	296.93	588.83	532.25	16.25	-1.31	0.045
110.00	-13.86	-3.20	0.00	-85.29	0.00	85.29	853.22	223.36	444.16	366.32	16.25	-1.31	0.053
110.00	-13.86	-3.16	0.00	-85.28	0.00	85.28	853.22	223.36	444.16	366.32	16.25	-1.31	0.053
115.00	-13.14	-3.06	0.00	-69.50	0.00	69.50	834.98	215.05	411.76	345.04	17.64	-1.34	0.044
115.94	-13.00	-3.03	0.00	-66.63	0.00	66.63	831.44	213.50	405.83	341.07	17.91	-1.35	0.043
115.94	-13.00	-3.03	0.00	-66.63	0.00	66.63	831.44	213.50	405.83	341.07	17.91	-1.35	0.211
118.00	-9.57	-2.40	0.00	-60.38	0.00	60.38	823.53	210.07	392.92	332.36	18.49	-1.36	0.193
120.00	-9.39	-2.35	0.00	-55.59	0.00	55.59	815.69	206.75	380.59	323.94	19.07	-1.41	0.183
123.00	-9.04	-2.18	0.00	-48.54	0.00	48.54	803.62	201.77	362.48	311.38	19.98	-1.49	0.167
125.00	-8.90	-2.14	0.00	-44.19	0.00	44.19	795.36	198.45	350.65	303.06	20.62	-1.54	0.157
130.00	-8.55	-2.08	0.00	-33.49	0.00	33.49	774.00	190.15	321.94	282.46	22.29	-1.65	0.130
135.00	-8.22	-2.02	0.00	-23.10	0.00	23.10	751.59	181.85	294.45	262.19	24.07	-1.74	0.099
140.00	-4.04	-1.11	0.00	-13.02	0.00	13.02	728.15	173.54	268.18	242.29	25.93	-1.80	0.059

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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

145.00	-3.74	-1.04	0.00	-7.48	0.00	7.48	694.01	165.24	243.15	219.76	27.84	-1.85	0.039
150.00	0.00	-0.92	0.00	-2.27	0.00	2.27	659.14	156.94	219.34	198.10	29.79	-1.87	0.011

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Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
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}):	0.09
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):	3.18
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	2.00
Total Unfactored Dead Load:	38.92 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)
40	147.50	289	6,280	0.018	28	357
39	142.50	297	6,025	0.018	27	367
38	137.50	324	6,131	0.018	27	401
37	132.50	332	5,834	0.017	26	411
36	127.50	340	5,533	0.016	25	421
35	124.00	138	2,128	0.006	10	171
34	121.50	220	3,254	0.010	15	273
33	119.00	180	2,550	0.008	11	223
32	116.97	192	2,633	0.008	12	238
31	115.47	135	1,798	0.005	8	167
30	112.50	724	9,165	0.027	41	896
29	110.00	0	1	0.000	0	0
28	107.50	805	9,300	0.027	42	996
27	102.50	816	8,569	0.025	38	1,009
26	97.50	836	7,944	0.023	35	1,034
25	93.33	619	5,394	0.016	24	766
24	90.83	339	2,799	0.008	13	420
23	87.50	1,025	7,847	0.023	35	1,268
22	82.50	943	6,416	0.019	29	1,166
21	77.50	952	5,717	0.017	26	1,178
20	74.25	288	1,587	0.005	7	356
19	71.75	992	5,105	0.015	23	1,227
18	70.00	0	1	0.000	0	0
17	67.50	1,058	4,822	0.014	22	1,309
16	62.50	1,072	4,187	0.012	19	1,326

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15	57.50	1,085	3,588	0.011	16	1,343
14	52.50	1,099	3,028	0.009	14	1,359
13	47.50	1,112	2,509	0.007	11	1,376
12	42.50	1,126	2,033	0.006	9	1,393
11	37.83	986	1,412	0.004	6	1,221
10	35.33	239	298	0.001	1	295
9	33.25	1,263	1,396	0.004	6	1,562
8	30.75	376	356	0.001	2	466
7	27.50	1,266	957	0.003	4	1,566
6	22.50	1,282	649	0.002	3	1,586
5	17.50	1,298	398	0.001	2	1,606
4	12.50	1,314	205	0.001	1	1,626
3	9.75	132	13	0.000	0	164
2	7.25	1,198	63	0.000	0	1,483
1	2.50	1,347	8	0.000	0	1,666
Generic 12' Omni	150.00	40	900	0.003	4	49
Generic 12' Dipole	150.00	40	900	0.003	4	49
Generic 6' Yagi	150.00	25	563	0.002	3	31
CCI HPA-65R-BUU-H8	150.00	204	4,590	0.014	21	252
Andrew ABT-DMDF-ADBH	150.00	3	74	0.000	0	4
Powerwave Allgon 702	150.00	13	297	0.001	1	16
Powerwave Allgon TT1	150.00	96	2,160	0.006	10	119
Raycap DC6-48-60-18-	150.00	33	738	0.002	3	41
Ericsson RRUS 11 (Ba	150.00	150	3,375	0.010	15	186
Ericsson RRUS 32 B2	150.00	159	3,577	0.011	16	197
Generic Round Stand-	150.00	563	12,656	0.037	57	696
Powerwave Allgon 777	150.00	162	3,645	0.011	16	200
Round Platform w/ Ha	150.00	2,000	45,000	0.132	201	2,475
Ericsson Radio 4460	140.00	327	6,409	0.019	29	405
Ericsson Radio 4480	140.00	252	4,939	0.015	22	312
Ericsson Air6449 B41	140.00	312	6,115	0.018	27	386
RFS APX16DWV-16DWVS-	140.00	122	2,393	0.007	11	151
RFS APXVAALL24 43-U-	140.00	368	7,221	0.021	32	456
Generic Round Platfo	140.00	2,500	49,000	0.144	219	3,093
Stand-Off	123.00	100	1,513	0.004	7	124
Generic 75" x 16.8"	123.00	31	472	0.001	2	39
Samsung B2/B66A RRH-	118.00	253	3,526	0.010	16	313
Samsung B5/B13 RRH-B	118.00	211	2,937	0.009	13	261
Raycap RCMDC-6627-PF	118.00	32	446	0.001	2	40
Commscope NHH-65B-R2	118.00	262	3,651	0.011	16	324
Generic Round Platfo	118.00	2,500	34,810	0.102	155	3,093
Channel Master Type	10.00	126	13	0.000	0	156
		38,925	339,854	1.000	1,518	48,163

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)
40	147.50	289	6,280	0.018	28	249
39	142.50	297	6,025	0.018	27	256
38	137.50	324	6,131	0.018	27	280
37	132.50	332	5,834	0.017	26	287
36	127.50	340	5,533	0.016	25	294
35	124.00	138	2,128	0.006	10	119
34	121.50	220	3,254	0.010	15	190
33	119.00	180	2,550	0.008	11	155
32	116.97	192	2,633	0.008	12	166
31	115.47	135	1,798	0.005	8	116
30	112.50	724	9,165	0.027	41	625
29	110.00	0	1	0.000	0	0
28	107.50	805	9,300	0.027	42	694

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27	102.50	816	8,569	0.025	38	704
26	97.50	836	7,944	0.023	35	721
25	93.33	619	5,394	0.016	24	534
24	90.83	339	2,799	0.008	13	293
23	87.50	1,025	7,847	0.023	35	884
22	82.50	943	6,416	0.019	29	813
21	77.50	952	5,717	0.017	26	821
20	74.25	288	1,587	0.005	7	248
19	71.75	992	5,105	0.015	23	856
18	70.00	0	1	0.000	0	0
17	67.50	1,058	4,822	0.014	22	913
16	62.50	1,072	4,187	0.012	19	925
15	57.50	1,085	3,588	0.011	16	936
14	52.50	1,099	3,028	0.009	14	948
13	47.50	1,112	2,509	0.007	11	959
12	42.50	1,126	2,033	0.006	9	971
11	37.83	986	1,412	0.004	6	851
10	35.33	239	298	0.001	1	206
9	33.25	1,263	1,396	0.004	6	1,089
8	30.75	376	356	0.001	2	325
7	27.50	1,266	957	0.003	4	1,092
6	22.50	1,282	649	0.002	3	1,106
5	17.50	1,298	398	0.001	2	1,120
4	12.50	1,314	205	0.001	1	1,134
3	9.75	132	13	0.000	0	114
2	7.25	1,198	63	0.000	0	1,034
1	2.50	1,347	8	0.000	0	1,162
Generic 12' Omni	150.00	40	900	0.003	4	35
Generic 12' Dipole	150.00	40	900	0.003	4	35
Generic 6' Yagi	150.00	25	563	0.002	3	22
CCI HPA-65R-BUU-H8	150.00	204	4,590	0.014	21	176
Andrew ABT-DMDF-ADBH	150.00	3	74	0.000	0	3
Powerwave Allgon 702	150.00	13	297	0.001	1	11
Powerwave Allgon TT1	150.00	96	2,160	0.006	10	83
Raycap DC6-48-60-18-	150.00	33	738	0.002	3	28
Ericsson RRUS 11 (Ba	150.00	150	3,375	0.010	15	129
Ericsson RRUS 32 B2	150.00	159	3,577	0.011	16	137
Generic Round Stand-	150.00	563	12,656	0.037	57	485
Powerwave Allgon 777	150.00	162	3,645	0.011	16	140
Round Platform w/ Ha	150.00	2,000	45,000	0.132	201	1,725
Ericsson Radio 4460	140.00	327	6,409	0.019	29	282
Ericsson Radio 4480	140.00	252	4,939	0.015	22	217
Ericsson Air6449 B41	140.00	312	6,115	0.018	27	269
RFS APX16DWV-16DWVS-	140.00	122	2,393	0.007	11	105
RFS APXVAALL24 43-U-	140.00	368	7,221	0.021	32	318
Generic Round Platfo	140.00	2,500	49,000	0.144	219	2,157
Stand-Off	123.00	100	1,513	0.004	7	86
Generic 75" x 16.8"	123.00	31	472	0.001	2	27
Samsung B2/B66A RRH-	118.00	253	3,526	0.010	16	218
Samsung B5/B13 RRH-B	118.00	211	2,937	0.009	13	182
Raycap RCMDC-6627-PF	118.00	32	446	0.001	2	28
Commscope NHH-65B-R2	118.00	262	3,651	0.011	16	226
Generic Round Platfo	118.00	2,500	34,810	0.102	155	2,157
Channel Master Type	10.00	126	13	0.000	0	109
		38,925	339,854	1.000	1,518	33,579

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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	-46.50	-1.53	0.00	-200.64	0.00	200.64	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.062
5.00	-45.01	-1.54	0.00	-193.01	0.00	193.01	3,114.35	767.59	2,623.10	2,294.24	0.01	-0.02	0.061
9.50	-44.85	-1.55	0.00	-186.07	0.00	186.07	3,074.93	752.65	2,521.99	2,220.65	0.04	-0.04	0.061
9.50	-44.85	-1.55	0.00	-186.07	0.00	186.07	3,074.93	752.65	2,521.99	2,220.65	0.04	-0.04	0.061
10.00	-43.07	-1.56	0.00	-185.29	0.00	185.29	3,070.50	750.99	2,510.88	2,212.50	0.05	-0.04	0.060
15.00	-41.46	-1.57	0.00	-177.50	0.00	177.50	3,025.61	734.38	2,401.12	2,131.45	0.11	-0.07	0.059
20.00	-39.87	-1.58	0.00	-169.65	0.00	169.65	2,979.67	717.78	2,293.80	2,051.12	0.19	-0.09	0.058
25.00	-38.31	-1.59	0.00	-161.73	0.00	161.73	2,932.70	701.17	2,188.95	1,971.58	0.30	-0.11	0.057
30.00	-37.84	-1.60	0.00	-153.78	0.00	153.78	2,875.19	684.57	2,086.54	1,886.63	0.43	-0.14	0.056
31.50	-36.28	-1.60	0.00	-151.38	0.00	151.38	2,854.28	679.59	2,056.31	1,859.13	0.47	-0.14	0.055
35.00	-35.98	-1.60	0.00	-145.80	0.00	145.80	2,805.45	667.97	1,986.59	1,795.70	0.58	-0.16	0.054
35.67	-34.76	-1.60	0.00	-144.73	0.00	144.73	2,248.06	566.94	1,717.06	1,468.69	0.61	-0.16	0.062
40.00	-33.37	-1.60	0.00	-137.81	0.00	137.81	2,218.58	554.94	1,645.20	1,418.47	0.77	-0.18	0.060
45.00	-31.99	-1.60	0.00	-129.83	0.00	129.83	2,183.59	541.10	1,564.21	1,360.95	0.97	-0.21	0.058
50.00	-30.63	-1.59	0.00	-121.85	0.00	121.85	2,147.56	527.27	1,485.26	1,303.92	1.20	-0.23	0.056
55.00	-29.29	-1.58	0.00	-113.90	0.00	113.90	2,110.50	513.43	1,408.35	1,247.44	1.46	-0.26	0.053
60.00	-27.96	-1.57	0.00	-106.00	0.00	106.00	2,072.39	499.59	1,333.49	1,191.55	1.75	-0.28	0.051
65.00	-26.65	-1.55	0.00	-98.17	0.00	98.17	2,033.25	485.76	1,260.68	1,136.31	2.06	-0.31	0.049
70.00	-26.65	-1.56	0.00	-90.42	0.00	90.42	1,982.07	471.92	1,189.91	1,075.81	2.39	-0.33	0.047
70.00	-25.42	-1.53	0.00	-90.42	0.00	90.42	1,982.06	471.92	1,189.90	1,075.80	2.39	-0.33	0.046
73.50	-25.07	-1.53	0.00	-85.07	0.00	85.07	1,473.95	377.74	952.78	802.30	2.64	-0.35	0.052
75.00	-23.89	-1.50	0.00	-82.78	0.00	82.78	1,466.26	374.41	936.10	791.03	2.75	-0.35	0.051
80.00	-22.72	-1.47	0.00	-75.28	0.00	75.28	1,439.98	363.34	881.58	753.66	3.14	-0.38	0.048
85.00	-21.45	-1.44	0.00	-67.92	0.00	67.92	1,412.66	352.27	828.70	716.62	3.54	-0.40	0.044
90.00	-21.03	-1.43	0.00	-60.74	0.00	60.74	1,384.29	341.20	777.45	679.95	3.98	-0.42	0.041
91.67	-20.27	-1.40	0.00	-58.36	0.00	58.36	1,374.61	337.51	760.74	667.81	4.13	-0.43	0.040
91.67	-20.27	-1.40	0.00	-58.36	0.00	58.36	1,374.61	337.51	760.74	667.81	4.13	-0.43	0.034
95.00	-19.23	-1.36	0.00	-53.69	0.00	53.69	1,354.89	330.13	727.84	643.69	4.43	-0.45	0.031
100.00	-18.22	-1.32	0.00	-46.88	0.00	46.88	1,324.45	319.07	679.87	607.91	4.91	-0.46	0.028
105.00	-17.23	-1.28	0.00	-40.27	0.00	40.27	1,292.96	308.00	633.53	572.64	5.40	-0.47	0.025
110.00	-17.23	-1.28	0.00	-33.90	0.00	33.90	1,247.09	296.93	588.83	532.25	5.90	-0.49	0.023
110.00	-17.23	-1.28	0.00	-33.90	0.00	33.90	853.22	223.36	444.16	366.32	5.90	-0.49	0.027
110.00	-16.33	-1.23	0.00	-33.90	0.00	33.90	853.22	223.36	444.16	366.32	5.90	-0.49	0.027
115.00	-16.16	-1.22	0.00	-27.75	0.00	27.75	834.98	215.05	411.76	345.04	6.42	-0.50	0.024
115.94	-15.93	-1.21	0.00	-26.60	0.00	26.60	831.44	213.50	405.83	341.07	6.52	-0.50	0.023
115.94	-15.93	-1.21	0.00	-26.60	0.00	26.60	831.44	213.50	405.83	341.07	6.52	-0.50	0.097
118.00	-11.67	-0.96	0.00	-24.10	0.00	24.10	823.53	210.07	392.92	332.36	6.73	-0.51	0.087
120.00	-11.40	-0.95	0.00	-22.18	0.00	22.18	815.69	206.75	380.59	323.94	6.95	-0.53	0.082
123.00	-11.07	-0.93	0.00	-19.33	0.00	19.33	803.62	201.77	362.48	311.38	7.29	-0.56	0.076
125.00	-10.65	-0.91	0.00	-17.47	0.00	17.47	795.36	198.45	350.65	303.06	7.53	-0.58	0.071
130.00	-10.23	-0.89	0.00	-12.92	0.00	12.92	774.00	190.15	321.94	282.46	8.16	-0.62	0.059
135.00	-9.83	-0.86	0.00	-8.48	0.00	8.48	751.59	181.85	294.45	262.19	8.83	-0.65	0.045
140.00	-4.67	-0.43	0.00	-4.19	0.00	4.19	728.15	173.54	268.18	242.29	9.53	-0.68	0.024
145.00	-4.31	-0.40	0.00	-2.01	0.00	2.01	694.01	165.24	243.15	219.76	10.25	-0.69	0.015
150.00	0.00	-0.35	0.00	0.00	0.00	0.00	659.14	156.94	219.34	198.10	10.97	-0.70	0.000

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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	-32.42	-1.52	0.00	-195.22	0.00	195.22	3,157.17	784.20	2,737.77	2,376.61	0.00	0.00	0.058
5.00	-31.38	-1.53	0.00	-187.61	0.00	187.61	3,114.35	767.59	2,623.10	2,294.24	0.01	-0.02	0.057
9.50	-31.27	-1.54	0.00	-180.70	0.00	180.70	3,074.93	752.65	2,521.99	2,220.65	0.04	-0.04	0.056
9.50	-31.27	-1.54	0.00	-180.70	0.00	180.70	3,074.93	752.65	2,521.99	2,220.65	0.04	-0.04	0.056
10.00	-30.03	-1.54	0.00	-179.93	0.00	179.93	3,070.50	750.99	2,510.88	2,212.50	0.05	-0.04	0.056
15.00	-28.91	-1.55	0.00	-172.21	0.00	172.21	3,025.61	734.38	2,401.12	2,131.45	0.10	-0.07	0.055
20.00	-27.80	-1.56	0.00	-164.45	0.00	164.45	2,979.67	717.78	2,293.80	2,051.12	0.18	-0.09	0.054
25.00	-26.71	-1.56	0.00	-156.65	0.00	156.65	2,932.70	701.17	2,188.95	1,971.58	0.29	-0.11	0.052
30.00	-26.38	-1.57	0.00	-148.83	0.00	148.83	2,875.19	684.57	2,086.54	1,886.63	0.42	-0.13	0.051
31.50	-25.29	-1.56	0.00	-146.48	0.00	146.48	2,854.28	679.59	2,056.31	1,859.13	0.46	-0.14	0.051
35.00	-25.09	-1.57	0.00	-141.00	0.00	141.00	2,805.45	667.97	1,986.59	1,795.70	0.57	-0.16	0.050
35.67	-24.23	-1.56	0.00	-139.96	0.00	139.96	2,248.06	566.94	1,717.06	1,468.69	0.59	-0.16	0.057
40.00	-23.26	-1.56	0.00	-133.19	0.00	133.19	2,218.58	554.94	1,645.20	1,418.47	0.74	-0.18	0.055
45.00	-22.30	-1.55	0.00	-125.39	0.00	125.39	2,183.59	541.10	1,564.21	1,360.95	0.94	-0.20	0.053
50.00	-21.35	-1.55	0.00	-117.61	0.00	117.61	2,147.56	527.27	1,485.26	1,303.92	1.17	-0.23	0.051
55.00	-20.42	-1.54	0.00	-109.88	0.00	109.88	2,110.50	513.43	1,408.35	1,247.44	1.42	-0.25	0.049
60.00	-19.49	-1.52	0.00	-102.20	0.00	102.20	2,072.39	499.59	1,333.49	1,191.55	1.69	-0.27	0.047
65.00	-18.58	-1.50	0.00	-94.60	0.00	94.60	2,033.25	485.76	1,260.68	1,136.31	1.99	-0.30	0.045
70.00	-18.58	-1.51	0.00	-87.09	0.00	87.09	1,982.07	471.92	1,189.91	1,075.81	2.32	-0.32	0.043
70.00	-17.72	-1.48	0.00	-87.09	0.00	87.09	1,982.06	471.92	1,189.90	1,075.80	2.32	-0.32	0.042
73.50	-17.47	-1.48	0.00	-81.91	0.00	81.91	1,473.95	377.74	952.78	802.30	2.56	-0.34	0.048
75.00	-16.65	-1.45	0.00	-79.70	0.00	79.70	1,466.26	374.41	936.10	791.03	2.67	-0.34	0.047
80.00	-15.84	-1.42	0.00	-72.45	0.00	72.45	1,439.98	363.34	881.58	753.66	3.04	-0.37	0.044
85.00	-14.95	-1.39	0.00	-65.34	0.00	65.34	1,412.66	352.27	828.70	716.62	3.43	-0.39	0.041
90.00	-14.66	-1.38	0.00	-58.41	0.00	58.41	1,384.29	341.20	777.45	679.95	3.85	-0.41	0.038
91.67	-14.13	-1.35	0.00	-56.12	0.00	56.12	1,374.61	337.51	760.74	667.81	3.99	-0.42	0.036
91.67	-14.13	-1.35	0.00	-56.12	0.00	56.12	1,374.61	337.51	760.74	667.81	3.99	-0.42	0.030
95.00	-13.41	-1.31	0.00	-51.62	0.00	51.62	1,354.89	330.13	727.84	643.69	4.29	-0.43	0.028
100.00	-12.70	-1.27	0.00	-45.05	0.00	45.05	1,324.45	319.07	679.87	607.91	4.75	-0.44	0.025
105.00	-12.01	-1.23	0.00	-38.69	0.00	38.69	1,292.96	308.00	633.53	572.64	5.22	-0.46	0.022
110.00	-12.01	-1.23	0.00	-32.55	0.00	32.55	1,247.09	296.93	588.83	532.25	5.71	-0.47	0.020
110.00	-12.01	-1.23	0.00	-32.55	0.00	32.55	853.22	223.36	444.16	366.32	5.71	-0.47	0.024
110.00	-11.38	-1.18	0.00	-32.55	0.00	32.55	853.22	223.36	444.16	366.32	5.71	-0.47	0.023
115.00	-11.27	-1.18	0.00	-26.63	0.00	26.63	834.98	215.05	411.76	345.04	6.21	-0.48	0.020
115.94	-11.10	-1.16	0.00	-25.52	0.00	25.52	831.44	213.50	405.83	341.07	6.30	-0.48	0.020
115.94	-11.10	-1.16	0.00	-25.52	0.00	25.52	831.44	213.50	405.83	341.07	6.30	-0.48	0.088
118.00	-8.14	-0.93	0.00	-23.12	0.00	23.12	823.53	210.07	392.92	332.36	6.51	-0.49	0.079
120.00	-7.95	-0.91	0.00	-21.27	0.00	21.27	815.69	206.75	380.59	323.94	6.72	-0.51	0.075
123.00	-7.71	-0.90	0.00	-18.53	0.00	18.53	803.62	201.77	362.48	311.38	7.05	-0.54	0.069
125.00	-7.42	-0.87	0.00	-16.73	0.00	16.73	795.36	198.45	350.65	303.06	7.28	-0.56	0.065
130.00	-7.13	-0.85	0.00	-12.36	0.00	12.36	774.00	190.15	321.94	282.46	7.89	-0.60	0.053
135.00	-6.85	-0.82	0.00	-8.12	0.00	8.12	751.59	181.85	294.45	262.19	8.53	-0.63	0.040
140.00	-3.25	-0.42	0.00	-4.01	0.00	4.01	728.15	173.54	268.18	242.29	9.21	-0.65	0.021
145.00	-3.00	-0.39	0.00	-1.93	0.00	1.93	694.01	165.24	243.15	219.76	9.90	-0.67	0.013
150.00	0.00	-0.35	0.00	0.00	0.00	0.00	659.14	156.94	219.34	198.10	10.60	-0.67	0.000

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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	24.02	0.00	46.65	0.00	0.00	2461.86	115.94	0.84
0.9D + 1.0W	23.99	0.00	34.98	0.00	0.00	2409.78	115.94	0.80
1.2D + 1.0Di + 1.0Wi	6.69	0.00	70.01	0.00	0.00	816.64	115.94	0.33
1.2D + 1.0Ev + 1.0Eh	1.53	0.00	46.50	0.00	0.00	200.64	115.94	0.10
0.9D - 1.0Ev + 1.0Eh	1.52	0.00	32.42	0.00	0.00	195.22	115.94	0.09
1.0D + 1.0W	5.84	0.00	38.92	0.00	0.00	592.21	115.94	0.21

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Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Ratio	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	9.50	(4) SOL-#20 All Thread Bar	216.1	8.6	16.8	0.514	257.8	313.6	0.822
9.50	91.67	(4) SOL-#20 All Thread Bar	309.4	9.3	16.8	0.552	250.4	330.5	0.758
91.67	115.94	(2) SOL-#20 All Thread Bar	352.6	10.6	16.8	0.629	166.3	330.5	0.503
91.67	115.94	(1) SOL-#20 All Thread Bar	352.6	10.6	16.8	0.629	166.3	330.5	0.503

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio
0.00	9.50	(4) SOL-#20 All Thread Bar	0.0	12.0	0	0	0.000	0.0	12.0	0	0	0.000
9.50	91.67	(4) SOL-#20 All Thread Bar	150.7	12.0	13	14	0.897	0.0	12.0	0	0	0.000
91.67	115.94	(2) SOL-#20 All Thread Bar	92.6	12.0	8	12	0.643	163.5	12.0	14	16	0.852
91.67	115.94	(1) SOL-#20 All Thread Bar	92.6	12.0	8	12	0.643	0.0	12.0	0	0	0.000

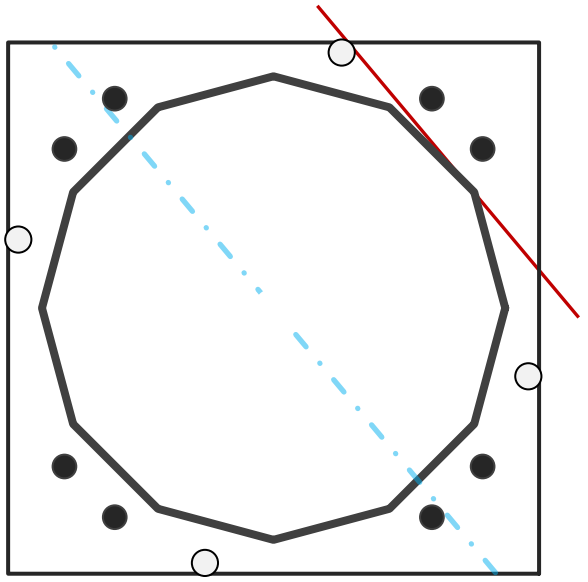
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	37.38	in
Thickness	3/8	in
Orientation Offset		°

Base Reactions		
Moment, Mu	2,461.9	k-ft
Axial, Pu	46.7	k
Shear, Vu	24.0	k
Neutral Axis	310	°

Report Capacities		
Component	Capacity	Result
Base Plate	55%	Pass
Anchor Rods	85%	Pass
Dwyidag	60%	Pass

Base Plate		
Shape	Square	-
Width	44.5	in
Thickness	2 1/2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset		°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1207.9	k
Bending Stress, ϕMn	2187.6	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	44.26	in
Orientation Offset	-15	°
Applied Force, Pu	220.2	k
Dywidag Bar, ϕPn	368.2	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset		°
Applied Force, Pu	206.2	k
Anchor Rods, ϕPn	243.6	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	24.0	1489.7	0.61
Anchor Rod Forces	24.0	1489.7	0.61
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	972.2	0.39
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	43.0992	3.5916	0.1692		7379.37
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		4815.65
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	44.5	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	24.145	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	206.2	k
Applied Shear, Vu	0.3	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.847	OK
Interaction Capacity	0.849	OK

External Base Plate		
Chord Length AA	25.428	in
Additional AA	0.500	in
Section Modulus, Z	40.512	in^3
Applied Moment, Mu	1207.9	k-ft
Bending Capacity, ϕMn	2187.6	k-ft
Capacity, Mu/ϕMn	0.552	OK
Chord Length AB	24.104	in
Additional AB	0.500	in
Section Modulus, Z	38.444	in^3
Applied Moment, Mu	938.3	k-ft
Bending Capacity, ϕMn	2076.0	k-ft
Capacity, Mu/ϕMn	0.452	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

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

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	44.26	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	220.2	k
Compressive Capacity, ϕPn	368.2	k
Capacity, Pu/ϕPn	0.598	OK

Flange Plate Analysis

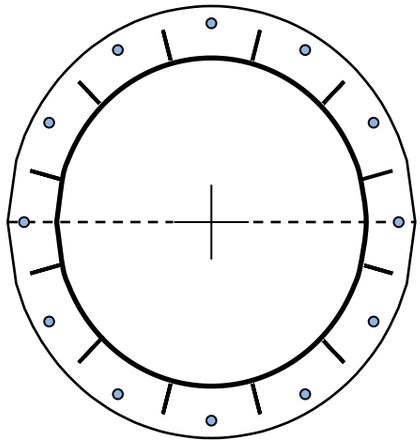
Flange Plate			
	Plate Type	***Flange***	***@ 110 ft***
	Pole Diameter	21.27	in
	Pole Thickness	3/16	in
	Plate Diameter	28	in
	Plate Thickness	1	in
	Plate Fy	60	ksi
	Weld Length	1/4	in
	f_s Resistance	148.07	k-in
	Applied	77.19	k-in

Code Rev.	***H***		
Moment	356.6 k-ft		
Axial	15.5 k		

Date	6/3/2021
Engineer	Colson L Teal
Site #	302488
Carrier	T-MOBILE

Stiffeners			
	#	***12***	***Show***
	Thickness	1/4	in
	Length	3	in
	Height	6	in
	Chamfer	3/4	in
	Offset Angle	0	°
	Fy	36	ksi

Bolts			
	#	***12***	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
	Diameter	1	in
	Hole Diameter	1 1/8	in
	Type	A490	
	Fy	130	ksi
	Fu	150	ksi
	f_s Resistance	68.15	k
	Applied	54.08	k



Reinforcement		
#	***0***	

Extra Bolts O		
#	***0***	

Plate Stress Ratio:

52% Pass

Bolt Stress Ratio:

79% Pass

Site Name: Cntn - Canton, CT
Site Number: 302488
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

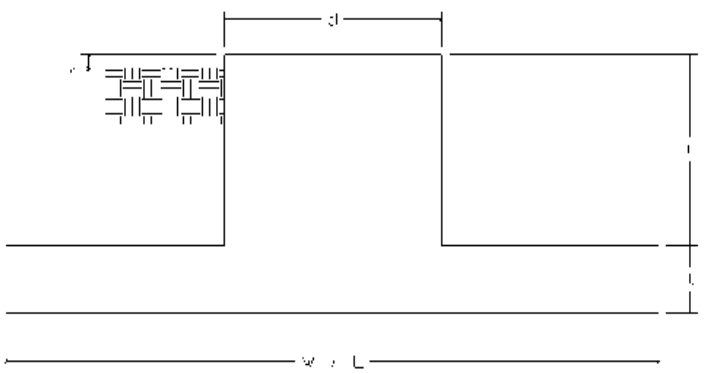
Monolithic Mat & Pier Foundation Analysis

Foundation Analysis Parameters		
Design / Analysis / Mapping:	Mapping	-
Compression/Leg:	46.7	k
Uplift/Leg:		k
Total Shear:	24.0	k
Moment:	2,461.9	k-ft
Tower + Appurtenance Weight:	46.7	k
Depth to Base of Foundation (l + t - h):	5.375	ft
Diameter of Pier (d):	4.958333	ft
Length of Pier (l):	4.125	ft
Height of Pier above Ground (h):	0.75	ft
Width of Pad (W):	26	ft
Length of Pad (L):	26	ft
Thickness of Pad (t):	2	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	3.5	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	115	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	52.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.35	-
Ultimate Compressive Bearing Pressure:	12,000	psf
Ultimate Passive Pressure on Pad Face:	0	psf
$f_{Soil\ and\ Concrete\ Weight}$:	0.9	-
f_{Soil}:	0.75	-

Overturning Moment Usage		
Design OTM:	2608.6	k-ft
OTM Resistance:	5281.7	k-ft
Design OTM / OTM Resistance:	49%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	1099	psf
Factored Nominal Bearing Pressure:	9000	psf
Factored Nominal (Net) Bearing Pressure:	12%	Pass
Load Direction Controling Design Bearing Pressure:	*Diagonal to Pad Edge*	

Sliding Factor of Safety		
Ultimate Friction Resistance:	150.3	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	112.7	k
Sliding Design / Sliding Resistance:	21%	Pass



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

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 1 - Site Information

Site ID: CTHA532A
Status: Draft
Version: 6
Project Type: Anchor
Approved: Not Approved
Approved By: Not Approved
Last Modified: 4/17/2021 10:12:03 PM
Last Modified By: Dominic.Kallas2@T-Mobile.com

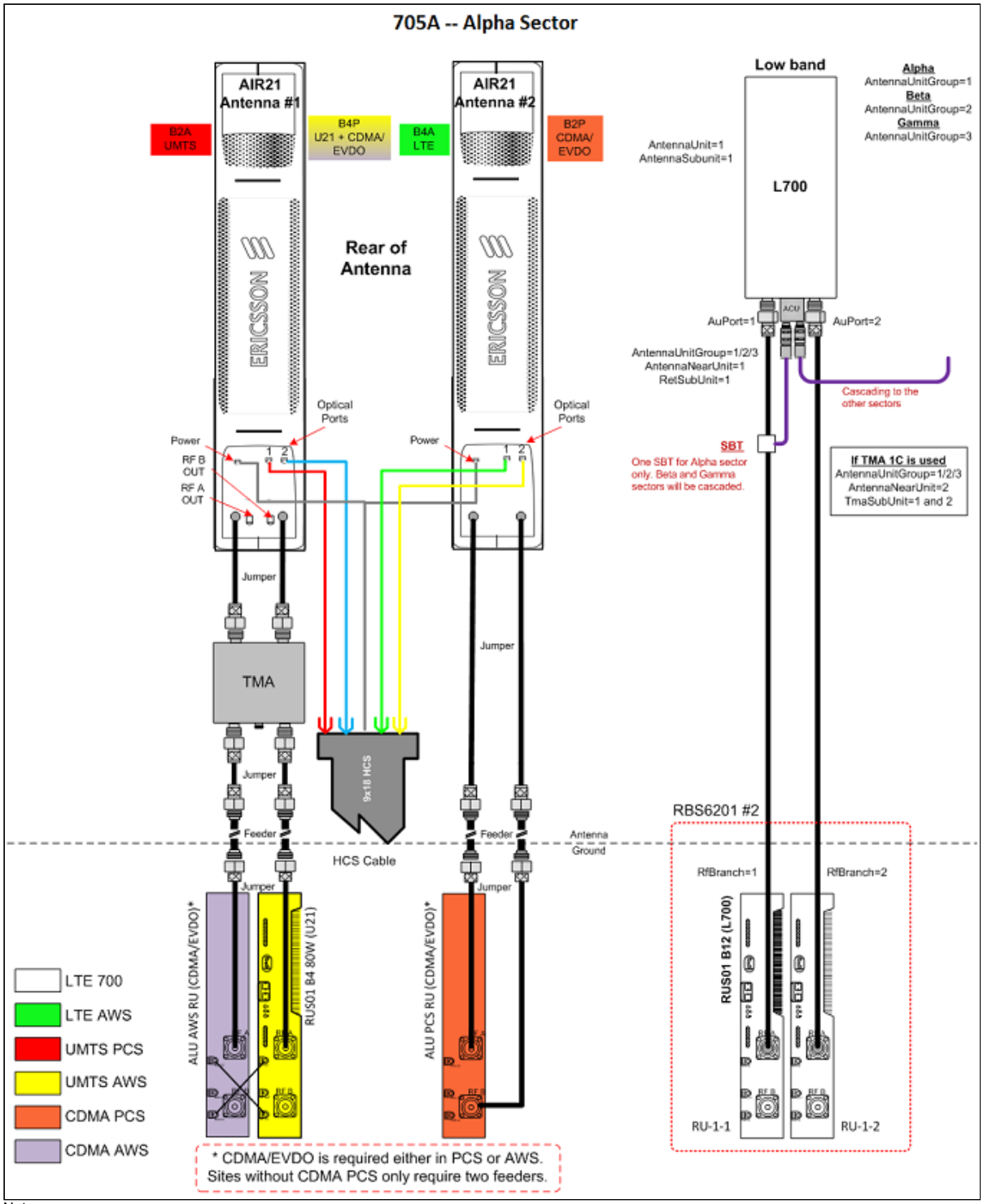
Site Name: ATC Canton Monopole
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: <undefined>

Latitude: 41.85530000
Longitude: -72.89250000
Address: 311 E Hill Rd
City, State: Canton, CT
Region: NORTHEAST

RAN Template: 67E5A998E ODE+6160			**AL Template:** 67E5998E_1xAIR+1OP+1QP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

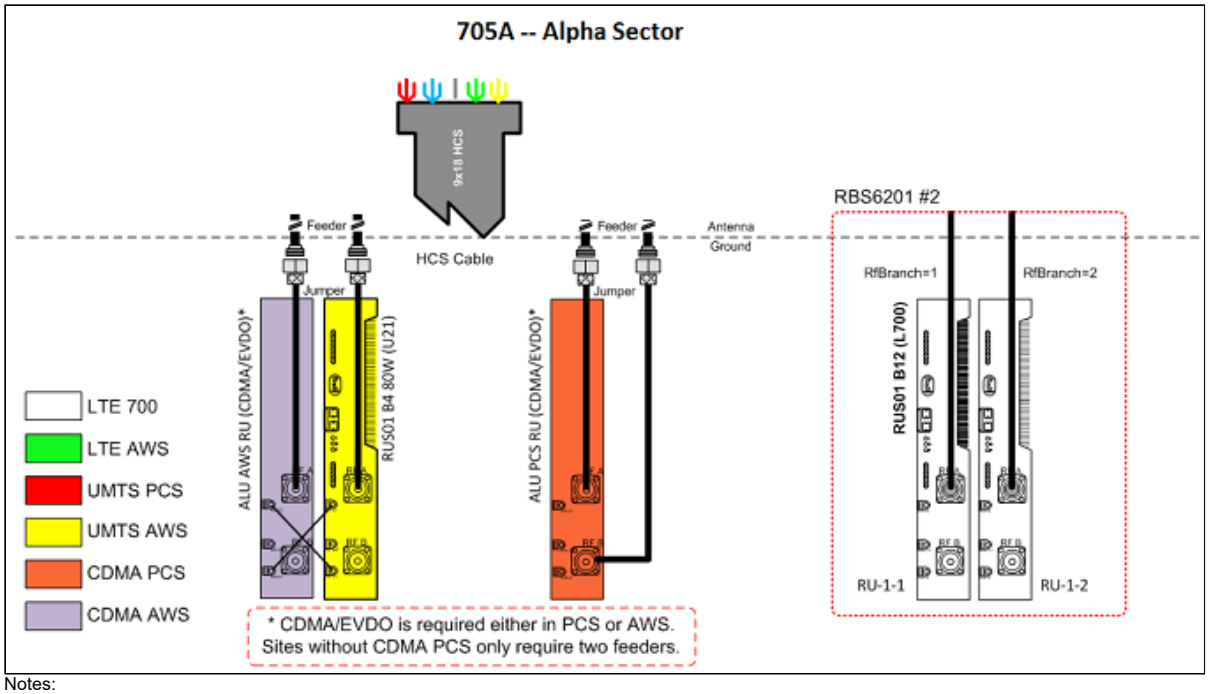
Section 2 - Existing Template Images

AL_705A.png



Notes:

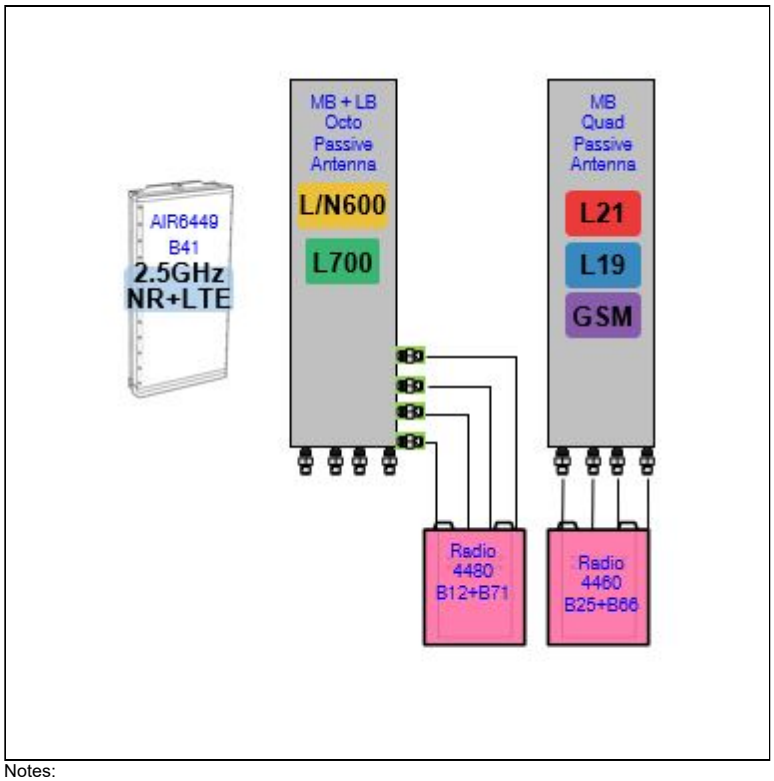
RAN_705A.png


705A -- Alpha Sector
9x18 HCS
HCS Cable
Feeder
Feeder
Jumper
Jumper
Antenna Ground
RBS6201 #2
RfBranch=1
RfBranch=2
RUS01 B12 (L700)
RUS01 B4 80W (U21)
ALU AWS RU (CDMA/EVDO)*
ALU PCS RU (CDMA/EVDO)*
RU-1-1
RU-1-2
LTE 700
LTE AWS
UMTS PCS
UMTS AWS
CDMA PCS
CDMA AWS
* CDMA/EVDO is required either in PCS or AWS.
Sites without CDMA PCS only require two feeders.

Notes:

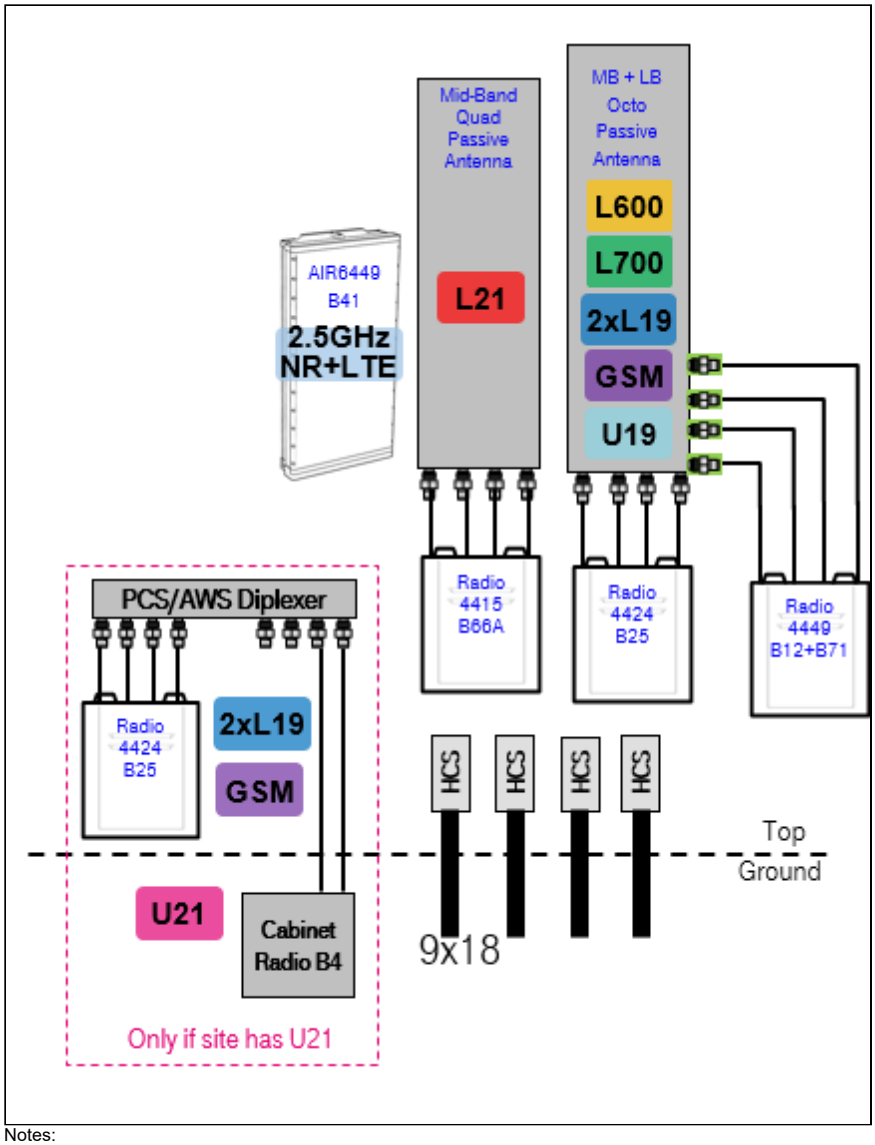
Section 3 - Proposed Template Images

67E5A998E.JPG



Notes:

67D5998C_1xAIR+1QP+1OP.PNG


Mid-Band
Quad
Passive
Antenna
L21
MB + LB
Octo
Passive
Antenna
L600
L700
2xL19
GSM
U19
AIR6449
B41
2.5GHz
NR+LTE
Radio
4415
B66A
Radio
4424
B25
Radio
4449
B12+B71
PCS/AWS Diplexer
Radio
4424
B25
2xL19
GSM
HCS
HCS
HCS
HCS
Top
Ground
U21
Cabinet
Radio B4
9x18
Only if site has U21

Notes:

Section 4 - Siteplan Images

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

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

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 705A-V2

Enclosure	1	2	3
Enclosure Type	RBS 6201 ODE	Ancillary Equipment (Ericsson)	Battery Cabinet
Baseband	DUW30 [U2100]; BB 5216 [L700, L2100]		
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG*	
Multiplexer	XMU [L700, L2100]		
Radio	RUS01 B12 **(x 6)** [L700]		

Proposed RAN Equipment

Template: 67E5A998E ODE+6160

Enclosure	1	2	3
Enclosure Type	RBS 6201 ODE	Enclosure 6160	B160
Baseband	DUG20 [G1900]; BB 6648 [L1900, L2100]; BB 6648 [L700, L600, N600]	BB 6648 [L2500, N2500]	
Hybrid Cable System	Ericsson Hybrid Trunk 6/24 4AWG 70m **(x 2)**	Ericsson Hybrid Trunk 6/24 4AWG 70m; PSU 4813	
Transport System		CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Legacy Battery Cabinet at Site.

U2100 will be decommissioned. Remove DUW30 from existing ODE base station cabinet.

Cabinet radios will become unused. Remove all cabinet radios from existing ODE base station cabinet.

GSM will be added to the site. Add (1) DUG20 for GSM to existing ODE base station cabinet.

Replace BB5216 and XMU with (1) BB6648 for L2100 and L1900 (both carriers) in existing ODE base station cabinet.

Add (1) BB6648 for L600, L700, and N600 (MMBB - Mixed Mode Baseband) to existing ODE Base Station Cabinet.

Add (1) Enclosure 6160.

Add (1) Battery Cabinet B160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) BB6648 for L2500 and N2500 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.

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

Existing: (6) Coaxial Lines; (1) 9X18 HCS

Remove all coaxial lines

Remove 9X18 HCS.

Add (3) 6X24 HCS as follows: (2) 6X24 HCS terminating at the ODE; (1) 6X24 HCS terminating at the Enclosure 6160 (Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster).

Make sure that there is an additional rectifier for RRUs.

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

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 6 - A&L Equipment

Existing Template: 1DP_2xAIR_705A
Proposed Template: 67E5998E_1xAIR+1OP+1QP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro				
Antenna	**1**		**2**	**3**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	30		30	30	
M. Tilt					
Height	140		140	140	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**
Active Tech.	U2100		L700	L2100	
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2		2	2	
Cables			7/8" Coax - 200 ft. **(x2)**		
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment			Andrew Smart Bias T (Ericsson) (At Antenna)		

Unconnected Equipment:

Scope of Work:

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

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2		3	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	30				30		30	
M. Tilt	0				0		0	
Height	140				140		140	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**
Active Tech.	L700 L600 N600	L700 L600 N600			L2500 N2500	L2500 N2500	G1900 L1900 L2100	G1900 L1900 L2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt								
Cables	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper **(x2)**
TMAs								
Diplexers / Combiners								
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)					Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

There will be three antennae per sector.

Remove all existing antennae.

Remove all Smart Bias-Ts.

Remove all TMAs.

Remove all Coaxial Lines.

Install (1) Low-Band/Mid-Band Octo in Position 1.

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 in Position 1 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 2.

Install (1) Mid-Band Quad in Position 3.

Add (1) Radio 4460 B25+B66 for L2100, L1900, and GSM to Position 3 at 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:
67E5A998E ODE+6160	67E5998E_1xAIR+1OP+1QP

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro				
Antenna	**1**		**2**	**3**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	150		150	150	
M. Tilt					
Height	140		140	140	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**
Active Tech.	U2100		L700	L2100	
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2		2	2	
Cables			7/8" Coax - 200 ft. **(x2)**		
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment			Andrew Smart Bias T (Ericsson) (At Antenna)		

Unconnected Equipment:

Scope of Work:

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

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2		3	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	150				150		150	
M. Tilt	0				0		0	
Height	140				140		140	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**
Active Tech.	L700 L600 N600	L700 L600 N600			L2500 N2500	L2500 N2500	L2100 L1900 G1900	L2100 L1900 G1900
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt								
Cables	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper **(x2)**
TMAs								
Diplexers / Combiners								
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)					Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

There will be three antennae per sector.

Remove all existing antennae.

Remove all Smart Bias-Ts.

Remove all TMAs.

Remove all Coaxial Lines.

Install (1) Low-Band/Mid-Band Octo in Position 1.

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 in Position 1 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 2.

Install (1) Mid-Band Quad in Position 3.

Add (1) Radio 4460 B25+B66 for L2100, L1900, and GSM to Position 3 at 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:
67E5A998E ODE+6160	67E5998E_1xAIR+1OP+1QP

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro				
Antenna	**1**		**2**	**3**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	270		270	270	
M. Tilt					
Height	140		140	140	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**
Active Tech.	U2100		L700	L2100	
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2		2	2	
Cables			7/8" Coax - 200 ft. **(x2)**		
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment			Andrew Smart Bias T (Ericsson) (At Antenna)		

Unconnected Equipment:

Scope of Work:

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

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2		3	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	270				270		270	
M. Tilt	0				0		0	
Height	140				140		140	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**
Active Tech.	L700 L600 N600	L700 L600 N600			L2500 N2500	L2500 N2500	L2100 L1900 G1900	L2100 L1900 G1900
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt								
Cables	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper **(x2)**
TMAs								
Diplexers / Combiners								
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)					Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

There will be three antennae per sector.

Remove all existing antennae.

Remove all Smart Bias-Ts.

Remove all TMAs.

Remove all Coaxial Lines.

Install (1) Low-Band/Mid-Band Octo in Position 1.

Add (1) Radio 4480 B71+B85 for L600, L700, and N600 in Position 1 at antenna, and connect its ports to the Low-Band ports of the Octo Antenna.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 2.

Install (1) Mid-Band Quad in Position 3.

Add (1) Radio 4460 B25+B66 for L2100, L1900, and GSM to Position 3 at 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:
67E5A998E ODE+6160	67E5998E_1xAIR+1OP+1QP

CTHA532A_Anchor_6_draft

Print Name: Preliminary (RFDS_for_Scoping)
PORs: Anchor_Phase 3
L600_L600 Coverage

Section 7 - Power Systems Equipment

	Existing Power Systems Equipment
Enclosure	1
Enclosure Type	Battery Cabinet

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: CTHA532A

CTHA532A
311 E Hill Road
Canton, Connecticut 06019

July 8, 2021

EBI Project Number: 6221003458

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**20.49%**

July 8, 2021

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

Emissions Analysis for Site: CTHA532A - CTHA532A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **311 E Hill Road** in **Canton, 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 311 E Hill Road in Canton, 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) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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

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

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

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

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

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

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

13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power

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

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

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A1 MPE %:	**1.98%**	Antenna B1 MPE %:	**1.98%**	Antenna C1 MPE %:	**1.98%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**7.28%**	Antenna B2 MPE %:	**7.28%**	Antenna C2 MPE %:	**7.28%**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts
ERP (W):	11,671.35	ERP (W):	11,671.35	ERP (W):	11,671.35
Antenna A3 MPE %:	**2.34%**	Antenna B3 MPE %:	**2.34%**	Antenna C3 MPE %:	**2.34%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	11.59%
Verizon	6.59%
AT&T	2.31%
Site Total MPE % :	20.49%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	11.59%
T-Mobile Sector B Total:	11.59%
T-Mobile Sector C Total:	11.59%
Site Total MPE % :	20.49%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	140.0	2.37	600 MHz LTE	400	0.59%
T-Mobile 600 MHz NR	1	1577.94	140.0	3.16	600 MHz NR	400	0.79%
T-Mobile 700 MHz LTE	2	695.22	140.0	2.78	700 MHz LTE	467	0.60%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	140.0	22.11	2500 MHz LTE 1C & 2C Traffic	1000	2.21%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	140.0	2.15	2500 MHz LTE 1C & 2C Broadcast	1000	0.22%
T-Mobile 2500 MHz NR Traffic	1	22089.26	140.0	44.23	2500 MHz NR Traffic	1000	4.42%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	140.0	4.30	2500 MHz NR Broadcast	1000	0.43%
T-Mobile 1900 MHz LTE	2	2334.27	140.0	9.35	1900 MHz LTE	1000	0.93%
T-Mobile 2100 MHz UMTS	2	1167.14	140.0	4.67	2100 MHz UMTS	1000	0.47%
T-Mobile 2100 MHz LTE	2	2334.27	140.0	9.35	2100 MHz LTE	1000	0.93%
						Total:	**11.59%**

• 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:	11.59%
Sector B:	11.59%
Sector C:	11.59%
T-Mobile Maximum MPE % (Sector A):	11.59%
Site Total:	20.49%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **20.49%** 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.