Transcend Wireless

10 Industrial Avenue,
Suite 3
Mahwah, NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

July 22, 2019

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Notice of Exempt Modification
70 Herb Road, Sharon CT
Latitude 41.79130833
Longitude -73.42569167
T-Mobile site: CTNH543A / L600

Dear Ms. Bachman:

T-Mobile currently maintains (6) antennas at the 84 foot level of the existing 110 -foot Monopine at 70 Herb Road in Sharon, CT. The Monopine is owned by American Tower and the property is owned by James Gillespie. T-Mobile now intends to replace of its existing antennas with (3) 600/700 MHz antennas. The new antennas would be installed at the 84 foot level of the tower with mount modifications as per the attached mount analysis. .

Planned Modifications:

Remove:
Coax
(1) ½" coax

Remove and Replace:
Antennas:
(3) Commscope LNX-6515DS-A1M (REMOVE) - APXVAARR24_43-U-NA20 (REPLACE) 600 MHz / 700 MHz
RRUs:
Ericsson RRUS-11 B12 (REMOVE) - Ericsson RADIO 4449 B12/71 (REPLACE)

Existing to Remain:
Antennas/TMAs/RRUs:
(3) RFS APX15DWV-16DWVS-E-A20
(3) Ericsson RRUS 11 B2
(3) Ericsson RRUS 11 B4

Coax Cables:
(1) 1.58" hybrid

Install New:
Coax Cables:
(2) 1-5/8" Hybrid cables

This facility was approved by Docket 185 by the Siting Council November 12, 1998, with no record of conditions that would restrict exempt modifications. Therefore, this modification complies with the aforementioned approval. A copy of the original approval is attached.

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 The Honorable Brent M. Colley, First Selectman and Jamie Casey, Land Use Administrator

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,

Elizabeth Jamieson

Elizabeth Jamieson
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
860-605-7808
EJamieson@TranscendWireless.com

cc:
The Honorable Brent M. Colley, First Selectman
Jamie Casey, Land Use Administrator
American Tower, Tower Owner
James Gillesspie, Property Owner

Exhibit A

Original Facility Approval

Filing Guides
Meetings & Minutes
Public Participation
Audio Link to New Britain Hearing Rooms
Programs & Services
Telecommunications Database
Publications
Other Resources
Statutes & Regulations
Electric Transmission Upgrade Projects
Frequently Asked Questions

Melanie Bachman,
Executive Director

DOCKET NO. 185 - An application by Litchfield Acquisition Corporation d/b/a AT&T Wireless Services for a Certificate of Environmental Compatibility and Public Need for construction, maintenance, and operation of a telecommunications tower and associated equipment located at 70 Herb Road, Sharon, Connecticut.

Connecticut Siting Council

November 12, 1998

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility at the proposed site on Herb Road in Sharon, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Litchfield Acquisition Corporation d/b/a AT&T Wireless Services (AT&T) for the construction, operation, and maintenance of a telecommunications tower, associated equipment, and buildings at the proposed site at 70 Herb Road, in the Town of Sharon, Connecticut.

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

1. The tower shall be constructed no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T, Springwich Cellular Limited Partnership (Springwich), Nextel Communications of the Mid-Atlantic, Inc. (Nextel), the antennas of at least two other wireless providers, and other entities, both public and private, as necessary, but such tower, excluding antennas, shall not exceed a height of 110 feet above ground level (AGL).

2. The tower and antennas shall be camouflaged as an evergreen tree, and the equipment building and compound shall be architecturally treated to resemble agricultural/rustic structures, subject to Council approval through Section 3 of this Decision and Order.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include the location and specifications for the tower with antennas, designed to resemble a tree; tower foundation; architecturally-treated equipment buildings and security fence; vegetative screening; access road and underground utilities; site clearing and tree trimming; water drainage; and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

4. The Certificate Holder shall maintain all portions of the access road in a condition accessible for emergency access. Any damage to private roads caused by vehicles accessing the site shall be promptly repaired to pre-existing conditions.

5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

6. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

7. Within six months of operation, the Certificate Holder and each carrier shall provide drive test data depicting signal levels along Route 7 between the intersections of Route 7 with Routes 341 and 128, and along Route 4 between the intersections of Route 4 with Route 125 and Northrup Road.

8. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. No antenna, other than whip antennas, may be modified or added to the tower, unless approved by the Council.

9. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall

dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

10. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antenna becomes obsolete and ceases to function, unless such antenna is necessary to maintain the architectural appearance of the tower and is so ordered to remain on the tower by the Council.

11. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, the Register Citizen, the News Times, and Litchfield County Times.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
Litchfield Acquisition Corporation d/b/a AT&T Wireless Services Its Representatives	Douglas A. Cohen, Esq. Brown, Rudnick, Freed & Gesmer, P.C. 185 Asylum Street, CityPlace I Hartford, CT 06103-3402 (860) 509-6511 Mitchell Holmgren Site Development Coordinator AT&T Wireless Services 15 East Midland Avenue Paramus, NJ 07652 (203) 967-3130
Party	**Its Representative**
Town of Sharon	Robert Moeller First Selectman P.O. Box 385, 63 Main Street Sharon, CT 06069 (860) 364-5789
Intervenor	**Its Representative**
Springwich Cellular Limited Partnership	Peter J. Tyrrell Senior Counsel Springwich Cellular Limited Partnership 500 Enterprise Drive Rocky Hill, CT 06067-3900 (860) 513-7673
Intervenor	**Its Representative**
Nextel Communications of the Mid-Atlantic, Inc. d/b/a Nextel Communication	Christopher B. Fisher Cuddy, Feder & Worby 90 Maple Avenue White Plains, NY 10601-5196 (914) 761-1300
Intervenors	**Its Representative**
Mary I. Whitehead P.O. Box 1235 Sharon, CT 06069 Hartford, CT 06103	Raymond J. Devlin, Jr. Law Offices of Raymond J. Devlin, Jr. 100 Pearl Street, 14th Floor (860) 249-0691
Laurance and Carol Rand 30 Morey Road **SERVICE WAIVED** Sharon, CT 06069	
Fred and Judith Schwerin 44 Morey Road **SERVICE WAIVED** Sharon, CT 06069	
Toni Tucker 6 Herb Road **SERVICE WAIVED** Sharon, CT 06069	
José and Grace Noyes 12 Herb Road **SERVICE WAIVED**	

Sharon, CT 06069

Melvin Elliott
59 Northrop Road **SERVICE WAIVED**
Sharon, CT 06069

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Exhibit B

Property card

70 HERB RD

Location	70 HERB RD	**Mblu**	3/ 2/X / /
Acct#	00030730	**Owner**	GILLESPIE/ALLTEL NEWCO LLC
Assessment	$285,500	**Appraisal**	$407,900
PID	2843	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$407,900	$0	$407,900
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$285,500	$0	$285,500

Owner of Record

Owner	GILLESPIE/ALLTEL NEWCO LLC	**Sale Price**	$0
Co-Owner	C/O DUFF & PHELPS LLC	**Certificate**	
		Book & Page	136/ 646
		Sale Date	10/12/1999
		Instrument	07

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
GILLESPIE/ALLTEL NEWCO LLC	$0		136/ 646	07	10/12/1999

Building Information

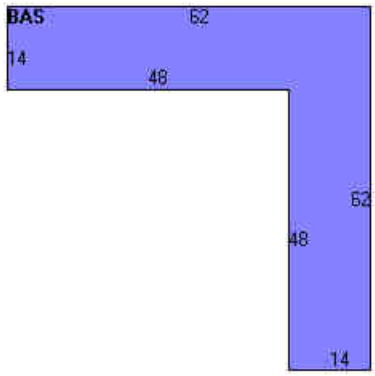
Building 1 : Section 1

Year Built:	2001
Living Area:	1,540
Building Percent Good:	88
Replacement Cost Less Depreciation:	$202,700

Building Attributes	
Field	**Description**

STYLE	Industrial
MODEL	Comm/Ind
Grade	A
Stories:	1
Occupancy	
Exterior Wall 1	Wood on Sheath
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Unit/AC
Bldg Use	Commercial
Total Rooms	
Total Bedrms	00
Total Baths	0.0
Extra Fix	
Frame	
1st Floor Use:	201
Heat/AC	Heat A/C Split
Frame Type	Wood Frame
Baths/Plumbing	None
Ceiling/Wall	Ceiling Only
Rooms/Prtns	Light
Wall Height	12
% Comn Wall	

Building Layout



(http://images.vgsi.com/photos/SharonCTPhotos//Sketches/2843

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,540	1,540
		1,540	1,540

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 201

Land Line Valuation

Size (Acres) 0

Description	Commercial	**Frontage**	
Zone	RR	**Depth**	
Alt Land Appr	No	**Assessed Value**	$0
Category		**Appraised Value**	$0

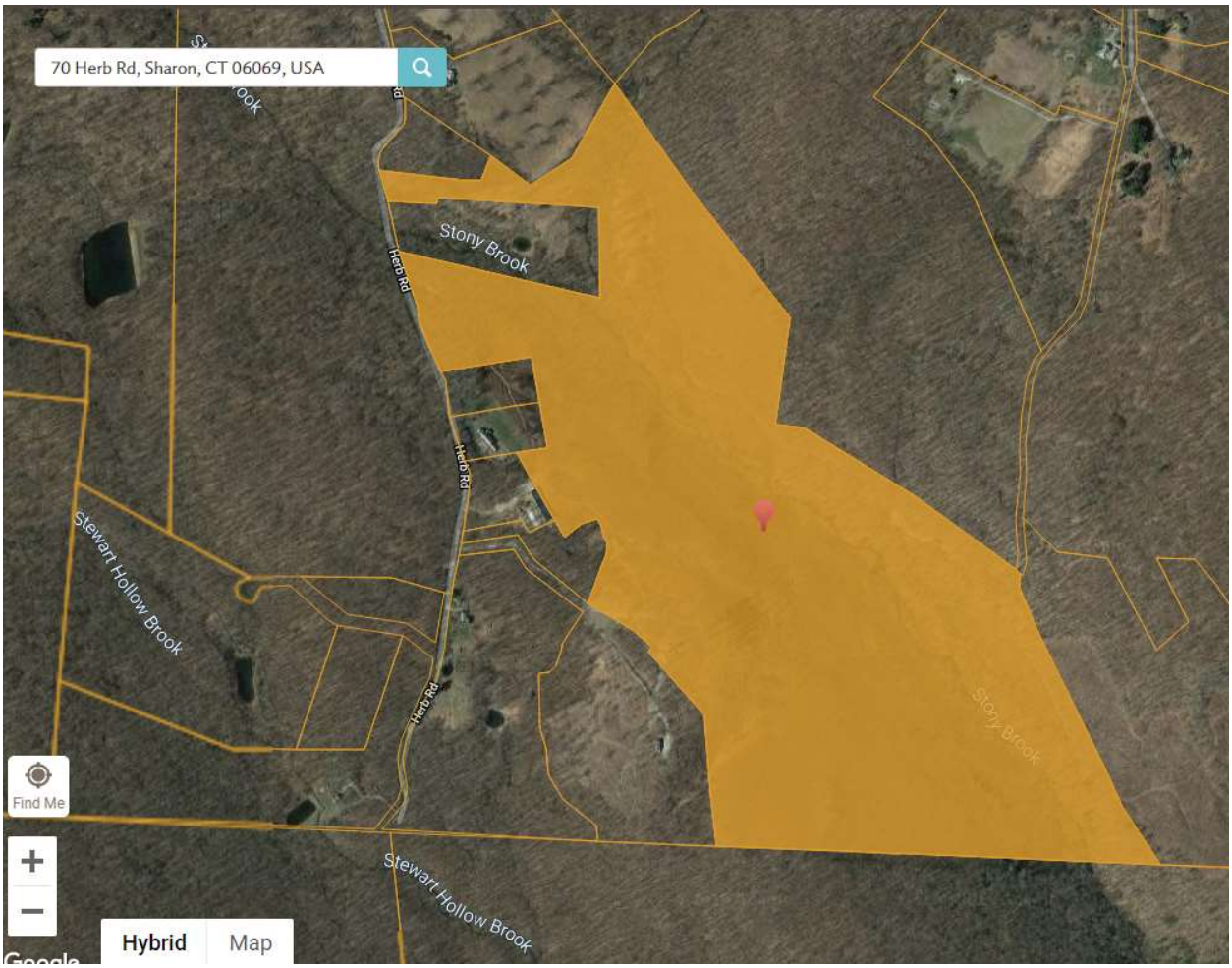
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CELL	Cell Tower site			1 UNITS	$205,200	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$416,400	$0	$416,400
2016	$416,400	$0	$416,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$291,400	$0	$291,400
2016	$291,400	$0	$291,400

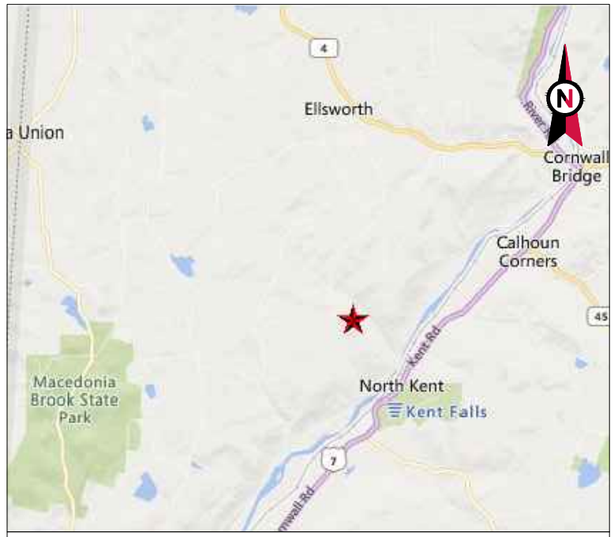


70 HERB ROAD

SHARON CT

Exhibit C

Construction Drawings



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: SHARON CT
ATC SITE NUMBER: 415974
T-MOBILE SITE ID: CTNH543A
SITE ADDRESS: 70 HERB ROAD
SHARON, CT 06069

T-MOBILE L600 ANTENNA AMENDMENT
67D07C CONFIGURATION

LOCATION MAP

COMPLIANCE CODE

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

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: EVERSOURCE
PHONE: (888) 783-6617

TELEPHONE COMPANY: AT&T
PHONE: (866) 593-1383

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

PROJECT SUMMARY

SITE ADDRESS:

70 HERB ROAD
SHARON, CT 06069
COUNTY: LITCHFIELD

1A CERTIFICATE SUMMARY:

LATITUDE: 41° 47' 28.76" N
LONGITUDE: 73° 25' 32.40" W
GROUND ELEVATION: 1,088.5' AMSL
TOWER HEIGHT: 108.2' AGL
HIGHEST APPURTENANCE: 113' AGL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

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

PROPERTY OWNER:

JAMES E GILLESPIE
PO BOX 791
SHARON, CT 06069

APPLICANT:

T-MOBILE

PROJECT DESCRIPTION

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

REMOVE (3) PANELS, AND (3) RRUs

INSTALL (3) NEW PANELS, (3) RRUs, MOUNT MODIFICATIONS AND (1) 1-5/8" HYBRID CABLES

EXISTING (3) PANELS, (6) RRUs, AND (2) 1-5/8" HYBRID CABLES TO REMAIN

PROJECT NOTES

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

PROJECT LOCATION DIRECTIONS

HEAD EAST ON I-84 E, USE THE LEFT LANE TO TAKE EXIT 7 FOR US 7 N/US 202 E TOWARD BROOKFIELD/NEW MILFORD, CONTINUE ONTO US-202 E/US-7 N, CONTINUE TO FOLLOW US-7 N, CONTINUE ONTO US-202 E, TURN RIGHT ONTO STILL RIVER DR, STILL RIVER DR TURNS SLIGHTLY LEFT AND BECOMES GROVE ST/LOWER GROVE ST, CONTINUE TO FOLLOW GROVE ST, CONTINUE ONTO EAST ST, CONTINUE ONTO POPLAR ST, CONTINUE ONTO US-202 E/PARK LANE RD, CONTINUE TO FOLLOW US-202 E, SLIGHT LEFT ONTO CT-45 N/E SHORE RD, CONTINUE TO FOLLOW CT-45 N, TURN LEFT ONTO CT-341 W/CT-45 N, TURN RIGHT ONTO CT-45 N, SLIGHT RIGHT TO STAY ON CT-45 N, SLIGHT LEFT ONTO CT-4 W, TURN LEFT ONTO NORTHRUP RD, SLIGHT RIGHT TO STAY ON NORTHRUP RD, TURN LEFT ONTO S ELLSWORTH RD, S ELLSWORTH RD TURNS SLIGHTLY RIGHT AND BECOMES HERB RD, DESTINATION WILL BE ON THE LEFT

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	2	07/15/19	CA
G-002	GENERAL NOTES	0	05/29/19	CA
C-101	DETAILED SITE PLAN & TOWER ELEVATION	1	07/05/19	CA
C-501	ANTENNA INFORMATION & SCHEDULE	2	07/15/19	CA
E-501	GROUNDING DETAILS	0	05/29/19	CA
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			

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

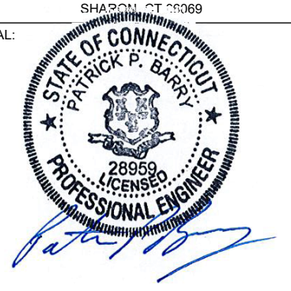
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CA	05/29/19
1	MOUNT MODIFICATIONS	CA	07/05/19
2	UPDATE RADIOS	CA	07/15/19

ATC SITE NUMBER:
415974

ATC SITE NAME:
SHARON CT

SITE ADDRESS:
70 HERB ROAD
SHARON, CT 06069

SEAL:



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cosign

T··Mobile·

DRAWN BY:	CA
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951835

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	2

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC MASTER SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. 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.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE WIRELESS REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE WIRELESS REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH T-MOBILE WIRELESS WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS 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.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. 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.
25. CONTRACTOR SHALL NOTIFY T-MOBILE WIRELESS 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.
26. 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.
27. 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.
28. 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 WIRELESS REP. ANY WORK FOUND BY THE T-MOBILE WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. 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.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
   A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
   B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
   D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
   E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
   A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
   B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
   C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
   D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
   E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
   F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
   G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

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COA: PEC.0001553

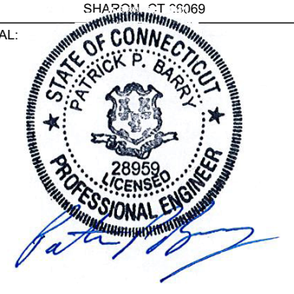
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CA	05/29/19

ATC SITE NUMBER:
415974

ATC SITE NAME:
SHARON CT

SITE ADDRESS:
70 HERB ROAD
SHARON, CT 06069

SEAL:



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Jul 16 2019 8:38 AM

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DRAWN BY:	CA
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951835

GENERAL NOTES

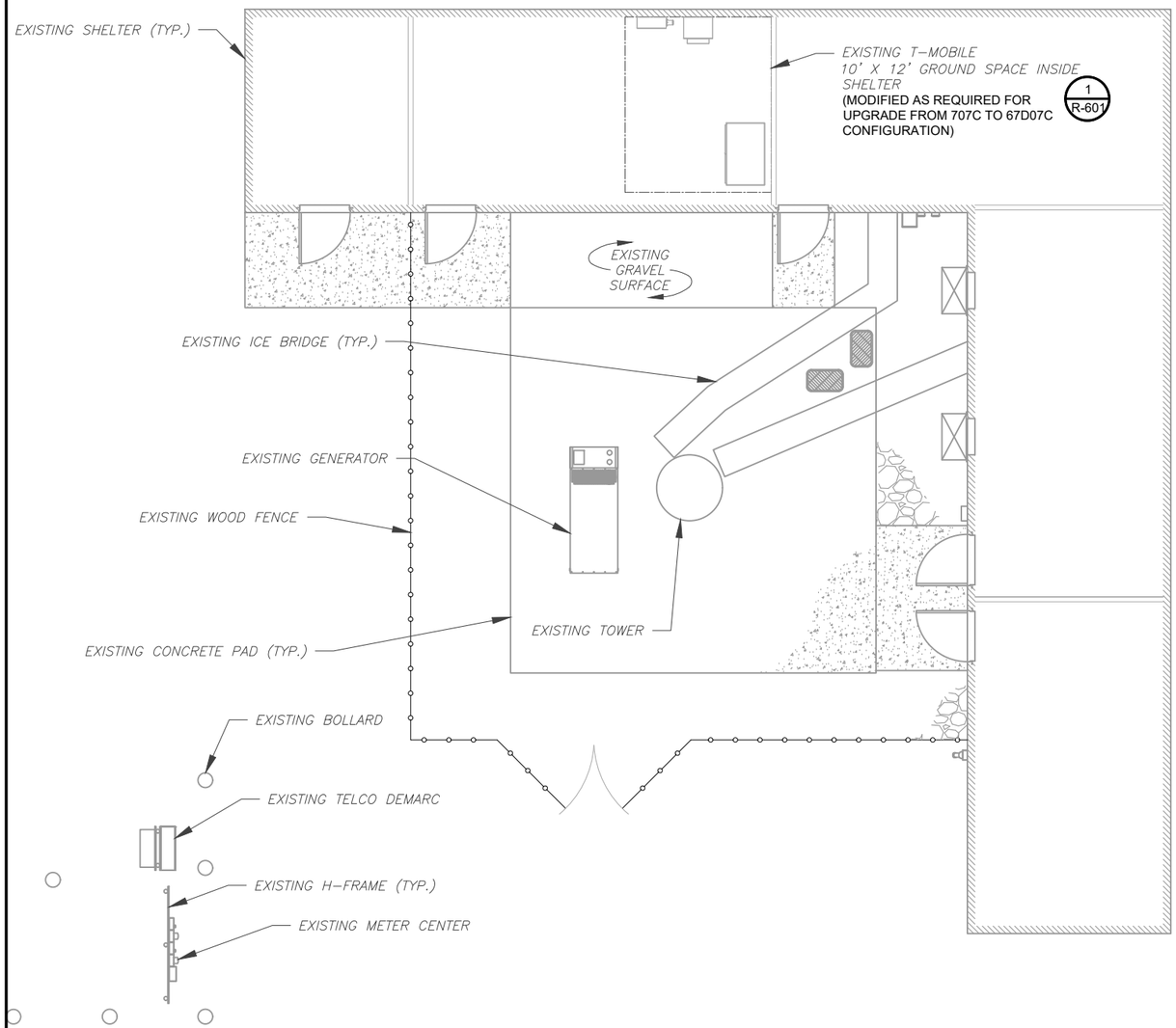
SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

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

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

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

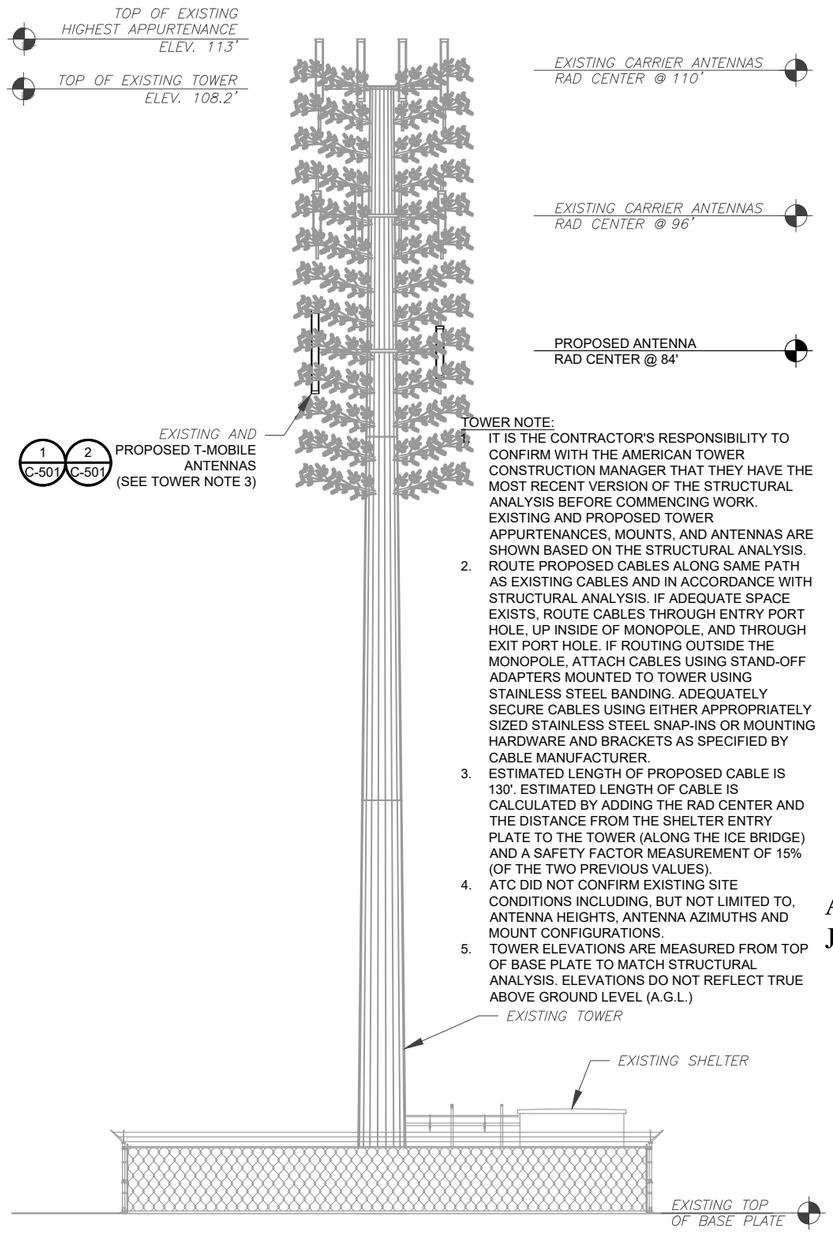


1 DETAILED SITE PLAN

0 10' 20'

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

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 06/21/19, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION 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. 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.
3. ESTIMATED LENGTH OF PROPOSED CABLE IS 130'. ESTIMATED LENGTH OF CABLE IS 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).
4. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
5. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

2 TOWER ELEVATION

SCALE: NOT TO SCALE

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3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CA	05/29/19
1	MOUNT MODIFICATIONS	CA	07/05/19

ATC SITE NUMBER:
415974

ATC SITE NAME:
SHARON CT

SITE ADDRESS:
70 HERB ROAD
SHARON, CT 06069

SEAL:

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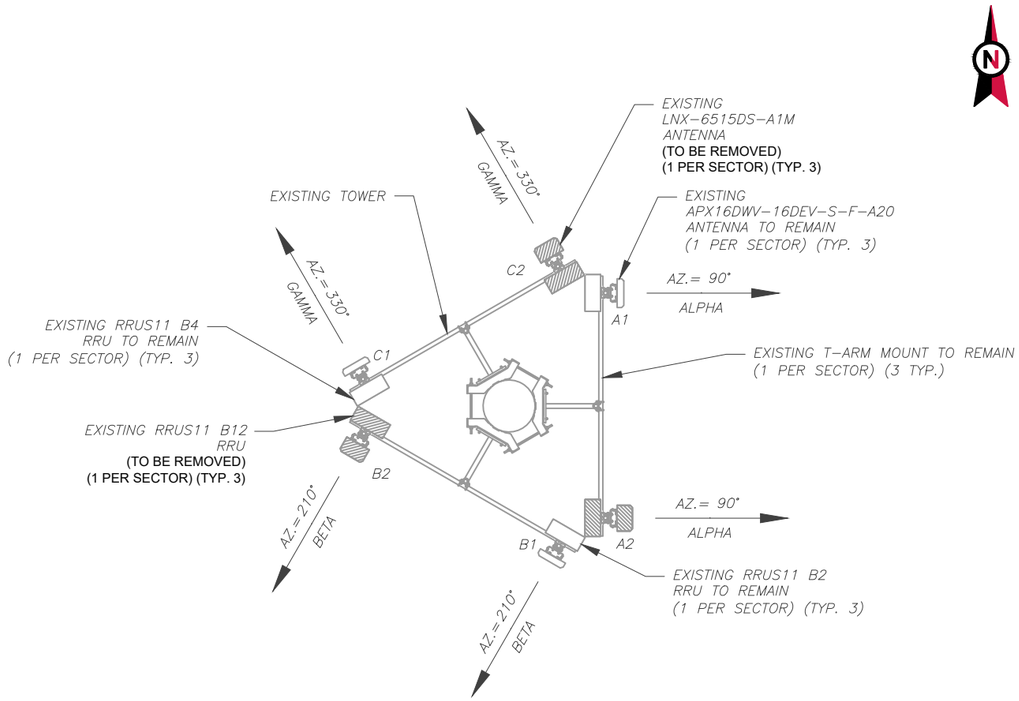
DRAWN BY:	CA
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951835

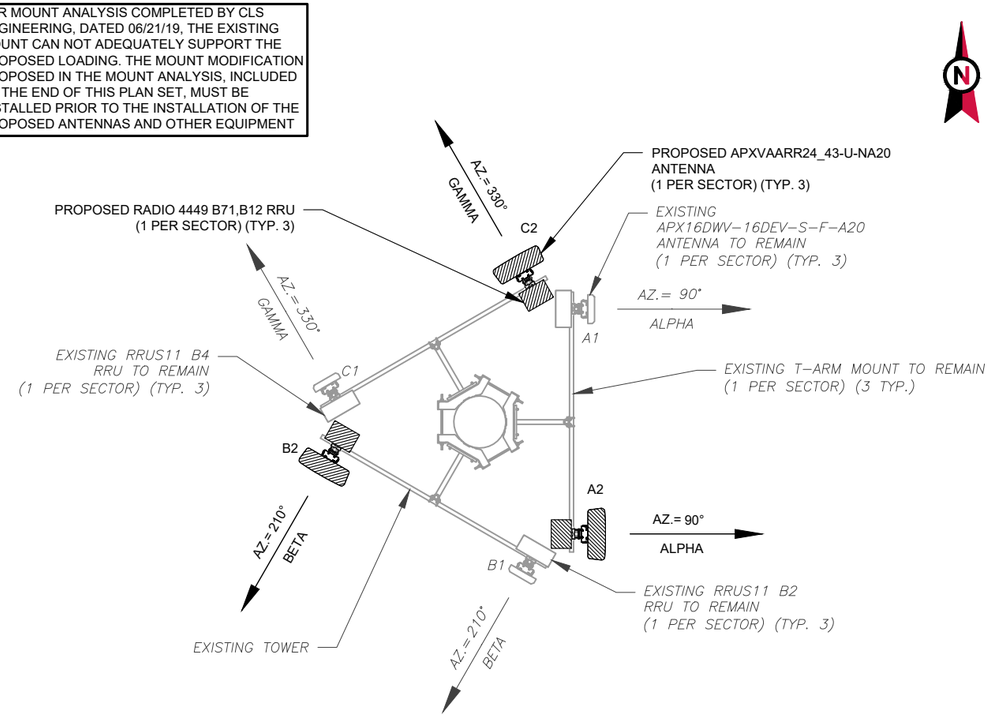
DETAILED SITE PLAN & TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-101	1



1 EXISTING ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 06/21/19, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



2 FINAL ANTENNA PLAN

EXISTING ANTENNA / EQUIPMENT SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	A1	APX16DWV-16DWVS-E-A20	84'-0"	90°	0°	–	RRUS11 B2 RRUS11 B4
ALPHA	A2	LNX-6515DS-A1M	84'-0"	90°	0°	–	RRUS11 B12
BETA	B1	APX16DWV-16DWVS-E-A20	84'-0"	210°	0°	–	RRUS11 B2
BETA	B2	LNX-6515DS-A1M	84'-0"	210°	0°	–	RRUS11 B12 RRUS11 B4
GAMMA	C1	APX16DWV-16DWVS-E-A20	84'-0"	330°	0°	–	RRUS11 B2 RRUS11 B4
GAMMA	C2	LNX-6515DS-A1M	84'-0"	330°	0°	–	RRUS11 B12

NOTES

1. BASED ON APPROVED ATC APPLICATION 12927152, DATED 04/02/19. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
3. ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
4. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
5. POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

FINAL ANTENNA / EQUIPMENT SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	A1	APX16DWV-16DWVS-E-A20	84'-0"	90°	0°	-	RRUS11 B2 RRUS11 B4
ALPHA	A2	APXVAARR24_43-U-NA20	84'-0"	90°	0°	-	RADIO 4449 B12-B71
BETA	B1	APX16DWV-16DWVS-E-A20	84'-0"	210°	0°	-	RRUS11 B2
BETA	B2	APXVAARR24_43-U-NA20	84'-0"	210°	0°	-	RADIO 4449 B12-B71 RRUS11 B4
GAMMA	C1	APX16DWV-16DWVS-E-A20	84'-0"	330°	0°	-	RRUS11 B2 RRUS11 B4
GAMMA	C2	APXVAARR24_43-U-NA20	84'-0"	330°	0°	-	RADIO 4449 B12-B71

CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	–	(2) 1-5/8	RMN
–	–	–	–	–

STATUS ABBREVIATIONS
RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
DSC: TO BE DISCONNECTED & REMAIN
ADD: TO BE ADDED

3 ANTENNA SCHEDULE

CABLE LENGTHS FOR JUMPERS
FIBER DISTRIBUTION/OVP TO RRU: 15'
RRU TO ANTENNA: 10'

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(2) 1-5/8	RMN
-	-	-	(1) 1-5/8"	ADD

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COA: PEC.0001553

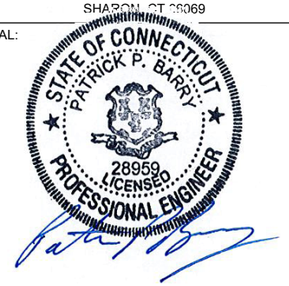
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CA	05/29/19
1	MOUNT MODIFICATIONS	CA	07/05/19
2	UPDATE RADIOS	CA	07/15/19

ATC SITE NUMBER:
415974

ATC SITE NAME:
SHARON CT

SITE ADDRESS:
70 HERB ROAD
SHARON, CT 06069

SEAL:



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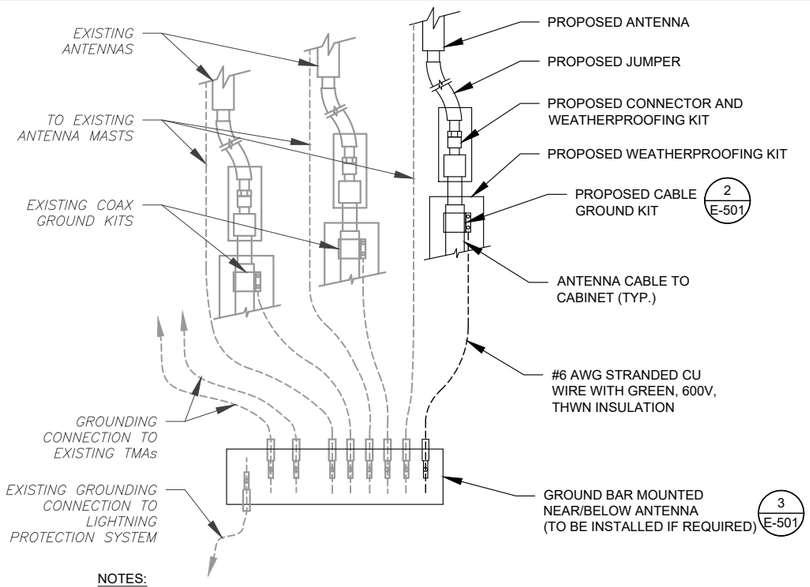
DRAWN BY:	CA
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951835

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	2

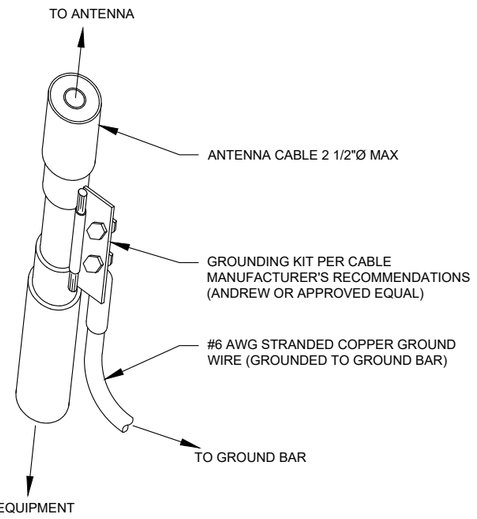


NOTES:

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: NOT TO SCALE

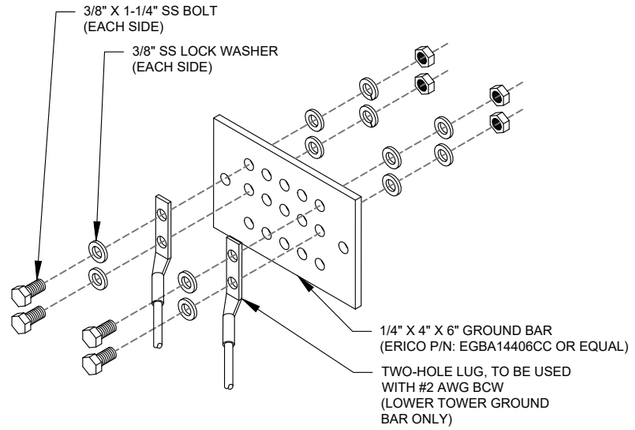


GROUND KIT NOTES:

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: NOT TO SCALE

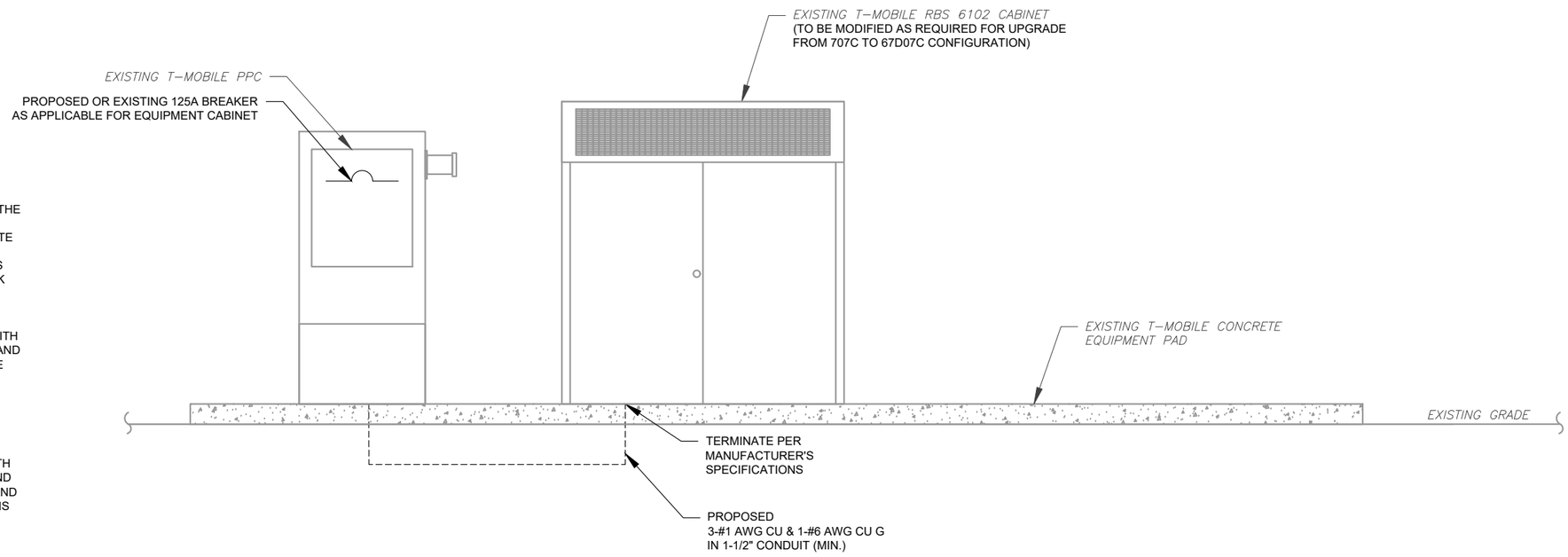


GROUND BAR NOTES:

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: NOT TO SCALE



ELECTRICAL NOTES:

1. THIS DIAGRAM 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. 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.
3. ATC HAS NOT YET 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.

4 ELECTRICAL UPGRADE DIAGRAM

SCALE: NOT TO SCALE

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CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

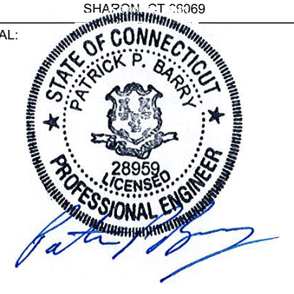
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CA	05/29/19

ATC SITE NUMBER:
415974

ATC SITE NAME:
SHARON CT

SITE ADDRESS:
70 HERB ROAD
SHARON, CT 06069

SEAL:



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APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951835

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Existing RAN Equipment		
Template:	707C Tower	
Enclosure	1	2
Enclosure Type	RBS 6102 MU AC	Purcell SFX17 2824
Baseband	DUW30 (U1900); DUS41 (L2100, L700)	
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* (x2)

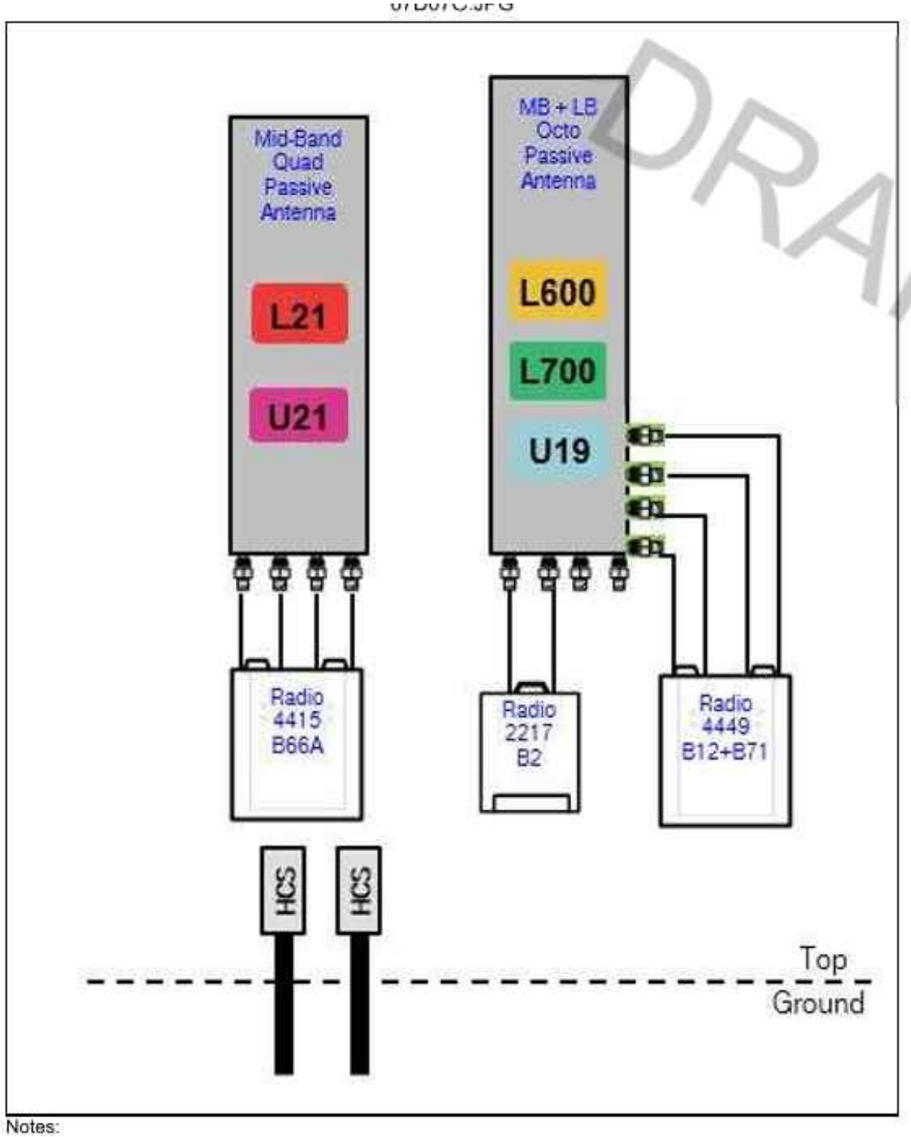
Proposed RAN Equipment		
Template:	67D07C 6102 MUAC	
Enclosure	1	2
Enclosure Type	RBS 6102 MU AC	Purcell SFX17 2824
Baseband	DUW30 (U1900); BB 6630 (L2100, L700, L600); BB 6630 (N600 (DARK))	
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* (x3)

RAN Scope of Work:

Replace (1) DUS41 with (1) BB6630 for L2100, L700, and L600.
Install (1) BB6630 for future 5G N600.

Add (1) 6X12 HCS.
Existing: (2) 6X12 HCS.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE



Notes:

2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0

Mount Analysis of Existing T-Arms for American Tower on behalf of T-Mobile
415974 - Sharon CT
Project #: 12927152

T-Mobile Site ID: CTNH543A
Program: L600

CLS Engineering PLLC Project #41124-12927152-01-MA-R1
June 21, 2019

MOUNT DESCRIPTION	Existing T-Arms at 82.5 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 84 ft AGL (Eccentricity of ~2 ft)
SITE DESCRIPTION	108.2 ft Monopole
SITE ADDRESS	70 Herb Road, Sharon, CT 06069, Litchfield County
GPS COORDINATES	41.791111, -73.425556
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut Building Code / TIA-222-G
LOADING CRITERIA	115 mph, V_{ult} / 90 mph, V_{asd} (3-Second Gust) w/o ice & 40 mph (3-Second Gust) w/ 0.75" Ice

■ **ANALYSIS RESULT:** **Pass (Conditional)**

MEMBER USAGE	85%	Pass
CONNECTION USAGE	89%	Pass

Modifications are proposed to bring mounts into compliance; see conclusion for details.

Prepared by:
Sajeeb Thakur, E.I.

Reviewed and Approved by:
Tyler M. Barker, P.E.

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

Tyler M. Barker
CLS Engineering, PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2020
COA # PEC.001833 Exp. 8/14/2019

identTrust Part of HID Global

Digitally signed by Tyler Barker
DN: c=US, o=Telamon Corporation, ou=A01427E0000016A4525ADF800001D17, cn=Tyler Barker
Date: 2019.06.21 18:03:28 -04'00'

■ CONCLUSION AND RECOMMENDATIONS

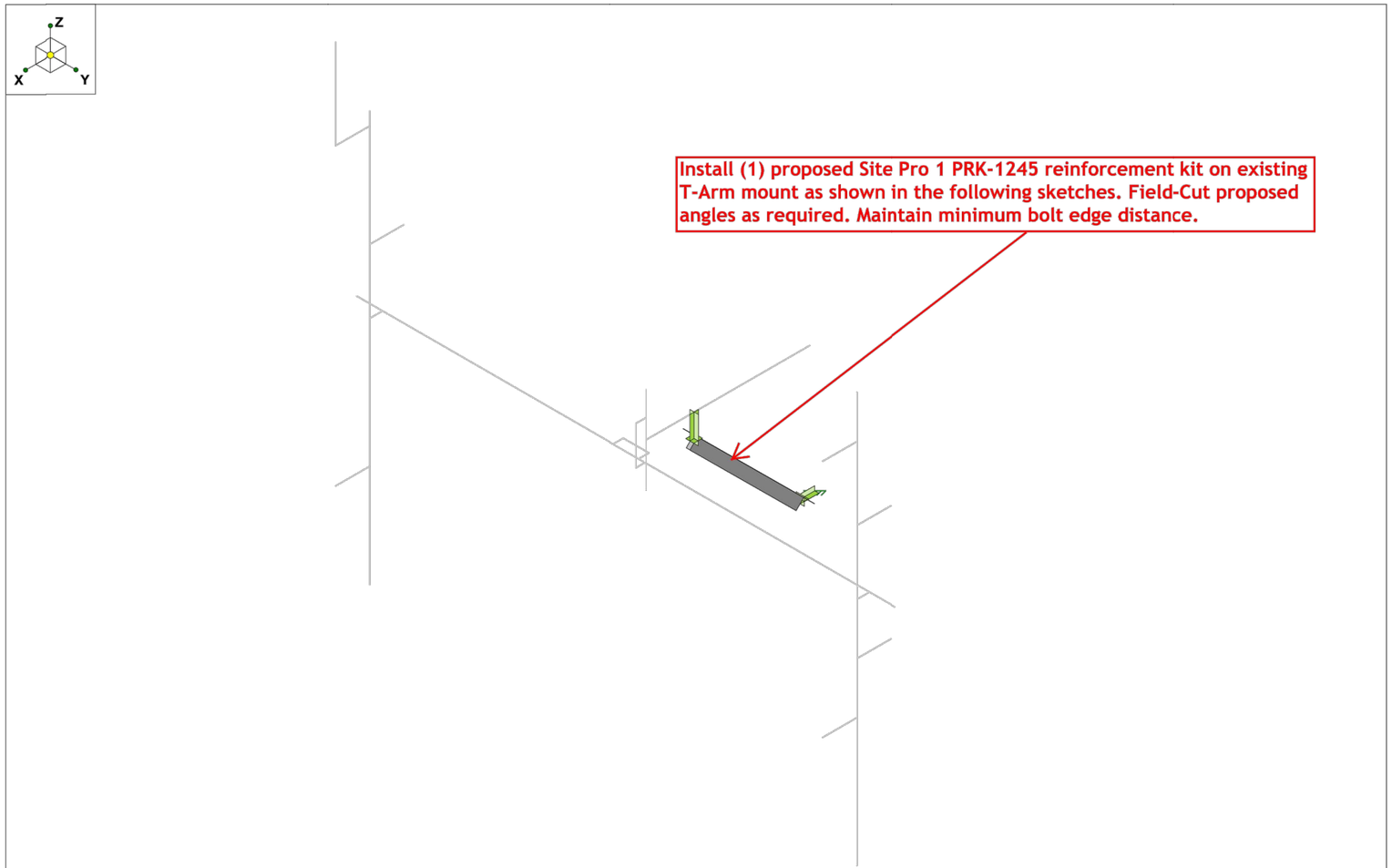
According to our structural analysis, the mounts have been found to **CONDITIONALLY PASS**. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed

- **Install (1) proposed Site Pro 1 PRK-1245 reinforcement kit on existing T-Arm mount as shown in the following sketches. Field-Cut proposed angles as required. Maintain minimum bolt edge distance.**

See following sketches and Site Pro 1 assembly drawings for additional details.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-602	0

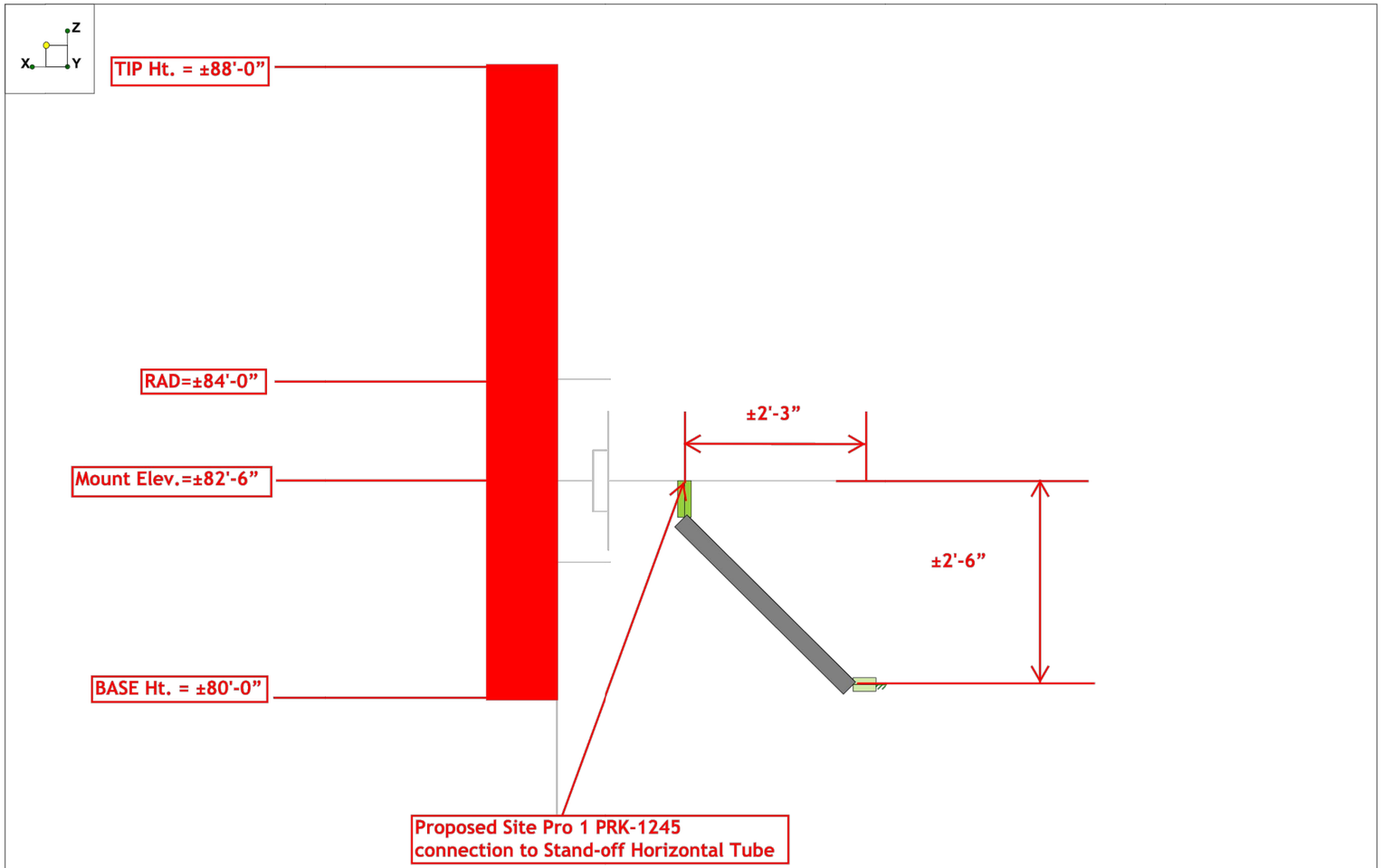


Envelope Only Solution

CLS		IN - 1
ST	41124-12927152-SHARON CT	June 21, 2019 at 2:41 PM
41124-12927152-01-MA-R1	Installation Sketch - Isometric view	41124-12927152-01-MA-R1 images.r3d

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0



Envelope Only Solution

CLS	41124-12927152-SHARON CT	IN - 1
ST		June 21, 2019 at 2:33 PM
41124-12927152-01-MA-R1	Installation Sketch - Side Elevation	41124-12927152-01-MA-R1 images.r3d

SUPPLEMENTAL

SHEET NUMBER: R-604

REVISION: 0

Exhibit D

Structural Analysis Report

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**108.2 ft Monopole**
ATC Site Name	:	**Sharon CT, CT**
ATC Site Number	:	**415974**
Engineering Number	:	**12927152_C3_02**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**CTNH543A**
Carrier Site Number	:	**CTNH543A**
Site Location	:	**70 Herb Road** **Sharon, CT 06069-2326** **41.791100,-73.425600**
County	:	**Litchfield**
Date	:	**July 18, 2019**
Max Usage	:	**65%**
Result	:	**Pass**

Prepared By:
Robert D. Barrett, E.I.
Structural Engineer II

Robert D. Barrett

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32598
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
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COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 108.2 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	Mapping by TEP Report #05605, dated July 6, 2005
Foundation Drawing	Summit, PJF Project #29200-1298, dated September 29, 2000
Geotechnical Report	Dr. Clarence Welti Report, dated August 30, 2000
Mount Analysis	CLS Engineering PLLC Project #41124-12927152-01-MA-R1, dated June 21, 2019

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:	90 mph (3-Second Gust, V_{asd}) / 115 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
109.0	3	Amphenol Antel BXA-171085-12BF-EDIN-X	T-Arms	(12) 1 5/8" Coax	Verizon Wireless
	3	Amphenol Antel BXA-70063-6CF-EDIN-2			
	6	Antel LPA-80080/6CF ___			
	6	RFS FD9R6004/2C-3L			
	1	VZW Unused Reserve: 20461 sq in			
92.0	6	Powerwave Allgon LGP13519	T-Arms	(1) 0.39" Fiber Trunk (2) 0.78" 8 AWG 6 (12) 1 5/8" Coax (1) 3" Conduit	AT&T Mobility
	6	Powerwave Allgon LGP2140X			
	1	Andrew ABT-DFDM-ADB			
	1	Kathrein Scala 800 10764			
	6	Powerwave Allgon 7770.00			
	6	Ericsson RRUS-11 (50 lbs.)			
	1	Raycap DC6-48-60-18-8F			
	2	KMW AM-X-CD-16-65-00T-RET			
84.0	3	Ericsson RRUS 11 B4	T-Arms	-	T-Mobile
	3	Ericsson RRUS 11 B2			
	3	RFS APX16DWV-16DWVS-E-A20			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
84.0	3	Ericsson RRUS 11 B12	-	(2) 1 5/8" Hybriflex	T-Mobile
	3	Commscope LNX-6515DS-A1M (50.3 lb)			
50.0	1	Symmetricom 58532A	-	(1) 1/2" Coax	

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
84.0	3	RFS APXVAARR24_43-U-NA20	T-Arms with Site Pro 1 PRK-1245 Reinforcement Kit	(3) 1 5/8" Fiber	T-Mobile
	3	Ericsson Radio 4449 B12,B71			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	55%	Pass
Shaft	60%	Pass
Base Plate	40%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,300.0	4,455.0	2,891.0	65%
Shear (Kips)	38.0	51.3	33.5	65%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
84.0	Ericsson Radio 4449 B12,B71	T-Mobile	0.505	0.689
	RFS APXVAARR24_43-U-NA20			

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

Standard Conditions

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

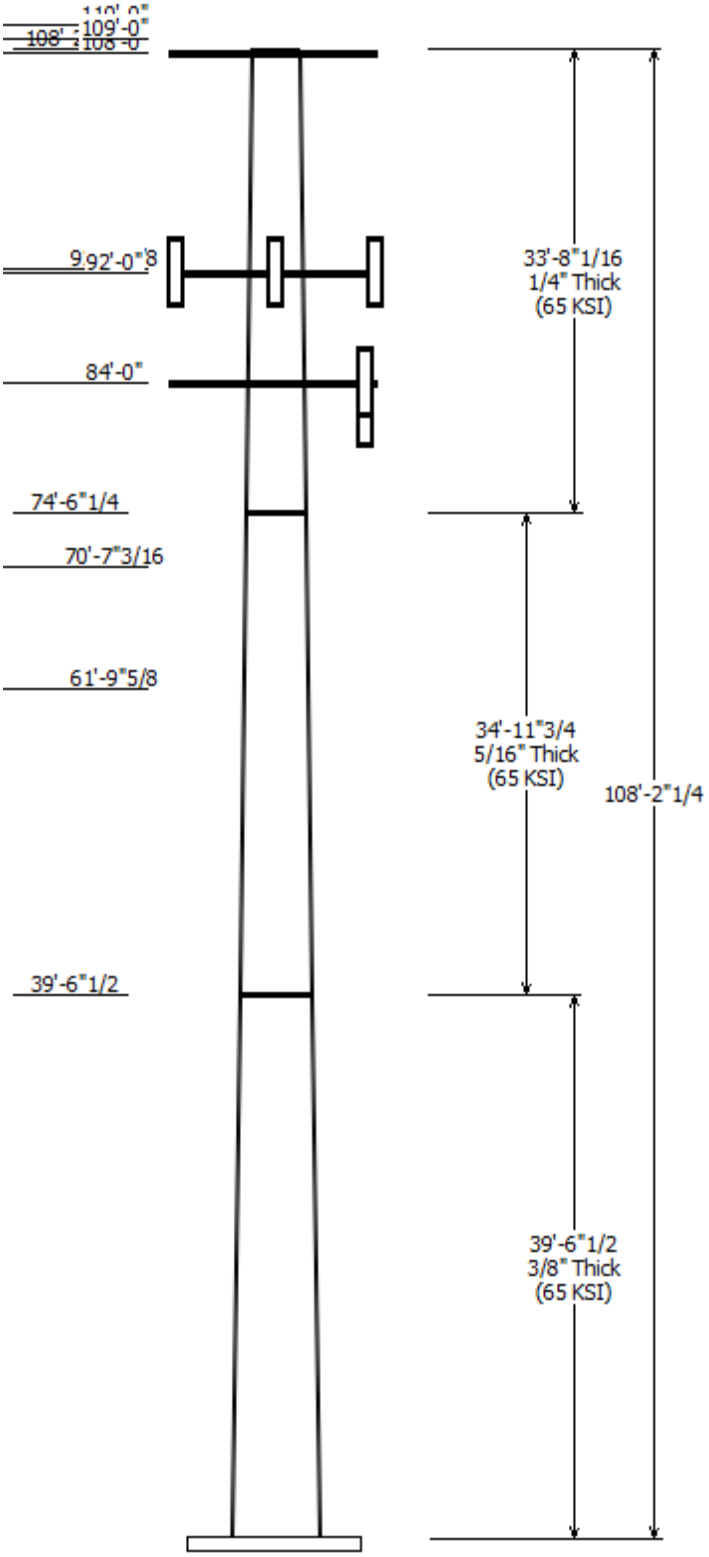
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

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

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

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



Job Information

Client :	T-MOBILE		
Pole :	415974	Code:	ANSI/TIA-222-G
Location :	Sharon CT, CT		
Description :	108 ft Monopole	Struct Class :	II
Shape :	18 Sides	Exposure :	C
Height :	108.19 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.266753 (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	39.540	45.31	55.86	0.375		0.000	18 Sides	65
2	34.980	35.98	45.31	0.313	Butt Joint	0.000	18 Sides	65
3	33.670	27.00	35.98	0.250	Butt Joint	0.000	18 Sides	65

Discrete Appurtenance

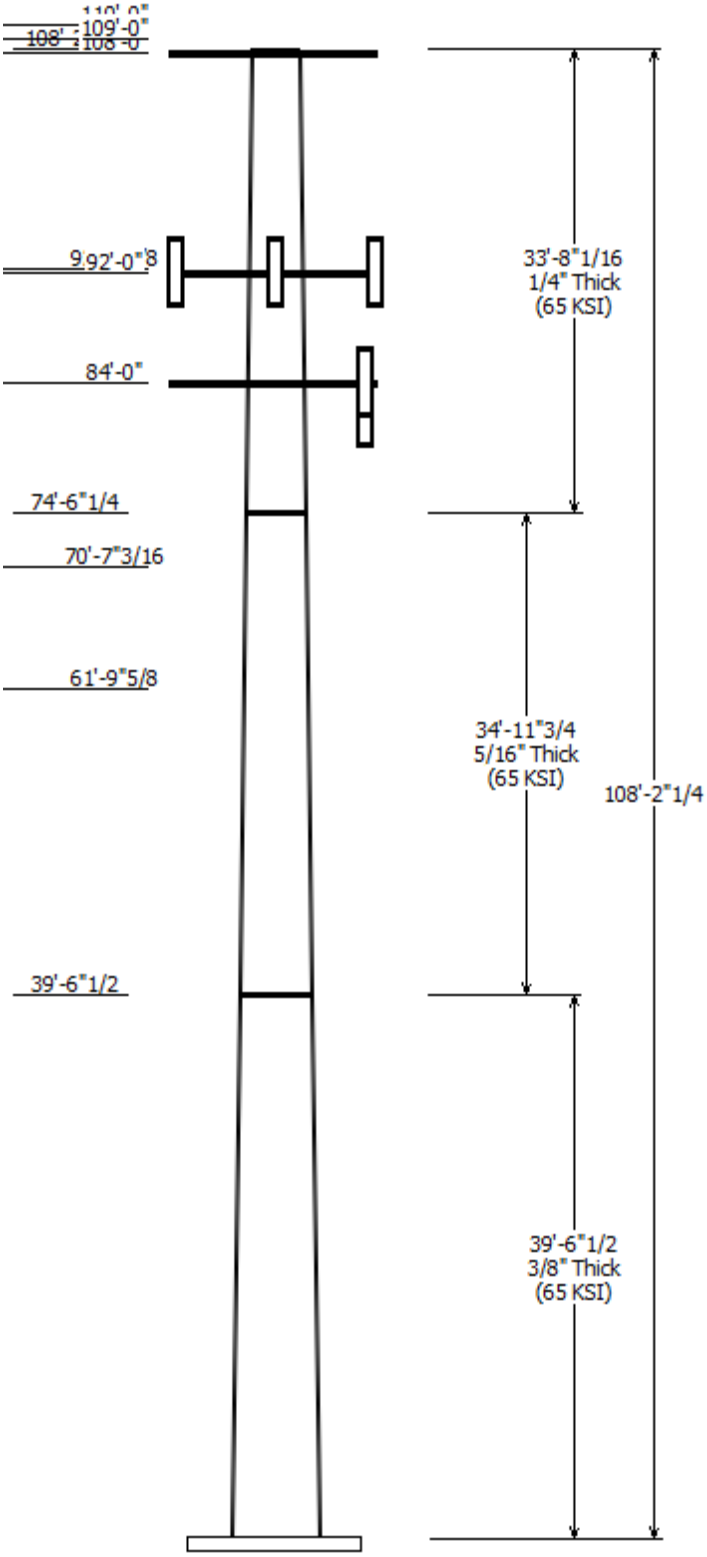
Attach Elev (ft)	Force Elev (ft)	Qty	Description
110.000	110.000	1	4' Pine Tree Branch
109.000	109.000	1	VZW Unused Reserve: 20461
109.000	110.000	6	Antel LPA-80080/6CF ___
109.000	110.000	3	Amphenol Antel BXA-70063-
109.000	110.000	3	Amphenol Antel BXA-171085-
109.000	110.000	6	RFS FD9R6004/2C-3L
108.000	108.000	3	Flat T-Arm
92.200	92.200	1	6' Pine Tree Branch
92.000	92.000	3	Round T-Arm
92.000	92.000	1	Andrew ABT-DFDM-ADB
92.000	92.000	6	Powerwave Allgon LGP2140X
92.000	92.000	6	Powerwave Allgon 7770.00
92.000	92.000	6	Powerwave Allgon LGP13519
92.000	92.000	1	Kathrein Scala 800 10764
92.000	92.000	2	KMW AM-X-CD-16-65-00T-RET
92.000	92.000	1	Raycap DC6-48-60-18-8F
92.000	92.000	6	Ericsson RRUS-11 (50 lbs.)
84.000	84.000	3	RFS APXVAARR24_43-U-NA20
84.000	83.000	3	RFS APX16DWV-16DWVS-E-A20
84.000	83.000	3	Ericsson RRUS 11 B2
84.000	83.000	3	Ericsson RRUS 11 B4
84.000	84.000	3	Ericsson Radio 4449 B12,B71
84.000	84.000	3	Round T-Arm with Site Pro 1
70.600	70.600	1	8' Pine Tree Branch
61.800	61.800	1	10' Pine Tree Branch

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	84.000	1 5/8" (1.63"-	No
0.000	92.000	0.39" (10mm)	No
0.000	92.000	0.78" (19.7mm) 8	No
0.000	92.000	1 5/8" Coax	No
0.000	92.000	3" conduit	No
0.000	109.0	1 5/8" Coax	No

Load Cases

1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method



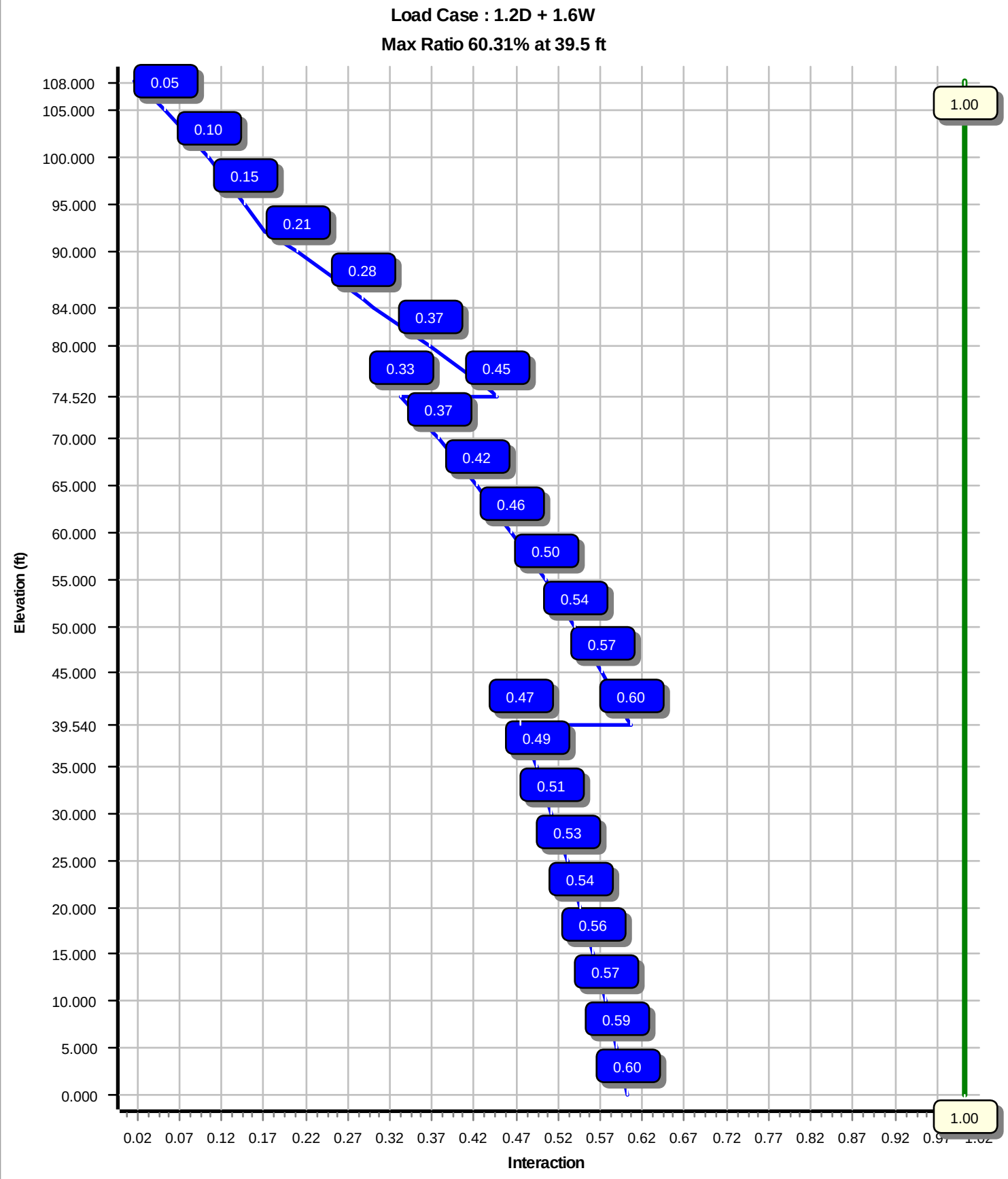
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2891.02	33.54	38.59
0.9D + 1.6W	2876.09	33.53	28.93
1.2D + 1.0Di + 1.0Wi	664.44	7.67	68.43
(1.2 + 0.2Sds) * DL + E ELFM	171.12	2.00	38.30
(1.2 + 0.2Sds) * DL + E EMAM	227.91	2.47	38.30
(0.9 - 0.2Sds) * DL + E ELFM	170.09	2.00	26.64
(0.9 - 0.2Sds) * DL + E EMAM	226.44	2.47	26.64
1.0D + 1.0W	716.37	8.33	32.20

Dish Deflections

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


Load Case : 1.2D + 1.6W
Max Ratio 60.31% at 39.5 ft
Elevation (ft)
108.000
105.000
100.000
95.000
90.000
84.000
80.000
74.520
70.000
65.000
60.000
55.000
50.000
45.000
39.540
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.05
0.10
0.15
0.21
0.28
0.37
0.33
0.45
0.37
0.42
0.46
0.50
0.54
0.57
0.47
0.60
0.49
0.51
0.53
0.54
0.56
0.57
0.59
0.60
1.00
1.00
0.02 0.07 0.12 0.17 0.22 0.27 0.32 0.37 0.42 0.47 0.52 0.57 0.62 0.67 0.72 0.77 0.82 0.87 0.92
Interaction

Site Number: 415974 | Code: ANSI/TIA-222-G |

Site Name: Sharon CT, CT | Engineering Number:12927152_C3_02 | 7/18/2019 4:43:46 PM

Customer: T-MOBILE

Analysis Parameters

Location :	Litchfield County, CT	Height (ft) :	108.19
Code :	ANSI/TIA-222-G	Base Diameter (in) :	55.86
Shape :	18 Sides	Top Diameter (in) :	27.00
Pole Type :	Taper	Taper (in/ft) :	0.267
Pole Manfacturer :	Mapped	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	90 mph
Exposure Category:	C	Design Wind Speed With Ice:	40 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.34				
T_L (sec):	6	p:	1.3	C_s:	0.048
S_s:	0.180	S_1:	0.060	C_s Max:	0.048
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.192	S_{d1}:	0.096		

Load Cases

1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	39.540	0.3750	65		0.00	8,041	55.86	0.00	66.04	25686.4	24.86	148.96	45.31	39.54	53.49	13646.0	19.90	120.83	0.266753
2-18	34.980	0.3125	65	Butt	0.00	4,762	45.31	39.54	44.63	11419.2	24.16	145.00	35.98	74.52	35.38	5686.8	18.89	115.14	0.266753
3-18	33.670	0.2500	65	Butt	0.00	2,840	35.98	74.52	28.35	4573.4	23.97	143.93	27.00	108.19	21.23	1918.9	17.63	108.00	0.266753
				Shaft Weight		15,643													

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
110.00	4' Pine Tree Branch	1	1.00	0.000	320.00	48.510	1.00	1,275.98	106.321	1.00
109.00	RFS FD9R6004/2C-3L	6	0.80	1.000	2.60	0.310	0.50	10.37	0.679	0.50
109.00	Amphenol Antel BXA-171085-	3	0.80	1.000	15.00	4.730	0.72	106.87	6.999	0.72
109.00	Amphenol Antel BXA-70063-6CF-	3	0.80	1.000	17.00	7.570	0.66	160.52	10.245	0.66
109.00	Antel LPA-80080/6CF ___	6	0.80	1.000	21.00	8.630	0.62	208.47	5.468	0.62
109.00	VZW Unused Reserve: 20461 sq	1	0.80	0.000	2,262.40	142.100	0.90	3,790.84	238.101	0.90
108.00	Flat T-Arm	3	0.75	0.000	250.00	12.900	0.67	452.37	20.819	0.67
92.20	6' Pine Tree Branch	1	1.00	0.000	3,240.00	170.100	1.00	12,765.54	369.593	1.00
92.00	Andrew ABT-DFDM-ADB	1	0.80	0.000	1.10	0.050	0.50	3.22	0.233	0.50
92.00	Powerwave Allgon LGP13519	6	0.80	0.000	5.30	0.340	0.50	14.33	0.772	0.50
92.00	Raycap DC6-48-60-18-8F	1	0.80	0.000	20.00	1.260	1.00	70.19	1.888	1.00
92.00	Powerwave Allgon LGP2140X	6	0.80	0.000	19.00	1.260	0.50	42.66	2.047	0.50
92.00	Ericsson RRUS-11 (50 lbs.)	6	0.80	0.000	50.00	2.990	0.67	114.98	4.154	0.67
92.00	Powerwave Allgon 7770.00	6	0.80	0.000	35.00	5.510	0.65	58.24	9.169	0.65
92.00	Kathrein Scala 800 10764	1	0.80	0.000	40.80	6.330	0.67	162.10	8.524	0.67
92.00	KMW AM-X-CD-16-65-00T-RET	2	0.80	0.000	48.50	8.260	0.67	202.87	10.997	0.67
92.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	449.22	17.558	0.67
84.00	Ericsson Radio 4449 B12,B71	3	0.80	0.000	74.00	1.640	0.50	126.81	2.436	0.50
84.00	Ericsson RRUS 11 B4	3	0.80	-1.000	50.70	2.790	0.67	119.00	3.824	0.67
84.00	Ericsson RRUS 11 B2	3	0.80	-1.000	50.70	2.790	0.67	119.00	3.824	0.67
84.00	RFS APX16DWV-16DWVS-E-A20	3	0.80	-1.000	40.70	6.590	0.60	150.90	8.634	0.60
84.00	Round T-Arm with Site Pro 1	3	0.75	0.000	765.00	14.700	0.67	1,267.74	24.360	0.67
84.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.240	0.63	498.24	23.738	0.63
70.60	8' Pine Tree Branch	1	1.00	0.000	900.00	28.620	1.00	3,475.47	61.291	1.00
61.80	10' Pine Tree Branch	1	1.00	0.000	770.00	22.070	1.00	2,942.06	46.905	1.00
Totals	Num Loadings:25	76			13,371.70			37,937.42		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	109.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	92.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	92.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	92.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	92.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	84.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	T-MOBILE

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	55.860	66.039	25,686.4	24.86	148.96	72.2	905.7	0.0	0.0
5.00		0.3750	54.526	64.451	23,878.2	24.23	145.40	72.9	862.5	0.0	1,110.1
10.00		0.3750	53.192	62.864	22,156.9	23.60	141.85	73.6	820.4	0.0	1,083.1
15.00		0.3750	51.859	61.276	20,520.4	22.97	138.29	74.4	779.4	0.0	1,056.1
20.00		0.3750	50.525	59.689	18,966.5	22.35	134.73	75.1	739.4	0.0	1,029.0
25.00		0.3750	49.191	58.101	17,493.1	21.72	131.18	75.9	700.4	0.0	1,002.0
30.00		0.3750	47.857	56.514	16,098.1	21.09	127.62	76.6	662.5	0.0	975.0
35.00		0.3750	46.524	54.926	14,779.3	20.47	124.06	77.3	625.7	0.0	948.0
39.54	Top - Section 1	0.3750	45.313	53.485	13,646.0	19.90	120.83	78.0	593.2	0.0	837.4
39.54	Bot - Section 2	0.3125	45.313	44.633	11,419.2	24.16	145.00	73.0	496.4	0.0	
40.00		0.3125	45.190	44.511	11,326.0	24.09	144.61	73.1	493.6	0.0	69.8
45.00		0.3125	43.856	43.188	10,345.9	23.34	140.34	74.0	464.6	0.0	746.1
50.00		0.3125	42.522	41.865	9,424.0	22.58	136.07	74.8	436.5	0.0	723.5
55.00		0.3125	41.189	40.543	8,558.6	21.83	131.80	75.7	409.3	0.0	701.0
60.00		0.3125	39.855	39.220	7,747.8	21.08	127.54	76.6	382.9	0.0	678.5
61.80		0.3125	39.375	38.743	7,469.0	20.81	126.00	76.9	373.6	0.0	238.8
65.00		0.3125	38.521	37.897	6,990.0	20.32	123.27	77.5	357.4	0.0	417.3
70.00		0.3125	37.187	36.574	6,283.2	19.57	119.00	78.4	332.8	0.0	633.5
70.60		0.3125	37.027	36.415	6,201.8	19.48	118.49	78.5	329.9	0.0	74.5
74.52	Top - Section 2	0.3125	35.982	35.378	5,686.8	18.89	115.14	79.2	311.3	0.0	478.8
74.52	Bot - Section 3	0.2500	35.982	28.352	4,573.4	23.97	143.93	73.2	250.3	0.0	
75.00		0.2500	35.854	28.250	4,524.4	23.88	143.41	73.3	248.5	0.0	46.2
80.00		0.2500	34.520	27.192	4,034.8	22.94	138.08	74.4	230.2	0.0	471.6
84.00		0.2500	33.453	26.345	3,669.5	22.18	133.81	75.3	216.1	0.0	364.4
85.00		0.2500	33.186	26.134	3,581.8	22.00	132.74	75.5	212.6	0.0	89.3
90.00		0.2500	31.852	25.075	3,164.0	21.06	127.41	76.6	195.6	0.0	435.6
92.00		0.2500	31.319	24.652	3,006.5	20.68	125.27	77.1	189.1	0.0	169.2
92.20		0.2500	31.265	24.610	2,991.0	20.64	125.06	77.1	188.4	0.0	16.8
95.00		0.2500	30.518	24.017	2,780.1	20.11	122.07	77.7	179.4	0.0	231.7
100.0		0.2500	29.185	22.959	2,428.5	19.17	116.74	78.8	163.9	0.0	399.6
105.0		0.2500	27.851	21.901	2,107.9	18.23	111.40	80.0	149.1	0.0	381.6
108.0		0.2500	27.051	21.266	1,929.8	17.67	108.20	80.6	140.5	0.0	220.3
108.1		0.2500	27.000	21.225	1,918.9	17.63	108.00	80.7	140.0	0.0	13.7
											15,642.6

Load Case: 1.2D + 1.6W — 90 mph with No Ice — 19 Iterations

Gust Response Factor :1.10 — Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

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		223.7	0.0					0.0	0.0	223.7	0.0	0.0	0.0
5.00		441.9	1,332.1					0.0	200.0	441.9	1,532.1	0.0	0.0
10.00		431.1	1,299.7					0.0	200.0	431.1	1,499.7	0.0	0.0
15.00		426.9	1,267.3					0.0	200.0	426.9	1,467.2	0.0	0.0
20.00		433.8	1,234.9					0.0	200.0	433.8	1,434.8	0.0	0.0
25.00		442.9	1,202.4					0.0	200.0	442.9	1,402.4	0.0	0.0
30.00		447.8	1,170.0					0.0	200.0	447.8	1,370.0	0.0	0.0
35.00		429.1	1,137.6					0.0	200.0	429.1	1,337.6	0.0	0.0
39.54	Top - Section 1	225.1	1,004.9					0.0	181.6	225.1	1,186.5	0.0	0.0
40.00		245.0	83.7					0.0	18.4	245.0	102.1	0.0	0.0
45.00		447.1	895.3					0.0	200.0	447.1	1,095.2	0.0	0.0
50.00		443.3	868.3					0.0	200.0	443.3	1,068.2	0.0	0.0
55.00		438.1	841.2					0.0	200.0	438.1	1,041.2	0.0	0.0
60.00		295.1	814.2					0.0	200.0	295.1	1,014.2	0.0	0.0
61.80		214.2	286.5					0.0	72.0	214.2	358.5	0.0	0.0
65.00		346.9	500.7					0.0	128.0	346.9	628.7	0.0	0.0
70.00		235.2	760.2					0.0	200.0	235.2	960.2	0.0	0.0
70.60		186.4	89.4					0.0	24.0	186.4	113.4	0.0	0.0
74.52	Top - Section 2	181.0	574.6					0.0	156.8	181.0	731.4	0.0	0.0
75.00		220.8	55.5					0.0	19.2	220.8	74.7	0.0	0.0
80.00		358.6	566.0					0.0	200.0	358.6	766.0	0.0	0.0
84.00	Appurtenance(s)	196.1	437.2	3,094.0	0.0	-779.0	3,992.4	0.0	160.0	3,290.1	4,589.6	0.0	0.0
85.00		229.6	107.1					0.0	34.2	229.6	141.3	0.0	0.0
90.00		265.5	522.8					0.0	171.0	265.5	693.8	0.0	0.0
92.00	Appurtenance(s)	82.2	203.1	2,524.3	0.0	0.0	1,877.6	0.0	68.4	2,606.4	2,149.1	0.0	0.0
92.20		110.4	20.1					0.0	2.4	110.4	22.5	0.0	0.0
95.00		282.1	278.0					0.0	33.1	282.1	311.0	0.0	0.0
100.00		352.1	479.5					0.0	59.0	352.1	538.6	0.0	0.0
105.00		273.7	457.9					0.0	59.0	273.7	517.0	0.0	0.0
108.00	Appurtenance(s)	107.0	264.4	867.3	0.0	0.0	900.0	0.0	35.4	974.3	1,199.8	0.0	0.0
108.19		6.3	16.5					0.0	2.2	6.3	18.7	0.0	0.0
								Totals:		15,504.2	29,365.5	0.00	0.00

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:12927152_C3_02 7/18/2019 4:43:47 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 90 mph with No Ice 19 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

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	-38.59	-33.54	0.00	-2,891.02	0.00	2,891.02	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.599
5.00	-36.97	-33.20	0.00	-2,723.31	0.00	2,723.31	4,228.90	2,114.45	9,418.39	4,716.20	0.08	-0.16	0.586
10.00	-35.38	-32.86	0.00	-2,557.31	0.00	2,557.31	4,166.47	2,083.24	9,049.23	4,531.34	0.33	-0.31	0.573
15.00	-33.83	-32.52	0.00	-2,393.01	0.00	2,393.01	4,101.94	2,050.97	8,682.51	4,347.71	0.75	-0.47	0.559
20.00	-32.31	-32.16	0.00	-2,230.42	0.00	2,230.42	4,035.29	2,017.65	8,318.56	4,165.46	1.33	-0.63	0.544
25.00	-30.82	-31.79	0.00	-2,069.62	0.00	2,069.62	3,966.54	1,983.27	7,957.76	3,984.79	2.08	-0.79	0.527
30.00	-29.37	-31.40	0.00	-1,910.68	0.00	1,910.68	3,895.69	1,947.84	7,600.43	3,805.87	3.00	-0.96	0.510
35.00	-27.96	-31.02	0.00	-1,753.67	0.00	1,753.67	3,822.72	1,911.36	7,246.94	3,628.86	4.08	-1.12	0.491
39.54	-26.73	-30.81	0.00	-1,612.81	0.00	1,612.81	3,754.64	1,877.32	6,929.59	3,469.94	5.22	-1.26	0.472
39.54	-26.73	-30.81	0.00	-1,612.81	0.00	1,612.81	2,931.90	1,465.95	5,426.19	2,717.13	5.22	-1.26	0.603
40.00	-26.58	-30.61	0.00	-1,598.64	0.00	1,598.64	2,927.16	1,463.58	5,402.55	2,705.29	5.34	-1.28	0.600
45.00	-25.40	-30.23	0.00	-1,445.57	0.00	1,445.57	2,874.57	1,437.29	5,146.72	2,577.18	6.79	-1.47	0.570
50.00	-24.24	-29.83	0.00	-1,294.45	0.00	1,294.45	2,819.87	1,409.94	4,893.03	2,450.15	8.43	-1.66	0.537
55.00	-23.12	-29.44	0.00	-1,145.29	0.00	1,145.29	2,763.07	1,381.53	4,641.85	2,324.38	10.27	-1.84	0.502
60.00	-22.06	-29.15	0.00	-998.12	0.00	998.12	2,704.15	1,352.08	4,393.52	2,200.03	12.30	-2.02	0.462
61.80	-20.77	-28.05	0.00	-945.64	0.00	945.64	2,682.43	1,341.21	4,304.89	2,155.64	13.07	-2.09	0.447
65.00	-20.09	-27.73	0.00	-855.89	0.00	855.89	2,643.13	1,321.57	4,148.39	2,077.28	14.51	-2.20	0.420
70.00	-19.10	-27.48	0.00	-717.25	0.00	717.25	2,580.00	1,290.00	3,906.81	1,956.31	16.89	-2.36	0.374
70.60	-17.93	-26.10	0.00	-700.76	0.00	700.76	2,572.28	1,286.14	3,878.08	1,941.92	17.19	-2.37	0.368
74.52	-17.18	-25.91	0.00	-598.44	0.00	598.44	2,521.12	1,260.56	3,691.77	1,848.63	19.19	-2.49	0.331
74.52	-17.18	-25.91	0.00	-598.44	0.00	598.44	1,868.10	934.05	2,745.13	1,374.61	19.19	-2.49	0.445
75.00	-17.07	-25.71	0.00	-586.00	0.00	586.00	1,864.11	932.05	2,729.38	1,366.72	19.44	-2.51	0.439
80.00	-16.26	-25.36	0.00	-457.43	0.00	457.43	1,821.35	910.68	2,566.18	1,285.00	22.16	-2.67	0.366
84.00	-11.81	-21.87	0.00	-355.99	0.00	355.99	1,785.63	892.82	2,436.95	1,220.29	24.45	-2.78	0.299
85.00	-11.65	-21.65	0.00	-334.12	0.00	334.12	1,776.49	888.25	2,404.85	1,204.21	25.03	-2.81	0.285
90.00	-10.95	-21.36	0.00	-225.88	0.00	225.88	1,729.52	864.76	2,245.74	1,124.54	28.04	-2.92	0.208
92.00	-8.93	-18.65	0.00	-183.16	0.00	183.16	1,710.14	855.07	2,182.80	1,093.02	29.28	-2.96	0.173
92.20	-5.40	-11.01	0.00	-179.43	0.00	179.43	1,708.19	854.09	2,176.52	1,089.88	29.40	-2.96	0.168
95.00	-5.10	-10.72	0.00	-148.59	0.00	148.59	1,680.44	840.22	2,089.20	1,046.15	31.15	-3.01	0.145
100.00	-4.57	-10.34	0.00	-94.98	0.00	94.98	1,629.26	814.63	1,935.58	969.23	34.33	-3.07	0.101
105.00	-4.06	-10.05	0.00	-43.26	0.00	43.26	1,575.96	787.98	1,785.22	893.94	37.57	-3.11	0.051
108.00	-2.92	-9.01	0.00	-13.12	0.00	13.12	1,542.97	771.49	1,696.72	849.62	39.53	-3.12	0.017
108.19	0.00	-8.84	0.00	-11.41	0.00	11.41	1,540.86	770.43	1,691.16	846.84	39.65	-3.12	0.014

Load Case: 0.9D + 1.6W — 90 mph with No Ice (Reduced DL) — 18 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.60

Wind Importance 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		223.7	0.0					0.0	0.0	223.7	0.0	0.0	0.0
5.00		441.9	999.1					0.0	150.0	441.9	1,149.0	0.0	0.0
10.00		431.1	974.8					0.0	150.0	431.1	1,124.7	0.0	0.0
15.00		426.9	950.4					0.0	150.0	426.9	1,100.4	0.0	0.0
20.00		433.8	926.1					0.0	150.0	433.8	1,076.1	0.0	0.0
25.00		442.9	901.8					0.0	150.0	442.9	1,051.8	0.0	0.0
30.00		447.8	877.5					0.0	150.0	447.8	1,027.5	0.0	0.0
35.00		429.1	853.2					0.0	150.0	429.1	1,003.2	0.0	0.0
39.54	Top - Section 1	225.1	753.7					0.0	136.2	225.1	889.8	0.0	0.0
40.00		245.0	62.8					0.0	13.8	245.0	76.6	0.0	0.0
45.00		447.1	671.4					0.0	150.0	447.1	821.4	0.0	0.0
50.00		443.3	651.2					0.0	150.0	443.3	801.2	0.0	0.0
55.00		438.1	630.9					0.0	150.0	438.1	780.9	0.0	0.0
60.00		295.1	610.7					0.0	150.0	295.1	760.7	0.0	0.0
61.80		214.2	214.9					0.0	54.0	214.2	268.9	0.0	0.0
65.00		346.9	375.5					0.0	96.0	346.9	471.5	0.0	0.0
70.00		235.2	570.2					0.0	150.0	235.2	720.2	0.0	0.0
70.60		186.4	67.1					0.0	18.0	186.4	85.1	0.0	0.0
74.52	Top - Section 2	181.0	430.9					0.0	117.6	181.0	548.5	0.0	0.0
75.00		220.8	41.6					0.0	14.4	220.8	56.0	0.0	0.0
80.00		358.6	424.5					0.0	150.0	358.6	574.5	0.0	0.0
84.00	Appurtenance(s)	196.1	327.9	3,094.0	0.0	-779.0	2,994.3	0.0	120.0	3,290.1	3,442.2	0.0	0.0
85.00		229.6	80.4					0.0	25.6	229.6	106.0	0.0	0.0
90.00		265.5	392.1					0.0	128.2	265.5	520.3	0.0	0.0
92.00	Appurtenance(s)	82.2	152.3	2,524.3	0.0	0.0	1,408.2	0.0	51.3	2,606.4	1,611.8	0.0	0.0
92.20		110.4	15.1					0.0	1.8	110.4	16.9	0.0	0.0
95.00		282.1	208.5					0.0	24.8	282.1	233.3	0.0	0.0
100.00		352.1	359.7					0.0	44.3	352.1	403.9	0.0	0.0
105.00		273.7	343.5					0.0	44.3	273.7	387.7	0.0	0.0
108.00	Appurtenance(s)	107.0	198.3	867.3	0.0	0.0	675.0	0.0	26.6	974.3	899.9	0.0	0.0
108.19		6.3	12.4					0.0	1.7	6.3	14.0	0.0	0.0
								Totals:		15,504.2	22,024.1	0.00	0.00

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:12927152_C3_02 7/18/2019 4:43:49 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W 90 mph with No Ice (Reduced DL) 18 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

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	-28.93	-33.53	0.00	-2,876.09	0.00	2,876.09	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.594
5.00	-27.70	-33.16	0.00	-2,708.45	0.00	2,708.45	4,228.90	2,114.45	9,418.39	4,716.20	0.08	-0.15	0.581
10.00	-26.48	-32.80	0.00	-2,542.65	0.00	2,542.65	4,166.47	2,083.24	9,049.23	4,531.34	0.33	-0.31	0.568
15.00	-25.30	-32.43	0.00	-2,378.66	0.00	2,378.66	4,101.94	2,050.97	8,682.51	4,347.71	0.74	-0.47	0.554
20.00	-24.13	-32.06	0.00	-2,216.50	0.00	2,216.50	4,035.29	2,017.65	8,318.56	4,165.46	1.32	-0.63	0.538
25.00	-23.00	-31.67	0.00	-2,056.22	0.00	2,056.22	3,966.54	1,983.27	7,957.76	3,984.79	2.07	-0.79	0.522
30.00	-21.89	-31.26	0.00	-1,897.89	0.00	1,897.89	3,895.69	1,947.84	7,600.43	3,805.87	2.98	-0.95	0.505
35.00	-20.81	-30.87	0.00	-1,741.58	0.00	1,741.58	3,822.72	1,911.36	7,246.94	3,628.86	4.06	-1.11	0.486
39.54	-19.89	-30.66	0.00	-1,601.42	0.00	1,601.42	3,754.64	1,877.32	6,929.59	3,469.94	5.19	-1.26	0.467
39.54	-19.89	-30.66	0.00	-1,601.42	0.00	1,601.42	2,931.90	1,465.95	5,426.19	2,717.13	5.19	-1.26	0.597
40.00	-19.76	-30.45	0.00	-1,587.32	0.00	1,587.32	2,927.16	1,463.58	5,402.55	2,705.29	5.31	-1.27	0.594
45.00	-18.85	-30.04	0.00	-1,435.09	0.00	1,435.09	2,874.57	1,437.29	5,146.72	2,577.18	6.75	-1.46	0.564
50.00	-17.97	-29.63	0.00	-1,284.88	0.00	1,284.88	2,819.87	1,409.94	4,893.03	2,450.15	8.38	-1.65	0.531
55.00	-17.11	-29.23	0.00	-1,136.71	0.00	1,136.71	2,763.07	1,381.53	4,641.85	2,324.38	10.20	-1.83	0.496
60.00	-16.30	-28.94	0.00	-990.58	0.00	990.58	2,704.15	1,352.08	4,393.52	2,200.03	12.22	-2.01	0.457
61.80	-15.33	-27.84	0.00	-938.49	0.00	938.49	2,682.43	1,341.21	4,304.89	2,155.64	12.99	-2.07	0.442
65.00	-14.81	-27.51	0.00	-849.40	0.00	849.40	2,643.13	1,321.57	4,148.39	2,077.28	14.42	-2.18	0.415
70.00	-14.06	-27.27	0.00	-711.84	0.00	711.84	2,580.00	1,290.00	3,906.81	1,956.31	16.79	-2.34	0.370
70.60	-13.19	-25.90	0.00	-695.48	0.00	695.48	2,572.28	1,286.14	3,878.08	1,941.92	17.08	-2.36	0.364
74.52	-12.62	-25.71	0.00	-593.96	0.00	593.96	2,521.12	1,260.56	3,691.77	1,848.63	19.07	-2.47	0.327
74.52	-12.62	-25.71	0.00	-593.96	0.00	593.96	1,868.10	934.05	2,745.13	1,374.61	19.07	-2.47	0.440
75.00	-12.53	-25.50	0.00	-581.63	0.00	581.63	1,864.11	932.05	2,729.38	1,366.72	19.32	-2.49	0.433
80.00	-11.91	-25.15	0.00	-454.11	0.00	454.11	1,821.35	910.68	2,566.18	1,285.00	22.02	-2.65	0.361
84.00	-8.60	-21.71	0.00	-353.52	0.00	353.52	1,785.63	892.82	2,436.95	1,220.29	24.29	-2.77	0.295
85.00	-8.48	-21.49	0.00	-331.81	0.00	331.81	1,776.49	888.25	2,404.85	1,204.21	24.87	-2.79	0.281
90.00	-7.95	-21.20	0.00	-224.38	0.00	224.38	1,729.52	864.76	2,245.74	1,124.54	27.86	-2.90	0.205
92.00	-6.47	-18.52	0.00	-181.97	0.00	181.97	1,710.14	855.07	2,182.80	1,093.02	29.08	-2.94	0.171
92.20	-3.92	-10.93	0.00	-178.27	0.00	178.27	1,708.19	854.09	2,176.52	1,089.88	29.21	-2.94	0.166
95.00	-3.69	-10.64	0.00	-147.65	0.00	147.65	1,680.44	840.22	2,089.20	1,046.15	30.95	-2.99	0.143
100.00	-3.29	-10.27	0.00	-94.43	0.00	94.43	1,629.26	814.63	1,935.58	969.23	34.11	-3.05	0.100
105.00	-2.92	-9.98	0.00	-43.06	0.00	43.06	1,575.96	787.98	1,785.22	893.94	37.32	-3.09	0.050
108.00	-2.07	-8.96	0.00	-13.11	0.00	13.11	1,542.97	771.49	1,696.72	849.62	39.27	-3.10	0.017
108.19	0.00	-8.84	0.00	-11.41	0.00	11.41	1,540.86	770.43	1,691.16	846.84	39.39	-3.10	0.014

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 0.75 in Radial Ice 18 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
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		53.1	0.0					0.0	0.0	53.1	0.0	0.0	0.0
5.00		105.2	1,736.4					0.0	200.0	105.2	1,936.3	0.0	0.0
10.00		103.1	1,741.2					0.0	200.0	103.1	1,941.1	0.0	0.0
15.00		102.4	1,721.1					0.0	200.0	102.4	1,921.1	0.0	0.0
20.00		104.4	1,692.8					0.0	200.0	104.4	1,892.8	0.0	0.0
25.00		106.8	1,660.3					0.0	200.0	106.8	1,860.3	0.0	0.0
30.00		108.3	1,625.2					0.0	200.0	108.3	1,825.1	0.0	0.0
35.00		104.0	1,588.1					0.0	200.0	104.0	1,788.1	0.0	0.0
39.54	Top - Section 1	54.6	1,409.3					0.0	181.6	54.6	1,590.9	0.0	0.0
40.00		59.6	124.9					0.0	18.4	59.6	143.3	0.0	0.0
45.00		109.0	1,332.7					0.0	200.0	109.0	1,532.7	0.0	0.0
50.00		108.4	1,297.7					0.0	200.0	108.4	1,497.7	0.0	0.0
55.00		107.4	1,262.1					0.0	200.0	107.4	1,462.0	0.0	0.0
60.00		72.5	1,225.8					0.0	200.0	72.5	1,425.8	0.0	0.0
61.80		52.7	433.8					0.0	72.0	52.7	505.8	0.0	0.0
65.00		85.6	758.2					0.0	128.0	85.6	886.2	0.0	0.0
70.00		58.1	1,151.7					0.0	200.0	58.1	1,351.7	0.0	0.0
70.60		46.2	136.4					0.0	24.0	46.2	160.4	0.0	0.0
74.52	Top - Section 2	44.9	874.2					0.0	156.8	44.9	1,031.0	0.0	0.0
75.00		54.9	92.2					0.0	19.2	54.9	111.3	0.0	0.0
80.00		89.3	935.9					0.0	200.0	89.3	1,135.8	0.0	0.0
84.00	Appurtenance(s)	49.0	726.1	523.3	0.0	-128.8	6,439.9	0.0	160.0	572.3	7,326.0	0.0	0.0
85.00		57.5	179.0					0.0	34.2	57.5	213.2	0.0	0.0
90.00		66.6	869.7					0.0	171.0	66.6	1,040.7	0.0	0.0
92.00	Appurtenance(s)	20.7	340.2	495.9	0.0	0.0	3,165.1	0.0	68.4	516.6	3,573.7	0.0	0.0
92.20		27.8	33.8					0.0	2.4	27.8	36.2	0.0	0.0
95.00		71.3	465.9					0.0	33.1	71.3	498.9	0.0	0.0
100.00		89.3	802.5					0.0	59.0	89.3	861.6	0.0	0.0
105.00		69.7	768.6					0.0	59.0	69.7	827.6	0.0	0.0
108.00	Appurtenance(s)	27.3	446.5	172.8	0.0	0.0	1,357.1	0.0	35.4	200.1	1,839.0	0.0	0.0
108.19		1.6	28.0					0.0	2.2	1.6	30.3	0.0	0.0
								Totals:		3,403.50	42,246.7	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 40 mph with 0.75 in Radial Ice — 18 Iterations

Gust Response Factor :1.10 | Ice Dead Load Factor :1.00 | Wind Importance 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	-68.43	-7.67	0.00	-664.44	0.00	664.44	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.152
5.00	-66.49	-7.60	0.00	-626.10	0.00	626.10	4,228.90	2,114.45	9,418.39	4,716.20	0.02	-0.04	0.148
10.00	-64.55	-7.54	0.00	-588.09	0.00	588.09	4,166.47	2,083.24	9,049.23	4,531.34	0.08	-0.07	0.145
15.00	-62.62	-7.47	0.00	-550.39	0.00	550.39	4,101.94	2,050.97	8,682.51	4,347.71	0.17	-0.11	0.142
20.00	-60.72	-7.40	0.00	-513.02	0.00	513.02	4,035.29	2,017.65	8,318.56	4,165.46	0.31	-0.15	0.138
25.00	-58.86	-7.33	0.00	-476.00	0.00	476.00	3,966.54	1,983.27	7,957.76	3,984.79	0.48	-0.18	0.134
30.00	-57.03	-7.25	0.00	-439.35	0.00	439.35	3,895.69	1,947.84	7,600.43	3,805.87	0.69	-0.22	0.130
35.00	-55.24	-7.18	0.00	-403.08	0.00	403.08	3,822.72	1,911.36	7,246.94	3,628.86	0.94	-0.26	0.126
39.54	-53.64	-7.13	0.00	-370.51	0.00	370.51	3,754.64	1,877.32	6,929.59	3,469.94	1.20	-0.29	0.121
39.54	-53.64	-7.13	0.00	-370.51	0.00	370.51	2,931.90	1,465.95	5,426.19	2,717.13	1.20	-0.29	0.155
40.00	-53.50	-7.09	0.00	-367.23	0.00	367.23	2,927.16	1,463.58	5,402.55	2,705.29	1.23	-0.29	0.154
45.00	-51.96	-7.02	0.00	-331.76	0.00	331.76	2,874.57	1,437.29	5,146.72	2,577.18	1.56	-0.34	0.147
50.00	-50.46	-6.94	0.00	-296.69	0.00	296.69	2,819.87	1,409.94	4,893.03	2,450.15	1.94	-0.38	0.139
55.00	-48.99	-6.85	0.00	-262.01	0.00	262.01	2,763.07	1,381.53	4,641.85	2,324.38	2.36	-0.42	0.130
60.00	-47.56	-6.79	0.00	-227.75	0.00	227.75	2,704.15	1,352.08	4,393.52	2,200.03	2.83	-0.46	0.121
61.80	-44.12	-6.50	0.00	-215.53	0.00	215.53	2,682.43	1,341.21	4,304.89	2,155.64	3.00	-0.48	0.116
65.00	-43.23	-6.43	0.00	-194.74	0.00	194.74	2,643.13	1,321.57	4,148.39	2,077.28	3.33	-0.50	0.110
70.00	-41.87	-6.37	0.00	-162.61	0.00	162.61	2,580.00	1,290.00	3,906.81	1,956.31	3.88	-0.54	0.099
70.60	-38.24	-5.99	0.00	-158.78	0.00	158.78	2,572.28	1,286.14	3,878.08	1,941.92	3.95	-0.54	0.097
74.52	-37.21	-5.95	0.00	-135.30	0.00	135.30	2,521.12	1,260.56	3,691.77	1,848.63	4.41	-0.57	0.088
74.52	-37.21	-5.95	0.00	-135.30	0.00	135.30	1,868.10	934.05	2,745.13	1,374.61	4.41	-0.57	0.118
75.00	-37.10	-5.90	0.00	-132.44	0.00	132.44	1,864.11	932.05	2,729.38	1,366.72	4.47	-0.57	0.117
80.00	-35.96	-5.82	0.00	-102.92	0.00	102.92	1,821.35	910.68	2,566.18	1,285.00	5.09	-0.61	0.100
84.00	-28.64	-5.18	0.00	-79.63	0.00	79.63	1,785.63	892.82	2,436.95	1,220.29	5.61	-0.64	0.081
85.00	-28.42	-5.13	0.00	-74.46	0.00	74.46	1,776.49	888.25	2,404.85	1,204.21	5.75	-0.64	0.078
90.00	-27.38	-5.06	0.00	-48.83	0.00	48.83	1,729.52	864.76	2,245.74	1,124.54	6.43	-0.67	0.059
92.00	-23.81	-4.50	0.00	-38.72	0.00	38.72	1,710.14	855.07	2,182.80	1,093.02	6.72	-0.68	0.049
92.20	-11.04	-2.35	0.00	-37.82	0.00	37.82	1,708.19	854.09	2,176.52	1,089.88	6.74	-0.68	0.041
95.00	-10.54	-2.28	0.00	-31.23	0.00	31.23	1,680.44	840.22	2,089.20	1,046.15	7.14	-0.69	0.036
100.00	-9.68	-2.18	0.00	-19.84	0.00	19.84	1,629.26	814.63	1,935.58	969.23	7.87	-0.70	0.026
105.00	-8.85	-2.10	0.00	-8.95	0.00	8.95	1,575.96	787.98	1,785.22	893.94	8.61	-0.71	0.016
108.00	-7.01	-1.88	0.00	-2.65	0.00	2.65	1,542.97	771.49	1,696.72	849.62	9.05	-0.71	0.008
108.19	0.00	-1.79	0.00	-2.29	0.00	2.29	1,540.86	770.43	1,691.16	846.84	9.08	-0.71	0.003

Load Case: 1.0D + 1.0W Serviceability 60 mph 18 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
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		55.6	0.0					0.0	0.0	55.6	0.0	0.0	0.0
5.00		109.8	1,110.1					0.0	166.7	109.8	1,276.7	0.0	0.0
10.00		107.1	1,083.1					0.0	166.7	107.1	1,249.7	0.0	0.0
15.00		106.1	1,056.1					0.0	166.7	106.1	1,222.7	0.0	0.0
20.00		107.8	1,029.0					0.0	166.7	107.8	1,195.7	0.0	0.0
25.00		110.1	1,002.0					0.0	166.7	110.1	1,168.7	0.0	0.0
30.00		111.3	975.0					0.0	166.7	111.3	1,141.7	0.0	0.0
35.00		106.6	948.0					0.0	166.7	106.6	1,114.7	0.0	0.0
39.54	Top - Section 1	55.9	837.4					0.0	151.3	55.9	988.7	0.0	0.0
40.00		60.9	69.8					0.0	15.3	60.9	85.1	0.0	0.0
45.00		111.1	746.1					0.0	166.7	111.1	912.7	0.0	0.0
50.00		110.2	723.5					0.0	166.7	110.2	890.2	0.0	0.0
55.00		108.9	701.0					0.0	166.7	108.9	867.7	0.0	0.0
60.00		73.4	678.5					0.0	166.7	73.4	845.2	0.0	0.0
61.80		53.2	238.8					0.0	60.0	53.2	298.8	0.0	0.0
65.00		86.2	417.3					0.0	106.7	86.2	523.9	0.0	0.0
70.00		58.5	633.5					0.0	166.7	58.5	800.2	0.0	0.0
70.60		46.3	74.5					0.0	20.0	46.3	94.5	0.0	0.0
74.52	Top - Section 2	45.0	478.8					0.0	130.7	45.0	609.5	0.0	0.0
75.00		54.9	46.2					0.0	16.0	54.9	62.2	0.0	0.0
80.00		89.1	471.6					0.0	166.7	89.1	638.3	0.0	0.0
84.00	Appurtenance(s)	48.7	364.4	769.0	0.0	-193.6	3,327.0	0.0	133.3	817.7	3,824.7	0.0	0.0
85.00		57.1	89.3					0.0	28.5	57.1	117.8	0.0	0.0
90.00		66.0	435.6					0.0	142.5	66.0	578.1	0.0	0.0
92.00	Appurtenance(s)	20.4	169.2	627.4	0.0	0.0	1,564.7	0.0	57.0	647.8	1,790.9	0.0	0.0
92.20		27.4	16.8					0.0	2.0	27.4	18.7	0.0	0.0
95.00		70.1	231.7					0.0	27.6	70.1	259.2	0.0	0.0
100.00		87.5	399.6					0.0	49.2	87.5	448.8	0.0	0.0
105.00		68.0	381.6					0.0	49.2	68.0	430.8	0.0	0.0
108.00	Appurtenance(s)	26.6	220.3	215.5	0.0	0.0	750.0	0.0	29.5	242.1	999.8	0.0	0.0
108.19		1.6	13.7					0.0	1.9	1.6	15.6	0.0	0.0
								Totals:		3,853.40	24,471.3	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 18 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
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	-32.20	-8.33	0.00	-716.37	0.00	716.37	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.154
5.00	-30.92	-8.24	0.00	-674.70	0.00	674.70	4,228.90	2,114.45	9,418.39	4,716.20	0.02	-0.04	0.150
10.00	-29.66	-8.16	0.00	-633.47	0.00	633.47	4,166.47	2,083.24	9,049.23	4,531.34	0.08	-0.08	0.147
15.00	-28.43	-8.07	0.00	-592.69	0.00	592.69	4,101.94	2,050.97	8,682.51	4,347.71	0.18	-0.12	0.143
20.00	-27.23	-7.98	0.00	-552.35	0.00	552.35	4,035.29	2,017.65	8,318.56	4,165.46	0.33	-0.16	0.139
25.00	-26.06	-7.88	0.00	-512.47	0.00	512.47	3,966.54	1,983.27	7,957.76	3,984.79	0.51	-0.20	0.135
30.00	-24.91	-7.78	0.00	-473.06	0.00	473.06	3,895.69	1,947.84	7,600.43	3,805.87	0.74	-0.24	0.131
35.00	-23.79	-7.69	0.00	-434.15	0.00	434.15	3,822.72	1,911.36	7,246.94	3,628.86	1.01	-0.28	0.126
39.54	-22.80	-7.63	0.00	-399.25	0.00	399.25	3,754.64	1,877.32	6,929.59	3,469.94	1.29	-0.31	0.121
39.54	-22.80	-7.63	0.00	-399.25	0.00	399.25	2,931.90	1,465.95	5,426.19	2,717.13	1.29	-0.31	0.155
40.00	-22.71	-7.58	0.00	-395.74	0.00	395.74	2,927.16	1,463.58	5,402.55	2,705.29	1.32	-0.32	0.154
45.00	-21.79	-7.48	0.00	-357.82	0.00	357.82	2,874.57	1,437.29	5,146.72	2,577.18	1.68	-0.36	0.146
50.00	-20.90	-7.38	0.00	-320.40	0.00	320.40	2,819.87	1,409.94	4,893.03	2,450.15	2.09	-0.41	0.138
55.00	-20.03	-7.29	0.00	-283.48	0.00	283.48	2,763.07	1,381.53	4,641.85	2,324.38	2.54	-0.46	0.129
60.00	-19.18	-7.21	0.00	-247.06	0.00	247.06	2,704.15	1,352.08	4,393.52	2,200.03	3.05	-0.50	0.119
61.80	-18.11	-6.94	0.00	-234.07	0.00	234.07	2,682.43	1,341.21	4,304.89	2,155.64	3.24	-0.52	0.115
65.00	-17.58	-6.86	0.00	-211.86	0.00	211.86	2,643.13	1,321.57	4,148.39	2,077.28	3.59	-0.54	0.109
70.00	-16.78	-6.80	0.00	-177.56	0.00	177.56	2,580.00	1,290.00	3,906.81	1,956.31	4.18	-0.58	0.097
70.60	-15.79	-6.46	0.00	-173.48	0.00	173.48	2,572.28	1,286.14	3,878.08	1,941.92	4.26	-0.59	0.095
74.52	-15.18	-6.41	0.00	-148.16	0.00	148.16	2,521.12	1,260.56	3,691.77	1,848.63	4.75	-0.62	0.086
74.52	-15.18	-6.41	0.00	-148.16	0.00	148.16	1,868.10	934.05	2,745.13	1,374.61	4.75	-0.62	0.116
75.00	-15.11	-6.36	0.00	-145.08	0.00	145.08	1,864.11	932.05	2,729.38	1,366.72	4.82	-0.62	0.114
80.00	-14.47	-6.27	0.00	-113.27	0.00	113.27	1,821.35	910.68	2,566.18	1,285.00	5.49	-0.66	0.096
84.00	-10.66	-5.41	0.00	-88.17	0.00	88.17	1,785.63	892.82	2,436.95	1,220.29	6.06	-0.69	0.078
85.00	-10.54	-5.36	0.00	-82.76	0.00	82.76	1,776.49	888.25	2,404.85	1,204.21	6.20	-0.70	0.075
90.00	-9.96	-5.29	0.00	-55.96	0.00	55.96	1,729.52	864.76	2,245.74	1,124.54	6.95	-0.72	0.056
92.00	-8.17	-4.62	0.00	-45.38	0.00	45.38	1,710.14	855.07	2,182.80	1,093.02	7.25	-0.73	0.046
92.20	-4.94	-2.73	0.00	-44.46	0.00	44.46	1,708.19	854.09	2,176.52	1,089.88	7.28	-0.73	0.044
95.00	-4.68	-2.66	0.00	-36.82	0.00	36.82	1,680.44	840.22	2,089.20	1,046.15	7.72	-0.74	0.038
100.00	-4.23	-2.56	0.00	-23.54	0.00	23.54	1,629.26	814.63	1,935.58	969.23	8.50	-0.76	0.027
105.00	-3.80	-2.49	0.00	-10.73	0.00	10.73	1,575.96	787.98	1,785.22	893.94	9.31	-0.77	0.014
108.00	-2.81	-2.23	0.00	-3.26	0.00	3.26	1,542.97	771.49	1,696.72	849.62	9.79	-0.77	0.006
108.19	0.00	-2.20	0.00	-2.84	0.00	2.84	1,540.86	770.43	1,691.16	846.84	9.82	-0.77	0.003

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.05	
Upper Limit C_s	0.05	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.34	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.42	
Total Unfactored Dead Load:	32.20	k
Seismic Base Shear (E):	2.00	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
30	108.10	16	12	0.001	2	19
29	106.50	250	189	0.015	30	309
28	102.50	431	308	0.024	48	534
27	97.50	449	299	0.023	47	556
26	93.60	259	163	0.013	25	321
25	92.10	19	12	0.001	2	23
24	91.00	226	137	0.011	21	280
23	87.50	578	331	0.026	52	716
22	84.50	118	64	0.005	10	146
21	82.00	498	260	0.020	41	616
20	77.50	638	307	0.024	48	790
19	74.76	62	28	0.002	4	77
18	72.56	609	267	0.021	42	755
17	70.30	95	40	0.003	6	117
16	67.50	800	317	0.025	49	991
15	63.40	524	190	0.015	30	649
14	60.90	299	102	0.008	16	370
13	57.50	845	266	0.021	42	1,047
12	52.50	868	240	0.019	38	1,075
11	47.50	890	214	0.017	33	1,102
10	42.50	913	187	0.015	29	1,130
9	39.77	85	16	0.001	2	105
8	37.27	989	168	0.013	26	1,224

7	32.50	1,115	156	0.012	24	1,380
6	27.50	1,142	126	0.010	20	1,414
5	22.50	1,169	97	0.008	15	1,447
4	17.50	1,196	70	0.005	11	1,481
3	12.50	1,223	44	0.003	7	1,514
2	7.50	1,250	22	0.002	3	1,548
1	2.50	1,277	5	0.000	1	1,581
4' Pine Tree Branch	108.19	320	247	0.019	39	396
RFS FD9R6004/2C-3L	108.19	16	12	0.001	2	19
Amphenol Antel BXA-1	108.19	45	35	0.003	5	56
Amphenol Antel BXA-7	108.19	51	39	0.003	6	63
Antel LPA-80080/6CF	108.19	126	97	0.008	15	156
VZW Unused Reserve:	108.19	2,262	1,749	0.137	273	2,802
Flat T-Arm	108.00	750	578	0.045	90	929
6' Pine Tree Branch	92.20	3,240	1,996	0.156	312	4,012
Andrew ABT-DFDM-ADB	92.00	1	1	0.000	0	1
Powerwave Allgon LGP	92.00	32	20	0.002	3	39
Raycap DC6-48-60-18-	92.00	20	12	0.001	2	25
Powerwave Allgon LGP	92.00	114	70	0.005	11	141
Ericsson RRUS-11 (50	92.00	300	184	0.014	29	372
Powerwave Allgon 777	92.00	210	129	0.010	20	260
Kathrein Scala 800 1	92.00	41	25	0.002	4	51
KMW AM-X-CD-16-65-00	92.00	97	60	0.005	9	120
Round T-Arm	92.00	750	461	0.036	72	929
Ericsson Radio 4449	84.00	222	120	0.009	19	275
Ericsson RRUS 11 B4	84.00	152	82	0.006	13	188
Ericsson RRUS 11 B2	84.00	152	82	0.006	13	188
RFS APX16DWV-16DWVS-	84.00	122	66	0.005	10	151
Round T-Arm with Sit	84.00	2,295	1,239	0.097	194	2,842
RFS APXVAARR24_43-U-	84.00	384	207	0.016	32	475
8' Pine Tree Branch	70.60	900	380	0.030	59	1,115
10' Pine Tree Branch	61.80	770	269	0.021	42	954
		32,201	12,797	1.000	2,000	39,878

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
30	108.10	16	12	0.001	2	13
29	106.50	250	189	0.015	30	215
28	102.50	431	308	0.024	48	371
27	97.50	449	299	0.023	47	387
26	93.60	259	163	0.013	25	223
25	92.10	19	12	0.001	2	16
24	91.00	226	137	0.011	21	195
23	87.50	578	331	0.026	52	498
22	84.50	118	64	0.005	10	101
21	82.00	498	260	0.020	41	429
20	77.50	638	307	0.024	48	550
19	74.76	62	28	0.002	4	54
18	72.56	609	267	0.021	42	525
17	70.30	95	40	0.003	6	81
16	67.50	800	317	0.025	49	689
15	63.40	524	190	0.015	30	451
14	60.90	299	102	0.008	16	257
13	57.50	845	266	0.021	42	728
12	52.50	868	240	0.019	38	748
11	47.50	890	214	0.017	33	767
10	42.50	913	187	0.015	29	786
9	39.77	85	16	0.001	2	73

8	37.27	989	168	0.013	26	852
7	32.50	1,115	156	0.012	24	960
6	27.50	1,142	126	0.010	20	984
5	22.50	1,169	97	0.008	15	1,007
4	17.50	1,196	70	0.005	11	1,030
3	12.50	1,223	44	0.003	7	1,053
2	7.50	1,250	22	0.002	3	1,077
1	2.50	1,277	5	0.000	1	1,100
4' Pine Tree Branch	108.19	320	247	0.019	39	276
RFS FD9R6004/2C-3L	108.19	16	12	0.001	2	13
Amphenol Antel BXA-1	108.19	45	35	0.003	5	39
Amphenol Antel BXA-7	108.19	51	39	0.003	6	44
Antel LPA-80080/6CF	108.19	126	97	0.008	15	109
VZW Unused Reserve:	108.19	2,262	1,749	0.137	273	1,949
Flat T-Arm	108.00	750	578	0.045	90	646
6' Pine Tree Branch	92.20	3,240	1,996	0.156	312	2,792
Andrew ABT-DFDM-ADB	92.00	1	1	0.000	0	1
Powerwave Allgon LGP	92.00	32	20	0.002	3	27
Raycap DC6-48-60-18-	92.00	20	12	0.001	2	17
Powerwave Allgon LGP	92.00	114	70	0.005	11	98
Ericsson RRUS-11 (50	92.00	300	184	0.014	29	258
Powerwave Allgon 777	92.00	210	129	0.010	20	181
Kathrein Scala 800 1	92.00	41	25	0.002	4	35
KMW AM-X-CD-16-65-00	92.00	97	60	0.005	9	84
Round T-Arm	92.00	750	461	0.036	72	646
Ericsson Radio 4449	84.00	222	120	0.009	19	191
Ericsson RRUS 11 B4	84.00	152	82	0.006	13	131
Ericsson RRUS 11 B2	84.00	152	82	0.006	13	131
RFS APX16DWV-16DWVS-	84.00	122	66	0.005	10	105
Round T-Arm with Sit	84.00	2,295	1,239	0.097	194	1,977
RFS APXVAARR24_43-U-	84.00	384	207	0.016	32	331
8' Pine Tree Branch	70.60	900	380	0.030	59	775
10' Pine Tree Branch	61.80	770	269	0.021	42	663
		32,201	12,797	1.000	2,000	27,745

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

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	-38.30	-2.00	0.00	-171.12	0.00	171.12	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.044
5.00	-36.75	-2.00	0.00	-161.11	0.00	161.11	4,228.90	2,114.45	9,418.39	4,716.20	0.00	-0.01	0.043
10.00	-35.23	-2.00	0.00	-151.09	0.00	151.09	4,166.47	2,083.24	9,049.23	4,531.34	0.02	-0.02	0.042
15.00	-33.75	-2.00	0.00	-141.07	0.00	141.07	4,101.94	2,050.97	8,682.51	4,347.71	0.04	-0.03	0.041
20.00	-32.31	-1.99	0.00	-131.09	0.00	131.09	4,035.29	2,017.65	8,318.56	4,165.46	0.08	-0.04	0.039
25.00	-30.89	-1.97	0.00	-121.16	0.00	121.16	3,966.54	1,983.27	7,957.76	3,984.79	0.12	-0.05	0.038
30.00	-29.51	-1.95	0.00	-111.31	0.00	111.31	3,895.69	1,947.84	7,600.43	3,805.87	0.18	-0.06	0.037
35.00	-28.29	-1.93	0.00	-101.56	0.00	101.56	3,822.72	1,911.36	7,246.94	3,628.86	0.24	-0.07	0.035
39.54	-28.18	-1.93	0.00	-92.81	0.00	92.81	3,754.64	1,877.32	6,929.59	3,469.94	0.31	-0.07	0.034
39.54	-28.18	-1.93	0.00	-92.81	0.00	92.81	2,931.90	1,465.95	5,426.19	2,717.13	0.31	-0.07	0.044
40.00	-27.05	-1.90	0.00	-91.93	0.00	91.93	2,927.16	1,463.58	5,402.55	2,705.29	0.31	-0.08	0.043
45.00	-25.95	-1.87	0.00	-82.43	0.00	82.43	2,874.57	1,437.29	5,146.72	2,577.18	0.40	-0.09	0.041
50.00	-24.87	-1.83	0.00	-73.09	0.00	73.09	2,819.87	1,409.94	4,893.03	2,450.15	0.50	-0.10	0.039
55.00	-23.83	-1.79	0.00	-63.93	0.00	63.93	2,763.07	1,381.53	4,641.85	2,324.38	0.60	-0.11	0.036
60.00	-23.46	-1.78	0.00	-54.95	0.00	54.95	2,704.15	1,352.08	4,393.52	2,200.03	0.72	-0.12	0.034
61.80	-21.85	-1.71	0.00	-51.75	0.00	51.75	2,682.43	1,341.21	4,304.89	2,155.64	0.76	-0.12	0.032
65.00	-20.86	-1.66	0.00	-46.29	0.00	46.29	2,643.13	1,321.57	4,148.39	2,077.28	0.85	-0.13	0.030
70.00	-19.63	-1.59	0.00	-38.00	0.00	38.00	2,580.00	1,290.00	3,906.81	1,956.31	0.98	-0.13	0.027
70.60	-18.88	-1.55	0.00	-37.04	0.00	37.04	2,572.28	1,286.14	3,878.08	1,941.92	1.00	-0.14	0.026
74.52	-18.80	-1.55	0.00	-30.97	0.00	30.97	2,521.12	1,260.56	3,691.77	1,848.63	1.12	-0.14	0.024
74.52	-18.80	-1.55	0.00	-30.97	0.00	30.97	1,868.10	934.05	2,745.13	1,374.61	1.12	-0.14	0.033
75.00	-18.01	-1.50	0.00	-30.23	0.00	30.23	1,864.11	932.05	2,729.38	1,366.72	1.13	-0.14	0.032
80.00	-17.39	-1.46	0.00	-22.74	0.00	22.74	1,821.35	910.68	2,566.18	1,285.00	1.28	-0.15	0.027
84.00	-13.13	-1.16	0.00	-16.91	0.00	16.91	1,785.63	892.82	2,436.95	1,220.29	1.41	-0.16	0.021
85.00	-12.41	-1.10	0.00	-15.76	0.00	15.76	1,776.49	888.25	2,404.85	1,204.21	1.45	-0.16	0.020
90.00	-12.13	-1.08	0.00	-10.24	0.00	10.24	1,729.52	864.76	2,245.74	1,124.54	1.62	-0.16	0.016
92.00	-6.16	-0.60	0.00	-8.08	0.00	8.08	1,710.14	855.07	2,182.80	1,093.02	1.68	-0.16	0.011
92.20	-5.84	-0.57	0.00	-7.96	0.00	7.96	1,708.19	854.09	2,176.52	1,089.88	1.69	-0.16	0.011
95.00	-5.28	-0.53	0.00	-6.35	0.00	6.35	1,680.44	840.22	2,089.20	1,046.15	1.79	-0.17	0.009
100.00	-4.75	-0.48	0.00	-3.72	0.00	3.72	1,629.26	814.63	1,935.58	969.23	1.96	-0.17	0.007
105.00	-4.44	-0.45	0.00	-1.34	0.00	1.34	1,575.96	787.98	1,785.22	893.94	2.14	-0.17	0.004
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.97	771.49	1,696.72	849.62	2.25	-0.17	0.000
108.19	0.00	0.00	0.00	0.00	0.00	0.00	1,540.86	770.43	1,691.16	846.84	2.26	-0.17	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

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	-26.64	-2.00	0.00	-170.09	0.00	170.09	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.041
5.00	-25.57	-2.00	0.00	-160.09	0.00	160.09	4,228.90	2,114.45	9,418.39	4,716.20	0.00	-0.01	0.040
10.00	-24.51	-2.00	0.00	-150.08	0.00	150.08	4,166.47	2,083.24	9,049.23	4,531.34	0.02	-0.02	0.039
15.00	-23.48	-1.99	0.00	-140.09	0.00	140.09	4,101.94	2,050.97	8,682.51	4,347.71	0.04	-0.03	0.038
20.00	-22.48	-1.98	0.00	-130.13	0.00	130.13	4,035.29	2,017.65	8,318.56	4,165.46	0.08	-0.04	0.037
25.00	-21.49	-1.96	0.00	-120.24	0.00	120.24	3,966.54	1,983.27	7,957.76	3,984.79	0.12	-0.05	0.036
30.00	-20.53	-1.94	0.00	-110.43	0.00	110.43	3,895.69	1,947.84	7,600.43	3,805.87	0.18	-0.06	0.034
35.00	-19.68	-1.92	0.00	-100.73	0.00	100.73	3,822.72	1,911.36	7,246.94	3,628.86	0.24	-0.07	0.033
39.54	-19.61	-1.91	0.00	-92.03	0.00	92.03	3,754.64	1,877.32	6,929.59	3,469.94	0.31	-0.07	0.032
39.54	-19.61	-1.91	0.00	-92.03	0.00	92.03	2,931.90	1,465.95	5,426.19	2,717.13	0.31	-0.07	0.041
40.00	-18.82	-1.89	0.00	-91.15	0.00	91.15	2,927.16	1,463.58	5,402.55	2,705.29	0.31	-0.07	0.040
45.00	-18.05	-1.86	0.00	-81.72	0.00	81.72	2,874.57	1,437.29	5,146.72	2,577.18	0.40	-0.09	0.038
50.00	-17.30	-1.82	0.00	-72.44	0.00	72.44	2,819.87	1,409.94	4,893.03	2,450.15	0.49	-0.10	0.036
55.00	-16.58	-1.78	0.00	-63.34	0.00	63.34	2,763.07	1,381.53	4,641.85	2,324.38	0.60	-0.11	0.033
60.00	-16.32	-1.77	0.00	-54.45	0.00	54.45	2,704.15	1,352.08	4,393.52	2,200.03	0.71	-0.12	0.031
61.80	-15.20	-1.69	0.00	-51.27	0.00	51.27	2,682.43	1,341.21	4,304.89	2,155.64	0.76	-0.12	0.029
65.00	-14.51	-1.64	0.00	-45.85	0.00	45.85	2,643.13	1,321.57	4,148.39	2,077.28	0.84	-0.13	0.028
70.00	-13.66	-1.58	0.00	-37.63	0.00	37.63	2,580.00	1,290.00	3,906.81	1,956.31	0.98	-0.13	0.025
70.60	-13.13	-1.53	0.00	-36.69	0.00	36.69	2,572.28	1,286.14	3,878.08	1,941.92	0.99	-0.13	0.024
74.52	-13.08	-1.53	0.00	-30.67	0.00	30.67	2,521.12	1,260.56	3,691.77	1,848.63	1.11	-0.14	0.022
74.52	-13.08	-1.53	0.00	-30.67	0.00	30.67	1,868.10	934.05	2,745.13	1,374.61	1.11	-0.14	0.029
75.00	-12.53	-1.48	0.00	-29.94	0.00	29.94	1,864.11	932.05	2,729.38	1,366.72	1.12	-0.14	0.029
80.00	-12.10	-1.44	0.00	-22.52	0.00	22.52	1,821.35	910.68	2,566.18	1,285.00	1.27	-0.15	0.024
84.00	-9.13	-1.14	0.00	-16.75	0.00	16.75	1,785.63	892.82	2,436.95	1,220.29	1.40	-0.16	0.019
85.00	-8.63	-1.09	0.00	-15.61	0.00	15.61	1,776.49	888.25	2,404.85	1,204.21	1.44	-0.16	0.018
90.00	-8.44	-1.07	0.00	-10.15	0.00	10.15	1,729.52	864.76	2,245.74	1,124.54	1.60	-0.16	0.014
92.00	-4.28	-0.60	0.00	-8.01	0.00	8.01	1,710.14	855.07	2,182.80	1,093.02	1.67	-0.16	0.010
92.20	-4.06	-0.57	0.00	-7.89	0.00	7.89	1,708.19	854.09	2,176.52	1,089.88	1.68	-0.16	0.010
95.00	-3.67	-0.52	0.00	-6.29	0.00	6.29	1,680.44	840.22	2,089.20	1,046.15	1.77	-0.17	0.008
100.00	-3.30	-0.47	0.00	-3.69	0.00	3.69	1,629.26	814.63	1,935.58	969.23	1.95	-0.17	0.006
105.00	-3.09	-0.44	0.00	-1.33	0.00	1.33	1,575.96	787.98	1,785.22	893.94	2.13	-0.17	0.003
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.97	771.49	1,696.72	849.62	2.23	-0.17	0.000
108.19	0.00	0.00	0.00	0.00	0.00	0.00	1,540.86	770.43	1,691.16	846.84	2.24	-0.17	0.000

Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.34
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
30	108.10	16	1.887	1.963	1.134	0.379	5	19
29	106.50	250	1.831	1.685	1.032	0.344	75	309
28	102.50	431	1.696	1.109	0.809	0.265	99	534
27	97.50	449	1.535	0.591	0.585	0.181	71	556
26	93.60	259	1.415	0.312	0.447	0.128	29	321
25	92.10	19	1.370	0.229	0.401	0.110	2	23
24	91.00	226	1.337	0.175	0.370	0.097	19	280
23	87.50	578	1.236	0.042	0.283	0.063	32	716
22	84.50	118	1.153	-0.035	0.221	0.040	4	146
21	82.00	498	1.086	-0.078	0.178	0.025	11	616
20	77.50	638	0.970	-0.116	0.117	0.007	4	790
19	74.76	62	0.902	-0.122	0.088	0.002	0	77
18	72.56	609	0.850	-0.119	0.069	0.000	0	755
17	70.30	95	0.798	-0.112	0.053	0.000	0	117
16	67.50	800	0.736	-0.097	0.037	0.002	2	991
15	63.40	524	0.649	-0.070	0.021	0.010	4	649
14	60.90	299	0.599	-0.053	0.014	0.015	4	370
13	57.50	845	0.534	-0.029	0.009	0.023	17	1,047
12	52.50	868	0.445	0.003	0.006	0.033	25	1,075
11	47.50	890	0.364	0.029	0.008	0.040	31	1,102
10	42.50	913	0.292	0.047	0.013	0.043	34	1,130
9	39.77	85	0.255	0.054	0.017	0.044	3	105
8	37.27	989	0.224	0.059	0.020	0.044	37	1,224
7	32.50	1,115	0.171	0.066	0.027	0.042	41	1,380
6	27.50	1,142	0.122	0.070	0.034	0.040	40	1,414
5	22.50	1,169	0.082	0.072	0.039	0.038	38	1,447
4	17.50	1,196	0.049	0.071	0.042	0.035	36	1,481
3	12.50	1,223	0.025	0.067	0.040	0.032	34	1,514
2	7.50	1,250	0.009	0.053	0.031	0.025	28	1,548
1	2.50	1,277	0.001	0.024	0.013	0.012	13	1,581
4' Pine Tree Branch	108.19	320	1.890	1.980	1.140	0.381	106	396
RFS FD9R6004/2C-3L	108.19	16	1.890	1.980	1.140	0.381	5	19
Amphenol Antel BXA-1	108.19	45	1.890	1.980	1.140	0.381	15	56
Amphenol Antel BXA-7	108.19	51	1.890	1.980	1.140	0.381	17	63

Antel LPA-80080/6CF	108.19	126	1.890	1.980	1.140	0.381	42	156
VZW Unused Reserve:	108.19	2,262	1.890	1.980	1.140	0.381	747	2,802
Flat T-Arm	108.00	750	1.883	1.945	1.127	0.377	245	929
6' Pine Tree Branch	92.20	3,240	1.373	0.234	0.404	0.111	311	4,012
Andrew ABT-DFDM-ADB	92.00	1	1.367	0.224	0.398	0.108	0	1
Powerwave Allgon LGP	92.00	32	1.367	0.224	0.398	0.108	3	39
Raycap DC6-48-60-18-	92.00	20	1.367	0.224	0.398	0.108	2	25
Powerwave Allgon LGP	92.00	114	1.367	0.224	0.398	0.108	11	141
Ericsson RRUS-11 (50	92.00	300	1.367	0.224	0.398	0.108	28	372
Powerwave Allgon 777	92.00	210	1.367	0.224	0.398	0.108	20	260
Kathrein Scala 800 1	92.00	41	1.367	0.224	0.398	0.108	4	51
KMW AM-X-CD-16-65-00	92.00	97	1.367	0.224	0.398	0.108	9	120
Round T-Arm	92.00	750	1.367	0.224	0.398	0.108	70	929
Ericsson Radio 4449	84.00	222	1.139	-0.045	0.212	0.037	7	275
Ericsson RRUS 11 B4	84.00	152	1.139	-0.045	0.212	0.037	5	188
Ericsson RRUS 11 B2	84.00	152	1.139	-0.045	0.212	0.037	5	188
RFS APX16DWV-	84.00	122	1.139	-0.045	0.212	0.037	4	151
Round T-Arm with Sit	84.00	2,295	1.139	-0.045	0.212	0.037	73	2,842
RFS APXVAARR24_43-U-	84.00	384	1.139	-0.045	0.212	0.037	12	475
8' Pine Tree Branch	70.60	900	0.805	-0.113	0.055	0.000	0	1,115
10' Pine Tree Branch	61.80	770	0.617	-0.059	0.017	0.013	9	954
		32,201	57.777	21.522	19.459	6.100	2,484	39,878

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
30	108.10	16	1.887	1.963	1.134	0.379	5	13
29	106.50	250	1.831	1.685	1.032	0.344	75	215
28	102.50	431	1.696	1.109	0.809	0.265	99	371
27	97.50	449	1.535	0.591	0.585	0.181	71	387
26	93.60	259	1.415	0.312	0.447	0.128	29	223
25	92.10	19	1.370	0.229	0.401	0.110	2	16
24	91.00	226	1.337	0.175	0.370	0.097	19	195
23	87.50	578	1.236	0.042	0.283	0.063	32	498
22	84.50	118	1.153	-0.035	0.221	0.040	4	101
21	82.00	498	1.086	-0.078	0.178	0.025	11	429
20	77.50	638	0.970	-0.116	0.117	0.007	4	550
19	74.76	62	0.902	-0.122	0.088	0.002	0	54
18	72.56	609	0.850	-0.119	0.069	0.000	0	525
17	70.30	95	0.798	-0.112	0.053	0.000	0	81
16	67.50	800	0.736	-0.097	0.037	0.002	2	689
15	63.40	524	0.649	-0.070	0.021	0.010	4	451
14	60.90	299	0.599	-0.053	0.014	0.015	4	257
13	57.50	845	0.534	-0.029	0.009	0.023	17	728
12	52.50	868	0.445	0.003	0.006	0.033	25	748
11	47.50	890	0.364	0.029	0.008	0.040	31	767
10	42.50	913	0.292	0.047	0.013	0.043	34	786
9	39.77	85	0.255	0.054	0.017	0.044	3	73
8	37.27	989	0.224	0.059	0.020	0.044	37	852
7	32.50	1,115	0.171	0.066	0.027	0.042	41	960
6	27.50	1,142	0.122	0.070	0.034	0.040	40	984
5	22.50	1,169	0.082	0.072	0.039	0.038	38	1,007
4	17.50	1,196	0.049	0.071	0.042	0.035	36	1,030
3	12.50	1,223	0.025	0.067	0.040	0.032	34	1,053
2	7.50	1,250	0.009	0.053	0.031	0.025	28	1,077
1	2.50	1,277	0.001	0.024	0.013	0.012	13	1,100
4' Pine Tree Branch	108.19	320	1.890	1.980	1.140	0.381	106	276
RFS FD9R6004/2C-3L	108.19	16	1.890	1.980	1.140	0.381	5	13

Amphenol Antel BXA-1	108.19	45	1.890	1.980	1.140	0.381	15	39
Amphenol Antel BXA-7	108.19	51	1.890	1.980	1.140	0.381	17	44
Antel LPA-80080/6CF	108.19	126	1.890	1.980	1.140	0.381	42	109
VZW Unused Reserve:	108.19	2,262	1.890	1.980	1.140	0.381	747	1,949
Flat T-Arm	108.00	750	1.883	1.945	1.127	0.377	245	646
6' Pine Tree Branch	92.20	3,240	1.373	0.234	0.404	0.111	311	2,792
Andrew ABT-DFDM-ADB	92.00	1	1.367	0.224	0.398	0.108	0	1
Powerwave Allgon LGP	92.00	32	1.367	0.224	0.398	0.108	3	27
Raycap DC6-48-60-18-	92.00	20	1.367	0.224	0.398	0.108	2	17
Powerwave Allgon LGP	92.00	114	1.367	0.224	0.398	0.108	11	98
Ericsson RRUS-11 (50	92.00	300	1.367	0.224	0.398	0.108	28	258
Powerwave Allgon 777	92.00	210	1.367	0.224	0.398	0.108	20	181
Kathrein Scala 800 1	92.00	41	1.367	0.224	0.398	0.108	4	35
KMW AM-X-CD-16-65-00	92.00	97	1.367	0.224	0.398	0.108	9	84
Round T-Arm	92.00	750	1.367	0.224	0.398	0.108	70	646
Ericsson Radio 4449	84.00	222	1.139	-0.045	0.212	0.037	7	191
Ericsson RRUS 11 B4	84.00	152	1.139	-0.045	0.212	0.037	5	131
Ericsson RRUS 11 B2	84.00	152	1.139	-0.045	0.212	0.037	5	131
RFS APX16DWV-	84.00	122	1.139	-0.045	0.212	0.037	4	105
Round T-Arm with Sit	84.00	2,295	1.139	-0.045	0.212	0.037	73	1,977
RFS APXVAARR24_43-U-	84.00	384	1.139	-0.045	0.212	0.037	12	331
8' Pine Tree Branch	70.60	900	0.805	-0.113	0.055	0.000	0	775
10' Pine Tree Branch	61.80	770	0.617	-0.059	0.017	0.013	9	663
		32,201	57.777	21.522	19.459	6.100	2,484	27,745

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

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	-38.30	-2.47	0.00	-227.91	0.00	227.91	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.055
5.00	-36.75	-2.45	0.00	-215.54	0.00	215.54	4,228.90	2,114.45	9,418.39	4,716.20	0.01	-0.01	0.054
10.00	-35.23	-2.43	0.00	-203.27	0.00	203.27	4,166.47	2,083.24	9,049.23	4,531.34	0.03	-0.02	0.053
15.00	-33.75	-2.40	0.00	-191.13	0.00	191.13	4,101.94	2,050.97	8,682.51	4,347.71	0.06	-0.04	0.052
20.00	-32.30	-2.37	0.00	-179.14	0.00	179.14	4,035.29	2,017.65	8,318.56	4,165.46	0.11	-0.05	0.051
25.00	-30.89	-2.33	0.00	-167.30	0.00	167.30	3,966.54	1,983.27	7,957.76	3,984.79	0.16	-0.06	0.050
30.00	-29.51	-2.30	0.00	-155.64	0.00	155.64	3,895.69	1,947.84	7,600.43	3,805.87	0.24	-0.08	0.048
35.00	-28.28	-2.26	0.00	-144.16	0.00	144.16	3,822.72	1,911.36	7,246.94	3,628.86	0.33	-0.09	0.047
39.54	-28.18	-2.26	0.00	-133.88	0.00	133.88	3,754.64	1,877.32	6,929.59	3,469.94	0.42	-0.10	0.046
39.54	-28.18	-2.26	0.00	-133.88	0.00	133.88	2,931.90	1,465.95	5,426.19	2,717.13	0.42	-0.10	0.059
40.00	-27.05	-2.23	0.00	-132.84	0.00	132.84	2,927.16	1,463.58	5,402.55	2,705.29	0.43	-0.10	0.058
45.00	-25.95	-2.21	0.00	-121.68	0.00	121.68	2,874.57	1,437.29	5,146.72	2,577.18	0.54	-0.12	0.056
50.00	-24.87	-2.19	0.00	-110.65	0.00	110.65	2,819.87	1,409.94	4,893.03	2,450.15	0.68	-0.14	0.054
55.00	-23.82	-2.17	0.00	-99.72	0.00	99.72	2,763.07	1,381.53	4,641.85	2,324.38	0.83	-0.15	0.052
60.00	-23.45	-2.17	0.00	-88.86	0.00	88.86	2,704.15	1,352.08	4,393.52	2,200.03	0.99	-0.17	0.049
61.80	-21.85	-2.16	0.00	-84.95	0.00	84.95	2,682.43	1,341.21	4,304.89	2,155.64	1.06	-0.17	0.048
65.00	-20.86	-2.16	0.00	-78.04	0.00	78.04	2,643.13	1,321.57	4,148.39	2,077.28	1.18	-0.18	0.045
70.00	-19.63	-2.16	0.00	-67.26	0.00	67.26	2,580.00	1,290.00	3,906.81	1,956.31	1.37	-0.20	0.042
70.60	-18.87	-2.16	0.00	-65.96	0.00	65.96	2,572.28	1,286.14	3,878.08	1,941.92	1.40	-0.20	0.041
74.52	-18.79	-2.16	0.00	-57.51	0.00	57.51	2,521.12	1,260.56	3,691.77	1,848.63	1.57	-0.21	0.039
74.52	-18.79	-2.16	0.00	-57.51	0.00	57.51	1,868.10	934.05	2,745.13	1,374.61	1.57	-0.21	0.052
75.00	-18.00	-2.15	0.00	-56.47	0.00	56.47	1,864.11	932.05	2,729.38	1,366.72	1.59	-0.21	0.051
80.00	-17.39	-2.14	0.00	-45.71	0.00	45.71	1,821.35	910.68	2,566.18	1,285.00	1.82	-0.23	0.045
84.00	-13.12	-2.02	0.00	-37.13	0.00	37.13	1,785.63	892.82	2,436.95	1,220.29	2.02	-0.24	0.038
85.00	-12.41	-1.99	0.00	-35.11	0.00	35.11	1,776.49	888.25	2,404.85	1,204.21	2.07	-0.24	0.036
90.00	-12.12	-1.97	0.00	-25.18	0.00	25.18	1,729.52	864.76	2,245.74	1,124.54	2.33	-0.25	0.029
92.00	-6.15	-1.48	0.00	-21.25	0.00	21.25	1,710.14	855.07	2,182.80	1,093.02	2.43	-0.26	0.023
92.20	-5.83	-1.45	0.00	-20.95	0.00	20.95	1,708.19	854.09	2,176.52	1,089.88	2.44	-0.26	0.023
95.00	-5.28	-1.38	0.00	-16.89	0.00	16.89	1,680.44	840.22	2,089.20	1,046.15	2.60	-0.26	0.019
100.00	-4.74	-1.28	0.00	-9.99	0.00	9.99	1,629.26	814.63	1,935.58	969.23	2.88	-0.27	0.013
105.00	-4.43	-1.20	0.00	-3.61	0.00	3.61	1,575.96	787.98	1,785.22	893.94	3.16	-0.27	0.007
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.97	771.49	1,696.72	849.62	3.34	-0.28	0.000
108.19	0.00	0.00	0.00	0.00	0.00	0.00	1,540.86	770.43	1,691.16	846.84	3.35	-0.28	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

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	-26.64	-2.47	0.00	-226.44	0.00	226.44	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.052
5.00	-25.57	-2.45	0.00	-214.07	0.00	214.07	4,228.90	2,114.45	9,418.39	4,716.20	0.01	-0.01	0.051
10.00	-24.51	-2.42	0.00	-201.82	0.00	201.82	4,166.47	2,083.24	9,049.23	4,531.34	0.03	-0.02	0.050
15.00	-23.48	-2.39	0.00	-189.71	0.00	189.71	4,101.94	2,050.97	8,682.51	4,347.71	0.06	-0.04	0.049
20.00	-22.47	-2.36	0.00	-177.76	0.00	177.76	4,035.29	2,017.65	8,318.56	4,165.46	0.10	-0.05	0.048
25.00	-21.49	-2.32	0.00	-165.97	0.00	165.97	3,966.54	1,983.27	7,957.76	3,984.79	0.16	-0.06	0.047
30.00	-20.53	-2.28	0.00	-154.37	0.00	154.37	3,895.69	1,947.84	7,600.43	3,805.87	0.24	-0.08	0.046
35.00	-19.68	-2.25	0.00	-142.95	0.00	142.95	3,822.72	1,911.36	7,246.94	3,628.86	0.32	-0.09	0.045
39.54	-19.60	-2.25	0.00	-132.74	0.00	132.74	3,754.64	1,877.32	6,929.59	3,469.94	0.41	-0.10	0.043
39.54	-19.60	-2.25	0.00	-132.74	0.00	132.74	2,931.90	1,465.95	5,426.19	2,717.13	0.41	-0.10	0.056
40.00	-18.82	-2.22	0.00	-131.71	0.00	131.71	2,927.16	1,463.58	5,402.55	2,705.29	0.42	-0.10	0.055
45.00	-18.05	-2.19	0.00	-120.63	0.00	120.63	2,874.57	1,437.29	5,146.72	2,577.18	0.54	-0.12	0.053
50.00	-17.30	-2.17	0.00	-109.69	0.00	109.69	2,819.87	1,409.94	4,893.03	2,450.15	0.67	-0.13	0.051
55.00	-16.57	-2.15	0.00	-98.86	0.00	98.86	2,763.07	1,381.53	4,641.85	2,324.38	0.82	-0.15	0.049
60.00	-16.32	-2.15	0.00	-88.09	0.00	88.09	2,704.15	1,352.08	4,393.52	2,200.03	0.99	-0.17	0.046
61.80	-15.20	-2.14	0.00	-84.22	0.00	84.22	2,682.43	1,341.21	4,304.89	2,155.64	1.05	-0.17	0.045
65.00	-14.51	-2.14	0.00	-77.39	0.00	77.39	2,643.13	1,321.57	4,148.39	2,077.28	1.17	-0.18	0.043
70.00	-13.65	-2.14	0.00	-66.71	0.00	66.71	2,580.00	1,290.00	3,906.81	1,956.31	1.36	-0.20	0.039
70.60	-13.13	-2.14	0.00	-65.42	0.00	65.42	2,572.28	1,286.14	3,878.08	1,941.92	1.39	-0.20	0.039
74.52	-13.07	-2.14	0.00	-57.05	0.00	57.05	2,521.12	1,260.56	3,691.77	1,848.63	1.56	-0.21	0.036
74.52	-13.07	-2.14	0.00	-57.05	0.00	57.05	1,868.10	934.05	2,745.13	1,374.61	1.56	-0.21	0.049
75.00	-12.52	-2.13	0.00	-56.03	0.00	56.03	1,864.11	932.05	2,729.38	1,366.72	1.58	-0.21	0.048
80.00	-12.09	-2.12	0.00	-45.37	0.00	45.37	1,821.35	910.68	2,566.18	1,285.00	1.81	-0.23	0.042
84.00	-9.13	-2.00	0.00	-36.88	0.00	36.88	1,785.63	892.82	2,436.95	1,220.29	2.00	-0.24	0.035
85.00	-8.63	-1.97	0.00	-34.87	0.00	34.87	1,776.49	888.25	2,404.85	1,204.21	2.05	-0.24	0.034
90.00	-8.43	-1.95	0.00	-25.03	0.00	25.03	1,729.52	864.76	2,245.74	1,124.54	2.31	-0.25	0.027
92.00	-4.28	-1.47	0.00	-21.13	0.00	21.13	1,710.14	855.07	2,182.80	1,093.02	2.41	-0.26	0.022
92.20	-4.06	-1.44	0.00	-20.83	0.00	20.83	1,708.19	854.09	2,176.52	1,089.88	2.42	-0.26	0.021
95.00	-3.67	-1.37	0.00	-16.79	0.00	16.79	1,680.44	840.22	2,089.20	1,046.15	2.58	-0.26	0.018
100.00	-3.30	-1.27	0.00	-9.94	0.00	9.94	1,629.26	814.63	1,935.58	969.23	2.85	-0.27	0.012
105.00	-3.08	-1.20	0.00	-3.59	0.00	3.59	1,575.96	787.98	1,785.22	893.94	3.14	-0.27	0.006
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.97	771.49	1,696.72	849.62	3.31	-0.27	0.000
108.19	0.00	0.00	0.00	0.00	0.00	0.00	1,540.86	770.43	1,691.16	846.84	3.32	-0.27	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	33.54	0.00	38.59	0.00	0.00	2891.02	39.54	0.60
0.9D + 1.6W	33.53	0.00	28.93	0.00	0.00	2876.09	39.54	0.60
1.2D + 1.0Di + 1.0Wi	7.67	0.00	68.43	0.00	0.00	664.44	39.54	0.15
(1.2 + 0.2Sds) * DL + E ELFM	2.00	0.00	38.30	0.00	0.00	171.12	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	2.47	0.00	38.30	0.00	0.00	227.91	39.54	0.06
(0.9 - 0.2Sds) * DL + E ELFM	2.00	0.00	26.64	0.00	0.00	170.09	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.47	0.00	26.64	0.00	0.00	226.44	39.54	0.06
1.0D + 1.0W	8.33	0.00	32.20	0.00	0.00	716.37	39.54	0.15

Base Plate & Anchor Rod Analysis

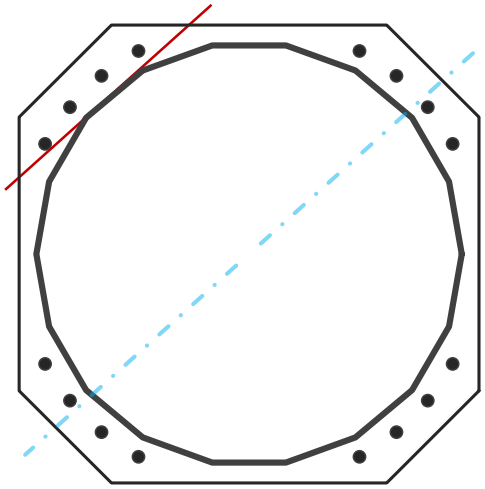
Pole Dimensions		
Number of Sides	18	-
Diameter	55.86	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2891.0	k-ft
Axial, Pu	38.6	k
Shear, Vu	33.5	k
Neutral Axis	42	°

Report Capacities		
Component	Capacity	Result
Base Plate	40%	Pass
Anchor Rods	55%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	61.86	in
Thickness	3	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	12.43	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1245.4	k
Bending Stress, ϕMn	3151.2	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	62.36	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	141.3	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	33.5	2891.0	1.00
Anchor Rod Forces	33.5	2891.0	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	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	65.0354	3.6131	0.1699		25030.17
Bolt	3.9761	3.2477	0.8393	4.5	25272.46
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	61.86	in
Thickness, t	3	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	26.577	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	62.36	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	141.3	k
Applied Shear, Vu	0.2	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.544	OK
Interaction Capacity	0.545	OK

External Base Plate		
Chord Length AA	31.123	in
Additional AA	0.000	in
Section Modulus, Z	70.027	in^3
Applied Moment, Mu	1245.4	k-ft
Bending Capacity, ϕMn	3151.2	k-ft
Capacity, Mu/ϕMn	0.395	OK
Chord Length AB	30.254	in
Additional AB	0.000	in
Section Modulus, Z	68.071	in^3
Applied Moment, Mu	1005.4	k-ft
Bending Capacity, ϕMn	3063.2	k-ft
Capacity, Mu/ϕMn	0.328	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		

Exhibit E

Mount Analysis

Mount Analysis of Existing T-Arms for American Tower on behalf of T-Mobile
415974 - Sharon CT
Project #: 12927152
T-Mobile Site ID: CTNH543A
Program: L600

CLS Engineering PLLC Project #41124-12927152-01-MA-R1
June 21, 2019

MOUNT DESCRIPTION	Existing T-Arms at 82.5 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 84 ft AGL (Eccentricity of ~2 ft)
SITE DESCRIPTION	108.2 ft Monopole
SITE ADDRESS	70 Herb Road, Sharon, CT 06069, Litchfield County
GPS COORDINATES	41.791111, -73.425556
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut Building Code / TIA-222-G
LOADING CRITERIA	115 mph, V_{ult} / 90 mph, V_{asd} (3-Second Gust) w/o ice & 40 mph (3-Second Gust) w/ 0.75" Ice

■ **ANALYSIS RESULT:** **Pass (Conditional)**

MEMBER USAGE	85%	Pass
CONNECTION USAGE	89%	Pass

Modifications are proposed to bring mounts into compliance; see conclusion for details.

Prepared by:
Sajeeb Thakur, E.I.

Reviewed and Approved by:
Tyler M. Barker, P.E.

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

Tyler M. Barker
CLS Engineering, PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2020
COA # PEC.001833 Exp. 8/14/2019

IdenTrust part of HID Global
Digitally signed by Tyler Barker
DN: c=US, o=Telamon Corporation, ou=A01427E0000016A4525ADF800001D17, cn=Tyler Barker
Date: 2019.06.21 18:03:28 -04'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the existing T-Arms. 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.

■ STRUCTURAL DOCUMENTS PROVIDED

STRUCTURAL DATA	Site Photos, dated October 31, 2018
PREVIOUS ANALYSES	Tower SA by ATC, Engineering #OAA686580_C3_02, dated October 17, 2016
LOADING DATA	ATC Application, Project #12927152, dated April 02, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut Building Code / TIA-222-G
BASIC WIND SPEED	115 mph, V_{ult} / 90 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	40 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
EXPOSURE CATEGORY	C
MAX. TOPOGRAPHIC FACTOR, K_{zt}	1.00
RISK CATEGORY	II
MAINTENANCE LIVE LOAD	L_M: 500 lb

■ FINAL EQUIPMENT

ELEVATION (ft)		**ANTENNAS**	
MOUNT	**RAD.**	**#**	**NAME**
82.5	84.0	3	RFS Celwave APX16DWV-16DWVS-E-A20
		3	Ericsson RRUS 11 B4
		3	Ericsson RRUS 11 B2
		3	Ericsson RADIO 4449 B12/B71
		3	RFS Celwave APXVAARR24_43-U-NA20

■ RESULTS SUMMARY

COMPONENT	**PEAK USAGE**	**RESULT**
Connections	89%	Pass
Face Horizontals	85%	Pass
Mount Pipes	74%	Pass
Stand-Off Horizontals	35%	Pass
Vertical Pipe	20%	Pass

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **CONDITIONALLY PASS**. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed

- **Install (1) proposed Site Pro 1 PRK-1245 reinforcement kit on existing T-Arm mount as shown in the following sketches. Field-Cut proposed angles as required. Maintain minimum bolt edge distance.**

See following sketches and Site Pro 1 assembly drawings for additional details.

■ ASSUMPTIONS AND 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.

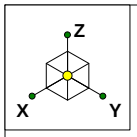
This analysis assumes the following:

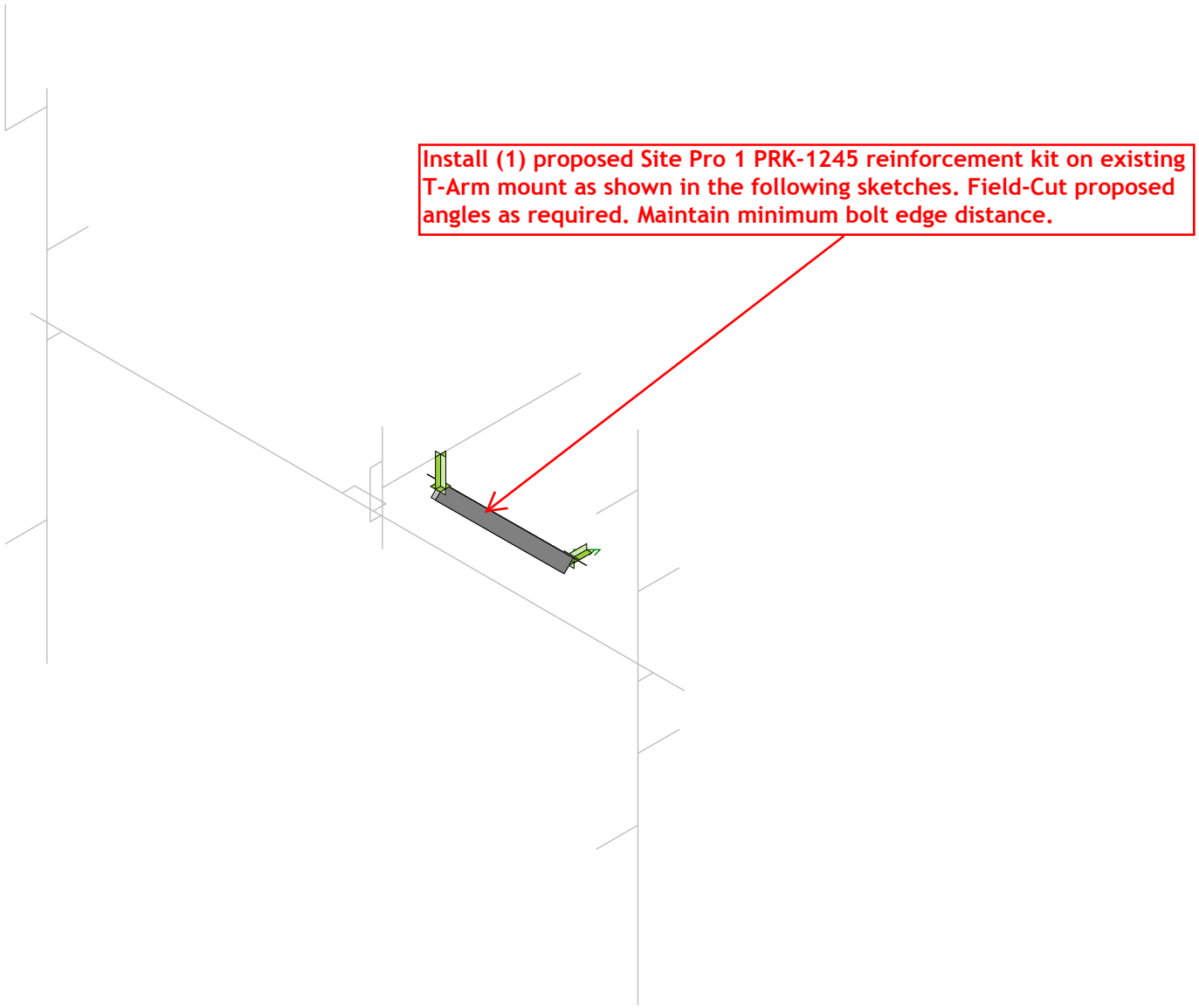
1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In 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.

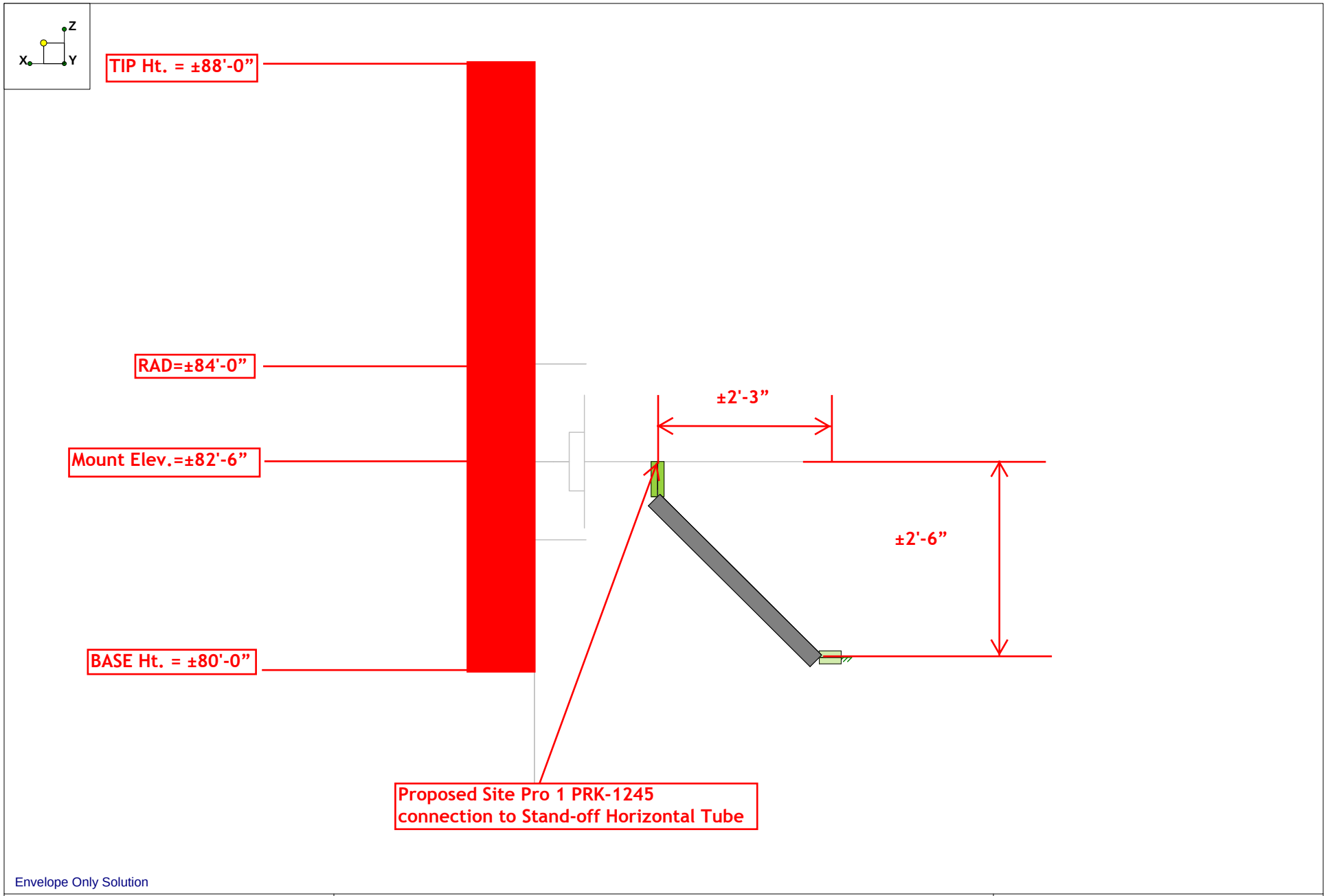
It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC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





Envelope Only Solution

CLS		IN - 1
ST	41124-12927152-SHARON CT	June 21, 2019 at 2:41 PM
41124-12927152-01-MA-R1	Installation Sketch - Isometric view	41124-12927152-01-MA-R1 images.r3d



Envelope Only Solution

CLS		IN - 1
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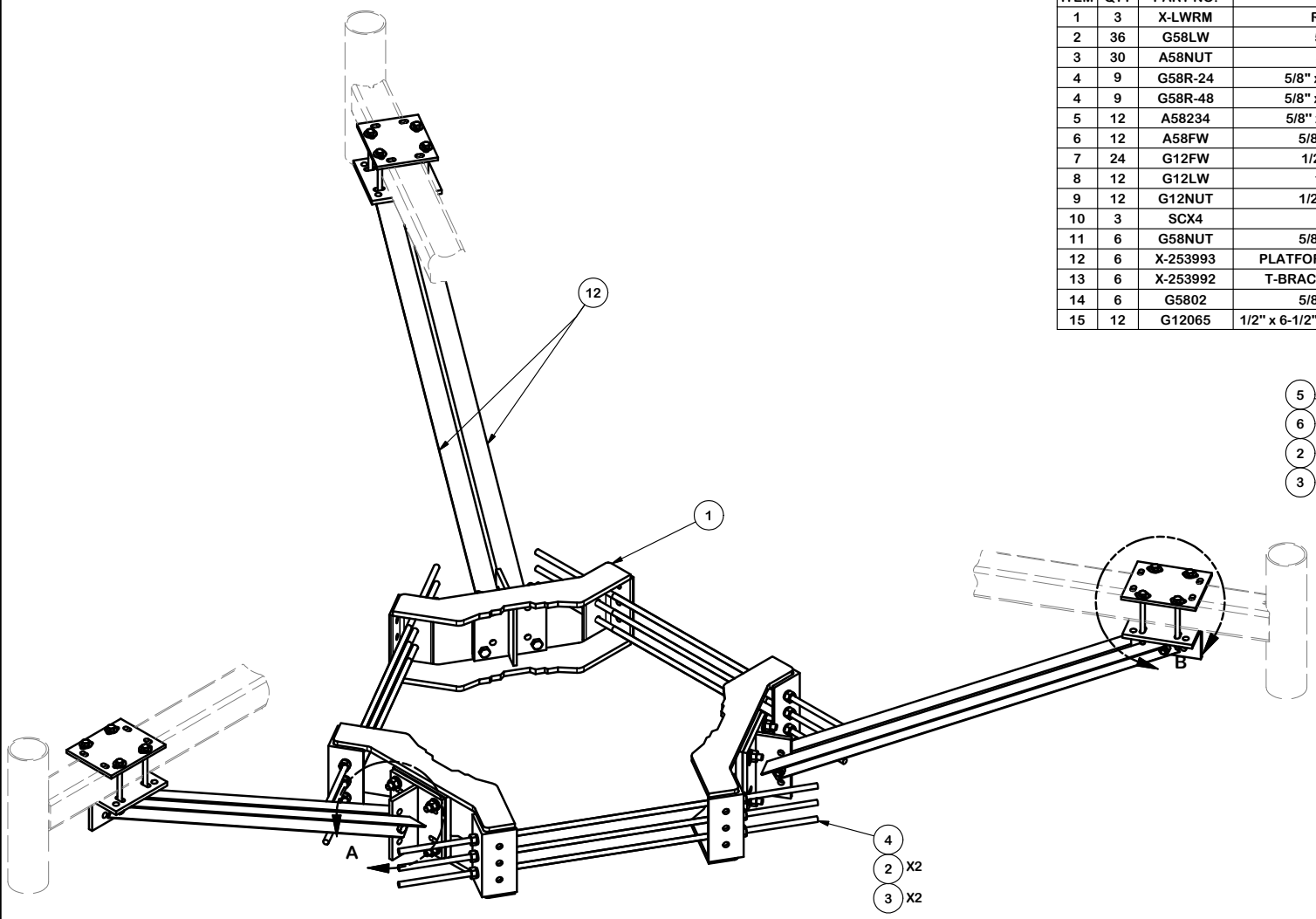
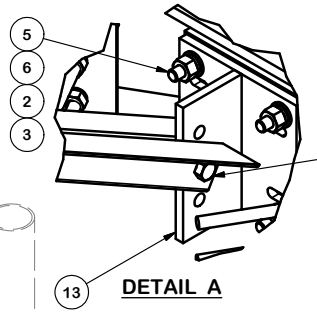
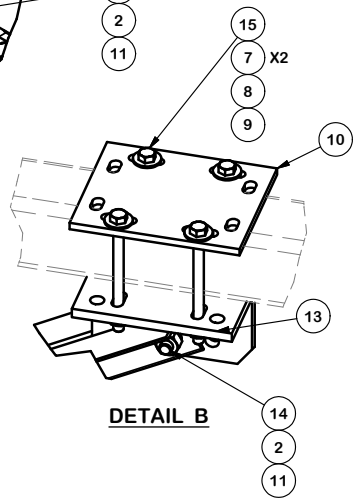






PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	36	G58LW	5/8" HDG LOCKWASHER		0.03	0.94
3	30	A58NUT	5/8" HDG A325 HEX NUT		0.13	3.90
4	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	4.94
4	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	4.94
5	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	4.27
6	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
7	24	G12FW	1/2" HDG USS FLATWASHER		0.03	0.82
8	12	G12LW	1/2" HDG LOCKWASHER		0.01	0.17
9	12	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.86
10	3	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	18.06
11	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
12	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
13	6	X-253992	T-BRACKET FOR REINFORCEMENT KIT		13.55	81.27
14	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
15	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
					TOTAL WT. #	464.91

TOLERANCE NOTES

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

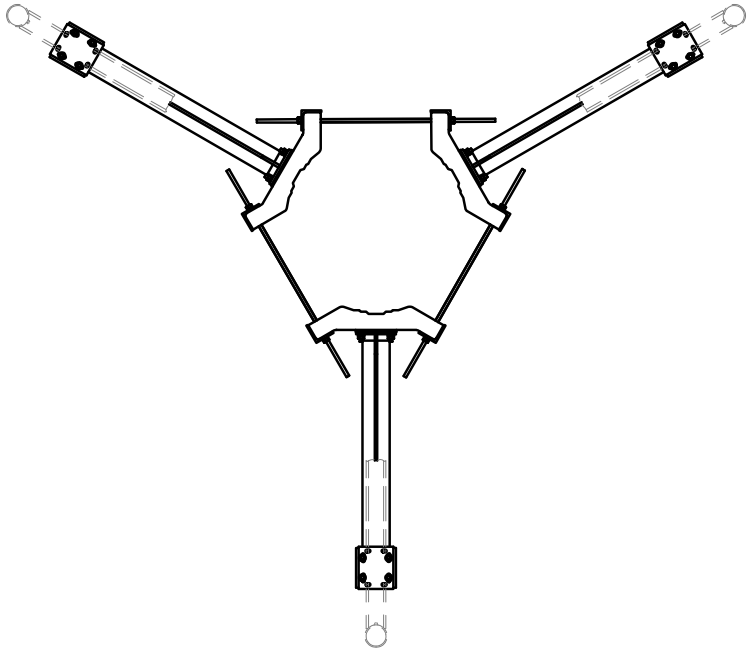
DESCRIPTION
PLATFORM RENIFORCEMENT
ON A 12" TO 45" POLE
4' 6" ANGLE

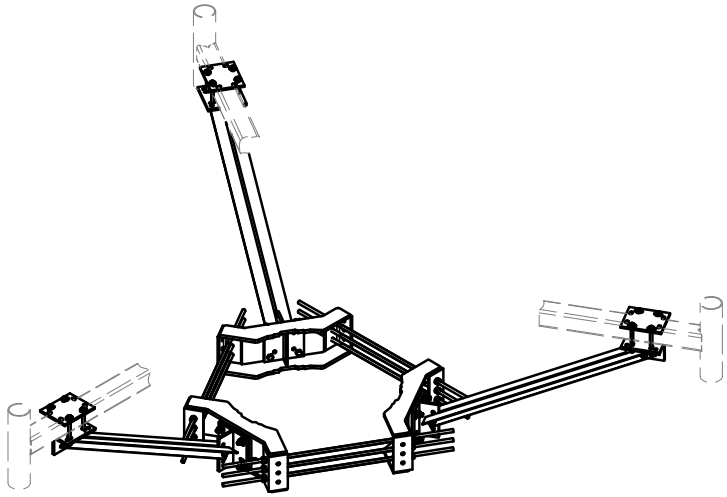
SITE PRO 1 — A valmont COMPANY

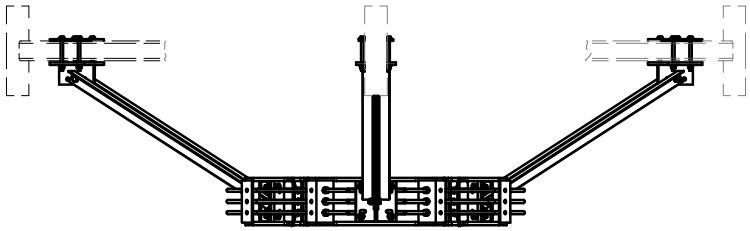
Engineering Support Team: 1-888-753-7446

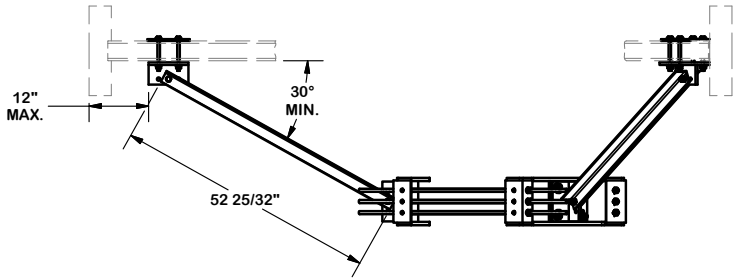
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	
4488	CEK 4/10/2014		PRK-1245	PAGE 1 OF 2
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
81 / 01	CUSTOMER	BMC 4/10/2014	PRK-1245	









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CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 4/10/2014		PRK-1245

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 4/10/2014	PRK-1245

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	83 ft	**K_a**	0.90
Nominal Rad Elevation (AGL), z_{rad}	84 ft	**K_d**	0.95
Elevation AMSL (ft)	-	**K_e**	-
TIA Standard	G	**K_z**	1.22
Basic Wind Speed, V_{ult} (bare)	115 mph	**K_{zt}**	1.00
Basic Wind Speed, V (ice)	40 mph	**K_s**	-
Design Ice Thickness, t_i	3/4 in	**t_{iz}**	1.64 in
Exposure Category	C	**G_h**	1.00
Risk Category	II	**q_z (bare)**	39.1 psf
Seismic Response Coeff., C_s	-	**q_z (ice)**	4.7 psf

Live Loading

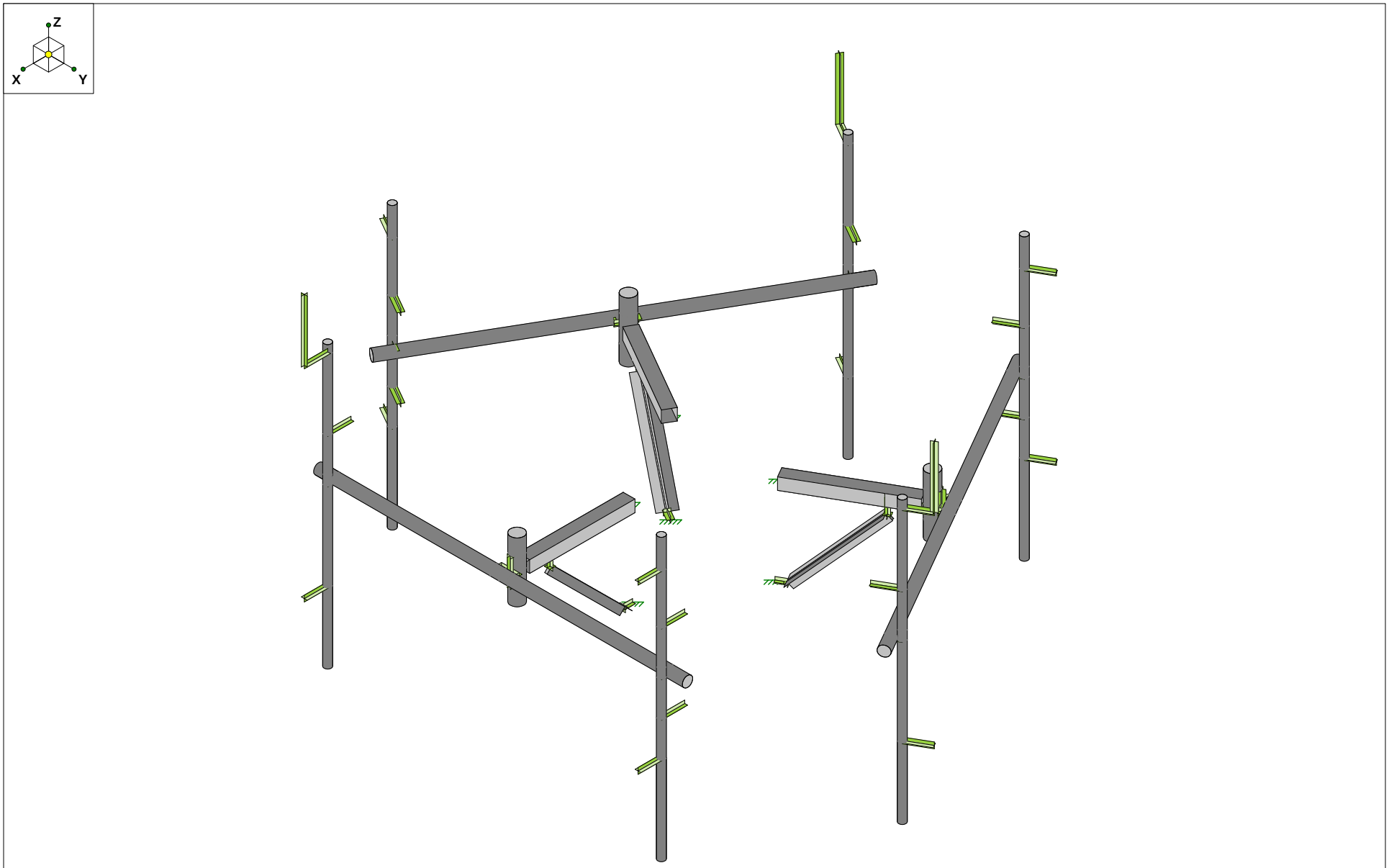
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Main Offset tube	HSS4X4X4	23.45	1.61	13.53
Main Face Pipe	PIPE_3.0	12.31	2.89	10.33
Vertical pipe	PIPE_4.0	15.83	3.31	12.34
Mount Pipe	PIPE_2.0	8.36	2.41	8.07
MOD PRK	L2.5x2.5x3	14.66	1.53	9.47

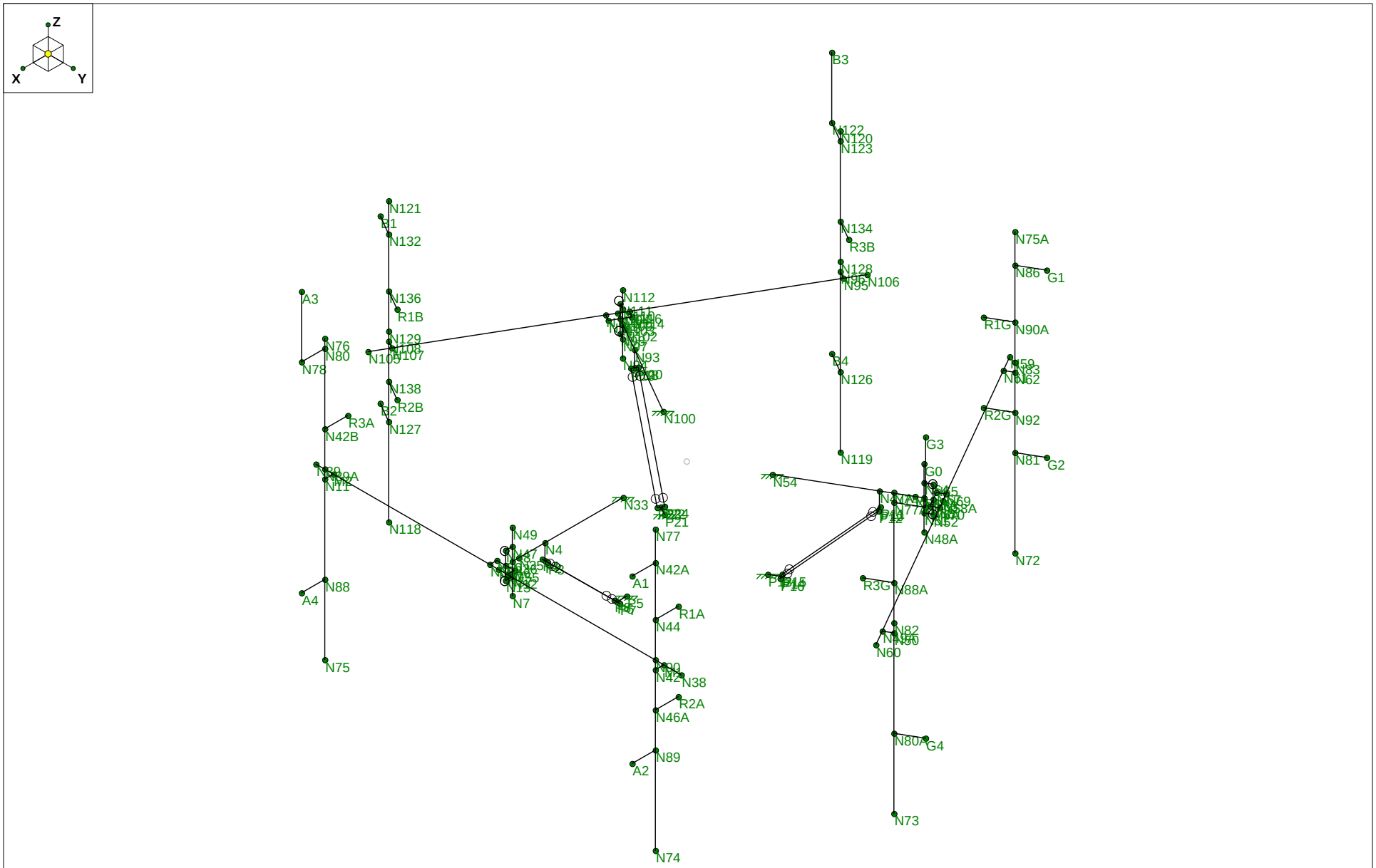
Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft²)		EPA_A (Ice) (ft²)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
APXVAARR24_43-U-NA20				☐			1	1	1		A3	A4	B3	B4	G3	G4	0	0	0	153.3	Generic	370.85	14.67	5.32	17.17	7.53	518.08	187.88	73.37	32.16
APX16DWV-16DWVS-E-A20				☐			1	1	1		A1	A2	B1	B2	G1	G2	59.9	13	3.15	41.8	Flat	115.86	7.00	2.36	9.02	4.22	247.06	83.32	38.53	18.05
RADIO 4449 B12/B71				☐	0.25		1	1	1		R3A		R3B		R3G		15	13.2	10.4	75	Flat	56.67	0.41	1.30	0.63	2.09	14.57	45.91	2.69	8.92
RRUS 11 B4				☐	0.6		1	1	1		R1A		R1B		R1G		19.7	17	7.2	50.7	Flat	80.55	1.67	1.19	2.33	2.01	59.14	42.11	9.97	8.59
RRUS 11 B2				☐	0.6		1	1	1		R2A		R2B		R2G		19.7	17	7.2	50.7	Flat	80.55	1.67	1.19	2.33	2.01	59.14	42.11	9.97	8.59



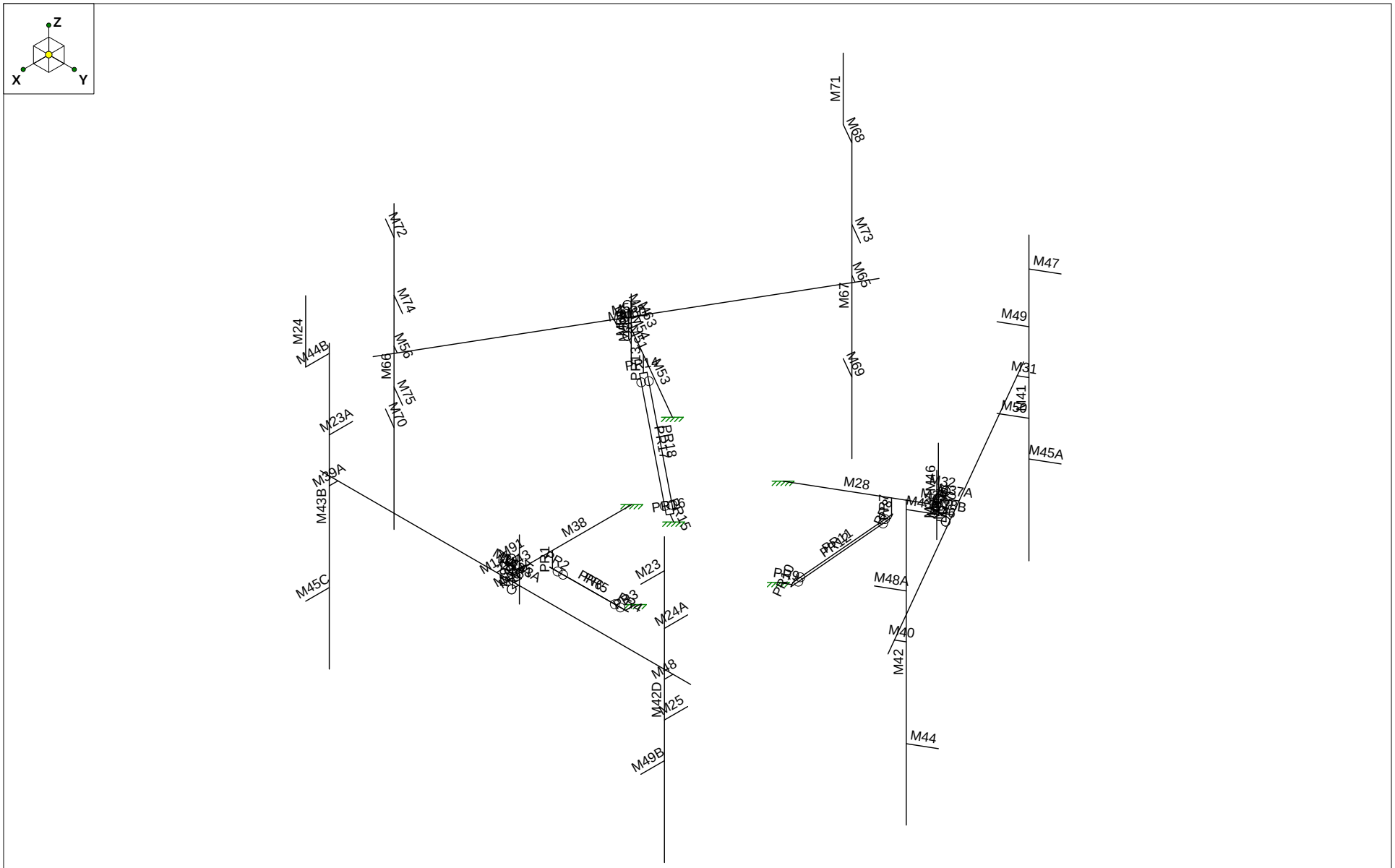
Envelope Only Solution

CLS		SK - 1
ST	41124-12927152-SHARON CT	June 21, 2019 at 3:27 PM
41124-12927152-01-MA-R1	Rendered	41124-12927152-01-MA-R1.r3d



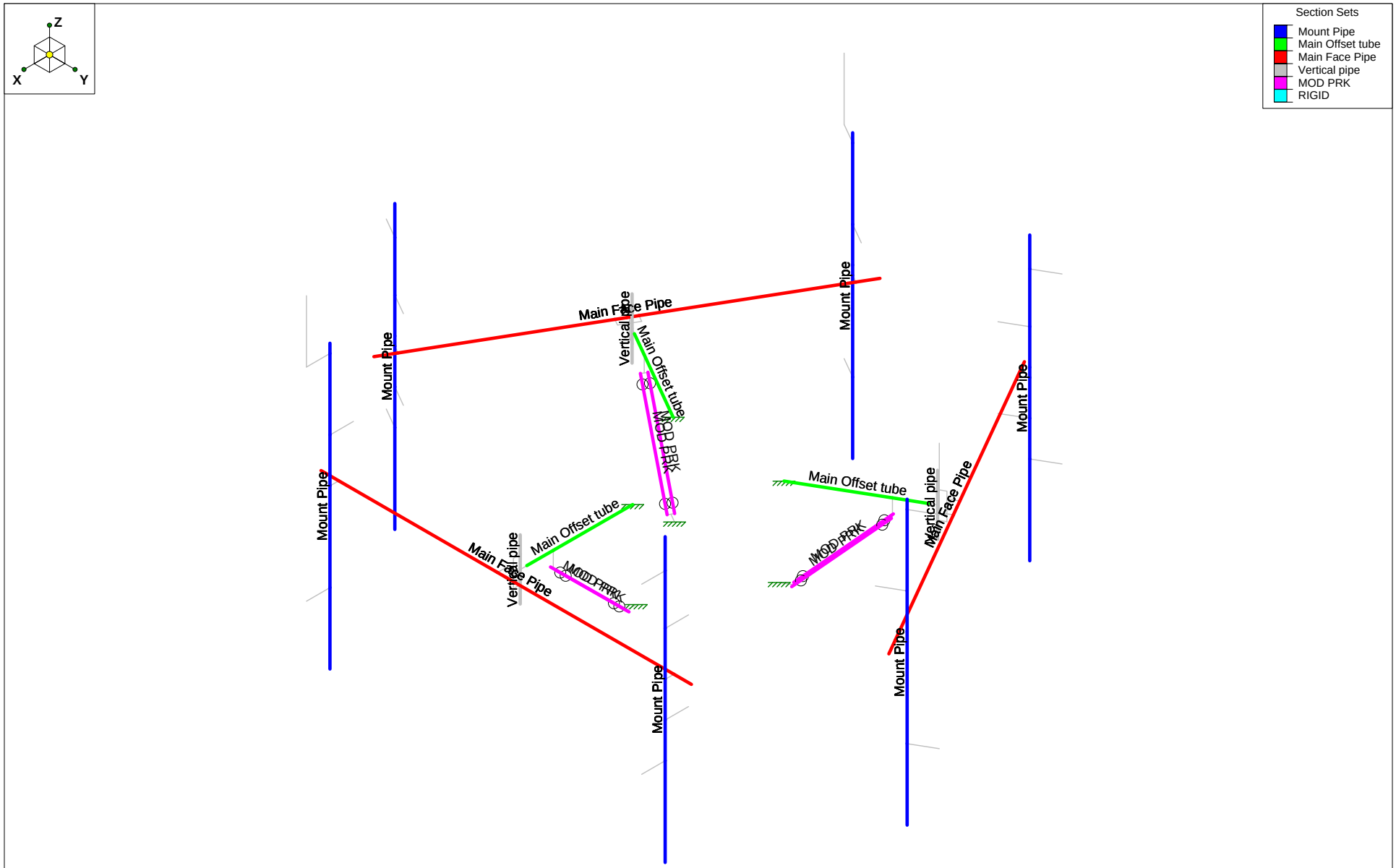
Envelope Only Solution

CLS		SK - 2
ST	41124-12927152-SHARON CT	June 21, 2019 at 3:28 PM
41124-12927152-01-MA-R1	Joint Labels	41124-12927152-01-MA-R1.r3d



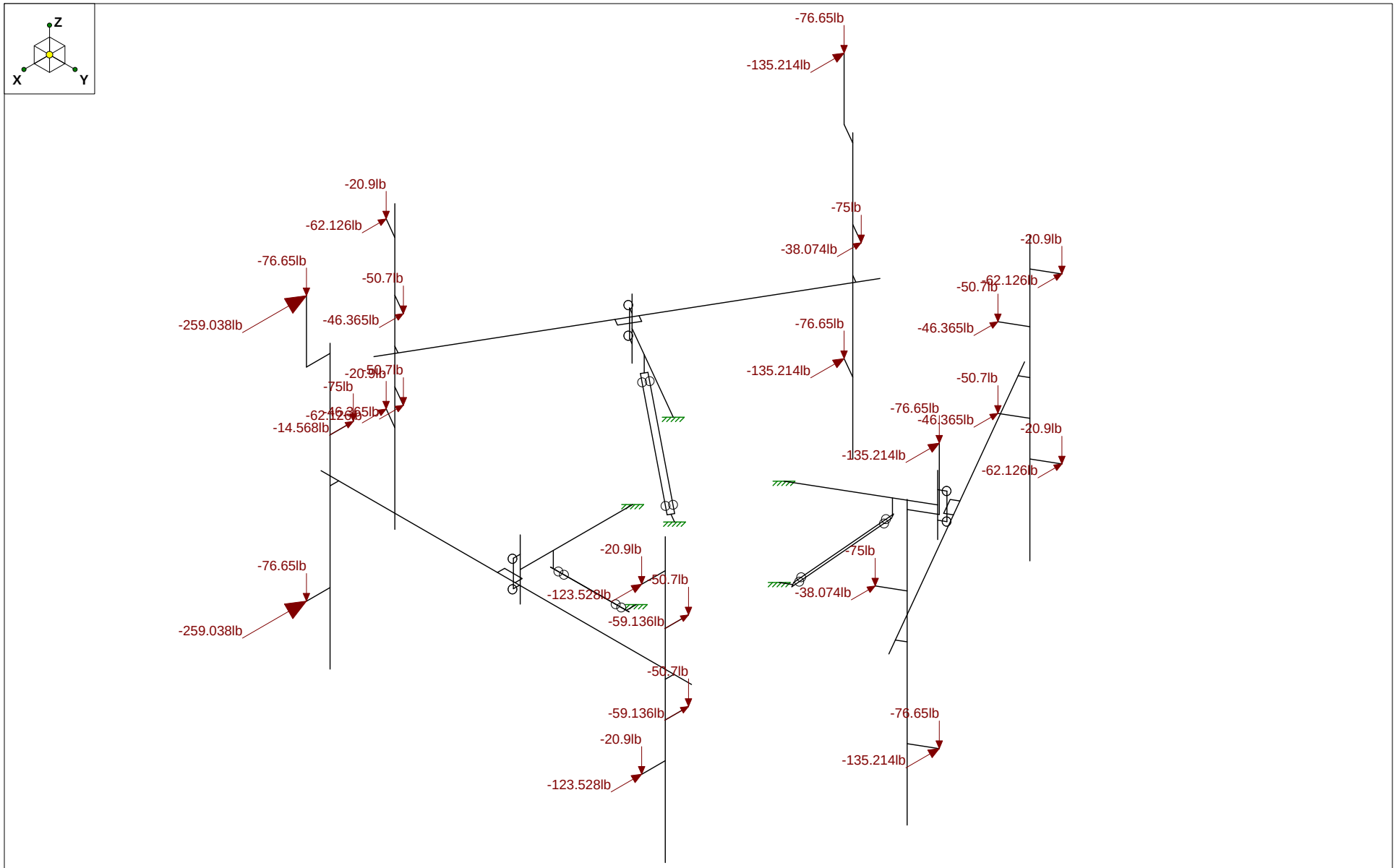
Envelope Only Solution

CLS		SK - 3
ST	41124-12927152-SHARON CT	June 21, 2019 at 3:28 PM
41124-12927152-01-MA-R1	Member Labels	41124-12927152-01-MA-R1.r3d



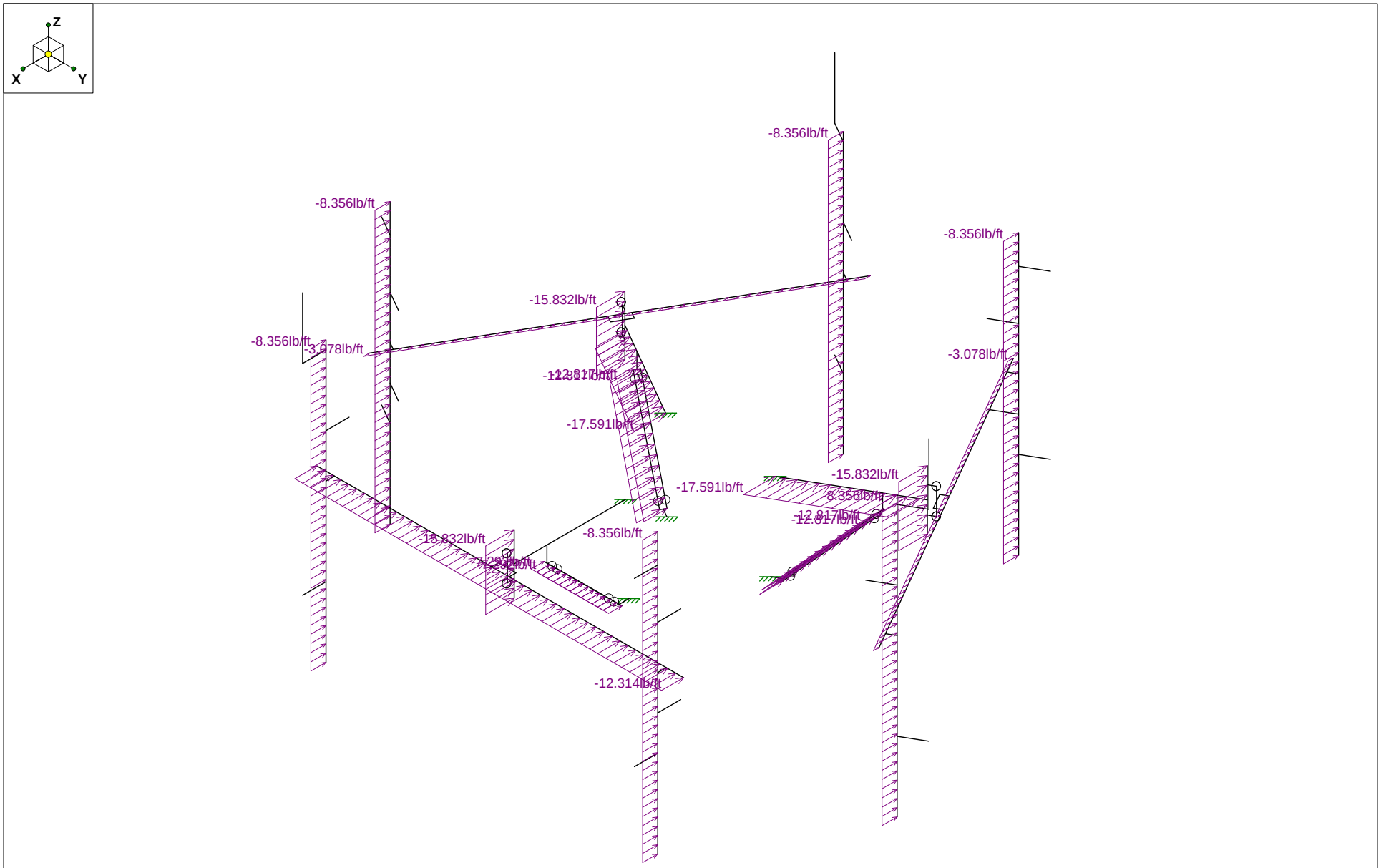
Envelope Only Solution

CLS	41124-12927152-SHARON CT	SK - 4
ST		June 21, 2019 at 3:28 PM
41124-12927152-01-MA-R1	Section Sets	41124-12927152-01-MA-R1.r3d



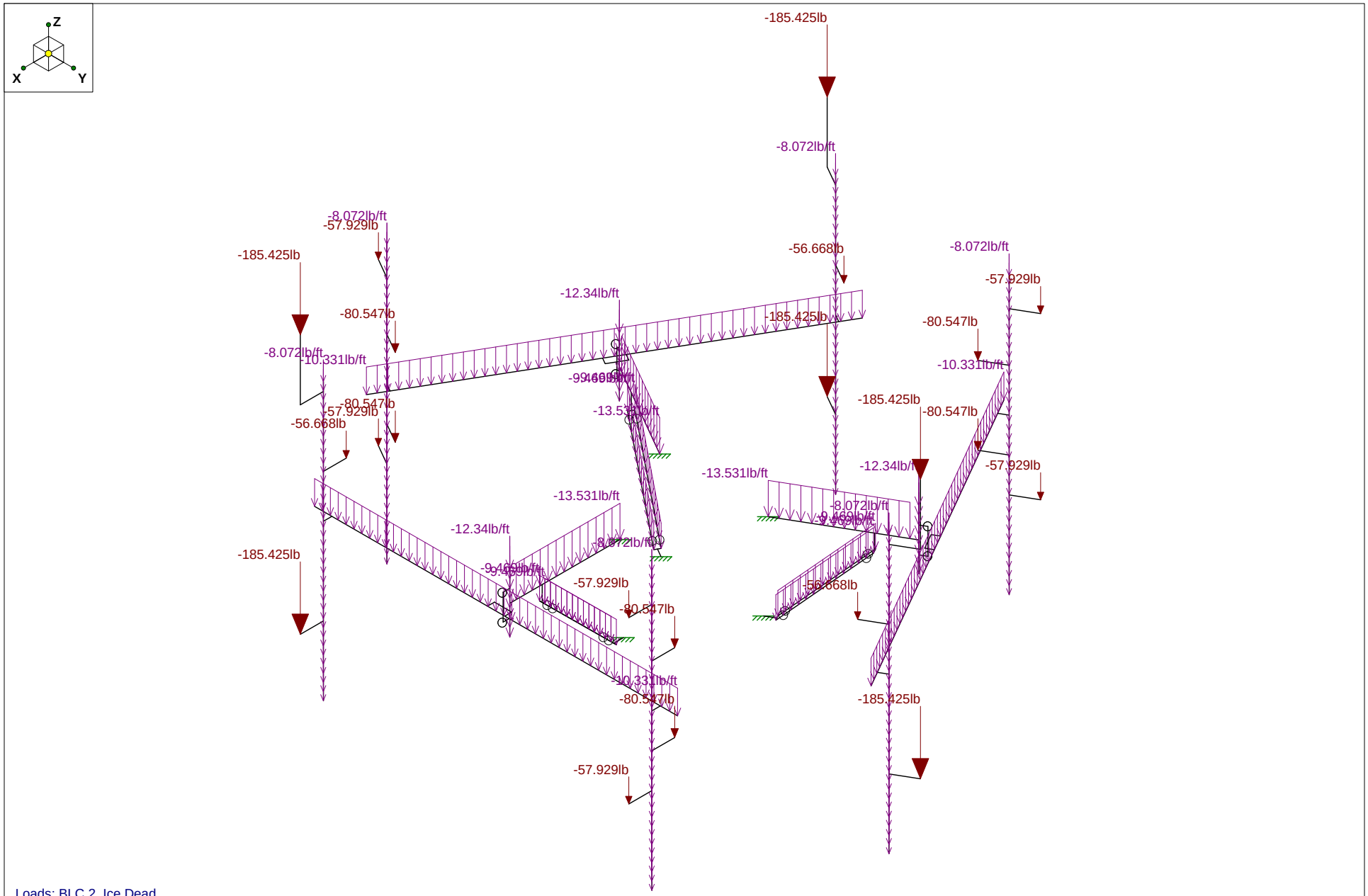
Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

CLS		SK - 5
ST	41124-12927152-SHARON CT	June 21, 2019 at 3:28 PM
41124-12927152-01-MA-R1	Joint Loads - Dead and Normal Wind	41124-12927152-01-MA-R1.r3d



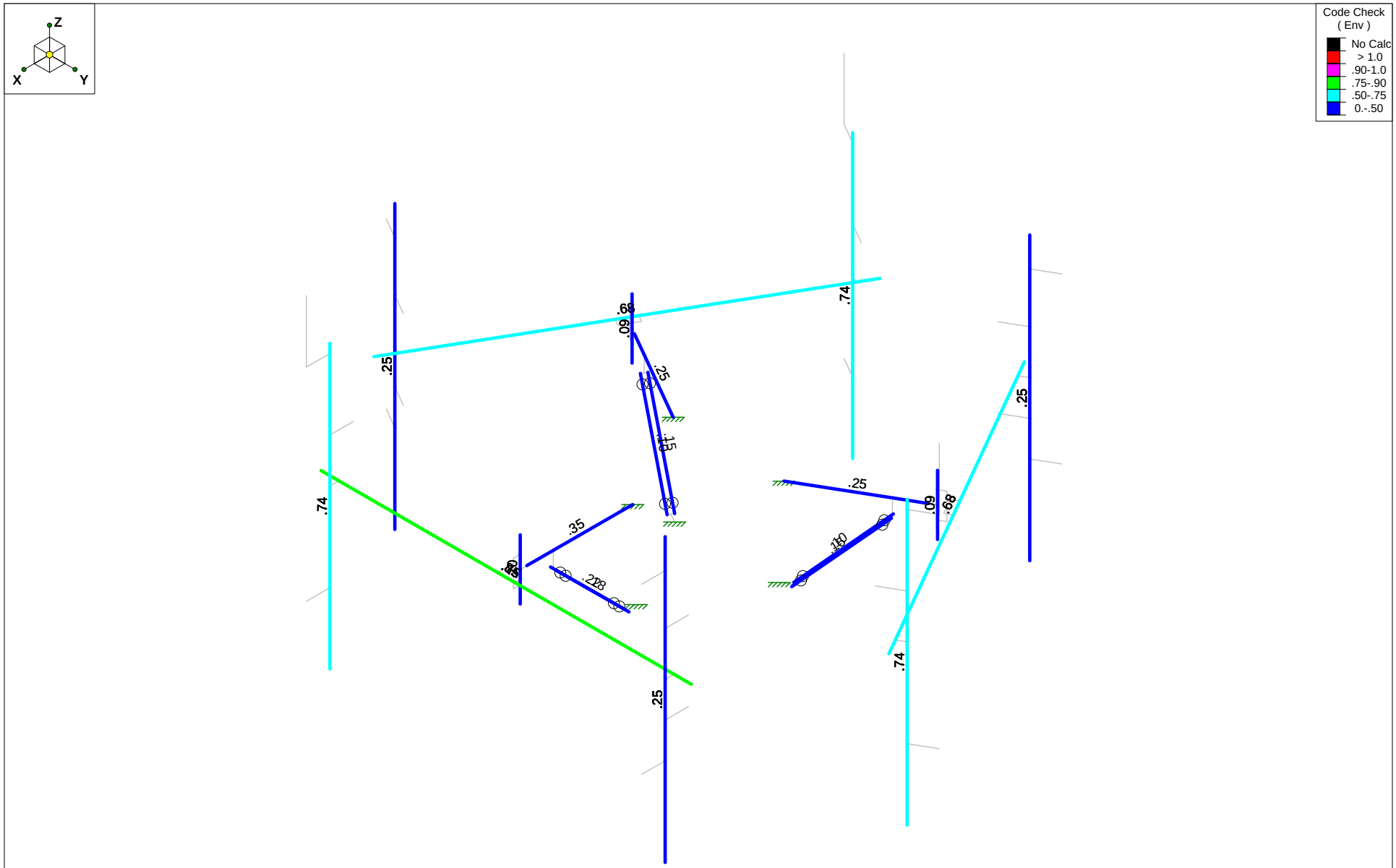
Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

CLS		SK - 6
ST	41124-12927152-SHARON CT	June 21, 2019 at 3:29 PM
41124-12927152-01-MA-R1	Distributed Load - Normal Wind	41124-12927152-01-MA-R1.r3d



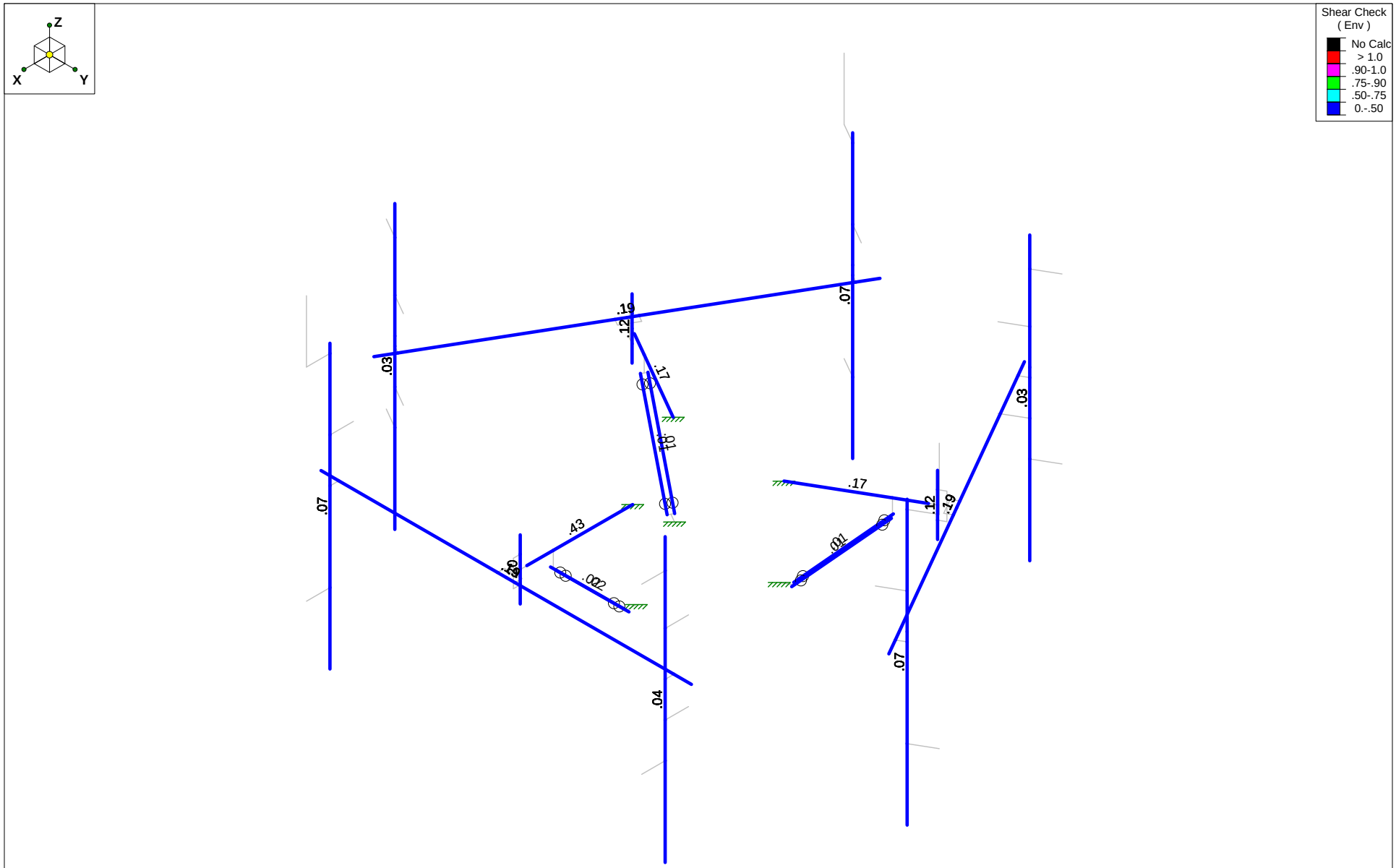
Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS		SK - 7
ST	41124-12927152-SHARON CT	June 21, 2019 at 3:30 PM
41124-12927152-01-MA-R1	Ice Dead Loads	41124-12927152-01-MA-R1.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS		SK - 8
ST	41124-12927152-SHARON CT	June 21, 2019 at 3:29 PM
41124-12927152-01-MA-R1	Envelope Member Unity Check Results - Bending	41124-12927152-01-MA-R1.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS		SK - 9
ST	41124-12927152-SHARON CT	June 21, 2019 at 3:29 PM
41124-12927152-01-MA-R1	Envelope Member Check Results - Shear	41124-12927152-01-MA-R1.r3d

Basic Load Cases

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distrib...	Area(Me...	Surfac...
1	Dead	DL			-1	21				
2	Ice Dead	RL				21		21		
4	Structure Wind 0°	None						20		
5	Structure Wind 30°	None						40		
6	Structure Wind 45°	None						42		
7	Structure Wind 60°	None						40		
8	Structure Wind 90°	None						20		
9	Structure Wind 120°	None						40		
10	Structure Wind 135°	None						42		
11	Structure Wind 150°	None						40		
12	Structure Wind w/ Ice 0°	None						20		
13	Structure Wind w/ Ice 30°	None						40		
14	Structure Wind w/ Ice 45°	None						42		
15	Structure Wind w/ Ice 60°	None						40		
16	Structure Wind w/ Ice 90°	None						20		
17	Structure Wind w/ Ice 120°	None						40		
18	Structure Wind w/ Ice 135°	None						42		
19	Structure Wind w/ Ice 150°	None						40		
20	Antenna Wind 0°	None				21				
21	Antenna Wind 30°	None				42				
22	Antenna Wind 45°	None				42				
23	Antenna Wind 60°	None				42				
24	Antenna Wind 90°	None				21				
25	Antenna Wind 120°	None				42				
26	Antenna Wind 135°	None				42				
27	Antenna Wind 150°	None				42				
28	Antenna Wind w/ Ice 0°	None				21				
29	Antenna Wind w/ Ice 30°	None				42				
30	Antenna Wind w/ Ice 45°	None				42				
31	Antenna Wind w/ Ice 60°	None				42				
32	Antenna Wind w/ Ice 90°	None				21				
33	Antenna Wind w/ Ice 120°	None				42				
34	Antenna Wind w/ Ice 135°	None				42				
35	Antenna Wind w/ Ice 150°	None				42				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DISPLAY (1.0D + 1.0W...	Yes	Y		DL	1	20	1																		
2	1.4D	Yes	Y		DL	1.4																				
3	1.2D + 1.0W_0°	Yes	Y		DL	1.2	4	1	20	1																
4	1.2D + 1.0W_30°	Yes	Y		DL	1.2	5	1	21	1																
5	1.2D + 1.0W_45°	Yes	Y		DL	1.2	6	1	22	1																
6	1.2D + 1.0W_60°	Yes	Y		DL	1.2	7	1	23	1																
7	1.2D + 1.0W_90°	Yes	Y		DL	1.2	8	1	24	1																
8	1.2D + 1.0W_120°	Yes	Y		DL	1.2	9	1	25	1																
9	1.2D + 1.0W_135°	Yes	Y		DL	1.2	10	1	26	1																
10	1.2D + 1.0W_150°	Yes	Y		DL	1.2	11	1	27	1																
11	1.2D + 1.0W_180°	Yes	Y		DL	1.2	4	-1	20	-1																
12	1.2D + 1.0W_210°	Yes	Y		DL	1.2	5	-1	21	-1																
13	1.2D + 1.0W_225°	Yes	Y		DL	1.2	6	-1	22	-1																
14	1.2D + 1.0W_240°	Yes	Y		DL	1.2	7	-1	23	-1																
15	1.2D + 1.0W_270°	Yes	Y		DL	1.2	8	-1	24	-1																

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..
16	1.2D + 1.0W_300°	Yes	Y		DL	1.2	9	-1	25	-1																
17	1.2D + 1.0W_315°	Yes	Y		DL	1.2	10	-1	26	-1																
18	1.2D + 1.0W_330°	Yes	Y		DL	1.2	11	-1	27	-1																
19	1.2D + 1.0Di + 1.0Wi_0°	Yes	Y		DL	1.2	12	1	28	1	RL	1														
20	1.2D + 1.0Di + 1.0Wi_30°	Yes	Y		DL	1.2	13	1	29	1	RL	1														
21	1.2D + 1.0Di + 1.0Wi_45°	Yes	Y		DL	1.2	14	1	30	1	RL	1														
22	1.2D + 1.0Di + 1.0Wi_60°	Yes	Y		DL	1.2	15	1	31	1	RL	1														
23	1.2D + 1.0Di + 1.0Wi_90°	Yes	Y		DL	1.2	16	1	32	1	RL	1														
24	1.2D + 1.0Di + 1.0Wi_1...	Yes	Y		DL	1.2	17	1	33	1	RL	1														
25	1.2D + 1.0Di + 1.0Wi_1...	Yes	Y		DL	1.2	18	1	34	1	RL	1														
26	1.2D + 1.0Di + 1.0Wi_1...	Yes	Y		DL	1.2	19	1	35	1	RL	1														
27	1.2D + 1.0Di + 1.0Wi_1...	Yes	Y		DL	1.2	12	-1	28	-1	RL	1														
28	1.2D + 1.0Di + 1.0Wi_2...	Yes	Y		DL	1.2	13	-1	29	-1	RL	1														
29	1.2D + 1.0Di + 1.0Wi_2...	Yes	Y		DL	1.2	14	-1	30	-1	RL	1														
30	1.2D + 1.0Di + 1.0Wi_2...	Yes	Y		DL	1.2	15	-1	31	-1	RL	1														
31	1.2D + 1.0Di + 1.0Wi_2...	Yes	Y		DL	1.2	16	-1	32	-1	RL	1														
32	1.2D + 1.0Di + 1.0Wi_3...	Yes	Y		DL	1.2	17	-1	33	-1	RL	1														
33	1.2D + 1.0Di + 1.0Wi_3...	Yes	Y		DL	1.2	18	-1	34	-1	RL	1														
34	1.2D + 1.0Di + 1.0Wi_3...	Yes	Y		DL	1.2	19	-1	35	-1	RL	1														
35	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	4	.072	20	.072	O..	1.5														
36	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	5	.072	21	.072	O..	1.5														
37	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	6	.072	22	.072	O..	1.5														
38	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	7	.072	23	.072	O..	1.5														
39	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	8	.072	24	.072	O..	1.5														
40	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	9	.072	25	.072	O..	1.5														
41	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	10	.072	26	.072	O..	1.5														
42	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	11	.072	27	.072	O..	1.5														
43	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	4	-.0...	20	-.0...	O..	1.5														
44	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	5	-.0...	21	-.0...	O..	1.5														
45	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	6	-.0...	22	-.0...	O..	1.5														
46	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	7	-.0...	23	-.0...	O..	1.5														
47	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	8	-.0...	24	-.0...	O..	1.5														
48	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	9	-.0...	25	-.0...	O..	1.5														
49	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	10	-.0...	26	-.0...	O..	1.5														
50	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	11	-.0...	27	-.0...	O..	1.5														
51	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	4	.072	20	.072	O..	1.5														
52	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	5	.072	21	.072	O..	1.5														
53	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	6	.072	22	.072	O..	1.5														
54	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	7	.072	23	.072	O..	1.5														
55	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	8	.072	24	.072	O..	1.5														
56	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	9	.072	25	.072	O..	1.5														
57	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	10	.072	26	.072	O..	1.5														
58	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	11	.072	27	.072	O..	1.5														
59	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	4	-.0...	20	-.0...	O..	1.5														
60	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	5	-.0...	21	-.0...	O..	1.5														
61	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	6	-.0...	22	-.0...	O..	1.5														
62	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	7	-.0...	23	-.0...	O..	1.5														
63	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	8	-.0...	24	-.0...	O..	1.5														
64	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	9	-.0...	25	-.0...	O..	1.5														
65	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	10	-.0...	26	-.0...	O..	1.5														
66	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	11	-.0...	27	-.0...	O..	1.5														

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 ...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	A500 GR.C R...	29000	11154	.3	.65	.49	46	1.5	58	1.3
9	A500 GR.C R...	29000	11154	.3	.65	.49	50	1.5	58	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Main Offset tube	HSS4X4X4	Beam	None	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
3	Main Face Pipe	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	Vertical pipe	PIPE_4.0	Beam	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
5	MOD PRK	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M38	Main Offset ...	36			Lbyy						Lateral
2	M45	Main Face ...	126			Lbyy						Lateral
3	M97	Vertical pipe	20.4			Lbyy						Lateral
4	M42D	Mount Pipe	96			Lbyy						Lateral
5	M43B	Mount Pipe	96			Lbyy						Lateral
6	M28	Main Offset ...	36			Lbyy						Lateral
7	M30	Main Face ...	126			Lbyy						Lateral
8	M34	Vertical pipe	20.4			Lbyy						Lateral
9	M41	Mount Pipe	96			Lbyy						Lateral
10	M42	Mount Pipe	96			Lbyy						Lateral
11	M53	Main Offset ...	36			Lbyy						Lateral
12	M55	Main Face ...	126			Lbyy						Lateral
13	M59	Vertical pipe	20.4			Lbyy						Lateral
14	M66	Mount Pipe	96			Lbyy						Lateral
15	M67	Mount Pipe	96			Lbyy						Lateral
16	PR5	MOD PRK	35									Lateral
17	PR6	MOD PRK	35									Lateral
18	PR11	MOD PRK	35									Lateral
19	PR12	MOD PRK	35									Lateral
20	PR17	MOD PRK	35									Lateral
21	PR18	MOD PRK	35									Lateral

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N33	max	583.784	3	701.855	16	142.224	1	2839.212	37	606.848	27	2784.129	17
2		min	-2858.523	27	-702.748	8	-927.78	27	-3738.768	61	-125.85	1	-2873.372	9
3	N100	max	1552.227	18	2478.739	31	51.588	8	1090.589	33	705.282	23	2660.527	6
4		min	-570.03	10	-505.721	8	-927.795	32	116.162	9	94.39	15	-2750.322	14
5	P13	max	-323.049	14	2288.055	22	2671.144	22	707.99	23	307.157	19	215.445	11
6		min	-1323.242	22	560.159	14	632.889	14	154.685	15	-76.049	12	-134.676	3
7	P21	max	-323.589	8	-559.85	8	2671.175	32	-74.905	7	483.473	19	215.433	6
8		min	-1319.909	32	-2290.016	32	632.892	8	-608.784	31	44.962	11	-134.664	14

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
9	P5	max	2643.147	27	41.299	15	2671.157	27	273.025	41	-120.425	1	354.027	65
10		min	421.395	1	-40.786	7	428.178	1	-355.91	65	-751.263	27	-271.745	41
11	N54	max	1553.9	4	505.4	14	51.589	14	280.987	13	-220.626	15	2660.765	11
12		min	-570.515	12	-2476.864	23	-927.768	22	-169.586	5	-1285.441	23	-2750.583	3
13	Totals:	max	2922.358	3	2922.275	15	5230.134	19						
14		min	-2922.36	11	-2922.271	7	1711.198	1						

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

	Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M45	PIPE_3.0	.847	66.316	65	.190	66.316		11	36138.4	65205	5748.75	5748.75	2....	H1-1b
2	M43B	PIPE_2.0	.737	41.432	3	.073	42.442		17	14916.0...	32130	1871.625	1871.625	2....	H1-1b
3	M67	PIPE_2.0	.737	41.432	8	.072	42.442		7	14916.0...	32130	1871.625	1871.625	2....	H1-1b
4	M42	PIPE_2.0	.737	41.432	14	.072	42.442		12	14916.0...	32130	1871.625	1871.625	2....	H1-1b
5	M55	PIPE_3.0	.676	66.316	23	.190	66.316		16	36138.4	65205	5748.75	5748.75	2....	H1-1b
6	M30	PIPE_3.0	.676	66.316	28	.190	66.316		6	36138.4	65205	5748.75	5748.75	2....	H1-1b
7	M38	HSS4X4X4	.348	27.284	58	.427	27.284	y	65	106016....	109188	12663	12663	2....	H3-6
8	M66	PIPE_2.0	.254	41.432	8	.035	54.568		10	14916.0...	32130	1871.625	1871.625	2....	H1-1b
9	M42D	PIPE_2.0	.254	41.432	3	.035	54.568		5	14916.0...	32130	1871.625	1871.625	2....	H1-1b
10	M41	PIPE_2.0	.254	41.432	14	.035	54.568		15	14916.0...	32130	1871.625	1871.625	2....	H1-1b
11	M28	HSS4X4X4	.247	0	4	.172	27.284	y	27	106016....	109188	12663	12663	2....	H1-1b
12	M53	HSS4X4X4	.247	0	15	.172	27.284	y	22	106016....	109188	12663	12663	2....	H1-1b
13	PR6	L2.5x2.5x3	.216	17.684	62	.017	35	y	57	21858.2...	29192.4	872.574	1866.6	1....	H2-1
14	M97	PIPE_4.0	.195	10.093	61	.202	10.093		66	92382.01	93240	10631.25	10631.25	1....	H1-1b
15	PR5	L2.5x2.5x3	.183	17.684	41	.017	0	z	57	21858.2...	29192.4	872.574	1866.6	1....	H2-1
16	PR18	L2.5x2.5x3	.151	18.053	19	.009	0	z	14	21858.2...	29192.4	872.574	1866.6	1....	H2-1
17	PR12	L2.5x2.5x3	.151	18.053	24	.009	35	z	3	21858.2...	29192.4	872.574	1866.6	1....	H2-1
18	PR11	L2.5x2.5x3	.105	17.316	4	.009	0	y	3	21858.2...	29192.4	872.574	1866.6	1....	H2-1
19	PR17	L2.5x2.5x3	.105	17.316	15	.009	0	y	14	21858.2...	29192.4	872.574	1866.6	1....	H2-1
20	M59	PIPE_4.0	.088	10.093	34	.118	10.093		16	92382.01	93240	10631.25	10631.25	1....	H1-1b
21	M34	PIPE_4.0	.088	10.093	23	.123	10.093		5	92382.01	93240	10631.25	10631.25	1....	H1-1b

Bolted Connection Rotational Slip Resistance of U-Bolt Connection to Vertical Pipe

v. 2017.11.20

DESIGN LOADS	
Factored Moment, M_u (lb-ft)	1088

BOLT PROPERTIES	
Bolt Type	U-Bolt
# of U-Bolts	1
Hole Type	Standard
Bolt Grade	A36
Bolt Diameter, d (in)	0.625
Leg Width, W_{leg} (in)	4.5
Bolt Torque Override, T (lb-ft)	50
Bolt Pretension Stress Override (ksi)	
Bolt Ultimate Strength, F_u (ksi)	58
Specified Torque, T (lb-ft)	50.00
Clamping Force per Bolt, P_u (lb)	4800.00
Bolt Pretension Stress (ksi)	15.65
Tensile Strength per Bolt, ϕP_n (lb)	10009.22
Slip Resistance per Bolt, ϕM_n (lb-ft)	610.20
Total Slip Resistance, ϕM_n (lb-ft)	1220.40
Connection Slip Usage, M_u / ϕM_n	**0.89**

Using Torque Override

FACTORS		
Nut Factor, K	0.20	**Rule-of-thumb estimate**
$\phi_{(BOLT\ TENSION)}$	0.75	**AISC 15th, J3.6**
$\phi_{(SLIP\text{-}CRITICAL)}$	1.00	**AISC 15th, J3.8**
Mean Slip Coefficient, μ	0.30	**AISC 15th, J3.8**
Installed Pretension Ratio, D_u	1.13	**AISC 15th, J3.8**

Exhibit F

Power Density/RF Emissions Report

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: CTNH543A

70 Herb Road
Sharon, Connecticut 06069

May 30, 2019

EBI Project Number: 6219001994

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**15.79%**

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

May 30, 2019

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

Emissions Analysis for Site: CTNH543A -

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **70 Herb Road** in **Sharon, 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 70 Herb Road in Sharon, 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 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) 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.

3) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 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.

5) 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.

6) 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.

7) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 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.

8) The antenna mounting height centerline of the proposed antennas is 84 feet above ground level (AGL).

9) 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.

10) 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 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	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd
Height (AGL):	84 feet	Height (AGL):	84 feet	Height (AGL):	84 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	7,002.81	ERP (W):	7,002.81	ERP (W):	7,002.81
Antenna A1 MPE %:	**3.57%**	Antenna B1 MPE %:	**3.57%**	Antenna C1 MPE %:	**3.57%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	84 feet	Height (AGL):	84 feet	Height (AGL):	84 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	**2.92%**	Antenna B2 MPE %:	**2.92%**	Antenna C2 MPE %:	**2.92%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	6.49%
Verizon	3.75%
AT&T	4.35%
Nextel	0.46%
CSP	0.74%
Site Total MPE % :	15.79%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	6.49%
T-Mobile Sector B Total:	6.49%
T-Mobile Sector C Total:	6.49%
Site Total MPE % :	15.79%

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 1900 MHz UMTS	2	1167.14	82.0	12.48	1900 MHz UMTS	1000	1.25%
T-Mobile 2100 MHz LTE	2	2334.27	82.0	24.96	2100 MHz LTE	1000	2.50%
T-Mobile 600 MHz LTE	2	591.73	82.0	6.33	600 MHz LTE	400	1.58%
T-Mobile 700 MHz LTE	2	648.82	82.0	6.94	700 MHz LTE	467	1.49%
						Total:	**6.49%**

• 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:	6.49%
Sector B:	6.49%
Sector C:	6.49%
T-Mobile Maximum MPE % (Sector A):	6.49%
Site Total:	15.79%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **15.79%** 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.

Exhibit G

Mailing Receipts/Proof of Notice

UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.
   Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages. Hand the package to any UPS driver in your area.

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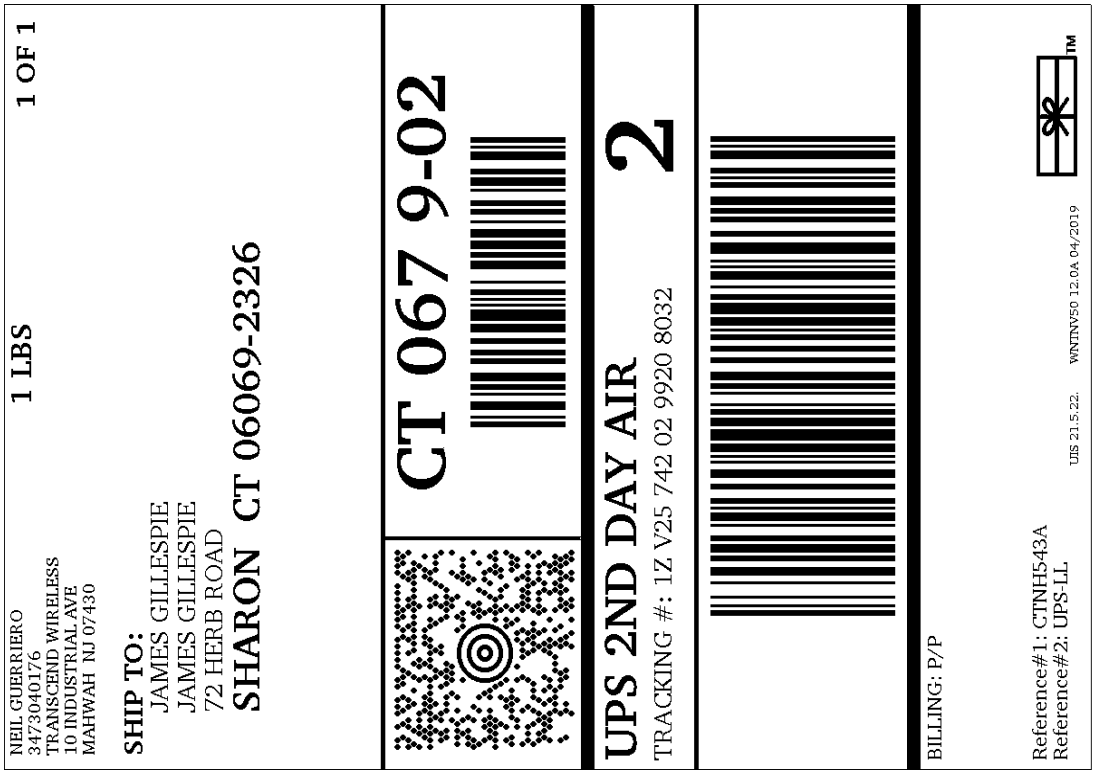

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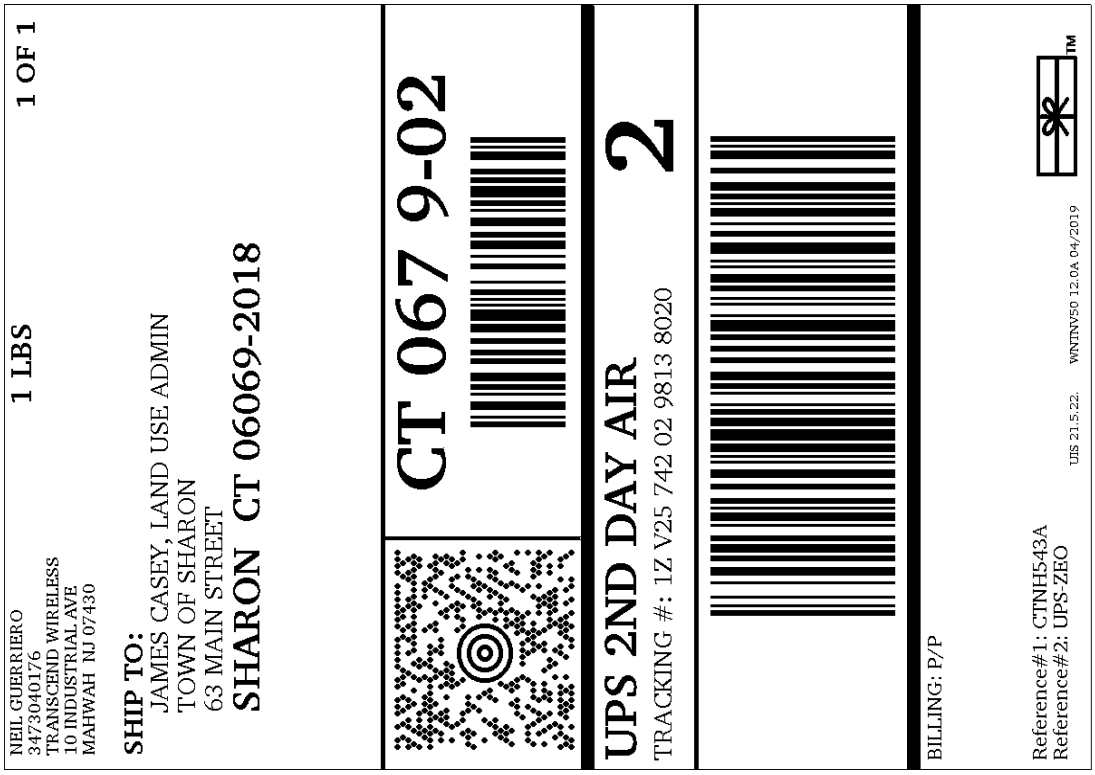

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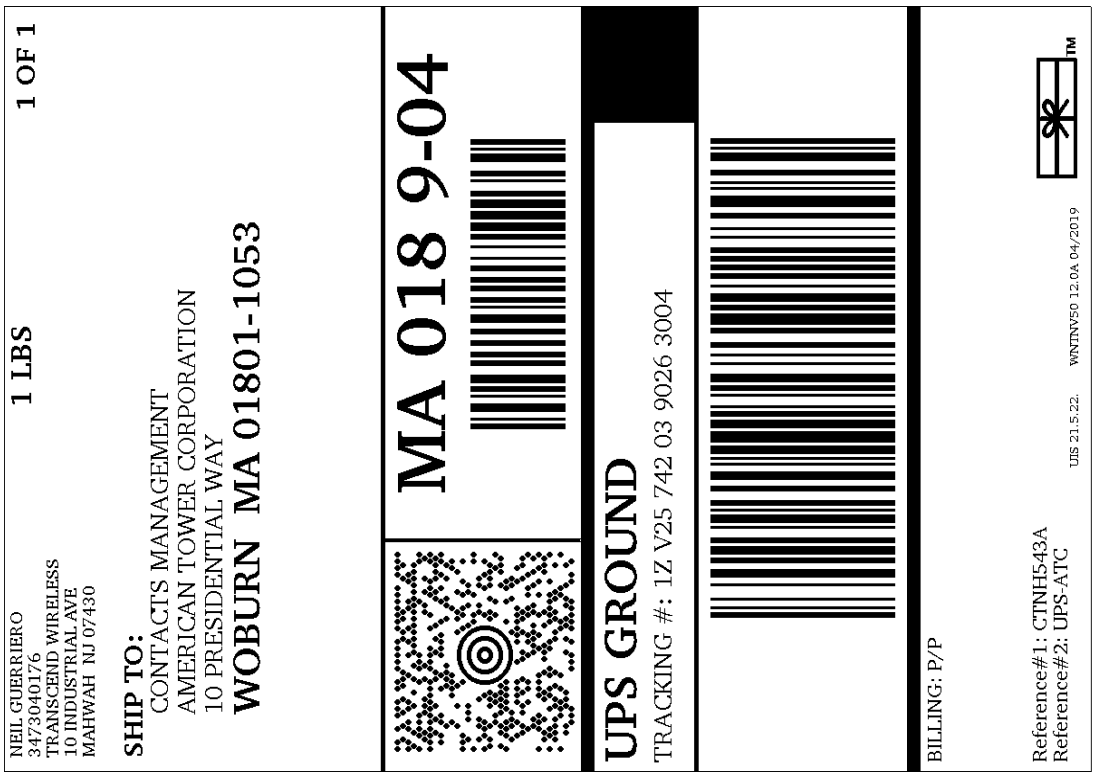

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