Transcend Wireless

10 Industrial Avenue,
Suite 3
Mahwah, NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

July 23, 2019

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

Notice of Exempt Modification
2 Dwight Street ,North Haven CT
Latitude 41.42210556
Longitude -72.84740556
T-Mobile site: CT11398A /L600

Dear Ms. Bachman:

T-Mobile currently maintains (9) antennas at the 130 foot level of the existing 150 -foot monopole located at 2 Dwight Street in North Haven CT. The monopole is owned by American Tower and the property is owned by Dwight Street Associates. T-Mobile now intends to replace (3) of its existing antennas with (3) 600/700 MHz antennas. The new antennas would be installed at the 130 foot level of the tower and mount modifications are proposed per the attached mount analysis.

Planned Modifications:

Remove:
Coax:
(2) 1-5/8" coax

Remove and Replace:
Antennas:
(3) Andrew - LNX-6515DS (REMOVE) – (3) RFS APXVAARR24_43-U-NA20 (REPLACE) 600 MHz / 700 MHz
(3) Ericsson RRUS 11 B12 (REMOVE) – (3) Ericsson Radio 4449 B12, B71 (REPLACE)

Existing to Remain:
Antennas/TMAs/RRUs/coax:
3) Ericsson AIR 21, 1.3M B4A B2P
(3) Ericsson AIR 21, 1.3M B2A B4P
(3) KRY 112 144/1 TMAs
(10) 1-5/8" coax
(1) 1-1/4" Hybrid

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

This facility was approved by Docket No. 44 by the Siting Council July 24, 1984, with no record of conditions that would restrict exempt modifications. Therefore, this modification complies with the aforementioned approval. A copy of the decision 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 Michael J. Freda, First Selectman and Laura Magaraci, Zoning Enforcement Officer.

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 Michael J. Freda, First Selectman
Laura Magaraci, Zoning Enforcement Officer
American Tower, Tower Owner
Dwight Street Associates, Property Owner

Exhibit A

Original Facility Approval

DOCKET NO. 44

AN APPLICATION SUBMITTED BY THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN NEW HAVEN COUNTY	:	CONNECTICUT SITING COUNCIL
	:	July 24, 1984

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

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to the Southern New England Telephone Company for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Jasudowich tract, Brushy Plain Road, Branford, Connecticut;
Town of Guilford tract, Tanner Marsh Road, Guilford, Connecticut;
Bridgeport Avenue, Milford, Connecticut;
Quagliaro tract, Farmdale Drive, Waterbury, Connecticut;
Pease Road, Woodbridge, Connecticut; and
Dwight Street, North Haven, Connecticut.

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

1. The towers including antennas shall be no taller than necessary to provide the proposed service and in no event shall exceed

   a) 167' at the Branford site,
   b) 167' at the Guilford site,
   c) 117' at the Milford site,
   d) 167' at the Waterbury site,
   e) 167' at the Woodbridge site,
   f) 167' at the North Haven site;

2. A fence not lower than eight feet shall surround each tower and its associated equipment;

3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities;
4. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the facilities, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing;
5. Unless necessary to comply with condition number six, below, no lights shall be installed on any of these towers;
6. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations;
7. The applicant shall submit a development and management plan (D&M) for the Branford, Milford, Woodbridge, and North Haven sites pursuant to sections 16-50j-85 through 16-50j-87 of the regulations of state agencies, except that irrelevant items in section 16-50j-86 need only be identified as such. The D&M plans shall include appropriate evergreen screening of the sites, erosion control measures, reseeding plans, and tree removal plans. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites;
8. Construction activities shall take place during daylight working hours;
9. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed, or reapplication for any new use shall be made to the Connecticut

Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction;

10. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, New Haven Register, and the Waterbury Republican.

The parties to this proceeding are

The Southern New England Telephone Company
Room 314
227 Church Street
New Haven, Connecticut 06506

(Applicant)

ATTENTION: Mr. Peter J. Tyrrell
Senior Attorney

(its attorney)

Town of Hamden
Peter F. Villano, Mayor
Shirley Gonzales, Town Planner

represented by:

Mr. Hugh Manke, Esquire
Office of the Town Attorney
Memorial Town Hall
2372 Whitney Avenue
Hamden, Connecticut 06518

Inland Wetlands Agency
Town of Woodbridge

represented by:

Robert J. Klancko
Chairman
Town Hall
11 Meeting House Lane
Woodbridge, Connecticut 06525

Town Plan and Zoning Commission Town of Woodbridge	represented by: Norman Fineberg Chairman Town Hall 11 Meeting House Lane Woodbridge, Connecticut 06525
The Honorable Peter M. Lerner State Representative State of Connecticut House of Representatives State Capitol Hartford, Connecticut 06115	
John Menta Felicia Tencza	represented by: Ms. Felicia Tencza 580 Gaylord Mountain Road Hamden, Connecticut 06518
Ms. Renee Robinson 265 Blue Trail Hamden, Connecticut 06518	(service waived)
Irene L. Wong Edson H. Mount Dr. & Mrs. H.M. Fiskio Dr. & Mrs. Alexander Gottschalk	represented by: Dr. & Mrs. Alexander Gottschalk 230 Six Rod Highway Hamden, Connecticut 06518
The Sleeping Giant Park Association	represented by: Mr. Dag Pfeiffer President Box 14 Quinnipiac College Hamden, Connecticut 06518
West Rock Ridge Park Association	represented by: Mr. William L. Dohney, Jr., D.D.S. President 220 Mountain Road Hamden, Connecticut 06514
Sierra Club	represented by: Ms. M. Kim Yanoshick Executive Director Hartford Chapter 118 Oak Street Hartford, Connecticut 06106

Quinnipiac College	represented by: Mr. Richard A. Terry President Hamden, Connecticut 06518
Guilford Conservation Commission	represented by: Ms. Carolyn K. Evans Chairman Town Hall Park Street Guilford, Connecticut 06437
Mrs. Barbara R. Peterson Mary & Phil Faust Anita L. & Richard M. Sullivan	represented by: Anita L. & Richard M. Sullivan 315 Chestnut Lane Hamden, Connecticut 06518
Mrs. Pauline H. Hoff	represented by: Herbert L. Emanuelson, Jr. Emanuelson and Wynne 205 Church Street New Haven, Connecticut 06510
Hamden League of Women Voters	represented by: Mrs. Sherrill Zoller 605 West Woods Road Hamden, Connecticut 06518 (service waived)
Joan Rosenberg 230 Ridewood Avenue Hamden, Connecticut 06517	
Mr. & Mrs. Richard Sykes 110 Blue Trail Hamden, Connecticut 06518	
Thomas & Claudia Sullivan, Jr. 100 Blue Trail Hamden, Connecticut 06518	
Mr. William N. Pantalone 27 Pease Road Woodbridge, Connecticut 06525	(service waived)

INTERVENORS

Metromedia TeleCommunications
Nutmeg Telecommunications, Inc.
CSI of New Haven
CSI of Stamford
Cellular Communications, Inc.
LIN Cellular Corp.
Cellular Mobile Services
Maxcell TeleCommunications, Inc.
Mobile Cellular Telephone, Inc.
Cellular Dynamics
Connecticut Corridor Cellular
Chase/Post Cellular

represented by:

Dwight A. Johnson
Murtha, Cullina, Richter
and Pinney
101 Pearl Street
P.O. Box 3197
Hartford, Connecticut 06103-0197

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

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

Dated at New Britain, Connecticut, this 24th day of July, 1984.

Council Members	Vote Cast
_____) Gloria Dibble Pond Chairperson	Absent
_____) Commissioner John Downey Designee: Commissioner Peter G. Boucher	Absent
Brian Emerick _____) Commissioner Stanley Pac Designee: Brian Emerick	~~Yes~~ ~~Absent~~ Abstain
Owen L. Clark _____) Owen L. Clark	Yes
Fred J. Doocy _____) Fred J. Doocy	Yes
Mortimer A. Gelston _____) Mortimer A. Gelston	Yes
James G. Horsfall _____) James G. Horsfall	Yes
_____) Janet Sitty	Absent
Colin C. Tait _____) Colin C. Tait Acting Chairperson	Yes

STATE OF CONNECTICUT)
: ss. New Britain, July 24, 1984
COUNTY OF HARTFORD)

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

ATTEST:

Christopher S. Wood, Executive Director
Connecticut Siting Council

Exhibit B

Property card

2 DWIGHT ST

Location	2 DWIGHT ST	**Mblu**	100/ / 002/ /
Acct#	336235	**Owner**	2 DWIGHT STREET ASSOCIATES LLC
Assessment	$2,255,750	**Appraisal**	$3,222,500
PID	7807	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$2,464,300	$758,200	$3,222,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$1,725,010	$530,740	$2,255,750

Owner of Record

Owner	2 DWIGHT STREET ASSOCIATES LLC	**Sale Price**	$0
Co-Owner		**Certificate**	1
Address	2 DWIGHT ST NORTH HAVEN, CT 06473	**Book & Page**	758/ 254
		Sale Date	01/22/2007

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
2 DWIGHT STREET ASSOCIATES LLC	$0	1	758/ 254	01/22/2007
FRD ASSOCIATES LLC	$900,000	3	722/ 590	10/06/2005
MILFORD FREEZER DEVELOPMENT LLC	$0	4	554/ 253	03/24/2000
ULBRICH FREDERICK C JR	$0	5	362/ 117	12/19/1986
ULBRICH STAINLESS STEELS	$0	6	362/ 113	12/19/1986

Building Information

Building 1 : Section 1

Year Built:	2007
Living Area:	48,276
Replacement Cost:	$3,228,647

Building Percent Good: 73

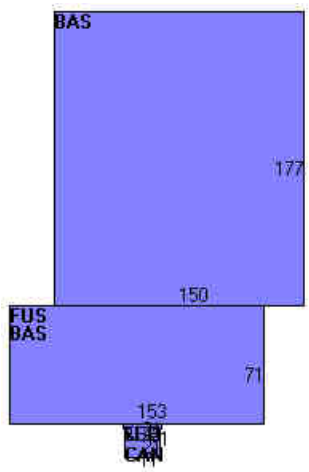
Replacement Cost Less Depreciation: $2,356,900

Building Attributes	
Field	**Description**
STYLE	Whse/Office
MODEL	Ind/Comm
Grade	B -
Stories:	2
Occupancy	1
Exterior Wall 1	Metal
Exterior Wall 2	Concr/Cinder
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Average
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Unit Heat
AC Type	None
Bldg Use	IND WHSES M96
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	NONE
Frame Type	FIREPRF STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	32
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/NorthHavenCTPhotos//\00\01\81

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	37,413	37,413
FUS	Upper Story, Finished	10,863	10,863
CAN	Canopy	231	0
FEP	Porch, Enclosed	216	0
		48,723	48,276

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
A/C	AIR CONDITION	9940 S.F.	$14,500	1
OVHD	OVER HEADDOOR	196 S.F.	$0	1
OVHD	OVER HEADDOOR	80 S.F.	$0	1

ELV2	PASS ELEV	2 STOPS	$24,100	1
SPR1	SPRINKLERS-WET	36490 S.F.	$24,000	1
LDL1	LOAD LEVELERS	2 UNITS	$4,200	1
MEZ1	MEZZANINE-UNF	2400 S.F.	$15,800	1

Land

Land Use

Use Code	4010
Description	IND WHSES M96
Zone	IL80
Neighborhood	307
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	13.8
Frontage	
Depth	
Assessed Value	$530,740
Appraised Value	$758,200

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	PAVING-ASPHALT			60000 S.F.	$40,500	1
TWR1	COMMU-TOWER			1 UNITS	$112,500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$2,687,300	$838,000	$3,525,300
2008	$1,595,200	$843,000	$2,438,200
2007		$590,100	$1,708,980

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$1,881,110	$586,600	$2,467,710
2008	$1,116,640	$590,100	$1,706,740
2007		$590,100	$1,708,980

Town of North Haven, CT

Property

2 dwight st

(https://www.google.com/maps/@41.424525,-72.84016,17z?hl=en-US)

Exhibit C

Construction Drawings

VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: NORTH HAVEN CT 2
ATC SITE NUMBER: 302539
T-MOBILE SITE ID: CT11398A
SITE ADDRESS: 4 DWIGHT STREET
NORTH HAVEN, CT 06473

LOCATION MAP

T-MOBILE L600 ANTENNA AMENDMENT
67D02C CONFIGURATION

BIRD WATCH SITE:
PLEASE CONTACT BIRD.WATCH@AMERICANTOWER.COM OR AMERICAN TOWER NOC AT 877-518-6937 FOR ASSISTANCE

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: UNITED ILLUMINATING COMPANY
PHONE: (800) 722-5584

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (800) 376-6843

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

PROJECT SUMMARY

SITE ADDRESS:

4 DWIGHT STREET
NORTH HAVEN, CT 06473
COUNTY: NEW HAVEN

1A CERTIFICATE SUMMARY:

LATITUDE: 41° 25' 19.36" N

LONGITUDE: 72° 50' 50.65" W

GROUND ELEVATION: 26' AMSL

TOWER HEIGHT: 151' AGL

HIGHEST APPURTENANCE: 152' 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:

ULBRICH STAINLESS STEEL AND SPECIAL METALS INC
153 WASHINGTON AVE
NORTH HAVEN, CT 06473

PROJECT DESCRIPTION

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

REMOVE (3) PANELS, (3) RRUs, AND (2) 1-5/8" COAX CABLES

INSTALL (3) NEW PANELS, (3) RRUs, MOUNT MOIDIFICATIONS, AND (2) 1-5/8" HYBRID CABLES

EXISTING (6) PANELS, (3) TTAs,(10) 1-5/8" COAX CABLES, AND (1) 1-1/4" HYBRID CABLE TO REMAIN

PROJECT NOTES

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

PROJECT LOCATION DIRECTIONS

FROM WALLINGFORD, TAKE I-91:

EXIT 13 TO ROUTE 5 NORTH HAVEN / WALLINGFORD /TURN LEFT ONTO RTE 5 SOUTH / TAKE FIRST RIGHT DEFCO PARK RD / TURN RIGHT ON DODGE AVENUE / TURN LEFT ONTO DWIGHT ST< 0.1 MI END.ARRIVE 4 DWIGHT ST, NORTH HAVEN, CT

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	1	07/18/19	LR
G-002	GENERAL NOTES	0	05/29/19	LR
C-101	DETAILED SITE PLAN & TOWER ELEVATION	1	07/18/19	LR
C-501	ANTENNA INFORMATION & SCHEDULE	1	07/18/19	LR
E-501	GROUNDING DETAILS	0	05/29/19	LR
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	05/29/19
1	MA UPDATE	LR	07/18/19

ATC SITE NUMBER:
302539

ATC SITE NAME:
NORTH HAVEN CT 2

SITE ADDRESS:
4 DWIGHT STREET
NORTH HAVEN, CT 06473

SEAL:

Authorized by "EOR"
Jul 19 2019 9:38 AM

T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951814

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	1

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	LR	05/29/19

ATC SITE NUMBER:
302539

ATC SITE NAME:
NORTH HAVEN CT 2

SITE ADDRESS:
4 DWIGHT STREET
NORTH HAVEN, CT 06473

SEAL:

Authorized by "EOR"
Jul 19 2019 9:38 AM

T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951814

GENERAL NOTES

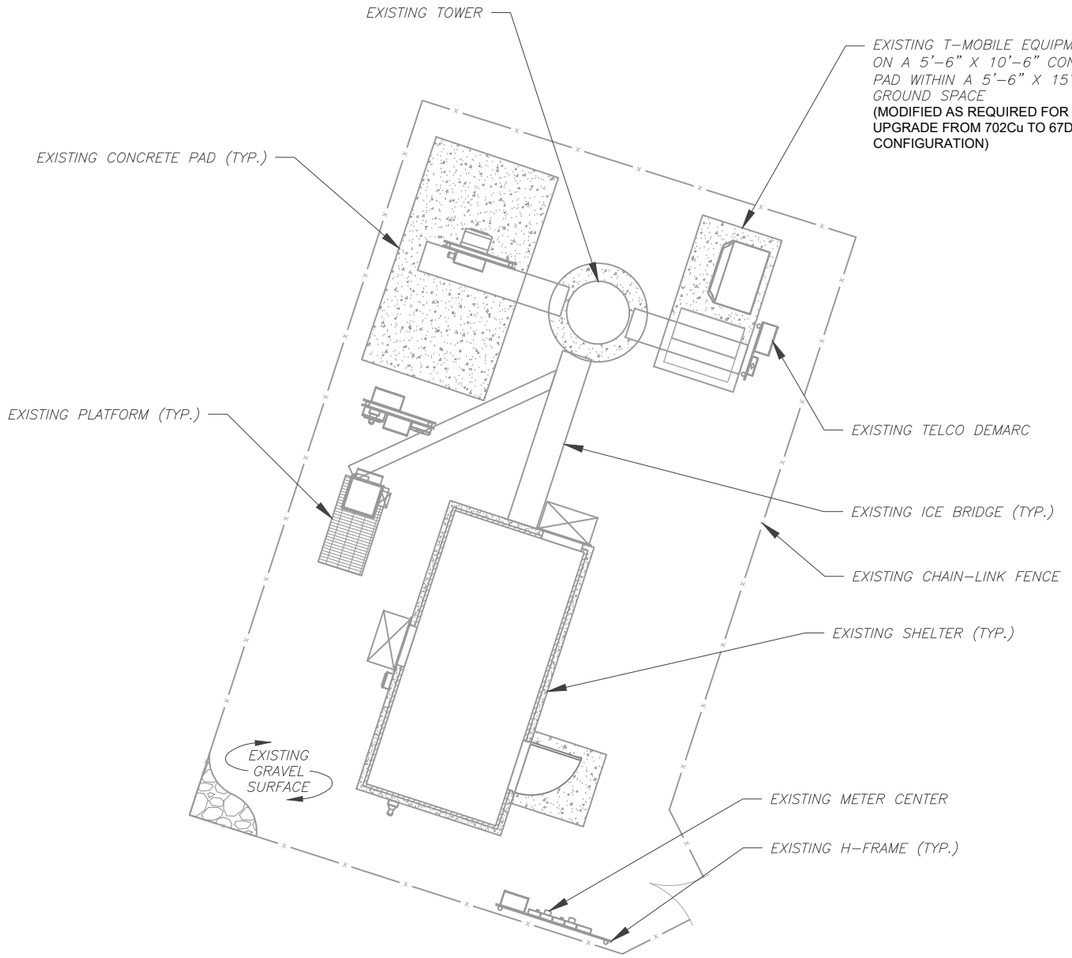
SHEET NUMBER:	REVISION:
G-002	0

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.

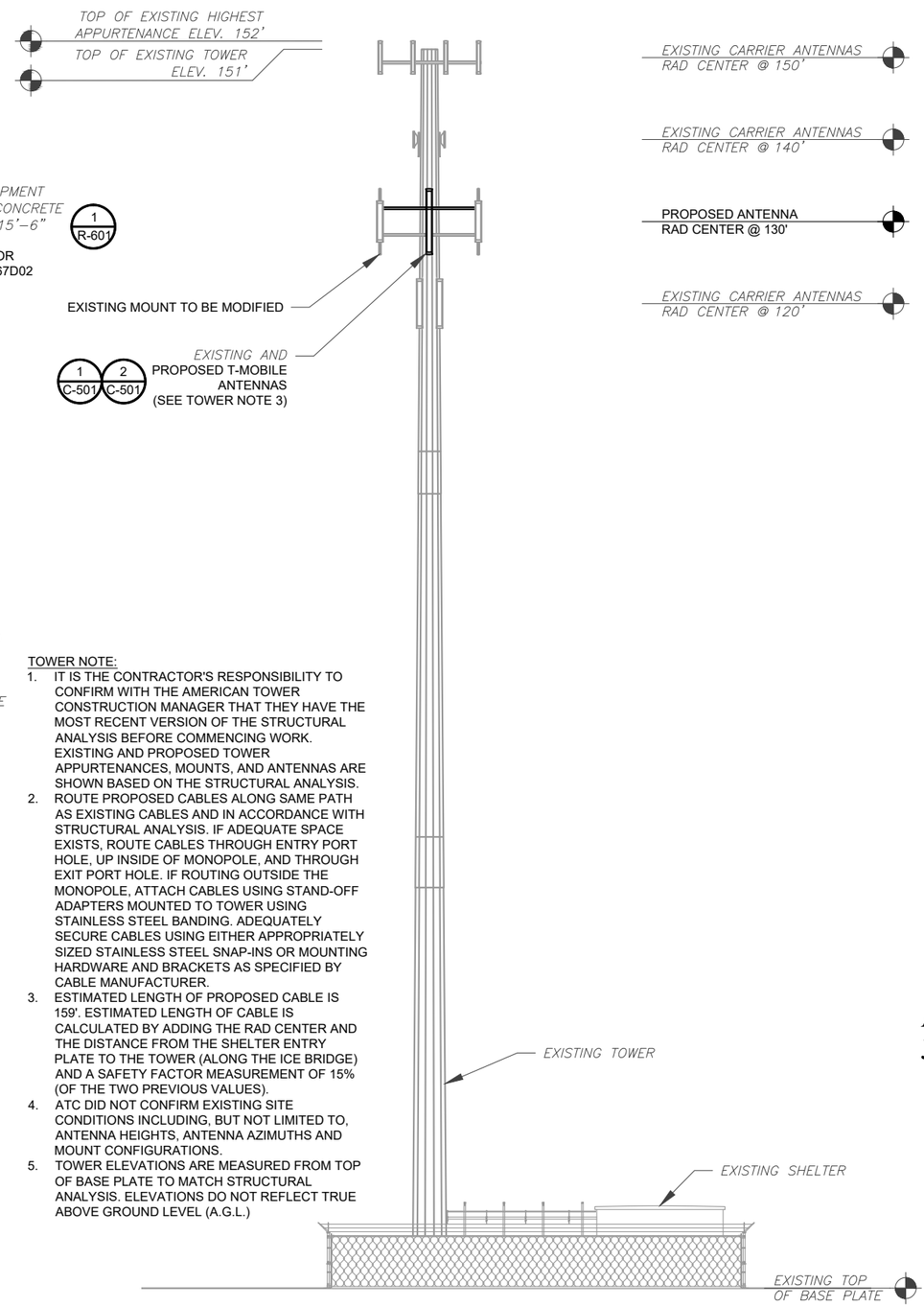


1 DETAILED SITE PLAN

0 10' 20'

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

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 07-03-19, 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 159'. 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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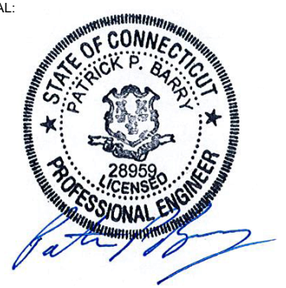
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	05/29/19
1	MA UPDATE	LR	07/18/19

ATC SITE NUMBER:
302539

ATC SITE NAME:
NORTH HAVEN CT 2

SITE ADDRESS:
4 DWIGHT STREET
NORTH HAVEN, CT 06473

SEAL:



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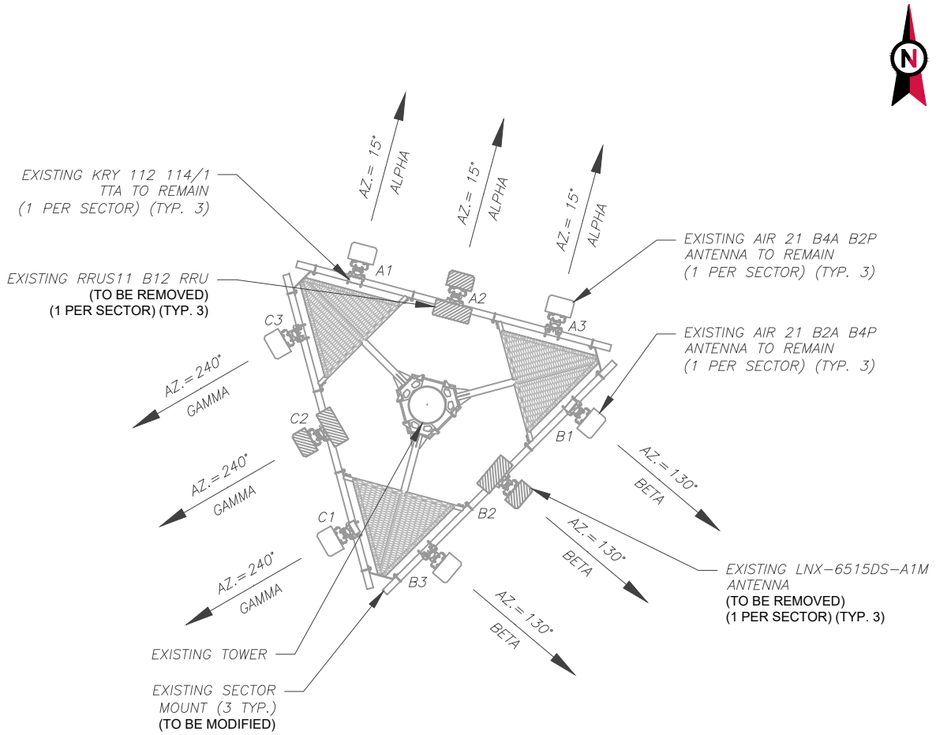
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951814

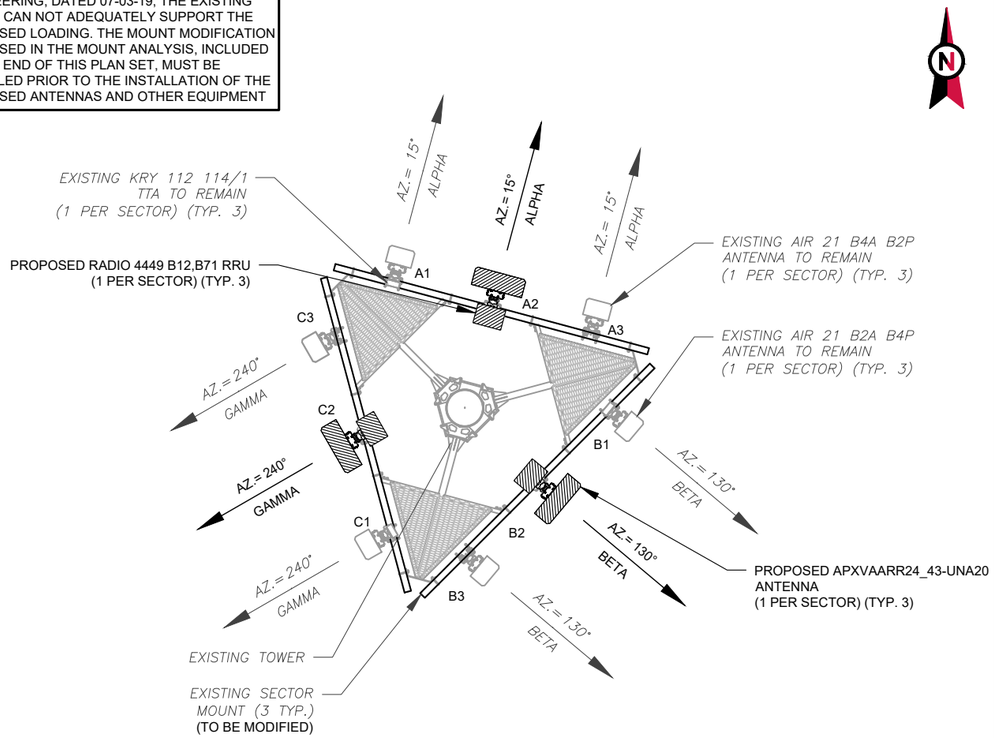
DETAILED SITE PLAN & TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-101	1



1 EXISTING ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 07-03-19, 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	AIR 21 B2A B4P	130'-0"	15°	2°	2°	KRY 112 144/1
ALPHA	A2	LNX-6515DS-A1M	130'-0"	15°	0°	2°	RRUS11 B12
ALPHA	A3	AIR 21 B4A B2P	130'-0"	15°	0°	3°	–
BETA	B1	AIR 21 B2A B4P	130'-0"	130°	2°	2°	KRY 112 144/1
BETA	B2	LNX-6515DS-A1M	130'-0"	130°	0°	2°	RRUS11 B12
BETA	B3	AIR 21 B4A B2P	130'-0"	130°	2°	0°	–
GAMMA	C1	AIR 21 B2A B4P	130'-0"	240°	2°	2°	KRY 112 144/1
GAMMA	C2	LNX-6515DS-A1M	130'-0"	240°	0°	2°	RRUS11 B12
GAMMA	C3	AIR 21 B4A B2P	130'-0"	240°	2°	0°	–

NOTES

1. BASED ON APPROVED ATC APPLICATION 12927158, DATED 04/04/19. 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	AIR 21 B2A B4P	130'-0"	15°	2°	2°	KRY 112 144/1
ALPHA	A2	APXVAARR24_43-UNA20	130'-0"	15°	0°	2°	RADIO 4449 B12,B71
ALPHA	A3	AIR 21 B4A B2P	130'-0"	15°	0°	3°	–
BETA	B1	AIR 21 B2A B4P	130'-0"	130°	2°	2°	KRY 112 144/1
BETA	B2	APXVAARR24_43-UNA20	130'-0"	130°	0°	2°	RADIO 4449 B12,B71
BETA	B3	AIR 21 B4A B2P	130'-0"	130°	2°	0°	–
GAMMA	C1	AIR 21 B2A B4P	130'-0"	240°	2°	2°	KRY 112 144/1
GAMMA	C2	APXVAARR24_43-UNA20	130'-0"	240°	0°	2°	RADIO 4449 B12,B71
GAMMA	C3	AIR 21 B4A B2P	130'-0"	240°	2°	0°	–

CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	(2) 1-5/8"	–	RMV
–	–	(10) 1-5/8"	(1) 1-1/4"	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 COMBINER: 10'
COMBINER TO ANTENNA: 10'

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(2) 1-5/8"	ADD
-	-	(10) 1-5/8"	(1) 1-1/4"	RMN

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	05/29/19
1	MA UPDATE	LR	07/18/19

ATC SITE NUMBER:
302539

ATC SITE NAME:
NORTH HAVEN CT 2

SITE ADDRESS:
4 DWIGHT STREET
NORTH HAVEN, CT 06473

SEAL:

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Jul 19 2019 9:38 AM

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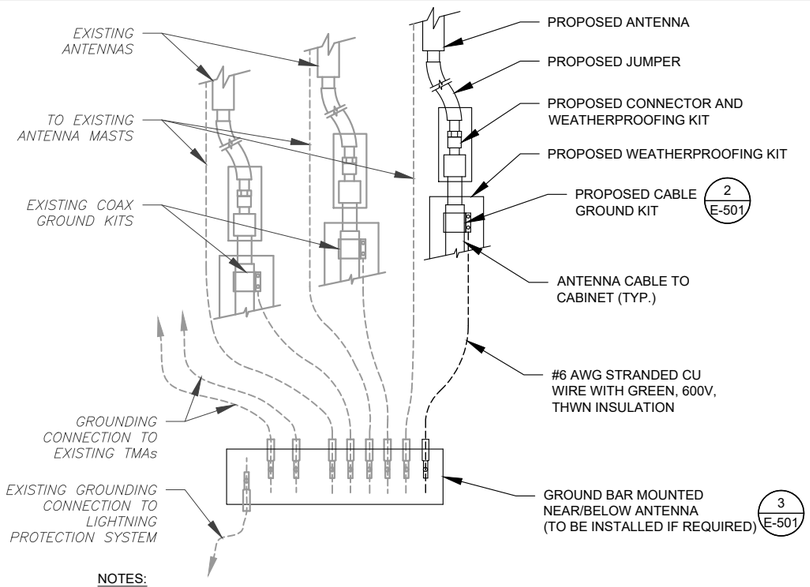
DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951814

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	1

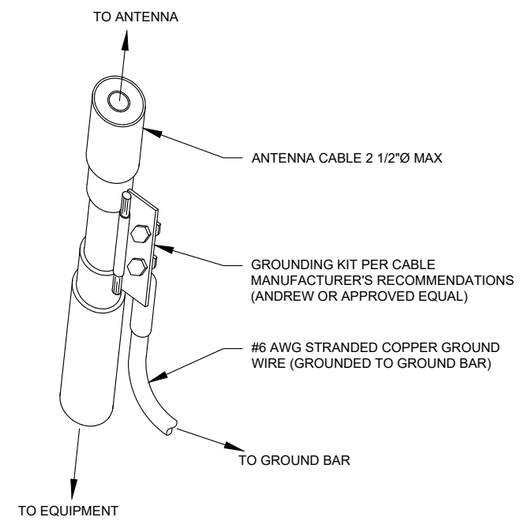


NOTES:

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

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

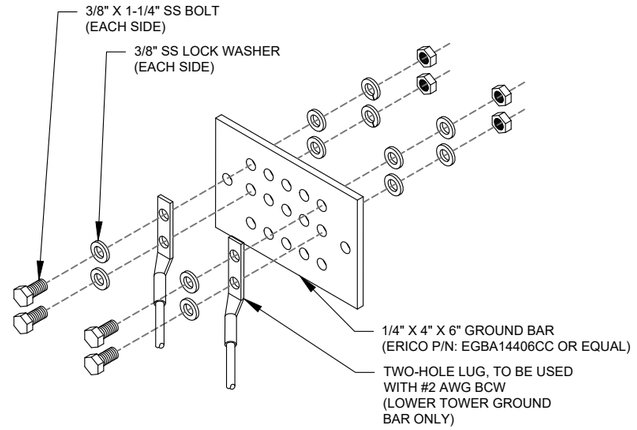


GROUND KIT NOTES:

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

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

REV.	DESCRIPTION	BY	DATE
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NORTH HAVEN, CT 06473

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DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951814

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

RAN Template: 67D02C Outdoor	A&L Template: 67D02C_2xAIR+1OP	Power System Template: Custom

CT11398A_L600_2.1_draft

Section 5 - RAN Equipment

Existing RAN Equipment	
Template: 702Cu Outdoor	
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 U2100 · DUW30 U1900 · DUG20 G1900 · DUS41 L2100 L700
Hybrid Cable System	Ericsson 9x18 HCS "Select Length"
Multiplexer	XMU
Radio	RUS22 (x 6) U2100

Proposed RAN Equipment	
Template: 67D02C Outdoor	
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 U2100 · DUW30 U1900 · DUG20 G1900 · BB 6630 L2100 L700 L900 · BB 6630 N600 (DARK)
Hybrid Cable System	Ericsson 9x18 HCS "Select Length" · Ericsson 6x12 HCS "Select Length & AWG" (x 2)
Radio	RUS22 (x 6) U2100

RAN Scope of Work:

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

Add (2) 6X12 HCS, Length and AWG will decide by Dev.

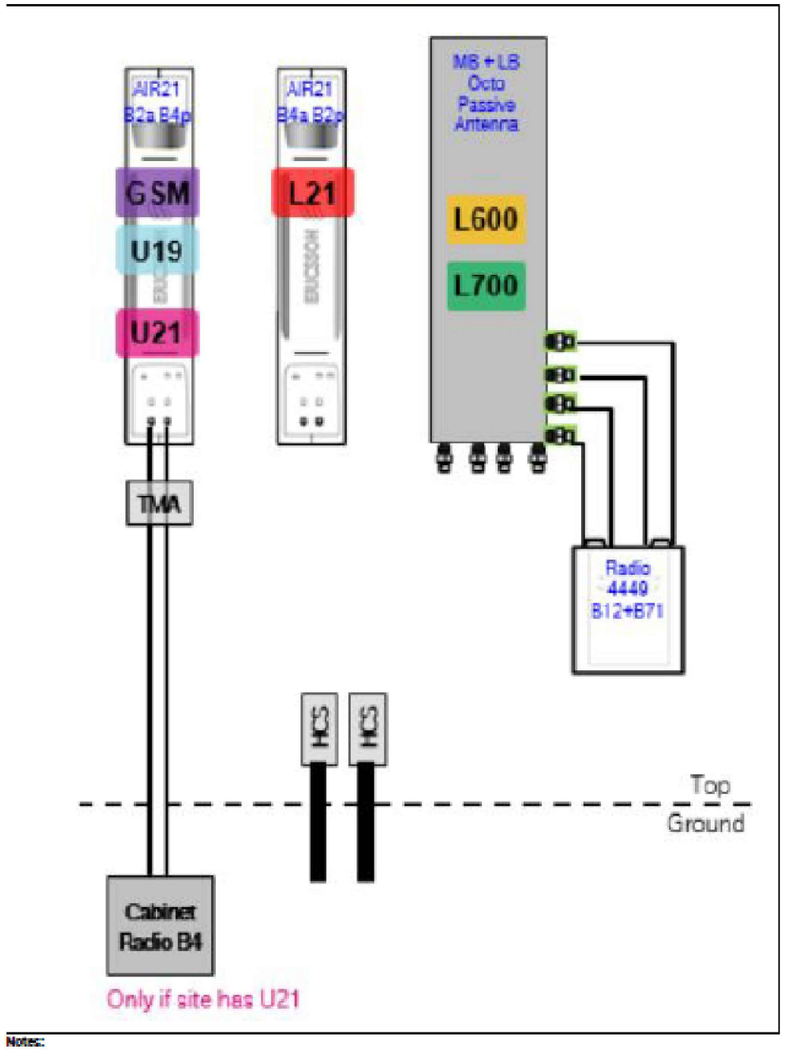
Swap (3) LNX 6515 Antennas with (3) 8' Octoport antennas @ P2.
Swap (3) RRUS11 B12 with (3) Radios 4449.

Existing Lines: (1) 9X18 Hybrid; 12 Coaxial Lines. Remove (2) Coaxial Lines in Total from Site.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

Section 3 - Proposed Template Images

67D02C.JPG



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 Low Profile Platform w/Proposed Site Pro 1 HRK12-HD for American Tower on behalf of T-Mobile

302539 - North Haven CT 2

Project #: 12927158

T-Mobile Site ID: CT11398A

Program: L600

CLS Engineering PLLC Project #41124-12927158-01-MA-R1

July 3, 2019

MOUNT DESCRIPTION	Existing Low Profile Platform w/Proposed Site Pro 1 HRK12-HD at 126 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 130 ft AGL (Eccentricity of ~4 ft)
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	4 Dwight Street, North Haven, CT 06473-1138, New Haven County
GPS COORDINATES	41.42194444, -72.8472
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

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

MEMBER USAGE	70%	Pass
COLLAR USAGE	78%	Pass

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

Prepared by:
Jennifer Soza

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: 2019.07.03 22:00:52 -04'00'

■ **RESULTS SUMMARY**

Existing Mount Usages Table:

COMPONENT	PEAK USAGE	RESULT
Plates	>200%	**Fail**
Mount Pipes	165%	**Fail**
Stand-Off Horizontals	46%	Pass
Platform Base	33%	Pass

Modified Mount Usages Table:

COMPONENT	PEAK USAGE	RESULT
Collar Reactions	78%	Pass
Plates	70%	Pass
Mount Pipes	69%	Pass
Stand-Off Horizontals	50%	Pass
Support Rail	40%	Pass
Platform Base	14%	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 Site Pro 1 HRK12-HD support rail kit at 3'-6" above the existing platform face horizontal member. Connect to all existing mount pipes using Site Pro 1 SCX2 crossover plate included in the support rail kit.**

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

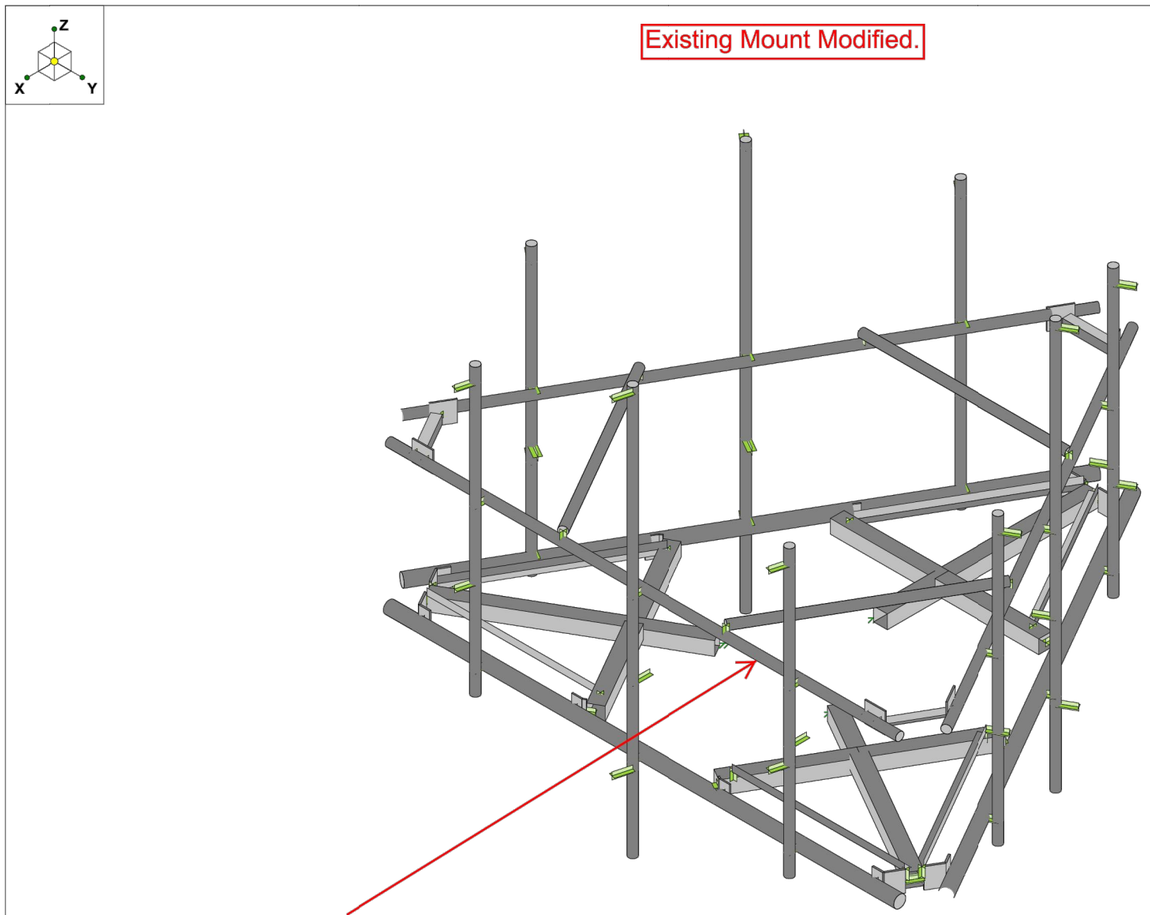
1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER: R-602

REVISION: 0



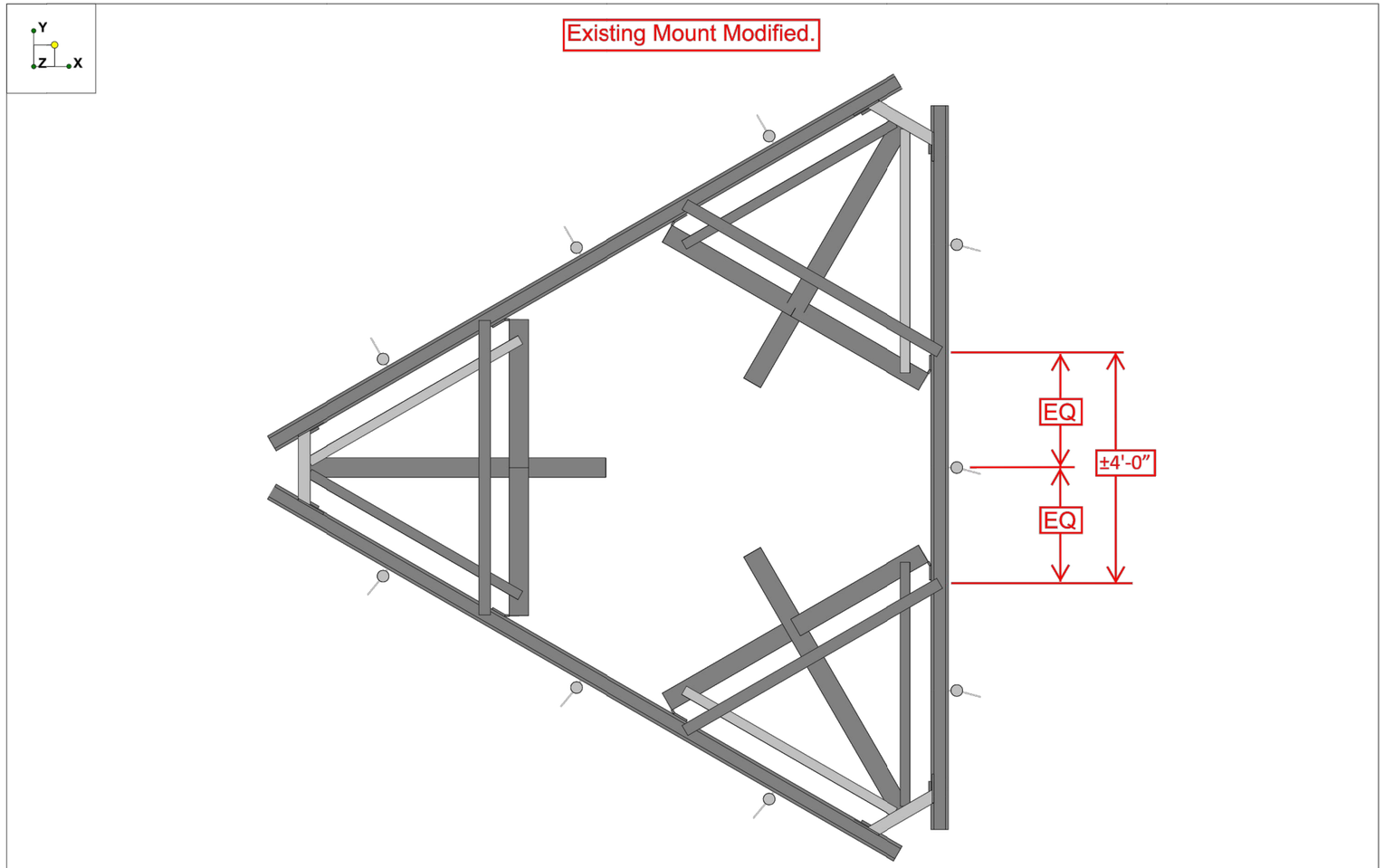
CLS	41124-12927158-North Haven CT 2	IN - 1
CWD		Apr 10, 2019 at 12:35 PM
41124-12927158-01-MA	Proposed Modified Mount - Rendered	41124-12927158-01-MA.r3d

1 MOUNT MODIFICATION
SCALE: NOT TO SCALE

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0



Envelope Only Solution

CLS		IN - 2
CWD	41124-12927158-North Haven CT 2	Apr 10, 2019 at 12:37 PM
41124-12927158-01-MA	Proposed Modified Mount - Plan View	41124-12927158-01-MA.r3d

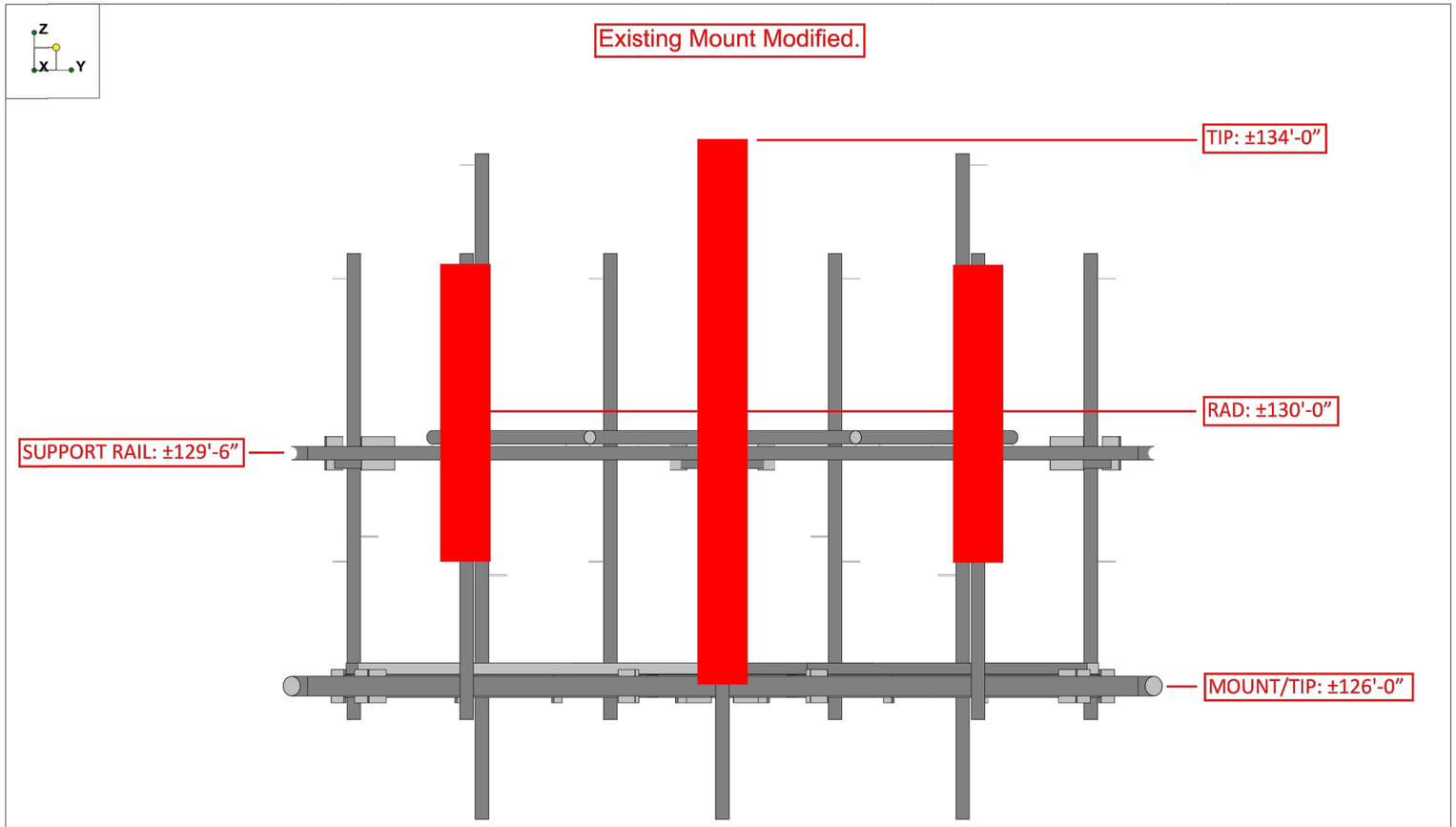
1 MOUNT MODIFICATION

SCALE: NOT TO SCALE

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-604	0



Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	IN - 3
CWD		Apr 10, 2019 at 12:40 PM
41124-12927158-01-MA	Proposed Modified Mount - Elevation View	41124-12927158-01-MA.r3d

1 MOUNT MODIFICATION
SCALE: NOT TO SCALE

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-605	0

Exhibit D

Structural Analysis Report

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

TOWER ENGINEERING PROFESSIONALS

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**North Haven CT 2, CT**
ATC Site Number	:	**302539**
Engineering Number	:	**12927158_C3_03**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**North Haven MP X63/64**
Carrier Site Number	:	**CT11398A**
Site Location	:	**4 Dwight Street** **North Haven, CT 06473-1138** **41.421900,-72.847200**
County	:	**New Haven**
Date	:	**July 18, 2019**
Max Usage	:	**57%**
Result	:	**Pass**

Prepared By:
Jacob M. Davis
TEP

Jacob Davis

Reviewed By:

STATE OF CONNECTICUT
AARON THOMAS RICKER
32608
LICENSED
PROFESSIONAL ENGINEER

07/18/2019

COA: PEC.0001553

Table of Contents

Introduction

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

Supporting Documents

Tower Drawings	Valmont Drawing #DC1777Z, dated June 29, 1994
Foundation Drawing	SAC Engineering Site #027, dated July 20, 1994
Geotechnical Report	GEOServices Project #21-07254, dated November 28, 2007
Mount Analysis	CLS Engineering PLLC Project #41124-12927158-01-MA-R1, dated July 3, 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:	97 mph (3-Second Gust, V_{asd}) / 125 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 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:	B
Topographic Category:	1
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
150.0	12	Decibel DB844H90E-XY	T-Arms	(12) 1 5/8" Coax (2) 1/2" Coax	Sprint Nextel
	2	Andrew Microwaves VHLP2-18			
140.0	3	Argus LPX310R	Stand-offs	(4) 1/2" Coax (1) 2" conduit (6) 5/16" (0.31"-7.9mm) Coax	Clearwire Corporation
	1	DragonWave A-ANT-18G-2-C			
	1	DragonWave A-ANT-11G-2.5-C			
	3	NextNet BTS-2500			
	3	DragonWave Horizon Compact			
	1	DragonWave A-ANT-23G-1-C			
130.0	3	Ericsson KRY 112 144/1	Low Profile Platform	(1) 1 1/4" Hybriflex Cable (10) 1 5/8" Coax	T-Mobile
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson AIR 21, 1.3M, B4A B2P			
120.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS, Inc.

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
130.0	3	Andrew LNX-6515DS-VTM	-	(2) 1 5/8" Coax	T-Mobile
	3	Ericsson RRUS 11 B12			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
130.0	3	Ericsson Radio 4449 B12,B71	Platform with Handrails	(2) 1 5/8" (1.63"-41.3mm) Fiber	T-Mobile
	3	RFS APXVAARR24_43-U-NA20			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	47%	Pass
Shaft	50%	Pass
Base Plate	22%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,567.2	4,815.7	2,270.9	47%
Shear (Kips)	30.5	41.1	23.5	57%

***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) (°)
150.0	Andrew Microwaves VHLP2-18	Sprint Nextel	1.159	0.749
140.0	DragonWave A-ANT-23G-1-C	Clearwire Corporation	1.029	0.745
	DragonWave A-ANT-18G-2-C			
	DragonWave A-ANT-11G-2.5-C			
130.0	Ericsson Radio 4449 B12,B71	T-Mobile	0.900	0.730
	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:

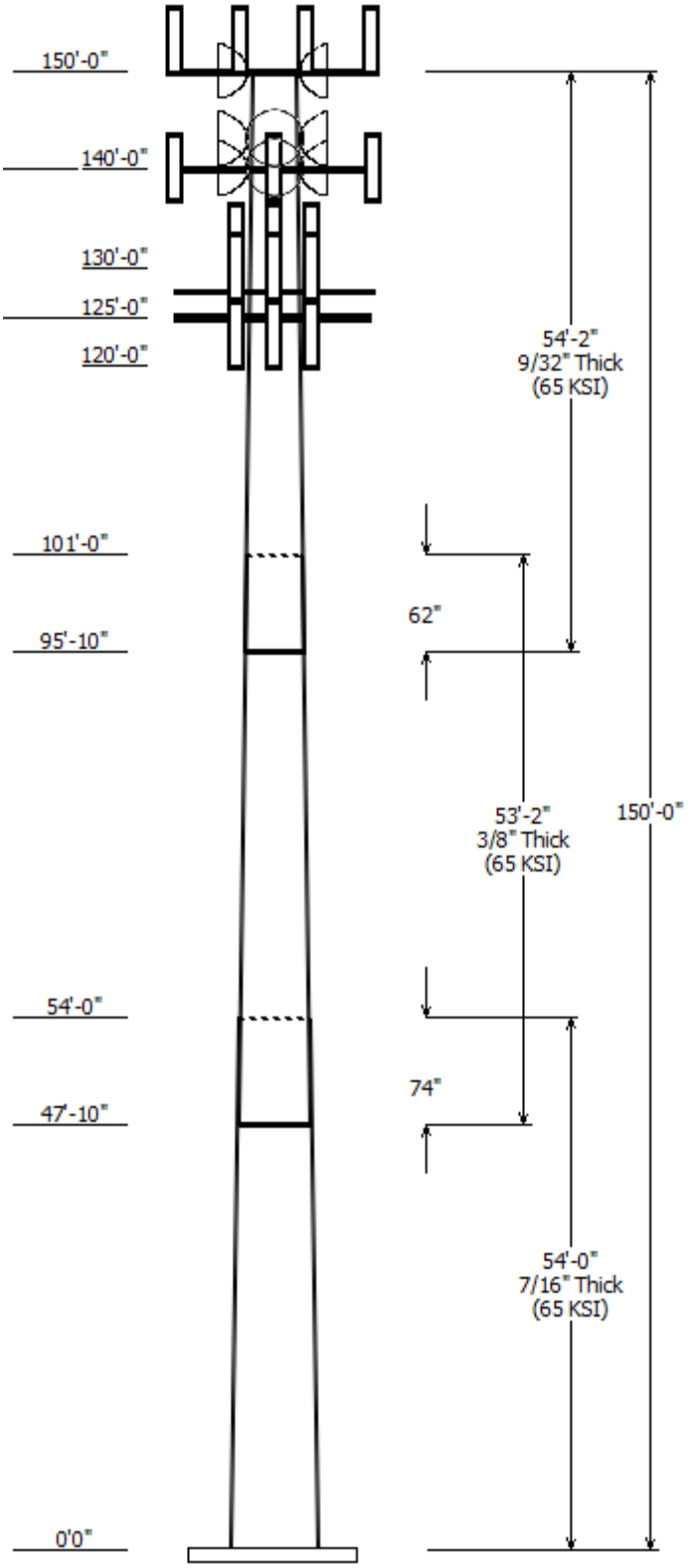
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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 :	302539	Code:	ANSI/TIA-222-G
Location :	North Haven CT 2, CT		
Description :	150 ft Valmont Monopole	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.182016 (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	54.000	39.77	49.60	0.438		0.000	12 Sides	65
2	53.167	31.96	41.64	0.375	Slip Joint	74.000	12 Sides	65
3	54.167	23.61	33.46	0.281	Slip Joint	62.000	12 Sides	65

Discrete Appurtenance

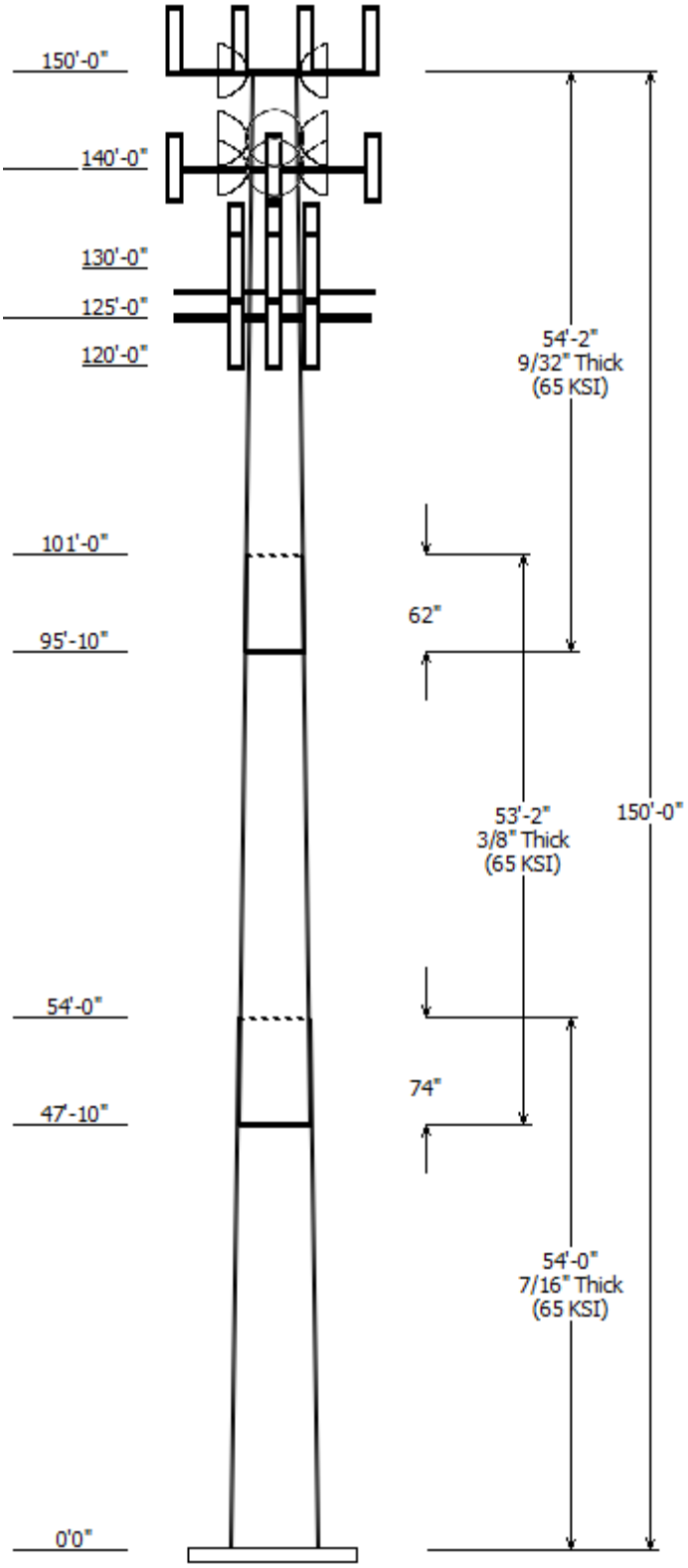
Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	150.000	3	Round T-Arm
150.000	150.000	2	Andrew Microwaves VHLP2-18
150.000	151.000	12	Decibel DB844H90E-XY
140.000	140.000	3	Flat Side Arm
140.000	140.000	1	DragonWave A-ANT-11G-2.5-C
140.000	141.000	1	DragonWave A-ANT-18G-2-C
140.000	140.000	3	Argus LPX310R
140.000	140.000	3	NextNet BTS-2500
140.000	141.000	1	DragonWave A-ANT-23G-1-C
140.000	141.000	3	DragonWave Horizon Compact
130.000	130.000	3	Ericsson KRY 112 144/1
130.000	130.000	3	RFS APXVAARR24_43-U-NA20
130.000	131.000	3	Ericsson AIR 21, 1.3M, B4A B2P
130.000	131.000	3	Ericsson AIR 21, 1.3 M, B2A B4
130.000	130.000	3	Ericsson Radio 4449 B12,B71
125.000	125.000	1	Round Platform w/ Handrails
120.000	121.000	3	RFS APXV18-206517S-C

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	120.0	1 5/8" Coax	No
0.000	130.0	1 1/4" Hybriflex	No
0.000	130.0	1 5/8" (1.63"-	No
0.000	130.0	1 5/8" Coax	No
0.000	140.0	1/2" Coax	No
0.000	140.0	2" conduit	No
0.000	140.0	5/16" (0.31"-	No
0.000	141.0	1/2" Coax	No
0.000	150.0	1 5/8" Coax	No
0.000	150.0	1/2" Coax	No

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 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



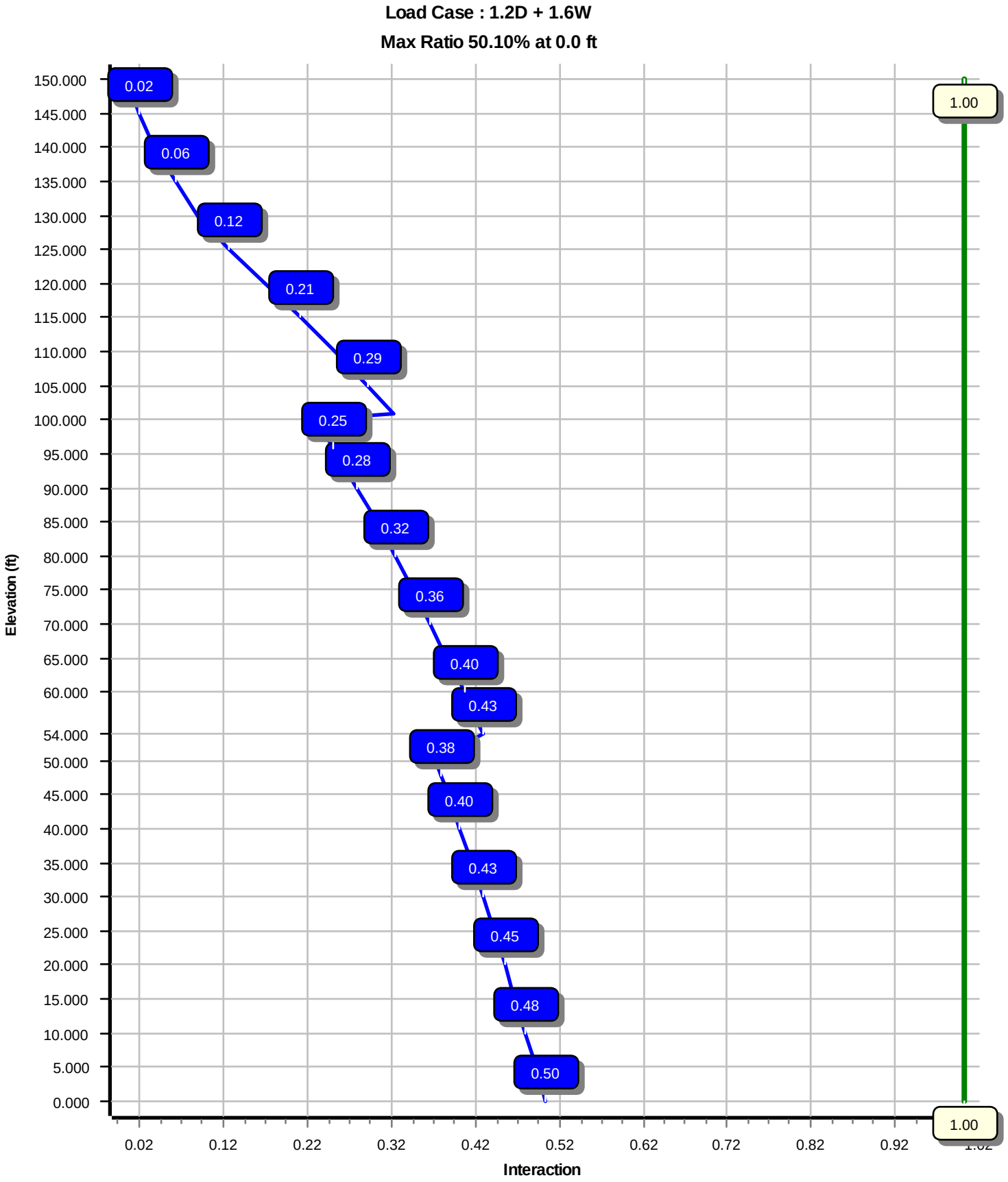
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2270.93	23.54	40.05
0.9D + 1.6W	2251.56	23.52	30.03
1.2D + 1.0Di + 1.0Wi	525.87	5.25	56.72
(1.2 + 0.2Sds) * DL + E ELFM	163.39	1.44	39.74
(1.2 + 0.2Sds) * DL + E EMAM	174.31	1.65	39.74
(0.9 - 0.2Sds) * DL + E ELFM	161.61	1.44	27.61
(0.9 - 0.2Sds) * DL + E EMAM	172.41	1.65	27.61
1.0D + 1.0W	483.28	5.03	33.40

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	140.00	12.343	0.745
1.0D + 1.0W	140.00	12.343	0.745
1.0D + 1.0W	140.00	12.343	0.745
1.0D + 1.0W	150.00	13.909	0.749


Load Case : 1.2D + 1.6W
Max Ratio 50.10% at 0.0 ft
Elevation (ft)
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
54.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02
0.06
0.12
0.21
0.29
0.25
0.28
0.32
0.36
0.40
0.43
0.38
0.40
0.43
0.45
0.48
0.50
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 302539 Code: ANSI/TIA-222-G

Site Name: North Haven CT 2, CT Engineering Number:12927158_C3_03 7/18/2019 12:41:13 PM

Customer: T-MOBILE

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	49.60
Shape :	12 Sides	Top Diameter (in) :	23.61
Pole Type :	Taper	Taper (in/ft) :	0.182
Pole Manfacturer :	Valmont	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 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):	1.99				
T_L (sec):	6	p:	1.3	C_s:	0.033
S_s:	0.184	S_1:	0.062	C_s Max:	0.033
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.196	S_{d1}:	0.099		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 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)
1-12	54.000	0.4375	65		0.00	11,454	49.60	0.00	69.26	21365.7	28.23	113.37	39.77	54.00	55.41	10942.2	22.21	90.90	0.182016
2-12	53.167	0.3750	65	Slip	74.00	7,958	41.64	47.83	49.83	10832.4	27.61	111.05	31.96	101.00	38.15	4859.3	20.70	85.24	0.182016
3-12	54.167	0.2813	65	Slip	62.00	4,717	33.46	95.83	30.06	4225.4	29.74	119.00	23.61	150.00	21.13	1467.6	20.35	83.95	0.182016
				Shaft Weight		24,129													

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
150.00	Decibel DB844H90E-XY	12	0.80	1.000	14.00	3.610	0.73	124.43	3.921	0.73
150.00	Andrew Microwaves VHLP2-18	2	0.80	0.000	31.00	4.690	1.00	128.69	5.965	1.00
150.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	459.07	17.947	0.67
140.00	DragonWave Horizon Compact	3	0.80	1.000	10.60	0.720	0.50	32.94	1.285	0.50
140.00	DragonWave A-ANT-23G-1-C	1	0.80	1.000	15.00	1.610	1.00	50.10	2.362	1.00
140.00	NextNet BTS-2500	3	0.80	0.000	35.00	1.820	0.50	81.07	2.732	0.50
140.00	Argus LPX310R	3	0.80	0.000	13.00	2.060	0.67	55.35	3.451	0.67
140.00	DragonWave A-ANT-18G-2-C	1	0.80	1.000	27.10	4.690	1.00	124.04	5.956	1.00
140.00	Flat Side Arm	3	1.00	0.000	150.00	6.300	0.67	222.66	8.742	0.67
140.00	DragonWave A-ANT-11G-2.5-C	1	0.80	0.000	47.60	8.670	1.00	223.60	10.386	1.00
130.00	Ericsson KRY 112 144/1	3	0.75	0.000	11.00	0.410	0.50	21.61	0.877	0.50
130.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	129.20	2.472	0.50
130.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.75	1.000	83.00	6.050	0.71	226.89	8.182	0.71
130.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.75	1.000	81.50	6.090	0.70	224.86	8.223	0.70
130.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	514.95	23.896	0.63
125.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,272.41	51.203	1.00
120.00	RFS APXV18-206517S-C	3	1.00	1.000	26.40	5.160	0.68	117.01	7.473	0.68
Totals	Num Loadings:17	51			4,906.90			11,677.52		

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	150.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	150.00	2	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	141.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
0.00	140.00	3	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
0.00	140.00	1	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
0.00	140.00	6	5/16" (0.31"-7.9mm)	0.31	0.05	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
0.00	130.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	0	0.00	0.00	0	0.00	N	
0.00	130.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	130.00	10	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	120.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	METRO PCS INC

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		0.4375	49.600	69.257	21,365.7	28.23	113.37	73.9	832.2	0.0	0.0
5.00		0.4375	48.690	67.975	20,200.9	27.68	111.29	74.5	801.5	0.0	1,167.4
10.00		0.4375	47.780	66.693	19,079.3	27.12	109.21	75.1	771.4	0.0	1,145.6
15.00		0.4375	46.870	65.411	18,000.1	26.56	107.13	75.7	741.9	0.0	1,123.8
20.00		0.4375	45.959	64.129	16,962.2	26.00	105.05	76.4	713.0	0.0	1,102.0
25.00		0.4375	45.049	62.847	15,965.1	25.45	102.97	77.0	684.6	0.0	1,080.2
30.00		0.4375	44.139	61.565	15,007.8	24.89	100.89	77.6	656.9	0.0	1,058.4
35.00		0.4375	43.229	60.283	14,089.6	24.33	98.81	78.2	629.6	0.0	1,036.6
40.00		0.4375	42.319	59.001	13,209.7	23.77	96.73	78.8	603.0	0.0	1,014.7
45.00		0.4375	41.409	57.719	12,367.1	23.22	94.65	79.4	577.0	0.0	992.9
47.83	Bot - Section 2	0.4375	40.893	56.992	11,906.0	22.90	93.47	79.7	562.5	0.0	553.0
50.00		0.4375	40.499	56.437	11,561.2	22.66	92.57	80.0	551.5	0.0	783.8
54.00	Top - Section 1	0.3750	40.521	48.476	9,972.4	26.81	108.06	75.5	475.4	0.0	1,427.0
55.00		0.3750	40.339	48.256	9,837.3	26.68	107.57	75.6	471.1	0.0	164.6
60.00		0.3750	39.429	47.158	9,180.5	26.03	105.14	76.3	449.8	0.0	811.7
65.00		0.3750	38.519	46.059	8,553.5	25.38	102.72	77.0	429.0	0.0	793.0
70.00		0.3750	37.609	44.960	7,955.7	24.73	100.29	77.7	408.7	0.0	774.3
75.00		0.3750	36.699	43.861	7,386.5	24.08	97.86	78.5	388.8	0.0	755.6
80.00		0.3750	35.789	42.762	6,845.1	23.43	95.44	79.2	369.5	0.0	736.9
85.00		0.3750	34.878	41.663	6,330.8	22.78	93.01	79.9	350.7	0.0	718.2
90.00		0.3750	33.968	40.564	5,843.0	22.13	90.58	80.6	332.3	0.0	699.5
95.00		0.3750	33.058	39.465	5,380.8	21.48	88.16	81.3	314.4	0.0	680.8
95.83	Bot - Section 3	0.3750	32.907	39.282	5,306.3	21.37	87.75	81.4	311.5	0.0	111.6
100.0		0.3750	32.148	38.366	4,943.7	20.83	85.73	81.9	297.1	0.0	971.7
101.0	Top - Section 2	0.2813	32.529	29.204	3,876.3	28.85	115.66	73.3	230.2	0.0	229.8
105.0		0.2813	31.801	28.545	3,619.7	28.15	113.07	74.0	219.9	0.0	393.0
110.0		0.2813	30.891	27.721	3,315.1	27.29	109.83	75.0	207.3	0.0	478.6
115.0		0.2813	29.980	26.896	3,028.1	26.42	106.60	75.9	195.1	0.0	464.6
120.0		0.2813	29.070	26.072	2,758.2	25.55	103.36	76.8	183.3	0.0	450.6
125.0		0.2813	28.160	25.248	2,504.8	24.68	100.13	77.8	171.8	0.0	436.6
130.0		0.2813	27.250	24.424	2,267.4	23.82	96.89	78.7	160.7	0.0	422.6
135.0		0.2813	26.340	23.600	2,045.5	22.95	93.65	79.7	150.0	0.0	408.5
140.0		0.2813	25.430	22.775	1,838.6	22.08	90.42	80.6	139.7	0.0	394.5
145.0		0.2813	24.520	21.951	1,646.1	21.22	87.18	81.6	129.7	0.0	380.5
150.0		0.2813	23.610	21.127	1,467.6	20.35	83.95	81.9	120.1	0.0	366.5
											24,129.1

Site Number: 302539 Code: ANSI/TIA-222-G

Site Name: North Haven CT 2, CT Engineering Number:12927158_C3_03 7/18/2019 12:41:14 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 97 mph with No Ice 23 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

		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		298.8	0.0					0.0	0.0	298.8	0.0	0.0	0.0
5.00		592.1	1,400.9					0.0	192.2	592.1	1,593.1	0.0	0.0
10.00		581.0	1,374.7					0.0	192.2	581.0	1,566.9	0.0	0.0
15.00		570.0	1,348.6					0.0	192.2	570.0	1,540.7	0.0	0.0
20.00		558.9	1,322.4					0.0	192.2	558.9	1,514.6	0.0	0.0
25.00		547.8	1,296.2					0.0	192.2	547.8	1,488.4	0.0	0.0
30.00		543.1	1,270.0					0.0	192.2	543.1	1,462.2	0.0	0.0
35.00		549.4	1,243.9					0.0	192.2	549.4	1,436.0	0.0	0.0
40.00		558.9	1,217.7					0.0	192.2	558.9	1,409.9	0.0	0.0
45.00		442.2	1,191.5					0.0	192.2	442.2	1,383.7	0.0	0.0
47.83	Bot - Section 2	286.4	663.6					0.0	108.9	286.4	772.5	0.0	0.0
50.00		358.6	940.5					0.0	83.3	358.6	1,023.8	0.0	0.0
54.00	Top - Section 1	291.3	1,712.4					0.0	153.7	291.3	1,866.1	0.0	0.0
55.00		350.7	197.5					0.0	38.4	350.7	235.9	0.0	0.0
60.00		584.8	974.0					0.0	192.2	584.8	1,166.2	0.0	0.0
65.00		584.5	951.6					0.0	192.2	584.5	1,143.8	0.0	0.0
70.00		583.0	929.1					0.0	192.2	583.0	1,121.3	0.0	0.0
75.00		580.2	906.7					0.0	192.2	580.2	1,098.9	0.0	0.0
80.00		576.3	884.3					0.0	192.2	576.3	1,076.5	0.0	0.0
85.00		571.5	861.8					0.0	192.2	571.5	1,054.0	0.0	0.0
90.00		565.8	839.4					0.0	192.2	565.8	1,031.6	0.0	0.0
95.00		327.9	817.0					0.0	192.2	327.9	1,009.1	0.0	0.0
95.83	Bot - Section 3	281.8	134.0					0.0	32.0	281.8	166.0	0.0	0.0
100.00		291.4	1,166.1					0.0	160.2	291.4	1,326.2	0.0	0.0
101.00	Top - Section 2	278.8	275.8					0.0	38.4	278.8	314.2	0.0	0.0
105.00		497.5	471.6					0.0	153.7	497.5	625.4	0.0	0.0
110.00		544.9	574.4					0.0	192.2	544.9	766.6	0.0	0.0
115.00		535.6	557.5					0.0	192.2	535.6	749.7	0.0	0.0
120.00	Appurtenance(s)	525.7	540.7	442.4	0.0	442.4	95.0	0.0	192.2	968.1	827.9	0.0	0.0
125.00	Appurtenance(s)	515.2	523.9	1,153.8	0.0	0.0	2,400.0	0.0	162.7	1,669.0	3,086.6	0.0	0.0
130.00	Appurtenance(s)	504.2	507.1	2,157.5	0.0	827.9	1,358.6	0.0	162.7	2,661.7	2,028.4	0.0	0.0
135.00		492.6	490.2					0.0	88.1	492.6	578.4	0.0	0.0
140.00	Appurtenance(s)	480.6	473.4	1,358.8	0.0	259.2	858.6	0.0	88.1	1,839.4	1,420.2	0.0	0.0
145.00		468.1	456.6					0.0	61.0	468.1	517.6	0.0	0.0
150.00	Appurtenance(s)	230.8	439.8	2,121.5	0.0	1,132.7	1,176.0	0.0	60.8	2,352.3	1,676.6	0.0	0.0
								Totals:		23,784.5	40,078.9	0.00	0.00

Load Case: 1.2D + 1.6W 97 mph with No Ice 23 Iterations

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

Calculated Forces1

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	-40.05	-23.54	0.00	-2,270.93	0.00	2,270.93	4,607.63	2,303.82	9,341.89	4,613.61	0.00	0.00	0.501
5.00	-38.40	-23.04	0.00	-2,153.24	0.00	2,153.24	4,559.53	2,279.76	9,071.72	4,480.18	0.08	-0.15	0.489
10.00	-36.77	-22.55	0.00	-2,038.03	0.00	2,038.03	4,510.02	2,255.01	8,802.46	4,347.20	0.31	-0.29	0.477
15.00	-35.18	-22.06	0.00	-1,925.28	0.00	1,925.28	4,459.11	2,229.56	8,534.26	4,214.75	0.70	-0.44	0.465
20.00	-33.61	-21.58	0.00	-1,814.97	0.00	1,814.97	4,406.80	2,203.40	8,267.28	4,082.90	1.24	-0.59	0.452
25.00	-32.08	-21.09	0.00	-1,707.10	0.00	1,707.10	4,353.08	2,176.54	8,001.69	3,951.73	1.94	-0.74	0.439
30.00	-30.57	-20.61	0.00	-1,601.63	0.00	1,601.63	4,297.96	2,148.98	7,737.64	3,821.33	2.79	-0.89	0.426
35.00	-29.09	-20.11	0.00	-1,498.59	0.00	1,498.59	4,241.44	2,120.72	7,475.29	3,691.77	3.80	-1.03	0.413
40.00	-27.65	-19.59	0.00	-1,398.05	0.00	1,398.05	4,183.52	2,091.76	7,214.81	3,563.12	4.96	-1.18	0.399
45.00	-26.23	-19.17	0.00	-1,300.08	0.00	1,300.08	4,124.19	2,062.09	6,956.34	3,435.47	6.27	-1.32	0.385
47.83	-25.44	-18.90	0.00	-1,245.76	0.00	1,245.76	4,089.95	2,044.97	6,810.83	3,363.62	7.08	-1.41	0.377
50.00	-24.40	-18.55	0.00	-1,204.81	0.00	1,204.81	4,063.46	2,031.73	6,700.05	3,308.90	7.74	-1.47	0.370
54.00	-22.52	-18.24	0.00	-1,130.59	0.00	1,130.59	3,292.85	1,646.42	5,449.39	2,691.25	9.02	-1.59	0.427
55.00	-22.26	-17.92	0.00	-1,112.35	0.00	1,112.35	3,284.08	1,642.04	5,410.01	2,671.80	9.35	-1.61	0.423
60.00	-21.07	-17.36	0.00	-1,022.74	0.00	1,022.74	3,239.39	1,619.70	5,213.74	2,574.87	11.13	-1.77	0.404
65.00	-19.90	-16.79	0.00	-935.95	0.00	935.95	3,193.31	1,596.65	5,018.66	2,478.53	13.06	-1.92	0.384
70.00	-18.76	-16.22	0.00	-852.01	0.00	852.01	3,145.81	1,572.91	4,824.91	2,382.84	15.15	-2.07	0.364
75.00	-17.64	-15.64	0.00	-770.93	0.00	770.93	3,096.92	1,548.46	4,632.66	2,287.90	17.40	-2.21	0.343
80.00	-16.56	-15.06	0.00	-692.73	0.00	692.73	3,046.62	1,523.31	4,442.07	2,193.77	19.79	-2.36	0.321
85.00	-15.49	-14.48	0.00	-617.43	0.00	617.43	2,994.92	1,497.46	4,253.30	2,100.54	22.33	-2.49	0.299
90.00	-14.46	-13.90	0.00	-545.03	0.00	545.03	2,941.82	1,470.91	4,066.50	2,008.29	25.01	-2.62	0.276
95.00	-13.45	-13.54	0.00	-475.52	0.00	475.52	2,887.31	1,443.66	3,881.84	1,917.09	27.82	-2.75	0.253
95.83	-13.28	-13.27	0.00	-464.23	0.00	464.23	2,878.09	1,439.05	3,851.28	1,902.00	28.31	-2.77	0.249
100.00	-11.96	-12.92	0.00	-408.95	0.00	408.95	2,827.97	1,413.98	3,694.98	1,824.81	30.76	-2.86	0.228
101.00	-11.65	-12.64	0.00	-396.03	0.00	396.03	1,925.36	962.68	2,560.99	1,264.78	31.37	-2.89	0.319
105.00	-11.02	-12.13	0.00	-345.46	0.00	345.46	1,901.32	950.66	2,471.43	1,220.55	33.82	-2.97	0.289
110.00	-10.26	-11.57	0.00	-284.79	0.00	284.79	1,870.02	935.01	2,359.93	1,165.48	37.00	-3.10	0.250
115.00	-9.53	-11.01	0.00	-226.95	0.00	226.95	1,837.31	918.65	2,249.09	1,110.74	40.31	-3.21	0.210
120.00	-8.74	-10.01	0.00	-171.45	0.00	171.45	1,803.20	901.60	2,139.06	1,056.40	43.72	-3.30	0.167
125.00	-5.75	-8.17	0.00	-121.41	0.00	121.41	1,767.68	883.84	2,030.00	1,002.54	47.22	-3.38	0.124
130.00	-3.87	-5.40	0.00	-79.73	0.00	79.73	1,730.77	865.38	1,922.07	949.24	50.79	-3.43	0.086
135.00	-3.32	-4.87	0.00	-52.75	0.00	52.75	1,692.45	846.22	1,815.44	896.58	54.41	-3.48	0.061
140.00	-2.02	-2.95	0.00	-28.13	0.00	28.13	1,652.72	826.36	1,710.25	844.63	58.06	-3.50	0.035
145.00	-1.53	-2.45	0.00	-13.39	0.00	13.39	1,611.60	805.80	1,606.68	793.48	61.74	-3.52	0.018
150.00	0.00	-2.35	0.00	-1.13	0.00	1.13	1,557.27	778.64	1,493.56	737.61	65.43	-3.53	0.002

Site Number: 302539 Code: ANSI/TIA-222-G

Site Name: North Haven CT 2, CT Engineering Number:12927158_C3_03 7/18/2019 12:41:17 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 23 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

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		298.8	0.0					0.0	0.0	298.8	0.0	0.0	0.0
5.00		592.1	1,050.7					0.0	144.1	592.1	1,194.8	0.0	0.0
10.00		581.0	1,031.1					0.0	144.1	581.0	1,175.2	0.0	0.0
15.00		570.0	1,011.4					0.0	144.1	570.0	1,155.6	0.0	0.0
20.00		558.9	991.8					0.0	144.1	558.9	1,135.9	0.0	0.0
25.00		547.8	972.2					0.0	144.1	547.8	1,116.3	0.0	0.0
30.00		543.1	952.5					0.0	144.1	543.1	1,096.7	0.0	0.0
35.00		549.4	932.9					0.0	144.1	549.4	1,077.0	0.0	0.0
40.00		558.9	913.3					0.0	144.1	558.9	1,057.4	0.0	0.0
45.00		442.2	893.6					0.0	144.1	442.2	1,037.8	0.0	0.0
47.83	Bot - Section 2	286.4	497.7					0.0	81.7	286.4	579.4	0.0	0.0
50.00		358.6	705.4					0.0	62.5	358.6	767.9	0.0	0.0
54.00	Top - Section 1	291.3	1,284.3					0.0	115.3	291.3	1,399.6	0.0	0.0
55.00		350.7	148.1					0.0	28.8	350.7	176.9	0.0	0.0
60.00		584.8	730.5					0.0	144.1	584.8	874.6	0.0	0.0
65.00		584.5	713.7					0.0	144.1	584.5	857.8	0.0	0.0
70.00		583.0	696.9					0.0	144.1	583.0	841.0	0.0	0.0
75.00		580.2	680.0					0.0	144.1	580.2	824.2	0.0	0.0
80.00		576.3	663.2					0.0	144.1	576.3	807.3	0.0	0.0
85.00		571.5	646.4					0.0	144.1	571.5	790.5	0.0	0.0
90.00		565.8	629.5					0.0	144.1	565.8	773.7	0.0	0.0
95.00		327.9	612.7					0.0	144.1	327.9	756.9	0.0	0.0
95.83	Bot - Section 3	281.8	100.5					0.0	24.0	281.8	124.5	0.0	0.0
100.00		291.4	874.6					0.0	120.1	291.4	994.7	0.0	0.0
101.00	Top - Section 2	278.8	206.8					0.0	28.8	278.8	235.7	0.0	0.0
105.00		497.5	353.7					0.0	115.3	497.5	469.0	0.0	0.0
110.00		544.9	430.8					0.0	144.1	544.9	574.9	0.0	0.0
115.00		535.6	418.2					0.0	144.1	535.6	562.3	0.0	0.0
120.00	Appurtenance(s)	525.7	405.5	442.4	0.0	442.4	71.3	0.0	144.1	968.1	621.0	0.0	0.0
125.00	Appurtenance(s)	515.2	392.9	1,153.8	0.0	0.0	1,800.0	0.0	122.0	1,669.0	2,314.9	0.0	0.0
130.00	Appurtenance(s)	504.2	380.3	2,157.5	0.0	827.9	1,019.0	0.0	122.0	2,661.7	1,521.3	0.0	0.0
135.00		492.6	367.7					0.0	66.1	492.6	433.8	0.0	0.0
140.00	Appurtenance(s)	480.6	355.1	1,358.8	0.0	259.2	643.9	0.0	66.1	1,839.4	1,065.1	0.0	0.0
145.00		468.1	342.4					0.0	45.8	468.1	388.2	0.0	0.0
150.00	Appurtenance(s)	230.8	329.8	2,121.5	0.0	1,132.7	882.0	0.0	45.6	2,352.3	1,257.4	0.0	0.0
								Totals:		23,784.5	30,059.2	0.00	0.00

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 23 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

Calculated Forces1

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	-30.03	-23.52	0.00	-2,251.56	0.00	2,251.56	4,607.63	2,303.82	9,341.89	4,613.61	0.00	0.00	0.495
5.00	-28.78	-23.00	0.00	-2,133.94	0.00	2,133.94	4,559.53	2,279.76	9,071.72	4,480.18	0.08	-0.15	0.483
10.00	-27.55	-22.49	0.00	-2,018.92	0.00	2,018.92	4,510.02	2,255.01	8,802.46	4,347.20	0.31	-0.29	0.471
15.00	-26.34	-21.98	0.00	-1,906.47	0.00	1,906.47	4,459.11	2,229.56	8,534.26	4,214.75	0.69	-0.44	0.458
20.00	-25.15	-21.47	0.00	-1,796.58	0.00	1,796.58	4,406.80	2,203.40	8,267.28	4,082.90	1.23	-0.58	0.446
25.00	-23.99	-20.98	0.00	-1,689.20	0.00	1,689.20	4,353.08	2,176.54	8,001.69	3,951.73	1.92	-0.73	0.433
30.00	-22.85	-20.47	0.00	-1,584.33	0.00	1,584.33	4,297.96	2,148.98	7,737.64	3,821.33	2.77	-0.88	0.420
35.00	-21.73	-19.96	0.00	-1,481.96	0.00	1,481.96	4,241.44	2,120.72	7,475.29	3,691.77	3.76	-1.02	0.407
40.00	-20.63	-19.44	0.00	-1,382.15	0.00	1,382.15	4,183.52	2,091.76	7,214.81	3,563.12	4.91	-1.17	0.393
45.00	-19.57	-19.01	0.00	-1,284.97	0.00	1,284.97	4,124.19	2,062.09	6,956.34	3,435.47	6.21	-1.31	0.379
47.83	-18.97	-18.73	0.00	-1,231.11	0.00	1,231.11	4,089.95	2,044.97	6,810.83	3,363.62	7.01	-1.39	0.371
50.00	-18.19	-18.38	0.00	-1,190.52	0.00	1,190.52	4,063.46	2,031.73	6,700.05	3,308.90	7.66	-1.46	0.364
54.00	-16.77	-18.08	0.00	-1,116.99	0.00	1,116.99	3,292.85	1,646.42	5,449.39	2,691.25	8.93	-1.57	0.420
55.00	-16.58	-17.75	0.00	-1,098.91	0.00	1,098.91	3,284.08	1,642.04	5,410.01	2,671.80	9.26	-1.60	0.416
60.00	-15.67	-17.18	0.00	-1,010.18	0.00	1,010.18	3,239.39	1,619.70	5,213.74	2,574.87	11.02	-1.75	0.397
65.00	-14.79	-16.61	0.00	-924.28	0.00	924.28	3,193.31	1,596.65	5,018.66	2,478.53	12.93	-1.90	0.378
70.00	-13.93	-16.03	0.00	-841.26	0.00	841.26	3,145.81	1,572.91	4,824.91	2,382.84	15.00	-2.05	0.358
75.00	-13.09	-15.45	0.00	-761.11	0.00	761.11	3,096.92	1,548.46	4,632.66	2,287.90	17.22	-2.19	0.337
80.00	-12.27	-14.87	0.00	-683.86	0.00	683.86	3,046.62	1,523.31	4,442.07	2,193.77	19.59	-2.33	0.316
85.00	-11.47	-14.30	0.00	-609.49	0.00	609.49	2,994.92	1,497.46	4,253.30	2,100.54	22.10	-2.46	0.294
90.00	-10.70	-13.72	0.00	-538.02	0.00	538.02	2,941.82	1,470.91	4,066.50	2,008.29	24.75	-2.59	0.272
95.00	-9.94	-13.37	0.00	-469.42	0.00	469.42	2,887.31	1,443.66	3,881.84	1,917.09	27.53	-2.71	0.248
95.83	-9.81	-13.09	0.00	-458.28	0.00	458.28	2,878.09	1,439.05	3,851.28	1,902.00	28.00	-2.74	0.244
100.00	-8.82	-12.76	0.00	-403.73	0.00	403.73	2,827.97	1,413.98	3,694.98	1,824.81	30.43	-2.83	0.224
101.00	-8.59	-12.48	0.00	-390.97	0.00	390.97	1,925.36	962.68	2,560.99	1,264.78	31.03	-2.85	0.314
105.00	-8.12	-11.97	0.00	-341.05	0.00	341.05	1,901.32	950.66	2,471.43	1,220.55	33.46	-2.94	0.284
110.00	-7.55	-11.41	0.00	-281.19	0.00	281.19	1,870.02	935.01	2,359.93	1,165.48	36.60	-3.06	0.245
115.00	-7.00	-10.86	0.00	-224.11	0.00	224.11	1,837.31	918.65	2,249.09	1,110.74	39.87	-3.17	0.206
120.00	-6.42	-9.87	0.00	-169.36	0.00	169.36	1,803.20	901.60	2,139.06	1,056.40	43.24	-3.26	0.164
125.00	-4.20	-8.07	0.00	-120.01	0.00	120.01	1,767.68	883.84	2,030.00	1,002.54	46.70	-3.34	0.122
130.00	-2.83	-5.33	0.00	-78.81	0.00	78.81	1,730.77	865.38	1,922.07	949.24	50.23	-3.39	0.085
135.00	-2.43	-4.81	0.00	-52.16	0.00	52.16	1,692.45	846.22	1,815.44	896.58	53.80	-3.44	0.060
140.00	-1.47	-2.91	0.00	-27.83	0.00	27.83	1,652.72	826.36	1,710.25	844.63	57.41	-3.46	0.034
145.00	-1.11	-2.42	0.00	-13.25	0.00	13.25	1,611.60	805.80	1,606.68	793.48	61.05	-3.48	0.017
150.00	0.00	-2.35	0.00	-1.13	0.00	1.13	1,557.27	778.64	1,493.56	737.61	64.70	-3.49	0.002

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 22 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

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		62.3	0.0					0.0	0.0	62.3	0.0	0.0	0.0
5.00		123.7	1,775.1					0.0	192.2	123.7	1,967.3	0.0	0.0
10.00		122.0	1,785.8					0.0	192.2	122.0	1,978.0	0.0	0.0
15.00		120.1	1,773.7					0.0	192.2	120.1	1,965.9	0.0	0.0
20.00		118.1	1,754.2					0.0	192.2	118.1	1,946.4	0.0	0.0
25.00		116.0	1,730.8					0.0	192.2	116.0	1,923.0	0.0	0.0
30.00		115.3	1,705.0					0.0	192.2	115.3	1,897.2	0.0	0.0
35.00		116.9	1,677.6					0.0	192.2	116.9	1,869.8	0.0	0.0
40.00		119.1	1,648.9					0.0	192.2	119.1	1,841.1	0.0	0.0
45.00		94.4	1,619.3					0.0	192.2	94.4	1,811.4	0.0	0.0
47.83	Bot - Section 2	61.2	905.2					0.0	108.9	61.2	1,014.1	0.0	0.0
50.00		76.7	1,127.9					0.0	83.3	76.7	1,211.2	0.0	0.0
54.00	Top - Section 1	62.4	2,054.6					0.0	153.7	62.4	2,208.3	0.0	0.0
55.00		75.2	283.1					0.0	38.4	75.2	321.5	0.0	0.0
60.00		125.6	1,395.0					0.0	192.2	125.6	1,587.2	0.0	0.0
65.00		125.9	1,366.8					0.0	192.2	125.9	1,559.0	0.0	0.0
70.00		125.8	1,338.2					0.0	192.2	125.8	1,530.4	0.0	0.0
75.00		125.5	1,309.2					0.0	192.2	125.5	1,501.4	0.0	0.0
80.00		125.0	1,280.0					0.0	192.2	125.0	1,472.1	0.0	0.0
85.00		124.3	1,250.4					0.0	192.2	124.3	1,442.6	0.0	0.0
90.00		123.4	1,220.6					0.0	192.2	123.4	1,412.8	0.0	0.0
95.00		71.6	1,190.6					0.0	192.2	71.6	1,382.8	0.0	0.0
95.83	Bot - Section 3	61.6	196.2					0.0	32.0	61.6	228.2	0.0	0.0
100.00		63.8	1,476.2					0.0	160.2	63.8	1,636.3	0.0	0.0
101.00	Top - Section 2	61.2	350.0					0.0	38.4	61.2	388.4	0.0	0.0
105.00		109.3	763.0					0.0	153.7	109.3	916.7	0.0	0.0
110.00		120.1	930.2					0.0	192.2	120.1	1,122.4	0.0	0.0
115.00		118.4	905.1					0.0	192.2	118.4	1,097.3	0.0	0.0
120.00	Appurtenance(s)	116.6	879.8	106.4	0.0	106.4	286.7	0.0	192.2	223.0	1,358.7	0.0	0.0
125.00	Appurtenance(s)	114.7	854.4	360.7	0.0	0.0	3,272.4	0.0	162.7	475.4	4,289.4	0.0	0.0
130.00	Appurtenance(s)	112.7	828.8	453.9	0.0	185.8	2,932.4	0.0	162.7	566.7	3,923.9	0.0	0.0
135.00		110.6	803.1					0.0	88.1	110.6	891.3	0.0	0.0
140.00	Appurtenance(s)	108.4	777.3	312.3	0.0	59.8	1,441.6	0.0	88.1	420.7	2,307.1	0.0	0.0
145.00		106.1	751.4					0.0	61.0	106.1	812.4	0.0	0.0
150.00	Appurtenance(s)	52.4	725.4	475.9	0.0	204.3	3,117.7	0.0	60.8	528.3	3,904.0	0.0	0.0
								Totals:		5,295.72	56,719.5	0.00	0.00

Site Number: 302539 Code: ANSI/TIA-222-G

Site Name: North Haven CT 2, CT Engineering Number:12927158_C3_03 7/18/2019 12:41:24 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 22 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 Forces1

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.72	-5.25	0.00	-525.87	0.00	525.87	4,607.63	2,303.82	9,341.89	4,613.61	0.00	0.00	0.126
5.00	-54.75	-5.16	0.00	-499.62	0.00	499.62	4,559.53	2,279.76	9,071.72	4,480.18	0.02	-0.03	0.124
10.00	-52.77	-5.07	0.00	-473.82	0.00	473.82	4,510.02	2,255.01	8,802.46	4,347.20	0.07	-0.07	0.121
15.00	-50.80	-4.97	0.00	-448.49	0.00	448.49	4,459.11	2,229.56	8,534.26	4,214.75	0.16	-0.10	0.118
20.00	-48.85	-4.88	0.00	-423.62	0.00	423.62	4,406.80	2,203.40	8,267.28	4,082.90	0.29	-0.14	0.115
25.00	-46.92	-4.79	0.00	-399.21	0.00	399.21	4,353.08	2,176.54	8,001.69	3,951.73	0.45	-0.17	0.112
30.00	-45.02	-4.69	0.00	-375.27	0.00	375.27	4,297.96	2,148.98	7,737.64	3,821.33	0.65	-0.21	0.109
35.00	-43.15	-4.60	0.00	-351.80	0.00	351.80	4,241.44	2,120.72	7,475.29	3,691.77	0.88	-0.24	0.105
40.00	-41.31	-4.49	0.00	-328.83	0.00	328.83	4,183.52	2,091.76	7,214.81	3,563.12	1.15	-0.28	0.102
45.00	-39.50	-4.41	0.00	-306.36	0.00	306.36	4,124.19	2,062.09	6,956.34	3,435.47	1.46	-0.31	0.099
47.83	-38.48	-4.35	0.00	-293.87	0.00	293.87	4,089.95	2,044.97	6,810.83	3,363.62	1.65	-0.33	0.097
50.00	-37.27	-4.28	0.00	-284.44	0.00	284.44	4,063.46	2,031.73	6,700.05	3,308.90	1.80	-0.34	0.095
54.00	-35.06	-4.22	0.00	-267.31	0.00	267.31	3,292.85	1,646.42	5,449.39	2,691.25	2.10	-0.37	0.110
55.00	-34.74	-4.15	0.00	-263.10	0.00	263.10	3,284.08	1,642.04	5,410.01	2,671.80	2.18	-0.38	0.109
60.00	-33.15	-4.04	0.00	-242.33	0.00	242.33	3,239.39	1,619.70	5,213.74	2,574.87	2.60	-0.41	0.104
65.00	-31.59	-3.92	0.00	-222.15	0.00	222.15	3,193.31	1,596.65	5,018.66	2,478.53	3.05	-0.45	0.100
70.00	-30.06	-3.80	0.00	-202.56	0.00	202.56	3,145.81	1,572.91	4,824.91	2,382.84	3.54	-0.49	0.095
75.00	-28.55	-3.68	0.00	-183.56	0.00	183.56	3,096.92	1,548.46	4,632.66	2,287.90	4.07	-0.52	0.089
80.00	-27.08	-3.55	0.00	-165.17	0.00	165.17	3,046.62	1,523.31	4,442.07	2,193.77	4.63	-0.55	0.084
85.00	-25.64	-3.43	0.00	-147.41	0.00	147.41	2,994.92	1,497.46	4,253.30	2,100.54	5.23	-0.59	0.079
90.00	-24.22	-3.30	0.00	-130.26	0.00	130.26	2,941.82	1,470.91	4,066.50	2,008.29	5.86	-0.62	0.073
95.00	-22.84	-3.22	0.00	-113.74	0.00	113.74	2,887.31	1,443.66	3,881.84	1,917.09	6.52	-0.65	0.067
95.83	-22.61	-3.17	0.00	-111.05	0.00	111.05	2,878.09	1,439.05	3,851.28	1,902.00	6.64	-0.65	0.066
100.00	-20.98	-3.09	0.00	-97.86	0.00	97.86	2,827.97	1,413.98	3,694.98	1,824.81	7.22	-0.68	0.061
101.00	-20.59	-3.03	0.00	-94.77	0.00	94.77	1,925.36	962.68	2,560.99	1,264.78	7.36	-0.68	0.086
105.00	-19.67	-2.92	0.00	-82.66	0.00	82.66	1,901.32	950.66	2,471.43	1,220.55	7.94	-0.70	0.078
110.00	-18.55	-2.79	0.00	-68.08	0.00	68.08	1,870.02	935.01	2,359.93	1,165.48	8.69	-0.73	0.068
115.00	-17.45	-2.67	0.00	-54.13	0.00	54.13	1,837.31	918.65	2,249.09	1,110.74	9.47	-0.76	0.058
120.00	-16.10	-2.43	0.00	-40.70	0.00	40.70	1,803.20	901.60	2,139.06	1,056.40	10.28	-0.78	0.047
125.00	-11.81	-1.90	0.00	-28.55	0.00	28.55	1,767.68	883.84	2,030.00	1,002.54	11.10	-0.80	0.035
130.00	-7.90	-1.28	0.00	-18.87	0.00	18.87	1,730.77	865.38	1,922.07	949.24	11.95	-0.81	0.024
135.00	-7.01	-1.16	0.00	-12.48	0.00	12.48	1,692.45	846.22	1,815.44	896.58	12.80	-0.82	0.018
140.00	-4.71	-0.70	0.00	-6.64	0.00	6.64	1,652.72	826.36	1,710.25	844.63	13.67	-0.83	0.011
145.00	-3.90	-0.58	0.00	-3.13	0.00	3.13	1,611.60	805.80	1,606.68	793.48	14.53	-0.83	0.006
150.00	0.00	-0.53	0.00	-0.20	0.00	0.20	1,557.27	778.64	1,493.56	737.61	15.41	-0.83	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 21 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		63.9	0.0					0.0	0.0	63.9	0.0	0.0	0.0
5.00		126.7	1,167.4					0.0	160.2	126.7	1,327.6	0.0	0.0
10.00		124.3	1,145.6					0.0	160.2	124.3	1,305.8	0.0	0.0
15.00		122.0	1,123.8					0.0	160.2	122.0	1,284.0	0.0	0.0
20.00		119.6	1,102.0					0.0	160.2	119.6	1,262.1	0.0	0.0
25.00		117.2	1,080.2					0.0	160.2	117.2	1,240.3	0.0	0.0
30.00		116.2	1,058.4					0.0	160.2	116.2	1,218.5	0.0	0.0
35.00		117.6	1,036.6					0.0	160.2	117.6	1,196.7	0.0	0.0
40.00		119.6	1,014.7					0.0	160.2	119.6	1,174.9	0.0	0.0
45.00		94.6	992.9					0.0	160.2	94.6	1,153.1	0.0	0.0
47.83	Bot - Section 2	61.3	553.0					0.0	90.8	61.3	643.7	0.0	0.0
50.00		76.7	783.8					0.0	69.4	76.7	853.2	0.0	0.0
54.00	Top - Section 1	62.3	1,427.0					0.0	128.1	62.3	1,555.1	0.0	0.0
55.00		75.0	164.6					0.0	32.0	75.0	196.6	0.0	0.0
60.00		125.1	811.7					0.0	160.2	125.1	971.8	0.0	0.0
65.00		125.1	793.0					0.0	160.2	125.1	953.1	0.0	0.0
70.00		124.7	774.3					0.0	160.2	124.7	934.4	0.0	0.0
75.00		124.1	755.6					0.0	160.2	124.1	915.7	0.0	0.0
80.00		123.3	736.9					0.0	160.2	123.3	897.0	0.0	0.0
85.00		122.3	718.2					0.0	160.2	122.3	878.3	0.0	0.0
90.00		121.1	699.5					0.0	160.2	121.1	859.6	0.0	0.0
95.00		70.2	680.8					0.0	160.2	70.2	841.0	0.0	0.0
95.83	Bot - Section 3	60.3	111.6					0.0	26.7	60.3	138.3	0.0	0.0
100.00		62.3	971.7					0.0	133.5	62.3	1,105.2	0.0	0.0
101.00	Top - Section 2	59.7	229.8					0.0	32.0	59.7	261.8	0.0	0.0
105.00		106.4	393.0					0.0	128.1	106.4	521.1	0.0	0.0
110.00		116.6	478.6					0.0	160.2	116.6	638.8	0.0	0.0
115.00		114.6	464.6					0.0	160.2	114.6	624.8	0.0	0.0
120.00	Appurtenance(s)	112.5	450.6	94.7	0.0	94.7	79.2	0.0	160.2	207.1	690.0	0.0	0.0
125.00	Appurtenance(s)	110.2	436.6	246.9	0.0	0.0	2,000.0	0.0	135.6	357.1	2,572.1	0.0	0.0
130.00	Appurtenance(s)	107.9	422.6	461.6	0.0	177.1	1,132.2	0.0	135.6	569.5	1,690.3	0.0	0.0
135.00		105.4	408.5					0.0	73.5	105.4	482.0	0.0	0.0
140.00	Appurtenance(s)	102.8	394.5	290.7	0.0	55.5	715.5	0.0	73.5	393.6	1,183.5	0.0	0.0
145.00		100.1	380.5					0.0	50.9	100.1	431.3	0.0	0.0
150.00	Appurtenance(s)	49.4	366.5	453.9	0.0	242.4	980.0	0.0	50.7	503.3	1,397.2	0.0	0.0
								Totals:		5,088.97	33,399.1	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 21 Iterations

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

Calculated Forces1

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	-33.40	-5.03	0.00	-483.28	0.00	483.28	4,607.63	2,303.82	9,341.89	4,613.61	0.00	0.00	0.112
5.00	-32.07	-4.92	0.00	-458.11	0.00	458.11	4,559.53	2,279.76	9,071.72	4,480.18	0.02	-0.03	0.109
10.00	-30.76	-4.82	0.00	-433.49	0.00	433.49	4,510.02	2,255.01	8,802.46	4,347.20	0.07	-0.06	0.107
15.00	-29.47	-4.71	0.00	-409.41	0.00	409.41	4,459.11	2,229.56	8,534.26	4,214.75	0.15	-0.09	0.104
20.00	-28.21	-4.60	0.00	-385.88	0.00	385.88	4,406.80	2,203.40	8,267.28	4,082.90	0.26	-0.13	0.101
25.00	-26.97	-4.50	0.00	-362.87	0.00	362.87	4,353.08	2,176.54	8,001.69	3,951.73	0.41	-0.16	0.098
30.00	-25.75	-4.39	0.00	-340.39	0.00	340.39	4,297.96	2,148.98	7,737.64	3,821.33	0.59	-0.19	0.095
35.00	-24.55	-4.28	0.00	-318.44	0.00	318.44	4,241.44	2,120.72	7,475.29	3,691.77	0.81	-0.22	0.092
40.00	-23.37	-4.17	0.00	-297.04	0.00	297.04	4,183.52	2,091.76	7,214.81	3,563.12	1.05	-0.25	0.089
45.00	-22.22	-4.08	0.00	-276.19	0.00	276.19	4,124.19	2,062.09	6,956.34	3,435.47	1.33	-0.28	0.086
47.83	-21.57	-4.02	0.00	-264.63	0.00	264.63	4,089.95	2,044.97	6,810.83	3,363.62	1.51	-0.30	0.084
50.00	-20.72	-3.95	0.00	-255.92	0.00	255.92	4,063.46	2,031.73	6,700.05	3,308.90	1.65	-0.31	0.082
54.00	-19.16	-3.88	0.00	-240.14	0.00	240.14	3,292.85	1,646.42	5,449.39	2,691.25	1.92	-0.34	0.095
55.00	-18.96	-3.81	0.00	-236.26	0.00	236.26	3,284.08	1,642.04	5,410.01	2,671.80	1.99	-0.34	0.094
60.00	-17.99	-3.69	0.00	-217.21	0.00	217.21	3,239.39	1,619.70	5,213.74	2,574.87	2.37	-0.38	0.090
65.00	-17.04	-3.57	0.00	-198.76	0.00	198.76	3,193.31	1,596.65	5,018.66	2,478.53	2.78	-0.41	0.086
70.00	-16.10	-3.44	0.00	-180.93	0.00	180.93	3,145.81	1,572.91	4,824.91	2,382.84	3.22	-0.44	0.081
75.00	-15.18	-3.32	0.00	-163.70	0.00	163.70	3,096.92	1,548.46	4,632.66	2,287.90	3.70	-0.47	0.076
80.00	-14.29	-3.20	0.00	-147.10	0.00	147.10	3,046.62	1,523.31	4,442.07	2,193.77	4.21	-0.50	0.072
85.00	-13.41	-3.07	0.00	-131.11	0.00	131.11	2,994.92	1,497.46	4,253.30	2,100.54	4.75	-0.53	0.067
90.00	-12.55	-2.95	0.00	-115.74	0.00	115.74	2,941.82	1,470.91	4,066.50	2,008.29	5.32	-0.56	0.062
95.00	-11.71	-2.88	0.00	-100.99	0.00	100.99	2,887.31	1,443.66	3,881.84	1,917.09	5.92	-0.58	0.057
95.83	-11.57	-2.82	0.00	-98.60	0.00	98.60	2,878.09	1,439.05	3,851.28	1,902.00	6.02	-0.59	0.056
100.00	-10.46	-2.74	0.00	-86.86	0.00	86.86	2,827.97	1,413.98	3,694.98	1,824.81	6.54	-0.61	0.051
101.00	-10.20	-2.68	0.00	-84.12	0.00	84.12	1,925.36	962.68	2,560.99	1,264.78	6.67	-0.61	0.072
105.00	-9.68	-2.58	0.00	-73.38	0.00	73.38	1,901.32	950.66	2,471.43	1,220.55	7.19	-0.63	0.065
110.00	-9.04	-2.46	0.00	-60.50	0.00	60.50	1,870.02	935.01	2,359.93	1,165.48	7.87	-0.66	0.057
115.00	-8.42	-2.34	0.00	-48.22	0.00	48.22	1,837.31	918.65	2,249.09	1,110.74	8.57	-0.68	0.048
120.00	-7.73	-2.12	0.00	-36.44	0.00	36.44	1,803.20	901.60	2,139.06	1,056.40	9.29	-0.70	0.039
125.00	-5.16	-1.74	0.00	-25.81	0.00	25.81	1,767.68	883.84	2,030.00	1,002.54	10.04	-0.72	0.029
130.00	-3.48	-1.15	0.00	-16.95	0.00	16.95	1,730.77	865.38	1,922.07	949.24	10.80	-0.73	0.020
135.00	-3.00	-1.04	0.00	-11.22	0.00	11.22	1,692.45	846.22	1,815.44	896.58	11.57	-0.74	0.014
140.00	-1.82	-0.63	0.00	-5.98	0.00	5.98	1,652.72	826.36	1,710.25	844.63	12.34	-0.74	0.008
145.00	-1.39	-0.52	0.00	-2.85	0.00	2.85	1,611.60	805.80	1,606.68	793.48	13.12	-0.75	0.004
150.00	0.00	-0.50	0.00	-0.24	0.00	0.24	1,557.27	778.64	1,493.56	737.61	13.91	-0.75	0.000

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}):	0.20	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.99	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.75	
Total Unfactored Dead Load:	33.40	k
Seismic Base Shear (E):	1.44	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)
34	147.50	417	2,566	0.035	50	517
33	142.50	431	2,498	0.034	49	535
32	137.50	468	2,546	0.034	50	580
31	132.50	482	2,458	0.033	48	597
30	127.50	558	2,662	0.036	52	692
29	122.50	572	2,544	0.034	50	709
28	117.50	611	2,525	0.034	49	757
27	112.50	625	2,394	0.032	47	774
26	107.50	639	2,261	0.031	44	792
25	103.00	521	1,712	0.023	33	646
24	100.50	262	824	0.011	16	324
23	97.92	1,105	3,323	0.045	65	1,370
22	95.42	138	398	0.005	8	171
21	92.50	841	2,289	0.031	45	1,042
20	87.50	860	2,124	0.029	41	1,065
19	82.50	878	1,958	0.027	38	1,088
18	77.50	897	1,793	0.024	35	1,112
17	72.50	916	1,629	0.022	32	1,135
16	67.50	934	1,467	0.020	29	1,158
15	62.50	953	1,308	0.018	26	1,181
14	57.50	972	1,153	0.016	22	1,204
13	54.50	197	212	0.003	4	244
12	52.00	1,555	1,548	0.021	30	1,927

11	48.92	853	763	0.010	15	1,057
10	46.42	644	525	0.007	10	798
9	42.50	1,153	807	0.011	16	1,429
8	37.50	1,175	661	0.009	13	1,456
7	32.50	1,197	524	0.007	10	1,483
6	27.50	1,219	398	0.005	8	1,510
5	22.50	1,240	286	0.004	6	1,537
4	17.50	1,262	187	0.003	4	1,564
3	12.50	1,284	106	0.001	2	1,591
2	7.50	1,306	44	0.001	1	1,618
1	2.50	1,328	7	0.000	0	1,645
Decibel DB844H90E-XY	150.00	168	1,064	0.014	21	208
Andrew Microwaves VH	150.00	62	393	0.005	8	77
Round T-Arm	150.00	750	4,751	0.064	93	929
DragonWave Horizon C	140.00	32	179	0.002	3	39
DragonWave A-ANT-23G	140.00	15	84	0.001	2	19
NextNet BTS-2500	140.00	105	590	0.008	11	130
Argus LPX310R	140.00	39	219	0.003	4	48
DragonWave A-ANT-18G	140.00	27	152	0.002	3	34
Flat Side Arm	140.00	450	2,527	0.034	49	558
DragonWave A-ANT-11G	140.00	48	267	0.004	5	59
Ericsson KRY 112 144	130.00	33	163	0.002	3	41
Ericsson Radio 4449	130.00	222	1,095	0.015	21	275
Ericsson AIR 21, 1.3	130.00	249	1,228	0.017	24	309
Ericsson AIR 21, 1.3	130.00	244	1,206	0.016	24	303
RFS APXVAARR24_43-U-	130.00	384	1,893	0.026	37	476
Round Platform w/ Ha	125.00	2,000	9,214	0.125	180	2,479
RFS APXV18-206517S-C	120.00	79	340	0.005	7	98
		33,399	73,866	1.000	1,440	41,390

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)
34	147.50	417	2,566	0.035	50	359
33	142.50	431	2,498	0.034	49	371
32	137.50	468	2,546	0.034	50	403
31	132.50	482	2,458	0.033	48	415
30	127.50	558	2,662	0.036	52	480
29	122.50	572	2,544	0.034	50	492
28	117.50	611	2,525	0.034	49	526
27	112.50	625	2,394	0.032	47	538
26	107.50	639	2,261	0.031	44	550
25	103.00	521	1,712	0.023	33	449
24	100.50	262	824	0.011	16	225
23	97.92	1,105	3,323	0.045	65	951
22	95.42	138	398	0.005	8	119
21	92.50	841	2,289	0.031	45	724
20	87.50	860	2,124	0.029	41	740
19	82.50	878	1,958	0.027	38	756
18	77.50	897	1,793	0.024	35	772
17	72.50	916	1,629	0.022	32	788
16	67.50	934	1,467	0.020	29	804
15	62.50	953	1,308	0.018	26	820
14	57.50	972	1,153	0.016	22	837
13	54.50	197	212	0.003	4	169
12	52.00	1,555	1,548	0.021	30	1,339
11	48.92	853	763	0.010	15	734
10	46.42	644	525	0.007	10	554
9	42.50	1,153	807	0.011	16	993

8	37.50	1,175	661	0.009	13	1,011
7	32.50	1,197	524	0.007	10	1,030
6	27.50	1,219	398	0.005	8	1,049
5	22.50	1,240	286	0.004	6	1,068
4	17.50	1,262	187	0.003	4	1,086
3	12.50	1,284	106	0.001	2	1,105
2	7.50	1,306	44	0.001	1	1,124
1	2.50	1,328	7	0.000	0	1,143
Decibel DB844H90E-XY	150.00	168	1,064	0.014	21	145
Andrew Microwaves VH	150.00	62	393	0.005	8	53
Round T-Arm	150.00	750	4,751	0.064	93	646
DragonWave Horizon C	140.00	32	179	0.002	3	27
DragonWave A-ANT-23G	140.00	15	84	0.001	2	13
NextNet BTS-2500	140.00	105	590	0.008	11	90
Argus LPX310R	140.00	39	219	0.003	4	34
DragonWave A-ANT-18G	140.00	27	152	0.002	3	23
Flat Side Arm	140.00	450	2,527	0.034	49	387
DragonWave A-ANT-11G	140.00	48	267	0.004	5	41
Ericsson KRY 112 144	130.00	33	163	0.002	3	28
Ericsson Radio 4449	130.00	222	1,095	0.015	21	191
Ericsson AIR 21, 1.3	130.00	249	1,228	0.017	24	214
Ericsson AIR 21, 1.3	130.00	244	1,206	0.016	24	210
RFS APXVAARR24_43-U-	130.00	384	1,893	0.026	37	330
Round Platform w/ Ha	125.00	2,000	9,214	0.125	180	1,721
RFS APXV18-206517S-C	120.00	79	340	0.005	7	68
		33,399	73,866	1.000	1,440	28,748

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	-39.74	-1.44	0.00	-163.39	0.00	163.39	4,607.63	2,303.82	9,341.89	4,613.61	0.00	0.00	0.044
5.00	-38.13	-1.45	0.00	-156.18	0.00	156.18	4,559.53	2,279.76	9,071.72	4,480.18	0.01	-0.01	0.043
10.00	-36.53	-1.45	0.00	-148.93	0.00	148.93	4,510.02	2,255.01	8,802.46	4,347.20	0.02	-0.02	0.042
15.00	-34.97	-1.46	0.00	-141.66	0.00	141.66	4,459.11	2,229.56	8,534.26	4,214.75	0.05	-0.03	0.041
20.00	-33.43	-1.46	0.00	-134.38	0.00	134.38	4,406.80	2,203.40	8,267.28	4,082.90	0.09	-0.04	0.041
25.00	-31.92	-1.45	0.00	-127.10	0.00	127.10	4,353.08	2,176.54	8,001.69	3,951.73	0.14	-0.05	0.039
30.00	-30.44	-1.45	0.00	-119.84	0.00	119.84	4,297.96	2,148.98	7,737.64	3,821.33	0.20	-0.07	0.038
35.00	-28.98	-1.44	0.00	-112.60	0.00	112.60	4,241.44	2,120.72	7,475.29	3,691.77	0.28	-0.08	0.037
40.00	-27.55	-1.43	0.00	-105.41	0.00	105.41	4,183.52	2,091.76	7,214.81	3,563.12	0.36	-0.09	0.036
45.00	-26.76	-1.42	0.00	-98.29	0.00	98.29	4,124.19	2,062.09	6,956.34	3,435.47	0.46	-0.10	0.035
47.83	-25.70	-1.40	0.00	-94.27	0.00	94.27	4,089.95	2,044.97	6,810.83	3,363.62	0.52	-0.10	0.034
50.00	-23.77	-1.37	0.00	-91.23	0.00	91.23	4,063.46	2,031.73	6,700.05	3,308.90	0.57	-0.11	0.033
54.00	-23.53	-1.37	0.00	-85.74	0.00	85.74	3,292.85	1,646.42	5,449.39	2,691.25	0.66	-0.12	0.039
55.00	-22.32	-1.35	0.00	-84.37	0.00	84.37	3,284.08	1,642.04	5,410.01	2,671.80	0.69	-0.12	0.038
60.00	-21.14	-1.32	0.00	-77.63	0.00	77.63	3,239.39	1,619.70	5,213.74	2,574.87	0.82	-0.13	0.037
65.00	-19.98	-1.30	0.00	-71.01	0.00	71.01	3,193.31	1,596.65	5,018.66	2,478.53	0.97	-0.14	0.035
70.00	-18.85	-1.27	0.00	-64.53	0.00	64.53	3,145.81	1,572.91	4,824.91	2,382.84	1.12	-0.15	0.033
75.00	-17.74	-1.23	0.00	-58.20	0.00	58.20	3,096.92	1,548.46	4,632.66	2,287.90	1.29	-0.17	0.031
80.00	-16.65	-1.19	0.00	-52.04	0.00	52.04	3,046.62	1,523.31	4,442.07	2,193.77	1.47	-0.18	0.029
85.00	-15.58	-1.15	0.00	-46.08	0.00	46.08	2,994.92	1,497.46	4,253.30	2,100.54	1.66	-0.19	0.027
90.00	-14.54	-1.10	0.00	-40.33	0.00	40.33	2,941.82	1,470.91	4,066.50	2,008.29	1.86	-0.20	0.025
95.00	-14.37	-1.10	0.00	-34.80	0.00	34.80	2,887.31	1,443.66	3,881.84	1,917.09	2.07	-0.21	0.023
95.83	-13.00	-1.03	0.00	-33.89	0.00	33.89	2,878.09	1,439.05	3,851.28	1,902.00	2.11	-0.21	0.022
100.00	-12.68	-1.01	0.00	-29.60	0.00	29.60	2,827.97	1,413.98	3,694.98	1,824.81	2.29	-0.21	0.021
101.00	-12.03	-0.98	0.00	-28.59	0.00	28.59	1,925.36	962.68	2,560.99	1,264.78	2.33	-0.22	0.029
105.00	-11.24	-0.93	0.00	-24.67	0.00	24.67	1,901.32	950.66	2,471.43	1,220.55	2.52	-0.22	0.026
110.00	-10.46	-0.88	0.00	-20.01	0.00	20.01	1,870.02	935.01	2,359.93	1,165.48	2.75	-0.23	0.023
115.00	-9.71	-0.83	0.00	-15.59	0.00	15.59	1,837.31	918.65	2,249.09	1,110.74	3.00	-0.24	0.019
120.00	-8.90	-0.77	0.00	-11.43	0.00	11.43	1,803.20	901.60	2,139.06	1,056.40	3.25	-0.24	0.016
125.00	-5.73	-0.53	0.00	-7.56	0.00	7.56	1,767.68	883.84	2,030.00	1,002.54	3.51	-0.25	0.011
130.00	-3.73	-0.36	0.00	-4.91	0.00	4.91	1,730.77	865.38	1,922.07	949.24	3.78	-0.25	0.007
135.00	-3.15	-0.31	0.00	-3.09	0.00	3.09	1,692.45	846.22	1,815.44	896.58	4.04	-0.26	0.005
140.00	-1.73	-0.18	0.00	-1.53	0.00	1.53	1,652.72	826.36	1,710.25	844.63	4.31	-0.26	0.003
145.00	-1.21	-0.13	0.00	-0.63	0.00	0.63	1,611.60	805.80	1,606.68	793.48	4.58	-0.26	0.002
150.00	0.00	-0.12	0.00	0.00	0.00	0.00	1,557.27	778.64	1,493.56	737.61	4.85	-0.26	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	-27.61	-1.44	0.00	-161.61	0.00	161.61	4,607.63	2,303.82	9,341.89	4,613.61	0.00	0.00	0.041
5.00	-26.48	-1.45	0.00	-154.40	0.00	154.40	4,559.53	2,279.76	9,071.72	4,480.18	0.01	-0.01	0.040
10.00	-25.38	-1.45	0.00	-147.17	0.00	147.17	4,510.02	2,255.01	8,802.46	4,347.20	0.02	-0.02	0.039
15.00	-24.29	-1.45	0.00	-139.94	0.00	139.94	4,459.11	2,229.56	8,534.26	4,214.75	0.05	-0.03	0.039
20.00	-23.22	-1.45	0.00	-132.70	0.00	132.70	4,406.80	2,203.40	8,267.28	4,082.90	0.09	-0.04	0.038
25.00	-22.17	-1.44	0.00	-125.47	0.00	125.47	4,353.08	2,176.54	8,001.69	3,951.73	0.14	-0.05	0.037
30.00	-21.14	-1.43	0.00	-118.26	0.00	118.26	4,297.96	2,148.98	7,737.64	3,821.33	0.20	-0.06	0.036
35.00	-20.13	-1.42	0.00	-111.09	0.00	111.09	4,241.44	2,120.72	7,475.29	3,691.77	0.27	-0.08	0.035
40.00	-19.14	-1.41	0.00	-103.97	0.00	103.97	4,183.52	2,091.76	7,214.81	3,563.12	0.36	-0.09	0.034
45.00	-18.58	-1.40	0.00	-96.91	0.00	96.91	4,124.19	2,062.09	6,956.34	3,435.47	0.46	-0.10	0.033
47.83	-17.85	-1.39	0.00	-92.94	0.00	92.94	4,089.95	2,044.97	6,810.83	3,363.62	0.51	-0.10	0.032
50.00	-16.51	-1.36	0.00	-89.93	0.00	89.93	4,063.46	2,031.73	6,700.05	3,308.90	0.56	-0.11	0.031
54.00	-16.34	-1.35	0.00	-84.51	0.00	84.51	3,292.85	1,646.42	5,449.39	2,691.25	0.66	-0.12	0.036
55.00	-15.50	-1.33	0.00	-83.15	0.00	83.15	3,284.08	1,642.04	5,410.01	2,671.80	0.68	-0.12	0.036
60.00	-14.68	-1.31	0.00	-76.49	0.00	76.49	3,239.39	1,619.70	5,213.74	2,574.87	0.81	-0.13	0.034
65.00	-13.88	-1.28	0.00	-69.96	0.00	69.96	3,193.31	1,596.65	5,018.66	2,478.53	0.95	-0.14	0.033
70.00	-13.09	-1.25	0.00	-63.56	0.00	63.56	3,145.81	1,572.91	4,824.91	2,382.84	1.11	-0.15	0.031
75.00	-12.32	-1.21	0.00	-57.32	0.00	57.32	3,096.92	1,548.46	4,632.66	2,287.90	1.27	-0.16	0.029
80.00	-11.56	-1.18	0.00	-51.25	0.00	51.25	3,046.62	1,523.31	4,442.07	2,193.77	1.45	-0.17	0.027
85.00	-10.82	-1.13	0.00	-45.37	0.00	45.37	2,994.92	1,497.46	4,253.30	2,100.54	1.64	-0.18	0.025
90.00	-10.10	-1.09	0.00	-39.70	0.00	39.70	2,941.82	1,470.91	4,066.50	2,008.29	1.84	-0.19	0.023
95.00	-9.98	-1.08	0.00	-34.26	0.00	34.26	2,887.31	1,443.66	3,881.84	1,917.09	2.04	-0.20	0.021
95.83	-9.03	-1.01	0.00	-33.36	0.00	33.36	2,878.09	1,439.05	3,851.28	1,902.00	2.08	-0.20	0.021
100.00	-8.80	-1.00	0.00	-29.14	0.00	29.14	2,827.97	1,413.98	3,694.98	1,824.81	2.26	-0.21	0.019
101.00	-8.35	-0.96	0.00	-28.14	0.00	28.14	1,925.36	962.68	2,560.99	1,264.78	2.30	-0.21	0.027
105.00	-7.80	-0.92	0.00	-24.29	0.00	24.29	1,901.32	950.66	2,471.43	1,220.55	2.48	-0.22	0.024
110.00	-7.27	-0.87	0.00	-19.70	0.00	19.70	1,870.02	935.01	2,359.93	1,165.48	2.72	-0.23	0.021
115.00	-6.74	-0.82	0.00	-15.35	0.00	15.35	1,837.31	918.65	2,249.09	1,110.74	2.96	-0.23	0.017
120.00	-6.18	-0.76	0.00	-11.25	0.00	11.25	1,803.20	901.60	2,139.06	1,056.40	3.21	-0.24	0.014
125.00	-3.98	-0.52	0.00	-7.44	0.00	7.44	1,767.68	883.84	2,030.00	1,002.54	3.47	-0.25	0.010
130.00	-2.59	-0.36	0.00	-4.84	0.00	4.84	1,730.77	865.38	1,922.07	949.24	3.72	-0.25	0.007
135.00	-2.19	-0.31	0.00	-3.04	0.00	3.04	1,692.45	846.22	1,815.44	896.58	3.99	-0.25	0.005
140.00	-1.20	-0.18	0.00	-1.50	0.00	1.50	1,652.72	826.36	1,710.25	844.63	4.25	-0.25	0.003
145.00	-0.84	-0.12	0.00	-0.62	0.00	0.62	1,611.60	805.80	1,606.68	793.48	4.52	-0.25	0.001
150.00	0.00	-0.12	0.00	0.00	0.00	0.00	1,557.27	778.64	1,493.56	737.61	4.78	-0.25	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}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.99
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)
34	147.50	417	1.828	1.667	1.025	0.335	121	517
33	142.50	431	1.706	1.144	0.823	0.261	98	535
32	137.50	468	1.588	0.742	0.654	0.196	79	580
31	132.50	482	1.475	0.441	0.513	0.138	58	597
30	127.50	558	1.366	0.222	0.397	0.089	43	692
29	122.50	572	1.261	0.069	0.302	0.049	24	709
28	117.50	611	1.160	-0.030	0.226	0.016	9	757
27	112.50	625	1.063	-0.088	0.165	-0.008	-4	774
26	107.50	639	0.971	-0.116	0.117	-0.025	-14	792
25	103.00	521	0.891	-0.122	0.084	-0.033	-15	646
24	100.50	262	0.848	-0.119	0.069	-0.035	-8	324
23	97.92	1,105	0.805	-0.113	0.055	-0.035	-33	1,370
22	95.42	138	0.765	-0.104	0.044	-0.033	-4	171
21	92.50	841	0.719	-0.092	0.034	-0.029	-21	1,042
20	87.50	860	0.643	-0.068	0.020	-0.018	-14	1,065
19	82.50	878	0.572	-0.043	0.012	-0.004	-3	1,088
18	77.50	897	0.505	-0.018	0.007	0.011	8	1,112
17	72.50	916	0.442	0.005	0.006	0.024	19	1,135
16	67.50	934	0.383	0.023	0.007	0.035	29	1,158
15	62.50	953	0.328	0.039	0.010	0.043	35	1,181
14	57.50	972	0.278	0.050	0.014	0.048	40	1,204
13	54.50	197	0.250	0.055	0.017	0.049	8	244
12	52.00	1,555	0.227	0.059	0.020	0.050	67	1,927
11	48.92	853	0.201	0.063	0.023	0.050	37	1,057
10	46.42	644	0.181	0.065	0.026	0.050	28	798
9	42.50	1,153	0.152	0.068	0.030	0.050	50	1,429
8	37.50	1,175	0.118	0.070	0.035	0.048	49	1,456
7	32.50	1,197	0.089	0.071	0.039	0.047	49	1,483
6	27.50	1,219	0.064	0.072	0.041	0.046	48	1,510
5	22.50	1,240	0.043	0.070	0.042	0.044	47	1,537
4	17.50	1,262	0.026	0.067	0.040	0.042	46	1,564
3	12.50	1,284	0.013	0.059	0.034	0.037	41	1,591
2	7.50	1,306	0.005	0.044	0.025	0.029	33	1,618
1	2.50	1,328	0.001	0.018	0.010	0.013	15	1,645

Decibel DB844H90E-XY	150.00	168	1.890	1.980	1.140	0.376	55	208
Andrew Microwaves	150.00	62	1.890	1.980	1.140	0.376	20	77
Round T-Arm	150.00	750	1.890	1.980	1.140	0.376	244	929
DragonWave Horizon C	140.00	32	1.646	0.929	0.735	0.227	6	39
DragonWave A-ANT-23G	140.00	15	1.646	0.929	0.735	0.227	3	19
NextNet BTS-2500	140.00	105	1.646	0.929	0.735	0.227	21	130
Argus LPX310R	140.00	39	1.646	0.929	0.735	0.227	8	48
DragonWave A-ANT-18G	140.00	27	1.646	0.929	0.735	0.227	5	34
Flat Side Arm	140.00	450	1.646	0.929	0.735	0.227	89	558
DragonWave A-ANT-11G	140.00	48	1.646	0.929	0.735	0.227	9	59
Ericsson KRY 112 144	130.00	33	1.420	0.322	0.452	0.113	3	41
Ericsson Radio 4449	130.00	222	1.420	0.322	0.452	0.113	22	275
Ericsson AIR 21, 1.3	130.00	249	1.420	0.322	0.452	0.113	24	309
Ericsson AIR 21, 1.3	130.00	244	1.420	0.322	0.452	0.113	24	303
RFS APXVAARR24_43-U-	130.00	384	1.420	0.322	0.452	0.113	38	476
Round Platform w/ Ha	125.00	2,000	1.312	0.138	0.347	0.068	118	2,479
RFS APXV18-206517S-C	120.00	79	1.210	0.014	0.262	0.031	2	98
		33,399	47.776	18.476	16.401	4.964	1,658	41,390

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)
34	147.50	417	1.828	1.667	1.025	0.335	121	359
33	142.50	431	1.706	1.144	0.823	0.261	98	371
32	137.50	468	1.588	0.742	0.654	0.196	79	403
31	132.50	482	1.475	0.441	0.513	0.138	58	415
30	127.50	558	1.366	0.222	0.397	0.089	43	480
29	122.50	572	1.261	0.069	0.302	0.049	24	492
28	117.50	611	1.160	-0.030	0.226	0.016	9	526
27	112.50	625	1.063	-0.088	0.165	-0.008	-4	538
26	107.50	639	0.971	-0.116	0.117	-0.025	-14	550
25	103.00	521	0.891	-0.122	0.084	-0.033	-15	449
24	100.50	262	0.848	-0.119	0.069	-0.035	-8	225
23	97.92	1,105	0.805	-0.113	0.055	-0.035	-33	951
22	95.42	138	0.765	-0.104	0.044	-0.033	-4	119
21	92.50	841	0.719	-0.092	0.034	-0.029	-21	724
20	87.50	860	0.643	-0.068	0.020	-0.018	-14	740
19	82.50	878	0.572	-0.043	0.012	-0.004	-3	756
18	77.50	897	0.505	-0.018	0.007	0.011	8	772
17	72.50	916	0.442	0.005	0.006	0.024	19	788
16	67.50	934	0.383	0.023	0.007	0.035	29	804
15	62.50	953	0.328	0.039	0.010	0.043	35	820
14	57.50	972	0.278	0.050	0.014	0.048	40	837
13	54.50	197	0.250	0.055	0.017	0.049	8	169
12	52.00	1,555	0.227	0.059	0.020	0.050	67	1,339
11	48.92	853	0.201	0.063	0.023	0.050	37	734
10	46.42	644	0.181	0.065	0.026	0.050	28	554
9	42.50	1,153	0.152	0.068	0.030	0.050	50	993
8	37.50	1,175	0.118	0.070	0.035	0.048	49	1,011
7	32.50	1,197	0.089	0.071	0.039	0.047	49	1,030
6	27.50	1,219	0.064	0.072	0.041	0.046	48	1,049
5	22.50	1,240	0.043	0.070	0.042	0.044	47	1,068
4	17.50	1,262	0.026	0.067	0.040	0.042	46	1,086
3	12.50	1,284	0.013	0.059	0.034	0.037	41	1,105
2	7.50	1,306	0.005	0.044	0.025	0.029	33	1,124
1	2.50	1,328	0.001	0.018	0.010	0.013	15	1,143
Decibel DB844H90E-XY	150.00	168	1.890	1.980	1.140	0.376	55	145
Andrew Microwaves	150.00	62	1.890	1.980	1.140	0.376	20	53

Round T-Arm	150.00	750	1.890	1.980	1.140	0.376	244	646
DragonWave Horizon C	140.00	32	1.646	0.929	0.735	0.227	6	27
DragonWave A-ANT-23G	140.00	15	1.646	0.929	0.735	0.227	3	13
NextNet BTS-2500	140.00	105	1.646	0.929	0.735	0.227	21	90
Argus LPX310R	140.00	39	1.646	0.929	0.735	0.227	8	34
DragonWave A-ANT-18G	140.00	27	1.646	0.929	0.735	0.227	5	23
Flat Side Arm	140.00	450	1.646	0.929	0.735	0.227	89	387
DragonWave A-ANT-11G	140.00	48	1.646	0.929	0.735	0.227	9	41
Ericsson KRY 112 144	130.00	33	1.420	0.322	0.452	0.113	3	28
Ericsson Radio 4449	130.00	222	1.420	0.322	0.452	0.113	22	191
Ericsson AIR 21, 1.3	130.00	249	1.420	0.322	0.452	0.113	24	214
Ericsson AIR 21, 1.3	130.00	244	1.420	0.322	0.452	0.113	24	210
RFS APXVAARR24_43-U-	130.00	384	1.420	0.322	0.452	0.113	38	330
Round Platform w/ Ha	125.00	2,000	1.312	0.138	0.347	0.068	118	1,721
RFS APXV18-206517S-C	120.00	79	1.210	0.014	0.262	0.031	2	68
		33,399	47.776	18.476	16.401	4.964	1,658	28,748

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	-39.74	-1.65	0.00	-174.31	0.00	174.31	4,607.63	2,303.82	9,341.89	4,613.61	0.00	0.00	0.046
5.00	-38.13	-1.62	0.00	-166.07	0.00	166.07	4,559.53	2,279.76	9,071.72	4,480.18	0.01	-0.01	0.045
10.00	-36.53	-1.59	0.00	-157.97	0.00	157.97	4,510.02	2,255.01	8,802.46	4,347.20	0.02	-0.02	0.044
15.00	-34.97	-1.55	0.00	-150.04	0.00	150.04	4,459.11	2,229.56	8,534.26	4,214.75	0.05	-0.03	0.043
20.00	-33.43	-1.51	0.00	-142.30	0.00	142.30	4,406.80	2,203.40	8,267.28	4,082.90	0.10	-0.05	0.042
25.00	-31.92	-1.46	0.00	-134.77	0.00	134.77	4,353.08	2,176.54	8,001.69	3,951.73	0.15	-0.06	0.041
30.00	-30.44	-1.42	0.00	-127.46	0.00	127.46	4,297.96	2,148.98	7,737.64	3,821.33	0.22	-0.07	0.040
35.00	-28.98	-1.37	0.00	-120.37	0.00	120.37	4,241.44	2,120.72	7,475.29	3,691.77	0.30	-0.08	0.039
40.00	-27.55	-1.33	0.00	-113.51	0.00	113.51	4,183.52	2,091.76	7,214.81	3,563.12	0.39	-0.09	0.038
45.00	-26.76	-1.30	0.00	-106.88	0.00	106.88	4,124.19	2,062.09	6,956.34	3,435.47	0.49	-0.10	0.038
47.83	-25.70	-1.27	0.00	-103.19	0.00	103.19	4,089.95	2,044.97	6,810.83	3,363.62	0.55	-0.11	0.037
50.00	-23.77	-1.20	0.00	-100.45	0.00	100.45	4,063.46	2,031.73	6,700.05	3,308.90	0.61	-0.12	0.036
54.00	-23.53	-1.19	0.00	-95.66	0.00	95.66	3,292.85	1,646.42	5,449.39	2,691.25	0.71	-0.13	0.043
55.00	-22.32	-1.15	0.00	-94.47	0.00	94.47	3,284.08	1,642.04	5,410.01	2,671.80	0.73	-0.13	0.042
60.00	-21.14	-1.12	0.00	-88.71	0.00	88.71	3,239.39	1,619.70	5,213.74	2,574.87	0.88	-0.14	0.041
65.00	-19.98	-1.09	0.00	-83.12	0.00	83.12	3,193.31	1,596.65	5,018.66	2,478.53	1.03	-0.16	0.040
70.00	-18.85	-1.07	0.00	-77.67	0.00	77.67	3,145.81	1,572.91	4,824.91	2,382.84	1.20	-0.17	0.039
75.00	-17.74	-1.07	0.00	-72.30	0.00	72.30	3,096.92	1,548.46	4,632.66	2,287.90	1.39	-0.18	0.037
80.00	-16.65	-1.07	0.00	-66.98	0.00	66.98	3,046.62	1,523.31	4,442.07	2,193.77	1.58	-0.20	0.036
85.00	-15.58	-1.08	0.00	-61.64	0.00	61.64	2,994.92	1,497.46	4,253.30	2,100.54	1.80	-0.21	0.035
90.00	-14.54	-1.10	0.00	-56.22	0.00	56.22	2,941.82	1,470.91	4,066.50	2,008.29	2.02	-0.22	0.033
95.00	-14.37	-1.11	0.00	-50.71	0.00	50.71	2,887.31	1,443.66	3,881.84	1,917.09	2.26	-0.24	0.031
95.83	-13.00	-1.14	0.00	-49.79	0.00	49.79	2,878.09	1,439.05	3,851.28	1,902.00	2.30	-0.24	0.031
100.00	-12.67	-1.14	0.00	-45.05	0.00	45.05	2,827.97	1,413.98	3,694.98	1,824.81	2.51	-0.25	0.029
101.00	-12.03	-1.16	0.00	-43.91	0.00	43.91	1,925.36	962.68	2,560.99	1,264.78	2.57	-0.25	0.041
105.00	-11.24	-1.17	0.00	-39.27	0.00	39.27	1,901.32	950.66	2,471.43	1,220.55	2.78	-0.26	0.038
110.00	-10.46	-1.17	0.00	-33.42	0.00	33.42	1,870.02	935.01	2,359.93	1,165.48	3.06	-0.27	0.034
115.00	-9.70	-1.16	0.00	-27.55	0.00	27.55	1,837.31	918.65	2,249.09	1,110.74	3.36	-0.29	0.030
120.00	-8.90	-1.14	0.00	-21.73	0.00	21.73	1,803.20	901.60	2,139.06	1,056.40	3.66	-0.30	0.026
125.00	-5.73	-0.96	0.00	-16.05	0.00	16.05	1,767.68	883.84	2,030.00	1,002.54	3.98	-0.31	0.019
130.00	-3.73	-0.78	0.00	-11.26	0.00	11.26	1,730.77	865.38	1,922.07	949.24	4.31	-0.32	0.014
135.00	-3.15	-0.70	0.00	-7.37	0.00	7.37	1,692.45	846.22	1,815.44	896.58	4.64	-0.32	0.010
140.00	-1.73	-0.45	0.00	-3.88	0.00	3.88	1,652.72	826.36	1,710.25	844.63	4.98	-0.33	0.006
145.00	-1.21	-0.33	0.00	-1.63	0.00	1.63	1,611.60	805.80	1,606.68	793.48	5.33	-0.33	0.003
150.00	0.00	-0.32	0.00	0.00	0.00	0.00	1,557.27	778.64	1,493.56	737.61	5.67	-0.33	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	-27.61	-1.65	0.00	-172.41	0.00	172.41	4,607.63	2,303.82	9,341.89	4,613.61	0.00	0.00	0.043
5.00	-26.48	-1.62	0.00	-164.18	0.00	164.18	4,559.53	2,279.76	9,071.72	4,480.18	0.01	-0.01	0.042
10.00	-25.38	-1.58	0.00	-156.09	0.00	156.09	4,510.02	2,255.01	8,802.46	4,347.20	0.02	-0.02	0.042
15.00	-24.29	-1.54	0.00	-148.19	0.00	148.19	4,459.11	2,229.56	8,534.26	4,214.75	0.05	-0.03	0.041
20.00	-23.22	-1.50	0.00	-140.49	0.00	140.49	4,406.80	2,203.40	8,267.28	4,082.90	0.09	-0.05	0.040
25.00	-22.17	-1.45	0.00	-133.01	0.00	133.01	4,353.08	2,176.54	8,001.69	3,951.73	0.15	-0.06	0.039
30.00	-21.14	-1.41	0.00	-125.76	0.00	125.76	4,297.96	2,148.98	7,737.64	3,821.33	0.21	-0.07	0.038
35.00	-20.13	-1.36	0.00	-118.73	0.00	118.73	4,241.44	2,120.72	7,475.29	3,691.77	0.29	-0.08	0.037
40.00	-19.14	-1.31	0.00	-111.94	0.00	111.94	4,183.52	2,091.76	7,214.81	3,563.12	0.38	-0.09	0.036
45.00	-18.58	-1.29	0.00	-105.38	0.00	105.38	4,124.19	2,062.09	6,956.34	3,435.47	0.48	-0.10	0.035
47.83	-17.85	-1.25	0.00	-101.73	0.00	101.73	4,089.95	2,044.97	6,810.83	3,363.62	0.55	-0.11	0.035
50.00	-16.51	-1.18	0.00	-99.03	0.00	99.03	4,063.46	2,031.73	6,700.05	3,308.90	0.60	-0.12	0.034
54.00	-16.34	-1.17	0.00	-94.30	0.00	94.30	3,292.85	1,646.42	5,449.39	2,691.25	0.70	-0.12	0.040
55.00	-15.50	-1.13	0.00	-93.13	0.00	93.13	3,284.08	1,642.04	5,410.01	2,671.80	0.72	-0.13	0.040
60.00	-14.68	-1.10	0.00	-87.46	0.00	87.46	3,239.39	1,619.70	5,213.74	2,574.87	0.86	-0.14	0.038
65.00	-13.88	-1.07	0.00	-81.95	0.00	81.95	3,193.31	1,596.65	5,018.66	2,478.53	1.02	-0.15	0.037
70.00	-13.09	-1.05	0.00	-76.59	0.00	76.59	3,145.81	1,572.91	4,824.91	2,382.84	1.19	-0.17	0.036
75.00	-12.32	-1.05	0.00	-71.31	0.00	71.31	3,096.92	1,548.46	4,632.66	2,287.90	1.37	-0.18	0.035
80.00	-11.56	-1.05	0.00	-66.08	0.00	66.08	3,046.62	1,523.31	4,442.07	2,193.77	1.56	-0.19	0.034
85.00	-10.82	-1.06	0.00	-60.83	0.00	60.83	2,994.92	1,497.46	4,253.30	2,100.54	1.77	-0.21	0.033
90.00	-10.10	-1.08	0.00	-55.51	0.00	55.51	2,941.82	1,470.91	4,066.50	2,008.29	1.99	-0.22	0.031
95.00	-9.98	-1.09	0.00	-50.09	0.00	50.09	2,887.31	1,443.66	3,881.84	1,917.09	2.23	-0.23	0.030
95.83	-9.03	-1.12	0.00	-49.18	0.00	49.18	2,878.09	1,439.05	3,851.28	1,902.00	2.27	-0.23	0.029
100.00	-8.80	-1.13	0.00	-44.51	0.00	44.51	2,827.97	1,413.98	3,694.98	1,824.81	2.48	-0.24	0.028
101.00	-8.35	-1.14	0.00	-43.39	0.00	43.39	1,925.36	962.68	2,560.99	1,264.78	2.53	-0.25	0.039
105.00	-7.80	-1.15	0.00	-38.82	0.00	38.82	1,901.32	950.66	2,471.43	1,220.55	2.74	-0.26	0.036
110.00	-7.26	-1.16	0.00	-33.05	0.00	33.05	1,870.02	935.01	2,359.93	1,165.48	3.02	-0.27	0.032
115.00	-6.74	-1.15	0.00	-27.26	0.00	27.26	1,837.31	918.65	2,249.09	1,110.74	3.31	-0.28	0.028
120.00	-6.18	-1.12	0.00	-21.52	0.00	21.52	1,803.20	901.60	2,139.06	1,056.40	3.62	-0.30	0.024
125.00	-3.98	-0.95	0.00	-15.91	0.00	15.91	1,767.68	883.84	2,030.00	1,002.54	3.93	-0.30	0.018
130.00	-2.59	-0.77	0.00	-11.17	0.00	11.17	1,730.77	865.38	1,922.07	949.24	4.25	-0.31	0.013
135.00	-2.19	-0.69	0.00	-7.31	0.00	7.31	1,692.45	846.22	1,815.44	896.58	4.58	-0.32	0.009
140.00	-1.20	-0.45	0.00	-3.86	0.00	3.86	1,652.72	826.36	1,710.25	844.63	4.92	-0.32	0.005
145.00	-0.84	-0.32	0.00	-1.62	0.00	1.62	1,611.60	805.80	1,606.68	793.48	5.26	-0.32	0.003
150.00	0.00	-0.32	0.00	0.00	0.00	0.00	1,557.27	778.64	1,493.56	737.61	5.60	-0.33	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	23.54	0.00	40.05	0.00	0.00	2270.93	0.00	0.50
0.9D + 1.6W	23.52	0.00	30.03	0.00	0.00	2251.56	0.00	0.49
1.2D + 1.0Di + 1.0Wi	5.25	0.00	56.72	0.00	0.00	525.87	0.00	0.13
(1.2 + 0.2Sds) * DL + E ELFM	1.44	0.00	39.74	0.00	0.00	163.39	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.65	0.00	39.74	0.00	0.00	174.31	0.00	0.05
(0.9 - 0.2Sds) * DL + E ELFM	1.44	0.00	27.61	0.00	0.00	161.61	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.65	0.00	27.61	0.00	0.00	172.41	0.00	0.04
1.0D + 1.0W	5.03	0.00	33.40	0.00	0.00	483.28	0.00	0.11

Base Plate & Anchor Rod Analysis

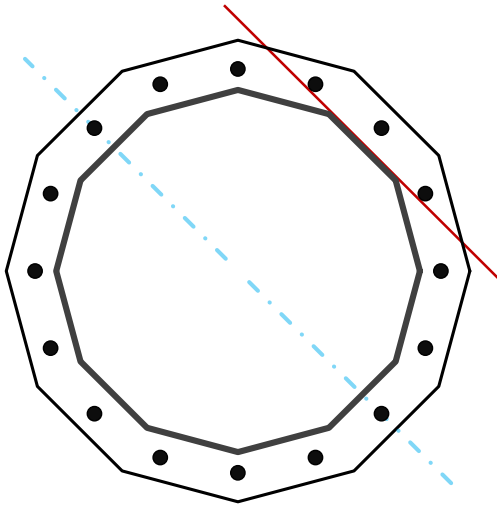
Pole Dimensions		
Number of Sides	12	-
Diameter	49.6	in
Thickness	0.4375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2270.9	k-ft
Axial, Pu	40.1	k
Shear, Vu	23.5	k
Neutral Axis	315	°

Report Capacities		
Component	Capacity	Result
Base Plate	22%	Pass
Anchor Rods	47%	Pass
Dwyidag	-	-

Base Plate		
Number of Sides	12	-
Diameter, ø	63.85	in
Thickness	2 3/4	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	838.0	k
Bending Stress, ϕMn	3828.4	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	57.85	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	11.4	in
Orientation Offset	0	°
Applied Force, Pu	120.2	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	23.5	2270.9	1.00
Anchor Rod Forces	23.5	2270.9	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	66.8020	5.5668	0.3568		20186.43
Bolt	3.9761	3.2477	0.8393	4.5	21751.01
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	12	-
Width, W	63.85	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	40.208	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	57.85	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	120.2	k
Applied Shear, Vu	0.9	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.463	OK
Interaction Capacity	0.469	OK

External Base Plate		
Chord Length AA	40.198	in
Additional AA	5.500	in
Section Modulus, Z	86.397	in^3
Applied Moment, Mu	838.0	k-ft
Bending Capacity, ϕMn	4665.4	k-ft
Capacity, Mu/ϕMn	0.180	OK
Chord Length AB	38.430	in
Additional AB	5.500	in
Section Modulus, Z	83.056	in^3
Applied Moment, Mu	535.2	k-ft
Bending Capacity, ϕMn	4485.0	k-ft
Capacity, Mu/ϕMn	0.119	OK
Bend Line Length	37.499	in
Additional Bend Line	0.000	in
Section Modulus, Z	70.896	in^3
Applied Moment, Mu	838.0	k-ft
Bending Capacity, ϕMn	3828.4	k-ft
Capacity, Mu/ϕMn	0.219	OK

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

Exhibit E

Mount Analysis

Mount Analysis of Existing Low Profile Platform w/Proposed Site Pro 1 HRK12-HD for American Tower on behalf of T-Mobile
302539 - North Haven CT 2
Project #: 12927158

T-Mobile Site ID: CT11398A

Program: L600

CLS Engineering PLLC Project #41124-12927158-01-MA-R1

July 3, 2019

MOUNT DESCRIPTION	Existing Low Profile Platform w/Proposed Site Pro 1 HRK12-HD at 126 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 130 ft AGL (Eccentricity of ~4 ft)
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	4 Dwight Street, North Haven, CT 06473-1138, New Haven County
GPS COORDINATES	41.42194444, -72.8472
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

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

MEMBER USAGE	**70%**	**Pass**
COLLAR USAGE	**78%**	**Pass**

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

Prepared by:
Jennifer Soza

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: 2019.07.03 22:00:52 -04'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the existing Low Profile Platform w/Proposed Site Pro 1 HRK12-HD. 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 January 19, 2018 Site Pro 1 Assembly Drawing Part No. HRK12-HD, dated March 31, 2015
PREVIOUS ANALYSES	Structural Analysis by American Tower Corporation, Engineering Number: 63935221, dated October 27, 2015
LOADING DATA	American Tower Corporation Application, Project #12927158, dated April 4, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	50 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
EXPOSURE CATEGORY	B
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**
126.0	130.0	3	Ericsson AIR 21 B4A/B2P
		3	Ericsson AIR 21 B2A/B4P
		3	Ericsson RADIO 4449 B12/B71
		3	Ericsson KRY 112 144/1
		3	RFS Celwave APXVAARR24_43-U-NA20

■ RESULTS SUMMARY

Existing Mount Usages Table:

COMPONENT	PEAK USAGE	RESULT
Plates	>200%	**Fail**
Mount Pipes	165%	**Fail**
Stand-Off Horizontals	46%	Pass
Platform Base	33%	Pass

Modified Mount Usages Table:

COMPONENT	PEAK USAGE	RESULT
Collar Reactions	78%	Pass
Plates	70%	Pass
Mount Pipes	69%	Pass
Stand-Off Horizontals	50%	Pass
Support Rail	40%	Pass
Platform Base	14%	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 Site Pro 1 HRK12-HD support rail kit at 3'-6" above the existing platform face horizontal member. Connect to all existing mount pipes using Site Pro 1 SCX2 crossover plate included in the support rail kit.**

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.

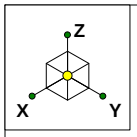
This analysis assumes the following:

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.

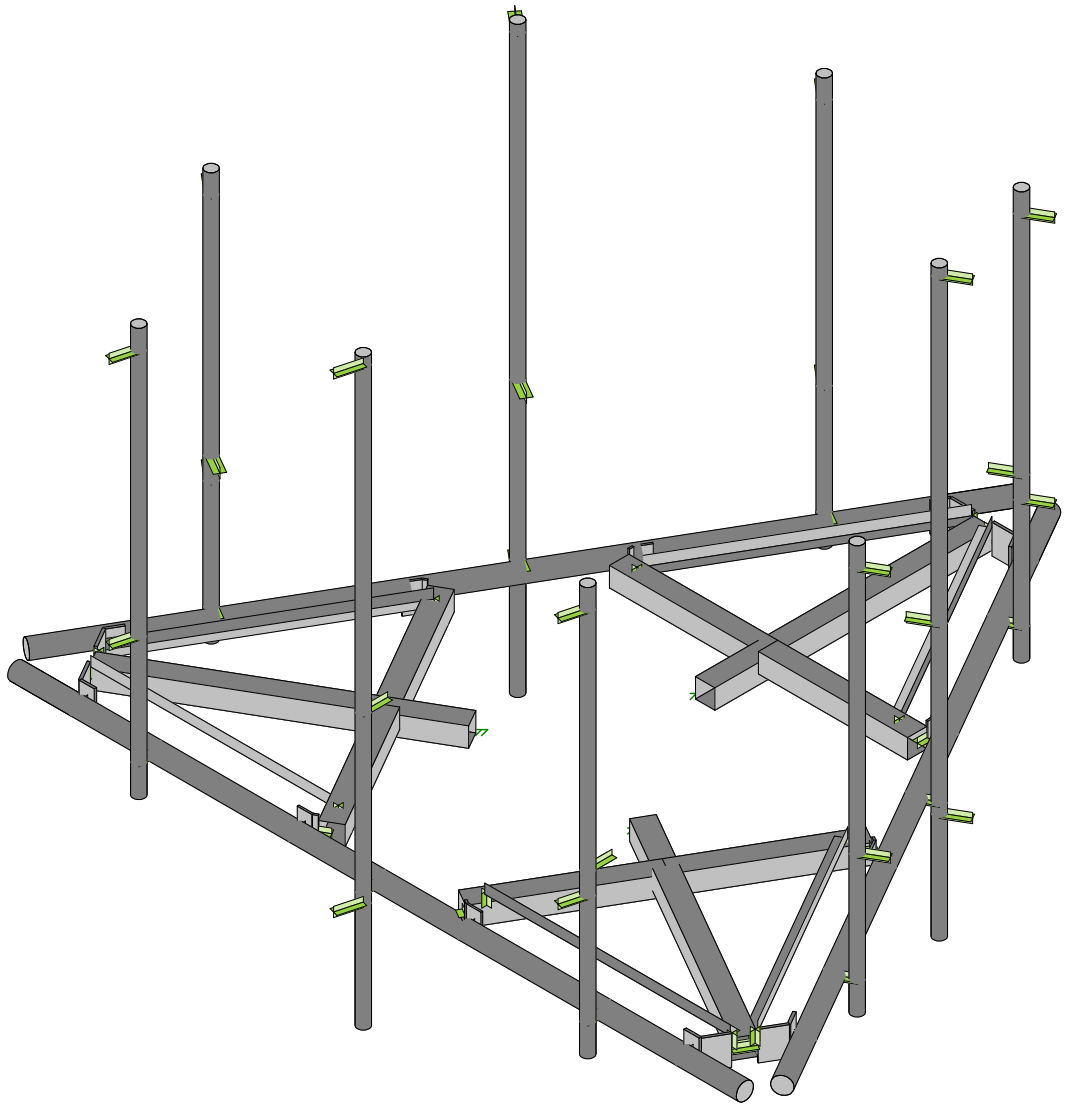
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided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



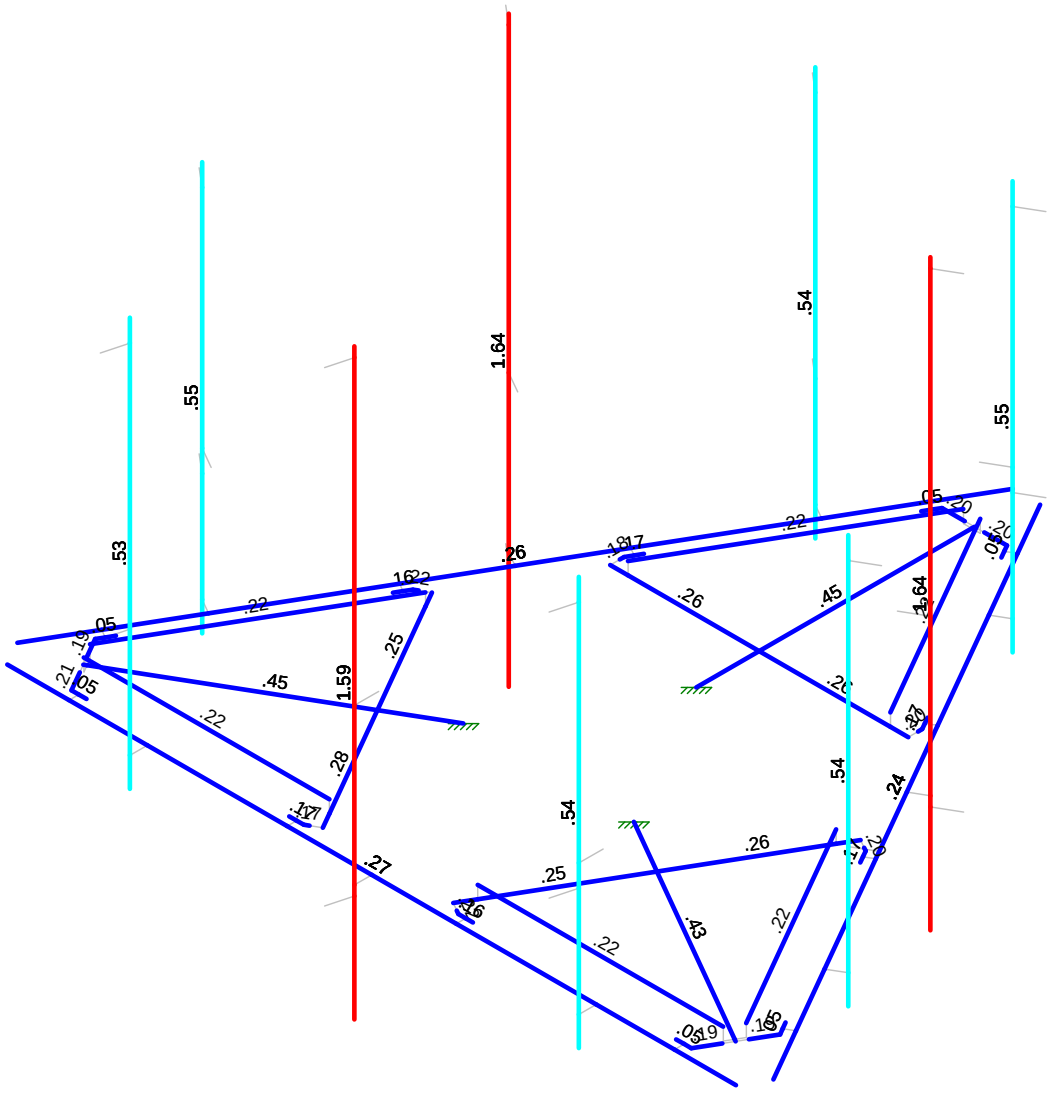
Existing Mount to be Modified.



Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	EX - 1
CWD		Apr 9, 2019 at 11:21 AM
41124-12927158-01-MA	Existing Mount to be Modified - Rendered	41124-12927158-01-MA.r3d

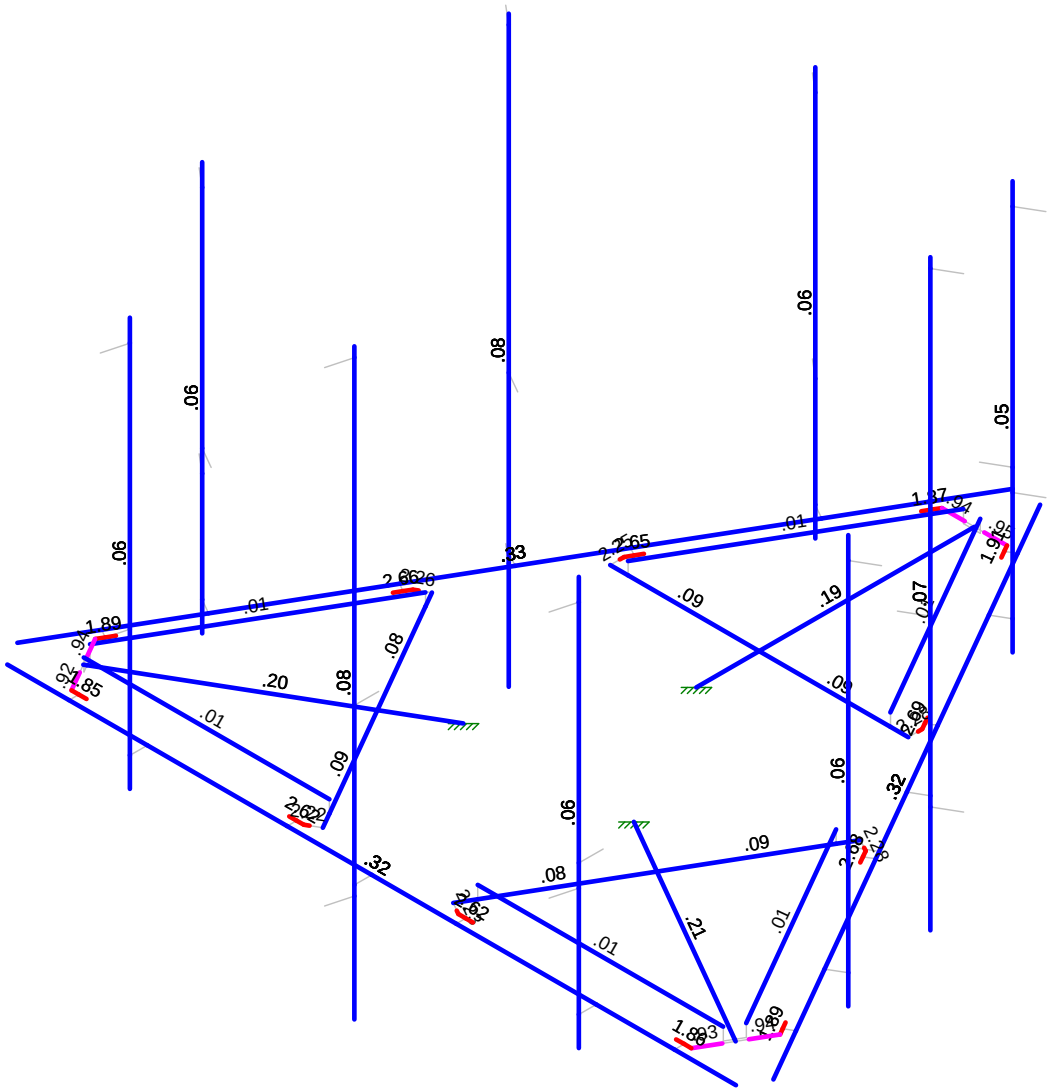
Existing Mount to be Modified.



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

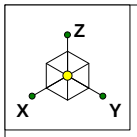
CLS	41124-12927158-North Haven CT 2	EX - 2
CWD		Apr 9, 2019 at 11:24 AM
41124-12927158-01-MA	Existing Mount to be Modified - Unity Bending Check	41124-12927158-01-MA.r3d

Existing Mount to be Modified.

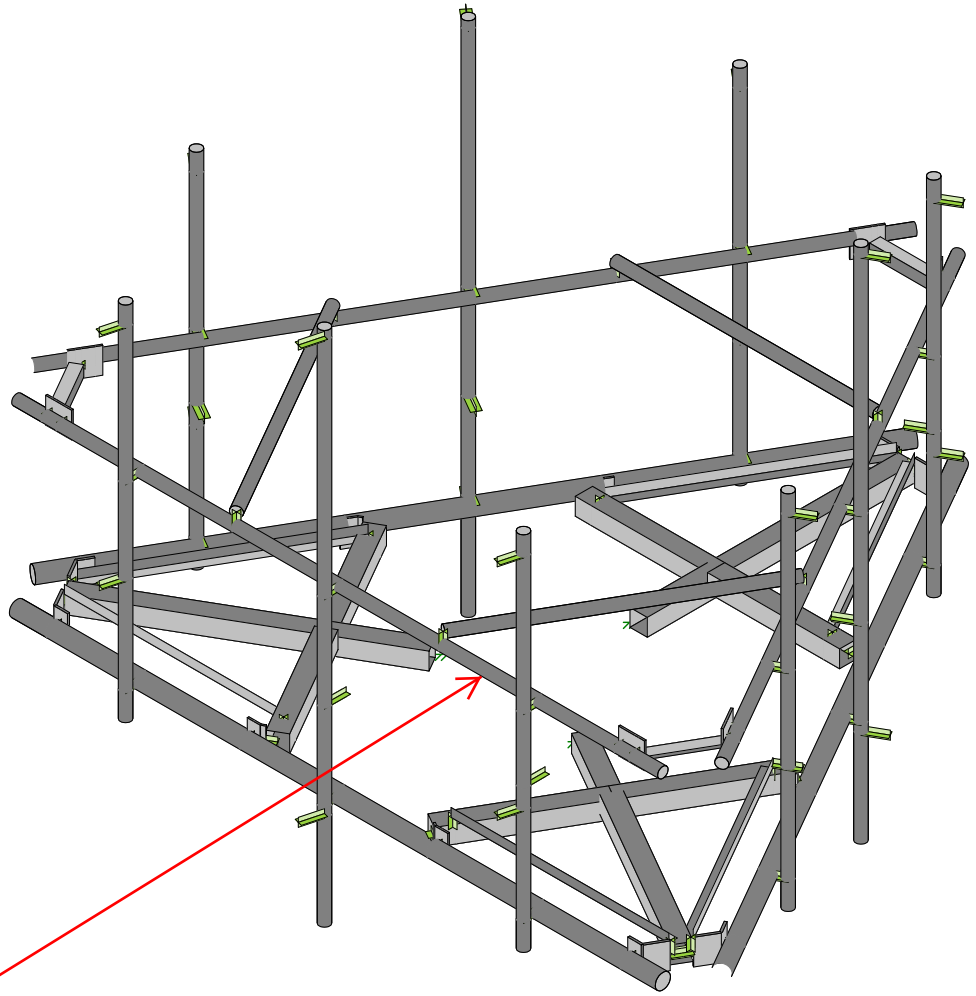


Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2 Existing Mount to be Modified - Shear Check	EX - 3
CWD		Apr 9, 2019 at 11:25 AM
41124-12927158-01-MA		41124-12927158-01-MA.r3d



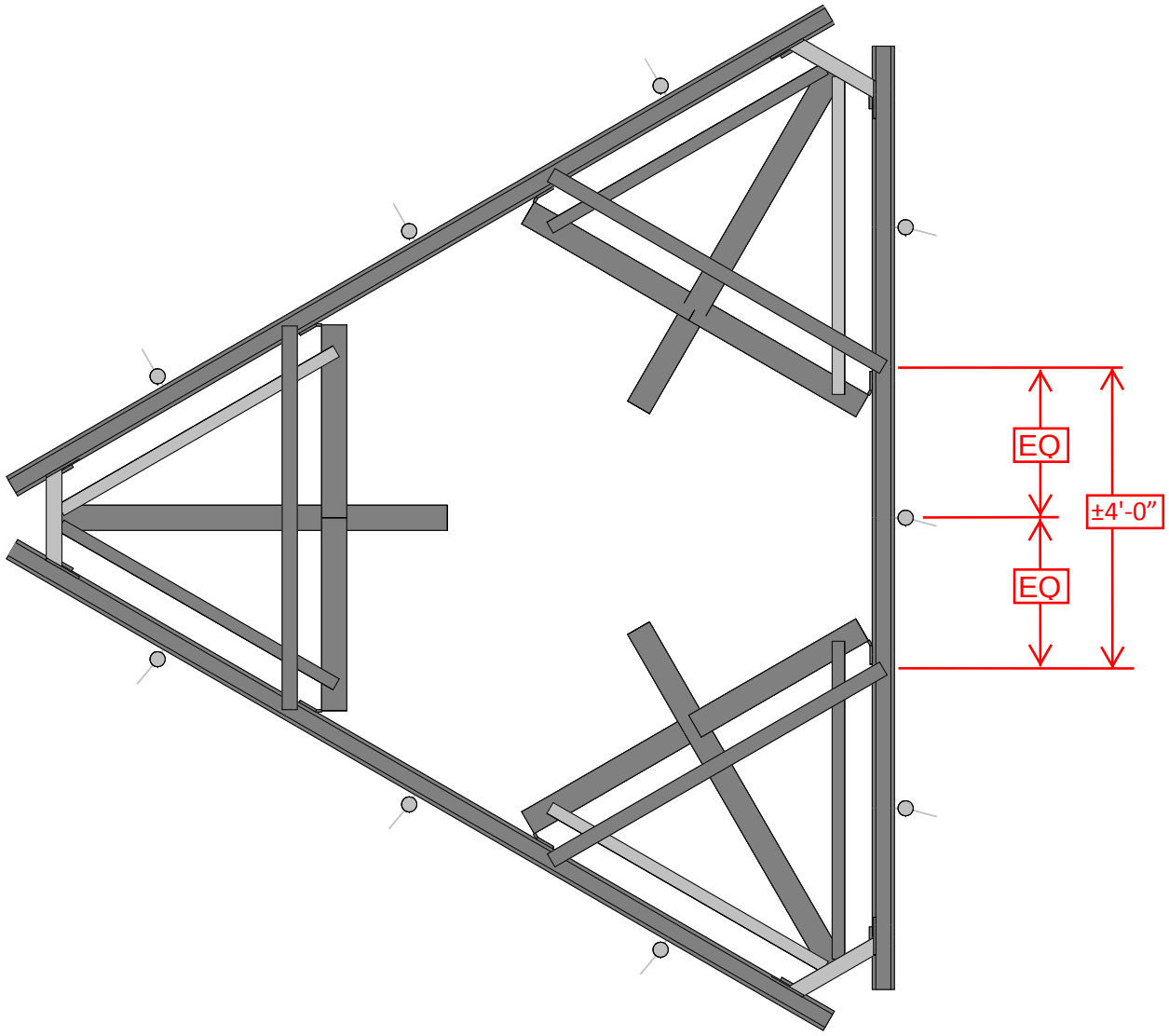
Existing Mount Modified.



Install Site Pro 1 HRK12-HD support rail kit at 3'-6" above the existing platform face horizontal member. Connect to all existing mount pipes using Site Pro 1 SCX2 crossover plate included in the support rail kit.

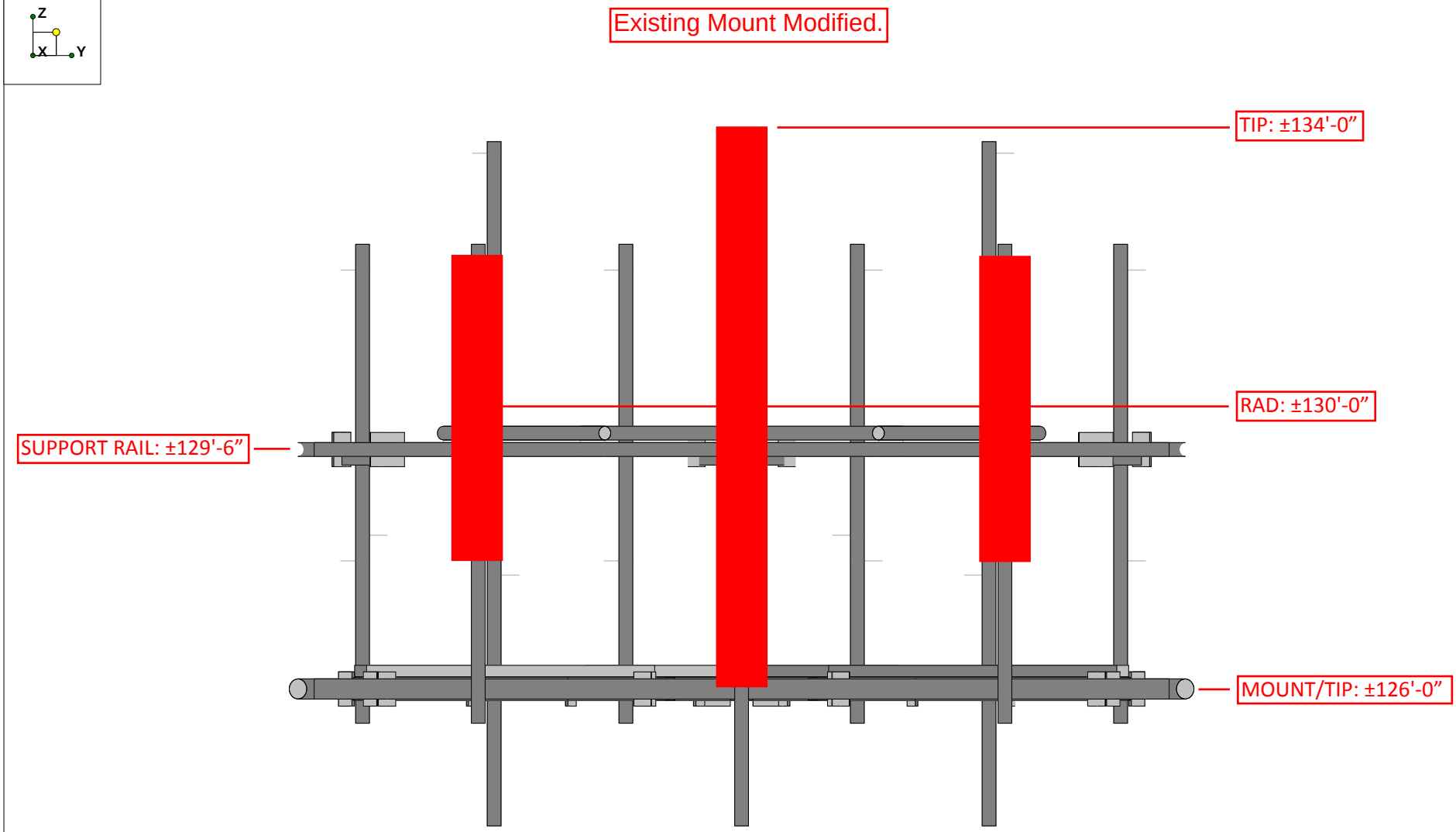
CLS		IN - 1
CWD	41124-12927158-North Haven CT 2	Apr 10, 2019 at 12:35 PM
41124-12927158-01-MA	Proposed Modified Mount - Rendered	41124-12927158-01-MA.r3d

Existing Mount Modified.



Envelope Only Solution

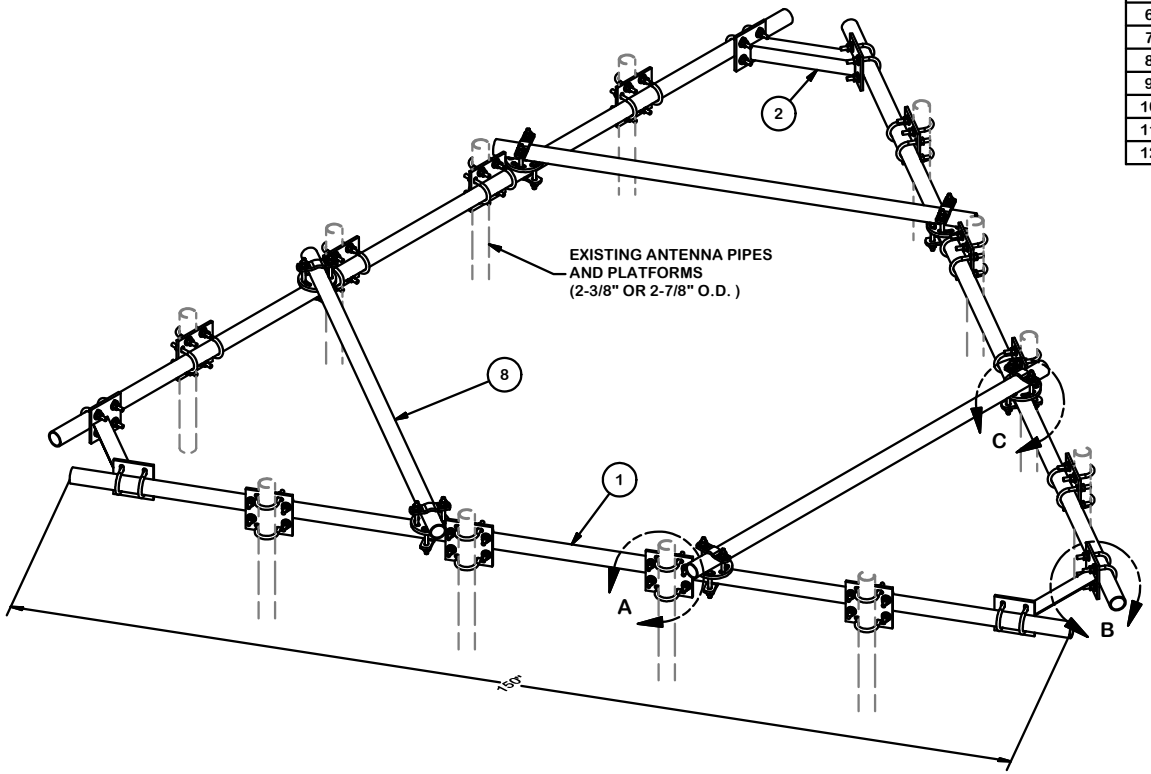
CLS	41124-12927158-North Haven CT 2	IN - 2
CWD		Apr 10, 2019 at 12:37 PM
41124-12927158-01-MA	Proposed Modified Mount - Plan View	41124-12927158-01-MA.r3d

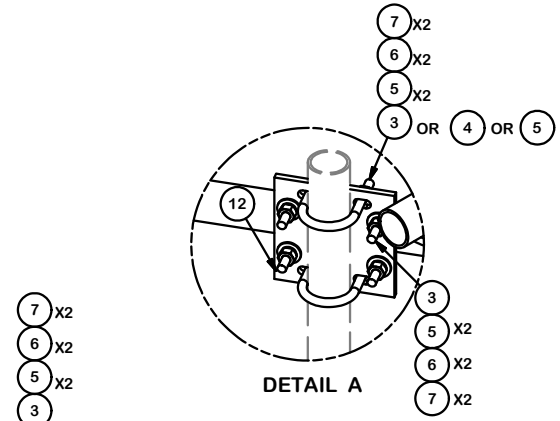


Envelope Only Solution

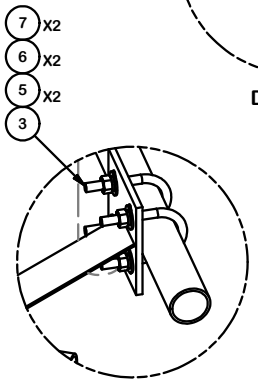
CLS	41124-12927158-North Haven CT 2	IN - 3
CWD		Apr 10, 2019 at 12:40 PM
41124-12927158-01-MA	Proposed Modified Mount - Elevation View	41124-12927158-01-MA.r3d

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	15.42
4	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.26	6.17
5	144	G12FW	1/2" HDG USS FLATWASHER		0.03	4.91
6	144	G12LW	1/2" HDG LOCKWASHER		0.01	2.00
7	144	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	10.31
8	3	P272	2-3/8" X 72" SCH 40 GALVANIZED PIPE	72 in	23.07	69.20
9	6	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)		2.48	14.90
10	12	X-100064	CLAMP (S) (4" V-CLAMP) GALVANIZED		0.91	10.95
11	24	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	6.48
12	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
					TOTAL WT. #	406.61

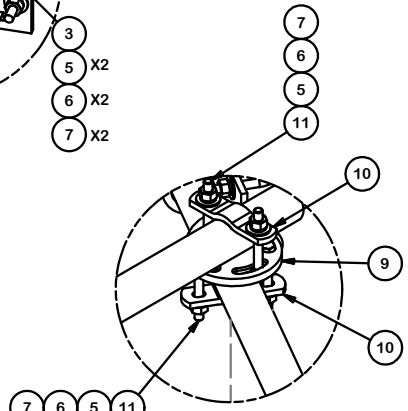




DETAIL A



DETAIL B



DETAIL C

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
HEAY DUTY HANDRAIL KIT
FOR 12' PLATFORMS WITH
2-3/8" OR 2-7/8" ANTENNA PIPES

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.	PAGE
	CEK 3/31/2015		HRK12-HD	1 OF 1

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 3/31/2015	HRK12-HD

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	126 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	130 ft	K_d	0.95
Elevation AMSL (ft)	-	K_e	-
TIA Standard	G	K_z	1.06
Basic Wind Speed, V_{ult} (bare)	125 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	-
Design Ice Thickness, t_i	3/4 in	t_{iz}	1.72 in
Exposure Category	B	G_h	1.00
Risk Category	II	q_z (bare)	40.1 psf
Seismic Response Coeff., C_s	-	q_z (ice)	6.4 psf

Live Loading

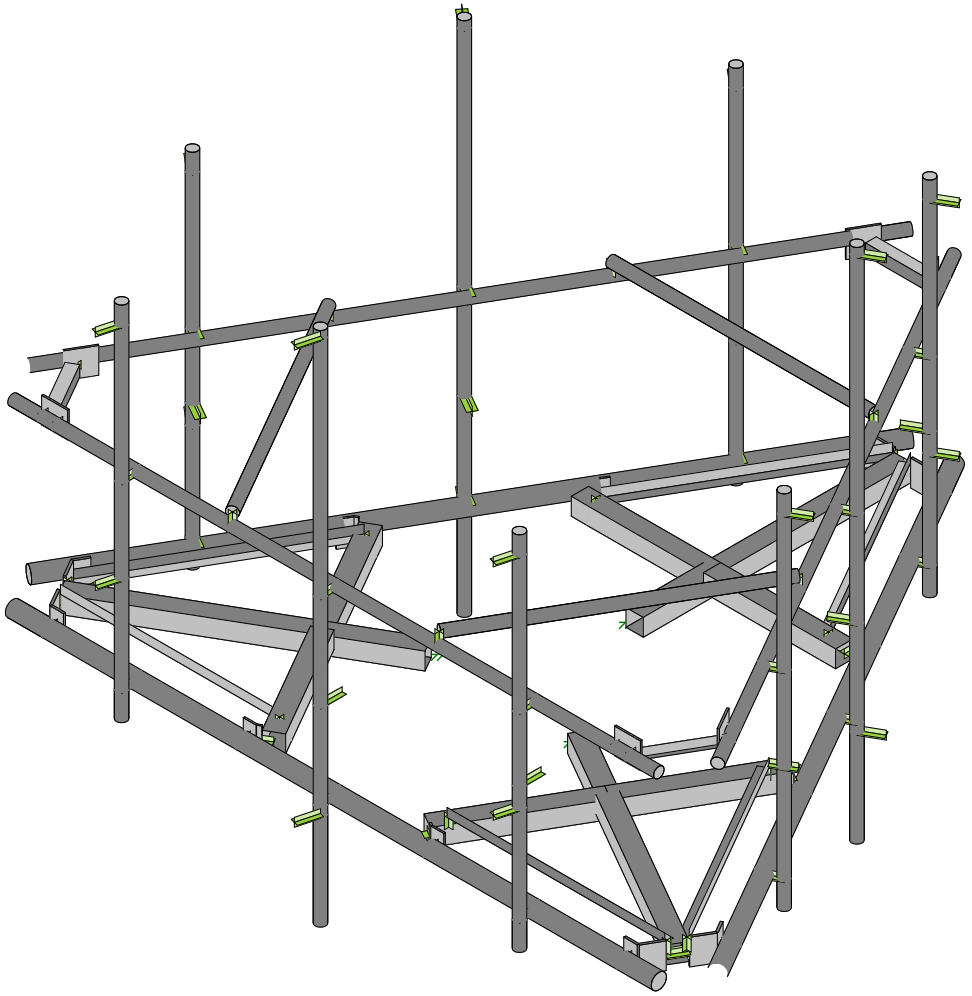
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Offset Tube	HSS4X4X4	24.07	2.27	14.27
Offset End Plate	0.5 x 6 Plate	36.10	5.46	12.26
Offset Side Plate	0.38 X 6 Plate	36.10	5.45	12.10
Platform Horzontal Pipe	PIPE_3.0	12.64	4.00	10.93
Grating Angle	L2x2x3	12.03	2.13	8.68
Mount Pipe	PIPE_2.0	8.57	3.35	8.57
MOD Support Rail	PIPE_2.0	8.57	3.35	8.57
MOD SR Conn Plate	PL6x0.375	36.10	5.45	12.10
MOD SR Conn Angle	L2.5x2.5x4	15.04	2.16	10.02
MOD SR Bracing	PIPE_2.0	8.57	3.35	8.57

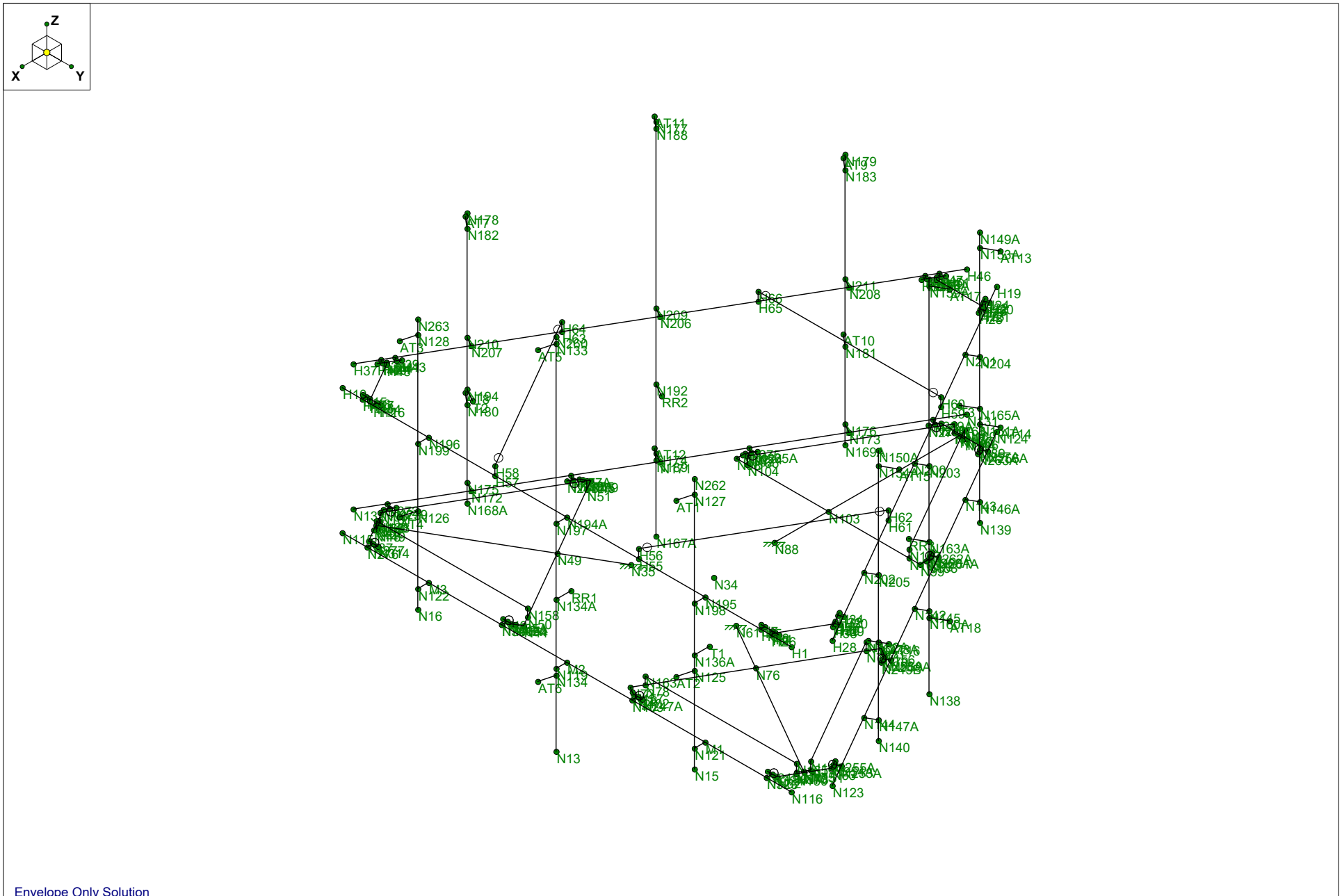
Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	15° Joints		130° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	15°	130°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
AIR 21 B4A/B2P				☐			1	1	1		AT3	AT4	AT9	AT10	AT15	AT16	55	12	7.9	83	Flat	141.08	5.92	4.22	7.88	6.07	215.82	153.70	45.92	35.35
AIR 21 B2A/B4P				☐			1	1	1		AT1	AT2	AT7	AT8	AT13	AT14	55	12	7.9	83	Flat	141.08	5.92	4.22	7.88	6.07	215.82	153.70	45.92	35.35
APXVAARR24_43-U-NA20				☐			1	1	1		AT5	AT6	AT11	AT12	AT17	AT18	0	0	0	153.3	Generic	387.40	14.67	5.32	17.29	7.63	534.40	193.80	100.75	44.44
KRY 112 144/1				☐	0.5		1	1	1		T1		T2		T3		7	6	3	11	Flat	10.93	0.18	0.18	0.41	0.56	6.37	6.37	2.39	3.27
RADIO 4449 B12/B71				☐	0.5		1	1	1		RR1		RR2		RR3		15	13.2	10.4	75	Flat	59.20	0.83	1.30	1.28	2.13	30.05	47.36	7.45	12.40



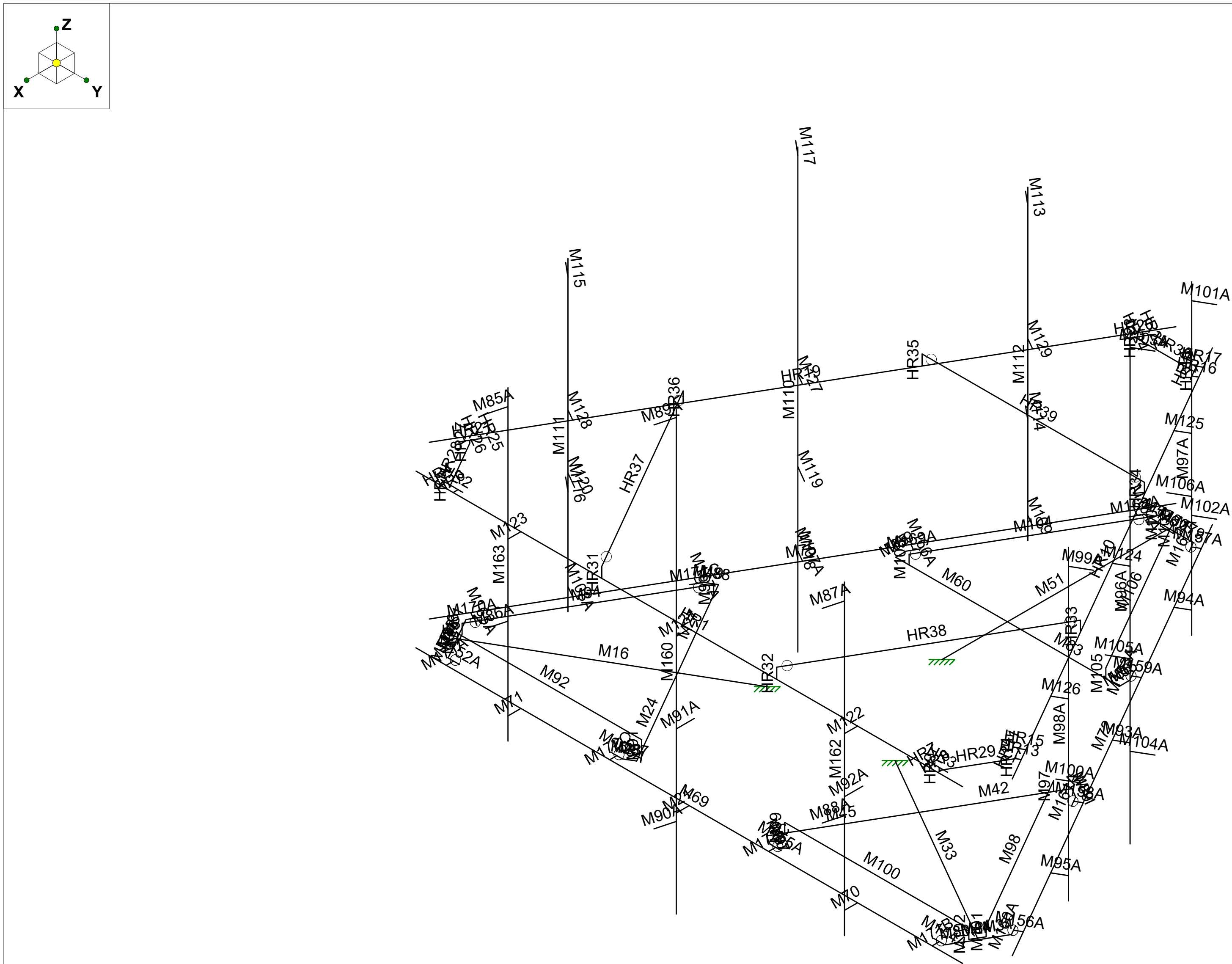
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	SK - 1
CWD		July 3, 2019 at 1:32 PM
41124-12927158-01-MA-R1	Rendered	41124-12927158-01-MA-R1.r3d



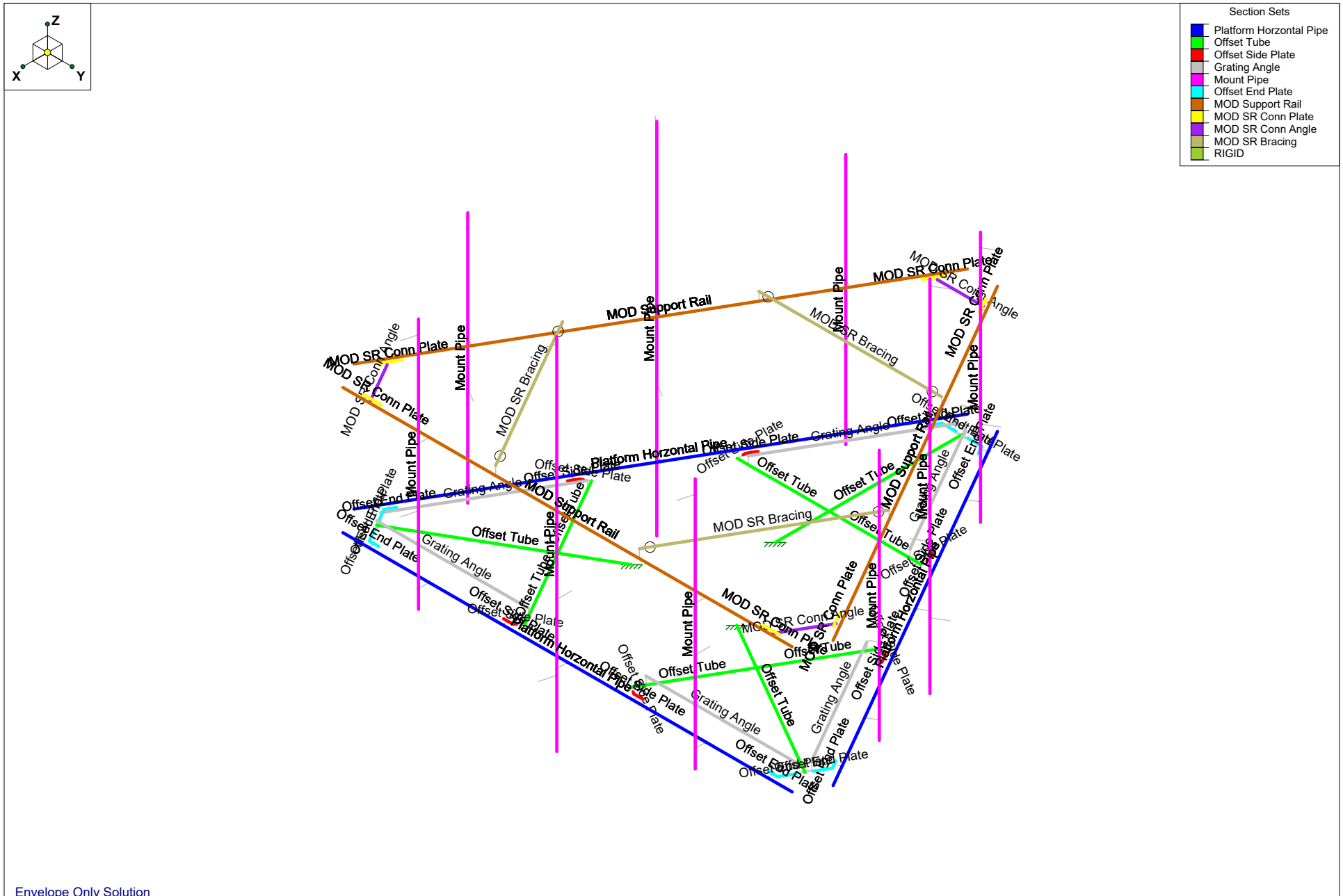
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	SK - 2
CWD		July 3, 2019 at 1:32 PM
41124-12927158-01-MA-R1	Joint Labels	41124-12927158-01-MA-R1.r3d



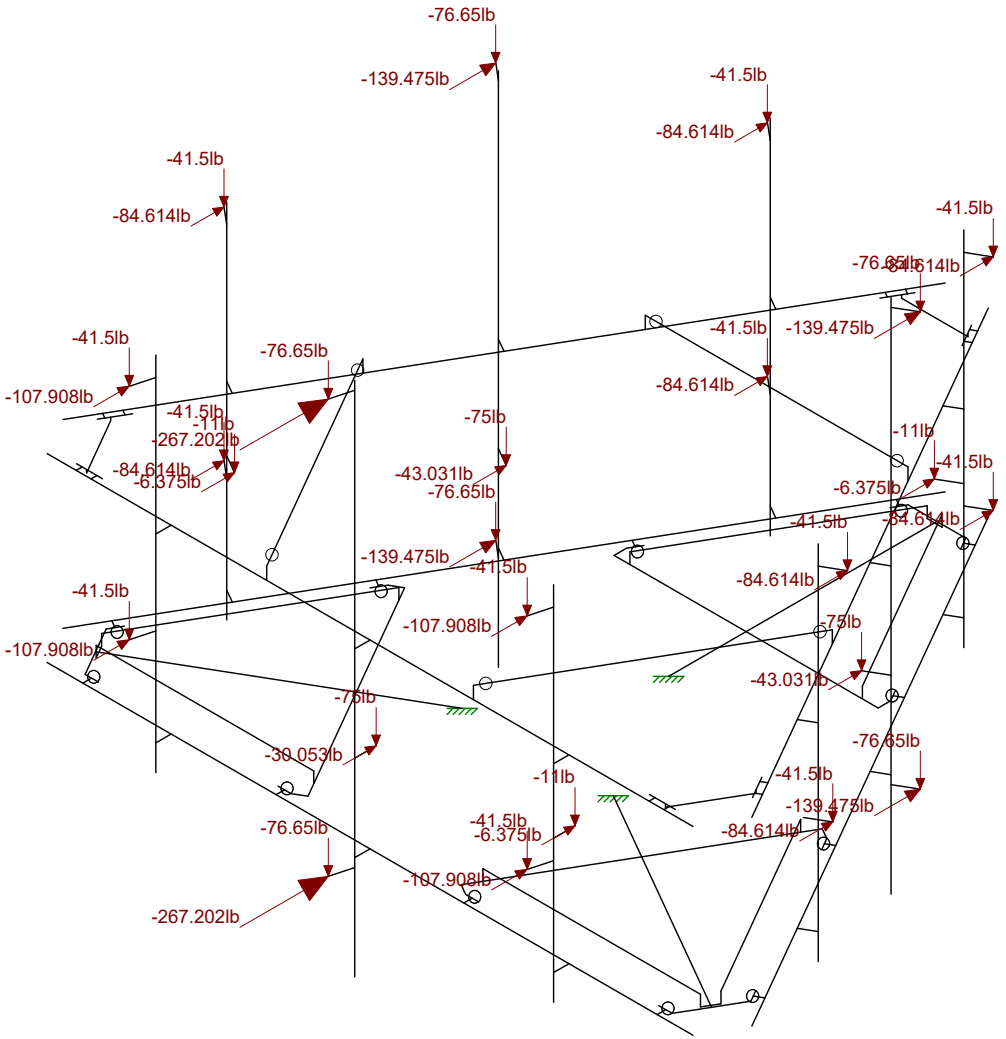
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2 Member Labels	SK - 3
CWD		July 3, 2019 at 1:32 PM
41124-12927158-01-MA-R1		41124-12927158-01-MA-R1.r3d



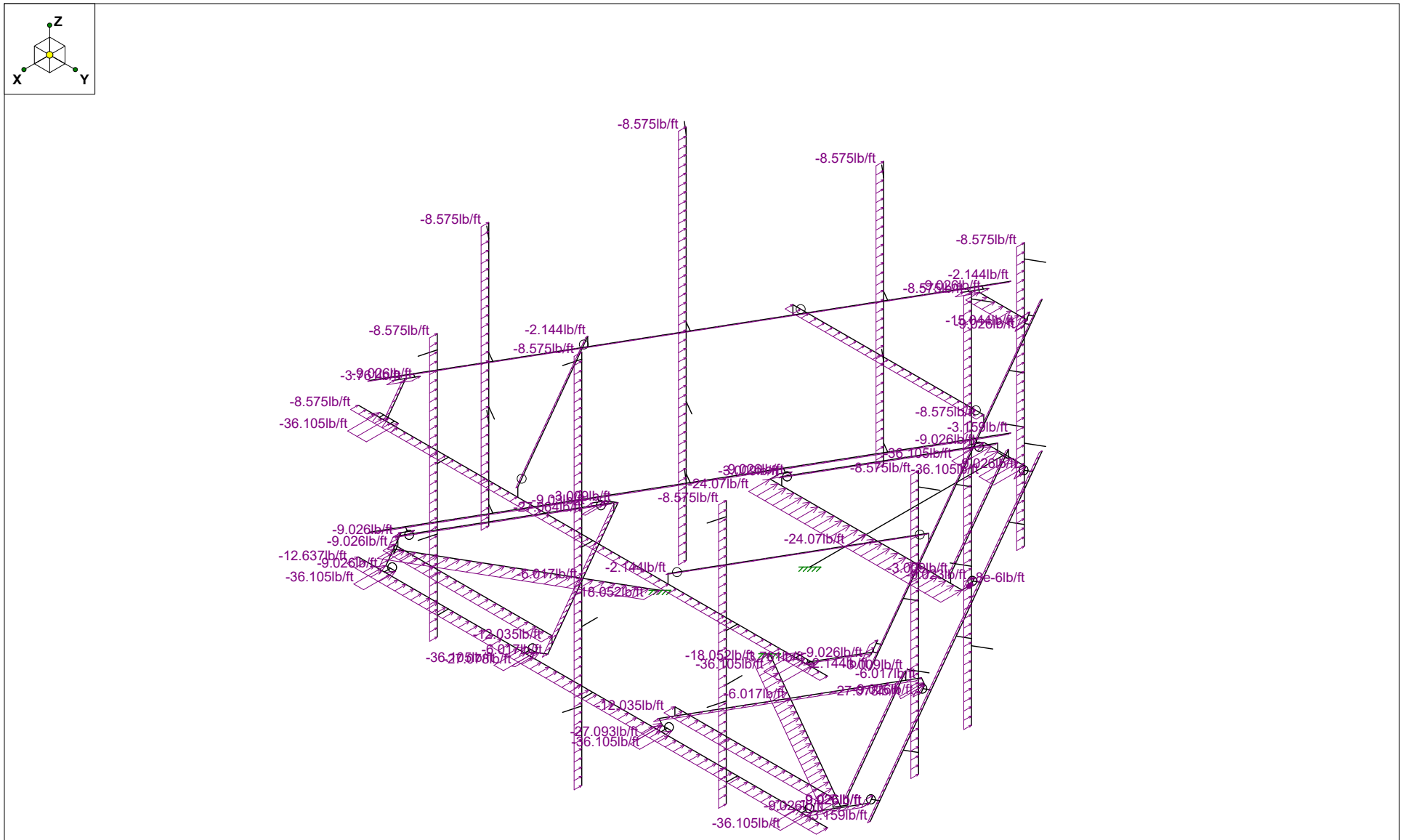
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	SK - 4
CWD		July 3, 2019 at 1:32 PM
41124-12927158-01-MA-R1	Section Sets	41124-12927158-01-MA-R1.r3d



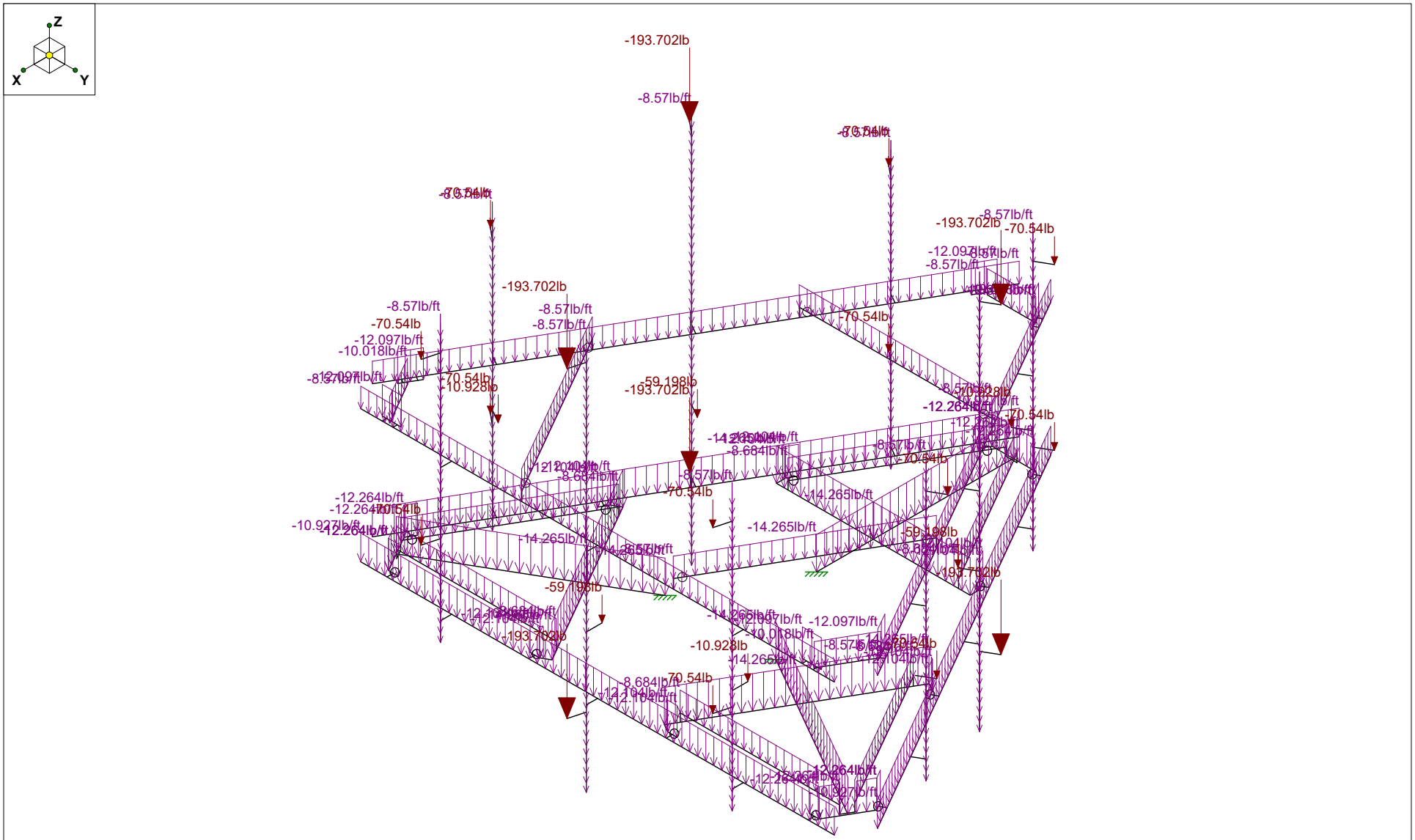
Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

CLS		SK - 5
CWD	41124-12927158-North Haven CT 2	July 3, 2019 at 1:33 PM
41124-12927158-01-MA-R1	Joint Loads - Dead and Normal Wind	41124-12927158-01-MA-R1.r3d



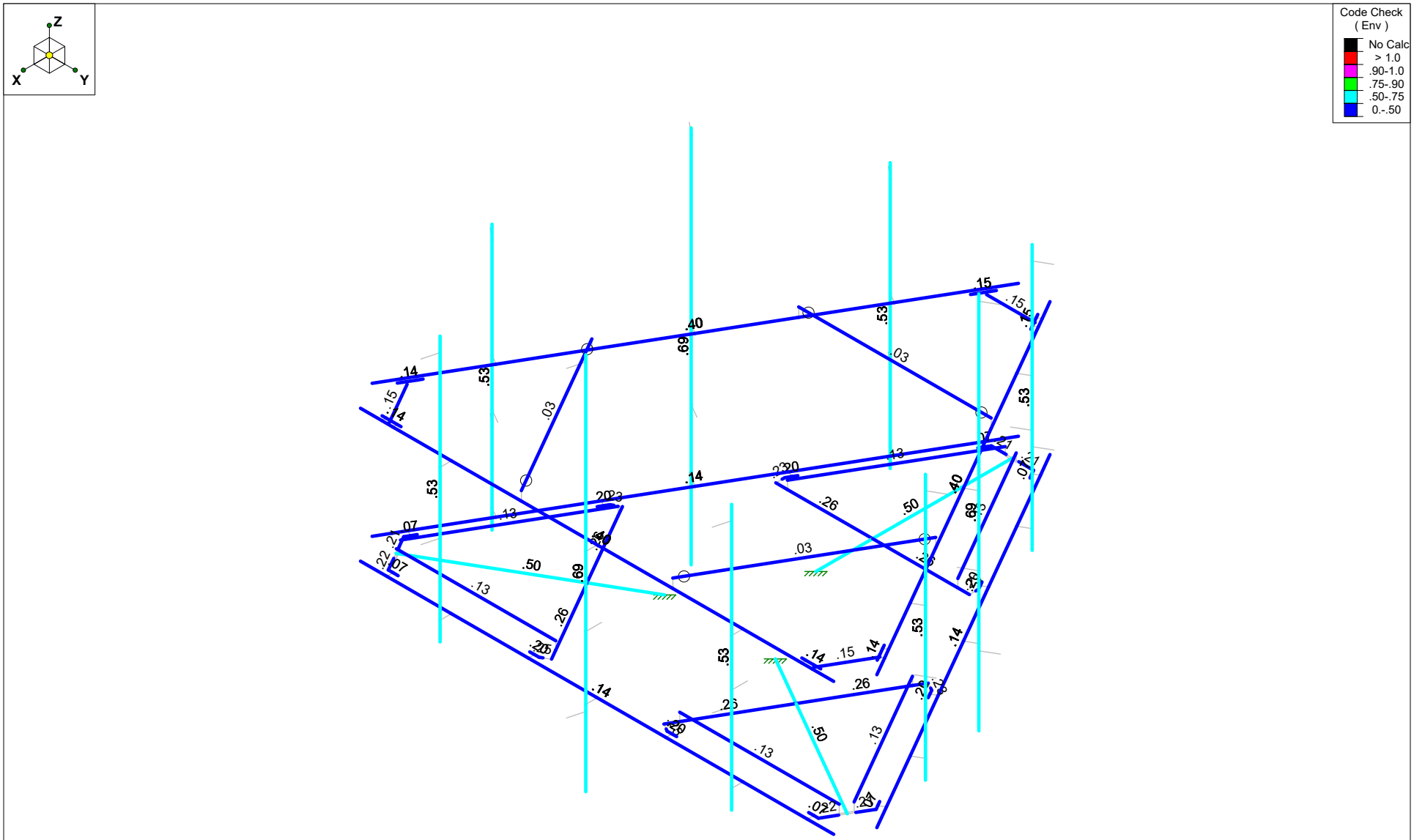
Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	SK - 6
CWD		July 3, 2019 at 1:33 PM
41124-12927158-01-MA-R1	Distributed Load - Normal Wind	41124-12927158-01-MA-R1.r3d



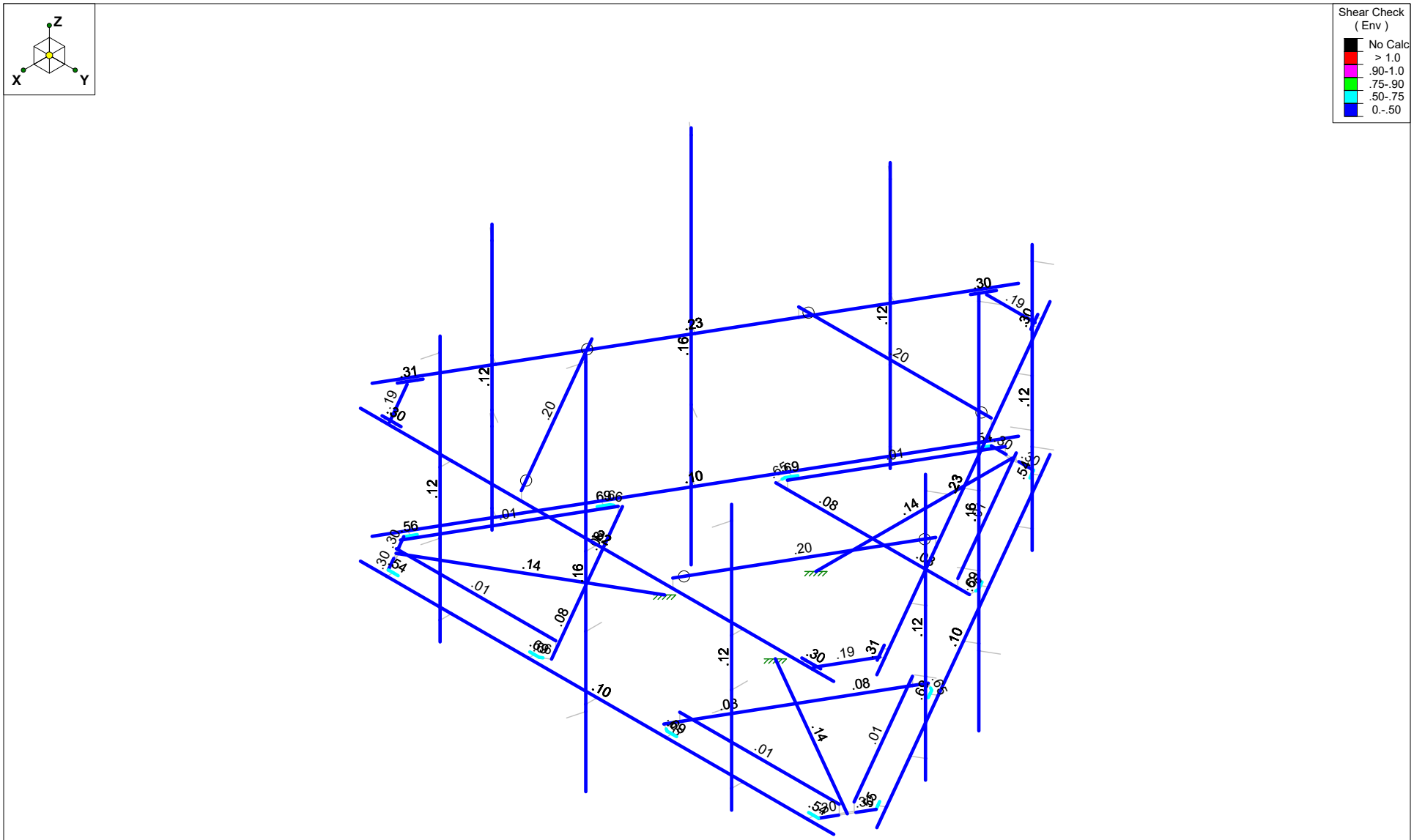
Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	SK - 7
CWD		July 3, 2019 at 1:33 PM
41124-12927158-01-MA-R1	Ice Dead Loads	41124-12927158-01-MA-R1.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	SK - 8
CWD		July 3, 2019 at 1:33 PM
41124-12927158-01-MA-R1	Envelope Member Unity Check Results - Bending	41124-12927158-01-MA-R1.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927158-North Haven CT 2	SK - 9
CWD		July 3, 2019 at 1:33 PM
41124-12927158-01-MA-R1	Envelope Member Check Results - Shear	41124-12927158-01-MA-R1.r3d

Basic Load Cases

	BLC Description	Category	X Gravi..	Y Gravi..	Z Gravity	Joint	Point	Distributed	Area(Member)	Surfac...
1	Dead	DL			-1	24				
2	Ice Dead	RL				24		66		
4	Structure Wind 0°	None						64		
5	Structure Wind 30°	None						100		
6	Structure Wind 45°	None						132		
7	Structure Wind 60°	None						128		
8	Structure Wind 90°	None						50		
9	Structure Wind 120°	None						128		
10	Structure Wind 135°	None						132		
11	Structure Wind 150°	None						100		
12	Structure Wind w/ Ice 0°	None						64		
13	Structure Wind w/ Ice 30°	None						106		
14	Structure Wind w/ Ice 45°	None						132		
15	Structure Wind w/ Ice 60°	None						128		
16	Structure Wind w/ Ice 90°	None						52		
17	Structure Wind w/ Ice 120°	None						128		
18	Structure Wind w/ Ice 135°	None						132		
19	Structure Wind w/ Ice 150°	None						106		
20	Antenna Wind 0°	None				24				
21	Antenna Wind 30°	None				48				
22	Antenna Wind 45°	None				48				
23	Antenna Wind 60°	None				48				
24	Antenna Wind 90°	None				24				
25	Antenna Wind 120°	None				48				
26	Antenna Wind 135°	None				48				
27	Antenna Wind 150°	None				48				
28	Antenna Wind w/ Ice 0°	None				24				
29	Antenna Wind w/ Ice 30°	None				48				
30	Antenna Wind w/ Ice 45°	None				48				
31	Antenna Wind w/ Ice 60°	None				48				
32	Antenna Wind w/ Ice 90°	None				24				
33	Antenna Wind w/ Ice 120°	None				48				
34	Antenna Wind w/ Ice 135°	None				48				
35	Antenna Wind w/ Ice 150°	None				48				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				
41	Maintenance Live 500 (3)	OL3				1				

Load Combinations

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

Load Combinations (Continued)

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
15	1.2D + 1.0W_270°	Y...	Y		DL	1.2	8	-1	24	-1														
16	1.2D + 1.0W_300°	Y...	Y		DL	1.2	9	-1	25	-1														
17	1.2D + 1.0W_315°	Y...	Y		DL	1.2	10	-1	26	-1														
18	1.2D + 1.0W_330°	Y...	Y		DL	1.2	11	-1	27	-1														
19	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	12	1	28	1	RL	1												
20	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	13	1	29	1	RL	1												
21	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	14	1	30	1	RL	1												
22	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	15	1	31	1	RL	1												
23	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	16	1	32	1	RL	1												
24	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	17	1	33	1	RL	1												
25	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	18	1	34	1	RL	1												
26	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	19	1	35	1	RL	1												
27	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	12	-1	28	-1	RL	1												
28	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	13	-1	29	-1	RL	1												
29	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	14	-1	30	-1	RL	1												
30	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	15	-1	31	-1	RL	1												
31	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	16	-1	32	-1	RL	1												
32	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	17	-1	33	-1	RL	1												
33	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	18	-1	34	-1	RL	1												
34	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	19	-1	35	-1	RL	1												
35	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	4	.061	20	.061	O...	1.5												
36	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	5	.061	21	.061	O...	1.5												
37	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	6	.061	22	.061	O...	1.5												
38	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	7	.061	23	.061	O...	1.5												
39	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	8	.061	24	.061	O...	1.5												
40	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	9	.061	25	.061	O...	1.5												
41	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	10	.061	26	.061	O...	1.5												
42	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	11	.061	27	.061	O...	1.5												
43	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	4	-.061	20	-.061	O...	1.5												
44	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	5	-.061	21	-.061	O...	1.5												
45	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	6	-.061	22	-.061	O...	1.5												
46	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	7	-.061	23	-.061	O...	1.5												
47	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	8	-.061	24	-.061	O...	1.5												
48	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	9	-.061	25	-.061	O...	1.5												
49	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	10	-.061	26	-.061	O...	1.5												
50	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	11	-.061	27	-.061	O...	1.5												
51	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	4	.061	20	.061	O...	1.5												
52	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	5	.061	21	.061	O...	1.5												
53	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	6	.061	22	.061	O...	1.5												
54	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	7	.061	23	.061	O...	1.5												
55	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	8	.061	24	.061	O...	1.5												
56	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	9	.061	25	.061	O...	1.5												
57	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	10	.061	26	.061	O...	1.5												
58	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	11	.061	27	.061	O...	1.5												
59	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	4	-.061	20	-.061	O...	1.5												
60	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	5	-.061	21	-.061	O...	1.5												
61	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	6	-.061	22	-.061	O...	1.5												
62	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	7	-.061	23	-.061	O...	1.5												
63	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	8	-.061	24	-.061	O...	1.5												
64	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	9	-.061	25	-.061	O...	1.5												
65	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	10	-.061	26	-.061	O...	1.5												
66	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	11	-.061	27	-.061	O...	1.5												
67	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	4	.061	20	.061	O...	1.5												
68	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	5	.061	21	.061	O...	1.5												
69	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	6	.061	22	.061	O...	1.5												
70	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	7	.061	23	.061	O...	1.5												
71	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	8	.061	24	.061	O...	1.5												

Load Combinations (Continued)

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
72	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	9	.061	25	.061	O...	1.5												
73	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	10	.061	26	.061	O...	1.5												
74	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	11	.061	27	.061	O...	1.5												
75	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	4	-.061	20	-.061	O...	1.5												
76	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	5	-.061	21	-.061	O...	1.5												
77	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	6	-.061	22	-.061	O...	1.5												
78	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	7	-.061	23	-.061	O...	1.5												
79	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	8	-.061	24	-.061	O...	1.5												
80	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	9	-.061	25	-.061	O...	1.5												
81	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	10	-.061	26	-.061	O...	1.5												
82	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	11	-.061	27	-.061	O...	1.5												

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Platform Horzontal Pipe	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Offset Tube	HSS4X4X4	Beam	SquareTu...	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
3	Offset Side Plate	0.38 X 6 Plate	Beam	RECT	A36 Gr.36	Typical	2.28	.027	6.84	.105
4	Grating Angle	L2x2x3	Beam	Single An...	A36 Gr.36	Typical	.722	.271	.271	.009
5	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Offset End Plate	0.5 x 6 Plate	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
7	MOD Support Rail	PIPE_2.0	Beam	RECT	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	MOD SR Conn Plate	PL6x0.375	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
9	MOD SR Conn Angle	L2.5x2.5x4	Beam	RECT	A36 Gr.36	Typical	1.19	.692	.692	.026
10	MOD SR Bracing	PIPE_2.0	Beam	RECT	A53 Gr.B	Typical	1.02	.627	.627	1.25

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	M16	Offset Tube	62.319									Lateral
2	M17	Offset End ...	4.688			Lbyy						Lateral
3	M19	Offset Side ...	.875			Lbyy						Lateral
4	M23	Offset Side ...	.875			Lbyy						Lateral
5	M24	Offset Tube	30.688			Lbyy						Lateral
6	M27	Offset Tube	30.687			Lbyy						Lateral
7	M33	Offset Tube	62.319									Lateral
8	M34	Offset End ...	4.688			Lbyy						Lateral
9	M37	Offset Side ...	.875			Lbyy						Lateral
10	M41	Offset Side ...	.875			Lbyy						Lateral
11	M42	Offset Tube	30.688			Lbyy						Lateral
12	M45	Offset Tube	30.687			Lbyy						Lateral
13	M51	Offset Tube	62.319									Lateral
14	M52	Offset End ...	4.688			Lbyy						Lateral
15	M55	Offset Side ...	.875			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
16	M59	Offset Side ...	.875			Lbyy						Lateral
17	M60	Offset Tube	30.688			Lbyy						Lateral
18	M63	Offset Tube	30.687			Lbyy						Lateral
19	M69	Platform Ho...	150	44.893	46.2	Lbyy						Lateral
20	M72	Platform Ho...	150	44.893	46.2	Lbyy						Lateral
21	M75	Platform Ho...	150	44.893	46.2	Lbyy						Lateral
22	M79	Offset End ...	4.688			Lbyy						Lateral
23	M81	Offset End ...	4.688			Lbyy						Lateral
24	M83	Offset End ...	4.688			Lbyy						Lateral
25	M92	Grating Angle	50.542			Lbyy						Lateral
26	M94	Grating Angle	50.542			Lbyy						Lateral
27	M98	Grating Angle	50.542			Lbyy						Lateral
28	M100	Grating Angle	50.542			Lbyy						Lateral
29	M104	Grating Angle	50.542			Lbyy						Lateral
30	M106	Grating Angle	50.542			Lbyy						Lateral
31	M160	Mount Pipe	120			Lbyy						Lateral
32	M162	Mount Pipe	84			Lbyy						Lateral
33	M163	Mount Pipe	84			Lbyy						Lateral
34	M152A	Offset End ...	3.122			Lbyy						Lateral
35	M153A	Offset Side ...	3			Lbyy						Lateral
36	M154A	Offset End ...	3.122			Lbyy						Lateral
37	M155A	Offset Side ...	3			Lbyy						Lateral
38	M160A	Offset End ...	3.122			Lbyy						Lateral
39	M161A	Offset Side ...	3			Lbyy						Lateral
40	M162A	Offset End ...	3.122			Lbyy						Lateral
41	M163A	Offset Side ...	3			Lbyy						Lateral
42	M168A	Offset End ...	3.122			Lbyy						Lateral
43	M169A	Offset Side ...	3			Lbyy						Lateral
44	M170A	Offset End ...	3.122			Lbyy						Lateral
45	M171C	Offset Side ...	3			Lbyy						Lateral
46	M96A	Mount Pipe	120			Lbyy						Lateral
47	M97A	Mount Pipe	84			Lbyy						Lateral
48	M98A	Mount Pipe	84			Lbyy						Lateral
49	M110	Mount Pipe	120			Lbyy						Lateral
50	M111	Mount Pipe	84			Lbyy						Lateral
51	M112	Mount Pipe	84			Lbyy						Lateral
52	HR1	MOD Supp...	150		46.2							Lateral
53	HR2	MOD SR C...	6									Lateral
54	HR3	MOD SR C...	6									Lateral
55	HR10	MOD Supp...	150		46.2							Lateral
56	HR11	MOD SR C...	6									Lateral
57	HR12	MOD SR C...	6									Lateral
58	HR19	MOD Supp...	150		46.2							Lateral
59	HR20	MOD SR C...	6									Lateral
60	HR21	MOD SR C...	6									Lateral
61	HR28	MOD SR C...	15.408									Lateral
62	HR29	MOD SR C...	15.408									Lateral
63	HR30	MOD SR C...	15.408									Lateral
64	HR37	MOD SR Br...	61.02									Lateral
65	HR38	MOD SR Br...	61.02									Lateral
66	HR39	MOD SR Br...	61.02									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	N88	max	1756.509	3	1071.841	15	2901.219	19	936.83	7	6261.977	3	1511.941	7
2		min	-2015.195	11	-1071.523	7	-609.448	11	-930.164	15	-2442.471	11	-1513.154	15
3	N61	max	1174.33	3	1741.038	16	2872.462	24	5398.464	8	1371.624	17	1486.038	12
4		min	-1045.857	11	-1519.927	8	-619.643	16	-2140.12	16	-3264.576	9	-1487.533	4
5	N35	max	1198.506	3	1519.976	14	2897.812	30	2116.396	6	1366.688	5	1511.77	18
6		min	-1068.292	11	-1741.503	6	-610.57	6	-5423.524	14	-3269.564	13	-1510.08	10
7	Totals:	max	4129.345	3	4129.402	15	7412.904	29						
8		min	-4129.344	11	-4129.399	7	2423.239	1						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn...	...	Eqn
1	M171C	0.38 X 6 Plate	.203	1.5	7	.695	3	y	9	71020...	73872	584.82	9234	...	H1-1b
2	M161A	0.38 X 6 Plate	.203	1.5	15	.695	3	y	13	71019...	73872	584.82	9234	...	H1-1b
3	M163A	0.38 X 6 Plate	.203	1.5	12	.691	3	y	15	71020...	73872	584.82	9234	...	H1-1b
4	M153A	0.38 X 6 Plate	.203	1.5	4	.691	3	y	18	71019...	73872	584.82	9234	...	H1-1b
5	M169A	0.38 X 6 Plate	.204	1.5	10	.689	3	y	7	71019...	73872	584.82	9234	...	H1-1b
6	M155A	0.38 X 6 Plate	.203	1.5	18	.689	3	y	4	71020...	73872	584.82	9234	...	H1-1b
7	M55	0.38 X 6 Plate	.231	.875	4	.657	.875	y	15	73624...	73872	584.82	9234	...	H1-1b
8	M23	0.38 X 6 Plate	.246	.875	13	.656	.875	y	18	73624...	73872	584.82	9234	...	H1-1b
9	M19	0.38 X 6 Plate	.234	.875	15	.655	.875	y	10	73624...	73872	584.82	9234	...	H1-1b
10	M59	0.38 X 6 Plate	.232	.875	18	.655	.875	y	7	73624...	73872	584.82	9234	...	H1-1b
11	M37	0.38 X 6 Plate	.249	.875	9	.654	.875	y	4	73624...	73872	584.82	9234	...	H1-1b
12	M41	0.38 X 6 Plate	.234	.875	7	.654	.875	y	12	73624...	73872	584.82	9234	...	H1-1b
13	M170A	0.5 x 6 Plate	.071	1.479	14	.558	1.479	y	17	94834...	97200	1012.5	12150	...	H1-1b
14	M160A	0.5 x 6 Plate	.071	1.479	8	.554	1.479	y	5	94834...	97200	1012.5	12150	...	H1-1b
15	M168A	0.5 x 6 Plate	.071	1.479	3	.544	1.479	y	15	94834...	97200	1012.5	12150	...	H1-1b
16	M162A	0.5 x 6 Plate	.071	1.479	3	.544	1.479	y	7	94834...	97200	1012.5	12150	...	H1-1b
17	M154A	0.5 x 6 Plate	.071	1.479	8	.543	1.479	y	12	94834...	97200	1012.5	12150	...	H1-1b
18	M152A	0.5 x 6 Plate	.071	1.479	14	.543	1.479	y	10	94834...	97200	1012.5	12150	...	H1-1b
19	HR11	PL6x0.375	.142	2.368	15	.311	1.421	y	13	61760...	72900	569.7	9112.5	...	H1-1b
20	HR21	PL6x0.375	.141	3.632	7	.311	4.579	y	9	61760...	72900	569.7	9112.5	...	H1-1b
21	HR2	PL6x0.375	.142	2.368	4	.303	1.421	y	18	61760...	72900	569.7	9112.5	...	H1-1b
22	M52	0.5 x 6 Plate	.213	4.688	3	.302	0	y	15	91950...	97200	1012.5	12150	...	H1-1b
23	HR12	PL6x0.375	.148	3.632	13	.302	4.579	y	15	61760...	72900	569.7	9112.5	...	H1-1b
24	M81	0.5 x 6 Plate	.213	0	14	.302	4.688	y	18	91950...	97200	1012.5	12150	...	H1-1b
25	HR20	PL6x0.375	.149	2.368	9	.302	1.421	y	7	61760...	72900	569.7	9112.5	...	H1-1b
26	M17	0.5 x 6 Plate	.217	4.688	13	.301	0	y	10	91950...	97200	1012.5	12150	...	H1-1b
27	M79	0.5 x 6 Plate	.212	0	3	.301	4.688	y	7	91950...	97200	1012.5	12150	...	H1-1b
28	M34	0.5 x 6 Plate	.212	4.688	8	.301	0	y	4	91950...	97200	1012.5	12150	...	H1-1b
29	M83	0.5 x 6 Plate	.217	0	9	.301	4.688	y	12	91950...	97200	1012.5	12150	...	H1-1b
30	HR3	PL6x0.375	.139	3.632	18	.301	4.579	y	4	61760...	72900	569.7	9112.5	...	H1-1b
31	HR19	PIPE_2.0	.400	75	3	.226	51.316		9	6295.4...	32130	1871.6...	1871.6...	...	H1-1b
32	HR10	PIPE_2.0	.397	75	8	.226	98.684		13	6295.4...	32130	1871.6...	1871.6...	...	H1-1b
33	HR1	PIPE_2.0	.400	75	14	.222	98.684		18	6295.4...	32130	1871.6...	1871.6...	...	H1-1b
34	HR37	PIPE_2.0	.029	30.51	6	.202	0		18	23565...	32130	1871.6...	1871.6...	...	H1-1b
35	HR39	PIPE_2.0	.029	30.51	11	.202	0		7	23565...	32130	1871.6...	1871.6...	...	H1-1b
36	HR38	PIPE_2.0	.029	30.51	16	.202	0		12	23565...	32130	1871.6...	1871.6...	...	H1-1b
37	HR30	L2.5x2.5x4	.150	0	15	.194	15.408	z	15	36536...	38556	1113.5...	2537.3...	...	H2-1
38	HR28	L2.5x2.5x4	.151	15.408	18	.194	15.408	z	10	36536...	38556	1113.5...	2537.3...	...	H2-1
39	HR29	L2.5x2.5x4	.150	15.408	12	.194	15.408	z	4	36536...	38556	1113.5...	2537.3...	...	H2-1
40	M96A	PIPE_2.0	.694	53.684	6	.162	75.789		10	9836.5...	32130	1871.6...	1871.6...	...	H1-1b
41	M110	PIPE_2.0	.694	53.684	16	.162	75.789		12	9836.5...	32130	1871.6...	1871.6...	...	H1-1b
42	M160	PIPE_2.0	.694	53.684	11	.162	75.789		15	9836.5...	32130	1871.6...	1871.6...	...	H1-1b
43	M51	HSS4X4X4	.503	0	3	.136	0	y	6	99956...	109188	12663	12663	...	H1-1b
44	M16	HSS4X4X4	.503	0	14	.136	0	y	16	99956...	109188	12663	12663	...	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn...	...	Eqn
45	M33	HSS4X4X4	.501	0	8	.135	0	y	11	99956....	109188	12663	12663	...	H1-1b
46	M163	PIPE_2.0	.530	77.368	9	.122	55.263		8	17855....	32130	1871.6...	1871.6...	....	H1-1b
47	M112	PIPE_2.0	.532	77.368	14	.122	55.263		14	17855....	32130	1871.6...	1871.6...	....	H1-1b
48	M97A	PIPE_2.0	.532	77.368	8	.122	55.263		8	17855....	32130	1871.6...	1871.6...	....	H1-1b
49	M111	PIPE_2.0	.534	77.368	3	.121	55.263		3	17855....	32130	1871.6...	1871.6...	....	H1-1b
50	M162	PIPE_2.0	.533	77.368	13	.120	55.263		14	17855....	32130	1871.6...	1871.6...	....	H1-1b
51	M98A	PIPE_2.0	.530	77.368	3	.118	77.368		3	17855....	32130	1871.6...	1871.6...	....	H1-1b
52	M75	PIPE_3.0	.140	98.684	30	.099	27.632		15	60231....	65205	5748.75	5748.75	...	H1-1b
53	M69	PIPE_3.0	.139	51.316	30	.098	27.632		10	60231....	65205	5748.75	5748.75	...	H1-1b
54	M72	PIPE_3.0	.139	98.684	19	.098	27.632		4	60231....	65205	5748.75	5748.75	...	H1-1b
55	M24	HSS4X4X4	.265	30.688	29	.085	30.688	y	29	10687...	109188	12663	12663	...	H1-1b
56	M60	HSS4X4X4	.264	30.688	19	.085	30.688	y	19	10687...	109188	12663	12663	...	H1-1b
57	M63	HSS4X4X4	.264	0	19	.085	0	y	19	10687...	109188	12663	12663	...	H1-1b
58	M27	HSS4X4X4	.264	0	30	.084	0	y	30	10687...	109188	12663	12663	...	H1-1b
59	M45	HSS4X4X4	.263	0	25	.084	0	y	25	10687...	109188	12663	12663	...	H1-1b
60	M42	HSS4X4X4	.262	30.688	24	.084	30.688	y	24	10687...	109188	12663	12663	...	H1-1b
61	M104	L2x2x3	.126	50.542	3	.010	50.542	y	22	9618.8...	23392.8	557.717	1191.5...	....	H2-1
62	M92	L2x2x3	.126	50.542	14	.010	50.542	y	32	9618.8...	23392.8	557.717	1191.3...	....	H2-1
63	M98	L2x2x3	.126	50.542	8	.010	50.542	y	27	9618.8...	23392.8	557.717	1191.7...	....	H2-1
64	M94	L2x2x3	.125	50.542	14	.010	50.542	z	27	9618.9...	23392.8	557.717	1190.9...	....	H2-1
65	M106	L2x2x3	.125	50.542	3	.010	50.542	z	32	9618.9...	23392.8	557.717	1190.6...	....	H2-1
66	M100	L2x2x3	.125	50.542	8	.010	50.542	z	22	9618.9...	23392.8	557.717	1190.8...	....	H2-1

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: CT11398A

North Haven MP X63/64
4 Dwight Street
North Haven, Connecticut 06473

May 29, 2019

EBI Project Number: 6219001920

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**4.64%**

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

May 29, 2019

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

Emissions Analysis for Site: CT11398A - North Haven MP X63/64

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **4 Dwight Street** in **North Haven, 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 4 Dwight Street in North Haven, 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 GSM/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 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 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.

6) 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.

7) 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.

8) The antennas used in this modeling are the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s) in Sector A, the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s) in Sector B, the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is 130 feet above ground level (AGL).

10) 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.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 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):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A1 MPE %:	**0.88%**	Antenna B1 MPE %:	**0.88%**	Antenna C1 MPE %:	**0.88%**
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):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 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 %:	**1.22%**	Antenna B2 MPE %:	**1.22%**	Antenna C2 MPE %:	**1.22%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	**0.88%**	Antenna B3 MPE %:	**0.88%**	Antenna C3 MPE %:	**0.88%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	2.97%
Nextel iDEN	0.4%
Sprint	0.23%
Clearwire	0.1%
Metro PCS	0.94%
Site Total MPE % :	4.64%

T-Mobile Sector A Total:	2.97%
T-Mobile Sector B Total:	2.97%
T-Mobile Sector C Total:	2.97%
Site Total:	4.64%

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 GSM/UMTS	2	1028.30	130.0	4.38	1900 MHz GSM/UMTS	1000	0.44%
T-Mobile 2100 MHz UMTS	2	1028.30	130.0	4.38	2100 MHz UMTS	1000	0.44%
T-Mobile 600 MHz LTE	2	591.73	130.0	2.52	600 MHz LTE	400	0.63%
T-Mobile 700 MHz LTE	2	648.82	130.0	2.76	700 MHz LTE	467	0.59%
T-Mobile 2100 MHz LTE AWS	2	2056.61	130.0	8.75	2100 MHz LTE AWS	1000	0.88%
						Total:	**2.97%**

• 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:	2.97%
Sector B:	2.97%
Sector C:	2.97%
T-Mobile Maximum MPE % (Sector A):	2.97%
Site Total:	4.64%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **4.64%** 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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120 E MAIN ST
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UPS Access Point™
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SUFFERN ,NY 10901

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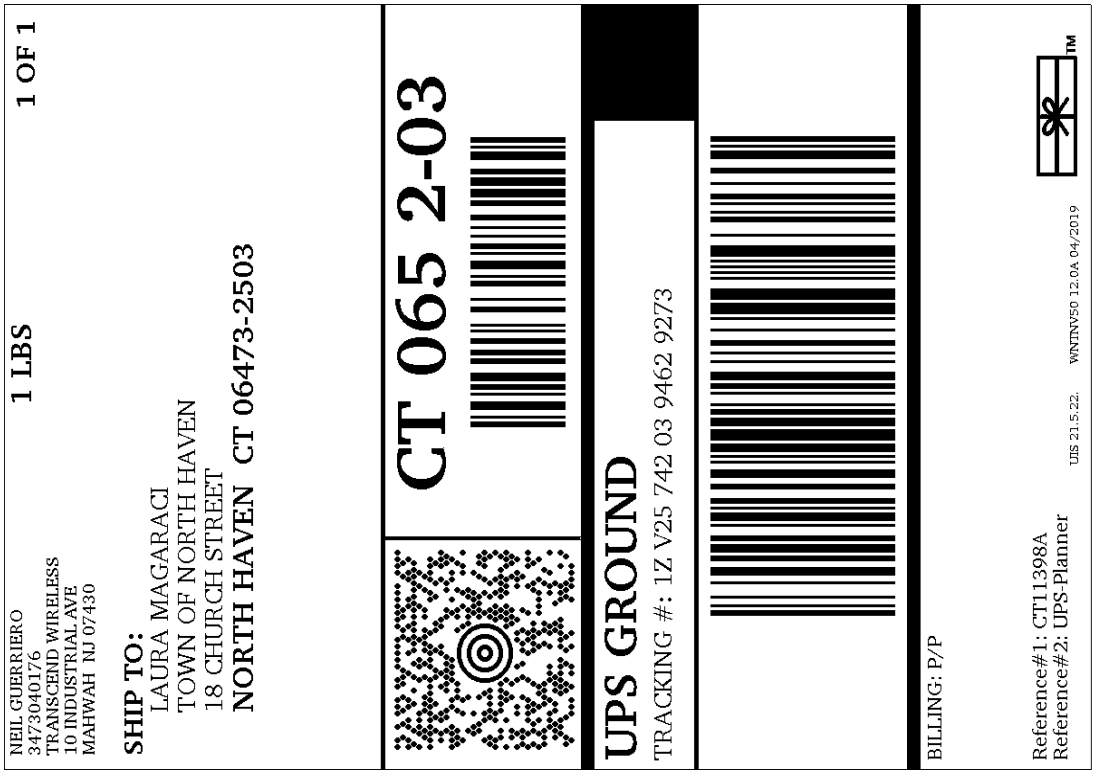

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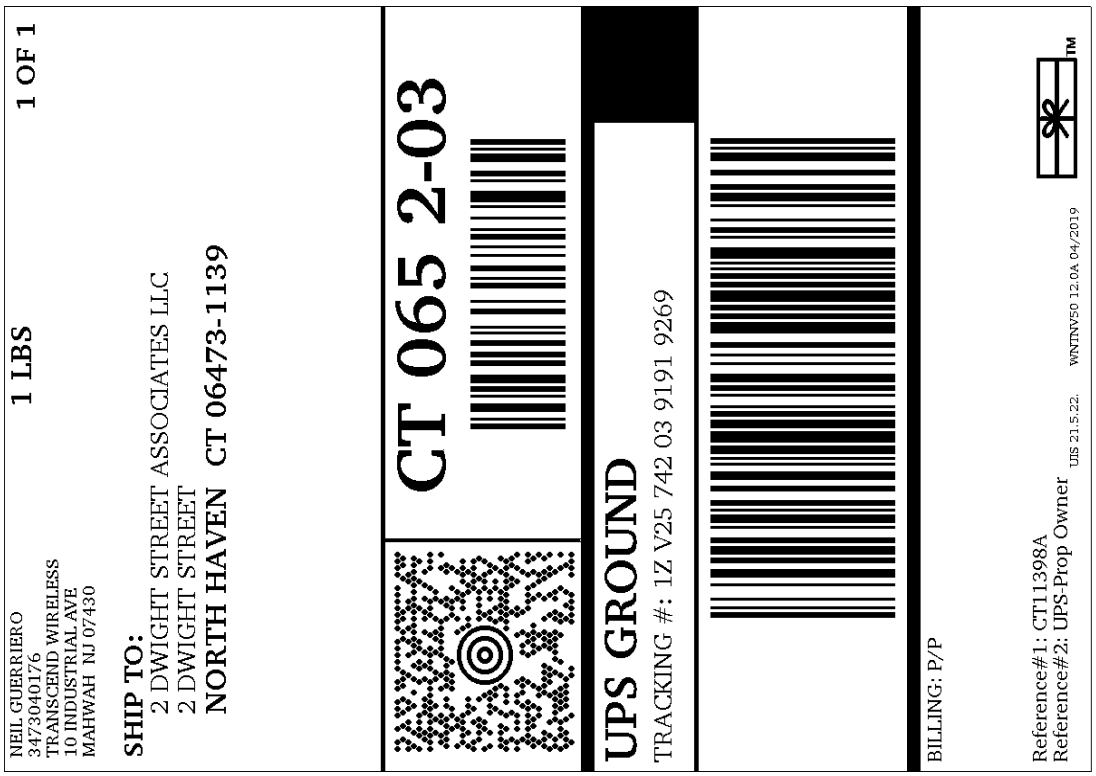

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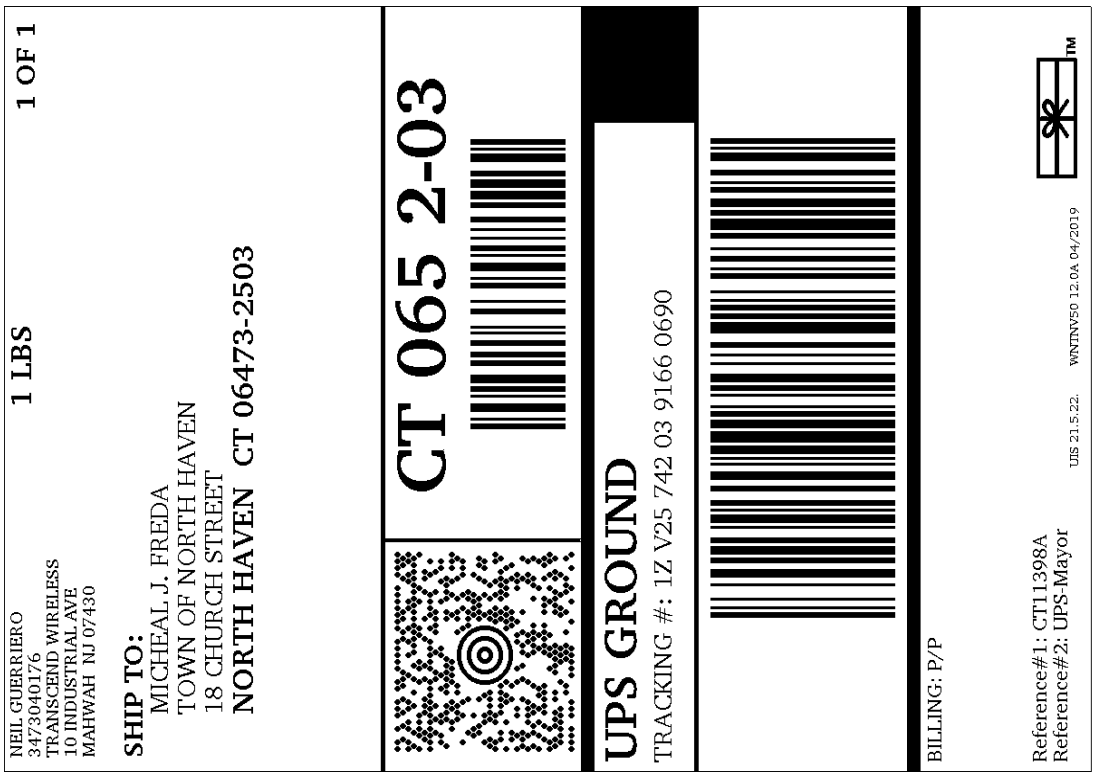

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