Transcend Wireless

10 Industrial Avenue,
Suite 3
Mahwah, NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

August 1, 2019

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

Notice of Exempt Modification
668 Jones Hill Road, West Haven CT
Latitude: 41.25636389
Longitude: -72.97241111
T-Mobile site: CT11821E / L600

Dear Ms. Bachman:

T-Mobile currently maintains 6 antennas at the 143-foot level of the existing 150-foot monopole located at 668 Jones Hill Road in West Haven CT. The monopole and underlying property is owned by American Tower Corporation. T-Mobile now intends to replace (3) of its existing antennas with (3) 1900MHz /2100 MHz /600 MHz /700 MHz antennas and add (3) 1900 MHz antennas to be installed at the 143-foot level of the tower, with proposed mount modifications as per the attached mount analysis.

Planned Modifications:

Remove
(3) 1-5/8" coax

Remove and Replace:
Antennas/RRUs:
(3) Andrew – SBNHH-1D65A-SR (REMOE) – Add (3) RFS APXVAARR24_43-UNA20 (REPLACE) 1900MHz /2100 MHz /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) AIR 32 B66Aa/B2A
(3) Ericsson Radio 4449 B12, B71
(3) KRY 112 489/1
(3) KRY 112 144/2
(12) 1-5/8" coax
(2) 1-5/8" Hybrid

Install New:
Antennas:
(3) AIR 3246 B66 – 1900 MHz
(1) 1-5/8" hybrid

This facility was approved by the Council as Docket No. 293 on May 11, 2005, with no known conditions that would restrict exempt modifications. A copy of the original facility approval is attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to The Honorable Nancy R. Rossi, Mayor, and Fred A. Messore, Planning Commissioner.

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 Nancy R. Rossi, Mayor
Fred A. Messore, Planning Commissioner
American Tower Corporation, tower and property owner

Exhibit A

Original Facility Approval

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

Melanie Bachman,
Executive Director

Decisions

Printable Version

DOCKET NO. 293 – Omnipoint Communications, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at one of two locations off of Route 162, West Haven, Connecticut.	} } }	Connecticut Siting Council May 11, 2005

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Omnipoint Communications, Inc. (T-Mobile), hereinafter referred to as the Certificate Holder, for a telecommunications facility at the Alternate Site, located at 668 Jones Hill Road, West Haven, Connecticut. The Council denies certification of the Prime Site, located at 600 Jones Hill Road, West Haven, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile and other entities, both public and private, but such tower including antennas shall not exceed a height of 153 feet above ground level. The monopole shall be designed with an engineered yield point of sufficient height to prevent the tower from encroaching upon adjacent property in the event of a tower failure.
2. The tower and compound location shall be relocated 100 feet to the southwest.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the City of West Haven for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

   a. a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
   b. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case

modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

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

6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of West Haven public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
8. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
9. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
10. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved. Any request for extension of this period shall be filed with the Council not later than sixty days prior to the expiration date of this Certificate and shall be served on all parties and intervenors as listed in the service list and the City of West Haven. Any proposed modifications to this Decision and Order shall likewise be so served.
11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The New Haven Register and the West Haven News.

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

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
Omnipoint Communications, Inc	Stephen J. Humes, Esq. McCarter & English, LLP CityPlace I, 185 Asylum Street Hartford, CT 06103

Content Last Modified on 5/18/2005 11:16:18 AM

Exhibit B

Property card

City of West Haven, CT

Property Listing Report

Map Block Lot	019-0001-0-000A-C	Building #	Section #	Account	00019113

Property Information

Property Location	668 JONES HILL RD
Owner	AMERICAN TOWERS INC.
Co-Owner	ATTN TAX DEPT
Mailing Address	PO BOX 723597 ATLANTA GA 31139
Land Use	431V TEL REL TW MDL-00
Land Class	I
Zoning Code	
Census Tract	

Street Index	
Acreage	0
Utilities	
Lot Setting/Desc	
Additional Info	

Photo

Sketch

Primary Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Occupancy	
Extra Fixtures	
Bath Style	
Kitchen Style	
AC Type	
Heating Type	
Heating Fuel	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Total Rooms	
Roof Style	
Roof Cover	
Interior Floors 1	
Interior Floors 2	
Exterior Walls	
Exterior Walls 2	
Interior Walls	
Interior Walls 2	

(*Industrial / Commercial Details)

Building Desc.	
Building Grade	
Heat / AC	
Frame Type	
Baths / Plumbing	
Ceiling / Wall	
Rooms / Prtns	
Wall Height	
First Floor Use	

Report Created On 7/18/2019

City of West Haven, CT

Property Listing Report

Map Block Lot	019-0001-0-000A-C	Building #		Section #		Account	00019113

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Extras	0	0
Improvements		
Outbuildings	431800	302260
Land	0	0
Total	431800	302260

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		

Outbuilding and Extra Features

Type	Description
FENCE-6' CHAIN	200 L.F.
CELL SHED	288 S.F.
TOWER	2 SITES

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
AMERICAN TOWERS INC.	000/ 000	10/1/2010	0

Report Created On 7/18/2019

City of West Haven, Connecticut
Geographic & Property Information Application

Full Town View | Reset Map | **Search** | Print Map | Help | Select | View Legend | Map Layer

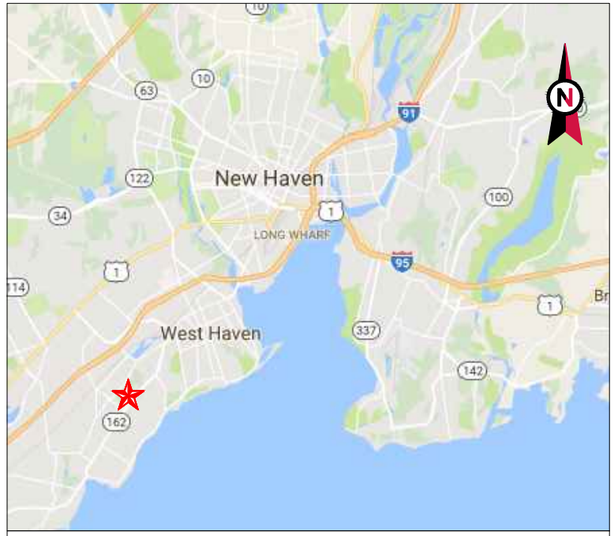
Full Extent | Zoom In | Zoom Out | Prev Extent | Next Extent | Pan | **Parcel Information** | Simple Measure | Path Measure | Area Meas

MapXpress v1.0

Scale:

Exhibit C

Construction Drawings



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: WEST HAVEN & RT 162 CT
ATC SITE NUMBER: 243036
T-MOBILE SITE ID: CT11821E
SITE ADDRESS: 668 JONES HILL ROAD WEST HAVEN, CT 06516

LOCATION MAP

T-MOBILE L600 ANTENNA AMENDMENT
67D94M CONFIGURATION

COMPLIANCE CODE

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

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

UTILITY COMPANIES

POWER COMPANY: UNITED ILLUMINATING
PHONE: (203) 499-3333

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

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

PROJECT SUMMARY

SITE ADDRESS:

668 JONES HILL ROAD
WEST HAVEN, CT 06516
COUNTY: NEW HAVEN

1A CERTIFICATE SUMMARY:

LATITUDE: 41° 15' 23.05" N

LONGITUDE: 72° 58' 20.5" W

GROUND ELEVATION: 135' AMSL

TOWER HEIGHT: 150' AGL

HIGHEST APPURTENANCE: 159' 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:

NEWKIRK ROBERT E
668 JONES HILL RD
WEST HAVEN, CT 06516

PROJECT DESCRIPTION

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

TOWER WORK:
REMOVE (3) PANELS, AND (3) RRUs

INSTALL (6) NEW PANELS, (3) RRUs, (1) 1-5/8" HYBRID CABLE AND MOUNT MODIFICATIONS

EXISTING (3) PANELS, (6) TTAs, (12) 1-5/8" COAX CABLES, AND (2) 1-5/8" HYBRID CABLES TO REMAIN

PROJECT NOTES

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

PROJECT LOCATION DIRECTIONS

FROM BOSTON MA:

TAKE I 95 SOUTH INTO CT AND FOLLOW TO EXIT # 42 . TAKE RIGHT ONTO RT 162 AND FOLLOW INTO WEST HAVEN - STAY ON RT 162 AND FOLLOW TO 668 JOHNS HILL ROAD

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	1	07/25/19	LR
G-002	GENERAL NOTES	0	06/19/19	LR
C-101	DETAILED SITE PLAN & TOWER ELEVATION	1	07/25/19	LR
C-501	ANTENNA INFORMATION & SCHEDULE	1	07/25/19	LR
E-501	GROUNDING DETAILS	0	06/19/19	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	06/19/19
1	MA UPDATE	LR	07/25/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN & RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:

Authorized by "EOR"
Jul 25 2019 12:59 PM

T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	06/19/19
ATC JOB NO:	12951819

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.

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	06/19/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN & RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:

Authorized by "EOR"
Jul 25 2019 12:59 PM

T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	06/19/19
ATC JOB NO:	12951819

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

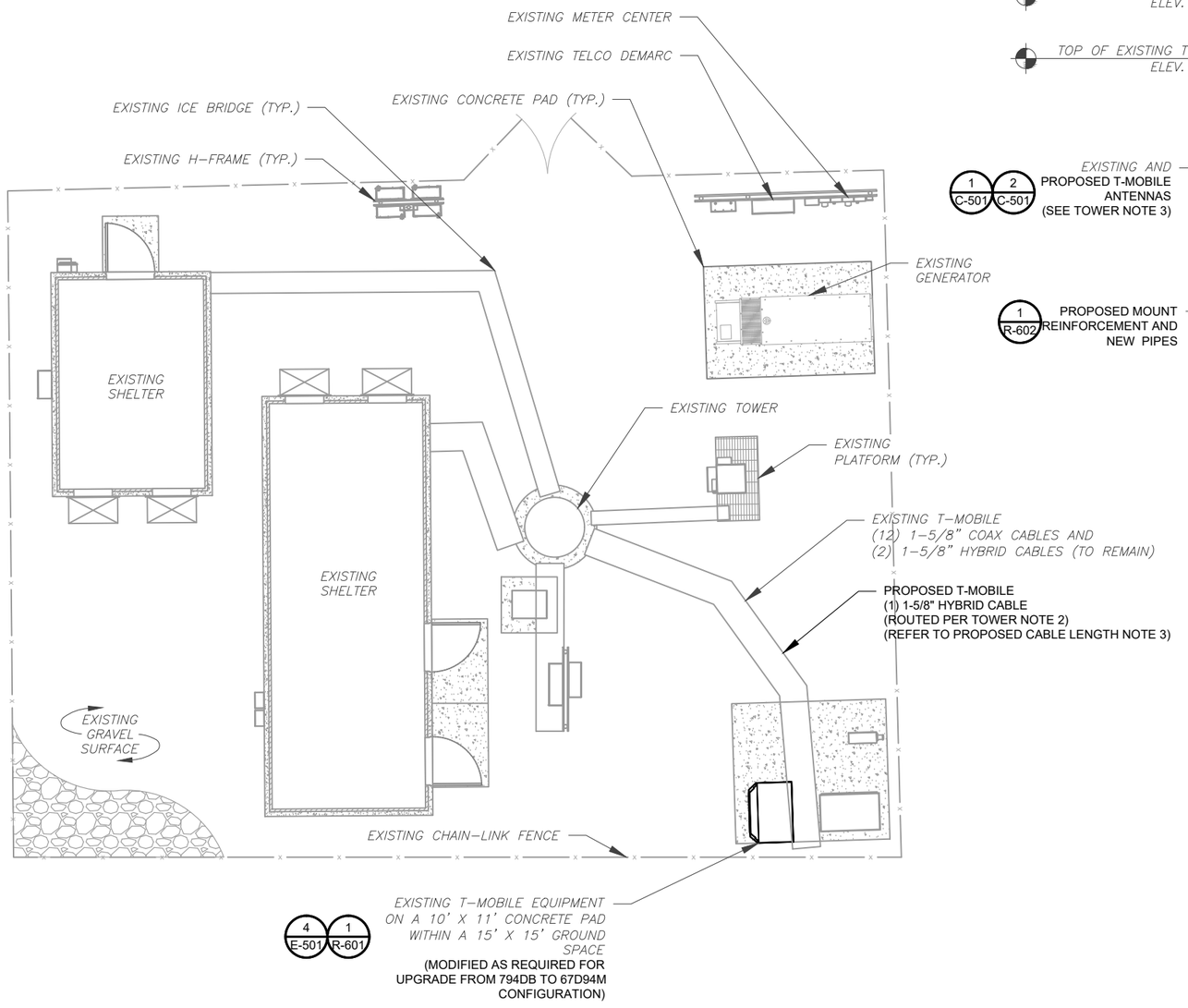
SITE PLAN NOTES:

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.

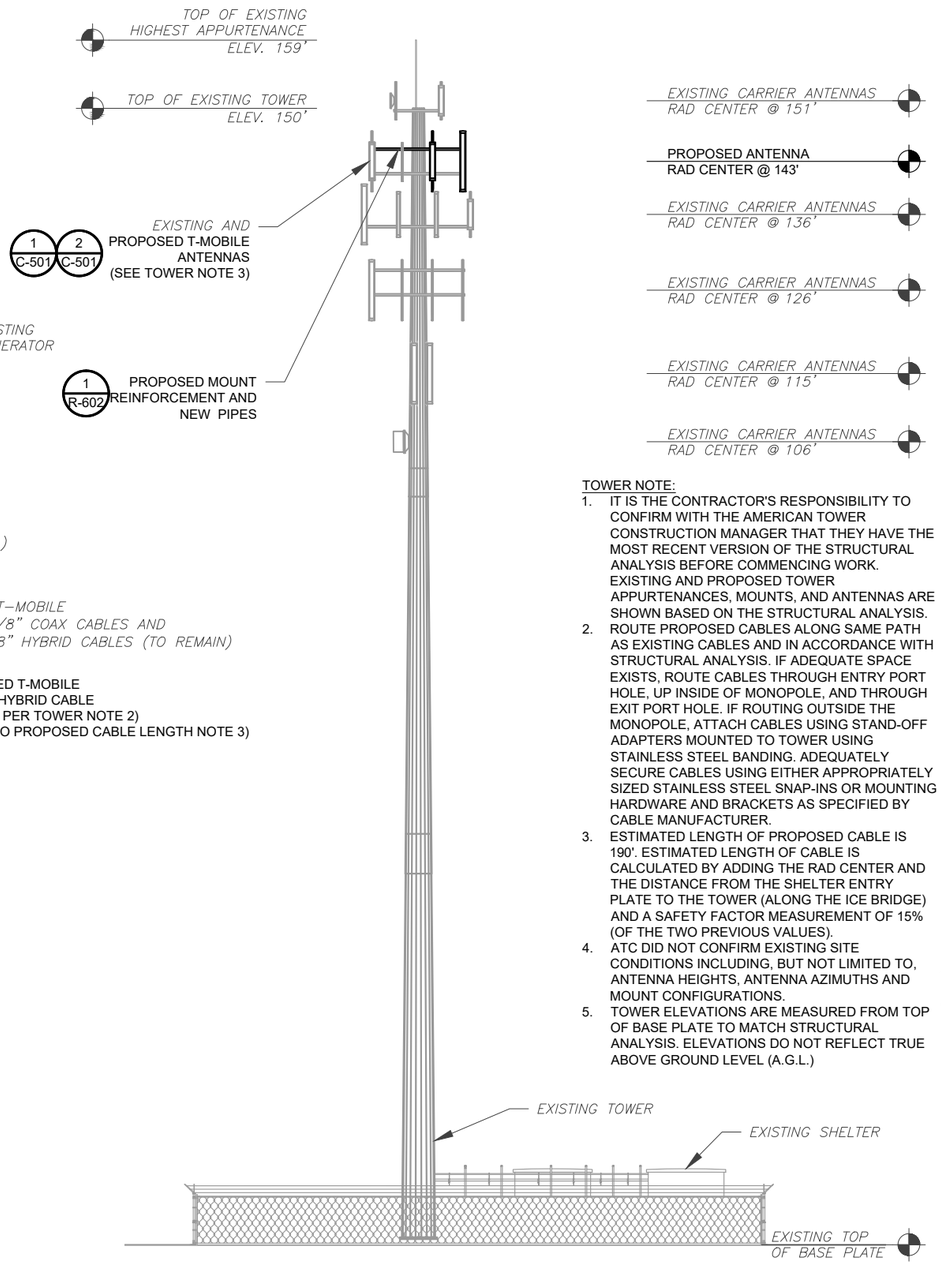
PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 07-03-19, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



1 DETAILED SITE PLAN

0 10' 20'

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



2 TOWER ELEVATION

SCALE: NOT TO SCALE

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 190'. 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.)

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

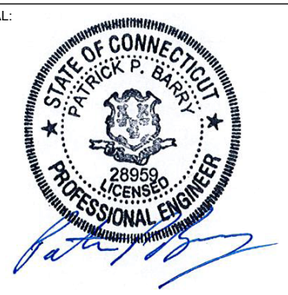
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	06/19/19
1	MA UPDATE	LR	07/25/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN & RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:



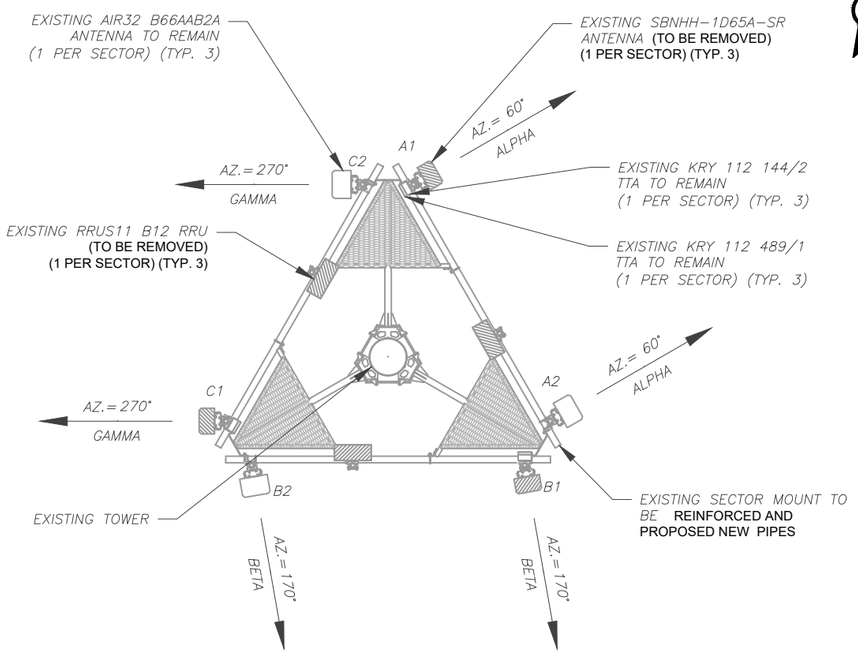
Authorized by "EOR"
Jul 25, 2019 12:59 PM

T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	06/19/19
ATC JOB NO:	12951819

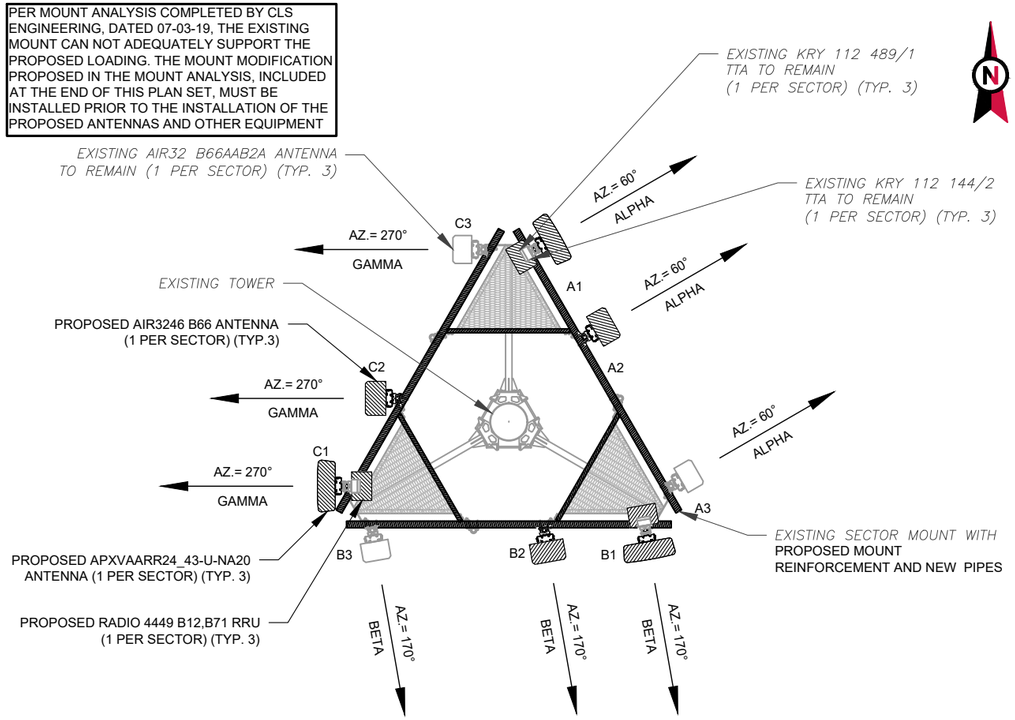
DETAILED SITE PLAN & TOWER ELEVATION

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	SBNHH-1D65A-SR	143'-0"	60°	0°	2°	RRUS11 B12 KRY 112 144/2 KRY 112 489/1
ALPHA	A2	AIR32 B66AAB2A	143'-0"	60°	0°	2°	-
BETA	B1	SBNHH-1D65A-SR	143'-0"	170°	0°	2°	RRUS11 B12 KRY 112 144/2 KRY 112 489/1
BETA	B2	AIR32 B66AAB2A	143'-0"	170°	0°	2°	-
GAMMA	C1	SBNHH-1D65A-SR	143'-0"	270°	0°	2°	RRUS11 B12 KRY 112 144/2 KRY 112 489/1
GAMMA	C2	AIR32 B66AAB2A	143'-0"	270°	0°	2°	-

NOTES

1. BASED ON APPROVED ATC APPLICATION 12942675, DATED 04/11/19. 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	APXVAARR24_43-U-NA20	143'-0"	60°	0°	2°/4°	RADIO 4449 B12,B71 KRY 112 144/2 KRY 112 489/1
ALPHA	A2	AIR3246 B66	143'-0"	60°	0°	2°	-
ALPHA	A3	AIR32 B66AAB2A	143'-0"	60°	0°	2°	-
BETA	B1	APXVAARR24_43-U-NA20	143'-0"	170°	0°	2°/4°	RADIO 4449 B12-B71 KRY 112 144/2 KRY 112 489/1
BETA	B2	AIR3246 B66	143'-0"	170°	0°	2°	-
BETA	B3	AIR32 B66AAB2A	143'-0"	170°	0°	2°	-
GAMMA	C1	APXVAARR24_43-U-NA20	143'-0"	270°	0°	2°/4°	RADIO 4449 B12-B71 KRY 112 144/2 KRY 112 489/1
GAMMA	C2	AIR3246 B66	143'-0"	270°	0°	2°	-
GAMMA	C3	AIR32 B66AAB2A	143'-0"	270°	0°	2°	-

CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	-	-
-	-	(12) 1-5/8"	(2) 1-5/8"	RMN

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

3 ANTENNA SCHEDULE

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(1) 1-5/8"	ADD
-	-	(12) 1-5/8"	(2) 1-5/8"	RMN

AMERICAN TOWER®
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	06/19/19
1	MA UPDATE	LR	07/25/19

ATC SITE NUMBER:
243036

ATC SITE NAME:
WEST HAVEN & RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:

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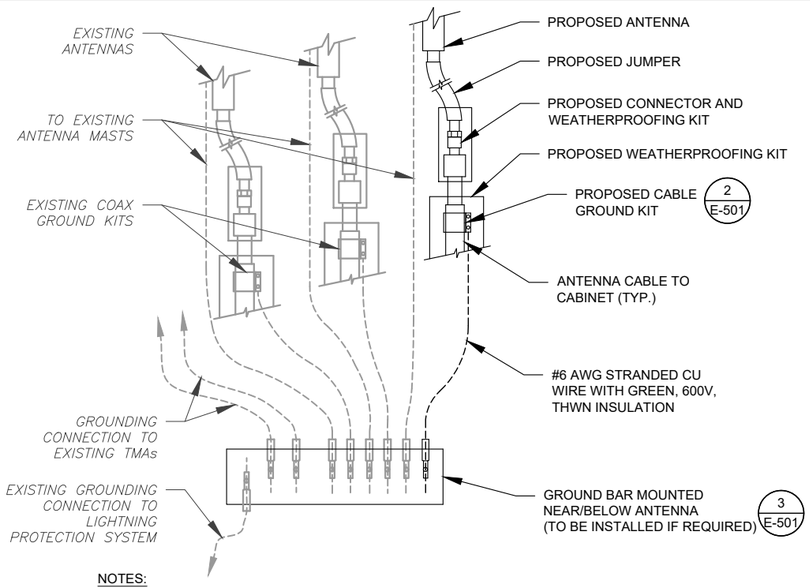
Jul 25 2019 12:59 PM

T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	06/19/19
ATC JOB NO:	12951819

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	1

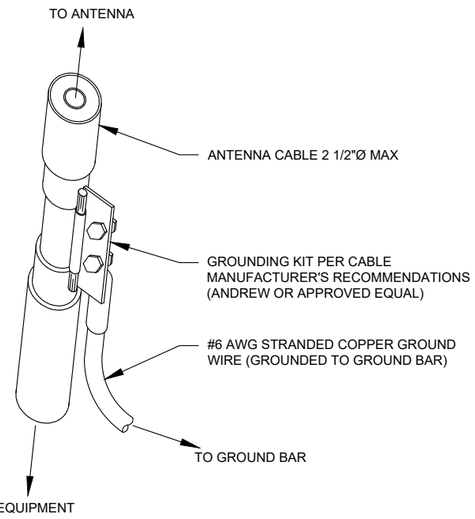


NOTES:

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

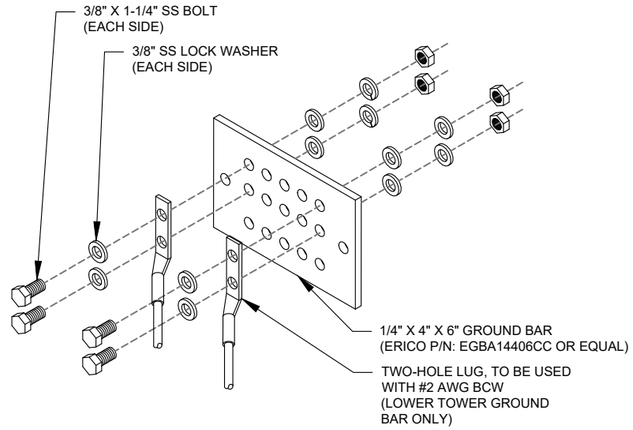


GROUND KIT NOTES:

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:

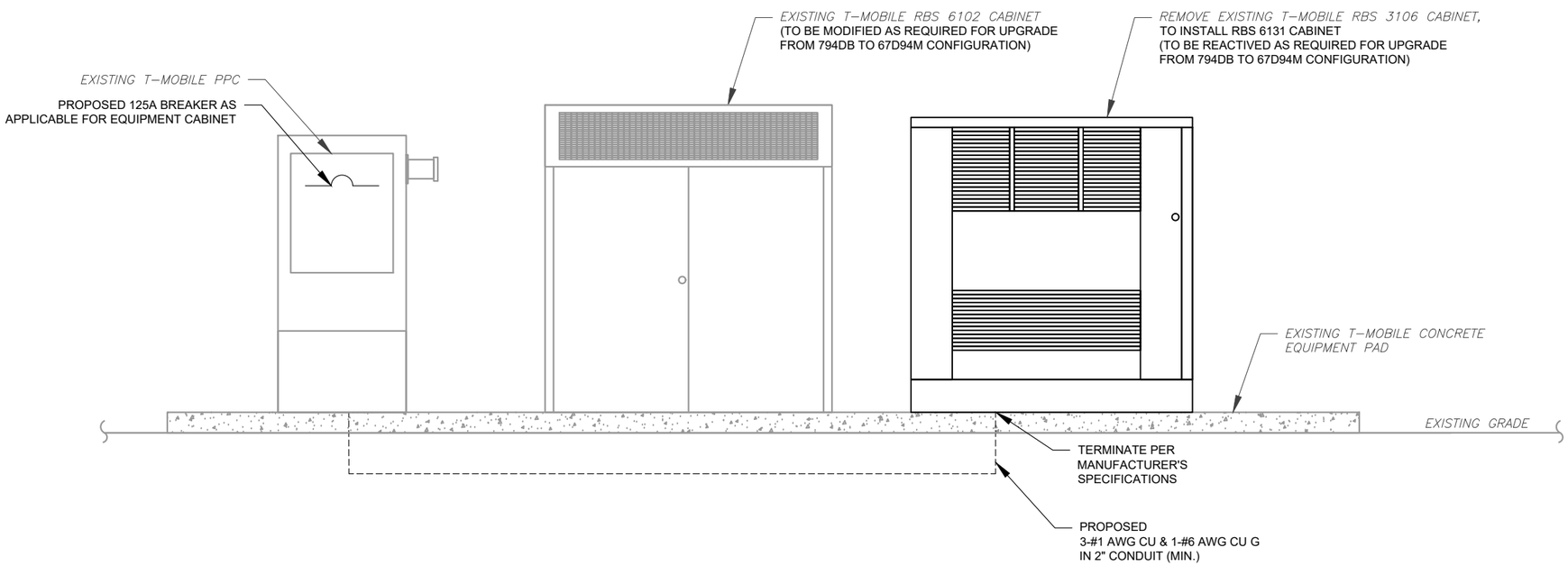
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL

SCALE: NOT TO SCALE

ELECTRICAL NOTES:

1. THIS DIAGRAM REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
3. ATC HAS NOT YET VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER.



4 ELECTRICAL UPGRADE DIAGRAM

SCALE: NOT TO SCALE

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	06/19/19

ATC SITE NUMBER:

243036

ATC SITE NAME:

WEST HAVEN & RT 162 CT

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SEAL:

Authorized by "EOR"
Jul 25 2019 12:59 PM

T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	06/19/19
ATC JOB NO:	12951819

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Section 5 – RAN Equipment

Existing RAN Equipment			
Template: 794DB Outdoor (evolved from 4A)			
Enclosure	1	2	3
Enclosure Type	RBS 6102	Ancillary Equipment	RBS 3106
Baseband	DUW30 U1900; DUW30 U2100; DUG20 G1900; DUS41 (x2) L2100 L1900 L700		
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* (x2)	
Multiplexer	XMU		
Radio	RU22 (x6) U2100; RUS01 B2 (x3) G1900; RUS01 B2 (x3) U1900		

Proposed RAN Equipment			
Template: 67D94M Hybrid (Evolved from 4A)			
Enclosure	1	2	3
Enclosure Type	RBS 6102	RBS 6131	Ancillary Equipment
Baseband	DUW30 U1900; DUG20 G1900; BB 6630 L1900 L700 L600; BB 6630 L2100; BB 6630 N600 (DARK)	DUW30 U2100	
Hybrid Cable System			Ericsson 6x12 HCS *Select Length & AWG* (x3)
Radio	RUS01 B2 (x3) G1900; RUS01 B2 (x3) U1900	RU22 (x6) U2100	

RAN Scope of Work:

Replace (2) DUS41 with (1) BB6630 for L1900 and L700.
Add (1) BB6630 for L2100 M-MIMO.
Add (1) BB6630 for future 5G N600.
Remove (1) XMU.

Upgrade RBS3106 to RBS6131 (full power upgrade), Cabinet will be reactivated,
Move (6) RU22 to RBS6131.

Add (1) 6X12 HCS.
Existing: (15) Coaxial Lines; (2) 6X12 HCS outside of monopole. Remove (3) Coaxial Lines.

Rad Center: 143 Feet.

Add (1) BBU.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

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

SUPPLEMENTAL

SHEET NUMBER: R-601

REVISION: 0

Mount Analysis of Existing Low Profile Platform for American Tower on behalf of T-Mobile
243036 - West Haven & RT 162 CT
Project #: 12942675
T-Mobile Site ID: CT11821E
Program: L600

CLS Engineering PLLC Project #41124-12942675-01-MA-R1
July 3, 2019

MOUNT DESCRIPTION	Existing Low Profile Platform at 140 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 143 ft AGL (Eccentricity of ~3 ft)
SITE DESCRIPTION	149 ft Monopole
SITE ADDRESS	668 Jones Hill Road, West Haven, CT 06516-6311, New Haven County
GPS COORDINATES	41.25640278, -72.97236111
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	74%	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.0001833 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 22:02:51 -04'00'

■ CONCLUSION AND RECOMMENDATIONS

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

- **Replace existing mount pipe at Position 1 and install new mount pipe in empty Position 2 with (2) 8ft. long proposed Pipe 2 X-Strong, A53 Gr. B, at each sector for proposed panel configuration (6 total) as shown. Connect to platform base horizontal member using (2) 1/2" Ø U-Bolts per connection (12 total).**
- **Install Site Pro 1 HRK12-3HD Support Rail kit at 3'-0" above the existing platform horizontal channel. Connect to (4) existing and proposed mount pipes per sector of the mount (12 total) using Site Pro 1 SCX2 crossover plates included in the Support Rail kit. Refer to following sketches for further details on the installation of the Support Rail bracing pipes included in the kit. Field-Cut proposed pipe as required.**
- **Install (1) Site Pro 1 PRK-SFS Support Rail Vertical Reinforcement Kit at existing face horizontal member as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ± 3 ft. above the centerline of existing platform mount collar. Use longer bolts (½" Ø x 2" Long HDG Hex Bolt Grade 5) and ½" spacer for connection of stabilizer angles to the bracing pipes. Field-Cut proposed angles as required. Maintain minimum bolt edge distance. DO NOT PINCH SAFETY CLIMB.**
- **Relocate equipment, as required, to facilitate installation of proposed modifications on existing mount.**
- **All hardware for Site Pro 1 PUCK connection to the proposed Support Rails should be installed with "turn of the nut" method per the following table:**

BOLT TIGHTENING PROCEDURE

1. TIGHTEN BOLTS BY AISC "TURN OF THE NUT" METHOD USING THE CHART BELOW:

   BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS:
   +1/3 TURN BEYOND SNUG TIGHT

   BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS:
   +1/2 TURN BEYOND SNUG TIGHT

   BOLT LENGTHS OVER EIGHT AND UP TO TWELVE DIAMETERS:
   +2/3 TURN BEYOND SNUG TIGHT

2. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(d)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS:

   "FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(d)(1) THROUGH 8(d)(4).

   8(d)(1) TURN-OF-THE-NUT TIGHTENING.
   BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PLIES OF A JOINT ARE IN FIRM CONTACT. THIS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY...UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION, THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

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

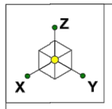
1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

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.

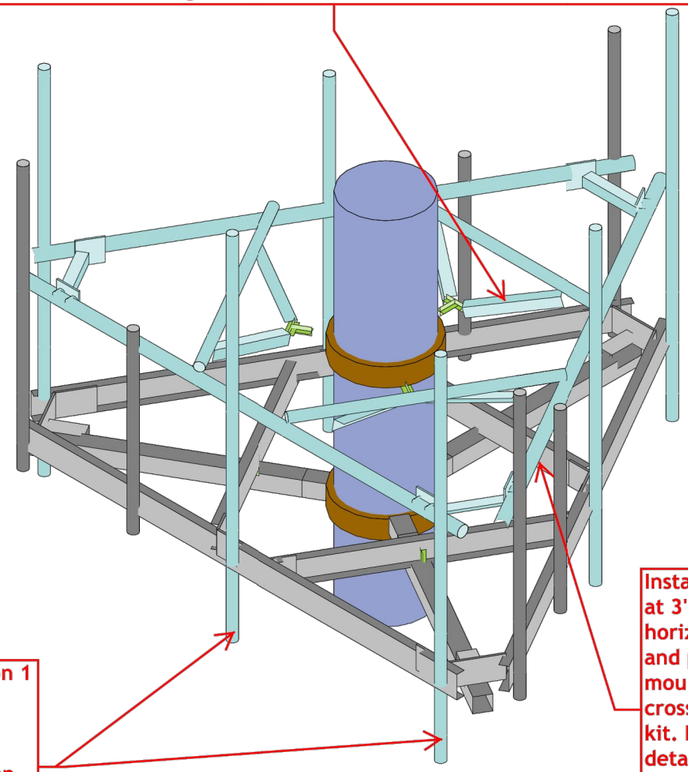
SUPPLEMENTAL

SHEET NUMBER: R-602

REVISION: 0



Install (1) Site Pro 1 PRK-SFS Support Rail Vertical Reinforcement Kit at existing face horizontal member as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ± 3 ft. above the centerline of existing platform mount collar. Use longer bolts (½" Ø x 2" Long HDG Hex Bolt Grade 5) and ½" spacer for connection of stabilizer angles to the bracing pipes. Field-Cut proposed angles as required. Maintain minimum bolt edge distance. DO NOT PINCH SAFETY CLIMB.



Install Site Pro 1 HRK12-3HD Support Rail kit at 3'-0" above the existing platform horizontal channel. Connect to (4) existing and proposed mount pipes per sector of the mount (12 total) using Site Pro 1 SCX2 crossover plates included in the Support Rail kit. Refer to following sketches for further details on the installation of the Support Rail bracing pipes included in the kit. Field-Cut proposed pipe as required.

Replace existing mount pipe at Position 1 and install new mount pipe in empty Position 2 with (2) 8ft. long proposed Pipe 2 X-Strong, A53 Gr. B, at each sector for proposed panel configuration (6 total) as shown. Connect to platform base horizontal member using (2) 1/2" Ø U-Bolts (12 total).

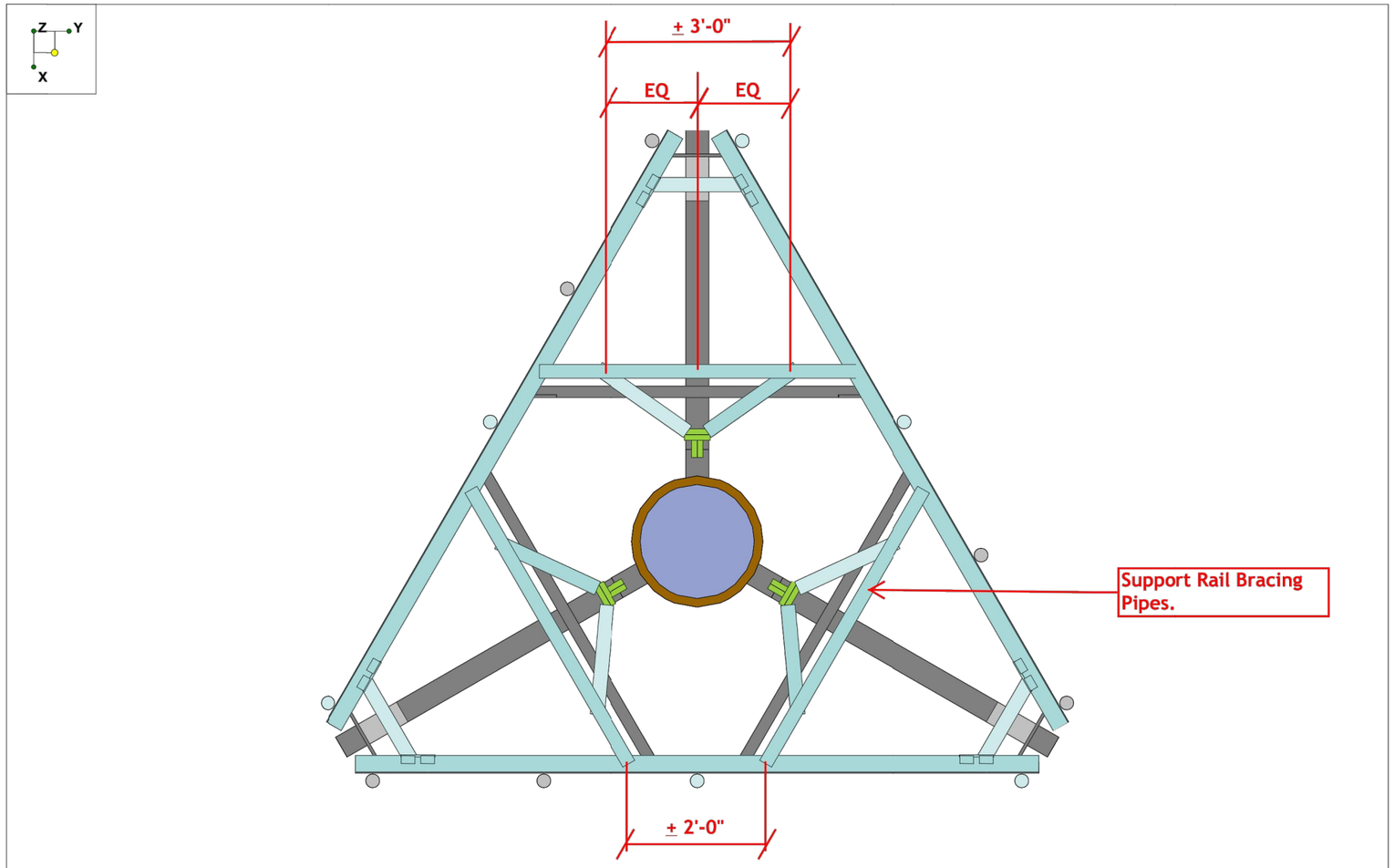
CLS	41124-12942675-WEST HAVEN & RT 162 CT	IN - 1
JLS		Apr 8, 2019 at 12:00 PM
41124-12942675-01-MA	Installation Sketch	41124-12942675-01-MA.r3d

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:	REVISION:
R-603	0



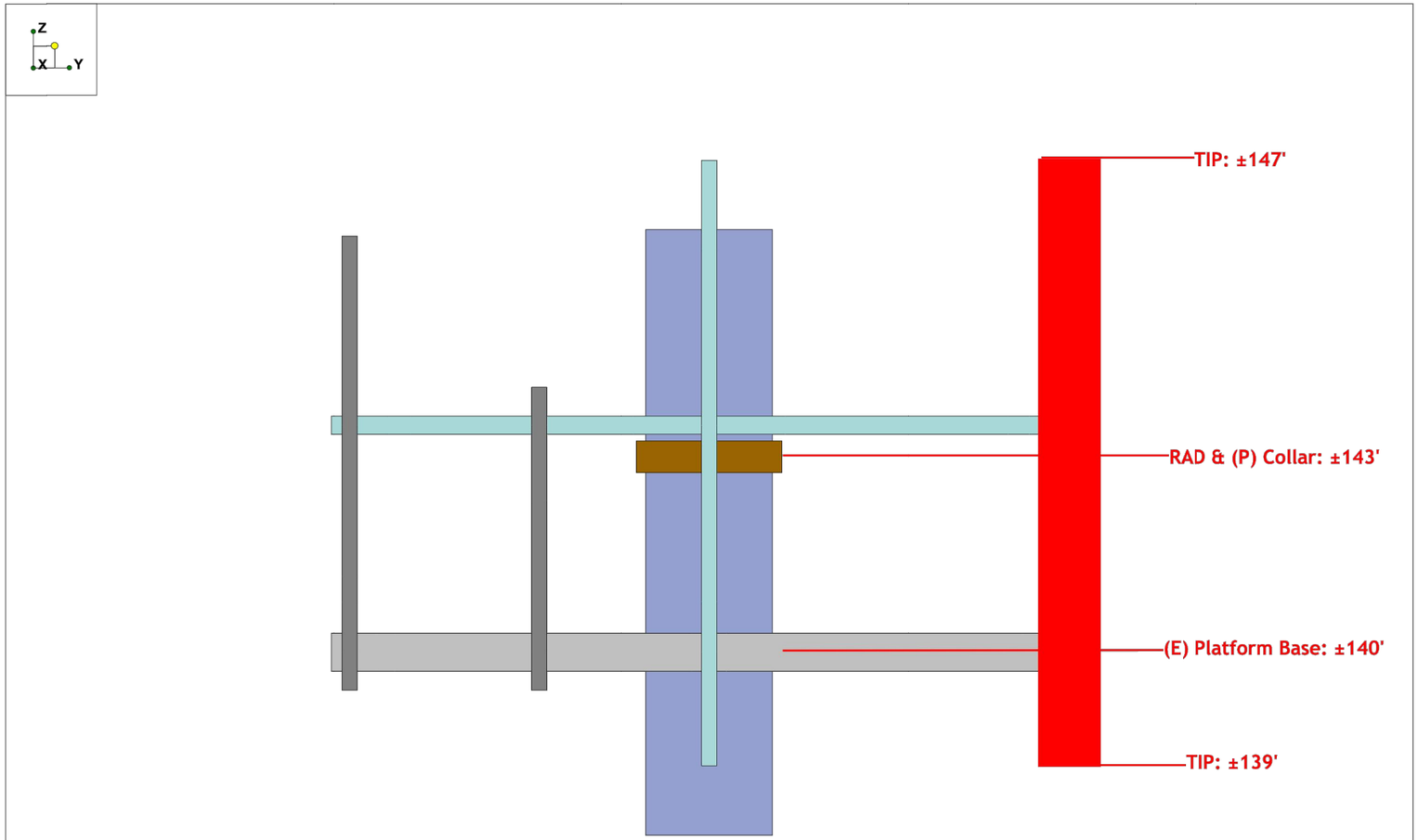
CLS	41124-12942675-WEST HAVEN & RT 162 CT	IN - 2
JLS		Apr 8, 2019 at 12:00 PM
41124-12942675-01-MA	Installation Sketch	41124-12942675-01-MA.r3d

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:	REVISION:
R-604	0



CLS	41124-12942675-WEST HAVEN & RT 162 CT	IN - 3
JLS		Apr 8, 2019 at 12:15 PM
41124-12942675-01-MA	Installation Sketch	41124-12942675-01-MA.r3d

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:	REVISION:
R-605	0

Exhibit D

Structural Analysis Report

AMERICAN TOWER®
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Structural Analysis Report

Structure	:	**149 ft Monopole**
ATC Site Name	:	**West Haven & RT 162 CT, CT**
ATC Site Number	:	**243036**
Engineering Number	:	**12942675_C3_02**
Proposed Carrier	:	**T-Moble**
Carrier Site Name	:	**CT821/D&B Flower Farm**
Carrier Site Number	:	**CT11821E**
Site Location	:	**668 Jones Hill Road** **West Haven, CT 06516-6311** **41.256400,-72.972400**
County	:	**New Haven**
Date	:	**July 22, 2019**
Max Usage	:	**100%**
Result	:	**Pass**

Prepared By:
Peter Giordano
Structural Engineer II

Peter J. Giordano

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32598
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Jul 23 2019 5:40 PM cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

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Calculations ..... Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	Sabre Job #06-08204, dated August 19, 2005
Foundation Drawing	Sabre Job #06-10095, dated October 12, 2005
Geotechnical Report	EBI Project #61051509, dated July 12, 2005
Mount Analysis	CLS Engineering PLLC Project #41124-12942675-01-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, Vasd) / 125 mph (3-Second Gust, Vult)
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
Crest Height:	0 ft
Spectral Response:	Ss = 0.19, 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
151.0	3	DragonWave Horizon Compact	SitePro1 RMQP-3 Series Low Profile Platform	(3) 1 1/4" Hybriflex Cable (1) 1.7" (43.2mm) Hybrid (3) 1/2" Coax	CLEARWIRE CORPORATION
	1	DragonWave A-ANT-23G-1-C			
	6	Alcatel-Lucent RRH2x50-08			
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Nokia 2.5G MAA - AAHC(64T64R)			
	2	DragonWave A-ANT-11G-2-C			
	3	RFS APXVFRR12X-C-I20			
143.0	3	RFS APXVAARR24_43-U-NA20	-	(12) 1 5/8" Coax	T-MOBILE
	3	Ericsson Radio 4449 B12,B71			
	3	Ericsson KRY 112 489/1			
	3	Ericsson KRY 112 144/2			
137.0	3	Alcatel-Lucent RRH2x40-AWS	Low Profile Platform	(1) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	VERIZON WIRELESS
134.0	3	Commscope LNX-6514DS-A1M			
	1	RFS DB-T1-6Z-8AB-0Z			
	3	Andrew DB854DG65ESX			
	6	RFS FD9R6004/2C-3L			
	3	Amphenol Antel BXA-171063-12BF-EDIN-X			
	3	Antel BXA-185085/12CF ___			
125.0	1	Raycap DC6-48-60-0-8F (24" Height)	Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (2) 0.39" (9.8mm) Cable (4) 0.78" (19.7mm) 8 AWG 6 (1) 3" conduit	AT&T MOBILITY
	3	Ericsson RRUS 4449 B5, B12			
	3	CCI CCI-HPA-65R-BUU-H8			
	6	Kathrein Scala 80010966			
	1	Raycap DC6-48-60-0-8F (24" Height)			
	1	Raycap DC6-48-60-0-8F			
	3	Ericsson Radio 4415 B30			
	3	Ericsson 8843 Rev 2			
115.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	METRO PCS INC
106.0	1	Generic 3' Dish w/ Radome	Side Arm	(1) 0.28" (7mm) RG-6	OTHER
	1	Proxim 5054-R-LR			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
143.0	3	RFS APX16DWV-16DWVS-E-A20	Existing Platform	(3) 1 1/4" Hybriflex Cable (3) 1 5/8" Coax	T-MOBILE
	3	Ericsson AIR-32 B2A/B66Aa			
	3	Kathrein Scala Smart Bias Tee			
	3	Ericsson RRUS 11 B12			
	3	Commscope SBNHH-1D65A			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
143.0	3	Ericsson AIR32 B66Aa/B2a	Platform with SitePro1 HRK12-3HD Handrail Kit	(3) 1 5/8" (1.63"-41.3mm) Fiber	T-MOBILE
	3	Ericsson Air 3246 B66			

[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	58%	Pass
Shaft	100%	Pass
Base Plate	47%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,840.0	3,834.0	2,923.8	76%
Shear (Kips)	26.3	35.5	25.0	70%

*** The design reactions have been 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) (°)
149.0	DragonWave A-ANT-23G-1-C	CLEARWIRE CORPORATION	2.113	1.650
	DragonWave A-ANT-11G-2-C			
143.0	Ericsson AIR32 B66Aa/B2a	T-MOBILE	1.939	1.640
	Ericsson Air 3246 B66			
106.0	Generic 3' Dish w/ Radome	OTHER	0.992	1.184

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

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Standard Conditions

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

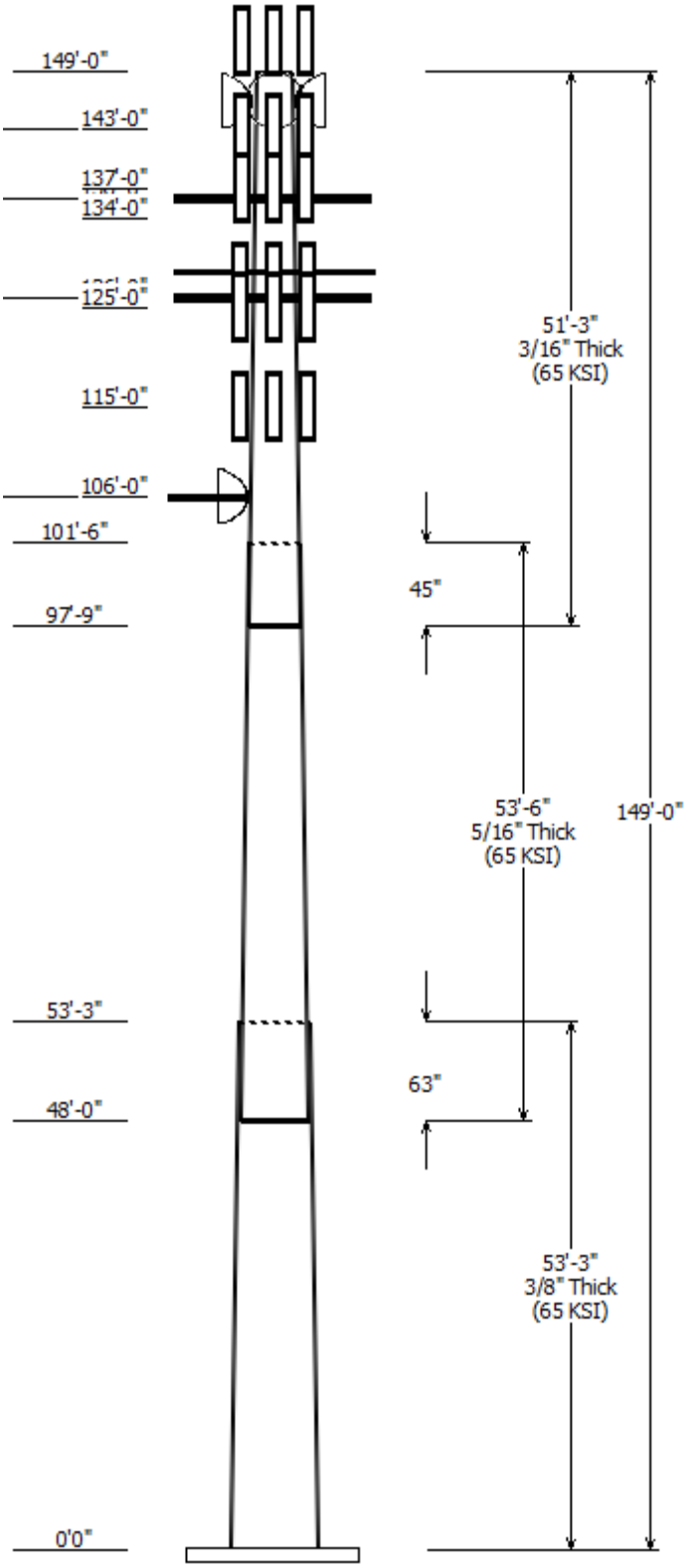
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

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

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

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



Job Information

Client :	T-MOBILE
Pole :	243036
Code:	ANSI/TIA-222-G
Location :	WEST HAVEN & RT 162 CT, CT
Description :	Tower Model Verified: 12/13/2012
Struct Class :	II
Shape :	18 Sides
Exposure :	B
Height :	149.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.234964 (in/ft)

Sections Properties

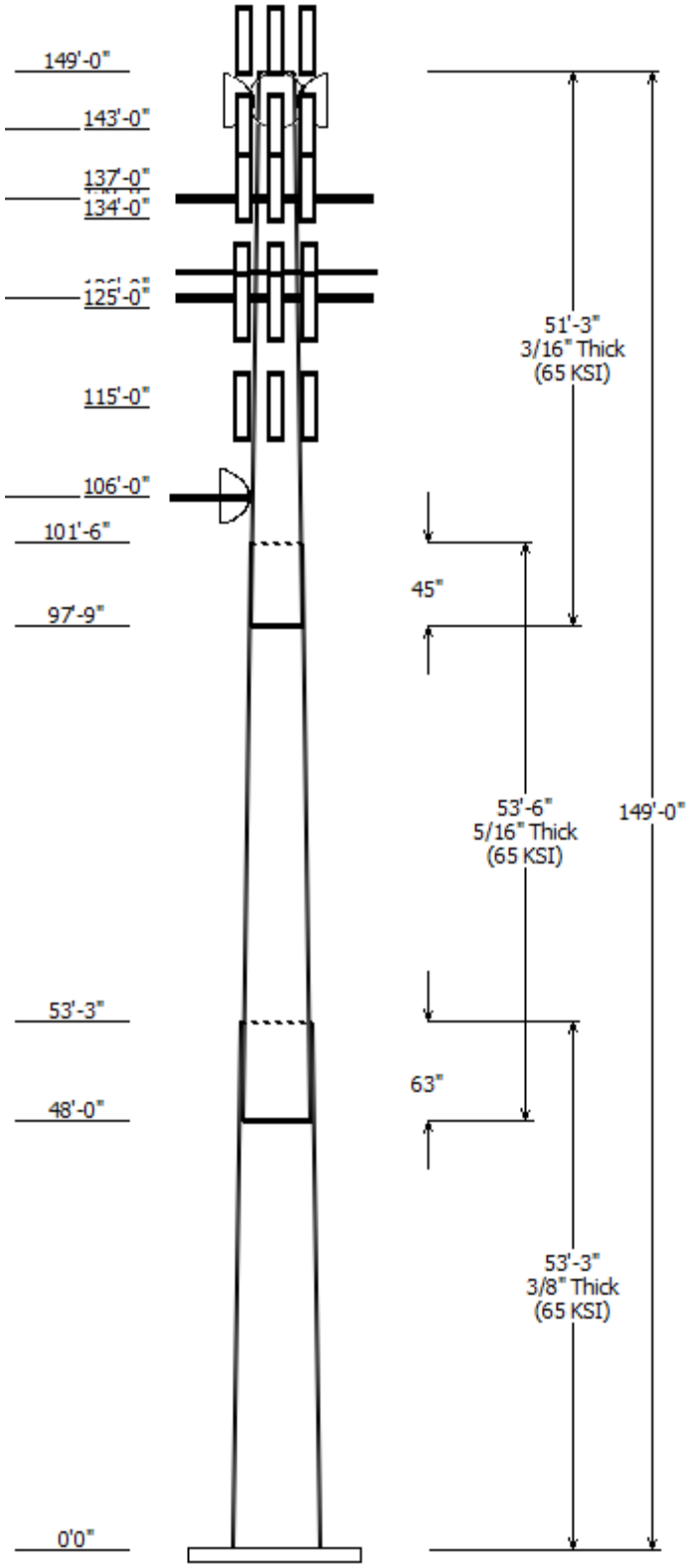
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	53.250	39.49	52.01	0.375		0.000	18 Sides	65
2	53.500	28.78	41.35	0.313	Slip Joint	63.000	18 Sides	65
3	51.250	18.00	30.04	0.188	Slip Joint	45.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
149.000	151.000	3	RFS APXVFRR12X-C-I20
149.000	148.000	2	DragonWave A-ANT-11G-2-C
149.000	151.000	3	Nokia 2.5G MAA -
149.000	151.000	3	Alcatel-Lucent 1900 MHz 4X45
149.000	151.000	6	Alcatel-Lucent RRH2x50-08
149.000	148.000	1	DragonWave A-ANT-23G-1-C
149.000	148.000	3	DragonWave Horizon Compact
149.000	149.000	1	SitePro1 RMQP-3XX Low
143.000	143.000	1	Platform with SitePro1 HRK12-
143.000	143.000	3	RFS APXVAARR24_43-U-NA20
143.000	143.000	3	Ericsson Air 3246 B66
143.000	143.000	3	Ericsson AIR32 B66Aa/B2a
143.000	143.000	3	Ericsson Radio 4449 B12,B71
143.000	144.000	3	Ericsson KRY 112 489/1
143.000	143.000	3	Ericsson KRY 112 144/2
137.000	137.000	3	Alcatel-Lucent RRH2x40-AWS
136.000	136.000	1	Round Low Profile Platform
134.000	137.000	3	Commscope LNX-6514DS-A1M
134.000	137.000	3	Andrew DB854DG65ESX
134.000	136.000	1	RFS DB-T1-6Z-8AB-0Z
134.000	137.000	3	Antel BXA-185085/12CF ___
134.000	136.000	3	Amphenol Antel BXA-171063-
134.000	136.000	6	RFS FD9R6004/2C-3L
126.000	126.000	1	Round Platform w/ Handrails
125.000	125.000	6	Kathrein Scala 80010966
125.000	126.000	3	CCI CCI-HPA-65R-BUU-H8
125.000	125.000	3	Ericsson RRUS 4449 B5, B12
125.000	125.000	3	Ericsson 8843 Rev 2
125.000	125.000	3	Ericsson Radio 4415 B30
125.000	126.000	2	Raycap DC6-48-60-0-8F (24" Hei
125.000	125.000	1	Raycap DC6-48-60-0-8F
115.000	115.000	3	RFS APXV18-206517S-C
106.000	106.000	1	Flat Side Arm
106.000	106.000	1	Generic 3' Dish w/ Radome
106.000	106.000	1	Proxim 5054-R-LR

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
4.000	106.0	0.28" (7mm) RG-6	No
4.000	115.0	1 5/8" Coax	No
4.000	125.0	0.39" (10mm)	No
4.000	125.0	0.39" (9.8mm)	No



4.000	125.0	0.78" (19.7mm) 8	No
4.000	125.0	3" conduit	No
4.000	134.0	1 5/8" (1.63"-	No
4.000	134.0	1 5/8" Coax	No
4.000	143.0	1 5/8" Coax	No
4.000	151.0	1.7" (43.2mm)	No
4.000	151.0	1/2" Coax	No
0.000	151.0	1 1/4" Hybriflex	No
0.000	143.0	1 5/8" (1.63"-	No

Load Cases

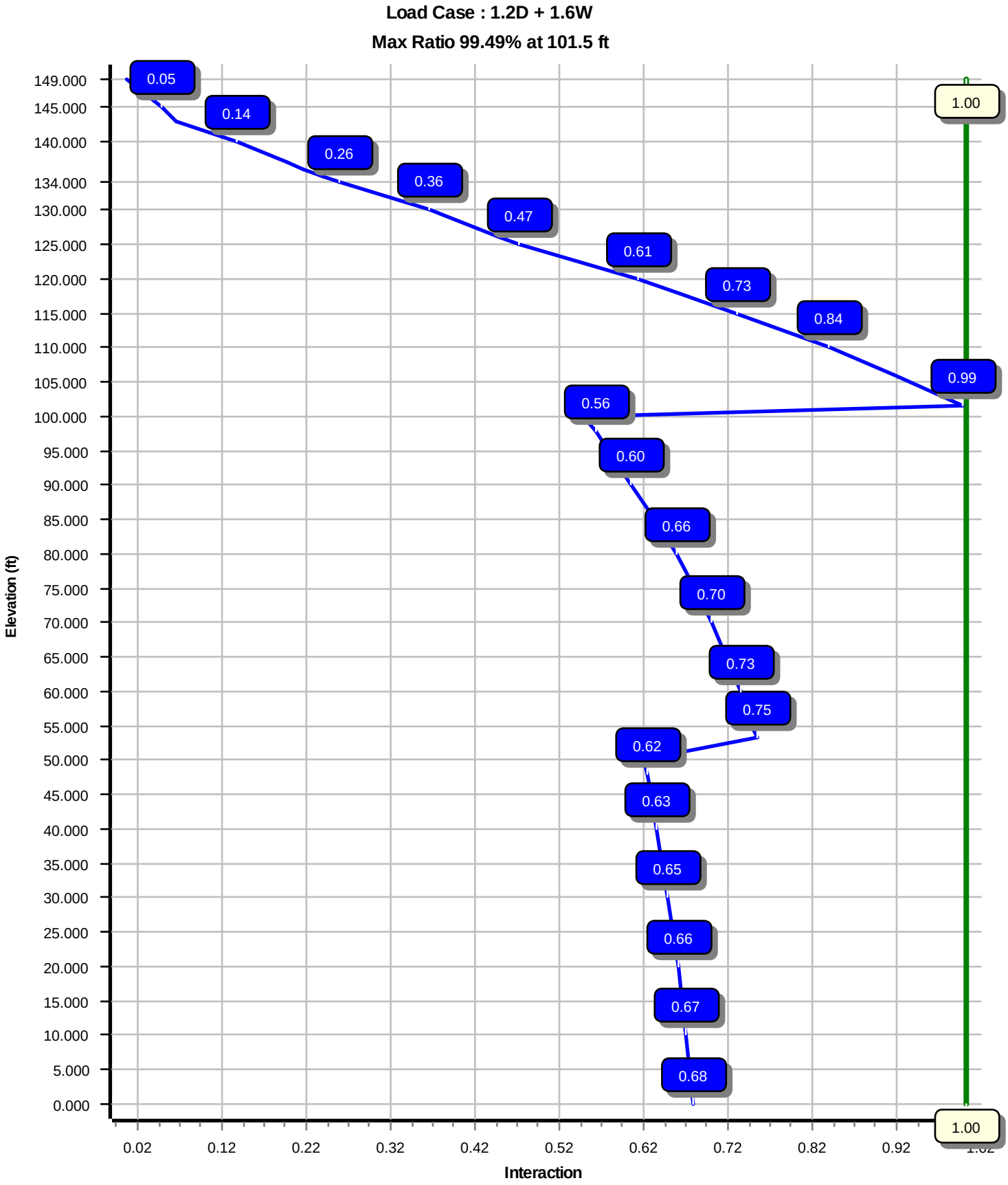
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	2923.78	24.96	44.56
0.9D + 1.6W	2873.58	24.94	33.41
1.2D + 1.0Di + 1.0Wi	846.62	6.99	73.32
(1.2 + 0.2Sds) * DL + E ELFM	148.77	1.12	44.72
(1.2 + 0.2Sds) * DL + E EMAM	313.78	2.40	44.72
(0.9 - 0.2Sds) * DL + E ELFM	145.40	1.12	31.01
(0.9 - 0.2Sds) * DL + E EMAM	306.34	2.40	31.01
1.0D + 1.0W	619.69	5.34	37.17

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	106.00	11.899	1.183
1.0D + 1.0W	149.00	25.335	1.648
1.0D + 1.0W	149.00	25.335	1.648


Load Case : 1.2D + 1.6W
Max Ratio 99.49% at 101.5 ft
Elevation (ft)
149.000
145.000
140.000
134.000
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
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.05
0.14
0.26
0.36
0.47
0.61
0.73
0.84
0.99
0.56
0.60
0.66
0.70
0.73
0.75
0.62
0.63
0.65
0.66
0.67
0.68
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: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:12942675_C3_02 7/22/2019 5:11:05 PM

Customer: T-MOBILE

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	149
Code :	ANSI/TIA-222-G	Base Diameter (in) :	52.01
Shape :	18 Sides	Top Diameter (in) :	18.00
Pole Type :	Taper	Taper (in/ft) :	0.235
Pole Manfacturer :	Sabre	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):	2.90				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.188	S_1:	0.062	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.201	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

Site Number: 243036 Code: ANSI/TIA-222-G

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:12942675_C3_02 7/22/2019 5:11:05 PM

Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.250	0.3750	65		0.00	9,787	52.01	0.00	61.46	20701.4	22.69	138.69	39.49	53.25	46.56	9004.7	16.81	105.33	0.234964
2-18	53.500	0.3125	65	Slip	63.00	6,276	41.35	48.00	40.71	8664.4	21.57	132.34	28.78	101.50	28.24	2892.7	14.48	92.11	0.234964
3-18	51.250	0.1875	65	Slip	45.00	2,473	30.04	97.75	17.77	2000.7	26.49	160.22	18.00	149.00	10.60	424.9	15.16	96.00	0.234964
				Shaft Weight		18,536													

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
149.00	DragonWave Horizon Compact	3	0.80	-1.000	10.60	0.720	0.50	33.09	1.288	0.50
149.00	DragonWave A-ANT-23G-1-C	1	1.00	-1.000	15.00	1.610	1.00	50.33	2.367	1.00
149.00	Alcatel-Lucent RRH2x50-08	6	0.80	2.000	52.90	1.700	0.50	112.16	2.562	0.50
149.00	Alcatel-Lucent 1900 MHz 4X45	3	0.80	2.000	60.00	2.320	0.67	140.59	3.400	0.67
149.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.80	2.000	103.60	4.200	0.64	216.34	5.540	0.64
149.00	DragonWave A-ANT-11G-2-C	2	1.00	-1.000	27.00	4.690	1.00	124.46	5.964	1.00
149.00	RFS APXVFRR12X-C-I20	3	0.80	2.000	46.00	4.990	0.71	171.02	6.857	0.71
149.00	SitePro1 RMQP-3XX Low Profile	1	1.00	0.000	1,680.00	21.700	1.00	3,084.50	40.144	1.00
143.00	Ericsson KRY 112 144/2	3	0.75	0.000	9.70	0.480	0.50	23.84	0.952	0.50
143.00	Ericsson KRY 112 489/1	3	0.75	1.000	15.40	0.560	0.50	32.92	1.084	0.50
143.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	129.77	2.481	0.50
143.00	Ericsson AIR32 B66Aa/B2a	3	0.75	0.000	132.20	6.510	0.71	291.20	8.692	0.71
143.00	Ericsson Air 3246 B66	3	0.75	0.000	180.00	7.940	0.69	2,873.87	10.199	0.69
143.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	519.00	23.934	0.63
143.00	Platform with SitePro1 HRK12-	1	1.00	0.000	2,350.00	42.400	1.00	3,980.96	71.827	1.00
137.00	Alcatel-Lucent RRH2x40-AWS	3	0.80	0.000	44.00	2.160	0.67	104.16	3.198	0.67
136.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,142.65	40.744	1.00
134.00	RFS FD9R6004/2C-3L	6	0.80	2.000	2.60	0.310	0.50	10.52	0.687	0.50
134.00	Amphenol Antel BXA-171063-	3	0.80	2.000	15.00	4.730	0.72	108.73	7.045	0.72
134.00	Antel BXA-185085/12CF ___	3	0.80	3.000	13.00	4.790	0.72	131.38	6.000	0.72
134.00	RFS DB-T1-6Z-8AB-0Z	1	0.80	2.000	44.00	4.800	1.00	168.52	6.206	1.00
134.00	Andrew DB854DG65ESX	3	0.80	3.000	18.50	5.250	0.65	149.40	6.230	0.65
134.00	Commscope LNX-6514DS-A1M	3	0.80	3.000	38.80	8.170	0.69	212.86	10.957	0.69
126.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,275.49	51.262	1.00
125.00	Raycap DC6-48-60-0-8F	1	0.75	0.000	32.80	1.360	1.00	89.88	2.011	1.00
125.00	Raycap DC6-48-60-0-8F (24"	2	0.75	1.000	32.80	1.470	1.00	137.97	2.156	1.00
125.00	Ericsson Radio 4415 B30	3	0.75	0.000	43.00	1.650	0.50	84.39	2.484	0.50
125.00	Ericsson 8843 Rev 2	3	0.75	0.000	75.00	1.650	0.50	135.95	2.484	0.50
125.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.970	0.50	134.29	2.886	0.50
125.00	CCI CCI-HPA-65R-BUU-H8	3	0.75	1.000	68.00	12.980	0.67	320.31	16.496	0.67
125.00	Kathrein Scala 80010966	6	0.75	0.000	114.60	17.360	0.63	429.91	20.982	0.63
115.00	RFS APXV18-206517S-C	3	1.00	0.000	26.40	5.160	0.68	116.61	7.463	0.68
106.00	Proxim 5054-R-LR	1	1.00	0.000	6.00	1.320	1.00	36.21	2.054	1.00
106.00	Generic 3' Dish w/ Radome	1	1.00	0.000	100.00	6.100	1.00	276.10	7.259	1.00
106.00	Flat Side Arm	1	1.00	0.000	150.00	6.300	1.00	220.76	8.678	1.00
Totals	Num Loadings:35	92			12,534.30			34,955.03		

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	151.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
4.00	151.00	1	1.7" (43.2mm) Hybrid	1.70	1.78	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
4.00	151.00	3	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	CLEARWIRE

0.00	143.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	T-MOBILE
4.00	143.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
4.00	134.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
4.00	134.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
4.00	125.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
4.00	125.00	2	0.39" (9.8mm) Cable	0.39	0.07	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
4.00	125.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
4.00	125.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
4.00	115.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
4.00	106.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0	0.00	0.00	0	0.00	N	Other

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	52.010	61.456	20,701.4	22.69	138.69	74.7	784.0	0.0	0.0
5.00		0.3750	50.835	60.058	19,320.3	22.14	135.56	75.4	748.6	0.0	1,033.7
10.00		0.3750	49.660	58.659	18,002.0	21.59	132.43	76.0	714.0	0.0	1,009.9
15.00		0.3750	48.485	57.261	16,745.1	21.03	129.29	76.7	680.2	0.0	986.1
20.00		0.3750	47.310	55.863	15,548.1	20.48	126.16	77.3	647.3	0.0	962.3
25.00		0.3750	46.136	54.465	14,409.6	19.93	123.03	78.0	615.2	0.0	938.5
30.00		0.3750	44.961	53.066	13,328.0	19.38	119.90	78.6	583.9	0.0	914.8
35.00		0.3750	43.786	51.668	12,301.9	18.83	116.76	79.3	553.4	0.0	891.0
40.00		0.3750	42.611	50.270	11,329.9	18.27	113.63	79.9	523.7	0.0	867.2
45.00		0.3750	41.436	48.871	10,410.6	17.72	110.50	80.6	494.9	0.0	843.4
48.00	Bot - Section 2	0.3750	40.731	48.032	9,883.6	17.39	108.62	80.9	477.9	0.0	494.6
50.00		0.3750	40.261	47.473	9,542.3	17.17	107.36	81.2	466.8	0.0	600.4
53.25	Top - Section 1	0.3125	40.123	39.485	7,906.5	20.88	128.39	76.8	388.1	0.0	960.8
55.00		0.3125	39.712	39.078	7,664.0	20.64	127.08	77.1	380.1	0.0	233.9
60.00		0.3125	38.537	37.912	6,998.6	19.98	123.32	77.9	357.7	0.0	654.9
65.00		0.3125	37.362	36.747	6,373.0	19.32	119.56	78.7	336.0	0.0	635.1
70.00		0.3125	36.187	35.582	5,785.7	18.66	115.80	79.5	314.9	0.0	615.3
75.00		0.3125	35.012	34.417	5,235.7	17.99	112.04	80.2	294.5	0.0	595.5
80.00		0.3125	33.838	33.251	4,721.7	17.33	108.28	81.0	274.8	0.0	575.6
85.00		0.3125	32.663	32.086	4,242.5	16.67	104.52	81.8	255.8	0.0	555.8
90.00		0.3125	31.488	30.921	3,796.9	16.00	100.76	82.6	237.5	0.0	536.0
95.00		0.3125	30.313	29.756	3,383.6	15.34	97.00	82.6	219.9	0.0	516.2
97.75	Bot - Section 3	0.3125	29.667	29.115	3,169.7	14.98	94.93	82.6	210.4	0.0	275.4
100.0		0.3125	29.138	28.591	3,001.5	14.68	93.24	82.6	202.9	0.0	355.7
101.5	Top - Section 2	0.1875	29.161	17.242	1,828.7	25.66	155.52	71.2	123.5	0.0	233.6
105.0		0.1875	28.338	16.753	1,677.4	24.89	151.14	72.1	116.6	0.0	202.4
106.0		0.1875	28.103	16.613	1,635.7	24.67	149.89	72.4	114.6	0.0	56.8
110.0		0.1875	27.164	16.054	1,476.0	23.78	144.87	73.4	107.0	0.0	222.3
115.0		0.1875	25.989	15.354	1,291.4	22.68	138.61	74.7	97.9	0.0	267.2
117.9		0.1875	25.299	14.944	1,190.5	22.03	134.93	75.5	92.7	0.0	151.4
120.0		0.1875	24.814	14.655	1,122.9	21.57	132.34	76.0	89.1	0.0	103.9
125.0		0.1875	23.639	13.956	969.8	20.47	126.08	77.3	80.8	0.0	243.4
126.0		0.1875	23.404	13.816	940.9	20.25	124.82	77.6	79.2	0.0	47.3
130.0		0.1875	22.464	13.257	831.2	19.36	119.81	78.6	72.9	0.0	184.2
134.0		0.1875	21.524	12.698	730.4	18.48	114.80	79.7	66.8	0.0	176.6
135.0		0.1875	21.290	12.558	706.5	18.26	113.54	79.9	65.4	0.0	43.0
136.0		0.1875	21.055	12.418	683.2	18.04	112.29	80.2	63.9	0.0	42.5
137.0		0.1875	20.820	12.278	660.4	17.82	111.04	80.4	62.5	0.0	42.0
140.0		0.1875	20.115	11.859	595.0	17.15	107.28	81.2	58.3	0.0	123.2
143.0		0.1875	19.410	11.439	534.0	16.49	103.52	82.0	54.2	0.0	118.9
145.0		0.1875	18.940	11.160	495.8	16.05	101.01	82.5	51.6	0.0	76.9
149.0		0.1875	18.000	10.600	424.9	15.16	96.00	82.6	46.5	0.0	148.1
											18,536.1

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 27 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		199.3	0.0					0.0	0.0	199.3	0.0	0.0	0.0
5.00		394.1	1,240.5					0.0	93.4	394.1	1,333.8	0.0	0.0
10.00		385.0	1,211.9					0.0	279.0	385.0	1,490.9	0.0	0.0
15.00		375.9	1,183.4					0.0	279.0	375.9	1,462.4	0.0	0.0
20.00		366.8	1,154.8					0.0	279.0	366.8	1,433.8	0.0	0.0
25.00		357.7	1,126.3					0.0	279.0	357.7	1,405.3	0.0	0.0
30.00		352.7	1,097.7					0.0	279.0	352.7	1,376.7	0.0	0.0
35.00		354.8	1,069.2					0.0	279.0	354.8	1,348.2	0.0	0.0
40.00		358.7	1,040.6					0.0	279.0	358.7	1,319.6	0.0	0.0
45.00		288.5	1,012.1					0.0	279.0	288.5	1,291.1	0.0	0.0
48.00	Bot - Section 2	181.8	593.5					0.0	167.4	181.8	760.9	0.0	0.0
50.00		192.7	720.5					0.0	111.6	192.7	832.1	0.0	0.0
53.25	Top - Section 1	183.4	1,153.0					0.0	181.4	183.4	1,334.4	0.0	0.0
55.00		247.0	280.7					0.0	97.7	247.0	378.3	0.0	0.0
60.00		364.4	785.9					0.0	279.0	364.4	1,064.9	0.0	0.0
65.00		361.5	762.1					0.0	279.0	361.5	1,041.1	0.0	0.0
70.00		357.6	738.4					0.0	279.0	357.6	1,017.4	0.0	0.0
75.00		352.9	714.6					0.0	279.0	352.9	993.6	0.0	0.0
80.00		347.4	690.8					0.0	279.0	347.4	969.8	0.0	0.0
85.00		341.2	667.0					0.0	279.0	341.2	946.0	0.0	0.0
90.00		334.3	643.2					0.0	279.0	334.3	922.2	0.0	0.0
95.00		254.7	619.4					0.0	279.0	254.7	898.4	0.0	0.0
97.75	Bot - Section 3	162.4	330.5					0.0	153.5	162.4	484.0	0.0	0.0
100.00		121.4	426.9					0.0	125.6	121.4	552.4	0.0	0.0
101.50	Top - Section 2	159.4	280.3					0.0	83.7	159.4	364.0	0.0	0.0
105.00		142.5	242.9					0.0	195.3	142.5	438.2	0.0	0.0
106.00	Appurtenance(s)	155.0	68.1	555.2	0.0	0.0	307.2	0.0	55.8	710.3	431.1	0.0	0.0
110.00		274.1	266.8					0.0	223.1	274.1	489.8	0.0	0.0
115.00	Appurtenance(s)	236.5	320.6	436.0	0.0	0.0	95.0	0.0	278.8	672.6	694.5	0.0	0.0
117.94		145.6	181.7					0.0	146.5	145.6	328.2	0.0	0.0
120.00		199.9	124.6					0.0	102.8	199.9	227.5	0.0	0.0
125.00	Appurtenance(s)	168.0	292.1	3,308.2	0.0	925.7	1,868.4	0.0	249.3	3,476.1	2,409.8	0.0	0.0
126.00	Appurtenance(s)	135.2	56.7	1,156.4	0.0	0.0	2,400.0	0.0	37.6	1,291.7	2,494.3	0.0	0.0
130.00		212.0	221.1					0.0	150.5	212.0	371.6	0.0	0.0
134.00	Appurtenance(s)	129.7	212.0	1,860.6	0.0	5,027.4	378.6	0.0	150.5	1,990.3	741.0	0.0	0.0
135.00		50.8	51.6					0.0	23.9	50.8	75.4	0.0	0.0
136.00	Appurtenance(s)	50.3	51.0	943.0	0.0	0.0	1,800.0	0.0	23.9	993.3	1,874.9	0.0	0.0
137.00	Appurtenance(s)	98.8	50.4	151.2	0.0	0.0	158.4	0.0	23.9	250.1	232.7	0.0	0.0
140.00		145.4	147.8					0.0	71.6	145.4	219.5	0.0	0.0
143.00	Appurtenance(s)	118.2	142.7	4,268.6	0.0	27.8	4,761.1	0.0	71.6	4,386.8	4,975.5	0.0	0.0
145.00		136.9	92.3					0.0	12.6	136.9	104.8	0.0	0.0
149.00	Appurtenance(s)	90.3	177.7	2,514.8	0.0	1,510.8	3,272.4	0.0	25.1	2,605.1	3,475.2	0.0	0.0
								Totals:		25,079.0	44,605.3	0.00	0.00

Load Case: 1.2D + 1.6W 97 mph with No Ice 27 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-44.56	-24.96	0.00	-2,923.78	0.00	2,923.78	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.677
5.00	-43.14	-24.71	0.00	-2,799.00	0.00	2,799.00	4,073.39	2,036.69	8,449.37	4,230.97	0.11	-0.20	0.672
10.00	-41.57	-24.47	0.00	-2,675.44	0.00	2,675.44	4,012.85	2,006.43	8,128.58	4,070.33	0.42	-0.40	0.668
15.00	-40.02	-24.22	0.00	-2,553.11	0.00	2,553.11	3,950.68	1,975.34	7,810.43	3,911.02	0.95	-0.60	0.663
20.00	-38.50	-23.98	0.00	-2,432.00	0.00	2,432.00	3,886.87	1,943.43	7,495.19	3,753.17	1.69	-0.82	0.658
25.00	-37.01	-23.75	0.00	-2,312.08	0.00	2,312.08	3,821.43	1,910.71	7,183.08	3,596.88	2.67	-1.03	0.653
30.00	-35.55	-23.51	0.00	-2,193.35	0.00	2,193.35	3,754.35	1,877.17	6,874.35	3,442.28	3.87	-1.26	0.647
35.00	-34.12	-23.26	0.00	-2,075.83	0.00	2,075.83	3,685.64	1,842.82	6,569.23	3,289.50	5.30	-1.48	0.640
40.00	-32.71	-23.00	0.00	-1,959.55	0.00	1,959.55	3,615.29	1,807.64	6,267.96	3,138.64	6.98	-1.72	0.634
45.00	-31.36	-22.77	0.00	-1,844.58	0.00	1,844.58	3,543.30	1,771.65	5,970.78	2,989.83	8.91	-1.96	0.626
48.00	-30.55	-22.63	0.00	-1,776.27	0.00	1,776.27	3,499.33	1,749.66	5,794.53	2,901.57	10.18	-2.10	0.621
50.00	-29.68	-22.47	0.00	-1,731.01	0.00	1,731.01	3,469.68	1,734.84	5,677.92	2,843.18	11.09	-2.21	0.618
53.25	-28.30	-22.30	0.00	-1,657.97	0.00	1,657.97	2,730.90	1,365.45	4,467.29	2,236.97	12.65	-2.37	0.752
55.00	-27.86	-22.13	0.00	-1,618.95	0.00	1,618.95	2,712.29	1,356.15	4,390.67	2,198.60	13.53	-2.46	0.747
60.00	-26.70	-21.86	0.00	-1,508.29	0.00	1,508.29	2,658.02	1,329.01	4,173.50	2,089.85	16.26	-2.75	0.732
65.00	-25.57	-21.58	0.00	-1,399.02	0.00	1,399.02	2,602.11	1,301.05	3,959.12	1,982.50	19.30	-3.05	0.716
70.00	-24.46	-21.29	0.00	-1,291.14	0.00	1,291.14	2,544.56	1,272.28	3,747.77	1,876.67	22.65	-3.35	0.698
75.00	-23.38	-21.00	0.00	-1,184.69	0.00	1,184.69	2,485.39	1,242.69	3,539.70	1,772.48	26.32	-3.65	0.678
80.00	-22.32	-20.71	0.00	-1,079.68	0.00	1,079.68	2,424.57	1,212.29	3,335.13	1,670.04	30.30	-3.96	0.656
85.00	-21.29	-20.42	0.00	-976.12	0.00	976.12	2,362.12	1,181.06	3,134.31	1,569.49	34.61	-4.27	0.631
90.00	-20.29	-20.13	0.00	-874.02	0.00	874.02	2,297.27	1,148.64	2,936.51	1,470.44	39.24	-4.58	0.604
95.00	-19.33	-19.88	0.00	-773.39	0.00	773.39	2,210.70	1,105.35	2,718.30	1,361.17	44.20	-4.89	0.577
97.75	-18.81	-19.73	0.00	-718.73	0.00	718.73	2,163.09	1,081.54	2,601.88	1,302.87	47.06	-5.06	0.561
100.00	-18.23	-19.59	0.00	-674.35	0.00	674.35	2,124.13	1,062.07	2,508.52	1,256.12	49.48	-5.20	0.546
101.50	-17.83	-19.45	0.00	-644.96	0.00	644.96	1,105.19	552.59	1,317.56	659.76	51.12	-5.29	0.995
105.00	-17.36	-19.31	0.00	-576.89	0.00	576.89	1,087.53	543.77	1,259.48	630.68	55.08	-5.50	0.932
106.00	-16.92	-18.63	0.00	-557.58	0.00	557.58	1,082.34	541.17	1,242.93	622.39	56.24	-5.60	0.913
110.00	-16.34	-18.42	0.00	-483.05	0.00	483.05	1,060.92	530.46	1,177.04	589.40	61.08	-5.96	0.836
115.00	-15.62	-17.77	0.00	-390.94	0.00	390.94	1,032.68	516.34	1,095.47	548.55	67.54	-6.38	0.729
117.94	-15.25	-17.64	0.00	-338.75	0.00	338.75	1,015.32	507.66	1,048.03	524.80	71.54	-6.62	0.662
120.00	-14.97	-17.48	0.00	-302.37	0.00	302.37	1,002.79	501.40	1,014.98	508.24	74.43	-6.78	0.611
125.00	-12.95	-13.78	0.00	-214.05	0.00	214.05	971.28	485.64	935.83	468.61	81.69	-7.10	0.471
126.00	-10.61	-12.21	0.00	-200.27	0.00	200.27	964.78	482.39	920.18	460.77	83.19	-7.17	0.446
130.00	-10.23	-11.99	0.00	-151.42	0.00	151.42	938.12	469.06	858.24	429.76	89.27	-7.38	0.364
134.00	-9.73	-9.94	0.00	-98.43	0.00	98.43	910.42	455.21	797.47	399.33	95.51	-7.55	0.258
135.00	-9.66	-9.88	0.00	-88.50	0.00	88.50	903.33	451.67	782.47	391.82	97.09	-7.59	0.237
136.00	-7.93	-8.66	0.00	-78.61	0.00	78.61	896.18	448.09	767.56	384.35	98.68	-7.62	0.214
137.00	-7.72	-8.38	0.00	-69.96	0.00	69.96	888.96	444.48	752.72	376.92	100.28	-7.65	0.195
140.00	-7.52	-8.22	0.00	-44.81	0.00	44.81	866.91	433.46	708.75	354.90	105.10	-7.73	0.135
143.00	-3.18	-3.20	0.00	-20.13	0.00	20.13	844.27	422.14	665.60	333.29	109.96	-7.77	0.064
145.00	-3.09	-3.05	0.00	-13.72	0.00	13.72	828.85	414.43	637.31	319.13	113.21	-7.79	0.047
149.00	0.00	-2.61	0.00	-1.51	0.00	1.51	787.55	393.77	574.90	287.88	119.73	-7.81	0.005

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 26 Iterations

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

Wind Importance Factor 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		199.3	0.0					0.0	0.0	199.3	0.0	0.0	0.0
5.00		394.1	930.3					0.0	70.0	394.1	1,000.4	0.0	0.0
10.00		385.0	908.9					0.0	209.2	385.0	1,118.2	0.0	0.0
15.00		375.9	887.5					0.0	209.2	375.9	1,096.8	0.0	0.0
20.00		366.8	866.1					0.0	209.2	366.8	1,075.4	0.0	0.0
25.00		357.7	844.7					0.0	209.2	357.7	1,053.9	0.0	0.0
30.00		352.7	823.3					0.0	209.2	352.7	1,032.5	0.0	0.0
35.00		354.8	801.9					0.0	209.2	354.8	1,011.1	0.0	0.0
40.00		358.7	780.5					0.0	209.2	358.7	989.7	0.0	0.0
45.00		288.5	759.0					0.0	209.2	288.5	968.3	0.0	0.0
48.00	Bot - Section 2	181.8	445.2					0.0	125.5	181.8	570.7	0.0	0.0
50.00		192.7	540.4					0.0	83.7	192.7	624.1	0.0	0.0
53.25	Top - Section 1	183.4	864.8					0.0	136.0	183.4	1,000.8	0.0	0.0
55.00		247.0	210.5					0.0	73.2	247.0	283.8	0.0	0.0
60.00		364.4	589.5					0.0	209.2	364.4	798.7	0.0	0.0
65.00		361.5	571.6					0.0	209.2	361.5	780.9	0.0	0.0
70.00		357.6	553.8					0.0	209.2	357.6	763.0	0.0	0.0
75.00		352.9	535.9					0.0	209.2	352.9	745.2	0.0	0.0
80.00		347.4	518.1					0.0	209.2	347.4	727.3	0.0	0.0
85.00		341.2	500.2					0.0	209.2	341.2	709.5	0.0	0.0
90.00		334.3	482.4					0.0	209.2	334.3	691.6	0.0	0.0
95.00		254.7	464.6					0.0	209.2	254.7	673.8	0.0	0.0
97.75	Bot - Section 3	162.4	247.9					0.0	115.1	162.4	363.0	0.0	0.0
100.00		121.4	320.2					0.0	94.2	121.4	414.3	0.0	0.0
101.50	Top - Section 2	159.4	210.2					0.0	62.8	159.4	273.0	0.0	0.0
105.00		142.5	182.2					0.0	146.5	142.5	328.7	0.0	0.0
106.00	Appurtenance(s)	155.0	51.1	555.2	0.0	0.0	230.4	0.0	41.8	710.3	323.3	0.0	0.0
110.00		274.1	200.1					0.0	167.3	274.1	367.4	0.0	0.0
115.00	Appurtenance(s)	236.5	240.5	436.0	0.0	0.0	71.3	0.0	209.1	672.6	520.9	0.0	0.0
117.94		145.6	136.3					0.0	109.8	145.6	246.1	0.0	0.0
120.00		199.9	93.5					0.0	77.1	199.9	170.6	0.0	0.0
125.00	Appurtenance(s)	168.0	219.1	3,308.2	0.0	925.7	1,401.3	0.0	187.0	3,476.1	1,807.3	0.0	0.0
126.00	Appurtenance(s)	135.2	42.5	1,156.4	0.0	0.0	1,800.0	0.0	28.2	1,291.7	1,870.7	0.0	0.0
130.00		212.0	165.8					0.0	112.9	212.0	278.7	0.0	0.0
134.00	Appurtenance(s)	129.7	159.0	1,860.6	0.0	5,027.4	283.9	0.0	112.9	1,990.3	555.8	0.0	0.0
135.00		50.8	38.7					0.0	17.9	50.8	56.6	0.0	0.0
136.00	Appurtenance(s)	50.3	38.2	943.0	0.0	0.0	1,350.0	0.0	17.9	993.3	1,406.2	0.0	0.0
137.00	Appurtenance(s)	98.8	37.8	151.2	0.0	0.0	118.8	0.0	17.9	250.1	174.5	0.0	0.0
140.00		145.4	110.9					0.0	53.7	145.4	164.6	0.0	0.0
143.00	Appurtenance(s)	118.2	107.0	4,268.6	0.0	27.8	3,570.8	0.0	53.7	4,386.8	3,731.6	0.0	0.0
145.00		136.9	69.2					0.0	9.4	136.9	78.6	0.0	0.0
149.00	Appurtenance(s)	90.3	133.3	2,514.8	0.0	1,510.8	2,454.3	0.0	18.8	2,605.1	2,606.4	0.0	0.0
								Totals:		25,079.0	33,453.9	0.00	0.00

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 26 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.41	-24.94	0.00	-2,873.58	0.00	2,873.58	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.662
5.00	-32.33	-24.65	0.00	-2,748.91	0.00	2,748.91	4,073.39	2,036.69	8,449.37	4,230.97	0.10	-0.19	0.658
10.00	-31.13	-24.37	0.00	-2,625.65	0.00	2,625.65	4,012.85	2,006.43	8,128.58	4,070.33	0.41	-0.39	0.653
15.00	-29.95	-24.09	0.00	-2,503.81	0.00	2,503.81	3,950.68	1,975.34	7,810.43	3,911.02	0.93	-0.59	0.648
20.00	-28.79	-23.82	0.00	-2,383.36	0.00	2,383.36	3,886.87	1,943.43	7,495.19	3,753.17	1.66	-0.80	0.643
25.00	-27.65	-23.55	0.00	-2,264.27	0.00	2,264.27	3,821.43	1,910.71	7,183.08	3,596.88	2.62	-1.01	0.637
30.00	-26.54	-23.28	0.00	-2,146.54	0.00	2,146.54	3,754.35	1,877.17	6,874.35	3,442.28	3.79	-1.23	0.631
35.00	-25.44	-23.00	0.00	-2,030.16	0.00	2,030.16	3,685.64	1,842.82	6,569.23	3,289.50	5.20	-1.45	0.624
40.00	-24.37	-22.71	0.00	-1,915.18	0.00	1,915.18	3,615.29	1,807.64	6,267.96	3,138.64	6.85	-1.68	0.617
45.00	-23.34	-22.47	0.00	-1,801.63	0.00	1,801.63	3,543.30	1,771.65	5,970.78	2,989.83	8.74	-1.92	0.609
48.00	-22.73	-22.32	0.00	-1,734.22	0.00	1,734.22	3,499.33	1,749.66	5,794.53	2,901.57	9.99	-2.06	0.604
50.00	-22.06	-22.15	0.00	-1,689.59	0.00	1,689.59	3,469.68	1,734.84	5,677.92	2,843.18	10.87	-2.16	0.601
53.25	-21.02	-21.97	0.00	-1,617.61	0.00	1,617.61	2,730.90	1,365.45	4,467.29	2,236.97	12.40	-2.32	0.731
55.00	-20.68	-21.78	0.00	-1,579.15	0.00	1,579.15	2,712.29	1,356.15	4,390.67	2,198.60	13.26	-2.41	0.726
60.00	-19.79	-21.48	0.00	-1,470.24	0.00	1,470.24	2,658.02	1,329.01	4,173.50	2,089.85	15.94	-2.69	0.711
65.00	-18.92	-21.18	0.00	-1,362.84	0.00	1,362.84	2,602.11	1,301.05	3,959.12	1,982.50	18.91	-2.98	0.695
70.00	-18.07	-20.87	0.00	-1,256.95	0.00	1,256.95	2,544.56	1,272.28	3,747.77	1,876.67	22.18	-3.27	0.677
75.00	-17.24	-20.57	0.00	-1,152.59	0.00	1,152.59	2,485.39	1,242.69	3,539.70	1,772.48	25.77	-3.57	0.657
80.00	-16.43	-20.26	0.00	-1,049.76	0.00	1,049.76	2,424.57	1,212.29	3,335.13	1,670.04	29.66	-3.87	0.636
85.00	-15.64	-19.95	0.00	-948.47	0.00	948.47	2,362.12	1,181.06	3,134.31	1,569.49	33.87	-4.17	0.611
90.00	-14.88	-19.64	0.00	-848.72	0.00	848.72	2,297.27	1,148.64	2,936.51	1,470.44	38.39	-4.47	0.584
95.00	-14.15	-19.39	0.00	-750.50	0.00	750.50	2,210.70	1,105.35	2,718.30	1,361.17	43.23	-4.77	0.558
97.75	-13.75	-19.24	0.00	-697.17	0.00	697.17	2,163.09	1,081.54	2,601.88	1,302.87	46.02	-4.94	0.542
100.00	-13.31	-19.11	0.00	-653.89	0.00	653.89	2,124.13	1,062.07	2,508.52	1,256.12	48.38	-5.07	0.527
101.50	-13.00	-18.96	0.00	-625.23	0.00	625.23	1,105.19	552.59	1,317.56	659.76	49.99	-5.16	0.961
105.00	-12.64	-18.82	0.00	-558.89	0.00	558.89	1,087.53	543.77	1,259.48	630.68	53.85	-5.37	0.899
106.00	-12.31	-18.13	0.00	-540.07	0.00	540.07	1,082.34	541.17	1,242.93	622.39	54.98	-5.46	0.880
110.00	-11.86	-17.90	0.00	-467.56	0.00	467.56	1,060.92	530.46	1,177.04	589.40	59.70	-5.81	0.806
115.00	-11.31	-17.24	0.00	-378.06	0.00	378.06	1,032.68	516.34	1,095.47	548.55	66.00	-6.22	0.701
117.94	-11.03	-17.10	0.00	-327.43	0.00	327.43	1,015.32	507.66	1,048.03	524.80	69.89	-6.45	0.636
120.00	-10.81	-16.93	0.00	-292.16	0.00	292.16	1,002.79	501.40	1,014.98	508.24	72.70	-6.60	0.587
125.00	-9.38	-13.29	0.00	-206.58	0.00	206.58	971.28	485.64	935.83	468.61	79.78	-6.92	0.451
126.00	-7.66	-11.80	0.00	-193.29	0.00	193.29	964.78	482.39	920.18	460.77	81.23	-6.97	0.428
130.00	-7.37	-11.58	0.00	-146.07	0.00	146.07	938.12	469.06	858.24	429.76	87.15	-7.18	0.348
134.00	-7.05	-9.55	0.00	-94.71	0.00	94.71	910.42	455.21	797.47	399.33	93.23	-7.35	0.245
135.00	-7.00	-9.50	0.00	-85.16	0.00	85.16	903.33	451.67	782.47	391.82	94.77	-7.38	0.226
136.00	-5.73	-8.33	0.00	-75.66	0.00	75.66	896.18	448.09	767.56	384.35	96.31	-7.42	0.204
137.00	-5.58	-8.07	0.00	-67.32	0.00	67.32	888.96	444.48	752.72	376.92	97.86	-7.45	0.185
140.00	-5.43	-7.91	0.00	-43.12	0.00	43.12	866.91	433.46	708.75	354.90	102.55	-7.52	0.128
143.00	-2.30	-3.07	0.00	-19.36	0.00	19.36	844.27	422.14	665.60	333.29	107.28	-7.56	0.061
145.00	-2.24	-2.93	0.00	-13.22	0.00	13.22	828.85	414.43	637.31	319.13	110.44	-7.58	0.044
149.00	0.00	-2.61	0.00	-1.51	0.00	1.51	787.55	393.77	574.90	287.88	116.78	-7.60	0.005

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 26 Iterations

Gust Response Factor :1.10 | Ice Dead Load Factor :1.00 | Wind Importance Factor :1.00
Dead Load Factor :1.20 | Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev		Wind FX	Dead Load	Wind FX	Torsion MY	Moment MZ	Dead Load	Wind FX	Dead Load	Wind FX	Dead Load	Torsion MY	Moment MZ
(ft)	Description	(lb)	(lb)	(lb)	(lb-ft)	(lb-ft)	(lb)	(lb)	(lb)	(lb)	(lb)	(lb-ft)	(lb)
0.00		63.8	0.0					0.0	0.0	63.8	0.0	0.0	0.0
5.00		126.6	1,617.9					0.0	93.4	126.6	1,711.3	0.0	0.0
10.00		124.3	1,624.7					0.0	279.0	124.3	1,903.7	0.0	0.0
15.00		121.7	1,608.4					0.0	279.0	121.7	1,887.4	0.0	0.0
20.00		119.1	1,584.4					0.0	279.0	119.1	1,863.4	0.0	0.0
25.00		116.5	1,556.5					0.0	279.0	116.5	1,835.5	0.0	0.0
30.00		115.2	1,526.1					0.0	279.0	115.2	1,805.1	0.0	0.0
35.00		116.2	1,494.0					0.0	279.0	116.2	1,773.0	0.0	0.0
40.00		117.8	1,460.6					0.0	279.0	117.8	1,739.6	0.0	0.0
45.00		94.9	1,426.2					0.0	279.0	94.9	1,705.2	0.0	0.0
48.00	Bot - Section 2	59.9	840.2					0.0	167.4	59.9	1,007.6	0.0	0.0
50.00		63.6	886.5					0.0	111.6	63.6	998.1	0.0	0.0
53.25	Top - Section 1	60.6	1,419.2					0.0	181.4	60.6	1,600.6	0.0	0.0
55.00		81.7	423.3					0.0	97.7	81.7	521.0	0.0	0.0
60.00		120.8	1,184.4					0.0	279.0	120.8	1,463.4	0.0	0.0
65.00		120.2	1,152.3					0.0	279.0	120.2	1,431.3	0.0	0.0
70.00		119.3	1,119.8					0.0	279.0	119.3	1,398.8	0.0	0.0
75.00		118.1	1,086.9					0.0	279.0	118.1	1,365.9	0.0	0.0
80.00		116.7	1,053.7					0.0	279.0	116.7	1,332.7	0.0	0.0
85.00		115.0	1,020.2					0.0	279.0	115.0	1,299.2	0.0	0.0
90.00		113.1	986.4					0.0	279.0	113.1	1,265.4	0.0	0.0
95.00		86.5	952.4					0.0	279.0	86.5	1,231.4	0.0	0.0
97.75	Bot - Section 3	55.3	510.7					0.0	153.5	55.3	664.2	0.0	0.0
100.00		41.4	574.0					0.0	125.6	41.4	699.5	0.0	0.0
101.50	Top - Section 2	54.5	377.4					0.0	83.7	54.5	461.1	0.0	0.0
105.00		48.7	464.1					0.0	195.3	48.7	659.4	0.0	0.0
106.00	Appurtenance(s)	53.2	131.0	120.9	0.0	0.0	493.0	0.0	55.8	174.1	679.8	0.0	0.0
110.00		94.4	510.8					0.0	223.1	94.4	733.9	0.0	0.0
115.00	Appurtenance(s)	81.8	614.5	104.7	0.0	0.0	285.5	0.0	278.8	186.5	1,178.9	0.0	0.0
117.94		50.5	350.7					0.0	146.5	50.5	497.2	0.0	0.0
120.00		69.7	241.4					0.0	102.8	69.7	344.3	0.0	0.0
125.00	Appurtenance(s)	58.7	563.5	690.3	0.0	198.4	4,295.4	0.0	249.3	749.0	5,108.2	0.0	0.0
126.00	Appurtenance(s)	47.5	110.6	361.9	0.0	0.0	3,275.5	0.0	37.6	409.5	3,423.7	0.0	0.0
130.00		74.8	429.1					0.0	150.5	74.8	579.6	0.0	0.0
134.00	Appurtenance(s)	46.0	412.6	412.0	0.0	1,100.6	1,818.8	0.0	150.5	458.0	2,381.8	0.0	0.0
135.00		18.1	101.3					0.0	23.9	18.1	125.2	0.0	0.0
136.00	Appurtenance(s)	17.9	100.3	294.0	0.0	0.0	2,142.7	0.0	23.9	311.9	2,266.8	0.0	0.0
137.00	Appurtenance(s)	35.3	99.2	37.2	0.0	0.0	286.8	0.0	23.9	72.5	409.9	0.0	0.0
140.00		52.1	289.9					0.0	71.6	52.1	361.5	0.0	0.0
143.00	Appurtenance(s)	42.6	280.5	1,028.9	0.0	8.9	15,201.1	0.0	71.6	1,071.5	15,553.2	0.0	0.0
145.00		49.6	182.3					0.0	12.6	49.6	194.8	0.0	0.0
149.00	Appurtenance(s)	32.8	349.9	651.0	0.0	355.9	5,487.8	0.0	25.1	683.8	5,862.8	0.0	0.0
								Totals:		7,017.35	73,325.1	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 26 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-73.32	-6.99	0.00	-846.62	0.00	846.62	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.210
5.00	-71.60	-6.93	0.00	-811.67	0.00	811.67	4,073.39	2,036.69	8,449.37	4,230.97	0.03	-0.06	0.209
10.00	-69.69	-6.88	0.00	-777.00	0.00	777.00	4,012.85	2,006.43	8,128.58	4,070.33	0.12	-0.12	0.208
15.00	-67.80	-6.83	0.00	-742.60	0.00	742.60	3,950.68	1,975.34	7,810.43	3,911.02	0.27	-0.18	0.207
20.00	-65.93	-6.77	0.00	-708.47	0.00	708.47	3,886.87	1,943.43	7,495.19	3,753.17	0.49	-0.24	0.206
25.00	-64.09	-6.72	0.00	-674.62	0.00	674.62	3,821.43	1,910.71	7,183.08	3,596.88	0.77	-0.30	0.204
30.00	-62.27	-6.66	0.00	-641.03	0.00	641.03	3,754.35	1,877.17	6,874.35	3,442.28	1.12	-0.37	0.203
35.00	-60.49	-6.61	0.00	-607.71	0.00	607.71	3,685.64	1,842.82	6,569.23	3,289.50	1.54	-0.43	0.201
40.00	-58.75	-6.55	0.00	-574.68	0.00	574.68	3,615.29	1,807.64	6,267.96	3,138.64	2.03	-0.50	0.199
45.00	-57.04	-6.49	0.00	-541.95	0.00	541.95	3,543.30	1,771.65	5,970.78	2,989.83	2.59	-0.57	0.197
48.00	-56.03	-6.46	0.00	-522.48	0.00	522.48	3,499.33	1,749.66	5,794.53	2,901.57	2.96	-0.61	0.196
50.00	-55.02	-6.42	0.00	-509.57	0.00	509.57	3,469.68	1,734.84	5,677.92	2,843.18	3.23	-0.64	0.195
53.25	-53.42	-6.38	0.00	-488.70	0.00	488.70	2,730.90	1,365.45	4,467.29	2,236.97	3.68	-0.69	0.238
55.00	-52.89	-6.34	0.00	-477.55	0.00	477.55	2,712.29	1,356.15	4,390.67	2,198.60	3.94	-0.72	0.237
60.00	-51.42	-6.28	0.00	-445.85	0.00	445.85	2,658.02	1,329.01	4,173.50	2,089.85	4.74	-0.80	0.233
65.00	-49.98	-6.21	0.00	-414.46	0.00	414.46	2,602.11	1,301.05	3,959.12	1,982.50	5.63	-0.89	0.228
70.00	-48.58	-6.15	0.00	-383.40	0.00	383.40	2,544.56	1,272.28	3,747.77	1,876.67	6.61	-0.98	0.223
75.00	-47.20	-6.08	0.00	-352.67	0.00	352.67	2,485.39	1,242.69	3,539.70	1,772.48	7.69	-1.07	0.218
80.00	-45.86	-6.01	0.00	-322.27	0.00	322.27	2,424.57	1,212.29	3,335.13	1,670.04	8.86	-1.16	0.212
85.00	-44.56	-5.94	0.00	-292.22	0.00	292.22	2,362.12	1,181.06	3,134.31	1,569.49	10.13	-1.26	0.205
90.00	-43.29	-5.87	0.00	-262.52	0.00	262.52	2,297.27	1,148.64	2,936.51	1,470.44	11.49	-1.35	0.197
95.00	-42.05	-5.81	0.00	-233.18	0.00	233.18	2,210.70	1,105.35	2,718.30	1,361.17	12.96	-1.44	0.190
97.75	-41.38	-5.77	0.00	-217.21	0.00	217.21	2,163.09	1,081.54	2,601.88	1,302.87	13.80	-1.49	0.186
100.00	-40.68	-5.73	0.00	-204.24	0.00	204.24	2,124.13	1,062.07	2,508.52	1,256.12	14.52	-1.54	0.182
101.50	-40.22	-5.70	0.00	-195.64	0.00	195.64	1,105.19	552.59	1,317.56	659.76	15.00	-1.56	0.333
105.00	-39.56	-5.66	0.00	-175.70	0.00	175.70	1,087.53	543.77	1,259.48	630.68	16.17	-1.63	0.315
106.00	-38.87	-5.52	0.00	-170.03	0.00	170.03	1,082.34	541.17	1,242.93	622.39	16.52	-1.66	0.309
110.00	-38.13	-5.48	0.00	-147.96	0.00	147.96	1,060.92	530.46	1,177.04	589.40	17.96	-1.77	0.287
115.00	-36.95	-5.32	0.00	-120.55	0.00	120.55	1,032.68	516.34	1,095.47	548.55	19.88	-1.90	0.256
117.94	-36.45	-5.29	0.00	-104.92	0.00	104.92	1,015.32	507.66	1,048.03	524.80	21.07	-1.97	0.236
120.00	-36.10	-5.26	0.00	-94.00	0.00	94.00	1,002.79	501.40	1,014.98	508.24	21.93	-2.02	0.221
125.00	-31.02	-4.36	0.00	-67.50	0.00	67.50	971.28	485.64	935.83	468.61	24.10	-2.12	0.176
126.00	-27.61	-3.84	0.00	-63.14	0.00	63.14	964.78	482.39	920.18	460.77	24.55	-2.14	0.166
130.00	-27.03	-3.78	0.00	-47.77	0.00	47.77	938.12	469.06	858.24	429.76	26.38	-2.21	0.140
134.00	-24.67	-3.24	0.00	-31.56	0.00	31.56	910.42	455.21	797.47	399.33	28.25	-2.26	0.106
135.00	-24.54	-3.22	0.00	-28.32	0.00	28.32	903.33	451.67	782.47	391.82	28.73	-2.28	0.100
136.00	-22.29	-2.82	0.00	-25.10	0.00	25.10	896.18	448.09	767.56	384.35	29.20	-2.29	0.090
137.00	-21.88	-2.74	0.00	-22.28	0.00	22.28	888.96	444.48	752.72	376.92	29.68	-2.30	0.084
140.00	-21.52	-2.68	0.00	-14.06	0.00	14.06	866.91	433.46	708.75	354.90	31.13	-2.32	0.064
143.00	-6.02	-0.98	0.00	-6.01	0.00	6.01	844.27	422.14	665.60	333.29	32.60	-2.33	0.025
145.00	-5.83	-0.92	0.00	-4.05	0.00	4.05	828.85	414.43	637.31	319.13	33.57	-2.34	0.020
149.00	0.00	-0.68	0.00	-0.36	0.00	0.36	787.55	393.77	574.90	287.88	35.54	-2.34	0.001

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 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		42.7	0.0					0.0	0.0	42.7	0.0	0.0	0.0
5.00		84.3	1,033.7					0.0	77.8	84.3	1,111.5	0.0	0.0
10.00		82.4	1,009.9					0.0	232.5	82.4	1,242.4	0.0	0.0
15.00		80.4	986.1					0.0	232.5	80.4	1,218.6	0.0	0.0
20.00		78.5	962.3					0.0	232.5	78.5	1,194.8	0.0	0.0
25.00		76.5	938.5					0.0	232.5	76.5	1,171.0	0.0	0.0
30.00		75.5	914.8					0.0	232.5	75.5	1,147.3	0.0	0.0
35.00		75.9	891.0					0.0	232.5	75.9	1,123.5	0.0	0.0
40.00		76.8	867.2					0.0	232.5	76.8	1,099.7	0.0	0.0
45.00		61.7	843.4					0.0	232.5	61.7	1,075.9	0.0	0.0
48.00	Bot - Section 2	38.9	494.6					0.0	139.5	38.9	634.1	0.0	0.0
50.00		41.2	600.4					0.0	93.0	41.2	693.4	0.0	0.0
53.25	Top - Section 1	39.2	960.8					0.0	151.1	39.2	1,112.0	0.0	0.0
55.00		52.8	233.9					0.0	81.4	52.8	315.3	0.0	0.0
60.00		78.0	654.9					0.0	232.5	78.0	887.4	0.0	0.0
65.00		77.3	635.1					0.0	232.5	77.3	867.6	0.0	0.0
70.00		76.5	615.3					0.0	232.5	76.5	847.8	0.0	0.0
75.00		75.5	595.5					0.0	232.5	75.5	828.0	0.0	0.0
80.00		74.3	575.6					0.0	232.5	74.3	808.1	0.0	0.0
85.00		73.0	555.8					0.0	232.5	73.0	788.3	0.0	0.0
90.00		71.5	536.0					0.0	232.5	71.5	768.5	0.0	0.0
95.00		54.5	516.2					0.0	232.5	54.5	748.7	0.0	0.0
97.75	Bot - Section 3	34.8	275.4					0.0	127.9	34.8	403.3	0.0	0.0
100.00		26.0	355.7					0.0	104.6	26.0	460.3	0.0	0.0
101.50	Top - Section 2	34.1	233.6					0.0	69.8	34.1	303.3	0.0	0.0
105.00		30.5	202.4					0.0	162.7	30.5	365.2	0.0	0.0
106.00	Appurtenance(s)	33.2	56.8	118.8	0.0	0.0	256.0	0.0	46.5	152.0	359.3	0.0	0.0
110.00		58.6	222.3					0.0	185.9	58.6	408.2	0.0	0.0
115.00	Appurtenance(s)	50.6	267.2	93.3	0.0	0.0	79.2	0.0	232.4	143.9	578.7	0.0	0.0
117.94		31.1	151.4					0.0	122.1	31.1	273.5	0.0	0.0
120.00		42.8	103.9					0.0	85.7	42.8	189.6	0.0	0.0
125.00	Appurtenance(s)	35.9	243.4	707.8	0.0	198.1	1,557.0	0.0	207.8	743.8	2,008.1	0.0	0.0
126.00	Appurtenance(s)	28.9	47.3	247.4	0.0	0.0	2,000.0	0.0	31.4	276.4	2,078.6	0.0	0.0
130.00		45.4	184.2					0.0	125.4	45.4	309.6	0.0	0.0
134.00	Appurtenance(s)	27.8	176.6	398.1	0.0	1,075.7	315.5	0.0	125.4	425.9	617.5	0.0	0.0
135.00		10.9	43.0					0.0	19.9	10.9	62.9	0.0	0.0
136.00	Appurtenance(s)	10.8	42.5	201.8	0.0	0.0	1,500.0	0.0	19.9	212.5	1,562.4	0.0	0.0
137.00	Appurtenance(s)	21.1	42.0	32.4	0.0	0.0	132.0	0.0	19.9	53.5	193.9	0.0	0.0
140.00		31.1	123.2					0.0	59.7	31.1	182.9	0.0	0.0
143.00	Appurtenance(s)	25.3	118.9	913.3	0.0	6.0	3,967.6	0.0	59.7	938.6	4,146.2	0.0	0.0
145.00		29.3	76.9					0.0	10.5	29.3	87.4	0.0	0.0
149.00	Appurtenance(s)	19.3	148.1	538.1	0.0	323.2	2,727.0	0.0	20.9	557.4	2,896.0	0.0	0.0
								Totals:		5,365.92	37,171.0	0.00	0.00

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

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.17	-5.34	0.00	-619.69	0.00	619.69	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.150
5.00	-36.05	-5.28	0.00	-593.01	0.00	593.01	4,073.39	2,036.69	8,449.37	4,230.97	0.02	-0.04	0.149
10.00	-34.81	-5.22	0.00	-566.62	0.00	566.62	4,012.85	2,006.43	8,128.58	4,070.33	0.09	-0.08	0.148
15.00	-33.59	-5.16	0.00	-540.51	0.00	540.51	3,950.68	1,975.34	7,810.43	3,911.02	0.20	-0.13	0.147
20.00	-32.39	-5.11	0.00	-514.69	0.00	514.69	3,886.87	1,943.43	7,495.19	3,753.17	0.36	-0.17	0.145
25.00	-31.21	-5.05	0.00	-489.15	0.00	489.15	3,821.43	1,910.71	7,183.08	3,596.88	0.56	-0.22	0.144
30.00	-30.06	-5.00	0.00	-463.89	0.00	463.89	3,754.35	1,877.17	6,874.35	3,442.28	0.82	-0.27	0.143
35.00	-28.93	-4.94	0.00	-438.90	0.00	438.90	3,685.64	1,842.82	6,569.23	3,289.50	1.12	-0.31	0.141
40.00	-27.83	-4.88	0.00	-414.20	0.00	414.20	3,615.29	1,807.64	6,267.96	3,138.64	1.48	-0.36	0.140
45.00	-26.75	-4.83	0.00	-389.80	0.00	389.80	3,543.30	1,771.65	5,970.78	2,989.83	1.89	-0.41	0.138
48.00	-26.11	-4.80	0.00	-375.30	0.00	375.30	3,499.33	1,749.66	5,794.53	2,901.57	2.16	-0.45	0.137
50.00	-25.42	-4.77	0.00	-365.70	0.00	365.70	3,469.68	1,734.84	5,677.92	2,843.18	2.35	-0.47	0.136
53.25	-24.31	-4.73	0.00	-350.22	0.00	350.22	2,730.90	1,365.45	4,467.29	2,236.97	2.68	-0.50	0.165
55.00	-23.99	-4.69	0.00	-341.94	0.00	341.94	2,712.29	1,356.15	4,390.67	2,198.60	2.86	-0.52	0.164
60.00	-23.10	-4.63	0.00	-318.49	0.00	318.49	2,658.02	1,329.01	4,173.50	2,089.85	3.44	-0.58	0.161
65.00	-22.22	-4.57	0.00	-295.35	0.00	295.35	2,602.11	1,301.05	3,959.12	1,982.50	4.09	-0.64	0.158
70.00	-21.37	-4.50	0.00	-272.53	0.00	272.53	2,544.56	1,272.28	3,747.77	1,876.67	4.79	-0.71	0.154
75.00	-20.54	-4.44	0.00	-250.01	0.00	250.01	2,485.39	1,242.69	3,539.70	1,772.48	5.57	-0.77	0.149
80.00	-19.73	-4.38	0.00	-227.81	0.00	227.81	2,424.57	1,212.29	3,335.13	1,670.04	6.41	-0.84	0.145
85.00	-18.94	-4.31	0.00	-205.93	0.00	205.93	2,362.12	1,181.06	3,134.31	1,569.49	7.32	-0.90	0.139
90.00	-18.16	-4.25	0.00	-184.36	0.00	184.36	2,297.27	1,148.64	2,936.51	1,470.44	8.30	-0.97	0.133
95.00	-17.41	-4.20	0.00	-163.11	0.00	163.11	2,210.70	1,105.35	2,718.30	1,361.17	9.35	-1.03	0.128
97.75	-17.01	-4.17	0.00	-151.56	0.00	151.56	2,163.09	1,081.54	2,601.88	1,302.87	9.96	-1.07	0.124
100.00	-16.55	-4.14	0.00	-142.19	0.00	142.19	2,124.13	1,062.07	2,508.52	1,256.12	10.47	-1.10	0.121
101.50	-16.24	-4.11	0.00	-135.99	0.00	135.99	1,105.19	552.59	1,317.56	659.76	10.82	-1.12	0.221
105.00	-15.87	-4.08	0.00	-121.61	0.00	121.61	1,087.53	543.77	1,259.48	630.68	11.65	-1.16	0.207
106.00	-15.52	-3.93	0.00	-117.53	0.00	117.53	1,082.34	541.17	1,242.93	622.39	11.90	-1.18	0.203
110.00	-15.10	-3.89	0.00	-101.80	0.00	101.80	1,060.92	530.46	1,177.04	589.40	12.92	-1.26	0.187
115.00	-14.52	-3.75	0.00	-82.37	0.00	82.37	1,032.68	516.34	1,095.47	548.55	14.29	-1.35	0.164
117.94	-14.25	-3.72	0.00	-71.36	0.00	71.36	1,015.32	507.66	1,048.03	524.80	15.14	-1.40	0.150
120.00	-14.06	-3.69	0.00	-63.69	0.00	63.69	1,002.79	501.40	1,014.98	508.24	15.75	-1.43	0.139
125.00	-12.07	-2.90	0.00	-45.06	0.00	45.06	971.28	485.64	935.83	468.61	17.29	-1.50	0.109
126.00	-9.99	-2.57	0.00	-42.16	0.00	42.16	964.78	482.39	920.18	460.77	17.60	-1.51	0.102
130.00	-9.68	-2.53	0.00	-31.87	0.00	31.87	938.12	469.06	858.24	429.76	18.89	-1.56	0.085
134.00	-9.08	-2.09	0.00	-20.69	0.00	20.69	910.42	455.21	797.47	399.33	20.21	-1.59	0.062
135.00	-9.01	-2.08	0.00	-18.60	0.00	18.60	903.33	451.67	782.47	391.82	20.54	-1.60	0.057
136.00	-7.46	-1.82	0.00	-16.53	0.00	16.53	896.18	448.09	767.56	384.35	20.88	-1.61	0.051
137.00	-7.27	-1.76	0.00	-14.71	0.00	14.71	888.96	444.48	752.72	376.92	21.22	-1.62	0.047
140.00	-7.08	-1.73	0.00	-9.42	0.00	9.42	866.91	433.46	708.75	354.90	22.24	-1.63	0.035
143.00	-2.97	-0.67	0.00	-4.23	0.00	4.23	844.27	422.14	665.60	333.29	23.27	-1.64	0.016
145.00	-2.88	-0.64	0.00	-2.88	0.00	2.88	828.85	414.43	637.31	319.13	23.96	-1.64	0.013
149.00	0.00	-0.56	0.00	-0.32	0.00	0.32	787.55	393.77	574.90	287.88	25.34	-1.65	0.001

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.19	
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):	2.90	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	37.17	k
Seismic Base Shear (E):	1.12	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)
41	147.00	169	3,652	0.010	11	210
40	144.00	87	1,811	0.005	6	108
39	141.50	179	3,576	0.010	11	222
38	138.50	183	3,508	0.010	11	227
37	136.50	62	1,154	0.003	4	77
36	135.50	62	1,146	0.003	4	77
35	134.50	63	1,137	0.003	4	78
34	132.00	302	5,263	0.015	16	375
33	128.00	310	5,073	0.014	16	384
32	125.50	79	1,238	0.003	4	97
31	122.50	451	6,770	0.019	21	559
30	118.97	190	2,683	0.008	8	235
29	116.47	273	3,710	0.010	12	339
28	112.50	500	6,322	0.018	20	619
27	108.00	408	4,761	0.013	15	506
26	105.50	103	1,149	0.003	4	128
25	103.25	365	3,893	0.011	12	453
24	100.75	303	3,079	0.009	10	376
23	98.88	460	4,500	0.013	14	571
22	96.38	403	3,746	0.011	12	500
21	92.50	749	6,406	0.018	20	928
20	87.50	768	5,884	0.017	18	953
19	82.50	788	5,366	0.015	17	978

18	77.50	808	4,854	0.014	15	1,002
17	72.50	828	4,352	0.012	14	1,027
16	67.50	848	3,863	0.011	12	1,051
15	62.50	868	3,389	0.010	11	1,076
14	57.50	887	2,934	0.008	9	1,101
13	54.13	315	924	0.003	3	391
12	51.63	1,112	2,964	0.008	9	1,379
11	49.00	693	1,665	0.005	5	860
10	46.50	634	1,371	0.004	4	786
9	42.50	1,076	1,943	0.005	6	1,334
8	37.50	1,100	1,546	0.004	5	1,364
7	32.50	1,123	1,187	0.003	4	1,393
6	27.50	1,147	868	0.002	3	1,423
5	22.50	1,171	593	0.002	2	1,452
4	17.50	1,195	366	0.001	1	1,482
3	12.50	1,219	190	0.001	1	1,511
2	7.50	1,242	70	0.000	0	1,541
1	2.50	1,112	7	0.000	0	1,378
DragonWave Horizon C	149.00	32	706	0.002	2	39
DragonWave A-ANT-23G	149.00	15	333	0.001	1	19
Alcatel-Lucent RRH2x	149.00	317	7,047	0.020	22	394
Alcatel-Lucent 1900	149.00	180	3,996	0.011	13	223
Nokia 2.5G MAA - AAH	149.00	311	6,900	0.019	22	385
DragonWave A-ANT-11G	149.00	54	1,199	0.003	4	67
RFS APXVFRR12X-C-I20	149.00	138	3,064	0.009	10	171
SitePro1 RMQP-3XX Lo	149.00	1,680	37,298	0.105	117	2,083
Ericsson KRY 112 144	143.00	29	595	0.002	2	36
Ericsson KRY 112 489	143.00	46	945	0.003	3	57
Ericsson Radio 4449	143.00	222	4,540	0.013	14	275
Ericsson AIR32 B66Aa	143.00	397	8,110	0.023	25	492
Ericsson Air 3246 B6	143.00	540	11,042	0.031	35	670
RFS APXVAARR24_43-U-	143.00	384	7,846	0.022	25	476
Platform with SitePr	143.00	2,350	48,055	0.135	150	2,914
Alcatel-Lucent RRH2x	137.00	132	2,478	0.007	8	164
Round Low Profile Pl	136.00	1,500	27,744	0.078	87	1,860
RFS FD9R6004/2C-3L	134.00	16	280	0.001	1	19
Amphenol Antel BXA-1	134.00	45	808	0.002	3	56
Antel BXA-185085/12C	134.00	39	700	0.002	2	48
RFS DB-T1-6Z-8AB-0Z	134.00	44	790	0.002	2	55
Andrew DB854DG65ESX	134.00	56	997	0.003	3	69
Commscope LNX-6514DS	134.00	116	2,090	0.006	7	144
Round Platform w/ Ha	126.00	2,000	31,752	0.089	99	2,480
Raycap DC6-48-60-0-8	125.00	33	513	0.001	2	41
Raycap DC6-48-60-0-8	125.00	66	1,025	0.003	3	81
Ericsson Radio 4415	125.00	129	2,016	0.006	6	160
Ericsson 8843 Rev 2	125.00	225	3,516	0.010	11	279
Ericsson RRUS 4449 B	125.00	213	3,328	0.009	10	264
CCI CCI-HPA-65R-BUU-	125.00	204	3,188	0.009	10	253
Kathrein Scala 80010	125.00	688	10,744	0.030	34	853
RFS APXV18-206517S-C	115.00	79	1,047	0.003	3	98
Proxim 5054-R-LR	106.00	6	67	0.000	0	7
Generic 3' Dish w/ R	106.00	100	1,124	0.003	4	124
Flat Side Arm	106.00	150	1,685	0.005	5	186
		37,171	356,480	1.000	1,115	46,096

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)
41	147.00	169	3,652	0.010	11	145

40	144.00	87	1,811	0.005	6	75
39	141.50	179	3,576	0.010	11	154
38	138.50	183	3,508	0.010	11	157
37	136.50	62	1,154	0.003	4	53
36	135.50	62	1,146	0.003	4	54
35	134.50	63	1,137	0.003	4	54
34	132.00	302	5,263	0.015	16	260
33	128.00	310	5,073	0.014	16	266
32	125.50	79	1,238	0.003	4	68
31	122.50	451	6,770	0.019	21	388
30	118.97	190	2,683	0.008	8	163
29	116.47	273	3,710	0.010	12	235
28	112.50	500	6,322	0.018	20	430
27	108.00	408	4,761	0.013	15	351
26	105.50	103	1,149	0.003	4	89
25	103.25	365	3,893	0.011	12	314
24	100.75	303	3,079	0.009	10	261
23	98.88	460	4,500	0.013	14	396
22	96.38	403	3,746	0.011	12	347
21	92.50	749	6,406	0.018	20	644
20	87.50	768	5,884	0.017	18	661
19	82.50	788	5,366	0.015	17	678
18	77.50	808	4,854	0.014	15	695
17	72.50	828	4,352	0.012	14	712
16	67.50	848	3,863	0.011	12	729
15	62.50	868	3,389	0.010	11	746
14	57.50	887	2,934	0.008	9	763
13	54.13	315	924	0.003	3	271
12	51.63	1,112	2,964	0.008	9	956
11	49.00	693	1,665	0.005	5	596
10	46.50	634	1,371	0.004	4	545
9	42.50	1,076	1,943	0.005	6	925
8	37.50	1,100	1,546	0.004	5	946
7	32.50	1,123	1,187	0.003	4	966
6	27.50	1,147	868	0.002	3	987
5	22.50	1,171	593	0.002	2	1,007
4	17.50	1,195	366	0.001	1	1,027
3	12.50	1,219	190	0.001	1	1,048
2	7.50	1,242	70	0.000	0	1,068
1	2.50	1,112	7	0.000	0	956
DragonWave Horizon C	149.00	32	706	0.002	2	27
DragonWave A-ANT-23G	149.00	15	333	0.001	1	13
Alcatel-Lucent RRH2x	149.00	317	7,047	0.020	22	273
Alcatel-Lucent 1900	149.00	180	3,996	0.011	13	155
Nokia 2.5G MAA - AAH	149.00	311	6,900	0.019	22	267
DragonWave A-ANT-11G	149.00	54	1,199	0.003	4	46
RFS APXVFRR12X-C-I20	149.00	138	3,064	0.009	10	119
SitePro1 RMQP-3XX Lo	149.00	1,680	37,298	0.105	117	1,445
Ericsson KRY 112 144	143.00	29	595	0.002	2	25
Ericsson KRY 112 489	143.00	46	945	0.003	3	40
Ericsson Radio 4449	143.00	222	4,540	0.013	14	191
Ericsson AIR32 B66Aa	143.00	397	8,110	0.023	25	341
Ericsson Air 3246 B6	143.00	540	11,042	0.031	35	464
RFS APXVAARR24_43-U-	143.00	384	7,846	0.022	25	330
Platform with SitePr	143.00	2,350	48,055	0.135	150	2,021
Alcatel-Lucent RRH2x	137.00	132	2,478	0.007	8	114
Round Low Profile Pl	136.00	1,500	27,744	0.078	87	1,290
RFS FD9R6004/2C-3L	134.00	16	280	0.001	1	13
Amphenol Antel BXA-1	134.00	45	808	0.002	3	39
Antel BXA-185085/12C	134.00	39	700	0.002	2	34
RFS DB-T1-6Z-8AB-0Z	134.00	44	790	0.002	2	38
Andrew DB854DG65ESX	134.00	56	997	0.003	3	48
Commscope LNX-6514DS	134.00	116	2,090	0.006	7	100
Round Platform w/ Ha	126.00	2,000	31,752	0.089	99	1,720

Raycap DC6-48-60-0-8	125.00	33	513	0.001	2	28
Raycap DC6-48-60-0-8	125.00	66	1,025	0.003	3	56
Ericsson Radio 4415	125.00	129	2,016	0.006	6	111
Ericsson 8843 Rev 2	125.00	225	3,516	0.010	11	193
Ericsson RRUS 4449 B	125.00	213	3,328	0.009	10	183
CCI CCI-HPA-65R-BUU-	125.00	204	3,188	0.009	10	175
Kathrein Scala 80010	125.00	688	10,744	0.030	34	591
RFS APXV18-206517S-C	115.00	79	1,047	0.003	3	68
Proxim 5054-R-LR	106.00	6	67	0.000	0	5
Generic 3' Dish w/ R	106.00	100	1,124	0.003	4	86
Flat Side Arm	106.00	150	1,685	0.005	5	129
		37,171	356,480	1.000	1,115	31,963

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	-44.72	-1.12	0.00	-148.77	0.00	148.77	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.045
5.00	-43.18	-1.13	0.00	-143.18	0.00	143.18	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.01	0.044
10.00	-41.67	-1.13	0.00	-137.55	0.00	137.55	4,012.85	2,006.43	8,128.58	4,070.33	0.02	-0.02	0.044
15.00	-40.18	-1.14	0.00	-131.89	0.00	131.89	3,950.68	1,975.34	7,810.43	3,911.02	0.05	-0.03	0.044
20.00	-38.73	-1.14	0.00	-126.20	0.00	126.20	3,886.87	1,943.43	7,495.19	3,753.17	0.09	-0.04	0.044
25.00	-37.31	-1.15	0.00	-120.48	0.00	120.48	3,821.43	1,910.71	7,183.08	3,596.88	0.14	-0.05	0.043
30.00	-35.91	-1.15	0.00	-114.75	0.00	114.75	3,754.35	1,877.17	6,874.35	3,442.28	0.20	-0.06	0.043
35.00	-34.55	-1.15	0.00	-109.01	0.00	109.01	3,685.64	1,842.82	6,569.23	3,289.50	0.27	-0.08	0.043
40.00	-33.22	-1.15	0.00	-103.26	0.00	103.26	3,615.29	1,807.64	6,267.96	3,138.64	0.36	-0.09	0.042
45.00	-32.43	-1.15	0.00	-97.52	0.00	97.52	3,543.30	1,771.65	5,970.78	2,989.83	0.46	-0.10	0.042
48.00	-31.57	-1.15	0.00	-94.07	0.00	94.07	3,499.33	1,749.66	5,794.53	2,901.57	0.53	-0.11	0.041
50.00	-30.19	-1.14	0.00	-91.78	0.00	91.78	3,469.68	1,734.84	5,677.92	2,843.18	0.57	-0.11	0.041
53.25	-29.80	-1.14	0.00	-88.08	0.00	88.08	2,730.90	1,365.45	4,467.29	2,236.97	0.65	-0.12	0.050
55.00	-28.70	-1.13	0.00	-86.09	0.00	86.09	2,712.29	1,356.15	4,390.67	2,198.60	0.70	-0.13	0.050
60.00	-27.62	-1.13	0.00	-80.44	0.00	80.44	2,658.02	1,329.01	4,173.50	2,089.85	0.84	-0.14	0.049
65.00	-26.57	-1.12	0.00	-74.81	0.00	74.81	2,602.11	1,301.05	3,959.12	1,982.50	1.00	-0.16	0.048
70.00	-25.54	-1.11	0.00	-69.22	0.00	69.22	2,544.56	1,272.28	3,747.77	1,876.67	1.18	-0.18	0.047
75.00	-24.54	-1.10	0.00	-63.68	0.00	63.68	2,485.39	1,242.69	3,539.70	1,772.48	1.37	-0.19	0.046
80.00	-23.56	-1.08	0.00	-58.20	0.00	58.20	2,424.57	1,212.29	3,335.13	1,670.04	1.58	-0.21	0.045
85.00	-22.61	-1.07	0.00	-52.78	0.00	52.78	2,362.12	1,181.06	3,134.31	1,569.49	1.81	-0.23	0.043
90.00	-21.68	-1.05	0.00	-47.44	0.00	47.44	2,297.27	1,148.64	2,936.51	1,470.44	2.05	-0.24	0.042
95.00	-21.18	-1.04	0.00	-42.18	0.00	42.18	2,210.70	1,105.35	2,718.30	1,361.17	2.32	-0.26	0.041
97.75	-20.61	-1.03	0.00	-39.32	0.00	39.32	2,163.09	1,081.54	2,601.88	1,302.87	2.47	-0.27	0.040
100.00	-20.23	-1.02	0.00	-37.01	0.00	37.01	2,124.13	1,062.07	2,508.52	1,256.12	2.60	-0.28	0.039
101.50	-19.78	-1.01	0.00	-35.48	0.00	35.48	1,105.19	552.59	1,317.56	659.76	2.68	-0.28	0.072
105.00	-19.65	-1.01	0.00	-31.95	0.00	31.95	1,087.53	543.77	1,259.48	630.68	2.90	-0.29	0.069
106.00	-18.83	-0.98	0.00	-30.94	0.00	30.94	1,082.34	541.17	1,242.93	622.39	2.96	-0.30	0.067
110.00	-18.21	-0.97	0.00	-27.01	0.00	27.01	1,060.92	530.46	1,177.04	589.40	3.22	-0.32	0.063
115.00	-17.77	-0.95	0.00	-22.18	0.00	22.18	1,032.68	516.34	1,095.47	548.55	3.56	-0.34	0.058
117.94	-17.54	-0.95	0.00	-19.38	0.00	19.38	1,015.32	507.66	1,048.03	524.80	3.78	-0.36	0.054
120.00	-16.98	-0.93	0.00	-17.42	0.00	17.42	1,002.79	501.40	1,014.98	508.24	3.93	-0.36	0.051
125.00	-14.95	-0.84	0.00	-12.79	0.00	12.79	971.28	485.64	935.83	468.61	4.33	-0.38	0.043
126.00	-12.09	-0.70	0.00	-11.95	0.00	11.95	964.78	482.39	920.18	460.77	4.41	-0.39	0.038
130.00	-11.71	-0.69	0.00	-9.13	0.00	9.13	938.12	469.06	858.24	429.76	4.74	-0.40	0.034
134.00	-11.24	-0.66	0.00	-6.38	0.00	6.38	910.42	455.21	797.47	399.33	5.08	-0.41	0.028
135.00	-11.16	-0.66	0.00	-5.71	0.00	5.71	903.33	451.67	782.47	391.82	5.16	-0.41	0.027
136.00	-9.23	-0.56	0.00	-5.05	0.00	5.05	896.18	448.09	767.56	384.35	5.25	-0.42	0.023
137.00	-8.84	-0.54	0.00	-4.49	0.00	4.49	888.96	444.48	752.72	376.92	5.34	-0.42	0.022
140.00	-8.62	-0.52	0.00	-2.88	0.00	2.88	866.91	433.46	708.75	354.90	5.60	-0.42	0.018
143.00	-3.59	-0.23	0.00	-1.31	0.00	1.31	844.27	422.14	665.60	333.29	5.87	-0.42	0.008
145.00	-3.38	-0.21	0.00	-0.86	0.00	0.86	828.85	414.43	637.31	319.13	6.04	-0.43	0.007
149.00	0.00	-0.19	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	6.40	-0.43	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	-31.01	-1.12	0.00	-145.40	0.00	145.40	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.041
5.00	-29.94	-1.12	0.00	-139.82	0.00	139.82	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.01	0.040
10.00	-28.89	-1.13	0.00	-134.21	0.00	134.21	4,012.85	2,006.43	8,128.58	4,070.33	0.02	-0.02	0.040
15.00	-27.86	-1.13	0.00	-128.59	0.00	128.59	3,950.68	1,975.34	7,810.43	3,911.02	0.05	-0.03	0.040
20.00	-26.86	-1.13	0.00	-122.94	0.00	122.94	3,886.87	1,943.43	7,495.19	3,753.17	0.08	-0.04	0.040
25.00	-25.87	-1.13	0.00	-117.28	0.00	117.28	3,821.43	1,910.71	7,183.08	3,596.88	0.13	-0.05	0.039
30.00	-24.90	-1.13	0.00	-111.62	0.00	111.62	3,754.35	1,877.17	6,874.35	3,442.28	0.19	-0.06	0.039
35.00	-23.96	-1.13	0.00	-105.95	0.00	105.95	3,685.64	1,842.82	6,569.23	3,289.50	0.27	-0.07	0.039
40.00	-23.03	-1.13	0.00	-100.29	0.00	100.29	3,615.29	1,807.64	6,267.96	3,138.64	0.35	-0.09	0.038
45.00	-22.49	-1.13	0.00	-94.64	0.00	94.64	3,543.30	1,771.65	5,970.78	2,989.83	0.45	-0.10	0.038
48.00	-21.89	-1.12	0.00	-91.25	0.00	91.25	3,499.33	1,749.66	5,794.53	2,901.57	0.51	-0.11	0.038
50.00	-20.93	-1.12	0.00	-89.00	0.00	89.00	3,469.68	1,734.84	5,677.92	2,843.18	0.56	-0.11	0.037
53.25	-20.66	-1.12	0.00	-85.37	0.00	85.37	2,730.90	1,365.45	4,467.29	2,236.97	0.64	-0.12	0.046
55.00	-19.90	-1.11	0.00	-83.42	0.00	83.42	2,712.29	1,356.15	4,390.67	2,198.60	0.68	-0.12	0.045
60.00	-19.15	-1.10	0.00	-77.88	0.00	77.88	2,658.02	1,329.01	4,173.50	2,089.85	0.82	-0.14	0.044
65.00	-18.42	-1.09	0.00	-72.38	0.00	72.38	2,602.11	1,301.05	3,959.12	1,982.50	0.98	-0.16	0.044
70.00	-17.71	-1.08	0.00	-66.92	0.00	66.92	2,544.56	1,272.28	3,747.77	1,876.67	1.15	-0.17	0.043
75.00	-17.02	-1.07	0.00	-61.52	0.00	61.52	2,485.39	1,242.69	3,539.70	1,772.48	1.33	-0.19	0.042
80.00	-16.34	-1.05	0.00	-56.18	0.00	56.18	2,424.57	1,212.29	3,335.13	1,670.04	1.54	-0.20	0.040
85.00	-15.68	-1.04	0.00	-50.91	0.00	50.91	2,362.12	1,181.06	3,134.31	1,569.49	1.76	-0.22	0.039
90.00	-15.03	-1.02	0.00	-45.72	0.00	45.72	2,297.27	1,148.64	2,936.51	1,470.44	2.00	-0.23	0.038
95.00	-14.69	-1.01	0.00	-40.63	0.00	40.63	2,210.70	1,105.35	2,718.30	1,361.17	2.25	-0.25	0.036
97.75	-14.29	-1.00	0.00	-37.85	0.00	37.85	2,163.09	1,081.54	2,601.88	1,302.87	2.40	-0.26	0.036
100.00	-14.03	-0.99	0.00	-35.61	0.00	35.61	2,124.13	1,062.07	2,508.52	1,256.12	2.52	-0.27	0.035
101.50	-13.71	-0.97	0.00	-34.14	0.00	34.14	1,105.19	552.59	1,317.56	659.76	2.61	-0.27	0.064
105.00	-13.63	-0.97	0.00	-30.73	0.00	30.73	1,087.53	543.77	1,259.48	630.68	2.81	-0.28	0.061
106.00	-13.05	-0.95	0.00	-29.75	0.00	29.75	1,082.34	541.17	1,242.93	622.39	2.87	-0.29	0.060
110.00	-12.62	-0.93	0.00	-25.96	0.00	25.96	1,060.92	530.46	1,177.04	589.40	3.12	-0.31	0.056
115.00	-12.32	-0.92	0.00	-21.30	0.00	21.30	1,032.68	516.34	1,095.47	548.55	3.46	-0.33	0.051
117.94	-12.16	-0.91	0.00	-18.61	0.00	18.61	1,015.32	507.66	1,048.03	524.80	3.67	-0.34	0.047
120.00	-11.77	-0.89	0.00	-16.73	0.00	16.73	1,002.79	501.40	1,014.98	508.24	3.82	-0.35	0.045
125.00	-10.36	-0.80	0.00	-12.27	0.00	12.27	971.28	485.64	935.83	468.61	4.20	-0.37	0.037
126.00	-8.38	-0.68	0.00	-11.47	0.00	11.47	964.78	482.39	920.18	460.77	4.27	-0.37	0.034
130.00	-8.12	-0.66	0.00	-8.76	0.00	8.76	938.12	469.06	858.24	429.76	4.59	-0.39	0.029
134.00	-7.79	-0.64	0.00	-6.12	0.00	6.12	910.42	455.21	797.47	399.33	4.92	-0.40	0.024
135.00	-7.74	-0.63	0.00	-5.48	0.00	5.48	903.33	451.67	782.47	391.82	5.01	-0.40	0.023
136.00	-6.40	-0.53	0.00	-4.85	0.00	4.85	896.18	448.09	767.56	384.35	5.09	-0.40	0.020
137.00	-6.13	-0.51	0.00	-4.31	0.00	4.31	888.96	444.48	752.72	376.92	5.17	-0.40	0.018
140.00	-5.97	-0.50	0.00	-2.77	0.00	2.77	866.91	433.46	708.75	354.90	5.43	-0.41	0.015
143.00	-2.49	-0.22	0.00	-1.26	0.00	1.26	844.27	422.14	665.60	333.29	5.69	-0.41	0.007
145.00	-2.34	-0.21	0.00	-0.82	0.00	0.82	828.85	414.43	637.31	319.13	5.86	-0.41	0.005
149.00	0.00	-0.19	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	6.20	-0.41	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):	0.19
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):	2.90
Redundancy Factor (p):	1.00

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)
41	147.00	169	1.840	1.725	1.047	0.344	39	210
40	144.00	87	1.765	1.385	0.919	0.296	17	108
39	141.50	179	1.705	1.139	0.822	0.259	31	222
38	138.50	183	1.633	0.884	0.716	0.217	26	227
37	136.50	62	1.586	0.736	0.651	0.190	8	77
36	135.50	62	1.563	0.669	0.621	0.178	7	77
35	134.50	63	1.540	0.605	0.592	0.165	7	78
34	132.00	302	1.483	0.461	0.523	0.136	27	375
33	128.00	310	1.395	0.274	0.426	0.093	19	384
32	125.50	79	1.341	0.181	0.373	0.070	4	97
31	122.50	451	1.278	0.091	0.317	0.044	13	559
30	118.97	190	1.205	0.009	0.258	0.017	2	235
29	116.47	273	1.155	-0.034	0.222	0.000	0	339
28	112.50	500	1.077	-0.082	0.173	-0.022	-7	619
27	108.00	408	0.993	-0.112	0.128	-0.042	-11	506
26	105.50	103	0.948	-0.119	0.107	-0.050	-3	128
25	103.25	365	0.908	-0.122	0.090	-0.055	-13	453
24	100.75	303	0.864	-0.120	0.074	-0.059	-12	376
23	98.88	460	0.832	-0.117	0.064	-0.061	-19	571
22	96.38	403	0.791	-0.110	0.051	-0.062	-17	500
21	92.50	749	0.728	-0.095	0.036	-0.058	-29	928
20	87.50	768	0.652	-0.071	0.021	-0.047	-24	953
19	82.50	788	0.579	-0.045	0.012	-0.028	-15	978
18	77.50	808	0.511	-0.020	0.008	-0.006	-3	1,002
17	72.50	828	0.447	0.002	0.006	0.017	9	1,027
16	67.50	848	0.388	0.022	0.007	0.035	20	1,051
15	62.50	868	0.333	0.037	0.010	0.048	28	1,076
14	57.50	887	0.281	0.049	0.014	0.056	33	1,101
13	54.13	315	0.249	0.055	0.017	0.058	12	391
12	51.63	1,112	0.227	0.059	0.020	0.060	44	1,379
11	49.00	693	0.204	0.062	0.023	0.060	28	860
10	46.50	634	0.184	0.065	0.025	0.060	25	786
9	42.50	1,076	0.154	0.068	0.030	0.060	43	1,334
8	37.50	1,100	0.120	0.070	0.034	0.058	43	1,364

7	32.50	1,123	0.090	0.071	0.038	0.057	43	1,393
6	27.50	1,147	0.064	0.072	0.041	0.056	43	1,423
5	22.50	1,171	0.043	0.071	0.042	0.054	42	1,452
4	17.50	1,195	0.026	0.067	0.040	0.052	41	1,482
3	12.50	1,219	0.013	0.059	0.034	0.047	38	1,511
2	7.50	1,242	0.005	0.044	0.025	0.038	32	1,541
1	2.50	1,112	0.001	0.018	0.010	0.019	14	1,378
DragonWave Horizon C	149.00	32	1.890	1.980	1.140	0.377	8	39
DragonWave A-ANT-23G	149.00	15	1.890	1.980	1.140	0.377	4	19
Alcatel-Lucent RRH2x	149.00	317	1.890	1.980	1.140	0.377	80	394
Alcatel-Lucent 1900	149.00	180	1.890	1.980	1.140	0.377	45	223
Nokia 2.5G MAA - AAH	149.00	311	1.890	1.980	1.140	0.377	78	385
DragonWave A-ANT-11G	149.00	54	1.890	1.980	1.140	0.377	14	67
RFS APXVFRR12X-C-I20	149.00	138	1.890	1.980	1.140	0.377	35	171
SitePro1 RMQP-3XX Lo	149.00	1,680	1.890	1.980	1.140	0.377	423	2,083
Ericsson KRY 112 144	143.00	29	1.741	1.283	0.879	0.281	5	36
Ericsson KRY 112 489	143.00	46	1.741	1.283	0.879	0.281	9	57
Ericsson Radio 4449	143.00	222	1.741	1.283	0.879	0.281	42	275
Ericsson AIR32 B66Aa	143.00	397	1.741	1.283	0.879	0.281	74	492
Ericsson Air 3246 B6	143.00	540	1.741	1.283	0.879	0.281	101	670
RFS APXVAARR24_43-U-	143.00	384	1.741	1.283	0.879	0.281	72	476
Platform with SitePr	143.00	2,350	1.741	1.283	0.879	0.281	440	2,914
Alcatel-Lucent RRH2x	137.00	132	1.598	0.772	0.667	0.197	17	164
Round Low Profile Pl	136.00	1,500	1.575	0.702	0.636	0.184	184	1,860
RFS FD9R6004/2C-3L	134.00	16	1.529	0.574	0.577	0.159	2	19
Amphenol Antel BXA-1	134.00	45	1.529	0.574	0.577	0.159	5	56
Antel BXA-185085/12C	134.00	39	1.529	0.574	0.577	0.159	4	48
RFS DB-T1-6Z-8AB-0Z	134.00	44	1.529	0.574	0.577	0.159	5	55
Andrew DB854DG65ESX	134.00	56	1.529	0.574	0.577	0.159	6	69
Commscope LNX-	134.00	116	1.529	0.574	0.577	0.159	12	144
Round Platform w/ Ha	126.00	2,000	1.352	0.198	0.384	0.074	99	2,480
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.065	1	41
Raycap DC6-48-60-0-8	125.00	66	1.330	0.164	0.363	0.065	3	81
Ericsson Radio 4415	125.00	129	1.330	0.164	0.363	0.065	6	160
Ericsson 8843 Rev 2	125.00	225	1.330	0.164	0.363	0.065	10	279
Ericsson RRUS 4449 B	125.00	213	1.330	0.164	0.363	0.065	9	264
CCI CCI-HPA-65R-BUU-	125.00	204	1.330	0.164	0.363	0.065	9	253
Kathrein Scala 80010	125.00	688	1.330	0.164	0.363	0.065	30	853
RFS APXV18-206517S-C	115.00	79	1.126	-0.054	0.203	-0.009	0	98
Proxim 5054-R-LR	106.00	6	0.957	-0.118	0.111	-0.048	0	7
Generic 3' Dish w/ R	106.00	100	0.957	-0.118	0.111	-0.048	-3	124
Flat Side Arm	106.00	150	0.957	-0.118	0.111	-0.048	-5	186
		37,171	85.509	38.685	32.170	9.047	2,405	46,096

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)
41	147.00	169	1.840	1.725	1.047	0.344	39	145
40	144.00	87	1.765	1.385	0.919	0.296	17	75
39	141.50	179	1.705	1.139	0.822	0.259	31	154
38	138.50	183	1.633	0.884	0.716	0.217	26	157
37	136.50	62	1.586	0.736	0.651	0.190	8	53
36	135.50	62	1.563	0.669	0.621	0.178	7	54
35	134.50	63	1.540	0.605	0.592	0.165	7	54
34	132.00	302	1.483	0.461	0.523	0.136	27	260
33	128.00	310	1.395	0.274	0.426	0.093	19	266
32	125.50	79	1.341	0.181	0.373	0.070	4	68
31	122.50	451	1.278	0.091	0.317	0.044	13	388

30	118.97	190	1.205	0.009	0.258	0.017	2	163
29	116.47	273	1.155	-0.034	0.222	0.000	0	235
28	112.50	500	1.077	-0.082	0.173	-0.022	-7	430
27	108.00	408	0.993	-0.112	0.128	-0.042	-11	351
26	105.50	103	0.948	-0.119	0.107	-0.050	-3	89
25	103.25	365	0.908	-0.122	0.090	-0.055	-13	314
24	100.75	303	0.864	-0.120	0.074	-0.059	-12	261
23	98.88	460	0.832	-0.117	0.064	-0.061	-19	396
22	96.38	403	0.791	-0.110	0.051	-0.062	-17	347
21	92.50	749	0.728	-0.095	0.036	-0.058	-29	644
20	87.50	768	0.652	-0.071	0.021	-0.047	-24	661
19	82.50	788	0.579	-0.045	0.012	-0.028	-15	678
18	77.50	808	0.511	-0.020	0.008	-0.006	-3	695
17	72.50	828	0.447	0.002	0.006	0.017	9	712
16	67.50	848	0.388	0.022	0.007	0.035	20	729
15	62.50	868	0.333	0.037	0.010	0.048	28	746
14	57.50	887	0.281	0.049	0.014	0.056	33	763
13	54.13	315	0.249	0.055	0.017	0.058	12	271
12	51.63	1,112	0.227	0.059	0.020	0.060	44	956
11	49.00	693	0.204	0.062	0.023	0.060	28	596
10	46.50	634	0.184	0.065	0.025	0.060	25	545
9	42.50	1,076	0.154	0.068	0.030	0.060	43	925
8	37.50	1,100	0.120	0.070	0.034	0.058	43	946
7	32.50	1,123	0.090	0.071	0.038	0.057	43	966
6	27.50	1,147	0.064	0.072	0.041	0.056	43	987
5	22.50	1,171	0.043	0.071	0.042	0.054	42	1,007
4	17.50	1,195	0.026	0.067	0.040	0.052	41	1,027
3	12.50	1,219	0.013	0.059	0.034	0.047	38	1,048
2	7.50	1,242	0.005	0.044	0.025	0.038	32	1,068
1	2.50	1,112	0.001	0.018	0.010	0.019	14	956
DragonWave Horizon C	149.00	32	1.890	1.980	1.140	0.377	8	27
DragonWave A-ANT-23G	149.00	15	1.890	1.980	1.140	0.377	4	13
Alcatel-Lucent RRH2x	149.00	317	1.890	1.980	1.140	0.377	80	273
Alcatel-Lucent 1900	149.00	180	1.890	1.980	1.140	0.377	45	155
Nokia 2.5G MAA - AAH	149.00	311	1.890	1.980	1.140	0.377	78	267
DragonWave A-ANT-11G	149.00	54	1.890	1.980	1.140	0.377	14	46
RFS APXVFRR12X-C-I20	149.00	138	1.890	1.980	1.140	0.377	35	119
SitePro1 RMQP-3XX Lo	149.00	1,680	1.890	1.980	1.140	0.377	423	1,445
Ericsson KRY 112 144	143.00	29	1.741	1.283	0.879	0.281	5	25
Ericsson KRY 112 489	143.00	46	1.741	1.283	0.879	0.281	9	40
Ericsson Radio 4449	143.00	222	1.741	1.283	0.879	0.281	42	191
Ericsson AIR32 B66Aa	143.00	397	1.741	1.283	0.879	0.281	74	341
Ericsson Air 3246 B6	143.00	540	1.741	1.283	0.879	0.281	101	464
RFS APXVAARR24_43-U-	143.00	384	1.741	1.283	0.879	0.281	72	330
Platform with SitePr	143.00	2,350	1.741	1.283	0.879	0.281	440	2,021
Alcatel-Lucent RRH2x	137.00	132	1.598	0.772	0.667	0.197	17	114
Round Low Profile Pl	136.00	1,500	1.575	0.702	0.636	0.184	184	1,290
RFS FD9R6004/2C-3L	134.00	16	1.529	0.574	0.577	0.159	2	13
Amphenol Antel BXA-1	134.00	45	1.529	0.574	0.577	0.159	5	39
Antel BXA-185085/12C	134.00	39	1.529	0.574	0.577	0.159	4	34
RFS DB-T1-6Z-8AB-0Z	134.00	44	1.529	0.574	0.577	0.159	5	38
Andrew DB854DG65ESX	134.00	56	1.529	0.574	0.577	0.159	6	48
Commscope LNX-	134.00	116	1.529	0.574	0.577	0.159	12	100
Round Platform w/ Ha	126.00	2,000	1.352	0.198	0.384	0.074	99	1,720
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.065	1	28
Raycap DC6-48-60-0-8	125.00	66	1.330	0.164	0.363	0.065	3	56
Ericsson Radio 4415	125.00	129	1.330	0.164	0.363	0.065	6	111
Ericsson 8843 Rev 2	125.00	225	1.330	0.164	0.363	0.065	10	193
Ericsson RRUS 4449 B	125.00	213	1.330	0.164	0.363	0.065	9	183
CCI CCI-HPA-65R-BUU-	125.00	204	1.330	0.164	0.363	0.065	9	175
Kathrein Scala 80010	125.00	688	1.330	0.164	0.363	0.065	30	591
RFS APXV18-206517S-C	115.00	79	1.126	-0.054	0.203	-0.009	0	68
Proxim 5054-R-LR	106.00	6	0.957	-0.118	0.111	-0.048	0	5
Generic 3' Dish w/ R	106.00	100	0.957	-0.118	0.111	-0.048	-3	86

Flat Side Arm	106.00	150	0.957	-0.118	0.111	-0.048	-5	129
		37,171	85.509	38.685	32.170	9.047	2,405	31,963

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	-44.72	-2.40	0.00	-313.78	0.00	313.78	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.082
5.00	-43.18	-2.38	0.00	-301.78	0.00	301.78	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.02	0.082
10.00	-41.66	-2.36	0.00	-289.86	0.00	289.86	4,012.85	2,006.43	8,128.58	4,070.33	0.05	-0.04	0.082
15.00	-40.18	-2.33	0.00	-278.06	0.00	278.06	3,950.68	1,975.34	7,810.43	3,911.02	0.10	-0.07	0.081
20.00	-38.73	-2.31	0.00	-266.39	0.00	266.39	3,886.87	1,943.43	7,495.19	3,753.17	0.18	-0.09	0.081
25.00	-37.30	-2.28	0.00	-254.86	0.00	254.86	3,821.43	1,910.71	7,183.08	3,596.88	0.29	-0.11	0.081
30.00	-35.91	-2.25	0.00	-243.48	0.00	243.48	3,754.35	1,877.17	6,874.35	3,442.28	0.42	-0.14	0.080
35.00	-34.55	-2.22	0.00	-232.25	0.00	232.25	3,685.64	1,842.82	6,569.23	3,289.50	0.58	-0.16	0.080
40.00	-33.21	-2.18	0.00	-221.17	0.00	221.17	3,615.29	1,807.64	6,267.96	3,138.64	0.76	-0.19	0.080
45.00	-32.42	-2.17	0.00	-210.25	0.00	210.25	3,543.30	1,771.65	5,970.78	2,989.83	0.97	-0.22	0.079
48.00	-31.56	-2.15	0.00	-203.74	0.00	203.74	3,499.33	1,749.66	5,794.53	2,901.57	1.11	-0.23	0.079
50.00	-30.18	-2.10	0.00	-199.45	0.00	199.45	3,469.68	1,734.84	5,677.92	2,843.18	1.21	-0.24	0.079
53.25	-29.79	-2.10	0.00	-192.62	0.00	192.62	2,730.90	1,365.45	4,467.29	2,236.97	1.39	-0.26	0.097
55.00	-28.69	-2.07	0.00	-188.95	0.00	188.95	2,712.29	1,356.15	4,390.67	2,198.60	1.48	-0.27	0.097
60.00	-27.61	-2.05	0.00	-178.60	0.00	178.60	2,658.02	1,329.01	4,173.50	2,089.85	1.79	-0.31	0.096
65.00	-26.56	-2.04	0.00	-168.33	0.00	168.33	2,602.11	1,301.05	3,959.12	1,982.50	2.13	-0.34	0.095
70.00	-25.53	-2.05	0.00	-158.11	0.00	158.11	2,544.56	1,272.28	3,747.77	1,876.67	2.51	-0.38	0.094
75.00	-24.53	-2.06	0.00	-147.88	0.00	147.88	2,485.39	1,242.69	3,539.70	1,772.48	2.93	-0.42	0.093
80.00	-23.55	-2.08	0.00	-137.59	0.00	137.59	2,424.57	1,212.29	3,335.13	1,670.04	3.38	-0.46	0.092
85.00	-22.60	-2.11	0.00	-127.19	0.00	127.19	2,362.12	1,181.06	3,134.31	1,569.49	3.88	-0.50	0.091
90.00	-21.67	-2.15	0.00	-116.62	0.00	116.62	2,297.27	1,148.64	2,936.51	1,470.44	4.42	-0.54	0.089
95.00	-21.16	-2.17	0.00	-105.87	0.00	105.87	2,210.70	1,105.35	2,718.30	1,361.17	5.01	-0.58	0.087
97.75	-20.59	-2.19	0.00	-99.90	0.00	99.90	2,163.09	1,081.54	2,601.88	1,302.87	5.35	-0.60	0.086
100.00	-20.22	-2.21	0.00	-94.96	0.00	94.96	2,124.13	1,062.07	2,508.52	1,256.12	5.64	-0.62	0.085
101.50	-19.76	-2.22	0.00	-91.65	0.00	91.65	1,105.19	552.59	1,317.56	659.76	5.84	-0.64	0.157
105.00	-19.63	-2.23	0.00	-83.87	0.00	83.87	1,087.53	543.77	1,259.48	630.68	6.31	-0.67	0.151
106.00	-18.81	-2.25	0.00	-81.63	0.00	81.63	1,082.34	541.17	1,242.93	622.39	6.45	-0.68	0.149
110.00	-18.19	-2.27	0.00	-72.62	0.00	72.62	1,060.92	530.46	1,177.04	589.40	7.05	-0.73	0.140
115.00	-17.75	-2.28	0.00	-61.25	0.00	61.25	1,032.68	516.34	1,095.47	548.55	7.85	-0.80	0.129
117.94	-17.51	-2.29	0.00	-54.54	0.00	54.54	1,015.32	507.66	1,048.03	524.80	8.35	-0.83	0.121
120.00	-16.95	-2.28	0.00	-49.82	0.00	49.82	1,002.79	501.40	1,014.98	508.24	8.72	-0.86	0.115
125.00	-14.92	-2.18	0.00	-38.43	0.00	38.43	971.28	485.64	935.83	468.61	9.65	-0.92	0.097
126.00	-12.06	-2.03	0.00	-36.24	0.00	36.24	964.78	482.39	920.18	460.77	9.84	-0.93	0.091
130.00	-11.68	-2.00	0.00	-28.14	0.00	28.14	938.12	469.06	858.24	429.76	10.64	-0.97	0.078
134.00	-11.21	-1.95	0.00	-20.14	0.00	20.14	910.42	455.21	797.47	399.33	11.46	-1.00	0.063
135.00	-11.14	-1.95	0.00	-18.19	0.00	18.19	903.33	451.67	782.47	391.82	11.67	-1.01	0.059
136.00	-9.20	-1.72	0.00	-16.24	0.00	16.24	896.18	448.09	767.56	384.35	11.88	-1.01	0.053
137.00	-8.81	-1.67	0.00	-14.52	0.00	14.52	888.96	444.48	752.72	376.92	12.10	-1.02	0.048
140.00	-8.59	-1.64	0.00	-9.50	0.00	9.50	866.91	433.46	708.75	354.90	12.74	-1.04	0.037
143.00	-3.58	-0.79	0.00	-4.57	0.00	4.57	844.27	422.14	665.60	333.29	13.40	-1.05	0.018
145.00	-3.37	-0.75	0.00	-2.99	0.00	2.99	828.85	414.43	637.31	319.13	13.84	-1.05	0.013
149.00	0.00	-0.69	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	14.72	-1.05	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	-31.01	-2.40	0.00	-306.34	0.00	306.34	4,132.29	2,066.14	8,772.59	4,392.82	0.00	0.00	0.077
5.00	-29.94	-2.38	0.00	-294.36	0.00	294.36	4,073.39	2,036.69	8,449.37	4,230.97	0.01	-0.02	0.077
10.00	-28.89	-2.35	0.00	-282.49	0.00	282.49	4,012.85	2,006.43	8,128.58	4,070.33	0.04	-0.04	0.077
15.00	-27.86	-2.32	0.00	-270.75	0.00	270.75	3,950.68	1,975.34	7,810.43	3,911.02	0.10	-0.06	0.076
20.00	-26.85	-2.28	0.00	-259.17	0.00	259.17	3,886.87	1,943.43	7,495.19	3,753.17	0.18	-0.09	0.076
25.00	-25.87	-2.25	0.00	-247.76	0.00	247.76	3,821.43	1,910.71	7,183.08	3,596.88	0.28	-0.11	0.076
30.00	-24.90	-2.22	0.00	-236.51	0.00	236.51	3,754.35	1,877.17	6,874.35	3,442.28	0.41	-0.13	0.075
35.00	-23.95	-2.18	0.00	-225.44	0.00	225.44	3,685.64	1,842.82	6,569.23	3,289.50	0.56	-0.16	0.075
40.00	-23.03	-2.15	0.00	-214.54	0.00	214.54	3,615.29	1,807.64	6,267.96	3,138.64	0.74	-0.18	0.075
45.00	-22.48	-2.13	0.00	-203.81	0.00	203.81	3,543.30	1,771.65	5,970.78	2,989.83	0.95	-0.21	0.075
48.00	-21.88	-2.10	0.00	-197.43	0.00	197.43	3,499.33	1,749.66	5,794.53	2,901.57	1.08	-0.23	0.074
50.00	-20.93	-2.06	0.00	-193.23	0.00	193.23	3,469.68	1,734.84	5,677.92	2,843.18	1.18	-0.24	0.074
53.25	-20.66	-2.05	0.00	-186.54	0.00	186.54	2,730.90	1,365.45	4,467.29	2,236.97	1.35	-0.26	0.091
55.00	-19.89	-2.02	0.00	-182.95	0.00	182.95	2,712.29	1,356.15	4,390.67	2,198.60	1.44	-0.27	0.091
60.00	-19.14	-2.00	0.00	-172.84	0.00	172.84	2,658.02	1,329.01	4,173.50	2,089.85	1.74	-0.30	0.090
65.00	-18.41	-1.99	0.00	-162.83	0.00	162.83	2,602.11	1,301.05	3,959.12	1,982.50	2.07	-0.33	0.089
70.00	-17.70	-1.99	0.00	-152.89	0.00	152.89	2,544.56	1,272.28	3,747.77	1,876.67	2.44	-0.37	0.088
75.00	-17.01	-2.00	0.00	-142.95	0.00	142.95	2,485.39	1,242.69	3,539.70	1,772.48	2.84	-0.40	0.087
80.00	-16.33	-2.02	0.00	-132.98	0.00	132.98	2,424.57	1,212.29	3,335.13	1,670.04	3.29	-0.44	0.086
85.00	-15.66	-2.05	0.00	-122.89	0.00	122.89	2,362.12	1,181.06	3,134.31	1,569.49	3.77	-0.48	0.085
90.00	-15.02	-2.08	0.00	-112.66	0.00	112.66	2,297.27	1,148.64	2,936.51	1,470.44	4.30	-0.52	0.083
95.00	-14.67	-2.10	0.00	-102.27	0.00	102.27	2,210.70	1,105.35	2,718.30	1,361.17	4.86	-0.56	0.082
97.75	-14.27	-2.12	0.00	-96.49	0.00	96.49	2,163.09	1,081.54	2,601.88	1,302.87	5.19	-0.58	0.081
100.00	-14.01	-2.13	0.00	-91.72	0.00	91.72	2,124.13	1,062.07	2,508.52	1,256.12	5.47	-0.60	0.080
101.50	-13.70	-2.15	0.00	-88.51	0.00	88.51	1,105.19	552.59	1,317.56	659.76	5.66	-0.62	0.147
105.00	-13.61	-2.16	0.00	-80.99	0.00	80.99	1,087.53	543.77	1,259.48	630.68	6.13	-0.64	0.141
106.00	-13.03	-2.18	0.00	-78.83	0.00	78.83	1,082.34	541.17	1,242.93	622.39	6.26	-0.66	0.139
110.00	-12.60	-2.19	0.00	-70.12	0.00	70.12	1,060.92	530.46	1,177.04	589.40	6.84	-0.71	0.131
115.00	-12.30	-2.20	0.00	-59.16	0.00	59.16	1,032.68	516.34	1,095.47	548.55	7.61	-0.77	0.120
117.94	-12.13	-2.20	0.00	-52.70	0.00	52.70	1,015.32	507.66	1,048.03	524.80	8.10	-0.81	0.112
120.00	-11.74	-2.19	0.00	-48.16	0.00	48.16	1,002.79	501.40	1,014.98	508.24	8.46	-0.83	0.106
125.00	-10.34	-2.11	0.00	-37.20	0.00	37.20	971.28	485.64	935.83	468.61	9.36	-0.89	0.090
126.00	-8.35	-1.96	0.00	-35.09	0.00	35.09	964.78	482.39	920.18	460.77	9.55	-0.90	0.085
130.00	-8.09	-1.93	0.00	-27.25	0.00	27.25	938.12	469.06	858.24	429.76	10.31	-0.94	0.072
134.00	-7.77	-1.89	0.00	-19.52	0.00	19.52	910.42	455.21	797.47	399.33	11.11	-0.97	0.057
135.00	-7.71	-1.88	0.00	-17.63	0.00	17.63	903.33	451.67	782.47	391.82	11.32	-0.97	0.054
136.00	-6.37	-1.67	0.00	-15.75	0.00	15.75	896.18	448.09	767.56	384.35	11.52	-0.98	0.048
137.00	-6.10	-1.62	0.00	-14.08	0.00	14.08	888.96	444.48	752.72	376.92	11.73	-0.99	0.044
140.00	-5.95	-1.59	0.00	-9.22	0.00	9.22	866.91	433.46	708.75	354.90	12.35	-1.00	0.033
143.00	-2.48	-0.77	0.00	-4.45	0.00	4.45	844.27	422.14	665.60	333.29	12.99	-1.01	0.016
145.00	-2.33	-0.73	0.00	-2.91	0.00	2.91	828.85	414.43	637.31	319.13	13.41	-1.02	0.012
149.00	0.00	-0.69	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	14.27	-1.02	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	24.96	0.00	44.56	0.00	0.00	2923.78	101.50	0.99
0.9D + 1.6W	24.94	0.00	33.41	0.00	0.00	2873.58	101.50	0.96
1.2D + 1.0Di + 1.0Wi	6.99	0.00	73.32	0.00	0.00	846.62	101.50	0.33
(1.2 + 0.2Sds) * DL + E ELFM	1.12	0.00	44.72	0.00	0.00	148.77	101.50	0.07
(1.2 + 0.2Sds) * DL + E EMAM	2.40	0.00	44.72	0.00	0.00	313.78	101.50	0.16
(0.9 - 0.2Sds) * DL + E ELFM	1.12	0.00	31.01	0.00	0.00	145.40	101.50	0.06
(0.9 - 0.2Sds) * DL + E EMAM	2.40	0.00	31.01	0.00	0.00	306.34	101.50	0.15
1.0D + 1.0W	5.34	0.00	37.17	0.00	0.00	619.69	101.50	0.22

Base Plate & Anchor Rod Analysis

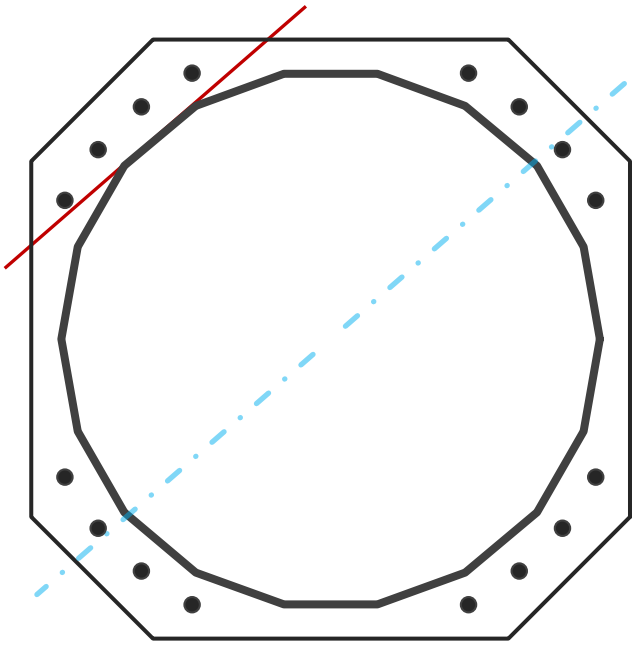
Pole Dimensions		
Number of Sides	18	-
Diameter	52.01	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2923.8	k-ft
Axial, Pu	44.6	k
Shear, Vu	25.0	k
Neutral Axis	41	°

Report Capacities		
Component	Capacity	Result
Base Plate	47%	Pass
Anchor Rods	58%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	59	in
Thickness	2 3/4	in
Grade	Other	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	12	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1508.7	k
Bending Stress, ϕMn	3183.1	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	59	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	151.3	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	25.0	2923.8	1.00
Anchor Rod Forces	25.0	2923.8	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	60.5227	3.3624	0.1582		20173.34
Bolt	3.9761	3.2477	0.8393	4.5	22623.84
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	59	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	27.856	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	59	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	151.3	k
Applied Shear, Vu	0.1	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.582	OK
Interaction Capacity	0.583	OK

External Base Plate

Chord Length AA	31.179	in
Additional AA	0.000	in
Section Modulus, Z	58.947	in^3
Applied Moment, Mu	1508.7	k-ft
Bending Capacity, ϕMn	3183.1	k-ft
Capacity, Mu/ϕMn	0.474	OK
Chord Length AB	30.372	in
Additional AB	0.000	in
Section Modulus, Z	57.423	in^3
Applied Moment, Mu	1271.4	k-ft
Bending Capacity, ϕMn	3100.8	k-ft
Capacity, Mu/ϕMn	0.410	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Internal Base Plate

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

Exhibit E

Mount Analysis

Mount Analysis of Existing Low Profile Platform for American Tower on behalf of T-Mobile
243036 - West Haven & RT 162 CT
Project #: 12942675

T-Mobile Site ID: CT11821E
Program: L600

CLS Engineering PLLC Project #41124-12942675-01-MA-R1
July 3, 2019

MOUNT DESCRIPTION	Existing Low Profile Platform at 140 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 143 ft AGL (Eccentricity of ~3 ft)
SITE DESCRIPTION	149 ft Monopole
SITE ADDRESS	668 Jones Hill Road, West Haven, CT 06516-6311, New Haven County
GPS COORDINATES	41.25640278, -72.97236111
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

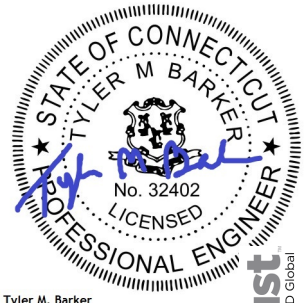
■ **ANALYSIS RESULT:** **Pass (Conditional)**

MEMBER USAGE	**74%**	**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.



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 22:02:51 -04'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the existing Low Profile Platform. 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 March 12, 2019 Site Pro 1 drawing #PRK-SFS, dated March 16, 2017 Site Pro 1 drawing #HRK12-3HD, dated April 7, 2015 Tower Manufacturer Design, Job #06-08204, dated August 19, 2005
PREVIOUS ANALYSES	Structural Analysis by ATC, Engineering #OAA714853_C3_08, dated March 20, 2019
LOADING DATA	ATC Application, Project #12942675, dated April 2, 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	C
MAX. TOPOGRAPHIC FACTOR, K_{zt}	1.00
RISK CATEGORY	II
MAINTENANCE LIVE LOAD	L_M: 500 lb

■ FINAL EQUIPMENT

ELEVATION (ft)		ANTENNAS	
MOUNT	**RAD.**	**#**	**NAME**
140.0	143.0	3	Ericsson AIR32 B66Aa/B2a
		3	Ericsson AIR 3246 B66
		3	Ericsson RADIO 4449 B12/B71
		3	Ericsson KRY 112 489/1
		3	Ericsson KRY 112 144/2
		3	RFS Celwave APXVAARR24_43-U-NA20

■ RESULTS SUMMARY

Existing Mount Usage:

COMPONENT	PEAK USAGE	RESULT
Corner Plates	**>200%**	**Fail**
Platform Base	**>200%**	**Fail**
Mount Pipes	**185%**	**Fail**
Stand-Off Horizontals	86%	Pass

Modified Mount Usages:

COMPONENT	PEAK USAGE	RESULT
Corner Plates	74%	Pass
Mount Pipes	59%	Pass
Stand-Off Horizontals	46%	Pass
Support Rail	36%	Pass
Platform Base	23%	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:

- **Replace existing mount pipe at Position 1 and install new mount pipe in empty Position 2 with (2) 8ft. long proposed Pipe 2 X-Strong, A53 Gr. B, at each sector for proposed panel configuration (6 total) as shown. Connect to platform base horizontal member using (2) 1/2" Ø U-Bolts per connection (12 total).**
- **Install Site Pro 1 HRK12-3HD Support Rail kit at 3'-0" above the existing platform horizontal channel. Connect to (4) existing and proposed mount pipes per sector of the mount (12 total) using Site Pro 1 SCX2 crossover plates included in the Support Rail kit. Refer to following sketches for further details on the installation of the Support Rail bracing pipes included in the kit. Field-Cut proposed pipe as required.**
- **Install (1) Site Pro 1 PRK-SFS Support Rail Vertical Reinforcement Kit at existing face horizontal member as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ± 3 ft. above the centerline of existing platform mount collar. Use longer bolts (½" Ø x 2" Long HDG Hex Bolt Grade 5) and ½" spacer for connection of stabilizer angles to the bracing pipes. Field-Cut proposed angles as required. Maintain minimum bolt edge distance. DO NOT PINCH SAFETY CLIMB.**
- **Relocate equipment, as required, to facilitate installation of proposed modifications on existing mount.**
- **All hardware for Site Pro 1 PUCK connection to the proposed Support Rails should be installed with "turn of the nut" method per the following table:**

BOLT TIGHTENING PROCEDURE

1. TIGHTEN BOLTS BY AISC "TURN OF THE NUT" METHOD USING THE CHART BELOW:

   BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS:
   +1/3 TURN BEYOND SNUG TIGHT

   BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS:
   +1/2 TURN BEYOND SNUG TIGHT

   BOLT LENGTHS OVER EIGHT AND UP TO TWELVE DIAMETERS:
   +2/3 TURN BEYOND SNUG TIGHT

2. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(d)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS:

   "FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(d)(1) THROUGH 8(d)(4).

   8(d)(1) TURN-OF-THE-NUT TIGHTENING.
   BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PLIES OF A JOINT ARE IN FIRM CONTACT. THIS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY...UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION, THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

BEFORE ⅓ TURN AFTER ⅓ TURN

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.

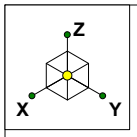
This analysis assumes the following:

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.

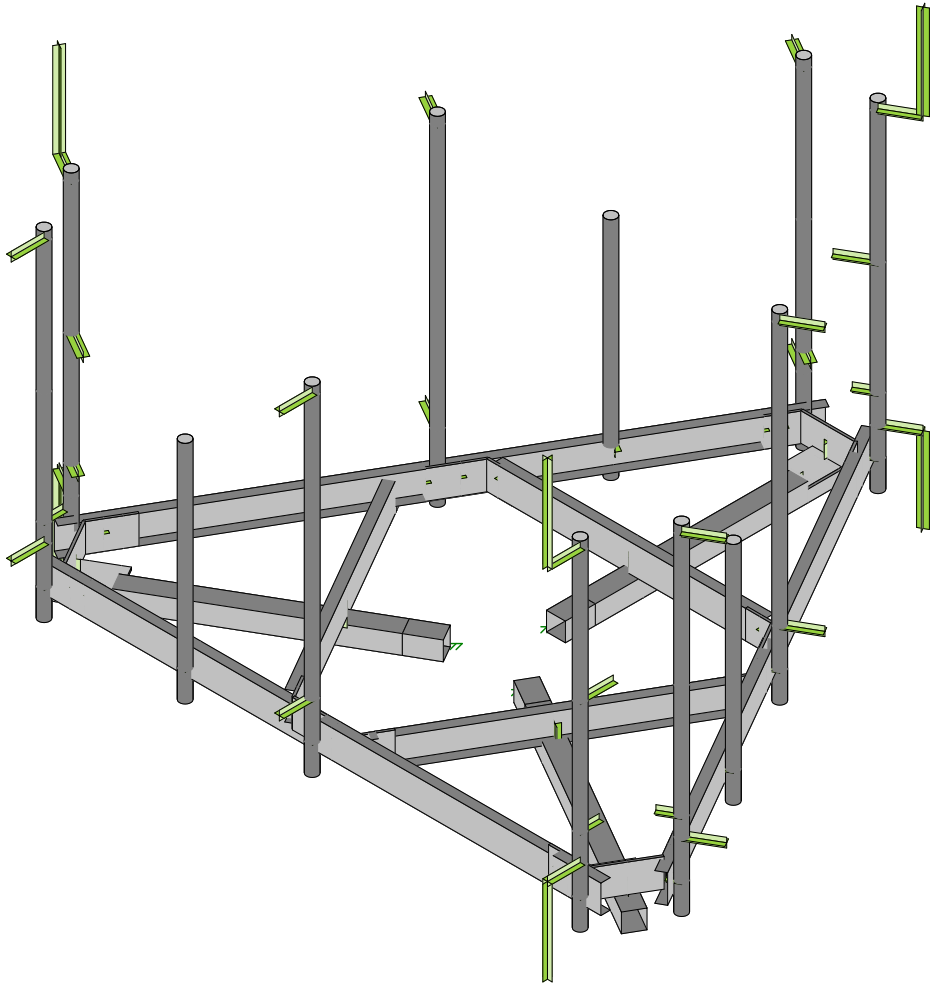
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided 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	41124-12942675-WEST HAVEN & RT 162 CT	EX - 1
JLS		Apr 8, 2019 at 4:18 PM
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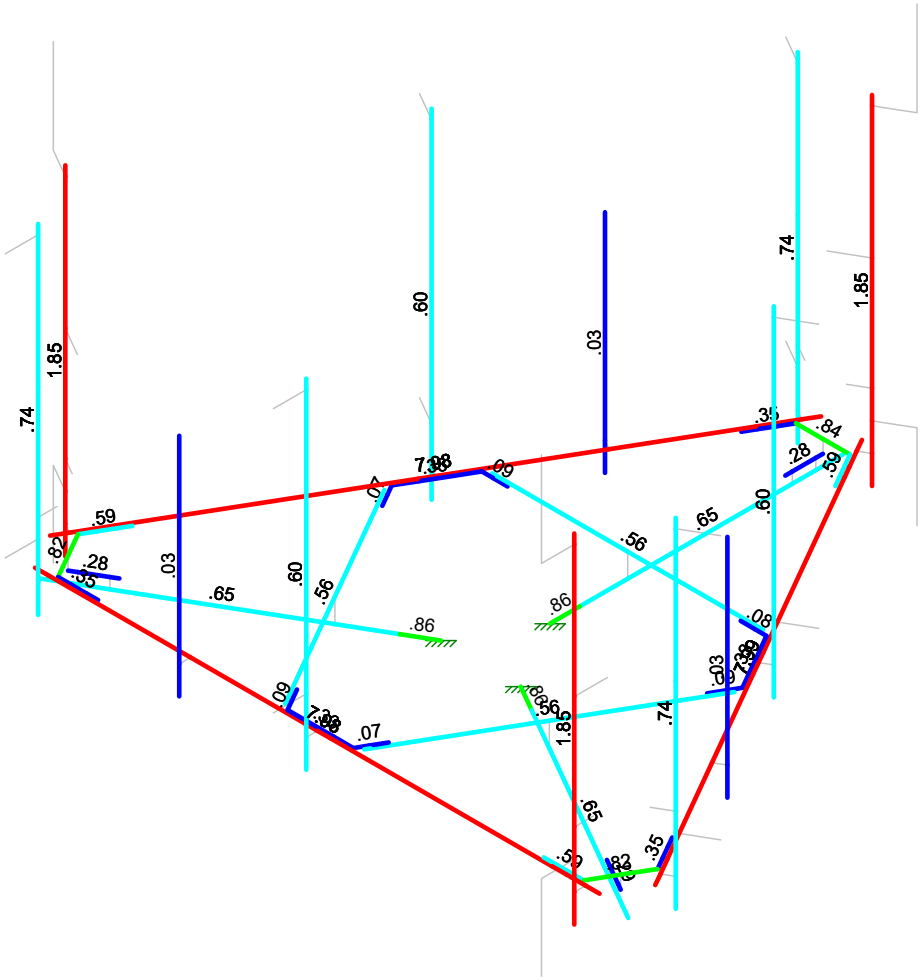
Existing Mount to be Modified.



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS		EX - 2
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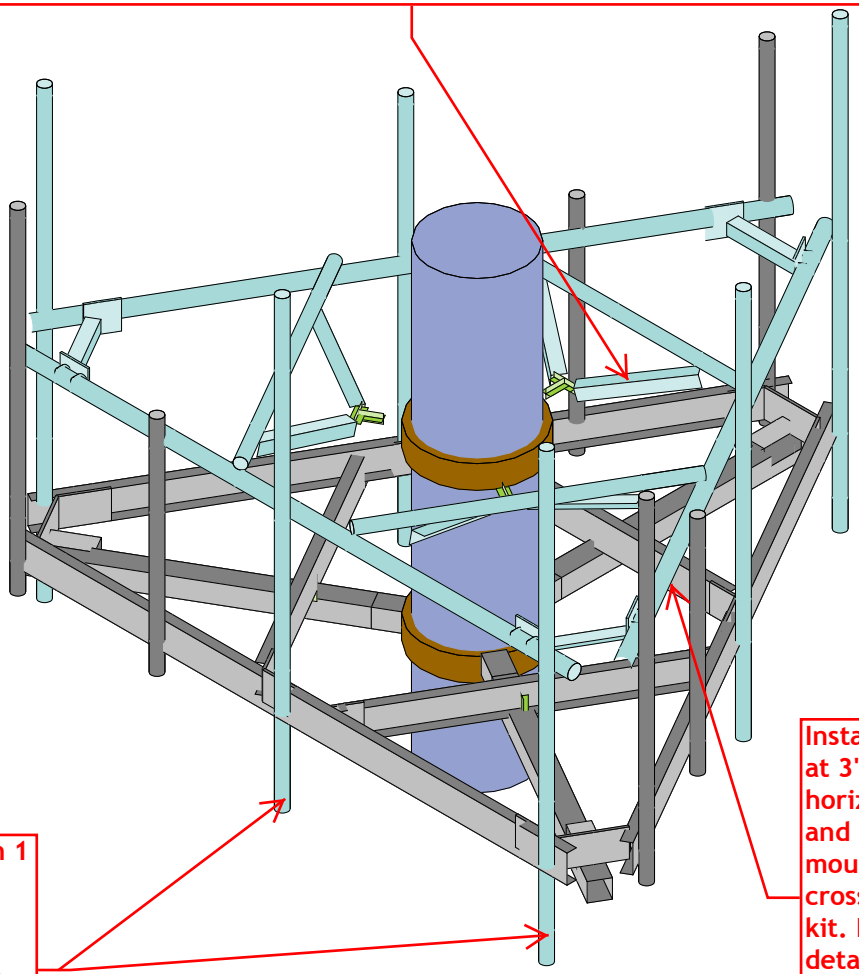
41124-12942675-01-MA	Existing - Envelope Member Unity Check Results - Bending	41124-12942675-01-MA-Existing.r3d

Install (1) Site Pro 1 PRK-SFS Support Rail Vertical Reinforcement Kit at existing face horizontal member as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ± 3 ft. above the centerline of existing platform mount collar. Use longer bolts (½" Ø x 2" Long HDG Hex Bolt Grade 5) and ½" spacer for connection of stabilizer angles to the bracing pipes. Field-Cut proposed angles as required. Maintain minimum bolt edge distance. DO NOT PINCH SAFETY CLIMB.



Install Site Pro 1 HRK12-3HD Support Rail kit at 3'-0" above the existing platform horizontal channel. Connect to (4) existing and proposed mount pipes per sector of the mount (12 total) using Site Pro 1 SCX2 crossover plates included in the Support Rail kit. Refer to following sketches for further details on the installation of the Support Rail bracing pipes included in the kit. Field-Cut proposed pipe as required.

Replace existing mount pipe at Position 1 and install new mount pipe in empty Position 2 with (2) 8ft. long proposed Pipe 2 X-Strong, A53 Gr. B, at each sector for proposed panel configuration (6 total) as shown. Connect to platform base horizontal member using (2) 1/2" Ø U-Bolts (12 total).

CLS		IN - 1
JLS	41124-12942675-WEST HAVEN & RT 162 CT	Apr 8, 2019 at 12:00 PM
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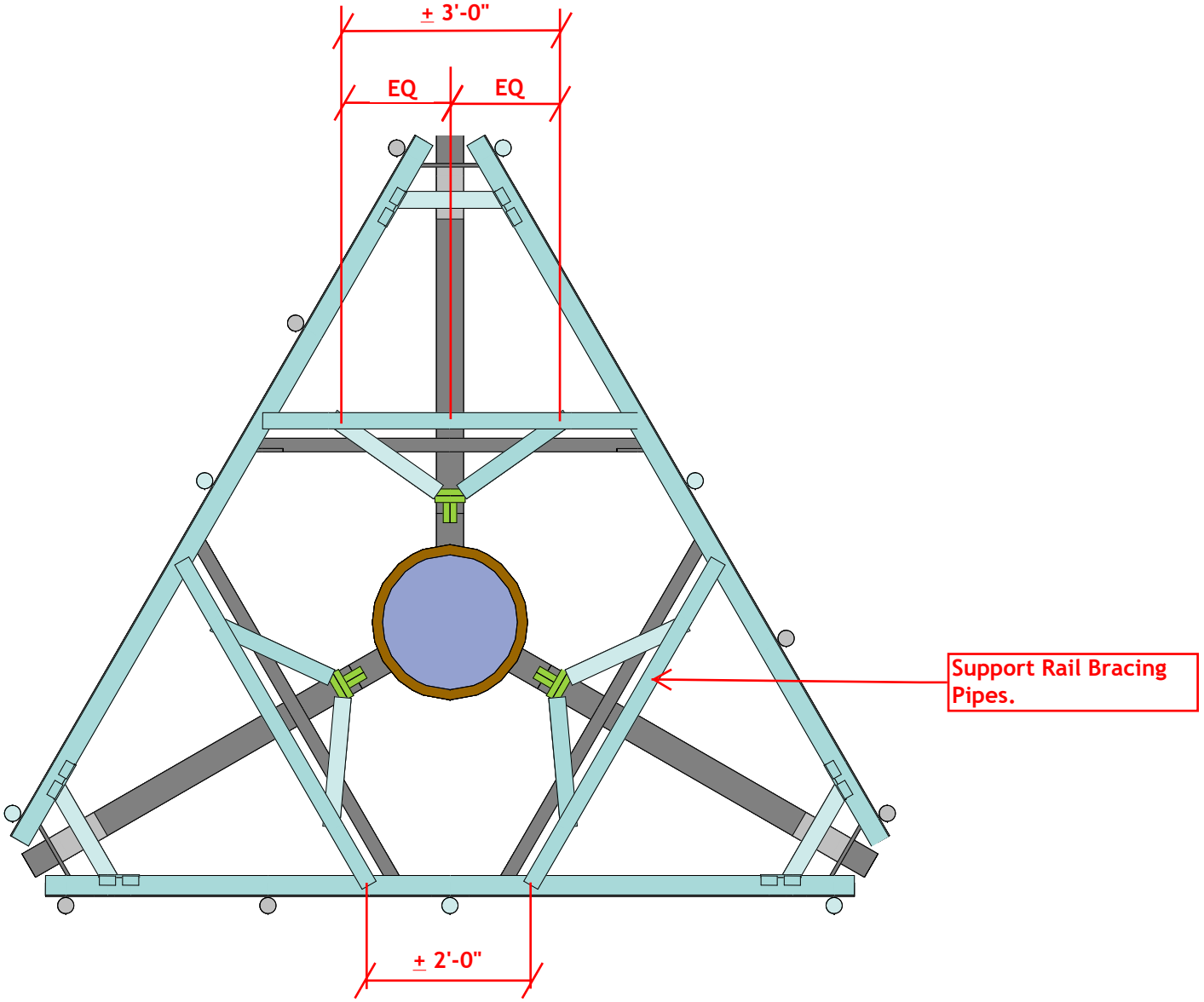

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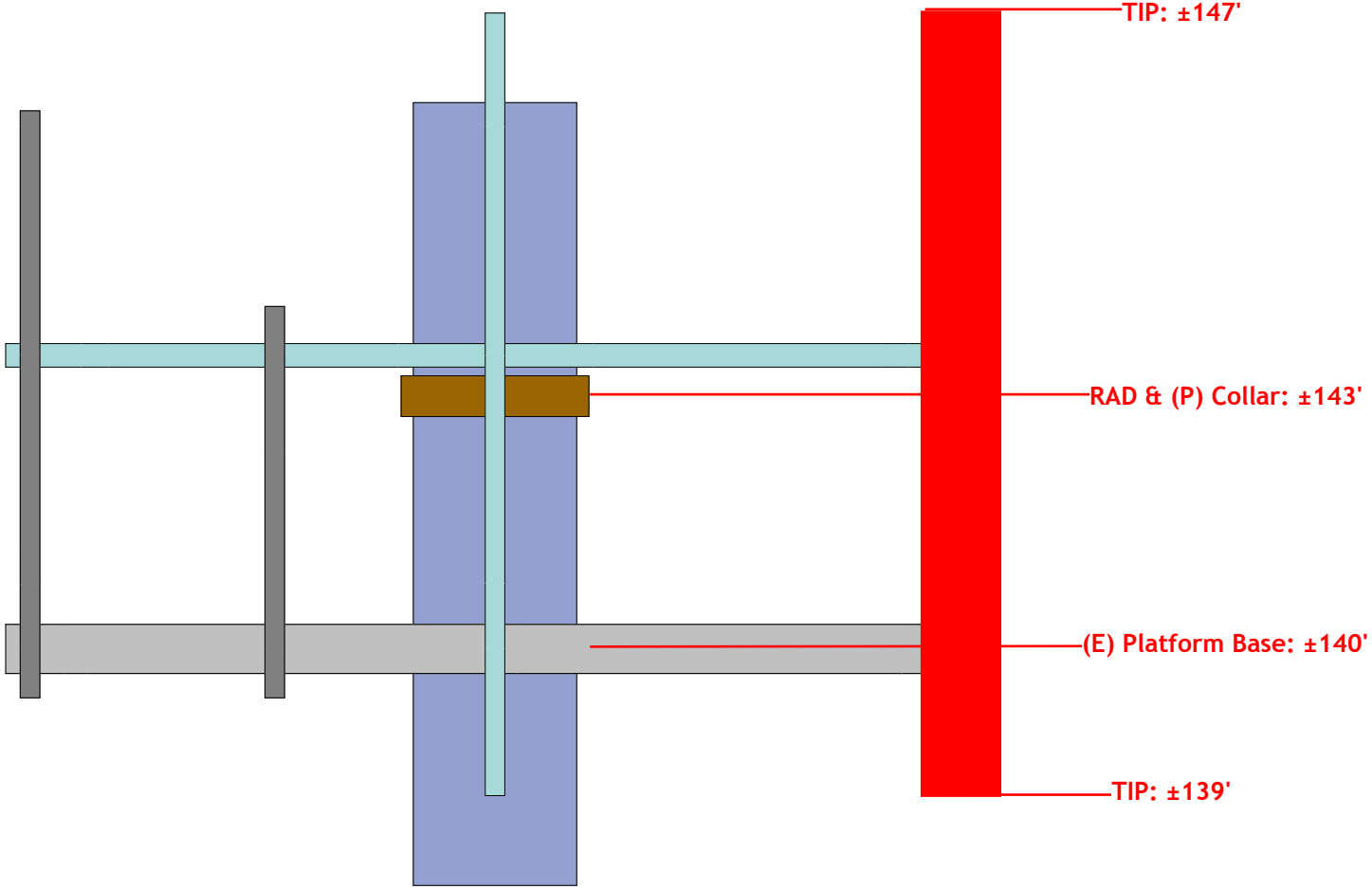

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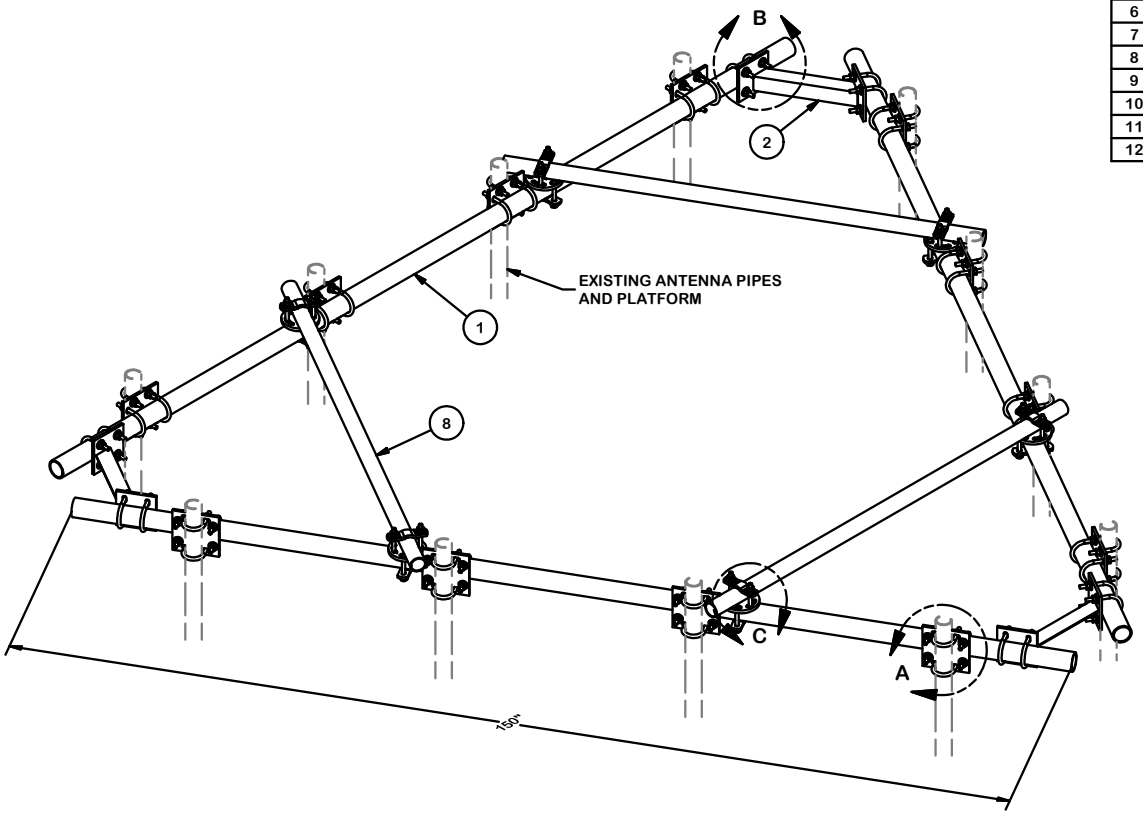
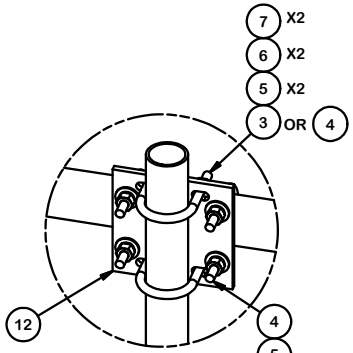
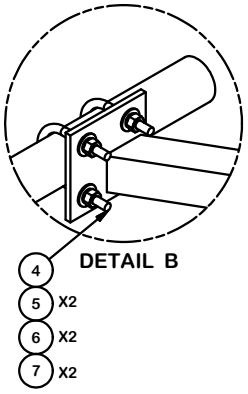
41124-12942675-01-MA	Installation Sketch	41124-12942675-01-MA.r3d

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P30150	2-7/8" O.D. X 150" SCH. 40 PIPE	150 in	76.94	230.81
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	24	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	17.56
4	60	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	43.90
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 (GALVANIZED)		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. #	502.34

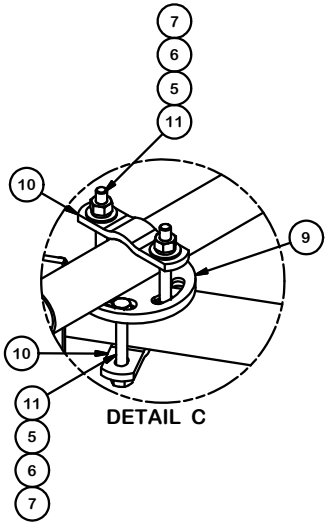




DETAIL A



DETAIL B



DETAIL C

TOLERANCE NOTES

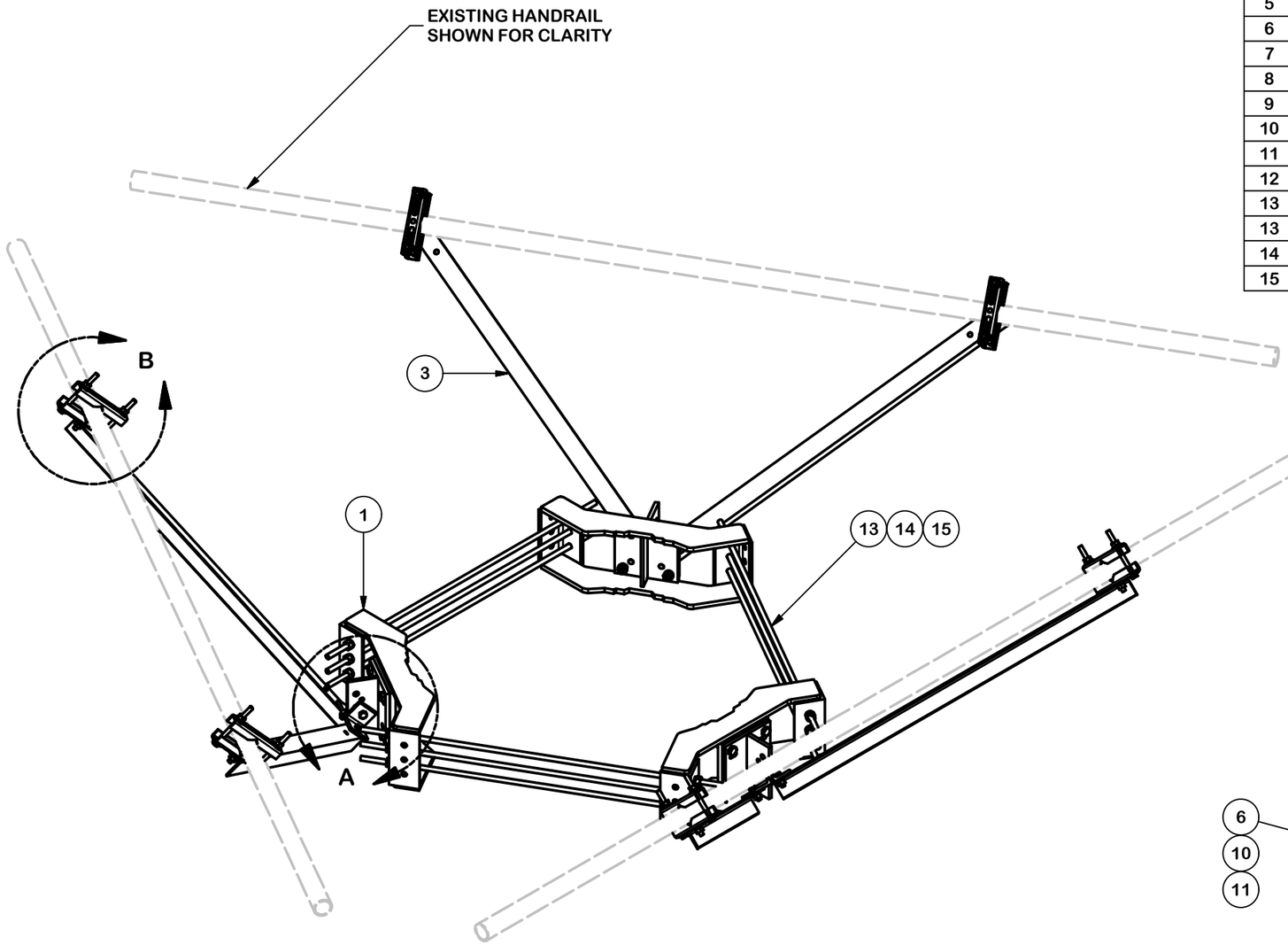
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION
HEAY DUTY HANDRAIL KIT
FOR 12' PLATFORMS WITH
2-7/8" HANDRAIL 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.
	CEK 4/6/2015		HRK12-3HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 4/7/2015	HRK12-3HD



PARTS LIST						
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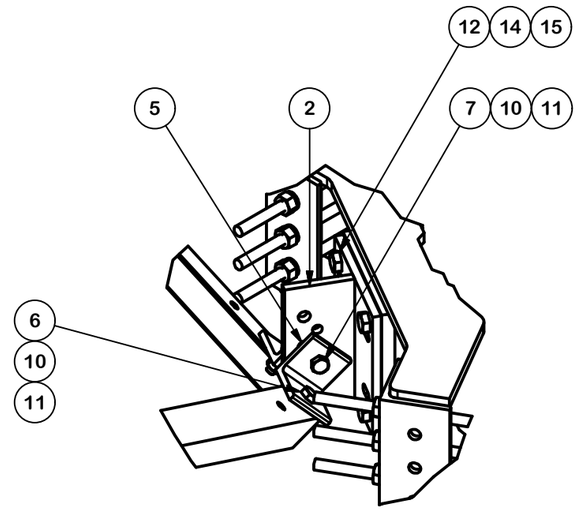
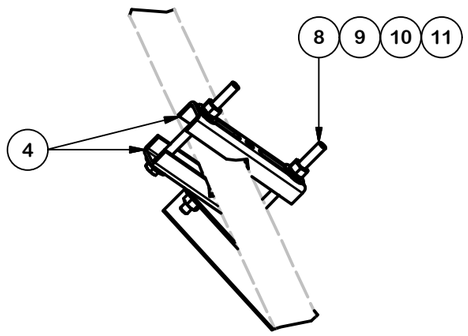
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	X-232697	TRPD-HD DIAGONAL ANGLE - SITR PRO 1	52 1/2 in	14.35	86.08
4	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
5	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.84	11.05
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
					TOTAL WT. #	587.71



DETAIL A



DETAIL B

TOLERANCE NOTES

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

DESCRIPTION: HANDRAIL REINFORCEMENT KIT

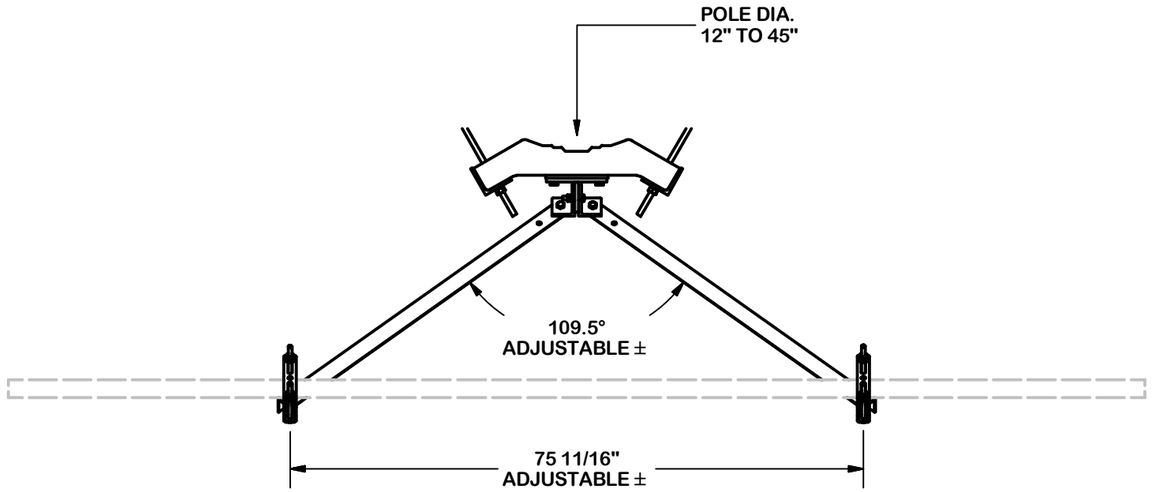
SITE PRO 1 — A valmont COMPANY

Engineering Support Team:
1-888-753-7446

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

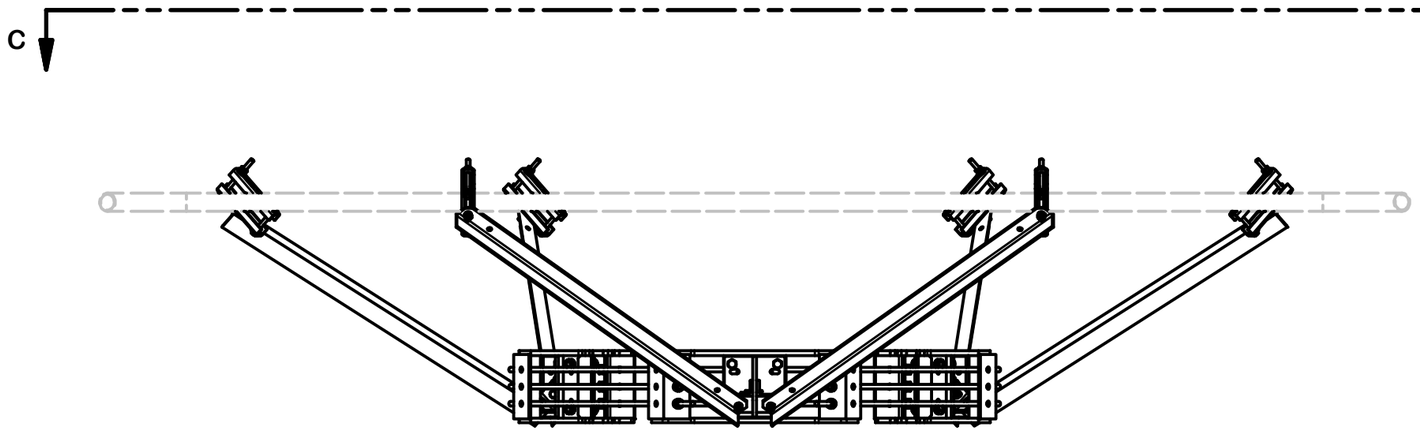
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS	1 OF 3

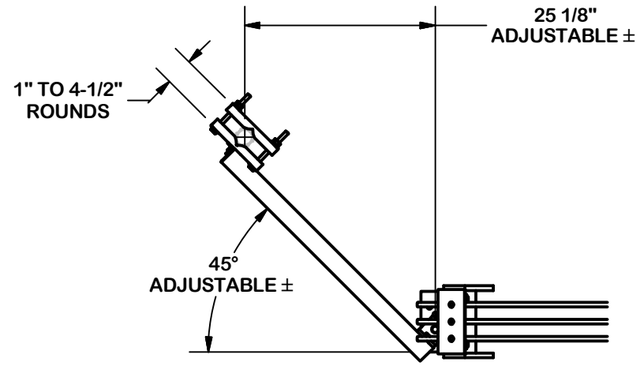
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 3/16/2017	PRK-SFS



PARTIAL VIEW C-C

VERTICAL POSITION





PARTIAL VIEW D-D

TOLERANCE NOTES

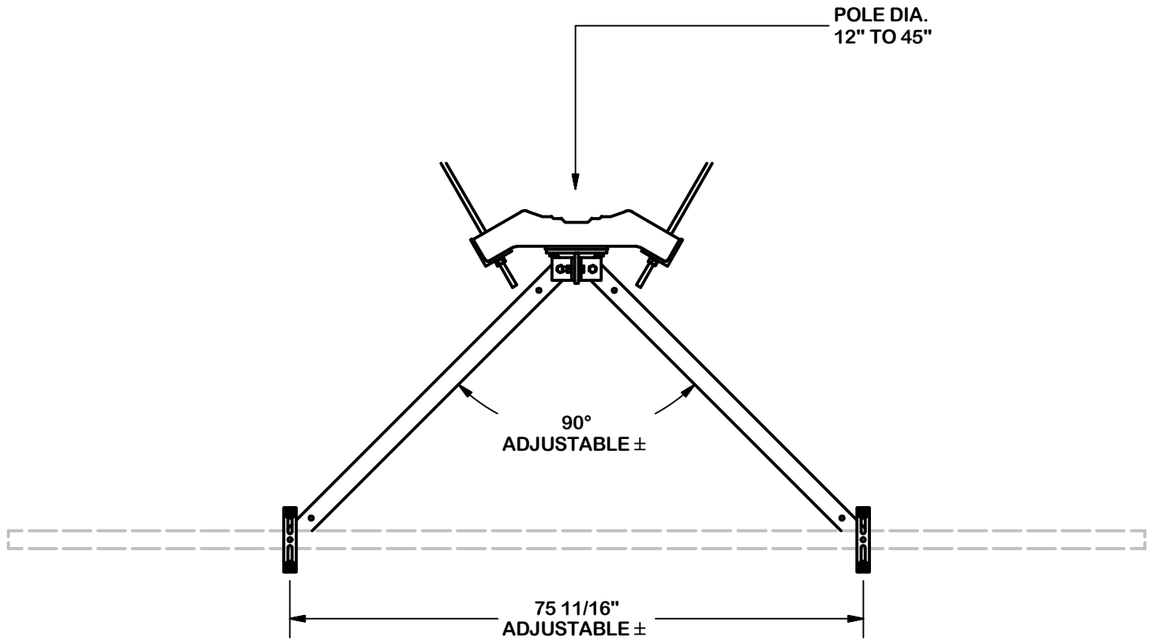
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION: HANDRAIL REINFORCEMENT KIT

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

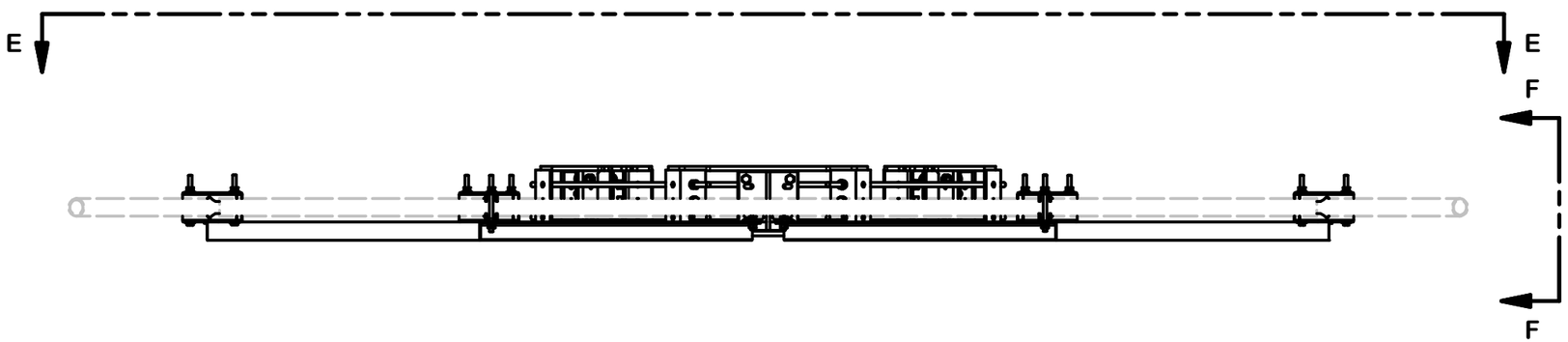
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS

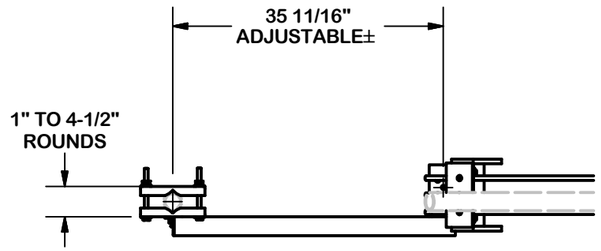
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 3/16/2017	PRK-SFS



PARTIAL VIEW E-E

HORIZONTAL POSITION





PARTIAL VIEW F-F

TOLERANCE NOTES

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DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION: HANDRAIL REINFORCEMENT KIT

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 3/16/2017	PRK-SFS

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

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	140 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	143 ft	K_d	0.95
Elevation AMSL (ft)	-	K_e	-
TIA Standard	G	K_z	1.36
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}	1.73 in
Exposure Category	C	G_h	1.00
Risk Category	II	q_z (bare)	51.6 psf
Seismic Response Coeff., C_s	-	q_z (ice)	8.3 psf

Live Loading

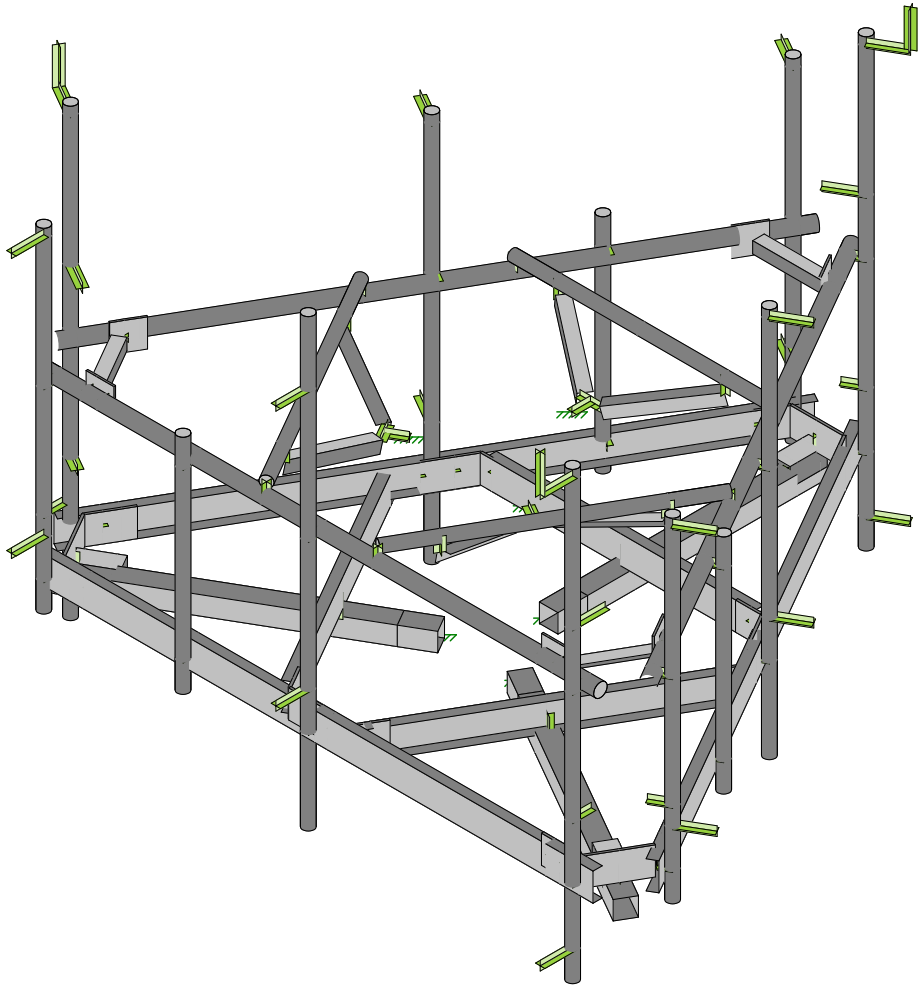
At Mount Pipes, L_M	500 lb
Joint Labels Considered	m1
	m2
	m3
	m4

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Mount Pipe	PIPE_2.0	11.03	4.34	8.70
MOD Mount Pipe	PIPE_2.0X	11.03	4.34	8.70
Offset Arm	HSS4X4X3	30.97	2.95	14.45
Horizontal Channel	C6x4	46.46	3.13	16.31
Platform Conn. PL	PL6x0.5	46.46	7.05	12.43
Grating Channel	C6x4	46.46	3.13	16.31
MOD Support Rail	PIPE_2.5	13.36	4.71	9.76
MOD SR Conn Plate	PL6x0.375	46.46	7.05	12.26
MOD SR Conn Angle	L2.5x2.5x4	19.36	2.81	10.16
MOD SR Bracing	PIPE_2.0	11.03	4.34	8.70
MOD PRK-SFS	L2.5x2.5x3	19.36	2.81	10.16

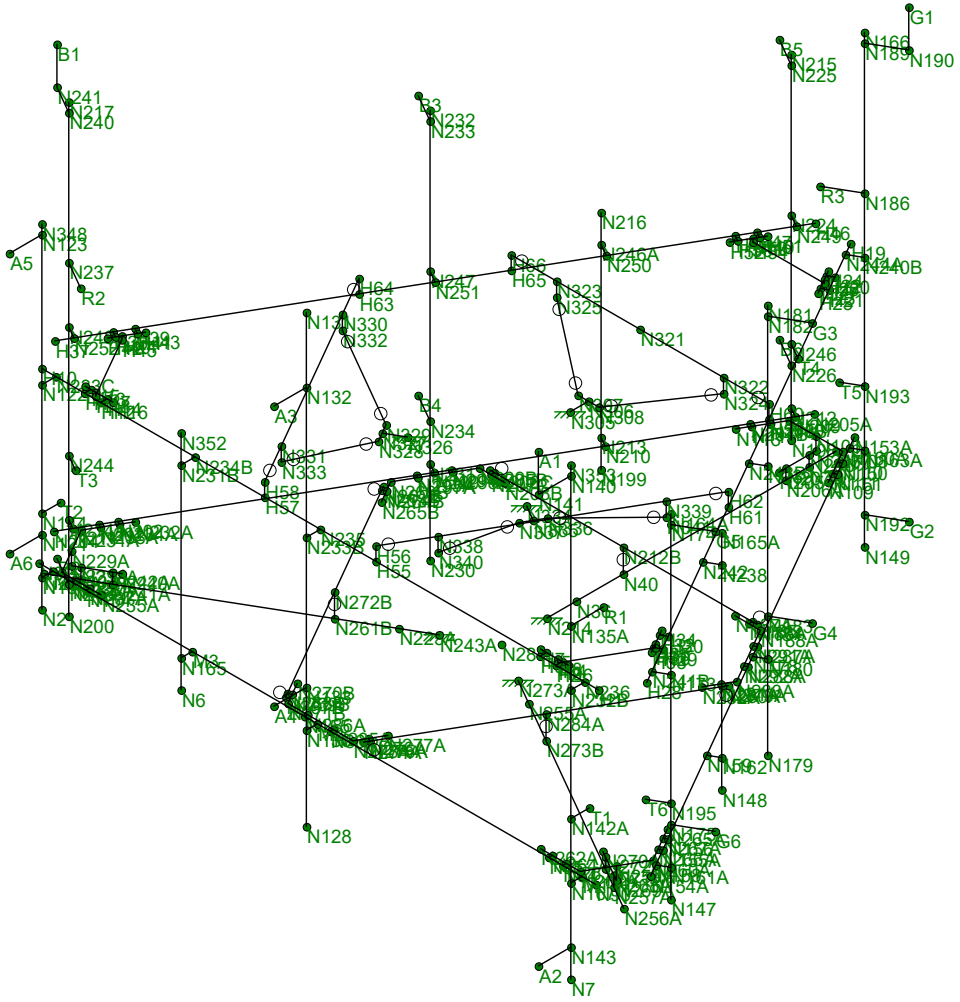
Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
APXVAARR24_43-U-NA20				☐			1	1	1		a1	a2	b1	b2	g1	g2	0	0	0	153.3	Generic	391.11	14.67	5.32	17.31	7.65	684.64	248.28	129.26	57.10
KRY 112 489/1				☐	0.2		1	1	1		t1		t3		t5		11	6.1	3.94	15.4	Flat	24.73	0.11	0.37	0.23	0.89	5.22	17.04	1.72	6.68
RADIO 4449 B12/B71				☐	0.5		1	1	1		r1		r2		r3		15	13.2	10.4	75	Flat	59.76	0.83	1.30	1.28	2.14	38.50	60.67	9.58	15.95
AIR32 B66Aa/B2a				☐			1	1	1		a3	a4	b3	b4	g3	g4	59.26	12.87	8.66	107.8	Flat	189.13	6.85	4.96	8.97	6.97	319.73	231.69	66.96	52.05
AIR 3246 B66				☐			1	1	1		a5	a6	b5	b6	g5	g6	58.1	15.7	9.4	180	Flat	190.26	7.94	5.17	10.10	7.16	370.53	241.36	75.40	53.50
KRY 112 144/2				☐	0.2		1	1	1		t2		t4		t6		8.65	6.65	3.19	9.7	Flat	14.16	0.10	0.23	0.20	0.67	4.47	10.82	1.53	5.03



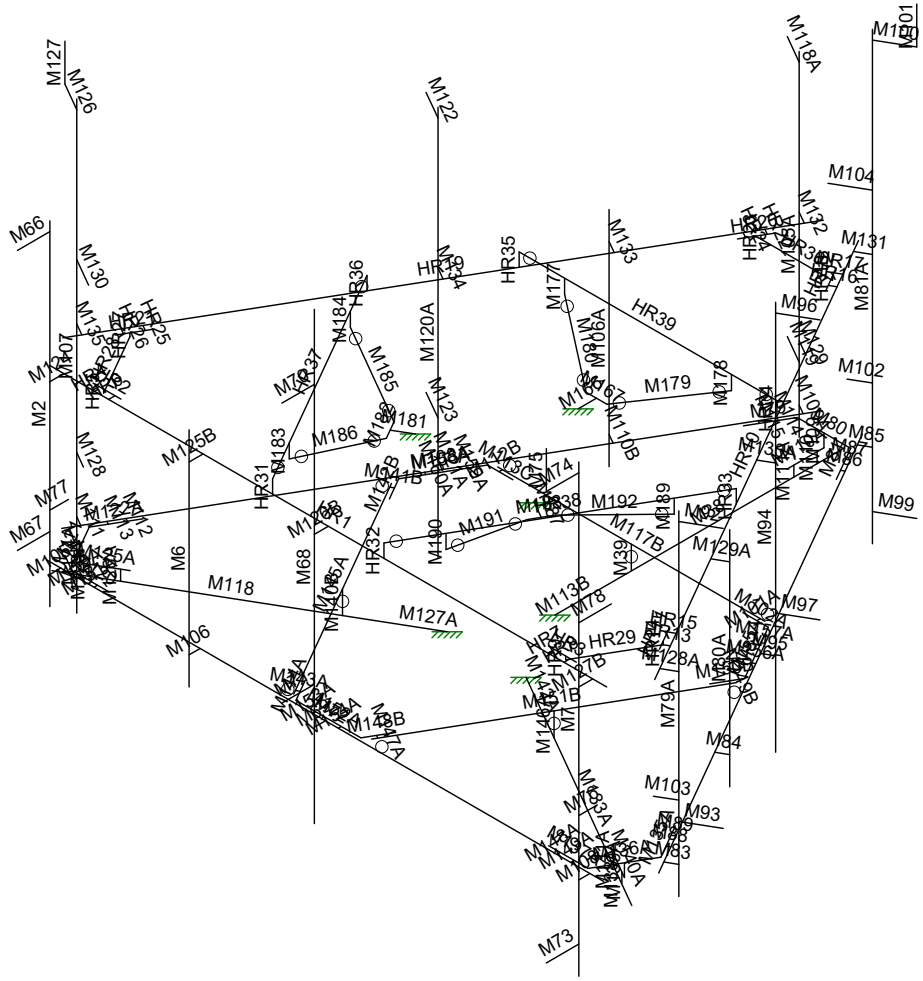
Envelope Only Solution

CLS	41124-12942675-WEST HAVEN & RT 162 CT	SK - 1
JLS		July 3, 2019 at 3:25 PM
41124-12942675-01-MA-R1	Rendered	41124-12942675-01-MA-R1.r3d



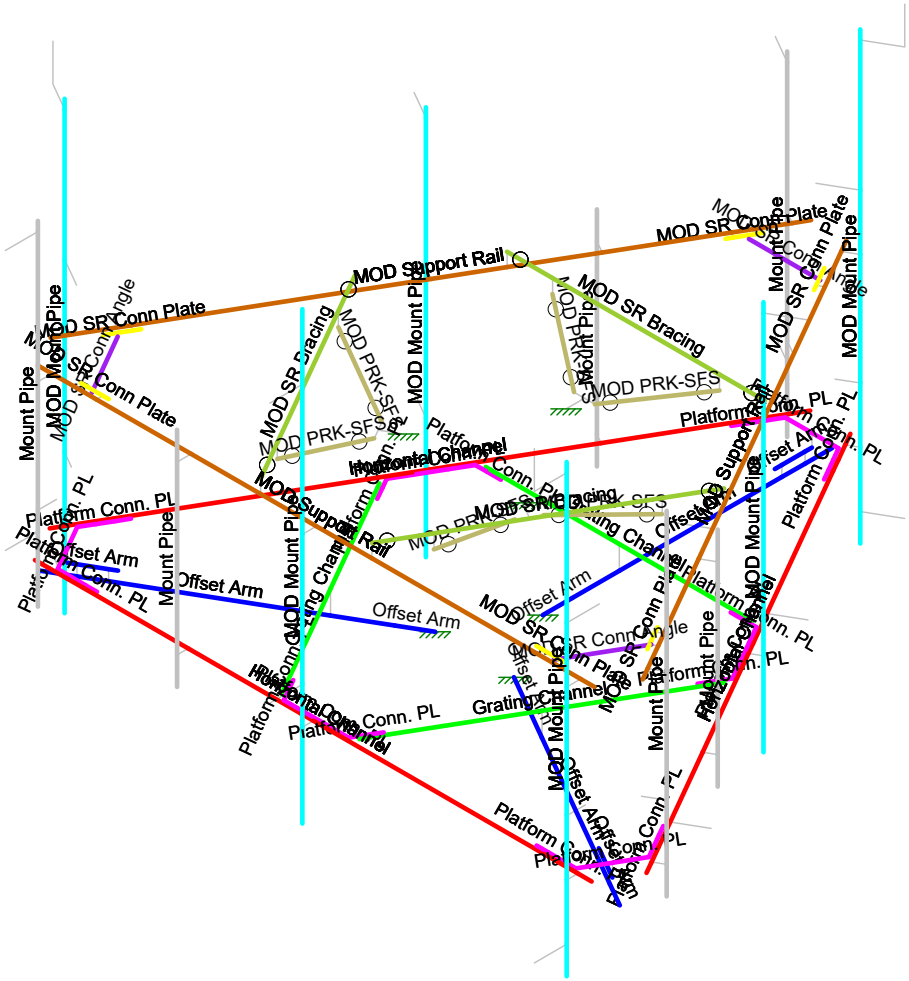
Envelope Only Solution

CLS	41124-12942675-WEST HAVEN & RT 162 CT	SK - 2
JLS		July 3, 2019 at 3:25 PM
41124-12942675-01-MA-R1	Joint Labels	41124-12942675-01-MA-R1.r3d



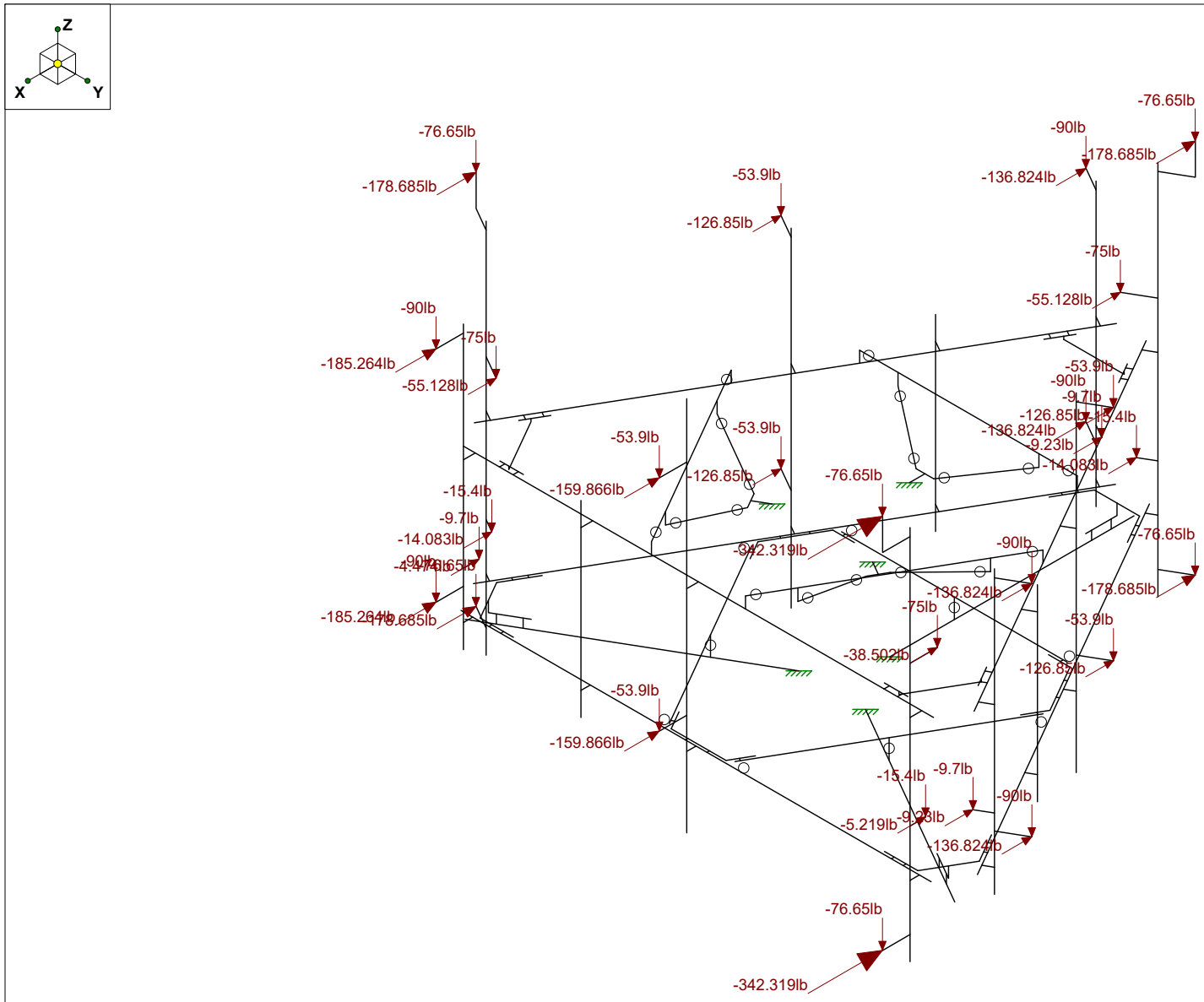
Envelope Only Solution

CLS	41124-12942675-WEST HAVEN & RT 162 CT	SK - 3
JLS		July 3, 2019 at 3:25 PM
41124-12942675-01-MA-R1	Member Labels	41124-12942675-01-MA-R1.r3d



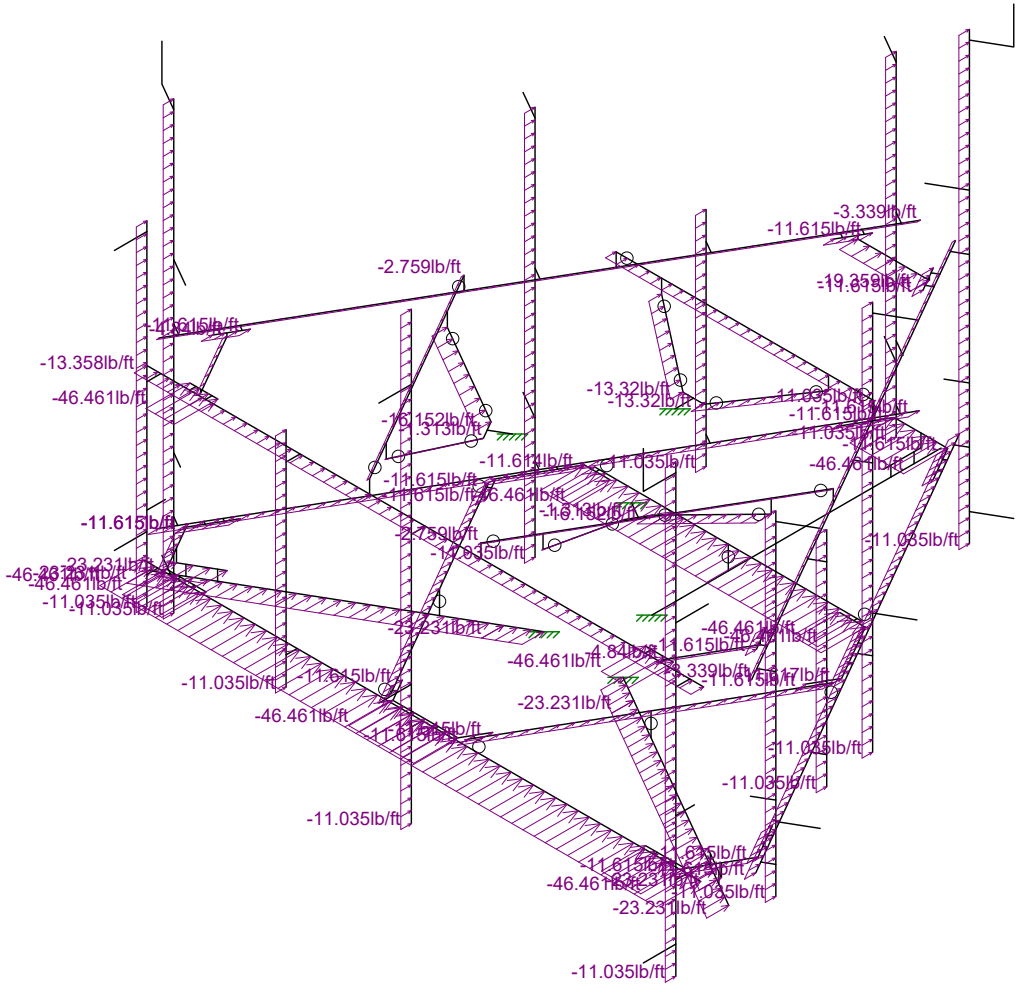
Envelope Only Solution

CLS	41124-12942675-WEST HAVEN & RT 162 CT	SK - 4
JLS		July 3, 2019 at 3:26 PM
41124-12942675-01-MA-R1	Section Sets	41124-12942675-01-MA-R1.r3d



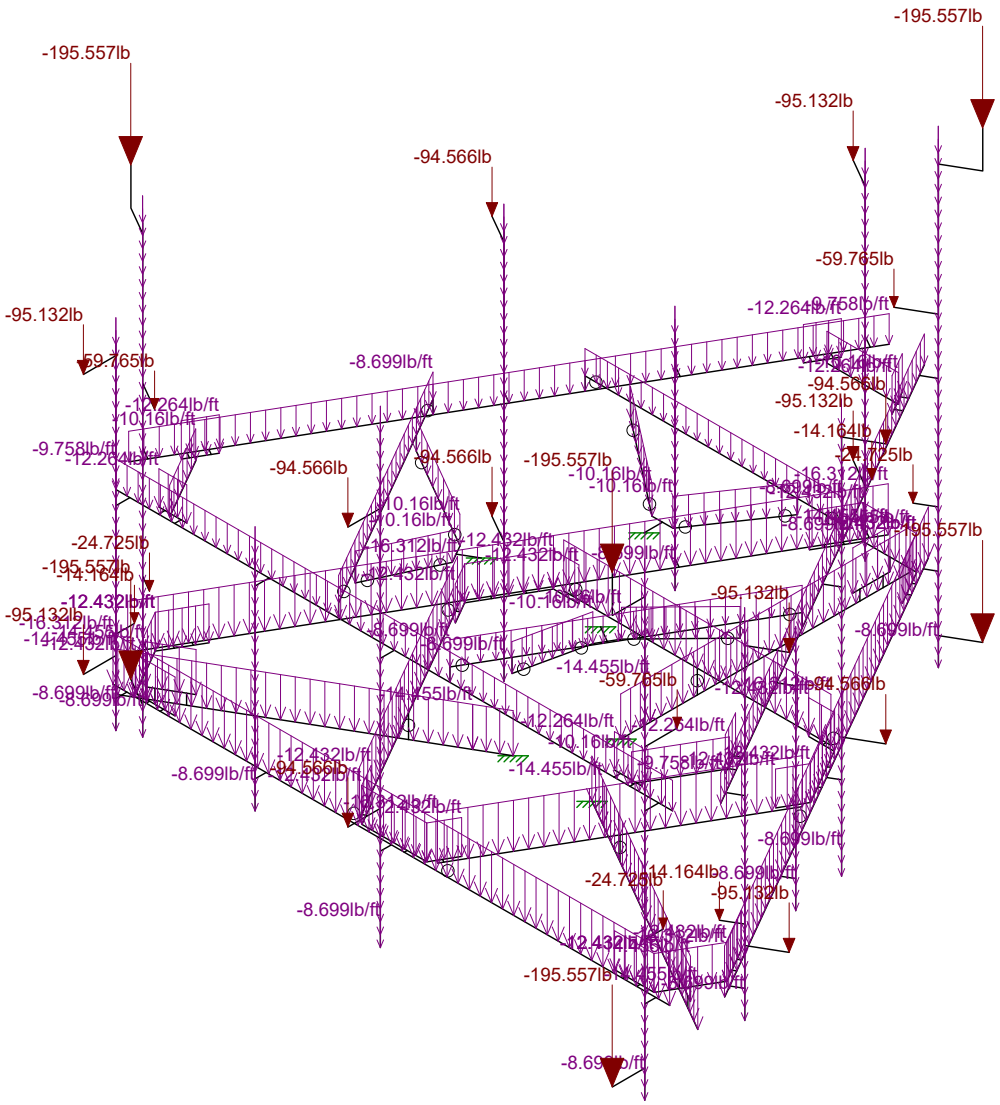
Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

CLS		SK - 5
JLS	41124-12942675-WEST HAVEN & RT 162 CT	July 3, 2019 at 3:26 PM
41124-12942675-01-MA-R1	Joint Loads - Dead and Normal Wind	41124-12942675-01-MA-R1.r3d



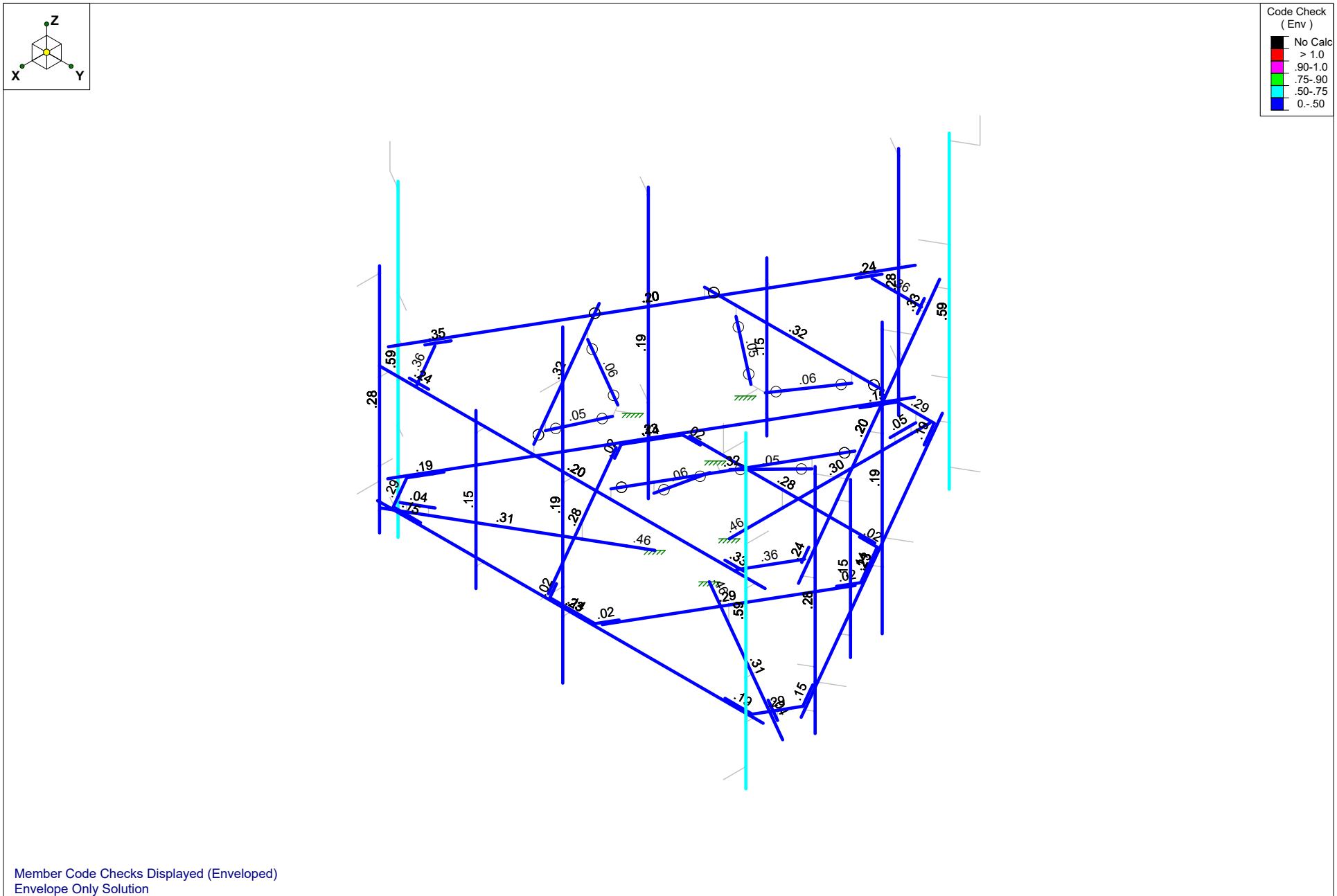
Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

CLS	41124-12942675-WEST HAVEN & RT 162 CT	SK - 6
JLS		July 3, 2019 at 3:26 PM
41124-12942675-01-MA-R1	Distributed Load - Normal Wind	41124-12942675-01-MA-R1.r3d



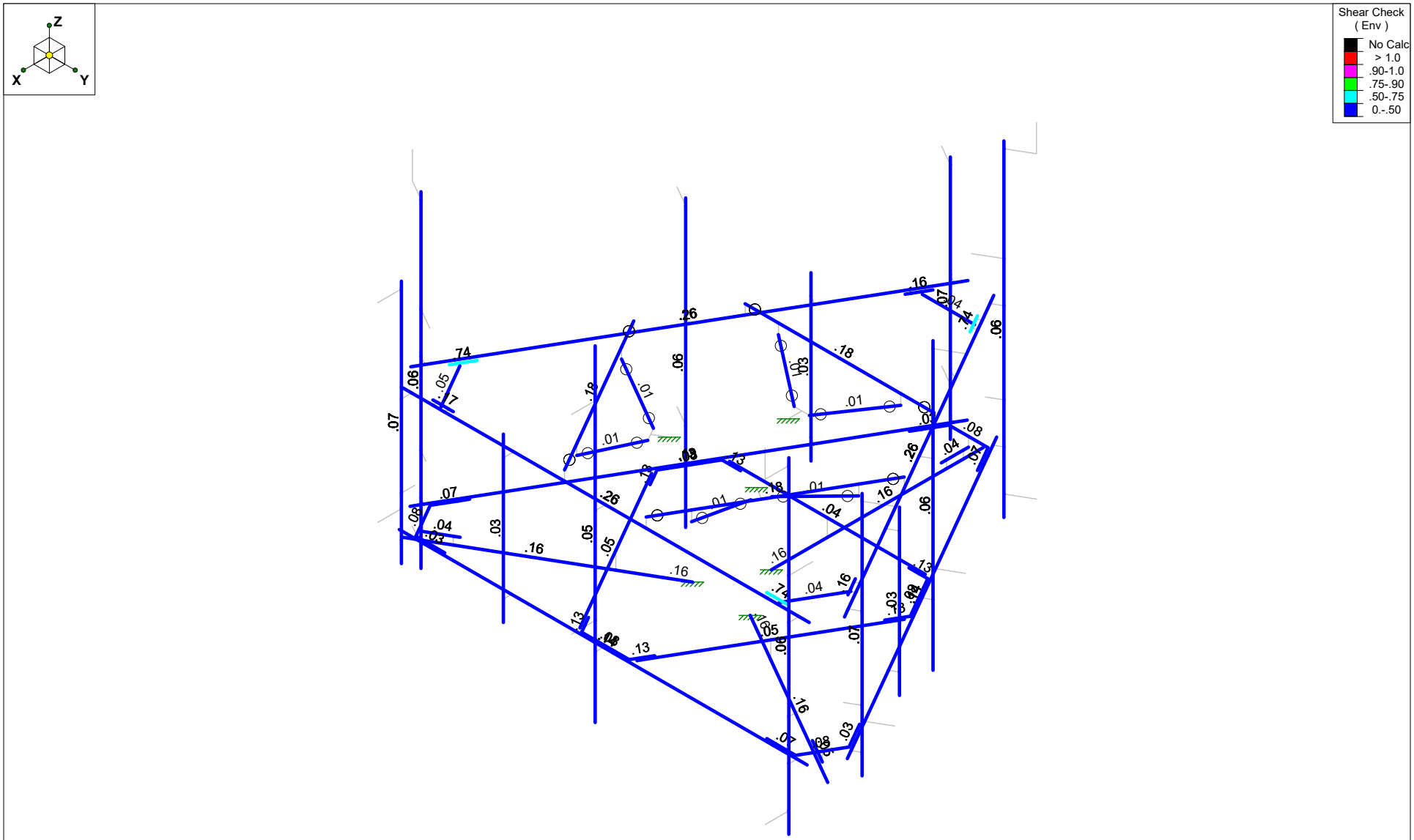
Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS	41124-12942675-WEST HAVEN & RT 162 CT	SK - 7
JLS		July 3, 2019 at 3:26 PM
41124-12942675-01-MA-R1	Ice Dead Loads	41124-12942675-01-MA-R1.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS		SK - 8
JLS	41124-12942675-WEST HAVEN & RT 162 CT	July 3, 2019 at 3:27 PM
41124-12942675-01-MA-R1	Envelope Member Unity Check Results - Bending	41124-12942675-01-MA-R1.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS		SK - 9
JLS	41124-12942675-WEST HAVEN & RT 162 CT	July 3, 2019 at 3:27 PM
41124-12942675-01-MA-R1	Envelope Member Check Results - Shear	41124-12942675-01-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	27				
2	Ice Dead	RL				27		66		
4	Structure Wind 0°	None						63		
5	Structure Wind 30°	None						106		
6	Structure Wind 45°	None						132		
7	Structure Wind 60°	None						126		
8	Structure Wind 90°	None						53		
9	Structure Wind 120°	None						126		
10	Structure Wind 135°	None						132		
11	Structure Wind 150°	None						106		
12	Structure Wind w/ Ice 0°	None						63		
13	Structure Wind w/ Ice 30°	None						108		
14	Structure Wind w/ Ice 45°	None						132		
15	Structure Wind w/ Ice 60°	None						126		
16	Structure Wind w/ Ice 90°	None						54		
17	Structure Wind w/ Ice 120°	None						126		
18	Structure Wind w/ Ice 135°	None						132		
19	Structure Wind w/ Ice 150°	None						108		
20	Antenna Wind 0°	None				27				
21	Antenna Wind 30°	None				54				
22	Antenna Wind 45°	None				54				
23	Antenna Wind 60°	None				54				
24	Antenna Wind 90°	None				27				
25	Antenna Wind 120°	None				54				
26	Antenna Wind 135°	None				54				
27	Antenna Wind 150°	None				54				
28	Antenna Wind w/ Ice 0°	None				27				
29	Antenna Wind w/ Ice 30°	None				54				
30	Antenna Wind w/ Ice 45°	None				54				
31	Antenna Wind w/ Ice 60°	None				54				
32	Antenna Wind w/ Ice 90°	None				27				
33	Antenna Wind w/ Ice 120°	None				54				
34	Antenna Wind w/ Ice 135°	None				54				
35	Antenna Wind w/ Ice 150°	None				54				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				
41	Maintenance Live 500 (3)	OL3				1				
42	Maintenance Live 500 (4)	OL4				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														

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...
14	1.2D + 1.0W_240°	Y...	Y		DL	1.2	7	-1	23	-1														
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												

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...
71	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	8	.061	24	.061	O...	1.5												
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												
83	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	4	.061	20	.061	O...	1.5												
84	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	5	.061	21	.061	O...	1.5												
85	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	6	.061	22	.061	O...	1.5												
86	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	7	.061	23	.061	O...	1.5												
87	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	8	.061	24	.061	O...	1.5												
88	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	9	.061	25	.061	O...	1.5												
89	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	10	.061	26	.061	O...	1.5												
90	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	11	.061	27	.061	O...	1.5												
91	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	4	-.061	20	-.061	O...	1.5												
92	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	5	-.061	21	-.061	O...	1.5												
93	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	6	-.061	22	-.061	O...	1.5												
94	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	7	-.061	23	-.061	O...	1.5												
95	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	8	-.061	24	-.061	O...	1.5												
96	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	9	-.061	25	-.061	O...	1.5												
97	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	10	-.061	26	-.061	O...	1.5												
98	1.2D + 1.5Lm_4 +..	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	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Offset Arm	HSS4X4X3	Beam	HSS Pipe	A36 Gr.36	Typical	2.58	6.21	6.21	10
2	Grating Channel	C6x4	Beam	Channel	A36 Gr.36	Typical	2.375	.784	11.737	.047
3	Horizontal Channel	C6x4	Beam	Channel	A36 Gr.36	Typical	2.375	.784	11.737	.047
4	Support Rail Conn. PL	L2x2x4	Beam	Single An...	A36 Gr.36	Typical	.944	.346	.346	.021
5	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Platform Conn. PL	PL6x0.5	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
7	MOD Mount Pipe	PIPE_2.0X	Beam	Pipe	A53 Gr.B	Typical	1.4	.827	.827	1.65
8	MOD Support Rail	PIPE_2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
9	MOD SR Conn Plate	PL6x0.375	Beam	None	A36 Gr.36	Typical	2.25	.026	6.75	.101
10	MOD SR Conn Angle	L2.5x2.5x4	Beam	None	A36 Gr.36	Typical	1.19	.692	.692	.026
11	MOD PRK-SFS	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011
12	MOD SR Bracing	PIPE_2.0	Beam	None	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	M2	Mount Pipe	72			Lbyy						Lateral
2	M6	Mount Pipe	48			Lbyy						Lateral
3	M7	MOD Mount...	96			Lbyy						Lateral
4	M38	Offset Arm	56			Lbyy						Lateral
5	M72	Horizontal ...	120	47	57	Lbyy						Lateral
6	M79	Platform Co...	8.5			Lbyy						Lateral
7	M80	Platform Co...	11.5			Lbyy						Lateral
8	M81	Platform Co...	8.5			Lbyy						Lateral
9	M110A	Offset Arm	8			Lbyy						Lateral
10	M113B	Offset Arm	6.375			Lbyy						Lateral
11	M102A	Platform Co...	5.5			Lbyy						Lateral
12	M113C	Platform Co...	5.5			Lbyy						Lateral
13	M117B	Grating Cha...	57.596			Lbyy						Lateral
14	M118	Offset Arm	56			Lbyy						Lateral
15	M120	Platform Co...	8.5			Lbyy						Lateral
16	M121	Platform Co...	11.5			Lbyy						Lateral
17	M122A	Platform Co...	8.5			Lbyy						Lateral
18	M125A	Offset Arm	8			Lbyy						Lateral
19	M127A	Offset Arm	6.375			Lbyy						Lateral
20	M133A	Offset Arm	56			Lbyy						Lateral
21	M135A	Platform Co...	8.5			Lbyy						Lateral
22	M136A	Platform Co...	11.5			Lbyy						Lateral
23	M137A	Platform Co...	8.5			Lbyy						Lateral
24	M140A	Offset Arm	8			Lbyy						Lateral
25	M142A	Offset Arm	6.375			Lbyy						Lateral
26	M142B	Platform Co...	5.5			Lbyy						Lateral
27	M144A	Platform Co...	5.5			Lbyy						Lateral
28	M145A	Grating Cha...	57.597			Lbyy						Lateral
29	M148B	Platform Co...	5.5			Lbyy						Lateral
30	M150B	Platform Co...	5.5			Lbyy						Lateral
31	M151B	Grating Cha...	57.597			Lbyy						Lateral
32	M152A	Platform Co...	14.004			Lbyy						Lateral
33	M155A	Platform Co...	14.004			Lbyy						Lateral
34	M158A	Platform Co...	14.004			Lbyy						Lateral
35	M68	MOD Mount...	96			Lbyy						Lateral
36	M79A	Mount Pipe	72			Lbyy						Lateral
37	M80A	Mount Pipe	48			Lbyy						Lateral
38	M81A	MOD Mount...	96			Lbyy						Lateral
39	M82	Horizontal ...	120	47	57	Lbyy						Lateral
40	M94	MOD Mount...	84			Lbyy						Lateral
41	M105A	Mount Pipe	72			Lbyy						Lateral
42	M106A	Mount Pipe	48			Lbyy						Lateral
43	M107	MOD Mount...	96			Lbyy						Lateral
44	M108A	Horizontal ...	120	47	57	Lbyy						Lateral
45	M120A	MOD Mount...	84			Lbyy						Lateral
46	HR1	MOD Supp...	120	35	57							Lateral
47	HR2	MOD SR C...	6									Lateral
48	HR3	MOD SR C...	6									Lateral
49	HR10	MOD Supp...	120	35	57							Lateral
50	HR11	MOD SR C...	6									Lateral
51	HR12	MOD SR C...	6									Lateral
52	HR19	MOD Supp...	120	35	57							Lateral
53	HR20	MOD SR C...	6									Lateral
54	HR21	MOD SR C...	6									Lateral
55	HR28	MOD SR C...	15.408									Lateral
56	HR29	MOD SR C...	15.408									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
57	HR30	MOD SR C...	15.408									Lateral
58	HR37	MOD SR Br...	55.58									Lateral
59	HR38	MOD SR Br...	55.58									Lateral
60	HR39	MOD SR Br...	55.58									Lateral
61	M179	MOD PRK-...	19.876			Lbyy						Lateral
62	M180	MOD PRK-...	19.876			Lbyy						Lateral
63	M185	MOD PRK-...	19.876			Lbyy						Lateral
64	M186	MOD PRK-...	19.876			Lbyy						Lateral
65	M191	MOD PRK-...	19.876			Lbyy						Lateral
66	M192	MOD PRK-...	19.876			Lbyy						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	N214	max	747.95	3	962.94	15	2892.432	19	843.516	7	4421.782	19	1463.892	7
2		min	-1594.703	11	-954.875	7	-205.232	11	-845.089	15	-620.408	11	-1488.282	15
3	N273A	max	1053.019	4	1422.94	16	2907.211	24	3834.221	24	562.409	18	1466.611	12
4		min	-618.156	12	-691.492	8	-201.53	16	-514.26	16	-2288.557	26	-1492.616	4
5	N243A	max	1038.247	18	628.042	13	2907.417	30	560.244	6	452.206	4	1468.237	18
6		min	-617.161	10	-1368.976	5	-201.703	6	-3856.192	30	-2247.275	28	-1490.758	10
7	N305	max	881.52	3	1514.731	15	566.006	11	86.832	15	188.297	11	310.287	7
8		min	-1291.362	11	-1537.079	7	-363.002	3	-88.075	7	-119.853	3	-305.815	15
9	N334	max	1452.289	3	1247.203	15	564.029	16	164.954	16	84.25	11	312.144	12
10		min	-1270.715	11	-890.553	7	-365.273	8	-106.137	8	-116.406	3	-307.826	4
11	N326	max	1434.27	18	929.494	16	564.1	6	102.807	14	75.538	11	312.324	18
12		min	-1218.573	10	-1260.721	8	-365.299	14	-160.158	6	-109.699	3	-307.722	10
13	Totals:	max	6288.622	3	6288.601	15	8457.969	34						
14		min	-6288.618	11	-6288.594	7	2878.316	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	HR3	PL6x0.375	.333	3.735	12	.740	3.735	y	3	61760....	72900	569.7	9112.5	...	H1-1b
2	HR12	PL6x0.375	.332	3.735	7	.738	3.735	y	14	61760....	72900	569.7	9112.5	...	H1-1b
3	HR21	PL6x0.375	.347	3.735	17	.738	3.735	y	8	61760....	72900	569.7	9112.5	...	H1-1b
4	HR19	PIPE_2.5	.199	110.8...	18	.265	110.8...		8	42164....	50715	3596.25	3596.25	...	H1-1b
5	HR10	PIPE_2.5	.199	110.8...	7	.264	110.8...		14	42164....	50715	3596.25	3596.25	...	H1-1b
6	HR1	PIPE_2.5	.200	47.755	17	.264	110.8...		3	42164....	50715	3596.25	3596.25	...	H1-1b
7	HR37	PIPE_2.0	.323	9.641	7	.179	9.641		7	24843....	32130	1871.6...	1871.6.....		H1-1b
8	HR39	PIPE_2.0	.324	9.641	13	.179	9.641		12	24843....	32130	1871.6...	1871.6.....		H1-1b
9	HR38	PIPE_2.0	.323	9.641	18	.178	9.641		18	24843....	32130	1871.6...	1871.6.....		H1-1b
10	HR2	PL6x0.375	.238	2.296	8	.166	2.265	y	1	61760....	72900	569.7	9112.5	...	H1-1b
11	M142A	HSS4X4X3	.464	6.375	24	.163	6.375	y	11	83517....	83592	9909	9909	...	H1-1b
12	M133A	HSS4X4X3	.307	56	25	.162	56	y	11	78050....	83592	9909	9909	...	H1-1b
13	M113B	HSS4X4X3	.462	6.375	19	.162	6.375	y	6	83517....	83592	9909	9909	...	H1-1b
14	M127A	HSS4X4X3	.464	6.375	30	.162	6.375	y	16	83517....	83592	9909	9909	...	H1-1b
15	M38	HSS4X4X3	.305	56	19	.162	56	y	6	78050....	83592	9909	9909	...	H1-1b
16	M118	HSS4X4X3	.306	56	30	.162	56	y	16	78050....	83592	9909	9909	...	H1-1b
17	HR11	PL6x0.375	.237	2.296	3	.159	2.265	y	12	61760....	72900	569.7	9112.5	...	H1-1b
18	HR20	PL6x0.375	.238	2.296	14	.158	2.265	y	7	61760....	72900	569.7	9112.5	...	H1-1b
19	M82	C6x4	.232	63.061	19	.137	60	y	5	52394....	76950	2247.4...	11763....	1	H1-1b
20	M72	C6x4	.232	63.061	25	.135	60	y	10	52394....	76950	2247.4...	11763....	1	H1-1b
21	M144A	PL6x0.5	.021	3.031	29	.134	3.031	y	29	90046....	97200	1012.5	12150	...	H1-1b
22	M150B	PL6x0.5	.021	3.031	23	.134	3.031	y	24	90046....	97200	1012.5	12150	...	H1-1b
23	M108A	C6x4	.232	63.061	30	.133	60	y	15	52394....	76950	2247.4...	11763....	1	H1-1b
24	M113C	PL6x0.5	.020	3.031	34	.133	3.031	y	19	90046....	97200	1012.5	12150	...	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
25	M148B	PL6x0.5	.020	3.031	25	.130	3.031	y	24	90046....	97200	1012.5	12150	...	H1-1b
26	M142B	PL6x0.5	.020	3.031	30	.130	3.031	y	30	90046....	97200	1012.5	12150	...	H1-1b
27	M102A	PL6x0.5	.020	3.031	19	.129	3.031	y	19	90046....	97200	1012.5	12150	...	H1-1b
28	M80	PL6x0.5	.293	5.75	12	.082	5.75	y	5	69587....	97200	1012.5	12150	...	H1-1b
29	M136A	PL6x0.5	.294	5.75	18	.082	5.75	y	10	69587....	97200	1012.5	12150	...	H1-1b
30	M121	PL6x0.5	.294	5.75	7	.082	5.75	y	15	69587....	97200	1012.5	12150	...	H1-1b
31	M155A	PL6x0.5	.139	4.215	12	.076	14.004	y	25	59218....	97200	1012.5	12150	...	H1-1b
32	M152A	PL6x0.5	.138	4.215	18	.076	14.004	y	31	59218....	97200	1012.5	12150	...	H1-1b
33	M158A	PL6x0.5	.138	4.215	7	.076	14.004	y	19	59218....	97200	1012.5	12150	...	H1-1b
34	M137A	PL6x0.5	.194	2.992	3	.074	2.992	y	3	80979....	97200	1012.5	12150	...	H1-1b
35	M81	PL6x0.5	.194	2.992	14	.074	2.992	y	14	80979....	97200	1012.5	12150	...	H1-1b
36	M122A	PL6x0.5	.194	2.992	8	.073	2.992	y	8	80979....	97200	1012.5	12150	...	H1-1b
37	M2	PIPE_2.0	.284	42.245	11	.073	6.245		17	20866....	32130	1871.6...	1871.6...	...	H1-1b
38	M79A	PIPE_2.0	.284	42.245	6	.072	6.245		12	20866....	32130	1871.6...	1871.6...	...	H1-1b
39	M105A	PIPE_2.0	.284	42.245	16	.072	6.245		7	20866....	32130	1871.6...	1871.6...	...	H1-1b
40	M7	PIPE_2.0X	.588	54.367	3	.064	66.122		5	19844....	44100	2530.5	2530.5	...	H1-1b
41	M81A	PIPE_2.0X	.589	54.367	14	.063	66.122		15	19844....	44100	2530.5	2530.5	...	H1-1b
42	M107	PIPE_2.0X	.588	54.367	8	.063	66.122		10	19844....	44100	2530.5	2530.5	...	H1-1b
43	M120A	PIPE_2.0X	.193	54	16	.056	54		4	23929....	44100	2530.5	2530.5	...	H1-1b
44	M94	PIPE_2.0X	.192	54	6	.056	54		10	23929....	44100	2530.5	2530.5	...	H1-1b
45	M68	PIPE_2.0X	.189	54.367	11	.050	53.878		7	19844....	44100	2530.5	2530.5	...	H1-1b
46	M140A	HSS4X4X3	.045	0	18	.046	1.469	z	43	83475....	83592	9909	9909	...	H1-1b
47	HR28	L2.5x2.5x4	.359	0	8	.046	15.408	z	9	36536....	38556	1113.5...	2537.3...	...	H2-1
48	M145A	C6x4	.284	28.798	13	.045	28.798	y	29	45336....	76950	2247.4...	12868.2	...	H1-1b
49	M151B	C6x4	.291	28.504	9	.045	28.798	y	24	45336....	76950	2247.4...	12868.2	...	H1-1b
50	M117B	C6x4	.278	28.798	18	.045	28.798	y	19	45336....	76950	2247.4...	12868.2	...	H1-1b
51	HR30	L2.5x2.5x4	.358	0	14	.044	.157	y	15	36536....	38556	1113.5...	2537.3...	...	H2-1
52	HR29	L2.5x2.5x4	.360	0	3	.043	.079	y	4	36536....	38556	1113.5...	2537.3...	...	H2-1
53	M125A	HSS4X4X3	.045	0	7	.039	1.469	z	88	83475....	83592	9909	9909	...	H1-1b
54	M110A	HSS4X4X3	.046	0	13	.039	1.469	z	6	83475....	83592	9909	9909	...	H1-1b
55	M6	PIPE_2.0	.155	6.122	89	.031	6.122		9	26521....	32130	1871.6...	1871.6...	...	H1-1b
56	M80A	PIPE_2.0	.152	6.122	19	.030	6.122		4	26521....	32130	1871.6...	1871.6...	...	H1-1b
57	M106A	PIPE_2.0	.152	6.122	30	.030	6.122		15	26521....	32130	1871.6...	1871.6...	...	H1-1b
58	M120	PL6x0.5	.150	2.992	3	.028	0	y	97	80979....	97200	1012.5	12150	...	H1-1b
59	M135A	PL6x0.5	.150	2.992	14	.026	2.992	y	11	80979....	97200	1012.5	12150	...	H1-1b
60	M79	PL6x0.5	.150	2.992	8	.026	2.992	y	6	80979....	97200	1012.5	12150	...	H1-1b
61	M192	L2.5x2.5x3	.052	9.634	14	.010	19.876	y	10	26301....	29192.4	872.574	1971.83	...	H2-1
62	M186	L2.5x2.5x3	.052	9.634	3	.010	0	y	15	26301....	29192.4	872.574	1971.83	...	H2-1
63	M180	L2.5x2.5x3	.052	9.634	9	.010	0	y	4	26301....	29192.4	872.574	1971.83	...	H2-1
64	M185	L2.5x2.5x3	.056	9.634	8	.009	0	y	29	26301....	29192.4	872.574	1971.83	...	H2-1
65	M191	L2.5x2.5x3	.056	9.634	3	.009	0	y	24	26301....	29192.4	872.574	1971.83	...	H2-1
66	M179	L2.5x2.5x3	.056	9.634	14	.009	0	y	34	26301....	29192.4	872.574	1971.83	...	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: CT11821E

CT821/D&B Flower Farm
668 Jones Hill Road
West Haven, Connecticut 06516

June 12, 2019

EBI Project Number: 6219002192

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**13.06%**

June 12, 2019

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

Emissions Analysis for Site: CT11821E - CT821/D&B Flower Farm

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **668 Jones Hill Road** in **West 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 668 Jones Hill Road in West 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) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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

6) 2 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.

7) 4 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.

8) 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.

9) 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.

10) The antennas used in this modeling are the RFS APXVAARR24_43-U-NA20 for the 1900 MHz / 1900 MHz / 2100 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz channel(s), the Ericsson AIR 3246 for the 2100 MHz channel(s) in Sector A, the RFS APXVAARR24_43-U-NA20 for the 1900 MHz / 1900 MHz / 2100 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz channel(s), the Ericsson AIR 3246 for the 2100 MHz channel(s) in Sector B, the RFS APXVAARR24_43-U-NA20 for the 1900 MHz / 1900 MHz / 2100 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz channel(s), the Ericsson AIR 3246 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.

11) The antenna mounting height centerline of the proposed antennas is 143 feet above ground level (AGL).

12) 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.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 600 MHz / 700 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 600 MHz / 700 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 600 MHz / 700 MHz
Gain:	15.65 dBd / 15.65 dBd / 16.35 dBd / 12.95 dBd / 13.35 dBd	Gain:	15.65 dBd / 15.65 dBd / 16.35 dBd / 12.95 dBd / 13.35 dBd	Gain:	15.65 dBd / 15.65 dBd / 16.35 dBd / 12.95 dBd / 13.35 dBd
Height (AGL):	143 feet	Height (AGL):	143 feet	Height (AGL):	143 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	11,681.28	ERP (W):	11,681.28	ERP (W):	11,681.28
Antenna A1 MPE %:	**2.63%**	Antenna B1 MPE %:	**2.63%**	Antenna C1 MPE %:	**2.63%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz	Frequency Bands:	1900 MHz	Frequency Bands:	1900 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	143 feet	Height (AGL):	143 feet	Height (AGL):	143 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 A2 MPE %:	**0.72%**	Antenna B2 MPE %:	**0.72%**	Antenna C2 MPE %:	**0.72%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 3246	Make / Model:	Ericsson AIR 3246	Make / Model:	Ericsson AIR 3246
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.85 dBd	Gain:	15.85 dBd	Gain:	15.85 dBd
Height (AGL):	143 feet	Height (AGL):	143 feet	Height (AGL):	143 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	9,230.20	ERP (W):	9,230.20	ERP (W):	9,230.20
Antenna A3 MPE %:	**1.62%**	Antenna B3 MPE %:	**1.62%**	Antenna C3 MPE %:	**1.62%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	4.97%
Clearwire	0.12%
Metro PCS	1.02%
Computer Hospital	0.23%
Verizon	2.42%
AT&T	4.3%
Site Total MPE % :	13.06%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	4.97%
T-Mobile Sector B Total:	4.97%
T-Mobile Sector C Total:	4.97%
Site Total MPE % :	13.06%

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	4	1101.85	143.0	7.75	1900 MHz GSM	1000	0.77%
T-Mobile 1900 MHz UMTS	2	1101.85	143.0	3.87	1900 MHz UMTS	1000	0.39%
T-Mobile 2100 MHz UMTS	2	1294.56	143.0	4.55	2100 MHz UMTS	1000	0.46%
T-Mobile 600 MHz LTE	2	591.73	143.0	2.08	600 MHz LTE	400	0.52%
T-Mobile 700 MHz LTE	2	648.82	143.0	2.28	700 MHz LTE	467	0.49%
T-Mobile 1900 MHz LTE	2	2056.61	143.0	7.23	1900 MHz LTE	1000	0.72%
T-Mobile 2100 MHz LTE	4	2307.55	143.0	16.23	2100 MHz LTE	1000	1.62%
						Total:	**4.97%**

• 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:	4.97%
Sector B:	4.97%
Sector C:	4.97%
T-Mobile Maximum MPE % (Sector A):	4.97%
Site Total:	13.06%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **13.06%** 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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MAHWAH ,NJ 07430

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THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

UPS Access Point™
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74 LAFAYETTE AVE
SUFFERN ,NY 10901

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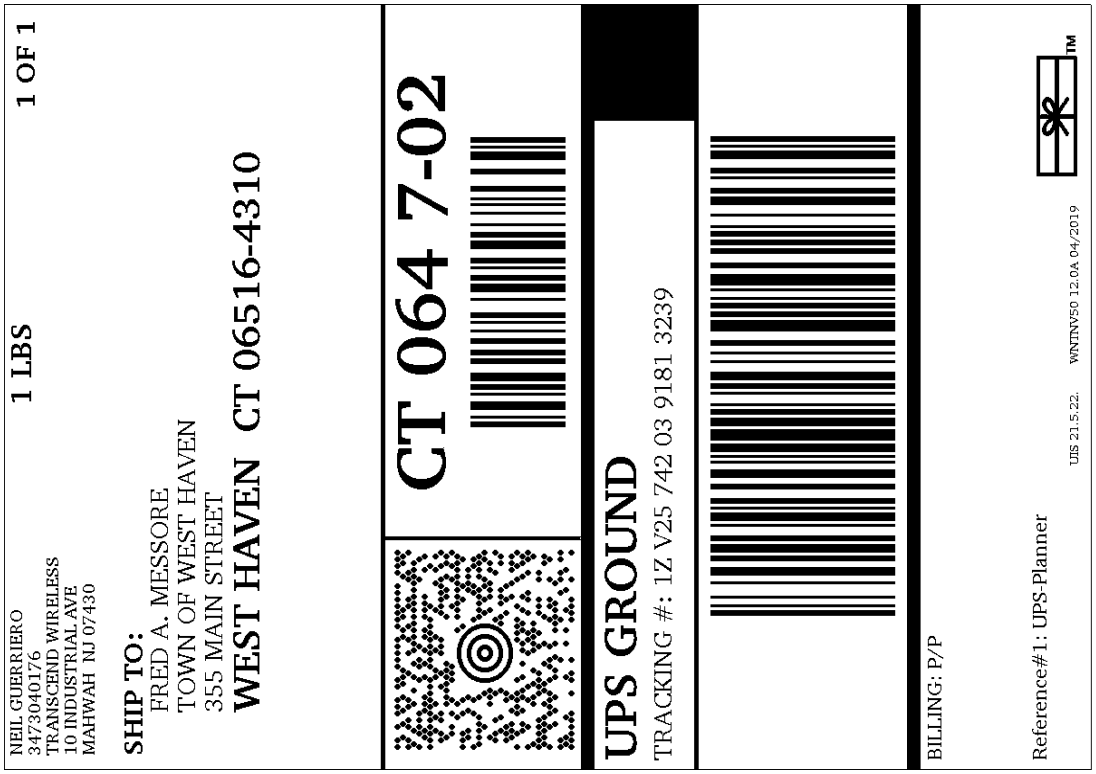

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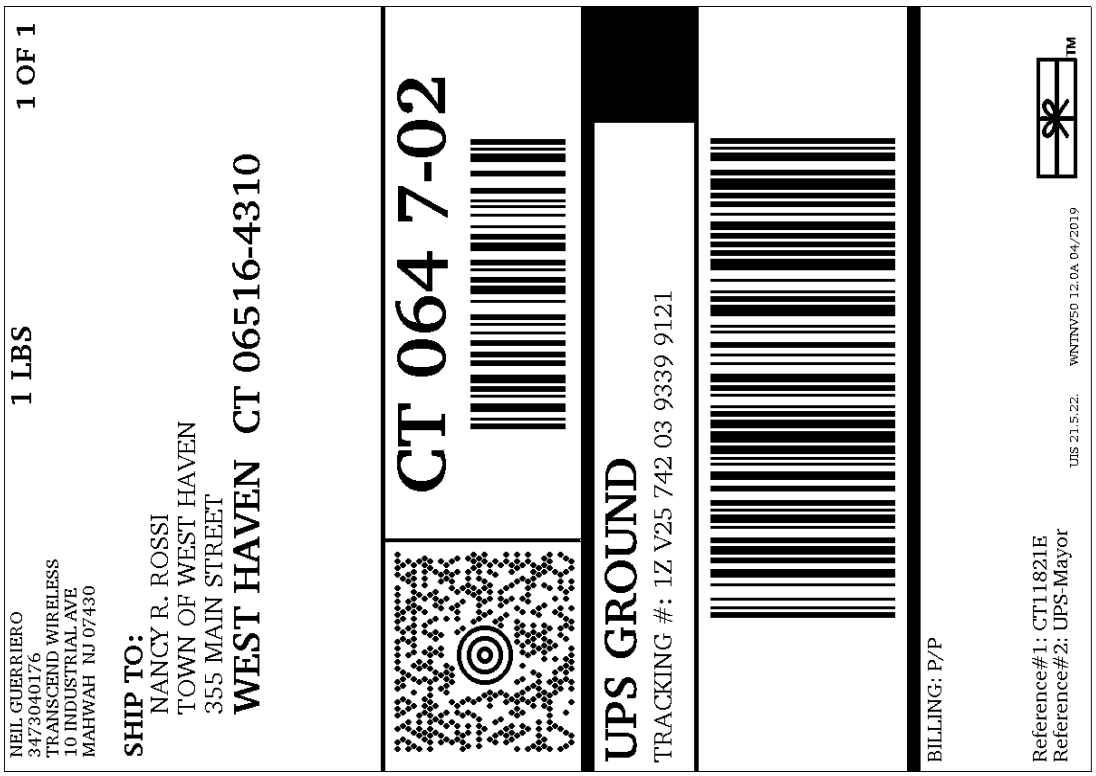

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