Filed by:
G. Scott Shepherd, Site Development Specialist II - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3807 - GShepherd@sbasite.com

January 11, 2021

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

Notice of Exempt Modification
10 Redwood Ln, Avon, CT 06001
Latitude : 41.772499
Longitude : -72.879999
T-Mobile #: CT11380C_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 110-foot level of the existing 105-foot Monopole Tower at 10 Redwood Ln., Avon, CT. The tower is owned by SBA Properties, Inc. The property is owned by the Town of Avon. T-Mobile plans to remove three (3) existing antennas and replace with three (3) new L2500 MHz antennas.

The new antennas support 5G services and would be installed at the 110-foot level of the tower.

Please note: Per the Connecticut Siting Council Website: CSC COVID 19 Guidelines.
In order to prevent the spread of Coronavirus and protect the health and safety of our members and staff, as of March 18, 2020, the Connecticut Siting Council shall convert to full remote operations until March 30, 2020. Please be advised that during this time period, all hard copy filing requirements will be waived in lieu of an electronic filing. Please also be advised that the March 26, 2020 regular meeting shall be held via teleconference. The Council's website is not equipped with an on-line filing fee receipt service. Therefore, filing fees and/or direct cost charges associated with matters received electronically during the above-mentioned time period will be directly invoiced at a later date

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) Ericsson - AIR 21 B2A B4P – Panel (Remove) / (3) Ericsson AIR6449 B41 Panel L2500 MHz (Replace)

Install New:

- (3) Ericsson Radio 4415 RRUs
- (3) Commscope SDX1926Q-43 Quadplexers
- Kicker Kit w/Collar Mount
- (1) 1-5/8" fiber

Existing Equipment to Remain:

- (3) RFS APXVAARR24_43-U-NA20 600/700 MHz Panel
- (3) Ericsson AIR32 KRD901146-1_B66A_B2A L1900/2100 MHz Panel
- (3) Ericsson KRY 112 144/1 TMAs
- (3) Ericsson Radio 4449 B71+B85 RRUs
- Low Profile Platform w/Hand Rail
- (6) 1-5/8" coax
- (1) ½" Coax for GPS (on ground)

Entitlements:

- (3) 1-5/8" coax
- (3) 1-5/8" fiber

GROUND

Install New:

- Equipment inside existing 6131 cabinet
- Battery Cabinet on existing concrete pad

Remove and Replace:

- Existing Nortel S12000 equipment cabinet (remove) / Ericsson 6160 Equip. Cabinet on existing concrete pad (replace)

This facility was approved on July 25, 2000, by the Town of Avon Planning and Zoning Commission under Application #3624-3626 for Site Plan and Special Exception. The P&Z approved the removal of the exisiting 80-foot tower and replace with a 110-foot wireless telecommunications facility with the following conditions: The color of the Tower shall be matte gray; the applicant shall post a bond in the amount of $50,000 to provide for removal of the Tower if the tower is inactive for a period of one year or if the Town Engineer determines that it is a hazard. There were no further post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Avon's Town Manager, Brandon Robertson, and Building Official, Raymond Steadward. (Separate notice is not being sent to a property owner as it belongs to the Town, or to the tower owner, as it belongs to SBA.)

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 modification 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 modification 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 telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbasite.com

Attachments

cc: Brandon Robertson, Town Manager of the Town of Avon / with attachments
Town of Avon, 60 West Main St., Avon, CT 06001
Raymond Steadward, Building Official / with attachments
Town of Avon, 60 West Main St., Avon, CT 06001

EXHIBIT LIST

Exhibit 1	Check Copy	To be invoiced at a later date per Covid guidelines.
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	CSC 10/10/08 & Town of Avon P&Z Commission 7/25/2000
Exhibit 6	Construction Drawings	Chappell Engineering dated 1/6/21
Exhibit 7	Structural Analysis	TES dated 11/12/20
Exhibit 8	Post-Mod Mount Analysis	TES dated 11/19/20
Exhibit 9	MMCD	TES dated 11/19/20
Exhibit 10	EME Report	Transcom dated 12/2/20

EXHIBIT 1

Normally, Exhibit 1 would contain a copy of the check for the filing fee.

EXHIBIT 2

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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EXHIBIT 3

Property at 00010 REDWOOD LANE | Prop ID 3680010 | Printed 14-Feb-2019 10:35 PM | Design and Layout (C) Right/Angles

Administrative Information

Owner name: AVON WATER COMPANY
Second name: C/O CONNECTICUT WATER CO
Address: 93 WEST MAIN STREET
City/state: CLINTON CT Zip: 06413

Location Information

Map: Clerk map:
Lot: 3680010 Neigh.: FW Zone: Vol: 218 Page: 362

Assessments

Assmt category	Qty	Amount
Pub Util Land	1.00	7,000

Exemptions

Exempt	Cat	Amount

Last sale

Sale date: 02-Feb-1989
Sale price:
Sale valid:

Values

Mkt value :
Cost value: 10,000

Summary

Total assessments	7,000
Total exemptions	
Net assessment	7,000

Utilities

Water	None
Sewer	None
Gas	None

Sales ratios

Cost/sale :
Mkt/sale :
Assmt/sale:

No sketch for this property

EXHIBIT 4

Google Maps

Imagery ©2021 Maxar Technologies, U.S. Geological Survey, Map data ©2021 50 ft

EXHIBIT 5

Avon/CT 01498-5

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Internet: ct.gov/csc

Daniel F. Caruso
Chairman

October 10, 2008

Carrie L. Larson, Esq.
Pullman and Comley, LLC
90 State House Square
Hartford, CT 06103-3702

RE: **EM-POCKET-004-080924** – Youghiogheny Communications-Northeast, LLC d/b/a Pocket Communications notice of intent to modify an existing telecommunications facility located at 10 Redwood Lane, Avon, Connecticut.

Dear Attorney Larson:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the condition that the applicant follow the recommendations of the Professional Engineer that the proposed coaxial cables should be installed inside the monopole shaft, but may be installed outside the shaft in a single row, if necessary.

The proposed modifications are to be implemented as specified here and in your notice dated September 23, 2008, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps/cml

S. Derek Phelps
Executive Director

SDP/CML/cm

c: The Honorable John F. Carlson, Chairman Town Council, Town of Avon
Steven V. Kushner, Town Planner, Town of Avon
SBA Communications

G:\EM\Pocket\Avon\dc101008.DOC

SITE ID #4275-009

SITE NAME: AVON

CTO 1498-S

JOB COST #001498

ZONING/PERMITTING COMPLETION FORM

Zoning Classification for Site: R-30

Special Relief (setback, height variance, special use permit, wetlands permit etc.):

Special Permit Approval

* Date of Zoning Decision: 07/25/00

Summary of zoning conditions **(Include details of any conditions relative to time restrictions, expiration dates, renewal obligations, monetary obligations, performance obligation, inspection fees).**

See attached.

Submitted by: Esther McNany

Title: Territory Manager

Territory Manager Approval:

* Attach a copy of the Zoning decision and forward to the Regional Compliance Manager as soon as possible, after the decision.

Site Name: AVON

Site #: 4275-009/001498

TOWN OF AVON

60 West Main St. Avon, CT 06001-3743

POLICE, FIRE & MEDICAL EMERGENCY - 911

TOWN MANAGER'S OFFICE
Tel. (860) 409-4300
Fax (860) 409-4368

ACCOUNTING
Tel. (860) 409-4339
Fax (860) 409-4366

ASSESSOR'S OFFICE
Tel. (860) 409-4335
Fax (860) 409-4366

BUILDING DEPARTMENT
Tel. (860) 409-4316
Fax (860) 409-4364

COLLECTOR OF REVENUE
Tel. (860) 409-4306
Fax (860) 677-8428

ENGINEERING DEPARTMENT
Tel. (860) 409-4322
Fax (860) 409-4364

FINANCE DEPARTMENT
Tel. (860) 409-4339
Fax (860) 409-4366

FIRE MARSHAL
Tel. (860) 409-4319
Fax (860) 409-4364

LANDFILL
281 Huckleberry Hill Rd.
Tel. (860) 673-3677

PLANNING & ZONING
Tel. (860) 409-4328
Fax (860) 409-4364

POLICE DEPARTMENT
Tel. (860) 409-4200
Fax (860) 409-4206

PROBATE
Tel. (860) 409-4348
Fax (860) 409-4368

PUBLIC LIBRARY
281 Country Club Road
Tel. (860) 673-9712
Fax (860) 675-6364

PUBLIC WORKS
11 Arch Road
Tel. (860) 673-6151
Fax (860) 673-0338

RECREATION AND PARKS
Tel. (860) 409-4332
Fax (860) 409-4366
Cancellation (860) 409-4365

REGISTRAR OF VOTERS
Tel. (860) 409-4350
Fax (860) 409-4368

SOCIAL SERVICES
Tel. (860) 409-4346
Fax (860) 409-4366

TOWN CLERK
Tel. (860) 409-4310
Fax (860) 677-8428

TDD HEARING IMPAIRED
Tel. (860) 409-4361

July 27, 2000

Mr. Thomas F. Flynn III
SBA Inc.
80 Eastern Boulevard
Glastonbury, CT 06033

Dear Mr. Flynn:

At a meeting held on Tuesday, July 25, 2000, the Planning and Zoning Commission of the Town of Avon voted as follows:

App. #3624 - The Avon Water Company, owner, SBA Inc., applicant, request for Special Exception under Section IV.A.4.a. of Avon Zoning Regulations to remove existing 80-foot tower and replace with a 110-foot wireless telecommunications facility, 10 Redwood Lane in Farmington Woods, Assessor's Map 17, Parcel 7, in a R-30 Zone. APPROVED WITH CONDITIONS.

App. #3626 - The Avon Water Company, owner, SBA Inc., applicant, request for Site Plan Approval to remove existing tower and replace with 110-foot wireless telecommunications facility, 10 Redwood Lane in Farmington Woods, Assessor's Map 17, Parcel 7, in a R-30 Zone. APPROVED WITH CONDITIONS.

The Commission approved App. #3624 subject to the following conditions:

1. The color of the tower shall be matte gray.

2. The applicant shall post a bond in the amount of $50,000 to provide for removal of the tower if the tower is inactive for a period of one year or if the Town Engineer determines that it is a hazard.

3. Approval is for 5 antenna clusters on the tower and ancillary cabinets and sheds. Any modest changes in antenna appearance or structure or in structures on the ground may be approved by the Town Planner. If the Town Planner so chooses, such changes may be brought to the Commission for approval.

The Commission approved App. #3626 subject to the following condition:

1. Approval is for 5 antenna clusters on the tower and ancillary cabinets and sheds. Any modest changes in antenna appearance or structure or in structures on the ground may be approved by the Town Planner. If the Town Planner so chooses, such changes may be brought to the Commission for approval.

In addition, please note that the Commission has adopted a standard condition of approval relating to inspections of the property as may be necessary, which is as follows: Until the final permanent certificate of occupancy is issued, Town staff members, officials, and consultants as designated by the Town Planner or the Chairman shall be authorized and permitted to conduct inspections upon the property.

Please note that prior to your Special Exception becoming effective, a certified copy must be filed with the Town Clerk. The fee is $13 per page. Please return the enclosed Grant of Special Exception to this office for the Chairman's signature along with the recording fee (check should be payable to Town of Avon). No building permit shall be issued until this certification has been returned and the 15-day appeal period has expired.

Upon compliance with the foregoing conditions, the Chairman of the Planning and Zoning Commission has been authorized to sign the mylar maps for filing. This letter of approval shall be reproduced on the mylars. Please submit 1 set of fixed-line photo mylars and 4 copies. Please include a signature block for the Chairman's signature (sample enclosed).

Please note that this approval is valid for one year from the date of approval unless construction is in progress or unless an extension of time has been granted by the Commission. It is the applicant's responsibility to apply for renewal.

Sincerely yours,

Jean Frey

Jean Frey, Clerk
Planning and Zoning Commission

Enclosures

CERTIFIED MAIL 7099 3400 0010 2712 1020

cc: Building Official
Town Engineer
Assessor
The Avon Water Company

Signature Block For Site Plan Approval:

APPROVED BY THE PLANNING AND ZONING COMMISSION
OF THE TOWN OF AVON AT ITS MEETING ON _____
AND SIGNED BY CHAIRMAN

_____

ACCORDING TO CGS SEC. 8-3i, ALL WORK IN CONNECTION
WITH THE ABOVE SITE PLAN SHALL BE COMPLETED WITHIN
FIVE (5) YEARS _____

Signature block to go on each sheet.

Application # 3624

TOWN OF AVON, CONNECTICUT

GRANT OF VARIANCE AND SPECIAL EXCEPTION

On the application of SBA Inc.,

the Planning and Zoning Commission of the Town of Avon, Connecticut, did grant a

____ Variance

X Special Exception

effective on the 25th day of July, 20 00, in relation to the following property:

Street Address: 10 Redwood Lane

Description of Premises:

Assessor's Aerial Map No. 17

Lot No. 7

Owner of Record: The Avon Water Company

Volume 218 Page 362

Avon Land Records

This grant is made in accordance with the provisions of Section IV.A.4.a. of the regulations of the Commission. The applicant was granted the right to:

remove existing 80-foot tower and replace with a 110-foot wireless telecommunications facility subject to conditions.

Certified this _____ day of _____, 20____.

By _____

Chairman, Planning and Zoning Commission

EXHIBIT 6

SPECIAL CONSTRUCTION NOTE (SBA-PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE T-MOBILE RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

SBA AVON/RT 177

10 REDWOOD LANE
AVON, CT 06001

SITE NO.: CT11380C

RF DESIGN GUIDELINE: 67D5A997DB OUTDOOR

APPROVALS

PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

SITE NOTES

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
   - ADA COMPLIANCE NOT REQUIRED.
   - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMNIPOINT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

811 DigSafe
MA.ME.NH.RI.VT

VICINITY MAP: 1"=1000'

DIRECTIONS

FROM COMMERCE WAY TRAVELING NE TOWARDS N BOUNDARY RD/S WASHINGTON ST, CONTINUE ONTO S. WASHINGTON ST TO TAKE A RIGHT ONTO MA-123 E, TURN LEFT TO MERGE ONTO I-495 N TOWARD MANSFIELD, MARLBORO, FOLLOW I-495 N, I-90 W AND I-84 TO STATE HWY 508 IN FARMINGTON, TAKE EXIT 39 FROM I-84, TAKE CT-4 TO CATALPA CT IN AVON, CONTINUE ONTO STATE HWY 508, STATE HWY 508 TURNS SLIGHTLY RIGHT AND AND BECOMES CT-4 W, TURN RIGHT ONTO CT-167 N, TURN RIGHT ONTO CT-167 N, TURN LEFT ONTO HERITAGE DR, TURN RIGHT TO STAY ON HERITAGE DR, TURN LEFT ONTO BYRON DR, TURN RIGHT ONTO CATALPA CT, DESTINATION WILL BE ON THE RIGHT

SHEET INDEX

SHT. NO.	DESCRIPTION	VER.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ELEVATION & ANTENNA PLANS	1
A-3	SITE DETAILS	1
A-4	ANTENNA & FEEDLINE CHARTS	1
S-1	ANTENNA MOUNTING DETAILS	1

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT SUMMARY

SITE NUMBER:	CT11380C
SITE NAME:	SBA AVON/RT 177
SBA SITE NUMBER:	CT01498-S
SBA SITE NAME:	AVON
SITE ADDRESS:	10 REDWOOD LANE AVON, CT 06001
ASSESSOR'S PARCEL NO.:	3680010
ZONING DISTRICT:	RESIDENTIAL (R-30)
CONSTRUCTION TYPE:	ANCHOR UPGRADE
LAND OWNER:	AVON WATER COMPANY; C/O CONNECTICUT WATER CO. 93 WEST MAIN STREET CLINTON, CT 06413
TOWER OWNER:	SBA TOWERS, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SRoth@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: 41.77216000° N41°46'19.78" LONGITUDE: -72.87996000° W72°52'47.86"

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST. EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED PROFESSIONAL CIVIL ENGINEER
1/6/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	01/06/21	ISSUED FOR CONSTRUCTION	BDJ
0	11/05/20	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CT11380C
SITE ADDRESS:
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.160

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – T–MOBILE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH ALL T–MOBILE STANDARDS AND SPECIFICATIONS.

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T–MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (400PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER
   OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.

7. CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T–MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.

4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.

5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL

6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUN, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T–MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).

8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

T–MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286–2700

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LICENSED PROFESSIONAL CIVIL ENGINEER

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CHECKED BY: JMT

APPROVED BY: JMT

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1	01/06/21	ISSUED FOR CONSTRUCTION	BDJ
0	11/05/20	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CT11380C

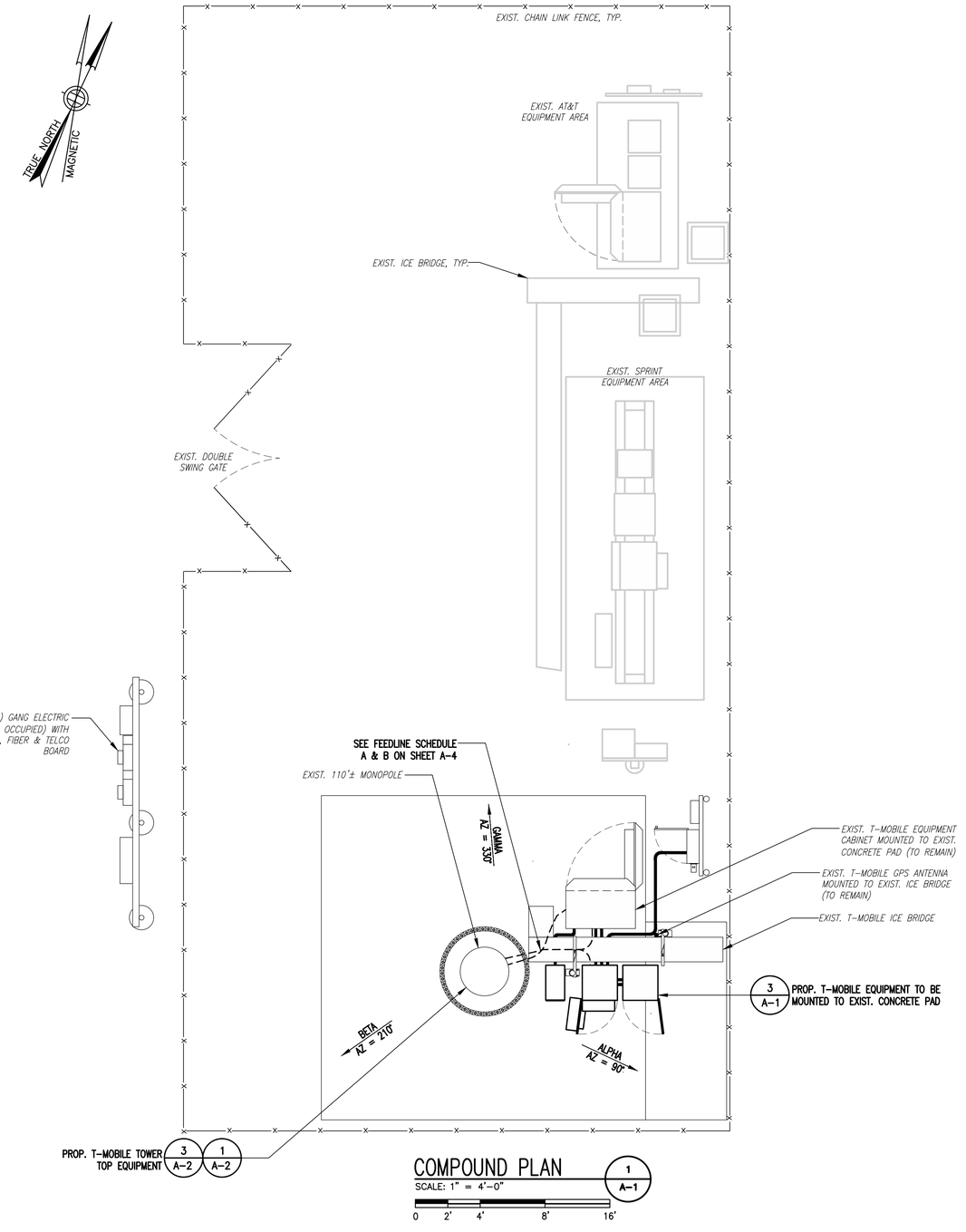
SITE ADDRESS:
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

1815.160

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS): GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

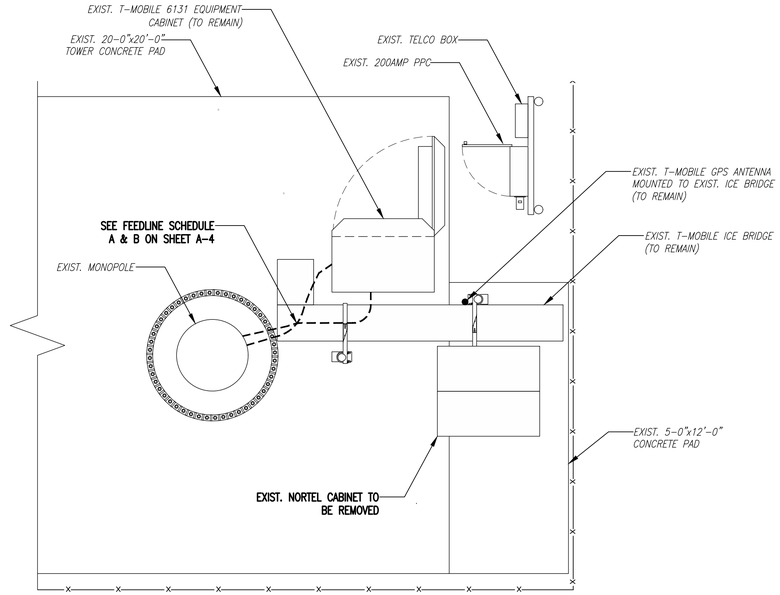


COMPOUND PLAN

SCALE: 1" = 4'-0"

1 A-1

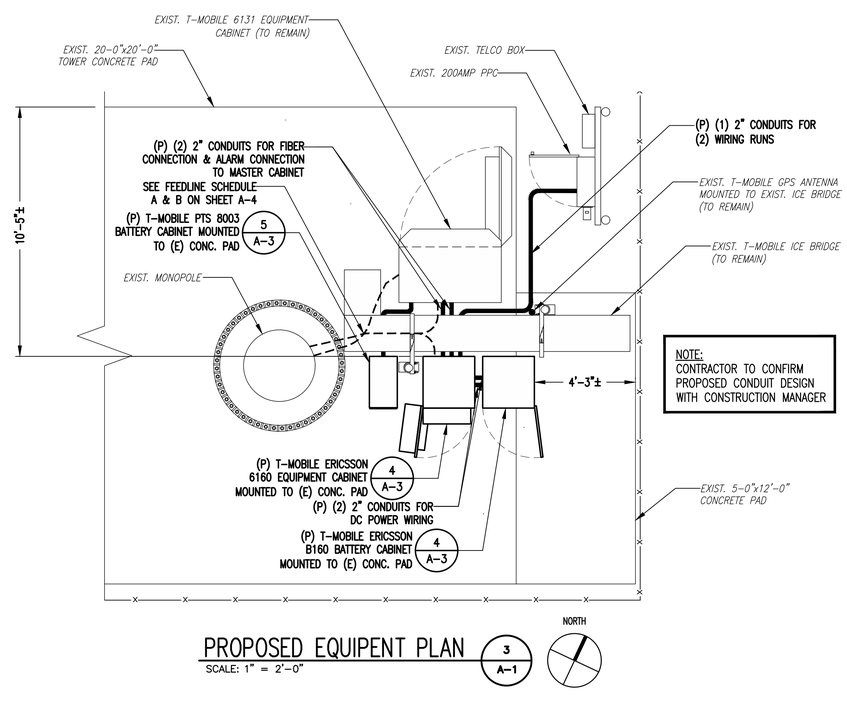
0 2' 4' 8' 16'



EXISTING EQUIPENT PLAN

SCALE: 1" = 3'-0"

2 A-1



PROPOSED EQUIPENT PLAN

SCALE: 1" = 2'-0"

3 A-1

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

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MARLBOROUGH, MA 01752
(508) 481-7400
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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
1/6/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	01/06/21	ISSUED FOR CONSTRUCTION	BDJ
0	11/05/20	ISSUED FOR REVIEW	BDJ

SITE NUMBER:

CT11380C

SITE ADDRESS:
10 REDWOOD LANE
AVON, CT 06001

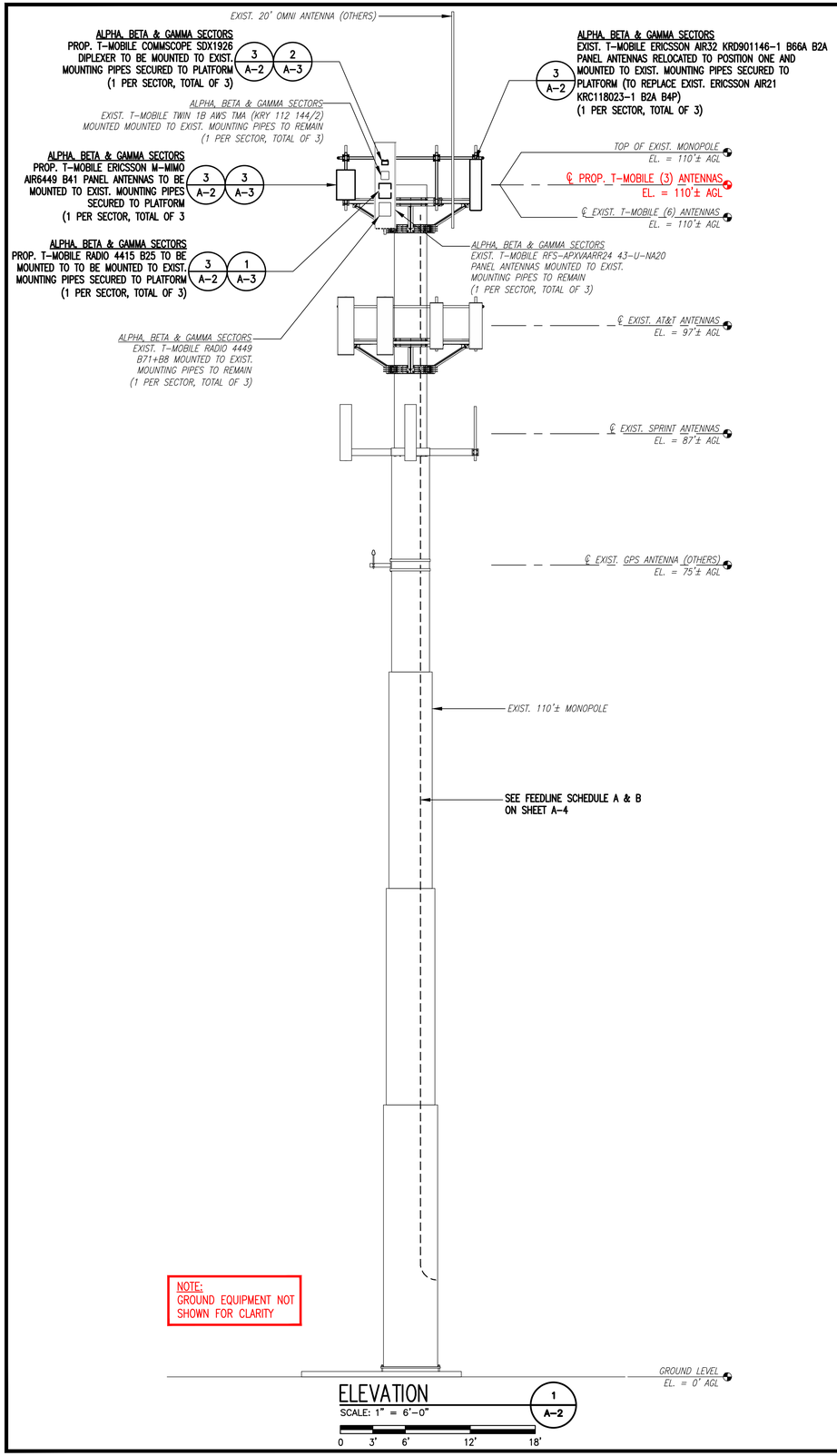
SHEET TITLE

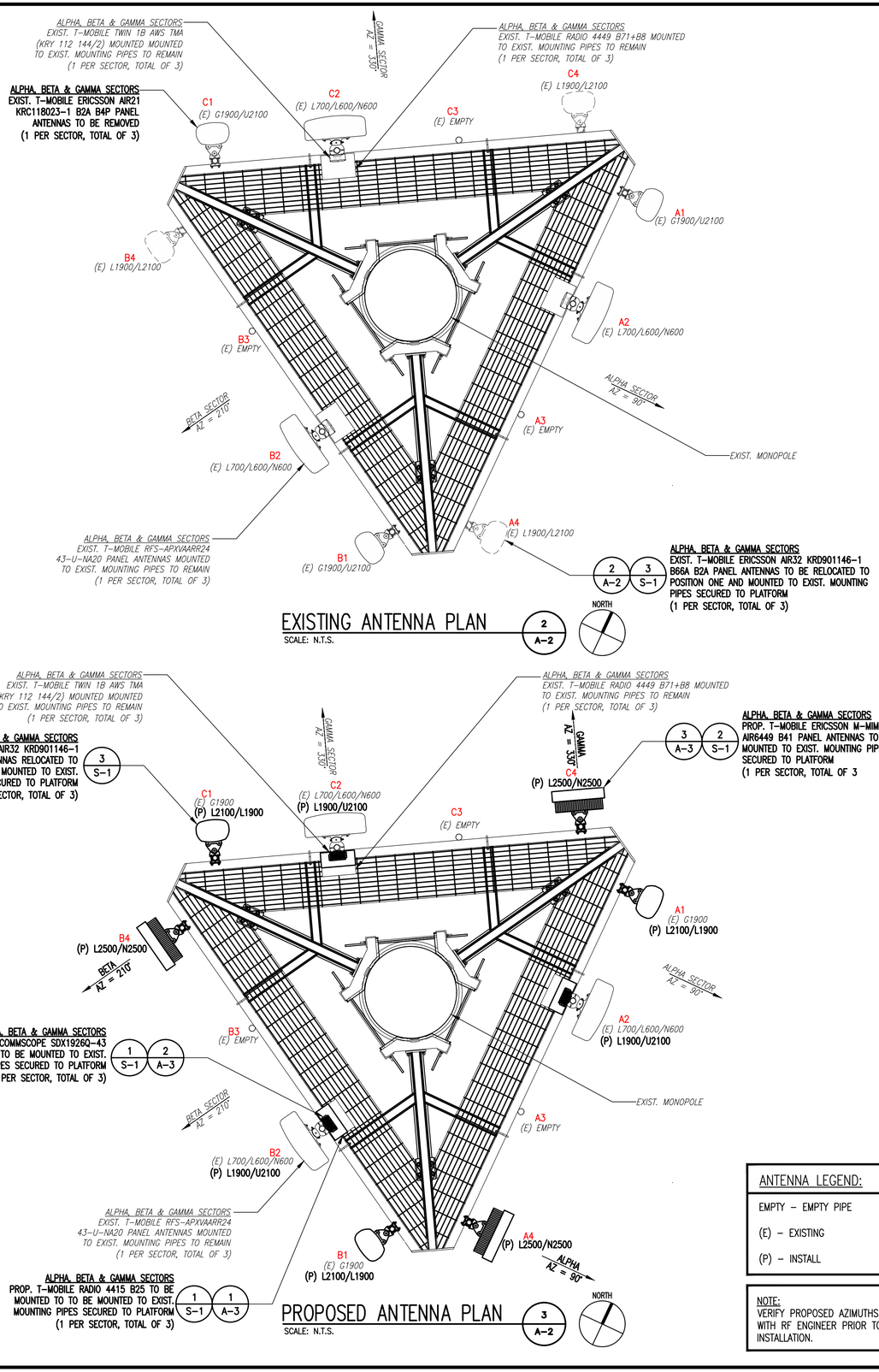
COMPOUND PLAN & EQUIPMENT PLANS

SHEET NUMBER

A-1

1815.160





ANTENNA LEGEND:

EMPTY – EMPTY PIPE

(E) – EXISTING

(P) – INSTALL

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

T-Mobile

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SBA

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SHEET TITLE
ELEVATION & ANTENNA PLANS

SHEET NUMBER
A-2

1815.160

ERICSSON RRUS 4415 B25
DIMENSIONS: 16.5"H x 13.4"W x 5.9"D
WEIGHT: 46 LBS
1 PER SECTOR, TOTAL OF 3

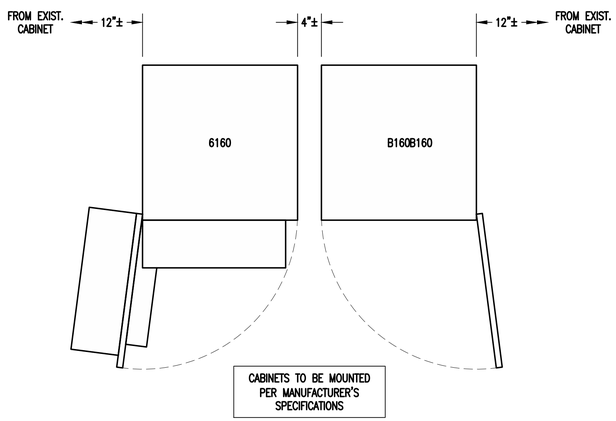
RADIO DETAILS
SCALE: N.T.S.
1 / A-3

COMMSCOPE DIPLEXER SDX19260 / E14F05P86
DIMENSIONS: 4.173"H x 6.929"W x 2.913"D
WEIGHT: 6.173 LBS
1 PER SECTOR, TOTAL OF 3

DIPLEXER DETAILS
SCALE: N.T.S.
2 / A-3

ERICSSON M-MIMO AIR6449 B41 PANEL ANTENNA
DIMENSIONS: 33.1"H x 20.5"W x 8.3"D
WEIGHT: 103.0 LBS
1 PER SECTOR, TOTAL OF 3

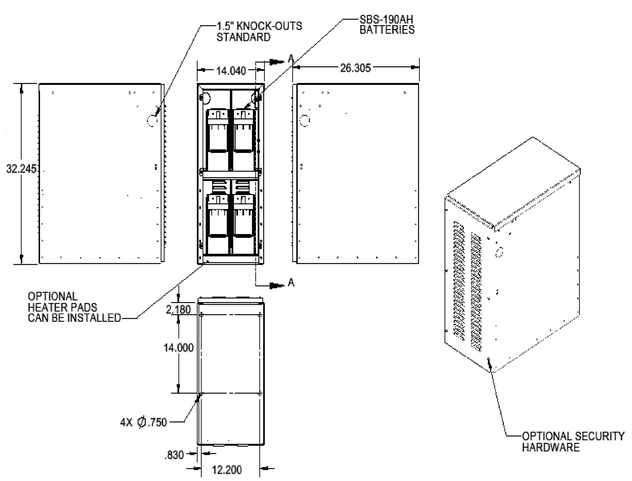
ANTENNA DETAILS
SCALE: N.T.S.
3 / A-3



ERICSSON 6161 SITE SUPPORT CABINET
DIMENSIONS: 63.25"H x 26.0W x 34.0"D
QUANTITY: TOTAL OF 1

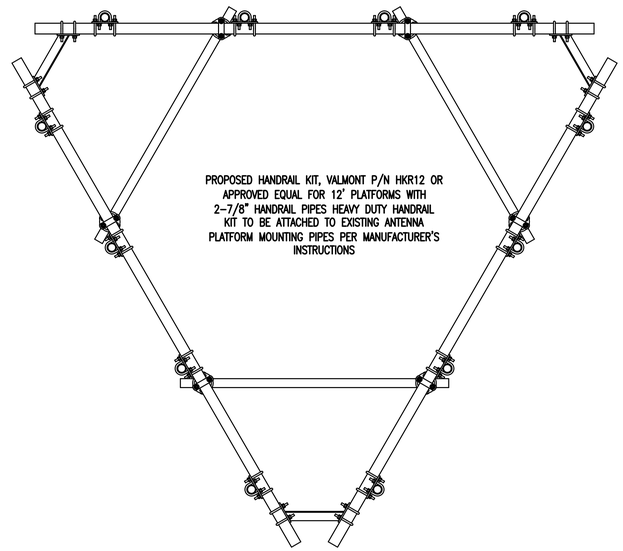
ERICSSON B160 BATTERY CABINET
DIMENSIONS: 63.25"H x 26.0W x 26.0"D
QUANTITY: TOTAL OF 1

EQUIPMENT DETAIL
SCALE: N.T.S.
4 / A-3



PTS8003 190AH BATTERY CABINET
DIMENSIONS: 32.2"H x 14.0"W x 26.3"D
TOTAL OF 1

BATTERY CABINET DETAIL
SCALE: N.T.S.
5 / A-3



PROPOSED HANDRAIL KIT PLAN
SCALE: N.T.S.
6 / A-3

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NORTON, MA 02766
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WESTBOROUGH, MA 01581
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SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.160

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*110'-0"± AGL*	*90°*	*0°*	*0°*	**L1900/G1900**	–	*(E) (6) 1-5/8" COAX CABLES* *(E) (2) 1-5/8" (6x12) HCS FIBER CABLES* **(P) (1) 1-5/8" (6x12) HCS FIBER CABLE**
						L2100		
	A2 *RFS APXVAARR24_43-U-NA20*	*110'-0"± AGL*	*90°*	*0°*	*0°*	**L700/L600/N600**	*ERICSSON RADIO 4449 B71+B85*	
						L1900/U2100	**ERICSSON RADIO 4415 B25**	
							COMMSCOPE DIPLEXER SDX1926Q-43	
							TWIN 1B AWS TMA (KRY 112 144/2)	
	A3 *EMPTY*	–	–	–	–	–	–	
	A4 **ERICSSON M-MIMO AIR6449 B41**	**110'-0"± AGL**	**90°**	**0°**	**0°**	**L2500/N2500**	–	
BETA	B1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*110'-0"± AGL*	*210°*	*0°*	*0°*	**L1900/G1900**		
						L2100		
	B2 *RFS APXVAARR24_43-U-NA20*	*110'-0"± AGL*	*210°*	*0°*	*0°*	**L700/L600/N600**	*ERICSSON RADIO 4449 B71+B85*	
						L1900/U2100	**ERICSSON RADIO 4415 B25**	
							COMMSCOPE DIPLEXER SDX1926Q-43	
							TWIN 1B AWS TMA (KRY 112 144/2)	
	B3 *EMPTY*	–	–	–	–	–	–	
	B4 **ERICSSON M-MIMO AIR6449 B41**	**110'-0"± AGL**	**210°**	**0°**	**0°**	**L2500/N2500**	–	
GAMMA	C1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*110'-0"± AGL*	*330°*	*0°*	*0°*	**L1900/G1900**	–	
						L2100		
	C2 *RFS APXVAARR24_43-U-NA20*	*110'-0"± AGL*	*330°*	*0°*	*0°*	**L700/L600/N600**	*ERICSSON RADIO 4449 B71+B85*	
						L1900/U2100	**ERICSSON RADIO 4415 B25**	
							COMMSCOPE DIPLEXER SDX1926Q-43	
							TWIN 1B AWS TMA (KRY 112 144/2)	
	C3 *EMPTY*	–	–	–	–	–	–	
	C4 **ERICSSON M-MIMO AIR6449 B41**	**110'-0"± AGL**	**330°**	**0°**	**0°**	**L2500/N2500**	–	

CABLE NOTE: EXISTING (5) 1-5/8" COAX CABLES (CAPPED & WRAPPED) & (1) 1-¼" (9x18) HCS FIBER CABLE TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV5 – 09/26/20

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES	LOCATION
A	*EXISTING TO REMAIN:* *(6) 1-5/8" COAX CABLES* *(2) 1-5/8" (6x12) HCS FIBER CABLES* *(1) ½" COAX CABLE FOR GPS ANTENNA*	**ROUTED PER STRUCTURAL ANALYSIS**
	EXISTING TO BE REMOVED: *(5) 1-5/8" COAX CABLES* *(1) 1-¼" (9x18) HCS FIBER CABLE*	
B	**PROPOSED:** **(1) 1-5/8" (6x12) HCS FIBER CABLE**	

NOTE:
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

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NORTON, MA 02766
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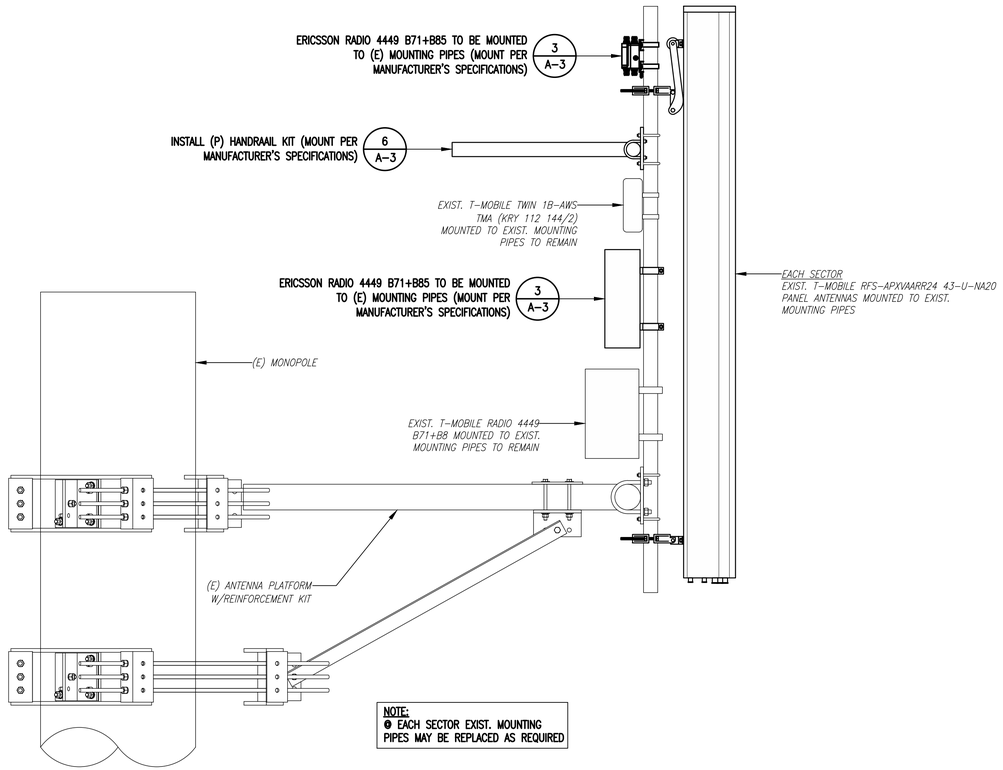
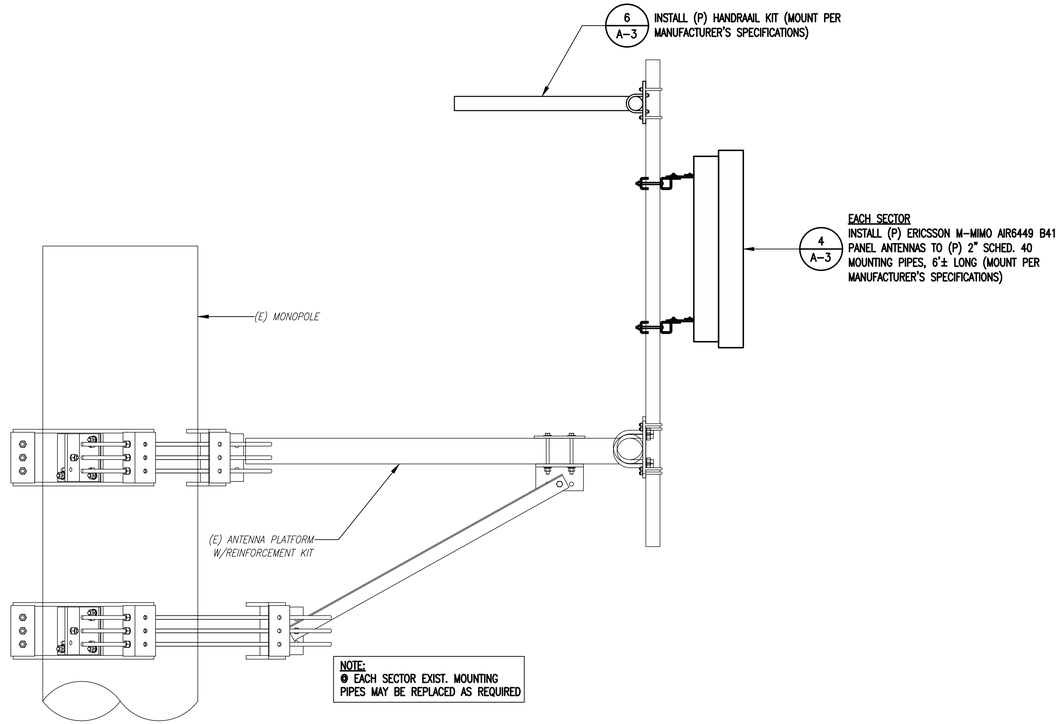
SHEET TITLE
ANTENNA & FEEDLINE CHARTS

SHEET NUMBER
A-4

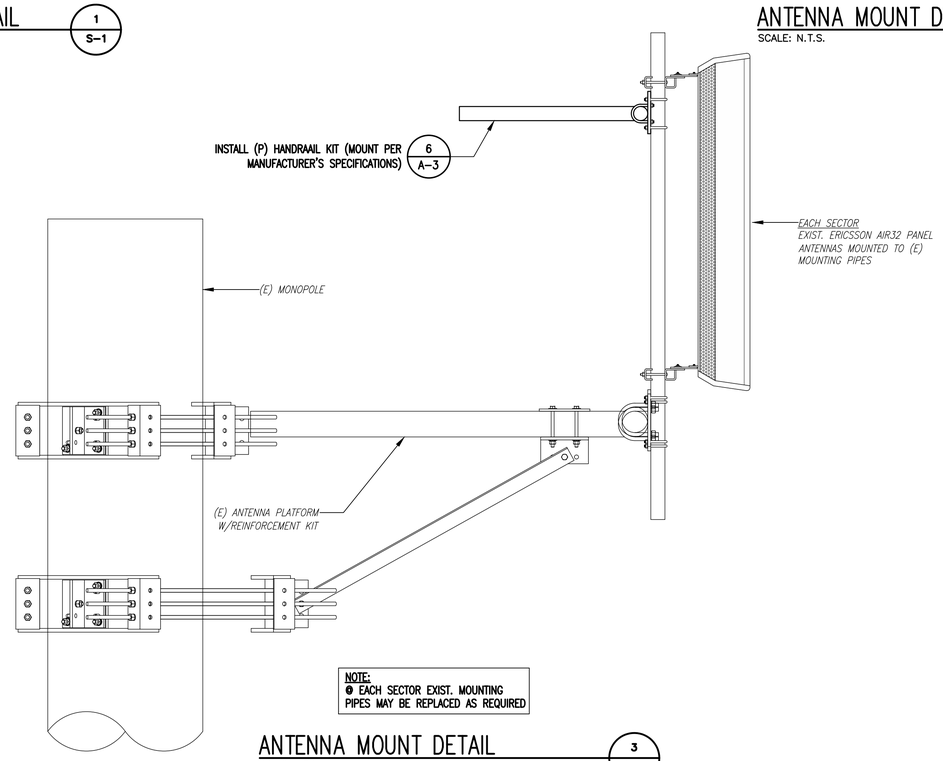
1815.160



ANTENNA, TMA & RADIO MOUNT DETAIL 1 S-1
SCALE: N.T.S.



ANTENNA MOUNT DETAIL 2 S-1
SCALE: N.T.S.



ANTENNA MOUNT DETAIL 3 S-1
SCALE: N.T.S.

T-Mobile

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15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700

SBA

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134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

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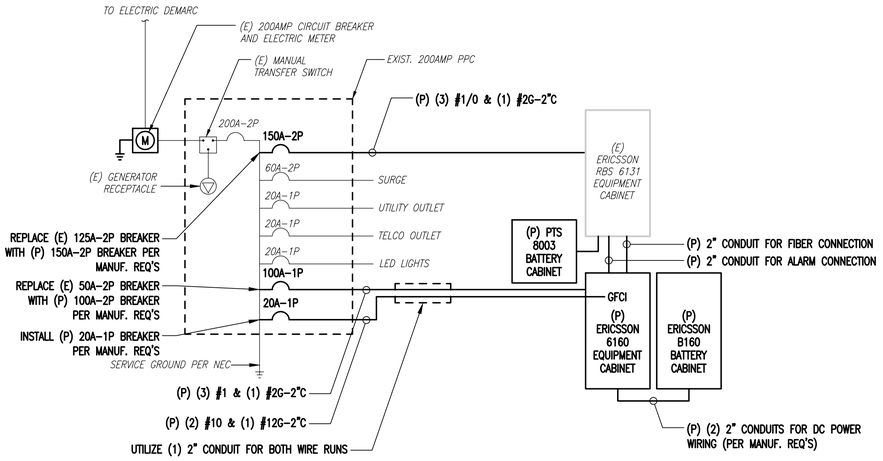
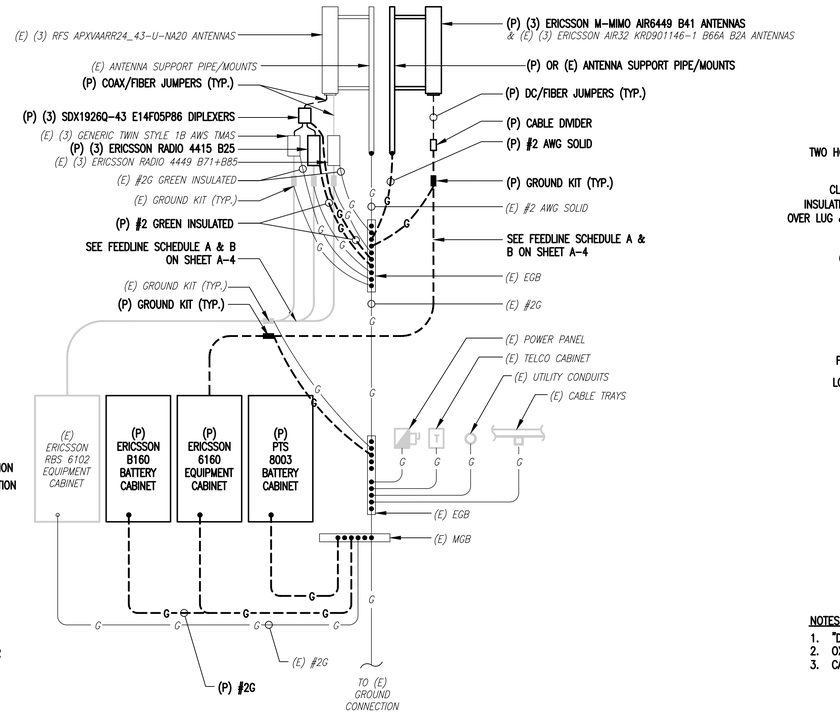
SHEET TITLE
ANTENNA MOUNTING DETAILS

SHEET NUMBER
S-1

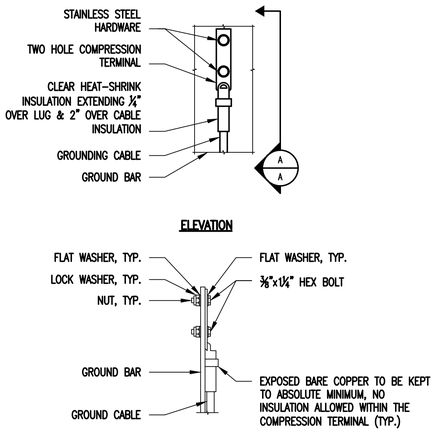
1815.160



ONE LINE DIAGRAM (1)
SCALE: NOT TO SCALE — E-1

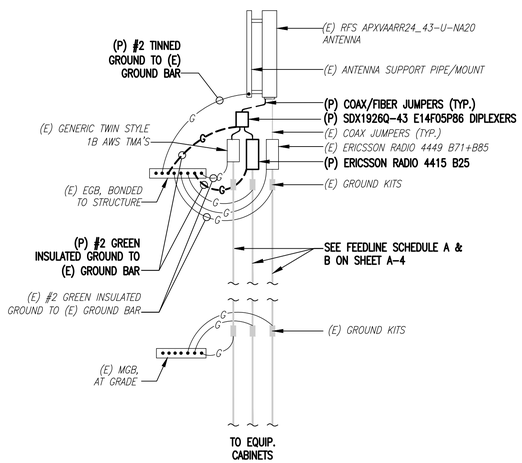


GROUNDING RISER DIAGRAM (2)
SCALE: NOT TO SCALE — E-1



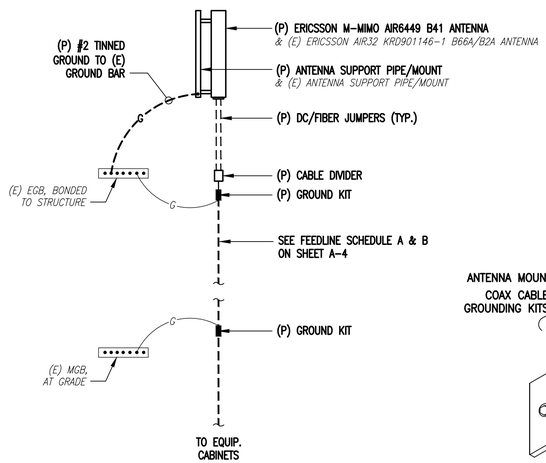
TYPICAL GROUND BAR CONNECTIONS DETAIL (3)
SCALE: NOT TO SCALE — E-1

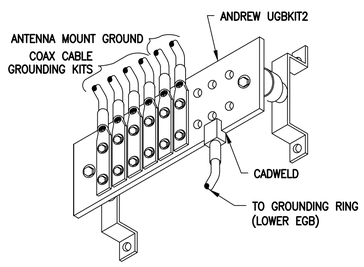
NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.



L700/L600/N600/L1900/U2100 ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL (4)
SCALE: NOT TO SCALE — E-1





GROUND BAR (EGB) (5)
SCALE: NOT TO SCALE — E-1

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHNINSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN (E) TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

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SHEET TITLE
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.160

EXHIBIT 7

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 105 ft PIROD Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT01498-S

Customer Site Name: Avon

Carrier Name: T-Mobile (App#: 141527, V1)

Carrier Site ID / Name: CT11380C / SBA Avon/RT 177

Site Location: 10 Redwood Lane

Avon, Connecticut

Hartford County

Latitude: 41.772499

Longitude: -72.879999

Analysis Result:

Max Structural Usage: 76.8% [Pass]

Max Foundation Usage: 50% [Pass]

Additional Usage Caused by Mount Modification: +2.0%

Report Prepared By: Stacey Hesselbein, PE

Introduction

The purpose of this report is to summarize the analysis results on the 105 ft PIROD Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Pirod, Inc., Eng. File #A-117586 dated September 26, 2000
Foundation Drawing	Pirod, Inc., Eng. File #A-117586 dated September 26, 2000
Geotechnical Report	Jaworski Geotech, Inc., Project #00301G dated August 31, 2000
Modification Drawings	N/A
Mount Analysis	TES Job # 99242 Dated 11/09/2020

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 120 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.182, S_1 = 0.064

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	116.0	1	20' Omni	Direct	(1) 7/8"	Farmington Woods
-	105.0	3	Ericsson AIR 21 B2A/B4P - Panel	Low Profile Platform, (1) Perfect 10 Kicker kit (PV-PKBK), (1) Collar mount (PV-RM3060) and Inner bracing members	(11) 1 5/8" (2) 1 1/4" Hybrid	T-Mobile
-		3	Ericsson AIR32 KRD901146-1_B66A (Octa) Panel			
-		3	RFS APXVAARR24_43-U-NA20 (Octa) Panel			
-		3	Ericsson KRY 112 144/2			
-		3	Ericsson Radio 4449 B71 + B12			
9	97.0	3	Kathrein 800-10121 Panel	(1) Low Profile Platform w/ Support rail Kit (SitePro1 HRK-14) & Platform Reinforcement Kit (SitePro 1 PRK-1245L) & (6) Pipe masts (30"x2.88") & (6) Steel Angles (L2-1/2x2-1/2x1/4) & (1) Universal Ring Mount w/ (3) 8" standoff arms	(6) 1 5/8" (3) 1/2" Fiber (3) 3" Conduit (6) 3/4" DC	AT&T
10		3	CCI HPA65R-BU6A Panel			
11		6	Kathrein 800 10965 Panel			
12		6	Powerwave LGP21401 TMA			
13		6	Kathrein 782-10250 RET			
14		6	Kathrein 860 10025 RET			
15		3	Ericsson RRUS 4415 B30 RRU			
16		3	Ericsson RRUS 8843 B2 B66A RRU			
17		3	Ericsson RRUS 4449 B5/12 RRU			
18		3	Raycap DC6-48-60-18-8F			
19	91.0	3	Andrew VHLP2.5 Dish	(3) Dish Mounts	(3) 1/2" (6) 5/16"	Clearwire
20		3	Horizon DUO Radios			
21		3	Samsung RRU Radios			
22	87.0	3	RFS APXVSPP18-C-A20 Panel	Low Profile Platform	(4) 1-1/4" Hybrid	Sprint
23		3	RFS APXVTM14-C-120 Panel			
24		3	Alcatel Lucent 1900 MHz RRH			
25		3	Alcatel Lucent 800 MHz RRH			
26		3	Alcatel Lucent TD-RRH8x20-25 RRH			
27		3	Alcatel Lucent 800MHz Filter			
28		4	RFS ACU-A20-N RET			
29	75.0	1	GPS	(1) Standoff	(1) 1/2"	

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
2	110.0	3	RFS APXVAARR24_43-U-NA20 (Octa) Panel	Low Profile Platform w/ Inner Bracing, Kicker Kit (Perfect 10 PV-PKBK), Collar Mount (PV-RM3060) and Handrail Kit (MS-HRECP-35)	(10) 1 5/8" (2) 1 1/4" Hybrid (1) 1 5/8" Fiber	T-Mobile
3		3	Ericsson AIR32 KRD901146-1_B66A (Octa) Panel			
4		3	Ericsson AIR6449 B41 Panel			
5		3	Ericsson KRY 112 144/2 TMA			
6		3	Ericsson 4449 B71 + B85 RRU			
7		3	Ericsson 4415 B25 RRU			
8		3	Commscope SDX1926Q-43 Diplexer			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate	Flanges
Max. Usage:	**53.2%**	**43.4%**	**76.8%**	**58.3%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	1831.0	21.7	42.1

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

The maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

Elevation (ft)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
91.0	Andrew VHLP2.5 Dish	Clearwire	0.000	0.298

It is recommended that the carriers review the twist and sway values of the microwave dishes.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 53.19% at 0.0ft

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

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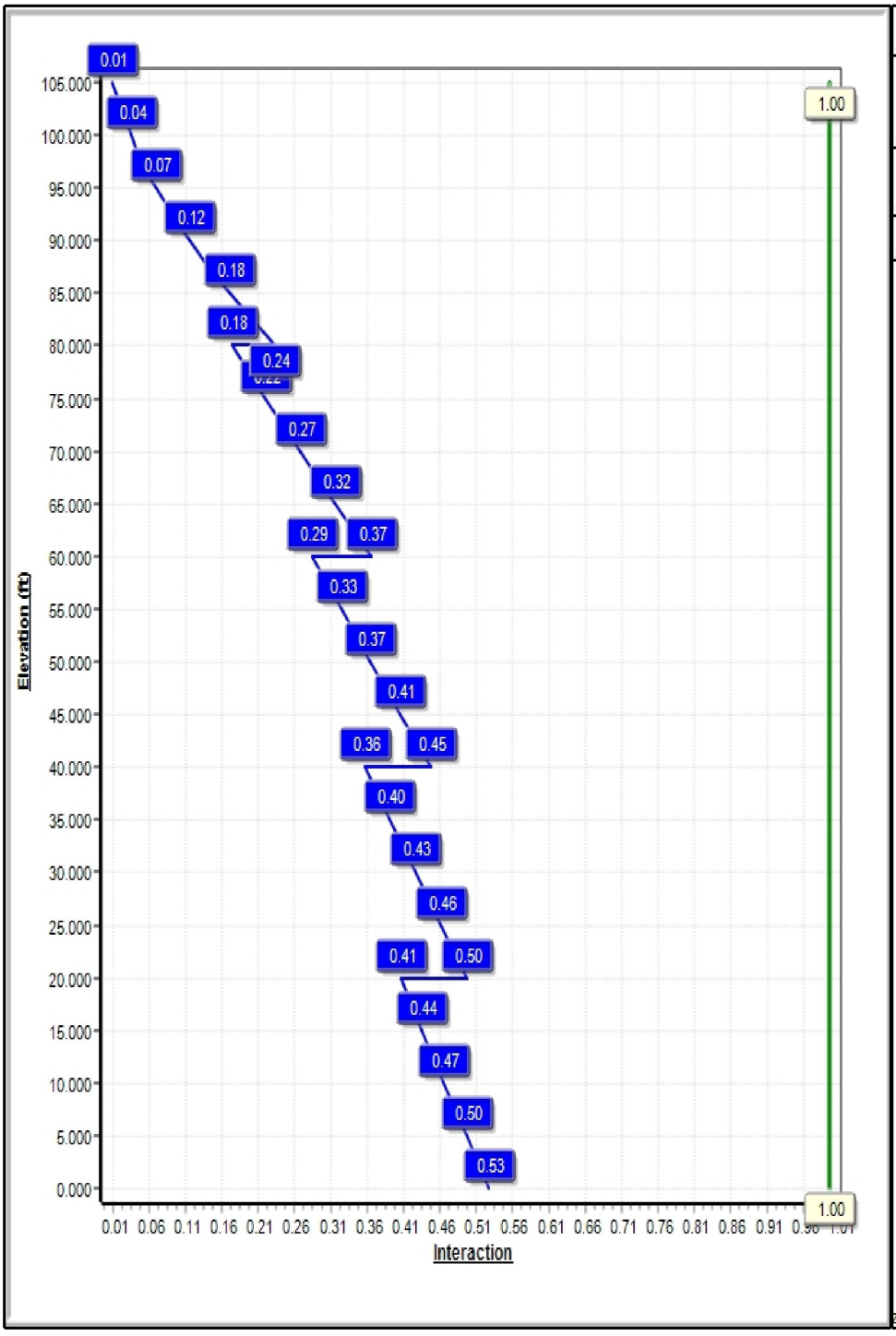
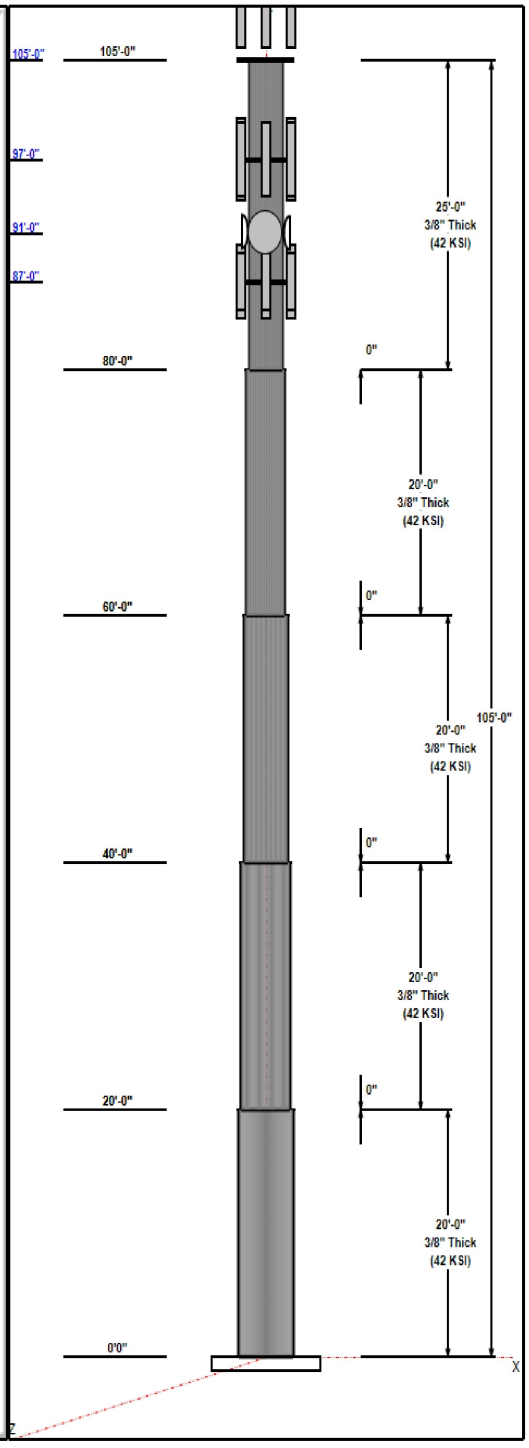
Dead Load Factor:	1.20	**Iterations:**	16
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 93 mph Wind





Structure: CT01498-S-SBA

Type: Stepped
Site Name: Avon
Height: 105.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: Round
Taper: 0.00000

11/12/2020

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Shaft Properties

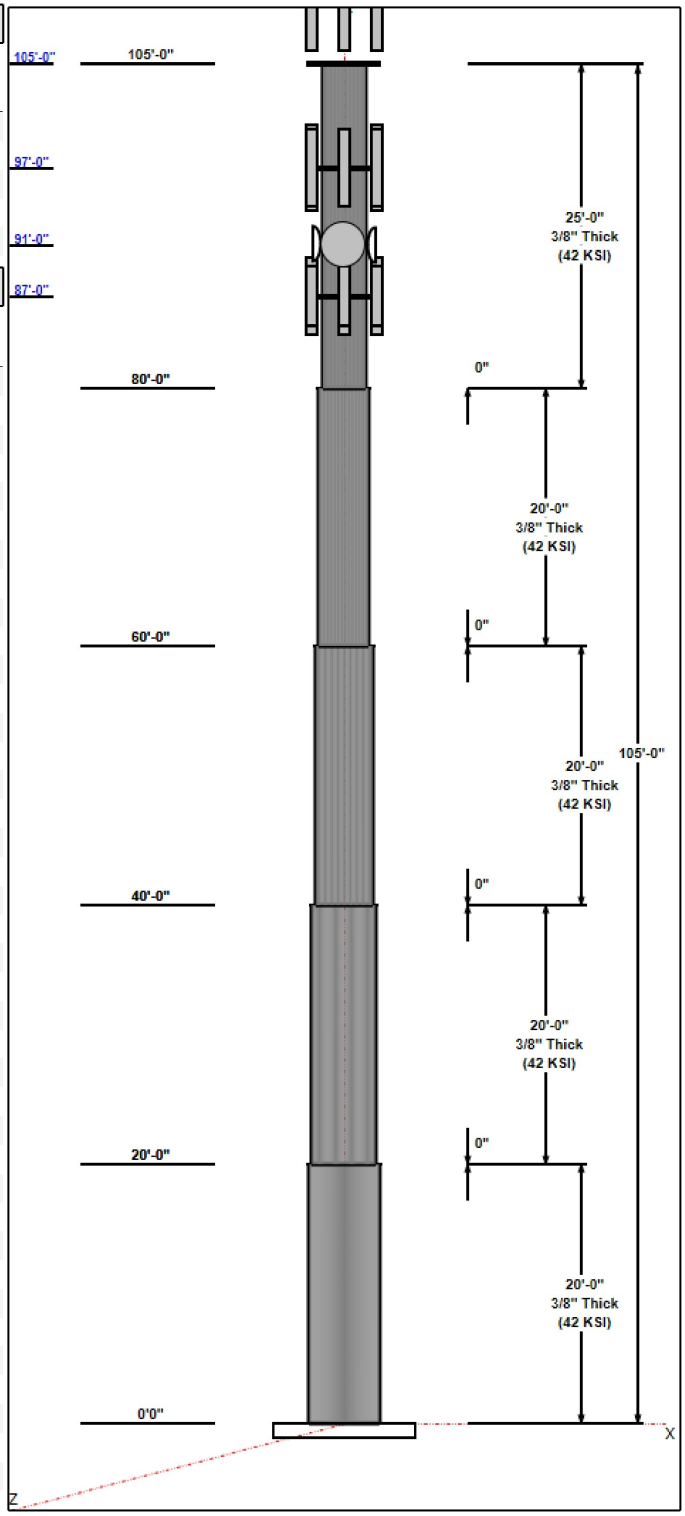
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	20.00	60.00	60.00	0.375		0.00000	42
2	20.00	54.00	54.00	0.375		0.00000	42
3	20.00	48.00	48.00	0.375		0.00000	42
4	20.00	42.00	42.00	0.375		0.00000	42
5	25.00	36.00	36.00	0.375		0.00000	42

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
105.00	116.00	1	20' Omni	Farmington Woods
105.00	110.00	3	APXVAARR24_43-U-NA20	T-Mobile
105.00	110.00	3	AIR32	T-Mobile
105.00	110.00	3	AIR6449 B41	T-Mobile
105.00	110.00	3	KRY 112 144/2	T-Mobile
105.00	110.00	3	SDX1926Q-43	T-Mobile
105.00	110.00	3	4449 B71 + B85	T-Mobile
105.00	110.00	3	Radio 4415 Protruding w/o	T-Mobile
105.00	105.00	1	MS-HRECP	T-Mobile
105.00	105.00	1	Kicker kit	T-Mobile
105.00	105.00	1	Collar Mount	T-Mobile
105.00	105.00	1	Low Profile	T-Mobile
97.00	97.00	3	DC6-48-60-18-8F	AT&T
97.00	97.00	3	800-10121	AT&T
97.00	97.00	6	LGP21401	AT&T
97.00	97.00	6	782 10250	AT&T
97.00	97.00	3	HPA65R-BU6A	AT&T
97.00	97.00	6	80010965	AT&T
97.00	97.00	3	4415	AT&T
97.00	97.00	3	B2 B66A 8843	AT&T
97.00	97.00	3	4449 B5/B12	AT&T
97.00	97.00	1	HRK14	AT&T
97.00	97.00	1	PRK-1245 (kicker kit)	AT&T
97.00	97.00	6	860 10025	AT&T
97.00	97.00	1	Low Profile Platformw/	AT&T
97.00	97.00	1	Ring Mount	AT&T
91.00	91.00	3	Dish Mount	Clearwire
91.00	91.00	3	VHLP2.5	Clearwire
91.00	91.00	3	Horizon DUO Radios	Clearwire
91.00	91.00	3	RRU	Clearwire
87.00	87.00	3	RRUS-11 1900 MHz	Sprint
87.00	87.00	3	RRUS-11 800 MHz	Sprint
87.00	87.00	3	APXVSPP18-C-A20	Sprint
87.00	87.00	3	APXVTM14-C-120	Sprint
87.00	87.00	3	800MHz Filter	Sprint
87.00	87.00	3	TD-RRH8x20-25	Sprint
87.00	87.00	4	ACU-A20-N	Sprint
87.00	87.00	1	Low Profile	Sprint
75.00	75.00	1	Standoff Mount	
75.00	75.00	1	GPS	

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	105.00	Inside	1 1/4" Hybrid	T-Mobile



0.00	105.00	Inside	1 5/8" Coax	T-Mobile
0.00	105.00	Inside	1 5/8" Fiber	T-Mobile
0.00	105.00	Inside	7/8" Coax	Farmington Woods
0.00	105.00	Outside	Step bolts (ladder)	
0.00	97.00	Inside	1 5/8" Coax	AT&T
0.00	97.00	Inside	1/2" Fiber	AT&T
0.00	97.00	Inside	3" Conduit	AT&T
0.00	97.00	Inside	3/4" DC	AT&T
0.00	91.00	Inside	1/2" Coax	Clearwire
0.00	91.00	Inside	5/16" Coax	Clearwire
0.00	87.00	Inside	1-1/4" Hybrid	Sprint
0.00	75.00	Outside	1/2" Coax	Sprint

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
48	1.00" A687	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.2500	66.1	36.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	1831.0	21.7	42.1
0.9D + 1.6W 93 mph Wind	1824.0	21.7	31.6
1.2D + 1.0Di + 1.0Wi 50 mph Wind	582.4	7.1	75.0
1.2D + 1.0E	255.9	2.7	42.1
0.9D + 1.0E	254.9	2.7	31.6
1.0D + 1.0W 60 mph Wind	475.1	5.6	35.1

Structure: CT01498-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Avon
Height: 105.00 (ft)

11/12/2020

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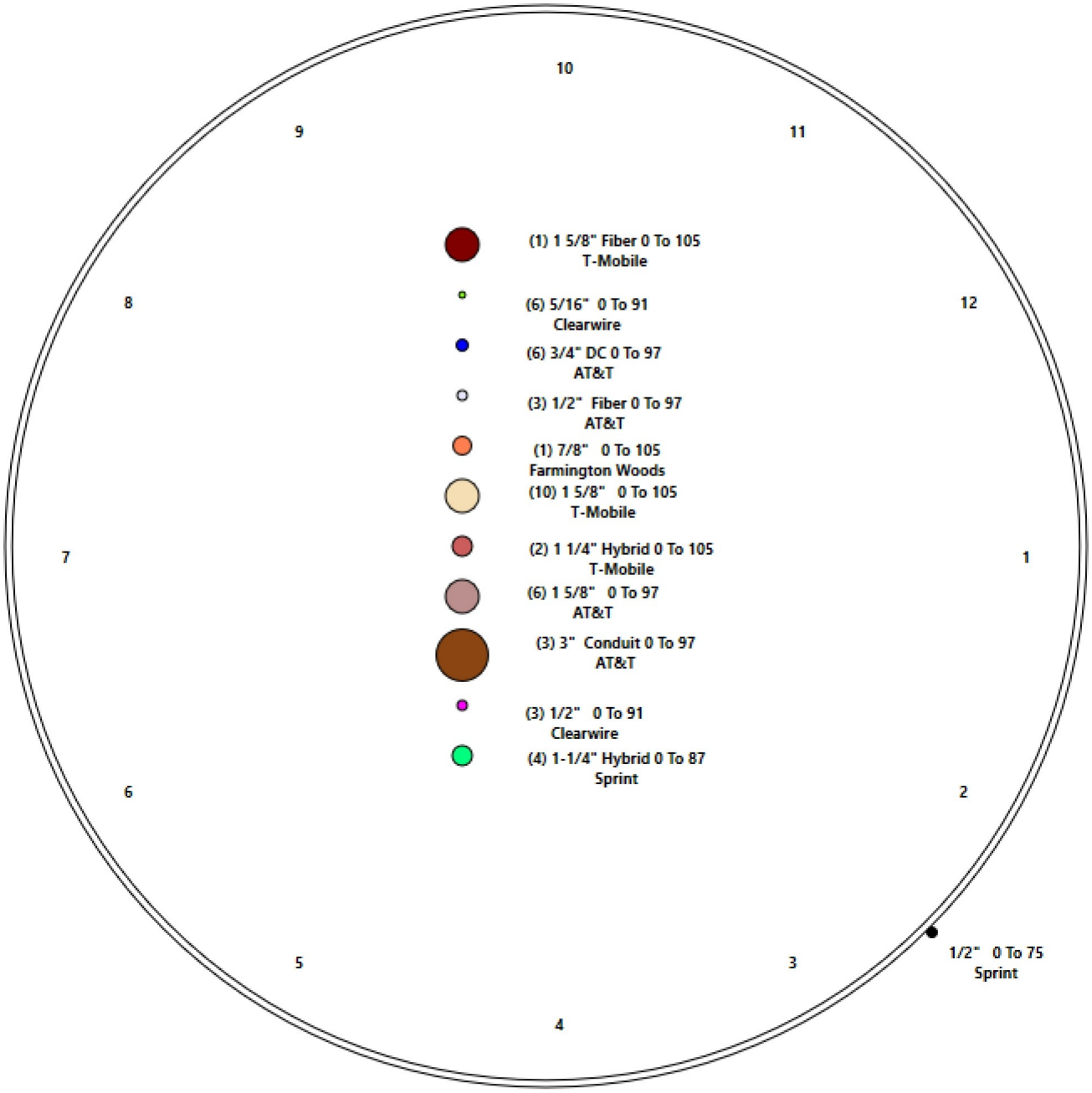

Shaft Properties

Structure:	CT01498-S-SBA		**Code:**	EIA/TIA-222-G	11/12/2020
Site Name:	Avon		**Exposure:**	B	
Height:	105.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	R	20.000	0.3750	42		0.00	4,780
2	R	20.000	0.3750	42		0.00	4,299
3	R	20.000	0.3750	42		0.00	3,818
4	R	20.000	0.3750	42		0.00	3,337
5	R	25.000	0.3750	42		0.00	3,570
					Total Shaft Weight:		**19,806**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	60.00	0.00	70.24	31239.85	0.00	160.00	60.00	20.00	70.24	31239.8	0.00	160.0	0.000000
2	54.00	20.00	63.18	22726.14	0.00	144.00	54.00	40.00	63.18	22726.1	0.00	144.0	0.000000
3	48.00	40.00	56.11	15919.48	0.00	128.00	48.00	60.00	56.11	15919.4	0.00	128.0	0.000000
4	42.00	60.00	49.04	10628.86	0.00	112.00	42.00	80.00	49.04	10628.8	0.00	112.0	0.000000
5	36.00	80.00	41.97	6663.29	0.00	96.00	36.00	105.00	41.97	6663.29	0.00	96.00	0.000000

Load Summary

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

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Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	105.00	20' Omni	1	55.00	6.00	1.00	248.84	15.129	1.00	0.00	11.00
2	105.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	685.47	22.711	0.71	0.00	5.00
3	105.00	AIR32	3	132.20	6.51	0.87	382.02	8.040	0.89	0.00	5.00
4	105.00	AIR6449 B41	3	103.00	5.65	0.71	279.42	6.873	0.72	0.00	5.00
5	105.00	KRY 112 144/2	3	11.00	0.41	0.75	24.87	1.021	0.77	0.00	5.00
6	105.00	SDX1926Q-43	3	7.90	0.32	0.50	33.18	0.698	0.50	0.00	5.00
7	105.00	4449 B71 + B85	3	73.20	1.97	0.67	147.49	2.703	0.69	0.00	5.00
8	105.00	Radio 4415 Protruding w/o Fan	3	46.30	1.86	0.67	130.88	2.609	0.69	0.00	5.00
9	105.00	MS-HRECP	1	514.00	12.25	1.00	1298.82	27.654	1.00	0.00	0.00
10	105.00	Kicker kit	1	367.00	5.33	1.00	1026.26	12.511	1.00	0.00	0.00
11	105.00	Collar Mount	1	313.00	2.50	1.00	875.25	5.868	1.00	0.00	0.00
12	105.00	Low Profile Platform-Round	1	1500.00	40.00	1.00	3184.06	81.316	1.00	0.00	0.00
13	97.00	DC6-48-60-18-8F	3	31.80	0.92	1.00	110.72	1.479	1.00	0.00	0.00
14	97.00	800-10121	3	44.10	5.15	0.79	190.72	7.839	0.79	0.00	0.00
15	97.00	LGP21401	6	14.10	1.29	0.67	46.01	2.357	0.67	0.00	0.00
16	97.00	782 10250	6	6.40	0.52	0.76	22.72	1.246	0.76	0.00	0.00
17	97.00	HPA65R-BU6A	3	51.00	9.66	0.85	382.15	11.432	0.86	0.00	0.00
18	97.00	80010965	6	108.60	13.81	0.71	505.00	15.852	0.72	0.00	0.00
19	97.00	4415	3	44.10	1.86	0.67	104.66	2.591	0.69	0.00	0.00
20	97.00	B2 B66A 8843	3	70.00	1.64	0.67	128.70	2.299	0.69	0.00	0.00
21	97.00	4449 B5/B12	3	71.00	1.97	0.67	139.14	2.669	0.69	0.00	0.00
22	97.00	HRK14	1	302.36	8.13	1.00	760.38	18.272	1.00	0.00	0.00
23	97.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	879.18	22.198	1.00	0.00	0.00
24	97.00	860 10025	6	1.20	0.18	0.50	8.85	0.664	0.50	0.00	0.00
25	97.00	Low Profile Platformw/ Mods	1	1600.00	25.00	1.00	3382.16	50.618	1.00	0.00	0.00
26	97.00	Ring Mount	1	350.00	5.00	1.00	724.25	9.455	1.00	0.00	0.00
27	91.00	Dish Mount	3	150.00	3.00	0.75	309.37	5.656	0.75	0.00	0.00
28	91.00	VHLP2.5	3	47.60	8.43	1.00	266.63	10.595	1.00	0.00	0.00
29	91.00	Horizon DUO Radios	3	11.50	0.84	0.76	40.08	1.683	0.76	0.00	0.00
30	91.00	RRU	3	42.00	1.92	0.88	111.54	3.202	0.88	0.00	0.00
31	87.00	RRUS-11 1900 MHz	3	44.00	2.94	0.70	129.13	4.474	0.70	0.00	0.00
32	87.00	RRUS-11 800 MHz	3	54.00	2.94	0.75	149.39	4.474	0.75	0.00	0.00
33	87.00	APXVSPP18-C-A20	3	57.00	8.02	0.83	275.25	11.547	0.83	0.00	0.00
34	87.00	APXVTM14-C-120	3	56.00	6.34	0.79	269.42	7.769	0.79	0.00	0.00
35	87.00	800MHz Filter	3	10.00	0.49	0.70	30.26	1.198	0.70	0.00	0.00
36	87.00	TD-RRH8x20-25	3	70.00	4.05	0.69	217.24	5.098	0.69	0.00	0.00
37	87.00	ACU-A20-N	4	1.00	0.14	0.79	6.42	0.515	0.79	0.00	0.00
38	87.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	3152.69	44.300	1.00	0.00	0.00
39	75.00	Standoff Mount	1	20.00	2.00	1.00	40.84	3.737	1.00	0.00	0.00
40	75.00	GPS	1	10.00	1.00	1.00	46.47	1.886	1.00	0.00	0.00
		Totals:	**109**	**11,849.17**			**32,753.59**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	105.00	(2) 1 1/4" Hybrid	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	105.00	(10) 1 5/8" Coax			0.00	Inside					
0.00	105.00	(1) 1 5/8" Fiber			0.00	Inside					
0.00	105.00	(1) 7/8" Coax			0.00	Inside					
0.00	105.00	(1) Step bolts (ladder)			0.63	Outside					
0.00	97.00	(6) 1 5/8" Coax			0.00	Inside					
0.00	97.00	(3) 1/2" Fiber			0.00	Inside					
0.00	97.00	(3) 3" Conduit			0.00	Inside					
0.00	97.00	(6) 3/4" DC			0.00	Inside					
0.00	91.00	(3) 1/2" Coax			0.00	Inside					
0.00	91.00	(6) 5/16" Coax			0.00	Inside					
0.00	87.00	(4) 1-1/4" Hybrid			0.00	Inside					
0.00	75.00	(1) 1/2" Coax			0.65	Outside					

Shaft Section Properties

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	60.000	70.244	31239.9	0.00	160.00	34.9	1041.	0.0
5.00		0.3750	60.000	70.244	31239.9	0.00	160.00	34.9	1041.	1195.1
10.00		0.3750	60.000	70.244	31239.9	0.00	160.00	34.9	1041.	1195.1
15.00		0.3750	60.000	70.244	31239.9	0.00	160.00	34.9	1041.	1195.1
20.00	Top - Section 1	0.3750	60.000	70.244	31239.9	0.00	160.00	34.9	1041.	1195.1
20.00	Bot - Section 2	0.3750	54.000	63.175	22726.1	0.00	160.00	35.6	841.7	
25.00		0.3750	54.000	63.175	22726.1	0.00	144.00	35.6	841.7	1074.9
30.00		0.3750	54.000	63.175	22726.1	0.00	144.00	35.6	841.7	1074.9
35.00		0.3750	54.000	63.175	22726.1	0.00	144.00	35.6	841.7	1074.9
40.00	Top - Section 2	0.3750	54.000	63.175	22726.1	0.00	144.00	35.6	841.7	1074.9
40.00	Bot - Section 3	0.3750	48.000	56.107	15919.5	0.00	144.00	36.6	663.3	
45.00		0.3750	48.000	56.107	15919.5	0.00	128.00	36.6	663.3	954.6
50.00		0.3750	48.000	56.107	15919.5	0.00	128.00	36.6	663.3	954.6
55.00		0.3750	48.000	56.107	15919.5	0.00	128.00	36.6	663.3	954.6
60.00	Top - Section 3	0.3750	48.000	56.107	15919.5	0.00	128.00	36.6	663.3	954.6
60.00	Bot - Section 4	0.3750	42.000	49.038	10628.9	0.00	128.00	37.8	506.1	
65.00		0.3750	42.000	49.038	10628.9	0.00	112.00	37.8	506.1	834.3
70.00		0.3750	42.000	49.038	10628.9	0.00	112.00	37.8	506.1	834.3
75.00		0.3750	42.000	49.038	10628.9	0.00	112.00	37.8	506.1	834.3
80.00	Top - Section 4	0.3750	42.000	49.038	10628.9	0.00	112.00	37.8	506.1	834.3
80.00	Bot - Section 5	0.3750	36.000	41.970	6663.3	0.00	112.00	39.4	370.2	
85.00		0.3750	36.000	41.970	6663.3	0.00	96.00	39.4	370.2	714.1
87.00		0.3750	36.000	41.970	6663.3	0.00	96.00	39.4	370.2	285.6
90.00		0.3750	36.000	41.970	6663.3	0.00	96.00	39.4	370.2	428.4
91.00		0.3750	36.000	41.970	6663.3	0.00	96.00	39.4	370.2	142.8
95.00		0.3750	36.000	41.970	6663.3	0.00	96.00	39.4	370.2	571.3
97.00		0.3750	36.000	41.970	6663.3	0.00	96.00	39.4	370.2	285.6
100.00		0.3750	36.000	41.970	6663.3	0.00	96.00	39.4	370.2	428.4
105.00		0.3750	36.000	41.970	6663.3	0.00	96.00	39.4	370.2	714.1
										19806.0

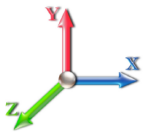
Wind Loading - Shaft

Structure: CT01498-S-SBA
Site Name: Avon
Height: 105.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1 **Topography:** 1

Code: EIA/TIA-222-G 11/12/2020
Exposure: B
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind
Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 16

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	14.724	16.20	389.05	0.600	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	389.05	0.600	0.000	5.00	25.000	15.00	388.7	0.0	1434.1
10.00		1.00	0.70	14.724	16.20	389.05	0.600	0.000	5.00	25.000	15.00	388.7	0.0	1434.1
15.00		1.00	0.70	14.724	16.20	389.05	0.600	0.000	5.00	25.000	15.00	388.7	0.0	1434.1
20.00	Top - Section 1	1.00	0.70	14.724	16.20	389.05	0.600	0.000	5.00	25.000	15.00	388.7	0.0	1434.1
25.00		1.00	0.70	14.724	16.20	350.14	0.600	0.000	5.00	22.500	13.50	349.8	0.0	1289.8
30.00		1.00	0.70	14.736	16.21	350.29	0.600	0.000	5.00	22.500	13.50	350.1	0.0	1289.8
35.00		1.00	0.73	15.400	16.94	358.09	0.600	0.000	5.00	22.500	13.50	365.9	0.0	1289.8
40.00	Top - Section 2	1.00	0.76	15.999	17.60	364.99	0.600	0.000	5.00	22.500	13.50	380.1	0.0	1289.8
45.00		1.00	0.79	16.546	18.20	329.94	0.600	0.000	5.00	20.000	12.00	349.5	0.0	1145.5
50.00		1.00	0.81	17.052	18.76	334.94	0.600	0.000	5.00	20.000	12.00	360.1	0.0	1145.5
55.00		1.00	0.83	17.523	19.28	339.53	0.600	0.000	5.00	20.000	12.00	370.1	0.0	1145.5
60.00	Top - Section 3	1.00	0.85	17.964	19.76	343.78	0.600	0.000	5.00	20.000	12.00	379.4	0.0	1145.5
65.00		1.00	0.87	18.380	20.22	304.27	0.600	0.000	5.00	17.500	10.50	339.7	0.0	1001.2
70.00		1.00	0.89	18.773	20.65	307.50	0.600	0.000	5.00	17.500	10.50	346.9	0.0	1001.2
75.00	Appurtenance(s)	1.00	0.91	19.147	21.06	310.55	0.600	0.000	5.00	17.500	10.50	353.8	0.0	1001.2
80.00	Top - Section 4	1.00	0.93	19.503	21.45	313.43	0.600	0.000	5.00	17.500	10.50	360.4	0.0	1001.2
85.00		1.00	0.94	19.844	21.83	270.99	0.600	0.000	5.00	15.000	9.00	314.3	0.0	856.9
87.00	Appurtenance(s)	1.00	0.95	19.976	21.97	271.89	0.600	0.000	2.00	6.000	3.60	126.6	0.0	342.8
90.00		1.00	0.96	20.170	22.19	273.21	0.600	0.000	3.00	9.000	5.40	191.7	0.0	514.1
91.00	Appurtenance(s)	1.00	0.96	20.234	22.26	273.64	0.600	0.000	1.00	3.000	1.80	64.1	0.0	171.4
95.00		1.00	0.97	20.484	22.53	275.33	0.600	0.000	4.00	12.000	7.20	259.6	0.0	685.5
97.00	Appurtenance(s)	1.00	0.98	20.607	22.67	276.15	0.600	0.000	2.00	6.000	3.60	130.6	0.0	342.8
100.00		1.00	0.99	20.787	22.87	277.35	0.600	0.000	3.00	9.000	5.40	197.6	0.0	514.1
105.00	Appurtenance(s)	1.00	1.00	21.079	23.19	279.29	0.600	0.000	5.00	15.000	9.00	333.9	0.0	856.9
								Totals:	**105.00**			**7,479.1**		**23,767.2**

Discrete Appurtenance Forces

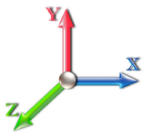
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	105.00	SDX1926Q-43	3	21.361	23.497	0.45	0.90	0.43	28.44	0.000	5.000	16.24	0.00	81.20
2	105.00	20' Omni	1	21.687	23.856	1.00	1.00	6.00	66.00	0.000	11.000	229.02	0.00	2519.19
3	105.00	APXVAARR24_43-U-NA2	3	21.361	23.497	0.70	1.00	42.50	460.80	0.000	5.000	1597.93	0.00	7989.64
4	105.00	AIR32	3	21.361	23.497	0.87	1.00	16.99	475.92	0.000	5.000	638.78	0.00	3193.88
5	105.00	AIR6449 B41	3	21.361	23.497	0.71	1.00	12.03	370.80	0.000	5.000	452.43	0.00	2262.17
6	105.00	KRY 112 144/2	3	21.361	23.497	0.68	0.90	0.83	39.60	0.000	5.000	31.21	0.00	156.07
7	105.00	Low Profile	1	21.079	23.186	1.00	1.00	40.00	1800.00	0.000	0.000	1483.93	0.00	0.00
8	105.00	Radio 4415 Protruding w/o	3	21.361	23.497	0.60	0.90	3.36	166.68	0.000	5.000	126.50	0.00	632.48
9	105.00	MS-HRECP	1	21.079	23.186	1.00	1.00	12.25	616.80	0.000	0.000	454.45	0.00	0.00
10	105.00	Kicker kit	1	21.079	23.186	1.00	1.00	5.33	440.40	0.000	0.000	197.73	0.00	0.00
11	105.00	Collar Mount	1	21.079	23.186	1.00	1.00	2.50	375.60	0.000	0.000	92.75	0.00	0.00
12	105.00	4449 B71 + B85	3	21.361	23.497	0.60	0.90	3.56	263.52	0.000	5.000	133.98	0.00	669.89
13	97.00	HRK14	1	20.607	22.667	1.00	1.00	8.13	362.83	0.000	0.000	294.86	0.00	0.00
14	97.00	4415	3	20.607	22.667	0.50	0.75	2.80	158.76	0.000	0.000	101.69	0.00	0.00
15	97.00	B2 B66A 8843	3	20.607	22.667	0.50	0.75	2.47	252.00	0.000	0.000	89.66	0.00	0.00
16	97.00	4449 B5/B12	3	20.607	22.667	0.50	0.75	2.97	255.60	0.000	0.000	107.71	0.00	0.00
17	97.00	Low Profile Platformw/	1	20.607	22.667	1.00	1.00	25.00	1920.00	0.000	0.000	906.69	0.00	0.00
18	97.00	PRK-1245 (kicker kit)	1	20.607	22.667	1.00	1.00	9.50	557.89	0.000	0.000	344.54	0.00	0.00
19	97.00	860 10025	6	20.607	22.667	0.38	0.75	0.41	8.64	0.000	0.000	14.69	0.00	0.00
20	97.00	Ring Mount	1	20.607	22.667	1.00	1.00	5.00	420.00	0.000	0.000	181.34	0.00	0.00
21	97.00	80010965	6	20.607	22.667	0.53	0.75	44.12	781.92	0.000	0.000	1600.24	0.00	0.00
22	97.00	782 10250	6	20.607	22.667	0.57	0.75	1.78	46.08	0.000	0.000	64.50	0.00	0.00
23	97.00	LGP21401	6	20.607	22.667	0.50	0.75	3.89	101.52	0.000	0.000	141.06	0.00	0.00
24	97.00	800-10121	3	20.607	22.667	0.59	0.75	9.15	158.76	0.000	0.000	332.00	0.00	0.00
25	97.00	DC6-48-60-18-8F	3	20.607	22.667	0.80	0.80	2.21	114.48	0.000	0.000	80.08	0.00	0.00
26	97.00	HPA65R-BU6A	3	20.607	22.667	0.64	0.75	18.47	183.60	0.000	0.000	670.04	0.00	0.00
27	91.00	RRU	3	20.234	22.258	0.88	1.00	5.07	151.20	0.000	0.000	180.51	0.00	0.00
28	91.00	Horizon DUO Radios	3	20.234	22.258	0.76	1.00	1.92	41.40	0.000	0.000	68.20	0.00	0.00
29	91.00	VHLP2.5	3	20.234	22.258	1.00	1.00	25.29	171.36	0.000	0.000	900.63	0.00	0.00
30	91.00	Dish Mount	3	20.234	22.258	0.56	0.75	5.06	540.00	0.000	0.000	180.29	0.00	0.00
31	87.00	APXVSPP18-C-A20	3	19.976	21.974	0.66	0.80	15.98	205.20	0.000	0.000	561.67	0.00	0.00
32	87.00	RRUS-11 800 MHz	3	19.976	21.974	0.60	0.80	5.29	194.40	0.000	0.000	186.05	0.00	0.00
33	87.00	APXVTM14-C-120	3	19.976	21.974	0.63	0.80	12.02	201.60	0.000	0.000	422.62	0.00	0.00
34	87.00	RRUS-11 1900 MHz	3	19.976	21.974	0.56	0.80	4.94	158.40	0.000	0.000	173.65	0.00	0.00
35	87.00	Low Profile	1	19.976	21.974	1.00	1.00	22.00	1800.00	0.000	0.000	773.47	0.00	0.00
36	87.00	800MHz Filter	3	19.976	21.974	0.56	0.80	0.82	36.00	0.000	0.000	28.94	0.00	0.00
37	87.00	TD-RRH8x20-25	3	19.976	21.974	0.55	0.80	6.71	252.00	0.000	0.000	235.80	0.00	0.00
38	87.00	ACU-A20-N	4	19.976	21.974	0.63	0.80	0.35	4.80	0.000	0.000	12.44	0.00	0.00
39	75.00	GPS	1	19.147	21.061	1.00	1.00	1.00	12.00	0.000	0.000	33.70	0.00	0.00
40	75.00	Standoff Mount	1	19.147	21.061	1.00	1.00	2.00	24.00	0.000	0.000	67.40	0.00	0.00
							Totals:		**14,219.00**			**14,209.43**		

Total Applied Force Summary

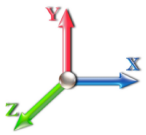
Structure:	CT01498-S-SBA		**Code:**	EIA/TIA-222-G	11/12/2020
Site Name:	Avon		**Exposure:**	B	
Height:	105.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		388.72	1642.09	0.00	0.00
10.00		388.72	1642.09	0.00	0.00
15.00		388.72	1642.09	0.00	0.00
20.00		388.72	1642.09	0.00	0.00
25.00		349.84	1497.77	0.00	0.00
30.00		350.14	1497.77	0.00	0.00
35.00		365.90	1497.77	0.00	0.00
40.00		380.13	1497.77	0.00	0.00
45.00		349.46	1353.45	0.00	0.00
50.00		360.14	1353.45	0.00	0.00
55.00		370.08	1353.45	0.00	0.00
60.00		379.40	1353.45	0.00	0.00
65.00		339.65	1209.13	0.00	0.00
70.00		346.92	1209.13	0.00	0.00
75.00	(2) attachments	454.92	1245.13	0.00	0.00
80.00		360.41	1208.17	0.00	0.00
85.00		314.32	1063.86	0.00	0.00
87.00	(23) attachments	2521.22	3277.94	0.00	0.00
90.00		191.70	624.58	0.00	0.00
91.00	(12) attachments	1393.74	1112.15	0.00	0.00
95.00		259.58	828.16	0.00	0.00
97.00	(46) attachments	5059.67	5736.16	0.00	0.00
100.00		197.56	569.07	0.00	0.00
105.00	(26) attachments	5788.84	6053.00	0.00	17504.52
	Totals:	**21,688.50**	**42,109.72**	**0.00**	**17,504.52**

Linear Appurtenance Segment Forces (Factored)

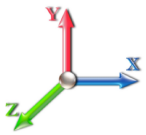
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	14.724	0.00	6.24
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	14.724	0.00	0.96
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	14.724	0.00	6.24
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	14.724	0.00	0.96
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	14.724	0.00	6.24
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	14.724	0.00	0.96
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	14.724	0.00	6.24
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	14.724	0.00	0.96
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	14.724	0.00	6.24
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	14.724	0.00	0.96
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	14.736	0.00	6.24
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	14.736	0.00	0.96
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	15.400	0.00	6.24
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	15.400	0.00	0.96
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	15.999	0.00	6.24
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	15.999	0.00	0.96
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	16.546	0.00	6.24
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	16.546	0.00	0.96
50.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	17.052	0.00	6.24
50.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	17.052	0.00	0.96
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	17.523	0.00	6.24
55.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	17.523	0.00	0.96
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	17.964	0.00	6.24
60.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	17.964	0.00	0.96
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	18.380	0.00	6.24
65.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	18.380	0.00	0.96
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	18.773	0.00	6.24
70.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	18.773	0.00	0.96
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	19.147	0.00	6.24
75.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	19.147	0.00	0.96
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	19.503	0.00	6.24
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	19.844	0.00	6.24
87.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.018	0.000	19.976	0.00	2.50
90.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.018	0.000	20.170	0.00	3.74
91.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.018	0.000	20.234	0.00	1.25
95.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.018	0.000	20.484	0.00	4.99
97.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.018	0.000	20.607	0.00	2.50
100.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.018	0.000	20.787	0.00	3.74
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	21.079	0.00	6.24
									Totals:		**0.0**	**145.4**

Calculated Forces

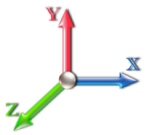
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-42.09	-21.72	0.00	-1830.9	0.00	1830.97	2204.43	1102.21	5439.15	3573.20	0.00	0.000	0.000	0.532
5.00	-40.42	-21.38	0.00	-1722.3	0.00	1722.37	2204.43	1102.21	5439.15	3573.20	0.04	-0.081	0.000	0.501
10.00	-38.75	-21.04	0.00	-1615.4	0.00	1615.45	2204.43	1102.21	5439.15	3573.20	0.17	-0.157	0.000	0.470
15.00	-37.09	-20.69	0.00	-1510.2	0.00	1510.24	2204.43	1102.21	5439.15	3573.20	0.37	-0.228	0.000	0.440
20.00	-35.43	-20.34	0.00	-1406.7	0.00	1406.78	2204.43	1102.21	5439.15	3573.20	0.65	-0.294	0.000	0.410
20.00	-35.43	-20.34	0.00	-1406.7	0.00	1406.78	2026.00	1013.00	4492.72	2914.55	0.65	-0.294	0.000	0.501
25.00	-33.91	-20.02	0.00	-1305.1	0.00	1305.11	2026.00	1013.00	4492.72	2914.55	0.99	-0.356	0.000	0.465
30.00	-32.38	-19.70	0.00	-1205.0	0.00	1205.01	2026.00	1013.00	4492.72	2914.55	1.41	-0.435	0.000	0.430
35.00	-30.87	-19.36	0.00	-1106.5	0.00	1106.51	2026.00	1013.00	4492.72	2914.55	1.90	-0.507	0.000	0.395
40.00	-29.35	-19.00	0.00	-1009.7	0.00	1009.71	2026.00	1013.00	4492.72	2914.55	2.47	-0.573	0.000	0.361
40.00	-29.35	-19.00	0.00	-1009.7	0.00	1009.71	1847.49	923.75	3635.30	2322.74	2.47	-0.573	0.000	0.451
45.00	-27.98	-18.67	0.00	-914.72	0.00	914.72	1847.49	923.75	3635.30	2322.74	3.10	-0.634	0.000	0.409
50.00	-26.61	-18.33	0.00	-821.38	0.00	821.38	1847.49	923.75	3635.30	2322.74	3.81	-0.711	0.000	0.368
55.00	-25.24	-17.97	0.00	-729.75	0.00	729.75	1847.49	923.75	3635.30	2322.74	4.59	-0.780	0.000	0.328
60.00	-23.87	-17.59	0.00	-639.91	0.00	639.91	1847.49	923.75	3635.30	2322.74	5.44	-0.842	0.000	0.289
60.00	-23.87	-17.59	0.00	-639.91	0.00	639.91	1668.87	834.44	2866.90	1797.79	5.44	-0.842	0.000	0.371
65.00	-22.65	-17.26	0.00	-551.95	0.00	551.95	1668.87	834.44	2866.90	1797.79	6.35	-0.895	0.000	0.321
70.00	-21.43	-16.92	0.00	-465.65	0.00	465.65	1668.87	834.44	2866.90	1797.79	7.33	-0.963	0.000	0.272
75.00	-20.18	-16.46	0.00	-381.07	0.00	381.07	1668.87	834.44	2866.90	1797.79	8.37	-1.020	0.000	0.224
80.00	-18.96	-16.09	0.00	-298.79	0.00	298.79	1668.87	834.44	2866.90	1797.79	9.46	-1.065	0.000	0.178
80.00	-18.96	-16.09	0.00	-298.79	0.00	298.79	1490.10	745.05	2187.51	1339.68	9.46	-1.065	0.000	0.236
85.00	-17.90	-15.76	0.00	-218.35	0.00	218.35	1490.10	745.05	2187.51	1339.68	10.60	-1.100	0.000	0.175
87.00	-14.67	-13.18	0.00	-186.83	0.00	186.83	1490.10	745.05	2187.51	1339.68	11.07	-1.117	0.000	0.150
90.00	-14.04	-12.98	0.00	-147.28	0.00	147.28	1490.10	745.05	2187.51	1339.68	11.77	-1.138	0.000	0.120
91.00	-12.96	-11.57	0.00	-134.30	0.00	134.30	1490.10	745.05	2187.51	1339.68	12.01	-1.144	0.000	0.109
95.00	-12.13	-11.30	0.00	-88.02	0.00	88.02	1490.10	745.05	2187.51	1339.68	12.98	-1.163	0.000	0.074
97.00	-6.50	-6.12	0.00	-65.43	0.00	65.43	1490.10	745.05	2187.51	1339.68	13.47	-1.170	0.000	0.053
100.00	-5.93	-5.91	0.00	-47.07	0.00	47.07	1490.10	745.05	2187.51	1339.68	14.21	-1.177	0.000	0.039
105.00	0.00	-5.79	0.00	-17.50	0.00	17.50	1490.10	745.05	2187.51	1339.68	15.45	-1.184	0.000	0.013

Wind Loading - Shaft

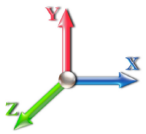
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	14.724	16.20	389.05	0.600	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	389.05	0.600	0.000	5.00	25.000	15.00	388.7	0.0	1075.6
10.00		1.00	0.70	14.724	16.20	389.05	0.600	0.000	5.00	25.000	15.00	388.7	0.0	1075.6
15.00		1.00	0.70	14.724	16.20	389.05	0.600	0.000	5.00	25.000	15.00	388.7	0.0	1075.6
20.00	Top - Section 1	1.00	0.70	14.724	16.20	389.05	0.600	0.000	5.00	25.000	15.00	388.7	0.0	1075.6
25.00		1.00	0.70	14.724	16.20	350.14	0.600	0.000	5.00	22.500	13.50	349.8	0.0	967.4
30.00		1.00	0.70	14.736	16.21	350.29	0.600	0.000	5.00	22.500	13.50	350.1	0.0	967.4
35.00		1.00	0.73	15.400	16.94	358.09	0.600	0.000	5.00	22.500	13.50	365.9	0.0	967.4
40.00	Top - Section 2	1.00	0.76	15.999	17.60	364.99	0.600	0.000	5.00	22.500	13.50	380.1	0.0	967.4
45.00		1.00	0.79	16.546	18.20	329.94	0.600	0.000	5.00	20.000	12.00	349.5	0.0	859.1
50.00		1.00	0.81	17.052	18.76	334.94	0.600	0.000	5.00	20.000	12.00	360.1	0.0	859.1
55.00		1.00	0.83	17.523	19.28	339.53	0.600	0.000	5.00	20.000	12.00	370.1	0.0	859.1
60.00	Top - Section 3	1.00	0.85	17.964	19.76	343.78	0.600	0.000	5.00	20.000	12.00	379.4	0.0	859.1
65.00		1.00	0.87	18.380	20.22	304.27	0.600	0.000	5.00	17.500	10.50	339.7	0.0	750.9
70.00		1.00	0.89	18.773	20.65	307.50	0.600	0.000	5.00	17.500	10.50	346.9	0.0	750.9
75.00	Appurtenance(s)	1.00	0.91	19.147	21.06	310.55	0.600	0.000	5.00	17.500	10.50	353.8	0.0	750.9
80.00	Top - Section 4	1.00	0.93	19.503	21.45	313.43	0.600	0.000	5.00	17.500	10.50	360.4	0.0	750.9
85.00		1.00	0.94	19.844	21.83	270.99	0.600	0.000	5.00	15.000	9.00	314.3	0.0	642.7
87.00	Appurtenance(s)	1.00	0.95	19.976	21.97	271.89	0.600	0.000	2.00	6.000	3.60	126.6	0.0	257.1
90.00		1.00	0.96	20.170	22.19	273.21	0.600	0.000	3.00	9.000	5.40	191.7	0.0	385.6
91.00	Appurtenance(s)	1.00	0.96	20.234	22.26	273.64	0.600	0.000	1.00	3.000	1.80	64.1	0.0	128.5
95.00		1.00	0.97	20.484	22.53	275.33	0.600	0.000	4.00	12.000	7.20	259.6	0.0	514.1
97.00	Appurtenance(s)	1.00	0.98	20.607	22.67	276.15	0.600	0.000	2.00	6.000	3.60	130.6	0.0	257.1
100.00		1.00	0.99	20.787	22.87	277.35	0.600	0.000	3.00	9.000	5.40	197.6	0.0	385.6
105.00	Appurtenance(s)	1.00	1.00	21.079	23.19	279.29	0.600	0.000	5.00	15.000	9.00	333.9	0.0	642.7
								Totals:	**105.00**			**7,479.1**		**17,825.4**

Discrete Appurtenance Forces

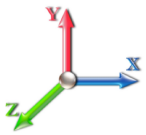
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	105.00	SDX1926Q-43	3	21.361	23.497	0.45	0.90	0.43	21.33	0.000	5.000	16.24	0.00	81.20
2	105.00	20' Omni	1	21.687	23.856	1.00	1.00	6.00	49.50	0.000	11.000	229.02	0.00	2519.19
3	105.00	APXVAARR24_43-U-NA2	3	21.361	23.497	0.70	1.00	42.50	345.60	0.000	5.000	1597.93	0.00	7989.64
4	105.00	AIR32	3	21.361	23.497	0.87	1.00	16.99	356.94	0.000	5.000	638.78	0.00	3193.88
5	105.00	AIR6449 B41	3	21.361	23.497	0.71	1.00	12.03	278.10	0.000	5.000	452.43	0.00	2262.17
6	105.00	KRY 112 144/2	3	21.361	23.497	0.68	0.90	0.83	29.70	0.000	5.000	31.21	0.00	156.07
7	105.00	Low Profile	1	21.079	23.186	1.00	1.00	40.00	1350.00	0.000	0.000	1483.93	0.00	0.00
8	105.00	Radio 4415 Protruding w/o	3	21.361	23.497	0.60	0.90	3.36	125.01	0.000	5.000	126.50	0.00	632.48
9	105.00	MS-HRECP	1	21.079	23.186	1.00	1.00	12.25	462.60	0.000	0.000	454.45	0.00	0.00
10	105.00	Kicker kit	1	21.079	23.186	1.00	1.00	5.33	330.30	0.000	0.000	197.73	0.00	0.00
11	105.00	Collar Mount	1	21.079	23.186	1.00	1.00	2.50	281.70	0.000	0.000	92.75	0.00	0.00
12	105.00	4449 B71 + B85	3	21.361	23.497	0.60	0.90	3.56	197.64	0.000	5.000	133.98	0.00	669.89
13	97.00	HRK14	1	20.607	22.667	1.00	1.00	8.13	272.12	0.000	0.000	294.86	0.00	0.00
14	97.00	4415	3	20.607	22.667	0.50	0.75	2.80	119.07	0.000	0.000	101.69	0.00	0.00
15	97.00	B2 B66A 8843	3	20.607	22.667	0.50	0.75	2.47	189.00	0.000	0.000	89.66	0.00	0.00
16	97.00	4449 B5/B12	3	20.607	22.667	0.50	0.75	2.97	191.70	0.000	0.000	107.71	0.00	0.00
17	97.00	Low Profile Platformw/	1	20.607	22.667	1.00	1.00	25.00	1440.00	0.000	0.000	906.69	0.00	0.00
18	97.00	PRK-1245 (kicker kit)	1	20.607	22.667	1.00	1.00	9.50	418.42	0.000	0.000	344.54	0.00	0.00
19	97.00	860 10025	6	20.607	22.667	0.38	0.75	0.41	6.48	0.000	0.000	14.69	0.00	0.00
20	97.00	Ring Mount	1	20.607	22.667	1.00	1.00	5.00	315.00	0.000	0.000	181.34	0.00	0.00
21	97.00	80010965	6	20.607	22.667	0.53	0.75	44.12	586.44	0.000	0.000	1600.24	0.00	0.00
22	97.00	782 10250	6	20.607	22.667	0.57	0.75	1.78	34.56	0.000	0.000	64.50	0.00	0.00
23	97.00	LGP21401	6	20.607	22.667	0.50	0.75	3.89	76.14	0.000	0.000	141.06	0.00	0.00
24	97.00	800-10121	3	20.607	22.667	0.59	0.75	9.15	119.07	0.000	0.000	332.00	0.00	0.00
25	97.00	DC6-48-60-18-8F	3	20.607	22.667	0.80	0.80	2.21	85.86	0.000	0.000	80.08	0.00	0.00
26	97.00	HPA65R-BU6A	3	20.607	22.667	0.64	0.75	18.47	137.70	0.000	0.000	670.04	0.00	0.00
27	91.00	RRU	3	20.234	22.258	0.88	1.00	5.07	113.40	0.000	0.000	180.51	0.00	0.00
28	91.00	Horizon DUO Radios	3	20.234	22.258	0.76	1.00	1.92	31.05	0.000	0.000	68.20	0.00	0.00
29	91.00	VHLP2.5	3	20.234	22.258	1.00	1.00	25.29	128.52	0.000	0.000	900.63	0.00	0.00
30	91.00	Dish Mount	3	20.234	22.258	0.56	0.75	5.06	405.00	0.000	0.000	180.29	0.00	0.00
31	87.00	APXVSPP18-C-A20	3	19.976	21.974	0.66	0.80	15.98	153.90	0.000	0.000	561.67	0.00	0.00
32	87.00	RRUS-11 800 MHz	3	19.976	21.974	0.60	0.80	5.29	145.80	0.000	0.000	186.05	0.00	0.00
33	87.00	APXVTM14-C-120	3	19.976	21.974	0.63	0.80	12.02	151.20	0.000	0.000	422.62	0.00	0.00
34	87.00	RRUS-11 1900 MHz	3	19.976	21.974	0.56	0.80	4.94	118.80	0.000	0.000	173.65	0.00	0.00
35	87.00	Low Profile	1	19.976	21.974	1.00	1.00	22.00	1350.00	0.000	0.000	773.47	0.00	0.00
36	87.00	800MHz Filter	3	19.976	21.974	0.56	0.80	0.82	27.00	0.000	0.000	28.94	0.00	0.00
37	87.00	TD-RRH8x20-25	3	19.976	21.974	0.55	0.80	6.71	189.00	0.000	0.000	235.80	0.00	0.00
38	87.00	ACU-A20-N	4	19.976	21.974	0.63	0.80	0.35	3.60	0.000	0.000	12.44	0.00	0.00
39	75.00	GPS	1	19.147	21.061	1.00	1.00	1.00	9.00	0.000	0.000	33.70	0.00	0.00
40	75.00	Standoff Mount	1	19.147	21.061	1.00	1.00	2.00	18.00	0.000	0.000	67.40	0.00	0.00
							Totals:		**10,664.25**			**14,209.43**		

Total Applied Force Summary

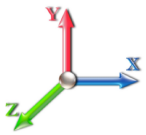
Structure:	CT01498-S-SBA		**Code:**	EIA/TIA-222-G	11/12/2020
Site Name:	Avon		**Exposure:**	B	
Height:	105.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 16

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		388.72	1231.56	0.00	0.00
10.00		388.72	1231.56	0.00	0.00
15.00		388.72	1231.56	0.00	0.00
20.00		388.72	1231.56	0.00	0.00
25.00		349.84	1123.33	0.00	0.00
30.00		350.14	1123.33	0.00	0.00
35.00		365.90	1123.33	0.00	0.00
40.00		380.13	1123.33	0.00	0.00
45.00		349.46	1015.09	0.00	0.00
50.00		360.14	1015.09	0.00	0.00
55.00		370.08	1015.09	0.00	0.00
60.00		379.40	1015.09	0.00	0.00
65.00		339.65	906.85	0.00	0.00
70.00		346.92	906.85	0.00	0.00
75.00	(2) attachments	454.92	933.85	0.00	0.00
80.00		360.41	906.13	0.00	0.00
85.00		314.32	797.89	0.00	0.00
87.00	(23) attachments	2521.22	2458.46	0.00	0.00
90.00		191.70	468.43	0.00	0.00
91.00	(12) attachments	1393.74	834.11	0.00	0.00
95.00		259.58	621.12	0.00	0.00
97.00	(46) attachments	5059.67	4302.12	0.00	0.00
100.00		197.56	426.80	0.00	0.00
105.00	(26) attachments	5788.84	4539.75	0.00	17504.52
	Totals:	**21,688.50**	**31,582.29**	**0.00**	**17,504.52**

Linear Appurtenance Segment Forces (Factored)

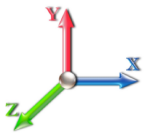
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	14.724	0.00	4.68
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	14.724	0.00	0.72
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	14.724	0.00	4.68
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	14.724	0.00	0.72
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	14.724	0.00	4.68
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	14.724	0.00	0.72
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	14.724	0.00	4.68
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	14.724	0.00	0.72
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	14.724	0.00	4.68
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	14.724	0.00	0.72
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	14.736	0.00	4.68
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	14.736	0.00	0.72
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	15.400	0.00	4.68
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	15.400	0.00	0.72
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	15.999	0.00	4.68
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	15.999	0.00	0.72
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	16.546	0.00	4.68
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	16.546	0.00	0.72
50.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	17.052	0.00	4.68
50.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	17.052	0.00	0.72
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	17.523	0.00	4.68
55.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	17.523	0.00	0.72
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	17.964	0.00	4.68
60.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	17.964	0.00	0.72
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	18.380	0.00	4.68
65.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	18.380	0.00	0.72
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	18.773	0.00	4.68
70.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	18.773	0.00	0.72
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	19.147	0.00	4.68
75.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	19.147	0.00	0.72
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	19.503	0.00	4.68
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	19.844	0.00	4.68
87.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.018	0.000	19.976	0.00	1.87
90.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.018	0.000	20.170	0.00	2.81
91.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.018	0.000	20.234	0.00	0.94
95.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.018	0.000	20.484	0.00	3.74
97.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.018	0.000	20.607	0.00	1.87
100.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.018	0.000	20.787	0.00	2.81
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	21.079	0.00	4.68
										Totals:	**0.0**	**109.1**

Calculated Forces

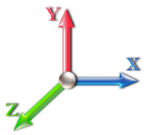
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-31.57	-21.71	0.00	-1823.9	0.00	1823.98	2204.43	1102.21	5439.15	3573.20	0.00	0.000	0.000	0.525
5.00	-30.31	-21.36	0.00	-1715.4	0.00	1715.42	2204.43	1102.21	5439.15	3573.20	0.04	-0.081	0.000	0.494
10.00	-29.05	-21.01	0.00	-1608.6	0.00	1608.61	2204.43	1102.21	5439.15	3573.20	0.17	-0.156	0.000	0.464
15.00	-27.79	-20.65	0.00	-1503.5	0.00	1503.56	2204.43	1102.21	5439.15	3573.20	0.37	-0.227	0.000	0.434
20.00	-26.54	-20.28	0.00	-1400.3	0.00	1400.32	2204.43	1102.21	5439.15	3573.20	0.65	-0.293	0.000	0.404
20.00	-26.54	-20.28	0.00	-1400.3	0.00	1400.32	2026.00	1013.00	4492.72	2914.55	0.65	-0.293	0.000	0.494
25.00	-25.40	-19.96	0.00	-1298.9	0.00	1298.90	2026.00	1013.00	4492.72	2914.55	0.99	-0.355	0.000	0.459
30.00	-24.25	-19.63	0.00	-1199.1	0.00	1199.10	2026.00	1013.00	4492.72	2914.55	1.40	-0.433	0.000	0.424
35.00	-23.11	-19.29	0.00	-1100.9	0.00	1100.94	2026.00	1013.00	4492.72	2914.55	1.89	-0.505	0.000	0.390
40.00	-21.97	-18.92	0.00	-1004.5	0.00	1004.51	2026.00	1013.00	4492.72	2914.55	2.46	-0.571	0.000	0.356
40.00	-21.97	-18.92	0.00	-1004.5	0.00	1004.51	1847.49	923.75	3635.30	2322.74	2.46	-0.571	0.000	0.445
45.00	-20.93	-18.58	0.00	-909.91	0.00	909.91	1847.49	923.75	3635.30	2322.74	3.09	-0.631	0.000	0.403
50.00	-19.90	-18.24	0.00	-816.99	0.00	816.99	1847.49	923.75	3635.30	2322.74	3.79	-0.708	0.000	0.363
55.00	-18.87	-17.88	0.00	-725.81	0.00	725.81	1847.49	923.75	3635.30	2322.74	4.57	-0.777	0.000	0.323
60.00	-17.84	-17.50	0.00	-636.43	0.00	636.43	1847.49	923.75	3635.30	2322.74	5.42	-0.838	0.000	0.284
60.00	-17.84	-17.50	0.00	-636.43	0.00	636.43	1668.87	834.44	2866.90	1797.79	5.42	-0.838	0.000	0.365
65.00	-16.92	-17.16	0.00	-548.93	0.00	548.93	1668.87	834.44	2866.90	1797.79	6.33	-0.891	0.000	0.316
70.00	-16.00	-16.82	0.00	-463.11	0.00	463.11	1668.87	834.44	2866.90	1797.79	7.30	-0.958	0.000	0.268
75.00	-15.06	-16.36	0.00	-379.01	0.00	379.01	1668.87	834.44	2866.90	1797.79	8.33	-1.015	0.000	0.220
80.00	-14.15	-16.00	0.00	-297.19	0.00	297.19	1668.87	834.44	2866.90	1797.79	9.42	-1.060	0.000	0.174
80.00	-14.15	-16.00	0.00	-297.19	0.00	297.19	1490.10	745.05	2187.51	1339.68	9.42	-1.060	0.000	0.232
85.00	-13.35	-15.67	0.00	-217.21	0.00	217.21	1490.10	745.05	2187.51	1339.68	10.55	-1.094	0.000	0.172
87.00	-10.94	-13.11	0.00	-185.87	0.00	185.87	1490.10	745.05	2187.51	1339.68	11.01	-1.112	0.000	0.146
90.00	-10.47	-12.91	0.00	-146.55	0.00	146.55	1490.10	745.05	2187.51	1339.68	11.72	-1.133	0.000	0.117
91.00	-9.66	-11.50	0.00	-133.64	0.00	133.64	1490.10	745.05	2187.51	1339.68	11.96	-1.139	0.000	0.106
95.00	-9.04	-11.23	0.00	-87.63	0.00	87.63	1490.10	745.05	2187.51	1339.68	12.92	-1.158	0.000	0.072
97.00	-4.84	-6.09	0.00	-65.17	0.00	65.17	1490.10	745.05	2187.51	1339.68	13.41	-1.164	0.000	0.052
100.00	-4.42	-5.88	0.00	-46.91	0.00	46.91	1490.10	745.05	2187.51	1339.68	14.14	-1.171	0.000	0.038
105.00	0.00	-5.79	0.00	-17.50	0.00	17.50	1490.10	745.05	2187.51	1339.68	15.37	-1.178	0.000	0.013

Wind Loading - Shaft

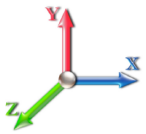
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.656	5.00	26.380	31.66	148.2	623.7	2057.9
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.775	5.00	26.479	31.77	148.8	669.8	2103.9
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.848	5.00	26.540	31.85	149.1	698.3	2132.5
20.00	Top - Section 1	1.00	0.70	4.256	4.68	0.00	1.200	1.902	5.00	26.585	31.90	149.4	719.3	2153.5
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.945	5.00	24.121	28.95	135.5	664.8	1954.6
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.981	5.00	24.151	28.98	135.8	677.4	1967.3
35.00		1.00	0.73	4.451	4.90	0.00	1.200	2.012	5.00	24.177	29.01	142.1	688.4	1978.2
40.00	Top - Section 2	1.00	0.76	4.625	5.09	0.00	1.200	2.039	5.00	24.199	29.04	147.7	697.9	1987.8
45.00		1.00	0.79	4.783	5.26	0.00	1.200	2.063	5.00	21.719	26.06	137.1	630.9	1776.4
50.00		1.00	0.81	4.929	5.42	0.00	1.200	2.085	5.00	21.737	26.08	141.4	637.9	1783.4
55.00		1.00	0.83	5.065	5.57	0.00	1.200	2.105	5.00	21.754	26.10	145.4	644.2	1789.7
60.00	Top - Section 3	1.00	0.85	5.193	5.71	0.00	1.200	2.123	5.00	21.769	26.12	149.2	650.1	1795.6
65.00		1.00	0.87	5.313	5.84	0.00	1.200	2.140	5.00	19.284	23.14	135.2	577.1	1578.3
70.00		1.00	0.89	5.426	5.97	0.00	1.200	2.156	5.00	19.297	23.16	138.2	581.6	1582.8
75.00	Appurtenance(s)	1.00	0.91	5.534	6.09	0.00	1.200	2.171	5.00	19.309	23.17	141.1	585.8	1587.0
80.00	Top - Section 4	1.00	0.93	5.637	6.20	0.00	1.200	2.185	5.00	19.321	23.19	143.8	589.8	1591.0
85.00		1.00	0.94	5.736	6.31	0.00	1.200	2.198	5.00	16.832	20.20	127.4	513.0	1369.9
87.00	Appurtenance(s)	1.00	0.95	5.774	6.35	0.00	1.200	2.204	2.00	6.735	8.08	51.3	205.7	548.5
90.00		1.00	0.96	5.830	6.41	0.00	1.200	2.211	3.00	10.106	12.13	77.8	309.7	823.8
91.00	Appurtenance(s)	1.00	0.96	5.849	6.43	0.00	1.200	2.214	1.00	3.369	4.04	26.0	103.3	274.7
95.00		1.00	0.97	5.921	6.51	0.00	1.200	2.223	4.00	13.482	16.18	105.4	415.3	1100.8
97.00	Appurtenance(s)	1.00	0.98	5.956	6.55	0.00	1.200	2.228	2.00	6.743	8.09	53.0	208.1	550.8
100.00		1.00	0.99	6.008	6.61	0.00	1.200	2.234	3.00	10.117	12.14	80.2	313.1	827.3
105.00	Appurtenance(s)	1.00	1.00	6.093	6.70	0.00	1.200	2.245	5.00	16.871	20.25	135.7	524.6	1381.5
								Totals:	**105.00**			**2,944.8**		**36,697.1**

Discrete Appurtenance Forces

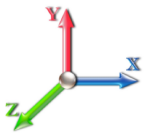
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	105.00	SDX1926Q-43	3	6.174	6.792	0.45	0.90	0.94	104.27	0.000	5.000	6.40	0.00	31.99
2	105.00	20' Omni	1	6.269	6.896	1.00	1.00	15.13	216.74	0.000	11.000	104.32	0.00	1147.56
3	105.00	APXVAARR24_43-U-NA2	3	6.174	6.792	0.71	1.00	48.37	2133.22	0.000	5.000	328.55	0.00	1642.73
4	105.00	AIR32	3	6.174	6.792	0.89	1.00	21.47	1225.39	0.000	5.000	145.80	0.00	728.98
5	105.00	AIR6449 B41	3	6.174	6.792	0.72	1.00	14.85	804.96	0.000	5.000	100.83	0.00	504.14
6	105.00	KRY 112 144/2	3	6.174	6.792	0.69	0.90	2.12	71.91	0.000	5.000	14.42	0.00	72.10
7	105.00	Low Profile	1	6.093	6.702	1.00	1.00	81.32	3184.06	0.000	0.000	544.98	0.00	0.00
8	105.00	Radio 4415 Protruding w/o	3	6.174	6.792	0.62	0.90	4.86	420.41	0.000	5.000	33.01	0.00	165.07
9	105.00	MS-HRECP	1	6.093	6.702	1.00	1.00	27.65	1915.62	0.000	0.000	185.34	0.00	0.00
10	105.00	Kicker kit	1	6.093	6.702	1.00	1.00	12.51	1256.66	0.000	0.000	83.85	0.00	0.00
11	105.00	Collar Mount	1	6.093	6.702	1.00	1.00	5.87	1033.95	0.000	0.000	39.33	0.00	0.00
12	105.00	4449 B71 + B85	3	6.174	6.792	0.62	0.90	5.03	311.20	0.000	5.000	34.20	0.00	170.98
13	97.00	HRK14	1	5.956	6.552	1.00	1.00	18.27	1123.22	0.000	0.000	119.72	0.00	0.00
14	97.00	4415	3	5.956	6.552	0.52	0.75	4.02	309.83	0.000	0.000	26.35	0.00	0.00
15	97.00	B2 B66A 8843	3	5.956	6.552	0.52	0.75	3.57	394.19	0.000	0.000	23.39	0.00	0.00
16	97.00	4449 B5/B12	3	5.956	6.552	0.52	0.75	4.14	419.21	0.000	0.000	27.15	0.00	0.00
17	97.00	Low Profile Platformw/	1	5.956	6.552	1.00	1.00	50.62	3502.16	0.000	0.000	331.65	0.00	0.00
18	97.00	PRK-1245 (kicker kit)	1	5.956	6.552	1.00	1.00	22.20	877.07	0.000	0.000	145.44	0.00	0.00
19	97.00	860 10025	6	5.956	6.552	0.38	0.75	1.49	44.96	0.000	0.000	9.78	0.00	0.00
20	97.00	Ring Mount	1	5.956	6.552	1.00	1.00	9.46	694.25	0.000	0.000	61.95	0.00	0.00
21	97.00	80010965	6	5.956	6.552	0.54	0.75	51.36	3160.30	0.000	0.000	336.52	0.00	0.00
22	97.00	782 10250	6	5.956	6.552	0.57	0.75	4.26	122.41	0.000	0.000	27.93	0.00	0.00
23	97.00	LGP21401	6	5.956	6.552	0.50	0.75	7.11	250.40	0.000	0.000	46.56	0.00	0.00
24	97.00	800-10121	3	5.956	6.552	0.59	0.75	13.93	499.91	0.000	0.000	91.30	0.00	0.00
25	97.00	DC6-48-60-18-8F	3	5.956	6.552	0.80	0.80	3.55	298.13	0.000	0.000	23.26	0.00	0.00
26	97.00	HPA65R-BU6A	3	5.956	6.552	0.65	0.75	22.12	1177.05	0.000	0.000	144.94	0.00	0.00
27	91.00	RRU	3	5.849	6.434	0.88	1.00	8.45	312.72	0.000	0.000	54.38	0.00	0.00
28	91.00	Horizon DUO Radios	3	5.849	6.434	0.76	1.00	3.84	107.94	0.000	0.000	24.68	0.00	0.00
29	91.00	VHLP2.5	3	5.849	6.434	1.00	1.00	31.78	680.25	0.000	0.000	204.48	0.00	0.00
30	91.00	Dish Mount	3	5.849	6.434	0.56	0.75	9.54	118.12	0.000	0.000	61.41	0.00	0.00
31	87.00	APXVSPP18-C-A20	3	5.774	6.351	0.66	0.80	23.00	711.45	0.000	0.000	146.10	0.00	0.00
32	87.00	RRUS-11 800 MHz	3	5.774	6.351	0.60	0.80	8.05	415.76	0.000	0.000	51.15	0.00	0.00
33	87.00	APXVTM14-C-120	3	5.774	6.351	0.63	0.80	14.73	841.87	0.000	0.000	93.56	0.00	0.00
34	87.00	RRUS-11 1900 MHz	3	5.774	6.351	0.56	0.80	7.52	355.89	0.000	0.000	47.74	0.00	0.00
35	87.00	Low Profile	1	5.774	6.351	1.00	1.00	44.30	3152.69	0.000	0.000	281.37	0.00	0.00
36	87.00	800MHz Filter	3	5.774	6.351	0.56	0.80	2.01	82.99	0.000	0.000	12.79	0.00	0.00
37	87.00	TD-RRH8x20-25	3	5.774	6.351	0.55	0.80	8.44	693.72	0.000	0.000	53.62	0.00	0.00
38	87.00	ACU-A20-N	4	5.774	6.351	0.63	0.80	1.30	21.30	0.000	0.000	8.26	0.00	0.00
39	75.00	GPS	1	5.534	6.088	1.00	1.00	1.89	40.47	0.000	0.000	11.48	0.00	0.00
40	75.00	Standoff Mount	1	5.534	6.088	1.00	1.00	3.74	4.84	0.000	0.000	22.75	0.00	0.00
							Totals:		**33,091.49**			**4,110.73**		

Total Applied Force Summary

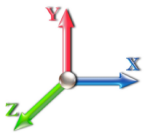
Structure:	CT01498-S-SBA		**Code:**	EIA/TIA-222-G	11/12/2020
Site Name:	Avon		**Exposure:**	B	
Height:	105.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		148.20	2307.87	0.00	0.00
10.00		148.76	2359.50	0.00	0.00
15.00		149.10	2391.66	0.00	0.00
20.00		149.35	2415.41	0.00	0.00
25.00		135.51	2218.77	0.00	0.00
30.00		135.79	2233.33	0.00	0.00
35.00		142.06	2245.88	0.00	0.00
40.00		147.72	2256.94	0.00	0.00
45.00		137.12	2046.92	0.00	0.00
50.00		141.43	2055.10	0.00	0.00
55.00		145.44	2062.58	0.00	0.00
60.00		149.21	2069.49	0.00	0.00
65.00		135.23	1853.15	0.00	0.00
70.00		138.22	1858.57	0.00	0.00
75.00	(2) attachments	175.29	1908.97	0.00	0.00
80.00		143.77	1832.62	0.00	0.00
85.00		127.44	1611.88	0.00	0.00
87.00	(23) attachments	745.92	6920.98	0.00	0.00
90.00		77.77	955.48	0.00	0.00
91.00	(12) attachments	370.96	1537.66	0.00	0.00
95.00		105.37	1272.02	0.00	0.00
97.00	(46) attachments	1468.95	13509.61	0.00	0.00
100.00		80.24	903.86	0.00	0.00
105.00	(26) attachments	1756.70	14187.85	0.00	4463.54
	Totals:	**7,055.57**	**75,016.10**	**0.00**	**4,463.54**

Linear Appurtenance Segment Forces (Factored)

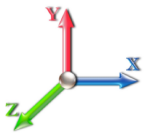
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.64	0.00	0.021	0.000	4.256	0.00	27.18
5.00	1/2" Coax	Yes	5.00	0.000	0.65	1.65	0.00	0.021	0.000	4.256	0.00	22.08
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.74	0.00	0.021	0.000	4.256	0.00	29.96
10.00	1/2" Coax	Yes	5.00	0.000	0.65	1.75	0.00	0.021	0.000	4.256	0.00	24.87
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.80	0.00	0.021	0.000	4.256	0.00	31.77
15.00	1/2" Coax	Yes	5.00	0.000	0.65	1.81	0.00	0.021	0.000	4.256	0.00	26.68
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.85	0.00	0.021	0.000	4.256	0.00	33.13
20.00	1/2" Coax	Yes	5.00	0.000	0.65	1.86	0.00	0.021	0.000	4.256	0.00	28.05
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.88	0.00	0.024	0.000	4.256	0.00	34.25
25.00	1/2" Coax	Yes	5.00	0.000	0.65	1.89	0.00	0.024	0.000	4.256	0.00	29.17
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.91	0.00	0.024	0.000	4.260	0.00	35.19
30.00	1/2" Coax	Yes	5.00	0.000	0.65	1.92	0.00	0.024	0.000	4.260	0.00	30.12
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.94	0.00	0.024	0.000	4.451	0.00	36.02
35.00	1/2" Coax	Yes	5.00	0.000	0.65	1.95	0.00	0.024	0.000	4.451	0.00	30.95
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.96	0.00	0.024	0.000	4.625	0.00	36.75
40.00	1/2" Coax	Yes	5.00	0.000	0.65	1.97	0.00	0.024	0.000	4.625	0.00	31.68
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.98	0.00	0.027	0.000	4.783	0.00	37.42
45.00	1/2" Coax	Yes	5.00	0.000	0.65	1.99	0.00	0.027	0.000	4.783	0.00	32.35
50.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.00	0.00	0.027	0.000	4.929	0.00	38.02
50.00	1/2" Coax	Yes	5.00	0.000	0.65	2.01	0.00	0.027	0.000	4.929	0.00	32.96
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.02	0.00	0.027	0.000	5.065	0.00	38.58
55.00	1/2" Coax	Yes	5.00	0.000	0.65	2.02	0.00	0.027	0.000	5.065	0.00	33.52
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.03	0.00	0.027	0.000	5.193	0.00	39.10
60.00	1/2" Coax	Yes	5.00	0.000	0.65	2.04	0.00	0.027	0.000	5.193	0.00	34.04
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.05	0.00	0.030	0.000	5.313	0.00	39.59
65.00	1/2" Coax	Yes	5.00	0.000	0.65	2.05	0.00	0.030	0.000	5.313	0.00	34.53
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.06	0.00	0.030	0.000	5.426	0.00	40.04
70.00	1/2" Coax	Yes	5.00	0.000	0.65	2.07	0.00	0.030	0.000	5.426	0.00	34.99
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.07	0.00	0.030	0.000	5.534	0.00	40.47
75.00	1/2" Coax	Yes	5.00	0.000	0.65	2.08	0.00	0.030	0.000	5.534	0.00	35.42
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.08	0.00	0.015	0.000	5.637	0.00	40.88
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.09	0.00	0.017	0.000	5.736	0.00	41.27
87.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.84	0.00	0.018	0.000	5.774	0.00	16.57
90.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.26	0.00	0.018	0.000	5.830	0.00	24.98
91.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.42	0.00	0.018	0.000	5.849	0.00	8.34
95.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	1.69	0.00	0.018	0.000	5.921	0.00	33.60
97.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.85	0.00	0.018	0.000	5.956	0.00	16.85
100.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	1.27	0.00	0.018	0.000	6.008	0.00	25.40
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	2.13	0.00	0.017	0.000	6.093	0.00	42.66
									Totals:		**0.0**	**1,249.4**

Calculated Forces

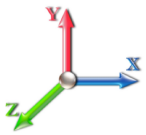
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-75.01	-7.07	0.00	-582.41	0.00	582.41	2204.43	1102.21	5439.15	3573.20	0.00	0.000	0.000	0.197
5.00	-72.70	-6.96	0.00	-547.05	0.00	547.05	2204.43	1102.21	5439.15	3573.20	0.01	-0.026	0.000	0.186
10.00	-70.34	-6.83	0.00	-512.28	0.00	512.28	2204.43	1102.21	5439.15	3573.20	0.05	-0.050	0.000	0.175
15.00	-67.95	-6.71	0.00	-478.11	0.00	478.11	2204.43	1102.21	5439.15	3573.20	0.12	-0.072	0.000	0.165
20.00	-65.53	-6.58	0.00	-444.57	0.00	444.57	2204.43	1102.21	5439.15	3573.20	0.21	-0.093	0.000	0.154
20.00	-65.53	-6.58	0.00	-444.57	0.00	444.57	2026.00	1013.00	4492.72	2914.55	0.21	-0.093	0.000	0.185
25.00	-63.31	-6.46	0.00	-411.68	0.00	411.68	2026.00	1013.00	4492.72	2914.55	0.31	-0.113	0.000	0.173
30.00	-61.07	-6.35	0.00	-379.37	0.00	379.37	2026.00	1013.00	4492.72	2914.55	0.45	-0.138	0.000	0.160
35.00	-58.83	-6.22	0.00	-347.63	0.00	347.63	2026.00	1013.00	4492.72	2914.55	0.60	-0.160	0.000	0.148
40.00	-56.57	-6.09	0.00	-316.52	0.00	316.52	2026.00	1013.00	4492.72	2914.55	0.78	-0.181	0.000	0.137
40.00	-56.57	-6.09	0.00	-316.52	0.00	316.52	1847.49	923.75	3635.30	2322.74	0.78	-0.181	0.000	0.167
45.00	-54.52	-5.96	0.00	-286.09	0.00	286.09	1847.49	923.75	3635.30	2322.74	0.98	-0.200	0.000	0.153
50.00	-52.46	-5.84	0.00	-256.27	0.00	256.27	1847.49	923.75	3635.30	2322.74	1.21	-0.224	0.000	0.139
55.00	-50.40	-5.70	0.00	-227.09	0.00	227.09	1847.49	923.75	3635.30	2322.74	1.45	-0.246	0.000	0.125
60.00	-48.33	-5.56	0.00	-198.59	0.00	198.59	1847.49	923.75	3635.30	2322.74	1.72	-0.265	0.000	0.112
60.00	-48.33	-5.56	0.00	-198.59	0.00	198.59	1668.87	834.44	2866.90	1797.79	1.72	-0.265	0.000	0.139
65.00	-46.47	-5.43	0.00	-170.81	0.00	170.81	1668.87	834.44	2866.90	1797.79	2.01	-0.281	0.000	0.123
70.00	-44.61	-5.29	0.00	-143.67	0.00	143.67	1668.87	834.44	2866.90	1797.79	2.31	-0.302	0.000	0.107
75.00	-42.70	-5.12	0.00	-117.20	0.00	117.20	1668.87	834.44	2866.90	1797.79	2.64	-0.320	0.000	0.091
80.00	-40.87	-4.98	0.00	-91.60	0.00	91.60	1668.87	834.44	2866.90	1797.79	2.98	-0.334	0.000	0.075
80.00	-40.87	-4.98	0.00	-91.60	0.00	91.60	1490.10	745.05	2187.51	1339.68	2.98	-0.334	0.000	0.096
85.00	-39.26	-4.84	0.00	-66.72	0.00	66.72	1490.10	745.05	2187.51	1339.68	3.34	-0.344	0.000	0.076
87.00	-32.34	-4.06	0.00	-57.03	0.00	57.03	1490.10	745.05	2187.51	1339.68	3.48	-0.350	0.000	0.064
90.00	-31.39	-3.98	0.00	-44.86	0.00	44.86	1490.10	745.05	2187.51	1339.68	3.71	-0.356	0.000	0.055
91.00	-29.85	-3.60	0.00	-40.88	0.00	40.88	1490.10	745.05	2187.51	1339.68	3.78	-0.358	0.000	0.051
95.00	-28.58	-3.49	0.00	-26.48	0.00	26.48	1490.10	745.05	2187.51	1339.68	4.08	-0.364	0.000	0.039
97.00	-15.08	-1.93	0.00	-19.50	0.00	19.50	1490.10	745.05	2187.51	1339.68	4.24	-0.366	0.000	0.025
100.00	-14.18	-1.85	0.00	-13.70	0.00	13.70	1490.10	745.05	2187.51	1339.68	4.47	-0.368	0.000	0.020
105.00	0.00	-1.76	0.00	-4.46	0.00	4.46	1490.10	745.05	2187.51	1339.68	4.85	-0.370	0.000	0.003

Seismic Segment Forces (Factored)

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	15
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.70	**SA**	0.07	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1195.1	0.00	0.04	0.02	16.65	
10.00		1195.1	0.02	0.06	0.04	24.10	
15.00		1195.1	0.04	0.07	0.04	27.66	
20.00	Top - Section 1	1195.1	0.07	0.07	0.04	29.87	
25.00		1074.8	0.11	0.07	0.04	28.61	
30.00		1074.8	0.15	0.07	0.03	30.31	
35.00		1074.8	0.21	0.06	0.02	31.55	
40.00	Top - Section 2	1074.8	0.27	0.05	0.01	31.57	
45.00		954.60	0.35	0.03	0.01	26.20	
50.00		954.60	0.43	0.01	0.01	21.95	
55.00		954.60	0.52	-0.02	0.01	15.39	
60.00	Top - Section 3	954.60	0.62	-0.06	0.02	7.67	
65.00		834.33	0.72	-0.09	0.03	0.99	
70.00		834.33	0.84	-0.12	0.07	-1.11	
75.00	Appurtenance(s)	864.33	0.96	-0.12	0.11	2.95	
80.00	Top - Section 4	834.33	1.10	-0.07	0.19	14.62	
85.00		714.07	1.24	0.04	0.28	30.16	
87.00	Appurtenance(s)	2662.6	1.30	0.12	0.33	147.09	
90.00		428.44	1.39	0.26	0.42	33.49	
91.00	Appurtenance(s)	896.11	1.42	0.32	0.45	77.73	
95.00		571.25	1.55	0.62	0.60	71.79	
97.00	Appurtenance(s)	4720.7	1.61	0.82	0.69	698.44	
100.00		428.44	1.71	1.18	0.84	79.23	
105.00	Appurtenance(s)	4967.8	1.89	1.98	1.14	1272.71	
	Totals:	**31,655.2**				**2,719.6**	**Total Wind:** **21,688.5**

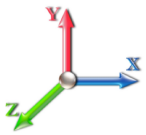
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.70	**SA**	0.07			**Seismic Importance Factor**	1.00

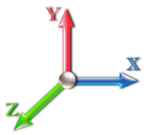
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-42.11	-2.72	0.00	-255.95	0.00	255.95	2204.43	1102.21	5439.15	3573.20		0.00	0.00	0.091
5.00	-40.47	-2.72	0.00	-242.32	0.00	242.32	2204.43	1102.21	5439.15	3573.20		0.01	-0.01	0.086
10.00	-38.82	-2.70	0.00	-228.75	0.00	228.75	2204.43	1102.21	5439.15	3573.20		0.02	-0.02	0.082
15.00	-37.18	-2.68	0.00	-215.25	0.00	215.25	2204.43	1102.21	5439.15	3573.20		0.05	-0.03	0.077
20.00	-35.54	-2.65	0.00	-201.87	0.00	201.87	2204.43	1102.21	5439.15	3573.20		0.09	-0.04	0.073
20.00	-35.54	-2.65	0.00	-201.87	0.00	201.87	2026.00	1013.00	4492.72	2914.55		0.09	-0.04	0.087
25.00	-34.04	-2.63	0.00	-188.62	0.00	188.62	2026.00	1013.00	4492.72	2914.55		0.14	-0.05	0.082
30.00	-32.54	-2.60	0.00	-175.48	0.00	175.48	2026.00	1013.00	4492.72	2914.55		0.20	-0.06	0.076
35.00	-31.04	-2.57	0.00	-162.48	0.00	162.48	2026.00	1013.00	4492.72	2914.55		0.27	-0.07	0.071
40.00	-29.55	-2.55	0.00	-149.61	0.00	149.61	2026.00	1013.00	4492.72	2914.55		0.35	-0.08	0.066
40.00	-29.55	-2.55	0.00	-149.61	0.00	149.61	1847.49	923.75	3635.30	2322.74		0.35	-0.08	0.080
45.00	-28.19	-2.52	0.00	-136.88	0.00	136.88	1847.49	923.75	3635.30	2322.74		0.44	-0.09	0.074
50.00	-26.84	-2.50	0.00	-124.27	0.00	124.27	1847.49	923.75	3635.30	2322.74		0.54	-0.10	0.068
55.00	-25.48	-2.49	0.00	-111.76	0.00	111.76	1847.49	923.75	3635.30	2322.74		0.66	-0.11	0.062
60.00	-24.13	-2.48	0.00	-99.31	0.00	99.31	1847.49	923.75	3635.30	2322.74		0.78	-0.12	0.056
60.00	-24.13	-2.48	0.00	-99.31	0.00	99.31	1668.87	834.44	2866.90	1797.79		0.78	-0.12	0.070
65.00	-22.92	-2.48	0.00	-86.90	0.00	86.90	1668.87	834.44	2866.90	1797.79		0.92	-0.13	0.062
70.00	-21.71	-2.48	0.00	-74.49	0.00	74.49	1668.87	834.44	2866.90	1797.79		1.06	-0.14	0.054
75.00	-20.47	-2.48	0.00	-62.07	0.00	62.07	1668.87	834.44	2866.90	1797.79		1.21	-0.15	0.047
80.00	-19.26	-2.46	0.00	-49.67	0.00	49.67	1668.87	834.44	2866.90	1797.79		1.37	-0.16	0.039
80.00	-19.26	-2.46	0.00	-49.67	0.00	49.67	1490.10	745.05	2187.51	1339.68		1.37	-0.16	0.050
85.00	-18.19	-2.43	0.00	-37.34	0.00	37.34	1490.10	745.05	2187.51	1339.68		1.54	-0.16	0.040
87.00	-14.92	-2.28	0.00	-32.47	0.00	32.47	1490.10	745.05	2187.51	1339.68		1.61	-0.17	0.034
90.00	-14.29	-2.24	0.00	-25.64	0.00	25.64	1490.10	745.05	2187.51	1339.68		1.72	-0.17	0.029
91.00	-13.18	-2.16	0.00	-23.40	0.00	23.40	1490.10	745.05	2187.51	1339.68		1.76	-0.17	0.026
95.00	-12.35	-2.09	0.00	-14.75	0.00	14.75	1490.10	745.05	2187.51	1339.68		1.90	-0.18	0.019
97.00	-6.62	-1.37	0.00	-10.57	0.00	10.57	1490.10	745.05	2187.51	1339.68		1.98	-0.18	0.012
100.00	-6.05	-1.29	0.00	-6.46	0.00	6.46	1490.10	745.05	2187.51	1339.68		2.09	-0.18	0.009
105.00	0.00	-1.27	0.00	0.00	0.00	0.00	1490.10	745.05	2187.51	1339.68		2.27	-0.18	0.000

Seismic Segment Forces (Factored)

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	15
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.70	**SA**	0.07	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1195.1	0.00	0.04	0.02	16.65	
10.00		1195.1	0.02	0.06	0.04	24.10	
15.00		1195.1	0.04	0.07	0.04	27.66	
20.00	Top - Section 1	1195.1	0.07	0.07	0.04	29.87	
25.00		1074.8	0.11	0.07	0.04	28.61	
30.00		1074.8	0.15	0.07	0.03	30.31	
35.00		1074.8	0.21	0.06	0.02	31.55	
40.00	Top - Section 2	1074.8	0.27	0.05	0.01	31.57	
45.00		954.60	0.35	0.03	0.01	26.20	
50.00		954.60	0.43	0.01	0.01	21.95	
55.00		954.60	0.52	-0.02	0.01	15.39	
60.00	Top - Section 3	954.60	0.62	-0.06	0.02	7.67	
65.00		834.33	0.72	-0.09	0.03	0.99	
70.00		834.33	0.84	-0.12	0.07	-1.11	
75.00	Appurtenance(s)	864.33	0.96	-0.12	0.11	2.95	
80.00	Top - Section 4	834.33	1.10	-0.07	0.19	14.62	
85.00		714.07	1.24	0.04	0.28	30.16	
87.00	Appurtenance(s)	2662.6	1.30	0.12	0.33	147.09	
90.00		428.44	1.39	0.26	0.42	33.49	
91.00	Appurtenance(s)	896.11	1.42	0.32	0.45	77.73	
95.00		571.25	1.55	0.62	0.60	71.79	
97.00	Appurtenance(s)	4720.7	1.61	0.82	0.69	698.44	
100.00		428.44	1.71	1.18	0.84	79.23	
105.00	Appurtenance(s)	4967.8	1.89	1.98	1.14	1272.71	
	Totals:	**31,655.2**				**2,719.6**	**Total Wind:** **21,688.5**

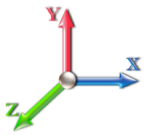
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	15		
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18		
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.70	**SA**	0.07	**S1**	0.06	**Seismic Importance Factor**	1.00

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-31.58	-2.72	0.00	-254.93	0.00	254.93	2204.43	1102.21	5439.15	3573.20		0.00	0.00	0.086
5.00	-30.35	-2.71	0.00	-241.31	0.00	241.31	2204.43	1102.21	5439.15	3573.20		0.01	-0.01	0.081
10.00	-29.12	-2.69	0.00	-227.74	0.00	227.74	2204.43	1102.21	5439.15	3573.20		0.02	-0.02	0.077
15.00	-27.89	-2.67	0.00	-214.28	0.00	214.28	2204.43	1102.21	5439.15	3573.20		0.05	-0.03	0.073
20.00	-26.65	-2.64	0.00	-200.93	0.00	200.93	2204.43	1102.21	5439.15	3573.20		0.09	-0.04	0.068
20.00	-26.65	-2.64	0.00	-200.93	0.00	200.93	2026.00	1013.00	4492.72	2914.55		0.09	-0.04	0.082
25.00	-25.53	-2.62	0.00	-187.71	0.00	187.71	2026.00	1013.00	4492.72	2914.55		0.14	-0.05	0.077
30.00	-24.41	-2.59	0.00	-174.62	0.00	174.62	2026.00	1013.00	4492.72	2914.55		0.20	-0.06	0.072
35.00	-23.28	-2.56	0.00	-161.66	0.00	161.66	2026.00	1013.00	4492.72	2914.55		0.27	-0.07	0.067
40.00	-22.16	-2.53	0.00	-148.84	0.00	148.84	2026.00	1013.00	4492.72	2914.55		0.35	-0.08	0.062
40.00	-22.16	-2.53	0.00	-148.84	0.00	148.84	1847.49	923.75	3635.30	2322.74		0.35	-0.08	0.076
45.00	-21.14	-2.51	0.00	-136.17	0.00	136.17	1847.49	923.75	3635.30	2322.74		0.44	-0.09	0.070
50.00	-20.13	-2.49	0.00	-123.62	0.00	123.62	1847.49	923.75	3635.30	2322.74		0.54	-0.10	0.064
55.00	-19.11	-2.48	0.00	-111.17	0.00	111.17	1847.49	923.75	3635.30	2322.74		0.65	-0.11	0.058
60.00	-18.10	-2.47	0.00	-98.79	0.00	98.79	1847.49	923.75	3635.30	2322.74		0.78	-0.12	0.052
60.00	-18.10	-2.47	0.00	-98.79	0.00	98.79	1668.87	834.44	2866.90	1797.79		0.78	-0.12	0.066
65.00	-17.19	-2.47	0.00	-86.45	0.00	86.45	1668.87	834.44	2866.90	1797.79		0.91	-0.13	0.058
70.00	-16.28	-2.47	0.00	-74.11	0.00	74.11	1668.87	834.44	2866.90	1797.79		1.05	-0.14	0.051
75.00	-15.35	-2.47	0.00	-61.76	0.00	61.76	1668.87	834.44	2866.90	1797.79		1.21	-0.15	0.044
80.00	-14.44	-2.45	0.00	-49.43	0.00	49.43	1668.87	834.44	2866.90	1797.79		1.37	-0.16	0.036
80.00	-14.44	-2.45	0.00	-49.43	0.00	49.43	1490.10	745.05	2187.51	1339.68		1.37	-0.16	0.047
85.00	-13.64	-2.42	0.00	-37.17	0.00	37.17	1490.10	745.05	2187.51	1339.68		1.54	-0.16	0.037
87.00	-11.19	-2.27	0.00	-32.33	0.00	32.33	1490.10	745.05	2187.51	1339.68		1.61	-0.17	0.032
90.00	-10.72	-2.23	0.00	-25.53	0.00	25.53	1490.10	745.05	2187.51	1339.68		1.71	-0.17	0.026
91.00	-9.88	-2.15	0.00	-23.30	0.00	23.30	1490.10	745.05	2187.51	1339.68		1.75	-0.17	0.024
95.00	-9.26	-2.08	0.00	-14.69	0.00	14.69	1490.10	745.05	2187.51	1339.68		1.89	-0.17	0.017
97.00	-4.96	-1.37	0.00	-10.54	0.00	10.54	1490.10	745.05	2187.51	1339.68		1.97	-0.18	0.011
100.00	-4.54	-1.29	0.00	-6.43	0.00	6.43	1490.10	745.05	2187.51	1339.68		2.08	-0.18	0.008
105.00	0.00	-1.27	0.00	0.00	0.00	0.00	1490.10	745.05	2187.51	1339.68		2.26	-0.18	0.000

Wind Loading - Shaft

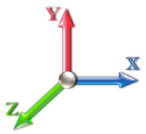
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	251.00	0.600	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	251.00	0.600	0.000	5.00	25.000	15.00	101.1	0.0	1195.1
10.00		1.00	0.70	6.129	6.74	251.00	0.600	0.000	5.00	25.000	15.00	101.1	0.0	1195.1
15.00		1.00	0.70	6.129	6.74	251.00	0.600	0.000	5.00	25.000	15.00	101.1	0.0	1195.1
20.00	Top - Section 1	1.00	0.70	6.129	6.74	251.00	0.600	0.000	5.00	25.000	15.00	101.1	0.0	1195.1
25.00		1.00	0.70	6.129	6.74	225.90	0.600	0.000	5.00	22.500	13.50	91.0	0.0	1074.9
30.00		1.00	0.70	6.134	6.75	225.99	0.600	0.000	5.00	22.500	13.50	91.1	0.0	1074.9
35.00		1.00	0.73	6.410	7.05	231.03	0.600	0.000	5.00	22.500	13.50	95.2	0.0	1074.9
40.00	Top - Section 2	1.00	0.76	6.659	7.33	235.47	0.600	0.000	5.00	22.500	13.50	98.9	0.0	1074.9
45.00		1.00	0.79	6.887	7.58	212.86	0.600	0.000	5.00	20.000	12.00	90.9	0.0	954.6
50.00		1.00	0.81	7.098	7.81	216.09	0.600	0.000	5.00	20.000	12.00	93.7	0.0	954.6
55.00		1.00	0.83	7.294	8.02	219.05	0.600	0.000	5.00	20.000	12.00	96.3	0.0	954.6
60.00	Top - Section 3	1.00	0.85	7.477	8.22	221.79	0.600	0.000	5.00	20.000	12.00	98.7	0.0	954.6
65.00		1.00	0.87	7.650	8.42	196.30	0.600	0.000	5.00	17.500	10.50	88.4	0.0	834.3
70.00		1.00	0.89	7.814	8.60	198.39	0.600	0.000	5.00	17.500	10.50	90.3	0.0	834.3
75.00	Appurtenance(s)	1.00	0.91	7.969	8.77	200.35	0.600	0.000	5.00	17.500	10.50	92.0	0.0	834.3
80.00	Top - Section 4	1.00	0.93	8.118	8.93	202.21	0.600	0.000	5.00	17.500	10.50	93.8	0.0	834.3
85.00		1.00	0.94	8.260	9.09	174.83	0.600	0.000	5.00	15.000	9.00	81.8	0.0	714.1
87.00	Appurtenance(s)	1.00	0.95	8.315	9.15	175.41	0.600	0.000	2.00	6.000	3.60	32.9	0.0	285.6
90.00		1.00	0.96	8.396	9.24	176.26	0.600	0.000	3.00	9.000	5.40	49.9	0.0	428.4
91.00	Appurtenance(s)	1.00	0.96	8.422	9.26	176.54	0.600	0.000	1.00	3.000	1.80	16.7	0.0	142.8
95.00		1.00	0.97	8.526	9.38	177.63	0.600	0.000	4.00	12.000	7.20	67.5	0.0	571.3
97.00	Appurtenance(s)	1.00	0.98	8.577	9.43	178.16	0.600	0.000	2.00	6.000	3.60	34.0	0.0	285.6
100.00		1.00	0.99	8.652	9.52	178.94	0.600	0.000	3.00	9.000	5.40	51.4	0.0	428.4
105.00	Appurtenance(s)	1.00	1.00	8.774	9.65	180.19	0.600	0.000	5.00	15.000	9.00	86.9	0.0	714.1
								Totals:	**105.00**			**1,945.6**		**19,806.0**

Discrete Appurtenance Forces

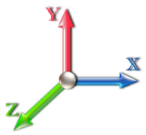
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	105.00	SDX1926Q-43	3	8.891	9.780	0.45	0.90	0.43	23.70	0.000	5.000	4.23	0.00	21.13
2	105.00	20' Omni	1	9.027	9.930	1.00	1.00	6.00	55.00	0.000	11.000	59.58	0.00	655.36
3	105.00	APXVAARR24_43-U-NA2	3	8.891	9.780	0.70	1.00	42.50	384.00	0.000	5.000	415.69	0.00	2078.47
4	105.00	AIR32	3	8.891	9.780	0.87	1.00	16.99	396.60	0.000	5.000	166.17	0.00	830.87
5	105.00	AIR6449 B41	3	8.891	9.780	0.71	1.00	12.03	309.00	0.000	5.000	117.70	0.00	588.49
6	105.00	KRY 112 144/2	3	8.891	9.780	0.68	0.90	0.83	33.00	0.000	5.000	8.12	0.00	40.60
7	105.00	Low Profile	1	8.774	9.651	1.00	1.00	40.00	1500.00	0.000	0.000	386.04	0.00	0.00
8	105.00	Radio 4415 Protruding w/o	3	8.891	9.780	0.60	0.90	3.36	138.90	0.000	5.000	32.91	0.00	164.54
9	105.00	MS-HRECP	1	8.774	9.651	1.00	1.00	12.25	514.00	0.000	0.000	118.22	0.00	0.00
10	105.00	Kicker kit	1	8.774	9.651	1.00	1.00	5.33	367.00	0.000	0.000	51.44	0.00	0.00
11	105.00	Collar Mount	1	8.774	9.651	1.00	1.00	2.50	313.00	0.000	0.000	24.13	0.00	0.00
12	105.00	4449 B71 + B85	3	8.891	9.780	0.60	0.90	3.56	219.60	0.000	5.000	34.85	0.00	174.27
13	97.00	HRK14	1	8.577	9.435	1.00	1.00	8.13	302.36	0.000	0.000	76.71	0.00	0.00
14	97.00	4415	3	8.577	9.435	0.50	0.75	2.80	132.30	0.000	0.000	26.46	0.00	0.00
15	97.00	B2 B66A 8843	3	8.577	9.435	0.50	0.75	2.47	210.00	0.000	0.000	23.33	0.00	0.00
16	97.00	4449 B5/B12	3	8.577	9.435	0.50	0.75	2.97	213.00	0.000	0.000	28.02	0.00	0.00
17	97.00	Low Profile Platformw/	1	8.577	9.435	1.00	1.00	25.00	1600.00	0.000	0.000	235.87	0.00	0.00
18	97.00	PRK-1245 (kicker kit)	1	8.577	9.435	1.00	1.00	9.50	464.91	0.000	0.000	89.63	0.00	0.00
19	97.00	860 10025	6	8.577	9.435	0.38	0.75	0.41	7.20	0.000	0.000	3.82	0.00	0.00
20	97.00	Ring Mount	1	8.577	9.435	1.00	1.00	5.00	350.00	0.000	0.000	47.17	0.00	0.00
21	97.00	80010965	6	8.577	9.435	0.53	0.75	44.12	651.60	0.000	0.000	416.30	0.00	0.00
22	97.00	782 10250	6	8.577	9.435	0.57	0.75	1.78	38.40	0.000	0.000	16.78	0.00	0.00
23	97.00	LGP21401	6	8.577	9.435	0.50	0.75	3.89	84.60	0.000	0.000	36.70	0.00	0.00
24	97.00	800-10121	3	8.577	9.435	0.59	0.75	9.15	132.30	0.000	0.000	86.37	0.00	0.00
25	97.00	DC6-48-60-18-8F	3	8.577	9.435	0.80	0.80	2.21	95.40	0.000	0.000	20.83	0.00	0.00
26	97.00	HPA65R-BU6A	3	8.577	9.435	0.64	0.75	18.47	153.00	0.000	0.000	174.31	0.00	0.00
27	91.00	RRU	3	8.422	9.264	0.88	1.00	5.07	126.00	0.000	0.000	46.96	0.00	0.00
28	91.00	Horizon DUO Radios	3	8.422	9.264	0.76	1.00	1.92	34.50	0.000	0.000	17.74	0.00	0.00
29	91.00	VHLP2.5	3	8.422	9.264	1.00	1.00	25.29	142.80	0.000	0.000	234.30	0.00	0.00
30	91.00	Dish Mount	3	8.422	9.264	0.56	0.75	5.06	450.00	0.000	0.000	46.90	0.00	0.00
31	87.00	APXVSPP18-C-A20	3	8.315	9.146	0.66	0.80	15.98	171.00	0.000	0.000	146.12	0.00	0.00
32	87.00	RRUS-11 800 MHz	3	8.315	9.146	0.60	0.80	5.29	162.00	0.000	0.000	48.40	0.00	0.00
33	87.00	APXVTM14-C-120	3	8.315	9.146	0.63	0.80	12.02	168.00	0.000	0.000	109.94	0.00	0.00
34	87.00	RRUS-11 1900 MHz	3	8.315	9.146	0.56	0.80	4.94	132.00	0.000	0.000	45.17	0.00	0.00
35	87.00	Low Profile	1	8.315	9.146	1.00	1.00	22.00	1500.00	0.000	0.000	201.21	0.00	0.00
36	87.00	800MHz Filter	3	8.315	9.146	0.56	0.80	0.82	30.00	0.000	0.000	7.53	0.00	0.00
37	87.00	TD-RRH8x20-25	3	8.315	9.146	0.55	0.80	6.71	210.00	0.000	0.000	61.34	0.00	0.00
38	87.00	ACU-A20-N	4	8.315	9.146	0.63	0.80	0.35	4.00	0.000	0.000	3.24	0.00	0.00
39	75.00	GPS	1	7.969	8.766	1.00	1.00	1.00	10.00	0.000	0.000	8.77	0.00	0.00
40	75.00	Standoff Mount	1	7.969	8.766	1.00	1.00	2.00	20.00	0.000	0.000	17.53	0.00	0.00
							Totals:		**11,849.17**			**3,696.52**		

Total Applied Force Summary

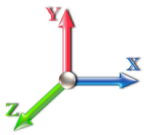
Structure:	CT01498-S-SBA		**Code:**	EIA/TIA-222-G	11/12/2020
Site Name:	Avon		**Exposure:**	B	
Height:	105.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 30

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		101.12	1368.40	0.00	0.00
10.00		101.12	1368.40	0.00	0.00
15.00		101.12	1368.40	0.00	0.00
20.00		101.12	1368.40	0.00	0.00
25.00		91.01	1248.14	0.00	0.00
30.00		91.09	1248.14	0.00	0.00
35.00		95.19	1248.14	0.00	0.00
40.00		98.89	1248.14	0.00	0.00
45.00		90.91	1127.88	0.00	0.00
50.00		93.69	1127.88	0.00	0.00
55.00		96.28	1127.88	0.00	0.00
60.00		98.70	1127.88	0.00	0.00
65.00		88.36	1007.61	0.00	0.00
70.00		90.25	1007.61	0.00	0.00
75.00	(2) attachments	118.35	1037.61	0.00	0.00
80.00		93.76	1006.81	0.00	0.00
85.00		81.77	886.55	0.00	0.00
87.00	(23) attachments	655.88	2731.62	0.00	0.00
90.00		49.87	520.48	0.00	0.00
91.00	(12) attachments	362.57	926.79	0.00	0.00
95.00		67.53	690.13	0.00	0.00
97.00	(46) attachments	1316.25	4780.14	0.00	0.00
100.00		51.39	474.22	0.00	0.00
105.00	(26) attachments	1505.94	5044.17	0.00	4553.72
	Totals:	**5,642.17**	**35,091.43**	**0.00**	**4,553.72**

Linear Appurtenance Segment Forces (Factored)

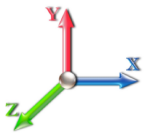
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	6.129	0.00	5.20
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	6.129	0.00	0.80
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	6.129	0.00	5.20
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	6.129	0.00	0.80
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	6.129	0.00	5.20
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	6.129	0.00	0.80
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	6.129	0.00	5.20
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.021	0.000	6.129	0.00	0.80
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	6.129	0.00	5.20
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	6.129	0.00	0.80
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	6.134	0.00	5.20
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	6.134	0.00	0.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	6.410	0.00	5.20
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	6.410	0.00	0.80
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	6.659	0.00	5.20
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.024	0.000	6.659	0.00	0.80
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	6.887	0.00	5.20
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	6.887	0.00	0.80
50.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	7.098	0.00	5.20
50.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	7.098	0.00	0.80
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	7.294	0.00	5.20
55.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	7.294	0.00	0.80
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	7.477	0.00	5.20
60.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.027	0.000	7.477	0.00	0.80
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	7.650	0.00	5.20
65.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	7.650	0.00	0.80
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	7.814	0.00	5.20
70.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	7.814	0.00	0.80
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.030	0.000	7.969	0.00	5.20
75.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.030	0.000	7.969	0.00	0.80
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.015	0.000	8.118	0.00	5.20
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	8.260	0.00	5.20
87.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.018	0.000	8.315	0.00	2.08
90.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.018	0.000	8.396	0.00	3.12
91.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.018	0.000	8.422	0.00	1.04
95.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.018	0.000	8.526	0.00	4.16
97.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.018	0.000	8.577	0.00	2.08
100.00	Step bolts (ladder)	Yes	3.00	0.000	0.63	0.16	0.00	0.018	0.000	8.652	0.00	3.12
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.017	0.000	8.774	0.00	5.20
										Totals:	**0.0**	**121.2**

Calculated Forces

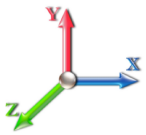
Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-35.09	-5.65	0.00	-475.11	0.00	475.11	2204.43	1102.21	5439.15	3573.20	0.00	0.000	0.000	0.149
5.00	-33.72	-5.56	0.00	-446.86	0.00	446.86	2204.43	1102.21	5439.15	3573.20	0.01	-0.021	0.000	0.140
10.00	-32.35	-5.47	0.00	-419.07	0.00	419.07	2204.43	1102.21	5439.15	3573.20	0.04	-0.041	0.000	0.132
15.00	-30.98	-5.38	0.00	-391.73	0.00	391.73	2204.43	1102.21	5439.15	3573.20	0.10	-0.059	0.000	0.124
20.00	-29.61	-5.28	0.00	-364.86	0.00	364.86	2204.43	1102.21	5439.15	3573.20	0.17	-0.076	0.000	0.116
20.00	-29.61	-5.28	0.00	-364.86	0.00	364.86	2026.00	1013.00	4492.72	2914.55	0.17	-0.076	0.000	0.140
25.00	-28.36	-5.20	0.00	-338.45	0.00	338.45	2026.00	1013.00	4492.72	2914.55	0.26	-0.092	0.000	0.130
30.00	-27.11	-5.11	0.00	-312.46	0.00	312.46	2026.00	1013.00	4492.72	2914.55	0.37	-0.113	0.000	0.121
35.00	-25.86	-5.02	0.00	-286.90	0.00	286.90	2026.00	1013.00	4492.72	2914.55	0.49	-0.132	0.000	0.111
40.00	-24.61	-4.93	0.00	-261.78	0.00	261.78	2026.00	1013.00	4492.72	2914.55	0.64	-0.149	0.000	0.102
40.00	-24.61	-4.93	0.00	-261.78	0.00	261.78	1847.49	923.75	3635.30	2322.74	0.64	-0.149	0.000	0.126
45.00	-23.48	-4.84	0.00	-237.14	0.00	237.14	1847.49	923.75	3635.30	2322.74	0.80	-0.164	0.000	0.115
50.00	-22.35	-4.75	0.00	-212.93	0.00	212.93	1847.49	923.75	3635.30	2322.74	0.99	-0.184	0.000	0.104
55.00	-21.22	-4.66	0.00	-189.17	0.00	189.17	1847.49	923.75	3635.30	2322.74	1.19	-0.202	0.000	0.093
60.00	-20.10	-4.56	0.00	-165.88	0.00	165.88	1847.49	923.75	3635.30	2322.74	1.41	-0.218	0.000	0.082
60.00	-20.10	-4.56	0.00	-165.88	0.00	165.88	1668.87	834.44	2866.90	1797.79	1.41	-0.218	0.000	0.104
65.00	-19.09	-4.47	0.00	-143.08	0.00	143.08	1668.87	834.44	2866.90	1797.79	1.65	-0.232	0.000	0.091
70.00	-18.08	-4.38	0.00	-120.71	0.00	120.71	1668.87	834.44	2866.90	1797.79	1.90	-0.250	0.000	0.078
75.00	-17.04	-4.27	0.00	-98.79	0.00	98.79	1668.87	834.44	2866.90	1797.79	2.17	-0.264	0.000	0.065
80.00	-16.03	-4.17	0.00	-77.46	0.00	77.46	1668.87	834.44	2866.90	1797.79	2.45	-0.276	0.000	0.053
80.00	-16.03	-4.17	0.00	-77.46	0.00	77.46	1490.10	745.05	2187.51	1339.68	2.45	-0.276	0.000	0.069
85.00	-15.15	-4.09	0.00	-56.61	0.00	56.61	1490.10	745.05	2187.51	1339.68	2.75	-0.285	0.000	0.052
87.00	-12.42	-3.42	0.00	-48.44	0.00	48.44	1490.10	745.05	2187.51	1339.68	2.87	-0.290	0.000	0.045
90.00	-11.90	-3.37	0.00	-38.19	0.00	38.19	1490.10	745.05	2187.51	1339.68	3.05	-0.295	0.000	0.037
91.00	-10.97	-3.00	0.00	-34.83	0.00	34.83	1490.10	745.05	2187.51	1339.68	3.12	-0.297	0.000	0.033
95.00	-10.28	-2.93	0.00	-22.83	0.00	22.83	1490.10	745.05	2187.51	1339.68	3.37	-0.302	0.000	0.024
97.00	-5.51	-1.59	0.00	-16.98	0.00	16.98	1490.10	745.05	2187.51	1339.68	3.49	-0.303	0.000	0.016
100.00	-5.04	-1.53	0.00	-12.22	0.00	12.22	1490.10	745.05	2187.51	1339.68	3.69	-0.305	0.000	0.013
105.00	0.00	-1.51	0.00	-4.55	0.00	4.55	1490.10	745.05	2187.51	1339.68	4.01	-0.307	0.000	0.003

Final Analysis Summary

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-G	11/12/2020	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	21.7	0.00	42.09	0.00	0.00	1830.97
0.9D + 1.6W 93 mph Wind	21.7	0.00	31.57	0.00	0.00	1823.98
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.1	0.00	75.01	0.00	0.00	582.41
1.2D + 1.0E	2.7	0.00	42.11	0.00	0.00	255.95
0.9D + 1.0E	2.7	0.00	31.58	0.00	0.00	254.93
1.0D + 1.0W 60 mph Wind	5.6	0.00	35.09	0.00	0.00	475.11

Max Stresses

Load Case	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)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-42.09	-21.72	0.00	-1830.9	0.00	-1830.9	2204.43	1102.2	5439.15	3573.20	0.00	0.532
0.9D + 1.6W 93 mph Wind	-31.57	-21.71	0.00	-1823.9	0.00	-1823.9	2204.43	1102.2	5439.15	3573.20	0.00	0.525
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-75.01	-7.07	0.00	-582.41	0.00	-582.41	2204.43	1102.2	5439.15	3573.20	0.00	0.197
1.2D + 1.0E	-42.11	-2.72	0.00	-255.95	0.00	-255.95	2204.43	1102.2	5439.15	3573.20	0.00	0.091
0.9D + 1.0E	-31.58	-2.72	0.00	-254.93	0.00	-254.93	2204.43	1102.2	5439.15	3573.20	0.00	0.086
1.0D + 1.0W 60 mph Wind	-35.09	-5.65	0.00	-475.11	0.00	-475.11	2204.43	1102.2	5439.15	3573.20	0.00	0.149

Base Plate Summary

Structure:	CT01498-S-SB		**Code:**	EIA/TIA-222-G	11/12/2020
Site Name:	Avon		**Exposure:**	B	
Height:	105.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 34

Tower Engineering Solutions

Reactions	
Original Design	
Moment (kip-ft):	2555.30
Axial (kip):	40.60
Shear (kip):	31.10
Analysis (1.2D + 1.6W)	
Moment (kip-ft):	1830.97
Axial (kip):	42.09
Shear (kip):	21.72

Base Plate	
Yield (ksi):	36.00
Width (in):	66.13
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	4.73
Moment (kip-in):	45.94
Allow Stress (ksi):	48.60
Applied Stress (ksi):	37.42
Stress Ratio:	0.77

Anchor Bolts	
Bolt Circle:	63.00
Number Bolts:	48.00
Bolt Type:	1.00" A687
Bolt Diameter (in):	1.00
Yield (ksi):	105.00
Ultimate (ksi):	150.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00
Compression	
Force (kip):	30.63
Allowable (kip):	72.72
Ratio:	0.43
Tension	
Force (kip):	27.50
Allowable (kip):	72.72
Ratio:	0.39

Monopole Mat Foundation Design

			Date: 11/12/2020
Customer Name:	SBA	**EIA/TIA Standard:**	EIA-222-G
Site Name:	Avon	**Structure Height (Ft.):**	300
Site Number:	CT01498-S-SBA	**Engineer Name:**	S. Hesselbein
Engr. Number:	99243	**Engineer Login ID:**	

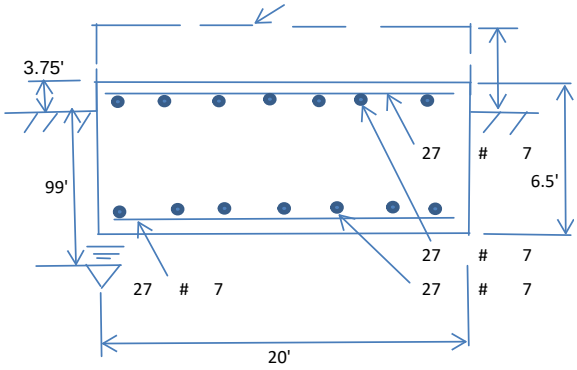
Foundation Info Obtained from: Mapping Operation

Structure Type: Monopole

Analysis or Design? Analysis

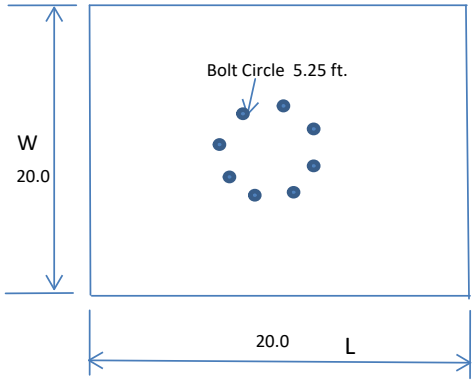
Base Reactions (Factored):

Axial Load (Kips):	42.1	Shear Force (Kips):	21.7
Uplift Force (Kips):	0.0	Moment (Kips-ft):	1831.0
Allowable overstress %:	5.0%		



Foundation Geometries:

		Mods required -Yes/No ?:	No
Anchor Bolt Circle (ft.):	5.25	Depth of Base BG (ft.):	2.75
Thickness of Pad (ft):	6.50		
Length of Pad (ft.):	20	Width of Pad (ft.):	20
Final Length of pad (ft)	20.0	Final width of pad (ft):	20.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	12.0	
Pad Steel Rebar Size (#):	7			
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	27	Qty. of Rebar in Pad (W):	27	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	27	Qty. of Rebar in Pad (W):	27	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	60000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	0.00	Total Dry Soil Weight (Kips):	0.00
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	0.00	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2600.00	Total Dry Concrete Weight (Kips):	390.00
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	390.00	Total Vertical Load on Base (Kips):	432.09

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3189	<	Allowable Factored Soil Bearing (psf):	45000	0.07	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3930.9	>	Design Factored Momont (kips-ft):	1973	0.50	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.99	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75	
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00	

Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1697.7	>	One-Way Factored Shear (L-D. Kips):	45.4	0.03	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1697.7	>	One-Way Factored Shear (W-D., Kips)	45.4	0.03	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1912.8	>	One-Way Factored Shear (C-C, Kips):	389.0	0.20	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0009	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0009		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5392.2	>	Moment at Bottom (L-Direct. K-Ft):	20.7	0.00	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5392.2	>	Moment at Bottom (W-Direct. K-Ft):	20.7	0.00	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	7610.0	>	Moment at Bottom (C-C Dir. K-Ft):	29.2	0.00	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0009	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0009		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	5392.2	>	Moment at the top (L-Dir Kips-Ft):	35.1	0.01	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	5392.2	>	Moment at the top (W-Dir Kips-Ft):	35.1	0.01	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	7610.0	>	Moment at the top (C-C Direc. K-Ft):	233.4	0.03	OK!

EXHIBIT 8

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Post-Mod Antenna Mount Analysis Report

Existing Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT01498-S-SBA

Customer Site Name: Avon

Carrier Name: T-Mobile (App#: 141527, V#1)

Carrier Site ID / Name: CT11380C / SBA Avon/RT 177

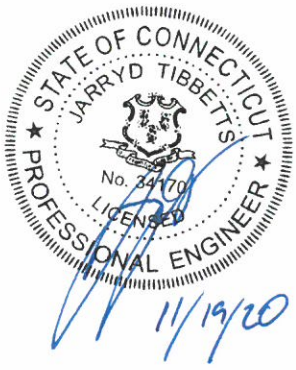
Site Location: 10 Redwood Lane

Avon, Connecticut

Hartford County

Latitude: 41.772499

Longitude: -72.879999



Analysis Result:

Max Structural Usage: 95.5% [Pass]

Report Prepared By: Saroj Dangol

Introduction

The purpose of this report is to summarize the analysis results on the (1) Low Profile Platform at 110.00' elevation including the proposed modifications to support the proposed antenna configuration. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount mapping by TES dated 06/26/2018
Antenna Loading	SBA Application #: 141527, v1 dated 10/29/2020
Existing Modification	N/A
Proposed Modification	TES Project No. 99789

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 120 mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 93 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State
Exposure Category: B
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

The site is a Risk Category II structure per IBC Table 1604.5. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

Mount Information

(1) Low Profile Platform at 110.00' elevation

Proposed Modification:

(3) METROSITE SUPPORT RAIL CENTER PIPE KIT: MS-HRCP-35-2875
(1) METROSITE SUPPORT RAIL KIT: MS-HR35-18
(1) METROSITE SUPPORT RAIL END CONNECTION KIT: MS-HR35-33ECP
(9) METROSITE CROSSOVER CHANNEL BRACKET KIT: MS-CHB 350-2875
(6) PST2375-8
(3) PST2875-9

Final Antenna Configuration

3 Ericsson AIR6449 B41
3 Ericsson AIR32 KRD901146-1_B66A (Octa)
3 RFS APXVAARR24_43-U-NA20 (Octa)
3 Commscope SDX1926Q-43
3 Ericsson KRY 112 144/2
3 Ericsson 4449 B71 + B85
3 Ericsson 4415 B25

**** This analysis considers (1) 20' omni loading in addition to the final loading configuration.***

In addition to the proposed equipment loading, a 500 lb serviceability load was also considered in this analysis in accordance with TIA requirements.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration after the proposed modification is successfully completed. The maximum structural usage is 95.5%, which occurs in the inner brace member. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

1. Mount Photos Before Modification
2. Antenna Placement Diagram
3. Mount Mapping Information
4. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.

2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.

4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.

5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.

8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.

9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.

Structure: CT01498-S-SBA - Avon

Sector: A

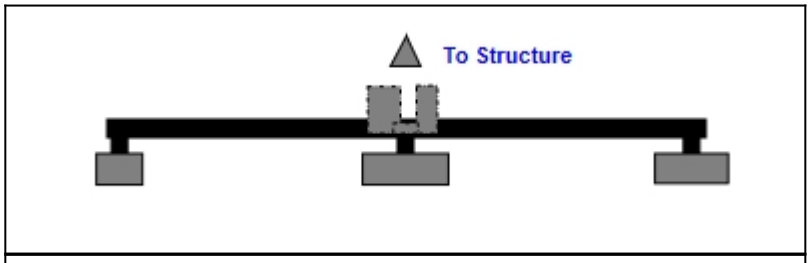
Structure Type: Monopole

Mount Elev: 105.00

11/19/2020

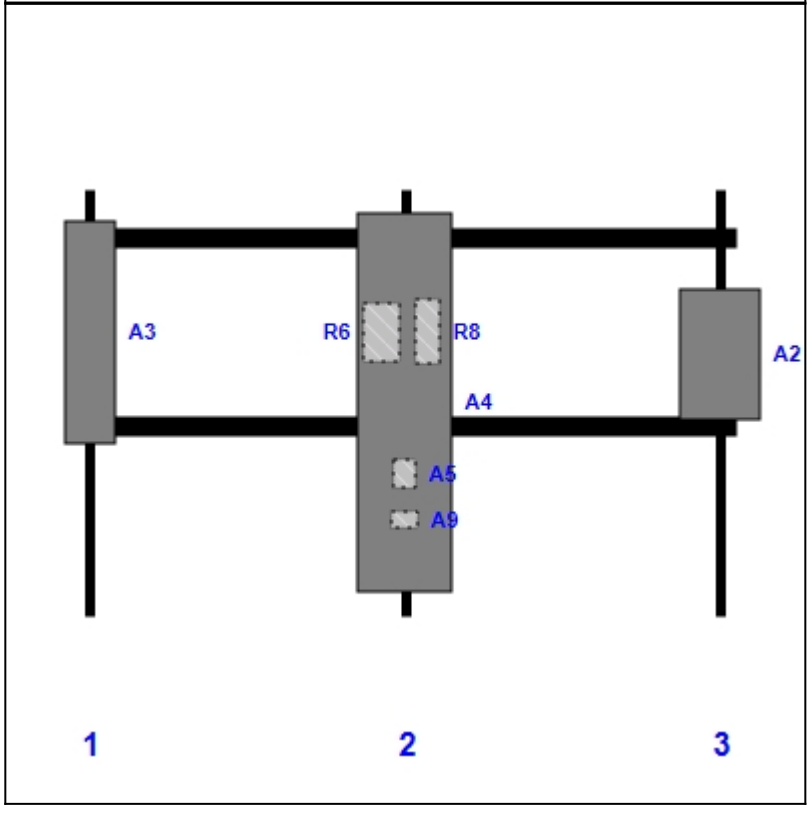
Tower Engineering Solutions

Plan View



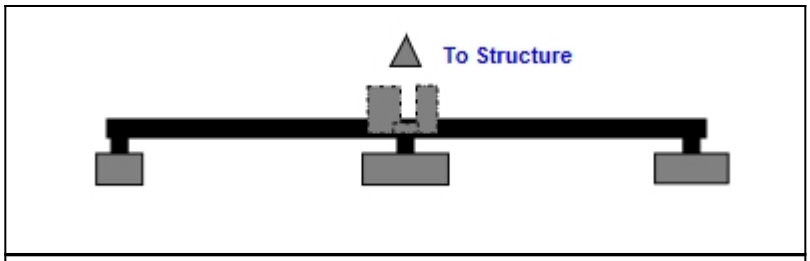
Front View

Looking Toward Structure



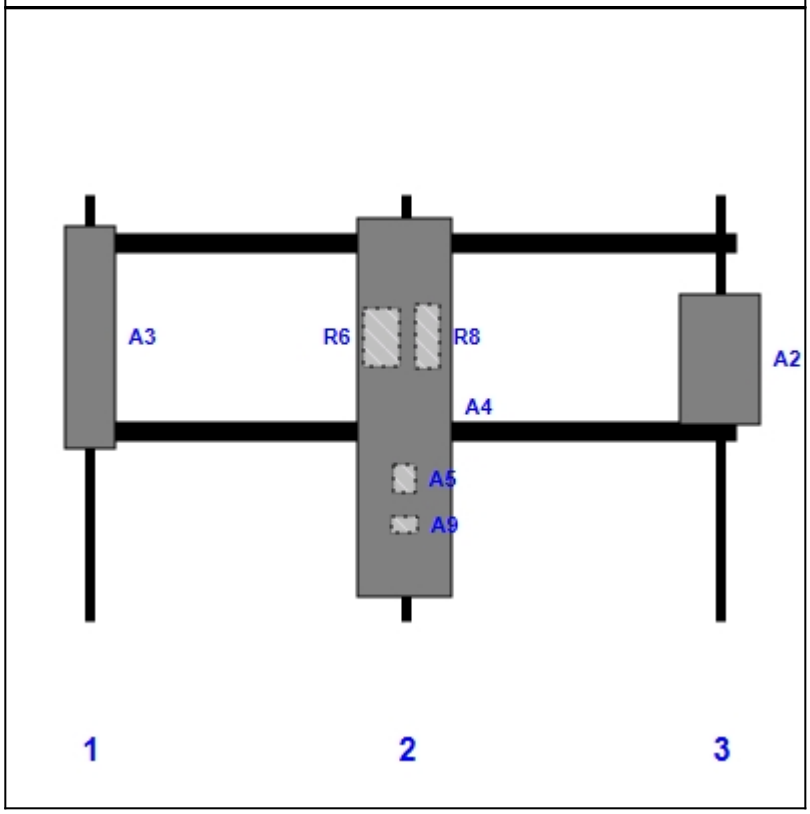
Ref	Model	Height (in)	Width (in)	H Dist Left	Pipe	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A3	AIR32 KRD901146-1_B66A (Octa)	56.60	12.90	4.00	1	a	Front	36.00			
A4	APXVAARR24_43-U-NA20 (Octa)	95.90	24.00	84.00	2	a	Front	54.00			
A5	KRY 112 144/2	6.93	6.10	84.00	2	a	Behind	72.00			
R6	4449 B71 + B85	14.90	9.20	84.00	2	a	Behind	36.00	-6.00		
R8	4415 B25	16.50	5.90	84.00	2	a	Behind	36.00	6.00		
A9	SDX1926Q-43	4.10	6.90	84.00	2	a	Behind	84.00			
A2	AIR6449 B41	33.10	20.50	164.00	3	a	Front	42.00			

Plan View



Front View

Looking Toward Structure



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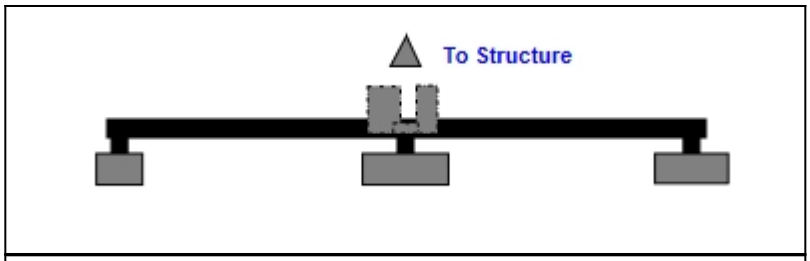
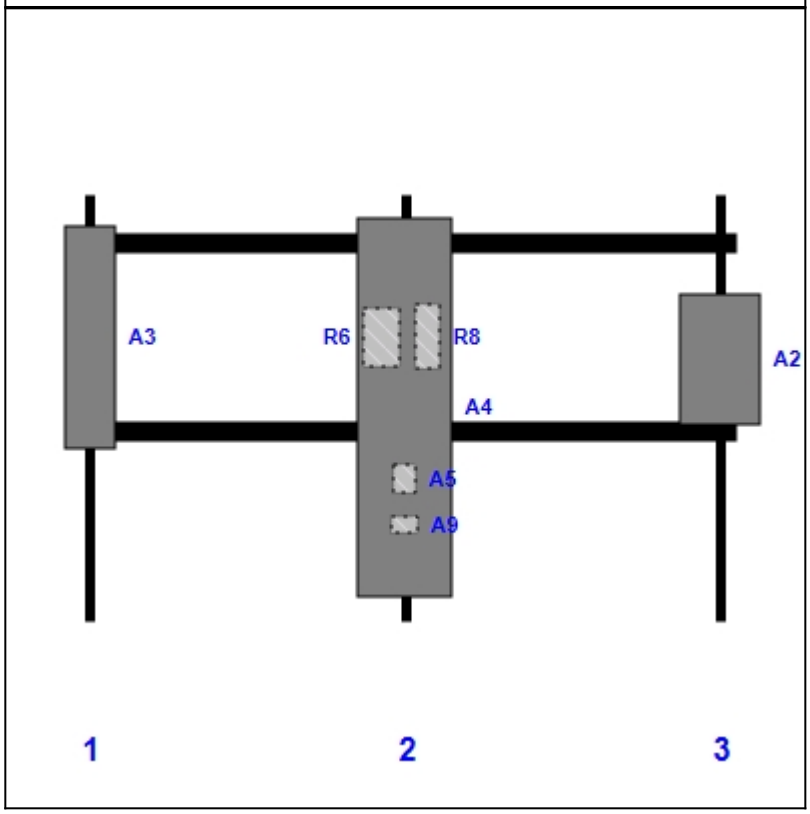
Plan View



Front View

Looking Toward Structure



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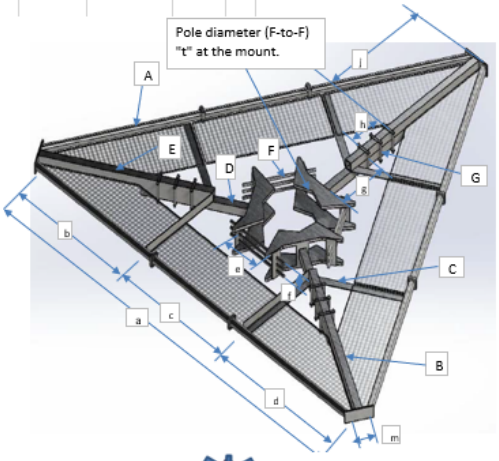
A2	AIR6449 B41	33.10	20.50	164.00	3	a	Front	42.00			

Updated on 5-10-11

Antenna Mount Type "MT-G" Mapping Form (PATENT PENDING)

FCC #: 1E+06

Tower Owner:	SBA	**Mapping Date:**	6/26/18
Site Name:	AVON	**Structure Type:**	Monopole
Site Number or ID:	CT01498-S	**Structure Height (Ft.):**	107
Mapping Contractor:	TES	**Mount Height (Ft.):**	107



Geometries (Unit: inches)

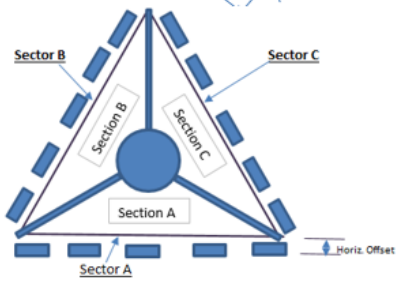
a	168	e		j	38	o		s	
b	53	f		k		p		t	
c	62	g	25	m	16	q		u*	
d	53	h	22	n		r		v*	

Members/Bolts (Unit: inches) See Antenna Layout for "u", "v" and member "K" (p

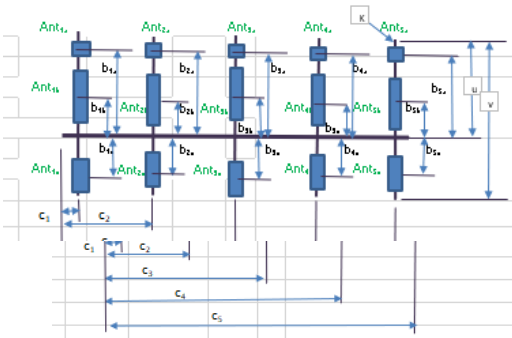
Items	Member	Lx (O.D.)	Ly (I.D.)	T	Items	Member	Lx (O.D.)	Ly (I.D.)	T
A	3.5 OD x 0.216 Pipe	3.5	3.068	0.216	F	5/8" Bolt			
B					G	1/2" U-Bolt			
C					H				
D					J				
E					K* (pipe)				

Please enter the infomation below if members can't be found from the drop down lists

F-F= round pole, e=14", f=10"
V1= 2.4" x 5' x 1/8", U1= 24"
V2= 2.9" x 8' x 3/16", U2= 48"
C= 1.5" x 2.5" x 1/4"
B, D & E= 3" x 3" x 3/8" tube



Climbing ladder is . at 60 Degree Azimuth



Antennas

(Please enter the antenna model if it can be found on the antenas. If not labled, enter "Unknown". If no antenna at the specified location, please enter "N/A". If antennas and the locations are the same on all three sections, only enter one sector.)

Ants. Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Mounting Locations (Unit: inches) Vertical Distances from bottom horizontal "b_{1}, b_{2}, b_{3}, b_{4},..." (In.)	Horiz. offset (Use "-" if antenna is inside the mount)	Horiz. offset "C_1, C_2, C_3, C_4, C_5" from the center mounting pipe	Photos of the antennas: Please enter Photo Numbers
Sector A									
Ant_1	KRY-112-144/1	6	2.5	7		10	2	4	
Ant_{1t}	AIR-21-B2A-B4P				7/8"	10	3		
Ant_{1t}									
Ant_2								84	
Ant_{2t}	LNX-6515DS-A1M				7/8"	4	3		
Ant_2	RRUS-11-B12					24	2		
Ant_3								164	
Ant_{3t}	AIR-21-B4A-B2P				7/8"	10	3	164	
Ant_3									
Ant_4									
Ant_{4t}									
Ant_4									
Ant_5									
Ant_{5t}									
Ant_5									

Is antenna info same as sector A: Yes — Antennas on Sector B are the same as Sector A

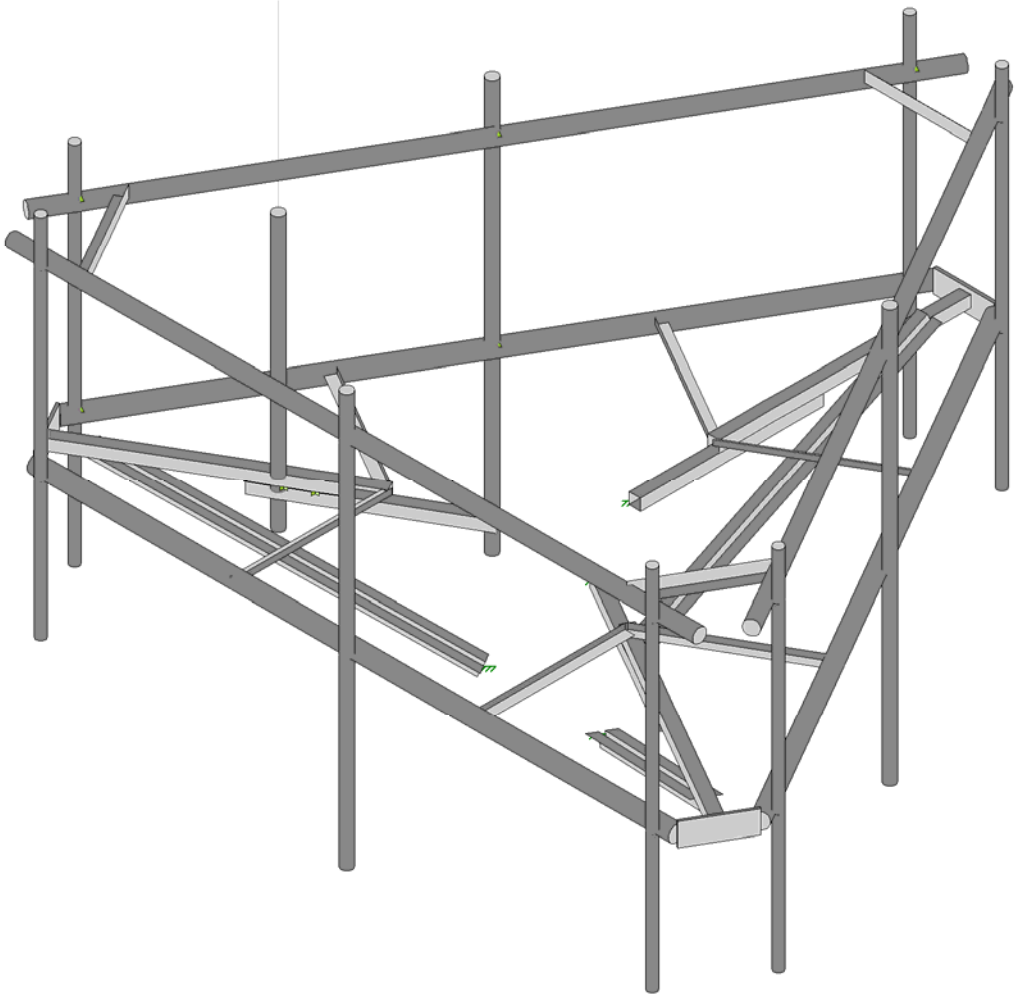
Is antenna info same as sector A: Yes — Antennas on Sector B are the same as Sector A

Antenna Layout

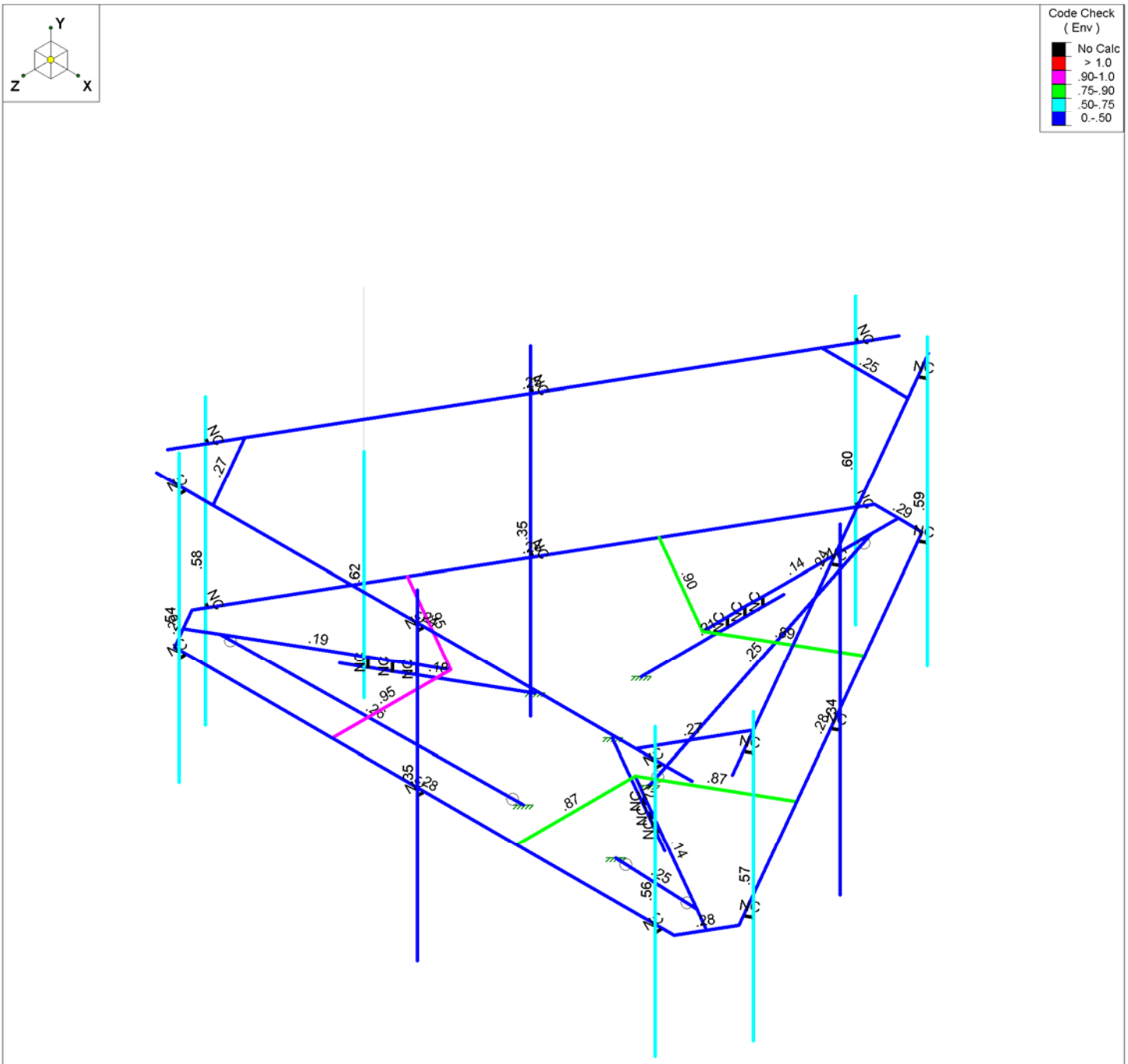
Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	30	Deg	
Sector B:	150	Deg	
Sector C:	270	Deg	
Climbing	60	Deg	
Ladders:	Corrosion Type:	N/A	
	Configuration:	N/A	
Step Bolts:	Corrosion Type:	N/A	
	Configuration:	N/A	
Safety Cable:	Corrosion Type:	N/A	
	Configuration:	N/A	

Is antenna info same as sector A: Same As A — Antennas on Sector C are the same as Sector A

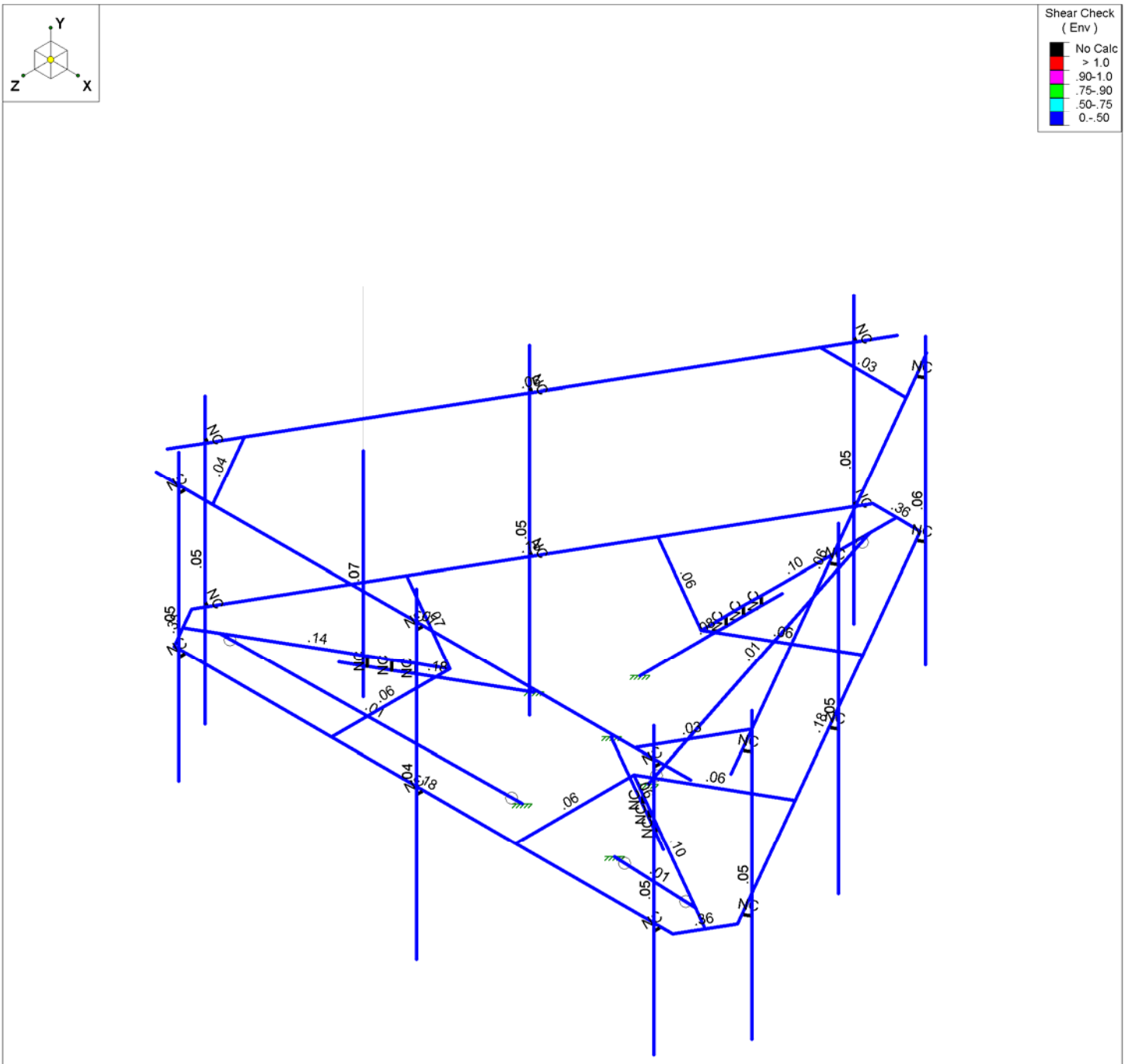


Tower Engineering Solutio...	CT01498-S-SBA_MT_LO_Loads Only_G	SK - 1
		Nov 19, 2020 at 7:46 AM
TES Project No. 99789		CT01498-S-SBA_99789_G_RISA_L...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT01498-S-SBA_MT_LO_Loads Only_G	SK - 2
		Nov 19, 2020 at 7:46 AM
TES Project No. 99789		CT01498-S-SBA_99789_G_RISA_L...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT01498-S-SBA_MT_LO_Loads Only_G	SK - 3
		Nov 19, 2020 at 7:47 AM
TES Project No. 99789		CT01498-S-SBA_99789_G_RISA_L...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					31			
2	Antenna Di	None					31			
3	Antenna W Front	None					31			
4	Antenna Wi Front	None					31			
5	Antenna W Side	None					31			
6	Antenna Wi Side	None					31			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1					3	
10	Structure Di	None						37	3	
11	Structure W Front	None						37		
12	Structure Wi Front	None						37		
13	Structure W Side	None						37		
14	Structure Wi Side	None						37		
15	BLC 9 Transient Area...	None						27		
16	BLC 10 Transient Are...	None						27		

Load Combinations

	Description	S...	P...	SRSS	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2D+1.6W (Front)	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6												
2	1.2D+1.6W (Back)	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6												
3	1.2D+1.6W (Left)	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6												
4	1.2D+1.6W (Right)	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6												
5	1.2D+1.0Di+1.0Wi (F...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1								
6	1.2D+1.0Di+1.0Wi (B...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1								
7	1.2D+1.0Di+1.0Wi (L...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1								
8	1.2D+1.0Di+1.0Wi (...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1								
9	1.2D+1.5L1+.16W (...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16										
10	1.2D+1.5L2+.16W (...	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16										
11	1.4D	Yes	Y		1	1.4	9	1.4																

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N4	7	0	4.811252	0	
2	N5	-7	0	4.811252	0	
3	N3	-6.6667	0	4.811252	0	
4	N4A	6.6667	0	4.811252	0	
5	N5A	0	0	4.811252	0	
6	N6	-6.6667	5	5.011252	0	
7	N7	6.6667	5	5.011252	0	
8	N8	-6.6667	-3	5.011252	0	
9	N9	6.6667	-3	5.011252	0	
10	N10	0	5	5.011252	0	
11	N11	0	-4	5.011252	0	
12	N12	0.666667	0	-8.467804	0	
13	N13	7.666667	0	3.656552	0	
14	N14	7.500017	0	3.367905	0	
15	N15	0.833317	0	-8.179158	0	
16	N16	4.166667	0	-2.405626	0	
17	N17	7.673222	5	3.267905	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
18	N18	1.006522	5	-8.279158	0	
19	N19	7.673222	-3	3.267905	0	
20	N20	1.006522	-3	-8.279158	0	
21	N21	4.339872	5	-2.505626	0	
22	N22	4.339872	-4	-2.505626	0	
23	N23	-7.666667	0	3.656552	0	
24	N24	-0.666667	0	-8.467804	0	
25	N25	-0.833317	0	-8.179158	0	
26	N26	-7.500017	0	3.367905	0	
27	N27	-4.166667	0	-2.405626	0	
28	N28	-1.006522	5	-8.279158	0	
29	N29	-7.673222	5	3.267905	0	
30	N30	-1.006522	-3	-8.279158	0	
31	N31	-7.673222	-3	3.267905	0	
32	N32	-4.339872	5	-2.505626	0	
33	N33	-4.339872	-4	-2.505626	0	
34	N34	-4e-14	0	-8.467804	0	
35	N35	-2e-14	0	-3.176138	0	
36	N36	-2e-14	-.25	-3.176138	0	
37	N37	-2e-14	-.25	-5.259471	0	
38	N38	0	-.25	-1.259471	0	
39	N39	-2e-14	0	-3.676138	0	
40	N40	-2e-14	-.25	-3.676138	0	
41	N41	-2e-14	0	-4.176138	0	
42	N42	-2e-14	-.25	-4.176138	0	
43	N43	-2e-14	0	-4.676138	0	
44	N44	-2e-14	-.25	-4.676138	0	
45	N45	-7.333333	0	4.233902	0	
46	N47	-4.554835	-.25	2.629735	0	
47	N48	-1.090734	-.25	0.629735	0	
48	N49	-3.183629	0	1.838069	0	
49	N50	-3.183629	-.25	1.838069	0	
50	N51	-3.616642	0	2.088069	0	
51	N52	-3.616642	-.25	2.088069	0	
52	N53	-4.049654	0	2.338069	0	
53	N54	-4.049654	-.25	2.338069	0	
54	N55	7.333333	0	4.233902	0	
55	N56	2.750616	0	1.588069	0	
56	N57	4.554835	-.25	2.629735	0	
57	N58	1.090734	-.25	0.629735	0	
58	N59	3.183629	0	1.838069	0	
59	N60	3.183629	-.25	1.838069	0	
60	N61	3.616642	0	2.088069	0	
61	N62	3.616642	-.25	2.088069	0	
62	N63	4.049654	0	2.338069	0	
63	N64	4.049654	-.25	2.338069	0	
64	N65	-2.58334	0	4.811252	0	
65	N66	-2.58334	0	1.491492	0	
66	N66A	2.58334	0	4.811252	0	
67	N67	2.58334	0	1.491492	0	
68	N69	5.458337	0	-0.168388	0	
69	N71	2.874997	0	-4.642864	0	
70	N72	-2e-14	0	-2.982984	0	
71	N74	-2.874997	0	-4.642864	0	
72	N76	-5.458337	0	-0.168388	0	
73	N73	-4.554835	0	2.629735	0	
74	N74A	4.554835	0	2.629735	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
75	N78	-2e-14	0	-5.259471	0	
76	N76A	-4.121822	5	2.379735	0	
77	N77	-4.121823	-1	2.379735	0	
78	N78A	-4.121822	9	2.379735	0	
79	N79	-2e-14	-.25	-3	0	
80	N80	0	-3	-1.5	0	
81	N94	-4.121822	-.25	2.379735	0	
82	N95	2.38157	-.25	1.375	0	
83	N96	-6.6667	0	5.011252	0	
84	N97	6.6667	0	5.011252	0	
85	N98	0	0	5.011252	0	
86	N102	7.673222	0	3.267905	0	
87	N103	1.006522	0	-8.279158	0	
88	N104	4.339872	0	-2.505626	0	
89	N108	-1.006522	0	-8.279158	0	
90	N109	-7.673222	0	3.267905	0	
91	N110	-4.339872	0	-2.505626	0	
92	N96A	-4.121822	0	2.379735	0	
93	N97A	7.5	4	4.811252	0	
94	N98A	-7.5	4	4.811252	0	
95	N99	-6.6667	4	4.811252	0	
96	N100	6.6667	4	4.811252	0	
97	N101	0	4	4.811252	0	
98	N102A	-6.6667	4	5.011252	0	
99	N103A	6.6667	4	5.011252	0	
100	N104A	0	4	5.011252	0	
101	N105	-5.9167	4	4.811252	0	
102	N106	5.9167	4	4.811252	0	
103	N107	0.416666	4	-8.900817	0	
104	N108A	7.916666	4	4.089565	0	
105	N109A	7.500017	4	3.367905	0	
106	N110A	0.833317	4	-8.179158	0	
107	N111	4.166667	4	-2.405626	0	
108	N112	7.673222	4	3.267905	0	
109	N113	1.006522	4	-8.279158	0	
110	N114	4.339872	4	-2.505626	0	
111	N115	7.125017	4	2.718386	0	
112	N116	1.208317	4	-7.529639	0	
113	N117	-7.916666	4	4.089565	0	
114	N118	-0.416666	4	-8.900817	0	
115	N119	-0.833317	4	-8.179158	0	
116	N120	-7.500017	4	3.367905	0	
117	N121	-4.166667	4	-2.405626	0	
118	N122	-1.006522	4	-8.279158	0	
119	N123	-7.673222	4	3.267905	0	
120	N124	-4.339872	4	-2.505626	0	
121	N125	-1.208317	4	-7.529639	0	
122	N126	-7.125017	4	2.718386	0	
123	N127	-4e-14	0	-7.717804	0	
124	N124A	-1.299038	-3	.75	0	
125	N125A	-6.683814	0	3.858902	0	
126	N126A	1.299038	-3	.75	0	
127	N127A	6.683814	0	3.858902	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	MP1	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	MP2	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
3	FF	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
4	SA	HSS3X3X6	Beam	SquareTube	A500 Gr.B Rect	Typical	3.39	3.78	3.78	6.64
5	Grating angle	L2.5x1.5x4	Beam	Single Angle	A36 Gr.36	Typical	.947	.16	.594	.021
6	End plate	PL3/4x6	Beam	RECT	A36 Gr.36	Typical	4.5	.211	13.5	.777
7	N SR	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
8	N End conn	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N5	N4			FF	Beam	Pipe	A53 Gr.B	Typical
2	MP1A	N6	N8			MP1	Beam	Pipe	A53 Gr.B	Typical
3	MP3A	N7	N9			MP1	Beam	Pipe	A53 Gr.B	Typical
4	MP2A	N10	N11			MP2	Beam	Pipe	A53 Gr.B	Typical
5	M5	N13	N12			FF	Beam	Pipe	A53 Gr.B	Typical
6	MP1C	N17	N19			MP1	Beam	Pipe	A53 Gr.B	Typical
7	MP3C	N18	N20			MP1	Beam	Pipe	A53 Gr.B	Typical
8	MP2C	N21	N22			MP2	Beam	Pipe	A53 Gr.B	Typical
9	M9	N24	N23			FF	Beam	Pipe	A53 Gr.B	Typical
10	MP1B	N28	N30			MP1	Beam	Pipe	A53 Gr.B	Typical
11	MP3B	N29	N31			MP1	Beam	Pipe	A53 Gr.B	Typical
12	MP2B	N32	N33			MP2	Beam	Pipe	A53 Gr.B	Typical
13	M13	N23	N5			End plate	Beam	RECT	A36 Gr.36	Typical
14	M14	N4	N13			End plate	Beam	RECT	A36 Gr.36	Typical
15	M15	N12	N24			End plate	Beam	RECT	A36 Gr.36	Typical
16	M16	N38	N37			SA	Beam	SquareTube	A500 Gr.B...	Typical
17	M18	N43	N44			RIGID	Beam	None	RIGID	DR1
18	M19	N41	N42			RIGID	Beam	None	RIGID	DR1
19	M20	N39	N40			RIGID	Beam	None	RIGID	DR1
20	M21	N48	N47			SA	Beam	SquareTube	A500 Gr.B...	Typical
21	M22	N66	N45			SA	Beam	SquareTube	A500 Gr.B...	Typical
22	M23	N53	N54			RIGID	Beam	None	RIGID	DR1
23	M24	N51	N52			RIGID	Beam	None	RIGID	DR1
24	M25	N49	N50			RIGID	Beam	None	RIGID	DR1
25	M26	N58	N57			SA	Beam	SquareTube	A500 Gr.B...	Typical
26	M28	N63	N64			RIGID	Beam	None	RIGID	DR1
27	M29	N61	N62			RIGID	Beam	None	RIGID	DR1
28	M30	N59	N60			RIGID	Beam	None	RIGID	DR1
29	M31A	N67	N55			SA	Beam	SquareTube	A500 Gr.B...	Typical
30	M34	N72	N34			SA	Beam	SquareTube	A500 Gr.B...	Typical
31	M31	N65	N66		270	Grating angle	Beam	Single Angle	A36 Gr.36	Typical
32	M32	N67	N66A		270	Grating angle	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
33	M33	N69	N67		270	Grating angle	Beam	Single Angle	A36 Gr.36	Typical
34	M34A	N72	N71		270	Grating angle	Beam	Single Angle	A36 Gr.36	Typical
35	M35	N74	N72		270	Grating angle	Beam	Single Angle	A36 Gr.36	Typical
36	M36	N66	N76		270	Grating angle	Beam	Single Angle	A36 Gr.36	Typical
37	M37	N76A	N77			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
38	MP4A	N78A	N76A			RIGID	Beam	None	RIGID	DR1
39	M39	N127	N80			LL3x3x3x3	Beam	Single Angle	A36 Gr.36	Typical
40	M48	N3	N96			RIGID	Beam	None	RIGID	DR1
41	M49	N5A	N98			RIGID	Beam	None	RIGID	DR1
42	M50	N4A	N97			RIGID	Beam	None	RIGID	DR1
43	M51	N14	N102			RIGID	Beam	None	RIGID	DR1
44	M52	N16	N104			RIGID	Beam	None	RIGID	DR1
45	M53	N15	N103			RIGID	Beam	None	RIGID	DR1
46	M54	N25	N108			RIGID	Beam	None	RIGID	DR1
47	M55	N27	N110			RIGID	Beam	None	RIGID	DR1
48	M56	N26	N109			RIGID	Beam	None	RIGID	DR1
49	M51A	N99	N102A			RIGID	Beam	None	RIGID	DR1
50	M52A	N101	N104A			RIGID	Beam	None	RIGID	DR1
51	M53A	N100	N103A			RIGID	Beam	None	RIGID	DR1
52	M54A	N98A	N97A			N SR	Beam	Pipe	A53 Gr.B	Typical
53	M55A	N109A	N112			RIGID	Beam	None	RIGID	DR1
54	M56A	N111	N114			RIGID	Beam	None	RIGID	DR1
55	M57	N110A	N113			RIGID	Beam	None	RIGID	DR1
56	M58	N108A	N107			N SR	Beam	Pipe	A53 Gr.B	Typical
57	M59	N119	N122			RIGID	Beam	None	RIGID	DR1
58	M60	N121	N124			RIGID	Beam	None	RIGID	DR1
59	M61	N120	N123			RIGID	Beam	None	RIGID	DR1
60	M62	N118	N117			N SR	Beam	Pipe	A53 Gr.B	Typical
61	M63	N126	N105			N End conn	Beam	Single Angle	A36 Gr.36	Typical
62	M64	N106	N115			N End conn	Beam	Single Angle	A36 Gr.36	Typical
63	M65	N116	N125			N End conn	Beam	Single Angle	A36 Gr.36	Typical
64	M64A	N125A	N124A			LL3x3x3x3	Beam	Single Angle	A36 Gr.36	Typical
65	M65A	N127A	N126A			LL3x3x3x3	Beam	Single Angle	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	MP1A						Yes				None
3	MP3A						Yes				None
4	MP2A						Yes				None
5	M5						Yes				None
6	MP1C						Yes				None
7	MP3C						Yes				None
8	MP2C						Yes				None
9	M9						Yes				None
10	MP1B						Yes				None
11	MP3B						Yes				None
12	MP2B						Yes				None
13	M13						Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes				None
17	M18						Yes				None
18	M19						Yes				None
19	M20						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
20	M21						Yes				None
21	M22						Yes				None
22	M23						Yes				None
23	M24						Yes				None
24	M25						Yes				None
25	M26						Yes				None
26	M28						Yes				None
27	M29						Yes				None
28	M30						Yes				None
29	M31A						Yes				None
30	M34						Yes				None
31	M31						Yes				None
32	M32						Yes				None
33	M33						Yes				None
34	M34A						Yes				None
35	M35						Yes				None
36	M36						Yes				None
37	M37						Yes				None
38	MP4A						Yes				None
39	M39	BenPIN	BenPIN				Yes				None
40	M48						Yes				None
41	M49						Yes				None
42	M50						Yes				None
43	M51						Yes				None
44	M52						Yes				None
45	M53						Yes				None
46	M54						Yes				None
47	M55						Yes				None
48	M56						Yes				None
49	M51A						Yes				None
50	M52A						Yes				None
51	M53A						Yes				None
52	M54A						Yes				None
53	M55A						Yes				None
54	M56A						Yes				None
55	M57						Yes				None
56	M58						Yes				None
57	M59						Yes				None
58	M60						Yes				None
59	M61						Yes				None
60	M62						Yes				None
61	M63						Yes				None
62	M64						Yes				None
63	M65						Yes				None
64	M64A	BenPIN	BenPIN				Yes				None
65	M65A	BenPIN	BenPIN				Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	FF	14			Lbyy			.65	.65		Lateral
2	MP1A	MP1	8			Lbyy			2.1	2.1		Lateral
3	MP3A	MP1	8			Lbyy			2.1	2.1		Lateral
4	MP2A	MP2	9			Lbyy			2.1	2.1		Lateral
5	M5	FF	14			Lbyy			.65	.65		Lateral
6	MP1C	MP1	8			Lbyy			2.1	2.1		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
7	MP3C	MP1	8			Lbyy			2.1	2.1		Lateral
8	MP2C	MP2	9			Lbyy			2.1	2.1		Lateral
9	M9	FF	14			Lbyy			.65	.65		Lateral
10	MP1B	MP1	8			Lbyy			2.1	2.1		Lateral
11	MP3B	MP1	8			Lbyy			2.1	2.1		Lateral
12	MP2B	MP2	9			Lbyy			2.1	2.1		Lateral
13	M13	End plate	1.333			Lbyy			.65	.65		Lateral
14	M14	End plate	1.333			Lbyy			.65	.65		Lateral
15	M15	End plate	1.333			Lbyy			.65	.65		Lateral
16	M16	SA	4			Lbyy			2.1	2.1		Lateral
17	M21	SA	4			Lbyy			2.1	2.1		Lateral
18	M22	SA	5.485			Lbyy			.65	.65		Lateral
19	M26	SA	4			Lbyy			2.1	2.1		Lateral
20	M31A	SA	5.485			Lbyy			.65	.65		Lateral
21	M34	SA	5.485			Lbyy			.65	.65		Lateral
22	M31	Grating angle	3.32			Lbyy			.65	.65		Lateral
23	M32	Grating angle	3.32			Lbyy			.65	.65		Lateral
24	M33	Grating angle	3.32			Lbyy			.65	.65		Lateral
25	M34A	Grating angle	3.32			Lbyy			.65	.65		Lateral
26	M35	Grating angle	3.32			Lbyy			.65	.65		Lateral
27	M36	Grating angle	3.32			Lbyy			.65	.65		Lateral
28	M37	PIPE_2.5	6			Lbyy			2.1	2.1		Lateral
29	M39	LL3x3x3x3	6.904			Lbyy			.65	.65		Lateral
30	M54A	N SR	15			Lbyy						Lateral
31	M58	N SR	15			Lbyy						Lateral
32	M62	N SR	15			Lbyy						Lateral
33	M63	N End conn	2.417			Lbyy						Lateral
34	M64	N End conn	2.417			Lbyy						Lateral
35	M65	N End conn	2.417			Lbyy						Lateral
36	M64A	LL3x3x3x3	6.904			Lbyy			.65	.65		Lateral
37	M65A	LL3x3x3x3	6.904			Lbyy			.65	.65		Lateral

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N38	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N48	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N58	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N80	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N124A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N126A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N38	max	1365.703	4	299.509	2	8398.64	5	.512	6	2.14	3	.43	3
2		min	-1364.779	3	-197.195	1	-1887.941	2	-.002	1	-2.142	4	-.437	4
3	N48	max	7071.888	8	443.452	5	942.754	1	1.034	1	1.542	1	.661	2
4		min	-1003.481	3	-220.43	2	-4386.858	6	-1.295	2	-1.534	2	-1.101	1
5	N58	max	1029.909	4	246.431	4	641.607	1	.176	1	1.049	2	.476	5
6		min	-6918.043	7	-145.2	3	-4058.479	6	-.33	2	-1.056	1	-.093	2
7	N80	max	59.155	4	4292.817	5	-1222.426	2	0	11	0	4	0	3
8		min	-59.2	3	607.1	2	-8690.334	5	0	1	0	3	0	4
9	N124A	max	-1430.766	3	4408.614	6	4454.335	6	.001	1	0	2	0	2
10		min	-7741.749	6	804.986	3	801.163	3	-.001	2	0	1	0	1
11	N126A	max	7370.966	7	4210.641	7	4266.78	7	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
12		min	1382.905	4	778.349	4	773.563	4	0	2	0	2	0	2
13	Totals:	max	5585.346	4	12903.307	5	5807.203	1						
14		min	-5585.346	3	4251.285	2	-5807.202	2						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
1	M1	1	max	508.363	2	1529.831	8	100.852	4	-.07	3	.371	1	1.079	5
2			min	-1196.436	7	348.033	3	-161.377	3	-.767	5	-.217	2	.098	2
3		2	max	380.451	2	464.27	8	210.262	2	.101	2	.362	4	.014	1
4			min	-1499.909	5	33.709	3	-209.324	1	-.369	5	-.266	3	-.467	6
5		3	max	473.882	2	457.514	5	459.293	2	.116	2	.704	1	-.633	9
6			min	-1301.117	5	-472.887	7	-174.33	4	-.116	1	-.785	2	-2.132	7
7		4	max	398.803	2	-34.823	4	229.096	1	.349	7	.363	3	-.024	3
8			min	-1505.793	5	-469.714	7	-232.005	2	.021	4	-.263	4	-.403	8
9		5	max	541.247	2	-238.253	1	163.184	4	.791	6	.365	1	1.067	7
10			min	-1192.989	5	-1524.83	6	-100.677	3	.065	1	-.213	2	.218	4
11	MP1A	1	max	0	11	0	4	.025	5	0	11	0	11	0	11
12			min	0	1	-.041	7	-.01	2	0	1	0	1	0	1
13		2	max	662.039	6	377.791	8	5.159	9	.051	2	.106	7	.386	8
14			min	98.109	1	-68.988	3	-106.49	7	-.052	1	.01	9	-.072	3
15		3	max	695.72	6	386.994	8	12.037	1	.051	2	.024	1	.083	3
16			min	106.439	1	-86.61	3	-109.946	6	-.052	1	-.109	6	-.379	8
17		4	max	-8.33	10	17.634	3	17.644	2	0	11	.018	1	.018	3
18			min	-33.68	5	-17.617	4	-17.649	1	0	1	-.018	2	-.018	4
19		5	max	0	11	.118	6	.023	2	0	11	0	11	0	11
20			min	0	1	.003	1	-.067	5	0	1	0	1	0	1
21	MP3A	1	max	0	11	.042	8	.023	5	0	11	0	11	0	11
22			min	0	1	0	3	-.008	2	0	1	0	1	0	1
23		2	max	688.294	6	77	4	58.111	1	.055	1	.131	6	.086	4
24			min	-6.282	1	-377.069	7	-129.94	6	-.055	2	-.057	1	-.393	7
25		3	max	721.974	6	94.621	4	75.733	1	.055	1	.077	1	.37	7
26			min	2.048	1	-386.272	7	-142.093	2	-.055	2	-.143	2	-.085	4
27		4	max	-8.33	10	17.618	3	17.637	2	0	11	.018	1	.018	3
28			min	-33.68	5	-17.634	4	-17.643	1	0	1	-.018	2	-.018	4
29		5	max	0	11	-.004	3	.016	2	0	11	0	11	0	11
30			min	0	1	-.109	6	-.058	5	0	1	0	1	0	1
31	MP2A	1	max	0	11	.003	4	.033	5	0	11	0	11	0	11
32			min	0	1	-.003	3	-.025	2	0	1	0	1	0	1
33		2	max	24.7	1	402.53	4	374.993	1	.009	3	.07	6	.331	4
34			min	-285.098	10	-408.934	3	-355.814	2	-.01	4	-.002	10	-.333	3
35		3	max	379.386	5	556.947	4	455.759	1	.009	3	.961	1	.809	3
36			min	-126.306	10	-563.352	3	-436.58	2	-.01	4	-.88	2	-.797	4
37		4	max	-98.912	10	194.64	3	423.812	2	0	11	.507	1	.236	3
38			min	-439.895	5	-194.642	4	-423.789	1	0	1	-.507	2	-.236	4
39		5	max	0	11	.162	4	.217	1	0	11	0	11	0	11
40			min	0	1	-.175	7	-.194	2	0	1	0	1	0	1
41	M5	1	max	888.968	3	1568.148	7	94.893	2	-.025	4	.436	4	1.062	6
42			min	-1505.44	4	255.51	4	-154.467	1	-.764	7	-.282	3	.204	1
43		2	max	568.538	3	463.874	6	187.733	3	.022	1	.194	6	.013	2
44			min	-1515.527	8	45.279	1	-186.351	4	-.347	6	-.044	4	-.43	5
45		3	max	646.327	3	470.045	6	461.042	3	.125	1	.617	4	-.623	10
46			min	-1331.992	4	-475.99	5	-470.802	4	-.112	2	-.697	3	-2.141	5
47		4	max	532.528	1	-37.298	2	204.096	2	.372	5	.374	3	.021	4
48			min	-1552.745	6	-473.909	5	-206.812	1	-.039	3	-.277	4	-.412	7
49		5	max	937.992	1	-235.737	2	126.374	7	.814	5	.405	2	1.082	5

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
50			min	-1547.831	2	-1525.475	5	-44.441	1	-.029	2	-.255	1	.193	2
51	MP1C	1	max	0	11	.036	8	.034	5	0	11	0	11	0	11
52			min	0	1	-.004	3	-.003	2	0	1	0	1	0	1
53		2	max	697.038	7	27.806	4	76.023	1	.029	3	.285	6	.008	4
54			min	21.093	4	-277.641	7	-273.938	6	-.03	4	-.083	1	-.281	7
55		3	max	730.719	7	45.427	4	93.644	1	.029	3	.087	1	.284	7
56			min	29.423	4	-286.844	7	-283.141	6	-.03	4	-.272	6	-.065	4
57		4	max	-8.33	10	17.626	3	17.628	2	0	11	.018	1	.018	3
58			min	-33.68	5	-17.638	4	-17.64	1	0	1	-.018	2	-.018	4
59		5	max	0	11	.005	1	.006	2	0	11	0	11	0	11
60			min	0	1	-.094	6	-.091	5	0	1	0	1	0	1
61	MP3C	1	max	0	11	.007	4	0	3	0	11	0	11	0	11
62			min	0	1	-.018	7	-.043	8	0	1	0	1	0	1
63		2	max	669.028	7	141.233	4	395.265	5	.055	4	.092	2	.157	4
64			min	49.189	4	-98.551	3	-86.952	2	-.055	3	-.408	5	-.111	3
65		3	max	702.708	7	158.854	4	404.468	5	.055	4	.392	5	.103	3
66			min	57.519	4	-116.173	3	-104.573	2	-.055	3	-.1	2	-.143	4
67		4	max	-8.33	10	17.643	3	17.635	2	0	11	.018	1	.018	3
68			min	-33.68	5	-17.64	4	-17.618	1	0	1	-.018	2	-.018	4
69		5	max	0	11	.043	7	.117	8	0	11	0	11	0	11
70			min	0	1	-.018	4	.002	3	0	1	0	1	0	1
71	MP2C	1	max	0	11	.024	8	.008	1	0	11	0	11	0	11
72			min	0	1	-.018	3	-.012	6	0	1	0	1	0	1
73		2	max	1.296	8	396.696	4	434.673	1	.05	3	.276	2	.118	1
74			min	-53.531	3	-377.034	3	-440.224	2	-.051	4	-.298	1	-.151	2
75		3	max	370.13	8	509.011	4	553.32	1	.05	3	.849	1	.865	3
76			min	105.261	3	-489.349	3	-558.871	2	-.051	4	-.883	2	-.942	4
77		4	max	-98.912	10	366.508	3	251.924	2	0	11	.304	1	.439	3
78			min	-439.895	5	-366.487	4	-251.935	1	0	1	-.304	2	-.439	4
79		5	max	0	11	.265	8	.17	1	0	11	0	11	0	11
80			min	0	1	-.197	3	-.221	6	0	1	0	1	0	1
81	M9	1	max	959.557	1	1587.971	5	45.073	3	.045	2	.417	2	1.068	5
82			min	-1576.428	2	238.672	2	-119.978	8	-.793	5	-.263	1	.188	2
83		2	max	518.013	1	470.961	5	196.415	1	.053	4	.379	4	.016	3
84			min	-1561.433	6	30.517	2	-194.079	2	-.366	5	-.279	3	-.429	8
85		3	max	639.619	4	475.584	5	470.351	3	.152	2	.615	3	-.626	9
86			min	-1391.764	7	-488.917	6	-462.383	4	-.145	1	-.696	4	-2.15	5
87		4	max	560.939	4	-54.52	1	183.079	3	.409	6	.186	8	.087	2
88			min	-1589.606	7	-465.778	6	-185.537	4	-.095	1	-.04	3	-.466	5
89		5	max	878.645	4	-249.052	3	122.484	8	.849	6	.433	3	1.092	6
90			min	-1488.438	3	-1535.835	8	-26.587	2	-.018	1	-.282	4	.113	1
91	MP1B	1	max	0	11	.019	8	0	4	0	11	0	11	0	11
92			min	0	1	-.007	3	-.043	7	0	1	0	1	0	1
93		2	max	693.598	5	76.504	4	392.422	5	.05	4	.078	2	.073	4
94			min	59.843	3	-123.739	3	-83.493	2	-.051	3	-.401	5	-.121	3
95		3	max	727.278	5	94.125	4	401.625	5	.05	4	.393	5	.144	3
96			min	68.173	3	-141.361	3	-101.115	2	-.051	3	-.107	2	-.098	4
97		4	max	-8.33	10	17.639	3	17.635	2	0	11	.018	1	.018	3
98			min	-33.68	5	-17.643	4	-17.618	1	0	1	-.018	2	-.018	4
99		5	max	0	11	.017	3	.117	7	0	11	0	11	0	11
100			min	0	1	-.047	8	.002	4	0	1	0	1	0	1
101	MP3B	1	max	0	11	.003	4	.035	5	0	11	0	11	0	11
102			min	0	1	-.037	6	-.003	2	0	1	0	1	0	1
103		2	max	692.577	8	298.785	8	59.26	1	.039	2	.288	6	.304	8
104			min	31.772	3	-39.78	3	-265.192	6	-.039	1	-.091	1	-.039	3
105		3	max	726.257	8	307.988	8	76.882	1	.039	2	.045	1	.058	3
106			min	40.102	3	-57.402	3	-274.395	6	-.039	1	-.252	6	-.303	8

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
107		4	max	-8.33	10	17.638	3	17.634	2	0	11	.018	1	.018	3
108			min	-33.68	5	-17.625	4	-17.645	1	0	1	-.018	2	-.018	4
109		5	max	0	11	.111	6	.012	2	0	11	0	11	0	11
110			min	0	1	-.01	1	-.099	5	0	1	0	1	0	1
111	MP2B	1	max	0	11	.017	4	.009	1	0	11	0	11	0	11
112			min	0	1	-.023	7	-.014	6	0	1	0	1	0	1
113		2	max	7.715	2	372.157	4	449	1	.053	3	.285	2	.153	2
114			min	-65.965	1	-387.159	3	-461.666	2	-.054	4	-.302	1	-.119	1
115		3	max	373.621	6	484.473	4	567.647	1	.053	3	.877	1	.926	3
116			min	92.827	1	-499.475	3	-580.313	2	-.054	4	-.923	2	-.858	4
117		4	max	-98.912	10	366.484	3	251.939	2	0	11	.304	1	.439	3
118			min	-439.895	5	-366.503	4	-251.95	1	0	1	-.304	2	-.439	4
119		5	max	0	11	.203	4	.154	1	0	11	0	11	0	11
120			min	0	1	-.312	5	-.198	6	0	1	0	1	0	1
121	M13	1	max	372.46	4	-252.48	3	800.592	4	-.1	4	.433	3	1.282	6
122			min	-730.583	3	-1537.829	8	-1294.309	3	-.521	6	-.282	4	.041	1
123		2	max	367.105	4	-258.605	3	809.867	4	-.1	4	.057	2	1.785	6
124			min	-728.821	7	-1550.498	8	-1303.584	3	-.521	6	-.071	1	.165	1
125		3	max	361.75	4	1557.788	8	982.929	1	.551	5	.258	4	2.297	8
126			min	-727.42	7	-1529.753	6	-1312.858	3	-.521	6	-.436	3	.397	3
127		4	max	303.33	4	1545.119	8	979.837	1	.551	5	.045	1	1.704	5
128			min	-725.728	7	355.537	3	-479.438	2	.03	2	-.058	2	.277	3
129		5	max	297.975	4	1532.451	8	978.198	5	.551	5	.371	1	1.204	5
130			min	-724.326	7	349.412	3	-476.346	2	.03	2	-.217	2	.144	2
131	M14	1	max	311.035	3	-240.725	1	519.747	2	-.099	2	.365	1	1.209	6
132			min	-673.575	4	-1527.192	6	-1017.483	1	-.556	5	-.213	2	.189	4
133		2	max	316.39	3	-246.85	1	522.839	2	-.099	2	.025	1	1.721	6
134			min	-678.93	4	-1539.861	6	-1020.575	1	-.556	5	-.039	2	.293	1
135		3	max	366.856	3	1595.644	7	1330.195	4	.553	6	.264	3	2.236	6
136			min	-723.829	4	-1409.968	5	-1023.666	1	-.556	5	-.445	4	.421	4
137		4	max	372.211	3	1582.975	7	1320.92	4	.553	6	.036	2	1.704	7
138			min	-729.183	4	265.039	4	-818.844	3	.1	1	-.051	1	.245	4
139		5	max	377.566	3	1570.306	7	1311.645	4	.553	6	.436	4	1.178	7
140			min	-734.538	4	258.914	4	-809.57	3	.1	1	-.282	3	.158	4
141	M15	1	max	507.266	1	-238.879	2	790.521	1	-.088	3	.405	2	1.246	5
142			min	-867.922	2	-1527.474	5	-1285.107	2	-.557	8	-.255	1	.071	2
143		2	max	507.266	1	-245.004	2	802.887	1	-.088	3	.039	4	1.757	5
144			min	-867.922	2	-1540.143	5	-1297.473	2	-.557	8	-.053	3	.152	2
145		3	max	512.465	1	1615.263	5	1340.378	2	.56	7	.287	1	2.289	5
146			min	-870.814	2	-364.201	4	-837.608	1	-.557	8	-.469	2	.234	2
147		4	max	512.465	1	1602.594	5	1328.012	2	.56	7	.039	3	1.753	5
148			min	-870.814	2	248.077	2	-825.241	1	.088	4	-.053	4	.136	2
149		5	max	512.465	1	1589.925	5	1315.646	2	.56	7	.417	2	1.221	5
150			min	-870.814	2	241.952	2	-812.875	1	.088	4	-.263	1	.054	2
151	M16	1	max	1887.941	2	299.949	2	1361.051	4	.437	4	2.14	3	.512	6
152			min	-8398.64	5	-198.206	1	-1360.167	3	-.43	3	-2.142	4	-.002	1
153		2	max	1887.941	2	285.061	2	1342.502	4	.437	4	.789	3	.383	5
154			min	-8398.64	5	-213.094	1	-1341.618	3	-.43	3	-.791	4	.031	2
155		3	max	1887.941	2	269.816	2	1322.878	4	.437	4	.542	4	.425	1
156			min	-8398.64	5	-232.103	1	-1322.008	3	-.43	3	-.543	3	-.247	2
157		4	max	413.821	2	33.896	2	158.578	3	.062	4	.169	4	-.015	2
158			min	-4633.163	5	-325.768	5	-166.736	4	-.059	3	-.167	3	-.098	5
159		5	max	0	11	0	11	0	11	0	11	0	11	0	11
160			min	0	1	0	1	0	1	0	1	0	1	0	1
161	M18	1	max	19.057	2	174.858	3	4632.66	5	.101	4	.073	2	.103	3
162			min	-352.413	5	-182.993	4	-413.823	2	-.103	3	-1.123	5	-.108	4
163		2	max	19.057	2	174.858	3	4632.66	5	.101	4	.047	2	.092	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
164			min	-352.413	5	-182.993	4	-413.823	2	-.103	3	-.834	5	-.097	4
165		3	max	19.057	2	174.858	3	4632.66	5	.101	4	.021	2	.081	3
166			min	-352.413	5	-182.993	4	-413.823	2	-.103	3	-.544	5	-.085	4
167		4	max	19.057	2	174.858	3	4632.66	5	.101	4	-.005	2	.07	3
168			min	-352.413	5	-182.993	4	-413.823	2	-.103	3	-.255	5	-.074	4
169		5	max	19.057	2	174.858	3	4632.66	5	.101	4	.042	1	.059	3
170			min	-352.413	5	-182.993	4	-413.823	2	-.103	3	-.03	2	-.062	4
171	M19	1	max	4.904	5	.375	4	858.345	5	.084	3	.012	2	0	4
172			min	1.064	2	-.369	3	-95.698	2	-.088	4	-.107	5	0	3
173		2	max	4.904	5	.375	4	858.345	5	.084	3	.006	2	0	4
174			min	1.064	2	-.369	3	-95.698	2	-.088	4	-.053	5	0	3
175		3	max	4.904	5	.375	4	858.345	5	.084	3	0	8	0	3
176			min	1.064	2	-.369	3	-95.698	2	-.088	4	0	1	0	8
177		4	max	4.904	5	.375	4	858.345	5	.084	3	.054	5	0	3
178			min	1.064	2	-.369	3	-95.698	2	-.088	4	-.006	2	0	4
179		5	max	4.904	5	.375	4	858.345	5	.084	3	.107	5	0	3
180			min	1.064	2	-.369	3	-95.698	2	-.088	4	-.012	2	0	4
181	M20	1	max	344.602	6	1474.098	4	2907.556	5	.917	4	-.009	2	.013	2
182			min	-30.238	1	-1465.044	3	-1378.444	2	-.92	3	-.159	5	-.016	1
183		2	max	344.602	6	1474.098	4	2907.556	5	.917	4	.091	1	.096	3
184			min	-30.238	1	-1465.044	3	-1378.444	2	-.92	3	-.096	2	-.099	4
185		3	max	344.602	6	1474.098	4	2907.556	5	.917	4	.267	1	.187	3
186			min	-30.238	1	-1465.044	3	-1378.444	2	-.92	3	-.182	2	-.191	4
187		4	max	344.602	6	1474.098	4	2907.556	5	.917	4	.444	1	.279	3
188			min	-30.238	1	-1465.044	3	-1378.444	2	-.92	3	-.268	2	-.283	4
189		5	max	344.602	6	1474.098	4	2907.556	5	.917	4	.62	1	.37	3
190			min	-30.238	1	-1465.044	3	-1378.444	2	-.92	3	-.354	2	-.375	4
191	M21	1	max	1064.029	3	436.706	5	1001.101	2	1.452	2	1.542	1	.847	5
192			min	-8214.698	6	-222.935	2	-1006.099	1	-1.446	1	-1.534	2	.075	2
193		2	max	1055.997	3	418.099	1	987.189	2	1.452	2	.543	1	.548	6
194			min	-8211.943	6	-237.823	2	-992.187	1	-1.446	1	-.54	2	.011	1
195		3	max	1047.965	3	403.211	1	973.277	2	1.452	2	.44	2	.551	2
196			min	-8209.189	6	-252.711	2	-978.275	1	-1.446	1	-.443	1	-.4	1
197		4	max	-321.699	3	104.693	1	1389.616	1	.525	2	.483	2	.016	2
198			min	-6111.644	8	-262.305	6	-1399.335	2	-.522	1	-.483	1	-.169	8
199		5	max	0	11	.001	7	0	11	0	11	0	11	0	11
200			min	0	1	-.003	2	-.002	4	0	1	0	1	0	1
201	M22	1	max	559.062	4	-157.77	1	766.604	1	.188	2	.124	4	-.114	3
202			min	-350.283	3	-535.493	8	-767.801	2	-.187	1	-.124	3	-.39	8
203		2	max	1803.032	1	103.763	1	1573.727	2	.525	2	.136	2	.038	2
204			min	-3131.306	2	-263.803	6	-1568.694	1	-.522	1	-.139	1	-.154	8
205		3	max	604.169	3	56.391	1	107.442	1	.517	1	.458	2	.263	1
206			min	-7703.535	6	-969.724	6	-105.125	2	-.509	2	-.464	1	-.714	6
207		4	max	593.156	3	23.59	1	126.518	1	.517	1	.301	2	.777	8
208			min	-7699.758	6	-1057.714	6	-124.201	2	-.509	2	-.304	1	.06	3
209		5	max	2152.401	3	3123.101	8	198.485	1	.516	1	.118	3	-.242	2
210			min	-1152.389	4	626.369	3	-197.843	2	-.507	2	-.122	4	-1.038	5
211	M23	1	max	408.459	8	4502.091	8	59.027	2	.198	1	.806	5	1.167	8
212			min	-81.863	2	260.399	3	-2499.446	5	-.203	2	-.458	2	.105	1
213		2	max	408.459	8	4502.091	8	59.027	2	.198	1	.7	1	.886	8
214			min	-81.863	2	260.399	3	-2499.446	5	-.203	2	-.454	2	.044	1
215		3	max	408.459	8	4502.091	8	59.027	2	.198	1	.611	1	.605	8
216			min	-81.863	2	260.399	3	-2499.446	5	-.203	2	-.45	2	-.017	1
217		4	max	408.459	8	4502.091	8	59.027	2	.198	1	.522	1	.323	8
218			min	-81.863	2	260.399	3	-2499.446	5	-.203	2	-.447	2	-.078	1
219		5	max	408.459	8	4502.091	8	59.027	2	.198	1	.433	1	.126	2
220			min	-81.863	2	260.399	3	-2499.446	5	-.203	2	-.443	2	-.139	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
221	M24	1	max	5.056	6	596.208	6	142.51	1	.74	1	.043	6	.074	6
222			min	1.061	3	-246.84	1	-344.587	6	-.744	2	-.018	1	-.031	1
223		2	max	5.056	6	596.208	6	142.51	1	.74	1	.021	6	.037	6
224			min	1.061	3	-246.84	1	-344.587	6	-.744	2	-.009	1	-.015	1
225		3	max	5.056	6	596.208	6	142.51	1	.74	1	0	1	0	2
226			min	1.061	3	-246.84	1	-344.587	6	-.744	2	0	8	0	6
227		4	max	5.056	6	596.208	6	142.51	1	.74	1	.009	1	.015	1
228			min	1.061	3	-246.84	1	-344.587	6	-.744	2	-.022	6	-.037	6
229		5	max	5.056	6	596.208	6	142.51	1	.74	1	.018	1	.031	1
230			min	1.061	3	-246.84	1	-344.587	6	-.744	2	-.043	6	-.075	6
231	M25	1	max	456.465	5	2243.526	4	2901.756	1	.291	2	.324	1	.205	6
232			min	-38.964	2	-1199.442	3	-3516.492	2	-.297	1	-.272	2	-.11	1
233		2	max	456.465	5	2243.526	4	2901.756	1	.291	2	.505	1	.122	3
234			min	-38.964	2	-1199.442	3	-3516.492	2	-.297	1	-.492	2	-.097	4
235		3	max	456.465	5	2243.526	4	2901.756	1	.291	2	.686	1	.197	3
236			min	-38.964	2	-1199.442	3	-3516.492	2	-.297	1	-.712	2	-.237	4
237		4	max	456.465	5	2243.526	4	2901.756	1	.291	2	.868	1	.272	3
238			min	-38.964	2	-1199.442	3	-3516.492	2	-.297	1	-.931	2	-.378	4
239		5	max	456.465	5	2243.526	4	2901.756	1	.291	2	1.049	1	.347	3
240			min	-38.964	2	-1199.442	3	-3516.492	2	-.297	1	-1.151	2	-.518	4
241	M26	1	max	1099.062	4	246.664	4	805.345	1	.339	1	1.049	2	.498	8
242			min	-7970.879	7	-145.925	3	-801.849	2	-.332	2	-1.056	1	.035	3
243		2	max	1091.03	4	231.777	4	791.434	1	.339	1	.255	2	.372	7
244			min	-7968.125	7	-160.813	3	-787.937	2	-.332	2	-.257	1	.045	4
245		3	max	1082.998	4	216.837	4	777.508	1	.339	1	.527	1	.358	3
246			min	-7965.37	7	-178.405	3	-773.871	2	-.332	2	-.526	2	-.179	4
247		4	max	76.527	4	7.992	4	155.034	2	.06	1	.17	1	-.016	4
248			min	-4443.676	7	-312.382	7	-162.867	1	-.057	2	-.167	2	-.096	7
249		5	max	0	11	0	5	.002	3	0	11	0	11	0	11
250			min	0	1	-.002	3	0	5	0	1	0	1	0	1
251	M28	1	max	-6.895	4	13.186	4	114.15	4	.103	1	.561	7	-.031	4
252			min	-339.556	7	-3823.876	7	-2257.767	7	-.103	2	-.045	4	-.929	6
253		2	max	-6.895	4	13.186	4	114.15	4	.103	1	.42	7	-.031	4
254			min	-339.556	7	-3823.876	7	-2257.767	7	-.103	2	-.038	4	-.693	6
255		3	max	-6.895	4	13.186	4	114.15	4	.103	1	.279	7	-.016	1
256			min	-339.556	7	-3823.876	7	-2257.767	7	-.103	2	-.031	4	-.456	6
257		4	max	-6.895	4	13.186	4	114.15	4	.103	1	.138	7	.003	1
258			min	-339.556	7	-3823.876	7	-2257.767	7	-.103	2	-.024	4	-.22	6
259		5	max	-6.895	4	13.186	4	114.15	4	.103	1	.057	1	.046	3
260			min	-339.556	7	-3823.876	7	-2257.767	7	-.103	2	-.06	2	-.034	4
261	M29	1	max	4.805	7	22.885	4	13.174	4	.081	2	.051	7	.003	4
262			min	1.054	4	-712.244	7	-411.417	7	-.085	1	-.002	4	-.089	7
263		2	max	4.805	7	22.885	4	13.174	4	.081	2	.026	7	.001	4
264			min	1.054	4	-712.244	7	-411.417	7	-.085	1	0	4	-.044	7
265		3	max	4.805	7	22.885	4	13.174	4	.081	2	0	4	0	8
266			min	1.054	4	-712.244	7	-411.417	7	-.085	1	0	6	0	2
267		4	max	4.805	7	22.885	4	13.174	4	.081	2	0	4	.045	7
268			min	1.054	4	-712.244	7	-411.417	7	-.085	1	-.026	7	-.001	4
269		5	max	4.805	7	22.885	4	13.174	4	.081	2	.002	4	.089	7
270			min	1.054	4	-712.244	7	-411.417	7	-.085	1	-.052	7	-.003	4
271	M30	1	max	333.417	8	956.796	4	984.06	1	.673	1	.092	7	.002	1
272			min	-3.743	3	-2369.156	7	-1700.261	2	-.673	2	-.06	10	-.14	6
273		2	max	333.417	8	956.796	4	984.06	1	.673	1	.115	1	.091	3
274			min	-3.743	3	-2369.156	7	-1700.261	2	-.673	2	-.11	2	-.094	4
275		3	max	333.417	8	956.796	4	984.06	1	.673	1	.176	1	.229	3
276			min	-3.743	3	-2369.156	7	-1700.261	2	-.673	2	-.216	2	-.153	4
277		4	max	333.417	8	956.796	4	984.06	1	.673	1	.238	1	.367	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
278			min	-3.743	3	-2369.156	7	-1700.261	2	-.673	2	-.323	2	-.213	4
279		5	max	333.417	8	956.796	4	984.06	1	.673	1	.299	1	.505	3
280			min	-3.743	3	-2369.156	7	-1700.261	2	-.673	2	-.429	2	-.273	4
281	M31A	1	max	564.088	3	-159.09	1	732.578	2	.085	10	.119	4	-.113	1
282			min	-349.137	4	-546.792	6	-732.081	1	-.012	2	-.116	3	-.4	6
283		2	max	638.288	4	7.062	4	175.343	1	.06	1	.13	1	-.017	4
284			min	-3036.782	7	-313.88	7	-166.464	2	-.057	2	-.129	2	-.067	7
285		3	max	695.769	4	-31.474	4	18.133	2	.164	1	.275	1	-.002	4
286			min	-7473.927	7	-736.803	7	-20.171	1	-.156	2	-.272	2	-.302	7
287		4	max	684.756	4	-64.275	4	37.209	2	.164	1	.234	1	.769	7
288			min	-7470.151	7	-824.792	7	-39.247	1	-.156	2	-.234	2	.063	4
289		5	max	2188.752	4	3114.281	7	108.499	2	.165	1	.129	1	-.304	3
290			min	-1184.413	3	624.88	4	-110.257	1	-.157	2	-.131	2	-1.073	8
291	M34	1	max	616.044	1	-162.785	10	1261.071	3	.056	4	.048	4	-.113	2
292			min	-401.53	2	-546.304	5	-1262.517	4	-.056	3	-.047	3	-.401	5
293		2	max	1072.59	2	32.967	2	184.533	4	.062	4	.127	4	-.018	2
294			min	-3248.618	5	-327.266	5	-176.941	3	-.059	3	-.128	3	-.067	5
295		3	max	1486.411	2	20.392	2	23.751	3	.17	4	.27	4	.011	2
296			min	-7881.781	5	-762.932	5	-24.314	4	-.163	3	-.271	3	-.315	5
297		4	max	1486.411	2	-12.409	2	49.185	3	.17	4	.219	4	.792	5
298			min	-7881.781	5	-850.922	5	-49.749	4	-.163	3	-.221	3	.005	2
299		5	max	2653.189	2	3170.199	5	141.014	3	.171	4	.084	4	-.303	1
300			min	-1651.824	1	505.108	2	-141.578	4	-.163	3	-.087	3	-1.071	6
301	M31	1	max	710.938	1	226.082	7	10.728	2	.004	5	.207	5	.44	7
302			min	-703.363	2	3.325	4	-165.218	5	0	2	-.009	2	.048	4
303		2	max	710.938	1	221.266	7	3.94	2	.004	5	.13	5	.221	7
304			min	-703.363	2	16.154	4	-189.745	5	0	2	.012	2	.028	4
305		3	max	710.938	1	216.451	7	-11.028	2	.004	5	.033	6	.005	1
306			min	-703.363	2	28.983	4	-242.305	5	0	2	-.007	1	-.007	2
307		4	max	710.938	1	211.635	7	-21.629	2	.004	5	.023	2	-.05	2
308			min	-703.363	2	41.811	4	-279.896	5	0	2	-.13	5	-.243	5
309		5	max	710.938	1	210.921	5	-24.838	2	.004	5	.018	2	-.096	2
310			min	-703.363	2	49.568	2	-292.158	5	0	2	-.295	5	-.487	5
311	M32	1	max	749.791	1	-53.394	1	276.102	5	0	4	-.063	2	-.094	1
312			min	-742.839	2	-215.127	6	72.988	2	-.003	7	-.265	5	-.495	6
313		2	max	749.791	1	-46.756	3	263.84	5	0	4	-.027	4	-.028	1
314			min	-742.839	2	-215.127	6	69.778	2	-.003	7	-.111	7	-.254	6
315		3	max	749.791	1	-33.927	3	226.364	5	0	4	.028	5	.038	1
316			min	-742.839	2	-219.86	8	59.212	2	-.003	7	.003	2	-.041	2
317		4	max	749.791	1	-21.099	3	173.803	5	0	4	.128	5	.224	5
318			min	-742.839	2	-224.675	8	44.243	2	-.003	7	.022	2	.032	2
319		5	max	749.791	1	-8.27	3	149.162	5	0	4	.194	5	.444	8
320			min	-742.839	2	-229.491	8	37.422	2	-.003	7	.033	2	.057	3
321	M33	1	max	492.348	4	220.414	5	-32.54	1	.003	6	.194	6	.432	7
322			min	-485.992	3	27.439	4	-148.89	6	0	1	.024	1	.085	4
323		2	max	497.903	4	220.933	7	-39.328	1	.003	6	.127	8	.217	7
324			min	-491.547	3	24.232	4	-173.416	6	0	1	.019	3	.051	4
325		3	max	503.458	4	222.137	7	-54.297	1	.003	6	.028	8	.017	4
326			min	-497.103	3	21.024	4	-225.977	6	0	1	0	3	-.02	1
327		4	max	509.013	4	223.341	7	-64.897	1	.003	6	-.023	1	-.019	4
328			min	-502.658	3	17.817	4	-263.567	6	0	1	-.112	6	-.252	7
329		5	max	514.568	4	224.545	7	-68.106	1	.003	6	-.058	1	-.054	4
330			min	-508.213	3	14.61	4	-275.829	6	0	1	-.265	6	-.501	7
331	M34A	1	max	708.568	4	-22.966	3	282.019	8	0	3	-.056	3	-.111	3
332			min	-700.517	3	-223.533	8	53.088	3	-.003	8	-.266	8	-.486	8
333		2	max	703.013	4	-26.174	3	269.757	8	0	3	-.023	3	-.054	2
334			min	-694.962	3	-222.329	8	49.879	3	-.003	8	-.112	8	-.243	5

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
335		3	max	697.458	4	-29.381	3	232.281	8	0	3	.027	6	.04	4
336			min	-689.407	3	-221.125	8	39.312	3	-.003	8	.002	1	-.044	3
337		4	max	691.903	4	-32.588	3	179.72	8	0	3	.126	8	.238	8
338			min	-683.852	3	-219.922	8	24.344	3	-.003	8	.022	3	-.01	3
339		5	max	686.348	4	-35.795	3	155.079	8	0	3	.193	8	.455	8
340			min	-678.297	3	-218.718	8	17.523	3	-.003	8	.028	3	.022	3
341	M35	1	max	686.662	3	215.333	7	-18.503	4	.003	7	.195	7	.448	7
342			min	-679.681	4	36.072	4	-155.427	7	0	4	.029	4	.023	4
343		2	max	692.217	3	216.537	7	-25.291	4	.003	7	.127	7	.234	7
344			min	-685.236	4	32.864	4	-179.953	7	0	4	.023	4	-.01	4
345		3	max	697.773	3	217.741	7	-40.26	4	.003	7	.028	6	.04	3
346			min	-690.791	4	29.657	4	-232.514	7	0	4	0	1	-.043	4
347		4	max	703.328	3	220.488	5	-50.86	4	.003	7	-.023	4	-.038	2
348			min	-696.346	4	26.45	4	-270.105	7	0	4	-.114	7	-.25	5
349		5	max	708.883	3	224.1	5	-54.069	4	.003	7	-.057	4	-.086	2
350			min	-701.902	4	23.243	4	-282.367	7	0	4	-.269	7	-.498	5
351	M36	1	max	506.524	3	-11.897	3	293.11	6	.001	1	.013	1	-.049	3
352			min	-499.877	4	-225.925	8	22.21	1	-.004	6	-.293	6	-.51	8
353		2	max	500.968	3	-15.104	3	280.848	6	.001	1	.021	1	-.017	3
354			min	-494.322	4	-224.721	8	19.001	1	-.004	6	-.129	6	-.259	8
355		3	max	495.413	3	-18.311	3	243.372	6	.001	1	.033	5	.017	3
356			min	-488.767	4	-223.517	8	8.434	1	-.004	6	-.007	2	-.018	4
357		4	max	489.858	3	-21.518	3	190.811	6	.001	1	.13	6	.223	6
358			min	-483.212	4	-222.313	8	-6.535	1	-.004	6	.009	1	.035	1
359		5	max	484.303	3	-24.726	3	166.17	6	.001	1	.208	6	.435	6
360			min	-477.657	4	-221.109	8	-13.356	1	-.004	6	-.015	1	.078	1
361	M37	1	max	218.514	6	89.56	7	230.599	1	0	11	.924	1	.359	8
362			min	66	1	-88.891	8	-230.641	2	0	1	-.925	2	-.361	7
363		2	max	249.446	6	82.155	7	246.598	1	0	11	1.282	1	.487	8
364			min	75.861	1	-81.486	8	-246.639	2	0	1	-1.283	2	-.49	7
365		3	max	280.377	6	74.75	7	262.597	1	0	11	1.664	1	.603	8
366			min	85.723	1	-74.081	8	-262.638	2	0	1	-1.664	2	-.608	7
367		4	max	311.309	6	67.345	7	278.595	1	0	11	2.07	1	.709	8
368			min	95.584	1	-66.676	8	-278.637	2	0	1	-2.07	2	-.714	7
369		5	max	0	11	.007	2	.031	6	0	11	0	11	0	11
370			min	0	1	-.021	5	-.018	5	0	1	0	1	0	1
371	MP4A	1	max	218.514	7	90.277	7	231.109	1	0	11	0	2	0	8
372			min	66	2	-89.727	8	-231.143	2	0	1	0	1	0	7
373		2	max	218.514	7	90.277	7	231.109	1	0	11	.231	1	.09	8
374			min	66	2	-89.727	8	-231.143	2	0	1	-.231	2	-.09	7
375		3	max	218.514	7	90.277	7	231.109	1	0	11	.462	1	.179	8
376			min	66	2	-89.727	8	-231.143	2	0	1	-.462	2	-.181	7
377		4	max	218.514	7	90.277	7	231.109	1	0	11	.693	1	.269	8
378			min	66	2	-89.727	8	-231.143	2	0	1	-.693	2	-.271	7
379		5	max	218.514	7	90.277	7	231.109	1	0	11	.924	1	.359	8
380			min	66	2	-89.727	8	-231.143	2	0	1	-.925	2	-.361	7
381	M39	1	max	9620.031	5	96.925	5	64.029	3	0	4	0	11	0	11
382			min	1287.967	2	15.584	2	-64.029	4	0	3	0	1	0	1
383		2	max	9638.117	5	48.462	5	32.015	3	0	4	.083	3	-.02	2
384			min	1307.173	2	7.792	2	-32.015	4	0	3	-.083	4	-.125	5
385		3	max	9656.202	5	0	11	0	11	0	4	.111	3	-.027	2
386			min	1326.379	2	0	1	0	1	0	3	-.111	4	-.167	5
387		4	max	9674.288	5	-7.792	2	32.015	4	0	4	.083	3	-.02	2
388			min	1345.585	2	-48.462	5	-32.015	3	0	3	-.083	4	-.125	5
389		5	max	9692.373	5	-15.584	2	64.029	4	0	4	0	11	0	11
390			min	1364.791	2	-96.925	5	-64.029	3	0	3	0	1	0	1
391	M48	1	max	169.125	1	967.227	6	209.852	3	.135	3	.082	8	.405	7

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
392			min	-229.961	2	201.627	1	-425.464	8	-.748	8	-.037	1	.024	9
393		2	max	169.125	1	967.227	6	209.852	3	.135	3	.071	2	.357	7
394			min	-229.961	2	201.627	1	-425.464	8	-.748	8	-.041	1	.012	9
395		3	max	169.125	1	967.227	6	209.852	3	.135	3	.064	2	.309	7
396			min	-229.961	2	201.627	1	-425.464	8	-.748	8	-.045	1	0	9
397		4	max	169.125	1	967.227	6	209.852	3	.135	3	.058	2	.261	7
398			min	-229.961	2	201.627	1	-425.464	8	-.748	8	-.048	1	-.013	9
399		5	max	169.125	1	967.227	6	209.852	3	.135	3	.051	2	.214	7
400			min	-229.961	2	201.627	1	-425.464	8	-.748	8	-.052	1	-.026	9
401	M49	1	max	918.388	1	903.69	5	788.064	3	.493	3	.147	4	.152	1
402			min	-900.04	2	.693	10	-781.678	4	-.478	4	-.149	3	-.141	2
403		2	max	918.388	1	903.69	5	788.064	3	.493	3	.108	4	.136	1
404			min	-900.04	2	.693	10	-781.678	4	-.478	4	-.11	3	-.151	2
405		3	max	918.388	1	903.69	5	788.064	3	.493	3	.068	4	.121	1
406			min	-900.04	2	.693	10	-781.678	4	-.478	4	-.07	3	-.161	2
407		4	max	918.388	1	903.69	5	788.064	3	.493	3	.029	4	.105	1
408			min	-900.04	2	.693	10	-781.678	4	-.478	4	-.031	3	-.171	2
409		5	max	918.388	1	903.69	5	788.064	3	.493	3	.009	3	.09	1
410			min	-900.04	2	.693	10	-781.678	4	-.478	4	-.01	4	-.181	2
411	M50	1	max	217.34	1	955.244	6	415.6	7	.738	7	.043	1	.45	6
412			min	-281.667	2	79.713	1	-174.78	4	-.145	4	-.085	6	-.101	1
413		2	max	217.34	1	955.244	6	415.6	7	.738	7	.046	1	.402	6
414			min	-281.667	2	79.713	1	-174.78	4	-.145	4	-.076	2	-.105	1
415		3	max	217.34	1	955.244	6	415.6	7	.738	7	.049	1	.354	6
416			min	-281.667	2	79.713	1	-174.78	4	-.145	4	-.069	2	-.109	1
417		4	max	217.34	1	955.244	6	415.6	7	.738	7	.052	1	.307	6
418			min	-281.667	2	79.713	1	-174.78	4	-.145	4	-.062	2	-.113	1
419		5	max	217.34	1	955.244	6	415.6	7	.738	7	.055	1	.259	6
420			min	-281.667	2	79.713	1	-174.78	4	-.145	4	-.055	2	-.117	1
421	M51	1	max	166.777	4	1002.363	7	187.115	1	.109	1	.089	3	.431	7
422			min	-226.751	3	125.014	4	-415.939	6	-.734	6	-.05	4	-.041	4
423		2	max	166.777	4	1002.363	7	187.115	1	.109	1	.074	3	.381	7
424			min	-226.751	3	125.014	4	-415.939	6	-.734	6	-.045	4	-.047	4
425		3	max	166.777	4	1002.363	7	187.115	1	.109	1	.059	3	.33	7
426			min	-226.751	3	125.014	4	-415.939	6	-.734	6	-.04	4	-.053	4
427		4	max	166.777	4	1002.363	7	187.115	1	.109	1	.044	3	.28	7
428			min	-226.751	3	125.014	4	-415.939	6	-.734	6	-.035	4	-.06	4
429		5	max	166.777	4	1002.363	7	187.115	1	.109	1	.029	3	.23	7
430			min	-226.751	3	125.014	4	-415.939	6	-.734	6	-.03	4	-.066	4
431	M52	1	max	739.207	4	894.54	8	787.322	1	.421	1	.173	2	.044	5
432			min	-719.662	3	230.392	3	-782.571	2	-.409	2	-.176	1	-.034	3
433		2	max	739.207	4	894.54	8	787.322	1	.421	1	.134	2	.028	4
434			min	-719.662	3	230.392	3	-782.571	2	-.409	2	-.136	1	-.045	3
435		3	max	739.207	4	894.54	8	787.322	1	.421	1	.104	3	.014	4
436			min	-719.662	3	230.392	3	-782.571	2	-.409	2	-.106	4	-.084	8
437		4	max	739.207	4	894.54	8	787.322	1	.421	1	.077	3	0	4
438			min	-719.662	3	230.392	3	-782.571	2	-.409	2	-.078	4	-.128	8
439		5	max	739.207	4	894.54	8	787.322	1	.421	1	.05	3	-.014	4
440			min	-719.662	3	230.392	3	-782.571	2	-.409	2	-.051	4	-.173	8
441	M53	1	max	176.165	4	935.982	7	419.204	5	.751	5	.042	2	.447	7
442			min	-241.198	3	135.3	4	-183.135	2	-.159	2	-.085	5	-.073	4
443		2	max	176.165	4	935.982	7	419.204	5	.751	5	.032	2	.401	7
444			min	-241.198	3	135.3	4	-183.135	2	-.159	2	-.064	5	-.079	4
445		3	max	176.165	4	935.982	7	419.204	5	.751	5	.029	4	.354	7
446			min	-241.198	3	135.3	4	-183.135	2	-.159	2	-.049	3	-.086	4
447		4	max	176.165	4	935.982	7	419.204	5	.751	5	.042	4	.307	7
448			min	-241.198	3	135.3	4	-183.135	2	-.159	2	-.052	3	-.093	4

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
449		5	max	176.165	4	935.982	7	419.204	5	.751	5	.055	4	.26	7
450			min	-241.198	3	135.3	4	-183.135	2	-.159	2	-.055	3	-.1	4
451	M54	1	max	183.039	3	998.954	5	219.923	2	.178	2	.097	1	.437	8
452			min	-242.489	4	163.467	3	-430.577	5	-.765	5	-.057	2	-.058	3
453		2	max	183.039	3	998.954	5	219.923	2	.178	2	.076	1	.388	8
454			min	-242.489	4	163.467	3	-430.577	5	-.765	5	-.046	2	-.067	3
455		3	max	183.039	3	998.954	5	219.923	2	.178	2	.055	1	.338	8
456			min	-242.489	4	163.467	3	-430.577	5	-.765	5	-.035	2	-.075	3
457		4	max	183.039	3	998.954	5	219.923	2	.178	2	.047	4	.289	8
458			min	-242.489	4	163.467	3	-430.577	5	-.765	5	-.038	3	-.083	3
459		5	max	183.039	3	998.954	5	219.923	2	.178	2	.05	4	.24	8
460			min	-242.489	4	163.467	3	-430.577	5	-.765	5	-.051	3	-.091	3
461	M55	1	max	733.982	3	898.04	6	805.108	2	.463	2	.187	1	.053	3
462			min	-714.868	4	218.982	1	-801.389	1	-.456	1	-.189	2	-.043	4
463		2	max	733.982	3	898.04	6	805.108	2	.463	2	.147	1	.039	3
464			min	-714.868	4	218.982	1	-801.389	1	-.456	1	-.149	2	-.055	4
465		3	max	733.982	3	898.04	6	805.108	2	.463	2	.107	1	.026	3
466			min	-714.868	4	218.982	1	-801.389	1	-.456	1	-.109	2	-.08	7
467		4	max	733.982	3	898.04	6	805.108	2	.463	2	.08	3	.012	3
468			min	-714.868	4	218.982	1	-801.389	1	-.456	1	-.081	4	-.124	7
469		5	max	733.982	3	898.04	6	805.108	2	.463	2	.053	3	-.002	3
470			min	-714.868	4	218.982	1	-801.389	1	-.456	1	-.054	4	-.169	6
471	M56	1	max	158.26	3	959.653	8	412.968	6	.735	6	.047	3	.465	8
472			min	-224.48	4	118.182	3	-154.554	1	-.088	1	-.088	4	-.047	3
473		2	max	158.26	3	959.653	8	412.968	6	.735	6	.043	3	.417	8
474			min	-224.48	4	118.182	3	-154.554	1	-.088	1	-.073	4	-.053	3
475		3	max	158.26	3	959.653	8	412.968	6	.735	6	.038	3	.369	8
476			min	-224.48	4	118.182	3	-154.554	1	-.088	1	-.058	4	-.059	3
477		4	max	158.26	3	959.653	8	412.968	6	.735	6	.033	3	.321	8
478			min	-224.48	4	118.182	3	-154.554	1	-.088	1	-.043	4	-.065	3
479		5	max	158.26	3	959.653	8	412.968	6	.735	6	.039	2	.273	8
480			min	-224.48	4	118.182	3	-154.554	1	-.088	1	-.039	1	-.071	3
481	M51A	1	max	146.088	1	-11.273	1	347.499	8	.141	3	.037	1	.13	7
482			min	-85.236	2	-424.147	6	37.79	3	-.764	8	-.082	6	-.006	9
483		2	max	146.088	1	-11.273	1	347.499	8	.141	3	.041	1	.151	7
484			min	-85.236	2	-424.147	6	37.79	3	-.764	8	-.071	2	-.004	9
485		3	max	146.088	1	-11.273	1	347.499	8	.141	3	.045	1	.171	7
486			min	-85.236	2	-424.147	6	37.79	3	-.764	8	-.064	2	0	9
487		4	max	146.088	1	-11.273	1	347.499	8	.141	3	.048	1	.192	7
488			min	-85.236	2	-424.147	6	37.79	3	-.764	8	-.058	2	.002	9
489		5	max	146.088	1	-11.273	1	347.499	8	.141	3	.052	1	.212	7
490			min	-85.236	2	-424.147	6	37.79	3	-.764	8	-.051	2	.005	9
491	M52A	1	max	30.212	1	441.891	6	211.302	4	.842	3	.035	3	.51	2
492			min	-48.584	2	66.645	1	-217.686	3	-.831	4	-.033	4	-.447	1
493		2	max	30.212	1	441.891	6	211.302	4	.842	3	.024	3	.501	2
494			min	-48.584	2	66.645	1	-217.686	3	-.831	4	-.022	4	-.45	1
495		3	max	30.212	1	441.891	6	211.302	4	.842	3	.013	3	.492	2
496			min	-48.584	2	66.645	1	-217.686	3	-.831	4	-.011	4	-.454	1
497		4	max	30.212	1	441.891	6	211.302	4	.842	3	.008	2	.484	2
498			min	-48.584	2	66.645	1	-217.686	3	-.831	4	-.007	1	-.457	1
499		5	max	30.212	1	441.891	6	211.302	4	.842	3	.01	4	.475	2
500			min	-48.584	2	66.645	1	-217.686	3	-.831	4	-.009	3	-.46	1
501	M53A	1	max	117.401	5	76.109	1	13.489	4	.759	7	.085	6	.14	6
502			min	-1.221	2	-488.786	6	-356.077	7	-.118	4	-.043	1	.003	10
503		2	max	117.401	5	76.109	1	13.489	4	.759	7	.076	2	.164	6
504			min	-1.221	2	-488.786	6	-356.077	7	-.118	4	-.046	1	.002	1
505		3	max	117.401	5	76.109	1	13.489	4	.759	7	.069	2	.189	6

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
506			min	-1.221	2	-488.786	6	-356.077	7	-.118	4	-.049	1	-.001	1
507		4	max	117.401	5	76.109	1	13.489	4	.759	7	.062	2	.213	6
508			min	-1.221	2	-488.786	6	-356.077	7	-.118	4	-.052	1	-.005	1
509		5	max	117.401	5	76.109	1	13.489	4	.759	7	.055	2	.237	6
510			min	-1.221	2	-488.786	6	-356.077	7	-.118	4	-.055	1	-.009	1
511	M54A	1	max	0	11	0	11	0	11	0	11	0	11	0	11
512			min	0	1	0	1	0	1	0	1	0	1	0	1
513		2	max	459.044	6	341.147	8	56.453	1	.188	1	.211	4	0	4
514			min	-76.021	1	-39.383	3	-65.426	2	-.214	2	-.19	3	-.247	7
515		3	max	459.044	6	250.345	8	68.414	3	.295	2	.343	1	-.309	1
516			min	-76.021	1	-248.275	7	-62.521	4	-.26	1	-.357	2	-1.315	8
517		4	max	431.447	6	35.137	4	81.474	2	.295	2	.232	3	-.008	3
518			min	-38.776	1	-339.077	7	-70.943	1	-.26	1	-.208	4	-.248	8
519		5	max	0	11	0	11	0	11	0	11	0	11	0	11
520			min	0	1	0	1	0	1	0	1	0	1	0	1
521	M55A	1	max	119.434	8	66.235	4	345.643	6	.124	1	.02	4	.135	7
522			min	-31.608	3	-459.202	7	42.04	1	-.759	6	-.075	7	-.011	4
523		2	max	119.434	8	66.235	4	345.643	6	.124	1	.022	4	.158	7
524			min	-31.608	3	-459.202	7	42.04	1	-.759	6	-.058	7	-.014	4
525		3	max	119.434	8	66.235	4	345.643	6	.124	1	.025	4	.181	7
526			min	-31.608	3	-459.202	7	42.04	1	-.759	6	-.044	3	-.017	4
527		4	max	119.434	8	66.235	4	345.643	6	.124	1	.027	4	.204	7
528			min	-31.608	3	-459.202	7	42.04	1	-.759	6	-.037	3	-.021	4
529		5	max	119.434	8	66.235	4	345.643	6	.124	1	.03	4	.227	7
530			min	-31.608	3	-459.202	7	42.04	1	-.759	6	-.029	3	-.024	4
531	M56A	1	max	11.844	4	424.933	7	221.574	2	.863	1	.073	4	.424	3
532			min	-39.115	8	93.587	4	-226.699	1	-.854	2	-.071	3	-.361	4
533		2	max	11.844	4	424.933	7	221.574	2	.863	1	.068	4	.417	3
534			min	-39.115	8	93.587	4	-226.699	1	-.854	2	-.066	3	-.366	4
535		3	max	11.844	4	424.933	7	221.574	2	.863	1	.062	4	.409	3
536			min	-39.115	8	93.587	4	-226.699	1	-.854	2	-.06	3	-.371	4
537		4	max	11.844	4	424.933	7	221.574	2	.863	1	.057	4	.402	3
538			min	-39.115	8	93.587	4	-226.699	1	-.854	2	-.055	3	-.376	4
539		5	max	11.844	4	424.933	7	221.574	2	.863	1	.051	4	.395	3
540			min	-39.115	8	93.587	4	-226.699	1	-.854	2	-.05	3	-.38	4
541	M57	1	max	114.377	5	20.752	4	17.13	2	.77	5	.078	7	.154	7
542			min	12.553	2	-469.536	7	-362.352	5	-.128	2	-.027	4	-.024	4
543		2	max	114.377	5	20.752	4	17.13	2	.77	5	.064	3	.177	7
544			min	12.553	2	-469.536	7	-362.352	5	-.128	2	-.034	4	-.025	4
545		3	max	114.377	5	20.752	4	17.13	2	.77	5	.061	3	.201	7
546			min	12.553	2	-469.536	7	-362.352	5	-.128	2	-.041	4	-.026	4
547		4	max	114.377	5	20.752	4	17.13	2	.77	5	.058	3	.224	7
548			min	12.553	2	-469.536	7	-362.352	5	-.128	2	-.048	4	-.027	4
549		5	max	114.377	5	20.752	4	17.13	2	.77	5	.055	3	.248	7
550			min	12.553	2	-469.536	7	-362.352	5	-.128	2	-.055	4	-.028	4
551	M58	1	max	0	11	.006	1	.007	4	0	11	0	11	0	11
552			min	0	1	-.004	7	-.004	2	0	1	0	1	0	1
553		2	max	438.097	5	339.306	6	69.589	4	.215	4	.252	2	-.015	2
554			min	-59.608	2	-35.39	1	-78.828	3	-.242	3	-.231	1	-.245	5
555		3	max	446.793	5	248.504	6	62.741	1	.215	4	.28	4	-.352	10
556			min	59.758	4	-253.364	5	-59.379	2	-.242	3	-.293	3	-1.329	5
557		4	max	419.681	7	41.221	2	74.914	1	.182	3	.217	4	-.013	1
558			min	-29.865	4	-344.166	5	-64.325	2	-.147	4	-.193	3	-.248	6
559		5	max	0	11	.004	8	.002	4	0	11	0	11	0	11
560			min	0	1	-.005	2	0	6	0	1	0	1	0	1
561	M59	1	max	113.011	7	27.458	3	360.197	5	.183	2	.028	3	.152	8
562			min	-15.82	4	-455.805	5	9.307	2	-.788	5	-.075	5	-.059	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
563		2	max	113.011	7	27.458	3	360.197	5	.183	2	.034	3	.174	8
564			min	-15.82	4	-455.805	5	9.307	2	-.788	5	-.063	4	-.06	3
565		3	max	113.011	7	27.458	3	360.197	5	.183	2	.039	3	.196	8
566			min	-15.82	4	-455.805	5	9.307	2	-.788	5	-.059	4	-.062	3
567		4	max	113.011	7	27.458	3	360.197	5	.183	2	.045	3	.219	8
568			min	-15.82	4	-455.805	5	9.307	2	-.788	5	-.055	4	-.063	3
569		5	max	113.011	7	27.458	3	360.197	5	.183	2	.051	3	.241	8
570			min	-15.82	4	-455.805	5	9.307	2	-.788	5	-.05	4	-.064	3
571	M60	1	max	17.016	3	436.202	5	240.907	1	.891	2	.077	2	.414	4
572			min	-38.287	7	83.924	2	-243.971	2	-.884	1	-.075	1	-.352	3
573		2	max	17.016	3	436.202	5	240.907	1	.891	2	.07	4	.407	4
574			min	-38.287	7	83.924	2	-243.971	2	-.884	1	-.068	3	-.357	3
575		3	max	17.016	3	436.202	5	240.907	1	.891	2	.065	4	.4	4
576			min	-38.287	7	83.924	2	-243.971	2	-.884	1	-.063	3	-.362	3
577		4	max	17.016	3	436.202	5	240.907	1	.891	2	.06	4	.393	4
578			min	-38.287	7	83.924	2	-243.971	2	-.884	1	-.058	3	-.367	3
579		5	max	17.016	3	436.202	5	240.907	1	.891	2	.054	4	.386	4
580			min	-38.287	7	83.924	2	-243.971	2	-.884	1	-.053	3	-.372	3
581	M61	1	max	135.291	6	38.16	3	-11.488	1	.762	6	.076	8	.152	6
582			min	-19.587	1	-493.136	8	-356.213	6	-.087	1	-.022	3	.005	1
583		2	max	135.291	6	38.16	3	-11.488	1	.762	6	.058	8	.175	8
584			min	-19.587	1	-493.136	8	-356.213	6	-.087	1	-.024	3	.011	1
585		3	max	135.291	6	38.16	3	-11.488	1	.762	6	.046	4	.2	8
586			min	-19.587	1	-493.136	8	-356.213	6	-.087	1	-.025	3	.017	1
587		4	max	135.291	6	38.16	3	-11.488	1	.762	6	.04	1	.225	8
588			min	-19.587	1	-493.136	8	-356.213	6	-.087	1	-.03	2	.017	3
589		5	max	135.291	6	38.16	3	-11.488	1	.762	6	.039	1	.249	8
590			min	-19.587	1	-493.136	8	-356.213	6	-.087	1	-.039	2	.015	3
591	M62	1	max	0	11	.005	2	.003	2	0	11	0	11	0	11
592			min	0	1	-.004	7	-.002	3	0	1	0	1	0	1
593		2	max	422.186	8	351.512	5	63.537	2	.15	2	.204	3	-.01	1
594			min	-28.636	3	-59.133	2	-72.54	1	-.177	1	-.182	4	-.246	6
595		3	max	473.892	5	260.71	5	62.259	2	.256	4	.279	3	-.35	9
596			min	-134.618	2	-247.309	6	-60.367	1	-.221	3	-.294	4	-1.358	5
597		4	max	465.196	5	21.107	1	81.696	4	.256	4	.295	2	-.029	2
598			min	-113.534	2	-338.111	6	-71.315	3	-.221	3	-.271	1	-.241	5
599		5	max	0	11	.004	8	.004	2	0	11	0	11	0	11
600			min	0	1	-.006	1	-.007	3	0	1	0	1	0	1
601	M63	1	max	162.672	1	107.808	1	266.235	1	.004	1	.273	2	.385	2
602			min	-99.562	2	-86.996	2	-270.025	2	-.004	2	-.327	1	-.252	1
603		2	max	157.819	1	104.256	1	263.433	1	.004	1	.12	2	.312	4
604			min	-94.71	2	-90.548	2	-267.223	2	-.004	2	-.169	1	-.187	3
605		3	max	152.966	1	100.704	1	260.631	1	.004	1	-.013	1	.322	4
606			min	-89.857	2	-94.1	2	-264.422	2	-.004	2	-.079	6	-.203	3
607		4	max	148.114	1	97.151	1	257.83	1	.004	1	.14	1	.337	4
608			min	-85.004	2	-97.653	2	-261.62	2	-.004	2	-.186	2	-.221	3
609		5	max	152.927	3	93.599	1	255.028	1	.004	1	.29	1	.357	4
610			min	-89.824	4	-101.205	2	-258.818	2	-.004	2	-.34	2	-.241	3
611	M64	1	max	174.786	4	186.448	2	174.344	2	.003	2	.27	1	.374	3
612			min	-113.079	3	-165.354	1	-177.902	1	-.003	1	-.325	2	-.241	4
613		2	max	169.933	4	182.895	2	177.145	2	.003	2	.122	1	.345	3
614			min	-108.227	3	-168.907	1	-180.703	1	-.003	1	-.171	2	-.221	4
615		3	max	165.08	4	179.343	2	179.947	2	.003	2	-.008	4	.321	3
616			min	-103.374	3	-172.459	1	-183.505	1	-.003	1	-.08	7	-.203	4
617		4	max	160.228	4	175.791	2	182.749	2	.003	2	.136	2	.303	3
618			min	-98.521	3	-176.012	1	-186.307	1	-.003	1	-.182	1	-.187	4
619		5	max	155.375	4	172.238	2	185.55	2	.003	2	.289	2	.289	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
620			min	-93.669	3	-179.564	1	-189.108	1	-.003	1	-.338	1	-.174	4
621	M65	1	max	134.94	2	232.427	3	170.898	3	.004	3	.302	4	.413	1
622			min	-73.197	1	-210.943	4	-174.876	4	-.004	4	-.356	3	-.279	2
623		2	max	134.94	2	228.875	3	170.898	3	.004	3	.136	4	.386	1
624			min	-73.197	1	-214.496	4	-174.876	4	-.004	4	-.185	3	-.262	2
625		3	max	134.94	2	225.322	3	170.898	3	.004	3	-.001	2	.366	1
626			min	-73.197	1	-218.048	4	-174.876	4	-.004	4	-.082	5	-.247	2
627		4	max	134.94	2	221.77	3	170.898	3	.004	3	.154	3	.351	1
628			min	-73.197	1	-221.601	4	-174.876	4	-.004	4	-.2	4	-.236	2
629		5	max	134.94	2	218.218	3	170.898	3	.004	3	.321	3	.343	1
630			min	-73.197	1	-225.153	4	-174.876	4	-.004	4	-.37	4	-.228	2
631	M64A	1	max	9888.223	6	97.95	8	49.51	1	.002	2	0	11	0	11
632			min	1737.352	3	12.595	3	-49.51	2	-.002	1	0	1	0	1
633		2	max	9906.191	6	48.975	8	24.755	1	.002	2	.064	1	-.016	3
634			min	1759.655	3	6.298	3	-24.755	2	-.002	1	-.064	2	-.127	8
635		3	max	9924.159	6	0	11	0	11	.002	2	.085	1	-.022	3
636			min	1781.958	3	0	1	0	1	-.002	1	-.085	2	-.169	8
637		4	max	9942.127	6	-6.298	3	24.755	2	.002	2	.064	1	-.016	3
638			min	1804.261	3	-48.975	8	-24.755	1	-.002	1	-.064	2	-.127	8
639		5	max	9960.095	6	-12.595	3	49.51	2	.002	2	0	11	0	11
640			min	1826.564	3	-97.95	8	-49.51	1	-.002	1	0	1	0	1
641	M65A	1	max	9432.307	7	97.95	7	49.51	2	0	1	0	11	0	11
642			min	1676.017	4	12.595	4	-49.51	1	0	2	0	1	0	1
643		2	max	9449.33	7	48.975	7	24.755	2	0	1	.064	2	-.016	4
644			min	1698.32	4	6.298	4	-24.755	1	0	2	-.064	1	-.127	7
645		3	max	9466.354	7	0	11	0	11	0	1	.085	2	-.022	4
646			min	1720.623	4	0	1	0	1	0	2	-.085	1	-.169	7
647		4	max	9483.377	7	-6.298	4	24.755	1	0	1	.064	2	-.016	4
648			min	1742.926	4	-48.975	7	-24.755	2	0	2	-.064	1	-.127	7
649		5	max	9500.401	7	-12.595	4	49.51	1	0	1	0	11	0	11
650			min	1765.229	4	-97.95	7	-49.51	2	0	2	0	1	0	1

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

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc.....		LC	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M31	L2.5x1.5x4	.955	3.32	5	.064	3.32	z	5	21783...	30682.8	.461	1.597	...	H2-1
2	M36	L2.5x1.5x4	.950	0	6	.066	0	z	6	21783...	30682.8	.461	1.597	...	H2-1
3	M35	L2.5x1.5x4	.895	3.32	7	.059	3.32	z	7	21783...	30682.8	.461	1.597	...	H2-1
4	M34A	L2.5x1.5x4	.892	0	8	.059	0	z	8	21783...	30682.8	.461	1.597	...	H2-1
5	M32	L2.5x1.5x4	.871	0	5	.058	0	z	7	21783...	30682.8	.461	1.597	...	H2-1
6	M33	L2.5x1.5x4	.870	3.32	6	.058	3.32	z	6	21783...	30682.8	.461	1.597	...	H2-1
7	M37	PIPE_2.5	.618	5	2	.066	5.25		8	14328...	50715	3.596	3.596	...	H1-1b
8	MP1B	PIPE_2.0	.602	5	5	.052	5		3	3485....	32130	1.872	1.872	...	H1-1a
9	MP3C	PIPE_2.0	.592	5	5	.056	5		4	3485....	32130	1.872	1.872	...	H1-1a
10	MP3B	PIPE_2.0	.583	5	8	.053	5		2	3485....	32130	1.872	1.872	...	H1-1a
11	MP1C	PIPE_2.0	.574	5	7	.047	5		6	3485....	32130	1.872	1.872	...	H1-1a
12	MP3A	PIPE_2.0	.562	5	6	.054	5		2	3485....	32130	1.872	1.872	...	H1-1a
13	MP1A	PIPE_2.0	.543	5	6	.047	5		2	3485....	32130	1.872	1.872	...	H1-1a
14	MP2A	PIPE_2.5	.349	5.063	2	.040	4.969		3	6368....	50715	3.596	3.596	...	H1-1b
15	MP2B	PIPE_2.5	.349	4.969	2	.050	4.969		3	6368....	50715	3.596	3.596	...	H1-1b
16	MP2C	PIPE_2.5	.343	4.969	4	.051	4.969		4	6368....	50715	3.596	3.596	...	H1-1b
17	M13	PL3/4x6	.290	.667	7	.354	.667	y	5	12912...	145800	2.278	18.225	...	H1-1b
18	M15	PL3/4x6	.286	.667	6	.360	.667	y	7	12912...	145800	2.278	18.225	...	H1-1b
19	M14	PL3/4x6	.279	.667	8	.357	.667	y	6	12912...	145800	2.278	18.225	...	H1-1b
20	M9	PIPE_3.5	.278	7	5	.183	14		8	56188...	78750	7.954	7.954	...	H1-1b
21	M5	PIPE_3.5	.277	7	5	.179	14		5	56188...	78750	7.954	7.954	...	H1-1b

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

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc.....		LC	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
22	M1	PIPE_3.5	.276	7	7	.176	14		6	56188...	78750	7.954	7.954	...	H1-1b
23	M64	L3X3X4	.266	0	2	.025	2.417	z	1	40994...	46656	1.688	3.756	...	H2-1
24	M63	L3X3X4	.266	0	2	.035	0	z	2	40994...	46656	1.688	3.756	...	H2-1
25	M64A	LL3x3x3x3	.260	3.452	6	.008	0	z	2	46090...	70632	5.543	3.751	...	H1-1a
26	M39	LL3x3x3x3	.249	3.452	5	.006	0	z	4	46090...	70632	5.543	3.751	1	H1-1a
27	M65A	LL3x3x3x3	.249	3.452	6	.005	0	z	1	46090...	70632	5.543	3.751	...	H1-1a
28	M62	PIPE_3.0	.248	7.5	5	.061	13....		4	19871...	65205	5.749	5.749	...	H1-1b
29	M65	L3X3X4	.246	2.417	4	.031	0	y	3	40994...	46656	1.688	3.756	...	H2-1
30	M58	PIPE_3.0	.243	7.5	5	.059	1.719		3	19871...	65205	5.749	5.749	...	H1-1b
31	M54A	PIPE_3.0	.239	7.5	8	.067	13....		2	19871...	65205	5.749	5.749	...	H1-1b
32	M16	HSS3X3X6	.214	0	4	.083	0	z	4	76031...	140346	11.213	11.213	...	H1-1b
33	M22	HSS3X3X6	.187	1.828	6	.138	1.714	z	2	12567...	140346	11.213	11.213	...	H1-1b
34	M21	HSS3X3X6	.177	0	1	.184	2.417	z	2	76031...	140346	11.213	11.213	...	H1-1b
35	M34	HSS3X3X6	.143	4.685	5	.096	4.742	y	5	12567...	140346	11.213	11.213	...	H1-1b
36	M31A	HSS3X3X6	.142	4.685	7	.097	4.742	y	6	12567...	140346	11.213	11.213	...	H1-1b
37	M26	HSS3X3X6	.119	2.417	2	.057	0	z	1	76031...	140346	11.213	11.213	...	H1-1b

EXHIBIT 9

MODIFICATION AND DESIGN DRAWINGS FOR EXISTING ANTENNA MOUNTS EXISTING MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

TOWER OWNER: SBA / TOWER OWNER SITE #: CT01498-S

CARRIER SITE #/NAME: CT11380C / SBA AVON/ RT 177

COORDINATES (LATITUDE: 41.772499°, LONGITUDE: -72.879999°)

PLEASE NOTE THIS SET OF DRAWINGS ARE FOR INSTALLATION AND ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	ANTENNA MOUNT MODIFICATION DETAILS	0
A-2	ANTENNA MOUNT PHOTOS	0
MS-CHB350-2875	METROSITE CROSSOVER CHANNEL BRACKET KIT	
MS-HRCP-35-2875	METROSITE SUPPORT RAIL CENTER PIPE KIT	
MS-HRECP-35_18	METROSITE SUPPORT RAIL WITH END CONNECTION KIT	

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE TES PROJECT NO. 99242, DATED 11/09/2020.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO: 99789

CUSTOMER SITE NO: CT01498-S-SBA

CUSTOMER SITE NAME: AVON

10 REDWOOD LANE
AVON, CT 06001

STATE OF CONNECTICUT ★ JARRYD TIBBETTS ★ No. 34170 LICENSED PROFESSIONAL ENGINEER
11/19/20

DRAWN BY: RA | CHECKED BY: SD/CHLE

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RA	11/19/20

SHEET TITLE: TITLE SHEET

SHEET NUMBER: T-1

REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	SHEET LIST	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE				
3	3	MS-HRCP-35-2875	METROSITE SUPPORT RAIL CENTER PIPE KIT	A-1, MS-HRCP-35-2875	11.0	33.0	Galvanized
1	1	MS-HRECP-35_18	METROSITE SUPPORT RAIL WITH END CONNECTION KIT	A-1, MS-HRECP-35_18	607.0	607.0	Galvanized
			FOLLOWING ITEMS ARE "CUSTOM" PARTS				
6	6	PST2375-8	2" PST (2.375" O.D. X 0.154" THICKNESS) X 8'-0" A53 GR-B S5KSI	A-1	30.01	180.1	GALVANIZED
3	3	PST2875-9	2 1/2" PST (2.875 O.D. X 0.203" THICKNESS) X 9'-0" A53 GR-B-35KSI	A-1	53.38	160.1	GALVANIZED
9	9	MS-CHB 350-2875	METROSITE CROSSOVER CHANNEL BRACKET KIT	A-1	14.00	126.0	GALVANIZED
			TOTAL WEIGHT (LBS) =			**1106.2**	

ALL METROSITE PARTS ARE AVAILABLE FROM METROSITE, LLC.

180 IND PARK BLVD COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
99789

CUSTOMER SITE NO:
CT01498-S-SBA
CUSTOMER SITE NAME:
AVON
10 REDWOOD LANE
AVON, CT 06001

DRAWN BY: RA | CHECKED BY: SD/CHLE

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RA	11/19/20

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, ANSI/ASSP A10.48, 2018 CONNECTICUT STATE BUILDING CODE, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.
7. IT IS THE RESPONSIBILITY OF THE GC TO VERIFY THAT THERE IS NO INTERFERENCES (WITH SAFETY CLIMB BRACKETS, TRANSMISSION LINES, ETC.) PRIOR TO MOBILIZATION AND INSTALLATION OF THESE MODIFICATIONS.
8. PLEASE NOTIFY TES IMMEDIATELY IF ANY INSTALLATION ISSUES OCCUR RELATED TO THIS DRAWING @ 972-483-0607 OR EMAIL-TESORDERS@TESTOWER.US

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2015 SECTION 1705 FOR STEEL CONSTRUCTION AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING [a,b]

BOLT LENGTH [c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS $12d_b$, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004 RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PH: (972) 483-0607

SBA

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(800)-487-SITE

TES JOB NO:
99789

CUSTOMER SITE NO:
CT01498-S-SBA
CUSTOMER SITE NAME:
AVON
10 REDWOOD LANE
AVON, CT 06001

DRAWN BY: RA | CHECKED BY: SD/CHLE

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RA	11/19/20

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1
REV #: 0

SCOPE OF WORK

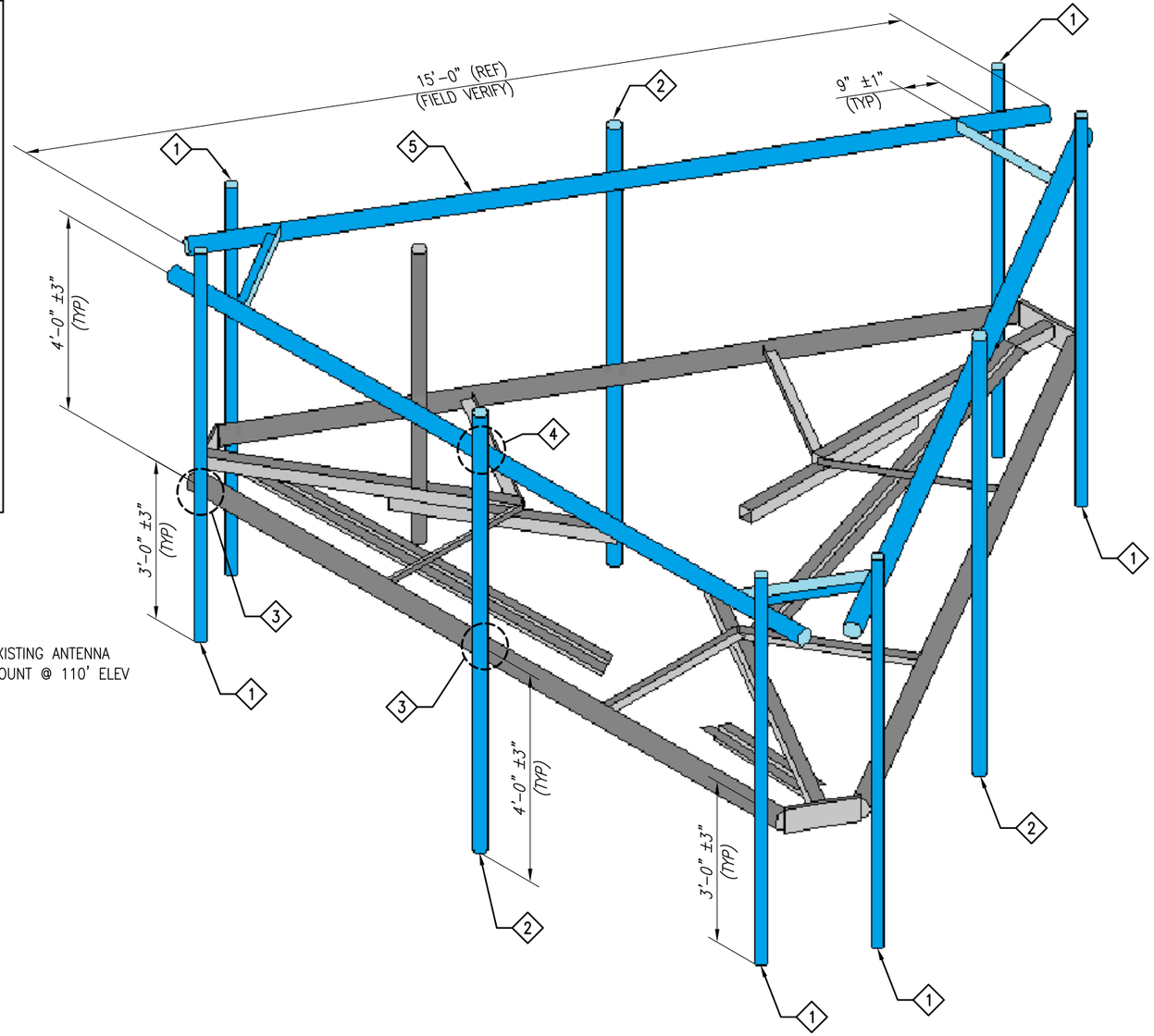
1. REPLACE EXISTING OUTER ANTENNA MOUNT PIPES WITH NEW 2" PST ANTENNA MOUNT PIPE (8'-0" LONG), THEN RELOCATE EXISTING ANTENNAS TO NEW MOUNT PIPES. (2) PER SECTOR. EXISTING ANTENNA RAD CENTER TO BE MAINTAINED.
2. REPLACE EXISTING MIDDLE ANTENNA MOUNT PIPE WITH NEW 2 1/2" PST ANTENNA MOUNT PIPE (9'-0" LONG), THEN RELOCATE EXISTING ANTENNA TO NEW MOUNT PIPE. (1) PER SECTOR. EXISTING ANTENNA RAD CENTER TO BE MAINTAINED.

   NOTE:
   CONTRACTOR TO COORDINATE WITH CARRIER PRIOR TO REPLACING EXISTING ANTENNA MOUNT PIPES TO DETERMINE IF EXISTING ANTENNAS NEED TO BE TURNED DOWN.
3. REPLACE EXISTING CHANNEL BRACKETS WITH NEW CROSSOVER CHANNEL BRACKETS ON EXISTING BOTTOM SUPPORT RAIL PIPE, (3) PER SECTOR. SEE SHEET MS-CHB350-2875 FOR DETAILS.
4. INSTALL NEW SUPPORT RAIL CENTER PIPE KIT. (1) PER SECTOR AS SHOWN. SEE SHEET MS-HRCP-35-2875 FOR DETAILS.
5. INSTALL NEW SUPPORT RAIL WITH END CONNECTION KIT. SEE SHEET MS-HRECP-35_18 FOR DETAILS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

PHOTO 1

CONTRACTOR NOTE:
1. **IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THERE IS NO INTERFERENCES WITH (PORT HOLES, SAFETY CLIMB BRACKETS, TRANSMISSION LINES, ETC.) PRIOR TO MOBILIZATION AND INSTALLATION OF THESE MODIFICATIONS.**
2. **PLEASE NOTIFY TES IMMEDIATELY IF ANY INSTALLATION ISSUES OCCUR RELATED TO THIS DRAWING @ 972-483-0607 OR EMAIL-TESORDERS@TESTOWER.US**

NOTES:
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS.
3. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
4. **MEMBERS IN BLUE COLOR ARE NEW REINFORCEMENTS.**



ISOMETRIC VIEW
EXISTING ANTENNA MOUNT @ 110' ELEV.

ITEM NO.	QTY.	PART NO.	DESCRIPTIONS
1	6	PST2375-8	2" PST (2.375" O.D. X 0.154" THICKNESS) X 8'-0" A53 GR-
2	3	PST2875-9	2 1/2" PST (2.875 O.D. X 0.203" THICKNESS) X 9'-0" A53 G
3	9	MS-CHB 350-2875	METROSITE CROSSOVER CHANNEL BRACKET KIT
4	3	MS-HRCP-35-2875	METROSITE SUPPORT RAIL CENTER PIPE KIT
5	1	MS-HRECP-35_18	METROSITE SUPPORT RAIL WITH END CONNECTION K

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PH: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO: 99789

CUSTOMER SITE NO: CT01498-S-SBA

CUSTOMER SITE NAME: AVON

10 REDWOOD LANE
AVON, CT 06001

DRAWN BY: RA | CHECKED BY: SD/CHLE

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RA	11/19/20

SHEET TITLE:

ANTENNA MOUNT MODIFICATION DETAILS

SHEET NUMBER: A-1

REV #: 0

PHOTO 1

EXISTING EQUIPMENT MUST BE RELOCATED UP OR DOWN ALONG THE MEMBER TO ACCOMMODATE INSTALLATION OF MOUNT MODIFICATION

REPLACE EXISTING MIDDLE ANTENNA MOUNT PIPE WITH NEW 2 1/2" PST ANTENNA MOUNT PIPE (9'-0" LONG) THEN RELOCATE EXISTING ANTENNA TO NEW MOUNT PIPE. (1) PER SECTOR. EXISTING ANTENNA RAD CENTER TO BE MAINTAINED.

PHOTO 2

REPLACE EXISTING OUTER ANTENNA MOUNT PIPE WITH NEW 2" PST ANTENNA MOUNT PIPE (8'-0" LONG) (2) PER SECTOR. THEN RELOCATE EXISTING ANTENNA TO NEW MOUNT PIPE. EXISTING ANTENNA RAD CENTER TO BE MAINTAINED.

PHOTO 3

PHOTO 4

REPLACE EXISTING CHANNEL BRACKETS WITH NEW CROSSOVER CHANNEL BRACKETS ON EXISTING BOTTOM SUPPORT RAIL PIPE, (3) PER SECTOR. SEE SHEET MS-CHB 350-2875 FOR DETAILS.

NOTE:
EXISTING RRUS/EQUIPMENT MAY BE RELOCATED ALONG THE MEMBER TO ACCOMMODATE THE INSTALLATION OF NEW MOUNT MODIFICATION

TES
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1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PH: (972) 483-0607

SBA
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TES JOB NO:
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CUSTOMER SITE NO:
CT01498-S-SBA
CUSTOMER SITE NAME:
AVON
10 REDWOOD LANE
AVON, CT 06001

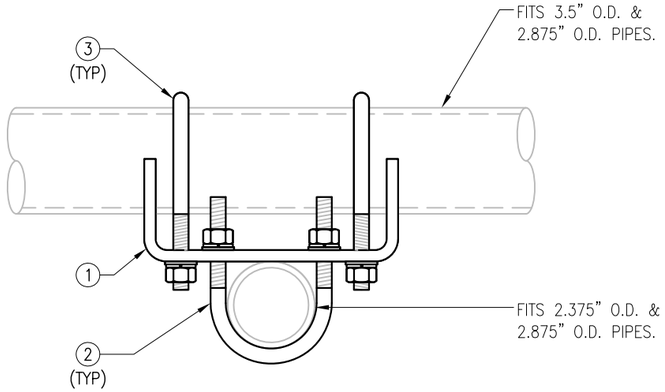
DRAWN BY: RA | CHECKED BY: SD/CHLE

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RA	11/19/20

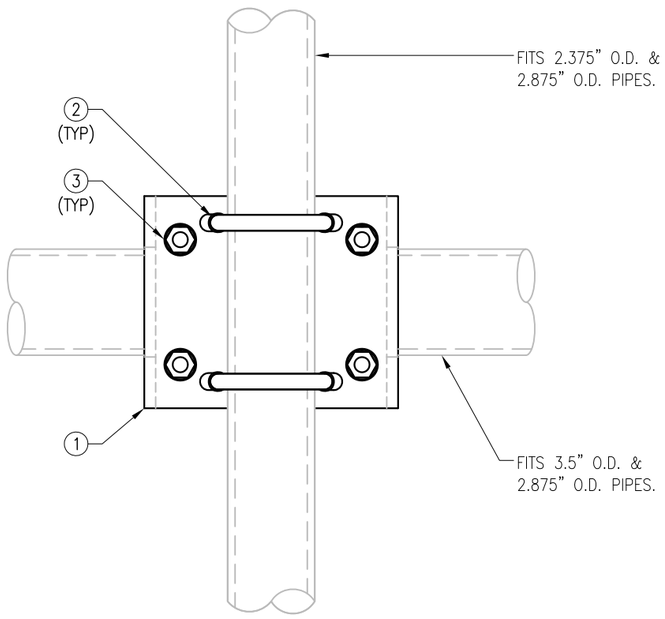
SHEET TITLE:
ANTENNA MOUNT PHOTOS

SHEET NUMBER: A-2
REV #: 0

THE FOLLOWING DRAWINGS ARE INCLUDED FOR REFERENCE ONLY
PLEASE REFER TO THE INSTALLATION DRAWINGS FOR ACTUAL INSTALLATION DETAILS



PLAN VIEW

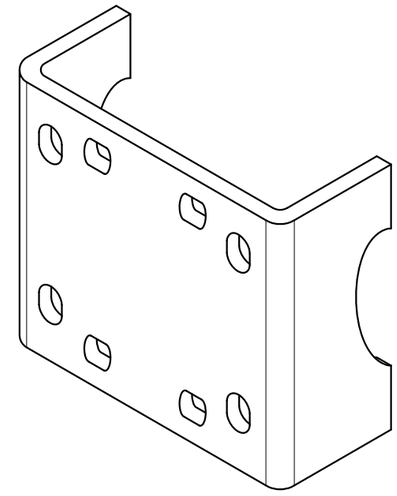


FRONT VIEW

NOTES:
1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. FITS UP TO 3.5" O.D HORIZONTAL PIPE AND 2.875" O.D. VERTICAL PIPE

MS-CHB350-2875

ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	1	CHB-714	PL 3/8" X 7" X 1'-2"	A36	CHB-1	10.6
2	2	MS02-500-300-500	RU-BOLT 1/2" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	A36	RBC-1	1.7
3	2	MS02-500-3625-600	RU-BOLT 1/2" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	A36	RBC-1	1.9
					GALVANIZED WT	14



ISOMETRIC VIEW

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH
STANDARD SHEET TOLERANCES
DECIMALS .X ± 0.1, .XX ± 0.02, .XXX ± 0.005
ANGLES ± 1°
FRACTIONS ± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/15/20
REVIEWED	XXX	-
APPROVED	XXX	-

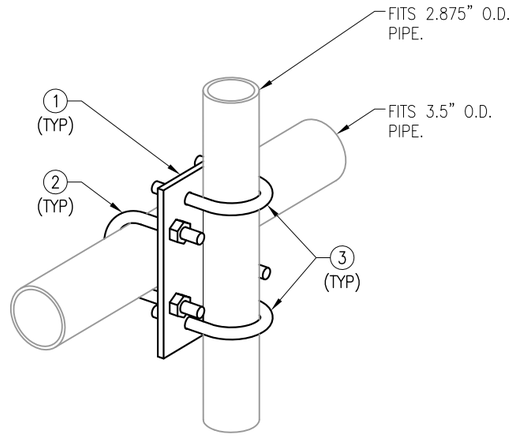
TITLE
MS-CHB350-2875
CROSSOVER CHANNEL BRACKET KIT

SIZE	DWG NO	REV
B	MS-CHB350-2875	0

SCALE -
SHEET 1 OF 1

NOTES:
1. 1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.

MS-HRCP-35-2875						
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	1	PL350-2875	PL 3/8" X 7 1/8" X 10"	A36	TAF-2	7.7
2	2	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	A36	RBC-1	1.5
3	2	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	A36	RBC-1	1.4
					GALVANIZED WT	11



MS-HRCP-35-2875

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

DECIMALS	ANGLES
.X ± 0.1	± 1°
.XX ± 0.02	FRACTIONS
.XXX ± 0.005	± 1/32

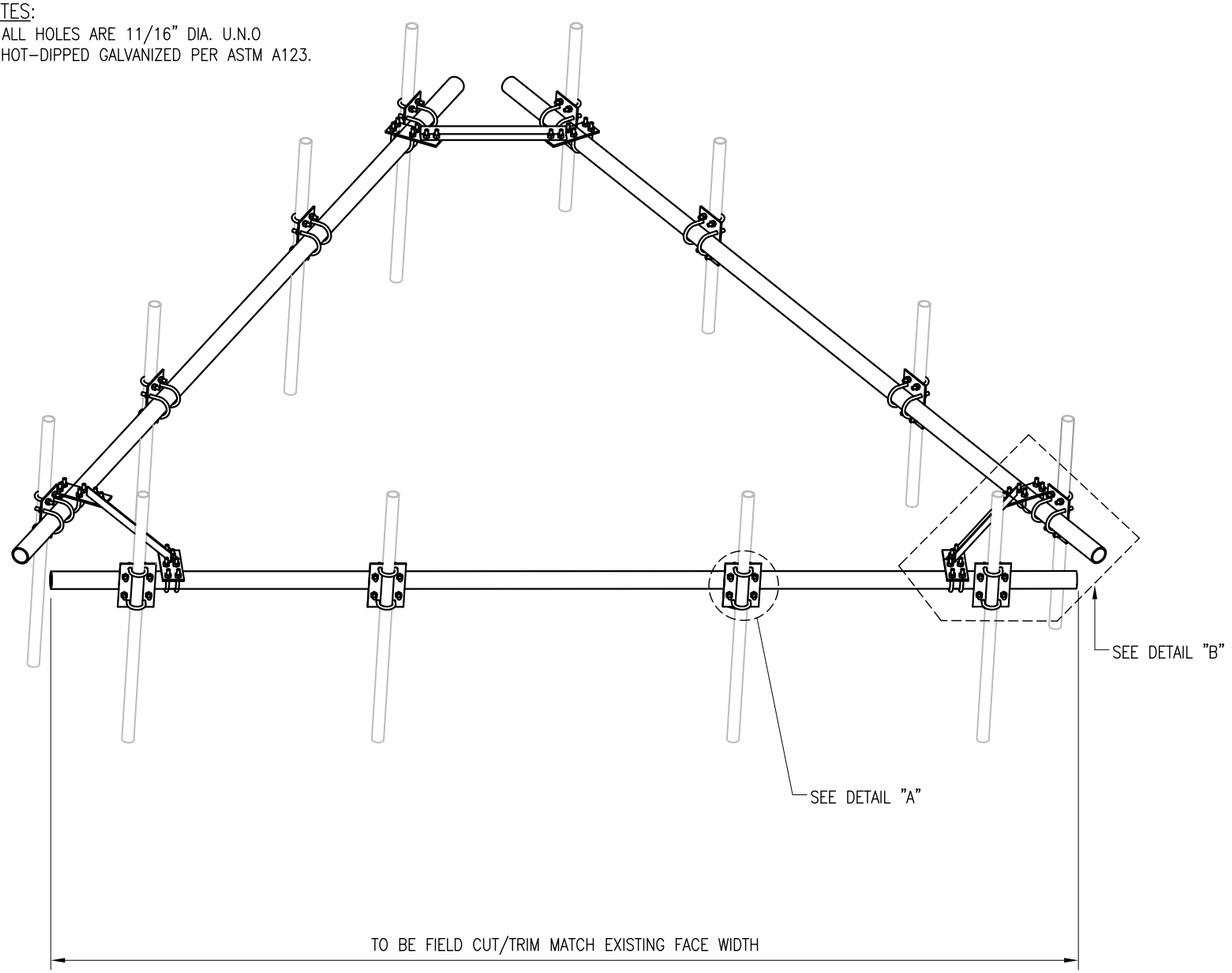
APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/12/17
REVIEWED	XXX	-
APPROVED	XXX	-

TITLE
MS-HRCP-35-2875
SUPPORT RAIL CENTER PIPE KIT

SIZE	DWG NO	REV
B	MS-HRCP-35-2875	0

SCALE - SHEET 1 OF 1

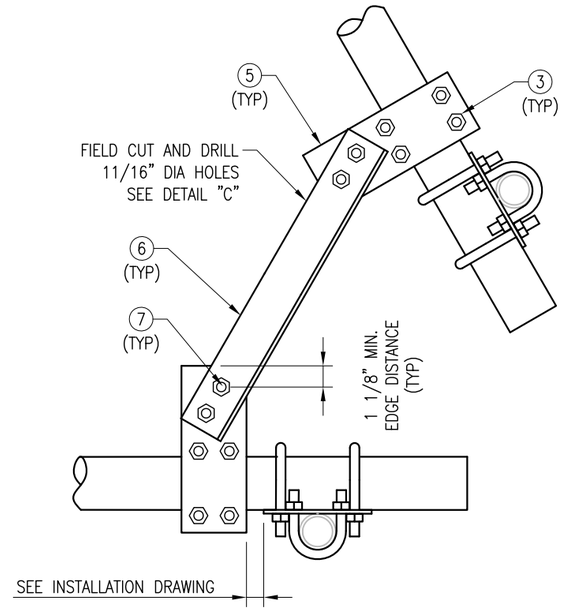
NOTES:
1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.



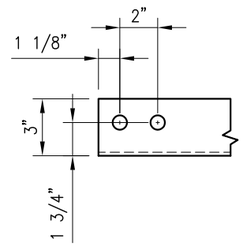
ELEVATION VIEW

MS-HRECP-35_18

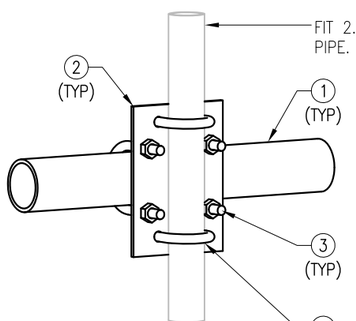
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	3	3PST-216	3" PST (3.50" O.D X .216" THICK) X 18'-0"	A53 GR-B	HR35-18	430.2
2	12	PL375-10	PL 3/8" X 7 1/8" X 10"	A36	TAF-1	92.4
3	36	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
4	24	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
5	6	PL375-11	PL 3/8" X 4 1/4" X 0'-11"	A36	TAF-1	30.2
6	3	AL-33C	L 3" X 3" X 1/4" X 3'-6"	A36	ECP-1	54.0
7	12	--	BOLT 5/8" X 2" A325 W/ HHN & LKW	A325	--	--
					GALVANIZED WT	607



DETAIL "B"



DETAIL "C"
11/16"ø HOLES FIELD DRILLED



DETAIL "A"

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

DECIMALS	ANGLES
.X ± 0.1	± 1°
.XX ± 0.02	FRACTIONS
.XXX ± 0.005	± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/12/17
REVIEWED	XXX	-
APPROVED	XXX	-

TITLE
MS-HRECP-35_18
SUPPORT RAIL WITH END
CONNECTION KIT

SIZE	DWG NO	REV
B	MS-HRECP-35_18	0

SCALE - SHEET 1 OF 1

EXHIBIT 10

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: CT11380C

SBA Avon/RT 177
10 Redwood Lane
Avon, Connecticut 06001

December 2, 2020

EBI Project Number: 6220006075

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**37.06%**

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

December 2, 2020

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

Emissions Analysis for Site: CT11380C - SBA Avon/RT 177

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **10 Redwood Lane** in **Avon, 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 10 Redwood Lane in Avon, 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) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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

5) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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

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

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

10) 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.

11) 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.

12) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 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.

13) The antenna mounting height centerline of the proposed antennas is 110 feet above ground level (AGL).

14) 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.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	110 feet	Height (AGL):	110 feet	Height (AGL):	110 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,841.53	ERP (W):	12,841.53	ERP (W):	12,841.53
Antenna A1 MPE %:	**3.82%**	Antenna B1 MPE %:	**3.82%**	Antenna C1 MPE %:	**3.82%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd
Height (AGL):	110 feet	Height (AGL):	110 feet	Height (AGL):	110 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	11,055.53	ERP (W):	11,055.53	ERP (W):	11,055.53
Antenna A2 MPE %:	**4.96%**	Antenna B2 MPE %:	**4.96%**	Antenna C2 MPE %:	**4.96%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	110 feet	Height (AGL):	110 feet	Height (AGL):	110 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	38,477.89	ERP (W):	38,477.89	ERP (W):	38,477.89
Antenna A3 MPE %:	**11.43%**	Antenna B3 MPE %:	**11.43%**	Antenna C3 MPE %:	**11.43%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	20.20%
AT&T	12.94%
Metro PCS	2.41%
Clearwire	0.26%
Sprint	0.05%
Farm. Woods	1.2%
Site Total MPE % :	37.06%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	20.20%
T-Mobile Sector B Total:	20.20%
T-Mobile Sector C Total:	20.20%
Site Total MPE % :	37.06%

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	1028.30	110.0	12.22	1900 MHz GSM	1000	1.22%
T-Mobile 1900 MHz LTE	2	2056.61	110.0	12.22	1900 MHz LTE	1000	1.22%
T-Mobile 2100 MHz LTE	2	2307.55	110.0	13.71	2100 MHz LTE	1000	1.37%
T-Mobile 600 MHz LTE	2	591.73	110.0	3.52	600 MHz LTE	400	0.88%
T-Mobile 600 MHz NR	1	1577.94	110.0	4.69	600 MHz NR	400	1.17%
T-Mobile 700 MHz LTE	2	648.82	110.0	3.86	700 MHz LTE	467	0.83%
T-Mobile 1900 MHz LTE	2	2203.69	110.0	13.10	1900 MHz LTE	1000	1.31%
T-Mobile 2100 MHz UMTS	2	1294.56	110.0	7.69	2100 MHz UMTS	1000	0.77%
T-Mobile 2500 MHz LTE	1	19238.94	110.0	57.16	2500 MHz LTE	1000	5.72%
T-Mobile 2500 MHz NR	1	19238.94	110.0	57.16	2500 MHz NR	1000	5.72%
						Total:	**20.20%**

• 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:	20.20%
Sector B:	20.20%
Sector C:	20.20%
T-Mobile Maximum MPE % (Sector A):	20.20%
Site Total:	37.06%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **37.06%** 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.