Filed by:
Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbasite.com

July 19, 2019

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

RE: Notice of Exempt Modification
58A Montano Road, Glastonbury, CT 06033
Latitude: 41.699444
Longitude: -72.564000
T-Mobile Site #: CTHA083C_L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 117-foot level of the existing 119-foot Monopole Tower at 58A Montano Road, Glastonbury, CT. The 119-foot tower is owned by SBA Towers, II LLC. The property is owned by Rose Marie Shaw. T-Mobile now intends to replace (6) six antennas with (6) new 600/700/1900/2100 MHz antennas. The new antennas would be installed at the 115/117-foot level of the tower.

Planned Modifications:

TOWER

Remove:
- (3) 1-5/8" lines

Remove and Replace:
- (3) Ericsson - AIR 21 B4A/B2P – Panel (Remove) -- Ericsson Air32 KRD901146-1_B66A_B2A 1900/2100 MHz (Replace)
- (3) Commscope - LNX-6515DS-A1M – Panel (Remove) – RFS APXVAARR24_43-U-NA20 600/700 MHz (Replace at 115-feet)
- (3) Ericsson - S11B12 – RRU (Remove) -- Ericsson Radio 4449 B71+B12 (Replace)

Install New:
- (3) 1-5/8" fiber

Existing Equipment to Remain (including Entitlements):
- (3) Ericsson - AIR 21 B2A/B4P 1900/2100 MHz antennas
- (3) Ericsson - KRY 112 144/1 – TMA
- (1) Low profile platform
- (9) 1-5/8" lines
- (1) 1-5/8" fiber

GROUND

Install New:

- Equipment (BB6630) inside existing 6131 cabinet

This facility was approved by the Council on September 11, 2008. Approval was given for a monopole not to exceed a height of 120 feet above ground level. It was to be designed and constructed to include a yield point at the height of 82 feet above ground level. An RF report was to be provided when site power density levels changed. Upon the establishment of any new state or federal RF standards applicable to the facility, the facility was to be brought into compliance with same. Public or private entities were to be allowed shared space for fair consideration or to be provided reasons precluding same. The Town of Glastonbury public safety services was to be provided reasonable space for no compensation provided such use could be accommodated and was compatible with the structural integrity of the tower. And any non-functioning antennas or associated equipment was to be removed within 60 days. 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 Glastonbury's Town Manager, Richard J. Johnson, and Zoning Enforcement Officer, Peter R. Carey, as well as to the property owner. (Separate notice is not being sent to 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,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T / 508.366.2610 + F
kpelletier@sbasite.com

Attachments

cc: Richard J. Johnson, Town Manager / with attachments
Town of Glastonbury, Town Hall, 2155 Main Street, Glastonbury, CT 06033
Peter R. Carey, Zoning Enforcement Officer / with attachments
Town of Glastonbury, Town Hall, 2155 Main Street, Glastonbury, CT 06033
Rose Marie Shaw / with attachments
58 Montano Road, Glastonbury, CT 06033

EXHIBIT LIST

Exhibit 1	Check Copy	
Exhibit 2	Notification Receipts	
Exhibit 3	Property Card	
Exhibit 4	Property Map	
Exhibit 5	Original Zoning Approval	CSC Docket 359
Exhibit 6	Construction Drawings	Chappell Engineering dated 7/17/19
Exhibit 7	Structural Analysis	TES dated 6/19/19
Exhibit 8	Mount Analysis	TES dated 6/7/19
Exhibit 9	EME Report	Transcom dated 6/10/19

EXHIBIT 1

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

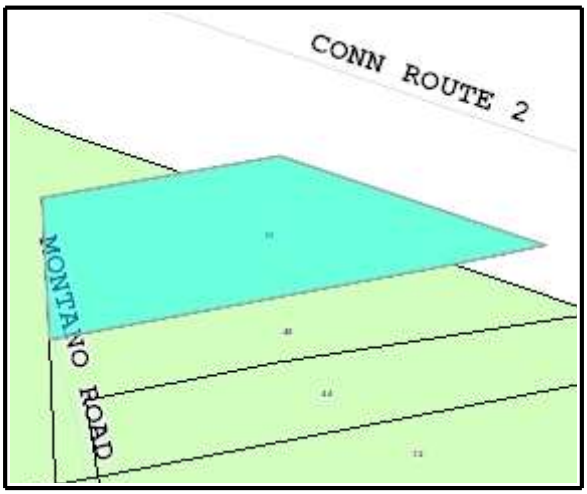
Town of Glastonbury GIS Parcel Report

Report Generated 6/18/2019 2:34:36 PM

Owner of Record

GIS ID: 44800058
Owner: SHAW ROSE MARIE
Co-Owner:
Address: 58 MONTANO RD
City, State ZIP: GLASTONBURY, CT 06033-3324

Account Number: 44800058
Property Address: 58 MONTANO RD



Property highlighted in blue

Parcel Information

Map/Street/Lot G7 / 4480 / S0021 **Property ID:** 8132
Developer Lot ID: **Water:** Well
Parcel Acreage: 1.30 **Sewer:** Sewer Nbrhd
Zoning Code: AA **Census:** 5204

Valuation Summary

Item	Appraised Value	Assessed Value
Buildings	60300	42200
Land	402500	281800
Appurtenances	5800	4100
Total	**468600**	**328100**

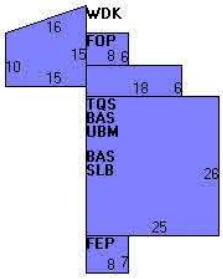
Owner of Record	Deed / Page	Sale Date	Sale Price
SHAW ROSE MARIE	1946/0211	10/07/2003	0
SHAW WILLIAM R+ROSE MARIE	0147/0396	07/01/1966	4500

Building Information

Building ID 8132

Year Constructed : 1931
Building Type : Residential
Style : Cape
Occupany : Single Family
Stories : 1.5
Building Zone : AA
Roof Type : Gable
Roof Material : Asphalt Shingl
Est. Gross S.F. : 2458
Est. Living S.F. : 1278

Number of Rooms : 7
Number of Bedrooms : 03
Number of Bathrooms : 1
Number of Half-Baths : 0
Exterior Wall : Wood Shingles
Interior Wall : Plaster
Interior Floor : Hardwood
Interior Floor #2 : No entry
Air Conditioning Type : None
Heat Type : Forced Air
Fuel Type : Oil

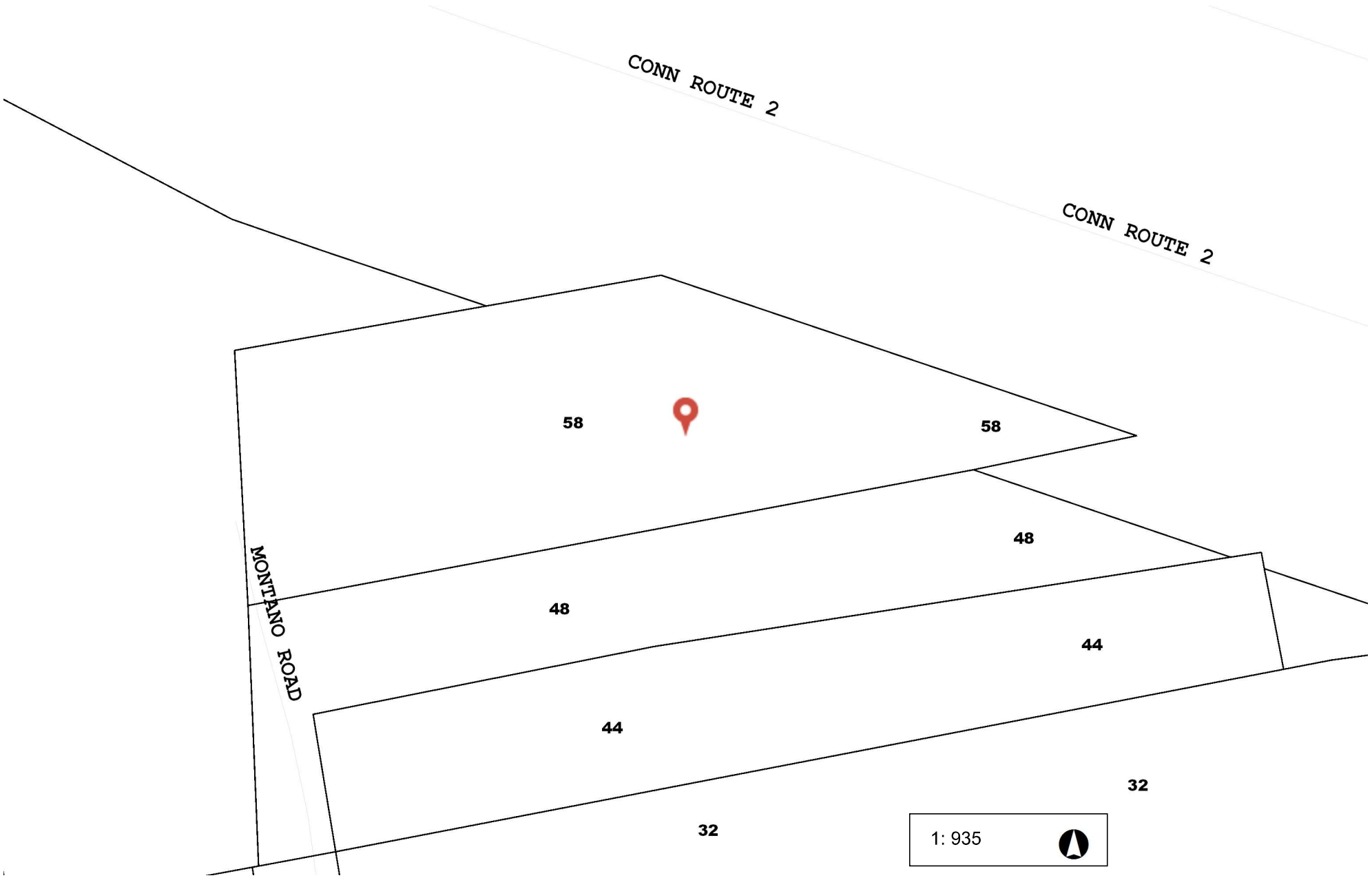


Subarea Type	Est. Gross S.F.	Est. Living S.F.
First Floor	758	758
Porch, Enclosed	56	0
Porch, Open	48	0
Slab	108	0
Three Quarter Story	650	520
Basement	650	0
Wood Deck	188	0

Outbuilding Type	Est. Gross S.F.	Comments
Garage	576.00	
Shed-Wood/Comp	120.00	
Shed-Wood/Comp	192.00	

EXHIBIT 4

Town of Glastonbury GIS



156 0 78 156 Feet

NAD_1983_StatePlane_Connecticut_FIPS_0600_Feet

This map is a user generated static output from an Internet mapping site and is for reference only.
Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

EXHIBIT 5

DOCKET NO. 359 - Optasite Towers LLC and Omnipoint Communications, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 58 Montano Road or 618 Neipsic Road, Glastonbury, Connecticut.	}	Connecticut
	}	Siting
	}	Council

September 11, 2008

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Optasite Towers LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 58 Montano Road (Site A), Glastonbury, Connecticut. The Council denies certification of the proposed Site B at 618 Neipsic Road, Glastonbury, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Omnipoint Communications, Inc. and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level. The tower shall be designed and constructed to include a yield point at the height of 82 feet above ground level.

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

    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and

    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

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

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

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

6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Glastonbury public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Glastonbury. Any proposed modifications to this Decision and Order shall likewise be so served.

9. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

10. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Hartford Courant and the Manchester Journal-Inquirer.

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

The parties and intervenors to this proceeding are:

APPLICANT	**ITS REPRESENTATIVE**
Optasite Towers LLC One Research Drive, Suite 200C Westborough, MA 01581	Carrie L. Larson, Esq. Pullman and Comley, LLC 90 State House Square Hartford, CT 06103
Omnipoint Communications, Inc. 35 Griffin Road South Bloomfield, CT 06002-1351	Julie Kohler, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604

PARTY	**ITS REPRESENTATIVE**
Town of Glastonbury P.O. Box 6523 Glastonbury, CT 06033	Richard J. Johnson Town Manager Town of Glastonbury P.O. Box 6523 Glastonbury, CT 06033

PARTY	**ITS REPRESENTATIVE**
Imtiaz N. Wahla 461 Wickham Road Glastonbury, CT 06033	Sarosh N. Wahla, Esq. Wahla & Associates, P.C. 429 Capitol Avenue Hartford, CT 06106

INTERVENOR	**ITS REPRESENTATIVE**
Karl Wagener 588 Neipsic Road Glastonbury, CT 06033	Eric Knapp Branse, Willis & Knapp, LLC 148 Eastern Boulevard, Suite 301 Glastonbury, CT 06033-6523

EXHIBIT 6

HA083/ OPTA-MONTANO RD_FT

58A MONTANO ROAD
GLASTONBURY, CT 06033
HARTFORD COUNTY

SITE NO.: CTHA083C

SITE TYPE: 119'± MONOPOLE

RF DESIGN GUIDELINE: 67D92DB

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.

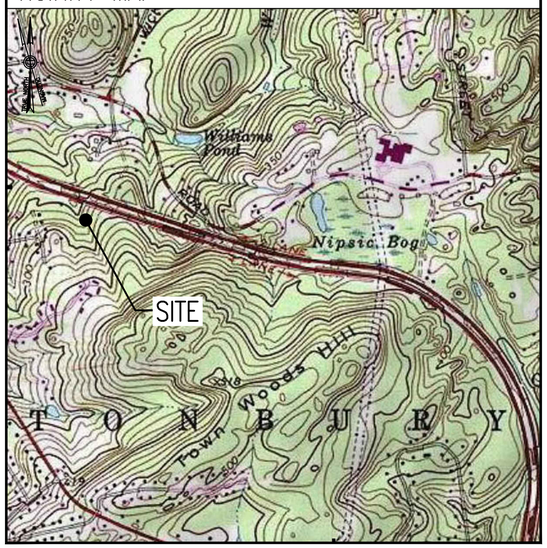
GENERAL NOTES

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

VICINITY MAP

SCALE: 1" = 1000'-0"



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.

SHEET INDEX

SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLAN	1
A-2	TOWER ELEVATIONS & ANTENNA PLAN	1
A-3	SITE DETAILS	1
E-1	ELECTRIC & GROUNDING DETAILS	1

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).

PROJECT SUMMARY

SITE NUMBER:	CTHA083C
SBA SITE NUMBER:	CT13555-S
SBA SITE NAME:	MONTANO
SITE ADDRESS:	58A MONTANO ROAD GLASTONBURY, CT 06033
PROPERTY OWNER:	SHAW ROSE MARIE 58 MONTANO ROAD GLASTONBURY, CT 06033
TOWER OWNER:	SBA TOWERS II, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	HARTFORD COUNTY
ZONING DISTRICT:	RR, RURAL RESIDENCE
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	119'
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: N.41.699439° (41°-41'-57.98") LONGITUDE W.-72.564000° (72°-33'-50.40")

T-MOBILE NORTHEAST LLC
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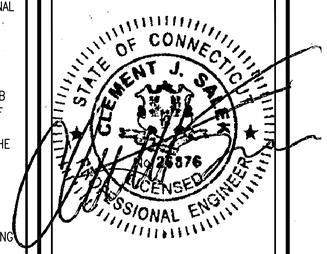

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/17/19	ISSUED FOR CONSTRUCTION	CMC
0	06/17/19	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CTHA083C

SITE ADDRESS:
58A MONTANO ROAD
GLASTONBURY, CT 06033

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.106

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 FAMILIARIZE 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 ⅜" 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.

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STATE OF CONNECTICUT
CLEMENT J. GAUTHIER
No. 26876
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/17/19	ISSUED FOR CONSTRUCTION	CMC
0	06/17/19	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CTHA083C

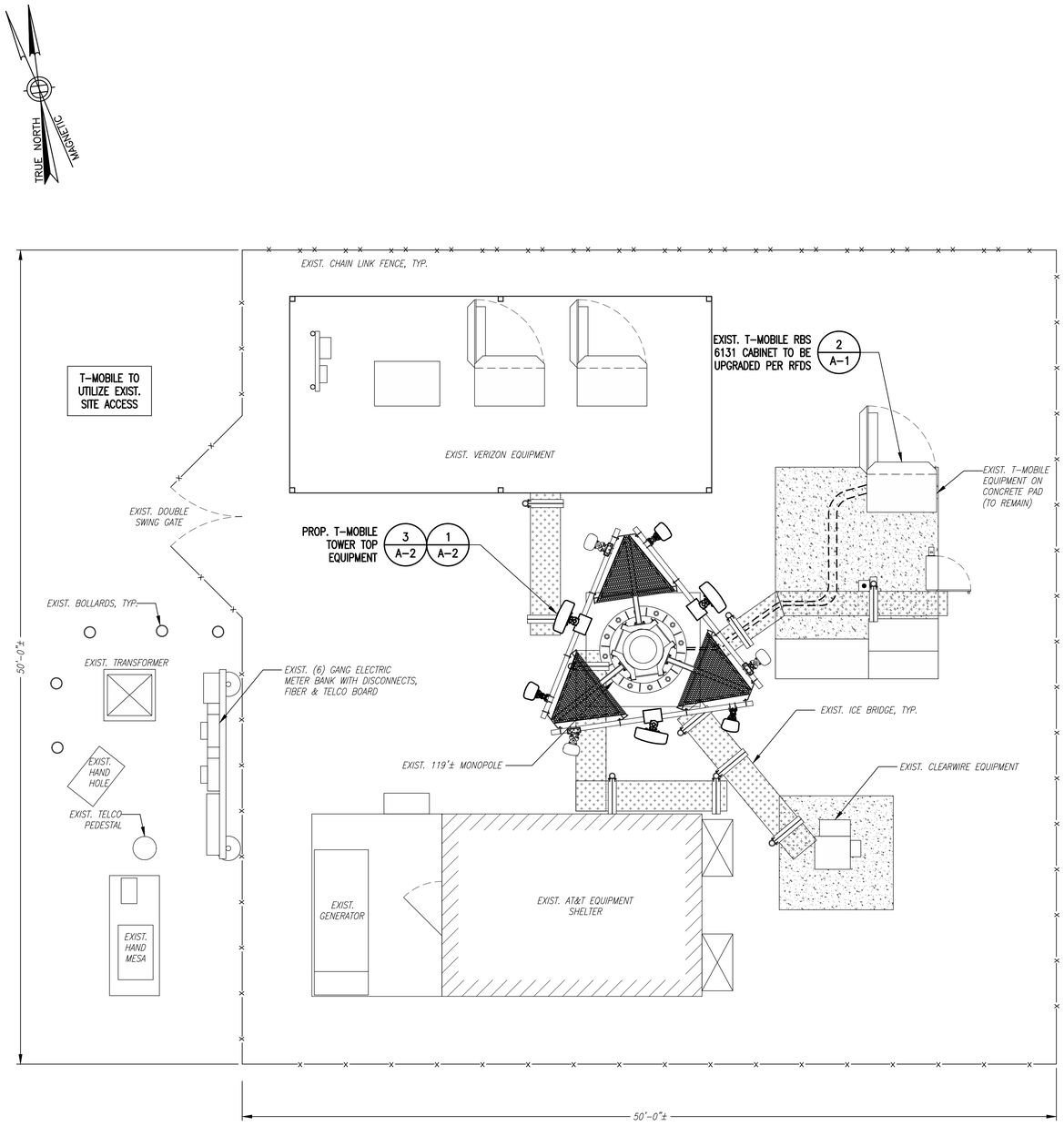
SITE ADDRESS:
58A MONTANO ROAD
GLASTONBURY, CT 06033

SHEET TITLE
GENERAL NOTES

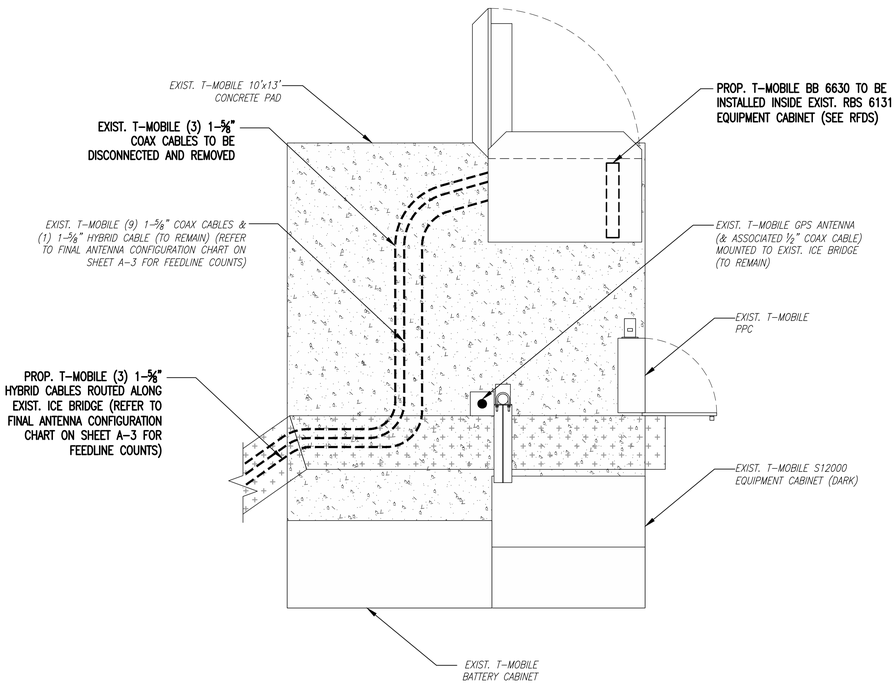
SHEET NUMBER
GN-1

1815.106

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 1 A-1
SCALE: 1" = 4'-0"
0 4'-0" 8'-0" 16'-0"



PROPOSED EQUIPMENT PLAN 2 A-1
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"

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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/17/19	ISSUED FOR CONSTRUCTION	CMC
0	06/17/19	ISSUED FOR REVIEW	BDJ

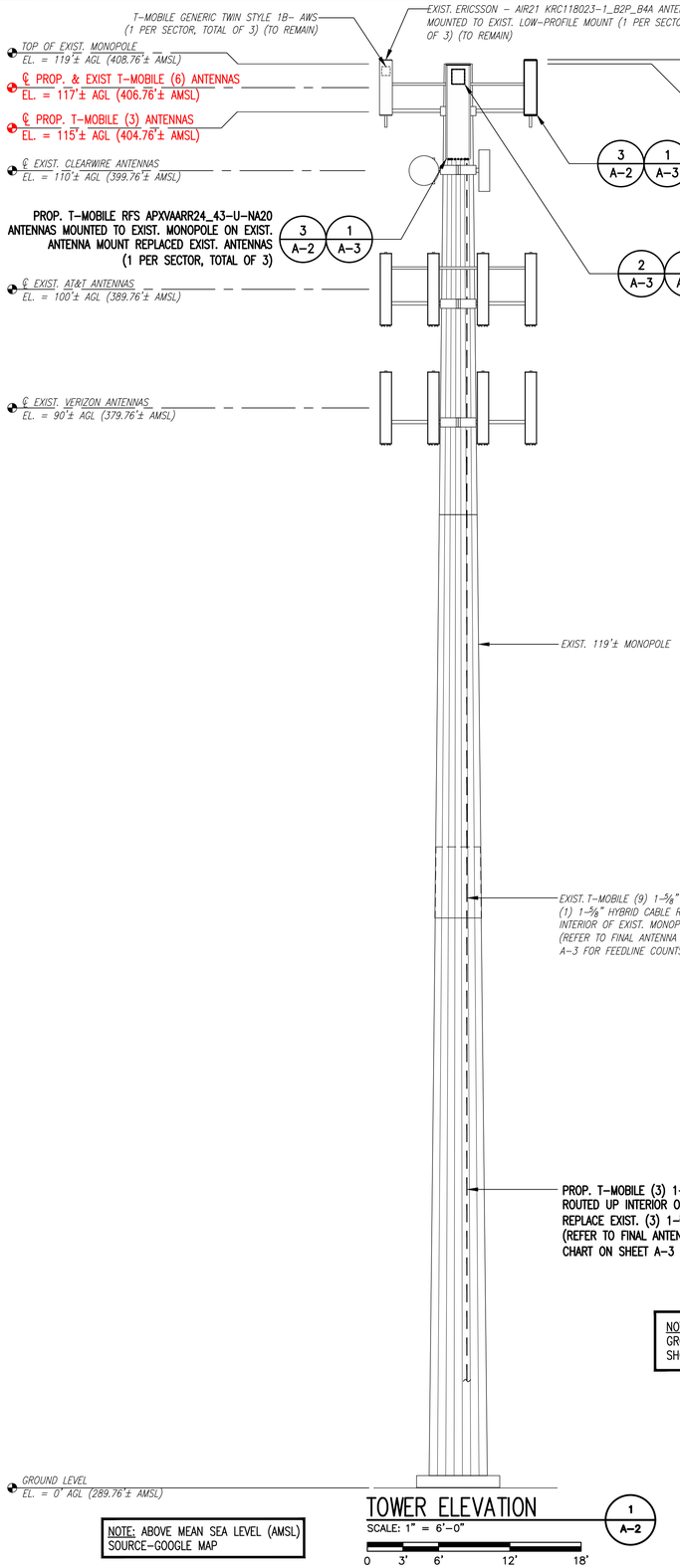
SITE NUMBER:
CTHA083C

SITE ADDRESS:
58A MONTANO ROAD
GLASTONBURY, CT 06033

SHEET TITLE
COMPOUND & EQUIPMENT PLAN

SHEET NUMBER
A-1

1815.106



NOTE: ABOVE MEAN SEA LEVEL (AMSL) SOURCE-GOOGLE MAP

NOTE: GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION

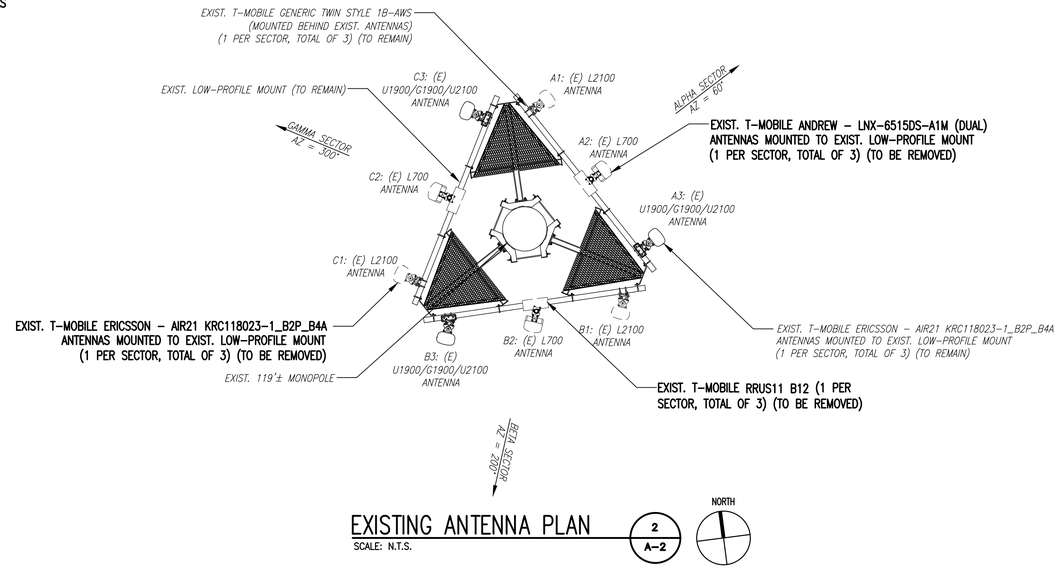
1 A-2

SCALE: 1" = 6'-0"

0 3' 6' 12' 18'

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.

RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

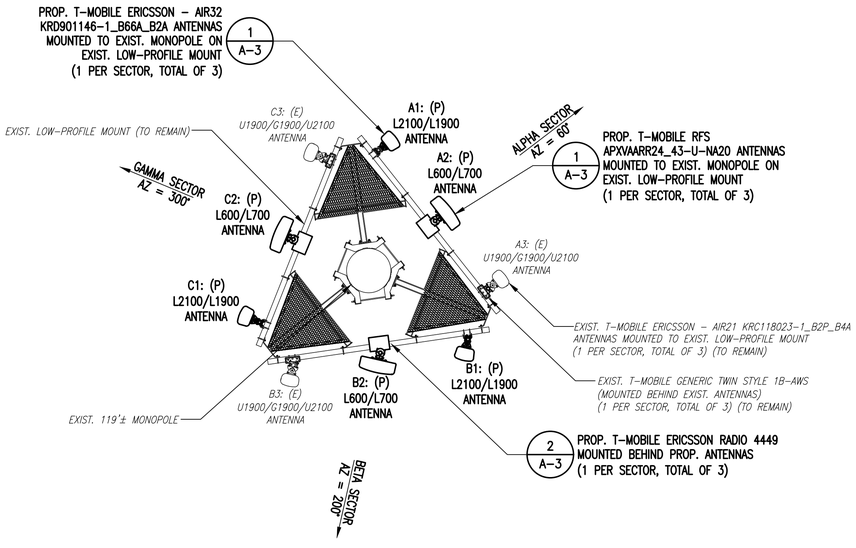


EXISTING ANTENNA PLAN

2 A-2

SCALE: N.T.S.

NORTH



PROPOSED ANTENNA PLAN

3 A-2

SCALE: N.T.S.

NORTH

ANTENNA LEGEND:

EMPTY – EMPTY PIPE

(E) – EXISTING

(P) – INSTALL

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

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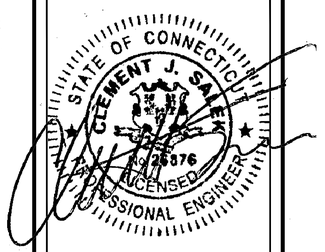

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TOWER ELEVATIONS & ANTENNA PLAN

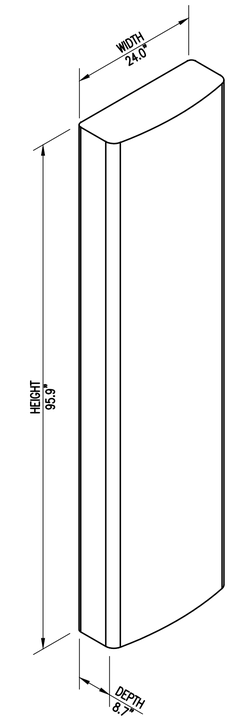
SHEET NUMBER
A-2

1815.106

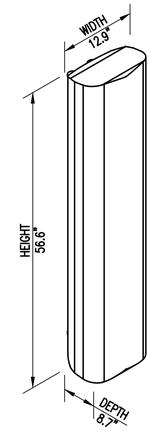
FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	ERICSSON AIR32 KRD901146-1_B66A_B2A	117'± AGL	60°	0°	2°	L2100/L1900	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
	RFS APXVAARR24_43-U-NA20	115'± AGL	60°	0°	2°	L600/L700	ERICSSON RADIO 4449 B71+B12	(1) 1-5/8" HYBRID CABLE
	ERICSSON – AIR21 KRC118023-1_B2A_B4P	*117'± AGL*	*60°*	*2°*	*2°*	*G1900*	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
						U2100	*GENERIC TWIN STYLE 1B – AWS*	*(2) 1-5/8" COAX CABLES*
BETA	ERICSSON AIR32 KRD901146-1_B66A_B2A	117'± AGL	200°	0°	2°	L2100/L1900	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
	RFS APXVAARR24_43-U-NA20	115'± AGL	200°	0°	2°	L600/L700	ERICSSON RADIO 4449 B71+B12	(1) 1-5/8" HYBRID CABLE
	ERICSSON – AIR21 KRC118023-1_B2A_B4P	*117'± AGL*	*200°*	*2°*	*2°*	*G1900*	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
						U2100	*GENERIC TWIN STYLE 1B – AWS*	*(2) 1-5/8" COAX CABLES*
GAMMA	ERICSSON AIR32 KRD901146-1_B66A_B2A	117'± AGL	300°	0°	2°	L2100/L1900	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
	RFS APXVAARR24_43-U-NA20	115'± AGL	300°	0°	2°	L600/L700	ERICSSON RADIO 4449 B71+B12	(1) 1-5/8" HYBRID CABLE
	ERICSSON – AIR21 KRC118023-1_B2A_B4P	*117'± AGL*	*300°*	*2°*	*2°*	*G1900*	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
						U2100	*GENERIC TWIN STYLE 1B – AWS*	*(2) 1-5/8" COAX CABLES*

NOTE: EXIST. (3) 1-5/8" COAX CABLES TO BE REMOVED & (3) 1-5/8" COAX CABLES TO REMAIN DISCONNECTED.



RFS APXVAARR24_43-U-NA20 PANEL ANTENNA
DIMENSIONS: 95.9"H x 24.0"W x 8.7"D
WEIGHT: 128.0 LBS
1 PER SECTOR, TOTAL OF 3



ERICSSON AIR32 KRD901146-1 B66A/B2A ANTENNA
DIMENSIONS: 56.6"H x 12.9"W x 8.7"D
WEIGHT: 132.2 LBS
1 PER SECTOR, TOTAL OF 3

ANTENNA DETAILS (1 / A-3)
SCALE: N.T.S.

ERICSSON RADIO 4449 B12+B71
DIMENSIONS: 14.9"H x 13.2"W x 9.3"D
WEIGHT: 74.0 LBS
1 PER SECTOR, TOTAL OF 3

RRU DETAIL (2 / A-3)
SCALE: N.T.S.

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STATE OF CONNECTICUT
CLEMENT J. GAMACHE
No. 26876
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

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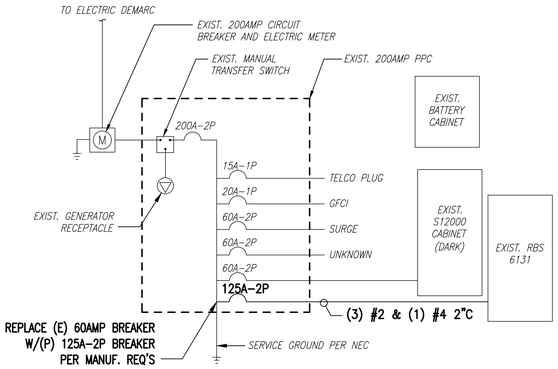
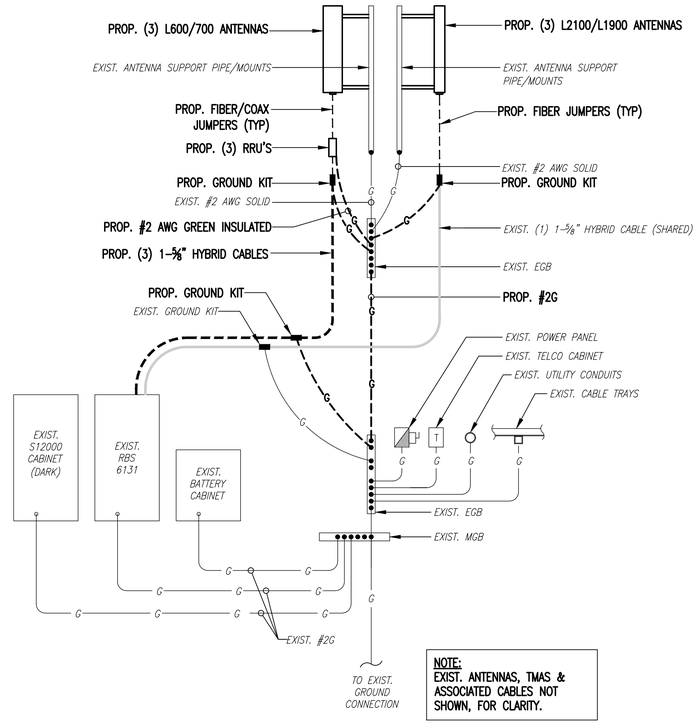
SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

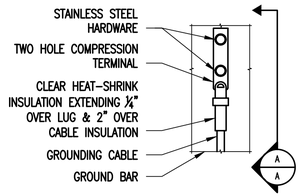
1815.106



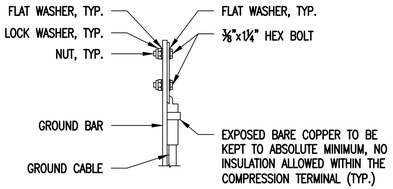
ONE LINE DIAGRAM (1 / E-1)
SCALE: NOT TO SCALE



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



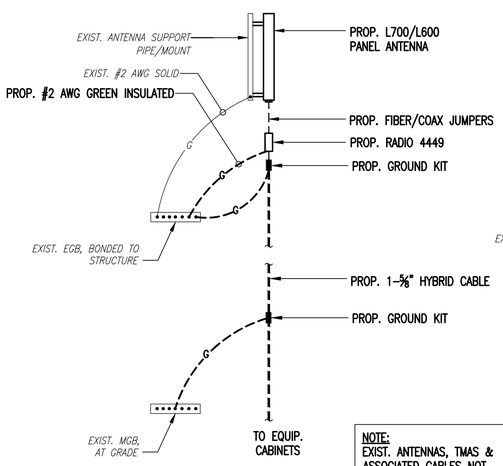
ELEVATION



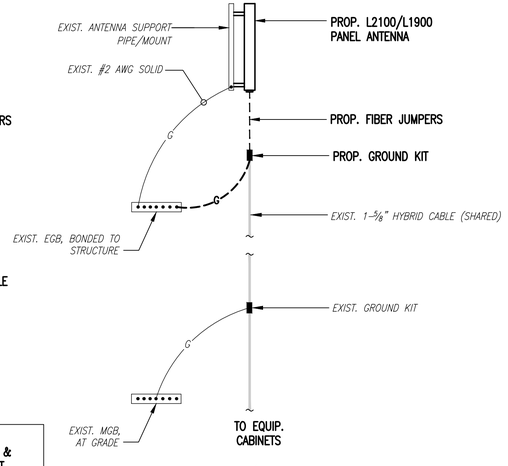
SECTION A-A

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.

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

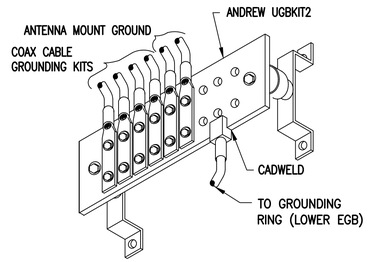


L700/L600



L1900/L2100

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



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

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 EXIST. 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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ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.106

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 119 ft SABRE Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT13555-S
Customer Site Name: Montano
Carrier Name: T-Mobile (App#: 117037, v1)
Carrier Site ID / Name: CTHA083C / Montano
Site Location: 58A Montano Road
Glastonbury, Connecticut
Hartford County
Latitude: 41.699444
Longitude: -72.564000

6/19/19

Analysis Result:

Max Structural Usage: 35.3% [Pass]
Max Foundation Usage: 34.0% [Pass]
Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Vishnu Paidimarri

Introduction

The purpose of this report is to summarize the analysis results on the 119 ft SABRE 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	Tower Drawing prepared by Sabre, Job #09-11137 dated 11/19/08
Foundation Drawing	Foundation Drawing prepared by Sabre, Job #09-11137 dated 11/19/08
Geotechnical Report	Geotechnical Report prepared by TES, Project #082695.01 dated 10/27/08
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** 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} = 125.0 mph (3-Sec. Gust) Nominal Design Wind Speed V_{asd} = 97.0 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:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.18, S_1 = 0.063

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
-	117.0	3	Ericsson - S11B12 - RRU	Low Profile Platform	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
-		3	Commscope - LNX-6515DS-A1M - Panel			
-		3	Ericsson - AIR 21 B2A/B4P - Panel			
-		3	Ericsson - AIR 21 B4A/B2P - Panel			
-		3	Ericsson - KRY 112 144/1 - TMA			
6	110.0	2	Andrew - VHLP2-18 - Dish	(3) dual sector mounts	(2) 1/2" (3) 1.619" Hybrid	Sprint Nextel
7		3	Nokia - AAHC - Panel			
8	100.0	3	ALU IBC700-1 – Filter	Platform w/ Hand Rail and kickers	(2) 1/2" Fiber (8) 3/4" DC (3) 3/8" RET	AT&T
9		12	CCI - HPA-65R-BUU-H8 - Panel			
10		12	Ericsson - RRU-11			
11		6	Ericsson - RRU-12			
12		6	Ericsson - RRUS-A2 Module			
13		3	Ericsson - RRU-32			
14		4	Raycap DC6-48-60-18-8F			
15	90.0	6	Andrew - LNX-6514DS-A1M - Panel	Low Profile Platform	(2) 1 5/8" Hybrid Cable	Verizon
16		6	Andrew - HBXX-6517DS-A2M - Panel			
17		3	ALU RRH2X60-AWS - RRH			
18		3	ALU RRH2x60-PCS - RRH			
19		3	ALU B13 RRH4x30 - RRH			
20		2	RFS DB-T1-6Z-8AB-0Z			

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
1	117.0	3	Ericsson Air 21 B2A/B4P	Low Profile Platform	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
2		3	Ericsson Air32 KRD901146-1_B66A_B2A			
3		3	Ericsson KRY 112 144/1			
4		3	Ericsson Radio 4449 B71+B12			
5	115.0	3	RFS APXVAARR24_43-U-NA20			

See the attached coax layout for the line placement considered in the analysis.

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	Flange Bolts	Flange Plate
Max. Usage:	**36.0%**	**34.3%**	**26.8%**	**21.4%**	**14.3%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	5405.0	52.8
Analysis Reactions	2269.2	25.9
Factored Reactions*	7296.8	71.3
% of Design Reactions	31.1%	36.3%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been analyzed using the supplied documents and was found adequate. Therefore, no modification to the foundation will be required. Geotechnical soil parameters were obtained from the original foundation calculations included with the referenced tower and foundation design drawings.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.4055 degrees under the operational wind speed as specified in the Analysis Criteria.

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 ANSI/TIA/EIA 222-G 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 EIA/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.

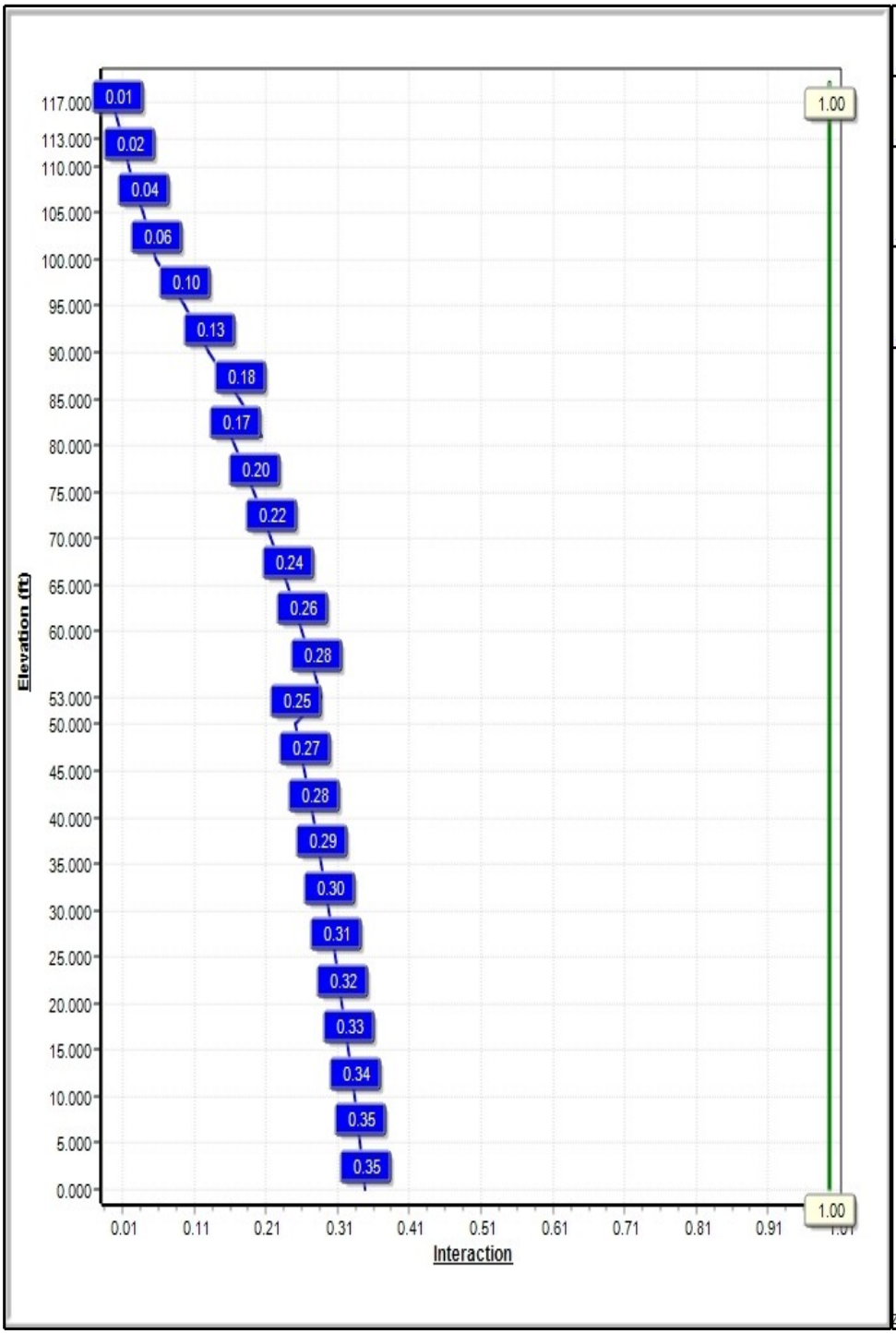
Usage Diagram - Max Ratio 35.26% at 0.0ft

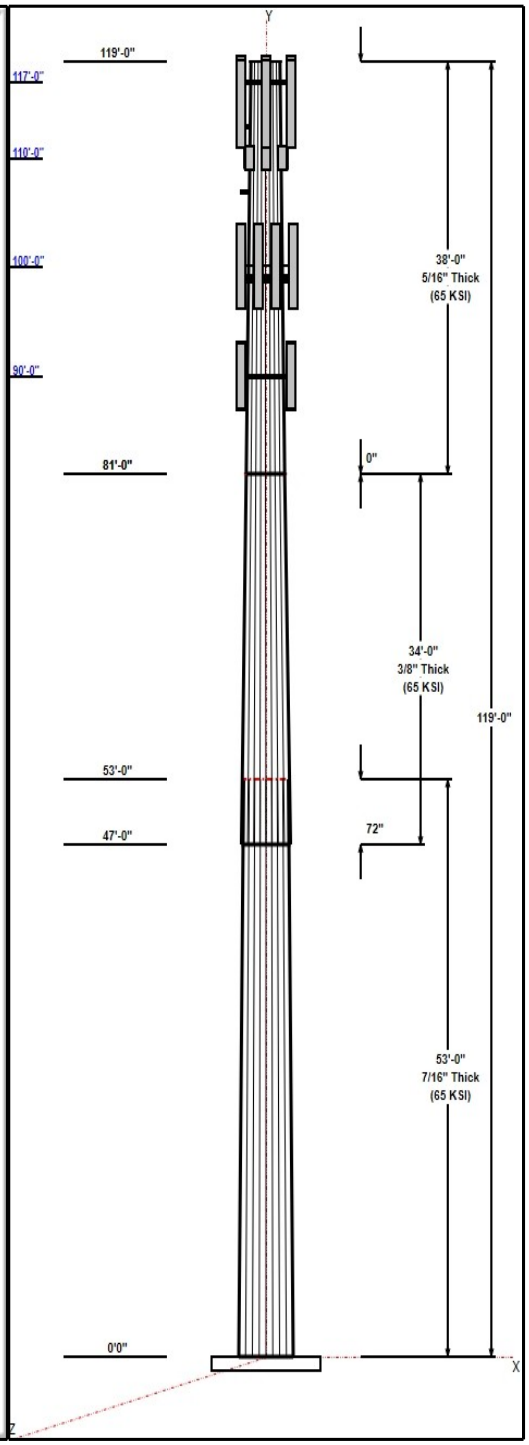
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	18
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 97 mph Wind





Structure: CT13555-S-SBA

Type: Tapered
Site Name: Montano
Height: 119.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.26403

6/19/2019

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.00	44.82	58.81	0.438		0.26403	65
2	34.00	38.17	47.15	0.375	Slip	0.26403	65
3	38.00	28.14	38.17	0.313	Butt	0.26403	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
119.00	119.00	1	6' Lightning rod	
117.00	117.00	3	Air32	T-Mobile
117.00	115.00	3	RFS	T-Mobile
117.00	117.00	3	Radio 4449 B71+B12	T-Mobile
117.00	117.00	3	AIR 21 B2A B4P	T-Mobile
117.00	117.00	3	KRY 112 144/1	T-Mobile
117.00	117.00	1	Low Profile	T-Mobile
113.00	113.00	1	3 ft Standoff	Sprint Nextel
110.00	110.00	3	AAHC	Sprint Nextel
110.00	110.00	3	dual sector mounts	Sprint Nextel
110.00	110.00	2	VHLP2-18	Sprint Nextel
107.00	107.00	1	Ring Mount	Sprint Nextel
100.00	100.00	12	HPA-65R-BUU-H8	AT&T
100.00	100.00	12	RRU-11	AT&T
100.00	100.00	6	RRU-12	AT&T
100.00	100.00	6	RRUS-A2	AT&T
100.00	100.00	3	RRU-32	AT&T
100.00	100.00	4	DC6-48-60-18-8F	AT&T
100.00	100.00	1	Platform w/ Hand Rail	AT&T
100.00	100.00	3	IBC700-1	AT&T
90.00	90.00	6	LNX-6514DS-A1M	Verizon
90.00	90.00	6	HBXX-6517DS-A2M	Verizon
90.00	90.00	3	RRH2X60-AWS	Verizon
90.00	90.00	3	RRH2x60-PCS	Verizon
90.00	90.00	3	B13 RRH4x30	Verizon
90.00	90.00	2	DB-T1-6Z-8AB-0Z	Verizon
90.00	90.00	1	Low Profile Platform	Verizon

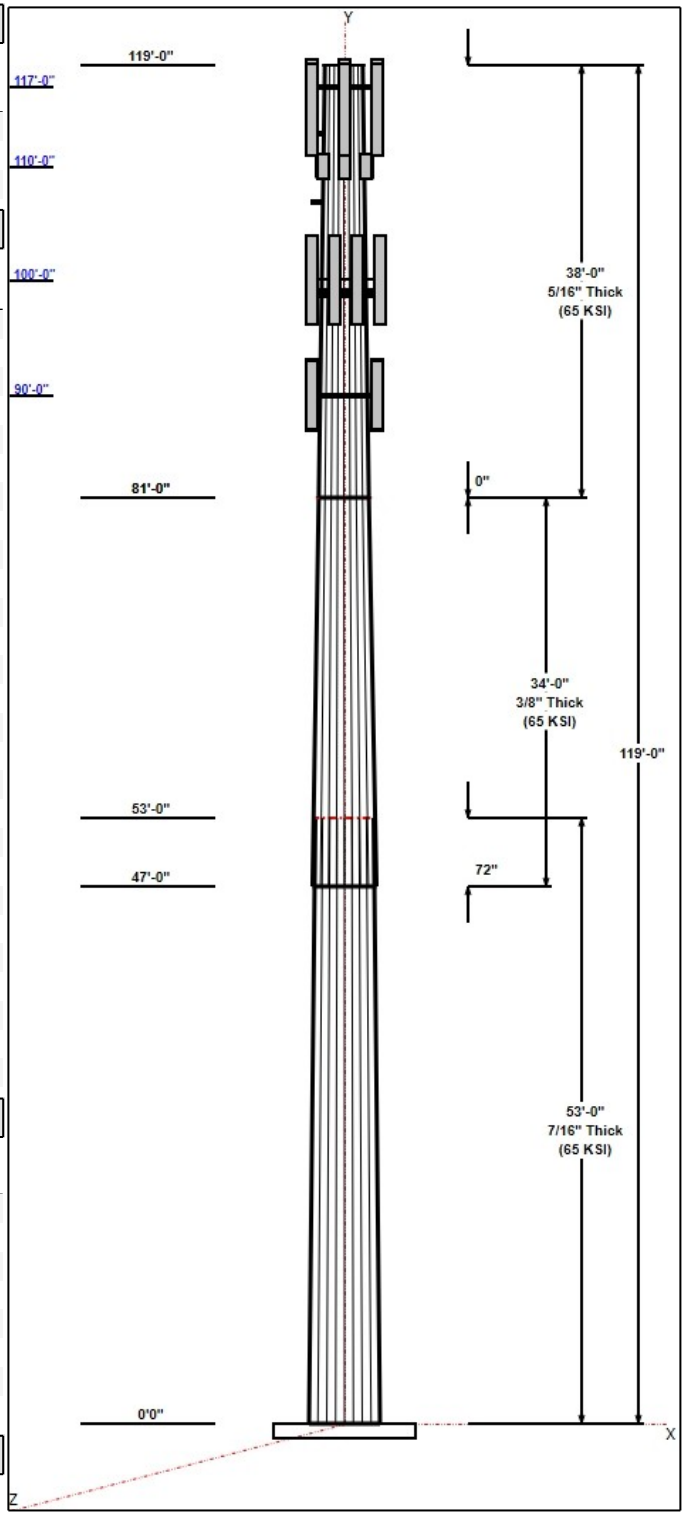
Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	117.00	Inside	1 5/8" Coax	T-Mobile
0.00	117.00	Inside	1 5/8" Fiber	T-Mobile
0.00	110.00	Inside	1.619" Hybrid	Sprint Nextel
0.00	110.00	Inside	1/2" Coax	Sprint Nextel
0.00	100.00	Inside	1/2" Fiber	AT&T
0.00	100.00	Inside	3/4" DC	AT&T
0.00	100.00	Inside	3/8" RET	AT&T
0.00	90.00	Inside	1 5/8" Hybrid Cable	Verizon

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
20	2.25" 18J	75.0	Cluster

Base Plate



Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.2500	66.0	50.0	Clipped

Reactions

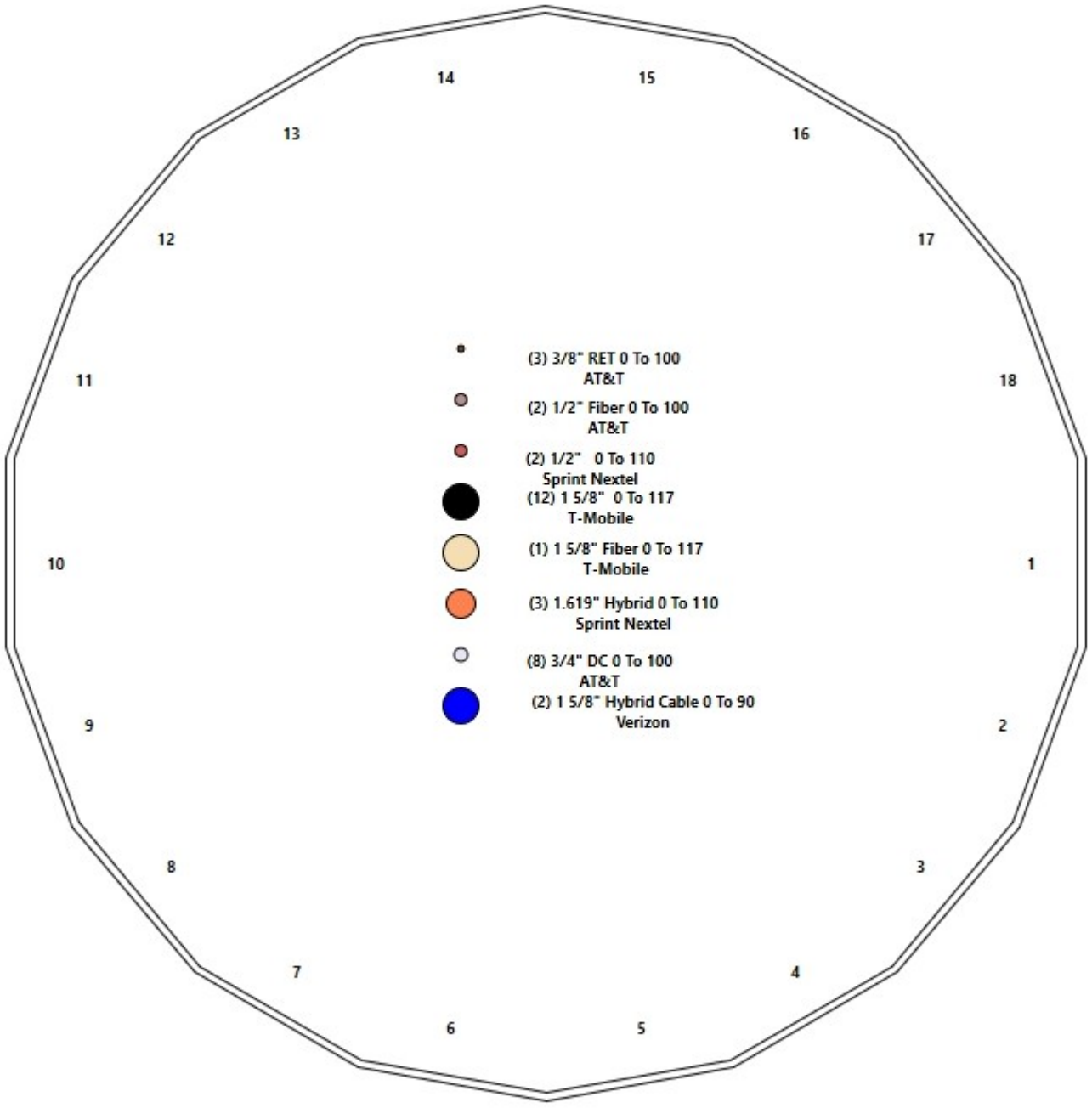
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	2269.2	25.9	44.4
0.9D + 1.6W 97 mph Wind	2258.9	25.9	33.3
1.2D + 1.0Di + 1.0Wi 50 mph Wind	630.5	7.3	80.7
1.2D + 1.0E	180.2	1.9	44.4
0.9D + 1.0E	179.2	1.9	33.3
1.0D + 1.0W 60 mph Wind	541.0	6.2	37.0

Structure: CT13555-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Montano
Height: 119.00 (ft)

6/19/2019

Tower Engineering Solutions



Shaft Properties

Structure:	CT13555-S-SBA		**Code:**	EIA/TIA-222-G	6/19/2019
Site Name:	Montano		**Exposure:**	B	
Height:	119.00 (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

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.000	0.4375	65		0.00	12,866
2	18	34.000	0.3750	65	Slip	72.00	5,823
3	18	38.000	0.3125	65	Flange	0.00	4,212
					Total Shaft Weight:		**22,901**

	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	58.81	0.00	81.05	34893.72	22.29	134.42	44.82	53.00	61.62	15333.6	16.65	102.4	0.264034
2	47.15	47.00	55.67	15389.65	20.76	125.73	38.17	81.00	44.99	8120.67	16.54	101.8	0.264034
3	38.17	81.00	37.55	6800.85	20.13	122.15	28.14	119.00	27.60	2700.33	14.47	90.05	0.264034

Load Summary

Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (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	

Tower Engineering Solutions

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	119.00	6' Lightning rod	1	6.50	0.38	1.00	53.79	1.797	1.00	0.00	0.00
2	117.00	Air32 KRD901146-1_B66A_B2A	3	132.20	6.51	0.87	385.37	8.057	0.87	0.00	0.00
3	117.00	RFS APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	692.52	22.739	0.70	0.00	-2.00
4	117.00	Radio 4449 B71+B12	3	70.00	1.65	0.67	165.79	2.373	0.67	0.00	0.00
5	117.00	AIR 21 B2A B4P	3	91.50	6.09	0.83	324.13	7.546	0.83	0.00	0.00
6	117.00	KRY 112 144/1	3	11.00	0.41	0.72	25.02	1.028	0.75	0.00	0.00
7	117.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	3202.39	44.971	1.00	0.00	0.00
8	113.00	3 ft Standoff	1	120.00	4.50	1.00	228.57	8.572	1.00	0.00	0.00
9	110.00	AAHC	3	104.00	4.20	0.75	280.52	5.295	0.75	0.00	0.00
10	110.00	dual sector mounts	3	350.00	4.00	1.00	728.99	7.609	1.00	0.00	0.00
11	110.00	VHLP2-18	2	27.00	4.68	1.00	153.50	6.327	1.00	1.00	0.00
12	107.00	Ring Mount	1	350.00	5.00	1.00	664.95	9.499	1.00	0.00	0.00
13	100.00	HPA-65R-BUU-H8	12	60.80	12.98	0.78	450.81	15.083	0.78	0.00	0.00
14	100.00	RRU-11	12	54.00	2.52	0.71	175.56	3.375	0.72	0.00	0.00
15	100.00	RRU-12	6	58.00	2.81	0.70	176.94	3.700	0.71	0.00	0.00
16	100.00	RRUS-A2	6	22.00	1.86	0.61	69.98	3.107	0.63	0.00	0.00
17	100.00	RRU-32	3	77.00	3.87	0.85	231.03	4.350	0.85	0.00	0.00
18	100.00	DC6-48-60-18-8F	4	32.80	1.47	1.00	114.45	2.366	1.00	0.00	0.00
19	100.00	Platform w/ Hand Rail	1	1875.00	43.80	1.00	5025.63	92.735	1.00	0.00	0.00
20	100.00	IBC700-1	3	63.30	1.31	0.91	127.63	2.459	0.91	0.00	0.00
21	90.00	LNX-6514DS-A1M	6	38.80	8.17	0.82	264.46	11.747	0.82	0.00	0.00
22	90.00	HBXX-6517DS-A2M	6	47.00	8.55	0.80	304.22	12.248	0.80	0.00	0.00
23	90.00	RRH2X60-AWS	3	55.00	3.50	0.77	156.37	4.500	0.78	0.00	0.00
24	90.00	RRH2x60-PCS	3	55.00	1.51	0.78	136.76	2.228	0.79	0.00	0.00
25	90.00	B13 RRH4x30	3	57.20	2.71	0.88	155.50	4.311	0.88	0.00	0.00
26	90.00	DB-T1-6Z-8AB-0Z	2	44.00	4.10	0.91	352.98	5.115	1.00	0.00	0.00
27	90.00	Low Profile Platform	1	1500.00	22.00	1.00	3158.30	44.376	1.00	0.00	0.00
		Totals:	**98**	**11,579.70**			**36,443.37**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	117.00	(9) 1 5/8" Coax	0.00	Inside
0.00	117.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	110.00	(3) 1.619" Hybrid	0.00	Inside
0.00	110.00	(2) 1/2" Coax	0.00	Inside
0.00	100.00	(2) 1/2" Fiber	0.00	Inside
0.00	100.00	(8) 3/4" DC	0.00	Inside
0.00	100.00	(3) 3/8" RET	0.00	Inside
0.00	90.00	(2) 1 5/8" Hybrid Cable	0.00	Inside

Shaft Section Properties

Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

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		0.4375	58.810	81.055	34893.7	22.29	134.42	75.2	1168.	0.0
5.00		0.4375	57.490	79.221	32579.4	21.76	131.41	75.8	1116.	1363.5
10.00		0.4375	56.170	77.388	30369.7	21.23	128.39	76.4	1064.	1332.3
15.00		0.4375	54.849	75.555	28262.2	20.70	125.37	77.1	1014.	1301.1
20.00		0.4375	53.529	73.722	26254.6	20.16	122.35	77.7	966.0	1269.9
25.00		0.4375	52.209	71.889	24344.4	19.63	119.34	78.3	918.4	1238.7
30.00		0.4375	50.889	70.056	22529.1	19.10	116.32	78.9	872.0	1207.5
35.00		0.4375	49.569	68.223	20806.4	18.57	113.30	79.6	826.7	1176.3
40.00		0.4375	48.249	66.389	19173.9	18.04	110.28	80.2	782.7	1145.1
45.00		0.4375	46.928	64.556	17629.0	17.50	107.27	80.8	739.9	1113.9
47.00	Bot - Section 2	0.4375	46.400	63.823	17035.1	17.29	106.06	81.1	723.1	436.8
50.00		0.4375	45.608	62.723	16169.5	16.97	104.25	81.4	698.3	1209.4
53.00	Top - Section 1	0.3750	45.566	53.787	13878.3	20.01	121.51	0.0	0.0	1188.6
55.00		0.3750	45.038	53.158	13397.5	19.77	120.10	78.2	585.9	363.9
60.00		0.3750	43.718	51.587	12244.2	19.15	116.58	78.9	551.6	891.1
65.00		0.3750	42.398	50.016	11159.1	18.53	113.06	79.6	518.4	864.3
70.00		0.3750	41.078	48.445	10140.1	17.90	109.54	80.3	486.2	837.6
75.00		0.3750	39.757	46.873	9185.1	17.28	106.02	81.1	455.0	810.9
80.00		0.3750	38.437	45.302	8292.0	16.66	102.50	81.8	424.9	784.1
81.00	Top - Section 2	0.3750	38.173	44.988	8120.7	16.54	101.80	81.9	419.0	153.6
81.00	Bot - Section 3	0.3125	38.173	37.552	6800.8	19.85	122.15	77.7	350.9	
85.00		0.3125	37.117	36.504	6247.4	19.53	118.77	78.4	331.5	504.0
90.00		0.3125	35.797	35.195	5599.0	18.79	114.55	79.3	308.1	609.9
95.00		0.3125	34.477	33.886	4997.0	18.04	110.33	80.2	285.5	587.7
100.00		0.3125	33.157	32.576	4439.8	17.30	106.10	81.1	263.7	565.4
105.00		0.3125	31.836	31.267	3925.7	16.55	101.88	81.9	242.9	543.1
107.00		0.3125	31.308	30.743	3731.7	16.26	100.19	82.3	234.8	211.0
110.00		0.3125	30.516	29.957	3452.9	15.81	97.65	82.6	222.9	309.8
113.00		0.3125	29.724	29.172	3188.3	15.36	95.12	82.6	211.3	301.8
115.00		0.3125	29.196	28.648	3019.6	15.06	93.43	82.6	203.7	196.7
117.00		0.3125	28.668	28.124	2857.0	14.77	91.74	82.6	196.3	193.2
119.00		0.3125	28.140	27.600	2700.3	14.47	90.05	82.6	189.0	189.6
										22901.0

Wind Loading - Shaft

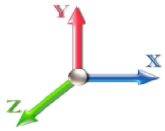
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 18

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	16.018	17.62	403.87	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	16.018	17.62	394.80	0.650	0.000	5.00	24.603	15.99	450.8	0.0	1636.2
10.00		1.00	0.70	16.018	17.62	385.74	0.650	0.000	5.00	24.044	15.63	440.6	0.0	1598.7
15.00		1.00	0.70	16.018	17.62	376.67	0.650	0.000	5.00	23.486	15.27	430.4	0.0	1561.3
20.00		1.00	0.70	16.018	17.62	367.60	0.650	0.000	5.00	22.927	14.90	420.1	0.0	1523.9
25.00		1.00	0.70	16.018	17.62	358.54	0.650	0.000	5.00	22.369	14.54	409.9	0.0	1486.4
30.00		1.00	0.70	16.031	17.63	349.62	0.650	0.000	5.00	21.810	14.18	400.0	0.0	1449.0
35.00		1.00	0.73	16.753	18.43	348.13	0.650	0.000	5.00	21.252	13.81	407.3	0.0	1411.6
40.00		1.00	0.76	17.405	19.15	345.39	0.650	0.000	5.00	20.693	13.45	412.0	0.0	1374.2
45.00		1.00	0.79	18.000	19.80	341.64	0.650	0.000	5.00	20.134	13.09	414.6	0.0	1336.7
47.00	Bot - Section 2	1.00	0.80	18.225	20.05	339.90	0.650	0.000	2.00	7.897	5.13	164.7	0.0	524.2
50.00		1.00	0.81	18.551	20.41	337.06	0.650	0.000	3.00	11.869	7.71	251.9	0.0	1451.3
53.00	Top - Section 1	1.00	0.82	18.862	20.75	333.98	0.650	0.000	3.00	11.668	7.58	251.8	0.0	1426.3
55.00		1.00	0.83	19.063	20.97	337.41	0.650	0.000	2.00	7.667	4.98	167.2	0.0	436.7
60.00		1.00	0.85	19.543	21.50	331.62	0.650	0.000	5.00	18.776	12.20	419.8	0.0	1069.3
65.00		1.00	0.87	19.995	21.99	325.30	0.650	0.000	5.00	18.218	11.84	416.7	0.0	1037.2
70.00		1.00	0.89	20.422	22.46	318.53	0.650	0.000	5.00	17.659	11.48	412.6	0.0	1005.1
75.00		1.00	0.91	20.829	22.91	311.34	0.650	0.000	5.00	17.100	11.12	407.5	0.0	973.0
80.00		1.00	0.93	21.217	23.34	303.79	0.650	0.000	5.00	16.542	10.75	401.5	0.0	941.0
81.00	Top - Section 2	1.00	0.93	21.292	23.42	302.24	0.650	0.000	1.00	3.241	2.11	79.0	0.0	184.3
85.00		1.00	0.94	21.587	23.75	295.91	0.650	0.000	4.00	12.742	8.28	314.7	0.0	604.8
90.00	Appurtenance(s)	1.00	0.96	21.943	24.14	287.73	0.650	0.000	5.00	15.425	10.03	387.2	0.0	731.9
95.00		1.00	0.97	22.284	24.51	279.26	0.650	0.000	5.00	14.866	9.66	379.0	0.0	705.2
100.00	Appurtenance(s)	1.00	0.99	22.613	24.87	270.54	0.650	0.000	5.00	14.308	9.30	370.1	0.0	678.5
105.00		1.00	1.00	22.931	25.22	261.59	0.650	0.000	5.00	13.749	8.94	360.7	0.0	651.7
107.00	Appurtenance(s)	1.00	1.01	23.055	25.36	257.94	0.650	0.000	2.00	5.343	3.47	140.9	0.0	253.2
110.00	Appurtenance(s)	1.00	1.02	23.238	25.56	252.41	0.650	0.000	3.00	7.847	5.10	208.6	0.0	371.8
113.00	Appurtenance(s)	1.00	1.02	23.417	25.76	246.81	0.650	0.000	3.00	7.646	4.97	204.8	0.0	362.2
115.00		1.00	1.03	23.535	25.89	243.03	0.650	0.000	2.00	4.986	3.24	134.2	0.0	236.1
117.00	Appurtenance(s)	1.00	1.03	23.651	26.02	239.23	0.650	0.000	2.00	4.896	3.18	132.5	0.0	231.8
119.00	Appurtenance(s)	1.00	1.04	23.766	26.14	235.39	0.650	0.000	2.00	4.807	3.12	130.7	0.0	227.5
								Totals:	**119.00**			**9,521.7**		**27,481.1**

Discrete Appurtenance Forces

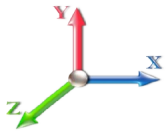
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 18

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	119.00	6' Lightning rod	1	23.766	26.142	1.00	1.00	0.38	7.80	0.000	0.000	15.89	0.00	0.00
2	117.00	Radio 4449 B71+B12	3	23.651	26.016	0.54	0.80	2.65	252.00	0.000	0.000	110.44	0.00	0.00
3	117.00	RFS	3	23.535	25.888	0.52	0.75	31.88	460.80	0.000	-2.000	1320.42	0.00	-2640.84
4	117.00	Air32	3	23.651	26.016	0.65	0.75	12.74	475.92	0.000	0.000	530.45	0.00	0.00
5	117.00	AIR 21 B2A B4P	3	23.651	26.016	0.66	0.80	12.07	329.40	0.000	0.000	502.54	0.00	0.00
6	117.00	KRY 112 144/1	3	23.651	26.016	0.58	0.80	0.71	39.60	0.000	0.000	29.53	0.00	0.00
7	117.00	Low Profile	1	23.651	26.016	1.00	1.00	22.00	1800.00	0.000	0.000	915.76	0.00	0.00
8	113.00	3 ft Standoff	1	23.417	25.759	1.00	1.00	4.50	144.00	0.000	0.000	185.46	0.00	0.00
9	110.00	VHLP2-18	2	23.238	25.561	1.00	1.00	9.36	64.80	2.291	0.000	382.81	548.16	0.00
10	110.00	dual sector mounts	3	23.238	25.561	1.00	1.00	12.00	1260.00	0.000	0.000	490.78	0.00	0.00
11	110.00	AAHC	3	23.238	25.561	0.60	0.80	7.56	374.40	0.000	0.000	309.19	0.00	0.00
12	107.00	Ring Mount	1	23.055	25.360	1.00	1.00	5.00	420.00	0.000	0.000	202.88	0.00	0.00
13	100.00	IBC700-1	3	22.613	24.875	0.68	0.75	2.68	227.88	0.000	0.000	106.63	0.00	0.00
14	100.00	Platform w/ Hand Rail	1	22.613	24.875	1.00	1.00	43.80	2250.00	0.000	0.000	1743.22	0.00	0.00
15	100.00	RRU-32	3	22.613	24.875	0.64	0.75	7.38	277.20	0.000	0.000	293.88	0.00	0.00
16	100.00	RRUS-A2	6	22.613	24.875	0.46	0.75	5.12	158.40	0.000	0.000	203.87	0.00	0.00
17	100.00	RRU-12	6	22.613	24.875	0.53	0.75	8.89	417.60	0.000	0.000	353.80	0.00	0.00
18	100.00	RRU-11	12	22.613	24.875	0.53	0.75	15.99	777.60	0.000	0.000	636.37	0.00	0.00
19	100.00	HPA-65R-BUU-H8	12	22.613	24.875	0.58	0.75	91.00	875.52	0.000	0.000	3621.87	0.00	0.00
20	100.00	DC6-48-60-18-8F	4	22.613	24.875	0.75	0.75	4.41	157.44	0.000	0.000	175.52	0.00	0.00
21	90.00	RRH2X60-AWS	3	21.943	24.137	0.62	0.80	6.48	198.00	0.000	0.000	250.11	0.00	0.00
22	90.00	LNX-6514DS-A1M	6	21.943	24.137	0.66	0.80	32.20	279.36	0.000	0.000	1243.40	0.00	0.00
23	90.00	HBXX-6517DS-A2M	6	21.943	24.137	0.64	0.80	32.83	338.40	0.000	0.000	1267.95	0.00	0.00
24	90.00	Low Profile Platform	1	21.943	24.137	1.00	1.00	22.00	1800.00	0.000	0.000	849.63	0.00	0.00
25	90.00	RRH2x60-PCS	3	21.943	24.137	0.63	0.80	2.84	198.00	0.000	0.000	109.59	0.00	0.00
26	90.00	B13 RRH4x30	3	21.943	24.137	0.70	0.80	5.69	205.92	0.000	0.000	219.78	0.00	0.00
27	90.00	DB-T1-6Z-8AB-0Z	2	21.943	24.137	0.73	0.80	5.97	105.60	0.000	0.000	230.54	0.00	0.00
							Totals:		**13,895.64**			**16,302.31**		

Total Applied Force Summary

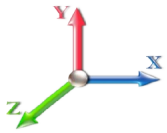
Structure:	CT13555-S-SBA		**Code:**	EIA/TIA-222-G	6/19/2019
Site Name:	Montano		**Exposure:**	B	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 18

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		450.83	1774.03	0.00	0.00
10.00		440.60	1736.60	0.00	0.00
15.00		430.36	1699.18	0.00	0.00
20.00		420.13	1661.75	0.00	0.00
25.00		409.89	1624.32	0.00	0.00
30.00		400.00	1586.90	0.00	0.00
35.00		407.30	1549.47	0.00	0.00
40.00		412.02	1512.04	0.00	0.00
45.00		414.62	1474.62	0.00	0.00
47.00		164.66	579.37	0.00	0.00
50.00		251.88	1534.04	0.00	0.00
53.00		251.77	1509.01	0.00	0.00
55.00		167.20	491.85	0.00	0.00
60.00		419.77	1207.16	0.00	0.00
65.00		416.70	1175.08	0.00	0.00
70.00		412.57	1143.00	0.00	0.00
75.00		407.48	1110.92	0.00	0.00
80.00		401.50	1078.84	0.00	0.00
81.00		78.95	211.92	0.00	0.00
85.00		314.68	715.10	0.00	0.00
90.00	(24) attachments	4558.20	3995.09	0.00	0.00
95.00		378.99	829.88	0.00	0.00
100.00	(47) attachments	7505.29	5944.78	0.00	0.00
105.00		360.68	754.21	0.00	0.00
107.00	(1) attachments	343.81	714.20	0.00	0.00
110.00	(8) attachments	1391.39	2132.48	548.16	0.00
113.00	(1) attachments	390.30	555.70	0.00	0.00
115.00		134.24	269.12	0.00	0.00
117.00	(16) attachments	3541.62	3622.56	0.00	-2640.84
119.00	(1) attachments	146.59	235.34	0.00	0.00
	Totals:	**25,824.02**	**44,428.53**	**548.16**	**-2,640.84**

Calculated Forces

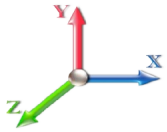
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 18

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	-44.41	-25.86	-0.55	-2269.2	0.00	2269.22	5484.43	2742.22	13159.3	6589.47	0.00	0.000	0.000	0.353
5.00	-42.59	-25.47	-0.55	-2139.9	0.00	2139.92	5405.01	2702.51	12673.3	6346.09	0.05	-0.090	0.000	0.345
10.00	-40.82	-25.09	-0.55	-2012.5	0.00	2012.55	5323.53	2661.77	12191.2	6104.68	0.19	-0.181	0.000	0.337
15.00	-39.08	-24.72	-0.55	-1887.0	0.00	1887.08	5239.98	2619.99	11713.4	5865.43	0.43	-0.272	0.000	0.329
20.00	-37.38	-24.35	-0.55	-1763.4	0.00	1763.49	5154.37	2577.18	11240.2	5628.50	0.77	-0.364	0.000	0.321
25.00	-35.72	-23.99	-0.55	-1641.7	0.00	1641.73	5066.69	2533.35	10772.0	5394.05	1.20	-0.456	0.000	0.312
30.00	-34.10	-23.63	-0.55	-1521.8	0.00	1521.80	4976.95	2488.47	10309.2	5162.27	1.72	-0.548	0.000	0.302
35.00	-32.52	-23.26	-0.55	-1403.6	0.00	1403.67	4885.14	2442.57	9851.98	4933.31	2.35	-0.641	0.000	0.291
40.00	-30.98	-22.88	-0.55	-1287.3	0.00	1287.38	4791.27	2395.63	9400.73	4707.35	3.07	-0.733	0.000	0.280
45.00	-29.48	-22.47	-0.55	-1173.0	0.00	1173.00	4695.33	2347.66	8955.81	4484.56	3.89	-0.824	0.000	0.268
47.00	-28.89	-22.32	-0.55	-1128.0	0.00	1128.06	4656.37	2328.19	8779.69	4396.37	4.24	-0.861	0.000	0.263
50.00	-27.34	-22.07	-0.55	-1061.0	0.00	1061.08	4597.32	2298.66	8517.56	4265.11	4.80	-0.916	0.000	0.255
53.00	-25.81	-21.82	-0.55	-994.86	0.00	994.86	3769.04	1884.52	6995.75	3503.08	5.39	-0.970	0.000	0.291
55.00	-25.30	-21.67	-0.55	-951.22	0.00	951.22	3738.97	1869.49	6858.18	3434.19	5.81	-1.006	0.000	0.284
60.00	-24.07	-21.27	-0.55	-842.86	-0.01	842.86	3662.35	1831.18	6517.42	3263.55	6.92	-1.102	0.000	0.265
65.00	-22.87	-20.87	-0.55	-736.52	-0.01	736.52	3583.67	1791.83	6181.48	3095.34	8.12	-1.193	0.000	0.244
70.00	-21.70	-20.46	-0.55	-632.19	-0.01	632.19	3502.92	1751.46	5850.70	2929.70	9.42	-1.281	-0.001	0.222
75.00	-20.57	-20.06	-0.55	-529.89	-0.01	529.89	3420.10	1710.05	5525.41	2766.81	10.80	-1.362	-0.001	0.198
80.00	-19.49	-19.64	-0.55	-429.62	-0.01	429.62	3335.22	1667.61	5205.95	2606.84	12.27	-1.436	-0.001	0.171
81.00	-19.27	-19.57	-0.55	-409.97	-0.01	409.97	3318.00	1659.00	5142.79	2575.22	12.58	-1.451	-0.001	0.165
81.00	-19.27	-19.57	-0.55	-409.97	-0.01	409.97	2626.87	1313.44	4085.05	2045.56	12.58	-1.451	-0.001	0.208
85.00	-18.54	-19.26	-0.55	-331.70	-0.01	331.70	2576.62	1288.31	3894.21	1950.00	13.81	-1.503	-0.001	0.178
90.00	-14.66	-14.61	-0.55	-235.42	-0.01	235.42	2511.95	1255.98	3659.15	1832.29	15.43	-1.567	-0.001	0.134
95.00	-13.83	-14.21	-0.55	-162.39	-0.01	162.39	2445.22	1222.61	3428.26	1716.68	17.10	-1.618	-0.001	0.100
100.00	-8.10	-6.55	-0.55	-91.32	-0.01	91.32	2376.41	1188.21	3201.88	1603.32	18.81	-1.654	-0.001	0.060
105.00	-7.35	-6.17	-0.55	-58.58	-0.01	58.58	2305.55	1152.77	2980.36	1492.40	20.56	-1.678	-0.001	0.042
107.00	-6.65	-5.80	-0.55	-46.25	-0.02	46.25	2276.62	1138.31	2893.19	1448.75	21.26	-1.686	-0.001	0.035
110.00	-4.56	-4.35	0.00	-28.84	0.00	28.84	2225.68	1112.84	2755.45	1379.77	22.33	-1.694	-0.002	0.023
113.00	-4.01	-3.94	0.00	-15.80	0.00	15.80	2167.31	1083.66	2612.10	1307.99	23.39	-1.700	-0.002	0.014
115.00	-3.75	-3.80	0.00	-7.91	0.00	7.91	2128.40	1064.20	2518.66	1261.20	24.11	-1.702	-0.002	0.008
117.00	-0.23	-0.15	0.00	-0.31	0.00	0.31	2089.48	1044.74	2426.92	1215.26	24.82	-1.703	-0.002	0.000
119.00	0.00	-0.15	0.00	0.00	0.00	0.00	2050.57	1025.29	2336.89	1170.18	25.53	-1.703	-0.002	0.000

Wind Loading - Shaft

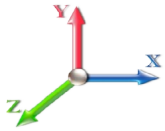
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 18

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	16.018	17.62	403.87	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	16.018	17.62	394.80	0.650	0.000	5.00	24.603	15.99	450.8	0.0	1227.1
10.00		1.00	0.70	16.018	17.62	385.74	0.650	0.000	5.00	24.044	15.63	440.6	0.0	1199.0
15.00		1.00	0.70	16.018	17.62	376.67	0.650	0.000	5.00	23.486	15.27	430.4	0.0	1171.0
20.00		1.00	0.70	16.018	17.62	367.60	0.650	0.000	5.00	22.927	14.90	420.1	0.0	1142.9
25.00		1.00	0.70	16.018	17.62	358.54	0.650	0.000	5.00	22.369	14.54	409.9	0.0	1114.8
30.00		1.00	0.70	16.031	17.63	349.62	0.650	0.000	5.00	21.810	14.18	400.0	0.0	1086.8
35.00		1.00	0.73	16.753	18.43	348.13	0.650	0.000	5.00	21.252	13.81	407.3	0.0	1058.7
40.00		1.00	0.76	17.405	19.15	345.39	0.650	0.000	5.00	20.693	13.45	412.0	0.0	1030.6
45.00		1.00	0.79	18.000	19.80	341.64	0.650	0.000	5.00	20.134	13.09	414.6	0.0	1002.6
47.00	Bot - Section 2	1.00	0.80	18.225	20.05	339.90	0.650	0.000	2.00	7.897	5.13	164.7	0.0	393.2
50.00		1.00	0.81	18.551	20.41	337.06	0.650	0.000	3.00	11.869	7.71	251.9	0.0	1088.5
53.00	Top - Section 1	1.00	0.82	18.862	20.75	333.98	0.650	0.000	3.00	11.668	7.58	251.8	0.0	1069.7
55.00		1.00	0.83	19.063	20.97	337.41	0.650	0.000	2.00	7.667	4.98	167.2	0.0	327.5
60.00		1.00	0.85	19.543	21.50	331.62	0.650	0.000	5.00	18.776	12.20	419.8	0.0	802.0
65.00		1.00	0.87	19.995	21.99	325.30	0.650	0.000	5.00	18.218	11.84	416.7	0.0	777.9
70.00		1.00	0.89	20.422	22.46	318.53	0.650	0.000	5.00	17.659	11.48	412.6	0.0	753.8
75.00		1.00	0.91	20.829	22.91	311.34	0.650	0.000	5.00	17.100	11.12	407.5	0.0	729.8
80.00		1.00	0.93	21.217	23.34	303.79	0.650	0.000	5.00	16.542	10.75	401.5	0.0	705.7
81.00	Top - Section 2	1.00	0.93	21.292	23.42	302.24	0.650	0.000	1.00	3.241	2.11	79.0	0.0	138.3
85.00		1.00	0.94	21.587	23.75	295.91	0.650	0.000	4.00	12.742	8.28	314.7	0.0	453.6
90.00	Appurtenance(s)	1.00	0.96	21.943	24.14	287.73	0.650	0.000	5.00	15.425	10.03	387.2	0.0	548.9
95.00		1.00	0.97	22.284	24.51	279.26	0.650	0.000	5.00	14.866	9.66	379.0	0.0	528.9
100.00	Appurtenance(s)	1.00	0.99	22.613	24.87	270.54	0.650	0.000	5.00	14.308	9.30	370.1	0.0	508.8
105.00		1.00	1.00	22.931	25.22	261.59	0.650	0.000	5.00	13.749	8.94	360.7	0.0	488.8
107.00	Appurtenance(s)	1.00	1.01	23.055	25.36	257.94	0.650	0.000	2.00	5.343	3.47	140.9	0.0	189.9
110.00	Appurtenance(s)	1.00	1.02	23.238	25.56	252.41	0.650	0.000	3.00	7.847	5.10	208.6	0.0	278.8
113.00	Appurtenance(s)	1.00	1.02	23.417	25.76	246.81	0.650	0.000	3.00	7.646	4.97	204.8	0.0	271.6
115.00		1.00	1.03	23.535	25.89	243.03	0.650	0.000	2.00	4.986	3.24	134.2	0.0	177.1
117.00	Appurtenance(s)	1.00	1.03	23.651	26.02	239.23	0.650	0.000	2.00	4.896	3.18	132.5	0.0	173.9
119.00	Appurtenance(s)	1.00	1.04	23.766	26.14	235.39	0.650	0.000	2.00	4.807	3.12	130.7	0.0	170.7
								Totals:	**119.00**			**9,521.7**		**20,610.9**

Discrete Appurtenance Forces

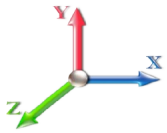
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 18

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	119.00	6' Lightning rod	1	23.766	26.142	1.00	1.00	0.38	5.85	0.000	0.000	15.89	0.00	0.00
2	117.00	Radio 4449 B71+B12	3	23.651	26.016	0.54	0.80	2.65	189.00	0.000	0.000	110.44	0.00	0.00
3	117.00	RFS	3	23.535	25.888	0.52	0.75	31.88	345.60	0.000	-2.000	1320.42	0.00	-2640.84
4	117.00	Air32	3	23.651	26.016	0.65	0.75	12.74	356.94	0.000	0.000	530.45	0.00	0.00
5	117.00	AIR 21 B2A B4P	3	23.651	26.016	0.66	0.80	12.07	247.05	0.000	0.000	502.54	0.00	0.00
6	117.00	KRY 112 144/1	3	23.651	26.016	0.58	0.80	0.71	29.70	0.000	0.000	29.53	0.00	0.00
7	117.00	Low Profile	1	23.651	26.016	1.00	1.00	22.00	1350.00	0.000	0.000	915.76	0.00	0.00
8	113.00	3 ft Standoff	1	23.417	25.759	1.00	1.00	4.50	108.00	0.000	0.000	185.46	0.00	0.00
9	110.00	VHLP2-18	2	23.238	25.561	1.00	1.00	9.36	48.60	2.291	0.000	382.81	548.16	0.00
10	110.00	dual sector mounts	3	23.238	25.561	1.00	1.00	12.00	945.00	0.000	0.000	490.78	0.00	0.00
11	110.00	AAHC	3	23.238	25.561	0.60	0.80	7.56	280.80	0.000	0.000	309.19	0.00	0.00
12	107.00	Ring Mount	1	23.055	25.360	1.00	1.00	5.00	315.00	0.000	0.000	202.88	0.00	0.00
13	100.00	IBC700-1	3	22.613	24.875	0.68	0.75	2.68	170.91	0.000	0.000	106.63	0.00	0.00
14	100.00	Platform w/ Hand Rail	1	22.613	24.875	1.00	1.00	43.80	1687.50	0.000	0.000	1743.22	0.00	0.00
15	100.00	RRU-32	3	22.613	24.875	0.64	0.75	7.38	207.90	0.000	0.000	293.88	0.00	0.00
16	100.00	RRUS-A2	6	22.613	24.875	0.46	0.75	5.12	118.80	0.000	0.000	203.87	0.00	0.00
17	100.00	RRU-12	6	22.613	24.875	0.53	0.75	8.89	313.20	0.000	0.000	353.80	0.00	0.00
18	100.00	RRU-11	12	22.613	24.875	0.53	0.75	15.99	583.20	0.000	0.000	636.37	0.00	0.00
19	100.00	HPA-65R-BUU-H8	12	22.613	24.875	0.58	0.75	91.00	656.64	0.000	0.000	3621.87	0.00	0.00
20	100.00	DC6-48-60-18-8F	4	22.613	24.875	0.75	0.75	4.41	118.08	0.000	0.000	175.52	0.00	0.00
21	90.00	RRH2X60-AWS	3	21.943	24.137	0.62	0.80	6.48	148.50	0.000	0.000	250.11	0.00	0.00
22	90.00	LNX-6514DS-A1M	6	21.943	24.137	0.66	0.80	32.20	209.52	0.000	0.000	1243.40	0.00	0.00
23	90.00	HBXX-6517DS-A2M	6	21.943	24.137	0.64	0.80	32.83	253.80	0.000	0.000	1267.95	0.00	0.00
24	90.00	Low Profile Platform	1	21.943	24.137	1.00	1.00	22.00	1350.00	0.000	0.000	849.63	0.00	0.00
25	90.00	RRH2x60-PCS	3	21.943	24.137	0.63	0.80	2.84	148.50	0.000	0.000	109.59	0.00	0.00
26	90.00	B13 RRH4x30	3	21.943	24.137	0.70	0.80	5.69	154.44	0.000	0.000	219.78	0.00	0.00
27	90.00	DB-T1-6Z-8AB-0Z	2	21.943	24.137	0.73	0.80	5.97	79.20	0.000	0.000	230.54	0.00	0.00
							Totals:		**10,421.73**			**16,302.31**		

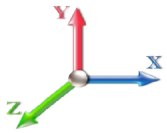
Total Applied Force Summary

Structure:	CT13555-S-SBA		**Code:**	EIA/TIA-222-G	6/19/2019
Site Name:	Montano		**Exposure:**	B	
Height:	119.00 (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

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 18

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		450.83	1330.52	0.00	0.00
10.00		440.60	1302.45	0.00	0.00
15.00		430.36	1274.38	0.00	0.00
20.00		420.13	1246.31	0.00	0.00
25.00		409.89	1218.24	0.00	0.00
30.00		400.00	1190.17	0.00	0.00
35.00		407.30	1162.10	0.00	0.00
40.00		412.02	1134.03	0.00	0.00
45.00		414.62	1105.96	0.00	0.00
47.00		164.66	434.53	0.00	0.00
50.00		251.88	1150.53	0.00	0.00
53.00		251.77	1131.76	0.00	0.00
55.00		167.20	368.88	0.00	0.00
60.00		419.77	905.37	0.00	0.00
65.00		416.70	881.31	0.00	0.00
70.00		412.57	857.25	0.00	0.00
75.00		407.48	833.19	0.00	0.00
80.00		401.50	809.13	0.00	0.00
81.00		78.95	158.94	0.00	0.00
85.00		314.68	536.32	0.00	0.00
90.00	(24) attachments	4558.20	2996.32	0.00	0.00
95.00		378.99	622.41	0.00	0.00
100.00	(47) attachments	7505.29	4458.59	0.00	0.00
105.00		360.68	565.66	0.00	0.00
107.00	(1) attachments	343.81	535.65	0.00	0.00
110.00	(8) attachments	1391.39	1599.36	548.16	0.00
113.00	(1) attachments	390.30	416.78	0.00	0.00
115.00		134.24	201.84	0.00	0.00
117.00	(16) attachments	3541.62	2716.92	0.00	-2640.84
119.00	(1) attachments	146.59	176.51	0.00	0.00
	Totals:	**25,824.02**	**33,321.40**	**548.16**	**-2,640.84**

Calculated Forces

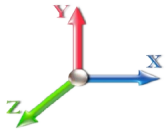
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 18

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	-33.30	-25.85	-0.55	-2258.8	0.00	2258.85	5484.43	2742.22	13159.3	6589.47	0.00	0.000	0.000	0.349
5.00	-31.93	-25.45	-0.55	-2129.6	0.00	2129.60	5405.01	2702.51	12673.3	6346.09	0.05	-0.089	0.000	0.342
10.00	-30.59	-25.05	-0.55	-2002.3	0.00	2002.36	5323.53	2661.77	12191.2	6104.68	0.19	-0.180	0.000	0.334
15.00	-29.28	-24.66	-0.55	-1877.1	0.00	1877.10	5239.98	2619.99	11713.4	5865.43	0.43	-0.271	0.000	0.326
20.00	-27.99	-24.28	-0.55	-1753.7	0.00	1753.78	5154.37	2577.18	11240.2	5628.50	0.76	-0.362	0.000	0.317
25.00	-26.74	-23.91	-0.55	-1632.3	0.00	1632.37	5066.69	2533.35	10772.0	5394.05	1.19	-0.454	0.000	0.308
30.00	-25.52	-23.54	-0.55	-1512.8	0.00	1512.84	4976.95	2488.47	10309.2	5162.27	1.72	-0.546	0.000	0.298
35.00	-24.32	-23.16	-0.55	-1395.1	0.00	1395.15	4885.14	2442.57	9851.98	4933.31	2.34	-0.637	0.000	0.288
40.00	-23.16	-22.77	-0.55	-1279.3	0.00	1279.37	4791.27	2395.63	9400.73	4707.35	3.05	-0.729	0.000	0.277
45.00	-22.03	-22.36	-0.55	-1165.5	0.00	1165.53	4695.33	2347.66	8955.81	4484.56	3.87	-0.819	0.000	0.265
47.00	-21.58	-22.21	-0.55	-1120.8	0.00	1120.81	4656.37	2328.19	8779.69	4396.37	4.22	-0.856	0.000	0.260
50.00	-20.41	-21.96	-0.55	-1054.1	0.00	1054.18	4597.32	2298.66	8517.56	4265.11	4.78	-0.911	0.000	0.252
53.00	-19.27	-21.70	-0.55	-988.30	0.00	988.30	3769.04	1884.52	6995.75	3503.08	5.37	-0.965	0.000	0.287
55.00	-18.88	-21.55	-0.55	-944.90	0.00	944.90	3738.97	1869.49	6858.18	3434.19	5.78	-1.001	0.000	0.280
60.00	-17.95	-21.14	-0.55	-837.14	-0.01	837.14	3662.35	1831.18	6517.42	3263.55	6.88	-1.095	0.000	0.262
65.00	-17.04	-20.74	-0.55	-731.42	-0.01	731.42	3583.67	1791.83	6181.48	3095.34	8.07	-1.186	0.000	0.241
70.00	-16.16	-20.33	-0.55	-627.73	-0.01	627.73	3502.92	1751.46	5850.70	2929.70	9.37	-1.273	-0.001	0.219
75.00	-15.31	-19.92	-0.55	-526.08	-0.01	526.08	3420.10	1710.05	5525.41	2766.81	10.74	-1.354	-0.001	0.195
80.00	-14.50	-19.51	-0.55	-426.46	-0.01	426.46	3335.22	1667.61	5205.95	2606.84	12.20	-1.428	-0.001	0.168
81.00	-14.33	-19.44	-0.55	-406.95	-0.01	406.95	3318.00	1659.00	5142.79	2575.22	12.50	-1.442	-0.001	0.162
81.00	-14.33	-19.44	-0.55	-406.95	-0.01	406.95	2626.87	1313.44	4085.05	2045.56	12.50	-1.442	-0.001	0.205
85.00	-13.78	-19.13	-0.55	-329.19	-0.01	329.19	2576.62	1288.31	3894.21	1950.00	13.74	-1.494	-0.001	0.174
90.00	-10.90	-14.50	-0.55	-233.57	-0.01	233.57	2511.95	1255.98	3659.15	1832.29	15.34	-1.558	-0.001	0.132
95.00	-10.27	-14.11	-0.55	-161.07	-0.01	161.07	2445.22	1222.61	3428.26	1716.68	17.00	-1.608	-0.001	0.098
100.00	-6.03	-6.49	-0.55	-90.51	-0.01	90.51	2376.41	1188.21	3201.88	1603.32	18.70	-1.644	-0.001	0.059
105.00	-5.47	-6.11	-0.55	-58.09	-0.01	58.09	2305.55	1152.77	2980.36	1492.40	20.44	-1.667	-0.001	0.041
107.00	-4.94	-5.75	-0.55	-45.87	-0.01	45.87	2276.62	1138.31	2893.19	1448.75	21.14	-1.675	-0.001	0.034
110.00	-3.39	-4.31	0.00	-28.61	0.00	28.61	2225.68	1112.84	2755.45	1379.77	22.19	-1.683	-0.002	0.022
113.00	-2.98	-3.91	0.00	-15.67	0.00	15.67	2167.31	1083.66	2612.10	1307.99	23.25	-1.689	-0.002	0.013
115.00	-2.78	-3.77	0.00	-7.85	0.00	7.85	2128.40	1064.20	2518.66	1261.20	23.96	-1.691	-0.002	0.008
117.00	-0.17	-0.15	0.00	-0.30	0.00	0.30	2089.48	1044.74	2426.92	1215.26	24.67	-1.692	-0.002	0.000
119.00	0.00	-0.15	0.00	0.00	0.00	0.00	2050.57	1025.29	2336.89	1170.18	25.38	-1.692	-0.002	0.000

Wind Loading - Shaft

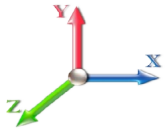
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 17

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	25.983	31.18	146.0	613.6	2249.7
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.775	5.00	25.523	30.63	143.4	644.2	2242.9
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.848	5.00	25.026	30.03	140.6	656.4	2217.7
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.902	5.00	24.512	29.41	137.7	660.5	2184.3
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.945	5.00	23.990	28.79	134.8	659.8	2146.2
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.981	5.00	23.461	28.15	131.9	656.0	2105.0
35.00		1.00	0.73	4.451	4.90	0.00	1.200	2.012	5.00	22.928	27.51	134.7	649.9	2061.5
40.00		1.00	0.76	4.625	5.09	0.00	1.200	2.039	5.00	22.392	26.87	136.7	642.1	2016.3
45.00		1.00	0.79	4.783	5.26	0.00	1.200	2.063	5.00	21.854	26.22	138.0	633.0	1969.7
47.00	Bot - Section 2	1.00	0.80	4.843	5.33	0.00	1.200	2.072	2.00	8.588	10.31	54.9	251.6	775.8
50.00		1.00	0.81	4.929	5.42	0.00	1.200	2.085	3.00	12.911	15.49	84.0	379.5	1830.8
53.00	Top - Section 1	1.00	0.82	5.012	5.51	0.00	1.200	2.097	3.00	12.716	15.26	84.1	375.6	1801.9
55.00		1.00	0.83	5.065	5.57	0.00	1.200	2.105	2.00	8.368	10.04	55.9	248.6	685.3
60.00		1.00	0.85	5.193	5.71	0.00	1.200	2.123	5.00	20.545	24.65	140.8	609.5	1678.8
65.00		1.00	0.87	5.313	5.84	0.00	1.200	2.140	5.00	20.001	24.00	140.3	596.9	1634.1
70.00		1.00	0.89	5.426	5.97	0.00	1.200	2.156	5.00	19.456	23.35	139.4	583.7	1588.9
75.00		1.00	0.91	5.534	6.09	0.00	1.200	2.171	5.00	18.910	22.69	138.1	570.0	1543.1
80.00		1.00	0.93	5.637	6.20	0.00	1.200	2.185	5.00	18.363	22.04	136.6	555.8	1496.8
81.00	Top - Section 2	1.00	0.93	5.657	6.22	0.00	1.200	2.188	1.00	3.606	4.33	26.9	110.6	294.9
85.00		1.00	0.94	5.736	6.31	0.00	1.200	2.198	4.00	14.208	17.05	107.6	433.0	1037.7
90.00	Appurtenance(s)	1.00	0.96	5.830	6.41	0.00	1.200	2.211	5.00	17.267	20.72	132.9	526.2	1258.1
95.00		1.00	0.97	5.921	6.51	0.00	1.200	2.223	5.00	16.719	20.06	130.7	510.8	1216.0
100.00	Appurtenance(s)	1.00	0.99	6.008	6.61	0.00	1.200	2.234	5.00	16.170	19.40	128.2	495.1	1173.6
105.00		1.00	1.00	6.093	6.70	0.00	1.200	2.245	5.00	15.620	18.74	125.6	479.1	1130.8
107.00	Appurtenance(s)	1.00	1.01	6.126	6.74	0.00	1.200	2.250	2.00	6.093	7.31	49.3	189.0	442.3
110.00	Appurtenance(s)	1.00	1.02	6.174	6.79	0.00	1.200	2.256	3.00	8.975	10.77	73.1	277.7	649.5
113.00	Appurtenance(s)	1.00	1.02	6.222	6.84	0.00	1.200	2.262	3.00	8.777	10.53	72.1	271.7	633.9
115.00		1.00	1.03	6.253	6.88	0.00	1.200	2.266	2.00	5.741	6.89	47.4	178.5	414.6
117.00	Appurtenance(s)	1.00	1.03	6.284	6.91	0.00	1.200	2.270	2.00	5.653	6.78	46.9	175.8	407.7
119.00	Appurtenance(s)	1.00	1.04	6.315	6.95	0.00	1.200	2.274	2.00	5.565	6.68	46.4	173.1	400.7
								Totals:	**119.00**			**3,205.0**		**41,288.4**

Discrete Appurtenance Forces

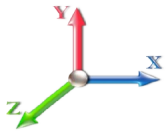
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 17

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	119.00	6' Lightning rod	1	6.315	6.946	1.00	1.00	1.80	49.79	0.000	0.000	12.48	0.00	0.00
2	117.00	Radio 4449 B71+B12	3	6.284	6.913	0.54	0.80	3.81	539.37	0.000	0.000	26.37	0.00	0.00
3	117.00	RFS	3	6.253	6.879	0.52	0.75	35.81	2154.36	0.000	-2.000	246.35	0.00	-492.70
4	117.00	Air32	3	6.284	6.913	0.65	0.75	15.77	1235.44	0.000	0.000	109.03	0.00	0.00
5	117.00	AIR 21 B2A B4P	3	6.284	6.913	0.67	0.80	15.09	1027.29	0.000	0.000	104.28	0.00	0.00
6	117.00	KRY 112 144/1	3	6.284	6.913	0.60	0.80	1.84	72.37	0.000	0.000	12.72	0.00	0.00
7	117.00	Low Profile	1	6.284	6.913	1.00	1.00	44.97	3202.39	0.000	0.000	310.86	0.00	0.00
8	113.00	3 ft Standoff	1	6.222	6.844	1.00	1.00	8.57	372.57	0.000	0.000	58.66	0.00	0.00
9	110.00	VHLP2-18	2	6.174	6.792	1.00	1.00	12.65	261.79	2.291	0.000	85.94	196.91	0.00
10	110.00	dual sector mounts	3	6.174	6.792	1.00	1.00	22.83	2096.97	0.000	0.000	155.04	0.00	0.00
11	110.00	AAHC	3	6.174	6.792	0.60	0.80	9.53	903.96	0.000	0.000	64.73	0.00	0.00
12	107.00	Ring Mount	1	6.126	6.738	1.00	1.00	9.50	420.00	0.000	0.000	64.01	0.00	0.00
13	100.00	IBC700-1	3	6.008	6.609	0.68	0.75	5.05	364.11	0.000	0.000	33.38	0.00	0.00
14	100.00	Platform w/ Hand Rail	1	6.008	6.609	1.00	1.00	92.74	5075.63	0.000	0.000	612.91	0.00	0.00
15	100.00	RRU-32	3	6.008	6.609	0.64	0.75	8.36	739.30	0.000	0.000	55.24	0.00	0.00
16	100.00	RRUS-A2	6	6.008	6.609	0.47	0.75	8.75	384.41	0.000	0.000	57.84	0.00	0.00
17	100.00	RRU-12	6	6.008	6.609	0.53	0.75	11.86	1131.21	0.000	0.000	78.36	0.00	0.00
18	100.00	RRU-11	12	6.008	6.609	0.54	0.75	21.72	2236.37	0.000	0.000	143.53	0.00	0.00
19	100.00	HPA-65R-BUU-H8	12	6.008	6.609	0.59	0.75	106.16	5555.64	0.000	0.000	701.61	0.00	0.00
20	100.00	DC6-48-60-18-8F	4	6.008	6.609	0.75	0.75	7.10	391.71	0.000	0.000	46.91	0.00	0.00
21	90.00	RRH2X60-AWS	3	5.830	6.413	0.63	0.80	8.46	441.07	0.000	0.000	54.23	0.00	0.00
22	90.00	LNX-6514DS-A1M	6	5.830	6.413	0.66	0.80	46.40	1353.67	0.000	0.000	297.61	0.00	0.00
23	90.00	HBXX-6517DS-A2M	6	5.830	6.413	0.64	0.80	47.21	1600.88	0.000	0.000	302.76	0.00	0.00
24	90.00	Low Profile Platform	1	5.830	6.413	1.00	1.00	44.38	3158.30	0.000	0.000	284.60	0.00	0.00
25	90.00	RRH2x60-PCS	3	5.830	6.413	0.63	0.80	4.24	443.28	0.000	0.000	27.20	0.00	0.00
26	90.00	B13 RRH4x30	3	5.830	6.413	0.70	0.80	9.12	455.06	0.000	0.000	58.46	0.00	0.00
27	90.00	DB-T1-6Z-8AB-0Z	2	5.830	6.413	0.80	0.80	8.18	669.45	0.000	0.000	52.49	0.00	0.00
							Totals:		**36,336.37**			**4,057.61**		

Total Applied Force Summary

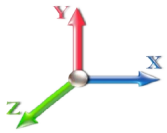
Structure:	CT13555-S-SBA		**Code:**	EIA/TIA-222-G	6/19/2019
Site Name:	Montano		**Exposure:**	B	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 17

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		145.97	2387.58	0.00	0.00
10.00		143.39	2380.81	0.00	0.00
15.00		140.59	2355.59	0.00	0.00
20.00		137.71	2322.21	0.00	0.00
25.00		134.77	2284.11	0.00	0.00
30.00		131.91	2242.87	0.00	0.00
35.00		134.72	2199.38	0.00	0.00
40.00		136.69	2154.16	0.00	0.00
45.00		137.97	2107.58	0.00	0.00
47.00		54.90	830.96	0.00	0.00
50.00		84.00	1913.53	0.00	0.00
53.00		84.12	1884.58	0.00	0.00
55.00		55.95	740.41	0.00	0.00
60.00		140.82	1816.67	0.00	0.00
65.00		140.26	1772.00	0.00	0.00
70.00		139.36	1726.74	0.00	0.00
75.00		138.14	1680.93	0.00	0.00
80.00		136.64	1634.66	0.00	0.00
81.00		26.93	322.50	0.00	0.00
85.00		107.57	1148.05	0.00	0.00
90.00	(24) attachments	1210.22	9517.68	0.00	0.00
95.00		130.67	1340.68	0.00	0.00
100.00	(47) attachments	1858.04	17176.62	0.00	0.00
105.00		125.63	1233.30	0.00	0.00
107.00	(1) attachments	113.28	903.24	0.00	0.00
110.00	(8) attachments	378.87	3973.68	196.91	0.00
113.00	(1) attachments	130.75	1056.02	0.00	0.00
115.00		47.39	447.63	0.00	0.00
117.00	(16) attachments	856.50	8671.89	0.00	-492.70
119.00	(1) attachments	58.87	450.48	0.00	0.00
	Totals:	**7,262.63**	**80,676.54**	**196.91**	**-492.70**

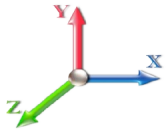
Calculated Forces

Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (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	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 17

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	-80.67	-7.28	-0.20	-630.53	0.00	630.53	5484.43	2742.22	13159.3	6589.47	0.00	0.000	0.000	0.110
5.00	-78.28	-7.17	-0.20	-594.13	0.00	594.13	5405.01	2702.51	12673.3	6346.09	0.01	-0.025	0.000	0.108
10.00	-75.90	-7.06	-0.20	-558.29	0.00	558.29	5323.53	2661.77	12191.2	6104.68	0.05	-0.050	0.000	0.106
15.00	-73.54	-6.95	-0.20	-523.01	0.00	523.01	5239.98	2619.99	11713.4	5865.43	0.12	-0.075	0.000	0.103
20.00	-71.22	-6.84	-0.20	-488.29	0.00	488.29	5154.37	2577.18	11240.2	5628.50	0.21	-0.101	0.000	0.101
25.00	-68.93	-6.73	-0.20	-454.11	0.00	454.11	5066.69	2533.35	10772.0	5394.05	0.33	-0.126	0.000	0.098
30.00	-66.68	-6.62	-0.20	-420.47	0.00	420.47	4976.95	2488.47	10309.2	5162.27	0.48	-0.152	0.000	0.095
35.00	-64.48	-6.51	-0.20	-387.38	0.00	387.38	4885.14	2442.57	9851.98	4933.31	0.65	-0.177	0.000	0.092
40.00	-62.33	-6.39	-0.20	-354.84	0.00	354.84	4791.27	2395.63	9400.73	4707.35	0.85	-0.203	0.000	0.088
45.00	-60.22	-6.26	-0.20	-322.89	0.00	322.89	4695.33	2347.66	8955.81	4484.56	1.08	-0.228	0.000	0.085
47.00	-59.39	-6.22	-0.20	-310.36	0.00	310.36	4656.37	2328.19	8779.69	4396.37	1.18	-0.238	0.000	0.083
50.00	-57.47	-6.14	-0.20	-291.71	0.00	291.71	4597.32	2298.66	8517.56	4265.11	1.33	-0.253	0.000	0.081
53.00	-55.58	-6.06	-0.20	-273.28	0.00	273.28	3769.04	1884.52	6995.75	3503.08	1.49	-0.268	0.000	0.093
55.00	-54.84	-6.02	-0.20	-261.16	0.00	261.16	3738.97	1869.49	6858.18	3434.19	1.61	-0.278	0.000	0.091
60.00	-53.02	-5.89	-0.20	-231.07	0.00	231.07	3662.35	1831.18	6517.42	3263.55	1.91	-0.304	0.000	0.085
65.00	-51.25	-5.76	-0.20	-201.61	0.00	201.61	3583.67	1791.83	6181.48	3095.34	2.25	-0.329	0.000	0.079
70.00	-49.52	-5.63	-0.20	-172.79	0.00	172.79	3502.92	1751.46	5850.70	2929.70	2.61	-0.353	0.000	0.073
75.00	-47.84	-5.50	-0.20	-144.62	0.00	144.62	3420.10	1710.05	5525.41	2766.81	2.99	-0.376	0.000	0.066
80.00	-46.21	-5.37	-0.20	-117.10	0.00	117.10	3335.22	1667.61	5205.95	2606.84	3.39	-0.396	0.000	0.059
81.00	-45.88	-5.34	-0.20	-111.74	0.00	111.74	3318.00	1659.00	5142.79	2575.22	3.48	-0.400	0.000	0.057
81.00	-45.88	-5.34	-0.20	-111.74	0.00	111.74	2626.87	1313.44	4085.05	2045.56	3.48	-0.400	0.000	0.072
85.00	-44.73	-5.24	-0.20	-90.37	0.00	90.37	2576.62	1288.31	3894.21	1950.00	3.82	-0.414	0.000	0.064
90.00	-35.22	-3.97	-0.20	-64.17	0.00	64.17	2511.95	1255.98	3659.15	1832.29	4.26	-0.431	0.000	0.049
95.00	-33.88	-3.84	-0.20	-44.32	0.00	44.32	2445.22	1222.61	3428.26	1716.68	4.72	-0.445	0.000	0.040
100.00	-16.72	-1.84	-0.20	-25.14	0.00	25.14	2376.41	1188.21	3201.88	1603.32	5.19	-0.455	0.000	0.023
105.00	-15.49	-1.71	-0.20	-15.92	0.00	15.92	2305.55	1152.77	2980.36	1492.40	5.67	-0.462	-0.001	0.017
107.00	-14.59	-1.59	-0.20	-12.50	0.00	12.50	2276.62	1138.31	2893.19	1448.75	5.87	-0.464	-0.001	0.015
110.00	-10.62	-1.18	0.00	-7.72	0.00	7.72	2225.68	1112.84	2755.45	1379.77	6.16	-0.466	-0.001	0.010
113.00	-9.56	-1.04	0.00	-4.19	0.00	4.19	2167.31	1083.66	2612.10	1307.99	6.45	-0.468	-0.001	0.008
115.00	-9.11	-0.99	0.00	-2.10	0.00	2.10	2128.40	1064.20	2518.66	1261.20	6.65	-0.468	-0.001	0.006
117.00	-0.45	-0.06	0.00	-0.12	0.00	0.12	2089.48	1044.74	2426.92	1215.26	6.85	-0.468	-0.001	0.000
119.00	0.00	-0.06	0.00	0.00	0.00	0.00	2050.57	1025.29	2336.89	1170.18	7.04	-0.468	-0.001	0.000

Seismic Segment Forces (Factored)

Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (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 + 1.0E

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.57	**SA**	0.06	**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		1363.4	0.00	0.04	0.02	20.52	
10.00		1332.2	0.01	0.06	0.03	29.23	
15.00		1301.0	0.03	0.07	0.04	32.80	
20.00		1269.8	0.05	0.07	0.04	34.25	
25.00		1238.7	0.08	0.07	0.04	34.99	
30.00		1207.5	0.12	0.07	0.03	35.52	
35.00		1176.3	0.16	0.07	0.03	35.78	
40.00		1145.1	0.21	0.06	0.02	35.31	
45.00		1113.9	0.27	0.05	0.01	33.44	
47.00	Bot - Section 2	436.85	0.29	0.05	0.01	12.75	
50.00		1209.4	0.33	0.04	0.01	32.94	
53.00	Top - Section 1	1188.5	0.37	0.03	0.01	28.94	
55.00		363.91	0.40	0.02	0.01	7.96	
60.00		891.06	0.48	-0.01	0.01	12.39	
65.00		864.33	0.56	-0.04	0.01	3.61	
70.00		837.60	0.65	-0.07	0.02	-4.52	
75.00		810.86	0.75	-0.10	0.04	-9.96	
80.00		784.13	0.85	-0.12	0.07	-11.01	
81.00	Top - Section 2	153.62	0.88	-0.12	0.08	-2.09	
85.00		503.99	0.96	-0.12	0.11	-4.52	
90.00	Appurtenance(s)	3214.3	1.08	-0.08	0.18	12.71	
95.00		587.66	1.20	0.01	0.26	14.79	
100.00	Appurtenance(s)	4850.0	1.33	0.17	0.37	266.28	
105.00		543.11	1.47	0.43	0.51	50.67	
107.00	Appurtenance(s)	561.01	1.53	0.57	0.58	62.32	
110.00	Appurtenance(s)	1725.8	1.61	0.83	0.69	242.41	
113.00	Appurtenance(s)	421.80	1.70	1.14	0.82	72.99	
115.00		196.75	1.77	1.38	0.92	38.67	
117.00	Appurtenance(s)	2991.2	1.83	1.66	1.02	662.70	
119.00	Appurtenance(s)	196.12	1.89	1.98	1.14	48.64	
	Totals:	**34,480.7**				**1,830.5**	**Total Wind:** **25,824.0**

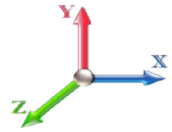
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (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 + 1.0E



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)**	0.57	**SA**	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	-44.43	-1.87	0.00	-180.18	0.00	180.18	5484.43	2742.22	13159.3	6589.47		0.00	0.00	0.035
5.00	-42.65	-1.85	0.00	-170.86	0.00	170.86	5405.01	2702.51	12673.3	6346.09		0.00	-0.01	0.035
10.00	-40.92	-1.83	0.00	-161.61	0.00	161.61	5323.53	2661.77	12191.2	6104.68		0.02	-0.01	0.034
15.00	-39.22	-1.80	0.00	-152.48	0.00	152.48	5239.98	2619.99	11713.4	5865.43		0.03	-0.02	0.033
20.00	-37.56	-1.77	0.00	-143.50	0.00	143.50	5154.37	2577.18	11240.2	5628.50		0.06	-0.03	0.033
25.00	-35.93	-1.74	0.00	-134.66	0.00	134.66	5066.69	2533.35	10772.0	5394.05		0.10	-0.04	0.032
30.00	-34.34	-1.70	0.00	-125.98	0.00	125.98	4976.95	2488.47	10309.2	5162.27		0.14	-0.04	0.031
35.00	-32.79	-1.67	0.00	-117.46	0.00	117.46	4885.14	2442.57	9851.98	4933.31		0.19	-0.05	0.031
40.00	-31.28	-1.64	0.00	-109.10	0.00	109.10	4791.27	2395.63	9400.73	4707.35		0.25	-0.06	0.030
45.00	-29.81	-1.61	0.00	-100.91	0.00	100.91	4695.33	2347.66	8955.81	4484.56		0.31	-0.07	0.029
47.00	-29.23	-1.60	0.00	-97.70	0.00	97.70	4656.37	2328.19	8779.69	4396.37		0.34	-0.07	0.028
50.00	-27.69	-1.56	0.00	-92.91	0.00	92.91	4597.32	2298.66	8517.56	4265.11		0.39	-0.08	0.028
53.00	-26.19	-1.53	0.00	-88.22	0.00	88.22	3769.04	1884.52	6995.75	3503.08		0.44	-0.08	0.032
55.00	-25.69	-1.53	0.00	-85.16	0.00	85.16	3738.97	1869.49	6858.18	3434.19		0.47	-0.08	0.032
60.00	-24.49	-1.52	0.00	-77.52	0.00	77.52	3662.35	1831.18	6517.42	3263.55		0.57	-0.09	0.030
65.00	-23.31	-1.51	0.00	-69.93	0.00	69.93	3583.67	1791.83	6181.48	3095.34		0.67	-0.10	0.029
70.00	-22.17	-1.52	0.00	-62.36	0.00	62.36	3502.92	1751.46	5850.70	2929.70		0.78	-0.11	0.028
75.00	-21.06	-1.52	0.00	-54.78	0.00	54.78	3420.10	1710.05	5525.41	2766.81		0.90	-0.12	0.026
80.00	-19.98	-1.52	0.00	-47.20	0.00	47.20	3335.22	1667.61	5205.95	2606.84		1.02	-0.13	0.024
81.00	-19.77	-1.52	0.00	-45.68	0.00	45.68	3318.00	1659.00	5142.79	2575.22		1.05	-0.13	0.024
81.00	-19.77	-1.52	0.00	-45.68	0.00	45.68	2626.87	1313.44	4085.05	2045.56		1.05	-0.13	0.030
85.00	-19.05	-1.52	0.00	-39.62	0.00	39.62	2576.62	1288.31	3894.21	1950.00		1.16	-0.13	0.028
90.00	-15.05	-1.50	0.00	-32.03	0.00	32.03	2511.95	1255.98	3659.15	1832.29		1.30	-0.14	0.023
95.00	-14.22	-1.48	0.00	-24.54	0.00	24.54	2445.22	1222.61	3428.26	1716.68		1.45	-0.15	0.020
100.00	-8.28	-1.20	0.00	-17.13	0.00	17.13	2376.41	1188.21	3201.88	1603.32		1.61	-0.15	0.014
105.00	-7.53	-1.15	0.00	-11.13	0.00	11.13	2305.55	1152.77	2980.36	1492.40		1.78	-0.16	0.011
107.00	-6.81	-1.08	0.00	-8.83	0.00	8.83	2276.62	1138.31	2893.19	1448.75		1.84	-0.16	0.009
110.00	-4.68	-0.84	0.00	-5.58	0.00	5.58	2225.68	1112.84	2755.45	1379.77		1.94	-0.16	0.006
113.00	-4.12	-0.76	0.00	-3.07	0.00	3.07	2167.31	1083.66	2612.10	1307.99		2.05	-0.16	0.004
115.00	-3.86	-0.72	0.00	-1.54	0.00	1.54	2128.40	1064.20	2518.66	1261.20		2.12	-0.16	0.003
117.00	-0.24	-0.05	0.00	-0.10	0.00	0.10	2089.48	1044.74	2426.92	1215.26		2.18	-0.16	0.000
119.00	0.00	-0.05	0.00	0.00	0.00	0.00	2050.57	1025.29	2336.89	1170.18		2.25	-0.16	0.000

Seismic Segment Forces (Factored)

Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (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:	0.9D + 1.0E					**Iterations**	16
Gust Response Factor	1.10			**Sds**	0.19	**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.57	**SA**	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		1363.4	0.00	0.04	0.02	20.52	
10.00		1332.2	0.01	0.06	0.03	29.23	
15.00		1301.0	0.03	0.07	0.04	32.80	
20.00		1269.8	0.05	0.07	0.04	34.25	
25.00		1238.7	0.08	0.07	0.04	34.99	
30.00		1207.5	0.12	0.07	0.03	35.52	
35.00		1176.3	0.16	0.07	0.03	35.78	
40.00		1145.1	0.21	0.06	0.02	35.31	
45.00		1113.9	0.27	0.05	0.01	33.44	
47.00	Bot - Section 2	436.85	0.29	0.05	0.01	12.75	
50.00		1209.4	0.33	0.04	0.01	32.94	
53.00	Top - Section 1	1188.5	0.37	0.03	0.01	28.94	
55.00		363.91	0.40	0.02	0.01	7.96	
60.00		891.06	0.48	-0.01	0.01	12.39	
65.00		864.33	0.56	-0.04	0.01	3.61	
70.00		837.60	0.65	-0.07	0.02	-4.52	
75.00		810.86	0.75	-0.10	0.04	-9.96	
80.00		784.13	0.85	-0.12	0.07	-11.01	
81.00	Top - Section 2	153.62	0.88	-0.12	0.08	-2.09	
85.00		503.99	0.96	-0.12	0.11	-4.52	
90.00	Appurtenance(s)	3214.3	1.08	-0.08	0.18	12.71	
95.00		587.66	1.20	0.01	0.26	14.79	
100.00	Appurtenance(s)	4850.0	1.33	0.17	0.37	266.28	
105.00		543.11	1.47	0.43	0.51	50.67	
107.00	Appurtenance(s)	561.01	1.53	0.57	0.58	62.32	
110.00	Appurtenance(s)	1725.8	1.61	0.83	0.69	242.41	
113.00	Appurtenance(s)	421.80	1.70	1.14	0.82	72.99	
115.00		196.75	1.77	1.38	0.92	38.67	
117.00	Appurtenance(s)	2991.2	1.83	1.66	1.02	662.70	
119.00	Appurtenance(s)	196.12	1.89	1.98	1.14	48.64	
	Totals:	**34,480.7**				**1,830.5**	**Total Wind:** **25,824.0**

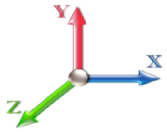
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (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: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	16		
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18		
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.57	**SA**	0.06	**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	-33.32	-1.86	0.00	-179.21	0.00	179.21	5484.43	2742.22	13159.3	6589.47		0.00	0.00	0.033
5.00	-31.99	-1.85	0.00	-169.89	0.00	169.89	5405.01	2702.51	12673.3	6346.09		0.00	-0.01	0.033
10.00	-30.69	-1.82	0.00	-160.66	0.00	160.66	5323.53	2661.77	12191.2	6104.68		0.02	-0.01	0.032
15.00	-29.41	-1.79	0.00	-151.55	0.00	151.55	5239.98	2619.99	11713.4	5865.43		0.03	-0.02	0.031
20.00	-28.17	-1.76	0.00	-142.59	0.00	142.59	5154.37	2577.18	11240.2	5628.50		0.06	-0.03	0.031
25.00	-26.95	-1.73	0.00	-133.79	0.00	133.79	5066.69	2533.35	10772.0	5394.05		0.10	-0.04	0.030
30.00	-25.76	-1.70	0.00	-125.14	0.00	125.14	4976.95	2488.47	10309.2	5162.27		0.14	-0.04	0.029
35.00	-24.60	-1.66	0.00	-116.66	0.00	116.66	4885.14	2442.57	9851.98	4933.31		0.19	-0.05	0.029
40.00	-23.46	-1.63	0.00	-108.35	0.00	108.35	4791.27	2395.63	9400.73	4707.35		0.25	-0.06	0.028
45.00	-22.36	-1.60	0.00	-100.21	0.00	100.21	4695.33	2347.66	8955.81	4484.56		0.31	-0.07	0.027
47.00	-21.92	-1.58	0.00	-97.02	0.00	97.02	4656.37	2328.19	8779.69	4396.37		0.34	-0.07	0.027
50.00	-20.77	-1.55	0.00	-92.26	0.00	92.26	4597.32	2298.66	8517.56	4265.11		0.39	-0.08	0.026
53.00	-19.64	-1.52	0.00	-87.61	0.00	87.61	3769.04	1884.52	6995.75	3503.08		0.44	-0.08	0.030
55.00	-19.27	-1.52	0.00	-84.56	0.00	84.56	3738.97	1869.49	6858.18	3434.19		0.47	-0.08	0.030
60.00	-18.36	-1.51	0.00	-76.98	0.00	76.98	3662.35	1831.18	6517.42	3263.55		0.56	-0.09	0.029
65.00	-17.48	-1.50	0.00	-69.45	0.00	69.45	3583.67	1791.83	6181.48	3095.34		0.66	-0.10	0.027
70.00	-16.62	-1.50	0.00	-61.93	0.00	61.93	3502.92	1751.46	5850.70	2929.70		0.77	-0.11	0.026
75.00	-15.79	-1.50	0.00	-54.42	0.00	54.42	3420.10	1710.05	5525.41	2766.81		0.89	-0.12	0.024
80.00	-14.98	-1.50	0.00	-46.89	0.00	46.89	3335.22	1667.61	5205.95	2606.84		1.02	-0.12	0.022
81.00	-14.82	-1.50	0.00	-45.39	0.00	45.39	3318.00	1659.00	5142.79	2575.22		1.04	-0.13	0.022
81.00	-14.82	-1.50	0.00	-45.39	0.00	45.39	2626.87	1313.44	4085.05	2045.56		1.04	-0.13	0.028
85.00	-14.29	-1.51	0.00	-39.37	0.00	39.37	2576.62	1288.31	3894.21	1950.00		1.15	-0.13	0.026
90.00	-11.29	-1.49	0.00	-31.84	0.00	31.84	2511.95	1255.98	3659.15	1832.29		1.29	-0.14	0.022
95.00	-10.67	-1.47	0.00	-24.41	0.00	24.41	2445.22	1222.61	3428.26	1716.68		1.44	-0.15	0.019
100.00	-6.21	-1.19	0.00	-17.05	0.00	17.05	2376.41	1188.21	3201.88	1603.32		1.60	-0.15	0.013
105.00	-5.64	-1.14	0.00	-11.07	0.00	11.07	2305.55	1152.77	2980.36	1492.40		1.77	-0.16	0.010
107.00	-5.11	-1.08	0.00	-8.79	0.00	8.79	2276.62	1138.31	2893.19	1448.75		1.83	-0.16	0.008
110.00	-3.51	-0.83	0.00	-5.55	0.00	5.55	2225.68	1112.84	2755.45	1379.77		1.93	-0.16	0.006
113.00	-3.09	-0.76	0.00	-3.05	0.00	3.05	2167.31	1083.66	2612.10	1307.99		2.03	-0.16	0.004
115.00	-2.89	-0.72	0.00	-1.54	0.00	1.54	2128.40	1064.20	2518.66	1261.20		2.10	-0.16	0.003
117.00	-0.18	-0.05	0.00	-0.10	0.00	0.10	2089.48	1044.74	2426.92	1215.26		2.17	-0.16	0.000
119.00	0.00	-0.05	0.00	0.00	0.00	0.00	2050.57	1025.29	2336.89	1170.18		2.24	-0.16	0.000

Wind Loading - Shaft

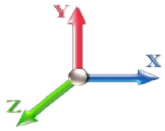
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 17

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	249.82	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	244.21	0.650	0.000	5.00	24.603	15.99	107.8	0.0	1363.5
10.00		1.00	0.70	6.129	6.74	238.60	0.650	0.000	5.00	24.044	15.63	105.4	0.0	1332.3
15.00		1.00	0.70	6.129	6.74	232.99	0.650	0.000	5.00	23.486	15.27	102.9	0.0	1301.1
20.00		1.00	0.70	6.129	6.74	227.38	0.650	0.000	5.00	22.927	14.90	100.5	0.0	1269.9
25.00		1.00	0.70	6.129	6.74	221.78	0.650	0.000	5.00	22.369	14.54	98.0	0.0	1238.7
30.00		1.00	0.70	6.134	6.75	216.26	0.650	0.000	5.00	21.810	14.18	95.7	0.0	1207.5
35.00		1.00	0.73	6.410	7.05	215.34	0.650	0.000	5.00	21.252	13.81	97.4	0.0	1176.3
40.00		1.00	0.76	6.659	7.33	213.64	0.650	0.000	5.00	20.693	13.45	98.5	0.0	1145.1
45.00		1.00	0.79	6.887	7.58	211.32	0.650	0.000	5.00	20.134	13.09	99.1	0.0	1113.9
47.00	Bot - Section 2	1.00	0.80	6.973	7.67	210.25	0.650	0.000	2.00	7.897	5.13	39.4	0.0	436.8
50.00		1.00	0.81	7.098	7.81	208.49	0.650	0.000	3.00	11.869	7.71	60.2	0.0	1209.4
53.00	Top - Section 1	1.00	0.82	7.217	7.94	206.58	0.650	0.000	3.00	11.668	7.58	60.2	0.0	1188.6
55.00		1.00	0.83	7.294	8.02	208.71	0.650	0.000	2.00	7.667	4.98	40.0	0.0	363.9
60.00		1.00	0.85	7.477	8.22	205.12	0.650	0.000	5.00	18.776	12.20	100.4	0.0	891.1
65.00		1.00	0.87	7.650	8.42	201.22	0.650	0.000	5.00	18.218	11.84	99.6	0.0	864.3
70.00		1.00	0.89	7.814	8.60	197.03	0.650	0.000	5.00	17.659	11.48	98.7	0.0	837.6
75.00		1.00	0.91	7.969	8.77	192.58	0.650	0.000	5.00	17.100	11.12	97.4	0.0	810.9
80.00		1.00	0.93	8.118	8.93	187.91	0.650	0.000	5.00	16.542	10.75	96.0	0.0	784.1
81.00	Top - Section 2	1.00	0.93	8.147	8.96	186.95	0.650	0.000	1.00	3.241	2.11	18.9	0.0	153.6
85.00		1.00	0.94	8.260	9.09	183.04	0.650	0.000	4.00	12.742	8.28	75.2	0.0	504.0
90.00	Appurtenance(s)	1.00	0.96	8.396	9.24	177.97	0.650	0.000	5.00	15.425	10.03	92.6	0.0	609.9
95.00		1.00	0.97	8.526	9.38	172.74	0.650	0.000	5.00	14.866	9.66	90.6	0.0	587.7
100.00	Appurtenance(s)	1.00	0.99	8.652	9.52	167.35	0.650	0.000	5.00	14.308	9.30	88.5	0.0	565.4
105.00		1.00	1.00	8.774	9.65	161.81	0.650	0.000	5.00	13.749	8.94	86.3	0.0	543.1
107.00	Appurtenance(s)	1.00	1.01	8.821	9.70	159.55	0.650	0.000	2.00	5.343	3.47	33.7	0.0	211.0
110.00	Appurtenance(s)	1.00	1.02	8.891	9.78	156.13	0.650	0.000	3.00	7.847	5.10	49.9	0.0	309.8
113.00	Appurtenance(s)	1.00	1.02	8.960	9.86	152.67	0.650	0.000	3.00	7.646	4.97	49.0	0.0	301.8
115.00		1.00	1.03	9.005	9.91	150.33	0.650	0.000	2.00	4.986	3.24	32.1	0.0	196.7
117.00	Appurtenance(s)	1.00	1.03	9.049	9.95	147.97	0.650	0.000	2.00	4.896	3.18	31.7	0.0	193.2
119.00	Appurtenance(s)	1.00	1.04	9.093	10.00	145.60	0.650	0.000	2.00	4.807	3.12	31.3	0.0	189.6
								Totals:	**119.00**			**2,277.0**		**22,901.0**

Discrete Appurtenance Forces

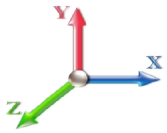
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 17

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	119.00	6' Lightning rod	1	9.093	10.002	1.00	1.00	0.38	6.50	0.000	0.000	3.80	0.00	0.00
2	117.00	Radio 4449 B71+B12	3	9.049	9.954	0.54	0.80	2.65	210.00	0.000	0.000	26.41	0.00	0.00
3	117.00	RFS	3	9.005	9.905	0.52	0.75	31.88	384.00	0.000	-2.000	315.76	0.00	-631.51
4	117.00	Air32	3	9.049	9.954	0.65	0.75	12.74	396.60	0.000	0.000	126.85	0.00	0.00
5	117.00	AIR 21 B2A B4P	3	9.049	9.954	0.66	0.80	12.07	274.50	0.000	0.000	120.17	0.00	0.00
6	117.00	KRY 112 144/1	3	9.049	9.954	0.58	0.80	0.71	33.00	0.000	0.000	7.06	0.00	0.00
7	117.00	Low Profile	1	9.049	9.954	1.00	1.00	22.00	1500.00	0.000	0.000	218.99	0.00	0.00
8	113.00	3 ft Standoff	1	8.960	9.856	1.00	1.00	4.50	120.00	0.000	0.000	44.35	0.00	0.00
9	110.00	VHLP2-18	2	8.891	9.780	1.00	1.00	9.36	54.00	2.291	0.000	91.54	209.73	0.00
10	110.00	dual sector mounts	3	8.891	9.780	1.00	1.00	12.00	1050.00	0.000	0.000	117.36	0.00	0.00
11	110.00	AAHC	3	8.891	9.780	0.60	0.80	7.56	312.00	0.000	0.000	73.94	0.00	0.00
12	107.00	Ring Mount	1	8.821	9.703	1.00	1.00	5.00	350.00	0.000	0.000	48.52	0.00	0.00
13	100.00	IBC700-1	3	8.652	9.517	0.68	0.75	2.68	189.90	0.000	0.000	25.50	0.00	0.00
14	100.00	Platform w/ Hand Rail	1	8.652	9.517	1.00	1.00	43.80	1875.00	0.000	0.000	416.86	0.00	0.00
15	100.00	RRU-32	3	8.652	9.517	0.64	0.75	7.38	231.00	0.000	0.000	70.28	0.00	0.00
16	100.00	RRUS-A2	6	8.652	9.517	0.46	0.75	5.12	132.00	0.000	0.000	48.75	0.00	0.00
17	100.00	RRU-12	6	8.652	9.517	0.53	0.75	8.89	348.00	0.000	0.000	84.60	0.00	0.00
18	100.00	RRU-11	12	8.652	9.517	0.53	0.75	15.99	648.00	0.000	0.000	152.18	0.00	0.00
19	100.00	HPA-65R-BUU-H8	12	8.652	9.517	0.58	0.75	91.00	729.60	0.000	0.000	866.11	0.00	0.00
20	100.00	DC6-48-60-18-8F	4	8.652	9.517	0.75	0.75	4.41	131.20	0.000	0.000	41.97	0.00	0.00
21	90.00	RRH2X60-AWS	3	8.396	9.235	0.62	0.80	6.48	165.00	0.000	0.000	59.81	0.00	0.00
22	90.00	LNX-6514DS-A1M	6	8.396	9.235	0.66	0.80	32.20	232.80	0.000	0.000	297.34	0.00	0.00
23	90.00	HBXX-6517DS-A2M	6	8.396	9.235	0.64	0.80	32.83	282.00	0.000	0.000	303.21	0.00	0.00
24	90.00	Low Profile Platform	1	8.396	9.235	1.00	1.00	22.00	1500.00	0.000	0.000	203.17	0.00	0.00
25	90.00	RRH2x60-PCS	3	8.396	9.235	0.63	0.80	2.84	165.00	0.000	0.000	26.21	0.00	0.00
26	90.00	B13 RRH4x30	3	8.396	9.235	0.70	0.80	5.69	171.60	0.000	0.000	52.56	0.00	0.00
27	90.00	DB-T1-6Z-8AB-0Z	2	8.396	9.235	0.73	0.80	5.97	88.00	0.000	0.000	55.13	0.00	0.00
							Totals:		**11,579.70**			**3,898.42**		

Total Applied Force Summary

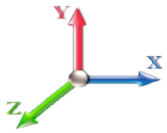
Structure:	CT13555-S-SBA		**Code:**	EIA/TIA-222-G	6/19/2019
Site Name:	Montano		**Exposure:**	B	
Height:	119.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 17

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		107.81	1478.36	0.00	0.00
10.00		105.36	1447.17	0.00	0.00
15.00		102.91	1415.98	0.00	0.00
20.00		100.47	1384.79	0.00	0.00
25.00		98.02	1353.60	0.00	0.00
30.00		95.65	1322.41	0.00	0.00
35.00		97.40	1291.23	0.00	0.00
40.00		98.53	1260.04	0.00	0.00
45.00		99.15	1228.85	0.00	0.00
47.00		39.38	482.81	0.00	0.00
50.00		60.23	1278.36	0.00	0.00
53.00		60.21	1257.51	0.00	0.00
55.00		39.98	409.87	0.00	0.00
60.00		100.38	1005.96	0.00	0.00
65.00		99.65	979.23	0.00	0.00
70.00		98.66	952.50	0.00	0.00
75.00		97.44	925.76	0.00	0.00
80.00		96.01	899.03	0.00	0.00
81.00		18.88	176.60	0.00	0.00
85.00		75.25	595.91	0.00	0.00
90.00	(24) attachments	1090.02	3329.24	0.00	0.00
95.00		90.63	691.56	0.00	0.00
100.00	(47) attachments	1794.76	4953.99	0.00	0.00
105.00		86.25	628.51	0.00	0.00
107.00	(1) attachments	82.22	595.17	0.00	0.00
110.00	(8) attachments	332.73	1777.06	209.73	0.00
113.00	(1) attachments	93.33	463.08	0.00	0.00
115.00		32.10	224.27	0.00	0.00
117.00	(16) attachments	846.92	3018.80	0.00	-631.51
119.00	(1) attachments	35.05	196.12	0.00	0.00
	Totals:	**6,175.37**	**37,023.78**	**209.73**	**-631.51**

Calculated Forces

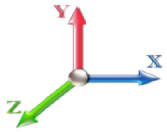
Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 17

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	-37.02	-6.18	-0.21	-541.01	0.00	541.01	5484.43	2742.22	13159.3	6589.47	0.00	0.000	0.000	0.089
5.00	-35.54	-6.09	-0.21	-510.10	0.00	510.10	5405.01	2702.51	12673.3	6346.09	0.01	-0.021	0.000	0.087
10.00	-34.09	-5.99	-0.21	-479.67	0.00	479.67	5323.53	2661.77	12191.2	6104.68	0.05	-0.043	0.000	0.085
15.00	-32.67	-5.90	-0.21	-449.70	0.00	449.70	5239.98	2619.99	11713.4	5865.43	0.10	-0.065	0.000	0.083
20.00	-31.29	-5.81	-0.21	-420.19	0.00	420.19	5154.37	2577.18	11240.2	5628.50	0.18	-0.087	0.000	0.081
25.00	-29.93	-5.72	-0.21	-391.13	0.00	391.13	5066.69	2533.35	10772.0	5394.05	0.29	-0.109	0.000	0.078
30.00	-28.61	-5.64	-0.21	-362.52	0.00	362.52	4976.95	2488.47	10309.2	5162.27	0.41	-0.131	0.000	0.076
35.00	-27.31	-5.55	-0.21	-334.34	0.00	334.34	4885.14	2442.57	9851.98	4933.31	0.56	-0.153	0.000	0.073
40.00	-26.05	-5.45	-0.21	-306.61	0.00	306.61	4791.27	2395.63	9400.73	4707.35	0.73	-0.175	0.000	0.071
45.00	-24.82	-5.36	-0.21	-279.35	0.00	279.35	4695.33	2347.66	8955.81	4484.56	0.93	-0.196	0.000	0.068
47.00	-24.34	-5.32	-0.21	-268.64	0.00	268.64	4656.37	2328.19	8779.69	4396.37	1.01	-0.205	0.000	0.066
50.00	-23.06	-5.26	-0.21	-252.68	0.00	252.68	4597.32	2298.66	8517.56	4265.11	1.14	-0.218	0.000	0.064
53.00	-21.80	-5.20	-0.21	-236.90	0.00	236.90	3769.04	1884.52	6995.75	3503.08	1.29	-0.231	0.000	0.073
55.00	-21.39	-5.16	-0.21	-226.50	0.00	226.50	3738.97	1869.49	6858.18	3434.19	1.38	-0.240	0.000	0.072
60.00	-20.38	-5.07	-0.21	-200.68	0.00	200.68	3662.35	1831.18	6517.42	3263.55	1.65	-0.262	0.000	0.067
65.00	-19.40	-4.97	-0.21	-175.35	0.00	175.35	3583.67	1791.83	6181.48	3095.34	1.93	-0.284	0.000	0.062
70.00	-18.45	-4.87	-0.21	-150.50	0.00	150.50	3502.92	1751.46	5850.70	2929.70	2.24	-0.305	0.000	0.057
75.00	-17.52	-4.78	-0.21	-126.13	0.00	126.13	3420.10	1710.05	5525.41	2766.81	2.57	-0.324	0.000	0.051
80.00	-16.62	-4.68	-0.21	-102.26	0.00	102.26	3335.22	1667.61	5205.95	2606.84	2.92	-0.342	0.000	0.044
81.00	-16.45	-4.66	-0.21	-97.58	0.00	97.58	3318.00	1659.00	5142.79	2575.22	3.00	-0.346	0.000	0.043
81.00	-16.45	-4.66	-0.21	-97.58	0.00	97.58	2626.87	1313.44	4085.05	2045.56	3.00	-0.346	0.000	0.054
85.00	-15.85	-4.59	-0.21	-78.94	0.00	78.94	2576.62	1288.31	3894.21	1950.00	3.29	-0.358	0.000	0.047
90.00	-12.53	-3.48	-0.21	-56.01	0.00	56.01	2511.95	1255.98	3659.15	1832.29	3.68	-0.373	0.000	0.036
95.00	-11.83	-3.38	-0.21	-38.63	0.00	38.63	2445.22	1222.61	3428.26	1716.68	4.07	-0.385	0.000	0.027
100.00	-6.89	-1.56	-0.21	-21.71	0.00	21.71	2376.41	1188.21	3201.88	1603.32	4.48	-0.394	0.000	0.016
105.00	-6.26	-1.47	-0.21	-13.93	0.00	13.93	2305.55	1152.77	2980.36	1492.40	4.90	-0.400	-0.001	0.012
107.00	-5.67	-1.38	-0.21	-11.00	0.00	11.00	2276.62	1138.31	2893.19	1448.75	5.07	-0.401	-0.001	0.010
110.00	-3.90	-1.03	0.00	-6.86	0.00	6.86	2225.68	1112.84	2755.45	1379.77	5.32	-0.403	-0.001	0.007
113.00	-3.43	-0.94	0.00	-3.76	0.00	3.76	2167.31	1083.66	2612.10	1307.99	5.57	-0.405	-0.001	0.004
115.00	-3.21	-0.90	0.00	-1.88	0.00	1.88	2128.40	1064.20	2518.66	1261.20	5.74	-0.405	-0.001	0.003
117.00	-0.20	-0.04	0.00	-0.07	0.00	0.07	2089.48	1044.74	2426.92	1215.26	5.91	-0.405	-0.001	0.000
119.00	0.00	-0.03	0.00	0.00	0.00	0.00	2050.57	1025.29	2336.89	1170.18	6.08	-0.405	-0.001	0.000

Final Analysis Summary

Structure:	CT13555-S-SBA	**Code:**	EIA/TIA-222-G	6/19/2019	
Site Name:	Montano	**Exposure:**	B		
Height:	119.00 (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

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 97 mph Wind	25.9	0.00	44.41	0.00	0.55	2269.22
0.9D + 1.6W 97 mph Wind	25.9	0.00	33.30	0.00	0.55	2258.85
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.3	0.00	80.67	0.00	0.20	630.53
1.2D + 1.0E	1.9	0.00	44.43	0.00	0.00	180.18
0.9D + 1.0E	1.9	0.00	33.32	0.00	0.00	179.21
1.0D + 1.0W 60 mph Wind	6.2	0.00	37.02	0.00	0.21	541.01

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 97 mph Wind	-44.41	-25.86	-0.55	-2269.2	0.00	-2269.2	5484.43	2742.2	13159.3	6589.47	0.00	0.353
0.9D + 1.6W 97 mph Wind	-33.30	-25.85	-0.55	-2258.8	0.00	-2258.8	5484.43	2742.2	13159.3	6589.47	0.00	0.349
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-80.67	-7.28	-0.20	-630.53	0.00	-630.53	5484.43	2742.2	13159.3	6589.47	0.00	0.110
1.2D + 1.0E	-44.43	-1.87	0.00	-180.18	0.00	-180.18	5484.43	2742.2	13159.3	6589.47	0.00	0.035
0.9D + 1.0E	-33.32	-1.86	0.00	-179.21	0.00	-179.21	5484.43	2742.2	13159.3	6589.47	0.00	0.033
1.0D + 1.0W 60 mph Wind	-37.02	-6.18	-0.21	-541.01	0.00	-541.01	5484.43	2742.2	13159.3	6589.47	0.00	0.089

Pier Foundation Design For Monopole

				Date
				6/19/2019
	Customer Name:	**T-Mobile**	**EIA/TIA Standard:**	EIA-222-G
	Site Name:		**Structure Height (Ft.):**	119
	Site Number:	CT13555-S-SBA	**Engineer Name:**	J. Chen
	Engr. Number:	78006	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Acceptable overstress (5.0%

Base Reactions (Factored):

Axial Load (Kips):	80.7	Shear Force (Kips):	25.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2269.2

Foundation Geometries:

Mods required -Yes/No ?:	No			ft.
Diameter of Pier (ft.):	7.0	Depth of Base B. G. S. :	29.0	ft.
Pier Height A. G. (ft.):	1.00			

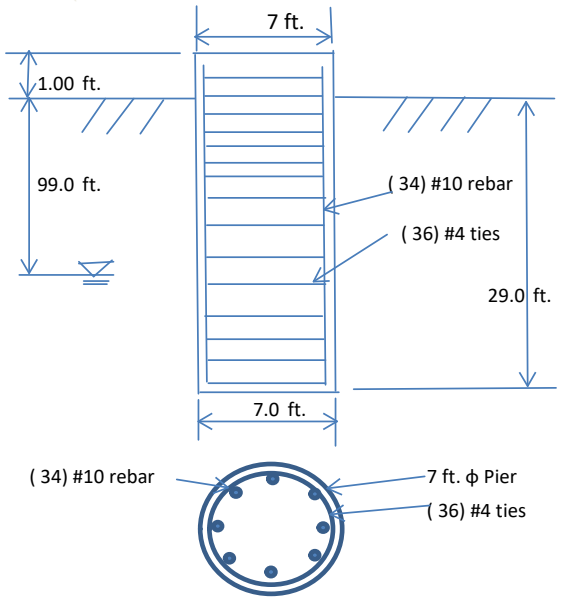
Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	60	ksi
Vertical Rebar Size #:	10	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	34	Tie Spacing:	12.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)

Skin Frictions are to be obtained from: Soil Report



Monopole Pier Foundation

Depth of Layers (ft) Top	Depth of Layers (ft) Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types
0.0	3.0	100	0	0	0	0	Sand
3.0	25.0	110	33	0	1000	0	Sand
25.0	30.0	105	30	0	1600	12000	Silt
30.0	35.0						

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75	
Total Dry Soil Volume from Conical Failure (cu. Ft.):	13814	Dry Soil Weight from Conical Failure:	1281	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	0	Buoyant Soil Weight from Conical Failure (Ki	0	Kips
Total Dry Concrete Volume (cu. Ft.):	1155	Total Dry Concrete Weight:	173.2	Kips
Total Buoyant Concrete Volume (cu. Ft.):	0.0	Total Buoyant Concrete Weight:	0.00	Kips
Total Effective Concrete Weight (Kips):	173.2	Total Effective Soil Weight:	1280.7	Kips
Total Effective Vertical Load on Base (Kips):	150.4			

Check Soil Capacities:

					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	10741.5	>	Design Factored Momont (kips-ft):	2799	0.26	OK!
Factor of Safety of Passive Soil Resistance against Moment:	3.84	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	

Reinforcing Concrete Pier:

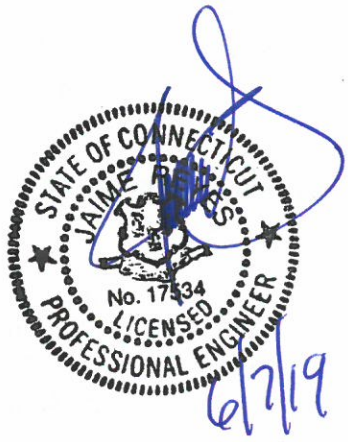
					Usage	
Vertical Steel Rebar Area (sq. in./each):	1.27		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	7102.8	>	Design Factored Moment (Mu, K-Ft):	2381.4	0.34	OK!
Calculated Shear Capacity (Kips):	1120.9	>	Design Factored Shear (Kips):	217.4	0.19	OK!
Calculated Tension Capacity (Tn, Kips):	2331.7	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9722	>	Design Factored Axial Load (Pu Kips):	80.7	0.01	OK!
Moment & Axial Strength Combination:	0.34	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.008	Reinforcement Ratio is satisfied per ACI				

EXHIBIT 8

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

Antenna Mount Analysis Report

Existing 120-Ft Monopole Tower
Customer Name: SBA Communications Corp
Customer Site Number: CT13555-S-SBA / Montano
Customer Site Name: Montano
Carrier Name: T-Mobile (App#: 117037, V1)
Carrier Site ID / Name: CTHA083C / Montano
Site Location: 58a Montano Road
Glastonbury, Connecticut
Hartford County
Latitude: 41.699444
Longitude: -72.564000



Analysis Result:

Max Structural Usage: 51.2% [Pass]

Report Prepared By: Sital Shrestha

Introduction

The purpose of this report is to summarize the analysis results on the Low profile platform at 114.90' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount mapping by Full Metal Tower Services, Drawing no. 1263073, dated 4/26/19.
Antenna Loading	Antenna loading by SBA Application # 117037, v1, dated 6/3/19.
Modification Drawings	N/A

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 124.0mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 96 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
Exposure Category: B
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

The site is a Risk Category II structure per table 1604.5 of the 2012 IBC. 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

Low profile platform at 114.90' elevation.

Final Antenna Configuration

3 Ericsson Air 21 B2A/B4P
3 Ericsson Air32 KRD901146-1_B66A_B2A
3 RFS APXVAARR24_43-U-NA20
3 Ericsson KRY 112 144/1
3 Ericsson Radio 4449 B71+B12

Any proposed antennas not currently installed should be mounted such that the centers of the antennas do not exceed 0.5 ft vertically from the center of the Low profile platform.

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. The maximum structural usage is 51.2%, which occurs in the Mount pipe. 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
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.


04.26.2019 13:04


04.26.2019 13:21

Structure: CT13555-S-SBA - Montano

Sector: **A**

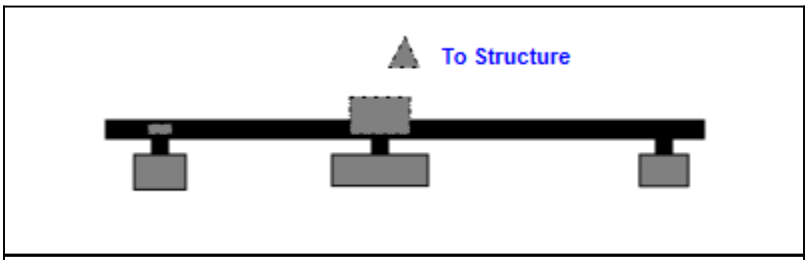
Structure Type: Monopole

Mount Elev: 114.90

6/7/2019

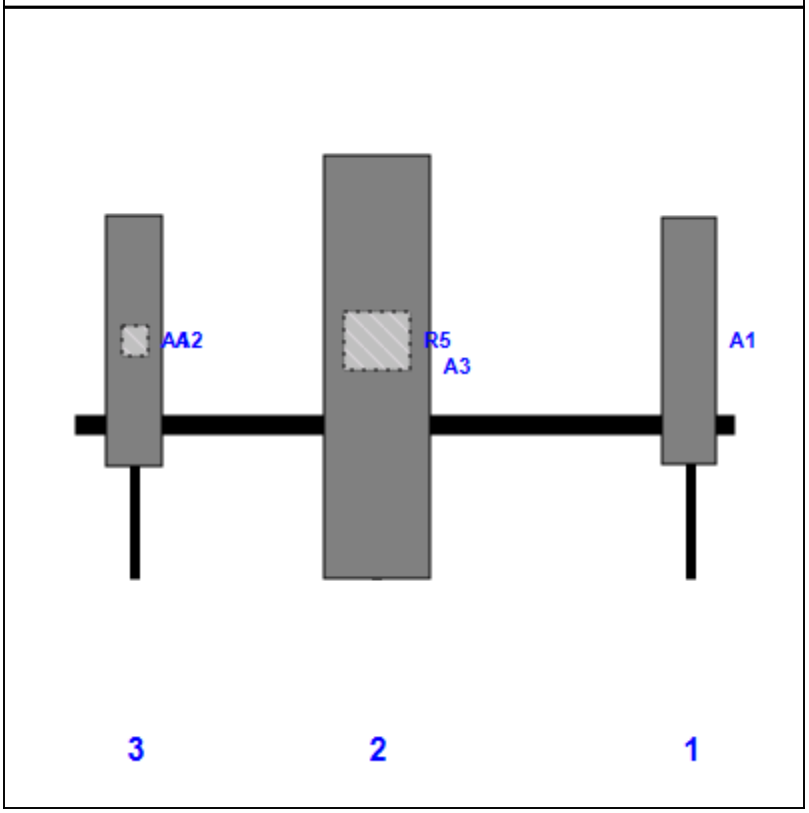
Tower Engineering Solutions

Plan View



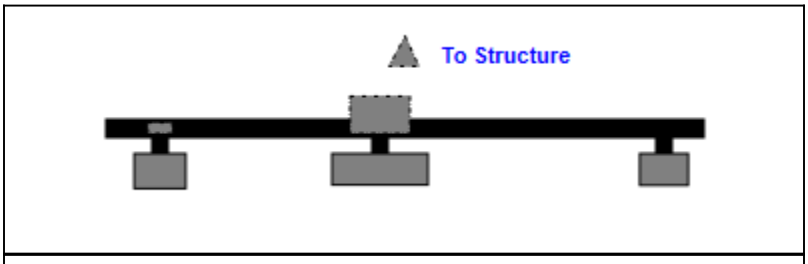
Front View

Looking Toward Structure



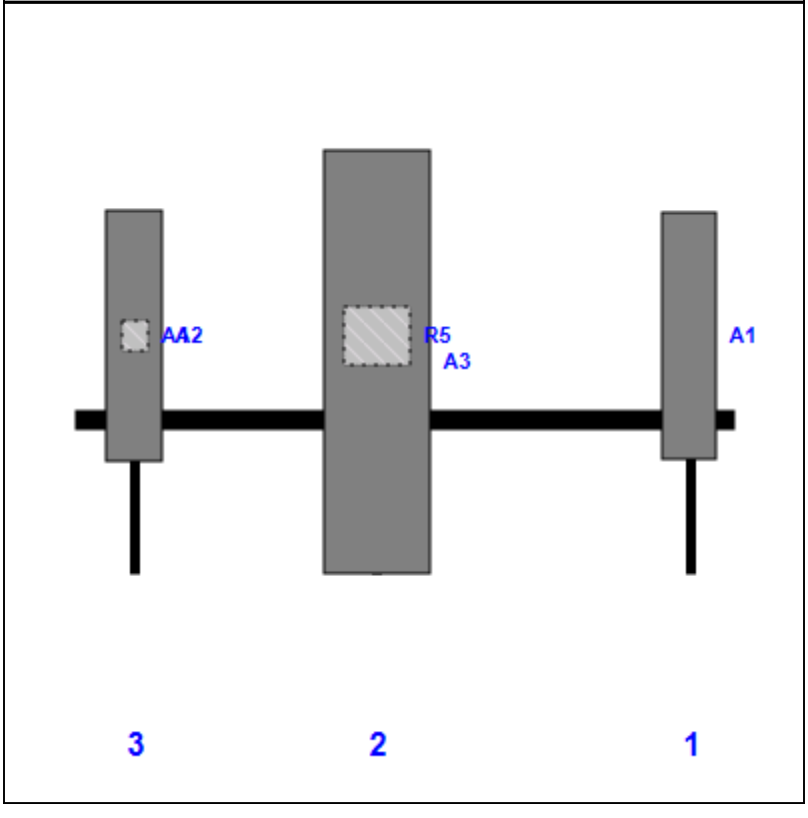
Ref #	Model	Height (in)	Width (in)	H Dist From Left	Pipe #	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A1	Air 21 B2A/B4P	56.00	12.10	140.00	1	a	Front	24.00	0.00
A3	APXVAARR24_43-U-NA20	95.90	24.00	69.00	2	a	Front	30.00	0.00
R5	Ericsson Radio 4449 B71+B12	13.10	15.00	69.00	2	a	Behind	24.00	0.00
A2	KRD 9011461-B66A-B2A	56.60	12.90	14.00	3	a	Front	24.00	0.00
A4	KRY 112 144/1	6.90	6.10	14.00	3	a	Behind	24.00	0.00

Plan View



Front View

Looking Toward Structure



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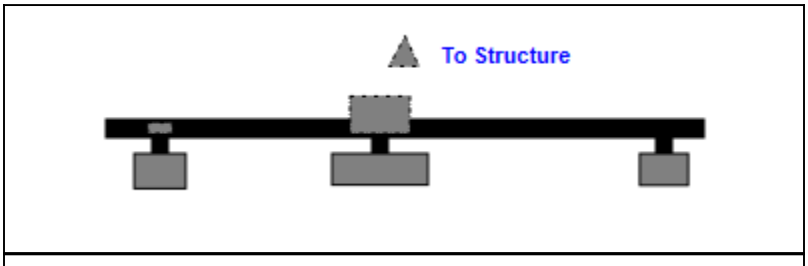
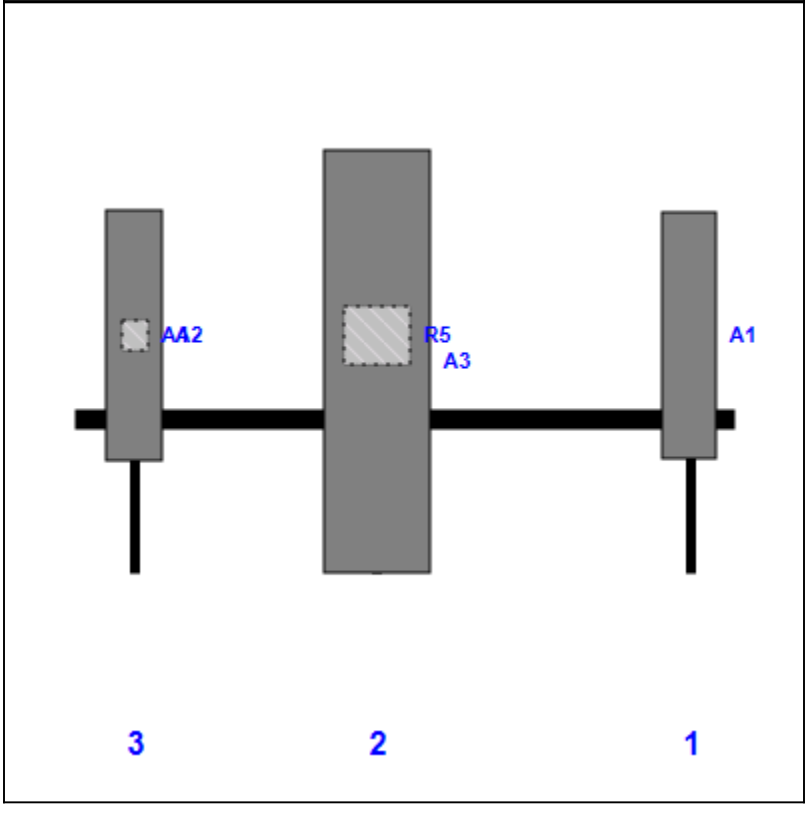
A4	KRY 112 144/1	6.90	6.10	14.00	3	a	Behind	24.00	0.00

Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist From Left	Pipe #	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
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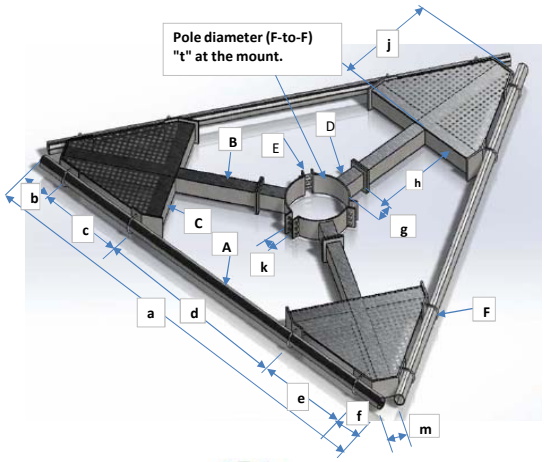
A2	KRD 9011461-B66A-B2A	56.60	12.90	14.00	3	a	Front	24.00	0.00
A4	KRY 112 144/1	6.90	6.10	14.00	3	a	Behind	24.00	0.00

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

FCC # 1263073

Tower Owner:	SBA Communications	**Mapping Date:**	4/26/19
Site Name:	Montano	**Structure Type:**	Monopole
Site Number or ID:	CT13555-S-SBA	**Structure Height (Ft.):**	120
Mapping Contractor:	Full Metal Tower Services	**Mount Height (Ft.):**	114.9



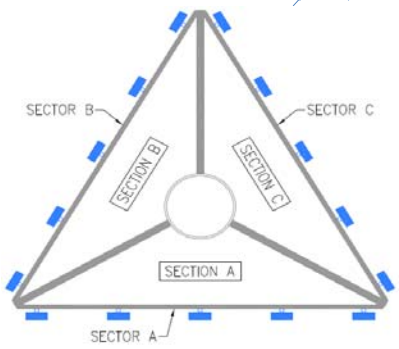
Geometries (Unit: inches)

a	150	**e**	44	**j**	46	**o**	N/A	**s**	N/A
b	10	**f**	14	**k**	36	**p**	N/A	**t**	29
c	44	**g**	4	**m**	8	**q**	N/A	**u ***	43
d	38	**h**	18	**n**	N/A	**r**	N/A	**v ***	78

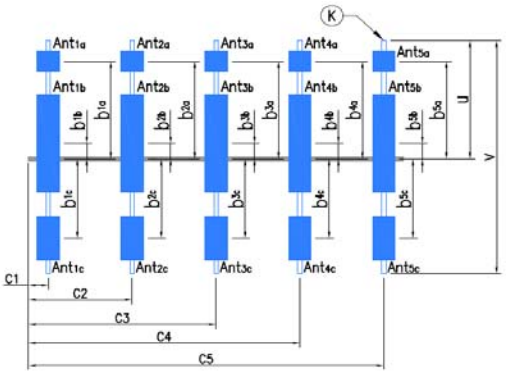
Members/Bolts (Unit: inches) * - See Ant. Layout for "u", "v" and member "K" (pipe)

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**	1/2" U-Bolt			
B	Tubing 4x4x1/4	4	4	0.25	**G**				
C	Tubing 4x4x1/4	4	4	0.25	**H**				
D	1/2" Thick. Plate	0	0	0.5	**J**				
E	5/8" Bolt	36			**K* (pipe)**	.375 OD x 0.154 Pip	2.375	2.067	0.154
Distance from top of main platform member to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.)									N/A
Distance from top of main platform member to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.)									N/A

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



Climbing facility is Located at Section C, at 295° Degree Azimuth



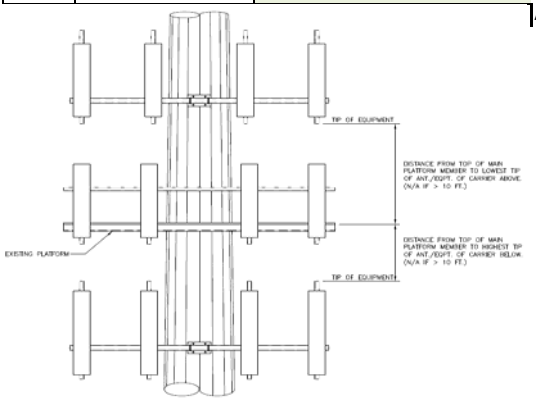
Antenna Layout

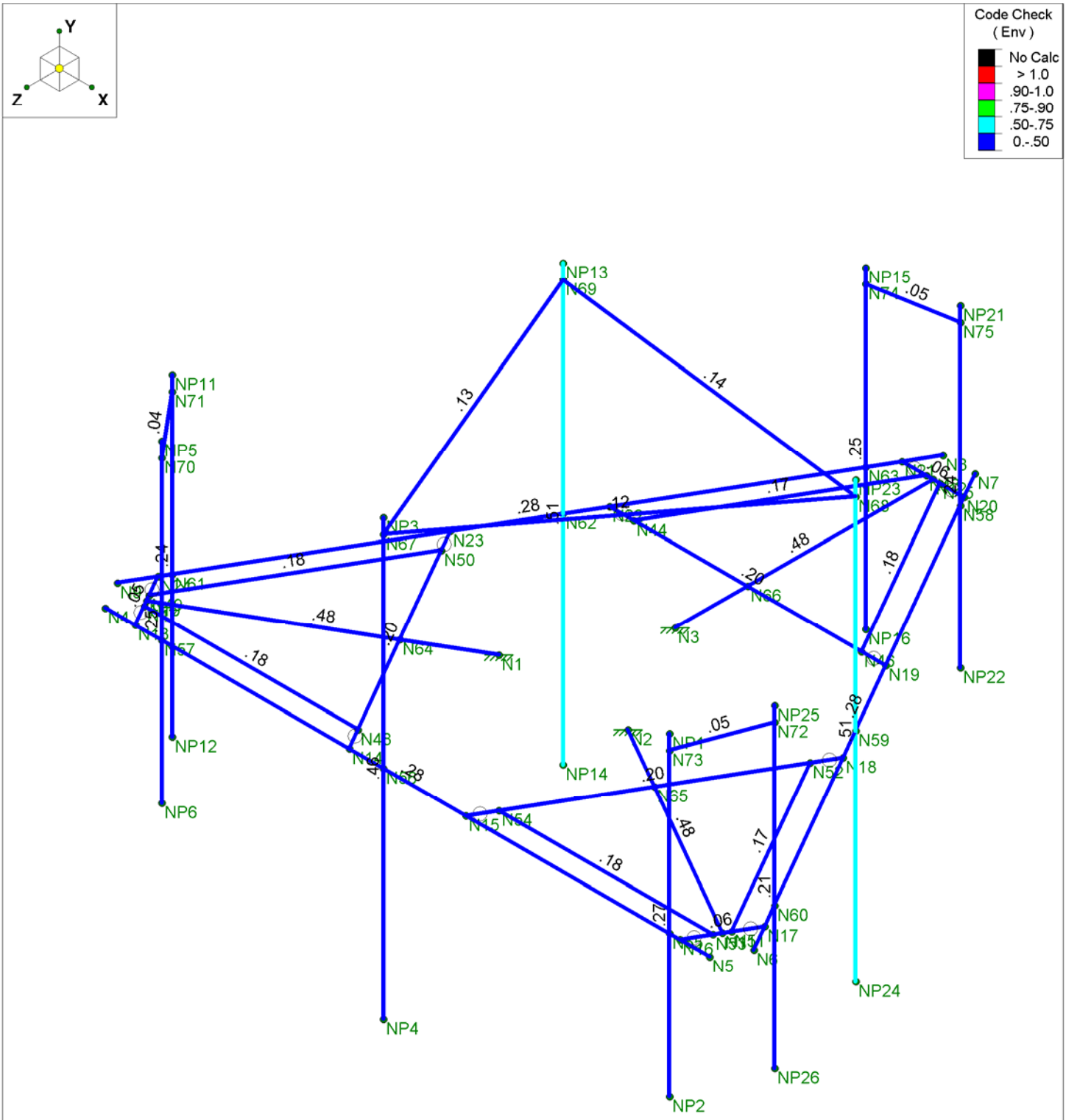
Ants. Items	Enter antenna model. If not labled, enter "Unknown". If no antenna at specified location, enter "N/A". If antennas and the locations are the same on all three sectors, only enter one sector.					Mounting Locations (Unit: inches)			Photos of antennas
	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b}...." (In.)	Horiz. offset (Use "-" if Ant. is inside)	Horiz. offset "C_1, C_2, C_3, C_4, C_5" (in.)	Photo Numbers
	Sector A								
Ant_{1a}	Air 21 B2A/B4P	12	8	56	1/2" (1)	+16"	7	140	
Ant_{1b}							7		
Ant_{1c}									
Ant_{2a}	APXVAARR24_43-U	12	7.5	96.5	1/2" (2)	+6"	7	69	
Ant_{2b}	RRH A	17	7	20	1/2" (2)	+24"	N/A	69	
Ant_{2c}									
Ant_{3a}	Air32 KRD901146-1	13	9	57	1/2" (2)	+17"	8	14	
Ant_{3b}	TMA A	6	3	8	1/2" (2)	+17"	N/A	14	
Ant_{3c}									
Ant_{4a}									
Ant_{4b}									
Ant_{4c}									
Ant_{5a}									
Ant_{5b}									
Ant_{5c}									
Are Ant same as sector A?	Yes	**Antennas on Sector B are the same as Sector A**							

Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	60°	Deg	
Sector B:	210°	Deg	
Sector C:	320°	Deg	
Climbing	295°	Deg	Located at Section C
Climbing Facility	Corrosion Type:		No corrosion observed
	Access:		Climbing path was unobstructed.
	Condition:		N/A

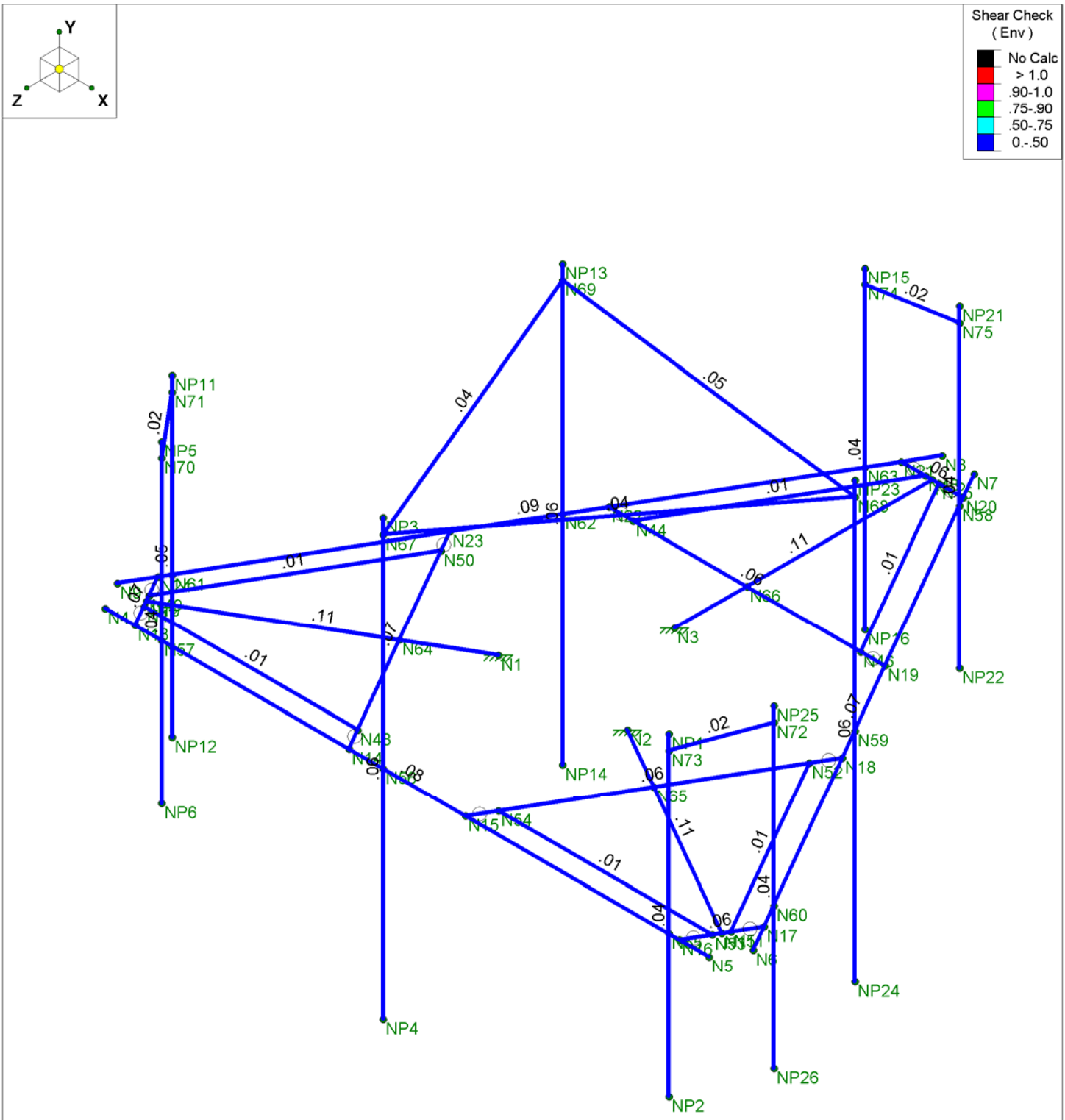
Are Ant same as sector A/B?	Same As A	**Antennas on Sector C are the same as Sector A**





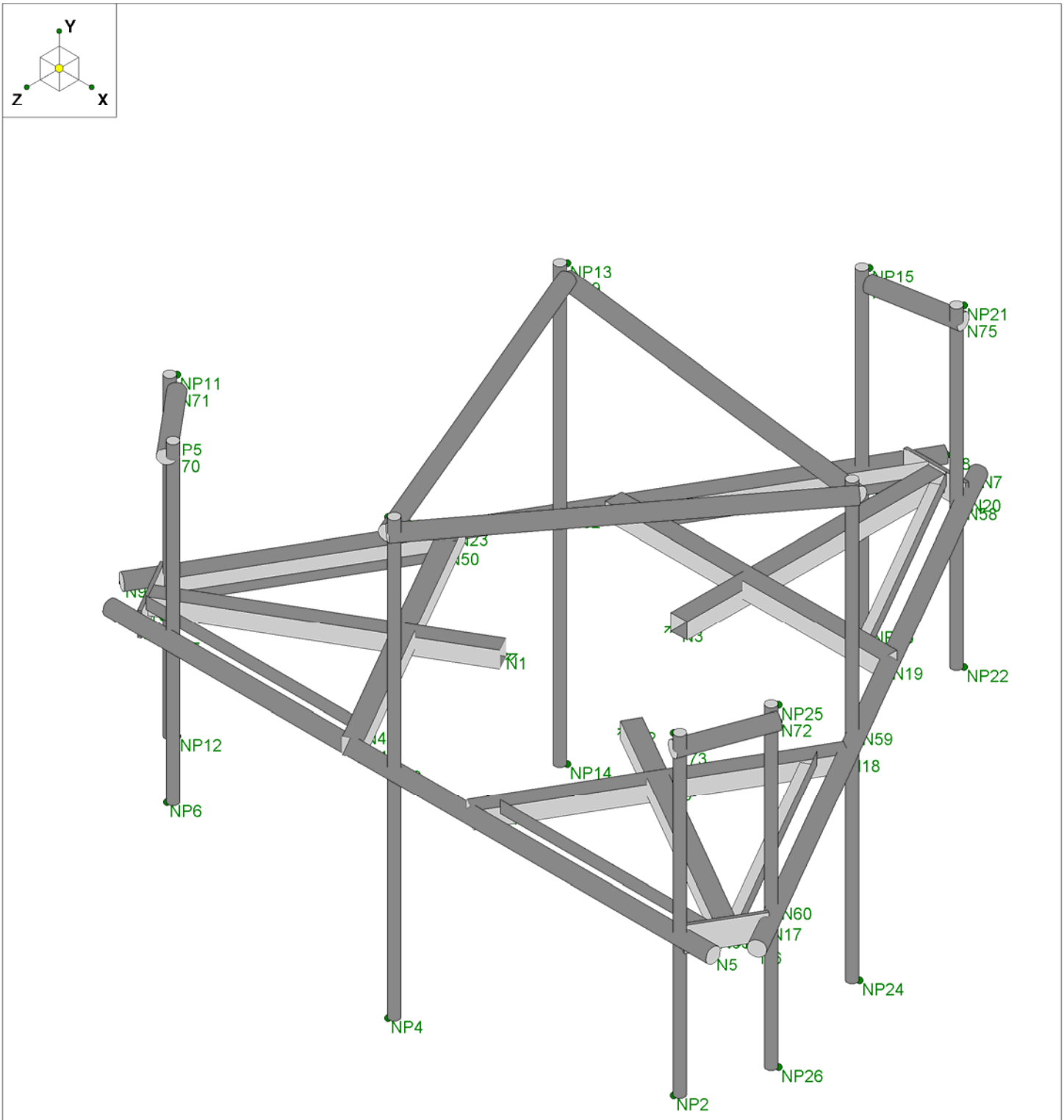
Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT13555-S-SBA_MT-C_G	SK - 1
		June 7, 2019 at 1:32 PM
TES Project No. 77898		CT13555-S-SBA_77898_G_RISA.r3d



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

Tower Engineering Solutio...	CT13555-S-SBA_MT-C_G	SK - 2
		June 7, 2019 at 1:33 PM
TES Project No. 77898		CT13555-S-SBA_77898_G_RISA.r3d



Tower Engineering Solutio...	CT13555-S-SBA_MT-C_G	SK - 3
		June 7, 2019 at 1:33 PM
TES Project No. 77898		CT13555-S-SBA_77898_G_RISA.r3d

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					24			
2	Antenna Di	None					24			
3	Antenna W Front	None					24			
4	Antenna Wi Front	None					24			
5	Antenna W Side	None					24			
6	Antenna Wi Side	None					24			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1					3	
10	Structure Di	None						18	3	
11	Structure W Front	None						18		
12	Structure Wi Front	None						18		
13	Structure W Side	None						18		
14	Structure Wi Side	None						18		
15	BLC 9 Transient Area...	None						105		
16	BLC 10 Transient Are...	None						105		

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6												
2	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6												
3	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6												
4	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6												
5	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1								
6	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1								
7	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1								
8	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1								
9	1.2D+1.5L...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16										
10	1.2D+1.5L...	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	N1	-1.335122	0	0.770833	0	
2	N2	1.335122	0	0.770833	0	
3	N3	0	0	-1.541667	0	
4	N4	-6.25	0	3.993339	0	
5	N5	6.25	0	3.993339	0	
6	N6	6.583333	0	3.415989	0	
7	N7	0.333333	0	-7.409328	0	
8	N8	-0.333333	0	-7.409328	0	
9	N9	-6.583333	0	3.415989	0	
10	N10	-5.953925	0	3.4375	0	
11	N11	5.953925	0	3.4375	0	
12	N12	0	0	-6.875	0	
13	N13	-5.633011	0	3.993339	0	
14	N14	-1.206659	0	3.993339	0	
15	N15	1.206659	0	3.993339	0	
16	N16	5.633011	0	3.993339	0	
17	N17	6.274839	0	2.881661	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
18	N18	4.061663	0	-0.951673	0	
19	N19	2.855004	0	-3.041667	0	
20	N20	0.641828	0	-6.875	0	
21	N21	-0.641828	0	-6.875	0	
22	N22	-2.855004	0	-3.041667	0	
23	N23	-4.061663	0	-0.951673	0	
24	N24	-6.274839	0	2.881661	0	
25	NP1	5.416667	3.583333	3.993339	0	
26	NP2	5.416667	-2.916667	3.993339	0	
27	NP3	-.5	4.5	3.993339	0	
28	NP4	-.5	-4.5	3.993339	0	
29	NP5	-5.083333	3.583333	3.993339	0	
30	NP6	-5.083333	-2.916667	3.993339	0	
31	NP11	-6.166667	3.583333	2.694301	0	
32	NP12	-6.166667	-2.916667	2.694301	0	
33	NP13	-3.208333	4.5	-2.429682	0	
34	NP14	-3.208333	-4.5	-2.429682	0	
35	NP15	-0.916667	3.583333	-6.398965	0	
36	NP16	-0.916667	-2.916667	-6.398965	0	
37	NP21	.75	3.583333	-6.687641	0	
38	NP22	.75	-2.916667	-6.687641	0	
39	NP23	3.708333	4.5	-1.563657	0	
40	NP24	3.708333	-4.5	-1.563657	0	
41	NP25	6	3.583333	2.405626	0	
42	NP26	6	-2.916667	2.405626	0	
43	N43	-0.141828	0	-6.875	0	
44	N44	-2.355004	0	-3.041667	0	
45	N45	0.141828	0	-6.875	0	
46	N46	2.355004	0	-3.041667	0	
47	N47	-5.883011	0	3.560327	0	
48	N48	-1.456659	0	3.560327	0	
49	N49	-6.024839	0	3.314673	0	
50	N50	-3.811663	0	-0.51866	0	
51	N51	6.024839	0	3.314673	0	
52	N52	3.811663	0	-0.51866	0	
53	N53	5.883011	0	3.560327	0	
54	N54	1.456659	0	3.560327	0	
55	N55	5.416667	0	3.993339	0	
56	N56	-.5	0	3.993339	0	
57	N57	-5.083333	0	3.993339	0	
58	N58	0.75	0	-6.687641	0	
59	N59	3.708333	0	-1.563657	0	
60	N60	6	0	2.405626	0	
61	N61	-6.166667	0	2.694301	0	
62	N62	-3.208333	0	-2.429682	0	
63	N63	-0.916667	0	-6.398965	0	
64	N64	-2.634161	0	1.520833	0	
65	N65	2.634161	0	1.520833	0	
66	N66	0	0	-3.041667	0	
67	N67	-.5	4.2	3.993339	0	
68	N68	3.708333	4.2	-1.563657	0	
69	N69	-3.208333	4.2	-2.429682	0	
70	N70	-5.083333	3.283333	3.993339	0	
71	N71	-6.166667	3.283333	2.694301	0	
72	N72	6	3.283333	2.405626	0	
73	N73	5.416667	3.283333	3.993339	0	
74	N74	-0.916667	3.283333	-6.398965	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
75	N75	0.75	3.283333	-6.687641	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	xxxxx	HSS16x0.438	Beam	None	A572 Gr.50	Typical	19.9	606	606	1210

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF	4CU5.25X03...	Beam	CU	A570 Gr.33	Typical	4.854	13.238	12.817	.228

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	AL1A	AACS14X13.9	Beam	AA Channel	3003-H14	Typical	11.8	44.7	401	1.19

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

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A570 Gr.33	29500	11346	.3	.65	.49	33	52
2	A607 C1 Gr.55	29500	11346	.3	.65	.49	55	70

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (...	Density[...	Table B.4	kt	Ftu[ksi]	Fty[ksi]	Fcy[ksi]	Fsu[ksi]	Ct
1	3003-H14	10100	3787.5	.33	1.3	.173	Table B...	1	19	16	13	12	141
2	6061-T6	10100	3787.5	.33	1.3	.173	Table B...	1	38	35	35	24	141
3	6063-T5	10100	3787.5	.33	1.3	.173	Table B...	1	22	16	16	13	141
4	6063-T6	10100	3787.5	.33	1.3	.173	Table B...	1	30	25	25	19	141
5	5052-H34	10200	3787.5	.33	1.3	.173	Table B...	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	.33	1.3	.173	Table B...	1	24	15	15	15	141

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N4	N5			PIPE_3.0	Beam	Pipe	A53 Gr.B	DR1
2	M2	N6	N7			PIPE_3.0	Beam	Pipe	A53 Gr.B	DR1
3	M3	N8	N9			PIPE_3.0	Beam	Pipe	A53 Gr.B	DR1
4	M4	N1	N10			HSS4x4x4	Beam	None	A500 Gr.B...	DR1
5	M5	N2	N11			HSS4x4x4	Beam	None	A500 Gr.B...	DR1
6	M6	N3	N12			HSS4x4x4	Beam	None	A500 Gr.B...	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
7	M7	N23	N14			HSS4x4x4	Beam	None	A500 Gr.B...	DR1
8	M8	N15	N18			HSS4x4x4	Beam	None	A500 Gr.B...	DR1
9	M9	N19	N22			HSS4x4x4	Beam	None	A500 Gr.B...	DR1
10	M10	N24	N13			PL3/4x6	Beam	None	A992	DR1
11	M11	N16	N17			PL3/4x6	Beam	None	A992	DR1
12	M12	N20	N21			PL3/4x6	Beam	None	A992	DR1
13	MP1A	NP1	NP2			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
14	MP2A	NP3	NP4			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
15	MP3A	NP5	NP6			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
16	MP1B	NP11	NP12		300	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
17	MP2B	NP13	NP14		300	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
18	MP3B	NP15	NP16		300	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
19	MP1C	NP21	NP22		60	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
20	MP2C	NP23	NP24		60	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
21	MP3C	NP25	NP26		60	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
22	M22	N44	N43			L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N46	N45		270	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N49	N50			L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
25	M25	N47	N48		270	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
26	M26	N54	N53		270	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
27	M27	N51	N52		270	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
28	M28	N67	N69			PIPE_3.0	Beam	HSS Pipe	A53 Gr.B	Typical
29	M29	N67	N68			PIPE_3.0	Beam	HSS Pipe	A53 Gr.B	Typical
30	M30	N68	N69			PIPE_3.0	Beam	HSS Pipe	A53 Gr.B	Typical
31	M31	N71	N70			PIPE_3.0	Beam	HSS Pipe	A53 Gr.B	Typical
32	M32	N73	N72			PIPE_3.0	Beam	HSS Pipe	A53 Gr.B	Typical
33	M33	N75	N74			PIPE_3.0	Beam	HSS Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2						Yes			None
3	M3						Yes			None
4	M4						Yes			None
5	M5						Yes			None
6	M6						Yes			None
7	M7	BenPIN	BenPIN				Yes			None
8	M8	BenPIN	BenPIN				Yes			None
9	M9	BenPIN	BenPIN				Yes			None
10	M10	BenPIN	BenPIN				Yes			None
11	M11	BenPIN	BenPIN				Yes			None
12	M12	BenPIN	BenPIN				Yes			None
13	MP1A						Yes	-z		None
14	MP2A						Yes	-z		None
15	MP3A						Yes	-z		None
16	MP1B						Yes	+z		None
17	MP2B						Yes	+z		None
18	MP3B						Yes	+z		None
19	MP1C						Yes	+z		None
20	MP2C						Yes	+z		None
21	MP3C						Yes	+z		None
22	M22						Yes			None
23	M23						Yes			None
24	M24						Yes			None
25	M25						Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
26	M26						Yes			None
27	M27						Yes			None
28	M28						Yes			None
29	M29						Yes			None
30	M30						Yes			None
31	M31						Yes			None
32	M32						Yes			None
33	M33						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	PIPE_3.0	12.5			Lbyy						Gravity
2	M2	PIPE_3.0	12.5			Lbyy						Gravity
3	M3	PIPE_3.0	12.5			Lbyy						Gravity
4	M4	HSS4x4x4	5.333			Lbyy						Gravity
5	M5	HSS4x4x4	5.333			Lbyy						Gravity
6	M6	HSS4x4x4	5.333			Lbyy						Gravity
7	M7	HSS4x4x4	5.71			Lbyy						Gravity
8	M8	HSS4x4x4	5.71			Lbyy						Gravity
9	M9	HSS4x4x4	5.71			Lbyy						Gravity
10	M10	PL3/4x6	1.284			Lbyy						Lateral
11	M11	PL3/4x6	1.284			Lbyy						Gravity
12	M12	PL3/4x6	1.284			Lbyy						Gravity
13	MP1A	PIPE_2.0	6.5			Lbyy						Gravity
14	MP2A	PIPE_2.0	9			Lbyy						Gravity
15	MP3A	PIPE_2.0	6.5			Lbyy						Gravity
16	MP1B	PIPE_2.0	6.5			Lbyy						Gravity
17	MP2B	PIPE_2.0	9			Lbyy						Gravity
18	MP3B	PIPE_2.0	6.5			Lbyy						Gravity
19	MP1C	PIPE_2.0	6.5			Lbyy						Gravity
20	MP2C	PIPE_2.0	9			Lbyy						Gravity
21	MP3C	PIPE_2.0	6.5			Lbyy						Gravity
22	M22	L3x3x4	4.426			Lbyy						Lateral
23	M23	L3x3x4	4.426			Lbyy						Lateral
24	M24	L3x3x4	4.426			Lbyy						Lateral
25	M25	L3x3x4	4.426			Lbyy						Lateral
26	M26	L3x3x4	4.426			Lbyy						Lateral
27	M27	L3x3x4	4.426			Lbyy						Lateral
28	M28	PIPE_3.0	6.971			Lbyy						Lateral
29	M29	PIPE_3.0	6.971			Lbyy						Lateral
30	M30	PIPE_3.0	6.971			Lbyy						Lateral
31	M31	PIPE_3.0	1.691			Lbyy						Lateral
32	M32	PIPE_3.0	1.691			Lbyy						Lateral
33	M33	PIPE_3.0	1.691			Lbyy						Lateral

Cold Formed Steel Design Parameters

Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp ...	L-torque...	Kyy	Kzz	Cm-...	Cm-...	Cb	R	a[ft]	y sw...	z sw...
No Data to Print ...																

Aluminum Design Parameters

Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
No Data to Print ...											

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
No Data to Print ...			

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Y	-45.2	0
2	MP1A	Y	-45.2	4
3	MP1B	Y	-45.2	0
4	MP1B	Y	-45.2	4
5	MP1C	Y	-45.2	0
6	MP1C	Y	-45.2	4
7	MP3A	Y	-66.1	0
8	MP3A	Y	-66.1	4
9	MP3B	Y	-66.1	0
10	MP3B	Y	-66.1	4
11	MP3C	Y	-66.1	0
12	MP3C	Y	-66.1	4
13	MP2A	Y	-64	0
14	MP2A	Y	-64	5
15	MP2B	Y	-64	0
16	MP2B	Y	-64	5
17	MP2C	Y	-64	0
18	MP2C	Y	-64	5
19	MP3A	Y	-11	2
20	MP3B	Y	-11	2
21	MP3C	Y	-11	2
22	MP2A	Y	-70	2
23	MP2B	Y	-70	2
24	MP2C	Y	-70	2

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Y	-116.052	0
2	MP1A	Y	-116.052	4
3	MP1B	Y	-116.052	0
4	MP1B	Y	-116.052	4
5	MP1C	Y	-116.052	0
6	MP1C	Y	-116.052	4
7	MP3A	Y	-125.537	0
8	MP3A	Y	-125.537	4
9	MP3B	Y	-125.537	0
10	MP3B	Y	-125.537	4
11	MP3C	Y	-125.537	0
12	MP3C	Y	-125.537	4
13	MP2A	Y	-281.667	0
14	MP2A	Y	-281.667	5
15	MP2B	Y	-281.667	0
16	MP2B	Y	-281.667	5
17	MP2C	Y	-281.667	0
18	MP2C	Y	-281.667	5

Member Point Loads (BLC 2 : Antenna Di) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
19	MP3A	Y	-24.799	2
20	MP3B	Y	-24.799	2
21	MP3C	Y	-24.799	2
22	MP2A	Y	-95.138	2
23	MP2B	Y	-95.138	2
24	MP2C	Y	-95.138	2

Member Point Loads (BLC 3 : Antenna W Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Z	-77.193	0
2	MP1A	Z	-77.193	4
3	MP1B	Z	-60.273	0
4	MP1B	Z	-60.273	4
5	MP1C	Z	-60.273	0
6	MP1C	Z	-60.273	4
7	MP3A	Z	-82.517	0
8	MP3A	Z	-82.517	4
9	MP3B	Z	-65.427	0
10	MP3B	Z	-65.427	4
11	MP3C	Z	-65.427	0
12	MP3C	Z	-65.427	4
13	MP2A	Z	-256.55	0
14	MP2A	Z	-256.55	5
15	MP2B	Z	-141.989	0
16	MP2B	Z	-141.989	5
17	MP2C	Z	-141.989	0
18	MP2C	Z	-141.989	5
19	MP3A	Z	-7.795	2
20	MP3B	Z	-4.167	2
21	MP3C	Z	-4.167	2
22	MP2A	Z	-31.372	2
23	MP2B	Z	-22.32	2
24	MP2C	Z	-22.32	2

Member Point Loads (BLC 4 : Antenna Wi Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Z	-25.935	0
2	MP1A	Z	-25.935	4
3	MP1B	Z	-21.005	0
4	MP1B	Z	-21.005	4
5	MP1C	Z	-21.005	0
6	MP1C	Z	-21.005	4
7	MP3A	Z	-27.488	0
8	MP3A	Z	-27.488	4
9	MP3B	Z	-22.519	0
10	MP3B	Z	-22.519	4
11	MP3C	Z	-22.519	0
12	MP3C	Z	-22.519	4
13	MP2A	Z	-78.17	0
14	MP2A	Z	-78.17	5
15	MP2B	Z	-46.058	0
16	MP2B	Z	-46.058	5
17	MP2C	Z	-46.058	0
18	MP2C	Z	-46.058	5
19	MP3A	Z	-3.801	2
20	MP3B	Z	-2.755	2

Member Point Loads (BLC 4 : Antenna Wi Front) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
21	MP3C	Z	-2.755	2
22	MP2A	Z	-12.153	2
23	MP2B	Z	-9.26	2
24	MP2C	Z	-9.26	2

Member Point Loads (BLC 5 : Antenna W Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	X	54.633	0
2	MP1A	X	54.633	4
3	MP1B	X	71.553	0
4	MP1B	X	71.553	4
5	MP1C	X	71.553	0
6	MP1C	X	71.553	4
7	MP3A	X	59.73	0
8	MP3A	X	59.73	4
9	MP3B	X	76.82	0
10	MP3B	X	76.82	4
11	MP3C	X	76.82	0
12	MP3C	X	76.82	4
13	MP2A	X	103.802	0
14	MP2A	X	103.802	5
15	MP2B	X	218.363	0
16	MP2B	X	218.363	5
17	MP2C	X	218.363	0
18	MP2C	X	218.363	5
19	MP3A	X	3.944	2
20	MP3B	X	8.781	2
21	MP3C	X	8.781	2
22	MP2A	X	25.737	2
23	MP2B	X	37.806	2
24	MP2C	X	37.806	2

Member Point Loads (BLC 6 : Antenna Wi Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	X	19.362	0
2	MP1A	X	19.362	4
3	MP1B	X	24.292	0
4	MP1B	X	24.292	4
5	MP1C	X	24.292	0
6	MP1C	X	24.292	4
7	MP3A	X	20.863	0
8	MP3A	X	20.863	4
9	MP3B	X	25.832	0
10	MP3B	X	25.832	4
11	MP3C	X	25.832	0
12	MP3C	X	25.832	4
13	MP2A	X	35.353	0
14	MP2A	X	35.353	5
15	MP2B	X	67.466	0
16	MP2B	X	67.466	5
17	MP2C	X	67.466	0
18	MP2C	X	67.466	5
19	MP3A	X	3.208	2
20	MP3B	X	4.603	2
21	MP3C	X	4.603	2
22	MP2A	X	11.061	2

Member Point Loads (BLC 6 : Antenna Wi Side) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP2B	X	14.918	2
24	MP2C	X	14.918	2

Member Point Loads (BLC 7 : Service Lm1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-500	0

Member Point Loads (BLC 8 : Service Lm2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-500	%50

Member Distributed Loads (BLC 10 : Structure Di)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-15.96	-15.96	0	%100
2	M2	Y	-15.96	-15.96	0	%100
3	M3	Y	-15.96	-15.96	0	%100
4	M4	Y	-22.084	-22.084	0	%100
5	M5	Y	-22.084	-22.084	0	%100
6	M6	Y	-22.084	-22.084	0	%100
7	M7	Y	-22.084	-22.084	0	%100
8	M8	Y	-22.084	-22.084	0	%100
9	M9	Y	-22.084	-22.084	0	%100
10	MP1A	Y	-12.846	-12.846	0	%100
11	MP2A	Y	-12.846	-12.846	0	%100
12	MP3A	Y	-12.846	-12.846	0	%100
13	MP1B	Y	-12.846	-12.846	0	%100
14	MP2B	Y	-12.846	-12.846	0	%100
15	MP3B	Y	-12.846	-12.846	0	%100
16	MP1C	Y	-12.846	-12.846	0	%100
17	MP2C	Y	-12.846	-12.846	0	%100
18	MP3C	Y	-12.846	-12.846	0	%100

Member Distributed Loads (BLC 11 : Structure W Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-8.873	-8.873	0	%100
2	M2	PZ	-8.873	-8.873	0	%100
3	M3	PZ	-8.873	-8.873	0	%100
4	M4	PZ	-16.901	-16.901	0	%100
5	M5	PZ	-16.901	-16.901	0	%100
6	M6	PZ	-16.901	-16.901	0	%100
7	M7	PZ	-16.901	-16.901	0	%100
8	M8	PZ	-16.901	-16.901	0	%100
9	M9	PZ	-16.901	-16.901	0	%100
10	MP1A	PZ	-6.021	-6.021	0	%100
11	MP2A	PZ	-6.021	-6.021	0	%100
12	MP3A	PZ	-6.021	-6.021	0	%100
13	MP1B	PZ	-6.021	-6.021	0	%100
14	MP2B	PZ	-6.021	-6.021	0	%100
15	MP3B	PZ	-6.021	-6.021	0	%100
16	MP1C	PZ	-6.021	-6.021	0	%100
17	MP2C	PZ	-6.021	-6.021	0	%100
18	MP3C	PZ	-6.021	-6.021	0	%100

Member Distributed Loads (BLC 12 : Structure Wi Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-5.523	-5.523	0	%100
2	M2	PZ	-5.523	-5.523	0	%100
3	M3	PZ	-5.523	-5.523	0	%100
4	M4	PZ	-7.701	-7.701	0	%100
5	M5	PZ	-7.701	-7.701	0	%100
6	M6	PZ	-7.701	-7.701	0	%100
7	M7	PZ	-7.701	-7.701	0	%100
8	M8	PZ	-7.701	-7.701	0	%100
9	M9	PZ	-7.701	-7.701	0	%100
10	MP1A	PZ	-4.749	-4.749	0	%100
11	MP2A	PZ	-4.749	-4.749	0	%100
12	MP3A	PZ	-4.749	-4.749	0	%100
13	MP1B	PZ	-4.749	-4.749	0	%100
14	MP2B	PZ	-4.749	-4.749	0	%100
15	MP3B	PZ	-4.749	-4.749	0	%100
16	MP1C	PZ	-4.749	-4.749	0	%100
17	MP2C	PZ	-4.749	-4.749	0	%100
18	MP3C	PZ	-4.749	-4.749	0	%100

Member Distributed Loads (BLC 13 : Structure W Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	8.873	8.873	0	%100
2	M2	PX	8.873	8.873	0	%100
3	M3	PX	8.873	8.873	0	%100
4	M4	PX	16.901	16.901	0	%100
5	M5	PX	16.901	16.901	0	%100
6	M6	PX	16.901	16.901	0	%100
7	M7	PX	16.901	16.901	0	%100
8	M8	PX	16.901	16.901	0	%100
9	M9	PX	16.901	16.901	0	%100
10	MP1A	PX	6.021	6.021	0	%100
11	MP2A	PX	6.021	6.021	0	%100
12	MP3A	PX	6.021	6.021	0	%100
13	MP1B	PX	6.021	6.021	0	%100
14	MP2B	PX	6.021	6.021	0	%100
15	MP3B	PX	6.021	6.021	0	%100
16	MP1C	PX	6.021	6.021	0	%100
17	MP2C	PX	6.021	6.021	0	%100
18	MP3C	PX	6.021	6.021	0	%100

Member Distributed Loads (BLC 14 : Structure Wi Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	5.523	5.523	0	%100
2	M2	PX	5.523	5.523	0	%100
3	M3	PX	5.523	5.523	0	%100
4	M4	PX	7.701	7.701	0	%100
5	M5	PX	7.701	7.701	0	%100
6	M6	PX	7.701	7.701	0	%100
7	M7	PX	7.701	7.701	0	%100
8	M8	PX	7.701	7.701	0	%100
9	M9	PX	7.701	7.701	0	%100
10	MP1A	PX	4.749	4.749	0	%100
11	MP2A	PX	4.749	4.749	0	%100
12	MP3A	PX	4.749	4.749	0	%100
13	MP1B	PX	4.749	4.749	0	%100
14	MP2B	PX	4.749	4.749	0	%100

Member Distributed Loads (BLC 14 : Structure Wi Side) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
15	MP3B	PX	4.749	4.749	0	%100
16	MP1C	PX	4.749	4.749	0	%100
17	MP2C	PX	4.749	4.749	0	%100
18	MP3C	PX	4.749	4.749	0	%100

Member Distributed Loads (BLC 15 : BLC 9 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M2	Y	-.033	-.529	6.25	7.5
2	M2	Y	-.529	-1.024	7.5	8.75
3	M2	Y	-1.024	-1.122	8.75	10
4	M2	Y	-1.122	-.89	10	11.25
5	M2	Y	-.89	-.231	11.25	12.5
6	M3	Y	-.232	-.892	0	1.25
7	M3	Y	-.892	-1.124	1.25	2.5
8	M3	Y	-1.124	-1.026	2.5	3.75
9	M3	Y	-1.026	-.53	3.75	5
10	M3	Y	-.53	-.033	5	6.25
11	M6	Y	-.374	-6.754	1.6	2.347
12	M6	Y	-6.754	-8.515	2.347	3.093
13	M6	Y	-8.515	-5.484	3.093	3.84
14	M6	Y	-5.484	-3.336	3.84	4.587
15	M6	Y	-3.336	-.473	4.587	5.333
16	M9	Y	-.15	-2.265	0	1.142
17	M9	Y	-2.265	-3.279	1.142	2.284
18	M9	Y	-3.279	-3.277	2.284	3.426
19	M9	Y	-3.277	-2.257	3.426	4.568
20	M9	Y	-2.257	-.15	4.568	5.71
21	M12	Y	-.55	-.482	0	.257
22	M12	Y	-.482	-.469	.257	.513
23	M12	Y	-.469	-.469	.513	.77
24	M12	Y	-.469	-.482	.77	1.027
25	M12	Y	-.482	-.551	1.027	1.284
26	M22	Y	-.639	-3.966	0	.885
27	M22	Y	-3.966	-4.87	.885	1.771
28	M22	Y	-4.87	-3.698	1.771	2.656
29	M22	Y	-3.698	-2.655	2.656	3.541
30	M22	Y	-2.655	-1.398	3.541	4.426
31	M23	Y	-.651	-3.964	0	.885
32	M23	Y	-3.964	-4.866	.885	1.771
33	M23	Y	-4.866	-3.698	1.771	2.656
34	M23	Y	-3.698	-2.656	2.656	3.541
35	M23	Y	-2.656	-1.396	3.541	4.426
36	M1	Y	-.033	-.529	6.25	7.5
37	M1	Y	-.529	-1.024	7.5	8.75
38	M1	Y	-1.024	-1.122	8.75	10
39	M1	Y	-1.122	-.89	10	11.25
40	M1	Y	-.89	-.231	11.25	12.5
41	M2	Y	-.232	-.892	0	1.25
42	M2	Y	-.892	-1.124	1.25	2.5
43	M2	Y	-1.124	-1.026	2.5	3.75
44	M2	Y	-1.026	-.53	3.75	5
45	M2	Y	-.53	-.033	5	6.25
46	M5	Y	-.374	-6.754	1.6	2.347
47	M5	Y	-6.754	-8.515	2.347	3.093
48	M5	Y	-8.515	-5.484	3.093	3.84
49	M5	Y	-5.484	-3.336	3.84	4.587

Member Distributed Loads (BLC 15 : BLC 9 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
50	M5	Y	-3.336	-.473	4.587	5.333
51	M8	Y	-.15	-2.265	0	1.142
52	M8	Y	-2.265	-3.279	1.142	2.284
53	M8	Y	-3.279	-3.277	2.284	3.426
54	M8	Y	-3.277	-2.257	3.426	4.568
55	M8	Y	-2.257	-.15	4.568	5.71
56	M11	Y	-.55	-.482	0	.257
57	M11	Y	-.482	-.469	.257	.513
58	M11	Y	-.469	-.469	.513	.77
59	M11	Y	-.469	-.482	.77	1.027
60	M11	Y	-.482	-.551	1.027	1.284
61	M26	Y	-.651	-3.964	0	.885
62	M26	Y	-3.964	-4.866	.885	1.771
63	M26	Y	-4.866	-3.698	1.771	2.656
64	M26	Y	-3.698	-2.656	2.656	3.541
65	M26	Y	-2.656	-1.396	3.541	4.426
66	M27	Y	-1.398	-2.655	0	.885
67	M27	Y	-2.655	-3.698	.885	1.771
68	M27	Y	-3.698	-4.87	1.771	2.656
69	M27	Y	-4.87	-3.966	2.656	3.541
70	M27	Y	-3.966	-.639	3.541	4.426
71	M1	Y	-.232	-.892	0	1.25
72	M1	Y	-.892	-1.124	1.25	2.5
73	M1	Y	-1.124	-1.026	2.5	3.75
74	M1	Y	-1.026	-.53	3.75	5
75	M1	Y	-.53	-.033	5	6.25
76	M3	Y	-.033	-.529	6.25	7.5
77	M3	Y	-.529	-1.024	7.5	8.75
78	M3	Y	-1.024	-1.122	8.75	10
79	M3	Y	-1.122	-.89	10	11.25
80	M3	Y	-.89	-.231	11.25	12.5
81	M4	Y	-.336	-7.25	1.6	2.347
82	M4	Y	-7.25	-8.903	2.347	3.093
83	M4	Y	-8.903	-4.997	3.093	3.84
84	M4	Y	-4.997	-2.995	3.84	4.587
85	M4	Y	-2.995	-.952	4.587	5.333
86	M7	Y	-.15	-2.264	0	1.142
87	M7	Y	-2.264	-3.249	1.142	2.284
88	M7	Y	-3.249	-3.248	2.284	3.426
89	M7	Y	-3.248	-2.258	3.426	4.568
90	M7	Y	-2.258	-.15	4.568	5.71
91	M10	Y	-.55	-.482	0	.257
92	M10	Y	-.482	-.464	.257	.513
93	M10	Y	-.464	-.465	.513	.77
94	M10	Y	-.465	-.482	.77	1.027
95	M10	Y	-.482	-.55	1.027	1.284
96	M24	Y	-1.305	-2.832	0	.885
97	M24	Y	-2.832	-3.649	.885	1.771
98	M24	Y	-3.649	-4.684	1.771	2.656
99	M24	Y	-4.684	-3.995	2.656	3.541
100	M24	Y	-3.995	-.651	3.541	4.426
101	M25	Y	-1.308	-2.831	0	.885
102	M25	Y	-2.831	-3.644	.885	1.771
103	M25	Y	-3.644	-4.681	1.771	2.656
104	M25	Y	-4.681	-3.991	2.656	3.541
105	M25	Y	-3.991	-.642	3.541	4.426

Member Distributed Loads (BLC 16 : BLC 10 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M2	Y	-.097	-1.551	6.25	7.5
2	M2	Y	-1.551	-3.002	7.5	8.75
3	M2	Y	-3.002	-3.287	8.75	10
4	M2	Y	-3.287	-2.609	10	11.25
5	M2	Y	-2.609	-.677	11.25	12.5
6	M3	Y	-.679	-2.615	0	1.25
7	M3	Y	-2.615	-3.295	1.25	2.5
8	M3	Y	-3.295	-3.007	2.5	3.75
9	M3	Y	-3.007	-1.552	3.75	5
10	M3	Y	-1.552	-.097	5	6.25
11	M6	Y	-1.095	-19.794	1.6	2.347
12	M6	Y	-19.794	-24.954	2.347	3.093
13	M6	Y	-24.954	-16.072	3.093	3.84
14	M6	Y	-16.072	-9.779	3.84	4.587
15	M6	Y	-9.779	-1.387	4.587	5.333
16	M9	Y	-.439	-6.639	0	1.142
17	M9	Y	-6.639	-9.611	1.142	2.284
18	M9	Y	-9.611	-9.604	2.284	3.426
19	M9	Y	-9.604	-6.616	3.426	4.568
20	M9	Y	-6.616	-.439	4.568	5.71
21	M12	Y	-1.612	-1.412	0	.257
22	M12	Y	-1.412	-1.375	.257	.513
23	M12	Y	-1.375	-1.375	.513	.77
24	M12	Y	-1.375	-1.413	.77	1.027
25	M12	Y	-1.413	-1.614	1.027	1.284
26	M22	Y	-1.873	-11.623	0	.885
27	M22	Y	-11.623	-14.273	.885	1.771
28	M22	Y	-14.273	-10.837	1.771	2.656
29	M22	Y	-10.837	-7.782	2.656	3.541
30	M22	Y	-7.782	-4.098	3.541	4.426
31	M23	Y	-1.908	-11.618	0	.885
32	M23	Y	-11.618	-14.26	.885	1.771
33	M23	Y	-14.26	-10.839	1.771	2.656
34	M23	Y	-10.839	-7.784	2.656	3.541
35	M23	Y	-7.784	-4.09	3.541	4.426
36	M1	Y	-.097	-1.551	6.25	7.5
37	M1	Y	-1.551	-3.002	7.5	8.75
38	M1	Y	-3.002	-3.287	8.75	10
39	M1	Y	-3.287	-2.609	10	11.25
40	M1	Y	-2.609	-.677	11.25	12.5
41	M2	Y	-.679	-2.615	0	1.25
42	M2	Y	-2.615	-3.295	1.25	2.5
43	M2	Y	-3.295	-3.007	2.5	3.75
44	M2	Y	-3.007	-1.552	3.75	5
45	M2	Y	-1.552	-.097	5	6.25
46	M5	Y	-1.095	-19.794	1.6	2.347
47	M5	Y	-19.794	-24.954	2.347	3.093
48	M5	Y	-24.954	-16.072	3.093	3.84
49	M5	Y	-16.072	-9.779	3.84	4.587
50	M5	Y	-9.779	-1.387	4.587	5.333
51	M8	Y	-.439	-6.639	0	1.142
52	M8	Y	-6.639	-9.611	1.142	2.284
53	M8	Y	-9.611	-9.604	2.284	3.426
54	M8	Y	-9.604	-6.616	3.426	4.568
55	M8	Y	-6.616	-.439	4.568	5.71
56	M11	Y	-1.612	-1.412	0	.257
57	M11	Y	-1.412	-1.375	.257	.513

Member Distributed Loads (BLC 16 : BLC 10 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
58	M11	Y	-1.375	-1.375	.513	.77
59	M11	Y	-1.375	-1.413	.77	1.027
60	M11	Y	-1.413	-1.614	1.027	1.284
61	M26	Y	-1.908	-11.618	0	.885
62	M26	Y	-11.618	-14.26	.885	1.771
63	M26	Y	-14.26	-10.839	1.771	2.656
64	M26	Y	-10.839	-7.784	2.656	3.541
65	M26	Y	-7.784	-4.091	3.541	4.426
66	M27	Y	-4.098	-7.782	0	.885
67	M27	Y	-7.782	-10.837	.885	1.771
68	M27	Y	-10.837	-14.273	1.771	2.656
69	M27	Y	-14.273	-11.623	2.656	3.541
70	M27	Y	-11.623	-1.873	3.541	4.426
71	M1	Y	-.679	-2.615	0	1.25
72	M1	Y	-2.615	-3.295	1.25	2.5
73	M1	Y	-3.295	-3.007	2.5	3.75
74	M1	Y	-3.007	-1.552	3.75	5
75	M1	Y	-1.552	-.097	5	6.25
76	M3	Y	-.097	-1.551	6.25	7.5
77	M3	Y	-1.551	-3.002	7.5	8.75
78	M3	Y	-3.002	-3.287	8.75	10
79	M3	Y	-3.287	-2.609	10	11.25
80	M3	Y	-2.609	-.677	11.25	12.5
81	M4	Y	-.984	-21.247	1.6	2.347
82	M4	Y	-21.247	-26.093	2.347	3.093
83	M4	Y	-26.093	-14.645	3.093	3.84
84	M4	Y	-14.645	-8.778	3.84	4.587
85	M4	Y	-8.778	-2.791	4.587	5.333
86	M7	Y	-.439	-6.635	0	1.142
87	M7	Y	-6.635	-9.521	1.142	2.284
88	M7	Y	-9.521	-9.52	2.284	3.426
89	M7	Y	-9.52	-6.619	3.426	4.568
90	M7	Y	-6.619	-.439	4.568	5.71
91	M10	Y	-1.612	-1.412	0	.257
92	M10	Y	-1.412	-1.361	.257	.513
93	M10	Y	-1.361	-1.361	.513	.77
94	M10	Y	-1.361	-1.413	.77	1.027
95	M10	Y	-1.413	-1.613	1.027	1.284
96	M24	Y	-3.825	-8.3	0	.885
97	M24	Y	-8.3	-10.694	.885	1.771
98	M24	Y	-10.694	-13.729	1.771	2.656
99	M24	Y	-13.729	-11.708	2.656	3.541
100	M24	Y	-11.708	-1.908	3.541	4.426
101	M25	Y	-3.835	-8.297	0	.885
102	M25	Y	-8.297	-10.681	.885	1.771
103	M25	Y	-10.681	-13.719	1.771	2.656
104	M25	Y	-13.719	-11.698	2.656	3.541
105	M25	Y	-11.698	-1.882	3.541	4.426

Member Area Loads (BLC 9 : Structure D)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N19	N20	N21	N22	Y	Two Way	-.005
2	N15	N16	N17	N18	Y	Two Way	-.005
3	N13	N14	N23	N24	Y	Two Way	-.005

Member Area Loads (BLC 10 : Structure Di)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N19	N20	N21	N22	Y	Two Way	-.015
2	N15	N16	N17	N18	Y	Two Way	-.015
3	N13	N14	N23	N24	Y	Two Way	-.015

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	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N3	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	N1	max	1429.317	4	3367.207	8	1602.968	1	-.244	1	1.026	1	-.542	3
2		min	-1532.711	3	360.453	3	-1531.347	2	-3.978	6	-1.04	2	-6.554	8
3	N2	max	1905.517	4	3368.27	7	1210.441	1	-.236	1	.828	2	6.716	7
4		min	-1791.488	3	356.781	4	-1157.01	2	-3.716	6	-.846	1	.5	4
5	N3	max	1406.008	4	3388.021	5	1928.569	1	7.658	5	1.499	3	.674	3
6		min	-1416.643	3	259.646	2	-2053.621	2	.603	2	-1.515	4	-.771	4
7	Totals:	max	4740.842	4	9623.641	5	4741.978	1						
8		min	-4740.842	3	3333.448	2	-4741.978	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	0	1	0	1	0	1	0	1	0	1	0	1
2			min	0	1	-750	9	0	1	0	1	0	1	0	1
3		2	max	142.993	3	17.428	4	84.851	2	.062	9	.056	4	.524	9
4			min	-145.678	4	-282.434	7	-87.316	1	-.051	1	-.049	3	-.02	3
5		3	max	545.252	2	202.178	4	209.775	2	.129	2	.142	1	.986	5
6			min	-585.193	1	-603.723	7	-242.971	1	-.238	1	-.125	2	-.075	10
7		4	max	97.372	4	309.806	8	59.712	1	.087	9	.048	3	.632	7
8			min	-72.302	3	11.593	1	-53.496	2	0	4	-.059	4	.002	4
9		5	max	0	1	0	1	0	1	0	1	0	1	0	1
10			min	0	1	0	1	0	1	0	1	0	1	0	1
11	M2	1	max	0	1	.007	2	.001	4	0	1	0	1	0	1
12			min	0	1	-.004	8	0	2	0	1	0	1	0	1
13		2	max	192.456	1	56.547	2	45.971	3	.05	3	.077	4	.41	7
14			min	-194.348	2	-289.84	5	-48.268	4	-.043	4	-.071	3	.009	4
15		3	max	645.869	1	235.558	2	289.321	3	.146	3	.146	4	1.001	6
16			min	-688.297	2	-610.114	5	-322.732	4	-.255	4	-.13	3	.035	1
17		4	max	140.282	3	319.678	7	77.14	4	.075	8	.072	3	.637	5
18			min	-114.188	4	-35.688	4	-70.564	3	-.004	2	-.084	4	-.019	2
19		5	max	0	1	.004	7	0	6	0	1	0	1	0	1
20			min	0	1	-.008	1	0	4	0	1	0	1	0	1
21	M3	1	max	0	1	.007	1	0	4	0	1	0	1	0	1
22			min	0	1	-.004	8	0	5	0	1	0	1	0	1
23		2	max	182.814	4	57.337	3	94.53	4	.033	4	.054	4	.417	5
24			min	-183.392	3	-289.658	8	-97.209	3	-.051	9	-.048	3	-.021	2
25		3	max	734.812	4	178.85	3	107.763	1	.115	1	.087	3	1.012	7
26			min	-776.377	3	-598.042	8	-140.43	2	-.224	2	-.071	4	-.018	4
27		4	max	165.311	1	318.442	5	32.268	2	.075	6	.048	3	.629	8
28			min	-141.702	2	-28.373	2	-25.627	1	-.046	9	-.06	4	.012	3
29		5	max	0	1	.004	7	0	5	0	1	0	1	0	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
30			min	0	1	-.008	2	0	4	0	1	0	1	0	1
31	M4	1	max	1692.778	3	3366.383	8	1123.961	2	.702	2	1.026	1	7.607	8
32			min	-1568.712	4	361.027	3	-1136.712	1	-.606	1	-1.04	2	.851	3
33		2	max	1677.166	3	3317.205	8	1096.92	2	.702	2	.44	2	3.421	9
34			min	-1553.1	4	341.294	3	-1109.672	1	-.606	1	-.471	1	.383	3
35		3	max	1706.11	3	845.933	9	17.604	9	.387	9	.11	2	2.074	9
36			min	-1689.182	4	166.494	3	-11.26	4	-.193	1	-.116	1	.29	3
37		4	max	1690.498	3	814.739	9	20.308	9	.387	9	.109	2	.968	9
38			min	-1673.57	4	135.3	3	-14.69	2	-.193	1	-.108	1	.089	3
39		5	max	1674.886	3	790.574	9	46.556	1	.387	9	.071	2	-.056	2
40			min	-1657.958	4	111.135	3	-41.731	2	-.193	1	-.064	1	-.19	5
41	M5	1	max	1919.756	4	3367.279	7	875.831	1	.66	1	.828	2	7.619	7
42			min	-1795.081	3	357.384	4	-884.153	2	-.561	2	-.846	1	.796	4
43		2	max	1904.144	4	3318.101	7	848.791	1	.66	1	.391	3	3.162	7
44			min	-1779.469	3	337.651	4	-857.112	2	-.561	2	-.421	4	.333	4
45		3	max	1945.463	4	822.218	7	27.483	1	.265	1	.082	1	1.782	7
46			min	-1926.719	3	161.24	4	-22.421	2	-.203	2	-.088	2	.275	4
47		4	max	1929.851	4	733.864	7	15.31	4	.265	1	.101	1	.746	7
48			min	-1911.107	3	130.126	4	-10.319	3	-.203	2	-.099	2	.082	4
49		5	max	1914.239	4	668.679	7	31.661	2	.265	1	.083	1	-.035	9
50			min	-1895.495	3	105.742	4	-26.599	1	-.203	2	-.075	2	-.19	8
51	M6	1	max	2053.621	2	3386.887	5	1405.95	4	.771	4	1.499	3	7.658	5
52			min	-1928.569	1	260.141	2	-1416.755	3	-.674	3	-1.515	4	.603	2
53		2	max	2053.621	2	3337.709	5	1369.896	4	.771	4	.336	4	3.175	5
54			min	-1928.569	1	240.408	2	-1380.7	3	-.674	3	-.366	3	.269	2
55		3	max	2107.546	2	824.759	5	27.692	4	.296	4	.104	4	1.788	5
56			min	-2088.721	1	150.674	2	-22.697	3	-.234	3	-.109	3	.249	2
57		4	max	2107.546	2	736.405	5	13.357	3	.296	4	.117	4	.749	5
58			min	-2088.721	1	119.56	2	-8.363	4	-.234	3	-.116	3	.069	2
59		5	max	2107.546	2	671.22	5	49.411	3	.296	4	.081	4	-.03	9
60			min	-2088.721	1	95.177	2	-44.417	4	-.234	3	-.074	3	-.19	6
61	M7	1	max	337.23	4	78.331	3	766.957	4	.226	1	0	1	0	1
62			min	-337.684	3	-979.272	8	-844.733	3	-.541	2	0	1	0	1
63		2	max	266.801	3	-20.405	3	106.222	1	.247	1	.275	4	1.364	8
64			min	-223.876	4	-1133.915	8	-156.599	2	-.351	2	-.237	3	-.115	3
65		3	max	944.409	1	1219.09	8	96.622	8	.393	1	.305	2	3.071	8
66			min	-883.485	2	-722.362	4	-57.872	4	-.386	2	-.358	1	.154	3
67		4	max	927.695	1	1148.597	8	122.825	4	.393	1	.311	2	1.385	6
68			min	-866.77	2	76.645	3	-65.976	3	-.386	2	-.283	1	.011	1
69		5	max	369.954	1	986.634	8	848.15	1	.602	1	0	1	0	1
70			min	-347.484	2	.667	3	-775.405	2	-.392	2	0	1	0	1
71	M8	1	max	148.639	3	-15.352	4	591.057	2	.225	2	0	1	0	1
72			min	-149.167	4	-959.341	7	-669.303	1	-.54	1	0	1	0	1
73		2	max	462.365	1	-80.43	4	118.797	4	.257	2	.247	2	1.332	6
74			min	-417.986	2	-1121.896	7	-168.456	3	-.36	1	-.209	1	.041	1
75		3	max	654.372	4	1231.132	7	98.689	6	.32	4	.267	3	3.124	7
76			min	-595.121	3	-708.819	10	-51.324	1	-.36	1	-.32	4	.182	4
77		4	max	637.658	4	1160.509	7	117.681	2	.32	4	.321	3	1.418	7
78			min	-578.407	3	18.347	4	-60.974	1	-.312	3	-.293	4	-.145	4
79		5	max	327.238	2	1007.711	7	937.28	4	.506	4	0	1	0	1
80			min	-306.244	1	-97.836	4	-863.791	3	-.295	3	0	1	0	1
81	M9	1	max	315.628	1	76.262	2	657.374	1	.284	3	0	1	0	1
82			min	-317.126	2	-978.356	5	-735.578	2	-.599	4	0	1	0	1
83		2	max	486.562	4	-8.726	2	88.618	2	.3	3	.212	1	1.359	5
84			min	-441.656	3	-1136.058	5	-138.376	1	-.403	4	-.174	2	-.095	2
85		3	max	880.241	3	1233.888	5	93.02	7	.4	3	.121	1	3.124	5
86			min	-819.582	4	-434.306	3	-34.905	4	-.403	4	-.298	3	-.105	2

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
87		4	max	880.241	3	1163.265	5	100.055	5	.4	3	.235	1	1.413	5
88			min	-819.582	4	3.564	2	-42.429	2	-.392	4	-.207	2	-.128	2
89		5	max	592.613	3	1007.067	5	759.689	2	.614	3	0	1	0	1
90			min	-569.627	4	-97.157	2	-687.314	1	-.403	4	0	1	0	1
91	M10	1	max	209.532	2	64.95	3	183.307	4	.117	4	0	1	0	1
92			min	-171.286	1	-299.73	8	-165.259	3	-.123	3	0	1	0	1
93		2	max	209.532	2	58.857	3	183.307	4	.117	4	.059	4	.097	8
94			min	-171.286	1	-306.302	8	-165.259	3	-.123	3	-.053	3	-.02	3
95		3	max	429.161	4	749.746	9	1066.066	4	.121	5	.132	4	.48	9
96			min	-433.733	3	-304.108	8	-1075.298	3	-.152	9	-.141	3	.099	3
97		4	max	198.942	1	820.501	9	153.099	1	.161	1	.051	2	.262	9
98			min	-168.882	2	-25.303	1	-159.239	2	-.122	2	-.049	1	-.009	1
99		5	max	198.942	1	814.408	9	153.099	1	.161	1	0	1	0	1
100			min	-168.882	2	-31.396	1	-159.239	2	-.122	2	0	1	0	1
101	M11	1	max	229.204	1	117.752	1	154.323	3	.118	2	0	1	0	1
102			min	-188.671	2	-312.3	6	-134.842	4	-.124	1	0	1	0	1
103		2	max	229.204	1	111.659	1	154.323	3	.118	2	.05	3	.101	6
104			min	-188.671	2	-318.871	6	-134.842	4	-.124	1	-.043	4	-.037	1
105		3	max	515.276	3	418.481	7	1193.509	4	.121	6	.162	3	.306	7
106			min	-524.979	4	-316.243	6	-1183.42	3	-.102	1	-.165	4	.06	4
107		4	max	179.517	2	424.858	5	231.594	4	.149	4	.076	3	.135	5
108			min	-150.706	1	10.082	2	-238.076	3	-.11	3	-.074	4	.002	2
109		5	max	179.517	2	418.286	5	231.594	4	.149	4	0	1	0	1
110			min	-150.706	1	3.989	2	-238.076	3	-.11	3	0	1	0	1
111	M12	1	max	235.072	4	110.228	4	212.876	1	.09	3	0	1	0	1
112			min	-194.839	3	-310.783	7	-193.661	2	-.097	4	0	1	0	1
113		2	max	235.072	4	104.135	4	212.876	1	.09	3	.068	1	.101	7
114			min	-194.839	3	-317.354	7	-193.661	2	-.097	4	-.062	2	-.034	4
115		3	max	570.471	1	430.016	8	473.607	3	.125	7	.152	1	.306	8
116			min	-581.217	2	-102.537	9	-1056.491	2	-.109	4	-.162	2	.022	2
117		4	max	188.934	3	433.63	8	210.098	2	.139	3	.07	1	.138	8
118			min	-158.696	4	-28.535	3	-216.86	1	-.1	4	-.067	2	-.01	3
119		5	max	188.934	3	427.058	8	210.098	2	.139	3	0	1	0	1
120			min	-158.696	4	-34.628	3	-216.86	1	-.1	4	0	1	0	1
121	MP1A	1	max	170.292	5	87.747	4	123.629	1	.009	3	.017	5	0	1
122			min	54.24	9	-87.99	3	-123.738	2	-.009	4	.005	2	0	1
123		2	max	355.586	2	149.545	4	107.327	1	.032	3	.105	4	.176	3
124			min	-209.804	1	-159.069	3	-78.297	2	-.033	4	-.082	3	-.176	4
125		3	max	362.355	2	165.199	4	122.981	1	.032	3	.137	5	.447	3
126			min	-203.036	1	-174.723	3	-93.951	2	-.033	4	-.061	2	-.431	4
127		4	max	-6.768	4	15.793	3	15.823	2	0	4	.013	1	.013	3
128			min	-27.644	7	-15.648	4	-15.728	1	0	7	-.013	2	-.013	4
129		5	max	0	4	.698	7	.517	6	0	4	0	7	0	4
130			min	0	7	.006	4	-.074	1	0	7	0	4	0	3
131	MP2A	1	max	358.467	8	166.481	4	410.724	1	.017	3	.036	5	0	1
132			min	76.8	1	-166.487	3	-410.645	2	-.017	4	.008	4	0	1
133		2	max	709.365	6	317.444	4	379.086	1	.032	3	.192	2	.073	3
134			min	-121.311	1	-329.024	3	-297.621	2	-.025	4	-.087	1	-.042	4
135		3	max	747.641	6	339.119	4	454.058	2	.032	3	.79	1	.838	3
136			min	-111.939	1	-350.699	3	-453.921	1	-.025	4	-.502	2	-.78	4
137		4	max	-9.371	1	21.644	3	21.903	2	0	7	.025	1	.024	3
138			min	-38.275	6	-21.692	4	-21.766	1	0	10	-.025	2	-.024	4
139		5	max	0	1	-.01	10	.962	6	0	7	0	1	0	3
140			min	0	6	-.369	7	-.091	1	0	10	0	6	0	4
141	MP3A	1	max	204.857	7	96.224	4	132.353	1	.01	3	.02	8	0	1
142			min	79.32	3	-95.902	3	-132.569	2	-.01	4	.008	9	0	1
143		2	max	340.631	2	171.702	4	99.579	1	.037	2	.118	3	.128	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
144			min	-163.658	1	-151.107	3	-77.448	2	-.037	1	-.111	4	-.127	2
145		3	max	360.6	2	193.666	4	127.706	1	.037	2	.18	1	.373	3
146			min	-143.69	1	-173.071	3	-105.575	2	-.037	1	-.135	2	-.407	4
147		4	max	-6.768	1	15.637	3	15.929	2	0	8	.013	1	.013	3
148			min	-27.644	6	-15.813	4	-15.786	1	0	3	-.013	2	-.013	4
149		5	max	0	1	-.018	3	.663	6	0	8	0	8	0	4
150			min	0	6	-.703	8	-.132	1	0	3	0	3	0	3
151	MP1B	1	max	170.292	8	83.996	2	99.402	4	.008	2	-.005	9	0	1
152			min	54.24	9	-83.753	1	-99.294	3	-.008	1	-.017	8	0	1
153		2	max	325.052	1	153.844	2	71.253	1	.042	2	.11	2	.146	3
154			min	-179.237	2	-144.541	1	-100.781	2	-.042	1	-.133	1	-.146	4
155		3	max	331.82	1	167.401	2	79.08	1	.042	2	.043	4	.371	1
156			min	-172.469	2	-158.097	1	-108.608	2	-.042	1	-.133	7	-.386	2
157		4	max	-6.768	3	13.539	1	13.615	3	0	1	.011	4	.011	1
158			min	-27.644	8	-13.683	2	-13.709	4	0	6	-.011	3	-.011	2
159		5	max	0	3	-.018	1	.058	3	0	1	0	3	0	3
160			min	0	8	-.69	6	-.507	8	0	6	0	4	0	4
161	MP2B	1	max	358.467	5	197.106	2	302.725	4	.02	2	-.008	1	0	1
162			min	76.8	1	-197.1	1	-302.804	3	-.02	1	-.036	8	0	1
163		2	max	695.652	8	336.528	2	263.419	4	.03	3	.073	3	.03	1
164			min	-56.109	3	-325.003	1	-345.072	3	-.023	4	-.178	4	-.061	2
165		3	max	733.927	8	355.299	2	143.07	1	.03	3	.436	4	.782	1
166			min	-95.543	3	-343.775	1	-363.843	3	-.023	4	-.724	3	-.839	2
167		4	max	-9.371	4	18.79	1	18.853	3	0	6	.022	4	.021	1
168			min	-38.275	7	-18.741	2	-18.99	4	0	9	-.021	3	-.021	2
169		5	max	0	8	.36	6	.082	3	0	6	0	1	0	1
170			min	0	3	-.027	9	-.96	8	0	9	0	2	0	2
171	MP3B	1	max	204.857	5	91.036	2	106.799	4	.009	2	-.008	1	0	1
172			min	79.32	1	-91.358	1	-106.583	3	-.009	1	-.02	6	0	1
173		2	max	410.646	4	127.73	2	81.561	4	.038	4	.083	1	.146	1
174			min	-233.634	3	-148.665	1	-103.944	3	-.039	3	-.091	2	-.146	2
175		3	max	430.614	4	147.061	2	107.286	4	.038	4	.083	1	.406	1
176			min	-213.666	3	-167.996	1	-129.669	3	-.039	3	-.129	2	-.372	2
177		4	max	-6.768	2	13.706	1	13.66	3	0	5	.011	4	.011	1
178			min	-27.644	5	-13.529	2	-13.803	4	0	2	-.011	3	-.011	2
179		5	max	0	2	.698	5	.103	3	0	5	0	3	0	1
180			min	0	5	.027	2	-.646	8	0	2	0	4	0	2
181	MP1C	1	max	170.292	5	84.068	1	99.293	3	.008	1	-.005	4	0	1
182			min	54.24	9	-83.825	2	-99.184	4	-.008	2	-.017	5	0	1
183		2	max	395.028	3	133.658	1	92.244	3	.04	4	.102	4	.178	2
184			min	-249.252	4	-123.554	2	-121.537	4	-.041	3	-.125	3	-.178	1
185		3	max	401.796	3	147.215	1	105.801	3	.04	4	.036	3	.39	2
186			min	-242.484	4	-137.111	2	-135.094	4	-.041	3	-.129	8	-.406	1
187		4	max	-6.768	2	13.542	2	13.62	4	0	2	.011	3	.011	2
188			min	-27.644	5	-13.686	1	-13.714	3	0	5	-.011	4	-.011	1
189		5	max	0	2	-.015	2	.063	4	0	2	0	3	0	8
190			min	0	5	-.693	5	-.51	7	0	5	0	8	0	3
191	MP2C	1	max	358.467	7	197.12	1	302.689	3	.02	1	-.008	4	0	1
192			min	76.8	10	-197.114	2	-302.768	4	-.02	2	-.036	7	0	1
193		2	max	705.45	7	312.867	1	259.09	3	.028	3	.086	4	.038	2
194			min	-101.751	4	-301.253	2	-340.733	4	-.021	4	-.19	3	-.07	1
195		3	max	743.725	7	331.638	1	126.888	1	.028	3	.414	3	.737	2
196			min	-95.543	4	-320.024	2	-359.504	4	-.021	4	-.702	4	-.795	1
197		4	max	-9.371	3	18.79	2	18.851	4	0	5	.022	3	.021	2
198			min	-38.275	8	-18.741	1	-18.988	3	0	2	-.021	4	-.021	1
199		5	max	0	7	.36	5	.08	4	0	5	0	4	0	2
200			min	0	4	.019	2	-.961	7	0	2	0	3	0	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
201	MP3C	1	max	204.857	8	90.808	1	107.041	3	.009	1	-.008	3	0	1
202			min	79.32	10	-91.131	2	-106.826	4	-.009	2	-.02	7	0	1
203		2	max	371.198	1	139.629	1	63.452	1	.029	1	.11	2	.155	3
204			min	-194.192	2	-160.437	2	-86.417	2	-.031	2	-.118	1	-.156	4
205		3	max	391.166	1	158.96	1	74.613	1	.029	1	.131	3	.327	3
206			min	-174.224	2	-179.768	2	-97.578	2	-.031	2	-.175	4	-.293	4
207		4	max	-6.768	4	13.704	2	13.671	4	0	6	.011	3	.011	2
208			min	-27.644	7	-13.527	1	-13.813	3	0	1	-.011	4	-.011	1
209		5	max	0	4	.696	6	.114	4	0	6	0	4	0	3
210			min	0	7	.03	1	-.655	7	0	1	0	7	0	4
211	M22	1	max	967.591	1	111.999	7	26.188	1	0	2	-.021	2	.378	7
212			min	-1000.619	2	5.999	4	-51.511	2	0	1	-.114	5	-.043	4
213		2	max	967.591	1	93.344	7	26.188	1	0	2	-.005	2	.262	7
214			min	-1000.619	2	-4.037	4	-51.511	2	0	1	-.064	5	-.026	4
215		3	max	967.591	1	66.041	7	26.188	1	0	2	.004	4	.166	7
216			min	-1000.619	2	-16.584	4	-51.511	2	0	1	-.034	7	0	4
217		4	max	967.591	1	48.767	3	26.188	1	0	2	.005	4	.122	1
218			min	-1000.619	2	-27.846	4	-51.511	2	0	1	-.025	7	-.064	2
219		5	max	967.591	1	39.367	3	26.188	1	0	2	-.002	4	.163	1
220			min	-1000.619	2	-37.245	4	-51.511	2	0	1	-.032	7	-.133	2
221	M23	1	max	974.16	1	18.848	1	108.156	8	0	8	-.011	2	.002	3
222			min	-1020.983	2	-42.551	2	14.435	3	0	2	-.122	5	-.392	8
223		2	max	974.16	1	18.848	1	89.483	8	0	8	0	2	-.002	3
224			min	-1020.983	2	-42.551	2	4.394	3	0	2	-.072	5	-.282	8
225		3	max	974.16	1	18.848	1	62.196	8	0	8	0	3	-.013	2
226			min	-1020.983	2	-42.551	2	-8.15	3	0	2	-.041	8	-.192	5
227		4	max	974.16	1	18.848	1	39.322	8	0	8	.001	3	.046	2
228			min	-1020.983	2	-42.551	2	-19.411	3	0	2	-.033	8	-.14	5
229		5	max	974.16	1	18.848	1	26.637	4	0	8	-.007	3	.096	2
230			min	-1020.983	2	-42.551	2	-28.81	3	0	2	-.041	8	-.156	1
231	M24	1	max	1036.422	4	33.262	4	54.042	3	0	6	-.006	4	.164	4
232			min	-1082.293	3	-31.207	3	-30.004	4	0	1	-.054	9	-.105	3
233		2	max	1036.422	4	23.779	4	54.042	3	0	6	.002	1	.16	9
234			min	-1082.293	3	-41.174	7	-30.004	4	0	1	-.047	9	-.035	3
235		3	max	1036.422	4	12.533	4	54.042	3	0	6	.006	1	.195	6
236			min	-1082.293	3	-63.993	7	-30.004	4	0	1	-.048	9	-.006	1
237		4	max	1036.422	4	.149	4	54.042	3	0	6	0	1	.281	6
238			min	-1082.293	3	-90.73	7	-30.004	4	0	1	-.071	6	.003	1
239		5	max	1036.422	4	-9.909	4	54.042	3	0	6	-.013	1	.387	7
240			min	-1082.293	3	-109.462	7	-30.004	4	0	1	-.12	8	.021	1
241	M25	1	max	939.256	2	63.529	1	46.189	2	.001	9	.022	9	.116	1
242			min	-971.989	1	-38.085	2	-76.218	9	0	4	-.033	5	-.146	2
243		2	max	939.256	2	63.529	1	36.704	2	.001	9	.006	3	.047	3
244			min	-971.989	1	-38.085	2	-85.702	9	0	4	-.025	5	-.11	8
245		3	max	939.256	2	63.529	1	25.464	2	.001	9	.007	3	.008	3
246			min	-971.989	1	-38.085	2	-96.943	9	0	4	-.034	8	-.168	8
247		4	max	939.256	2	63.529	1	13.085	2	.001	9	0	3	.016	2
248			min	-971.989	1	-38.085	2	-109.322	9	0	4	-.069	9	-.263	9
249		5	max	939.256	2	63.529	1	3.034	2	.001	9	-.017	3	.051	2
250			min	-971.989	1	-38.085	2	-119.373	9	0	4	-.118	9	-.394	9
251	M26	1	max	729.391	2	26.237	2	109.419	5	0	10	-.008	4	-.005	2
252			min	-775.802	1	-49.953	1	9.663	2	0	4	-.122	7	-.392	5
253		2	max	729.391	2	26.237	2	90.746	5	0	10	.004	4	-.021	2
254			min	-775.802	1	-49.953	1	-.378	2	0	4	-.072	7	-.278	5
255		3	max	729.391	2	26.237	2	63.459	5	0	10	.006	4	.008	4
256			min	-775.802	1	-49.953	1	-12.922	2	0	4	-.042	7	-.196	7
257		4	max	729.391	2	26.237	2	40.808	1	0	10	0	4	.034	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
258			min	-775.802	1	-49.953	1	-24.183	2	0	4	-.033	5	-.137	7
259		5	max	729.391	2	26.237	2	31.409	1	0	10	-.004	2	.066	1
260			min	-775.802	1	-49.953	1	-33.582	2	0	4	-.042	5	-.125	2
261	M27	1	max	1114.967	3	66.273	4	46.429	3	0	1	-.002	1	.152	4
262			min	-1149.261	4	-40.903	3	-48.566	4	0	6	-.032	8	-.181	3
263		2	max	1114.967	3	66.273	4	37.03	3	0	1	.007	1	.058	4
264			min	-1149.261	4	-40.903	3	-57.965	4	0	6	-.025	6	-.116	3
265		3	max	1114.967	3	66.273	4	25.768	3	0	1	.009	1	.014	1
266			min	-1149.261	4	-40.903	3	-69.227	4	0	6	-.034	6	-.169	6
267		4	max	1114.967	3	66.273	4	13.221	3	0	1	0	1	.006	1
268			min	-1149.261	4	-40.903	3	-95.963	8	0	6	-.064	6	-.257	6
269		5	max	1114.967	3	66.273	4	3.185	3	0	1	-.017	1	.026	3
270			min	-1149.261	4	-40.903	3	-114.618	8	0	6	-.113	7	-.375	8
271	M28	1	max	79.063	1	218.606	2	3.478	2	.15	2	.011	1	.57	2
272			min	-130.172	2	-162.341	1	-4.312	1	-.156	1	-.008	2	-.626	1
273		2	max	79.063	1	203.876	2	3.478	2	.15	2	.004	4	.202	2
274			min	-130.172	2	-177.071	1	-4.312	1	-.156	1	-.002	3	-.33	1
275		3	max	79.063	1	189.146	2	3.478	2	.15	2	.007	4	.083	3
276			min	-130.172	2	-191.801	1	-4.312	1	-.156	1	-.007	3	-.232	4
277		4	max	79.063	1	174.416	2	3.478	2	.15	2	.011	4	.339	1
278			min	-130.172	2	-206.531	1	-4.312	1	-.156	1	-.013	3	-.457	2
279		5	max	79.063	1	159.686	2	3.478	2	.15	2	.016	2	.711	1
280			min	-130.172	2	-221.261	1	-4.312	1	-.156	1	-.019	1	-.748	2
281	M29	1	max	77.897	4	190.659	2	2.57	1	.128	1	.008	2	.498	4
282			min	-125.965	3	-129.002	1	-3.401	2	-.133	2	-.005	1	-.534	3
283		2	max	77.897	4	175.93	2	2.57	1	.128	1	.004	4	.27	4
284			min	-125.965	3	-143.732	1	-3.401	2	-.133	2	-.002	3	-.389	3
285		3	max	77.897	4	161.2	2	2.57	1	.128	1	.007	4	.069	4
286			min	-125.965	3	-158.462	1	-3.401	2	-.133	2	-.007	3	-.218	3
287		4	max	77.897	4	146.47	2	2.57	1	.128	1	.011	4	.305	1
288			min	-125.965	3	-173.192	1	-3.401	2	-.133	2	-.013	3	-.433	2
289		5	max	77.897	4	131.74	2	2.57	1	.128	1	.015	4	.62	1
290			min	-125.965	3	-187.922	1	-3.401	2	-.133	2	-.018	3	-.676	2
291	M30	1	max	37.179	2	254.742	3	8.156	4	.201	4	.031	3	.748	3
292			min	-85.81	5	-193.112	4	-8.986	3	-.206	3	-.028	4	-.784	4
293		2	max	37.179	2	240.012	3	8.156	4	.201	4	.016	3	.317	3
294			min	-85.81	5	-207.842	4	-8.986	3	-.206	3	-.014	4	-.435	4
295		3	max	37.179	2	225.282	3	8.156	4	.201	4	.009	2	.103	2
296			min	-85.81	5	-222.572	4	-8.986	3	-.206	3	-.009	1	-.252	1
297		4	max	37.179	2	210.552	3	8.156	4	.201	4	.014	4	.341	4
298			min	-85.81	5	-237.301	4	-8.986	3	-.206	3	-.016	3	-.469	3
299		5	max	37.179	2	195.822	3	8.156	4	.201	4	.028	4	.767	4
300			min	-85.81	5	-252.031	4	-8.986	3	-.206	3	-.031	3	-.823	3
301	M31	1	max	47.592	3	263.986	1	38.713	1	.01	2	.028	2	.223	1
302			min	-79.296	4	-240.343	2	-39.002	2	-.008	1	-.029	1	-.254	2
303		2	max	47.592	3	260.411	1	38.713	1	.01	2	.013	3	.112	1
304			min	-79.296	4	-243.917	2	-39.002	2	-.008	1	-.015	4	-.152	2
305		3	max	47.592	3	256.837	1	38.713	1	.01	2	.008	3	.031	3
306			min	-79.296	4	-247.491	2	-39.002	2	-.008	1	-.009	4	-.077	4
307		4	max	47.592	3	253.263	1	38.713	1	.01	2	.02	1	.102	3
308			min	-79.296	4	-251.066	2	-39.002	2	-.008	1	-.021	2	-.15	4
309		5	max	47.592	3	249.688	1	38.713	1	.01	2	.036	1	.175	3
310			min	-79.296	4	-254.64	2	-39.002	2	-.008	1	-.038	2	-.222	4
311	M32	1	max	46.747	4	294.71	2	31.546	4	.017	1	.026	1	.193	2
312			min	-78.13	3	-270.767	1	-31.261	3	-.014	2	-.029	2	-.225	1
313		2	max	46.747	4	291.135	2	31.546	4	.017	1	.016	1	.082	4
314			min	-78.13	3	-274.341	1	-31.261	3	-.014	2	-.018	2	-.122	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
315		3	max	46.747	4	287.561	2	31.546	4	.017	1	.007	4	.029	4
316			min	-78.13	3	-277.916	1	-31.261	3	-.014	2	-.009	3	-.074	7
317		4	max	46.747	4	283.987	2	31.546	4	.017	1	.021	4	.125	1
318			min	-78.13	3	-281.49	1	-31.261	3	-.014	2	-.022	3	-.174	2
319		5	max	46.747	4	280.412	2	31.546	4	.017	1	.034	4	.245	1
320			min	-78.13	3	-285.064	1	-31.261	3	-.014	2	-.035	3	-.293	2
321	M33	1	max	48.396	2	334.045	3	36.404	3	.025	4	.03	4	.255	3
322			min	-79.353	1	-310.308	4	-35.881	4	-.023	3	-.032	3	-.286	4
323		2	max	48.396	2	330.471	3	36.404	3	.025	4	.015	4	.114	3
324			min	-79.353	1	-313.882	4	-35.881	4	-.023	3	-.017	3	-.154	4
325		3	max	48.396	2	326.896	3	36.404	3	.025	4	.009	2	.039	2
326			min	-79.353	1	-317.456	4	-35.881	4	-.023	3	-.01	1	-.085	1
327		4	max	48.396	2	323.322	3	36.404	3	.025	4	.014	3	.114	4
328			min	-79.353	1	-321.03	4	-35.881	4	-.023	3	-.015	4	-.162	3
329		5	max	48.396	2	319.748	3	36.404	3	.025	4	.029	3	.251	4
330			min	-79.353	1	-324.605	4	-35.881	4	-.023	3	-.03	4	-.298	3

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear ..	Loc[ft]	Dir	LC	phi*Pnc ..	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	MP2B	PIPE_2.0	.512	4.5	2	.063	4.5		3	12143.9...	32130	1.872	1.872	1...	H1-1b
2	MP2C	PIPE_2.0	.508	4.5	4	.060	4.5		4	12143.9...	32130	1.872	1.872	1...	H1-1b
3	M4	HSS4x4x4	.480	0	6	.107	0	y	6	123859....	139518	16.181	16.181	2...	H1-1b
4	M6	HSS4x4x4	.478	0	5	.106	0	y	8	123859....	139518	16.181	16.181	2...	H1-1b
5	M5	HSS4x4x4	.478	0	7	.105	0	y	7	123859....	139518	16.181	16.181	2...	H1-1b
6	MP2A	PIPE_2.0	.464	4.5	3	.056	4.5		3	12143.9...	32130	1.872	1.872	1...	H1-1b
7	M1	PIPE_3.0	.283	7.422	7	.081	5.078		1	28250.5...	65205	5.749	5.749	1...	H1-1b
8	M3	PIPE_3.0	.282	7.422	6	.090	5.078		3	28250.5...	65205	5.749	5.749	1...	H1-1b
9	M2	PIPE_3.0	.282	7.422	5	.073	5.078		6	28250.5...	65205	5.749	5.749	1...	H1-1b
10	MP1A	PIPE_2.0	.266	3.521	3	.039	3.521		3	19360.2...	32130	1.872	1.872	1...	H1-1b
11	MP3B	PIPE_2.0	.248	3.521	1	.042	3.521		3	19360.2...	32130	1.872	1.872	1...	H1-1b
12	MP3A	PIPE_2.0	.246	3.521	4	.036	3.521		1	19360.2...	32130	1.872	1.872	1...	H1-1b
13	MP1C	PIPE_2.0	.241	3.521	1	.043	3.521		4	19360.2...	32130	1.872	1.872	1...	H1-1b
14	MP1B	PIPE_2.0	.238	3.521	2	.046	3.521		2	19360.2...	32130	1.872	1.872	1...	H1-1b
15	MP3C	PIPE_2.0	.213	3.521	3	.040	3.521		2	19360.2...	32130	1.872	1.872	1...	H1-1b
16	M8	HSS4x4x4	.198	2.855	7	.063	.476	y	7	121722....	139518	16.181	16.181	1...	H1-1b
17	M7	HSS4x4x4	.196	2.855	6	.066	5.234	z	1	121722....	139518	16.181	16.181	1...	H1-1b
18	M9	HSS4x4x4	.195	2.855	5	.064	.476	y	8	121722....	139518	16.181	16.181	1...	H1-1b
19	M23	L3x3x4	.178	0	8	.009	0	z	8	30228.8...	46656	1.688	3.703	1...	H2-1
20	M26	L3x3x4	.177	0	7	.009	0	z	5	30228.8...	46656	1.688	3.674	1...	H2-1
21	M25	L3x3x4	.176	4.426	9	.014	4.426	z	9	30228.8...	46656	1.688	3.756	2...	H2-1
22	M24	L3x3x4	.175	4.426	6	.009	4.426	y	6	30228.8...	46656	1.688	3.689	1...	H2-1
23	M22	L3x3x4	.170	0	7	.009	0	y	7	30228.8...	46656	1.688	3.737	1...	H2-1
24	M27	L3x3x4	.169	4.426	8	.009	4.426	z	8	30228.8...	46656	1.688	3.756	1...	H2-1
25	M30	PIPE_3.0	.143	6.971	3	.053	0		3	50270.9...	65205	5.749	5.749	2...	H1-1b
26	M28	PIPE_3.0	.131	6.971	2	.042	6.971		1	50270.9...	65205	5.749	5.749	2...	H1-1b
27	M29	PIPE_3.0	.118	6.971	2	.036	0		2	50270.9...	65205	5.749	5.749	2...	H1-1b
28	M11	PL3/4x6	.062	.642	3	.065	.789	y	4	139857....	202500	3.164	25.313	1...	H1-1b
29	M12	PL3/4x6	.057	.642	1	.060	1.284	y	3	139857....	202500	3.164	25.313	1...	H1-1b
30	M33	PIPE_3.0	.052	1.691	3	.022	0		3	64213.94	65205	5.749	5.749	2...	H1-1b
31	M32	PIPE_3.0	.051	1.691	2	.018	1.691		1	64213.94	65205	5.749	5.749	2...	H1-1b
32	M10	PL3/4x6	.051	.642	4	.075	.642	y	9	139857....	202500	3.164	25.313	1...	H1-1b
33	M31	PIPE_3.0	.045	0	2	.015	0		1	64213.94	65205	5.749	5.749	2...	H1-1b

Envelope AISI S100-10: LRFD Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

Envelope AA ADM1-10: ASD - Building Aluminum Code Checks

Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/O...	Pnt/Om...	Mny/O...	Mnz/O...	Vny/O...	Vnz/O...	Cb	Eqn
No Data to Print ...																

EXHIBIT 9

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CTHA083C

HA083/Opta-Montano Rd_FT
58 Montano Road
Glastonbury, CT 06033

June 10, 2019

Transcom Engineering Project Number: 737001-0079

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**16.18 %**

June 10, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CTHA083C – HA083/Opta-Montano Rd_FT**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **58 Montano Road, Glastonbury, CT**, 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 (μW/cm2). 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.

Population 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 & 700 MHz 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) and 2100 MHz (AWS) 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 performed for the proposed upgrades to the T-MOBILE antenna facility located at **58 Montano Road, Glastonbury, CT**, 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	2	60
GSM	1900 MHz (PCS)	1	15
UMTS	2100 MHz (AWS)	1	40
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Ericsson AIR32 B66A / B2A	117
A	2	Ericsson AIR21 B2A/B4P	117
A	3	RFS APXVAARR24_43-U-NA20	115
B	1	Ericsson AIR32 B66A / B2A	117
B	2	Ericsson AIR21 B2A/B4P	117
B	3	RFS APXVAARR24_43-U-NA20	115
C	1	Ericsson AIR32 B66A / B2A	117
C	2	Ericsson AIR21 B2A/B4P	117
C	3	RFS APXVAARR24_43-U-NA20	115

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since all **2100 MHz (AWS) UMTS** radios are ground mounted the following cable loss values were used. For each ground mounted **2100 MHz (AWS) UMTS** radio there was **2.68 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **155 feet** of **7/8”** coax.

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85 / 15.85	6	280	10,768.57	3.15
Antenna A2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,423.14	0.41
Antenna A3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.75
						Sector A Composite MPE%	**5.31**
Antenna B1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85 / 15.85	6	280	10,768.57	3.15
Antenna B2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,423.14	0.41
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.75
						Sector B Composite MPE%	**5.31**
Antenna C1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85 / 15.85	6	280	10,768.57	3.15
Antenna C2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,423.14	0.41
Antenna C3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.75
						Sector C Composite MPE%	**5.31**

Table 3: T-MOBILE Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**5.31 %**
Sprint	3.31 %
AT&T	3.62 %
Verizon Wireless	3.94 %
Site Total MPE %:	**16.18 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	5.31 %
T-MOBILE Sector B Total:	5.31 %
T-MOBILE Sector C Total:	5.31 %
Site Total:	16.18 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,538.37	117	17.95	1900 MHz (PCS)	1000	1.80%
T-Mobile 2100 MHz (AWS) LTE	2	2,307.55	117	13.47	2100 MHz (AWS)	1000	1.35%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	117	1.70	1900 MHz (PCS)	1000	0.17%
T-Mobile 2100 MHz (AWS) UMTS	1	839.58	117	2.45	2100 MHz (AWS)	1000	0.24%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	115	4.77	600 MHz	400	1.19%
T-Mobile 700 MHz LTE	2	432.54	115	2.62	700 MHz	467	0.56%
						Total:	**5.31%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

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:	5.31 %
Sector B:	5.31 %
Sector C:	5.31 %
T-MOBILE Maximum Total (per sector):	5.31 %
Site Total:	16.18 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **16.18 %** 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.

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