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

January 4, 2021

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

RE: Notice of Exempt Modification
1294 Pleasant Valley Road North, Groton, CT 06340
Latitude: 41.399972
Longitude: -72.079222
T-Mobile Site #: CT11311G_L600

Dear Ms. Bachman:

T-Mobile currently maintains none (9) antennas at the 137-foot level of the existing 149-foot Monopole Tower at 1294 Pleasant Valley Road North, Groton, CT. The 149-foot tower is owned by SBA Infrastructure, LLC. The property is owned by JFM Enterprises, LLC. T-Mobile now intends to remove (3) 1900 MHz antennas and replace with three (3) new 2500 MHZ antennas.

The new antennas support 5G services and would be installed at the 137-foot level of the tower.

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

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) Ericsson AIR 21 B2P/B4P antenna (remove) – (3) Ericsson AIR6449 B41 antenna (replace)

Install New:

- (1) 1-5/8" Hybrid fiber
- (3) Ericsson Radio 4415 B25 RRU
- (1) Support Rail Kit w/T-Arm (MS-P-TARM_6
- (1) Heavy collar mount (MS-H1436)
- (3) 2" PST Antenna mount pipe

Existing Equipment to Remain:

- (3) RFS APXVAARR24_43-U-NA20 600/700 MHz @ 137'
- (3) Ericsson - AIR 32 – Panel 1900/2100 MHz (relocating to 137')
- (3) Ericsson Radio 4449 B71+B12 @ 137'
- (1) low profile platform
- (3) 1-5/8" fiber

Entitlements:

- (3) Ericsson - KRY 112 144/1 – TMA
- (1) 1-5/8" fiber
- (10) 1-5/8" lines

GROUND

Install New:

- Equipment inside existing 6131 cabinet

This facility was approved by Council on June 7, 2007 under Docket 330. Approval was given for a steel monopole no taller than 140' above ground level to provide telecom services to both public and private entities. Additionally, the Town of Groton Department of Planning and Development Services stipulated that no advertising or signs, other than warning signs, were to be permitted on the tower. There were no other 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 Groton's Town Manager, John Burt, and Director of Planning, Jonathan J. Riener, 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,

G. Scott Shepherd
Sr. Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T / 508.366.2610 + F
508.868.6000 + C
GShepherd@SBASite.com

Attachments

cc: John Burt, Town Manager / with attachments
45 Fort Hill Road, Groton, CT 06340
Jonathan J. Riener, AICP, Director of Planning / with attachments
45 Fort Hill Road, Groton, CT 06340
JFM Enterprises LLC c/o Jennifer Macierowski / with attachments
920 Pleasant Valley Rd., North, Groton, CT 06340

Exhibit List

Exhibit 1	Check Copy	To be invoiced at a later date per Covid Guidelines
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	x
Exhibit 6	Construction Drawings	12/8/20
Exhibit 7	Structural Analysis	10/30/20
Exhibit 8	Post Mod Mount Analysis	10/29/20
Exhibit 9	Mount Mod Drawings	7/16/19
Exhibit 10	EME Report	11/17/20

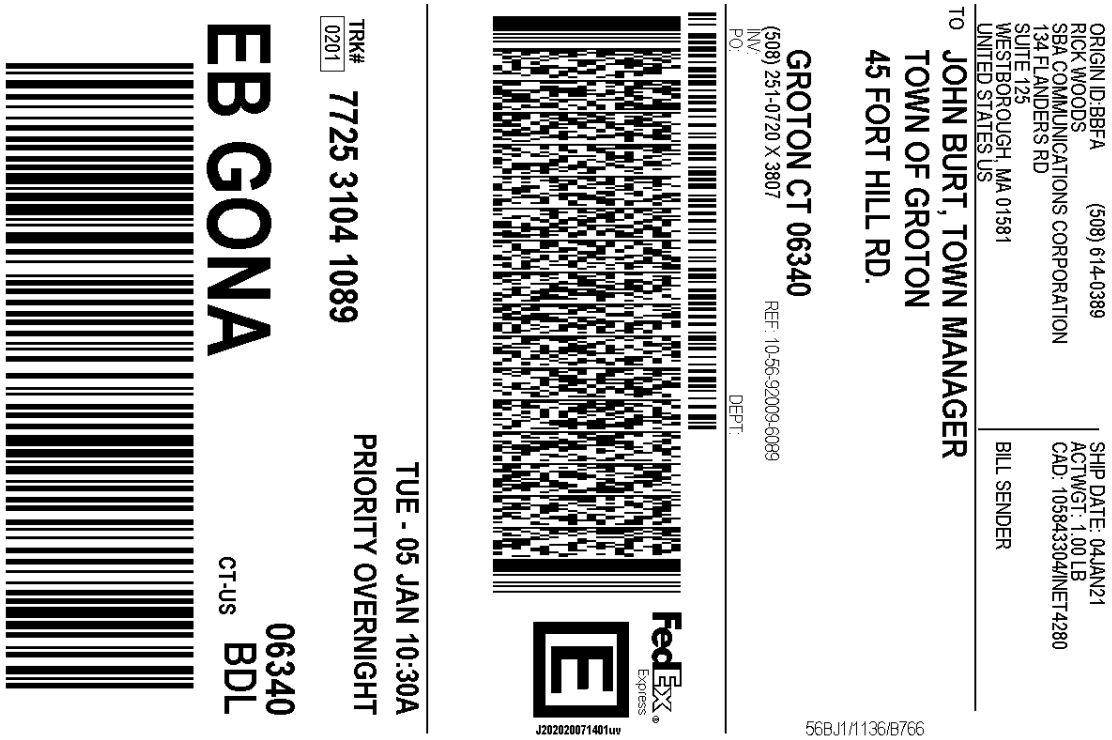
EXHIBIT 1

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

EXHIBIT 2

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

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



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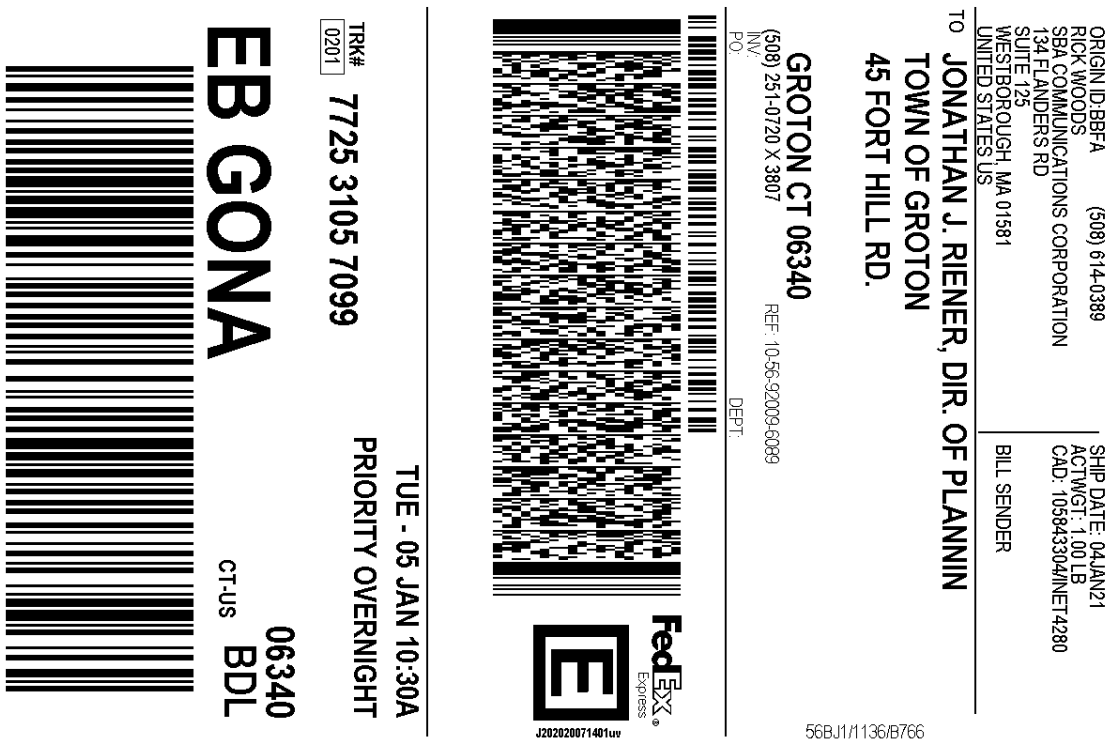

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EXHIBIT 3

Print Card

Commercial Property Card

Print Date: 5/15/2019

Card 1 of 1

Account	Location	Zoning	Deed Book/Page	Acres
178010470143	1294 PLEASANT VALLEY RD NORTH	RU-20	774/624	3.66

District	Use Code
POQUONNOCK BRIDGE	SMALL RETAIL AND SERVICE STORES

Current Owner

JFM ENTERPRISES LLC
C/O JENNIFER MACIEROWSKI
920 PLEASANT VALLEY RD N
GROTON CT 06340

Building Information

Building No:	1
Year Built:	1975
No of Units:	1
Structure Type:	RETAIL - SINGLE OCCUPANCY
Building Total Area:	2388 sqft.
Grade:	D+
Identical Units:	1

Valuation

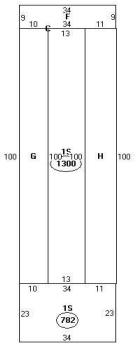
Land:	$197,900
Building:	$75,100
Total:	$273,000
Total Assessed Value:	$191,100

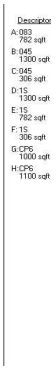
Recent Sales

Book/Page	Date	Price
651/124	10/1/1997	$123,380
721/770	10/23/2000	$140,000
774/624	6/20/2002	$150,000

Property Picture

Building Sketch





Sketch Legend

----	Main Living Area	1SMA	Masonry	GRHS	Attached Greenhouse
1FR	Frame	OMP	Open Masonry Porch	CAT	Cathedral Ceiling
OFP	Open Frame Porch	EMP	Enclosed Msry Porch	SOP	Screen Open Frame Prch
EFP	Enclosed Frame Porch	MUB	Masonry Utility	SMP	Screen Open Msnry Prch
FUB	Frame Utility Building	MB	Masonry Bay	CPAT	Concrete Patio
FB	Frame Bay	MOH	Masonry Overhang	B	Basement
FG	Frame Garage	.5MA	1/2 Story Masonry		
FOH	Frame Overhang	MP	Masonry Patio		
.5FR	1/2 Story Frame	WD	Wood Deck		
A(U)	Attic (Unfinished)	CPY	Canopy		
A(F)	Attic (Finished)				

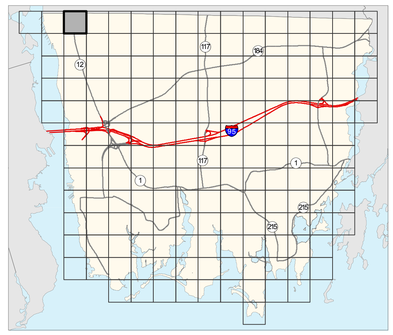
Exterior/Interior Information

Levels	Use Type	Ext. Walls	Const. Type	Heating	A/C	Condition
01 - 01	MULTI-USE SALES	CONCRETE BLOCK	WOOD JOIST	HOT AIR	NONE	NORMAL
01 - 01	WAREHOUSE	CONCRETE BLOCK	WOOD JOIST	HOT AIR	NONE	NORMAL
01 - 01	WAREHOUSE	FRAME	WOOD JOIST	NONE	NONE	NORMAL

EXHIBIT 4

Town of Groton

Property Map



Legend

- Map Boundary
- Block Boundary
- Sidewalk
- Bridge
- Main Road
- Paved Surface
- Unpaved Surface
- Water Body
- Wet Area
- Dock / Pier
- Swimming Pool
- Building
- Sports Field
- Woodland
- Fence
- Retaining Wall
- Misc. Wall
- Political Boundary
- Railway
- Parcel Line
- Railroad Right of Way
- Road Right of Way
- Townline
- Easement Line
- Stream
- 123 Deeded Lot Dimension
- (123) Calculated Lot Dimension
- *10* Developer Lot Number
- (1.3 A) Acreage
- 0139 Lot Number
- 12 Block Number
- 210 House Number

Disclaimer:

The planimetric and topographic information depicted on this map was compiled by The Sanborn Map Company based on an aerial flight performed in April, 2009. The parcel and property line information depicted on this map has been compiled from recorded deeds, maps, assessor records, and other sources of information in the Town of Groton. The intent of this map is to depict a graphical representation of real property information relative to the planimetric features for the Town of Groton and is subject to change as a more accurate survey may disclose. The Town of Groton and the mapping companies assume no legal responsibility for the information contained in this data.
THIS MAP IS NOT TO BE USED FOR THE TRANSFER OF PROPERTY.

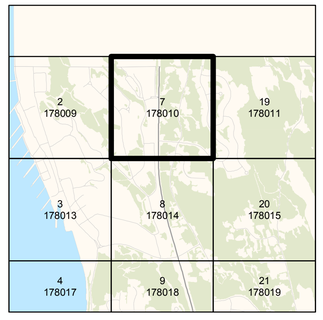
Horizontal Datum:
Connecticut State Plane Coordinates, North American Datum of 1983 (NAD83 Feet).

Vertical Datum:
North American Vertical Datum of 1988 (NAVD88).

N W E S

100 50 0 100 200 300 Feet

Map Scale: 1" = 100'



DATE: OCTOBER 1, 2009

MAP: 178010 TILE: 7

FILE: \\acfcbar\gis\depts\Assessor\projects\ArcGIS\TaxMapProjects\2009_Planimetrics.mxd

EXHIBIT 5

DOCKET NO. 330 – 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 at 1294 Pleasant Valley Road North in Groton, Connecticut.	Connecticut Siting Council
	June 7, 2007

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 Pubic Need, as provided by General Statutes § 16-50k, be issued to Optasite Towers, LLC for the construction, maintenance and operation of a wireless telecommunications facility to be located at 1294 Pleasant Valley Road North in Groton, 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 designed as a steel monopole and shall be constructed no taller than 140 feet above ground level to provide telecommunications services to both public and private entities.

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 Groton 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, antenna mountings, equipment building, access road, utility line, and landscaping; and

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

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, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the New London Day and the Norwich Bulletin.

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 in this proceeding are:

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	Optasite Towers, LLC One Research Drive, Suite 200C Westborough, MA 01581 Omnipoint Communications, Inc. 100 Filley Street Bloomfield, CT 06002	Julie Kohler, Esq. Carrie L. Larson, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604 (203) 368-0211 (203) 394-9901 fax jkohler@cohenandwolf.com clarson@cohenandwolf.com

STATE OF CONNECTICUT)

ss. New Britain, Connecticut :

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

S. Derek Phelps
Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 330 has been forwarded by Certified First Class Return Receipt Requested mail on June 12, 2007, to all parties and intervenors of record as listed on the attached service list, dated February 26, 2007.

ATTEST:

Lisa A. Fontaine
Administrative Assistant
Connecticut Siting Council

TOWN OF GROTON

PLANNING AND DEVELOPMENT SERVICES
Planning Department

134 Groton Long Point Road
Groton, Connecticut 06340-4873
Telephone (860) 446-5970
Fax (860) 446-5978

April 18, 2007

S. Derek Phelps, Executive Director
State of Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

SUBJECT: Optasite Towers and Omnipoint Communications
1294 Pleasant Valley Road North, Groton, CT
Docket No. 330

Dear Mr. Phelps:

Please consider this a response of the Planning Department of the Town of Groton in the matter of the New Optasite Towers and Omnipoint Communications proposed communications facility at 1294 Pleasant Valley Road North in Groton. The Office of Planning and Development received your letter on March 21, 2007. This office reserves all other rights with regard to regulatory review of the project in accordance with the law. Please enter this information into the hearing record for April 18, 2007.

The Town of Groton currently has development standards in effect for review of Telecommunications Towers, Antennae and Facilities. These standards require that a comprehensive package of components be addressed by an applicant to assure that a proposal's siting, construction, and maintenance are accomplished in the public interest. In this regard, the Town's planning staff has identified the following items that still should be addressed in the proposal to the Connecticut Siting Council. These items include:

1. The plans and report should state "There shall be no advertising or signs, other than warning signs, permitted on any tower."

2. The plans and report should state that "The tower shall be removed from the site within 12 months of cessation of the use. In the event an unused tower is not removed within this time period, the tower and associated facilities may be removed by the Town and the cost of removal assessed against the property."

3. The plans should show that adequate fire access to any proposed tower. This usually includes a paved road that meets the Fire Department's width, clearance, and turn-around requirements and is able to hold a 60,000-lb. fire apparatus. Planning Staff suggests that the applicant work closely with the local Fire Marshal to obtain the appropriate access design.

4. The report needs to confirm that the tower design meets the updated State Building Code requirements for withstanding current pressure requirements. Please address.

These comments should provide you with a comprehensive record of the physical planning and design concerns associated with the project.

The Planning Department appreciates the efforts that have been made to allow for co-location of additional carriers as referred to in Exhibit A, page 15. The Town will continue to monitor the project to assure that the Town's concerns are adequately addressed. Also, feel free to call Susan C. Cullen, Planner I at this office if you have any questions.

Sincerely,

Matthew J. Davis
Manager, Planning & Development Services

SCC

cc: Julie Kohler, Esq.

EXHIBIT 6

CT311/OPTA PAWS PLACE

1294 PLEASANT VALLEY ROAD NORTH
CROTON, CT 06340
NEW LONDON COUNTY

SITE NO.: CT11311G

RF DESIGN GUIDELINE: 67D5A997DB OUTDOOR

APPROVALS

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

T-MOBILE TECHNICIAN SITE SAFETY NOTES

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

SITE NOTES

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

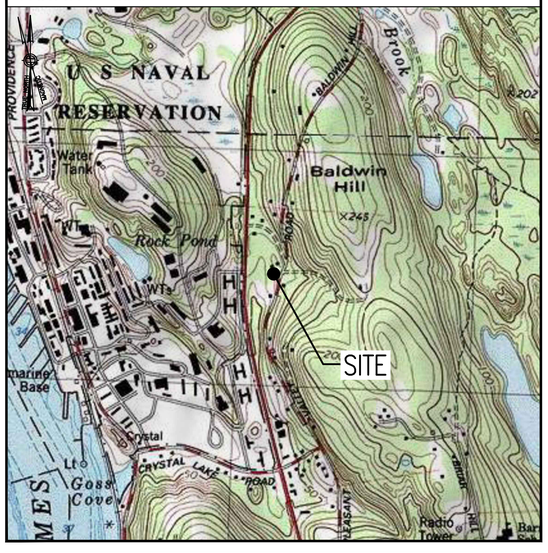
GENERAL NOTES

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

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

VICINITY MAP

SCALE: 1" = 1000'-0"



DIRECTIONS

TURN LEFT ONTO S WASHINGTON ST. TURN RIGHT ONTO MA-123 E. TURN LEFT TO MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. MERGE ONTO I-495 NORTH. TAKE EXIT 13B TO MERGE ONTO I-95 SOUTH TOWARD PROVIDENCE RI. TAKE EXIT 86 FOR CT-12 TOWARD U.S. SUB BASE/GALES FERRY. CONTINUE ONTO KINGS HIGHWAY. TURN RIGHT TOWARD CT-12 NORTH. TURN RIGHT ONTO CT-12 NORTH. TURN RIGHT ONTO OHIO AVENUE. TURN LEFT AT THE 1ST CROSS STREET. ONTO PLEASANT VALLEY ROAD NORTH. SITE WILL BE ON THE LEFT.

SHEET INDEX

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DO NOT SCALE DRAWINGS

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

PROJECT SUMMARY

SITE NUMBER:	CT11311G
SBA SITE NUMBER:	CT13075-A
SBA SITE NAME:	NEW LONDON
SITE ADDRESS:	1294 PLEASANT VALLEY ROAD NORTH GROTON, CT 06340
PROPERTY OWNER:	JFM ENTERPRISES LLC C/O: JENNIFER MACIEROWSKI 920 PLEASANT VALLEY ROAD NORTH GROTON, CT 06340
TOWER OWNER:	SBA INFRASTRUCTURE, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON COUNTY
ZONING DISTRICT:	RU-20, RURAL RESIDENTIAL-20
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	149'±
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.41.399913° N41°23'59.69" LONGITUDE W.72.079259° W72°04'45.33"

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

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

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

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil ·Structural ·Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
12/8/20

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	12/08/20	ISSUED FOR CONSTRUCTION	CMC
0	11/11/20	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11311G

SITE ADDRESS:
1294 PLEASANT VALLEY ROAD NORTH
GROTON, CT 06340

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.158

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 (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

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

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

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

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

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

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

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

STRUCTURAL STEEL NOTES:

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

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

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

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

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

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

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

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

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

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

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

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

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25937
LICENSED
PROFESSIONAL CIVIL ENGINEER
12/8/20

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

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SITE NUMBER:
CT11311G

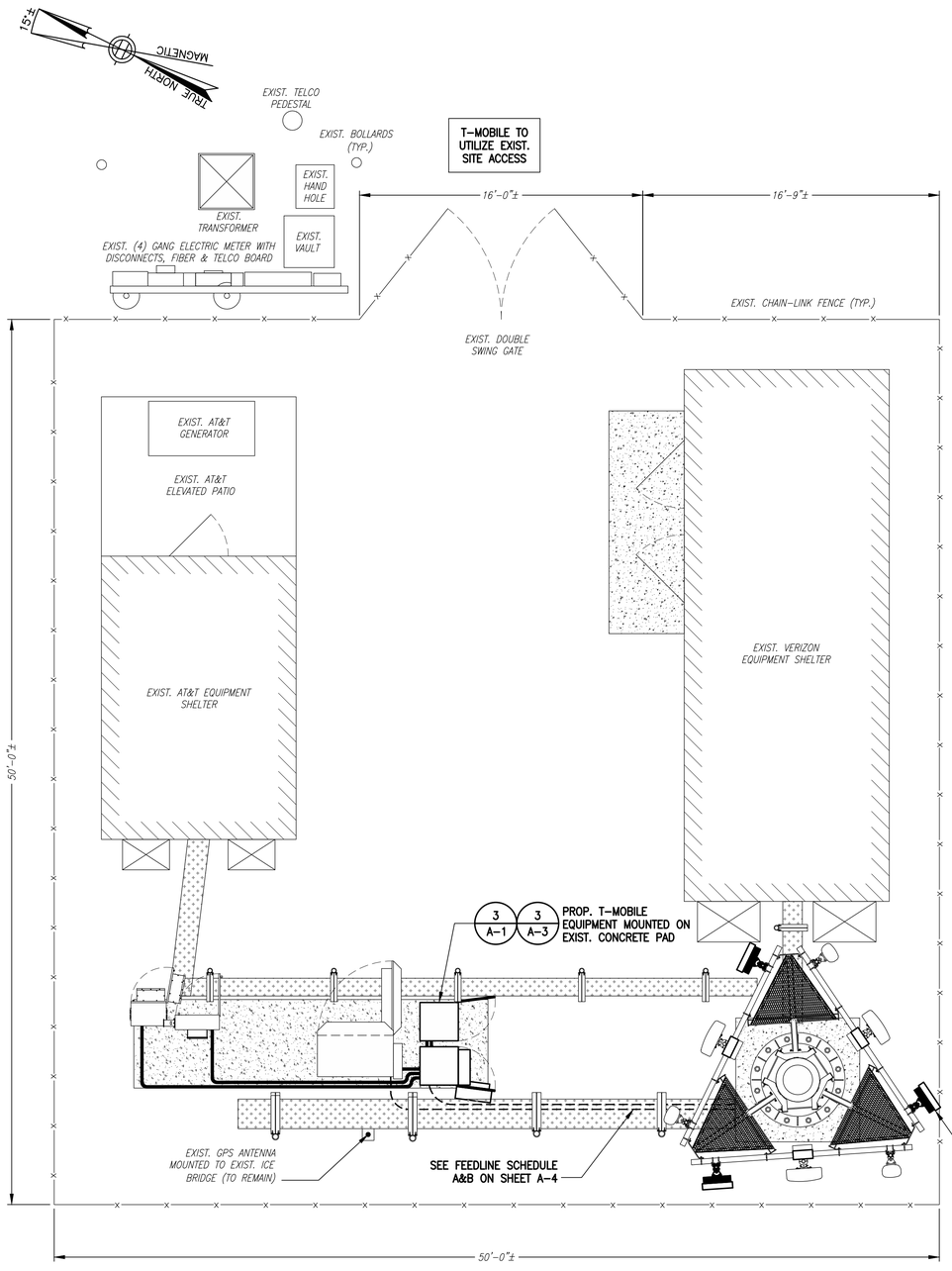
SITE ADDRESS:
1294 PLEASANT VALLEY ROAD NORTH
GROTON, CT 06340

SHEET TITLE
GENERAL NOTES

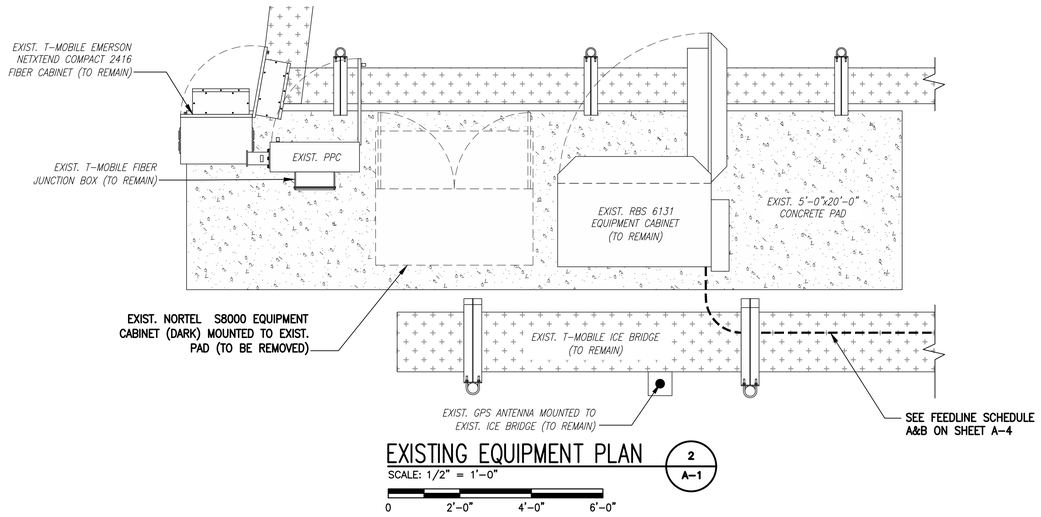
SHEET NUMBER
GN-1

1815.158

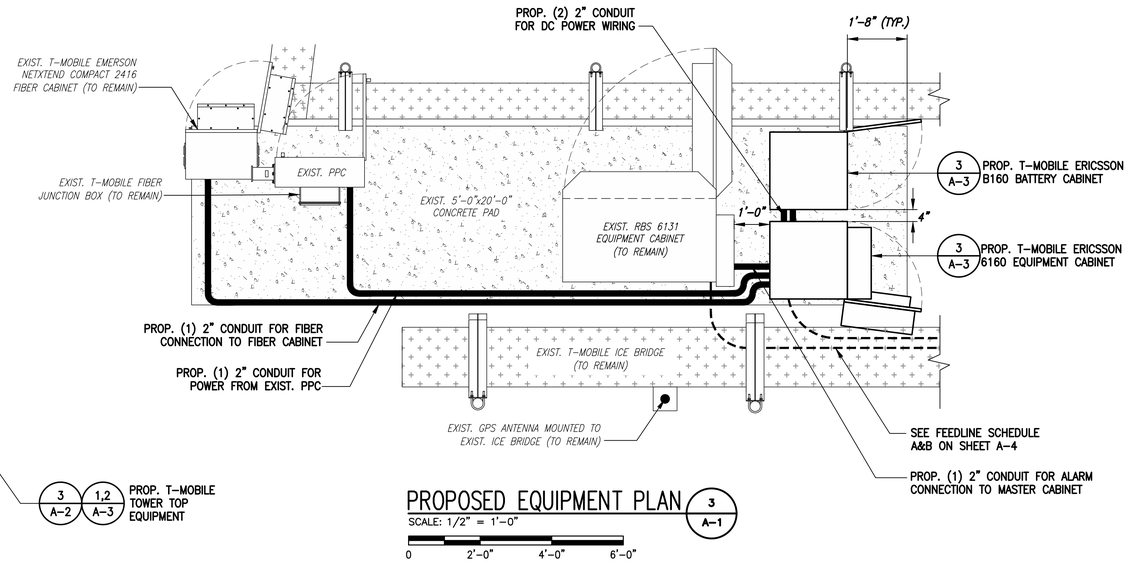
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



COMPOUND PLAN (1 / A-1)
SCALE: 1/4" = 1'-0"
0 4'-0" 8'-0" 12'-0"



EXISTING EQUIPMENT PLAN (2 / A-1)
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"



PROPOSED EQUIPMENT PLAN (3 / A-1)
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"

MOUNT NOTE:
REFER TO MOUNT ANALYSIS DONE BY TOWER ENGINEERING SOLUTIONS DATED 7/16/2019 FOR ADDITIONAL MOUNTING DETAILS

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SHEET TITLE
COMPOUND & EQUIPMENT PLAN

SHEET NUMBER
A-1

1815.158

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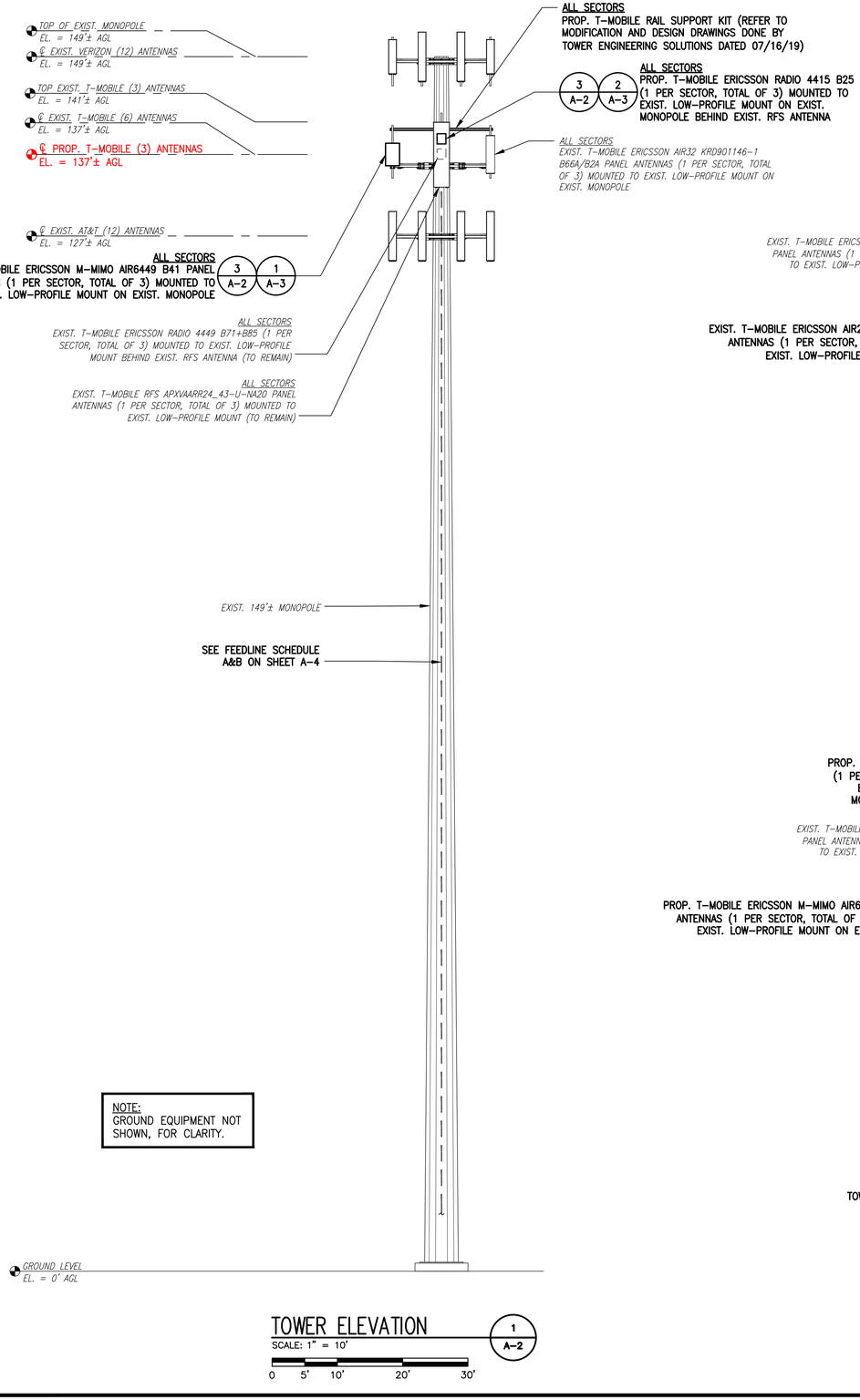
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
GENERAL CONTRACTOR SHALL ORIENT PROPOSED PLATFORM REINFORCEMENT KIT RING-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED RING-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.

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.



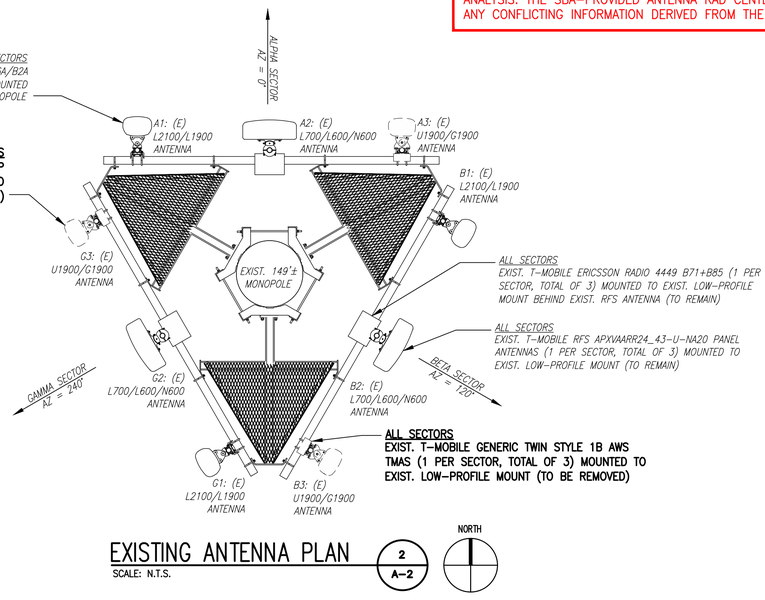
TOWER ELEVATION 1 A-2
SCALE: 1" = 10'
0 5' 10' 20' 30'

NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

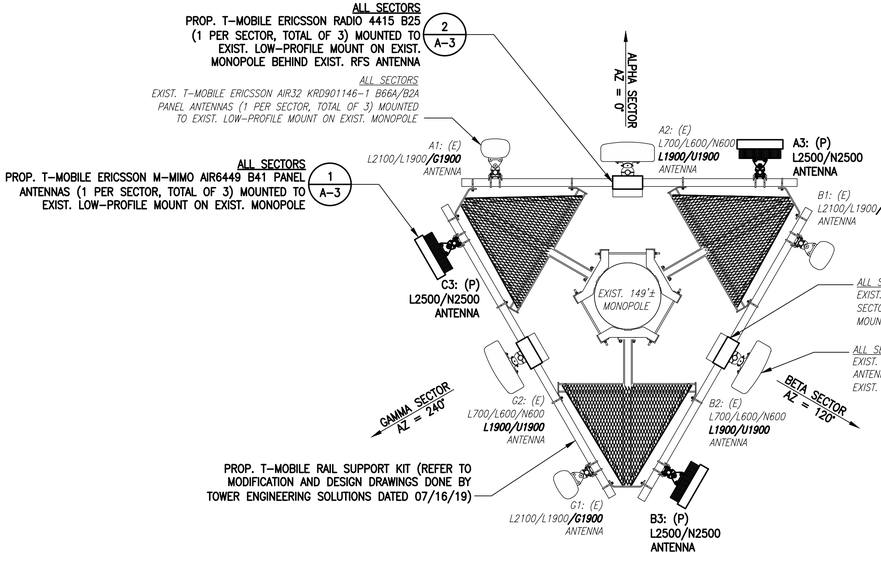
ALL SECTORS
PROP. T-MOBILE RAIL SUPPORT KIT (REFER TO MODIFICATION AND DESIGN DRAWINGS DONE BY TOWER ENGINEERING SOLUTIONS DATED 07/16/19)

ALL SECTORS
PROP. T-MOBILE ERICSSON RADIO 4415 B25 (1 PER SECTOR, TOTAL OF 3) MOUNTED TO EXIST. LOW-PROFILE MOUNT ON EXIST. MONOPOLE BEHIND EXIST. RFS ANTENNA
3 A-2
2 A-3

ALL SECTORS
EXIST. T-MOBILE ERICSSON AIR32 KRD901146-1 B66A/B2A PANEL ANTENNAS (1 PER SECTOR, TOTAL OF 3) MOUNTED TO EXIST. LOW-PROFILE MOUNT ON EXIST. MONOPOLE



EXISTING ANTENNA PLAN 2 A-2
SCALE: N.T.S.



PROPOSED ANTENNA PLAN 3 A-2
SCALE: N.T.S.

ANTENNA LEGEND:
EMPTY – EMPTY PIPE
(E) – EXISTING
(P) – INSTALL

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

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SHEET TITLE
TOWER ELEVATIONS & ANTENNA PLAN

SHEET NUMBER
A-2

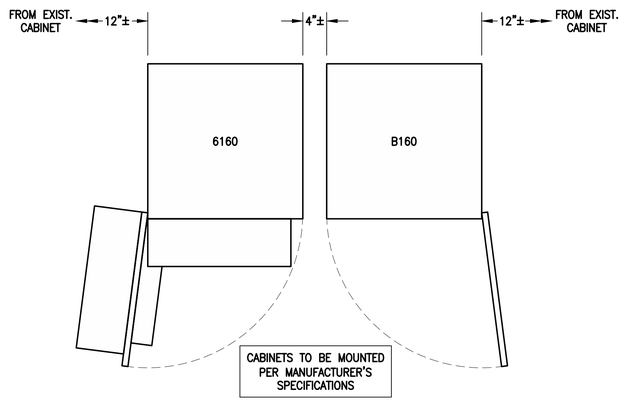
1815.158

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

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

ERICSSON RADIO 4415 B25
DIMENSIONS: 16.5"H x 13.4"W x 5.9"D
WEIGHT: 46.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO DETAILS (2 / A-3)
SCALE: N.T.S.



ERICSSON 6160 SITE SUPPORT CABINET
DIMENSIONS: 63.25"H x 26.0"W x 34.0"D
WEIGHT: 680.0 lbs
QUANTITY: TOTAL OF 1

ERICSSON B160 BATTERY CABINET
DIMENSIONS: 63.25"H x 26.0"W x 26.0"D
WEIGHT: 1771.0 lbs
QUANTITY: TOTAL OF 1

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

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SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.158

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*137'± AGL*	*0°*	*0°*	*3°*	*L2100/L1900/**G1900***	–	*(3) 1-5/8" (6x12) HCS FIBER CABLES* **(P) (1) 1-5/8" (6x12) HCS FIBER CABLES**
	A2 *RFS APXVAARR24_43-U-NA20*	*137'± AGL*	*0°*	*0°*	*4°*	*L700/L600/N600*	*RADIO 4449 B71+B85*	
					4°	**L1900/U1900**	**RADIO 4415 B25**	
	A3 **ERICSSON M-MIMO AIR6449 B41**	**137'± AGL**	**0°**	**0°**	**4°**	**L2500/N2500**	**–**	
BETA	B1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*137'± AGL*	*120°*	*0°*	**3°**	*L2100/L1900/**G1900***	–	
	B2 *RFS APXVAARR24_43-U-NA20*	*137'± AGL*	*120°*	*0°*	*4°*	*L700/L600/N600*	*RADIO 4449 B71+B85*	
					4°	**L1900/U1900**	**RADIO 4415 B25**	
	B3 **ERICSSON M-MIMO AIR6449 B41**	**137'± AGL**	**120°**	**0°**	**4°**	**L2500/N2500**	**–**	
GAMMA	C1 *ERICSSON AIR32 KRD901146-1 B66A/B2A*	*137'± AGL*	*240°*	*0°*	*3°*	*L2100/L1900/**G1900***	–	
	C2 *RFS APXVAARR24_43-U-NA20*	*137'± AGL*	*240°*	*0°*	**4°**	*L700/L600/N600*	*RADIO 4449 B71+B85*	
					4°	**L1900/U1900**	**RADIO 4415 B25**	
	C3 **ERICSSON M-MIMO AIR6449 B41**	**137'± AGL**	**240°**	**0°**	**4°**	**L2500/N2500**	**–**	

CABLE NOTE: (E)(10) 1-5/8" COAX CABLES & (E)(1) 1-1/4" (9x18) HCS FIBER CABLE TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV4 – 09/25/20

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES		LOCATION
A	*EXISTING TO REMAIN:*	*(3) 1-5/8" (6x12) HCS FIBER CABLES*	ROUTED PER STRUCTURAL ANALYSIS
	EXISTING TO BE REMOVED:	*(10) 1-5/8" COAX CABLES* *(1) 1-1/4" (9x18) HCS FIBER CABLE*	
B	**PROPOSED:**	**(1) 1-5/8" (6x12) HCS FIBER CABLES**	

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

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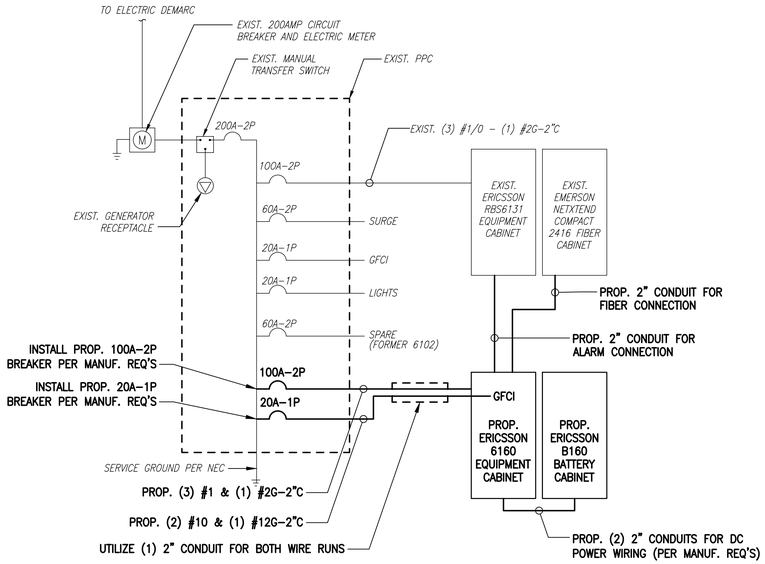
SHEET TITLE
ANTENNA & FEEDLINE CHARTS

SHEET NUMBER
A-4

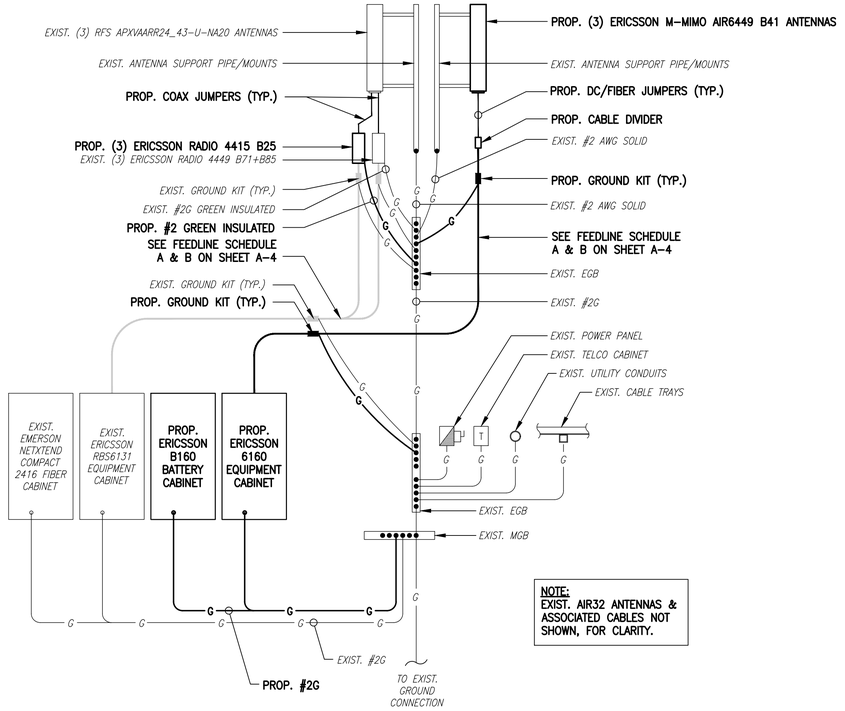
1815.158



ONE LINE DIAGRAM

SCALE: NOT TO SCALE

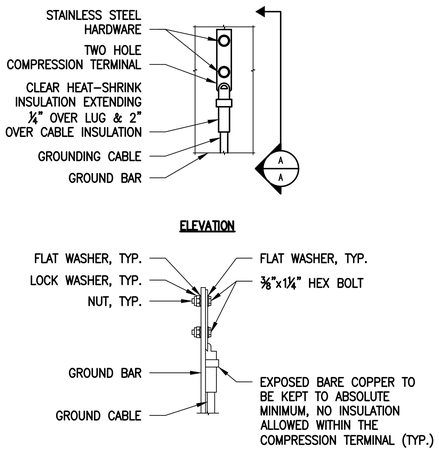
1 / E-1



GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE

2 / E-1



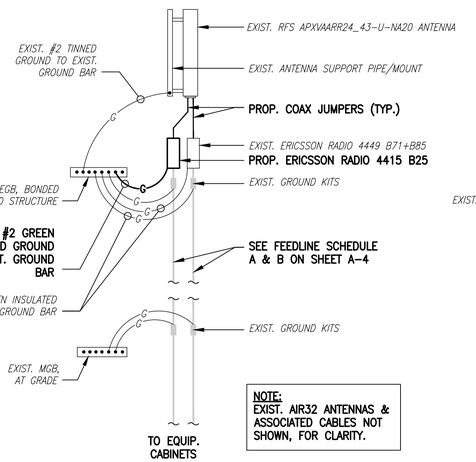
NOTES:

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

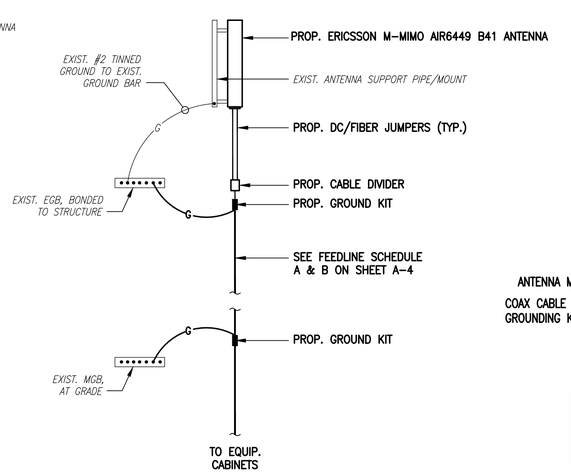
TYPICAL GROUND BAR CONNECTIONS DETAIL

SCALE: NOT TO SCALE

3 / E-1



L700/L600/N600/L1900/U1900 ANTENNA

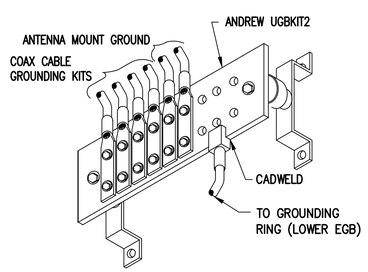


L2500/N2500 ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL

SCALE: NOT TO SCALE

4 / E-1



GROUND BAR (EGB)

SCALE: NOT TO SCALE

5 / E-1

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
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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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED PROFESSIONAL CIVIL ENGINEER
12/8/20

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	12/08/20	ISSUED FOR CONSTRUCTION	CMC
0	11/11/20	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11311G

SITE ADDRESS:
1294 PLEASANT VALLEY ROAD NORTH
GROTON, CT 06340

SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.158

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 149 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13075-A

Customer Site Name: New London

Carrier Name: T-Mobile (App#: 141525, V1)

Carrier Site ID / Name: CT11311G / CT311/Opta Paws Place

Site Location: 1294 Pleasant Valley Road North

Groton, Connecticut

New London County

Latitude: 41.399972

Longitude: -72.079222

Analysis Result:

Max Structural Usage: 89.0% [Pass]

Max Foundation Usage: 96.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By : Dipika Dhungana

Introduction

The purpose of this report is to summarize the analysis results on the 149 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 Design prepared by Sabre, job # 08-07173, dated 08/09/2007
Foundation Drawing	Foundation Design prepared by Sabre, job # 08-07173-E, dated 08/09/2007
Geotechnical Report	Geotechnical Report prepared by Gemini Geotechnical Associates, job # 07079CT, dated 07/20/2007
Modification Drawings	N/A
Mount Analysis	MA by TES, Project# 99159, dated 10/29/2020

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 135.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 105.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.158, S_1 = 0.057

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	150.5	3	Commscope - SBNHH-1D65B - Panel	Low Profile Platform	(12) 1 5/8" (2) 1 5/8" Hybriflex Fiber	Verizon
2	149.0	3	Commscope - LNX-6514DS-VTM - Panel			
3		3	Antel - BXA-80063/4CF - Panel			
4		3	Commscope - SBNHH-1D65B - Panel			
5		3	Alcatel-Lucent- RRH 2x60 700 - RRH			
6		3	Alcatel-Lucent - RRH 4X45 AWS - RRH			
7		3	Alcatel-Lucent - RRH 2x60W-1900MHz - RRH			
8		1	RFS - DB-TI-6Z-8AB-0Z - Distribution Box			
9		1	RFS - DB-T1-6Z-8AB-0Z - Distribution Box			
-	137.0	3	Ericsson Air 21 B2A/B4P	(1) Low Profile Platform (1) Support Rail Kit w/ T-ARM (MS-P-TARM_6) (1) Heavy collar mount (MS-H1436) (3) 2"PST Antenna mount pipe	(10) 1 5/8" Coax (4) 1 5/8" Fiber	T-Mobile
-		3	Ericsson Air 32			
-		3	RFS APXVAARR24_43-U-NA20			
-		3	Ericsson KRY 112 144/1			
-		3	Ericsson Radio 4449 B71+B12			
17	127.0	6	Cci HPA65R-BU8A - Panel	MTC3607 Platform + HR & Kicker	(4) 1/2" Fiber (8) 3/4" DC Power (3) 3/8" RET Line	AT&T
18		3	Kaelus DBCT108F1V92-1 Diplexer			
19		3	Ericsson RRUS 4426 B66 RRU			
20		3	Ericsson RRUS 4415 B25 RRU			
21		3	Ericsson RRUS 4478 B5 RRU			
22		3	Ericsson RRUS 4478 B14 RRU			
23		6	Cci HPA-65R-BUU-H8 - Panel			
24		6	Ericsson RRUS-11 RRU			
25		3	Ericsson RRUS 32 RRU			
26		4	Raycap DC6-48-60-18-8F -SP			

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
10	137.0	3	RFS APXVAARR24_43-U-NA20	(1) Low Profile Platform (1) Support Rail Kit w/ T-ARM (MS-P-TARM_6) (1) Heavy collar mount (MS-H1436) (3) 2"PST Antenna mount pipe	(10) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
11		3	Ericsson AIR32 KRD901146-1_B66A_B2A (Octo)			
12		3	Ericsson AIR6449 B41			
13		3	Ericsson KRY 112 144/1			
15		3	Ericsson 4449 B71+B85			
16		3	Ericsson 4415 B25			

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
Max. Usage:	**89.0%**	**81.0%**	**75.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Analysis Reactions	5460.1	47.5

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.3924 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 TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

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

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

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the 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 88.98% at 100.8ft

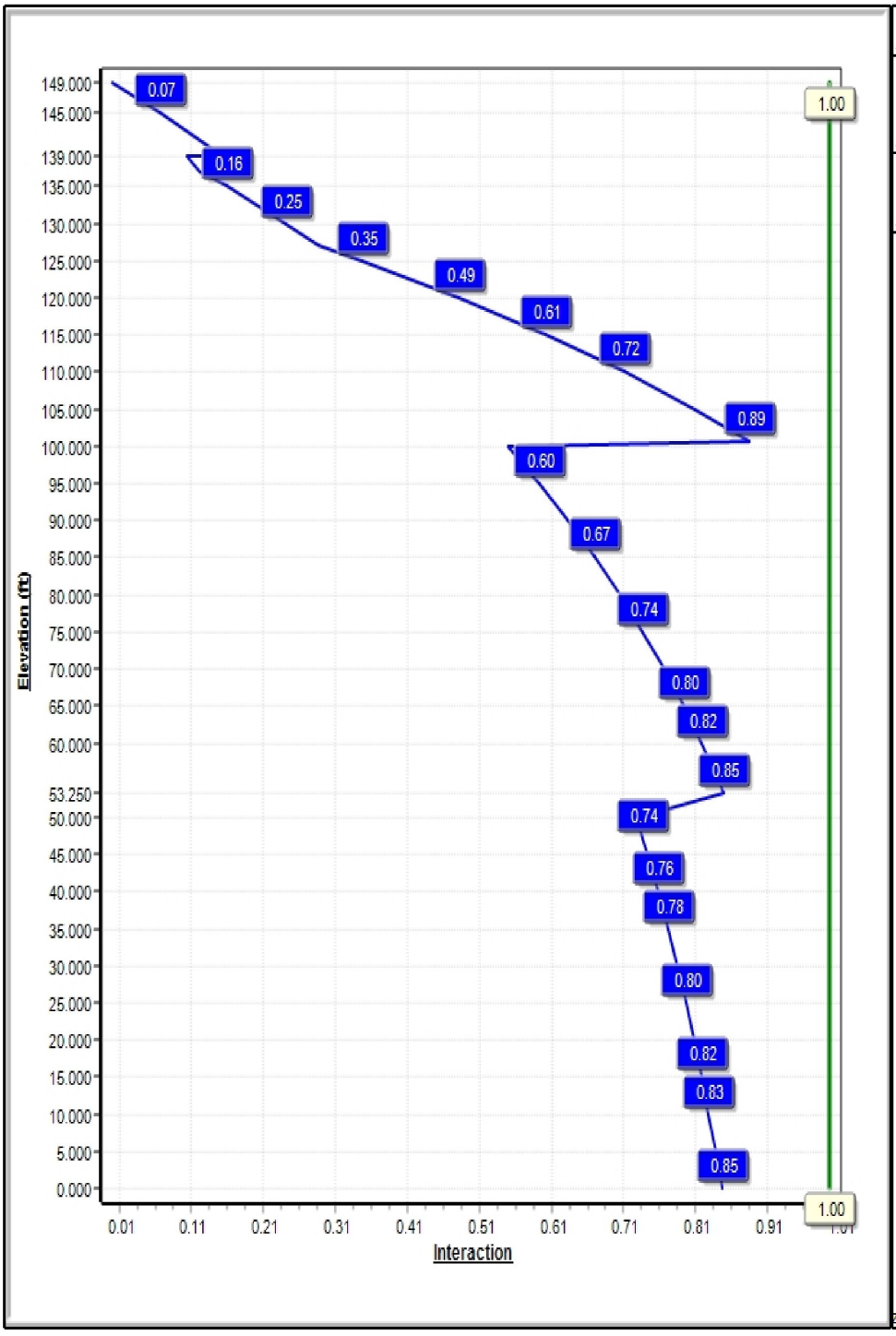
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020
Site Name:	New London	**Exposure:**	C	
Height:	149.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

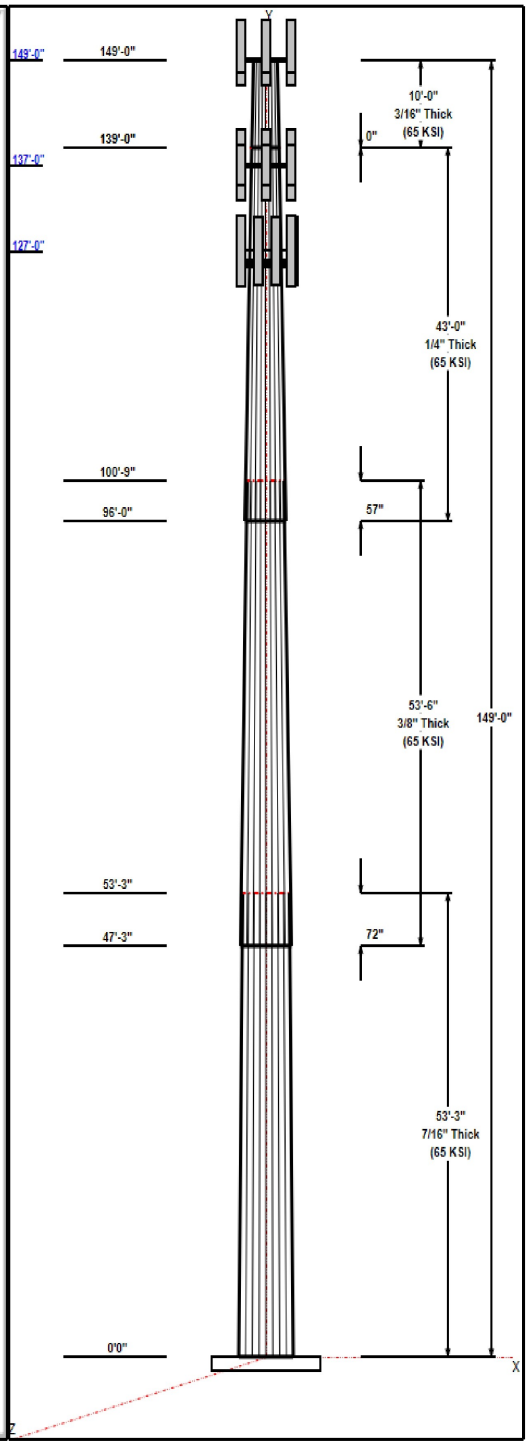
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 105 mph Wind

Iterations: 23





Structure: CT13075-A-SBA

Type: Tapered
Site Name: New London
Height: 149.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23597

10/30/2020

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	45.69	58.26	0.438		0.23597	65
2	53.50	35.24	47.86	0.375	Slip	0.23597	65
3	43.00	26.71	36.86	0.250	Slip	0.23597	65
4	10.00	24.35	26.71	0.188	Butt	0.23597	65

Discrete Appurtenances

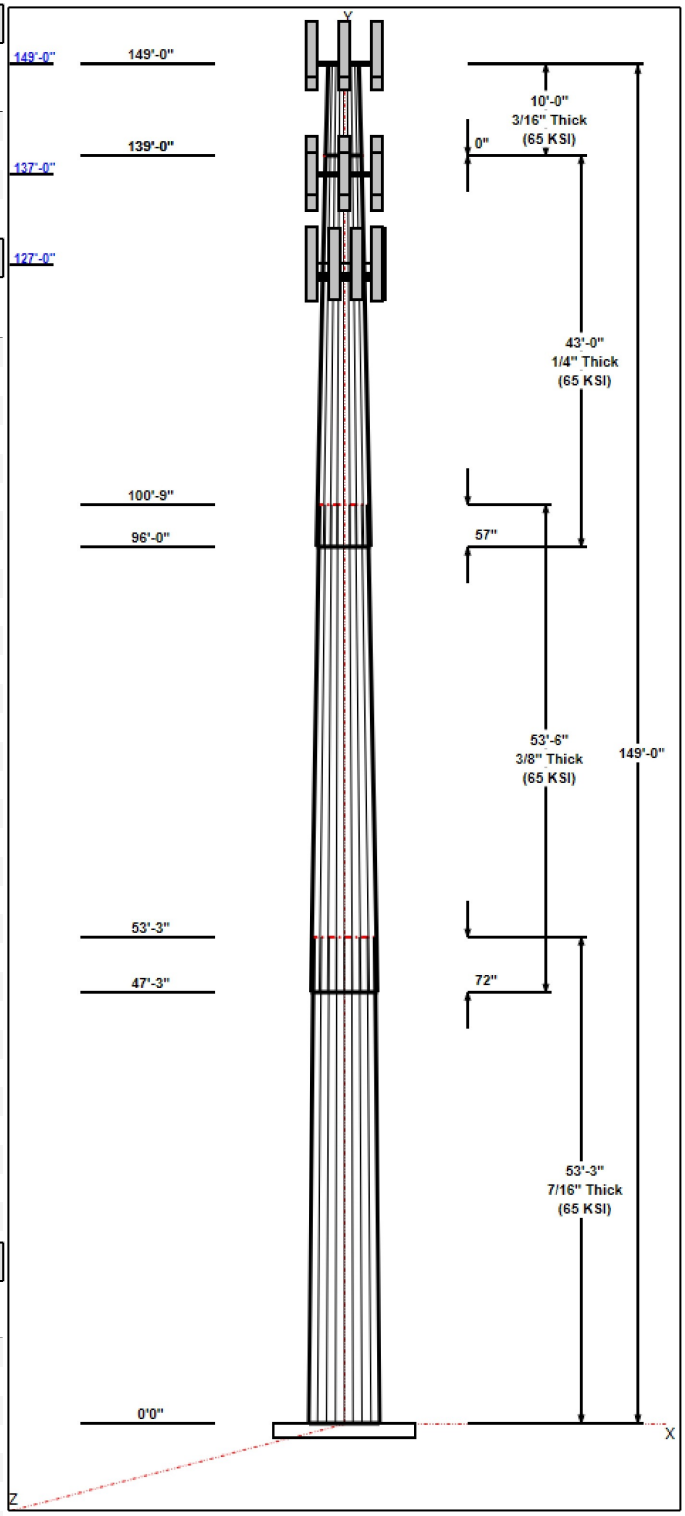
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
149.00	149.00	3	Commscope	Verizon
149.00	149.00	3	Antel BXA-80063/4CF	Verizon
149.00	149.00	3	Commscope	Verizon
149.00	150.50	3	Commscope	Verizon
149.00	149.00	3	Alcatel RRH2x60 700	Verizon
149.00	149.00	3	Alcatel RRH 4X45 AWS	Verizon
149.00	149.00	3	Alcatel RRH	Verizon
149.00	149.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon
149.00	149.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon
149.00	149.00	1	Low Profile	Verizon
137.00	137.00	3	AIR6449 B41	T-Mobile
137.00	137.00	3	KRD 9011461-B66A-B2A	T-Mobile
137.00	137.00	3	APXVAARR24_43-U-NA20	T-Mobile
137.00	137.00	3	KRY 112 144/1	T-Mobile
137.00	137.00	3	4449 B71 + B12	T-Mobile
137.00	137.00	1	(3) T-Arm Kit	T-Mobile
137.00	137.00	3	Handrail Klt	T-Mobile
137.00	137.00	1	mount pipe	T-Mobile
137.00	137.00	3	RRUS 4415 B25	T-Mobile
137.00	137.00	1	Low Profile Platform	T-Mobile
127.00	127.00	3	Ericsson RRUS 32 RRU	AT&T
127.00	127.00	4	Raycap DC6-48-60-18-8F	AT&T
127.00	127.00	1	MTC3607 Platform + HR &	AT&T
127.00	127.00	12	Cci HPA-65R-BUU-H8	AT&T
127.00	127.00	6	Ericsson RRUS-11 RRU	AT&T
127.00	127.00	3	Ericsson RRUS 4415 B25	AT&T
127.00	127.00	3	Ericsson RRUS 4478 B5	AT&T
127.00	127.00	3	Ericsson RRUS 4478 B14	AT&T
127.00	127.00	6	Cci HPA65R-BU8A	AT&T
127.00	127.00	3	Kaelus DBCT108F1V92-1	AT&T
127.00	127.00	3	Ericsson RRUS 4426 B66	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	149.00	Inside	1 5/8" Coax	Verizon
0.00	149.00	Inside	1 5/8" Hybriflex Fiber	Verizon
0.00	137.00	Inside	1 5/8" Coax	T-Mobile
0.00	137.00	Inside	1 5/8" Fiber	T-Mobile
0.00	127.00	Inside	1/2" Fiber	AT&T
0.00	127.00	Inside	3/4" DC	AT&T
0.00	127.00	Inside	3/8" RET	AT&T

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement



20	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	65.4	60.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 105 mph Wind	5460.1	47.5	49.3
0.9D + 1.6W 105 mph Wind	5411.6	47.4	36.9
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1222.4	10.8	78.0
1.2D + 1.0E	218.6	1.8	49.4
0.9D + 1.0E	216.5	1.8	37.0
1.0D + 1.0W 60 mph Wind	1109.9	9.7	41.1

Structure: CT13075-A-SBA - Coax Line Placement

Type: Monopole
Site Name: New London
Height: 149.00 (ft)

10/30/2020

Tower Engineering Solutions

Shaft Properties

Structure:	CT13075-A-SBA		**Code:**	EIA/TIA-222-G	10/30/2020
Site Name:	New London		**Exposure:**	C	
Height:	149.00 (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	53.250	0.4375	65		0.00	12,968
2	18	53.500	0.3750	65	Slip	72.00	8,921
3	18	43.000	0.2500	65	Slip	57.00	3,661
4	18	10.000	0.1875	65	Flange	0.00	513
					Total Shaft Weight:		**26,063**

	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	58.26	0.00	80.29	33916.66	22.07	133.17	45.69	53.25	62.84	16262.1	17.01	104.4	0.235973
2	47.86	47.25	56.52	16100.98	21.09	127.63	35.24	100.75	41.49	6370.66	15.16	93.96	0.235973
3	36.86	96.00	29.05	4917.70	24.58	147.43	26.71	139.00	21.00	1857.12	17.43	106.8	0.235973
4	26.71	139.0	15.78	1402.74	23.71	142.45	24.35	149.00	14.38	1060.65	21.49	129.8	0.235973

Load Summary

Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

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Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	149.00	Commscope LNX-6514DS-VTM	3	38.80	8.17	0.83	214.98	10.991	0.83	0.00	0.00
2	149.00	Antel BXA-80063/4CF	3	9.90	4.72	0.72	110.33	6.567	0.72	0.00	0.00
3	149.00	Commscope SBNHH-1D65B	3	40.60	8.08	0.83	242.97	9.459	0.83	0.00	0.00
4	149.00	Commscope SBNHH-1D65B	3	40.00	8.16	0.83	242.97	9.459	0.83	0.00	1.50
5	149.00	Alcatel RRH2x60 700	3	51.00	1.51	1.50	151.17	1.934	1.47	0.00	0.00
6	149.00	Alcatel RRH 4X45 AWS	3	64.00	2.60	0.80	147.52	3.304	0.80	0.00	0.00
7	149.00	Alcatel RRH 2X60W-1900MHz	3	46.00	1.88	0.84	115.05	2.466	0.84	0.00	0.00
8	149.00	RFS DB-T1-6Z-8AB-0Z	1	18.90	4.80	0.67	162.51	5.673	0.67	0.00	0.00
9	149.00	RFS DB-T1-6Z-8AB-0Z	1	18.90	4.80	0.67	162.51	5.673	0.67	0.00	0.00
10	149.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2808.04	39.650	1.00	0.00	0.00
11	137.00	AIR6449 B41	3	103.00	5.65	0.71	238.88	6.592	0.71	0.00	0.00
12	137.00	KRD 9011461-B66A-B2A	3	132.20	6.51	0.87	313.48	7.621	0.87	0.00	0.00
13	137.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.75	541.69	22.122	0.80	0.00	0.00
14	137.00	KRY 112 144/1	3	15.40	0.71	0.75	35.05	1.328	0.80	0.00	0.00
15	137.00	4449 B71 + B12	3	73.20	1.97	0.67	130.42	2.534	0.67	0.00	0.00
16	137.00	(3) T-Arm Kit	1	500.00	16.50	1.00	1088.02	32.480	1.00	0.00	0.00
17	137.00	Handrail KIt	3	45.75	2.97	1.00	90.06	6.666	1.00	0.00	0.00
18	137.00	mount pipe	1	87.00	4.31	1.00	219.41	9.647	1.00	0.00	0.00
19	137.00	RRUS 4415 B25	3	46.00	1.64	0.67	86.73	2.151	0.67	0.00	0.00
20	137.00	Low Profile Platform	1	1500.00	22.00	1.00	2797.10	39.502	1.00	0.00	0.00
21	127.00	Ericsson RRUS 32 RRU	3	77.00	3.31	0.67	124.43	2.219	0.67	0.00	0.00
22	127.00	Raycap DC6-48-60-18-8F -SP	4	31.80	2.20	1.00	92.60	3.230	1.00	0.00	0.00
23	127.00	MTC3607 Platform + HR & Kicker	1	2246.00	51.70	1.00	5330.04	89.325	1.00	0.00	0.00
24	127.00	Cci HPA-65R-BUU-H8	12	68.00	12.98	0.79	353.46	14.567	0.79	0.00	0.00
25	127.00	Ericsson RRUS-11 RRU	6	50.70	2.52	0.67	138.10	3.160	0.67	0.00	0.00
26	127.00	Ericsson RRUS 4415 B25 RRU	3	44.10	1.86	0.67	90.76	2.423	0.67	0.00	0.00
27	127.00	Ericsson RRUS 4478 B5 RRU	3	59.90	1.84	0.67	107.98	2.379	0.67	0.00	0.00
28	127.00	Ericsson RRUS 4478 B14 RRU	3	59.40	1.65	0.67	100.18	2.160	0.67	0.00	0.00
29	127.00	Cci HPA65R-BU8A	6	69.00	11.22	0.89	339.99	12.850	0.89	0.00	0.00
30	127.00	Kaelus DBCT108F1V92-1 Diplexer	3	19.80	0.70	1.00	44.04	0.953	1.00	0.00	0.00
31	127.00	Ericsson RRUS 4426 B66 RRU	3	48.50	1.15	0.67	86.77	1.616	0.67	0.00	0.00
		Totals:	**95**	**10,959.85**			**29,694.45**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	149.00	(12) 1 5/8" Coax	0.00	Inside
0.00	149.00	(2) 1 5/8" Hybriflex Fiber	0.00	Inside
0.00	137.00	(10) 1 5/8" Coax	0.00	Inside
0.00	137.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	127.00	(4) 1/2" Fiber	0.00	Inside
0.00	127.00	(8) 3/4" DC	0.00	Inside
0.00	127.00	(3) 3/8" RET	0.00	Inside

Shaft Section Properties

Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (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	

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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	58.260	80.291	33916.7	22.07	133.17	75.4	1146.	0.0
5.00		0.4375	57.080	78.653	31882.5	21.59	130.47	76.0	1100.	1352.1
10.00		0.4375	55.900	77.014	29931.4	21.12	127.77	76.6	1054.	1324.2
15.00		0.4375	54.720	75.376	28061.5	20.64	125.08	77.1	1010.	1296.4
20.00		0.4375	53.541	73.738	26271.2	20.17	122.38	77.7	966.4	1268.5
25.00		0.4375	52.361	72.099	24558.7	19.69	119.68	78.2	923.8	1240.6
30.00		0.4375	51.181	70.461	22922.3	19.22	116.98	78.8	882.1	1212.8
35.00		0.4375	50.001	68.823	21360.3	18.74	114.29	79.4	841.4	1184.9
40.00		0.4375	48.821	67.184	19870.8	18.27	111.59	79.9	801.7	1157.0
45.00		0.4375	47.641	65.546	18452.3	17.79	108.89	80.5	762.9	1129.1
47.25	Bot - Section 2	0.4375	47.110	64.809	17836.6	17.58	107.68	80.7	745.7	499.0
50.00		0.4375	46.461	63.908	17103.0	17.31	106.20	81.0	725.0	1127.5
53.25	Top - Section 1	0.3750	46.444	54.832	14703.3	20.43	123.85	0.0	0.0	1312.3
55.00		0.3750	46.031	54.341	14311.4	20.23	122.75	77.6	612.4	325.1
60.00		0.3750	44.852	52.936	13230.3	19.68	119.60	78.3	581.0	912.6
65.00		0.3750	43.672	51.532	12205.1	19.12	116.46	78.9	550.5	888.7
70.00		0.3750	42.492	50.128	11234.3	18.57	113.31	79.6	520.7	864.8
75.00		0.3750	41.312	48.724	10316.3	18.01	110.17	80.2	491.8	840.9
80.00		0.3750	40.132	47.319	9449.8	17.46	107.02	80.9	463.8	817.0
85.00		0.3750	38.952	45.915	8633.2	16.90	103.87	81.5	436.5	793.1
90.00		0.3750	37.772	44.511	7865.0	16.35	100.73	82.2	410.1	769.2
95.00		0.3750	36.593	43.106	7143.9	15.80	97.58	82.5	384.5	745.4
96.00	Bot - Section 3	0.3750	36.357	42.826	7005.1	15.68	96.95	82.5	379.5	146.2
100.00		0.3750	35.413	41.702	6468.2	15.24	94.43	82.5	359.8	965.5
100.75	Top - Section 2	0.2500	35.736	28.157	4479.7	23.79	142.94	0.0	0.0	178.2
105.00		0.2500	34.733	27.361	4110.5	23.09	138.93	74.2	233.1	401.4
110.00		0.2500	33.553	26.425	3702.8	22.25	134.21	75.2	217.4	457.6
115.00		0.2500	32.373	25.489	3323.0	21.42	129.49	76.2	202.2	441.6
120.00		0.2500	31.193	24.553	2970.2	20.59	124.77	77.2	187.5	425.7
125.00		0.2500	30.013	23.616	2643.2	19.76	120.05	78.2	173.5	409.8
127.00		0.2500	29.541	23.242	2519.4	19.43	118.17	78.6	168.0	159.4
130.00		0.2500	28.833	22.680	2341.2	18.93	115.33	79.1	159.9	234.4
135.00		0.2500	27.654	21.744	2063.0	18.09	110.61	80.1	146.9	377.9
137.00		0.2500	27.182	21.370	1958.3	17.76	108.73	80.5	141.9	146.7
139.00	Top - Section 3	0.2500	26.710	20.995	1857.1	17.43	106.84	80.9	136.9	144.2
139.00	Bot - Section 4	0.1875	26.710	15.783	1402.7	23.24	142.45	73.5	103.4	
140.00		0.1875	26.474	15.643	1365.6	23.49	141.19	73.8	101.6	53.5
145.00		0.1875	25.294	14.941	1189.9	22.38	134.90	75.1	92.7	260.2
149.00		0.1875	24.350	14.379	1060.6	21.49	129.87	76.1	85.8	199.5
										26063.1

Wind Loading - Shaft

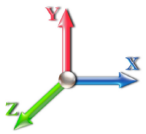
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

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	0.85	22.791	25.07	477.24	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	467.57	0.650	0.000	5.00	24.400	15.86	636.2	0.0	1622.5
10.00		1.00	0.85	22.791	25.07	457.91	0.650	0.000	5.00	23.901	15.54	623.2	0.0	1589.1
15.00		1.00	0.85	22.791	25.07	448.24	0.650	0.000	5.00	23.401	15.21	610.1	0.0	1555.6
20.00		1.00	0.90	24.182	26.60	451.77	0.650	0.000	5.00	22.902	14.89	633.6	0.0	1522.2
25.00		1.00	0.95	25.345	27.88	452.31	0.650	0.000	5.00	22.403	14.56	649.6	0.0	1488.8
30.00		1.00	0.98	26.337	28.97	450.69	0.650	0.000	5.00	21.904	14.24	660.0	0.0	1455.3
35.00		1.00	1.01	27.206	29.93	447.50	0.650	0.000	5.00	21.405	13.91	666.2	0.0	1421.9
40.00		1.00	1.04	27.981	30.78	443.13	0.650	0.000	5.00	20.906	13.59	669.2	0.0	1388.4
45.00		1.00	1.07	28.684	31.55	437.81	0.650	0.000	5.00	20.406	13.26	669.6	0.0	1355.0
47.25	Bot - Section 2	1.00	1.08	28.980	31.88	435.16	0.650	0.000	2.25	9.020	5.86	299.0	0.0	598.8
50.00		1.00	1.09	29.327	32.26	431.73	0.650	0.000	2.75	11.062	7.19	371.1	0.0	1353.0
53.25	Top - Section 1	1.00	1.11	29.719	32.69	427.43	0.650	0.000	3.25	12.878	8.37	437.8	0.0	1574.8
55.00		1.00	1.12	29.922	32.91	432.05	0.650	0.000	1.75	6.847	4.45	234.4	0.0	390.1
60.00		1.00	1.14	30.475	33.52	424.85	0.650	0.000	5.00	19.226	12.50	670.3	0.0	1095.1
65.00		1.00	1.16	30.993	34.09	417.17	0.650	0.000	5.00	18.727	12.17	664.0	0.0	1066.4
70.00		1.00	1.17	31.480	34.63	409.08	0.650	0.000	5.00	18.228	11.85	656.4	0.0	1037.8
75.00		1.00	1.19	31.941	35.13	400.62	0.650	0.000	5.00	17.728	11.52	647.8	0.0	1009.1
80.00		1.00	1.21	32.377	35.62	391.83	0.650	0.000	5.00	17.229	11.20	638.2	0.0	980.4
85.00		1.00	1.22	32.793	36.07	382.75	0.650	0.000	5.00	16.730	10.87	627.6	0.0	951.8
90.00		1.00	1.24	33.190	36.51	373.39	0.650	0.000	5.00	16.231	10.55	616.3	0.0	923.1
95.00		1.00	1.25	33.570	36.93	363.79	0.650	0.000	5.00	15.732	10.23	604.2	0.0	894.4
96.00	Bot - Section 3	1.00	1.25	33.644	37.01	361.85	0.650	0.000	1.00	3.086	2.01	118.8	0.0	175.4
100.00		1.00	1.27	33.935	37.33	353.97	0.650	0.000	4.00	12.315	8.00	478.1	0.0	1158.6
100.75	Top - Section 2	1.00	1.27	33.988	37.39	352.48	0.650	0.000	0.75	2.274	1.48	88.4	0.0	213.8
105.00		1.00	1.28	34.285	37.71	348.96	0.650	0.000	4.25	12.671	8.24	497.0	0.0	481.7
110.00		1.00	1.29	34.623	38.08	338.76	0.650	0.000	5.00	14.446	9.39	572.2	0.0	549.1
115.00		1.00	1.30	34.948	38.44	328.38	0.650	0.000	5.00	13.946	9.07	557.6	0.0	530.0
120.00		1.00	1.32	35.263	38.79	317.84	0.650	0.000	5.00	13.447	8.74	542.5	0.0	510.8
125.00		1.00	1.33	35.567	39.12	307.13	0.650	0.000	5.00	12.948	8.42	526.8	0.0	491.7
127.00	Appurtenance(s)	1.00	1.33	35.686	39.25	302.81	0.650	0.000	2.00	5.039	3.28	205.7	0.0	191.3
130.00		1.00	1.34	35.862	39.45	296.28	0.650	0.000	3.00	7.409	4.82	304.0	0.0	281.3
135.00		1.00	1.35	36.148	39.76	285.29	0.650	0.000	5.00	11.950	7.77	494.2	0.0	453.5
137.00	Appurtenance(s)	1.00	1.35	36.260	39.89	280.85	0.650	0.000	2.00	4.640	3.02	192.5	0.0	176.0
139.00	Top - Section 3	1.00	1.36	36.371	40.01	276.40	0.650	0.000	2.00	4.560	2.96	189.7	0.0	173.0
140.00		1.00	1.36	36.426	40.07	274.16	0.650	0.000	1.00	2.250	1.46	93.8	0.0	64.2
145.00		1.00	1.37	36.696	40.37	262.91	0.650	0.000	5.00	10.951	7.12	459.7	0.0	312.2
149.00	Appurtenance(s)	1.00	1.38	36.907	40.60	253.83	0.650	0.000	4.00	8.402	5.46	354.7	0.0	239.4
								Totals:	**149.00**			**17,960.4**		**31,275.7**

Discrete Appurtenance Forces

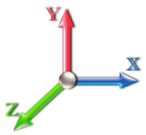
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

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	149.00	Alcatel RRH2x60 700	3	36.907	40.597	1.50	1.00	6.79	183.60	0.000	0.000	441.37	0.00	0.00
2	149.00	Commscope	3	36.907	40.597	0.83	1.00	20.34	139.68	0.000	0.000	1321.42	0.00	0.00
3	149.00	Antel BXA-80063/4CF	3	36.907	40.597	0.72	1.00	10.20	35.64	0.000	0.000	662.24	0.00	0.00
4	149.00	Commscope	3	36.907	40.597	0.83	1.00	20.12	146.16	0.000	0.000	1306.86	0.00	0.00
5	149.00	Commscope	3	36.985	40.683	0.83	1.00	20.32	144.00	0.000	1.500	1322.58	0.00	1983.88
6	149.00	Low Profile	1	36.907	40.597	1.00	1.00	22.00	1800.00	0.000	0.000	1429.03	0.00	0.00
7	149.00	Alcatel RRH 4X45 AWS	3	36.907	40.597	0.80	1.00	6.24	230.40	0.000	0.000	405.32	0.00	0.00
8	149.00	Alcatel RRH	3	36.907	40.597	0.84	1.00	4.74	165.60	0.000	0.000	307.73	0.00	0.00
9	149.00	RFS DB-T1-6Z-8AB-0Z	1	36.907	40.597	0.67	1.00	3.22	22.68	0.000	0.000	208.90	0.00	0.00
10	149.00	RFS DB-T1-6Z-8AB-0Z	1	36.907	40.597	0.67	1.00	3.22	22.68	0.000	0.000	208.90	0.00	0.00
11	137.00	RRUS 4415 B25	3	36.260	39.886	0.50	0.75	2.47	165.60	0.000	0.000	157.78	0.00	0.00
12	137.00	Low Profile Platform	1	36.260	39.886	1.00	1.00	22.00	1800.00	0.000	0.000	1403.99	0.00	0.00
13	137.00	4449 B71 + B12	3	36.260	39.886	0.50	0.75	2.97	263.52	0.000	0.000	189.52	0.00	0.00
14	137.00	KRY 112 144/1	3	36.260	39.886	0.56	0.75	1.20	55.44	0.000	0.000	76.46	0.00	0.00
15	137.00	APXVAARR24_43-U-NA2	3	36.260	39.886	0.56	0.75	34.16	460.80	0.000	0.000	2179.69	0.00	0.00
16	137.00	KRD 9011461-B66A-B2A	3	36.260	39.886	0.65	0.75	12.74	475.92	0.000	0.000	813.25	0.00	0.00
17	137.00	mount pipe	1	36.260	39.886	1.00	1.00	4.31	104.40	0.000	0.000	275.05	0.00	0.00
18	137.00	Handrail KIt	3	36.260	39.886	1.00	1.00	8.91	164.70	0.000	0.000	568.39	0.00	0.00
19	137.00	(3) T-Arm Kit	1	36.260	39.886	1.00	1.00	16.50	600.00	0.000	0.000	1052.99	0.00	0.00
20	137.00	AIR6449 B41	3	36.260	39.886	0.53	0.75	9.03	370.80	0.000	0.000	576.01	0.00	0.00
21	127.00	Kaelus DBCT108F1V92-1	3	35.686	39.255	0.80	0.80	1.68	71.28	0.000	0.000	105.52	0.00	0.00
22	127.00	Ericsson RRUS 32 RRU	3	35.686	39.255	0.54	0.80	5.32	277.20	0.000	0.000	334.29	0.00	0.00
23	127.00	Raycap DC6-48-60-18-8F	4	35.686	39.255	0.80	0.80	7.04	152.64	0.000	0.000	442.16	0.00	0.00
24	127.00	MTC3607 Platform + HR &	1	35.686	39.255	1.00	1.00	51.70	2695.20	0.000	0.000	3247.15	0.00	0.00
25	127.00	Cci HPA65R-BU8A	6	35.686	39.255	0.71	0.80	47.93	496.80	0.000	0.000	3010.48	0.00	0.00
26	127.00	Ericsson RRUS-11 RRU	6	35.686	39.255	0.54	0.80	8.10	365.04	0.000	0.000	509.01	0.00	0.00
27	127.00	Ericsson RRUS 4426 B66	3	35.686	39.255	0.54	0.80	1.85	174.60	0.000	0.000	116.14	0.00	0.00
28	127.00	Cci HPA-65R-BUU-H8	12	35.686	39.255	0.63	0.80	98.44	979.20	0.000	0.000	6182.79	0.00	0.00
29	127.00	Ericsson RRUS 4415 B25	3	35.686	39.255	0.54	0.80	2.99	158.76	0.000	0.000	187.85	0.00	0.00
30	127.00	Ericsson RRUS 4478 B5	3	35.686	39.255	0.54	0.80	2.96	215.64	0.000	0.000	185.83	0.00	0.00
31	127.00	Ericsson RRUS 4478 B14	3	35.686	39.255	0.54	0.80	2.65	213.84	0.000	0.000	166.64	0.00	0.00
							Totals:		**13,151.82**			**29,395.34**		

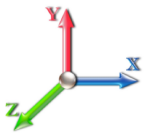
Total Applied Force Summary

Structure:	CT13075-A-SBA		**Code:**	EIA/TIA-222-G	10/30/2020
Site Name:	New London		**Exposure:**	C	
Height:	149.00 (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

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

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		636.17	1797.15	0.00	0.00
10.00		623.16	1763.70	0.00	0.00
15.00		610.14	1730.25	0.00	0.00
20.00		633.58	1696.80	0.00	0.00
25.00		649.58	1663.35	0.00	0.00
30.00		659.95	1629.90	0.00	0.00
35.00		666.19	1596.45	0.00	0.00
40.00		669.20	1563.00	0.00	0.00
45.00		669.62	1529.55	0.00	0.00
47.25		299.04	677.39	0.00	0.00
50.00		371.12	1449.02	0.00	0.00
53.25		437.83	1688.26	0.00	0.00
55.00		234.38	451.18	0.00	0.00
60.00		670.28	1269.72	0.00	0.00
65.00		663.97	1241.05	0.00	0.00
70.00		656.43	1212.38	0.00	0.00
75.00		647.80	1183.71	0.00	0.00
80.00		638.17	1155.04	0.00	0.00
85.00		627.64	1126.37	0.00	0.00
90.00		616.28	1097.69	0.00	0.00
95.00		604.17	1069.02	0.00	0.00
96.00		118.79	210.36	0.00	0.00
100.00		478.10	1298.30	0.00	0.00
100.75		88.40	240.03	0.00	0.00
105.00		497.00	630.14	0.00	0.00
110.00		572.17	723.67	0.00	0.00
115.00		557.59	704.55	0.00	0.00
120.00		542.47	685.44	0.00	0.00
125.00		526.84	666.32	0.00	0.00
127.00	(47) attachments	14693.59	6061.38	0.00	0.00
130.00		303.98	372.42	0.00	0.00
135.00		494.16	605.42	0.00	0.00
137.00	(24) attachments	7485.61	4697.99	0.00	0.00
139.00		189.74	208.22	0.00	0.00
140.00		93.77	81.78	0.00	0.00
145.00		459.74	400.29	0.00	0.00
149.00	(24) attachments	7969.08	3200.35	0.00	1983.88
	Totals:	**47,355.72**	**49,377.64**	**0.00**	**1,983.88**

Calculated Forces

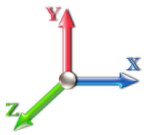
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

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	-49.28	-47.45	0.00	-5460.0	0.00	5460.06	5451.60	2725.80	12956.4	6487.84	0.00	0.000	0.000	0.851
5.00	-47.30	-47.00	0.00	-5222.7	0.00	5222.79	5379.95	2689.97	12523.2	6270.95	0.12	-0.224	0.000	0.842
10.00	-45.36	-46.55	0.00	-4987.7	0.00	4987.79	5306.65	2653.32	12093.3	6055.68	0.48	-0.452	0.000	0.833
15.00	-43.44	-46.10	0.00	-4755.0	0.00	4755.04	5231.70	2615.85	11666.9	5842.16	1.08	-0.683	0.000	0.823
20.00	-41.57	-45.62	0.00	-4524.5	0.00	4524.55	5155.10	2577.55	11244.2	5630.50	1.92	-0.919	0.000	0.812
25.00	-39.73	-45.10	0.00	-4296.4	0.00	4296.47	5076.86	2538.43	10825.5	5420.83	3.01	-1.157	0.000	0.801
30.00	-37.92	-44.57	0.00	-4070.9	0.00	4070.96	4996.96	2498.48	10411.0	5213.26	4.35	-1.400	0.000	0.789
35.00	-36.16	-44.02	0.00	-3848.1	0.00	3848.12	4915.42	2457.71	10001.0	5007.93	5.95	-1.645	0.000	0.776
40.00	-34.42	-43.45	0.00	-3628.0	0.00	3628.04	4832.22	2416.11	9595.63	4804.95	7.81	-1.894	0.000	0.763
45.00	-32.78	-42.83	0.00	-3410.8	0.00	3410.80	4747.38	2373.69	9195.21	4604.44	9.93	-2.146	0.000	0.748
47.25	-32.02	-42.58	0.00	-3314.4	0.00	3314.43	4708.66	2354.33	9016.69	4515.05	10.97	-2.263	0.000	0.741
50.00	-30.47	-42.23	0.00	-3197.3	0.00	3197.33	4660.89	2330.44	8799.96	4406.52	12.31	-2.406	0.000	0.732
53.25	-28.71	-41.79	0.00	-3060.0	0.00	3060.08	3818.32	1909.16	7226.08	3618.41	14.01	-2.575	0.000	0.854
55.00	-28.13	-41.63	0.00	-2986.9	0.00	2986.95	3795.26	1897.63	7117.54	3564.06	14.97	-2.667	0.000	0.846
60.00	-26.69	-41.03	0.00	-2778.8	0.00	2778.81	3728.27	1864.14	6809.75	3409.94	17.92	-2.954	0.000	0.823
65.00	-25.28	-40.43	0.00	-2573.6	0.00	2573.67	3659.63	1829.82	6505.57	3257.62	21.16	-3.242	0.000	0.797
70.00	-23.91	-39.82	0.00	-2371.5	0.00	2371.53	3589.34	1794.67	6205.25	3107.24	24.71	-3.530	0.000	0.770
75.00	-22.58	-39.21	0.00	-2172.4	0.00	2172.43	3517.40	1758.70	5909.03	2958.91	28.56	-3.818	0.000	0.741
80.00	-21.28	-38.60	0.00	-1976.3	0.00	1976.37	3443.81	1721.91	5617.15	2812.75	32.71	-4.104	0.000	0.709
85.00	-20.01	-37.99	0.00	-1783.3	0.00	1783.36	3368.58	1684.29	5329.85	2668.89	37.16	-4.387	0.000	0.675
90.00	-18.79	-37.38	0.00	-1593.4	0.00	1593.41	3291.69	1645.84	5047.37	2527.44	41.90	-4.665	0.000	0.637
95.00	-17.67	-36.74	0.00	-1406.5	0.00	1406.51	3202.59	1601.29	4754.28	2380.67	46.93	-4.936	0.000	0.597
96.00	-17.39	-36.64	0.00	-1369.7	0.00	1369.77	3181.72	1590.86	4692.22	2349.60	47.97	-4.991	0.000	0.589
100.00	-16.06	-36.09	0.00	-1223.2	0.00	1223.20	3098.26	1549.13	4448.03	2227.32	52.24	-5.202	0.000	0.555
100.75	-15.75	-36.01	0.00	-1196.1	0.00	1196.13	1860.42	930.21	2714.89	1359.46	53.06	-5.242	0.000	0.890
105.00	-14.99	-35.53	0.00	-1043.0	0.00	1043.09	1828.32	914.16	2592.13	1297.99	57.81	-5.454	0.000	0.813
110.00	-14.14	-34.97	0.00	-865.43	0.00	865.43	1789.04	894.52	2449.03	1226.33	63.70	-5.785	0.000	0.715
115.00	-13.33	-34.41	0.00	-690.59	0.00	690.59	1748.11	874.06	2307.59	1155.51	69.91	-6.084	0.000	0.607
120.00	-12.57	-33.84	0.00	-518.56	0.00	518.56	1705.53	852.77	2168.05	1085.64	76.42	-6.342	0.000	0.487
125.00	-11.89	-33.27	0.00	-349.34	0.00	349.34	1661.30	830.65	2030.66	1016.84	83.17	-6.550	0.000	0.352
127.00	-7.53	-17.99	0.00	-282.80	0.00	282.80	1643.15	821.58	1976.36	989.65	85.92	-6.618	0.000	0.291
130.00	-7.16	-17.66	0.00	-228.82	0.00	228.82	1615.43	807.71	1895.65	949.24	90.10	-6.705	0.000	0.246
135.00	-6.60	-17.11	0.00	-140.53	0.00	140.53	1567.90	783.95	1763.28	882.95	97.17	-6.817	0.000	0.164
137.00	-2.82	-9.11	0.00	-106.32	0.00	106.32	1548.43	774.21	1711.12	856.83	100.03	-6.851	0.000	0.126
139.00	-2.63	-8.90	0.00	-88.09	0.00	88.09	1528.69	764.34	1659.43	830.95	102.90	-6.879	0.000	0.108
139.00	-2.63	-8.90	0.00	-88.09	0.00	88.09	1044.31	522.16	1138.99	570.34	102.90	-6.879	0.000	0.157
140.00	-2.56	-8.80	0.00	-79.18	0.00	79.18	1038.69	519.35	1122.71	562.19	104.34	-6.892	0.000	0.144
145.00	-2.21	-8.30	0.00	-35.18	0.00	35.18	1009.62	504.81	1041.96	521.75	111.58	-6.952	0.000	0.070
149.00	0.00	-7.97	0.00	-1.98	0.00	1.98	985.17	492.59	978.22	489.84	117.40	-6.970	0.000	0.004

Wind Loading - Shaft

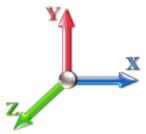
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

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	0.85	22.791	25.07	477.24	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	467.57	0.650	0.000	5.00	24.400	15.86	636.2	0.0	1216.9
10.00		1.00	0.85	22.791	25.07	457.91	0.650	0.000	5.00	23.901	15.54	623.2	0.0	1191.8
15.00		1.00	0.85	22.791	25.07	448.24	0.650	0.000	5.00	23.401	15.21	610.1	0.0	1166.7
20.00		1.00	0.90	24.182	26.60	451.77	0.650	0.000	5.00	22.902	14.89	633.6	0.0	1141.6
25.00		1.00	0.95	25.345	27.88	452.31	0.650	0.000	5.00	22.403	14.56	649.6	0.0	1116.6
30.00		1.00	0.98	26.337	28.97	450.69	0.650	0.000	5.00	21.904	14.24	660.0	0.0	1091.5
35.00		1.00	1.01	27.206	29.93	447.50	0.650	0.000	5.00	21.405	13.91	666.2	0.0	1066.4
40.00		1.00	1.04	27.981	30.78	443.13	0.650	0.000	5.00	20.906	13.59	669.2	0.0	1041.3
45.00		1.00	1.07	28.684	31.55	437.81	0.650	0.000	5.00	20.406	13.26	669.6	0.0	1016.2
47.25	Bot - Section 2	1.00	1.08	28.980	31.88	435.16	0.650	0.000	2.25	9.020	5.86	299.0	0.0	449.1
50.00		1.00	1.09	29.327	32.26	431.73	0.650	0.000	2.75	11.062	7.19	371.1	0.0	1014.7
53.25	Top - Section 1	1.00	1.11	29.719	32.69	427.43	0.650	0.000	3.25	12.878	8.37	437.8	0.0	1181.1
55.00		1.00	1.12	29.922	32.91	432.05	0.650	0.000	1.75	6.847	4.45	234.4	0.0	292.5
60.00		1.00	1.14	30.475	33.52	424.85	0.650	0.000	5.00	19.226	12.50	670.3	0.0	821.3
65.00		1.00	1.16	30.993	34.09	417.17	0.650	0.000	5.00	18.727	12.17	664.0	0.0	799.8
70.00		1.00	1.17	31.480	34.63	409.08	0.650	0.000	5.00	18.228	11.85	656.4	0.0	778.3
75.00		1.00	1.19	31.941	35.13	400.62	0.650	0.000	5.00	17.728	11.52	647.8	0.0	756.8
80.00		1.00	1.21	32.377	35.62	391.83	0.650	0.000	5.00	17.229	11.20	638.2	0.0	735.3
85.00		1.00	1.22	32.793	36.07	382.75	0.650	0.000	5.00	16.730	10.87	627.6	0.0	713.8
90.00		1.00	1.24	33.190	36.51	373.39	0.650	0.000	5.00	16.231	10.55	616.3	0.0	692.3
95.00		1.00	1.25	33.570	36.93	363.79	0.650	0.000	5.00	15.732	10.23	604.2	0.0	670.8
96.00	Bot - Section 3	1.00	1.25	33.644	37.01	361.85	0.650	0.000	1.00	3.086	2.01	118.8	0.0	131.6
100.00		1.00	1.27	33.935	37.33	353.97	0.650	0.000	4.00	12.315	8.00	478.1	0.0	869.0
100.75	Top - Section 2	1.00	1.27	33.988	37.39	352.48	0.650	0.000	0.75	2.274	1.48	88.4	0.0	160.4
105.00		1.00	1.28	34.285	37.71	348.96	0.650	0.000	4.25	12.671	8.24	497.0	0.0	361.3
110.00		1.00	1.29	34.623	38.08	338.76	0.650	0.000	5.00	14.446	9.39	572.2	0.0	411.8
115.00		1.00	1.30	34.948	38.44	328.38	0.650	0.000	5.00	13.946	9.07	557.6	0.0	397.5
120.00		1.00	1.32	35.263	38.79	317.84	0.650	0.000	5.00	13.447	8.74	542.5	0.0	383.1
125.00		1.00	1.33	35.567	39.12	307.13	0.650	0.000	5.00	12.948	8.42	526.8	0.0	368.8
127.00	Appurtenance(s)	1.00	1.33	35.686	39.25	302.81	0.650	0.000	2.00	5.039	3.28	205.7	0.0	143.5
130.00		1.00	1.34	35.862	39.45	296.28	0.650	0.000	3.00	7.409	4.82	304.0	0.0	211.0
135.00		1.00	1.35	36.148	39.76	285.29	0.650	0.000	5.00	11.950	7.77	494.2	0.0	340.1
137.00	Appurtenance(s)	1.00	1.35	36.260	39.89	280.85	0.650	0.000	2.00	4.640	3.02	192.5	0.0	132.0
139.00	Top - Section 3	1.00	1.36	36.371	40.01	276.40	0.650	0.000	2.00	4.560	2.96	189.7	0.0	129.7
140.00		1.00	1.36	36.426	40.07	274.16	0.650	0.000	1.00	2.250	1.46	93.8	0.0	48.1
145.00		1.00	1.37	36.696	40.37	262.91	0.650	0.000	5.00	10.951	7.12	459.7	0.0	234.2
149.00	Appurtenance(s)	1.00	1.38	36.907	40.60	253.83	0.650	0.000	4.00	8.402	5.46	354.7	0.0	179.6
								Totals:	**149.00**			**17,960.4**		**23,456.8**

Discrete Appurtenance Forces

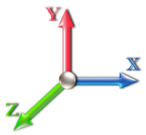
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

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	149.00	Alcatel RRH2x60 700	3	36.907	40.597	1.50	1.00	6.79	137.70	0.000	0.000	441.37	0.00	0.00
2	149.00	Commscope	3	36.907	40.597	0.83	1.00	20.34	104.76	0.000	0.000	1321.42	0.00	0.00
3	149.00	Antel BXA-80063/4CF	3	36.907	40.597	0.72	1.00	10.20	26.73	0.000	0.000	662.24	0.00	0.00
4	149.00	Commscope	3	36.907	40.597	0.83	1.00	20.12	109.62	0.000	0.000	1306.86	0.00	0.00
5	149.00	Commscope	3	36.985	40.683	0.83	1.00	20.32	108.00	0.000	1.500	1322.58	0.00	1983.88
6	149.00	Low Profile	1	36.907	40.597	1.00	1.00	22.00	1350.00	0.000	0.000	1429.03	0.00	0.00
7	149.00	Alcatel RRH 4X45 AWS	3	36.907	40.597	0.80	1.00	6.24	172.80	0.000	0.000	405.32	0.00	0.00
8	149.00	Alcatel RRH	3	36.907	40.597	0.84	1.00	4.74	124.20	0.000	0.000	307.73	0.00	0.00
9	149.00	RFS DB-T1-6Z-8AB-0Z	1	36.907	40.597	0.67	1.00	3.22	17.01	0.000	0.000	208.90	0.00	0.00
10	149.00	RFS DB-T1-6Z-8AB-0Z	1	36.907	40.597	0.67	1.00	3.22	17.01	0.000	0.000	208.90	0.00	0.00
11	137.00	RRUS 4415 B25	3	36.260	39.886	0.50	0.75	2.47	124.20	0.000	0.000	157.78	0.00	0.00
12	137.00	Low Profile Platform	1	36.260	39.886	1.00	1.00	22.00	1350.00	0.000	0.000	1403.99	0.00	0.00
13	137.00	4449 B71 + B12	3	36.260	39.886	0.50	0.75	2.97	197.64	0.000	0.000	189.52	0.00	0.00
14	137.00	KRY 112 144/1	3	36.260	39.886	0.56	0.75	1.20	41.58	0.000	0.000	76.46	0.00	0.00
15	137.00	APXVAARR24_43-U-NA2	3	36.260	39.886	0.56	0.75	34.16	345.60	0.000	0.000	2179.69	0.00	0.00
16	137.00	KRD 9011461-B66A-B2A	3	36.260	39.886	0.65	0.75	12.74	356.94	0.000	0.000	813.25	0.00	0.00
17	137.00	mount pipe	1	36.260	39.886	1.00	1.00	4.31	78.30	0.000	0.000	275.05	0.00	0.00
18	137.00	Handrail KIt	3	36.260	39.886	1.00	1.00	8.91	123.53	0.000	0.000	568.39	0.00	0.00
19	137.00	(3) T-Arm Kit	1	36.260	39.886	1.00	1.00	16.50	450.00	0.000	0.000	1052.99	0.00	0.00
20	137.00	AIR6449 B41	3	36.260	39.886	0.53	0.75	9.03	278.10	0.000	0.000	576.01	0.00	0.00
21	127.00	Kaelus DBCT108F1V92-1	3	35.686	39.255	0.80	0.80	1.68	53.46	0.000	0.000	105.52	0.00	0.00
22	127.00	Ericsson RRUS 32 RRU	3	35.686	39.255	0.54	0.80	5.32	207.90	0.000	0.000	334.29	0.00	0.00
23	127.00	Raycap DC6-48-60-18-8F	4	35.686	39.255	0.80	0.80	7.04	114.48	0.000	0.000	442.16	0.00	0.00
24	127.00	MTC3607 Platform + HR &	1	35.686	39.255	1.00	1.00	51.70	2021.40	0.000	0.000	3247.15	0.00	0.00
25	127.00	Cci HPA65R-BU8A	6	35.686	39.255	0.71	0.80	47.93	372.60	0.000	0.000	3010.48	0.00	0.00
26	127.00	Ericsson RRUS-11 RRU	6	35.686	39.255	0.54	0.80	8.10	273.78	0.000	0.000	509.01	0.00	0.00
27	127.00	Ericsson RRUS 4426 B66	3	35.686	39.255	0.54	0.80	1.85	130.95	0.000	0.000	116.14	0.00	0.00
28	127.00	Cci HPA-65R-BUU-H8	12	35.686	39.255	0.63	0.80	98.44	734.40	0.000	0.000	6182.79	0.00	0.00
29	127.00	Ericsson RRUS 4415 B25	3	35.686	39.255	0.54	0.80	2.99	119.07	0.000	0.000	187.85	0.00	0.00
30	127.00	Ericsson RRUS 4478 B5	3	35.686	39.255	0.54	0.80	2.96	161.73	0.000	0.000	185.83	0.00	0.00
31	127.00	Ericsson RRUS 4478 B14	3	35.686	39.255	0.54	0.80	2.65	160.38	0.000	0.000	166.64	0.00	0.00
							Totals:		**9,863.86**			**29,395.34**		

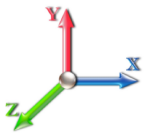
Total Applied Force Summary

Structure:	CT13075-A-SBA		**Code:**	EIA/TIA-222-G	10/30/2020
Site Name:	New London		**Exposure:**	C	
Height:	149.00 (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 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

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		636.17	1347.86	0.00	0.00
10.00		623.16	1322.77	0.00	0.00
15.00		610.14	1297.69	0.00	0.00
20.00		633.58	1272.60	0.00	0.00
25.00		649.58	1247.51	0.00	0.00
30.00		659.95	1222.43	0.00	0.00
35.00		666.19	1197.34	0.00	0.00
40.00		669.20	1172.25	0.00	0.00
45.00		669.62	1147.16	0.00	0.00
47.25		299.04	508.04	0.00	0.00
50.00		371.12	1086.77	0.00	0.00
53.25		437.83	1266.19	0.00	0.00
55.00		234.38	338.38	0.00	0.00
60.00		670.28	952.29	0.00	0.00
65.00		663.97	930.79	0.00	0.00
70.00		656.43	909.28	0.00	0.00
75.00		647.80	887.78	0.00	0.00
80.00		638.17	866.28	0.00	0.00
85.00		627.64	844.77	0.00	0.00
90.00		616.28	823.27	0.00	0.00
95.00		604.17	801.77	0.00	0.00
96.00		118.79	157.77	0.00	0.00
100.00		478.10	973.72	0.00	0.00
100.75		88.40	180.02	0.00	0.00
105.00		497.00	472.61	0.00	0.00
110.00		572.17	542.75	0.00	0.00
115.00		557.59	528.41	0.00	0.00
120.00		542.47	514.08	0.00	0.00
125.00		526.84	499.74	0.00	0.00
127.00	(47) attachments	14693.59	4546.03	0.00	0.00
130.00		303.98	279.32	0.00	0.00
135.00		494.16	454.06	0.00	0.00
137.00	(24) attachments	7485.61	3523.50	0.00	0.00
139.00		189.74	156.17	0.00	0.00
140.00		93.77	61.33	0.00	0.00
145.00		459.74	300.22	0.00	0.00
149.00	(24) attachments	7969.08	2400.26	0.00	1983.88
	Totals:	**47,355.72**	**37,033.23**	**0.00**	**1,983.88**

Calculated Forces

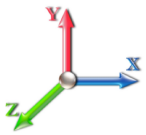
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

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	-36.94	-47.43	0.00	-5411.6	0.00	5411.62	5451.60	2725.80	12956.4	6487.84	0.00	0.000	0.000	0.841
5.00	-35.41	-46.93	0.00	-5174.4	0.00	5174.48	5379.95	2689.97	12523.2	6270.95	0.12	-0.222	0.000	0.832
10.00	-33.91	-46.43	0.00	-4939.8	0.00	4939.84	5306.65	2653.32	12093.3	6055.68	0.47	-0.448	0.000	0.822
15.00	-32.43	-45.94	0.00	-4707.6	0.00	4707.67	5231.70	2615.85	11666.9	5842.16	1.07	-0.677	0.000	0.812
20.00	-30.98	-45.42	0.00	-4477.9	0.00	4477.97	5155.10	2577.55	11244.2	5630.50	1.90	-0.910	0.000	0.802
25.00	-29.56	-44.87	0.00	-4250.8	0.00	4250.89	5076.86	2538.43	10825.5	5420.83	2.98	-1.146	0.000	0.790
30.00	-28.16	-44.30	0.00	-4026.5	0.00	4026.55	4996.96	2498.48	10411.0	5213.26	4.31	-1.386	0.000	0.778
35.00	-26.80	-43.72	0.00	-3805.0	0.00	3805.05	4915.42	2457.71	10001.0	5007.93	5.89	-1.629	0.000	0.766
40.00	-25.46	-43.12	0.00	-3586.4	0.00	3586.46	4832.22	2416.11	9595.63	4804.95	7.73	-1.875	0.000	0.752
45.00	-24.20	-42.49	0.00	-3370.8	0.00	3370.84	4747.38	2373.69	9195.21	4604.44	9.83	-2.124	0.000	0.738
47.25	-23.61	-42.23	0.00	-3275.2	0.00	3275.24	4708.66	2354.33	9016.69	4515.05	10.86	-2.239	0.000	0.731
50.00	-22.43	-41.87	0.00	-3159.1	0.00	3159.12	4660.89	2330.44	8799.96	4406.52	12.19	-2.380	0.000	0.722
53.25	-21.09	-41.43	0.00	-3023.0	0.00	3023.03	3818.32	1909.16	7226.08	3618.41	13.87	-2.547	0.000	0.841
55.00	-20.63	-41.25	0.00	-2950.5	0.00	2950.54	3795.26	1897.63	7117.54	3564.06	14.82	-2.639	0.000	0.834
60.00	-19.51	-40.63	0.00	-2744.3	0.00	2744.31	3728.27	1864.14	6809.75	3409.94	17.73	-2.922	0.000	0.811
65.00	-18.41	-40.01	0.00	-2541.1	0.00	2541.17	3659.63	1829.82	6505.57	3257.62	20.94	-3.206	0.000	0.786
70.00	-17.35	-39.38	0.00	-2341.1	0.00	2341.14	3589.34	1794.67	6205.25	3107.24	24.45	-3.491	0.000	0.759
75.00	-16.31	-38.76	0.00	-2144.2	0.00	2144.22	3517.40	1758.70	5909.03	2958.91	28.26	-3.775	0.000	0.730
80.00	-15.31	-38.14	0.00	-1950.4	0.00	1950.40	3443.81	1721.91	5617.15	2812.75	32.36	-4.057	0.000	0.698
85.00	-14.33	-37.52	0.00	-1759.6	0.00	1759.69	3368.58	1684.29	5329.85	2668.89	36.76	-4.336	0.000	0.664
90.00	-13.38	-36.91	0.00	-1572.0	0.00	1572.07	3291.69	1645.84	5047.37	2527.44	41.45	-4.611	0.000	0.627
95.00	-12.53	-36.28	0.00	-1387.5	0.00	1387.52	3202.59	1601.29	4754.28	2380.67	46.41	-4.878	0.000	0.587
96.00	-12.30	-36.17	0.00	-1351.2	0.00	1351.24	3181.72	1590.86	4692.22	2349.60	47.44	-4.933	0.000	0.579
100.00	-11.30	-35.64	0.00	-1206.5	0.00	1206.55	3098.26	1549.13	4448.03	2227.32	51.66	-5.141	0.000	0.546
100.75	-11.05	-35.56	0.00	-1179.8	0.00	1179.83	1860.42	930.21	2714.89	1359.46	52.47	-5.180	0.000	0.875
105.00	-10.46	-35.07	0.00	-1028.7	0.00	1028.72	1828.32	914.16	2592.13	1297.99	57.17	-5.389	0.000	0.800
110.00	-9.78	-34.50	0.00	-853.38	0.00	853.38	1789.04	894.52	2449.03	1226.33	62.99	-5.715	0.000	0.703
115.00	-9.15	-33.93	0.00	-680.89	0.00	680.89	1748.11	874.06	2307.59	1155.51	69.13	-6.010	0.000	0.596
120.00	-8.57	-33.37	0.00	-511.22	0.00	511.22	1705.53	852.77	2168.05	1085.64	75.55	-6.265	0.000	0.477
125.00	-8.05	-32.81	0.00	-344.35	0.00	344.35	1661.30	830.65	2030.66	1016.84	82.22	-6.470	0.000	0.345
127.00	-5.18	-17.71	0.00	-278.72	0.00	278.72	1643.15	821.58	1976.36	989.65	84.94	-6.537	0.000	0.285
130.00	-4.91	-17.38	0.00	-225.61	0.00	225.61	1615.43	807.71	1895.65	949.24	89.07	-6.622	0.000	0.241
135.00	-4.49	-16.84	0.00	-138.70	0.00	138.70	1567.90	783.95	1763.28	882.95	96.05	-6.733	0.000	0.160
137.00	-1.87	-9.00	0.00	-105.01	0.00	105.01	1548.43	774.21	1711.12	856.83	98.88	-6.767	0.000	0.124
139.00	-1.73	-8.79	0.00	-87.02	0.00	87.02	1528.69	764.34	1659.43	830.95	101.71	-6.795	0.000	0.106
139.00	-1.73	-8.79	0.00	-87.02	0.00	87.02	1044.31	522.16	1138.99	570.34	101.71	-6.795	0.000	0.155
140.00	-1.68	-8.69	0.00	-78.23	0.00	78.23	1038.69	519.35	1122.71	562.19	103.13	-6.807	0.000	0.141
145.00	-1.43	-8.20	0.00	-34.78	0.00	34.78	1009.62	504.81	1041.96	521.75	110.28	-6.866	0.000	0.068
149.00	0.00	-7.97	0.00	-1.98	0.00	1.98	985.17	492.59	978.22	489.84	116.03	-6.884	0.000	0.004

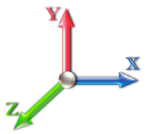
Wind Loading - Shaft

Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (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	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

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	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	25.435	30.52	173.5	453.8	2076.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	25.010	30.01	170.6	477.3	2066.4
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	24.557	29.47	167.5	487.2	2042.9
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	24.091	28.91	174.4	491.3	2013.5
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	23.619	28.34	179.2	491.8	1980.6
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	23.142	27.77	182.4	490.2	1945.5
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	22.662	27.19	184.5	486.8	1908.7
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	22.180	26.62	185.8	482.3	1870.7
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	21.696	26.03	186.3	476.7	1831.7
47.25	Bot - Section 2	1.00	1.08	6.571	7.23	0.00	1.200	1.555	2.25	9.603	11.52	83.3	213.3	812.1
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	2.75	11.778	14.13	103.4	262.7	1615.7
53.25	Top - Section 1	1.00	1.11	6.739	7.41	0.00	1.200	1.574	3.25	13.731	16.48	122.1	307.6	1882.4
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	1.75	7.307	8.77	65.4	164.8	554.8
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	20.553	24.66	187.5	463.2	1558.3
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	20.065	24.08	186.1	455.2	1521.7
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	19.575	23.49	184.4	446.8	1484.5
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	19.085	22.90	182.5	437.9	1447.0
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	18.595	22.31	180.2	428.7	1409.2
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	18.104	21.72	177.7	419.3	1371.0
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	17.613	21.14	175.0	409.5	1332.6
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	5.00	17.121	20.55	172.0	399.5	1293.9
96.00	Bot - Section 3	1.00	1.25	7.629	8.39	0.00	1.200	1.669	1.00	3.365	4.04	33.9	79.5	254.9
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	4.00	13.433	16.12	136.4	315.6	1474.2
100.75	Top - Section 2	1.00	1.27	7.707	8.48	0.00	1.200	1.677	0.75	2.483	2.98	25.3	58.9	272.8
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	4.25	13.864	16.64	142.3	326.4	808.2
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	15.856	19.03	164.3	373.4	922.5
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	15.363	18.44	160.7	362.6	892.5
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	14.870	17.84	156.9	351.6	862.4
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	14.376	17.25	153.0	340.4	832.2
127.00	Appurtenance(s)	1.00	1.33	8.092	8.90	0.00	1.200	1.716	2.00	5.612	6.73	59.9	134.4	325.7
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	3.00	8.270	9.92	88.8	197.5	478.7
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	5.00	13.389	16.07	144.9	317.7	771.2
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	1.729	2.00	5.217	6.26	56.6	125.2	301.3
139.00	Top - Section 3	1.00	1.36	8.247	9.07	0.00	1.200	1.732	2.00	5.138	6.17	55.9	123.4	296.4
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	1.00	2.539	3.05	27.7	61.2	125.4
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	5.00	12.401	14.88	136.2	294.4	606.6
149.00	Appurtenance(s)	1.00	1.38	8.369	9.21	0.00	1.200	1.744	4.00	9.564	11.48	105.7	227.9	467.4
								Totals:	**149.00**			**5,072.5**		**43,711.7**

Discrete Appurtenance Forces

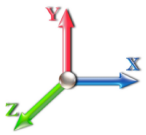
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

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 22

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	149.00	Alcatel RRH2x60 700	3	8.369	9.206	1.47	1.00	8.54	484.10	0.000	0.000	78.61	0.00	0.00
2	149.00	Commscope	3	8.369	9.206	0.83	1.00	27.37	516.73	0.000	0.000	251.95	0.00	0.00
3	149.00	Antel BXA-80063/4CF	3	8.369	9.206	0.72	1.00	14.19	250.84	0.000	0.000	130.59	0.00	0.00
4	149.00	Commscope	3	8.369	9.206	0.83	1.00	23.33	750.50	0.000	0.000	214.81	0.00	0.00
5	149.00	Commscope	3	8.387	9.225	0.83	1.00	23.55	752.91	0.000	1.500	217.28	0.00	325.92
6	149.00	Low Profile	1	8.369	9.206	1.00	1.00	39.65	2808.04	0.000	0.000	365.01	0.00	0.00
7	149.00	Alcatel RRH 4X45 AWS	3	8.369	9.206	0.80	1.00	7.93	480.95	0.000	0.000	72.99	0.00	0.00
8	149.00	Alcatel RRH	3	8.369	9.206	0.84	1.00	6.21	372.75	0.000	0.000	57.20	0.00	0.00
9	149.00	RFS DB-T1-6Z-8AB-0Z	1	8.369	9.206	0.67	1.00	3.80	166.29	0.000	0.000	34.99	0.00	0.00
10	149.00	RFS DB-T1-6Z-8AB-0Z	1	8.369	9.206	0.67	1.00	3.80	166.29	0.000	0.000	34.99	0.00	0.00
11	137.00	RRUS 4415 B25	3	8.222	9.044	0.50	0.75	3.24	259.60	0.000	0.000	29.32	0.00	0.00
12	137.00	Low Profile Platform	1	8.222	9.044	1.00	1.00	39.50	2797.10	0.000	0.000	357.28	0.00	0.00
13	137.00	4449 B71 + B12	3	8.222	9.044	0.50	0.75	3.82	259.99	0.000	0.000	34.55	0.00	0.00
14	137.00	KRY 112 144/1	3	8.222	9.044	0.60	0.75	2.39	97.28	0.000	0.000	21.63	0.00	0.00
15	137.00	APXVAARR24_43-U-NA2	3	8.222	9.044	0.60	0.75	39.82	1701.86	0.000	0.000	360.15	0.00	0.00
16	137.00	KRD 9011461-B66A-B2A	3	8.222	9.044	0.65	0.75	14.92	1019.77	0.000	0.000	134.92	0.00	0.00
17	137.00	mount pipe	1	8.222	9.044	1.00	1.00	9.65	205.81	0.000	0.000	87.25	0.00	0.00
18	137.00	Handrail KIt	3	8.222	9.044	1.00	1.00	20.00	254.88	0.000	0.000	180.86	0.00	0.00
19	137.00	(3) T-Arm Kit	1	8.222	9.044	1.00	1.00	32.48	1038.02	0.000	0.000	293.77	0.00	0.00
20	137.00	AIR6449 B41	3	8.222	9.044	0.53	0.75	10.53	683.34	0.000	0.000	95.24	0.00	0.00
21	127.00	Kaelus DBCT108F1V92-1	3	8.092	8.901	0.80	0.80	2.29	144.01	0.000	0.000	20.36	0.00	0.00
22	127.00	Ericsson RRUS 32 RRU	3	8.092	8.901	0.54	0.80	3.57	419.49	0.000	0.000	31.76	0.00	0.00
23	127.00	Raycap DC6-48-60-18-8F	4	8.092	8.901	0.80	0.80	10.34	325.06	0.000	0.000	92.01	0.00	0.00
24	127.00	MTC3607 Platform + HR &	1	8.092	8.901	1.00	1.00	89.33	4775.24	0.000	0.000	795.11	0.00	0.00
25	127.00	Cci HPA65R-BU8A	6	8.092	8.901	0.71	0.80	54.89	2122.72	0.000	0.000	488.62	0.00	0.00
26	127.00	Ericsson RRUS-11 RRU	6	8.092	8.901	0.54	0.80	10.16	889.41	0.000	0.000	90.45	0.00	0.00
27	127.00	Ericsson RRUS 4426 B66	3	8.092	8.901	0.54	0.80	2.60	289.40	0.000	0.000	23.13	0.00	0.00
28	127.00	Cci HPA-65R-BUU-H8	12	8.092	8.901	0.63	0.80	110.48	4404.75	0.000	0.000	983.38	0.00	0.00
29	127.00	Ericsson RRUS 4415 B25	3	8.092	8.901	0.54	0.80	3.90	268.13	0.000	0.000	34.68	0.00	0.00
30	127.00	Ericsson RRUS 4478 B5	3	8.092	8.901	0.54	0.80	3.83	324.77	0.000	0.000	34.06	0.00	0.00
31	127.00	Ericsson RRUS 4478 B14	3	8.092	8.901	0.54	0.80	3.47	307.99	0.000	0.000	30.91	0.00	0.00
							Totals:		**29,337.99**			**5,677.85**		

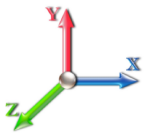
Total Applied Force Summary

Structure:	CT13075-A-SBA		**Code:**	EIA/TIA-222-G	10/30/2020
Site Name:	New London		**Exposure:**	C	
Height:	149.00 (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

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

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		173.51	2250.95	0.00	0.00
10.00		170.61	2240.96	0.00	0.00
15.00		167.52	2217.48	0.00	0.00
20.00		174.38	2188.06	0.00	0.00
25.00		179.18	2155.20	0.00	0.00
30.00		182.43	2120.06	0.00	0.00
35.00		184.54	2083.28	0.00	0.00
40.00		185.76	2045.26	0.00	0.00
45.00		186.27	2006.26	0.00	0.00
47.25		83.30	890.66	0.00	0.00
50.00		103.39	1711.76	0.00	0.00
53.25		122.14	1995.87	0.00	0.00
55.00		65.45	615.94	0.00	0.00
60.00		187.48	1732.95	0.00	0.00
65.00		186.13	1696.26	0.00	0.00
70.00		184.45	1659.13	0.00	0.00
75.00		182.46	1621.63	0.00	0.00
80.00		180.21	1583.78	0.00	0.00
85.00		177.70	1545.63	0.00	0.00
90.00		174.98	1507.20	0.00	0.00
95.00		172.04	1468.51	0.00	0.00
96.00		33.88	289.86	0.00	0.00
100.00		136.44	1613.89	0.00	0.00
100.75		25.26	298.97	0.00	0.00
105.00		142.28	956.59	0.00	0.00
110.00		164.32	1097.08	0.00	0.00
115.00		160.70	1067.15	0.00	0.00
120.00		156.94	1037.04	0.00	0.00
125.00		153.05	1006.76	0.00	0.00
127.00	(47) attachments	2684.41	14666.50	0.00	0.00
130.00		88.77	569.90	0.00	0.00
135.00		144.86	923.09	0.00	0.00
137.00	(24) attachments	1651.59	8679.67	0.00	0.00
139.00		55.93	331.59	0.00	0.00
140.00		27.68	143.00	0.00	0.00
145.00		136.21	694.66	0.00	0.00
149.00	(24) attachments	1564.06	7287.24	0.00	325.92
	Totals:	**10,750.33**	**77,999.79**	**0.00**	**325.92**

Calculated Forces

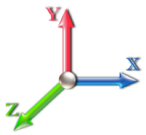
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

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	-77.99	-10.79	0.00	-1222.3	0.00	1222.37	5451.60	2725.80	12956.4	6487.84	0.00	0.000	0.000	0.203
5.00	-75.73	-10.68	0.00	-1168.4	0.00	1168.45	5379.95	2689.97	12523.2	6270.95	0.03	-0.050	0.000	0.200
10.00	-73.48	-10.57	0.00	-1115.0	0.00	1115.07	5306.65	2653.32	12093.3	6055.68	0.11	-0.101	0.000	0.198
15.00	-71.26	-10.46	0.00	-1062.2	0.00	1062.22	5231.70	2615.85	11666.9	5842.16	0.24	-0.153	0.000	0.195
20.00	-69.06	-10.34	0.00	-1009.9	0.00	1009.91	5155.10	2577.55	11244.2	5630.50	0.43	-0.205	0.000	0.193
25.00	-66.90	-10.22	0.00	-958.19	0.00	958.19	5076.86	2538.43	10825.5	5420.83	0.67	-0.259	0.000	0.190
30.00	-64.77	-10.09	0.00	-907.10	0.00	907.10	4996.96	2498.48	10411.0	5213.26	0.97	-0.313	0.000	0.187
35.00	-62.68	-9.95	0.00	-856.66	0.00	856.66	4915.42	2457.71	10001.0	5007.93	1.33	-0.367	0.000	0.184
40.00	-60.62	-9.81	0.00	-806.90	0.00	806.90	4832.22	2416.11	9595.63	4804.95	1.74	-0.423	0.000	0.180
45.00	-58.61	-9.65	0.00	-757.85	0.00	757.85	4747.38	2373.69	9195.21	4604.44	2.22	-0.479	0.000	0.177
47.25	-57.72	-9.59	0.00	-736.14	0.00	736.14	4708.66	2354.33	9016.69	4515.05	2.45	-0.505	0.000	0.175
50.00	-56.00	-9.50	0.00	-709.78	0.00	709.78	4660.89	2330.44	8799.96	4406.52	2.75	-0.536	0.000	0.173
53.25	-54.00	-9.39	0.00	-678.89	0.00	678.89	3818.32	1909.16	7226.08	3618.41	3.13	-0.574	0.000	0.202
55.00	-53.38	-9.36	0.00	-662.46	0.00	662.46	3795.26	1897.63	7117.54	3564.06	3.34	-0.594	0.000	0.200
60.00	-51.64	-9.21	0.00	-615.68	0.00	615.68	3728.27	1864.14	6809.75	3409.94	4.00	-0.658	0.000	0.194
65.00	-49.93	-9.06	0.00	-569.65	0.00	569.65	3659.63	1829.82	6505.57	3257.62	4.72	-0.722	0.000	0.189
70.00	-48.27	-8.90	0.00	-524.37	0.00	524.37	3589.34	1794.67	6205.25	3107.24	5.51	-0.785	0.000	0.182
75.00	-46.64	-8.75	0.00	-479.85	0.00	479.85	3517.40	1758.70	5909.03	2958.91	6.37	-0.849	0.000	0.175
80.00	-45.05	-8.59	0.00	-436.10	0.00	436.10	3443.81	1721.91	5617.15	2812.75	7.29	-0.912	0.000	0.168
85.00	-43.50	-8.44	0.00	-393.13	0.00	393.13	3368.58	1684.29	5329.85	2668.89	8.28	-0.975	0.000	0.160
90.00	-41.98	-8.28	0.00	-350.94	0.00	350.94	3291.69	1645.84	5047.37	2527.44	9.34	-1.036	0.000	0.152
95.00	-40.51	-8.11	0.00	-309.53	0.00	309.53	3202.59	1601.29	4754.28	2380.67	10.45	-1.096	0.000	0.143
96.00	-40.22	-8.09	0.00	-301.43	0.00	301.43	3181.72	1590.86	4692.22	2349.60	10.68	-1.108	0.000	0.141
100.00	-38.61	-7.94	0.00	-269.07	0.00	269.07	3098.26	1549.13	4448.03	2227.32	11.63	-1.154	0.000	0.133
100.75	-38.30	-7.93	0.00	-263.12	0.00	263.12	1860.42	930.21	2714.89	1359.46	11.82	-1.163	0.000	0.214
105.00	-37.34	-7.80	0.00	-229.44	0.00	229.44	1828.32	914.16	2592.13	1297.99	12.87	-1.210	0.000	0.197
110.00	-36.24	-7.66	0.00	-190.42	0.00	190.42	1789.04	894.52	2449.03	1226.33	14.18	-1.282	0.000	0.176
115.00	-35.17	-7.51	0.00	-152.12	0.00	152.12	1748.11	874.06	2307.59	1155.51	15.56	-1.348	0.000	0.152
120.00	-34.13	-7.36	0.00	-114.57	0.00	114.57	1705.53	852.77	2168.05	1085.64	17.00	-1.405	0.000	0.126
125.00	-33.12	-7.20	0.00	-77.76	0.00	77.76	1661.30	830.65	2030.66	1016.84	18.50	-1.451	0.000	0.096
127.00	-18.53	-4.15	0.00	-63.37	0.00	63.37	1643.15	821.58	1976.36	989.65	19.11	-1.466	0.000	0.075
130.00	-17.96	-4.05	0.00	-50.92	0.00	50.92	1615.43	807.71	1895.65	949.24	20.04	-1.486	0.000	0.065
135.00	-17.04	-3.89	0.00	-30.66	0.00	30.66	1567.90	783.95	1763.28	882.95	21.61	-1.511	0.000	0.046
137.00	-8.41	-2.01	0.00	-22.89	0.00	22.89	1548.43	774.21	1711.12	856.83	22.25	-1.518	0.000	0.032
139.00	-8.08	-1.94	0.00	-18.87	0.00	18.87	1528.69	764.34	1659.43	830.95	22.88	-1.524	0.000	0.028
139.00	-8.08	-1.94	0.00	-18.87	0.00	18.87	1044.31	522.16	1138.99	570.34	22.88	-1.524	0.000	0.041
140.00	-7.93	-1.91	0.00	-16.93	0.00	16.93	1038.69	519.35	1122.71	562.19	23.20	-1.527	0.000	0.038
145.00	-7.24	-1.76	0.00	-7.36	0.00	7.36	1009.62	504.81	1041.96	521.75	24.81	-1.539	0.000	0.021
149.00	0.00	-1.56	0.00	-0.33	0.00	0.33	985.17	492.59	978.22	489.84	26.10	-1.543	0.000	0.001

Seismic Segment Forces (Factored)

Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (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							**Iterations**	20
Gust Response Factor	1.10				**Sds**	0.17		**Ss**	0.16
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.09		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.39		**SA**	0.04	**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		1352.1	0.00	0.03	0.02	19.97	
10.00		1324.2	0.01	0.05	0.03	28.83	
15.00		1296.3	0.02	0.06	0.04	32.80	
20.00		1268.5	0.03	0.07	0.04	34.44	
25.00		1240.6	0.05	0.07	0.04	35.03	
30.00		1212.7	0.08	0.07	0.04	35.22	
35.00		1184.8	0.10	0.07	0.04	35.29	
40.00		1157.0	0.14	0.07	0.03	35.26	
45.00		1129.1	0.17	0.07	0.03	34.94	
47.25	Bot - Section 2	499.01	0.19	0.06	0.02	15.47	
50.00		1127.4	0.21	0.06	0.02	34.82	
53.25	Top - Section 1	1312.3	0.24	0.06	0.02	39.82	
55.00		325.05	0.26	0.05	0.02	9.70	
60.00		912.60	0.31	0.04	0.01	24.86	
65.00		888.71	0.36	0.03	0.01	20.08	
70.00		864.82	0.42	0.01	0.01	13.45	
75.00		840.92	0.48	-0.01	0.01	5.33	
80.00		817.03	0.54	-0.03	0.01	-3.36	
85.00		793.14	0.62	-0.06	0.02	-11.27	
90.00		769.25	0.69	-0.08	0.03	-17.08	
95.00		745.35	0.77	-0.11	0.05	-19.95	
96.00	Bot - Section 3	146.20	0.78	-0.11	0.05	-3.98	
100.00		965.51	0.85	-0.12	0.07	-26.19	
100.75	Top - Section 2	178.20	0.86	-0.12	0.07	-4.77	
105.00		401.45	0.94	-0.12	0.10	-9.23	
110.00		457.56	1.03	-0.10	0.15	-6.53	
115.00		441.63	1.13	-0.05	0.20	-0.43	
120.00		425.70	1.23	0.03	0.27	7.18	
125.00		409.77	1.33	0.16	0.36	16.11	
127.00	Appurtenance(s)	4992.9	1.37	0.23	0.40	247.58	
130.00		234.39	1.44	0.36	0.47	15.56	
135.00		377.91	1.55	0.64	0.61	37.11	
137.00	Appurtenance(s)	3864.3	1.60	0.77	0.67	433.73	
139.00	Top - Section 3	144.16	1.64	0.92	0.73	18.32	
140.00		53.47	1.67	1.01	0.77	7.21	
145.00		260.18	1.79	1.49	0.96	45.86	
149.00	Appurtenance(s)	2608.2	1.89	1.98	1.14	555.73	
	Totals:	**37,023.0**				**1,736.9**	**Total Wind:** **47,355.7**

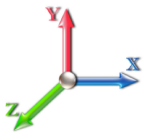
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (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**	0.17			**Iterations**	20
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.39	**SA**	0.04			**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	-49.38	-1.84	0.00	-218.58	0.00	218.58	5451.60	2725.80	12956.4	6487.84		0.00	0.00	0.043
5.00	-47.58	-1.83	0.00	-209.36	0.00	209.36	5379.95	2689.97	12523.2	6270.95		0.00	-0.01	0.042
10.00	-45.82	-1.81	0.00	-200.21	0.00	200.21	5306.65	2653.32	12093.3	6055.68		0.02	-0.02	0.042
15.00	-44.09	-1.78	0.00	-191.17	0.00	191.17	5231.70	2615.85	11666.9	5842.16		0.04	-0.03	0.041
20.00	-42.39	-1.75	0.00	-182.26	0.00	182.26	5155.10	2577.55	11244.2	5630.50		0.08	-0.04	0.041
25.00	-40.72	-1.72	0.00	-173.49	0.00	173.49	5076.86	2538.43	10825.5	5420.83		0.12	-0.05	0.040
30.00	-39.09	-1.69	0.00	-164.87	0.00	164.87	4996.96	2498.48	10411.0	5213.26		0.17	-0.06	0.039
35.00	-37.50	-1.66	0.00	-156.39	0.00	156.39	4915.42	2457.71	10001.0	5007.93		0.24	-0.07	0.039
40.00	-35.93	-1.63	0.00	-148.07	0.00	148.07	4832.22	2416.11	9595.63	4804.95		0.31	-0.08	0.038
45.00	-34.41	-1.60	0.00	-139.91	0.00	139.91	4747.38	2373.69	9195.21	4604.44		0.40	-0.09	0.038
47.25	-33.73	-1.59	0.00	-136.31	0.00	136.31	4708.66	2354.33	9016.69	4515.05		0.44	-0.09	0.037
50.00	-32.28	-1.55	0.00	-131.94	0.00	131.94	4660.89	2330.44	8799.96	4406.52		0.50	-0.10	0.037
53.25	-30.59	-1.51	0.00	-126.89	0.00	126.89	3818.32	1909.16	7226.08	3618.41		0.56	-0.10	0.043
55.00	-30.14	-1.51	0.00	-124.24	0.00	124.24	3795.26	1897.63	7117.54	3564.06		0.60	-0.11	0.043
60.00	-28.87	-1.49	0.00	-116.70	0.00	116.70	3728.27	1864.14	6809.75	3409.94		0.72	-0.12	0.042
65.00	-27.63	-1.47	0.00	-109.27	0.00	109.27	3659.63	1829.82	6505.57	3257.62		0.86	-0.13	0.041
70.00	-26.41	-1.46	0.00	-101.93	0.00	101.93	3589.34	1794.67	6205.25	3107.24		1.00	-0.14	0.040
75.00	-25.23	-1.46	0.00	-94.63	0.00	94.63	3517.40	1758.70	5909.03	2958.91		1.16	-0.16	0.039
80.00	-24.08	-1.46	0.00	-87.36	0.00	87.36	3443.81	1721.91	5617.15	2812.75		1.33	-0.17	0.038
85.00	-22.95	-1.46	0.00	-80.07	0.00	80.07	3368.58	1684.29	5329.85	2668.89		1.52	-0.18	0.037
90.00	-21.85	-1.46	0.00	-72.77	0.00	72.77	3291.69	1645.84	5047.37	2527.44		1.71	-0.19	0.035
95.00	-20.78	-1.46	0.00	-65.47	0.00	65.47	3202.59	1601.29	4754.28	2380.67		1.92	-0.21	0.034
96.00	-20.57	-1.46	0.00	-64.01	0.00	64.01	3181.72	1590.86	4692.22	2349.60		1.97	-0.21	0.034
100.00	-19.27	-1.46	0.00	-58.16	0.00	58.16	3098.26	1549.13	4448.03	2227.32		2.15	-0.22	0.032
100.75	-19.03	-1.46	0.00	-57.07	0.00	57.07	1860.42	930.21	2714.89	1359.46		2.18	-0.22	0.052
105.00	-18.40	-1.46	0.00	-50.87	0.00	50.87	1828.32	914.16	2592.13	1297.99		2.38	-0.23	0.049
110.00	-17.68	-1.46	0.00	-43.56	0.00	43.56	1789.04	894.52	2449.03	1226.33		2.64	-0.25	0.045
115.00	-16.97	-1.46	0.00	-36.25	0.00	36.25	1748.11	874.06	2307.59	1155.51		2.90	-0.26	0.041
120.00	-16.29	-1.46	0.00	-28.93	0.00	28.93	1705.53	852.77	2168.05	1085.64		3.19	-0.28	0.036
125.00	-15.62	-1.44	0.00	-21.64	0.00	21.64	1661.30	830.65	2030.66	1016.84		3.49	-0.29	0.031
127.00	-9.56	-1.16	0.00	-18.76	0.00	18.76	1643.15	821.58	1976.36	989.65		3.61	-0.29	0.025
130.00	-9.19	-1.15	0.00	-15.27	0.00	15.27	1615.43	807.71	1895.65	949.24		3.80	-0.30	0.022
135.00	-8.58	-1.11	0.00	-9.54	0.00	9.54	1567.90	783.95	1763.28	882.95		4.11	-0.31	0.016
137.00	-3.89	-0.65	0.00	-7.32	0.00	7.32	1548.43	774.21	1711.12	856.83		4.24	-0.31	0.011
139.00	-3.68	-0.63	0.00	-6.03	0.00	6.03	1528.69	764.34	1659.43	830.95		4.37	-0.31	0.010
139.00	-3.68	-0.63	0.00	-6.03	0.00	6.03	1044.31	522.16	1138.99	570.34		4.37	-0.31	0.014
140.00	-3.60	-0.62	0.00	-5.40	0.00	5.40	1038.69	519.35	1122.71	562.19		4.44	-0.31	0.013
145.00	-3.20	-0.57	0.00	-2.29	0.00	2.29	1009.62	504.81	1041.96	521.75		4.77	-0.32	0.008
149.00	0.00	-0.56	0.00	0.00	0.00	0.00	985.17	492.59	978.22	489.84		5.03	-0.32	0.000

Seismic Segment Forces (Factored)

Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (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

Gust Response Factor	1.10			**Sds**	0.17	**Iterations**	20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.39	**SA**	0.04	**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		1352.1	0.00	0.03	0.02	19.97	
10.00		1324.2	0.01	0.05	0.03	28.83	
15.00		1296.3	0.02	0.06	0.04	32.80	
20.00		1268.5	0.03	0.07	0.04	34.44	
25.00		1240.6	0.05	0.07	0.04	35.03	
30.00		1212.7	0.08	0.07	0.04	35.22	
35.00		1184.8	0.10	0.07	0.04	35.29	
40.00		1157.0	0.14	0.07	0.03	35.26	
45.00		1129.1	0.17	0.07	0.03	34.94	
47.25	Bot - Section 2	499.01	0.19	0.06	0.02	15.47	
50.00		1127.4	0.21	0.06	0.02	34.82	
53.25	Top - Section 1	1312.3	0.24	0.06	0.02	39.82	
55.00		325.05	0.26	0.05	0.02	9.70	
60.00		912.60	0.31	0.04	0.01	24.86	
65.00		888.71	0.36	0.03	0.01	20.08	
70.00		864.82	0.42	0.01	0.01	13.45	
75.00		840.92	0.48	-0.01	0.01	5.33	
80.00		817.03	0.54	-0.03	0.01	-3.36	
85.00		793.14	0.62	-0.06	0.02	-11.27	
90.00		769.25	0.69	-0.08	0.03	-17.08	
95.00		745.35	0.77	-0.11	0.05	-19.95	
96.00	Bot - Section 3	146.20	0.78	-0.11	0.05	-3.98	
100.00		965.51	0.85	-0.12	0.07	-26.19	
100.75	Top - Section 2	178.20	0.86	-0.12	0.07	-4.77	
105.00		401.45	0.94	-0.12	0.10	-9.23	
110.00		457.56	1.03	-0.10	0.15	-6.53	
115.00		441.63	1.13	-0.05	0.20	-0.43	
120.00		425.70	1.23	0.03	0.27	7.18	
125.00		409.77	1.33	0.16	0.36	16.11	
127.00	Appurtenance(s)	4992.9	1.37	0.23	0.40	247.58	
130.00		234.39	1.44	0.36	0.47	15.56	
135.00		377.91	1.55	0.64	0.61	37.11	
137.00	Appurtenance(s)	3864.3	1.60	0.77	0.67	433.73	
139.00	Top - Section 3	144.16	1.64	0.92	0.73	18.32	
140.00		53.47	1.67	1.01	0.77	7.21	
145.00		260.18	1.79	1.49	0.96	45.86	
149.00	Appurtenance(s)	2608.2	1.89	1.98	1.14	555.73	
	Totals:	**37,023.0**				**1,736.9**	**Total Wind:** **47,355.7**

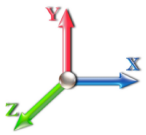
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (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**	0.17			**Iterations**	20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.39	**SA**	0.04			**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	-37.03	-1.84	0.00	-216.54	0.00	216.54	5451.60	2725.80	12956.4	6487.84		0.00	0.00	0.040
5.00	-35.68	-1.83	0.00	-207.33	0.00	207.33	5379.95	2689.97	12523.2	6270.95		0.00	-0.01	0.040
10.00	-34.36	-1.80	0.00	-198.19	0.00	198.19	5306.65	2653.32	12093.3	6055.68		0.02	-0.02	0.039
15.00	-33.06	-1.78	0.00	-189.17	0.00	189.17	5231.70	2615.85	11666.9	5842.16		0.04	-0.03	0.039
20.00	-31.79	-1.75	0.00	-180.29	0.00	180.29	5155.10	2577.55	11244.2	5630.50		0.08	-0.04	0.038
25.00	-30.54	-1.72	0.00	-171.56	0.00	171.56	5076.86	2538.43	10825.5	5420.83		0.12	-0.05	0.038
30.00	-29.32	-1.68	0.00	-162.99	0.00	162.99	4996.96	2498.48	10411.0	5213.26		0.17	-0.06	0.037
35.00	-28.12	-1.65	0.00	-154.57	0.00	154.57	4915.42	2457.71	10001.0	5007.93		0.24	-0.07	0.037
40.00	-26.95	-1.62	0.00	-146.31	0.00	146.31	4832.22	2416.11	9595.63	4804.95		0.31	-0.08	0.036
45.00	-25.80	-1.59	0.00	-138.21	0.00	138.21	4747.38	2373.69	9195.21	4604.44		0.40	-0.09	0.035
47.25	-25.30	-1.57	0.00	-134.64	0.00	134.64	4708.66	2354.33	9016.69	4515.05		0.44	-0.09	0.035
50.00	-24.21	-1.54	0.00	-130.31	0.00	130.31	4660.89	2330.44	8799.96	4406.52		0.49	-0.10	0.035
53.25	-22.94	-1.50	0.00	-125.31	0.00	125.31	3818.32	1909.16	7226.08	3618.41		0.56	-0.10	0.041
55.00	-22.60	-1.49	0.00	-122.69	0.00	122.69	3795.26	1897.63	7117.54	3564.06		0.60	-0.11	0.040
60.00	-21.65	-1.47	0.00	-115.23	0.00	115.23	3728.27	1864.14	6809.75	3409.94		0.72	-0.12	0.040
65.00	-20.72	-1.45	0.00	-107.88	0.00	107.88	3659.63	1829.82	6505.57	3257.62		0.85	-0.13	0.039
70.00	-19.81	-1.44	0.00	-100.62	0.00	100.62	3589.34	1794.67	6205.25	3107.24		0.99	-0.14	0.038
75.00	-18.92	-1.44	0.00	-93.41	0.00	93.41	3517.40	1758.70	5909.03	2958.91		1.15	-0.16	0.037
80.00	-18.06	-1.44	0.00	-86.23	0.00	86.23	3443.81	1721.91	5617.15	2812.75		1.32	-0.17	0.036
85.00	-17.21	-1.44	0.00	-79.04	0.00	79.04	3368.58	1684.29	5329.85	2668.89		1.50	-0.18	0.035
90.00	-16.39	-1.44	0.00	-71.84	0.00	71.84	3291.69	1645.84	5047.37	2527.44		1.69	-0.19	0.033
95.00	-15.58	-1.44	0.00	-64.63	0.00	64.63	3202.59	1601.29	4754.28	2380.67		1.90	-0.20	0.032
96.00	-15.43	-1.44	0.00	-63.19	0.00	63.19	3181.72	1590.86	4692.22	2349.60		1.95	-0.21	0.032
100.00	-14.45	-1.44	0.00	-57.43	0.00	57.43	3098.26	1549.13	4448.03	2227.32		2.12	-0.22	0.030
100.75	-14.27	-1.44	0.00	-56.35	0.00	56.35	1860.42	930.21	2714.89	1359.46		2.16	-0.22	0.049
105.00	-13.80	-1.44	0.00	-50.23	0.00	50.23	1828.32	914.16	2592.13	1297.99		2.36	-0.23	0.046
110.00	-13.26	-1.44	0.00	-43.03	0.00	43.03	1789.04	894.52	2449.03	1226.33		2.61	-0.25	0.042
115.00	-12.73	-1.44	0.00	-35.81	0.00	35.81	1748.11	874.06	2307.59	1155.51		2.87	-0.26	0.038
120.00	-12.21	-1.44	0.00	-28.60	0.00	28.60	1705.53	852.77	2168.05	1085.64		3.15	-0.27	0.034
125.00	-11.71	-1.42	0.00	-21.41	0.00	21.41	1661.30	830.65	2030.66	1016.84		3.45	-0.29	0.028
127.00	-7.17	-1.15	0.00	-18.57	0.00	18.57	1643.15	821.58	1976.36	989.65		3.57	-0.29	0.023
130.00	-6.89	-1.13	0.00	-15.12	0.00	15.12	1615.43	807.71	1895.65	949.24		3.75	-0.30	0.020
135.00	-6.44	-1.09	0.00	-9.45	0.00	9.45	1567.90	783.95	1763.28	882.95		4.07	-0.30	0.015
137.00	-2.91	-0.64	0.00	-7.26	0.00	7.26	1548.43	774.21	1711.12	856.83		4.19	-0.31	0.010
139.00	-2.76	-0.62	0.00	-5.98	0.00	5.98	1528.69	764.34	1659.43	830.95		4.32	-0.31	0.009
139.00	-2.76	-0.62	0.00	-5.98	0.00	5.98	1044.31	522.16	1138.99	570.34		4.32	-0.31	0.013
140.00	-2.70	-0.62	0.00	-5.36	0.00	5.36	1038.69	519.35	1122.71	562.19		4.39	-0.31	0.012
145.00	-2.40	-0.57	0.00	-2.28	0.00	2.28	1009.62	504.81	1041.96	521.75		4.71	-0.31	0.007
149.00	0.00	-0.56	0.00	0.00	0.00	0.00	985.17	492.59	978.22	489.84		4.98	-0.31	0.000

Wind Loading - Shaft

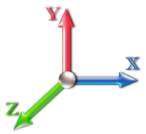
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

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	0.85	7.442	8.19	272.71	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	267.19	0.650	0.000	5.00	24.400	15.86	129.8	0.0	1352.1
10.00		1.00	0.85	7.442	8.19	261.66	0.650	0.000	5.00	23.901	15.54	127.2	0.0	1324.2
15.00		1.00	0.85	7.442	8.19	256.14	0.650	0.000	5.00	23.401	15.21	124.5	0.0	1296.4
20.00		1.00	0.90	7.896	8.69	258.15	0.650	0.000	5.00	22.902	14.89	129.3	0.0	1268.5
25.00		1.00	0.95	8.276	9.10	258.46	0.650	0.000	5.00	22.403	14.56	132.6	0.0	1240.6
30.00		1.00	0.98	8.600	9.46	257.54	0.650	0.000	5.00	21.904	14.24	134.7	0.0	1212.8
35.00		1.00	1.01	8.883	9.77	255.71	0.650	0.000	5.00	21.405	13.91	136.0	0.0	1184.9
40.00		1.00	1.04	9.137	10.05	253.21	0.650	0.000	5.00	20.906	13.59	136.6	0.0	1157.0
45.00		1.00	1.07	9.366	10.30	250.18	0.650	0.000	5.00	20.406	13.26	136.7	0.0	1129.1
47.25	Bot - Section 2	1.00	1.08	9.463	10.41	248.66	0.650	0.000	2.25	9.020	5.86	61.0	0.0	499.0
50.00		1.00	1.09	9.576	10.53	246.70	0.650	0.000	2.75	11.062	7.19	75.7	0.0	1127.5
53.25	Top - Section 1	1.00	1.11	9.704	10.67	244.24	0.650	0.000	3.25	12.878	8.37	89.4	0.0	1312.3
55.00		1.00	1.12	9.770	10.75	246.88	0.650	0.000	1.75	6.847	4.45	47.8	0.0	325.1
60.00		1.00	1.14	9.951	10.95	242.77	0.650	0.000	5.00	19.226	12.50	136.8	0.0	912.6
65.00		1.00	1.16	10.120	11.13	238.38	0.650	0.000	5.00	18.727	12.17	135.5	0.0	888.7
70.00		1.00	1.17	10.279	11.31	233.76	0.650	0.000	5.00	18.228	11.85	134.0	0.0	864.8
75.00		1.00	1.19	10.430	11.47	228.93	0.650	0.000	5.00	17.728	11.52	132.2	0.0	840.9
80.00		1.00	1.21	10.572	11.63	223.90	0.650	0.000	5.00	17.229	11.20	130.2	0.0	817.0
85.00		1.00	1.22	10.708	11.78	218.71	0.650	0.000	5.00	16.730	10.87	128.1	0.0	793.1
90.00		1.00	1.24	10.838	11.92	213.37	0.650	0.000	5.00	16.231	10.55	125.8	0.0	769.2
95.00		1.00	1.25	10.962	12.06	207.88	0.650	0.000	5.00	15.732	10.23	123.3	0.0	745.4
96.00	Bot - Section 3	1.00	1.25	10.986	12.08	206.77	0.650	0.000	1.00	3.086	2.01	24.2	0.0	146.2
100.00		1.00	1.27	11.081	12.19	202.27	0.650	0.000	4.00	12.315	8.00	97.6	0.0	965.5
100.75	Top - Section 2	1.00	1.27	11.098	12.21	201.42	0.650	0.000	0.75	2.274	1.48	18.0	0.0	178.2
105.00		1.00	1.28	11.195	12.31	199.41	0.650	0.000	4.25	12.671	8.24	101.4	0.0	401.4
110.00		1.00	1.29	11.305	12.44	193.58	0.650	0.000	5.00	14.446	9.39	116.8	0.0	457.6
115.00		1.00	1.30	11.412	12.55	187.65	0.650	0.000	5.00	13.946	9.07	113.8	0.0	441.6
120.00		1.00	1.32	11.514	12.67	181.62	0.650	0.000	5.00	13.447	8.74	110.7	0.0	425.7
125.00		1.00	1.33	11.614	12.78	175.50	0.650	0.000	5.00	12.948	8.42	107.5	0.0	409.8
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	173.03	0.650	0.000	2.00	5.039	3.28	42.0	0.0	159.4
130.00		1.00	1.34	11.710	12.88	169.30	0.650	0.000	3.00	7.409	4.82	62.0	0.0	234.4
135.00		1.00	1.35	11.803	12.98	163.02	0.650	0.000	5.00	11.950	7.77	100.8	0.0	377.9
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	160.49	0.650	0.000	2.00	4.640	3.02	39.3	0.0	146.7
139.00	Top - Section 3	1.00	1.36	11.876	13.06	157.94	0.650	0.000	2.00	4.560	2.96	38.7	0.0	144.2
140.00		1.00	1.36	11.894	13.08	156.66	0.650	0.000	1.00	2.250	1.46	19.1	0.0	53.5
145.00		1.00	1.37	11.982	13.18	150.24	0.650	0.000	5.00	10.951	7.12	93.8	0.0	260.2
149.00	Appurtenance(s)	1.00	1.38	12.051	13.26	145.04	0.650	0.000	4.00	8.402	5.46	72.4	0.0	199.5
								Totals:	**149.00**			**3,665.4**		**26,063.1**

Discrete Appurtenance Forces

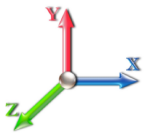
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

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	149.00	Alcatel RRH2x60 700	3	12.051	13.256	1.50	1.00	6.79	153.00	0.000	0.000	90.08	0.00	0.00
2	149.00	Commscope	3	12.051	13.256	0.83	1.00	20.34	116.40	0.000	0.000	269.68	0.00	0.00
3	149.00	Antel BXA-80063/4CF	3	12.051	13.256	0.72	1.00	10.20	29.70	0.000	0.000	135.15	0.00	0.00
4	149.00	Commscope	3	12.051	13.256	0.83	1.00	20.12	121.80	0.000	0.000	266.71	0.00	0.00
5	149.00	Commscope	3	12.077	13.284	0.83	1.00	20.32	120.00	0.000	1.500	269.92	0.00	404.87
6	149.00	Low Profile	1	12.051	13.256	1.00	1.00	22.00	1500.00	0.000	0.000	291.64	0.00	0.00
7	149.00	Alcatel RRH 4X45 AWS	3	12.051	13.256	0.80	1.00	6.24	192.00	0.000	0.000	82.72	0.00	0.00
8	149.00	Alcatel RRH	3	12.051	13.256	0.84	1.00	4.74	138.00	0.000	0.000	62.80	0.00	0.00
9	149.00	RFS DB-T1-6Z-8AB-0Z	1	12.051	13.256	0.67	1.00	3.22	18.90	0.000	0.000	42.63	0.00	0.00
10	149.00	RFS DB-T1-6Z-8AB-0Z	1	12.051	13.256	0.67	1.00	3.22	18.90	0.000	0.000	42.63	0.00	0.00
11	137.00	RRUS 4415 B25	3	11.840	13.024	0.50	0.75	2.47	138.00	0.000	0.000	32.20	0.00	0.00
12	137.00	Low Profile Platform	1	11.840	13.024	1.00	1.00	22.00	1500.00	0.000	0.000	286.53	0.00	0.00
13	137.00	4449 B71 + B12	3	11.840	13.024	0.50	0.75	2.97	219.60	0.000	0.000	38.68	0.00	0.00
14	137.00	KRY 112 144/1	3	11.840	13.024	0.56	0.75	1.20	46.20	0.000	0.000	15.60	0.00	0.00
15	137.00	APXVAARR24_43-U-NA2	3	11.840	13.024	0.56	0.75	34.16	384.00	0.000	0.000	444.84	0.00	0.00
16	137.00	KRD 9011461-B66A-B2A	3	11.840	13.024	0.65	0.75	12.74	396.60	0.000	0.000	165.97	0.00	0.00
17	137.00	mount pipe	1	11.840	13.024	1.00	1.00	4.31	87.00	0.000	0.000	56.13	0.00	0.00
18	137.00	Handrail KIt	3	11.840	13.024	1.00	1.00	8.91	137.25	0.000	0.000	116.00	0.00	0.00
19	137.00	(3) T-Arm Kit	1	11.840	13.024	1.00	1.00	16.50	500.00	0.000	0.000	214.90	0.00	0.00
20	137.00	AIR6449 B41	3	11.840	13.024	0.53	0.75	9.03	309.00	0.000	0.000	117.55	0.00	0.00
21	127.00	Kaelus DBCT108F1V92-1	3	11.653	12.818	0.80	0.80	1.68	59.40	0.000	0.000	21.53	0.00	0.00
22	127.00	Ericsson RRUS 32 RRU	3	11.653	12.818	0.54	0.80	5.32	231.00	0.000	0.000	68.22	0.00	0.00
23	127.00	Raycap DC6-48-60-18-8F	4	11.653	12.818	0.80	0.80	7.04	127.20	0.000	0.000	90.24	0.00	0.00
24	127.00	MTC3607 Platform + HR &	1	11.653	12.818	1.00	1.00	51.70	2246.00	0.000	0.000	662.68	0.00	0.00
25	127.00	Cci HPA65R-BU8A	6	11.653	12.818	0.71	0.80	47.93	414.00	0.000	0.000	614.38	0.00	0.00
26	127.00	Ericsson RRUS-11 RRU	6	11.653	12.818	0.54	0.80	8.10	304.20	0.000	0.000	103.88	0.00	0.00
27	127.00	Ericsson RRUS 4426 B66	3	11.653	12.818	0.54	0.80	1.85	145.50	0.000	0.000	23.70	0.00	0.00
28	127.00	Cci HPA-65R-BUU-H8	12	11.653	12.818	0.63	0.80	98.44	816.00	0.000	0.000	1261.79	0.00	0.00
29	127.00	Ericsson RRUS 4415 B25	3	11.653	12.818	0.54	0.80	2.99	132.30	0.000	0.000	38.34	0.00	0.00
30	127.00	Ericsson RRUS 4478 B5	3	11.653	12.818	0.54	0.80	2.96	179.70	0.000	0.000	37.92	0.00	0.00
31	127.00	Ericsson RRUS 4478 B14	3	11.653	12.818	0.54	0.80	2.65	178.20	0.000	0.000	34.01	0.00	0.00
							Totals:		**10,959.85**			**5,999.05**		

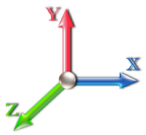
Total Applied Force Summary

Structure:	CT13075-A-SBA		**Code:**	EIA/TIA-222-G	10/30/2020
Site Name:	New London		**Exposure:**	C	
Height:	149.00 (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

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

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		129.83	1497.62	0.00	0.00
10.00		127.17	1469.75	0.00	0.00
15.00		124.52	1441.87	0.00	0.00
20.00		129.30	1414.00	0.00	0.00
25.00		132.57	1386.13	0.00	0.00
30.00		134.68	1358.25	0.00	0.00
35.00		135.96	1330.38	0.00	0.00
40.00		136.57	1302.50	0.00	0.00
45.00		136.66	1274.63	0.00	0.00
47.25		61.03	564.49	0.00	0.00
50.00		75.74	1207.52	0.00	0.00
53.25		89.35	1406.88	0.00	0.00
55.00		47.83	375.98	0.00	0.00
60.00		136.79	1058.10	0.00	0.00
65.00		135.50	1034.21	0.00	0.00
70.00		133.97	1010.32	0.00	0.00
75.00		132.20	986.42	0.00	0.00
80.00		130.24	962.53	0.00	0.00
85.00		128.09	938.64	0.00	0.00
90.00		125.77	914.75	0.00	0.00
95.00		123.30	890.85	0.00	0.00
96.00		24.24	175.30	0.00	0.00
100.00		97.57	1081.91	0.00	0.00
100.75		18.04	200.02	0.00	0.00
105.00		101.43	525.12	0.00	0.00
110.00		116.77	603.06	0.00	0.00
115.00		113.79	587.13	0.00	0.00
120.00		110.71	571.20	0.00	0.00
125.00		107.52	555.27	0.00	0.00
127.00	(47) attachments	2998.69	5051.15	0.00	0.00
130.00		62.04	310.35	0.00	0.00
135.00		100.85	504.51	0.00	0.00
137.00	(24) attachments	1527.68	3915.00	0.00	0.00
139.00		38.72	173.52	0.00	0.00
140.00		19.14	68.15	0.00	0.00
145.00		93.82	333.58	0.00	0.00
149.00	(24) attachments	1626.34	2666.96	0.00	404.87
	Totals:	**9,664.43**	**41,148.03**	**0.00**	**404.87**

Calculated Forces

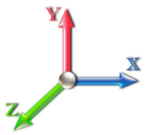
Structure:	CT13075-A-SBA	**Code:**	EIA/TIA-222-G	10/30/2020	
Site Name:	New London	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

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	-41.14	-9.68	0.00	-1109.9	0.00	1109.95	5451.60	2725.80	12956.4	6487.84	0.00	0.000	0.000	0.179
5.00	-39.64	-9.58	0.00	-1061.5	0.00	1061.55	5379.95	2689.97	12523.2	6270.95	0.02	-0.046	0.000	0.177
10.00	-38.16	-9.48	0.00	-1013.6	0.00	1013.64	5306.65	2653.32	12093.3	6055.68	0.10	-0.092	0.000	0.175
15.00	-36.71	-9.39	0.00	-966.22	0.00	966.22	5231.70	2615.85	11666.9	5842.16	0.22	-0.139	0.000	0.172
20.00	-35.29	-9.28	0.00	-919.29	0.00	919.29	5155.10	2577.55	11244.2	5630.50	0.39	-0.187	0.000	0.170
25.00	-33.90	-9.17	0.00	-872.88	0.00	872.88	5076.86	2538.43	10825.5	5420.83	0.61	-0.235	0.000	0.168
30.00	-32.53	-9.06	0.00	-827.01	0.00	827.01	4996.96	2498.48	10411.0	5213.26	0.88	-0.284	0.000	0.165
35.00	-31.19	-8.95	0.00	-781.70	0.00	781.70	4915.42	2457.71	10001.0	5007.93	1.21	-0.334	0.000	0.162
40.00	-29.88	-8.83	0.00	-736.97	0.00	736.97	4832.22	2416.11	9595.63	4804.95	1.59	-0.385	0.000	0.160
45.00	-28.61	-8.70	0.00	-692.83	0.00	692.83	4747.38	2373.69	9195.21	4604.44	2.02	-0.436	0.000	0.157
47.25	-28.04	-8.65	0.00	-673.26	0.00	673.26	4708.66	2354.33	9016.69	4515.05	2.23	-0.460	0.000	0.155
50.00	-26.83	-8.58	0.00	-649.48	0.00	649.48	4660.89	2330.44	8799.96	4406.52	2.50	-0.489	0.000	0.153
53.25	-25.42	-8.49	0.00	-621.60	0.00	621.60	3818.32	1909.16	7226.08	3618.41	2.85	-0.523	0.000	0.178
55.00	-25.03	-8.45	0.00	-606.75	0.00	606.75	3795.26	1897.63	7117.54	3564.06	3.04	-0.542	0.000	0.177
60.00	-23.97	-8.33	0.00	-564.49	0.00	564.49	3728.27	1864.14	6809.75	3409.94	3.64	-0.600	0.000	0.172
65.00	-22.93	-8.21	0.00	-522.84	0.00	522.84	3659.63	1829.82	6505.57	3257.62	4.30	-0.659	0.000	0.167
70.00	-21.91	-8.08	0.00	-481.81	0.00	481.81	3589.34	1794.67	6205.25	3107.24	5.02	-0.717	0.000	0.161
75.00	-20.92	-7.96	0.00	-441.40	0.00	441.40	3517.40	1758.70	5909.03	2958.91	5.81	-0.776	0.000	0.155
80.00	-19.95	-7.84	0.00	-401.60	0.00	401.60	3443.81	1721.91	5617.15	2812.75	6.65	-0.834	0.000	0.149
85.00	-19.01	-7.71	0.00	-362.43	0.00	362.43	3368.58	1684.29	5329.85	2668.89	7.55	-0.891	0.000	0.141
90.00	-18.09	-7.59	0.00	-323.87	0.00	323.87	3291.69	1645.84	5047.37	2527.44	8.52	-0.948	0.000	0.134
95.00	-17.19	-7.46	0.00	-285.92	0.00	285.92	3202.59	1601.29	4754.28	2380.67	9.54	-1.003	0.000	0.125
96.00	-17.02	-7.44	0.00	-278.46	0.00	278.46	3181.72	1590.86	4692.22	2349.60	9.75	-1.014	0.000	0.124
100.00	-15.93	-7.33	0.00	-248.70	0.00	248.70	3098.26	1549.13	4448.03	2227.32	10.62	-1.057	0.000	0.117
100.75	-15.73	-7.32	0.00	-243.20	0.00	243.20	1860.42	930.21	2714.89	1359.46	10.79	-1.065	0.000	0.187
105.00	-15.20	-7.22	0.00	-212.10	0.00	212.10	1828.32	914.16	2592.13	1297.99	11.76	-1.108	0.000	0.172
110.00	-14.59	-7.11	0.00	-176.00	0.00	176.00	1789.04	894.52	2449.03	1226.33	12.95	-1.175	0.000	0.152
115.00	-14.00	-7.00	0.00	-140.46	0.00	140.46	1748.11	874.06	2307.59	1155.51	14.22	-1.236	0.000	0.130
120.00	-13.42	-6.88	0.00	-105.49	0.00	105.49	1705.53	852.77	2168.05	1085.64	15.54	-1.289	0.000	0.105
125.00	-12.87	-6.77	0.00	-71.07	0.00	71.07	1661.30	830.65	2030.66	1016.84	16.92	-1.331	0.000	0.078
127.00	-7.89	-3.66	0.00	-57.53	0.00	57.53	1643.15	821.58	1976.36	989.65	17.48	-1.345	0.000	0.063
130.00	-7.58	-3.59	0.00	-46.56	0.00	46.56	1615.43	807.71	1895.65	949.24	18.33	-1.363	0.000	0.054
135.00	-7.07	-3.48	0.00	-28.62	0.00	28.62	1567.90	783.95	1763.28	882.95	19.77	-1.385	0.000	0.037
137.00	-3.20	-1.86	0.00	-21.66	0.00	21.66	1548.43	774.21	1711.12	856.83	20.35	-1.392	0.000	0.027
139.00	-3.03	-1.81	0.00	-17.95	0.00	17.95	1528.69	764.34	1659.43	830.95	20.94	-1.398	0.000	0.024
139.00	-3.03	-1.81	0.00	-17.95	0.00	17.95	1044.31	522.16	1138.99	570.34	20.94	-1.398	0.000	0.034
140.00	-2.96	-1.79	0.00	-16.14	0.00	16.14	1038.69	519.35	1122.71	562.19	21.23	-1.401	0.000	0.032
145.00	-2.63	-1.69	0.00	-7.17	0.00	7.17	1009.62	504.81	1041.96	521.75	22.70	-1.413	0.000	0.016
149.00	0.00	-1.63	0.00	-0.40	0.00	0.40	985.17	492.59	978.22	489.84	23.89	-1.417	0.000	0.001

Final Analysis Summary

Structure:	CT13075-A-SBA		**Code:**	EIA/TIA-222-G	10/30/2020
Site Name:	New London		**Exposure:**	C	
Height:	149.00 (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 105 mph Wind	47.5	0.00	49.28	0.00	0.00	5460.06
0.9D + 1.6W 105 mph Wind	47.4	0.00	36.94	0.00	0.00	5411.62
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.8	0.00	77.99	0.00	0.00	1222.37
1.2D + 1.0E	1.8	0.00	49.38	0.00	0.00	218.58
0.9D + 1.0E	1.8	0.00	37.03	0.00	0.00	216.54
1.0D + 1.0W 60 mph Wind	9.7	0.00	41.14	0.00	0.00	1109.95

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 105 mph Wind	-15.75	-36.01	0.00	-1196.1	0.00	-1196.1	1860.42	930.21	2714.89	1359.46	100.75	0.890
0.9D + 1.6W 105 mph Wind	-11.05	-35.56	0.00	-1179.8	0.00	-1179.8	1860.42	930.21	2714.89	1359.46	100.75	0.875
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-38.30	-7.93	0.00	-263.12	0.00	-263.12	1860.42	930.21	2714.89	1359.46	100.75	0.214
1.2D + 1.0E	-19.03	-1.46	0.00	-57.07	0.00	-57.07	1860.42	930.21	2714.89	1359.46	100.75	0.052
0.9D + 1.0E	-14.27	-1.44	0.00	-56.35	0.00	-56.35	1860.42	930.21	2714.89	1359.46	100.75	0.049
1.0D + 1.0W 60 mph Wind	-15.73	-7.32	0.00	-243.20	0.00	-243.20	1860.42	930.21	2714.89	1359.46	100.75	0.187

Monopole Mat Foundation Design

				Date
				10/30/2020
	Customer Name:	T-Mobile	**EIA/TIA Standard:**	EIA-222-G
	Site Name:		**Structure Height (Ft.):**	149
	Site Number:	CT13075-A-SBA	**Engineer Name:**	J. Chen
	Engr. Number:	99160	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

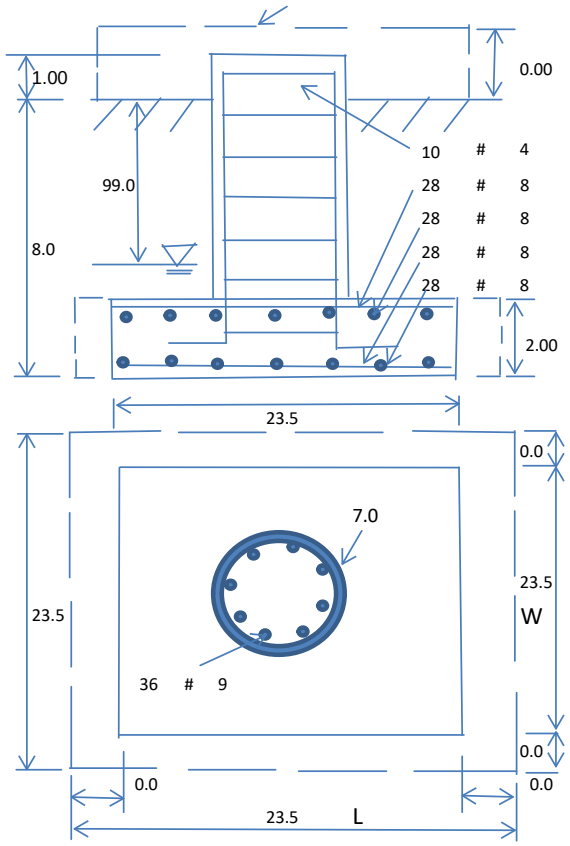
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	49.3	Shear Force (Kips):	47.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	5460.1
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	8.0
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.00
Length of Pad (ft.):	23.5	Width of Pad (ft.):	23.5
Final Length of pad (ft)	23.5	Final width of pad (ft):	23.5



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	100.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	8000	Ultimate Skin Friction:	100	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	3082.59	Total Dry Soil Weight (Kips):	308.26
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	308.26	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1373.89	Total Dry Concrete Weight (Kips):	206.08
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	206.08	Total Vertical Load on Base (Kips):	563.64

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	5772	<	Allowable Factored Soil Bearing (psf):	6000	0.96	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	6018.5	>	Design Factored Momont (kips-ft):	5705	0.95	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.05	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		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	6026.1	>	Design Factored Moment (Mu, Kips-F	5792.6	0.96	OK!
Calculated Shear Capacity (Kips):	660.1	>	Design Factored Shear (Kips):	47.5	0.07	OK!
Calculated Tension Capacity (Tn, Kips):	1944.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9734.2	>	Design Factored Axial Load (Pu Kips):	49.3	0.01	OK!
Moment & Axial Strength Combination:	0.96	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.006		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	548.4	>	One-Way Factored Shear (L-D. Kips):	382.9	0.70	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	548.4	>	One-Way Factored Shear (W-D., Kips)	382.9	0.70	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	532.5	>	One-Way Factored Shear (C-C, Kips):	415.1	0.78	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0038	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0038		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	1971.7	>	Moment at Bottom (L-Dir. K-Ft):	1673.8	0.85	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	1971.7	>	Moment at Bottom (W-Dir. K-Ft):	1673.8	0.85	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	2762.4	>	Moment at Bottom (C-C Dir. K-Ft):	2367.1	0.86	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0038	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0038		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	1971.7	>	Moment at the top (L-Dir K-Ft):	818.7	0.42	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	1971.7	>	Moment at the top (W-Dir K-Ft):	818.7	0.42	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	2762.4	>	Moment at the top (C-C Dir. K-Ft):	770.1	0.28	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	2184.0	k-ft.	Max. factored shear stress v_{u_CD}:		8.8	Psi
Max. factored shear stress v_{u_AB}:	21.1	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	21.1	Psi	Check Usage of Punching Shear Capacity:		0.11	OK!

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 149-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT13075-A-SBA / New London

Customer Site Name: New London

Carrier Name: T-Mobile (App#: 141525, V1)

Carrier Site ID / Name: CT11311G / CT311/Opta Paws Place

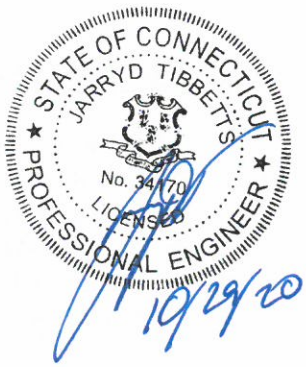
Site Location: 1294 Pleasant Valley Road North

Groton, Connecticut

New London County

Latitude: 41.399972

Longitude: -72.079222



Analysis Result:

Max Structural Usage: 68.8% [Pass]

Report Prepared By : Mariana Franco

Introduction

The purpose of this report is to summarize the analysis results on the (1) Platform at 137.00' 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	Mapping by SkyTower LLC; Dated 05/04/2019
Antenna Loading	Provided by SBA; Application #: 141525, v1
Modification Drawings	TES Job No. 81110; Dated 07/16/2019

Analysis Criteria

Wind Speed Used in the Analysis: V_{ULT} = 135 mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 105 mph (3-Sec. Gust)
Wind Speed with Ice: 50 mph (3-Sec. Gust) with 0.75" radial ice concurrent
Operational Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA 222-G/2015 IBC
Exposure Category: C
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

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

Mount Information

(1) Platform at 137.00' elevation

Final Antenna Configuration

3 Ericsson AIR32 KRD901146-1_B66A_B2A
3 RFS APXVAARR24_43-U-NA20
3 Ericsson KRY 112 144/1
3 Ericsson 4449 B71+B85
3 Ericsson AIR6449 B41
3 Ericsson 4415 B25

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 68.8%, 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.


24 jun. 2020 3:11:50 p. m.
1294 Pleasant Valley Road North
Groton
New London County
Connecticut

Structure: CT13075-A-SBA - New London

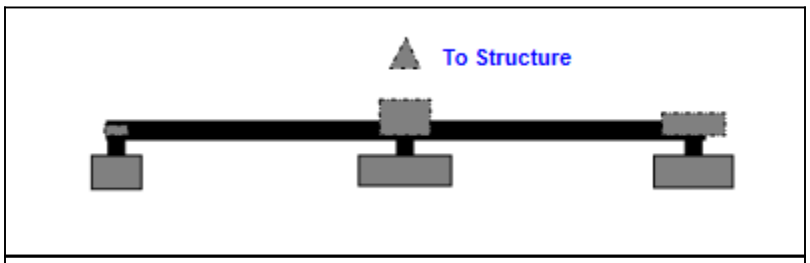
Sector: A

Structure Type: Monopole

Mount Elev: 137.00

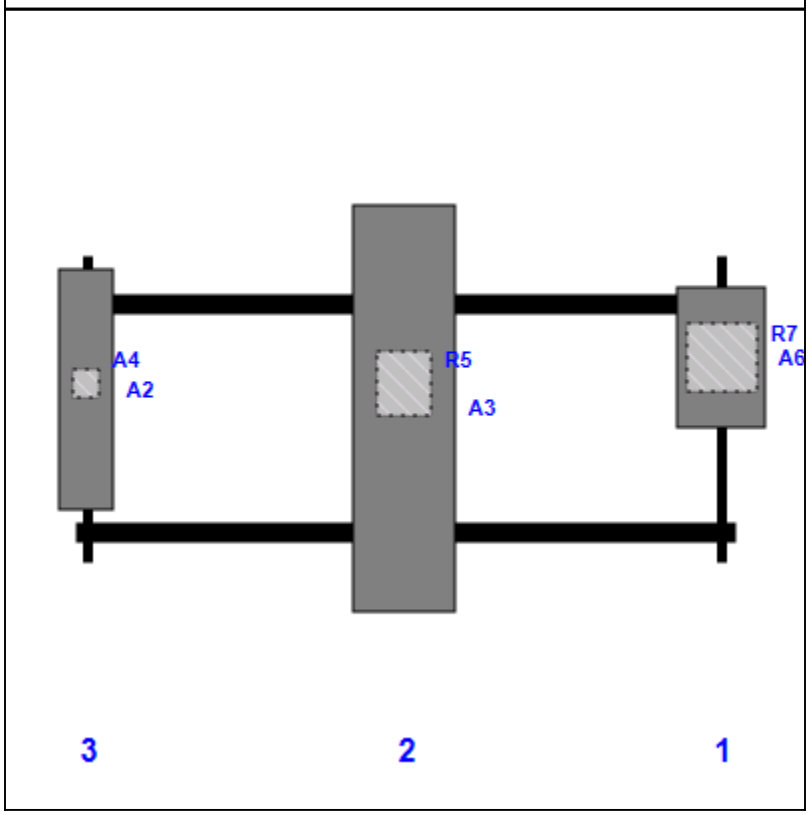
10/29/2020

Plan View



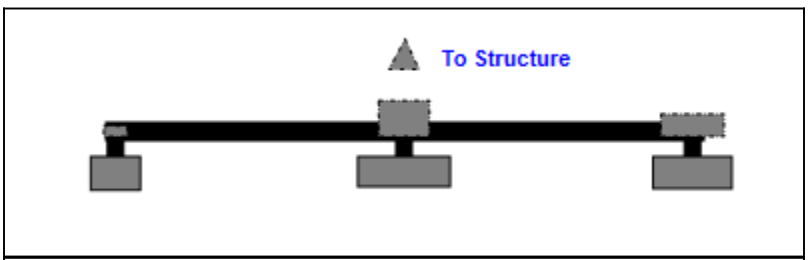
Front View

Looking Toward Structure



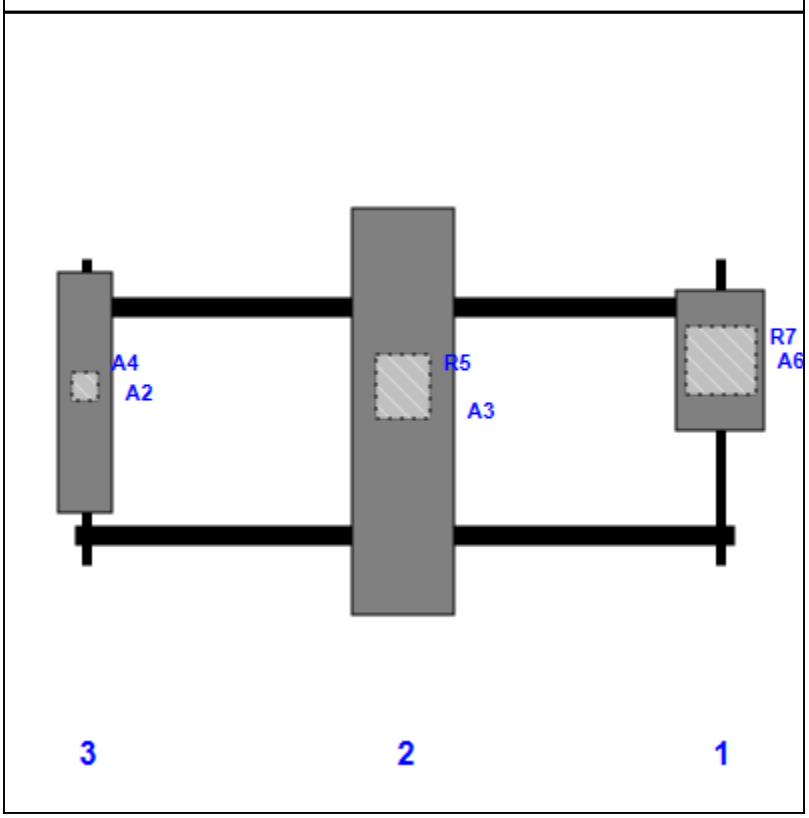
Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A6	AIR6449 B41	33.10	20.50	153.00	1	a	Front	24.00			
R7	4415 B25	16.00	16.40	153.00	1	a	Behind	24.00			
A3	APXVAARR24_43-U-NA20	95.90	24.00	78.00	2	a	Front	36.00			
R5	4449 B71+B85	15.00	13.20	78.00	2	a	Behind	30.00			
A2	AIR32 KRD901146-1_B66A_B2A	57.00	12.90	3.00	3	a	Front	31.50			
A4	KRY 112 144/1	6.90	6.10	3.00	3	a	Behind	30.00			

Plan View



Front View

Looking Toward Structure



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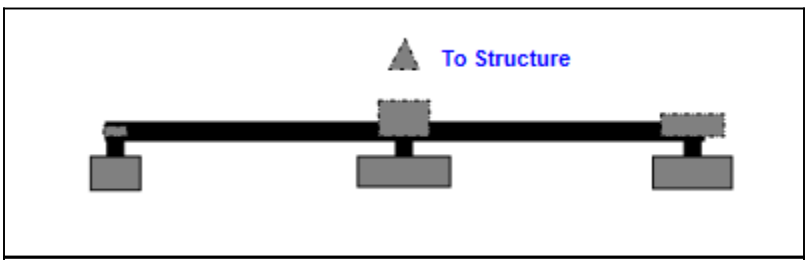
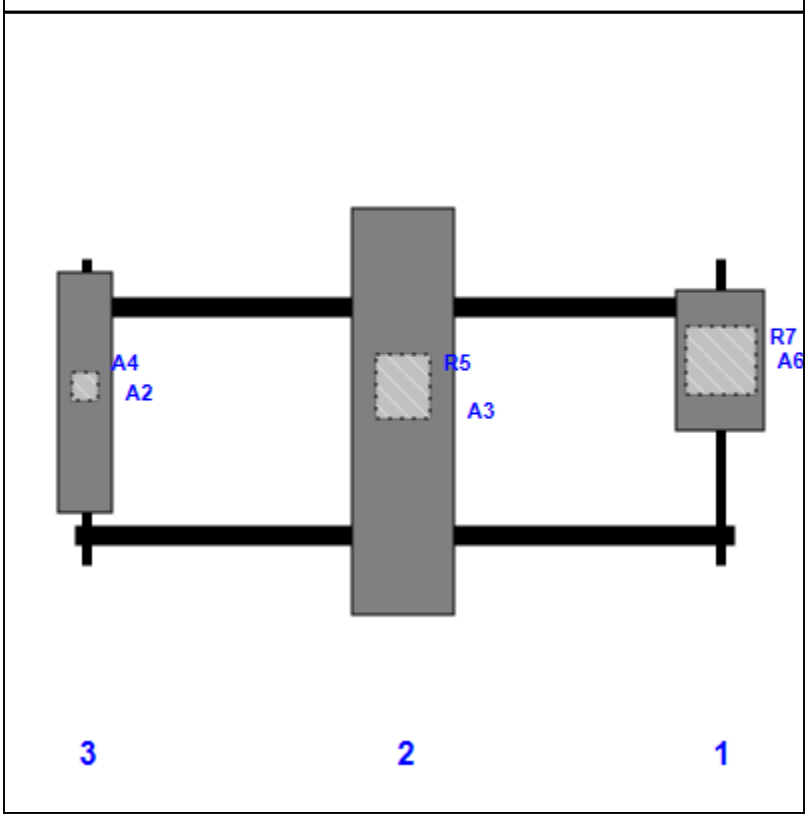
R7	4415 B25	16.00	16.40	153.00	1	a	Behind	24.00			
A3	APXVAARR24_43-U-NA20	95.90	24.00	78.00	2	a	Front	36.00			
R5	4449 B71+B85	15.00	13.20	78.00	2	a	Behind	30.00			
A2	AIR32 KRD901146-1_B66A_B2A	57.00	12.90	3.00	3	a	Front	31.50			
A4	KRY 112 144/1	6.90	6.10	3.00	3	a	Behind	30.00			

Plan View



Front View

Looking Toward Structure

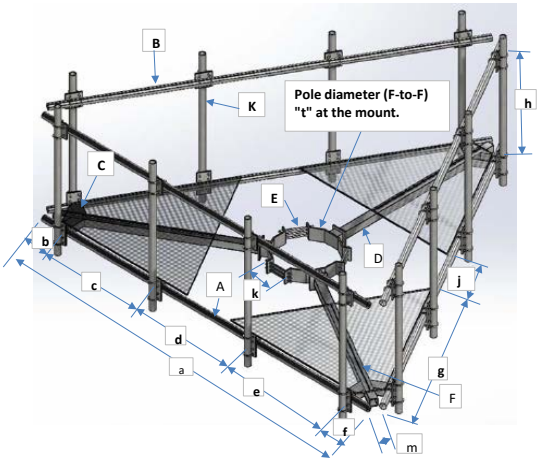


Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A6	AIR6449 B41	33.10	20.50	153.00	1	a	Front	24.00			
R7	4415 B25	16.00	16.40	153.00	1	a	Behind	24.00			
A3	APXVAARR24_43-U-NA20	95.90	24.00	78.00	2	a	Front	36.00			
R5	4449 B71+B85	15.00	13.20	78.00	2	a	Behind	30.00			
A2	AIR32 KRD901146-1_B66A_B2A	57.00	12.90	3.00	3	a	Front	31.50			
A4	KRY 112 144/1	6.90	6.10	3.00	3	a	Behind	30.00			

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

FCC # 1260407

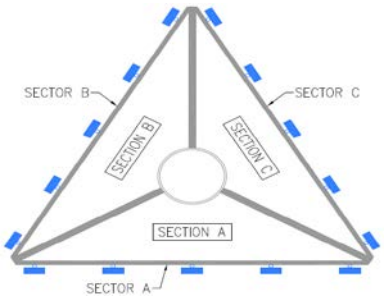
Tower Owner:	SBA	**Mapping Date:**	5/4/19
Site Name:	New London	**Structure Type:**	Monopole
Site Number or ID:	CT13075	**Structure Height (Ft.):**	151
Mapping Contractor:	SkyTower, LLC	**Mount Height (Ft.):**	138



Geometries (Unit: inches)									
a	156	**e**		**j**	27	**o**		**s**	
b	3	**f**	3	**k**	17	**p**		**t**	28
c		**g**	64.5	**m**	14	**q**		**u ***	65
d	150	**h**		**n**		**r**		**v ***	72

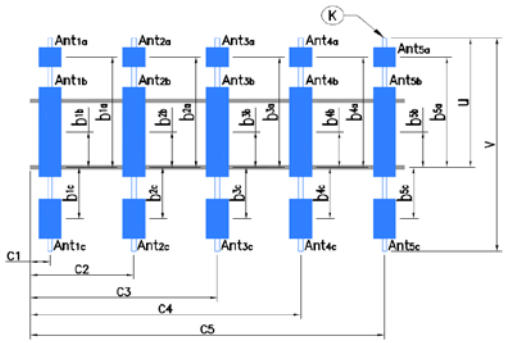
Members/Bolts (Unit: inches) *** - See Ant Layout for "u", "v" and member "K" (pipe)**

Items	Member	Lx (O.D.)	Ly (I.D.)	T	Items	Member	Lx (O.D.)	Ly (I.D.)	T
A	2.875 OD x 0.203 Pipe	2.875	2.469	0.203	F				
B					G				
C	3/8" Thick. Plate	0	0	0.375	H				
D	4.5 OD x 0.337 Pipe	4.5	3.826	0.337	J				
E	5/8" Bolt				K* (pipe)	2.375 OD x 0.154 Pipe	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.)									6'
Please enter the infomation below if members can't be found from the drop down lists									
No handrail on this mount									
Grating angle is L2x2x1/4 (47" long)									



Climbing ladder is , at 70 Degree Azimuth

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}	Ericsson AIR 32	13	9.5	56	6 (1/2)	36	5	153	059-063
Ant_{1b}								3	
Ant_{1c}									
Ant_{2a}	Ericsson AIR 32	13	9.5	56	6 (1/2)	36	5	3	064-073
Ant_{2b}	Double TMA	6	3	7		29		153	
Ant_{2c}									
Ant_{3a}									
Ant_{3b}									
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**							

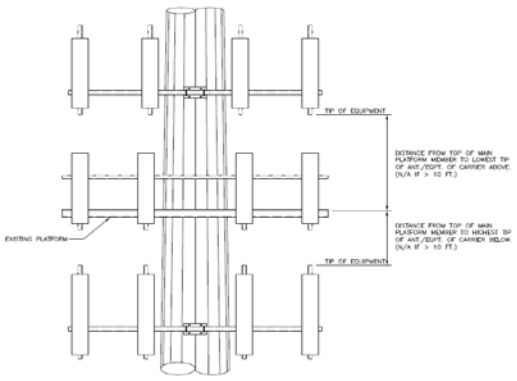


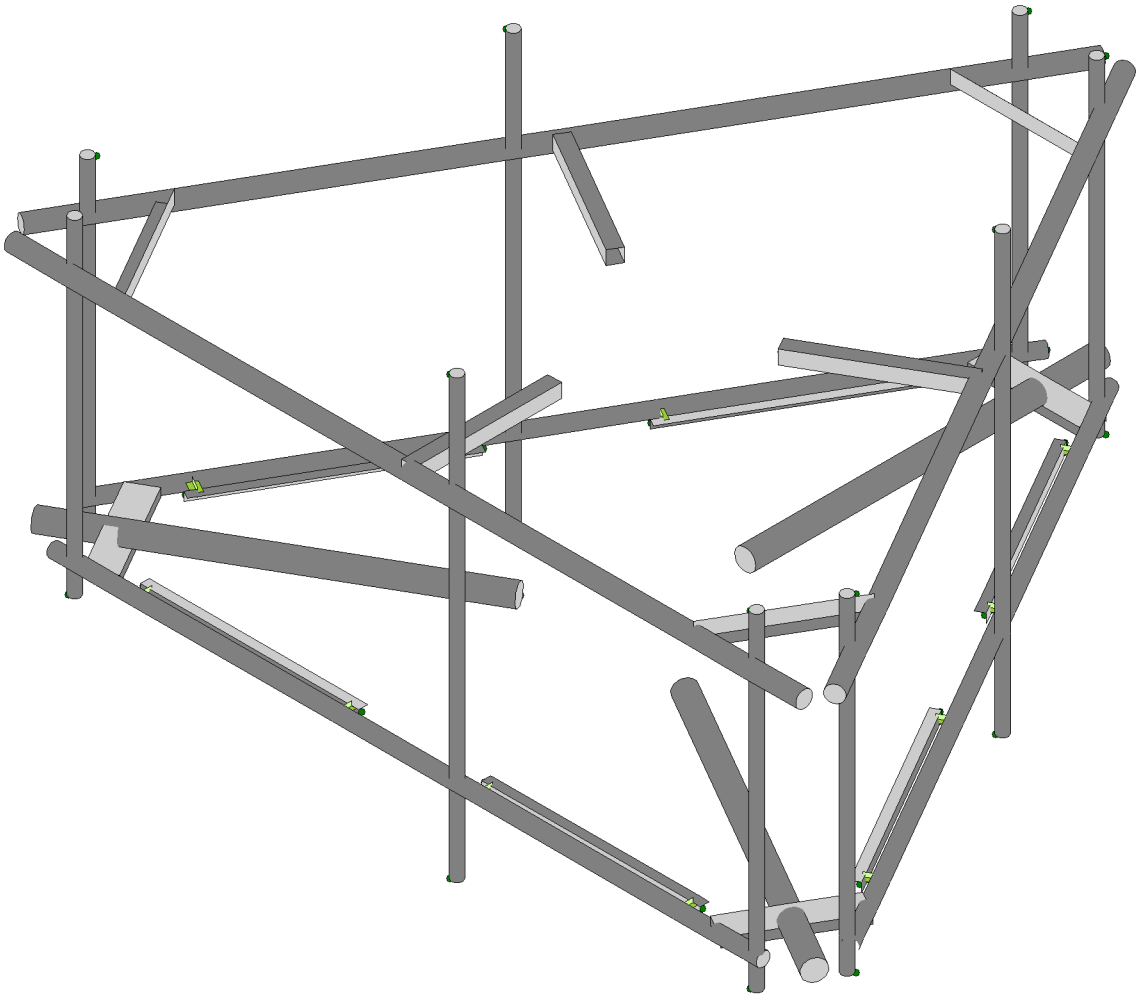
Antenna Layout

Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	40	Deg	
Sector B:	160	Deg	
Sector C:	280	Deg	
Climbing	70	Deg	
Climbing Facility	Corrosion Type:		
	Access:		
	Condition:		

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





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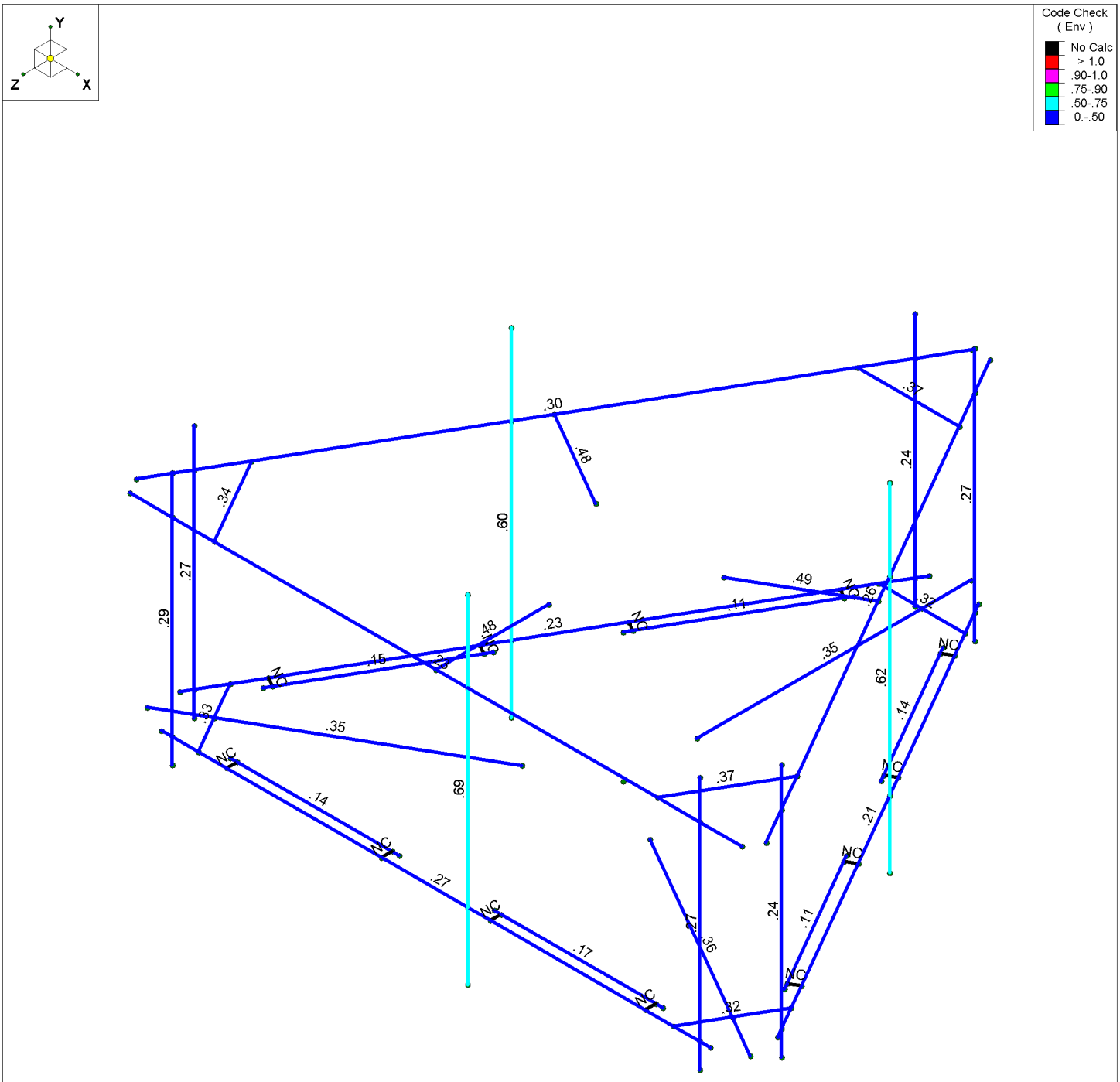
TES Project No. 99159		CT13075-A-SBA_99159_G_RISA_L...



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

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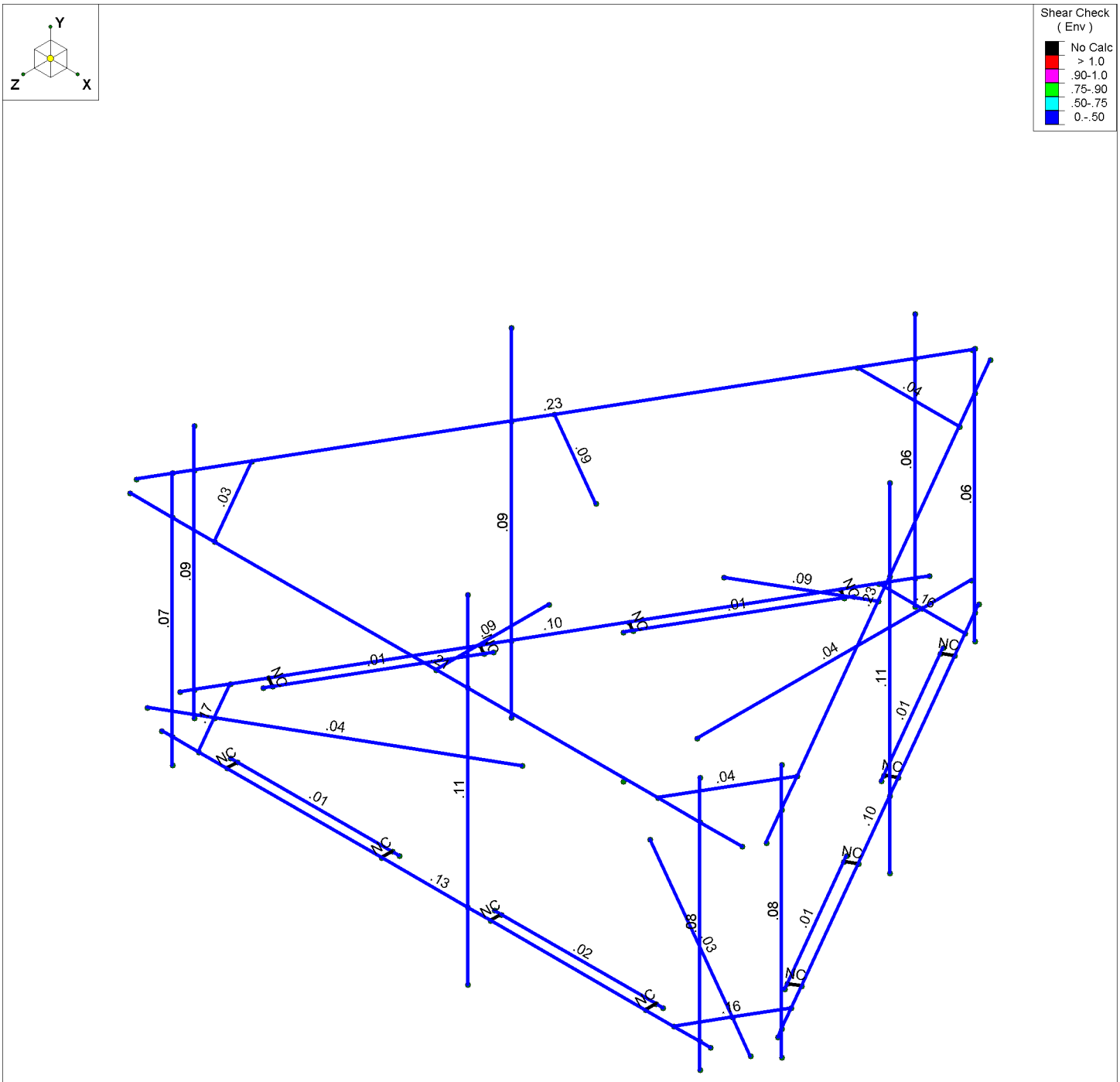
		Oct 29, 2020 at 3:55 PM
TES Project No. 99159		CT13075-A-SBA_99159_G_RISA_L...



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

Tower Engineering Solutio...	CT13075-A-SBA_MT_LO_Loads Only_G	SK - 3
		Oct 29, 2020 at 3:55 PM
TES Project No. 99159		CT13075-A-SBA_99159_G_RISA_L...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					27			
2	Antenna Di	None					27			
3	Antenna W Front	None					27			
4	Antenna Wi Front	None					27			
5	Antenna W Side	None					27			
6	Antenna Wi Side	None					27			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1					3	
10	Structure Di	None						33	3	
11	Structure W Front	None						33		
12	Structure Wi Front	None						33		
13	Structure W Side	None						33		
14	Structure Wi Side	None						33		
15	BLC 9 Transient Area...	None						18		
16	BLC 10 Transient Are...	None						18		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.2D+1.6W (Front)	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6												
2	1.2D+1.6W (Back)	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6												
3	1.2D+1.6W (Left)	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6												
4	1.2D+1.6W (Right)	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6												
5	1.2D+1.0Di+1.0Wi (Front)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1								
6	1.2D+1.0Di+1.0Wi (Back)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1								
7	1.2D+1.0Di+1.0Wi (Left)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1								
8	1.2D+1.0Di+1.0Wi (Right)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1								
9	1.2D+1.5L1+.16W (Mai...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16										
10	1.2D+1.5L2+.16W (Mai...	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	-1.515544	0	0.875	0	
2	N2	1.515544	0	.875	0	
3	N3	0	0	-1.75	0	
4	N4	-6.5	0	4.426352	0	
5	N5	6.5	0	4.426352	0	
6	N6	7.083333	0	3.415989	0	
7	N7	0.583333	0	-7.842341	0	
8	N8	-0.583333	0	-7.842341	0	
9	N9	-7.083333	0	3.415989	0	
10	N10	6.25	5.416667	4.426352	0	
11	N11	6.25	-0.583333	4.426352	0	
12	N12	-6.25	5.416667	4.426352	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
13	N13	-6.25	-0.583333	4.426352	0	
14	N14	-6.958333	5.416667	3.199483	0	
15	N15	-6.958333	-0.583333	3.199483	0	
16	N16	-0.708333	5.416667	-7.625835	0	
17	N17	-0.708333	-0.583333	-7.625835	0	
18	N18	0.708333	5.416667	-7.625835	0	
19	N19	0.708333	-0.583333	-7.625835	0	
20	N20	6.958333	5.416667	3.199483	0	
21	N21	6.958333	-0.583333	3.199483	0	
22	CENTER	0	0	0	0	
23	N23	-2e-14	0	-8.25	0	
24	N24	1.020833	0	-7.084569	0	
25	N25	-1.020833	0	-7.084569	0	
26	N26	-1e-14	0	-7.084569	0	
27	N27	-7.14471	0	4.125	0	
28	N28	-6.645833	0	2.658217	0	
29	N29	-5.625	0	4.426352	0	
30	N30	7.14471	0	4.125	0	
31	N31	5.625	0	4.426352	0	
32	N32	6.645833	0	2.658217	0	
33	N33	-1.292	0	4.426352	0	
34	N34	4.958	0	4.426352	0	
35	N35	1.292	0	4.426352	0	
36	N36	-4.958	0	4.426352	0	
37	N37	1.125	0	4.176352	0	
38	N38	-5.125	0	4.176352	0	
39	N39	5.125	0	4.176352	0	
40	N40	-1.292	0	4.176352	0	
41	N41	4.958	0	4.176352	0	
42	N42	1.292	0	4.176352	0	
43	N43	-4.958	0	4.176352	0	
44	N44	-1.125	0	4.176352	0	
45	N45	4.479333	0	-1.094271	0	
46	N46	1.354333	0	-6.50693	0	
47	N47	3.187333	0	-3.332081	0	
48	N48	6.312333	0	2.080578	0	
49	N49	3.054327	0	-3.062455	0	
50	N50	1.054327	0	-6.526556	0	
51	N51	4.262827	0	-0.969271	0	
52	N52	1.137827	0	-6.38193	0	
53	N53	2.970827	0	-3.207081	0	
54	N54	6.095827	0	2.205578	0	
55	N55	4.179327	0	-1.113897	0	
56	N56	6.179327	0	2.350204	0	
57	N57	-3.187333	0	-3.332081	0	
58	N58	-6.312333	0	2.080578	0	
59	N59	-4.479333	0	-1.094271	0	
60	N60	-1.354333	0	-6.50693	0	
61	N61	-4.179327	0	-1.113897	0	
62	N62	-6.179327	0	2.350204	0	
63	N63	-2.970827	0	-3.207081	0	
64	N64	-6.095827	0	2.205578	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
65	N65	-4.262827	0	-0.969271	0	
66	N66	-1.137827	0	-6.38193	0	
67	N67	-3.054327	0	-3.062455	0	
68	N68	-1.054327	0	-6.526556	0	
69	N69	6.25	0	4.426352	0	
70	N70	-6.25	0	4.426352	0	
71	N71	0.708333	0	-7.625835	0	
72	N72	6.958333	0	3.199483	0	
73	N73	-6.958333	0	3.199483	0	
74	N74	-0.708333	0	-7.625835	0	
75	N75	-6.135417	0	3.542284	0	
76	N76	6.135417	0	3.542284	0	
77	N77	.75	6.416667	4.426352	0	
78	N78	.75	-1.583333	4.426352	0	
79	N79	3.458333	6.416667	-2.862695	0	
80	N80	3.458333	-1.583333	-2.862695	0	
81	N81	-4.208333	6.416667	-1.563657	0	
82	N82	-4.208333	-1.583333	-1.563657	0	
83	N83	.75	0	4.426352	0	
84	N84	3.458333	0	-2.862695	0	
85	N85	-4.208333	0	-1.563657	0	
86	N86	-7.25	4.5	4.426352	0	
87	N87	7.25	4.5	4.426352	0	
88	N88	7.458333	4.5	4.065508	0	
89	N89	0.208333	4.5	-8.49186	0	
90	N90	-0.208333	4.5	-8.49186	0	
91	N91	-7.458333	4.5	4.065508	0	
92	N92	5.25	4.5	4.426352	0	
93	N93	-5.25	4.5	4.426352	0	
94	N94	1.208333	4.5	-6.759809	0	
95	N95	6.458333	4.5	2.333457	0	
96	N96	-6.458333	4.5	2.333457	0	
97	N97	-1.208333	4.5	-6.759809	0	
98	N98	-1.1e-13	4.5	1.75	0	
99	N99	0	4.5	4.426352	0	
100	N100	1.515544	4.5	-.875	0	
101	N101	3.833333	4.5	-2.213176	0	
102	N102	-1.515544	4.5	-0.875	0	
103	N103	-3.833333	4.5	-2.213176	0	
104	N104	6.25	4.5	4.426352	0	
105	N105	-6.25	4.5	4.426352	0	
106	N106	-6.958333	4.5	3.199483	0	
107	N107	-0.708333	4.5	-7.625835	0	
108	N108	0.708333	4.5	-7.625835	0	
109	N109	6.958333	4.5	3.199483	0	
110	N110	.75	4.5	4.426352	0	
111	N111	3.458333	4.5	-2.862695	0	
112	N112	-4.208333	4.5	-1.563657	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	New Suppor...	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	New Mount ...	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	New SR En...	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
4	New T-Arm	HSS3x3x4	Beam	SquareTube	A500 Gr.B ...	Typical	2.44	3.02	3.02	5.08

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_2.5	Beam	Pipe	A53 Gr.B	DR1
2	M2	N6	N7			PIPE_2.5	Beam	Pipe	A53 Gr.B	DR1
3	M3	N8	N9			PIPE_2.5	Beam	Pipe	A53 Gr.B	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
4	M6	N3	N23			PIPE_4.0X_H...	Beam	Pipe	A53 Gr.B	DR1
5	MP1A	N10	N11			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
6	MP3A	N12	N13			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
7	MP1B	N14	N15		300	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
8	MP3B	N16	N17		300	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
9	MP1C	N18	N19		60	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
10	MP3C	N20	N21		60	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
11	M14	N25	N24		90	C6x8.2	Beam	Channel	A36 Gr.36	Typical
12	M12	N1	N27			PIPE_4.0X_H...	Beam	Pipe	A53 Gr.B	DR1
13	M13	N29	N28		90	C6x8.2	Beam	Channel	A36 Gr.36	Typical
14	M14A	N2	N30			PIPE_4.0X_H...	Beam	Pipe	A53 Gr.B	DR1
15	M15	N32	N31		90	C6x8.2	Beam	Channel	A36 Gr.36	Typical
16	M16	N43	N36			RIGID	Beam	None	RIGID	DR1
17	M17	N40	N33			RIGID	Beam	None	RIGID	DR1
18	M18	N42	N35			RIGID	Beam	None	RIGID	DR1
19	M19	N41	N34			RIGID	Beam	None	RIGID	DR1
20	M20	N37	N39		180	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N44	N38		90	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical
22	M22	N54	N48			RIGID	Beam	None	RIGID	DR1
23	M23	N51	N45			RIGID	Beam	None	RIGID	DR1
24	M24	N53	N47			RIGID	Beam	None	RIGID	DR1
25	M25	N52	N46			RIGID	Beam	None	RIGID	DR1
26	M26	N49	N50		180	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical
27	M27	N55	N56		90	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical
28	M28	N66	N60			RIGID	Beam	None	RIGID	DR1
29	M29	N63	N57			RIGID	Beam	None	RIGID	DR1
30	M30	N65	N59			RIGID	Beam	None	RIGID	DR1
31	M31	N64	N58			RIGID	Beam	None	RIGID	DR1
32	M32	N61	N62		180	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical
33	M33	N67	N68		90	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical
34	MP2A	N77	N78			New Mount Pi...	Beam	Pipe	A53 Gr.B	Typical
35	MP2C	N79	N80			New Mount Pi...	Beam	Pipe	A53 Gr.B	Typical
36	MP2B	N81	N82			New Mount Pi...	Beam	Pipe	A53 Gr.B	Typical
37	M37	N86	N87			New Support ...	Beam	Pipe	A53 Gr.B	Typical
38	M38	N88	N89			New Support ...	Beam	Pipe	A53 Gr.B	Typical
39	M39	N90	N91			New Support ...	Beam	Pipe	A53 Gr.B	Typical
40	M40	N92	N95			New SR End ...	Beam	Single Angle	A36 Gr.36	Typical
41	M41	N94	N97			New SR End ...	Beam	Single Angle	A36 Gr.36	Typical
42	M42	N96	N93			New SR End ...	Beam	Single Angle	A36 Gr.36	Typical
43	M43	N98	N99			New T-Arm	Beam	SquareTube	A500 Gr.B...	Typical
44	M44	N100	N101			New T-Arm	Beam	SquareTube	A500 Gr.B...	Typical
45	M45	N102	N103			New T-Arm	Beam	SquareTube	A500 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	M6						Yes			None
5	MP1A						Yes	-z		None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
6	MP3A						Yes	-z		None
7	MP1B						Yes	+z		None
8	MP3B						Yes	+z		None
9	MP1C						Yes	+z		None
10	MP3C						Yes	+z		None
11	M14						Yes			None
12	M12						Yes			None
13	M13						Yes			None
14	M14A						Yes			None
15	M15						Yes			None
16	M16						Yes			None
17	M17						Yes			None
18	M18						Yes			None
19	M19						Yes			None
20	M20						Yes			None
21	M21						Yes			None
22	M22						Yes			None
23	M23						Yes			None
24	M24						Yes			None
25	M25						Yes			None
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
34	MP2A						Yes	-z		None
35	MP2C						Yes	-z		None
36	MP2B						Yes	-z		None
37	M37						Yes			None
38	M38						Yes			None
39	M39						Yes			None
40	M40						Yes			None
41	M41						Yes			None
42	M42						Yes			None
43	M43						Yes			None
44	M44						Yes			None
45	M45						Yes			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-torq...	Kyy	Kzz	Cb	Funct...
1	M1	PIPE_2.5	13			Lbyy						Gravity
2	M2	PIPE_2.5	13			Lbyy						Gravity
3	M3	PIPE_2.5	13			Lbyy						Gravity
4	M6	PIPE_4.0X_HRB	6.5			Lbyy			2.1	2.1		Lateral
5	MP1A	PIPE_2.0	6			Lbyy			2.1	2.1		Gravity
6	MP3A	PIPE_2.0	6			Lbyy			2.1	2.1		Lateral
7	MP1B	PIPE_2.0	6			Lbyy			2.1	2.1		Gravity

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-torq...	Kyy	Kzz	Cb	Funct...
8	MP3B	PIPE_2.0	6			Lbyy			2.1	2.1		Lateral
9	MP1C	PIPE_2.0	6			Lbyy			2.1	2.1		Gravity
10	MP3C	PIPE_2.0	6			Lbyy			2.1	2.1		Lateral
11	M14	C6x8.2	2.042			Lbyy						Lateral
12	M12	PIPE_4.0X_HRB	6.5			Lbyy			2.1	2.1		Lateral
13	M13	C6x8.2	2.042			Lbyy						Lateral
14	M14A	PIPE_4.0X_HRB	6.5			Lbyy			2.1	2.1		Lateral
15	M15	C6x8.2	2.042			Lbyy						Lateral
16	M20	L2x2x4	4			Lbyy						Lateral
17	M21	L2x2x4	4			Lbyy						Lateral
18	M26	L2x2x4	4			Lbyy						Lateral
19	M27	L2x2x4	4			Lbyy						Lateral
20	M32	L2x2x4	4			Lbyy						Lateral
21	M33	L2x2x4	4			Lbyy						Lateral
22	MP2A	New Mount Pipes	8			Lbyy			2.1	2.1		Lateral
23	MP2C	New Mount Pipes	8			Lbyy			2.1	2.1		Lateral
24	MP2B	New Mount Pipes	8			Lbyy			2.1	2.1		Lateral
25	M37	New Support Rail	14.5			Lbyy						Lateral
26	M38	New Support Rail	14.5			Lbyy						Lateral
27	M39	New Support Rail	14.5			Lbyy						Lateral
28	M40	New SR End Connection	2.417			Lbyy						Lateral
29	M41	New SR End Connection	2.417			Lbyy						Lateral
30	M42	New SR End Connection	2.417			Lbyy						Lateral
31	M43	New T-Arm	2.676			Lbyy			2.1	2.1		Lateral
32	M44	New T-Arm	2.676			Lbyy			2.1	2.1		Lateral
33	M45	New T-Arm	2.676			Lbyy			2.1	2.1		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-torqu...	Kyy	Kzz	Cb	Function
No Data to Print ...											

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Y	-66.1	.25
2	MP3A	Y	-66.1	5
3	MP3B	Y	-66.1	.25
4	MP3B	Y	-66.1	5
5	MP3C	Y	-66.1	.25
6	MP3C	Y	-66.1	5
7	MP2A	Y	-64	0
8	MP2A	Y	-64	6
9	MP2B	Y	-64	0
10	MP2B	Y	-64	6

Member Point Loads (BLC 1 : Antenna D) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
11	MP2C	Y	-64	0
12	MP2C	Y	-64	6
13	MP3A	Y	-11	2.5
14	MP3B	Y	-11	2.5
15	MP3C	Y	-11	2.5
16	MP2A	Y	-70	2.5
17	MP2B	Y	-70	2.5
18	MP2C	Y	-70	2.5
19	MP1A	Y	-51.5	1
20	MP1A	Y	-51.5	3
21	MP1B	Y	-51.5	1
22	MP1B	Y	-51.5	3
23	MP1C	Y	-51.5	1
24	MP1C	Y	-51.5	3
25	MP1A	Y	-45	2
26	MP1B	Y	-45	2
27	MP1C	Y	-45	2

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Y	-91.204	.25
2	MP3A	Y	-91.204	5
3	MP3B	Y	-91.204	.25
4	MP3B	Y	-91.204	5
5	MP3C	Y	-91.204	.25
6	MP3C	Y	-91.204	5
7	MP2A	Y	-206.843	0
8	MP2A	Y	-206.843	6
9	MP2B	Y	-206.843	0
10	MP2B	Y	-206.843	6
11	MP2C	Y	-206.843	0
12	MP2C	Y	-206.843	6
13	MP3A	Y	-16.081	2.5
14	MP3B	Y	-16.081	2.5
15	MP3C	Y	-16.081	2.5
16	MP2A	Y	-67.474	2.5
17	MP2B	Y	-67.474	2.5
18	MP2C	Y	-67.474	2.5
19	MP1A	Y	-75.636	1
20	MP1A	Y	-75.636	3
21	MP1B	Y	-75.636	1
22	MP1B	Y	-75.636	3
23	MP1C	Y	-75.636	1
24	MP1C	Y	-75.636	3
25	MP1A	Y	-66.631	2
26	MP1B	Y	-66.631	2
27	MP1C	Y	-66.631	2

Member Point Loads (BLC 3 : Antenna W Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Z	-129.829	.25

Member Point Loads (BLC 3 : Antenna W Front) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
2	MP3A	Z	-129.829	5
3	MP3B	Z	-103.544	.25
4	MP3B	Z	-103.544	5
5	MP3C	Z	-103.544	.25
6	MP3C	Z	-103.544	5
7	MP2A	Z	-403.647	0
8	MP2A	Z	-403.647	6
9	MP2B	Z	-223.4	0
10	MP2B	Z	-223.4	6
11	MP2C	Z	-223.4	0
12	MP2C	Z	-223.4	6
13	MP3A	Z	-12.265	2.5
14	MP3B	Z	-6.557	2.5
15	MP3C	Z	-6.557	2.5
16	MP2A	Z	-49.359	2.5
17	MP2B	Z	-38.421	2.5
18	MP2C	Z	-38.421	2.5
19	MP1A	Z	-112.678	1
20	MP1A	Z	-112.678	3
21	MP1B	Z	-64.3	1
22	MP1B	Z	-64.3	3
23	MP1C	Z	-64.3	1
24	MP1C	Z	-64.3	3
25	MP1A	Z	-43.675	2
26	MP1B	Z	-22.597	2
27	MP1C	Z	-22.597	2

Member Point Loads (BLC 4 : Antenna Wi Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Z	-34.727	.25
2	MP3A	Z	-34.727	5
3	MP3B	Z	-28.235	.25
4	MP3B	Z	-28.235	5
5	MP3C	Z	-28.235	.25
6	MP3C	Z	-28.235	5
7	MP2A	Z	-100.042	0
8	MP2A	Z	-100.042	6
9	MP2B	Z	-58.086	0
10	MP2B	Z	-58.086	6
11	MP2C	Z	-58.086	0
12	MP2C	Z	-58.086	6
13	MP3A	Z	-4.257	2.5
14	MP3B	Z	-2.971	2.5
15	MP3C	Z	-2.971	2.5
16	MP2A	Z	-14.803	2.5
17	MP2B	Z	-11.99	2.5
18	MP2C	Z	-11.99	2.5
19	MP1A	Z	-29.91	1
20	MP1A	Z	-29.91	3
21	MP1B	Z	-18.025	1
22	MP1B	Z	-18.025	3

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP1C	Z	-18.025	1
24	MP1C	Z	-18.025	3
25	MP1A	Z	-12.615	2
26	MP1B	Z	-7.217	2
27	MP1C	Z	-7.217	2

Member Point Loads (BLC 5 : Antenna W Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	X	94.782	.25
2	MP3A	X	94.782	5
3	MP3B	X	121.067	.25
4	MP3B	X	121.067	5
5	MP3C	X	121.067	.25
6	MP3C	X	121.067	5
7	MP2A	X	163.318	0
8	MP2A	X	163.318	6
9	MP2B	X	343.565	0
10	MP2B	X	343.565	6
11	MP2C	X	343.565	0
12	MP2C	X	343.565	6
13	MP3A	X	6.205	2.5
14	MP3B	X	13.816	2.5
15	MP3C	X	13.816	2.5
16	MP2A	X	46.368	2.5
17	MP2B	X	60.951	2.5
18	MP2C	X	60.951	2.5
19	MP1A	X	48.174	1
20	MP1A	X	48.174	3
21	MP1B	X	96.552	1
22	MP1B	X	96.552	3
23	MP1C	X	96.552	1
24	MP1C	X	96.552	3
25	MP1A	X	31.141	2
26	MP1B	X	73.298	2
27	MP1C	X	73.298	2

Member Point Loads (BLC 6 : Antenna Wi Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	X	26.071	.25
2	MP3A	X	26.071	5
3	MP3B	X	32.563	.25
4	MP3B	X	32.563	5
5	MP3C	X	32.563	.25
6	MP3C	X	32.563	5
7	MP2A	X	44.101	0
8	MP2A	X	44.101	6
9	MP2B	X	86.057	0
10	MP2B	X	86.057	6
11	MP2C	X	86.057	0
12	MP2C	X	86.057	6
13	MP3A	X	3.39	2.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
14	MP3B	X	5.104	2.5
15	MP3C	X	5.104	2.5
16	MP2A	X	14.736	2.5
17	MP2B	X	18.487	2.5
18	MP2C	X	18.487	2.5
19	MP1A	X	14.064	1
20	MP1A	X	14.064	3
21	MP1B	X	25.948	1
22	MP1B	X	25.948	3
23	MP1C	X	25.948	1
24	MP1C	X	25.948	3
25	MP1A	X	10.836	2
26	MP1B	X	21.632	2
27	MP1C	X	21.632	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 Area Loads (BLC 9 : Structure D)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N43	N64	N65	N40	Y	Two Way	-.005
2	N66	N52	N53	N63	Y	Two Way	-.005
3	N41	N54	N51	N42	Y	Two Way	-.005

Member Area Loads (BLC 10 : Structure Di)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N43	N64	N65	N40	Y	Two Way	-.013
2	N66	N52	N53	N63	Y	Two Way	-.013
3	N54	N41	N42	N51	Y	Two Way	-.013

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
4	CENTER						
5	N23						
6	N27						
7	N30						
8	N98	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N100	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	N102	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	1479.796	4	1147.045	8	902.598	1	-.699	1	1.127	1	-1.155	3
2		min	-1466.927	3	339.126	3	-895.378	2	-2.632	6	-1.046	2	-4.41	8
3	N2	max	1452.628	4	1149.369	7	928.657	1	-.681	4	1.341	2	4.48	7
4		min	-1454.634	3	324.337	4	-949.419	2	-2.522	7	-1.252	1	1.112	4
5	N3	max	792.577	4	1136.839	5	1947.852	1	5.079	5	2.028	3	.08	3
6		min	-806.134	3	310.674	2	-1930.957	2	1.23	2	-1.946	4	-.14	4
7	N98	max	1216.65	4	1793.62	8	1542.877	1	-.988	1	1.954	4	.216	3
8		min	-1250.685	3	659.754	3	-1588.633	2	-3.739	6	-1.997	3	-.119	9
9	N100	max	1586.612	4	1824.719	7	1546.594	1	1.987	5	2.269	2	3.167	7
10		min	-1610.965	3	659.44	4	-1493.235	2	.557	2	-2.306	1	.805	4
11	N102	max	1732.767	4	1814.701	5	1348.38	1	1.718	5	2.04	1	-.925	3
12		min	-1671.684	3	650.449	2	-1359.334	2	.397	2	-2.097	2	-3.291	8
13	Totals:	max	8261.03	4	8761.667	8	8216.958	1						
14		min	-8261.03	3	3489.871	3	-8216.957	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 Mome...	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	629.366	2	46.549	10	237.999	1	.147	2	.037	4	.071	9
4			min	-554.203	1	-59.882	7	-208.21	2	-.069	1	-.048	3	-.064	10
5		3	max	756.184	2	-35.211	4	186.259	1	.149	2	.706	1	.412	7
6			min	-518.32	1	-544.321	10	-143.533	2	-.083	1	-.625	2	-.171	10
7		4	max	749.766	3	133.515	8	280.81	2	.112	1	.044	3	.126	7
8			min	-606.202	4	11.414	3	-309.388	1	-.187	2	-.047	4	.035	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	.002	2	.002	3	0	1	0	1	0	1
12			min	0	1	0	8	0	1	0	1	0	1	0	1
13		2	max	649.754	3	2.795	2	177.411	4	.126	3	.013	3	.036	2
14			min	-572.905	4	-71.203	5	-147.231	3	-.063	4	-.024	4	-.028	1
15		3	max	868.163	3	-44.676	2	141.584	4	.126	3	.561	4	.46	5
16			min	-622.705	4	-196.327	5	-97.059	3	-.075	4	-.476	3	.128	2
17		4	max	760.775	1	141.958	7	211.952	3	.077	4	.021	1	.128	5
18			min	-612.977	2	4.085	4	-241.679	4	-.134	3	-.023	2	.032	2
19		5	max	0	1	0	7	0	4	0	1	0	1	0	1
20			min	0	1	-.003	1	0	2	0	1	0	1	0	1
21	M3	1	max	0	1	.002	1	0	1	0	1	0	1	0	1
22			min	0	1	0	8	0	4	0	1	0	1	0	1
23		2	max	810.463	1	5.998	3	185.883	3	.118	4	.026	1	.04	1
24			min	-735.044	2	-63.532	8	-156.208	4	-.054	3	-.037	2	-.038	2
25		3	max	761.92	1	-43.279	1	146.681	3	.117	4	.536	3	.416	6
26			min	-515.586	2	-186.367	6	-105.152	4	-.065	3	-.458	4	.132	1
27		4	max	426.776	4	146.914	5	190.987	4	.106	3	.023	2	.139	8
28			min	-273.339	3	10.643	2	-220.939	3	-.164	4	-.025	1	.043	3
29		5	max	0	1	0	7	0	2	0	1	0	1	0	1
30			min	0	1	-.003	2	-.002	3	0	1	0	1	0	1
31	M6	1	max	1930.957	2	1134.084	5	792.551	4	.14	4	2.028	3	5.079	5
32			min	-1947.852	1	313.232	2	-806.143	3	-.08	3	-1.946	4	1.23	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 Mome...	LC
33		2	max	1930.957	2	1068.179	5	745.884	4	.14	4	.756	3	3.278	5
34			min	-1947.852	1	280.157	2	-759.477	3	-.08	3	-.696	4	.744	2
35		3	max	1930.957	2	952.448	5	699.217	4	.14	4	.478	4	1.641	5
36			min	-1947.852	1	230.699	2	-712.81	3	-.08	3	-.44	3	.33	2
37		4	max	1930.957	2	867.326	5	652.551	4	.14	4	1.577	4	.166	5
38			min	-1947.852	1	191.305	2	-666.143	3	-.08	3	-1.56	3	-.011	2
39		5	max	0	1	0	1	0	1	0	1	0	1	0	1
40			min	0	1	0	1	0	1	0	1	0	1	0	1
41	MP1A	1	max	0	1	0	10	.002	1	0	7	0	1	0	1
42			min	0	1	-.012	7	-.014	6	0	10	0	1	0	1
43		2	max	132.69	10	165.692	7	181.825	2	.065	2	-.075	2	.259	8
44			min	28.001	4	15.304	4	-95.426	1	-.064	1	-.223	5	.022	3
45		3	max	307	5	165.038	8	115.222	5	.065	2	.109	2	.105	4
46			min	115.715	4	14.922	3	9.083	2	-.064	1	-.152	1	-.093	3
47		4	max	402.61	5	187.677	4	200.209	1	.065	2	.129	1	-.035	3
48			min	156.296	4	-50.634	3	-113.81	2	-.064	1	-.042	2	-.233	8
49		5	max	0	4	.011	7	.004	6	0	4	0	4	0	3
50			min	-.002	7	0	4	-.002	1	0	7	0	7	0	4
51	MP3A	1	max	0	1	.297	8	.092	1	0	3	0	1	0	1
52			min	0	1	-.007	3	-.261	6	0	8	0	1	0	1
53		2	max	128.571	8	-33.586	10	108.079	9	.069	1	-.039	1	-.067	4
54			min	-192.099	9	-208.85	9	-.534	1	-.079	2	-.185	9	-.34	9
55		3	max	177.108	8	-33.586	10	112.315	9	.069	1	-.007	4	.015	4
56			min	-172.652	9	-208.85	9	27.689	3	-.079	2	-.041	5	-.063	7
57		4	max	196.364	8	-14.219	4	114.588	9	.069	1	.15	9	.286	9
58			min	-166.404	9	-208.85	9	10.595	2	-.079	2	.016	2	.02	10
59		5	max	0	3	.001	3	.006	6	0	8	0	8	0	4
60			min	0	8	-.008	8	-.001	1	0	3	0	1	0	3
61	MP1B	1	max	0	1	.012	6	.014	8	0	6	0	1	0	1
62			min	0	1	0	1	-.002	3	0	1	0	1	0	1
63		2	max	92.875	6	16.394	3	102.737	3	.075	4	.217	7	-.035	2
64			min	-2.884	10	-176.007	8	-188.629	4	-.075	3	.071	1	-.272	9
65		3	max	293.845	6	-27.205	2	-7.915	4	.075	4	.13	3	.094	2
66			min	84.831	10	-167.933	5	-114.435	7	-.075	3	-.09	4	-.103	1
67		4	max	389.454	6	41.983	2	86.1	4	.075	4	.023	4	.243	5
68			min	125.411	10	-183.46	5	-171.993	3	-.075	3	-.121	7	.047	2
69		5	max	0	8	0	1	.002	3	0	1	0	3	0	3
70			min	0	1	-.011	6	-.004	8	0	6	0	4	0	4
71	MP3B	1	max	0	1	0	2	.247	8	0	2	0	1	0	1
72			min	0	1	-.298	5	-.073	3	0	5	0	1	0	1
73		2	max	111.826	5	156.257	5	-18.748	3	.043	2	.174	5	.286	6
74			min	-10.249	2	52.886	2	-97.009	8	-.051	1	.061	2	.089	3
75		3	max	160.363	5	155.456	8	-17.745	4	.043	2	.039	7	.061	6
76			min	9.198	2	46.589	3	-96.014	7	-.051	1	.009	1	-.011	1
77		4	max	179.619	5	162.005	6	1.944	4	.043	2	.002	4	-.062	3
78			min	15.446	2	32.328	1	-102.868	7	-.051	1	-.11	7	-.178	8
79		5	max	0	2	.008	5	0	2	0	5	0	4	0	4
80			min	0	5	0	2	-.006	5	0	2	0	7	0	3
81	MP1C	1	max	0	1	.012	5	.013	5	0	5	0	1	0	1
82			min	0	1	0	2	0	4	0	2	0	1	0	1
83		2	max	90.752	8	-3.889	3	95.587	4	.047	1	.217	8	-.044	1
84			min	11.587	2	-170.591	8	-181.235	3	-.047	2	.06	3	-.259	6

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
85		3	max	291.722	8	-32.568	4	-.521	3	.047	1	.134	4	.096	1
86			min	99.301	2	-165.265	6	-114.537	8	-.047	2	-.094	3	-.107	2
87		4	max	387.332	8	34.912	1	93.494	3	.047	1	.03	3	.236	6
88			min	139.882	2	-180.792	6	-179.143	4	-.047	2	-.121	8	.059	4
89		5	max	0	5	0	2	.002	4	0	2	0	4	0	4
90			min	0	2	-.011	5	-.004	7	0	5	0	3	0	3
91	MP3C	1	max	0	1	-.006	1	.253	7	0	1	0	1	0	1
92			min	0	1	-.292	6	-.077	4	0	6	0	1	0	1
93		2	max	108.542	6	160.461	7	-.621	4	.075	4	.178	6	.294	5
94			min	-14.456	4	50.72	4	-99.875	7	-.084	3	.042	4	.069	2
95		3	max	157.08	6	161.875	5	-17.239	1	.075	4	.041	8	.058	5
96			min	4.992	4	38.184	2	-95.843	6	-.084	3	.011	3	-.012	2
97		4	max	176.336	6	168.73	5	-5.872	1	.075	4	-.001	1	-.055	2
98			min	11.239	4	18.495	2	-100.546	8	-.084	3	-.108	6	-.189	5
99		5	max	0	4	.008	6	.001	4	0	6	0	4	0	2
100			min	0	7	0	1	-.006	7	0	1	0	3	0	1
101	M14	1	max	383.697	3	896.951	2	411.318	5	.134	6	-.007	4	.333	4
102			min	-227.028	4	-934.684	1	75.883	2	.044	1	-.212	7	-.457	3
103		2	max	383.697	3	929.524	2	423.055	5	.134	6	.065	4	.649	1
104			min	-227.028	4	-967.258	1	80.864	2	.044	1	-.063	3	-.759	2
105		3	max	383.697	3	464.587	3	434.792	5	.134	6	.236	5	1.151	1
106			min	-215.895	2	-999.832	1	-74.299	2	-.046	1	.012	2	-1.242	2
107		4	max	378.883	4	915.645	1	-69.318	2	-.045	3	.064	3	.719	3
108			min	-235.77	3	-936.158	2	-371.283	5	-.121	6	-.095	4	-.803	4
109		5	max	378.883	4	883.071	1	-64.337	2	-.045	3	.017	3	.485	3
110			min	-235.77	3	-903.584	2	-359.545	5	-.121	6	-.232	8	-.559	4
111	M12	1	max	1589.033	3	1144.837	8	537.852	2	.263	9	1.127	1	5.13	8
112			min	-1595.986	4	341.47	3	-550.499	1	-.064	1	-1.046	2	1.379	3
113		2	max	1568.825	3	1078.932	8	502.852	2	.263	9	.261	1	3.312	8
114			min	-1575.779	4	308.395	3	-515.499	1	-.064	1	-.201	2	.848	3
115		3	max	1548.618	3	963.201	8	467.852	2	.263	9	.588	2	1.657	8
116			min	-1555.571	4	258.937	3	-480.499	1	-.064	1	-.549	1	.388	3
117		4	max	1528.411	3	878.08	8	432.852	2	.263	9	1.32	2	.198	9
118			min	-1535.364	4	219.543	3	-445.499	1	-.064	1	-1.301	1	0	3
119		5	max	0	1	.017	1	.008	2	0	1	0	1	0	1
120			min	0	1	-.034	4	-.011	3	0	1	0	1	0	1
121	M13	1	max	303.908	1	846.215	1	649.781	9	.139	7	-.034	3	.463	2
122			min	-147.657	2	-877.196	2	72.899	3	.048	4	-.389	9	-.585	1
123		2	max	318.012	1	854.358	1	654.762	9	.139	7	.063	2	.913	2
124			min	-161.762	2	-885.339	2	77.88	3	.048	4	-.064	1	-1.019	1
125		3	max	332.117	1	1105.799	4	659.743	9	.139	7	.28	9	1.454	4
126			min	-104.068	3	-1134.471	3	-363.622	7	-.102	9	.045	3	-1.555	3
127		4	max	218.58	6	1081.368	4	-67.669	9	-.045	1	.054	4	.896	4
128			min	-63.965	1	-1110.041	3	-370.358	6	-.122	7	-.086	3	-.982	3
129		5	max	215.89	6	1056.938	4	-62.688	9	-.045	1	-.024	1	.35	4
130			min	-49.861	1	-1085.611	3	-358.621	6	-.122	7	-.225	6	-.422	3
131	M14A	1	max	1567.059	4	1147.143	7	589.686	1	.126	1	1.341	2	5.141	7
132			min	-1578.425	3	326.51	4	-605.973	2	-.08	2	-1.252	1	1.303	4
133		2	max	1546.851	4	1081.239	7	554.686	1	.126	1	.384	2	3.319	7
134			min	-1558.218	3	293.435	4	-570.973	2	-.08	2	-.323	1	.796	4
135		3	max	1526.644	4	965.507	7	519.686	1	.126	1	.55	1	1.661	7
136			min	-1538.011	3	243.977	4	-535.973	2	-.08	2	-.515	2	.361	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 Mome...	LC
137		4	max	1506.437	4	880.386	7	484.686	1	.126	1	1.366	1	.165	7
138			min	-1517.804	3	204.583	4	-500.973	2	-.08	2	-1.358	2	-.002	4
139		5	max	0	1	.019	1	.011	3	0	1	0	1	0	1
140			min	0	1	-.034	3	-.006	1	0	1	0	1	0	1
141	M15	1	max	239.056	2	1053.969	4	399.134	6	.133	8	-.005	1	.255	3
142			min	-79.709	1	-1087.01	3	76.964	4	.048	3	-.21	6	-.382	4
143		2	max	253.161	2	1078.399	4	410.871	6	.133	8	.052	3	.816	3
144			min	-93.814	1	-1111.44	3	81.945	4	.048	3	-.053	4	-.926	4
145		3	max	341.379	1	1102.829	4	417.943	7	.133	8	.227	7	1.507	2
146			min	-98.503	4	-1135.87	3	-399.542	5	-.066	10	.025	4	-1.602	1
147		4	max	327.274	1	845.247	2	-81.835	4	-.047	9	.072	2	1.074	2
148			min	-185.085	2	-871.187	1	-400.621	7	-.127	8	-.107	1	-1.155	1
149		5	max	313.169	1	837.104	2	-76.854	4	-.047	9	-.006	2	.644	2
150			min	-170.981	2	-863.044	1	-388.884	7	-.127	8	-.247	5	-.713	1
151	M16	1	max	81.541	2	16.36	1	524.538	3	.051	1	.116	1	.001	2
152			min	-91.354	1	-44.61	6	-357.828	4	-.056	2	-.1	2	0	1
153		2	max	81.541	2	16.36	1	524.538	3	.051	1	.119	1	.004	6
154			min	-91.354	1	-44.61	6	-357.828	4	-.056	2	-.092	2	-.002	1
155		3	max	81.541	2	16.36	1	524.538	3	.051	1	.121	1	.006	6
156			min	-91.354	1	-44.61	6	-357.828	4	-.056	2	-.084	2	-.003	1
157		4	max	81.541	2	16.36	1	524.538	3	.051	1	.138	3	.009	6
158			min	-91.354	1	-44.61	6	-357.828	4	-.056	2	-.089	4	-.004	1
159		5	max	81.541	2	16.36	1	524.538	3	.051	1	.171	3	.012	6
160			min	-91.354	1	-44.61	6	-357.828	4	-.056	2	-.112	4	-.005	1
161	M17	1	max	15.671	3	3.337	2	357.831	4	.07	1	.063	1	0	1
162			min	-5.371	4	-75.169	5	-524.531	3	-.026	2	-.045	2	-.001	2
163		2	max	15.671	3	3.337	2	357.831	4	.07	1	.061	1	.004	5
164			min	-5.371	4	-75.169	5	-524.531	3	-.026	2	-.053	2	-.001	2
165		3	max	15.671	3	3.337	2	357.831	4	.07	1	.059	1	.009	5
166			min	-5.371	4	-75.169	5	-524.531	3	-.026	2	-.061	2	-.001	2
167		4	max	15.671	3	3.337	2	357.831	4	.07	1	.069	4	.014	5
168			min	-5.371	4	-75.169	5	-524.531	3	-.026	2	-.081	3	-.002	2
169		5	max	15.671	3	3.337	2	357.831	4	.07	1	.091	4	.018	5
170			min	-5.371	4	-75.169	5	-524.531	3	-.026	2	-.114	3	-.002	2
171	M18	1	max	24.963	1	5.966	2	491.58	4	.023	2	.063	2	0	1
172			min	-6.012	2	-90.515	5	-444.35	3	-.121	5	-.107	1	-.001	2
173		2	max	24.963	1	5.966	2	491.58	4	.023	2	.088	2	.005	5
174			min	-6.012	2	-90.515	5	-444.35	3	-.121	5	-.13	1	-.002	2
175		3	max	24.963	1	5.966	2	491.58	4	.023	2	.114	2	.011	5
176			min	-6.012	2	-90.515	5	-444.35	3	-.121	5	-.152	1	-.002	2
177		4	max	24.963	1	5.966	2	491.58	4	.023	2	.139	2	.017	5
178			min	-6.012	2	-90.515	5	-444.35	3	-.121	5	-.175	1	-.002	2
179		5	max	24.963	1	5.966	2	491.58	4	.023	2	.164	2	.022	5
180			min	-6.012	2	-90.515	5	-444.35	3	-.121	5	-.197	1	-.003	2
181	M19	1	max	91.084	2	30.512	1	444.348	3	.068	2	.121	2	.001	2
182			min	-110.035	1	-41.607	2	-491.589	4	-.061	1	-.135	1	0	1
183		2	max	91.084	2	30.512	1	444.348	3	.068	2	.095	2	.004	2
184			min	-110.035	1	-41.607	2	-491.589	4	-.061	1	-.112	1	-.003	1
185		3	max	91.084	2	30.512	1	444.348	3	.068	2	.078	3	.007	2
186			min	-110.035	1	-41.607	2	-491.589	4	-.061	1	-.099	4	-.005	1
187		4	max	91.084	2	30.512	1	444.348	3	.068	2	.105	3	.009	2
188			min	-110.035	1	-41.607	2	-491.589	4	-.061	1	-.13	4	-.007	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 Mome...	LC
189		5	max	91.084	2	30.512	1	444.348	3	.068	2	.133	3	.012	2
190			min	-110.035	1	-41.607	2	-491.589	4	-.061	1	-.161	4	-.008	1
191	M20	1	max	0	1	0	1	0	1	0	1	0	1	0	1
192			min	0	1	0	1	0	1	0	1	0	1	0	1
193		2	max	491.582	4	14.822	2	44.701	1	0	1	.022	2	.043	2
194			min	-444.35	3	-62.378	5	-28.768	2	-.001	2	-.013	1	-.096	1
195		3	max	491.582	4	25.904	2	65.974	1	0	1	.009	2	.002	4
196			min	-444.35	3	-45.379	1	-50.041	2	-.001	2	-.01	1	-.024	10
197		4	max	491.582	4	34.737	2	87.247	1	0	1	.015	1	.062	1
198			min	-444.35	3	-36.545	1	-71.314	2	-.001	2	-.012	2	-.064	2
199		5	max	0	1	0	1	0	1	0	1	0	1	0	1
200			min	0	1	0	1	0	1	0	1	0	1	0	1
201	M21	1	max	0	1	0	1	0	1	0	1	0	1	0	1
202			min	0	1	0	1	0	1	0	1	0	1	0	1
203		2	max	524.531	3	27.682	1	12.466	2	.001	2	.013	2	.054	1
204			min	-357.831	4	-18.192	2	-47.528	5	0	1	-.012	1	-.04	2
205		3	max	524.531	3	48.954	1	23.548	2	.001	2	.005	2	.014	4
206			min	-357.831	4	-39.465	2	-31.791	1	0	1	-.014	5	-.019	3
207		4	max	524.531	3	70.227	1	32.382	2	.001	2	.011	1	.049	2
208			min	-357.831	4	-60.738	2	-22.957	1	0	1	-.011	2	-.06	1
209		5	max	0	1	0	1	0	1	0	1	0	1	0	1
210			min	0	1	0	1	0	1	0	1	0	1	0	1
211	M22	1	max	59.372	3	12.875	4	360.905	1	.047	4	.093	4	0	3
212			min	-71.5	4	-41.024	7	-192.726	2	-.049	3	-.075	3	0	4
213		2	max	59.372	3	12.875	4	360.905	1	.047	4	.086	4	.003	7
214			min	-71.5	4	-41.024	7	-192.726	2	-.049	3	-.057	3	-.001	4
215		3	max	59.372	3	12.875	4	360.905	1	.047	4	.079	4	.006	7
216			min	-71.5	4	-41.024	7	-192.726	2	-.049	3	-.04	3	-.002	4
217		4	max	59.372	3	12.875	4	360.905	1	.047	4	.073	5	.008	7
218			min	-71.5	4	-41.024	7	-192.726	2	-.049	3	-.022	3	-.003	4
219		5	max	59.372	3	12.875	4	360.905	1	.047	4	.09	1	.011	7
220			min	-71.5	4	-41.024	7	-192.726	2	-.049	3	-.029	2	-.004	4
221	M23	1	max	15.29	7	-2.281	3	229.547	2	.069	8	.05	4	0	4
222			min	.585	2	-77.078	8	-397.759	1	-.011	3	-.029	3	0	3
223		2	max	15.29	7	-2.281	3	229.547	2	.069	8	.055	4	.004	8
224			min	.585	2	-77.078	8	-397.759	1	-.011	3	-.045	3	0	3
225		3	max	15.29	7	-2.281	3	229.547	2	.069	8	.06	4	.009	8
226			min	.585	2	-77.078	8	-397.759	1	-.011	3	-.06	3	0	3
227		4	max	15.29	7	-2.281	3	229.547	2	.069	8	.065	4	.014	8
228			min	.585	2	-77.078	8	-397.759	1	-.011	3	-.075	3	0	3
229		5	max	15.29	7	-2.281	3	229.547	2	.069	8	.079	2	.019	8
230			min	.585	2	-77.078	8	-397.759	1	-.011	3	-.099	1	0	3
231	M24	1	max	22.738	6	-9.986	3	283.472	3	-.006	3	.036	3	0	4
232			min	-2.88	1	-90.065	8	-238.894	4	-.121	8	-.082	4	0	3
233		2	max	22.738	6	-9.986	3	283.472	3	-.006	3	.053	3	.005	8
234			min	-2.88	1	-90.065	8	-238.894	4	-.121	8	-.097	4	0	3
235		3	max	22.738	6	-9.986	3	283.472	3	-.006	3	.071	3	.011	8
236			min	-2.88	1	-90.065	8	-238.894	4	-.121	8	-.112	4	0	3
237		4	max	22.738	6	-9.986	3	283.472	3	-.006	3	.089	3	.017	8
238			min	-2.88	1	-90.065	8	-238.894	4	-.121	8	-.127	4	0	3
239		5	max	22.738	6	-9.986	3	283.472	3	-.006	3	.107	3	.022	8
240			min	-2.88	1	-90.065	8	-238.894	4	-.121	8	-.142	4	.002	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 Mome...	LC
241	M25	1	max	63.445	3	16.598	4	202.174	4	.043	1	.082	3	0	3
242			min	-81.916	4	-26.973	7	-246.533	3	-.04	2	-.099	4	0	4
243		2	max	63.445	3	16.598	4	202.174	4	.043	1	.067	3	.003	3
244			min	-81.916	4	-26.973	7	-246.533	3	-.04	2	-.086	4	-.002	4
245		3	max	63.445	3	16.598	4	202.174	4	.043	1	.051	3	.004	3
246			min	-81.916	4	-26.973	7	-246.533	3	-.04	2	-.073	4	-.003	4
247		4	max	63.445	3	16.598	4	202.174	4	.043	1	.036	3	.006	3
248			min	-81.916	4	-26.973	7	-246.533	3	-.04	2	-.061	4	-.004	4
249		5	max	63.445	3	16.598	4	202.174	4	.043	1	.021	3	.007	7
250			min	-81.916	4	-26.973	7	-246.533	3	-.04	2	-.048	4	-.005	4
251	M26	1	max	0	1	0	7	.001	4	0	1	0	1	0	1
252			min	0	1	-.001	1	-.001	2	0	1	0	1	0	1
253		2	max	274.261	3	-.947	3	33.448	4	0	4	.02	3	.019	3
254			min	-229.652	4	-62.023	8	-16.179	3	0	3	-.01	4	-.074	4
255		3	max	265.05	3	10.135	3	49.403	4	0	4	.006	3	-.002	3
256			min	-220.441	4	-31.637	4	-32.134	3	0	3	-.007	4	-.023	8
257		4	max	255.838	3	18.968	3	65.357	4	0	4	.014	4	.041	4
258			min	-211.229	4	-22.804	4	-48.088	3	0	3	-.012	3	-.04	3
259		5	max	0	1	.002	1	0	2	0	1	0	1	0	1
260			min	0	1	0	3	-.001	4	0	1	0	1	0	1
261	M27	1	max	0	1	0	2	0	5	0	1	0	1	0	1
262			min	0	1	-.002	4	-.001	2	0	1	0	1	0	1
263		2	max	388.545	1	23.291	4	6.538	3	0	3	.01	3	.042	4
264			min	-220.34	2	-12.38	3	-49.427	8	0	4	-.009	4	-.024	3
265		3	max	379.333	1	39.246	4	17.62	3	0	3	.005	3	.009	2
266			min	-211.129	2	-28.334	3	-28.199	4	0	4	-.013	8	-.014	1
267		4	max	370.122	1	55.2	4	26.453	3	0	3	.006	4	.04	3
268			min	-201.918	2	-44.289	3	-19.366	4	0	4	-.005	3	-.054	4
269		5	max	0	1	.002	4	.002	3	0	1	0	1	0	1
270			min	0	1	0	2	0	5	0	1	0	1	0	1
271	M28	1	max	58.439	4	6.559	3	220.984	8	.036	2	.086	3	0	4
272			min	-68.415	3	-41.338	8	14.104	1	-.038	1	-.068	4	0	3
273		2	max	58.439	4	6.559	3	220.984	8	.036	2	.093	3	.003	8
274			min	-68.415	3	-41.338	8	14.104	1	-.038	1	-.065	4	0	3
275		3	max	58.439	4	6.559	3	220.984	8	.036	2	.1	3	.006	8
276			min	-68.415	3	-41.338	8	14.104	1	-.038	1	-.062	4	-.001	3
277		4	max	58.439	4	6.559	3	220.984	8	.036	2	.108	3	.008	8
278			min	-68.415	3	-41.338	8	14.104	1	-.038	1	-.058	4	-.002	3
279		5	max	58.439	4	6.559	3	220.984	8	.036	2	.115	3	.011	8
280			min	-68.415	3	-41.338	8	14.104	1	-.038	1	-.055	4	-.002	3
281	M29	1	max	14.598	8	-7.449	4	22.725	1	.064	7	.049	3	0	3
282			min	-3.097	1	-74.246	7	-231.624	8	-.01	4	-.03	4	0	4
283		2	max	14.598	8	-7.449	4	22.725	1	.064	7	.044	3	.004	7
284			min	-3.097	1	-74.246	7	-231.624	8	-.01	4	-.035	4	0	4
285		3	max	14.598	8	-7.449	4	22.725	1	.064	7	.039	3	.009	7
286			min	-3.097	1	-74.246	7	-231.624	8	-.01	4	-.041	4	0	4
287		4	max	14.598	8	-7.449	4	22.725	1	.064	7	.034	3	.013	7
288			min	-3.097	1	-74.246	7	-231.624	8	-.01	4	-.046	4	0	4
289		5	max	14.598	8	-7.449	4	22.725	1	.064	7	.029	3	.018	7
290			min	-3.097	1	-74.246	7	-231.624	8	-.01	4	-.052	4	.001	4
291	M30	1	max	23.182	5	.419	4	484.772	4	.009	4	.04	4	0	3
292			min	-1.699	4	-93.388	7	-449.342	3	-.129	7	-.089	3	-.001	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 Mome...	LC
293		2	max	23.182	5	.419	4	484.772	4	.009	4	.071	4	.006	7
294			min	-1.699	4	-93.388	7	-449.342	3	-.129	7	-.117	3	-.001	4
295		3	max	23.182	5	.419	4	484.772	4	.009	4	.101	4	.011	7
296			min	-1.699	4	-93.388	7	-449.342	3	-.129	7	-.146	3	-.001	4
297		4	max	23.182	5	.419	4	484.772	4	.009	4	.131	4	.017	7
298			min	-1.699	4	-93.388	7	-449.342	3	-.129	7	-.174	3	-.001	4
299		5	max	23.182	5	.419	4	484.772	4	.009	4	.161	4	.023	7
300			min	-1.699	4	-93.388	7	-449.342	3	-.129	7	-.202	3	-.001	4
301	M31	1	max	65.501	4	27.512	3	486.392	3	.06	4	.089	4	.001	4
302			min	-86.824	3	-36.099	4	-521.442	4	-.056	3	-.105	3	0	3
303		2	max	65.501	4	27.512	3	486.392	3	.06	4	.056	4	.003	4
304			min	-86.824	3	-36.099	4	-521.442	4	-.056	3	-.075	3	-.002	3
305		3	max	65.501	4	27.512	3	486.392	3	.06	4	.028	2	.006	4
306			min	-86.824	3	-36.099	4	-521.442	4	-.056	3	-.05	1	-.004	3
307		4	max	65.501	4	27.512	3	486.392	3	.06	4	.054	2	.008	4
308			min	-86.824	3	-36.099	4	-521.442	4	-.056	3	-.077	1	-.006	3
309		5	max	65.501	4	27.512	3	486.392	3	.06	4	.079	2	.01	4
310			min	-86.824	3	-36.099	4	-521.442	4	-.056	3	-.105	1	-.008	3
311	M32	1	max	0	1	0	5	0	2	0	1	0	1	0	1
312			min	0	1	-.001	2	-.002	3	0	1	0	1	0	1
313		2	max	493.983	4	8.911	4	37.155	3	0	3	.017	4	.025	4
314			min	-458.487	3	-65.175	7	-19.315	4	-.001	4	-.006	3	-.084	3
315		3	max	503.195	4	19.993	4	53.109	3	0	3	.008	4	-.002	1
316			min	-467.698	3	-42.42	3	-35.269	4	-.001	4	-.008	3	-.026	6
317		4	max	512.406	4	28.827	4	69.063	3	0	3	.008	3	.052	3
318			min	-476.909	3	-33.586	3	-51.223	4	-.001	4	-.005	4	-.053	4
319		5	max	0	1	.002	2	.002	3	0	1	0	1	0	1
320			min	0	1	0	3	0	2	0	1	0	1	0	1
321	M33	1	max	0	1	.001	3	0	4	0	1	0	1	0	1
322			min	0	1	-.001	2	-.001	1	0	1	0	1	0	1
323		2	max	228.964	8	20.787	3	1.763	4	0	4	.01	4	.043	3
324			min	-13.511	1	-10.712	4	-46.693	7	0	3	-.009	3	-.027	4
325		3	max	226.304	8	36.742	3	12.845	4	0	4	.002	4	.008	1
326			min	-4.3	1	-26.667	4	-22.109	3	0	3	-.013	7	-.015	6
327		4	max	223.644	8	52.696	3	21.678	4	0	4	.011	3	.03	1
328			min	4.911	1	-42.621	4	-13.275	3	0	3	-.01	4	-.044	2
329		5	max	0	1	0	2	.002	1	0	1	0	1	0	1
330			min	0	1	-.001	3	0	4	0	1	0	1	0	1
331	MP2A	1	max	283.643	6	261.64	4	646.54	1	.026	3	.028	8	0	1
332			min	76.8	1	-261.78	3	-646.907	2	-.026	4	.008	3	0	1
333		2	max	-344.238	3	94.21	3	445.994	2	.07	2	.617	1	.188	8
334			min	-1027.195	10	-42.797	4	-352.157	1	-.075	1	-.94	2	-.019	9
335		3	max	-251.908	3	73.464	8	336.706	2	.07	2	.061	1	.059	8
336			min	-934.865	10	-16.502	9	-242.869	1	-.075	1	-.198	6	.007	3
337		4	max	-235.046	3	121.051	4	234.638	2	.07	2	.443	2	.059	3
338			min	-918.002	10	-69.637	3	-140.8	1	-.075	1	-.391	1	-.121	4
339		5	max	0	1	.004	7	.006	1	0	10	0	1	0	4
340			min	0	6	-.004	10	-.014	6	0	7	0	6	0	3
341	MP2C	1	max	283.643	8	550.345	4	358.107	1	.055	3	.028	6	0	1
342			min	76.8	4	-550.585	3	-357.806	2	-.055	4	.008	10	0	1
343		2	max	-354.995	1	346.451	3	83.823	2	.076	3	.401	7	.64	3
344			min	-972.602	6	-289.42	4	-176.263	1	-.081	4	-.119	4	-.441	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 Mome...	LC
345		3	max	-262.665	1	218.616	3	59.906	4	.076	3	.128	7	.124	3
346			min	-795.453	6	-161.585	4	-152.266	3	-.081	4	0	4	-.039	4
347		4	max	-245.802	1	127.228	3	59.906	4	.076	3	.12	4	.251	4
348			min	-738.265	6	-70.356	2	-152.266	3	-.081	4	-.214	3	-.281	3
349		5	max	0	4	.003	2	.004	3	0	7	0	2	0	3
350			min	0	5	-.008	7	-.004	4	0	2	0	5	0	4
351	MP2B	1	max	283.643	8	550.649	4	357.987	1	.055	3	.028	5	0	1
352			min	76.8	1	-550.27	3	-357.931	2	-.055	4	.008	4	0	1
353		2	max	-352.08	4	274.283	3	123.659	2	.045	1	.269	4	.397	3
354			min	-970.779	5	-384.826	4	-123.693	1	-.049	2	-.249	3	-.744	4
355		3	max	-259.75	4	146.449	3	107.144	3	.045	1	.054	4	.025	3
356			min	-793.63	5	-256.992	4	-107.161	4	-.049	2	-.035	3	-.178	8
357		4	max	-242.887	4	55.061	3	107.144	3	.045	1	.179	3	.331	4
358			min	-736.441	5	-165.604	4	-107.161	4	-.049	2	-.16	4	-.235	3
359		5	max	0	3	.005	8	.006	8	0	3	0	3	0	3
360			min	0	8	-.004	3	-.003	3	0	8	0	8	0	4
361	M37	1	max	0	1	0	1	0	1	0	1	0	1	0	1
362			min	0	1	0	1	0	1	0	1	0	1	0	1
363		2	max	367.736	3	-54.104	4	203.885	2	-.082	9	.258	4	.165	8
364			min	-571.732	4	-224.368	7	-225.729	1	-.382	5	-.21	3	.041	3
365		3	max	187.03	2	1449.036	8	1234.79	1	.701	5	1.165	2	1.282	7
366			min	-797.55	3	467.094	3	-1304.387	2	-.125	2	-1.148	1	.334	4
367		4	max	225.674	4	117.336	8	143.526	4	.343	8	.213	3	.057	4
368			min	-412.246	3	-26.501	10	-118.908	3	.05	1	-.181	4	-.111	10
369		5	max	0	1	0	1	0	1	0	1	0	1	0	1
370			min	0	1	0	1	0	1	0	1	0	1	0	1
371	M38	1	max	0	1	.01	2	.002	1	0	1	0	1	0	1
372			min	0	1	-.004	8	-.011	3	0	1	0	1	0	1
373		2	max	541.976	1	-39.958	2	254.132	3	-.087	3	.285	2	.16	8
374			min	-749.612	2	-224.342	5	-276.707	4	-.366	8	-.238	1	.047	3
375		3	max	809.132	3	1477.274	7	876.175	4	.781	8	1.204	3	1.266	5
376			min	-1051.142	4	486.028	4	-952.321	3	-.087	3	-1.239	4	.271	2
377		4	max	442.969	3	124.928	7	217.851	2	.316	6	.25	4	.087	2
378			min	-633.523	4	8.905	4	-193.759	1	.035	4	-.22	3	-.104	1
379		5	max	0	1	.004	3	.009	1	0	1	0	1	0	1
380			min	0	1	-.007	1	-.008	3	0	1	0	1	0	1
381	M39	1	max	0	1	.011	1	.01	4	0	1	0	1	0	1
382			min	0	1	-.005	4	-.011	1	0	1	0	1	0	1
383		2	max	503.276	4	-51.456	3	202.74	1	-.08	1	.199	1	.173	8
384			min	-708.132	3	-229.268	8	-224.348	2	-.364	6	-.154	2	.052	3
385		3	max	802.407	1	1463.633	5	1067.914	3	.784	7	1.523	4	1.322	8
386			min	-1047.247	2	462.308	2	-1138.893	4	-.093	4	-1.5	3	.294	3
387		4	max	393.006	1	166.851	9	212.841	3	.308	5	.247	2	.085	3
388			min	-583.031	2	-5.108	2	-187.511	4	.051	2	-.219	1	-.124	4
389		5	max	0	1	.004	3	.009	4	0	1	0	1	0	1
390			min	0	1	-.007	2	0	5	0	1	0	1	0	1
391	M40	1	max	61.624	1	32.614	4	414.688	2	0	2	.409	1	.446	1
392			min	-183.123	2	-41.927	3	-402.678	1	-.002	1	-.437	2	-.418	2
393		2	max	69.971	1	29.061	4	419.508	2	0	2	.225	1	.284	1
394			min	-191.47	2	-45.479	3	-407.497	1	-.002	1	-.254	2	-.245	2
395		3	max	78.319	1	25.509	4	424.327	2	0	2	.124	4	.205	4
396			min	-199.818	2	-49.032	3	-412.317	1	-.002	1	-.156	3	-.152	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 Mome...	LC
397		4	max	86.667	1	21.956	4	429.147	2	0	2	.211	4	.271	4
398			min	-208.166	2	-52.584	3	-417.136	1	-.002	1	-.249	3	-.201	3
399		5	max	95.015	1	18.404	4	433.966	2	0	2	.299	2	.333	4
400			min	-216.513	2	-60.566	7	-421.956	1	-.002	1	-.347	1	-.243	3
401	M41	1	max	51.649	4	29.108	3	472.703	3	.001	3	.394	4	.384	4
402			min	-172.626	3	-45.994	4	-460.391	4	-.002	4	-.413	3	-.372	3
403		2	max	51.649	4	25.555	3	472.703	3	.001	3	.177	4	.228	2
404			min	-172.626	3	-49.546	4	-460.391	4	-.002	4	-.199	3	-.2	1
405		3	max	51.649	4	22.003	3	472.703	3	.001	3	.124	2	.231	2
406			min	-172.626	3	-53.099	4	-460.391	4	-.002	4	-.152	1	-.186	1
407		4	max	51.649	4	18.45	3	472.703	3	.001	3	.223	3	.227	2
408			min	-172.626	3	-58.939	5	-460.391	4	-.002	4	-.261	4	-.162	1
409		5	max	51.649	4	14.898	3	472.703	3	.001	3	.432	3	.398	3
410			min	-172.626	3	-68.773	5	-460.391	4	-.002	4	-.483	4	-.312	4
411	M42	1	max	-8.314	3	114.763	9	347.51	1	0	1	.296	3	.415	3
412			min	-159.133	8	-65.396	2	-333.93	2	-.002	2	-.31	4	-.404	4
413		2	max	.034	3	111.211	9	342.69	1	0	1	.2	3	.315	3
414			min	-161.135	8	-68.948	2	-329.111	2	-.002	2	-.22	4	-.286	4
415		3	max	8.382	3	107.658	9	337.871	1	0	1	.096	3	.21	3
416			min	-163.136	8	-72.501	2	-324.291	2	-.002	2	-.126	4	-.16	4
417		4	max	16.73	3	104.106	9	333.051	1	0	1	.243	1	.251	1
418			min	-165.138	8	-76.053	2	-319.472	2	-.002	2	-.286	2	-.178	2
419		5	max	25.077	3	100.553	9	328.232	1	0	1	.397	1	.38	1
420			min	-167.139	8	-80.988	6	-314.652	2	-.002	2	-.454	2	-.28	2
421	M43	1	max	1542.877	1	1793.361	8	1250.471	3	.216	3	1.954	4	3.739	6
422			min	-1588.633	2	659.57	3	-1216.744	4	-.119	9	-1.997	3	.988	1
423		2	max	1542.877	1	1777.679	8	1229.121	3	.216	3	1.147	4	2.546	6
424			min	-1588.633	2	652.4	3	-1195.394	4	-.119	9	-1.167	3	.535	1
425		3	max	1542.877	1	1761.996	8	1207.771	3	.216	3	.354	4	1.364	6
426			min	-1588.633	2	645.23	3	-1174.044	4	-.119	9	-.352	3	.087	1
427		4	max	1542.877	1	1746.313	8	1186.421	3	.216	3	.449	3	.46	2
428			min	-1588.633	2	638.061	3	-1152.694	4	-.119	9	-.424	4	-.356	1
429		5	max	1542.877	1	1730.63	8	1165.071	3	.216	3	1.236	3	.012	2
430			min	-1588.633	2	630.891	3	-1131.345	4	-.119	9	-1.189	4	-1.083	5
431	M44	1	max	1254.078	4	1822.891	7	1389.258	1	.204	1	2.269	2	3.725	7
432			min	-1301.647	3	661.02	4	-1359.13	2	-.107	2	-2.306	1	1.031	4
433		2	max	1244.833	4	1807.208	7	1373.246	1	.204	1	1.365	2	2.511	7
434			min	-1292.403	3	653.851	4	-1343.118	2	-.107	2	-1.381	1	.591	4
435		3	max	1235.588	4	1791.525	7	1357.233	1	.204	1	.54	3	1.307	7
436			min	-1283.158	3	646.681	4	-1327.105	2	-.107	2	-.539	4	.156	4
437		4	max	1226.343	4	1775.842	7	1341.221	1	.204	1	.435	1	.33	3
438			min	-1273.913	3	639.511	4	-1311.093	2	-.107	2	-.411	2	-.275	4
439		5	max	1217.099	4	1760.159	7	1325.209	1	.204	1	1.327	1	-.146	3
440			min	-1264.668	3	632.342	4	-1295.081	2	-.107	2	-1.283	2	-1.147	8
441	M45	1	max	1308.611	3	1813.7	5	1255.375	2	.227	2	2.04	1	3.69	8
442			min	-1355.668	4	651.366	2	-1211.895	1	-.107	1	-2.097	2	1.096	3
443		2	max	1299.367	3	1798.017	5	1239.362	2	.227	2	1.235	1	2.487	8
444			min	-1346.423	4	644.196	2	-1195.883	1	-.107	1	-1.262	2	.633	3
445		3	max	1290.122	3	1782.334	5	1223.35	2	.227	2	.44	1	1.294	8
446			min	-1337.178	4	637.026	2	-1179.871	1	-.107	1	-.439	2	.175	3
447		4	max	1280.877	3	1766.651	5	1207.338	2	.227	2	.395	4	.333	4
448			min	-1327.933	4	629.857	2	-1163.858	1	-.107	1	-.368	3	-.279	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 Mome...	LC
449		5	max	1271.632	3	1750.968	5	1191.325	2	.227	2	1.177	2	-.115	4
450			min	-1318.689	4	622.687	2	-1147.846	1	-.107	1	-1.117	1	-1.146	7

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M1	PIPE_2.5	.266	7.312	1	.131	.813		9	13460.4...	50715	3.596	3.596	2...	H1-1b
2	M2	PIPE_2.5	.206	7.312	3	.103	12.1...		4	13460.4...	50715	3.596	3.596	2...	H1-1b
3	M3	PIPE_2.5	.227	7.312	3	.098	12.1...		3	13460.4...	50715	3.596	3.596	2...	H1-1b
4	M6	PIPE_4.0X_H...	.352	0	5	.035	0		8	69916.7...	130410	14.516	14.516	2...	H1-1b
5	MP1A	PIPE_2.0	.267	5.375	8	.078	.938		2	6195.892	32130	1.872	1.872	1...	H1-1b
6	MP3A	PIPE_2.0	.287	5.375	9	.072	5.375		1	6195.892	32130	1.872	1.872	1...	H1-1b
7	MP1B	PIPE_2.0	.274	5.375	7	.087	.938		4	6195.892	32130	1.872	1.872	1...	H1-1b
8	MP3B	PIPE_2.0	.239	.938	8	.056	5.375		4	6195.892	32130	1.872	1.872	1...	H1-1b
9	MP1C	PIPE_2.0	.273	5.375	6	.056	.938		3	6195.892	32130	1.872	1.872	1...	H1-1b
10	MP3C	PIPE_2.0	.242	.938	7	.077	5.375		4	6195.892	32130	1.872	1.872	1...	H1-1b
11	M14	C6x8.2	.316	0	7	.163	1.021	z	6	69374.5	77436	2.108	13.932	1...	H1-1b
12	M12	PIPE_4.0X_H...	.355	0	8	.043	0		9	69916.7...	130410	14.516	14.516	2...	H1-1b
13	M13	C6x8.2	.329	0	5	.169	1	z	7	69374.5	77436	2.108	13.932	1...	H1-1b
14	M14A	PIPE_4.0X_H...	.356	0	7	.034	0		7	69916.7...	130410	14.516	14.516	2...	H1-1b
15	M15	C6x8.2	.325	2.042	5	.162	1.021	z	8	69374.5	77436	2.108	13.932	1...	H1-1b
16	M20	L2x2x4	.170	3.792	1	.017	3.792	z	2	13608.0...	30585.6	.691	1.577	2...	H2-1
17	M21	L2x2x4	.140	3.792	1	.015	3.792	y	2	13608.0...	30585.6	.691	1.577	2...	H2-1
18	M26	L2x2x4	.139	.208	6	.012	.208	y	7	13608.0...	30585.6	.691	1.577	2.5	H2-1
19	M27	L2x2x4	.110	3.792	4	.011	3.792	y	3	13608.0...	30585.6	.691	1.577	2...	H2-1
20	M32	L2x2x4	.146	.208	5	.014	3.792	z	4	13608.0...	30585.6	.691	1.577	2...	H2-1
21	M33	L2x2x4	.114	3.792	3	.011	.208	z	8	13608.0...	30585.6	.691	1.577	2...	H2-1
22	MP2A	PIPE_2.0	.688	1.917	1	.115	1.917		1	3485.189	32130	1.872	1.872	1...	H1-1b
23	MP2C	PIPE_2.0	.624	1.917	3	.109	1.917		4	3485.189	32130	1.872	1.872	2...	H1-1b
24	MP2B	PIPE_2.0	.603	1.917	4	.093	1.917		4	3485.189	32130	1.872	1.872	2...	H1-1b
25	M37	PIPE_3.0	.228	7.25	7	.211	7.25		5	21266.02	65205	5.749	5.749	1...	H1-1b
26	M38	PIPE_3.0	.260	7.25	1	.227	7.25		8	21266.02	65205	5.749	5.749	1...	H1-1b
27	M39	PIPE_3.0	.304	7.25	4	.228	7.25		7	21266.02	65205	5.749	5.749	1...	H1-1b
28	M40	L3x3x4	.374	0	2	.035	2.417	z	1	40994.2...	46656	1.688	3.756	2...	H2-1
29	M41	L3x3x4	.370	2.417	4	.040	0	z	4	40994.2...	46656	1.688	3.756	2...	H2-1
30	M42	L3x3x4	.344	2.417	2	.030	0	z	2	40994.2...	46656	1.688	3.756	2...	H2-1
31	M43	HSS3x3x4	.482	0	7	.092	0	y	7	78890.5...	101016	8.556	8.556	2...	H1-1b
32	M44	HSS3x3x4	.492	0	5	.091	0	y	5	78890.5...	101016	8.556	8.556	2...	H1-1b
33	M45	HSS3x3x4	.483	0	8	.095	0	y	6	78890.5...	101016	8.556	8.556	2...	H1-1b

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

Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mn...	phi*Mn...	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

MODIFICATION AND DESIGN DRAWINGS FOR EXISTING ANTENNA MOUNTS EXISTING MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

TOWER OWNER: SBA / TOWER OWNER SITE #: CT13075-A

CARRIER SITE #/NAME: CT11311G / CT311/OPTA PAWS PLACE

COORDINATES (LATITUDE: 41.399972°, LONGITUDE: -72.079222°)

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

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	ANTENNA MOUNT MODIFICATION DETAILS	0
A-2	ANTENNA MOUNT PHOTOS	0
D-1	STANDARD DETAILS	0
MS-H1436	METROSITE HEAVY COLLAR MOUNT PLATE ASSEMBLY	
MPHW-1	METROSITE HEAVY COLLAR MOUNT PLATE WELDMENT DETAIL	
MS-P-TARM_6	METROSITE SUPPORT RAIL KIT	
TAW-6	TAW-6 WELDMENT	

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. **77624**, DATED **06/20/2019**.

TES
Tower Engineering Solutions
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IRVING, TX 75038
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SBA
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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
81110

CUSTOMER SITE NO:
CT13075-A-SBA

CUSTOMER SITE NAME:
NEW LONDON
1294 PLEASANT VALLEY ROAD NORTH
GROTON, CT 06340

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED PROFESSIONAL ENGINEER
2/16/19

DRAWN BY: SP | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	07/16/19

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T-1
REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	SHEET LIST	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE				
1	1	MS-H1436	METROSITE HEAVY COLLAR MOUNT ASSEMBLY	A-1, MS-H1436	138.0	138.0	Galvanized
			FOLLOWING ITEMS ARE "CUSTOM" PARTS				
1	1	MS-P-TARM_6	METROSITE SUPPORT RAIL KIT	A-1, MS-P-TARM_6	711.00	711.0	GALVANIZED
3	3	PST2375-8	2" PST (2.375" O.D. X 0.154" THICKNESS) X 8'-0" A53 GR-B 35KSI	A-1	30.10	90.3	GALVANIZED
			ALL METROSITE PARTS ARE AVAILABLE FROM METROSITE, LLC. **180 IND PARK BLVD COMMERCE, GA 30529** **OFFICE: (706) 335-7045** **FAX: (706) 335-7056**				
			NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.				
				TOTAL WEIGHT (LBS) =		**939.3**	

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TES JOB NO:
81110

CUSTOMER SITE NO:
CT13075-A-SBA
CUSTOMER SITE NAME:
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DRAWN BY: SP | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	07/16/19

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

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

FABRICATION

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

WELDING

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

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

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

VERIFICATION AND INSPECTION

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

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

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

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

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

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

[d] BEVELED WASHER NOT USED.

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

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

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

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

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

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TES JOB NO:
81110

CUSTOMER SITE NO:
CT13075-A-SBA
CUSTOMER SITE NAME:
NEW LONDON
1294 PLEASANT VALLEY ROAD NORTH
GROTON, CT 06340

DRAWN BY: SP | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	07/16/19

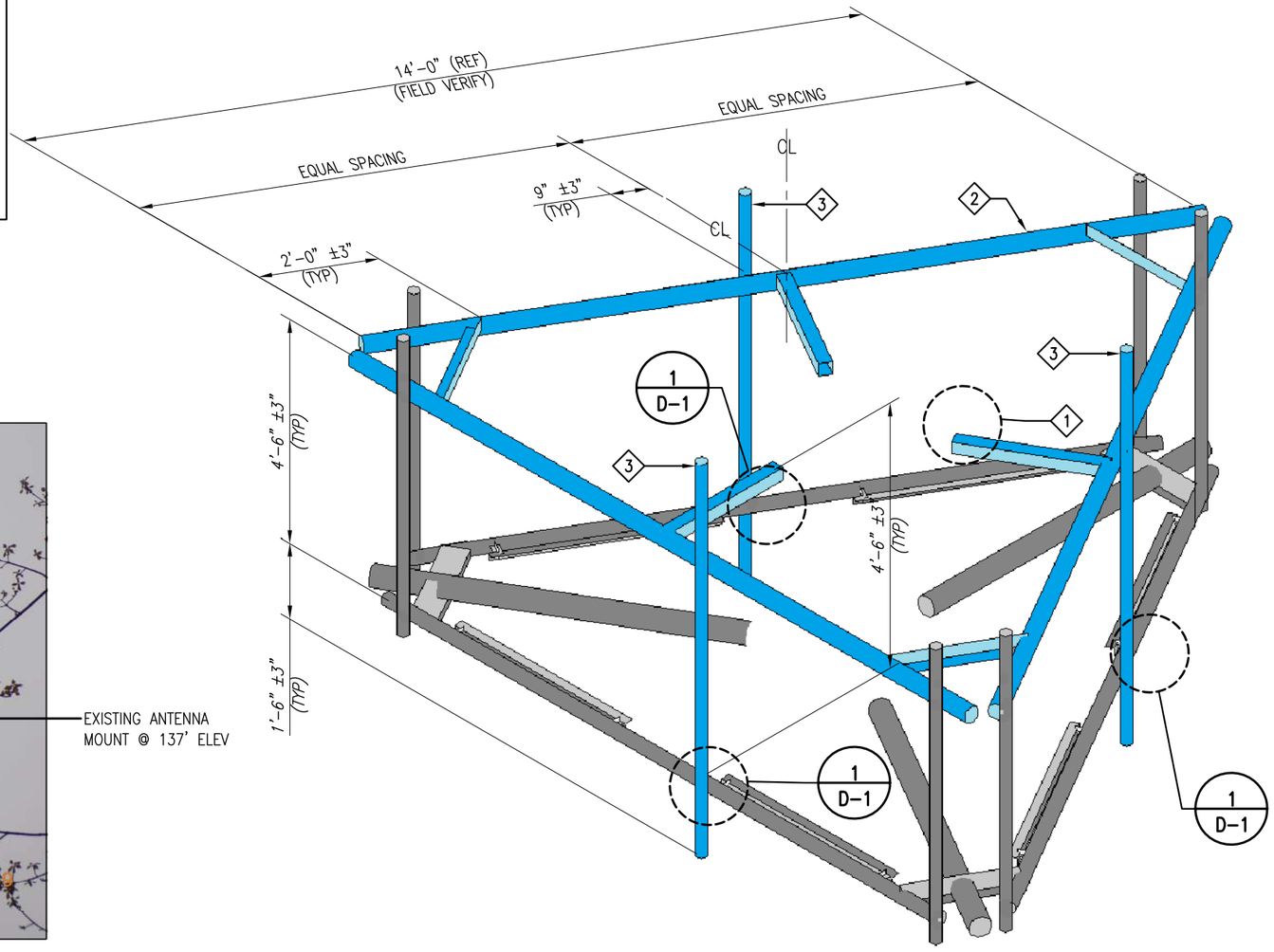
SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1
REV #: 0

SCOPE OF WORK

1. INSTALL NEW HEAVY COLLAR MOUNT (NOT SHOWN FOR CLARITY). SEE SHEET MS-H1436 FOR DETAILS.
2. INSTALL NEW SUPPORT RAIL KIT. SEE SHEET MS-P-TARM_6 FOR DETAILS.
3. INSTALL NEW 2" PST ANTENNA MOUNT PIPE. (1) PER SECTOR AS SHOWN.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

PHOTO 1



ISOMETRIC VIEW
EXISTING ANTENNA MOUNT @ 137' ELEV.

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

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

ITEM NO.	QTY.	PART NO.	DESCRIPTIONS
1	1	MS-H1436	METROSITE HEAVY COLLAR MOUNT ASSEMBLY
2	1	MS-P-TARM_6	METROSITE SUPPORT RAIL KIT
3	3	PST2375-8	2" PST (2.375" O.D. X 0.154" THICKNESS) X 8'-0" A53 GR-

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TES JOB NO:
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1294 PLEASANT VALLEY ROAD NORTH
GROTON, CT 06340

DRAWN BY: SP | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	07/16/19

SHEET TITLE:
ANTENNA MOUNT MODIFICATION DETAILS

SHEET NUMBER: A-1
REV #: 0

PHOTO 1

PHOTO 2

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

PHOTO 3

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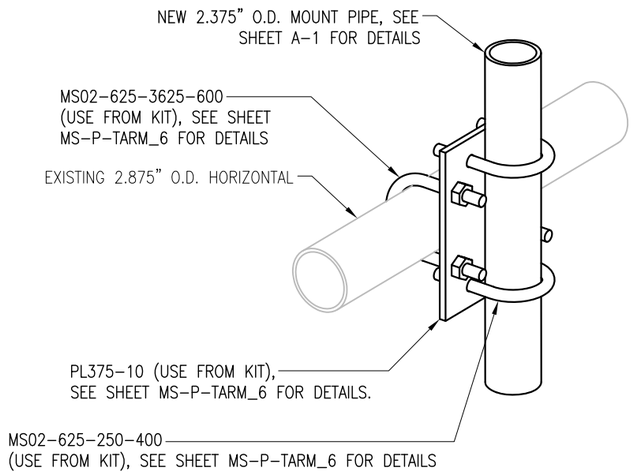
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	07/16/19

SHEET TITLE:

ANTENNA MOUNT PHOTOS

SHEET NUMBER: A-2

REV #: 0



1 / D-1 DETAIL

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

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	07/16/19

SHEET TITLE: STANDARD DETAILS

SHEET NUMBER: D-1

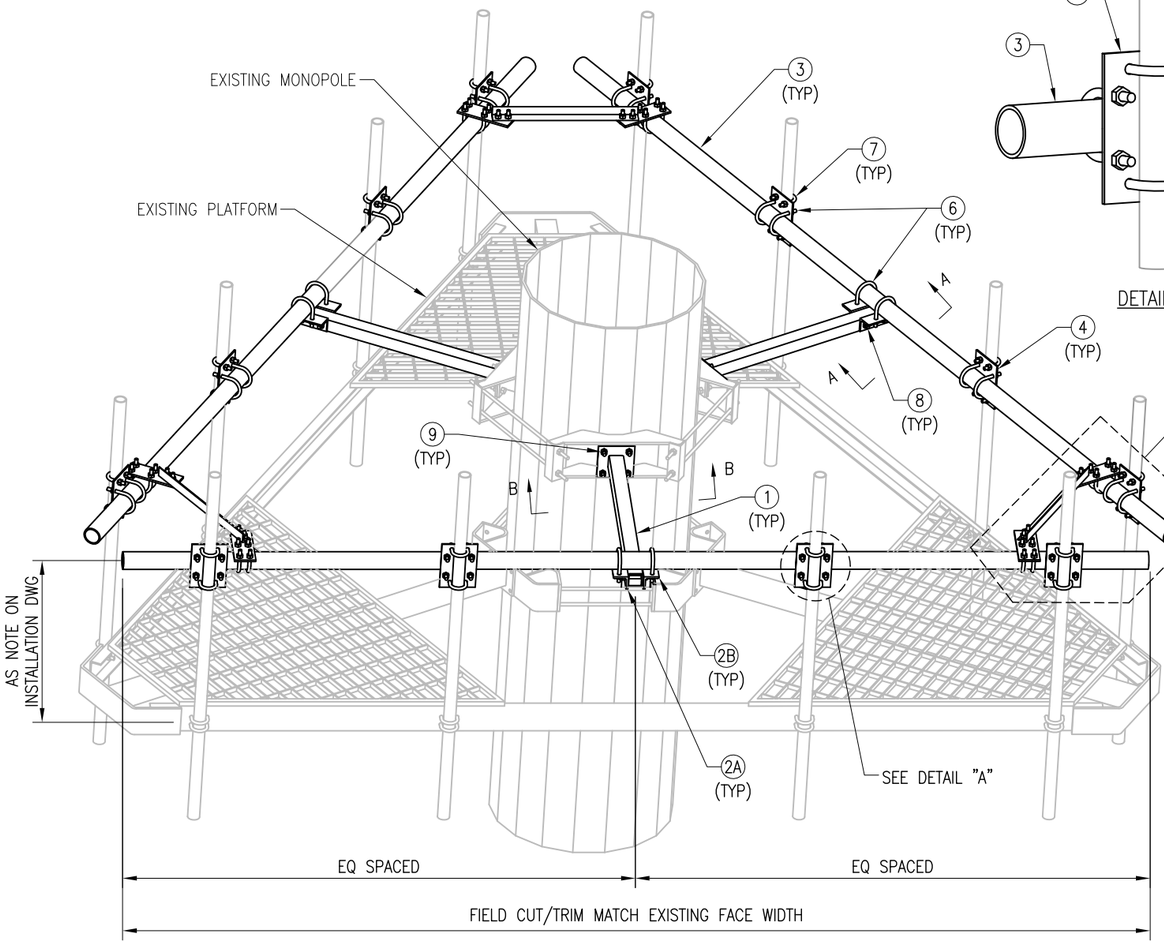
REV #: 0

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

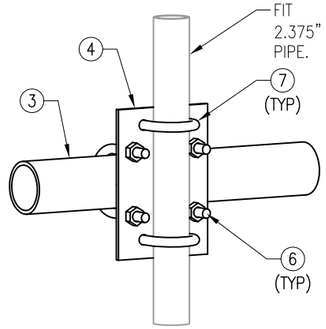
NOTES:
1) EXISTING ANTENNA MOUNT SHOWN ON THE DRAWING IS FOR REPRESENTATION PURPOSE ONLY.
2) FIELD ASSEMBLE ALL PARTS.

SUPPORT RAIL KIT (MS-P-TARM_6)

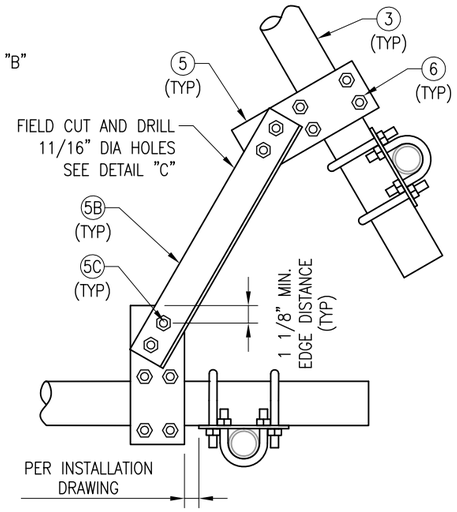
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	3	TAW-6	T-ARM WELDMENT	A500 GR-B	TAW-6	192
2A	3	AL-1A	L 3" X 3" X 1/4" X 0'-8"	A36	TAF-1	9.9
2B	3	AL-1B	L 3" X 3" X 1/4" X 0'-8"	A36	TAF-1	9.9
3	3	3PST-145	3" PST (3.50" O.D X .216" THICK) X 14'-6"	A53 GR-B	TAF-1	337.2
4	12	PL375-10	PL 3/8" X 7 1/8" X 10"	A36	TAF-1	92.4
5	6	PL375-11	PL 3/8" X 4 1/4" X 0'-11"	A36	TAF-1	15.1
5B	3	AL-33C	L 3" X 3" X 1/4" X 3'-6"	A36	ECP-1	54
5C	12	--	BOLT 5/8" X 2" A325 W/ HHN & LKW	A325	--	--
6	42	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
7	24	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
8	6	--	ALL THREAD ROD 5/8" DIA. X 8" A36 HDG W/ (2) HHN & LKW EA.	A36	--	--
9	12	--	BOLT 5/8" X 2 1/4" A325 W/ HHN & LKW	A325	--	--
				GALVANIZED WT		711



ELEVATION VIEW



DETAIL "A"



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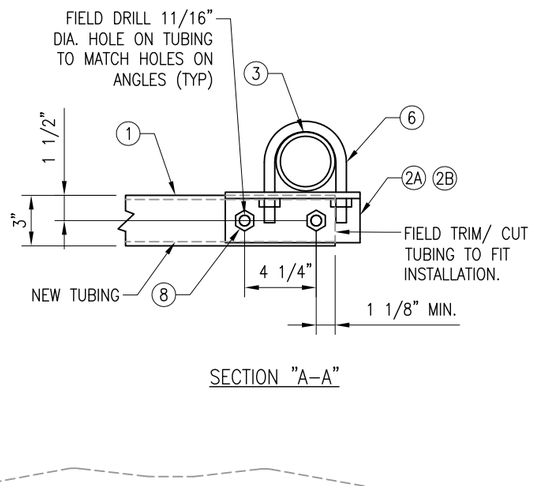
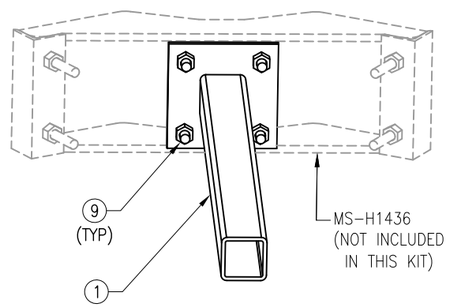


SECTION "A-A"



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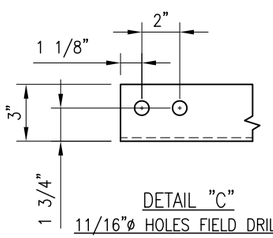
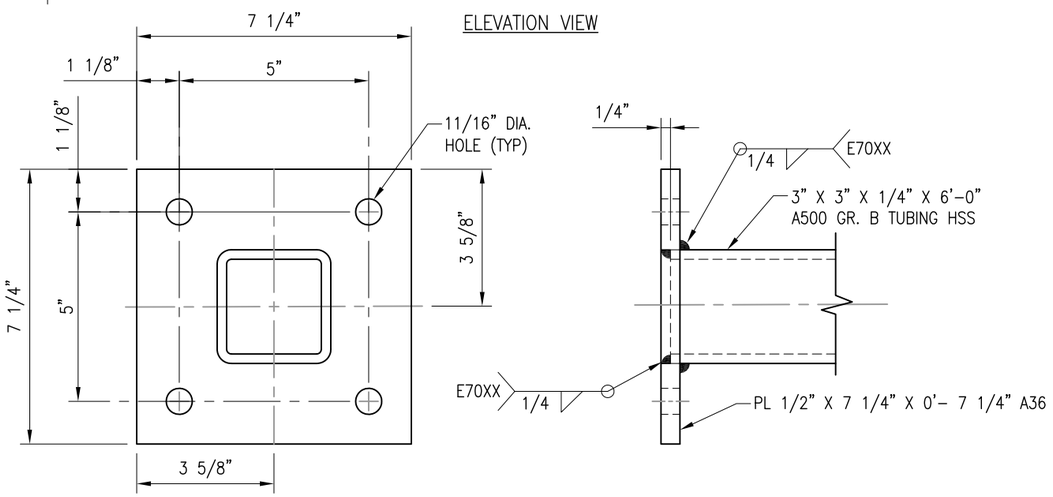


DETAIL "C"
11/16"ø HOLES FIELD DRILLED



FRONT VIEW

SIDE VIEW

TAW-6 WELDMENT

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

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

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ALL INFORMATION ON THIS DOCUMENT IS PROPERTY OF METROSITE FABRICATORS LLC

APPROVAL / SIGNATURES	DATE
DRAWN BY XXX	04/16/18
REVIEWED XXX	-
APPROVED XXX	-

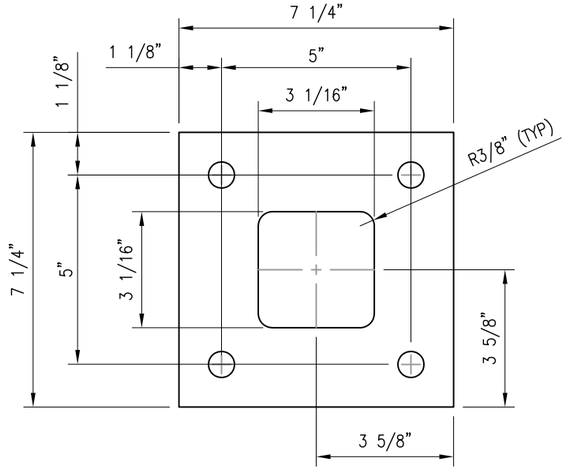
TITLE
SUPPORT RAIL KIT (MS-P-TARM_6) ASSEMBLY DETAIL

SIZE	DWG NO	REV
B	MS-P-TARM_6	0

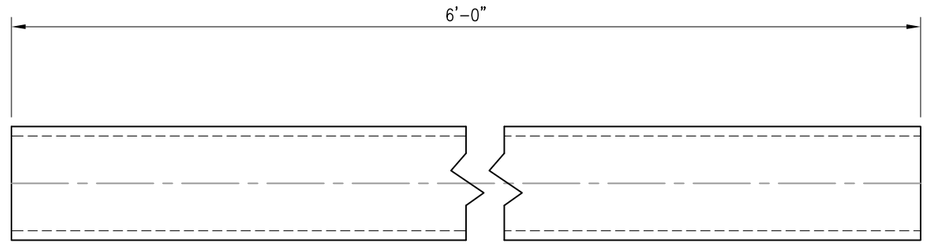
SCALE -
SHEET 1 OF 1

NOTES:
1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. WELD TYPE: E70XX.

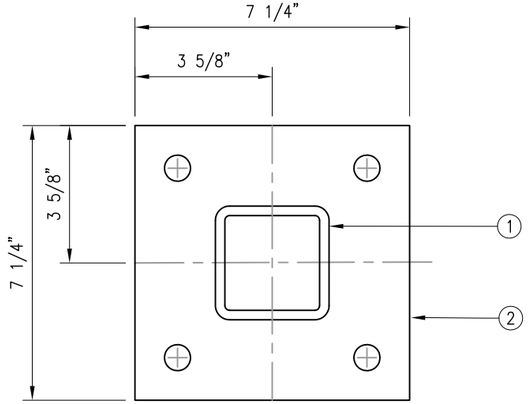
TAW-6 WELDMENT						
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	1	TB-6	3" X 3" X 1/4" X 6'-0" TUBING HSS	A500 GR-B	TAW-6	52.7
2	1	PL-6	PL 1/2" X 7 1/4" X 0'-7 1/4"	A36	TAW-6	7.5
					BLACK WT	60.2
					GALVANIZED WT	64



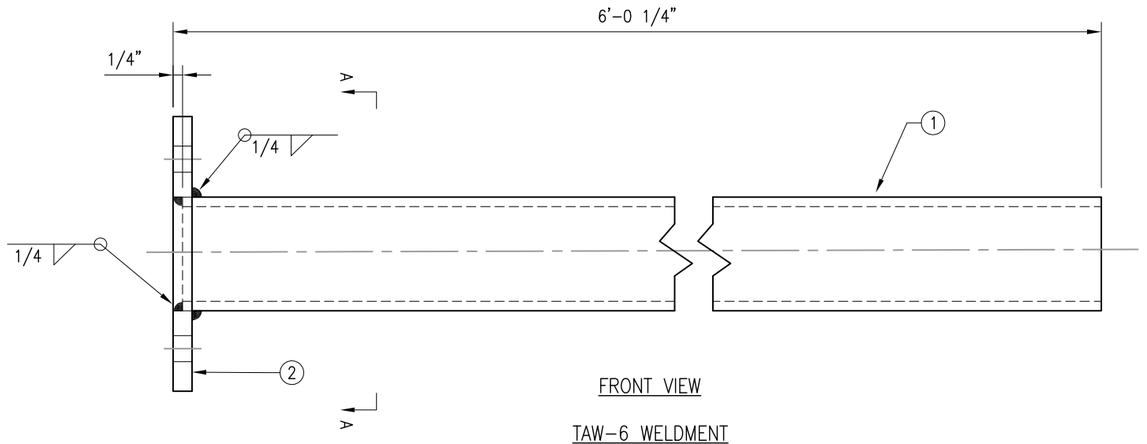
PL-6



TB-6



SECTION "A-A"



FRONT VIEW

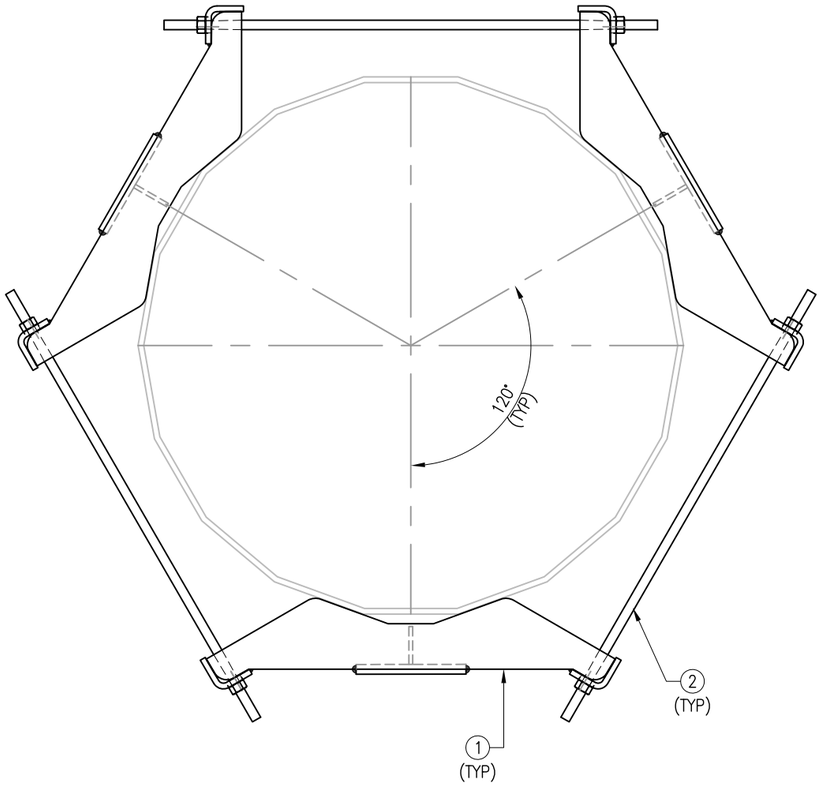
TAW-6 WELDMENT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH	THIRD ANGLE PROJECTION	METROSITE FABRICATORS LLC 180 INDUSTRIAL PARK BLVD. COMMERCE GA 30529	
STANDARD SHEET TOLERANCES DECIMALS: .X ± 0.1, .XX ± 0.02, .XXX ± 0.005 ANGLES: ± 1° FRACTIONS: ± 1/32	CONFIDENTIAL ALL INFORMATION ON THIS DOCUMENT IS PROPERTY OF METROSITE FABRICATORS LLC	TITLE: TAW-6 WELDMENT	
	APPROVAL / SIGNATURES	DATE	SIZE B · DWG NO TAW-6 · REV 0
	DRAWN BY XXX	04/16/18	
	REVIEWED XXX	-	
	APPROVED XXX	-	SCALE - · SHEET 1 OF 1

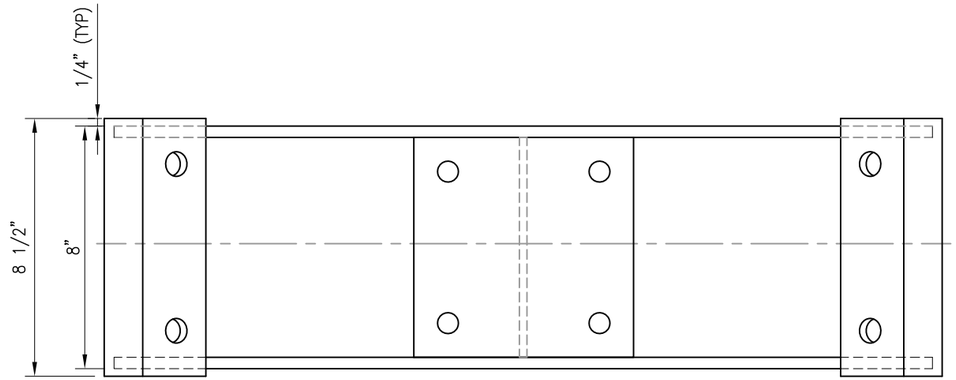
NOTE:
1) FITS 12" DIA TO 32" DIA.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	3	MPHW-1	MOUNT PLATE WELDMENT A36
2	6	---	THREADED ROD 3/4" X 2'-4 3/4" W/ 2 HHN & LW EA A36

GALVANIZED WEIGHT: 136.7 LBS



TOP VIEW



FRONT VIEW

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

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

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

TITLE
HEAVY COLLAR MOUNT PLATE
ASSEMBLY DETAIL MS-H1436

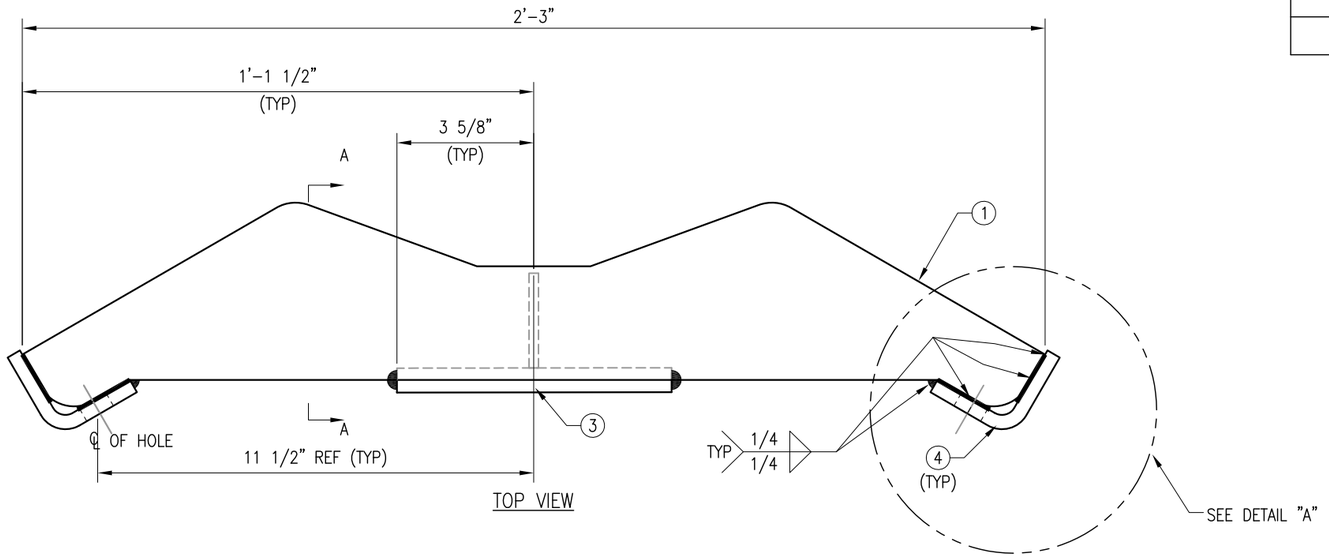
SIZE	DWG NO	REV
B	MS-H1436	1

SCALE -

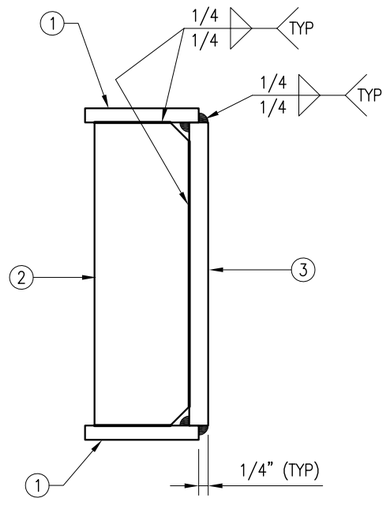
SHEET 1 OF 1

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.
2. WELD TYPE: E70XX.

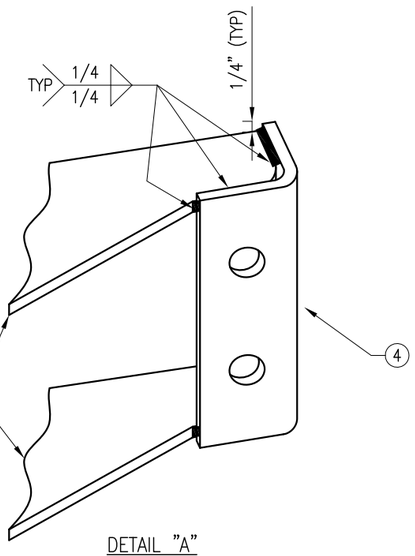
MPHW-1 WELDMENT						
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	2	PL-4	PL 3/8" X 5 3/8" X 2'-3"	A36	F-2	18.8
2	1	PL-5	PL 3/8" X 2 1/2" X 0'-7 1/4"	A36	F-2	1.9
3	1	PL-6	PL 1/2" X 7 1/4" X 0'-7 1/4"	A36	F-2	7.5
4	2	PL-7	PL 3/8" x 4 3/8" x 8 1/2"	A36	F-2	7.8
					BLACK WT	36
					GALVANIZED WT	38



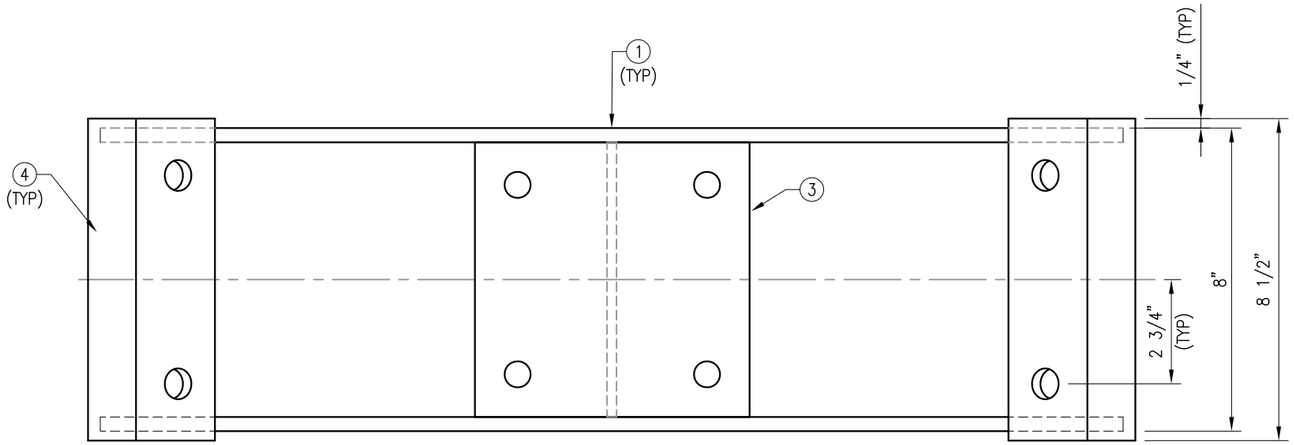
TOP VIEW



SECTION "A-A"



DETAIL "A"



FRONT VIEW

MPW-1 WELDMENT

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

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

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

TITLE
HEAVY COLLAR MOUNT PLATE WELDMENT DETAIL

SIZE	DWG NO	REV
B	MPHW-1	0

SCALE - SHEET 1 OF 1

EXHIBIT 10

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11311G

CT311/Opta Paws Place
1294 Pleasant Valley Road North
Groton, Connecticut 06340

November 17, 2020

EBI Project Number: 6220005866

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**25.69%**

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

November 17, 2020

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

Emissions Analysis for Site: CT11311G - CT311/Opta Paws Place

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1294 Pleasant Valley Road North** in **Groton, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 1294 Pleasant Valley Road North in Groton, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

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

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

5) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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

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

10) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

11) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antenna mounting height centerline of the proposed antennas is 137 feet above ground level (AGL).

14) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	137 feet	Height (AGL):	137 feet	Height (AGL):	137 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,841.53	ERP (W):	12,841.53	ERP (W):	12,841.53
Antenna A1 MPE %:	**2.46%**	Antenna B1 MPE %:	**2.46%**	Antenna C1 MPE %:	**2.46%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd
Height (AGL):	137 feet	Height (AGL):	137 feet	Height (AGL):	137 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	10,670.10	ERP (W):	10,670.10	ERP (W):	10,670.10
Antenna A2 MPE %:	**3.12%**	Antenna B2 MPE %:	**3.12%**	Antenna C2 MPE %:	**3.12%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	137 feet	Height (AGL):	137 feet	Height (AGL):	137 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	38,477.89	ERP (W):	38,477.89	ERP (W):	38,477.89
Antenna A3 MPE %:	**7.37%**	Antenna B3 MPE %:	**7.37%**	Antenna C3 MPE %:	**7.37%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	12.95%
Verizon	3.15%
AT&T	9.59%
Site Total MPE % :	25.69%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	12.95%
T-Mobile Sector B Total:	12.95%
T-Mobile Sector C Total:	12.95%
Site Total MPE % :	25.69%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1028.30	137.0	7.88	1900 MHz GSM	1000	0.79%
T-Mobile 1900 MHz LTE	2	2056.61	137.0	7.88	1900 MHz LTE	1000	0.79%
T-Mobile 2100 MHz LTE	2	2307.55	137.0	8.84	2100 MHz LTE	1000	0.88%
T-Mobile 600 MHz LTE	2	591.73	137.0	2.27	600 MHz LTE	400	0.57%
T-Mobile 600 MHz NR	1	1577.94	137.0	3.02	600 MHz NR	400	0.76%
T-Mobile 700 MHz LTE	2	648.82	137.0	2.49	700 MHz LTE	467	0.53%
T-Mobile 1900 MHz UMTS	2	1101.85	137.0	4.22	1900 MHz UMTS	1000	0.42%
T-Mobile 1900 MHz LTE	2	2203.69	137.0	8.44	1900 MHz LTE	1000	0.84%
T-Mobile 2500 MHz LTE	1	19238.94	137.0	36.85	2500 MHz LTE	1000	3.69%
T-Mobile 2500 MHz NR	1	19238.94	137.0	36.85	2500 MHz NR	1000	3.69%
						Total:	**12.95%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	12.95%
Sector B:	12.95%
Sector C:	12.95%
T-Mobile Maximum MPE % (Sector A):	12.95%
Site Total:	25.69%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **25.69%** 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.