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

July 24, 2019

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

Notice of Exempt Modification
Taugwonk Spur Road No. 2
Stonington, CT 06378
T-Mobile #: CT11046D_L600
N 41.382249
W -71.903444

Dear Ms. Bachman:

T-Mobile currently maintains (9) nine antennas at the 172.5-foot level of the existing 190-foot Monopole Tower at 2 Taugwonk Spur, Stonington, CT. The tower is owned by SBA Properties, LLC. The property is owned by Louis J. D'Amato & John C. D'Amato / D'Amato Investments. T-Mobile now intends to replace three (3) antennas with three (3) new 600/700 MHz antennas. The new antennas would be installed at the 172.5-foot level of the tower.

Planned Modifications:

TOWER

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

Remove and Replace:
- (3) Commscope LNX-6515DS (Remove) – (3) RFS APXVAARR24_43-U-NA20 – Panel 600/700 MHz (Replace)
- (3) Ericsson S11B12 (Remove) -- Ericsson Radio 4449 B71+B12 RRU (Replace)

Install New:
- (1) PV-PHK12-B+Pipe238x174
- (3) 1-5/8" fiber

Existing Equipment to Remain (including Entitlements):
- (3) Ericsson Air B2A B4P 1900 MHz
- (3) Ericsson Air B4A B2P 2100 MHz
- (3) Ericsson KRY 112 144/1
- (1) 13' low profile platform w/Site Pro PRK-1245
- (9) 1-5/8" lines

- (1) 1-5/8" fiber

GROUND

Install New:

- Equipment inside existing 6131 cabinet

This facility was approved prior to the Council's jurisdiction, on May 19, 1998, by the Town of Stonington's Planning & Zoning Commission. Application #PZ9820SPA was approved for a multi-tenant monopole telecom facilities and placement of associated equipment. There were no 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 Stonington's First Selectman, Robert Simmons, Zoning Officer, Candace Palmer, as well as to the property owners, Louis J. D'Amato & John C. D'Amato of D'Amato Investments, LLC. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

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

Attachments

cc: Robert Simmons, First Selectman / with attachments
Town of Stonington, 152 Elm Street, Stonington, CT 06378
Candace Palmer, Zoning Enforcement Officer / with attachments
Town of Stonington, 152 Elm Street, Stonington, CT 06378
Louis J. D'Amato & John C. D'Amato / D'Amato Investments, LLC / with attachments
183 Quarry Road, Milford, CT 06460

EXHIBIT LIST

Exhibit 1	Check Copy	
Exhibit 2	Notification Receipts	
Exhibit 3	Property Card	
Exhibit 4	Property Map	
Exhibit 5	Original Zoning Approval	Town of Stonington P&Z 5/19/98
Exhibit 6	Construction Drawings	Chappell dated 7/18/19
Exhibit 7	Structural Analysis	TES dated 7/18/19
Exhibit 8	Post-Mod Mount Analysis	TES dated 7/24/19
Exhibit 9	Mount Mod Drawings	TES dated 7/9/19
Exhibit 10	EME Report	Transcom dated 5/14/19

EXHIBIT 1

EXHIBIT 2

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

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

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EXHIBIT 3

Town of Stonington, CT

Property Listing Report

Map Block Lot	84-1-3	Building #	1	Section #	1	Account	00194500

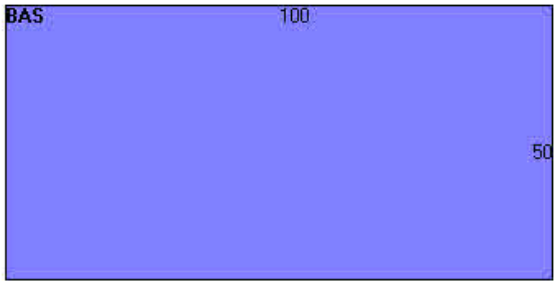
Property Information

Property Location	TAUGWONK SPUR RD
Owner	DAMATO INVESTMENTS LLC
Co-Owner	
Mailing Address	183 QUARRY RD MILFORD CT 06460
Land Use	3324 COM JOB SHOP(S)
Land Class	C
Zoning Code	LI-130
Census Tract	7054

Street Index	2500
Acreage	8.5
Utilities	
Lot Setting/Desc	Suburban
Survey Map #	NA
School District	
Fire District	Wequetequock
Trash Day	TH
Polling Place (District)	3

Photo

Sketch



Primary Construction Details

Year Built	1984
Stories	1
Building Style	Job Shop(s)
Building Use	Gar/Svc Statn
Building Condition	AV
Occupancy	4
Extra Fixtures	
Bath Style	NA
Kitchen Style	NA
AC Type	None
Heating Type	Hot Air-no Duc
Heating Fuel	Gas

Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Total Rooms	0
Roof Style	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Floors 1	Concr-Finished
Interior Floors 2	
Exterior Walls	Concr/Cinder
Exterior Walls 2	NA
Interior Walls	Drywall/Sheet
Interior Walls 2	Minim/Masonry

(*Industrial / Commercial Details)

Building Desc.	COM JOB SHOP(S)
Building Grade	Average
Heat / AC	NONE
Frame Type	MASONRY
Baths / Plumbing	AVERAGE
Ceiling / Wall	CEIL & WALLS
Rooms / Prtns	AVERAGE
Wall Height	12
First Floor Use	316I

Report Created On 5/10/2019

Town of Stonington, CT

Property Listing Report | Map Block Lot **84-1-3** | Building # **1** | Section # **1** | Account **00194500**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	2290700	1603500
Extras	0	0
Improvements		
Outbuildings	146400	102600
Land	540100	378100
Total	2977200	2084200

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	5000	5000
Total Area	5000	5000

Outbuilding and Extra Features

Type	Description
PAVING-ASPHALT	60000.00 S.F.
CELL TOWER	1.00 UNIT
FENCE-8' CHAIN	108.00 L.F.
LIGHTS-IN W/PL	5.00 UNITS
PAVING-CONC	484.00 S.F.

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
DAMATO INVESTMENTS LLC	0740/0277	5/22/2015	2000
DAMATO INVESTMENTS LLC	0421/0081	7/7/1998	0

Report Created On 5/10/2019

Town of Stonington, CT

Property Listing Report | Map Block Lot 84-1-3 | Building # 2 | Section # 1 | Account 00194500

Photo

Sketch

Primary Construction Details

					(*Industrial / Commercial Details)
Year Built	1984	Bedrooms	0	Building Desc.	COM JOB SHOP(S)
Stories	1	Full Bathrooms	0	Building Grade	Average
Building Style	Job Shop(s)	Half Bathrooms	0	Heat / AC	NONE
Building Use	Gar/Svc Statn	Total Rooms	0	Frame Type	MASONRY
Building Condition	AV	Roof Style	Gable/Hip	Baths / Plumbing	AVERAGE
Occupancy	15	Roof Cover	Asph/F Gls/Cmp	Ceiling / Wall	CEIL & WALLS
Extra Fixtures		Interior Floors 1	Concr-Finished	Rooms / Prtns	AVERAGE
Bath Style	NA	Interior Floors2	Carpet	Wall Height	12
Kitchen Style	NA	Exterior Walls	Concr/Cinder	First Floor Use	316I
AC Type	None	Exterior Walls 2	NA		
Heating Type	Hot Air-no Duc	Interior Walls	Minim/Masonry		
Heating Fuel	Gas	Interior Walls 2	Drywall/Sheet		

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	16000	16000

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	16000	16000

Report Created On

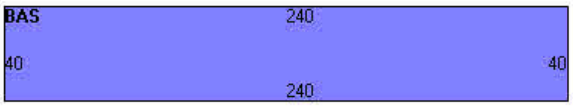
Town of Stonington, CT

Property Listing Report

Map Block Lot	84-1-3	Building #	3	Section #	1	Account	00194500

Photo

Sketch



Primary Construction Details

				(*Industrial / Commercial Details)	
Year Built	1984	Bedrooms	0	Building Desc.	COM JOB SHOP(S)
Stories	1	Full Bathrooms	0	Building Grade	Average
Building Style	Job Shop(s)	Half Bathrooms	0	Heat / AC	NONE
Building Use	Gar/Svc Statn	Total Rooms	0	Frame Type	MASONRY
Building Condition	AV	Roof Style	Gable/Hip	Baths / Plumbing	AVERAGE
Occupancy	11	Roof Cover	Asph/F Gls/Cmp	Ceiling / Wall	CEIL & WALLS
Extra Fixtures		Interior Floors 1	Concr-Finished	Rooms / Prtns	AVERAGE
Bath Style	NA	Interior Floors2	Carpet	Wall Height	12
Kitchen Style	NA	Exterior Walls	Brick/Masonry	First Floor Use	316I
AC Type	None	Exterior Walls 2	NA		
Heating Type	Hot Air-no Duc	Interior Walls	Minim/Masonry		
Heating Fuel	Gas	Interior Walls 2	Drywall/Sheet		

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	9600	9600

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	9600	9600

Report Created On

Town of Stonington, CT

Property Listing Report

Map Block Lot	84-1-3	Building #	4	Section #	1	Account	00194500

Photo

Sketch

Primary Construction Details

				(*Industrial / Commercial Details)	
Year Built	1984	Bedrooms	0	Building Desc.	COM JOB SHOP(S)
Stories	1	Full Bathrooms	0	Building Grade	Average
Building Style	Job Shop(s)	Half Bathrooms	0	Heat / AC	NONE
Building Use	Gar/Svc Statn	Total Rooms	0	Frame Type	MASONRY
Building Condition	AV	Roof Style	Gable/Hip	Baths / Plumbing	AVERAGE
Occupancy	1	Roof Cover	Asph/F Gls/Cmp	Ceiling / Wall	CEIL & WALLS
Extra Fixtures		Interior Floors 1	Concr-Finished	Rooms / Prtns	AVERAGE
Bath Style	NA	Interior Floors2		Wall Height	12
Kitchen Style	NA	Exterior Walls	Brick/Masonry	First Floor Use	316I
AC Type	None	Exterior Walls 2	NA		
Heating Type	Hot Air-no Duc	Interior Walls	Drywall/Sheet		
Heating Fuel	Gas	Interior Walls 2	NA		

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Office, (Average)	800	800
First Floor	7200	7200

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	8000	8000

Report Created On

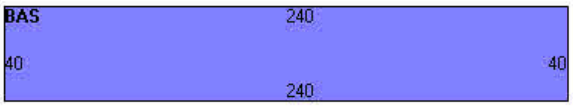
Town of Stonington, CT

Property Listing Report

Map Block Lot	84-1-3	Building #	5	Section #	1	Account	00194500

Photo

Sketch



Primary Construction Details

				(*Industrial / Commercial Details)	
Year Built	1995	Bedrooms	0	Building Desc.	COM JOB SHOP(S)
Stories	1	Full Bathrooms	0	Building Grade	Average
Building Style	Job Shop(s)	Half Bathrooms	0	Heat / AC	NONE
Building Use	Gar/Svc Statn	Total Rooms	0	Frame Type	MASONRY
Building Condition	AV	Roof Style	Gable/Hip	Baths / Plumbing	AVERAGE
Occupancy	6	Roof Cover	Asph/F Gls/Cmp	Ceiling / Wall	CEIL & WALLS
Extra Fixtures		Interior Floors 1	Concr-Finished	Rooms / Prtns	AVERAGE
Bath Style	NA	Interior Floors2	Vinyl/Asphalt	Wall Height	12
Kitchen Style	NA	Exterior Walls	Brick/Masonry	First Floor Use	316I
AC Type	None	Exterior Walls 2	NA		
Heating Type	Hot Air-no Duc	Interior Walls	Drywall/Sheet		
Heating Fuel	Gas	Interior Walls 2	NA		

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	9600	9600

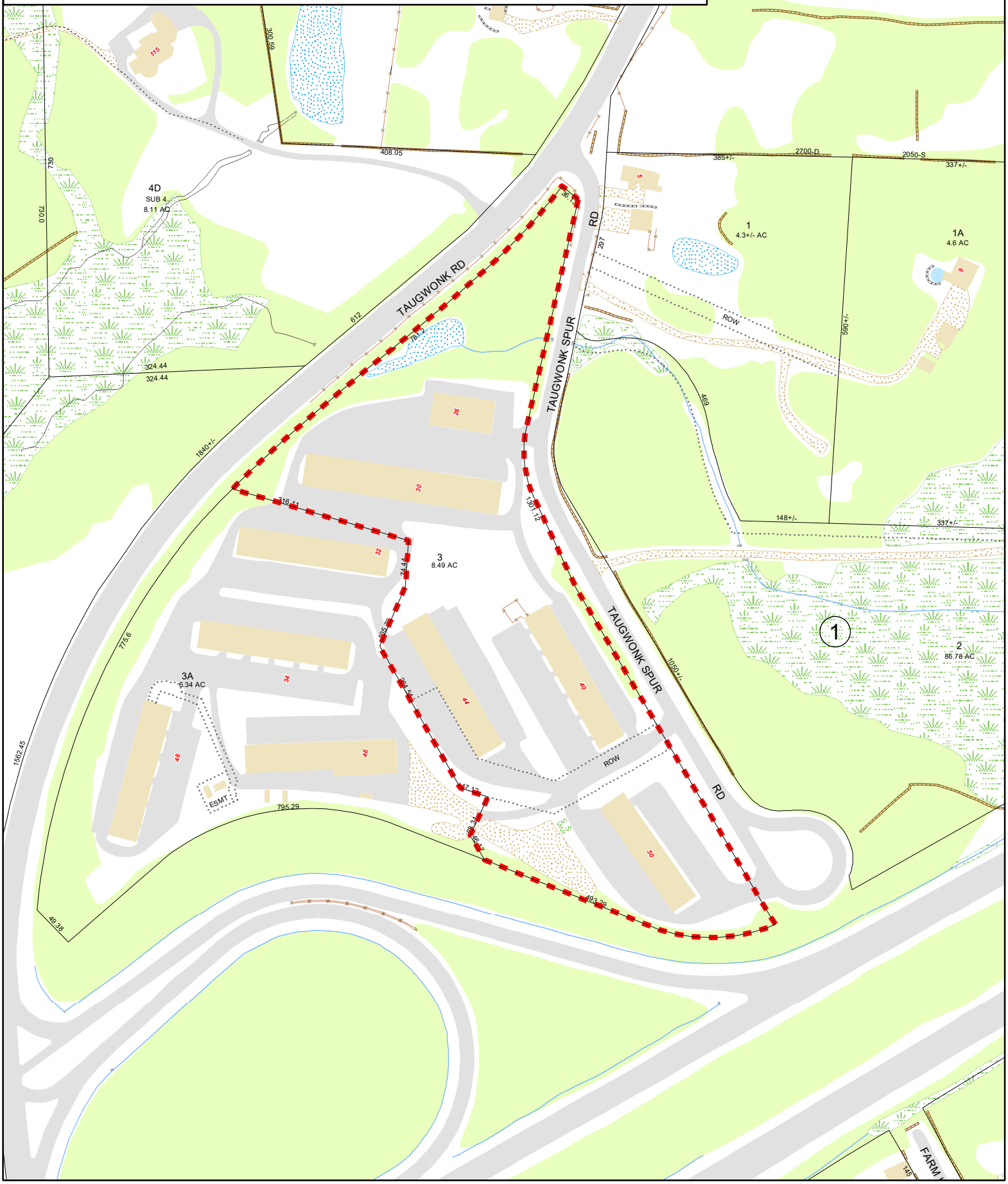
Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	9600	9600

Report Created On

EXHIBIT 4

Town of Stonington, Connecticut - Assessment Parcel Map

Parcel: 84-1-3 Address: TAUGWONK SPUR RD



Approximate Scale:

1 inch = 200 feet

0 120 240 360 480 Feet

Revised To: October 2018 **Map Produced: April 2019**

EXHIBIT 5

TOWN OF STONINGTON
The Planning and Zoning Commission
152 Elm Street, P.O. Box 352
Stonington, Connecticut 06378
(860) 535-5095

May 21, 1998

Mr. Scott Thomae
SBA, Inc.
125 Shaw Street #116
New London, CT 06320

Dear Mr. Thomae:

The Planning and Zoning Commission at their meeting of May 19, 1998 voted to APPROVE your application#PZ9820SPA SBA, INC. / SCOTT THOMAE - Application for Site Plan Approval for a multi-tenant monopole telecommunications facility and placement of associated equipment. Property located at Taugwonk Spur Road, Number 2. Assessor's Map 84 Block 1 Lot 3 Zone LI-130. This application was approved with the following stipulations:

1. Provide data requested by the Town Engineer as outlined in his memorandum dated May 18, 1998.
2. For screening Colorado Spruce (Picea pungens) or White Spruce (Picea galuca) should be substituted for the Eastern White Pine.

Please schedule an appointment with the Planning Office to review the final plans which have incorporated all the above stipulations and/or changes and have been listed on the site plan. Please bring to the Planning and Zoning Office for the Chairman's signature one (1) set of bluelines and one (1) set of mylars.

If you have any questions, please feel free to contact the Planning Office.

Sincerely,

Edward Donnelly (kjt)

Edward C. Donnelly, AICP
Planning Director

:kjt

EXHIBIT 6

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

STONINGTON/I-95/X91-1

APPROVALS

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

2 TAUGWONK SPUR ROAD
STONINGTON, CT 06378
NEW LONDON COUNTY

SITE NO.: CT11046D

SITE TYPE: 190'± MONOPOLE

RF DESIGN GUIDELINE: 67D02C

T-MOBILE TECHNICIAN SITE SAFETY NOTES

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

SITE NOTES

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

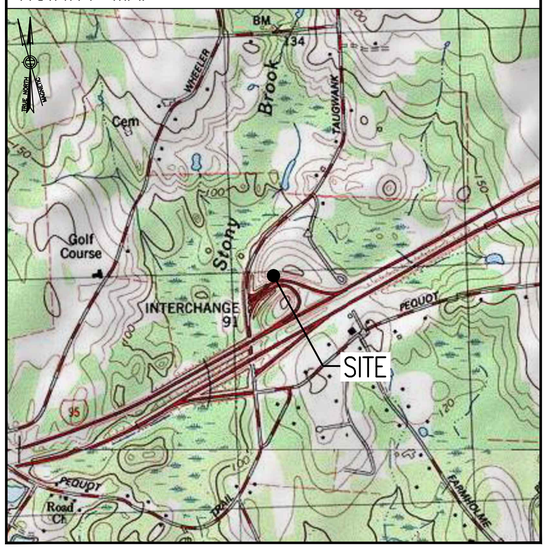
GENERAL NOTES

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

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

VICINITY MAP

SCALE: 1" = 1000'-0"



DO NOT SCALE DRAWINGS

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

SHEET INDEX

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

PROJECT SUMMARY

SITE NUMBER:	CT11046D
SBA SITE NUMBER:	CT00235-B
SBA SITE NAME:	STONY BROOK
SITE ADDRESS:	2 TAUGWONK SPUR ROAD STONINGTON, CT 06378
PROPERTY OWNER:	LOUIS J. D'AMATO & JOHN C. D'AMATO 183 QUARRY ROAD MILFORD, CT 06460
TOWER OWNER:	SBA PROPERTIES, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON COUNTY
ZONING DISTRICT:	LIGHT INDUSTRIAL
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	190'
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SRoth@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: 41.382013° N41°22'55.2468" LONGITUDE: -71.903601° W71°54'12.9636"

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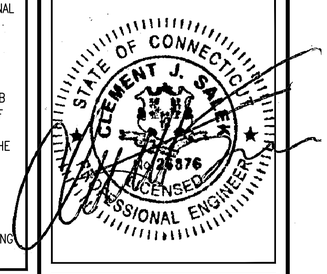

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/18/19	ISSUED FOR CONSTRUCTION	CMC
0	05/13/19	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CT11046D

SITE ADDRESS:
2 TAUGWONK SPUR ROAD
STONINGTON, CT 06378

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.050

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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CLEMENT J. GAUVIN
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LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/18/19	ISSUED FOR CONSTRUCTION	CMC
0	05/13/19	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CT11046D

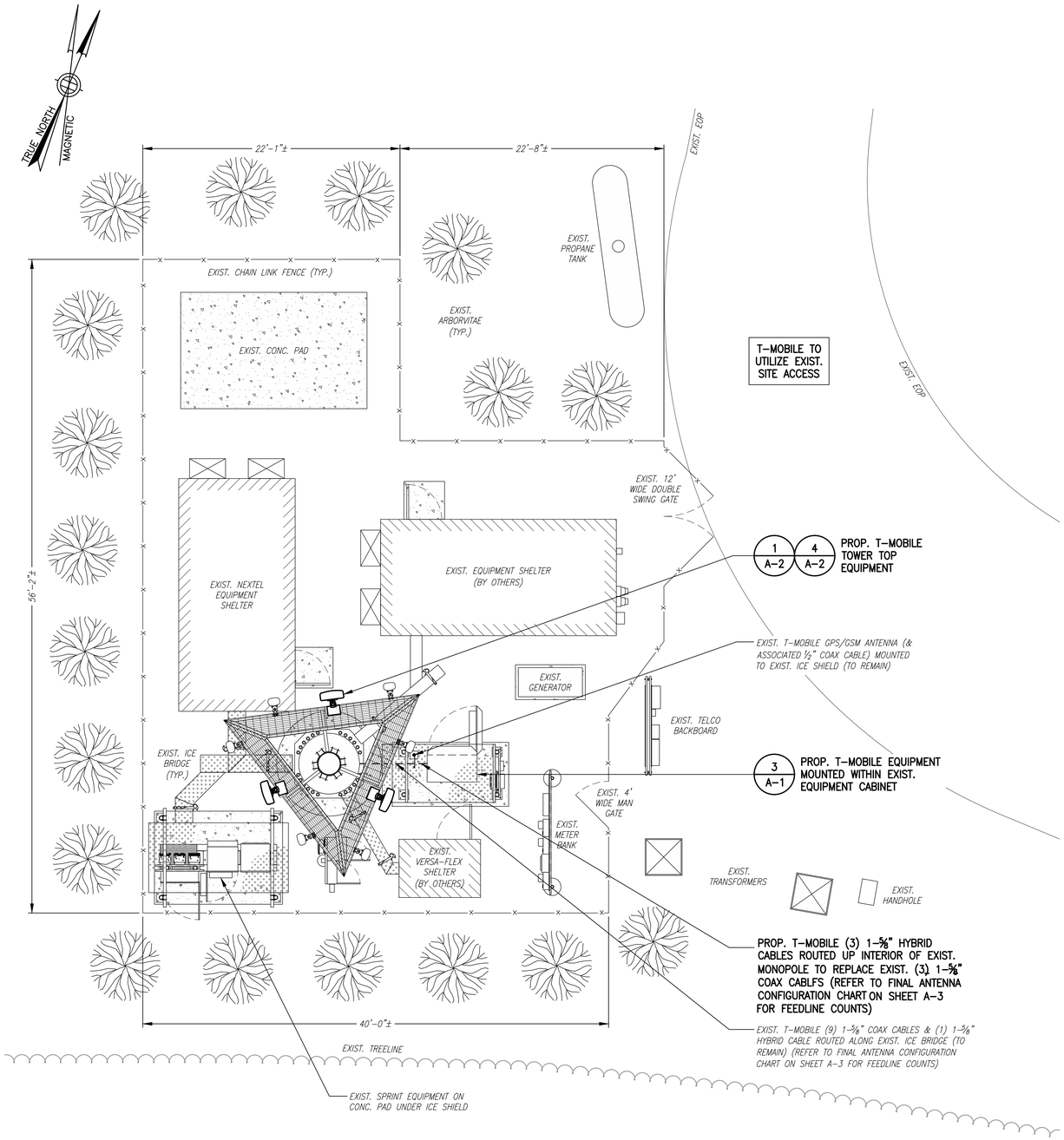
SITE ADDRESS:
2 TAUGWONK SPUR ROAD
STONINGTON, CT 06378

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

1815.050

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.

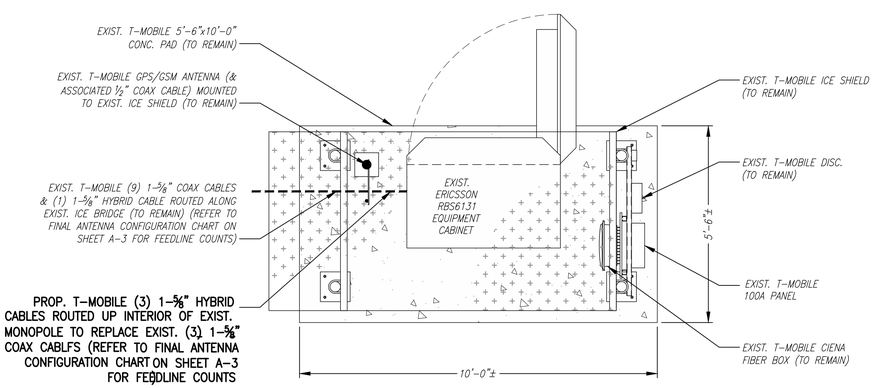


COMPOUND PLAN 1 A-1
SCALE: 3/16" = 1'-0"
0 2'-8" 5'-4" 10'-8" 16'-0"

EXIST. EQUIPMENT AREA 3 A-1

SOURCE: CEA SITE VISIT 04.18.19

EQUIPMENT AREA PHOTO 2 A-1
SCALE: N.T.S.



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

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PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

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STONINGTON, CT 06378

SHEET TITLE
COMPOUND & EQUIPMENT PLAN

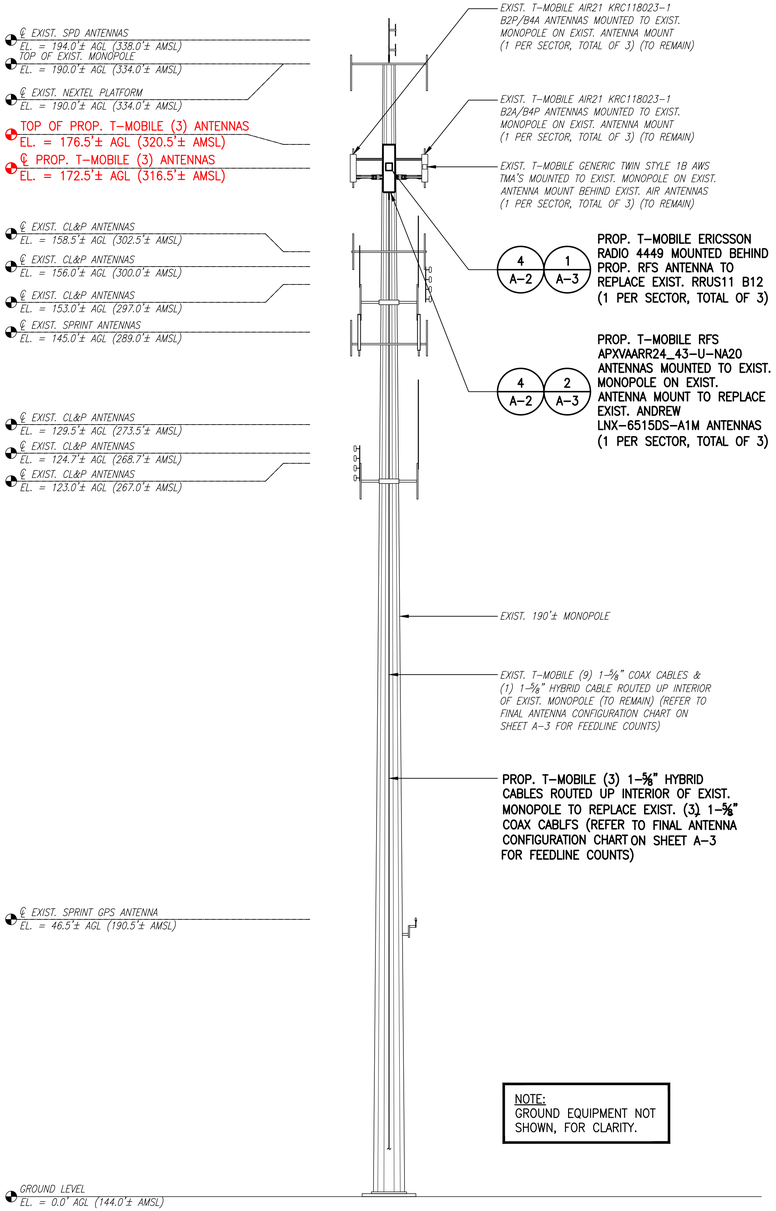
SHEET NUMBER
A-1

1815.050

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

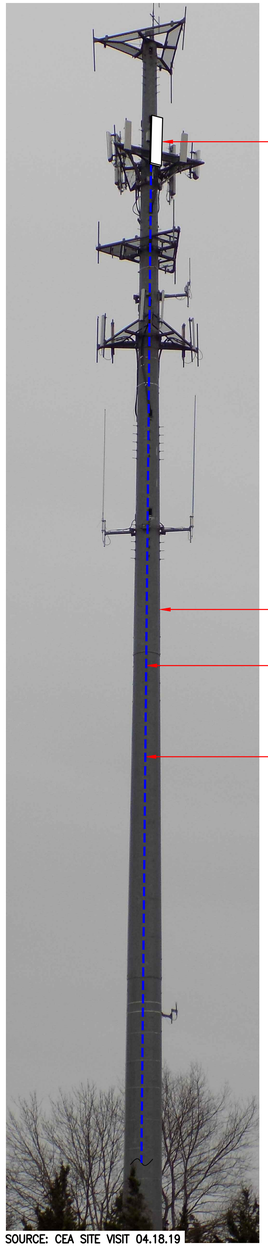
RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

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.



NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION 1 A-2
SCALE: 1" = 12'-0"

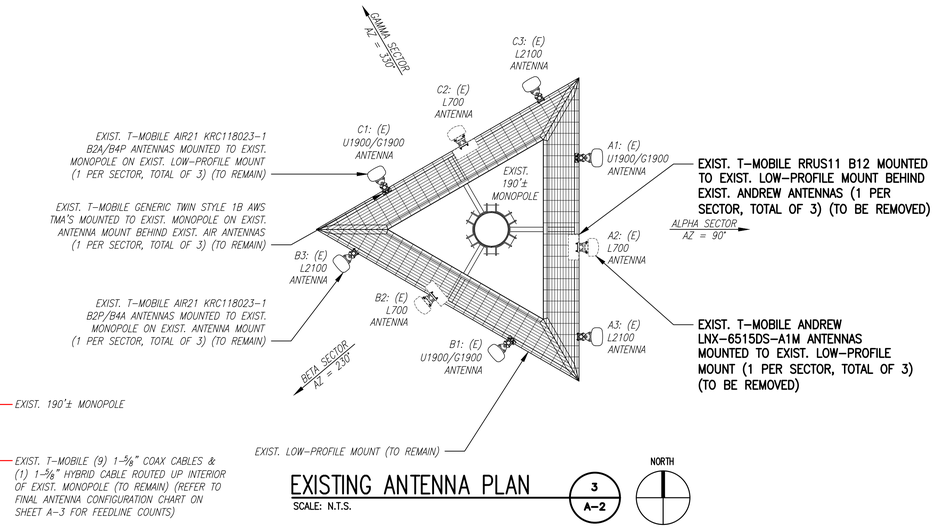


SOURCE: CEA SITE VISIT 04.18.19

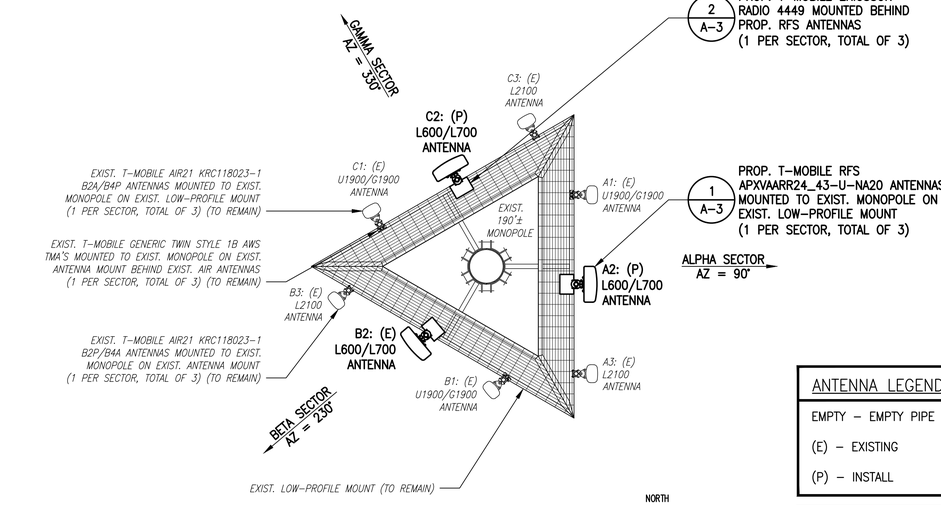
NOTE:
PROPOSED T-MOBILE RRH'S NOT SHOWN, FOR CLARITY.

NOTE: ONE SECTOR SHOWN FOR CLARITY

TOWER PHOTO 2 A-2
SCALE: N.T.S.



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



PROPOSED ANTENNA PLAN 4 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

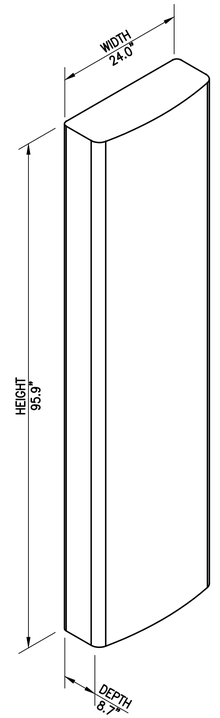
SHEET NUMBER
A-2

1815.050

FINAL ANTENNA CONFIGURATION

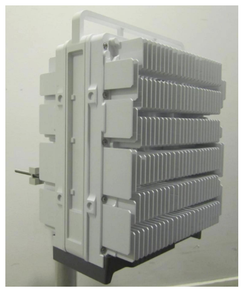
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	*ERICSSON AIR21 KRC118023-1 B2A/B4P*	*172.5'± AGL*	*90°*	*0°*	*2°*	*U1900/G1900*	*GENERIC TWIN STYLE 1B AWS TMA*	*(3) 1-5/8" COAX CABLES (1) 9x18 HYBRID CABLE (1-5/8") (SHARED)*
	RFS APXVAARR24_43-U-NA20	**172.5'± AGL**	**90°**	**0°**	**2°**	**L600/L700**	**ERICSSON RADIO 4449 B71+B12**	**(1) 6x12 HCS CABLE (1-5/8")**
	ERICSSON AIR21 KRC118023-1 B2P/B4A	*172.5'± AGL*	*90°*	*0°*	*2°*	*L2100*	*–*	*(1) 9x18 HYBRID CABLE (1-5/8") (SHARED)*
BETA	*ERICSSON AIR21 KRC118023-1 B2A/B4P*	*172.5'± AGL*	*230°*	*0°*	*2°*	*U1900/G1900*	*GENERIC TWIN STYLE 1B AWS TMA*	*(3) 1-5/8" COAX CABLES (1) 9x18 HYBRID CABLE (1-5/8") (SHARED)*
	RFS APXVAARR24_43-U-NA20	**172.5'± AGL**	**230°**	**0°**	**2°**	**L600/L700**	**ERICSSON RADIO 4449 B71+B12**	**(1) 6x12 HCS CABLE (1-5/8")**
	ERICSSON AIR21 KRC118023-1 B2P/B4A	*172.5'± AGL*	*230°*	*0°*	*2°*	*L2100*	*–*	*(1) 9x18 HYBRID CABLE (1-5/8") (SHARED)*
GAMMA	*ERICSSON AIR21 KRC118023-1 B2A/B4P*	*172.5'± AGL*	*330°*	*0°*	*2°*	*U1900/G1900*	*GENERIC TWIN STYLE 1B AWS TMA*	*(3) 1-5/8" COAX CABLES (1) 9x18 HYBRID CABLE (1-5/8") (SHARED)*
	RFS APXVAARR24_43-U-NA20	**172.5'± AGL**	**330°**	**0°**	**2°**	**L600/L700**	**ERICSSON RADIO 4449 B71+B12**	**(1) 6x12 HCS CABLE (1-5/8")**
	ERICSSON AIR21 KRC118023-1 B2P/B4A	*172.5'± AGL*	*330°*	*0°*	*2°*	*L2100*	*–*	*(1) 9x18 HYBRID CABLE (1-5/8") (SHARED)*

NOTE: EXISTING (3) 1-5/8" COAX CABLES & (1) LMU BUNDLE TO BE REMOVED. EXISTING (3) 1-5/8" COAX CABLES TO BE DISCONNECTED.



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

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



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

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

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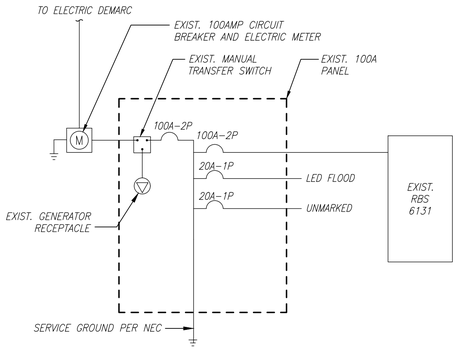
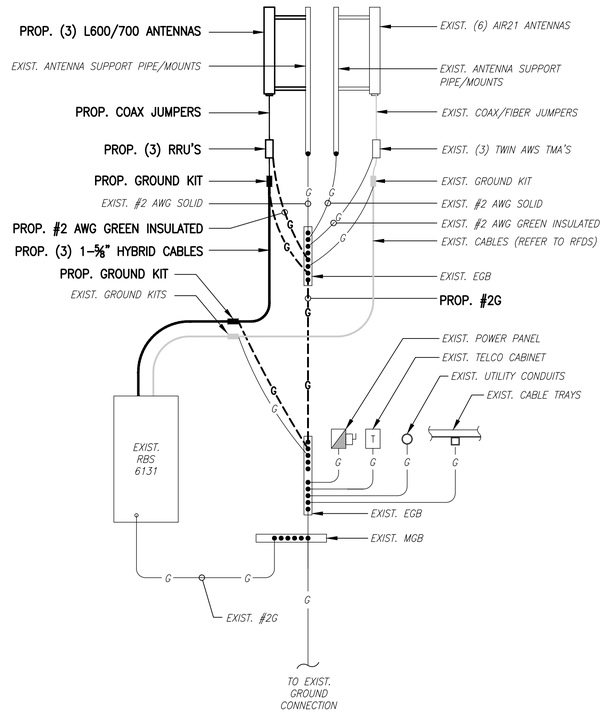
SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

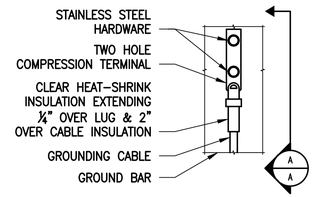
1815.050



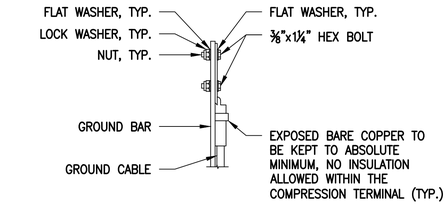
ONE LINE DIAGRAM (1 / E-1)
SCALE: NOT TO SCALE



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



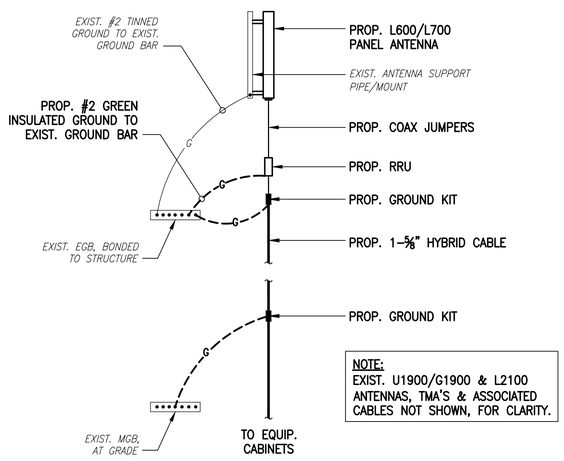
ELEVATION



SECTION A-A

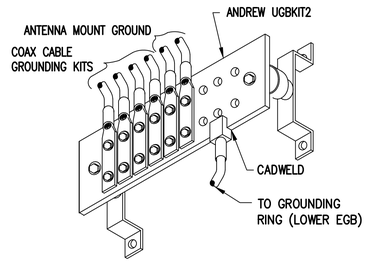
NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

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



L600/L700

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



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

ELECTRICAL AND GROUNDING NOTES

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

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SHEET TITLE
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.050

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 190 ft SUMMIT Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT00235-B
Customer Site Name: Stony Brook
Carrier Name: T-Mobile (App#: 115643, V1)
Carrier Site ID / Name: CT11046D / Stony Brook
Site Location: Taugwonk Spur Road No. 2
Stonington, Connecticut
New London County
Latitude: 41.382249
Longitude: -71.903444

7/18/19

Analysis Result:

Max Structural Usage: 70.6% [Pass]
Max Foundation Usage: 70.0% [Pass]
Additional Usage Caused by Mount Modification: +1.2%

Report Prepared By: Linfeng Chen

Introduction

The purpose of this report is to summarize the analysis results on the 190 ft SUMMIT 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	Original Drawings from Summit Manufacturing Inc, Job#: 3535 Dated: 05/14/1998 Monopole Tower Report by FDH Job#: 08-10050T Dated: 12/29/2008 Structural Analysis by FDH, Project#:15BEFV1400(R1) Dated:02/23/2015, Revised:06/17/2017
Foundation Drawing	Foundation Design by Paul J Ford and Company Project#: 29298-318 Dated: 05/06/1998
Geotechnical Report	Geotechnical Report by SAGE Environmental Inc, Project#: S598 Dated:04/22/98
Modification Drawings	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 140.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 108.0 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:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.159, S_1 = 0.058

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	194.0	1	Telwave ANT150D3 Dipole	Direct Mount	(1) 7/8"	SPD
2	190.0	-	-	Low Profile Platform	-	-
-	184.0	6	Kathrein 742 351	Low Profile Platform*	(12) 1 5/8"	Metro PCS*
-	172.5	3	Ericsson Air B2A B4P	(1) 13' Low Profile Platform w/Site Pro PRK-1245	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
-		3	Ericsson Air B4A B2P			
-		3	Commscope LNX-6515DS			
-		3	Ericsson KRY 112 144/1			
-		3	Ericsson S11B12			
8	158.5	1	RFS PD458-2N Omni	(2) Standoffs at 150	(3) 7/8"	CL&P
9	156.0	1	RFS 114202C Omni			
10	153.0	1	Telewave ANT450D6 Omni	Low Profile Platform at 158.5'	-	
11	145.0	3	ALU 1900 MHz - RRUs	Low Profile Platform with (1) SitePro HRK14-U Handrail Kit, (1) SitePro PRK-SFS-H-L V-brace Kit, (1) SitePro PRK-1245L reinforcement kit, (6) SitePro SCX1-K Brackets, (3) Pipe2.0STD x 4' long corner braces and (3) Pipe2.0STD x 14' horizontal rails	(4) 1-1/4" Fiber	Sprint Nextel
12		6	ALU 800 MHz - RRUs			
13		3	ALU TD-RRH8x20-25 - RRUs			
14		3	RFS APXVTM14-C-I20 - Panel			
15		3	Commscope NNVV-65B-R4 - Panel			
16	129.5	1	RFS 220-7N Omni	(3) Standoffs at 120.0'	(3) 7/8"	CL&P
17	124.7	1	RFS/220-3AN -Omni			
18	123.0	1	Telewave ANT450D6 Omni			
19	46.5	1	GPS	(1) 4' Standoff	(1) 1/2"[1]	Sprint Nextel

*Metro Terminated, not considered in this SA.

1. GPS 1/2" line installed outside pole

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
3	172.5	3	Ericsson Air21 B2A/B4P - Panel	(1) 13' Low Profile Platform w/Site Pro PRK-1245 & Add PV-PHK12-B + PIPE238X174*	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
4		3	Ericsson AIR 21 B4A/B2P - Panel			
5		3	RFS APXVAARR24_43-U-NA20 - Panel			
6		3	Ericsson KRY 112 144/1 TMAs			
7		3	Ericsson Radio 4449 B71+B12 RRU -			

*Modifed by TES, Job# 76333, Dated 06/03/19

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:	**70.6%**	**70.1%**	**57.5%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	6095.5	48.6	67.0

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 ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.1488 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

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

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

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

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

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

Usage Diagram - Max Ratio 70.63% at 0.0ft

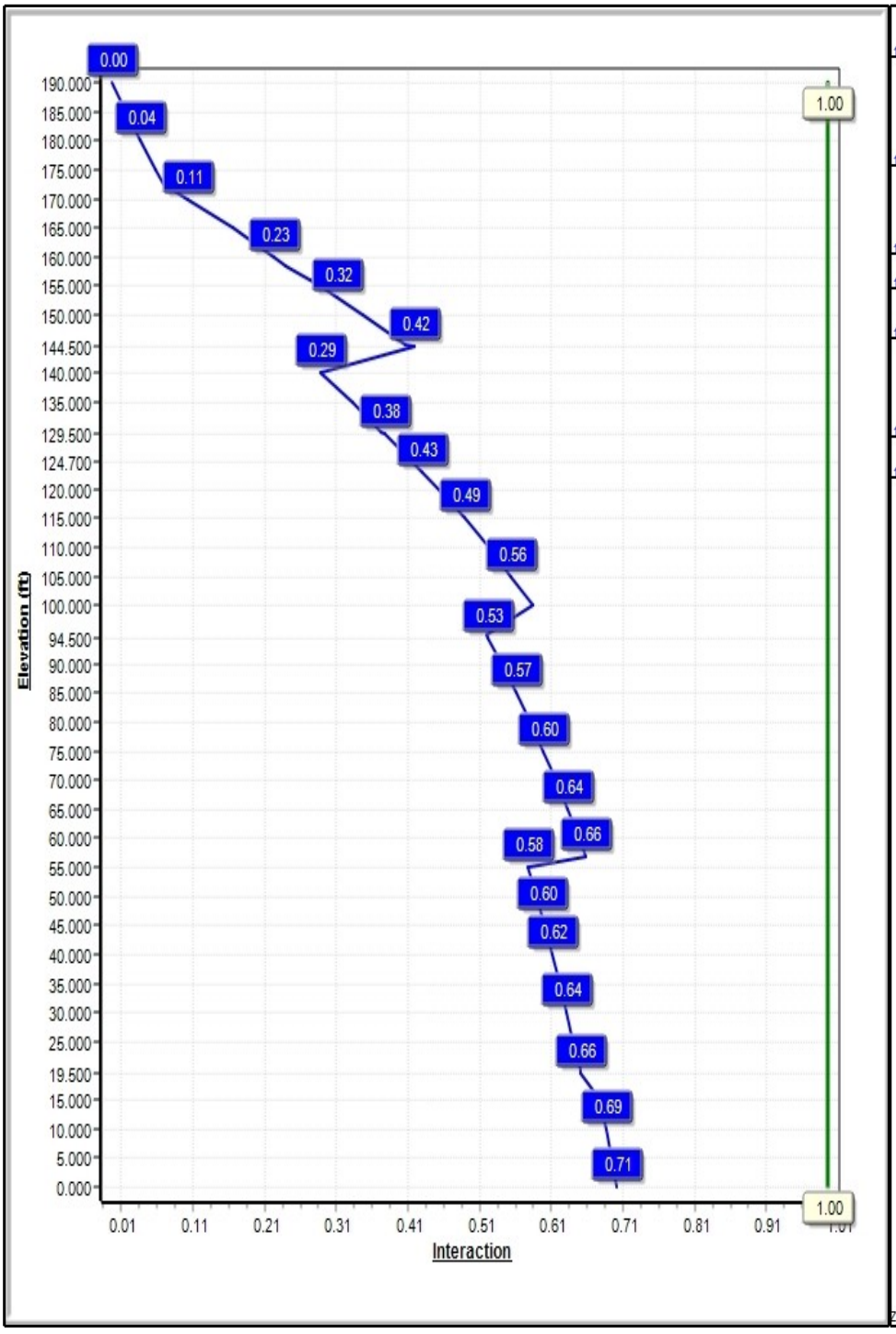
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook	**Exposure:**	C	
Height:	190.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

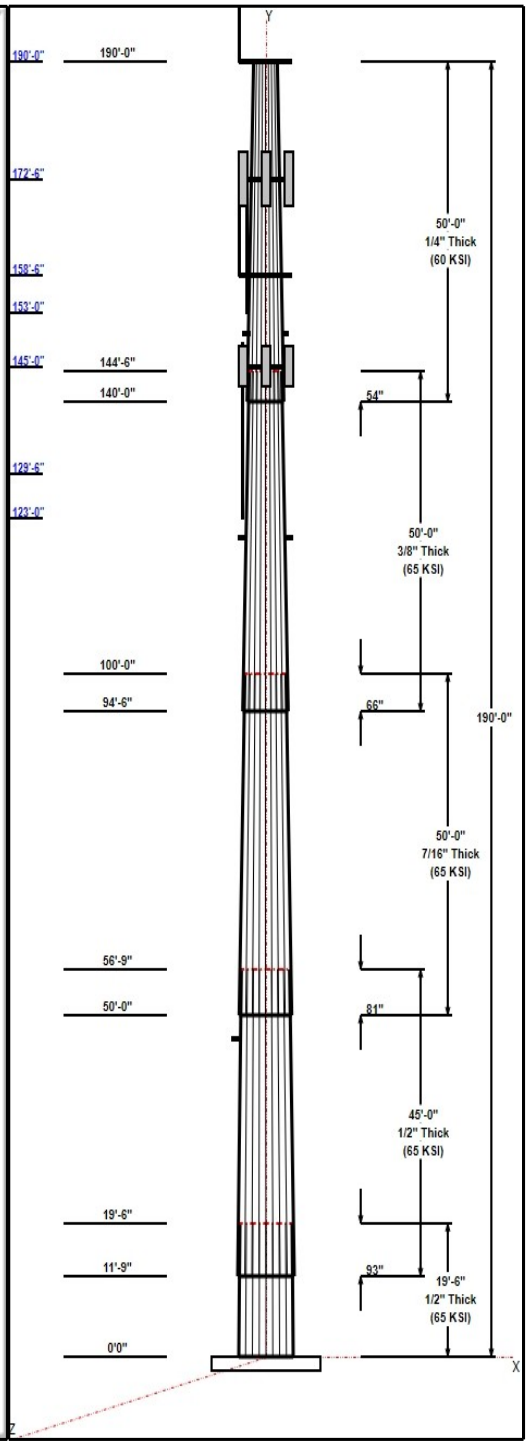
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 108 mph Wind

Iterations: 25





Structure: CT00235-B-SBA

Type: Tapered
Site Name: Stony Brook
Height: 190.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.22003

6/20/2019

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	19.50	58.39	62.68	0.500		0.22003	65
2	45.00	51.19	61.09	0.500	Slip	0.22003	65
3	50.00	42.55	53.55	0.438	Slip	0.22003	65
4	50.00	33.51	44.51	0.375	Slip	0.22003	65
5	50.00	24.00	35.00	0.250	Slip	0.22003	60

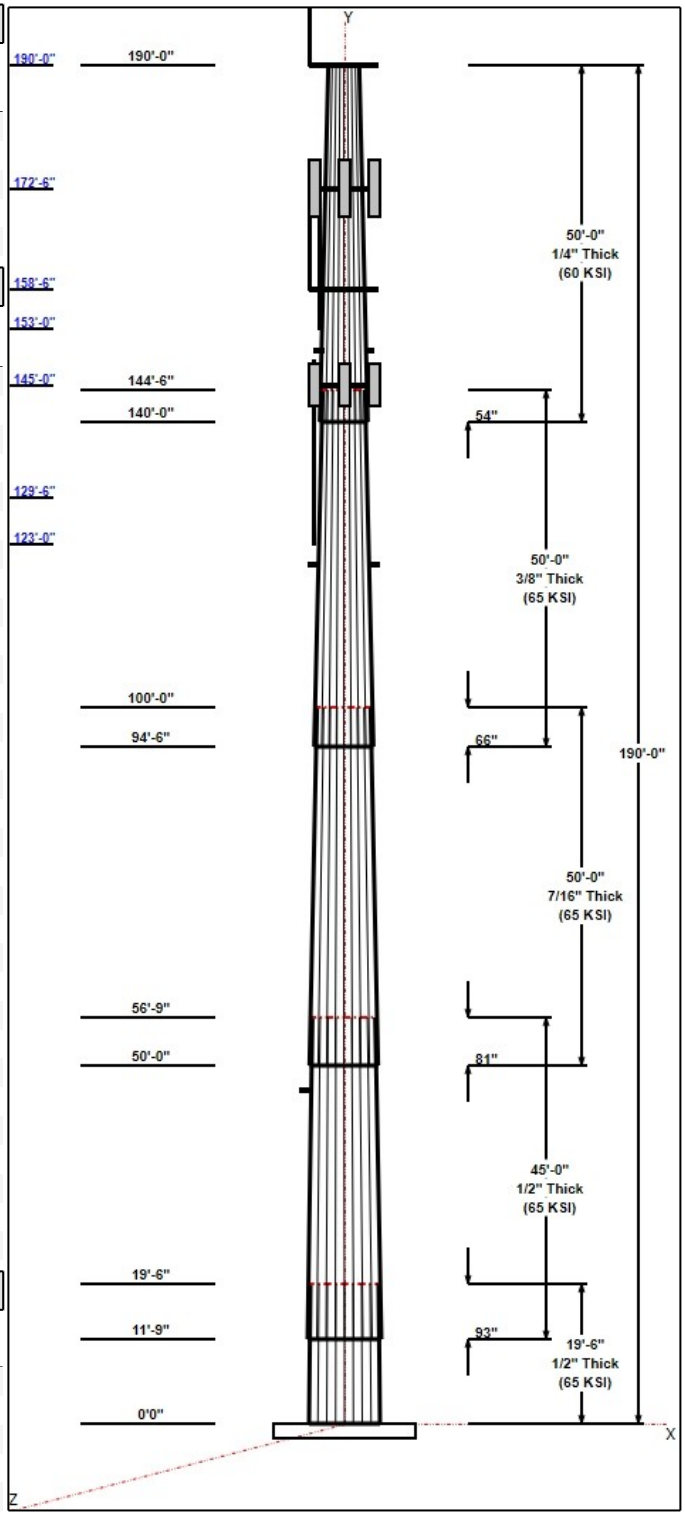
Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
190.00	190.00	1	Low Profile Platform	--
190.00	195.00	1	ANT150D3	SPD
172.50	172.50	3	Ericsson Air21 B2A/B4P	T-Mobile
172.50	172.50	3	Ericsson AIR 21 B4A/B2P	T-Mobile
172.50	172.50	3	RFS	T-Mobile
172.50	172.50	3	Ericsson KRY 112 144/1	T-Mobile
172.50	172.50	3	Ericsson Radio 4449	T-Mobile
172.50	172.50	1	PRK-1245	T-Mobile
172.50	172.50	1	Low Profile Platform-flat	T-Mobile
172.50	172.50	1	PV-PHK12-B +	T-Mobile
158.50	158.50	1	Low Profile Platform-flat	CL&P
158.50	165.15	1	PD458-2N	CL&P
156.00	162.30	1	114202C	CL&P
153.00	156.00	1	ANT450D6-9	CL&P
150.00	150.00	2	3 ft Standoff	CL&P
145.00	145.00	3	APXVTM14-C-I20	Sprint Nextel
145.00	145.00	3	NNVV-65B-R4	Sprint Nextel
145.00	145.00	1	HRK14	Sprint Nextel
145.00	145.00	1	PRK-1245 (kicker kit)	Sprint Nextel
145.00	145.00	1	(3) SFS-H-L (V-Braces)	Sprint Nextel
145.00	145.00	1	Horizontal Rail & SCX1-K	Sprint Nextel
145.00	145.00	1	Low Profile Platform-flat	Sprint Nextel
145.00	145.00	3	1900 MHz RRUs	Sprint Nextel
145.00	145.00	6	800 MHz RRUs	Sprint Nextel
145.00	145.00	3	TD-RRH8x20-25	Sprint Nextel
129.50	139.00	1	220-7N Omni	CL&P
124.70	135.05	1	220-3AN	CL&P
123.00	126.00	1	ANT450D6-9	CL&P
120.00	120.00	3	3 ft Standoff	CL&P
46.50	46.50	1	3 ft Standoff	Sprint Nextel
46.50	46.50	1	GPS	Sprint Nextel

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	190.00	Inside	7/8" Coax	SPD
0.00	172.50	Inside	1 5/8" Coax	T-Mobile
0.00	172.50	Inside	1 5/8" Fiber	T-Mobile
0.00	158.50	Inside	7/8" Coax	CL&P
0.00	145.00	Inside	1-1/4" Fiber	Sprint Nextel
0.00	120.00	Inside	7/8" Coax	CL&P
0.00	46.50	Outside	1/2" GPS Line	Sprint Nextel

Anchor Bolts



Qty	Specifications	Grade (ksi)	Arrangement
24	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.5000	71.0	50.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 108 mph Wind	6095.5	48.6	67.0
0.9D + 1.6W 108 mph Wind	6035.8	48.5	50.3
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1561.1	12.3	94.7
1.2D + 1.0E	208.6	1.8	67.1
0.9D + 1.0E	206.4	1.8	50.3
1.0D + 1.0W 60 mph Wind	1169.8	9.4	55.9

Structure: CT00235-B-SBA - Coax Line Placement

Type: Monopole
Site Name: Stony Brook
Height: 190.00 (ft)

6/20/2019

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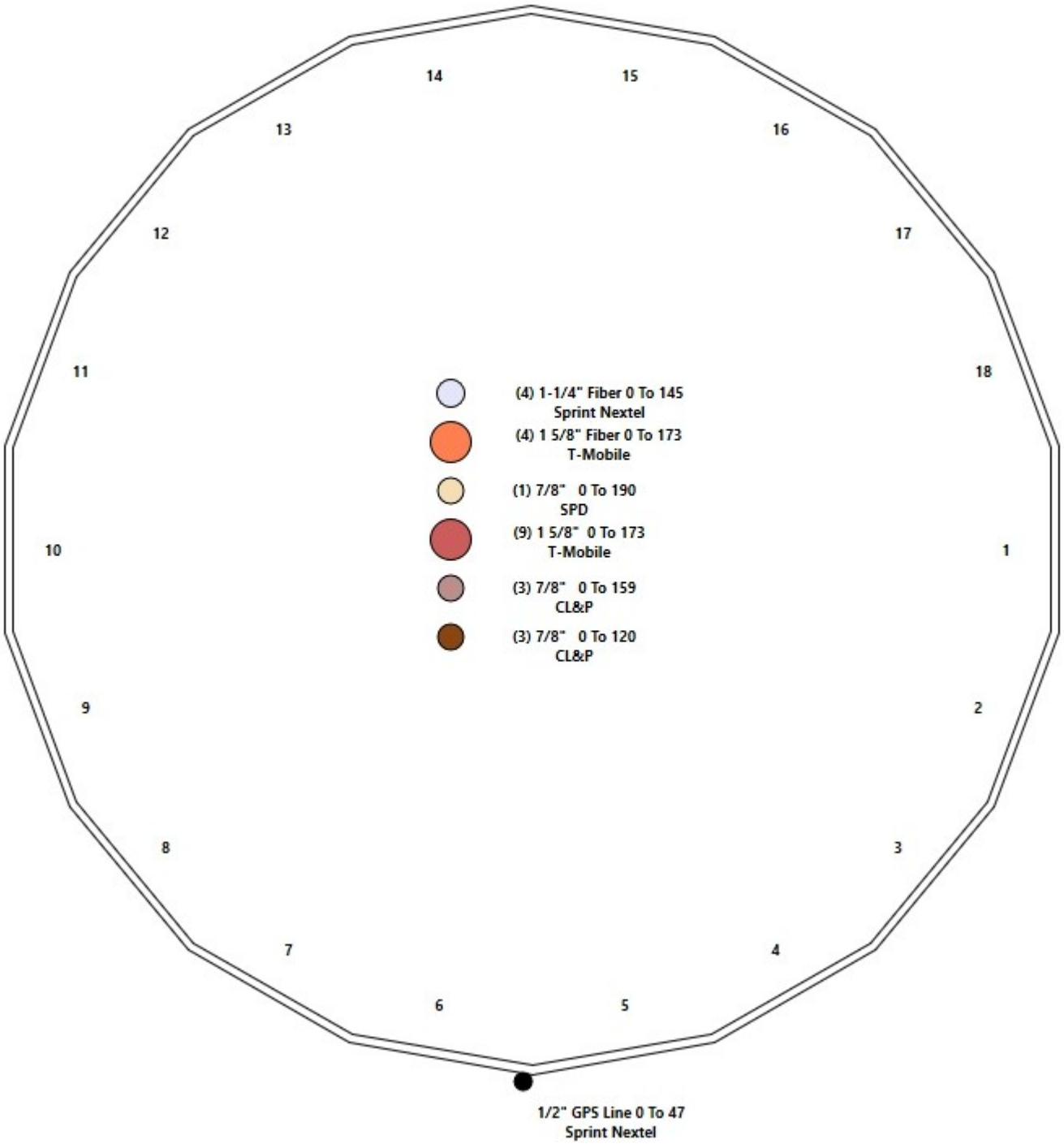


Shaft Properties

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (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	19.500	0.5000	65		0.00	6,322
2	18	45.000	0.5000	65	Slip	93.00	13,522
3	18	50.000	0.4375	65	Slip	81.00	11,249
4	18	50.000	0.3750	65	Slip	66.00	7,824
5	18	50.000	0.2500	60	Slip	54.00	3,949
					Total Shaft Weight:		**42,865**

	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	62.68	0.00	98.68	48202.16	20.69	125.36	58.39	19.50	91.87	38896.7	19.18	116.7	0.220026
2	61.09	11.75	96.16	44608.55	20.13	122.19	51.19	56.75	80.45	26119.8	16.64	102.3	0.220026
3	53.55	50.00	73.76	26290.75	20.17	122.41	42.55	100.00	58.48	13104.7	15.74	97.26	0.220026
4	44.51	94.50	52.53	12930.02	19.52	118.70	33.51	144.50	39.44	5471.21	14.35	89.36	0.220026
5	35.00	140.0	27.57	4207.25	23.28	140.01	24.00	190.00	18.84	1343.00	15.52	96.00	0.220026

Load Summary

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	190.00	Low Profile Platform	1	1200.00	25.00	1.00	2272.18	46.444	1.00	0.00	0.00
2	190.00	ANT150D3	1	18.00	2.18	1.00	92.89	10.878	1.00	0.00	5.00
3	172.50	Ericsson Air21 B2A/B4P	3	91.50	6.09	0.86	263.23	7.204	0.86	0.00	0.00
4	172.50	Ericsson AIR 21 B4A/B2P	3	105.80	6.51	0.87	293.25	7.707	0.87	0.00	0.00
5	172.50	RFS APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	552.57	22.168	0.70	0.00	0.00
6	172.50	Ericsson KRY 112 144/1 TMAs	3	11.00	0.41	0.70	21.93	0.892	0.75	0.00	0.00
7	172.50	Ericsson Radio 4449 B71+B12 RRU	3	70.00	1.65	0.67	139.46	2.196	0.67	0.00	0.00
8	172.50	PRK-1245	1	464.91	9.50	1.00	794.02	19.588	1.00	0.00	0.00
9	172.50	Low Profile Platform-flat	1	1200.00	25.00	1.00	2261.87	46.237	1.00	0.00	0.00
10	172.50	PV-PHK12-B + PIPE238X174	1	345.00	10.52	1.00	686.92	23.914	1.00	0.00	0.00
11	158.50	Low Profile Platform-flat	1	1200.00	25.00	1.00	2252.92	46.058	1.00	0.00	0.00
12	158.50	PD458-2N	1	22.00	2.66	1.00	94.09	7.416	1.00	0.00	6.65
13	156.00	114202C	1	24.00	2.14	1.00	145.62	6.709	1.00	0.00	6.30
14	153.00	ANT450D6-9	1	18.00	2.77	1.00	100.69	5.806	1.00	0.00	3.00
15	150.00	3 ft Standoff	2	40.00	2.63	1.00	120.28	8.599	1.00	0.00	0.00
16	145.00	APXVTM14-C-I20	3	56.20	6.34	0.77	215.96	7.449	0.77	0.00	0.00
17	145.00	NNVV-65B-R4	3	77.40	12.27	0.74	361.99	13.721	0.74	0.00	0.00
18	145.00	HRK14	1	302.36	8.13	1.00	659.97	16.049	1.00	0.00	0.00
19	145.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	788.36	19.414	1.00	0.00	0.00
20	145.00	(3) SFS-H-L (V-Braces)	1	230.00	9.70	1.00	550.03	19.823	1.00	0.00	0.00
21	145.00	Horizontal Rail & SCX1-K	1	302.36	9.97	1.00	659.97	19.681	1.00	0.00	0.00
22	145.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	2243.59	45.872	1.00	0.00	0.00
23	145.00	1900 MHz RRUs	3	44.00	3.80	0.88	152.79	5.185	0.88	0.00	0.00
24	145.00	800 MHz RRUs	6	53.00	2.49	0.92	126.71	3.630	0.92	0.00	0.00
25	145.00	TD-RRH8x20-25	3	70.00	4.05	0.69	180.01	4.860	0.69	0.00	0.00
26	129.50	220-7N Omni	1	22.00	5.32	1.00	256.07	12.034	1.00	0.00	9.50
27	124.70	220-3AN	1	24.00	5.69	1.00	166.04	12.888	1.00	0.00	10.35
28	123.00	ANT450D6-9	1	18.00	2.77	1.00	98.91	5.741	1.00	0.00	3.00
29	120.00	3 ft Standoff	3	40.00	2.63	1.00	118.51	8.467	1.00	0.00	0.00
30	46.50	3 ft Standoff	1	40.00	2.63	1.00	111.41	7.939	1.00	0.00	0.00
31	46.50	GPS	1	10.00	1.00	1.00	36.08	1.633	1.00	0.00	0.00
		Totals:	**57**	**9,585.24**			**22,171.58**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	190.00	(1) 7/8" Coax	0.00	Inside
0.00	172.50	(9) 1 5/8" Coax	0.00	Inside
0.00	172.50	(4) 1 5/8" Fiber	0.00	Inside
0.00	158.50	(3) 7/8" Coax	0.00	Inside
0.00	145.00	(4) 1-1/4" Fiber	0.00	Inside
0.00	120.00	(3) 7/8" Coax	0.00	Inside
0.00	46.50	(1) 1/2" GPS Line	0.50	Outside

Shaft Section Properties

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.5000	62.680	98.676	48202.2	20.69	125.36	77.1	1514.	0.0
5.00		0.5000	61.580	96.930	45688.7	20.31	123.16	77.5	1461.	1664.0
10.00		0.5000	60.480	95.184	43264.1	19.92	120.96	78.0	1409.	1634.3
11.75	Bot - Section 2	0.5000	60.095	94.573	42436.3	19.78	120.19	78.1	1390.	565.0
15.00		0.5000	59.380	93.439	40926.9	19.53	118.76	78.4	1357.	2096.8
19.50	Top - Section 1	0.5000	59.389	93.454	40947.5	19.53	118.78	0.0	0.0	2861.8
20.00		0.5000	59.279	93.280	40718.5	19.49	118.56	78.5	1352.	158.9
25.00		0.5000	58.179	91.534	38474.7	19.11	116.36	78.9	1302.	1572.2
30.00		0.5000	57.079	89.788	36314.9	18.72	114.16	79.4	1253.	1542.5
35.00		0.5000	55.979	88.042	34237.5	18.33	111.96	79.8	1204.	1512.8
40.00		0.5000	54.879	86.296	32240.9	17.94	109.76	80.3	1157.	1483.1
45.00		0.5000	53.779	84.550	30323.4	17.55	107.56	80.8	1110.	1453.4
46.50		0.5000	53.449	84.027	29763.4	17.44	106.90	80.9	1096.	430.2
50.00	Bot - Section 3	0.5000	52.679	82.805	28483.5	17.17	105.36	81.2	1065.	993.5
55.00		0.5000	51.579	81.059	26719.6	16.78	103.16	81.7	1020.	2635.9
56.75	Top - Section 2	0.4375	52.069	71.694	24146.5	19.57	119.01	0.0	0.0	909.4
60.00		0.4375	51.353	70.701	23157.1	19.29	117.38	78.7	888.2	787.4
65.00		0.4375	50.253	69.173	21688.2	18.84	114.86	79.2	850.0	1189.9
70.00		0.4375	49.153	67.645	20282.8	18.40	112.35	79.8	812.8	1163.9
75.00		0.4375	48.053	66.118	18939.5	17.96	109.84	80.3	776.3	1137.9
80.00		0.4375	46.953	64.590	17656.8	17.51	107.32	80.8	740.7	1111.9
85.00		0.4375	45.853	63.062	16433.4	17.07	104.81	81.3	705.9	1085.9
90.00		0.4375	44.753	61.535	15267.9	16.63	102.29	81.8	672.0	1059.9
94.50	Bot - Section 4	0.4375	43.763	60.160	14267.2	16.23	100.03	82.3	642.1	931.7
95.00		0.4375	43.652	60.007	14158.8	16.18	99.78	82.4	638.8	191.5
100.00	Top - Section 3	0.3750	43.302	51.092	11895.4	18.95	115.47	0.0	0.0	1888.4
105.00		0.3750	42.202	49.783	11004.1	18.43	112.54	79.7	513.6	858.1
110.00		0.3750	41.102	48.474	10158.4	17.92	109.61	80.3	486.8	835.9
115.00		0.3750	40.002	47.164	9357.3	17.40	106.67	80.9	460.7	813.6
120.00		0.3750	38.902	45.855	8599.4	16.88	103.74	81.5	435.4	791.3
123.00		0.3750	38.242	45.069	8164.9	16.57	101.98	81.9	420.5	464.1
124.70		0.3750	37.868	44.624	7925.3	16.39	100.98	82.1	412.2	259.4
125.00		0.3750	37.802	44.546	7883.5	16.36	100.80	82.2	410.8	45.5
129.50		0.3750	36.812	43.367	7274.3	15.90	98.16	82.5	389.2	673.1
130.00		0.3750	36.702	43.236	7208.6	15.85	97.87	82.5	386.9	73.7
135.00		0.3750	35.601	41.927	6573.3	15.33	94.94	82.5	363.7	724.5
140.00	Bot - Section 5	0.3750	34.501	40.617	5976.5	14.81	92.00	82.5	341.2	702.2
144.50	Top - Section 4	0.2500	34.011	26.789	3857.8	22.58	136.04	0.0	0.0	1029.1
145.00		0.2500	33.901	26.701	3820.2	22.50	135.60	70.1	221.9	45.5
150.00		0.2500	32.801	25.828	3457.6	21.72	131.20	70.9	207.6	446.9
153.00		0.2500	32.141	25.305	3251.5	21.26	128.56	71.4	199.3	261.0
155.00		0.2500	31.701	24.955	3118.8	20.95	126.80	71.7	193.8	171.0
156.00		0.2500	31.481	24.781	3053.8	20.79	125.92	71.9	191.1	84.6
158.50		0.2500	30.931	24.344	2895.2	20.41	123.72	72.3	184.4	209.0
160.00		0.2500	30.601	24.082	2802.8	20.17	122.40	72.6	180.4	123.6
165.00		0.2500	29.501	23.210	2508.9	19.40	118.00	73.4	167.5	402.3
170.00		0.2500	28.401	22.337	2236.4	18.62	113.60	74.2	155.1	387.5
172.50		0.2500	27.850	21.900	2107.8	18.23	111.40	74.6	149.1	188.2
175.00		0.2500	27.300	21.464	1984.3	17.84	109.20	75.0	143.2	184.4
180.00		0.2500	26.200	20.591	1751.9	17.07	104.80	75.8	131.7	357.8

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)
185.00		0.2500	25.100	19.718	1538.4	16.29	100.40	76.2	120.7	342.9
190.00		0.2500	24.000	18.845	1343.0	15.52	96.00	76.2	110.2	328.1
										42865.3

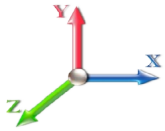
Wind Loading - Shaft

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (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	

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

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	24.112	26.52	528.12	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	24.112	26.52	518.85	0.650	0.000	5.00	26.287	17.09	725.1	0.0	1996.8
10.00		1.00	0.85	24.112	26.52	509.58	0.650	0.000	5.00	25.821	16.78	712.3	0.0	1961.2
11.75	Bot - Section 2	1.00	0.85	24.112	26.52	506.33	0.650	0.000	1.75	8.928	5.80	246.3	0.0	678.0
15.00		1.00	0.85	24.112	26.52	500.31	0.650	0.000	3.25	16.703	10.86	460.7	0.0	2516.1
19.50	Top - Section 1	1.00	0.90	25.448	27.99	505.41	0.650	0.000	4.50	22.803	14.82	663.8	0.0	3434.2
20.00		1.00	0.90	25.584	28.14	514.48	0.650	0.000	0.50	2.510	1.63	73.5	0.0	190.6
25.00		1.00	0.95	26.814	29.50	516.94	0.650	0.000	5.00	24.848	16.15	762.2	0.0	1886.6
30.00		1.00	0.98	27.863	30.65	516.99	0.650	0.000	5.00	24.383	15.85	777.2	0.0	1851.0
35.00		1.00	1.01	28.782	31.66	515.32	0.650	0.000	5.00	23.917	15.55	787.5	0.0	1815.3
40.00		1.00	1.04	29.603	32.56	512.34	0.650	0.000	5.00	23.452	15.24	794.2	0.0	1779.7
45.00		1.00	1.07	30.346	33.38	508.33	0.650	0.000	5.00	22.986	14.94	798.0	0.0	1744.1
46.50	Appurtenance(s)	1.00	1.08	30.557	33.61	506.96	0.650	0.000	1.50	6.805	4.42	237.9	0.0	516.3
50.00	Bot - Section 3	1.00	1.09	31.027	34.13	503.49	0.650	0.000	3.50	15.716	10.22	557.8	0.0	1192.1
55.00		1.00	1.12	31.656	34.82	497.95	0.650	0.000	5.00	22.426	14.58	812.1	0.0	3163.0
56.75	Top - Section 2	1.00	1.12	31.865	35.05	495.86	0.650	0.000	1.75	7.739	5.03	282.1	0.0	1091.3
60.00		1.00	1.14	32.241	35.47	500.33	0.650	0.000	3.25	14.221	9.24	524.5	0.0	944.8
65.00		1.00	1.16	32.789	36.07	493.76	0.650	0.000	5.00	21.495	13.97	806.3	0.0	1427.9
70.00		1.00	1.17	33.305	36.63	486.73	0.650	0.000	5.00	21.029	13.67	801.2	0.0	1396.7
75.00		1.00	1.19	33.792	37.17	479.30	0.650	0.000	5.00	20.564	13.37	794.9	0.0	1365.5
80.00		1.00	1.21	34.254	37.68	471.52	0.650	0.000	5.00	20.098	13.06	787.6	0.0	1334.3
85.00		1.00	1.22	34.694	38.16	463.42	0.650	0.000	5.00	19.633	12.76	779.2	0.0	1303.1
90.00		1.00	1.24	35.114	38.63	455.03	0.650	0.000	5.00	19.167	12.46	770.0	0.0	1271.9
94.50	Bot - Section 4	1.00	1.25	35.477	39.02	447.26	0.650	0.000	4.50	16.853	10.95	684.0	0.0	1118.1
95.00		1.00	1.25	35.516	39.07	446.38	0.650	0.000	0.50	1.881	1.22	76.4	0.0	229.8
100.00	Top - Section 3	1.00	1.27	35.902	39.49	437.49	0.650	0.000	5.00	18.554	12.06	762.0	0.0	2266.1
105.00		1.00	1.28	36.272	39.90	436.12	0.650	0.000	5.00	18.088	11.76	750.6	0.0	1029.8
110.00		1.00	1.29	36.629	40.29	426.84	0.650	0.000	5.00	17.623	11.45	738.5	0.0	1003.0
115.00		1.00	1.30	36.974	40.67	417.36	0.650	0.000	5.00	17.157	11.15	725.7	0.0	976.3
120.00	Appurtenance(s)	1.00	1.32	37.306	41.04	407.71	0.650	0.000	5.00	16.692	10.85	712.4	0.0	949.6
123.00	Appurtenance(s)	1.00	1.32	37.501	41.25	401.83	0.650	0.000	3.00	9.792	6.36	420.1	0.0	556.9
124.70	Appurtenance(s)	1.00	1.33	37.609	41.37	398.48	0.650	0.000	1.70	5.474	3.56	235.5	0.0	311.3
125.00		1.00	1.33	37.628	41.39	397.88	0.650	0.000	0.30	0.960	0.62	41.3	0.0	54.6
129.50	Appurtenance(s)	1.00	1.34	37.910	41.70	388.91	0.650	0.000	4.50	14.206	9.23	616.1	0.0	807.7
130.00		1.00	1.34	37.940	41.73	387.90	0.650	0.000	0.50	1.555	1.01	67.5	0.0	88.4
135.00		1.00	1.35	38.243	42.07	377.77	0.650	0.000	5.00	15.296	9.94	669.2	0.0	869.4
140.00	Bot - Section 5	1.00	1.36	38.537	42.39	367.50	0.650	0.000	5.00	14.830	9.64	653.8	0.0	842.6
144.50	Top - Section 4	1.00	1.37	38.795	42.67	358.15	0.650	0.000	4.50	13.139	8.54	583.1	0.0	1235.0
145.00	Appurtenance(s)	1.00	1.37	38.823	42.71	362.45	0.650	0.000	0.50	1.437	0.93	63.8	0.0	54.6
150.00	Appurtenance(s)	1.00	1.38	39.101	43.01	351.94	0.650	0.000	5.00	14.111	9.17	631.2	0.0	536.2
153.00	Appurtenance(s)	1.00	1.38	39.264	43.19	345.58	0.650	0.000	3.00	8.243	5.36	370.3	0.0	313.2
155.00		1.00	1.39	39.372	43.31	341.31	0.650	0.000	2.00	5.402	3.51	243.3	0.0	205.2
156.00	Appurtenance(s)	1.00	1.39	39.425	43.37	339.17	0.650	0.000	1.00	2.673	1.74	120.6	0.0	101.5
158.50	Appurtenance(s)	1.00	1.39	39.557	43.51	333.80	0.650	0.000	2.50	6.602	4.29	298.7	0.0	250.7
160.00		1.00	1.40	39.636	43.60	330.57	0.650	0.000	1.50	3.905	2.54	177.1	0.0	148.3
165.00		1.00	1.41	39.893	43.88	319.72	0.650	0.000	5.00	12.714	8.26	580.3	0.0	482.8
170.00		1.00	1.42	40.145	44.16	308.76	0.650	0.000	5.00	12.249	7.96	562.5	0.0	465.0

Wind Loading - Shaft

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (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	

172.50 Appurtenance(s)	1.00	1.42	40.268	44.30	303.25	0.650	0.000	2.50	5.950	3.87	274.1	0.0	225.8
175.00	1.00	1.42	40.391	44.43	297.71	0.650	0.000	2.50	5.834	3.79	269.5	0.0	221.3
180.00	1.00	1.43	40.631	44.69	286.56	0.650	0.000	5.00	11.318	7.36	526.1	0.0	429.3
185.00	1.00	1.44	40.866	44.95	275.32	0.650	0.000	5.00	10.852	7.05	507.4	0.0	411.5
190.00 Appurtenance(s)	1.00	1.45	41.096	45.21	264.00	0.650	0.000	5.00	10.387	6.75	488.3	0.0	393.7
							Totals:	**190.00**			**26,803.9**		**51,438.3**

Discrete Appurtenance Forces

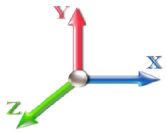
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

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	190.00	Low Profile Platform	1	41.096	45.206	1.00	1.00	25.00	1440.00	0.000	0.000	1808.22	0.00	0.00
2	190.00	ANT150D3	1	41.321	45.453	1.00	1.00	2.18	21.60	0.000	5.000	158.54	0.00	792.71
3	172.50	Ericsson KRY 112 144/1	3	40.268	44.295	0.52	0.75	0.65	39.60	0.000	0.000	45.77	0.00	0.00
4	172.50	Ericsson Air21 B2A/B4P	3	40.268	44.295	0.65	0.75	11.78	329.40	0.000	0.000	835.17	0.00	0.00
5	172.50	Ericsson AIR 21 B4A/B2P	3	40.268	44.295	0.65	0.75	12.74	380.88	0.000	0.000	903.15	0.00	0.00
6	172.50	RFS	3	40.268	44.295	0.52	0.75	31.88	460.80	0.000	0.000	2259.27	0.00	0.00
7	172.50	Ericsson Radio 4449	3	40.268	44.295	0.50	0.75	2.49	252.00	0.000	0.000	176.29	0.00	0.00
8	172.50	PRK-1245	1	40.268	44.295	1.00	1.00	9.50	557.89	0.000	0.000	673.29	0.00	0.00
9	172.50	Low Profile Platform-flat	1	40.268	44.295	1.00	1.00	25.00	1440.00	0.000	0.000	1771.81	0.00	0.00
10	172.50	PV-PHK14-B +	1	40.268	44.295	1.00	1.00	10.52	414.00	0.000	0.000	745.22	0.00	0.00
11	158.50	PD458-2N	1	39.901	43.891	0.80	0.80	2.13	26.40	0.000	6.650	149.44	0.00	993.78
12	158.50	Low Profile Platform-flat	1	39.557	43.513	1.00	1.00	25.00	1440.00	0.000	0.000	1740.52	0.00	0.00
13	156.00	114202C	1	39.755	43.730	1.00	1.00	2.14	28.80	0.000	6.300	149.73	0.00	943.32
14	153.00	ANT450D6-9	1	39.425	43.368	1.00	1.00	2.77	21.60	0.000	3.000	192.20	0.00	576.61
15	150.00	3 ft Standoff	2	39.101	43.011	1.00	1.00	5.26	96.00	0.000	0.000	361.98	0.00	0.00
16	145.00	Horizontal Rail & SCX1-K	1	38.823	42.705	1.00	1.00	9.97	362.83	0.000	0.000	681.23	0.00	0.00
17	145.00	TD-RRH8x20-25	3	38.823	42.705	0.52	0.75	6.29	252.00	0.000	0.000	429.62	0.00	0.00
18	145.00	Low Profile Platform-flat	1	38.823	42.705	1.00	1.00	25.00	1440.00	0.000	0.000	1708.20	0.00	0.00
19	145.00	1900 MHz RRUs	3	38.823	42.705	0.66	0.75	7.52	158.40	0.000	0.000	514.10	0.00	0.00
20	145.00	800 MHz RRUs	6	38.823	42.705	0.69	0.75	10.31	381.60	0.000	0.000	704.37	0.00	0.00
21	145.00	(3) SFS-H-L (V-Braces)	1	38.823	42.705	1.00	1.00	9.70	276.00	0.000	0.000	662.78	0.00	0.00
22	145.00	APXVTM14-C-I20	3	38.823	42.705	0.58	0.75	10.98	202.32	0.000	0.000	750.52	0.00	0.00
23	145.00	NNVV-65B-R4	3	38.823	42.705	0.55	0.75	20.43	278.64	0.000	0.000	1395.91	0.00	0.00
24	145.00	HRK14	1	38.823	42.705	1.00	1.00	8.13	362.83	0.000	0.000	555.51	0.00	0.00
25	145.00	PRK-1245 (kicker kit)	1	38.823	42.705	1.00	1.00	9.50	557.89	0.000	0.000	649.12	0.00	0.00
26	129.50	220-7N Omni	1	38.479	42.327	1.00	1.00	5.32	26.40	0.000	9.500	360.29	0.00	3422.71
27	124.70	220-3AN	1	38.246	42.071	1.00	1.00	5.69	28.80	0.000	10.350	383.01	0.00	3964.17
28	123.00	ANT450D6-9	1	37.692	41.461	1.00	1.00	2.77	21.60	0.000	3.000	183.75	0.00	551.26
29	120.00	3 ft Standoff	3	37.306	41.037	1.00	1.00	7.89	144.00	0.000	0.000	518.05	0.00	0.00
30	46.50	GPS	1	30.557	33.612	1.00	1.00	1.00	12.00	0.000	0.000	53.78	0.00	0.00
31	46.50	3 ft Standoff	1	30.557	33.612	1.00	1.00	2.63	48.00	0.000	0.000	141.44	0.00	0.00
							Totals:		**11,502.29**			**21,662.27**		

Total Applied Force Summary

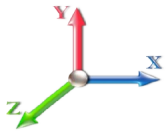
Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 12

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

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		725.09	2125.07	0.00	0.00
10.00		712.25	2089.43	0.00	0.00
11.75		246.26	722.88	0.00	0.00
15.00		460.75	2599.50	0.00	0.00
19.50		663.85	3549.59	0.00	0.00
20.00		73.47	203.45	0.00	0.00
25.00		762.23	2014.89	0.00	0.00
30.00		777.21	1979.25	0.00	0.00
35.00		787.52	1943.60	0.00	0.00
40.00		794.21	1907.96	0.00	0.00
45.00		798.00	1872.32	0.00	0.00
46.50	(2) attachments	433.10	614.74	0.00	0.00
50.00		557.83	1281.26	0.00	0.00
55.00		812.12	3290.32	0.00	0.00
56.75		282.12	1135.82	0.00	0.00
60.00		524.53	1027.59	0.00	0.00
65.00		806.27	1555.17	0.00	0.00
70.00		801.22	1523.98	0.00	0.00
75.00		794.95	1492.79	0.00	0.00
80.00		787.58	1461.61	0.00	0.00
85.00		779.22	1430.42	0.00	0.00
90.00		769.96	1399.23	0.00	0.00
94.50		683.97	1232.64	0.00	0.00
95.00		76.42	242.52	0.00	0.00
100.00		762.03	2393.35	0.00	0.00
105.00		750.58	1157.07	0.00	0.00
110.00		738.46	1130.33	0.00	0.00
115.00		725.72	1103.60	0.00	0.00
120.00	(3) attachments	1230.44	1220.87	0.00	0.00
123.00	(1) attachments	603.83	649.27	0.00	551.26
124.70	(1) attachments	618.54	380.21	0.00	3964.17
125.00		41.34	61.69	0.00	0.00
129.50	(1) attachments	976.37	940.24	0.00	3422.71
130.00		67.50	100.20	0.00	0.00
135.00		669.18	987.31	0.00	0.00
140.00		653.80	960.57	0.00	0.00
144.50		583.14	1341.12	0.00	0.00
145.00	(23) attachments	8115.16	4338.91	0.00	0.00
150.00	(2) attachments	993.17	727.28	0.00	0.00
153.00	(1) attachments	562.46	391.81	0.00	576.61
155.00		243.32	243.24	0.00	0.00
156.00	(1) attachments	270.30	149.35	0.00	943.32
158.50	(2) attachments	2188.70	1764.66	0.00	993.78
160.00		177.07	174.01	0.00	0.00
165.00		580.25	568.45	0.00	0.00
170.00		562.54	550.63	0.00	0.00

Total Applied Force Summary

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (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

172.50	(18) attachments	7684.05	4143.20	0.00	0.00
175.00		269.55	222.90	0.00	0.00
180.00		526.08	432.43	0.00	0.00
185.00		507.36	414.60	0.00	0.00
190.00	(2) attachments	2455.09	1858.38	0.00	792.71
	Totals:	**48,466.18**	**67,101.74**	**0.00**	**11,244.56**

Linear Appurtenance Segment Forces (Factored)

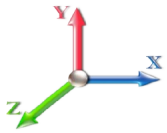
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	24.112	0.00	0.96
10.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	24.112	0.00	0.96
11.75	1/2" GPS Line	Yes	1.75	0.000	0.50	0.07	0.00	0.008	0.000	24.112	0.00	0.34
15.00	1/2" GPS Line	Yes	3.25	0.000	0.50	0.14	0.00	0.008	0.000	24.112	0.00	0.62
19.50	1/2" GPS Line	Yes	4.50	0.000	0.50	0.19	0.00	0.008	0.000	25.448	0.00	0.86
20.00	1/2" GPS Line	Yes	0.50	0.000	0.50	0.02	0.00	0.008	0.000	25.584	0.00	0.10
25.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	26.814	0.00	0.96
30.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	27.863	0.00	0.96
35.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	28.782	0.00	0.96
40.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	29.603	0.00	0.96
45.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	30.346	0.00	0.96
46.50	1/2" GPS Line	Yes	1.50	0.000	0.50	0.06	0.00	0.009	0.000	30.557	0.00	0.29
										Totals:	**0.0**	**8.9**

Calculated Forces

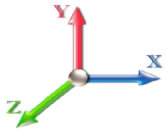
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

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	-67.02	-48.57	0.00	-6095.4	0.00	6095.47	6843.68	3421.84	17482.3	8754.18	0.00	0.000	0.000	0.706
5.00	-64.75	-48.04	0.00	-5852.6	0.00	5852.62	6762.41	3381.20	16966.6	8495.95	0.09	-0.176	0.000	0.699
10.00	-62.57	-47.45	0.00	-5612.4	0.00	5612.41	6679.70	3339.85	16454.8	8239.66	0.38	-0.355	0.000	0.691
11.75	-61.77	-47.30	0.00	-5529.3	0.00	5529.37	6650.41	3325.20	16276.6	8150.43	0.52	-0.419	0.000	0.688
15.00	-59.06	-46.96	0.00	-5375.6	0.00	5375.64	6595.55	3297.78	15947.1	7985.40	0.85	-0.538	0.000	0.682
19.50	-55.44	-46.35	0.00	-5164.3	0.00	5164.31	6596.31	3298.16	15951.6	7987.68	1.43	-0.703	0.000	0.655
20.00	-55.16	-46.37	0.00	-5141.1	0.00	5141.13	6587.82	3293.91	15901.1	7962.37	1.51	-0.721	0.000	0.654
25.00	-53.02	-45.74	0.00	-4909.2	0.00	4909.29	6502.11	3251.06	15398.0	7710.45	2.36	-0.897	0.000	0.645
30.00	-50.91	-45.09	0.00	-4680.5	0.00	4680.59	6414.97	3207.48	14899.4	7460.77	3.39	-1.074	0.000	0.635
35.00	-48.84	-44.42	0.00	-4455.1	0.00	4455.15	6326.39	3163.20	14405.4	7213.44	4.61	-1.253	0.000	0.626
40.00	-46.82	-43.73	0.00	-4233.0	0.00	4233.07	6236.38	3118.19	13916.4	6968.54	6.02	-1.434	0.000	0.615
45.00	-44.88	-42.97	0.00	-4014.4	0.00	4014.45	6144.94	3072.47	13432.4	6726.18	7.62	-1.616	0.000	0.604
46.50	-44.21	-42.59	0.00	-3949.9	0.00	3949.99	6117.23	3058.61	13288.2	6653.99	8.14	-1.672	0.000	0.601
50.00	-42.83	-42.11	0.00	-3800.9	0.00	3800.93	6052.06	3026.03	12953.6	6486.46	9.41	-1.801	0.000	0.593
55.00	-39.48	-41.28	0.00	-3590.3	0.00	3590.36	5957.75	2978.87	12480.3	6249.47	11.40	-1.986	0.000	0.581
56.75	-38.28	-41.02	0.00	-3518.1	0.00	3518.13	5057.23	2528.61	10722.5	5369.23	12.14	-2.052	0.000	0.663
60.00	-37.16	-40.56	0.00	-3384.8	0.00	3384.81	5008.75	2504.38	10471.4	5243.49	13.58	-2.174	0.000	0.653
65.00	-35.50	-39.82	0.00	-3182.0	0.00	3182.00	4933.00	2466.50	10088.3	5051.65	15.96	-2.376	0.000	0.637
70.00	-33.87	-39.07	0.00	-2982.9	0.00	2982.90	4855.80	2427.90	9709.24	4861.84	18.56	-2.578	0.000	0.621
75.00	-32.28	-38.33	0.00	-2787.5	0.00	2787.53	4777.18	2388.59	9334.40	4674.14	21.37	-2.781	0.000	0.603
80.00	-30.73	-37.57	0.00	-2595.9	0.00	2595.90	4697.12	2348.56	8963.98	4488.65	24.39	-2.983	0.000	0.585
85.00	-29.22	-36.82	0.00	-2408.0	0.00	2408.04	4615.63	2307.81	8598.19	4305.49	27.62	-3.184	0.000	0.566
90.00	-27.74	-36.06	0.00	-2223.9	0.00	2223.93	4532.70	2266.35	8237.22	4124.73	31.06	-3.385	0.000	0.546
94.50	-26.49	-35.35	0.00	-2061.6	0.00	2061.65	4456.84	2228.42	7916.63	3964.20	34.34	-3.564	0.000	0.526
95.00	-26.19	-35.31	0.00	-2043.9	0.00	2043.97	4448.34	2224.17	7881.27	3946.49	34.71	-3.585	0.000	0.524
100.00	-23.73	-34.48	0.00	-1867.4	0.00	1867.41	3637.80	1818.90	6411.13	3210.33	38.57	-3.781	0.000	0.589
105.00	-22.51	-33.73	0.00	-1695.0	0.00	1695.02	3571.83	1785.92	6132.14	3070.63	42.63	-3.975	0.000	0.559
110.00	-21.32	-32.99	0.00	-1526.3	0.00	1526.37	3504.43	1752.22	5856.78	2932.74	46.90	-4.183	0.000	0.527
115.00	-20.16	-32.25	0.00	-1361.4	0.00	1361.43	3435.59	1717.80	5585.22	2796.76	51.39	-4.385	0.000	0.493
120.00	-18.96	-30.98	0.00	-1200.1	0.00	1200.16	3365.32	1682.66	5317.67	2662.79	56.09	-4.580	0.000	0.457
123.00	-18.31	-30.36	0.00	-1106.6	0.00	1106.66	3322.47	1661.24	5159.15	2583.41	59.00	-4.694	0.000	0.434
124.70	-17.96	-29.72	0.00	-1051.0	0.00	1051.09	3297.96	1648.98	5070.01	2538.77	60.68	-4.758	0.000	0.420
125.00	-17.86	-29.70	0.00	-1042.1	0.00	1042.17	3293.62	1646.81	5054.33	2530.92	60.98	-4.770	0.000	0.418
129.50	-16.96	-28.67	0.00	-905.10	0.00	905.10	3221.96	1610.98	4812.26	2409.71	65.55	-4.928	0.000	0.381
130.00	-16.82	-28.63	0.00	-890.76	0.00	890.76	3212.23	1606.11	4783.10	2395.10	66.06	-4.946	0.000	0.377
135.00	-15.82	-27.92	0.00	-747.63	0.00	747.63	3114.95	1557.47	4496.34	2251.51	71.33	-5.107	0.000	0.337
140.00	-14.86	-27.21	0.00	-608.06	0.00	608.06	3017.67	1508.83	4218.45	2112.36	76.75	-5.254	0.000	0.293
144.50	-13.55	-26.52	0.00	-485.60	0.00	485.60	1688.87	844.44	2343.95	1173.72	81.75	-5.371	0.000	0.423
145.00	-9.97	-18.05	0.00	-472.34	0.00	472.34	1685.31	842.66	2331.34	1167.40	82.32	-5.384	0.000	0.411
150.00	-9.30	-17.01	0.00	-382.09	0.00	382.09	1649.03	824.52	2206.02	1104.65	88.03	-5.543	0.000	0.352
153.00	-8.95	-16.43	0.00	-330.47	0.00	330.47	1626.65	813.33	2131.62	1067.39	91.54	-5.631	0.000	0.316
155.00	-8.72	-16.17	0.00	-297.62	0.00	297.62	1611.48	805.74	2082.37	1042.73	93.91	-5.686	0.000	0.291
156.00	-8.58	-15.89	0.00	-280.51	0.00	280.51	1603.81	801.91	2057.85	1030.46	95.10	-5.712	0.000	0.278
158.50	-7.03	-13.54	0.00	-239.80	0.00	239.80	1584.43	792.22	1996.89	999.93	98.10	-5.773	0.000	0.245
160.00	-6.86	-13.35	0.00	-219.49	0.00	219.49	1572.65	786.33	1960.55	981.73	99.92	-5.807	0.000	0.228
165.00	-6.34	-12.73	0.00	-152.71	0.00	152.71	1532.55	766.28	1840.74	921.74	106.04	-5.901	0.000	0.170
170.00	-5.84	-12.12	0.00	-89.07	0.00	89.07	1491.18	745.59	1723.12	862.84	112.25	-5.970	0.000	0.107
172.50	-2.52	-4.04	0.00	-58.78	0.00	58.78	1470.02	735.01	1665.18	833.83	115.38	-5.993	0.000	0.072

Calculated Forces

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 16

Tower Engineering Solutions

175.00	-2.32	-3.75	0.00	-48.67	0.00	48.67	1448.54	724.27	1607.86	805.12	118.52	-6.011	0.000	0.062
180.00	-1.95	-3.19	0.00	-29.91	0.00	29.91	1404.63	702.31	1495.13	748.67	124.82	-6.039	0.000	0.041
185.00	-1.59	-2.64	0.00	-13.98	0.00	13.98	1352.25	676.13	1377.77	689.91	131.14	-6.057	0.000	0.021
190.00	0.00	-2.46	0.00	-0.79	0.00	0.79	1292.39	646.19	1257.90	629.89	137.48	-6.064	0.000	0.001

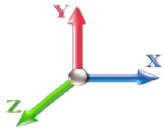
Wind Loading - Shaft

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (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	

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

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	24.112	26.52	528.12	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	24.112	26.52	518.85	0.650	0.000	5.00	26.287	17.09	725.1	0.0	1497.6
10.00		1.00	0.85	24.112	26.52	509.58	0.650	0.000	5.00	25.821	16.78	712.3	0.0	1470.9
11.75	Bot - Section 2	1.00	0.85	24.112	26.52	506.33	0.650	0.000	1.75	8.928	5.80	246.3	0.0	508.5
15.00		1.00	0.85	24.112	26.52	500.31	0.650	0.000	3.25	16.703	10.86	460.7	0.0	1887.1
19.50	Top - Section 1	1.00	0.90	25.448	27.99	505.41	0.650	0.000	4.50	22.803	14.82	663.8	0.0	2575.6
20.00		1.00	0.90	25.584	28.14	514.48	0.650	0.000	0.50	2.510	1.63	73.5	0.0	143.0
25.00		1.00	0.95	26.814	29.50	516.94	0.650	0.000	5.00	24.848	16.15	762.2	0.0	1415.0
30.00		1.00	0.98	27.863	30.65	516.99	0.650	0.000	5.00	24.383	15.85	777.2	0.0	1388.2
35.00		1.00	1.01	28.782	31.66	515.32	0.650	0.000	5.00	23.917	15.55	787.5	0.0	1361.5
40.00		1.00	1.04	29.603	32.56	512.34	0.650	0.000	5.00	23.452	15.24	794.2	0.0	1334.8
45.00		1.00	1.07	30.346	33.38	508.33	0.650	0.000	5.00	22.986	14.94	798.0	0.0	1308.0
46.50	Appurtenance(s)	1.00	1.08	30.557	33.61	506.96	0.650	0.000	1.50	6.805	4.42	237.9	0.0	387.2
50.00	Bot - Section 3	1.00	1.09	31.027	34.13	503.49	0.650	0.000	3.50	15.716	10.22	557.8	0.0	894.1
55.00		1.00	1.12	31.656	34.82	497.95	0.650	0.000	5.00	22.426	14.58	812.1	0.0	2372.3
56.75	Top - Section 2	1.00	1.12	31.865	35.05	495.86	0.650	0.000	1.75	7.739	5.03	282.1	0.0	818.5
60.00		1.00	1.14	32.241	35.47	500.33	0.650	0.000	3.25	14.221	9.24	524.5	0.0	708.6
65.00		1.00	1.16	32.789	36.07	493.76	0.650	0.000	5.00	21.495	13.97	806.3	0.0	1070.9
70.00		1.00	1.17	33.305	36.63	486.73	0.650	0.000	5.00	21.029	13.67	801.2	0.0	1047.5
75.00		1.00	1.19	33.792	37.17	479.30	0.650	0.000	5.00	20.564	13.37	794.9	0.0	1024.1
80.00		1.00	1.21	34.254	37.68	471.52	0.650	0.000	5.00	20.098	13.06	787.6	0.0	1000.7
85.00		1.00	1.22	34.694	38.16	463.42	0.650	0.000	5.00	19.633	12.76	779.2	0.0	977.3
90.00		1.00	1.24	35.114	38.63	455.03	0.650	0.000	5.00	19.167	12.46	770.0	0.0	953.9
94.50	Bot - Section 4	1.00	1.25	35.477	39.02	447.26	0.650	0.000	4.50	16.853	10.95	684.0	0.0	838.6
95.00		1.00	1.25	35.516	39.07	446.38	0.650	0.000	0.50	1.881	1.22	76.4	0.0	172.3
100.00	Top - Section 3	1.00	1.27	35.902	39.49	437.49	0.650	0.000	5.00	18.554	12.06	762.0	0.0	1699.5
105.00		1.00	1.28	36.272	39.90	436.12	0.650	0.000	5.00	18.088	11.76	750.6	0.0	772.3
110.00		1.00	1.29	36.629	40.29	426.84	0.650	0.000	5.00	17.623	11.45	738.5	0.0	752.3
115.00		1.00	1.30	36.974	40.67	417.36	0.650	0.000	5.00	17.157	11.15	725.7	0.0	732.2
120.00	Appurtenance(s)	1.00	1.32	37.306	41.04	407.71	0.650	0.000	5.00	16.692	10.85	712.4	0.0	712.2
123.00	Appurtenance(s)	1.00	1.32	37.501	41.25	401.83	0.650	0.000	3.00	9.792	6.36	420.1	0.0	417.7
124.70	Appurtenance(s)	1.00	1.33	37.609	41.37	398.48	0.650	0.000	1.70	5.474	3.56	235.5	0.0	233.5
125.00		1.00	1.33	37.628	41.39	397.88	0.650	0.000	0.30	0.960	0.62	41.3	0.0	41.0
129.50	Appurtenance(s)	1.00	1.34	37.910	41.70	388.91	0.650	0.000	4.50	14.206	9.23	616.1	0.0	605.8
130.00		1.00	1.34	37.940	41.73	387.90	0.650	0.000	0.50	1.555	1.01	67.5	0.0	66.3
135.00		1.00	1.35	38.243	42.07	377.77	0.650	0.000	5.00	15.296	9.94	669.2	0.0	652.0
140.00	Bot - Section 5	1.00	1.36	38.537	42.39	367.50	0.650	0.000	5.00	14.830	9.64	653.8	0.0	632.0
144.50	Top - Section 4	1.00	1.37	38.795	42.67	358.15	0.650	0.000	4.50	13.139	8.54	583.1	0.0	926.2
145.00	Appurtenance(s)	1.00	1.37	38.823	42.71	362.45	0.650	0.000	0.50	1.437	0.93	63.8	0.0	41.0
150.00	Appurtenance(s)	1.00	1.38	39.101	43.01	351.94	0.650	0.000	5.00	14.111	9.17	631.2	0.0	402.2
153.00	Appurtenance(s)	1.00	1.38	39.264	43.19	345.58	0.650	0.000	3.00	8.243	5.36	370.3	0.0	234.9
155.00		1.00	1.39	39.372	43.31	341.31	0.650	0.000	2.00	5.402	3.51	243.3	0.0	153.9
156.00	Appurtenance(s)	1.00	1.39	39.425	43.37	339.17	0.650	0.000	1.00	2.673	1.74	120.6	0.0	76.2
158.50	Appurtenance(s)	1.00	1.39	39.557	43.51	333.80	0.650	0.000	2.50	6.602	4.29	298.7	0.0	188.1
160.00		1.00	1.40	39.636	43.60	330.57	0.650	0.000	1.50	3.905	2.54	177.1	0.0	111.2
165.00		1.00	1.41	39.893	43.88	319.72	0.650	0.000	5.00	12.714	8.26	580.3	0.0	362.1
170.00		1.00	1.42	40.145	44.16	308.76	0.650	0.000	5.00	12.249	7.96	562.5	0.0	348.7

Wind Loading - Shaft

Structure: CT00235-B-SBA | **Code:** EIA/TIA-222-G | 6/20/2019

Site Name: Stony Brook | **Exposure:** C

Height: 190.00 (ft) | **Crest Height:** 0.00

Base Elev: 0.000 (ft) | **Site Class:** D - Stiff Soil

Gh: 1.1 | **Topography:** 1 | **Struct Class:** II | Page: 18

Tower Engineering Solutions

172.50 Appurtenance(s)	1.00	1.42	40.268	44.30	303.25	0.650	0.000	2.50	5.950	3.87	274.1	0.0	169.3
175.00	1.00	1.42	40.391	44.43	297.71	0.650	0.000	2.50	5.834	3.79	269.5	0.0	166.0
180.00	1.00	1.43	40.631	44.69	286.56	0.650	0.000	5.00	11.318	7.36	526.1	0.0	322.0
185.00	1.00	1.44	40.866	44.95	275.32	0.650	0.000	5.00	10.852	7.05	507.4	0.0	308.6
190.00 Appurtenance(s)	1.00	1.45	41.096	45.21	264.00	0.650	0.000	5.00	10.387	6.75	488.3	0.0	295.2
							Totals:	**190.00**			**26,803.9**		**38,578.7**

Discrete Appurtenance Forces

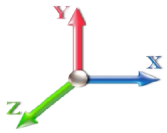
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

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	190.00	Low Profile Platform	1	41.096	45.206	1.00	1.00	25.00	1080.00	0.000	0.000	1808.22	0.00	0.00
2	190.00	ANT150D3	1	41.321	45.453	1.00	1.00	2.18	16.20	0.000	5.000	158.54	0.00	792.71
3	172.50	Ericsson KRY 112 144/1	3	40.268	44.295	0.52	0.75	0.65	29.70	0.000	0.000	45.77	0.00	0.00
4	172.50	Ericsson Air21 B2A/B4P	3	40.268	44.295	0.65	0.75	11.78	247.05	0.000	0.000	835.17	0.00	0.00
5	172.50	Ericsson AIR 21 B4A/B2P	3	40.268	44.295	0.65	0.75	12.74	285.66	0.000	0.000	903.15	0.00	0.00
6	172.50	RFS	3	40.268	44.295	0.52	0.75	31.88	345.60	0.000	0.000	2259.27	0.00	0.00
7	172.50	Ericsson Radio 4449	3	40.268	44.295	0.50	0.75	2.49	189.00	0.000	0.000	176.29	0.00	0.00
8	172.50	PRK-1245	1	40.268	44.295	1.00	1.00	9.50	418.42	0.000	0.000	673.29	0.00	0.00
9	172.50	Low Profile Platform-flat	1	40.268	44.295	1.00	1.00	25.00	1080.00	0.000	0.000	1771.81	0.00	0.00
10	172.50	PV-PHK14-B +	1	40.268	44.295	1.00	1.00	10.52	310.50	0.000	0.000	745.22	0.00	0.00
11	158.50	PD458-2N	1	39.901	43.891	0.80	0.80	2.13	19.80	0.000	6.650	149.44	0.00	993.78
12	158.50	Low Profile Platform-flat	1	39.557	43.513	1.00	1.00	25.00	1080.00	0.000	0.000	1740.52	0.00	0.00
13	156.00	114202C	1	39.755	43.730	1.00	1.00	2.14	21.60	0.000	6.300	149.73	0.00	943.32
14	153.00	ANT450D6-9	1	39.425	43.368	1.00	1.00	2.77	16.20	0.000	3.000	192.20	0.00	576.61
15	150.00	3 ft Standoff	2	39.101	43.011	1.00	1.00	5.26	72.00	0.000	0.000	361.98	0.00	0.00
16	145.00	Horizontal Rail & SCX1-K	1	38.823	42.705	1.00	1.00	9.97	272.12	0.000	0.000	681.23	0.00	0.00
17	145.00	TD-RRH8x20-25	3	38.823	42.705	0.52	0.75	6.29	189.00	0.000	0.000	429.62	0.00	0.00
18	145.00	Low Profile Platform-flat	1	38.823	42.705	1.00	1.00	25.00	1080.00	0.000	0.000	1708.20	0.00	0.00
19	145.00	1900 MHz RRUs	3	38.823	42.705	0.66	0.75	7.52	118.80	0.000	0.000	514.10	0.00	0.00
20	145.00	800 MHz RRUs	6	38.823	42.705	0.69	0.75	10.31	286.20	0.000	0.000	704.37	0.00	0.00
21	145.00	(3) SFS-H-L (V-Braces)	1	38.823	42.705	1.00	1.00	9.70	207.00	0.000	0.000	662.78	0.00	0.00
22	145.00	APXVTM14-C-I20	3	38.823	42.705	0.58	0.75	10.98	151.74	0.000	0.000	750.52	0.00	0.00
23	145.00	NNVV-65B-R4	3	38.823	42.705	0.55	0.75	20.43	208.98	0.000	0.000	1395.91	0.00	0.00
24	145.00	HRK14	1	38.823	42.705	1.00	1.00	8.13	272.12	0.000	0.000	555.51	0.00	0.00
25	145.00	PRK-1245 (kicker kit)	1	38.823	42.705	1.00	1.00	9.50	418.42	0.000	0.000	649.12	0.00	0.00
26	129.50	220-7N Omni	1	38.479	42.327	1.00	1.00	5.32	19.80	0.000	9.500	360.29	0.00	3422.71
27	124.70	220-3AN	1	38.246	42.071	1.00	1.00	5.69	21.60	0.000	10.350	383.01	0.00	3964.17
28	123.00	ANT450D6-9	1	37.692	41.461	1.00	1.00	2.77	16.20	0.000	3.000	183.75	0.00	551.26
29	120.00	3 ft Standoff	3	37.306	41.037	1.00	1.00	7.89	108.00	0.000	0.000	518.05	0.00	0.00
30	46.50	GPS	1	30.557	33.612	1.00	1.00	1.00	9.00	0.000	0.000	53.78	0.00	0.00
31	46.50	3 ft Standoff	1	30.557	33.612	1.00	1.00	2.63	36.00	0.000	0.000	141.44	0.00	0.00
							Totals:		**8,626.72**			**21,662.27**		

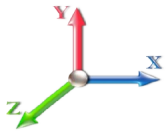
Total Applied Force Summary

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (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

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

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		725.09	1593.80	0.00	0.00
10.00		712.25	1567.07	0.00	0.00
11.75		246.26	542.16	0.00	0.00
15.00		460.75	1949.63	0.00	0.00
19.50		663.85	2662.19	0.00	0.00
20.00		73.47	152.59	0.00	0.00
25.00		762.23	1511.17	0.00	0.00
30.00		777.21	1484.44	0.00	0.00
35.00		787.52	1457.70	0.00	0.00
40.00		794.21	1430.97	0.00	0.00
45.00		798.00	1404.24	0.00	0.00
46.50	(2) attachments	433.10	461.06	0.00	0.00
50.00		557.83	960.94	0.00	0.00
55.00		812.12	2467.74	0.00	0.00
56.75		282.12	851.87	0.00	0.00
60.00		524.53	770.69	0.00	0.00
65.00		806.27	1166.38	0.00	0.00
70.00		801.22	1142.99	0.00	0.00
75.00		794.95	1119.60	0.00	0.00
80.00		787.58	1096.20	0.00	0.00
85.00		779.22	1072.81	0.00	0.00
90.00		769.96	1049.42	0.00	0.00
94.50		683.97	924.48	0.00	0.00
95.00		76.42	181.89	0.00	0.00
100.00		762.03	1795.02	0.00	0.00
105.00		750.58	867.80	0.00	0.00
110.00		738.46	847.75	0.00	0.00
115.00		725.72	827.70	0.00	0.00
120.00	(3) attachments	1230.44	915.65	0.00	0.00
123.00	(1) attachments	603.83	486.95	0.00	551.26
124.70	(1) attachments	618.54	285.16	0.00	3964.17
125.00		41.34	46.27	0.00	0.00
129.50	(1) attachments	976.37	705.18	0.00	3422.71
130.00		67.50	75.15	0.00	0.00
135.00		669.18	740.48	0.00	0.00
140.00		653.80	720.43	0.00	0.00
144.50		583.14	1005.84	0.00	0.00
145.00	(23) attachments	8115.16	3254.19	0.00	0.00
150.00	(2) attachments	993.17	545.46	0.00	0.00
153.00	(1) attachments	562.46	293.86	0.00	576.61
155.00		243.32	182.43	0.00	0.00
156.00	(1) attachments	270.30	112.01	0.00	943.32
158.50	(2) attachments	2188.70	1323.50	0.00	993.78
160.00		177.07	130.51	0.00	0.00
165.00		580.25	426.34	0.00	0.00
170.00		562.54	412.97	0.00	0.00

Total Applied Force Summary

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (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

172.50	(18) attachments	7684.05	3107.40	0.00	0.00
175.00		269.55	167.17	0.00	0.00
180.00		526.08	324.32	0.00	0.00
185.00		507.36	310.95	0.00	0.00
190.00	(2) attachments	2455.09	1393.79	0.00	792.71
	Totals:	**48,466.18**	**50,326.30**	**0.00**	**11,244.56**

Linear Appurtenance Segment Forces (Factored)

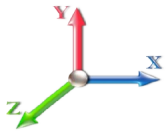
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	24.112	0.00	0.72
10.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	24.112	0.00	0.72
11.75	1/2" GPS Line	Yes	1.75	0.000	0.50	0.07	0.00	0.008	0.000	24.112	0.00	0.25
15.00	1/2" GPS Line	Yes	3.25	0.000	0.50	0.14	0.00	0.008	0.000	24.112	0.00	0.47
19.50	1/2" GPS Line	Yes	4.50	0.000	0.50	0.19	0.00	0.008	0.000	25.448	0.00	0.65
20.00	1/2" GPS Line	Yes	0.50	0.000	0.50	0.02	0.00	0.008	0.000	25.584	0.00	0.07
25.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	26.814	0.00	0.72
30.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	27.863	0.00	0.72
35.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	28.782	0.00	0.72
40.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	29.603	0.00	0.72
45.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	30.346	0.00	0.72
46.50	1/2" GPS Line	Yes	1.50	0.000	0.50	0.06	0.00	0.009	0.000	30.557	0.00	0.22
										Totals:	**0.0**	**6.7**

Calculated Forces

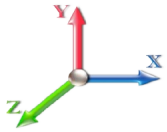
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

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	-50.25	-48.54	0.00	-6035.7	0.00	6035.79	6843.68	3421.84	17482.3	8754.18	0.00	0.000	0.000	0.697
5.00	-48.51	-47.96	0.00	-5793.0	0.00	5793.08	6762.41	3381.20	16966.6	8495.95	0.09	-0.175	0.000	0.689
10.00	-46.85	-47.34	0.00	-5553.2	0.00	5553.26	6679.70	3339.85	16454.8	8239.66	0.37	-0.351	0.000	0.681
11.75	-46.23	-47.17	0.00	-5470.4	0.00	5470.41	6650.41	3325.20	16276.6	8150.43	0.51	-0.415	0.000	0.678
15.00	-44.17	-46.80	0.00	-5317.1	0.00	5317.12	6595.55	3297.78	15947.1	7985.40	0.84	-0.532	0.000	0.673
19.50	-41.45	-46.17	0.00	-5106.5	0.00	5106.53	6596.31	3298.16	15951.6	7987.68	1.42	-0.695	0.000	0.646
20.00	-41.22	-46.17	0.00	-5083.4	0.00	5083.45	6587.82	3293.91	15901.1	7962.37	1.49	-0.714	0.000	0.645
25.00	-39.58	-45.50	0.00	-4852.6	0.00	4852.62	6502.11	3251.06	15398.0	7710.45	2.33	-0.887	0.000	0.636
30.00	-37.97	-44.82	0.00	-4625.1	0.00	4625.11	6414.97	3207.48	14899.4	7460.77	3.36	-1.063	0.000	0.626
35.00	-36.39	-44.11	0.00	-4401.0	0.00	4401.03	6326.39	3163.20	14405.4	7213.44	4.56	-1.239	0.000	0.616
40.00	-34.84	-43.40	0.00	-4180.4	0.00	4180.47	6236.38	3118.19	13916.4	6968.54	5.96	-1.418	0.000	0.606
45.00	-33.37	-42.63	0.00	-3963.4	0.00	3963.49	6144.94	3072.47	13432.4	6726.18	7.54	-1.597	0.000	0.595
46.50	-32.86	-42.24	0.00	-3899.5	0.00	3899.55	6117.23	3058.61	13288.2	6653.99	8.05	-1.653	0.000	0.592
50.00	-31.80	-41.74	0.00	-3751.7	0.00	3751.73	6052.06	3026.03	12953.6	6486.46	9.31	-1.781	0.000	0.584
55.00	-29.27	-40.91	0.00	-3543.0	0.00	3543.05	5957.75	2978.87	12480.3	6249.47	11.27	-1.963	0.000	0.572
56.75	-28.36	-40.64	0.00	-3471.4	0.00	3471.47	5057.23	2528.61	10722.5	5369.23	12.01	-2.028	0.000	0.652
60.00	-27.50	-40.17	0.00	-3339.3	0.00	3339.39	5008.75	2504.38	10471.4	5243.49	13.43	-2.149	0.000	0.643
65.00	-26.23	-39.41	0.00	-3138.5	0.00	3138.56	4933.00	2466.50	10088.3	5051.65	15.79	-2.348	0.000	0.627
70.00	-24.99	-38.64	0.00	-2941.5	0.00	2941.54	4855.80	2427.90	9709.24	4861.84	18.35	-2.547	0.000	0.610
75.00	-23.78	-37.88	0.00	-2748.3	0.00	2748.32	4777.18	2388.59	9334.40	4674.14	21.12	-2.747	0.000	0.593
80.00	-22.59	-37.12	0.00	-2558.9	0.00	2558.92	4697.12	2348.56	8963.98	4488.65	24.11	-2.946	0.000	0.575
85.00	-21.44	-36.36	0.00	-2373.3	0.00	2373.33	4615.63	2307.81	8598.19	4305.49	27.30	-3.145	0.000	0.556
90.00	-20.32	-35.60	0.00	-2191.5	0.00	2191.55	4532.70	2266.35	8237.22	4124.73	30.70	-3.342	0.000	0.536
94.50	-19.37	-34.89	0.00	-2031.3	0.00	2031.37	4456.84	2228.42	7916.63	3964.20	33.93	-3.519	0.000	0.517
95.00	-19.13	-34.84	0.00	-2013.9	0.00	2013.92	4448.34	2224.17	7881.27	3946.49	34.30	-3.539	0.000	0.515
100.00	-17.27	-34.02	0.00	-1839.7	0.00	1839.73	3637.80	1818.90	6411.13	3210.33	38.11	-3.733	0.000	0.578
105.00	-16.34	-33.27	0.00	-1669.6	0.00	1669.61	3571.83	1785.92	6132.14	3070.63	42.12	-3.923	0.000	0.549
110.00	-15.43	-32.53	0.00	-1503.2	0.00	1503.25	3504.43	1752.22	5856.78	2932.74	46.34	-4.128	0.000	0.517
115.00	-14.55	-31.80	0.00	-1340.5	0.00	1340.59	3435.59	1717.80	5585.22	2796.76	50.77	-4.328	0.000	0.484
120.00	-13.66	-30.54	0.00	-1181.6	0.00	1181.61	3365.32	1682.66	5317.67	2662.79	55.40	-4.519	0.000	0.448
123.00	-13.17	-29.91	0.00	-1089.4	0.00	1089.45	3322.47	1661.24	5159.15	2583.41	58.27	-4.632	0.000	0.426
124.70	-12.92	-29.28	0.00	-1034.6	0.00	1034.63	3297.96	1648.98	5070.01	2538.77	59.93	-4.695	0.000	0.412
125.00	-12.83	-29.26	0.00	-1025.8	0.00	1025.85	3293.62	1646.81	5054.33	2530.92	60.23	-4.706	0.000	0.410
129.50	-12.17	-28.24	0.00	-890.77	0.00	890.77	3221.96	1610.98	4812.26	2409.71	64.73	-4.862	0.000	0.374
130.00	-12.06	-28.19	0.00	-876.65	0.00	876.65	3212.23	1606.11	4783.10	2395.10	65.24	-4.879	0.000	0.370
135.00	-11.31	-27.49	0.00	-735.70	0.00	735.70	3114.95	1557.47	4496.34	2251.51	70.44	-5.038	0.000	0.331
140.00	-10.59	-26.80	0.00	-598.26	0.00	598.26	3017.67	1508.83	4218.45	2112.36	75.79	-5.183	0.000	0.287
144.50	-9.61	-26.14	0.00	-477.67	0.00	477.67	1688.87	844.44	2343.95	1173.72	80.72	-5.298	0.000	0.414
145.00	-7.09	-17.76	0.00	-464.61	0.00	464.61	1685.31	842.66	2331.34	1167.40	81.28	-5.310	0.000	0.403
150.00	-6.61	-16.74	0.00	-375.78	0.00	375.78	1649.03	824.52	2206.02	1104.65	86.92	-5.467	0.000	0.345
153.00	-6.35	-16.16	0.00	-324.99	0.00	324.99	1626.65	813.33	2131.62	1067.39	90.38	-5.553	0.000	0.309
155.00	-6.18	-15.90	0.00	-292.68	0.00	292.68	1611.48	805.74	2082.37	1042.73	92.71	-5.607	0.000	0.285
156.00	-6.08	-15.63	0.00	-275.83	0.00	275.83	1603.81	801.91	2057.85	1030.46	93.89	-5.633	0.000	0.272
158.50	-4.97	-13.32	0.00	-235.77	0.00	235.77	1584.43	792.22	1996.89	999.93	96.85	-5.693	0.000	0.239
160.00	-4.84	-13.14	0.00	-215.79	0.00	215.79	1572.65	786.33	1960.55	981.73	98.64	-5.726	0.000	0.223
165.00	-4.46	-12.53	0.00	-150.09	0.00	150.09	1532.55	766.28	1840.74	921.74	104.68	-5.819	0.000	0.166
170.00	-4.10	-11.93	0.00	-87.47	0.00	87.47	1491.18	745.59	1723.12	862.84	110.80	-5.886	0.000	0.104
172.50	-1.80	-3.96	0.00	-57.65	0.00	57.65	1470.02	735.01	1665.18	833.83	113.89	-5.910	0.000	0.070

Calculated Forces

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (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

175.00	-1.66	-3.68	0.00	-47.74	0.00	47.74	1448.54	724.27	1607.86	805.12	116.98	-5.927	0.000	0.060
180.00	-1.39	-3.12	0.00	-29.34	0.00	29.34	1404.63	702.31	1495.13	748.67	123.19	-5.955	0.000	0.040
185.00	-1.13	-2.59	0.00	-13.73	0.00	13.73	1352.25	676.13	1377.77	689.91	129.43	-5.972	0.000	0.021
190.00	0.00	-2.46	0.00	-0.79	0.00	0.79	1292.39	646.19	1257.90	629.89	135.68	-5.979	0.000	0.001

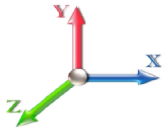
Wind Loading - Shaft

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (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	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

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	27.322	32.79	186.4	488.8	2485.6
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	26.931	32.32	183.7	515.5	2476.6
11.75	Bot - Section 2	1.00	0.85	5.168	5.68	0.00	1.200	1.353	1.75	9.322	11.19	63.6	182.3	860.3
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	3.25	17.454	20.95	119.1	348.7	2864.8
19.50	Top - Section 1	1.00	0.90	5.454	6.00	0.00	1.200	1.423	4.50	23.870	28.64	171.9	487.9	3922.1
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	0.50	2.629	3.16	19.0	54.3	244.9
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	26.064	31.28	197.7	545.0	2431.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	25.621	30.74	202.0	545.1	2396.1
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	25.175	30.21	205.0	543.4	2358.7
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	24.726	29.67	207.1	540.3	2320.0
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	24.276	29.13	208.4	536.2	2280.3
46.50	Appurtenance(s)	1.00	1.08	6.549	7.20	0.00	1.200	1.552	1.50	7.193	8.63	62.2	160.4	676.7
50.00	Bot - Section 3	1.00	1.09	6.650	7.32	0.00	1.200	1.564	3.50	16.628	19.95	146.0	371.9	1564.0
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	23.741	28.49	212.6	534.3	3697.3
56.75	Top - Section 2	1.00	1.12	6.830	7.51	0.00	1.200	1.584	1.75	8.201	9.84	73.9	186.3	1277.5
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	3.25	15.084	18.10	137.6	343.3	1288.1
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	22.832	27.40	211.8	521.4	1949.3
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	22.377	26.85	210.8	514.3	1910.9
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	21.921	26.30	209.6	506.7	1872.2
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	21.464	25.76	208.0	498.8	1833.1
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	21.007	25.21	206.2	490.6	1793.7
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	20.549	24.66	204.1	482.0	1754.0
94.50	Bot - Section 4	1.00	1.25	7.604	8.36	0.00	1.200	1.666	4.50	18.102	21.72	181.7	426.7	1544.8
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	0.50	2.020	2.42	20.3	48.1	277.9
100.00	Top - Section 3	1.00	1.27	7.695	8.46	0.00	1.200	1.676	5.00	19.950	23.94	202.6	472.1	2738.2
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	19.492	23.39	200.0	462.9	1492.7
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	19.033	22.84	197.2	453.5	1456.5
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	18.574	22.29	194.3	443.8	1420.1
120.00	Appurtenance(s)	1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	18.114	21.74	191.2	434.0	1383.6
123.00	Appurtenance(s)	1.00	1.32	8.038	8.84	0.00	1.200	1.711	3.00	10.647	12.78	113.0	256.9	813.8
124.70	Appurtenance(s)	1.00	1.33	8.061	8.87	0.00	1.200	1.713	1.70	5.960	7.15	63.4	144.4	455.7
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	0.30	1.046	1.26	11.1	25.4	80.1
129.50	Appurtenance(s)	1.00	1.34	8.125	8.94	0.00	1.200	1.720	4.50	15.496	18.59	166.2	373.5	1181.2
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	0.50	1.699	2.04	18.2	41.4	129.8
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	5.00	16.735	20.08	181.1	403.7	1273.1
140.00	Bot - Section 5	1.00	1.36	8.260	9.09	0.00	1.200	1.733	5.00	16.274	19.53	177.4	393.3	1235.9
144.50	Top - Section 4	1.00	1.37	8.315	9.15	0.00	1.200	1.739	4.50	14.443	17.33	158.5	350.3	1585.3
145.00	Appurtenance(s)	1.00	1.37	8.321	9.15	0.00	1.200	1.739	0.50	1.582	1.90	17.4	38.8	93.4
150.00	Appurtenance(s)	1.00	1.38	8.381	9.22	0.00	1.200	1.745	5.00	15.565	18.68	172.2	377.5	913.8
153.00	Appurtenance(s)	1.00	1.38	8.416	9.26	0.00	1.200	1.749	3.00	9.117	10.94	101.3	222.6	535.8
155.00		1.00	1.39	8.439	9.28	0.00	1.200	1.751	2.00	5.986	7.18	66.7	146.7	351.9
156.00	Appurtenance(s)	1.00	1.39	8.450	9.30	0.00	1.200	1.752	1.00	2.965	3.56	33.1	72.9	174.5
158.50	Appurtenance(s)	1.00	1.39	8.478	9.33	0.00	1.200	1.755	2.50	7.333	8.80	82.1	179.6	430.3
160.00		1.00	1.40	8.495	9.34	0.00	1.200	1.757	1.50	4.344	5.21	48.7	106.8	255.1
165.00		1.00	1.41	8.551	9.41	0.00	1.200	1.762	5.00	14.183	17.02	160.1	344.9	827.7
170.00		1.00	1.42	8.604	9.46	0.00	1.200	1.767	5.00	13.721	16.47	155.8	333.8	798.7

Wind Loading - Shaft

Structure: CT00235-B-SBA
Site Name: Stony Brook
Height: 190.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1
Topography: 1
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

6/20/2019

Tower Engineering Solutions

172.50 Appurtenance(s)	1.00	1.42	8.631	9.49	0.00	1.200	1.770	2.50	6.687	8.02	76.2	164.1	389.9
175.00	1.00	1.42	8.657	9.52	0.00	1.200	1.772	2.50	6.572	7.89	75.1	161.3	382.6
180.00	1.00	1.43	8.709	9.58	0.00	1.200	1.777	5.00	12.799	15.36	147.1	311.3	740.6
185.00	1.00	1.44	8.759	9.63	0.00	1.200	1.782	5.00	12.338	14.81	142.6	299.9	711.4
190.00 Appurtenance(s)	1.00	1.45	8.808	9.69	0.00	1.200	1.787	5.00	11.876	14.25	138.1	288.5	682.1
							Totals:	**190.00**			**7,139.5**		**68,614.4**

Discrete Appurtenance Forces

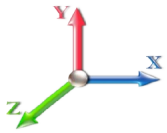
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

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	190.00	Low Profile Platform	1	8.808	9.689	1.00	1.00	46.44	2212.18	0.000	0.000	450.00	0.00	0.00
2	190.00	ANT150D3	1	8.857	9.742	1.00	1.00	10.88	75.59	0.000	5.000	105.98	0.00	529.88
3	172.50	Ericsson KRY 112 144/1	3	8.631	9.494	0.56	0.75	1.50	63.10	0.000	0.000	14.29	0.00	0.00
4	172.50	Ericsson Air21 B2A/B4P	3	8.631	9.494	0.65	0.75	13.94	844.60	0.000	0.000	132.34	0.00	0.00
5	172.50	Ericsson AIR 21 B4A/B2P	3	8.631	9.494	0.65	0.75	15.09	943.24	0.000	0.000	143.23	0.00	0.00
6	172.50	RFS	3	8.631	9.494	0.52	0.75	34.91	1734.52	0.000	0.000	331.48	0.00	0.00
7	172.50	Ericsson Radio 4449	3	8.631	9.494	0.50	0.75	3.31	460.37	0.000	0.000	31.43	0.00	0.00
8	172.50	PRK-1245	1	8.631	9.494	1.00	1.00	19.59	791.92	0.000	0.000	185.97	0.00	0.00
9	172.50	Low Profile Platform-flat	1	8.631	9.494	1.00	1.00	46.24	2201.87	0.000	0.000	438.98	0.00	0.00
10	172.50	PV-PHK14-B +	1	8.631	9.494	1.00	1.00	23.91	671.92	0.000	0.000	227.04	0.00	0.00
11	158.50	PD458-2N	1	8.552	9.407	0.80	0.80	5.93	77.99	0.000	6.650	55.81	0.00	371.13
12	158.50	Low Profile Platform-flat	1	8.478	9.326	1.00	1.00	46.06	2192.92	0.000	0.000	429.56	0.00	0.00
13	156.00	114202C	1	8.521	9.373	1.00	1.00	6.71	150.42	0.000	6.300	62.88	0.00	396.18
14	153.00	ANT450D6-9	1	8.450	9.295	1.00	1.00	5.81	80.69	0.000	3.000	53.97	0.00	161.91
15	150.00	3 ft Standoff	2	8.381	9.219	1.00	1.00	17.20	210.56	0.000	0.000	158.54	0.00	0.00
16	145.00	Horizontal Rail & SCX1-K	1	8.321	9.153	1.00	1.00	19.68	1022.80	0.000	0.000	180.14	0.00	0.00
17	145.00	TD-RRH8x20-25	3	8.321	9.153	0.52	0.75	7.55	582.03	0.000	0.000	69.06	0.00	0.00
18	145.00	Low Profile Platform-flat	1	8.321	9.153	1.00	1.00	45.87	2183.59	0.000	0.000	419.87	0.00	0.00
19	145.00	1900 MHz RRUs	3	8.321	9.153	0.66	0.75	10.27	391.18	0.000	0.000	93.98	0.00	0.00
20	145.00	800 MHz RRUs	6	8.321	9.153	0.69	0.75	15.03	697.26	0.000	0.000	137.55	0.00	0.00
21	145.00	(3) SFS-H-L (V-Braces)	1	8.321	9.153	1.00	1.00	19.82	495.03	0.000	0.000	181.44	0.00	0.00
22	145.00	APXVTM14-C-I20	3	8.321	9.153	0.58	0.75	12.91	681.60	0.000	0.000	118.13	0.00	0.00
23	145.00	NNVV-65B-R4	3	8.321	9.153	0.55	0.75	22.85	935.02	0.000	0.000	209.11	0.00	0.00
24	145.00	HRK14	1	8.321	9.153	1.00	1.00	16.05	362.83	0.000	0.000	146.90	0.00	0.00
25	145.00	PRK-1245 (kicker kit)	1	8.321	9.153	1.00	1.00	19.41	786.25	0.000	0.000	177.70	0.00	0.00
26	129.50	220-7N Omni	1	8.247	9.072	1.00	1.00	12.03	260.47	0.000	9.500	109.17	0.00	1037.14
27	124.70	220-3AN	1	8.197	9.017	1.00	1.00	12.89	129.34	0.000	10.350	116.22	0.00	1202.84
28	123.00	ANT450D6-9	1	8.079	8.886	1.00	1.00	5.74	78.91	0.000	3.000	51.01	0.00	153.04
29	120.00	3 ft Standoff	3	7.996	8.796	1.00	1.00	25.40	310.53	0.000	0.000	223.42	0.00	0.00
30	46.50	GPS	1	6.549	7.204	1.00	1.00	1.63	30.08	0.000	0.000	11.77	0.00	0.00
31	46.50	3 ft Standoff	1	6.549	7.204	1.00	1.00	7.94	96.41	0.000	0.000	57.19	0.00	0.00
							Totals:		**21,755.20**			**5,124.14**		

Total Applied Force Summary

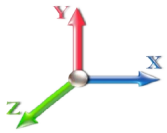
Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

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		186.38	2626.63	0.00	0.00
10.00		183.71	2619.26	0.00	0.00
11.75		63.59	910.32	0.00	0.00
15.00		119.07	2958.18	0.00	0.00
19.50		171.86	4052.05	0.00	0.00
20.00		19.03	259.33	0.00	0.00
25.00		197.73	2576.81	0.00	0.00
30.00		201.97	2541.74	0.00	0.00
35.00		205.00	2504.86	0.00	0.00
40.00		207.09	2466.60	0.00	0.00
45.00		208.42	2427.25	0.00	0.00
46.50	(2) attachments	131.15	847.32	0.00	0.00
50.00		145.96	1653.15	0.00	0.00
55.00		212.63	3824.60	0.00	0.00
56.75		73.93	1322.09	0.00	0.00
60.00		137.59	1370.86	0.00	0.00
65.00		211.81	2076.59	0.00	0.00
70.00		210.85	2038.25	0.00	0.00
75.00		209.57	1999.50	0.00	0.00
80.00		208.01	1960.40	0.00	0.00
85.00		206.20	1920.98	0.00	0.00
90.00		204.15	1881.27	0.00	0.00
94.50		181.70	1659.37	0.00	0.00
95.00		20.30	290.63	0.00	0.00
100.00		202.64	2865.45	0.00	0.00
105.00		200.03	1619.95	0.00	0.00
110.00		197.24	1583.79	0.00	0.00
115.00		194.29	1547.44	0.00	0.00
120.00	(3) attachments	414.61	1821.44	0.00	0.00
123.00	(1) attachments	163.98	963.43	0.00	153.04
124.70	(1) attachments	179.63	625.14	0.00	1202.84
125.00		11.14	87.14	0.00	0.00
129.50	(1) attachments	275.37	1547.79	0.00	1037.14
130.00		18.23	141.60	0.00	0.00
135.00		181.07	1390.99	0.00	0.00
140.00		177.44	1353.85	0.00	0.00
144.50		158.53	1691.43	0.00	0.00
145.00	(23) attachments	1751.26	8242.81	0.00	0.00
150.00	(2) attachments	330.72	1219.37	0.00	0.00
153.00	(1) attachments	155.25	673.56	0.00	161.91
155.00		66.68	389.95	0.00	0.00
156.00	(1) attachments	95.96	343.89	0.00	396.18
158.50	(2) attachments	567.43	2748.74	0.00	371.13
160.00		48.71	280.77	0.00	0.00
165.00		160.07	913.34	0.00	0.00
170.00		155.85	884.42	0.00	0.00

Total Applied Force Summary

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

172.50	(18) attachments	1580.93	8144.27	0.00	0.00
175.00		75.10	384.20	0.00	0.00
180.00		147.13	743.74	0.00	0.00
185.00		142.65	714.54	0.00	0.00
190.00	(2) attachments	694.06	2973.02	0.00	529.88
	Totals:	**12,263.69**	**94,684.06**	**0.00**	**3,852.12**

Linear Appurtenance Segment Forces (Factored)

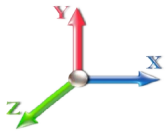
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1/2" GPS Line	Yes	5.00	0.000	0.50	1.24	0.00	0.008	0.000	5.168	0.00	13.70
10.00	1/2" GPS Line	Yes	5.00	0.000	0.50	1.32	0.00	0.008	0.000	5.168	0.00	15.33
11.75	1/2" GPS Line	Yes	1.75	0.000	0.50	0.47	0.00	0.008	0.000	5.168	0.00	5.51
15.00	1/2" GPS Line	Yes	3.25	0.000	0.50	0.89	0.00	0.008	0.000	5.168	0.00	10.65
19.50	1/2" GPS Line	Yes	4.50	0.000	0.50	1.25	0.00	0.008	0.000	5.454	0.00	15.39
20.00	1/2" GPS Line	Yes	0.50	0.000	0.50	0.14	0.00	0.008	0.000	5.483	0.00	1.72
25.00	1/2" GPS Line	Yes	5.00	0.000	0.50	1.42	0.00	0.008	0.000	5.747	0.00	17.83
30.00	1/2" GPS Line	Yes	5.00	0.000	0.50	1.45	0.00	0.009	0.000	5.972	0.00	18.38
35.00	1/2" GPS Line	Yes	5.00	0.000	0.50	1.47	0.00	0.009	0.000	6.169	0.00	18.86
40.00	1/2" GPS Line	Yes	5.00	0.000	0.50	1.48	0.00	0.009	0.000	6.345	0.00	19.29
45.00	1/2" GPS Line	Yes	5.00	0.000	0.50	1.50	0.00	0.009	0.000	6.504	0.00	19.67
46.50	1/2" GPS Line	Yes	1.50	0.000	0.50	0.45	0.00	0.009	0.000	6.549	0.00	5.93
										Totals:	**0.0**	**162.2**

Calculated Forces

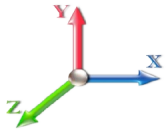
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

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	-94.68	-12.30	0.00	-1561.1	0.00	1561.11	6843.68	3421.84	17482.3	8754.18	0.00	0.000	0.000	0.192
5.00	-92.04	-12.19	0.00	-1499.6	0.00	1499.60	6762.41	3381.20	16966.6	8495.95	0.02	-0.045	0.000	0.190
10.00	-89.42	-12.05	0.00	-1438.6	0.00	1438.67	6679.70	3339.85	16454.8	8239.66	0.10	-0.091	0.000	0.188
11.75	-88.50	-12.02	0.00	-1417.5	0.00	1417.58	6650.41	3325.20	16276.6	8150.43	0.13	-0.107	0.000	0.187
15.00	-85.54	-11.95	0.00	-1378.5	0.00	1378.52	6595.55	3297.78	15947.1	7985.40	0.22	-0.138	0.000	0.186
19.50	-81.48	-11.80	0.00	-1324.7	0.00	1324.75	6596.31	3298.16	15951.6	7987.68	0.37	-0.180	0.000	0.178
20.00	-81.22	-11.81	0.00	-1318.8	0.00	1318.85	6587.82	3293.91	15901.1	7962.37	0.39	-0.185	0.000	0.178
25.00	-78.63	-11.67	0.00	-1259.7	0.00	1259.78	6502.11	3251.06	15398.0	7710.45	0.60	-0.230	0.000	0.175
30.00	-76.08	-11.52	0.00	-1201.4	0.00	1201.44	6414.97	3207.48	14899.4	7460.77	0.87	-0.275	0.000	0.173
35.00	-73.57	-11.36	0.00	-1143.8	0.00	1143.85	6326.39	3163.20	14405.4	7213.44	1.18	-0.321	0.000	0.170
40.00	-71.09	-11.19	0.00	-1087.0	0.00	1087.06	6236.38	3118.19	13916.4	6968.54	1.54	-0.368	0.000	0.167
45.00	-68.66	-11.01	0.00	-1031.0	0.00	1031.09	6144.94	3072.47	13432.4	6726.18	1.95	-0.414	0.000	0.164
46.50	-67.81	-10.90	0.00	-1014.5	0.00	1014.58	6117.23	3058.61	13288.2	6653.99	2.09	-0.429	0.000	0.164
50.00	-66.15	-10.78	0.00	-976.45	0.00	976.45	6052.06	3026.03	12953.6	6486.46	2.41	-0.462	0.000	0.161
55.00	-62.32	-10.57	0.00	-922.53	0.00	922.53	5957.75	2978.87	12480.3	6249.47	2.92	-0.510	0.000	0.158
56.75	-61.00	-10.51	0.00	-904.02	0.00	904.02	5057.23	2528.61	10722.5	5369.23	3.11	-0.527	0.000	0.180
60.00	-59.62	-10.41	0.00	-869.85	0.00	869.85	5008.75	2504.38	10471.4	5243.49	3.48	-0.558	0.000	0.178
65.00	-57.54	-10.23	0.00	-817.82	0.00	817.82	4933.00	2466.50	10088.3	5051.65	4.10	-0.610	0.000	0.174
70.00	-55.49	-10.04	0.00	-766.69	0.00	766.69	4855.80	2427.90	9709.24	4861.84	4.76	-0.662	0.000	0.169
75.00	-53.49	-9.86	0.00	-716.47	0.00	716.47	4777.18	2388.59	9334.40	4674.14	5.48	-0.714	0.000	0.164
80.00	-51.52	-9.67	0.00	-667.18	0.00	667.18	4697.12	2348.56	8963.98	4488.65	6.26	-0.766	0.000	0.160
85.00	-49.59	-9.48	0.00	-618.83	0.00	618.83	4615.63	2307.81	8598.19	4305.49	7.09	-0.818	0.000	0.154
90.00	-47.71	-9.29	0.00	-571.41	0.00	571.41	4532.70	2266.35	8237.22	4124.73	7.97	-0.869	0.000	0.149
94.50	-46.05	-9.11	0.00	-529.60	0.00	529.60	4456.84	2228.42	7916.63	3964.20	8.81	-0.915	0.000	0.144
95.00	-45.75	-9.10	0.00	-525.04	0.00	525.04	4448.34	2224.17	7881.27	3946.49	8.91	-0.921	0.000	0.143
100.00	-42.88	-8.89	0.00	-479.53	0.00	479.53	3637.80	1818.90	6411.13	3210.33	9.90	-0.971	0.000	0.161
105.00	-41.26	-8.70	0.00	-435.08	0.00	435.08	3571.83	1785.92	6132.14	3070.63	10.95	-1.021	0.000	0.153
110.00	-39.67	-8.51	0.00	-391.58	0.00	391.58	3504.43	1752.22	5856.78	2932.74	12.04	-1.074	0.000	0.145
115.00	-38.12	-8.32	0.00	-349.04	0.00	349.04	3435.59	1717.80	5585.22	2796.76	13.20	-1.126	0.000	0.136
120.00	-36.30	-7.89	0.00	-307.44	0.00	307.44	3365.32	1682.66	5317.67	2662.79	14.40	-1.176	0.000	0.126
123.00	-35.34	-7.72	0.00	-283.61	0.00	283.61	3322.47	1661.24	5159.15	2583.41	15.15	-1.205	0.000	0.120
124.70	-34.72	-7.54	0.00	-269.28	0.00	269.28	3297.96	1648.98	5070.01	2538.77	15.58	-1.222	0.000	0.117
125.00	-34.63	-7.54	0.00	-267.02	0.00	267.02	3293.62	1646.81	5054.33	2530.92	15.66	-1.224	0.000	0.116
129.50	-33.08	-7.24	0.00	-232.06	0.00	232.06	3221.96	1610.98	4812.26	2409.71	16.83	-1.265	0.000	0.107
130.00	-32.94	-7.23	0.00	-228.44	0.00	228.44	3212.23	1606.11	4783.10	2395.10	16.97	-1.270	0.000	0.106
135.00	-31.55	-7.04	0.00	-192.28	0.00	192.28	3114.95	1557.47	4496.34	2251.51	18.32	-1.311	0.000	0.096
140.00	-30.19	-6.85	0.00	-157.07	0.00	157.07	3017.67	1508.83	4218.45	2112.36	19.71	-1.349	0.000	0.084
144.50	-28.50	-6.66	0.00	-126.24	0.00	126.24	1688.87	844.44	2343.95	1173.72	21.00	-1.379	0.000	0.124
145.00	-20.30	-4.72	0.00	-122.91	0.00	122.91	1685.31	842.66	2331.34	1167.40	21.15	-1.382	0.000	0.117
150.00	-19.09	-4.37	0.00	-99.31	0.00	99.31	1649.03	824.52	2206.02	1104.65	22.62	-1.424	0.000	0.102
153.00	-18.42	-4.20	0.00	-86.04	0.00	86.04	1626.65	813.33	2131.62	1067.39	23.52	-1.447	0.000	0.092
155.00	-18.03	-4.13	0.00	-77.64	0.00	77.64	1611.48	805.74	2082.37	1042.73	24.13	-1.461	0.000	0.086
156.00	-17.69	-4.03	0.00	-73.11	0.00	73.11	1603.81	801.91	2057.85	1030.46	24.43	-1.468	0.000	0.082
158.50	-14.96	-3.39	0.00	-62.67	0.00	62.67	1584.43	792.22	1996.89	999.93	25.21	-1.484	0.000	0.072
160.00	-14.67	-3.34	0.00	-57.58	0.00	57.58	1572.65	786.33	1960.55	981.73	25.68	-1.493	0.000	0.068
165.00	-13.76	-3.16	0.00	-40.86	0.00	40.86	1532.55	766.28	1840.74	921.74	27.25	-1.518	0.000	0.053
170.00	-12.88	-2.99	0.00	-25.04	0.00	25.04	1491.18	745.59	1723.12	862.84	28.85	-1.536	0.000	0.038
172.50	-4.79	-1.19	0.00	-17.58	0.00	17.58	1470.02	735.01	1665.18	833.83	29.66	-1.543	0.000	0.024

Calculated Forces

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 32

175.00	-4.40	-1.10	0.00	-14.61	0.00	14.61	1448.54	724.27	1607.86	805.12	30.47	-1.549	0.000	0.021
180.00	-3.66	-0.94	0.00	-9.09	0.00	9.09	1404.63	702.31	1495.13	748.67	32.09	-1.557	0.000	0.015
185.00	-2.95	-0.77	0.00	-4.40	0.00	4.40	1352.25	676.13	1377.77	689.91	33.73	-1.562	0.000	0.009
190.00	0.00	-0.69	0.00	-0.53	0.00	0.53	1292.39	646.19	1257.90	629.89	35.37	-1.565	0.000	0.001

Seismic Segment Forces (Factored)

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Gust Response Factor	1.10			**Sds**	0.17	**Iterations**	22
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.30	**SA**	0.03	**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		1664.0	0.00	0.03	0.01	24.82	
10.00		1634.3	0.01	0.05	0.03	36.55	
11.75	Bot - Section 2	564.99	0.01	0.05	0.03	13.60	
15.00		2096.7	0.01	0.06	0.03	55.51	
19.50	Top - Section 1	2861.8	0.02	0.06	0.04	81.97	
20.00		158.85	0.02	0.06	0.04	4.58	
25.00		1572.2	0.03	0.07	0.04	47.50	
30.00		1542.4	0.05	0.07	0.04	47.98	
35.00		1512.7	0.06	0.07	0.04	48.08	
40.00		1483.0	0.08	0.07	0.04	48.05	
45.00		1453.3	0.11	0.07	0.04	47.99	
46.50	Appurtenance(s)	480.22	0.11	0.07	0.04	15.95	
50.00	Bot - Section 3	993.46	0.13	0.07	0.03	33.41	
55.00		2635.8	0.16	0.07	0.03	90.01	
56.75	Top - Section 2	909.39	0.17	0.07	0.03	31.17	
60.00		787.37	0.19	0.06	0.02	27.09	
65.00		1189.9	0.22	0.06	0.02	40.65	
70.00		1163.9	0.26	0.05	0.02	38.54	
75.00		1137.9	0.29	0.05	0.01	35.14	
80.00		1111.9	0.34	0.04	0.01	30.10	
85.00		1085.9	0.38	0.02	0.01	23.17	
90.00		1059.9	0.42	0.01	0.01	14.38	
94.50	Bot - Section 4	931.73	0.47	0.00	0.01	4.72	
95.00		191.49	0.47	-0.01	0.01	0.78	
100.00	Top - Section 3	1888.3	0.52	-0.02	0.01	-12.02	
105.00		858.14	0.58	-0.04	0.01	-14.18	
110.00		835.86	0.63	-0.06	0.02	-21.08	
115.00		813.59	0.69	-0.08	0.03	-25.68	
120.00	Appurtenance(s)	911.31	0.75	-0.10	0.04	-32.01	
123.00	Appurtenance(s)	482.09	0.79	-0.11	0.05	-17.28	
124.70	Appurtenance(s)	283.43	0.81	-0.11	0.06	-10.14	
125.00		45.51	0.82	-0.11	0.06	-1.63	
129.50	Appurtenance(s)	695.08	0.88	-0.12	0.08	-23.49	
130.00		73.67	0.88	-0.12	0.08	-2.46	
135.00		724.48	0.95	-0.12	0.11	-20.49	
140.00	Bot - Section 5	702.20	1.03	-0.10	0.14	-14.29	
144.50	Top - Section 4	1029.1	1.09	-0.07	0.18	-11.19	
145.00	Appurtenance(s)	3605.9	1.10	-0.07	0.19	-34.93	
150.00	Appurtenance(s)	526.87	1.18	-0.02	0.24	1.95	
153.00	Appurtenance(s)	278.99	1.23	0.03	0.27	3.64	
155.00		171.02	1.26	0.07	0.30	3.39	
156.00	Appurtenance(s)	108.62	1.27	0.09	0.31	2.54	
158.50	Appurtenance(s)	1430.9	1.32	0.14	0.35	46.87	
160.00		123.59	1.34	0.18	0.37	4.78	
165.00		402.31	1.43	0.33	0.46	24.30	

Seismic Segment Forces (Factored)

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 34

170.00		387.46	1.51	0.53	0.56	32.90	
172.50	Appurtenance(s)	3416.9	1.56	0.65	0.61	335.79	
175.00		184.45	1.60	0.79	0.67	20.72	
180.00		357.76	1.70	1.11	0.81	51.06	
185.00		342.90	1.79	1.50	0.96	60.39	
190.00	Appurtenance(s)	1546.0	1.89	1.98	1.14	328.67	
		Totals: **52,450.5**				**1,517.9**	**Total Wind:** **48,466.2**

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

Calculated Forces

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 35	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	22
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)**	0.30	**SA**	0.03			**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	-67.10	-1.76	0.00	-208.58	0.00	208.58	6843.68	3421.84	17482.3	8754.18		0.00	0.00	0.034
5.00	-64.98	-1.74	0.00	-199.77	0.00	199.77	6762.41	3381.20	16966.6	8495.95		0.00	-0.01	0.033
10.00	-62.89	-1.71	0.00	-191.06	0.00	191.06	6679.70	3339.85	16454.8	8239.66		0.01	-0.01	0.033
11.75	-62.16	-1.70	0.00	-188.07	0.00	188.07	6650.41	3325.20	16276.6	8150.43		0.02	-0.01	0.032
15.00	-59.56	-1.65	0.00	-182.54	0.00	182.54	6595.55	3297.78	15947.1	7985.40		0.03	-0.02	0.032
19.50	-56.01	-1.57	0.00	-175.12	0.00	175.12	6596.31	3298.16	15951.6	7987.68		0.05	-0.02	0.030
20.00	-55.81	-1.57	0.00	-174.34	0.00	174.34	6587.82	3293.91	15901.1	7962.37		0.05	-0.02	0.030
25.00	-53.80	-1.52	0.00	-166.51	0.00	166.51	6502.11	3251.06	15398.0	7710.45		0.08	-0.03	0.030
30.00	-51.82	-1.48	0.00	-158.89	0.00	158.89	6414.97	3207.48	14899.4	7460.77		0.12	-0.04	0.029
35.00	-49.87	-1.44	0.00	-151.48	0.00	151.48	6326.39	3163.20	14405.4	7213.44		0.16	-0.04	0.029
40.00	-47.96	-1.39	0.00	-144.30	0.00	144.30	6236.38	3118.19	13916.4	6968.54		0.20	-0.05	0.028
45.00	-46.09	-1.35	0.00	-137.34	0.00	137.34	6144.94	3072.47	13432.4	6726.18		0.26	-0.05	0.028
46.50	-45.48	-1.33	0.00	-135.32	0.00	135.32	6117.23	3058.61	13288.2	6653.99		0.28	-0.06	0.028
50.00	-44.20	-1.30	0.00	-130.66	0.00	130.66	6052.06	3026.03	12953.6	6486.46		0.32	-0.06	0.027
55.00	-40.91	-1.21	0.00	-124.16	0.00	124.16	5957.75	2978.87	12480.3	6249.47		0.39	-0.07	0.027
56.75	-39.77	-1.18	0.00	-122.04	0.00	122.04	5057.23	2528.61	10722.5	5369.23		0.41	-0.07	0.031
60.00	-38.74	-1.16	0.00	-118.21	0.00	118.21	5008.75	2504.38	10471.4	5243.49		0.46	-0.07	0.030
65.00	-37.19	-1.12	0.00	-112.43	0.00	112.43	4933.00	2466.50	10088.3	5051.65		0.54	-0.08	0.030
70.00	-35.66	-1.08	0.00	-106.84	0.00	106.84	4855.80	2427.90	9709.24	4861.84		0.63	-0.09	0.029
75.00	-34.17	-1.05	0.00	-101.44	0.00	101.44	4777.18	2388.59	9334.40	4674.14		0.73	-0.10	0.029
80.00	-32.71	-1.02	0.00	-96.20	0.00	96.20	4697.12	2348.56	8963.98	4488.65		0.83	-0.10	0.028
85.00	-31.28	-1.00	0.00	-91.10	0.00	91.10	4615.63	2307.81	8598.19	4305.49		0.95	-0.11	0.028
90.00	-29.88	-0.98	0.00	-86.11	0.00	86.11	4532.70	2266.35	8237.22	4124.73		1.07	-0.12	0.027
94.50	-28.65	-0.98	0.00	-81.68	0.00	81.68	4456.84	2228.42	7916.63	3964.20		1.18	-0.13	0.027
95.00	-28.40	-0.98	0.00	-81.19	0.00	81.19	4448.34	2224.17	7881.27	3946.49		1.19	-0.13	0.027
100.00	-26.01	-0.98	0.00	-76.29	0.00	76.29	3637.80	1818.90	6411.13	3210.33		1.33	-0.13	0.031
105.00	-24.85	-0.98	0.00	-71.39	0.00	71.39	3571.83	1785.92	6132.14	3070.63		1.48	-0.14	0.030
110.00	-23.72	-0.98	0.00	-66.50	0.00	66.50	3504.43	1752.22	5856.78	2932.74		1.63	-0.15	0.029
115.00	-22.62	-0.98	0.00	-61.60	0.00	61.60	3435.59	1717.80	5585.22	2796.76		1.79	-0.16	0.029
120.00	-21.40	-0.98	0.00	-56.69	0.00	56.69	3365.32	1682.66	5317.67	2662.79		1.97	-0.17	0.028
123.00	-20.75	-0.98	0.00	-53.75	0.00	53.75	3322.47	1661.24	5159.15	2583.41		2.07	-0.17	0.027
124.70	-20.37	-0.98	0.00	-52.09	0.00	52.09	3297.96	1648.98	5070.01	2538.77		2.14	-0.18	0.027
125.00	-20.31	-0.98	0.00	-51.80	0.00	51.80	3293.62	1646.81	5054.33	2530.92		2.15	-0.18	0.027
129.50	-19.37	-0.98	0.00	-47.38	0.00	47.38	3221.96	1610.98	4812.26	2409.71		2.32	-0.19	0.026
130.00	-19.27	-0.98	0.00	-46.89	0.00	46.89	3212.23	1606.11	4783.10	2395.10		2.34	-0.19	0.026
135.00	-18.28	-0.98	0.00	-41.99	0.00	41.99	3114.95	1557.47	4496.34	2251.51		2.54	-0.20	0.025
140.00	-17.32	-0.98	0.00	-37.09	0.00	37.09	3017.67	1508.83	4218.45	2112.36		2.75	-0.20	0.023
144.50	-15.98	-0.98	0.00	-32.69	0.00	32.69	1688.87	844.44	2343.95	1173.72		2.95	-0.21	0.037
145.00	-11.64	-0.96	0.00	-32.20	0.00	32.20	1685.31	842.66	2331.34	1167.40		2.97	-0.21	0.034
150.00	-10.91	-0.96	0.00	-27.40	0.00	27.40	1649.03	824.52	2206.02	1104.65		3.20	-0.22	0.031
153.00	-10.52	-0.95	0.00	-24.52	0.00	24.52	1626.65	813.33	2131.62	1067.39		3.34	-0.23	0.029
155.00	-10.27	-0.95	0.00	-22.62	0.00	22.62	1611.48	805.74	2082.37	1042.73		3.44	-0.23	0.028
156.00	-10.13	-0.95	0.00	-21.67	0.00	21.67	1603.81	801.91	2057.85	1030.46		3.49	-0.24	0.027
158.50	-8.36	-0.89	0.00	-19.30	0.00	19.30	1584.43	792.22	1996.89	999.93		3.61	-0.24	0.025
160.00	-8.19	-0.89	0.00	-17.96	0.00	17.96	1572.65	786.33	1960.55	981.73		3.69	-0.24	0.024
165.00	-7.62	-0.86	0.00	-13.52	0.00	13.52	1532.55	766.28	1840.74	921.74		3.95	-0.25	0.020
170.00	-7.07	-0.83	0.00	-9.20	0.00	9.20	1491.18	745.59	1723.12	862.84		4.22	-0.26	0.015

Calculated Forces

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 36	

172.50	-2.93	-0.47	0.00	-7.13	0.00	7.13	1470.02	735.01	1665.18	833.83	4.35	-0.26	0.011
175.00	-2.70	-0.45	0.00	-5.95	0.00	5.95	1448.54	724.27	1607.86	805.12	4.49	-0.26	0.009
180.00	-2.27	-0.40	0.00	-3.68	0.00	3.68	1404.63	702.31	1495.13	748.67	4.77	-0.27	0.007
185.00	-1.86	-0.34	0.00	-1.69	0.00	1.69	1352.25	676.13	1377.77	689.91	5.05	-0.27	0.004
190.00	0.00	-0.33	0.00	0.00	0.00	0.00	1292.39	646.19	1257.90	629.89	5.33	-0.27	0.000

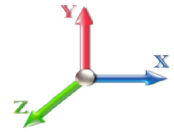
Seismic Segment Forces (Factored)

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 37	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.17	**Iterations**	22
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.30	**SA**	0.03	**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		1664.0	0.00	0.03	0.01	24.82	
10.00		1634.3	0.01	0.05	0.03	36.55	
11.75	Bot - Section 2	564.99	0.01	0.05	0.03	13.60	
15.00		2096.7	0.01	0.06	0.03	55.51	
19.50	Top - Section 1	2861.8	0.02	0.06	0.04	81.97	
20.00		158.85	0.02	0.06	0.04	4.58	
25.00		1572.2	0.03	0.07	0.04	47.50	
30.00		1542.4	0.05	0.07	0.04	47.98	
35.00		1512.7	0.06	0.07	0.04	48.08	
40.00		1483.0	0.08	0.07	0.04	48.05	
45.00		1453.3	0.11	0.07	0.04	47.99	
46.50	Appurtenance(s)	480.22	0.11	0.07	0.04	15.95	
50.00	Bot - Section 3	993.46	0.13	0.07	0.03	33.41	
55.00		2635.8	0.16	0.07	0.03	90.01	
56.75	Top - Section 2	909.39	0.17	0.07	0.03	31.17	
60.00		787.37	0.19	0.06	0.02	27.09	
65.00		1189.9	0.22	0.06	0.02	40.65	
70.00		1163.9	0.26	0.05	0.02	38.54	
75.00		1137.9	0.29	0.05	0.01	35.14	
80.00		1111.9	0.34	0.04	0.01	30.10	
85.00		1085.9	0.38	0.02	0.01	23.17	
90.00		1059.9	0.42	0.01	0.01	14.38	
94.50	Bot - Section 4	931.73	0.47	0.00	0.01	4.72	
95.00		191.49	0.47	-0.01	0.01	0.78	
100.00	Top - Section 3	1888.3	0.52	-0.02	0.01	-12.02	
105.00		858.14	0.58	-0.04	0.01	-14.18	
110.00		835.86	0.63	-0.06	0.02	-21.08	
115.00		813.59	0.69	-0.08	0.03	-25.68	
120.00	Appurtenance(s)	911.31	0.75	-0.10	0.04	-32.01	
123.00	Appurtenance(s)	482.09	0.79	-0.11	0.05	-17.28	
124.70	Appurtenance(s)	283.43	0.81	-0.11	0.06	-10.14	
125.00		45.51	0.82	-0.11	0.06	-1.63	
129.50	Appurtenance(s)	695.08	0.88	-0.12	0.08	-23.49	
130.00		73.67	0.88	-0.12	0.08	-2.46	
135.00		724.48	0.95	-0.12	0.11	-20.49	
140.00	Bot - Section 5	702.20	1.03	-0.10	0.14	-14.29	
144.50	Top - Section 4	1029.1	1.09	-0.07	0.18	-11.19	
145.00	Appurtenance(s)	3605.9	1.10	-0.07	0.19	-34.93	
150.00	Appurtenance(s)	526.87	1.18	-0.02	0.24	1.95	
153.00	Appurtenance(s)	278.99	1.23	0.03	0.27	3.64	
155.00		171.02	1.26	0.07	0.30	3.39	
156.00	Appurtenance(s)	108.62	1.27	0.09	0.31	2.54	
158.50	Appurtenance(s)	1430.9	1.32	0.14	0.35	46.87	
160.00		123.59	1.34	0.18	0.37	4.78	
165.00		402.31	1.43	0.33	0.46	24.30	

Seismic Segment Forces (Factored)

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 38

170.00		387.46	1.51	0.53	0.56	32.90		
172.50	Appurtenance(s)	3416.9	1.56	0.65	0.61	335.79		
175.00		184.45	1.60	0.79	0.67	20.72		
180.00		357.76	1.70	1.11	0.81	51.06		
185.00		342.90	1.79	1.50	0.96	60.39		
190.00	Appurtenance(s)	1546.0	1.89	1.98	1.14	328.67		
		Totals: **52,450.5**				**1,517.9**	**Total Wind:**	**48,466.2**

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

Calculated Forces

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 39	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.17			**Iterations**	22
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.30	**SA**	0.03			**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	-50.33	-1.76	0.00	-206.41	0.00	206.41	6843.68	3421.84	17482.3	8754.18		0.00	0.00	0.031
5.00	-48.73	-1.74	0.00	-197.61	0.00	197.61	6762.41	3381.20	16966.6	8495.95		0.00	-0.01	0.030
10.00	-47.17	-1.71	0.00	-188.91	0.00	188.91	6679.70	3339.85	16454.8	8239.66		0.01	-0.01	0.030
11.75	-46.62	-1.70	0.00	-185.93	0.00	185.93	6650.41	3325.20	16276.6	8150.43		0.02	-0.01	0.030
15.00	-44.67	-1.64	0.00	-180.42	0.00	180.42	6595.55	3297.78	15947.1	7985.40		0.03	-0.02	0.029
19.50	-42.01	-1.56	0.00	-173.02	0.00	173.02	6596.31	3298.16	15951.6	7987.68		0.05	-0.02	0.028
20.00	-41.86	-1.56	0.00	-172.24	0.00	172.24	6587.82	3293.91	15901.1	7962.37		0.05	-0.02	0.028
25.00	-40.35	-1.52	0.00	-164.44	0.00	164.44	6502.11	3251.06	15398.0	7710.45		0.08	-0.03	0.028
30.00	-38.86	-1.47	0.00	-156.86	0.00	156.86	6414.97	3207.48	14899.4	7460.77		0.11	-0.04	0.027
35.00	-37.40	-1.43	0.00	-149.50	0.00	149.50	6326.39	3163.20	14405.4	7213.44		0.16	-0.04	0.027
40.00	-35.97	-1.38	0.00	-142.37	0.00	142.37	6236.38	3118.19	13916.4	6968.54		0.20	-0.05	0.026
45.00	-34.57	-1.33	0.00	-135.47	0.00	135.47	6144.94	3072.47	13432.4	6726.18		0.26	-0.05	0.026
46.50	-34.11	-1.32	0.00	-133.47	0.00	133.47	6117.23	3058.61	13288.2	6653.99		0.27	-0.06	0.026
50.00	-33.15	-1.29	0.00	-128.85	0.00	128.85	6052.06	3026.03	12953.6	6486.46		0.32	-0.06	0.025
55.00	-30.68	-1.20	0.00	-122.41	0.00	122.41	5957.75	2978.87	12480.3	6249.47		0.38	-0.07	0.025
56.75	-29.83	-1.17	0.00	-120.31	0.00	120.31	5057.23	2528.61	10722.5	5369.23		0.41	-0.07	0.028
60.00	-29.06	-1.14	0.00	-116.52	0.00	116.52	5008.75	2504.38	10471.4	5243.49		0.46	-0.07	0.028
65.00	-27.89	-1.10	0.00	-110.81	0.00	110.81	4933.00	2466.50	10088.3	5051.65		0.54	-0.08	0.028
70.00	-26.75	-1.07	0.00	-105.29	0.00	105.29	4855.80	2427.90	9709.24	4861.84		0.63	-0.09	0.027
75.00	-25.63	-1.03	0.00	-99.96	0.00	99.96	4777.18	2388.59	9334.40	4674.14		0.72	-0.09	0.027
80.00	-24.53	-1.00	0.00	-94.80	0.00	94.80	4697.12	2348.56	8963.98	4488.65		0.82	-0.10	0.026
85.00	-23.46	-0.98	0.00	-89.78	0.00	89.78	4615.63	2307.81	8598.19	4305.49		0.93	-0.11	0.026
90.00	-22.41	-0.97	0.00	-84.87	0.00	84.87	4532.70	2266.35	8237.22	4124.73		1.05	-0.12	0.026
94.50	-21.48	-0.96	0.00	-80.51	0.00	80.51	4456.84	2228.42	7916.63	3964.20		1.17	-0.12	0.025
95.00	-21.30	-0.96	0.00	-80.03	0.00	80.03	4448.34	2224.17	7881.27	3946.49		1.18	-0.12	0.025
100.00	-19.51	-0.96	0.00	-75.22	0.00	75.22	3637.80	1818.90	6411.13	3210.33		1.31	-0.13	0.029
105.00	-18.64	-0.96	0.00	-70.41	0.00	70.41	3571.83	1785.92	6132.14	3070.63		1.46	-0.14	0.028
110.00	-17.79	-0.96	0.00	-65.59	0.00	65.59	3504.43	1752.22	5856.78	2932.74		1.61	-0.15	0.027
115.00	-16.96	-0.96	0.00	-60.77	0.00	60.77	3435.59	1717.80	5585.22	2796.76		1.77	-0.16	0.027
120.00	-16.05	-0.96	0.00	-55.96	0.00	55.96	3365.32	1682.66	5317.67	2662.79		1.94	-0.17	0.026
123.00	-15.56	-0.96	0.00	-53.07	0.00	53.07	3322.47	1661.24	5159.15	2583.41		2.05	-0.17	0.025
124.70	-15.28	-0.96	0.00	-51.43	0.00	51.43	3297.96	1648.98	5070.01	2538.77		2.11	-0.18	0.025
125.00	-15.23	-0.96	0.00	-51.14	0.00	51.14	3293.62	1646.81	5054.33	2530.92		2.12	-0.18	0.025
129.50	-14.52	-0.96	0.00	-46.80	0.00	46.80	3221.96	1610.98	4812.26	2409.71		2.29	-0.18	0.024
130.00	-14.45	-0.96	0.00	-46.32	0.00	46.32	3212.23	1606.11	4783.10	2395.10		2.31	-0.18	0.024
135.00	-13.71	-0.96	0.00	-41.50	0.00	41.50	3114.95	1557.47	4496.34	2251.51		2.51	-0.19	0.023
140.00	-12.99	-0.96	0.00	-36.69	0.00	36.69	3017.67	1508.83	4218.45	2112.36		2.71	-0.20	0.022
144.50	-11.98	-0.96	0.00	-32.35	0.00	32.35	1688.87	844.44	2343.95	1173.72		2.91	-0.21	0.035
145.00	-8.73	-0.95	0.00	-31.87	0.00	31.87	1685.31	842.66	2331.34	1167.40		2.93	-0.21	0.032
150.00	-8.18	-0.95	0.00	-27.13	0.00	27.13	1649.03	824.52	2206.02	1104.65		3.16	-0.22	0.030
153.00	-7.89	-0.94	0.00	-24.29	0.00	24.29	1626.65	813.33	2131.62	1067.39		3.30	-0.23	0.028
155.00	-7.71	-0.94	0.00	-22.41	0.00	22.41	1611.48	805.74	2082.37	1042.73		3.39	-0.23	0.026
156.00	-7.59	-0.94	0.00	-21.47	0.00	21.47	1603.81	801.91	2057.85	1030.46		3.44	-0.23	0.026
158.50	-6.27	-0.88	0.00	-19.13	0.00	19.13	1584.43	792.22	1996.89	999.93		3.57	-0.24	0.023
160.00	-6.14	-0.88	0.00	-17.80	0.00	17.80	1572.65	786.33	1960.55	981.73		3.64	-0.24	0.022
165.00	-5.71	-0.85	0.00	-13.40	0.00	13.40	1532.55	766.28	1840.74	921.74		3.90	-0.25	0.018
170.00	-5.30	-0.82	0.00	-9.13	0.00	9.13	1491.18	745.59	1723.12	862.84		4.16	-0.26	0.014

Calculated Forces

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 40

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172.50	-2.19	-0.47	0.00	-7.08	0.00	7.08	1470.02	735.01	1665.18	833.83	4.30	-0.26	0.010
175.00	-2.03	-0.45	0.00	-5.90	0.00	5.90	1448.54	724.27	1607.86	805.12	4.43	-0.26	0.009
180.00	-1.70	-0.40	0.00	-3.66	0.00	3.66	1404.63	702.31	1495.13	748.67	4.71	-0.26	0.006
185.00	-1.39	-0.34	0.00	-1.68	0.00	1.68	1352.25	676.13	1377.77	689.91	4.98	-0.27	0.003
190.00	0.00	-0.33	0.00	0.00	0.00	0.00	1292.39	646.19	1257.90	629.89	5.26	-0.27	0.000

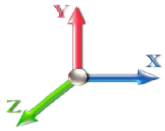
Wind Loading - Shaft

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 41	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	293.40	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	288.25	0.650	0.000	5.00	26.287	17.09	139.9	0.0	1664.0
10.00		1.00	0.85	7.442	8.19	283.10	0.650	0.000	5.00	25.821	16.78	137.4	0.0	1634.3
11.75	Bot - Section 2	1.00	0.85	7.442	8.19	281.30	0.650	0.000	1.75	8.928	5.80	47.5	0.0	565.0
15.00		1.00	0.85	7.442	8.19	277.95	0.650	0.000	3.25	16.703	10.86	88.9	0.0	2096.8
19.50	Top - Section 1	1.00	0.90	7.854	8.64	280.78	0.650	0.000	4.50	22.803	14.82	128.1	0.0	2861.8
20.00		1.00	0.90	7.896	8.69	285.82	0.650	0.000	0.50	2.510	1.63	14.2	0.0	158.9
25.00		1.00	0.95	8.276	9.10	287.19	0.650	0.000	5.00	24.848	16.15	147.0	0.0	1572.2
30.00		1.00	0.98	8.600	9.46	287.22	0.650	0.000	5.00	24.383	15.85	149.9	0.0	1542.5
35.00		1.00	1.01	8.883	9.77	286.29	0.650	0.000	5.00	23.917	15.55	151.9	0.0	1512.8
40.00		1.00	1.04	9.137	10.05	284.63	0.650	0.000	5.00	23.452	15.24	153.2	0.0	1483.1
45.00		1.00	1.07	9.366	10.30	282.41	0.650	0.000	5.00	22.986	14.94	153.9	0.0	1453.4
46.50	Appurtenance(s)	1.00	1.08	9.431	10.37	281.65	0.650	0.000	1.50	6.805	4.42	45.9	0.0	430.2
50.00	Bot - Section 3	1.00	1.09	9.576	10.53	279.72	0.650	0.000	3.50	15.716	10.22	107.6	0.0	993.5
55.00		1.00	1.12	9.770	10.75	276.64	0.650	0.000	5.00	22.426	14.58	156.7	0.0	2635.9
56.75	Top - Section 2	1.00	1.12	9.835	10.82	275.48	0.650	0.000	1.75	7.739	5.03	54.4	0.0	909.4
60.00		1.00	1.14	9.951	10.95	277.96	0.650	0.000	3.25	14.221	9.24	101.2	0.0	787.4
65.00		1.00	1.16	10.120	11.13	274.31	0.650	0.000	5.00	21.495	13.97	155.5	0.0	1189.9
70.00		1.00	1.17	10.279	11.31	270.41	0.650	0.000	5.00	21.029	13.67	154.6	0.0	1163.9
75.00		1.00	1.19	10.430	11.47	266.28	0.650	0.000	5.00	20.564	13.37	153.3	0.0	1137.9
80.00		1.00	1.21	10.572	11.63	261.96	0.650	0.000	5.00	20.098	13.06	151.9	0.0	1111.9
85.00		1.00	1.22	10.708	11.78	257.46	0.650	0.000	5.00	19.633	12.76	150.3	0.0	1085.9
90.00		1.00	1.24	10.838	11.92	252.80	0.650	0.000	5.00	19.167	12.46	148.5	0.0	1059.9
94.50	Bot - Section 4	1.00	1.25	10.950	12.04	248.48	0.650	0.000	4.50	16.853	10.95	131.9	0.0	931.7
95.00		1.00	1.25	10.962	12.06	247.99	0.650	0.000	0.50	1.881	1.22	14.7	0.0	191.5
100.00	Top - Section 3	1.00	1.27	11.081	12.19	243.05	0.650	0.000	5.00	18.554	12.06	147.0	0.0	1888.4
105.00		1.00	1.28	11.195	12.31	242.29	0.650	0.000	5.00	18.088	11.76	144.8	0.0	858.1
110.00		1.00	1.29	11.305	12.44	237.13	0.650	0.000	5.00	17.623	11.45	142.5	0.0	835.9
115.00		1.00	1.30	11.412	12.55	231.87	0.650	0.000	5.00	17.157	11.15	140.0	0.0	813.6
120.00	Appurtenance(s)	1.00	1.32	11.514	12.67	226.50	0.650	0.000	5.00	16.692	10.85	137.4	0.0	791.3
123.00	Appurtenance(s)	1.00	1.32	11.574	12.73	223.24	0.650	0.000	3.00	9.792	6.36	81.0	0.0	464.1
124.70	Appurtenance(s)	1.00	1.33	11.608	12.77	221.38	0.650	0.000	1.70	5.474	3.56	45.4	0.0	259.4
125.00		1.00	1.33	11.614	12.78	221.05	0.650	0.000	0.30	0.960	0.62	8.0	0.0	45.5
129.50	Appurtenance(s)	1.00	1.34	11.701	12.87	216.06	0.650	0.000	4.50	14.206	9.23	118.8	0.0	673.1
130.00		1.00	1.34	11.710	12.88	215.50	0.650	0.000	0.50	1.555	1.01	13.0	0.0	73.7
135.00		1.00	1.35	11.803	12.98	209.87	0.650	0.000	5.00	15.296	9.94	129.1	0.0	724.5
140.00	Bot - Section 5	1.00	1.36	11.894	13.08	204.17	0.650	0.000	5.00	14.830	9.64	126.1	0.0	702.2
144.50	Top - Section 4	1.00	1.37	11.974	13.17	198.97	0.650	0.000	4.50	13.139	8.54	112.5	0.0	1029.1
145.00	Appurtenance(s)	1.00	1.37	11.982	13.18	201.36	0.650	0.000	0.50	1.437	0.93	12.3	0.0	45.5
150.00	Appurtenance(s)	1.00	1.38	12.068	13.27	195.52	0.650	0.000	5.00	14.111	9.17	121.8	0.0	446.9
153.00	Appurtenance(s)	1.00	1.38	12.119	13.33	191.99	0.650	0.000	3.00	8.243	5.36	71.4	0.0	261.0
155.00		1.00	1.39	12.152	13.37	189.62	0.650	0.000	2.00	5.402	3.51	46.9	0.0	171.0
156.00	Appurtenance(s)	1.00	1.39	12.168	13.39	188.43	0.650	0.000	1.00	2.673	1.74	23.3	0.0	84.6
158.50	Appurtenance(s)	1.00	1.39	12.209	13.43	185.45	0.650	0.000	2.50	6.602	4.29	57.6	0.0	209.0
160.00		1.00	1.40	12.233	13.46	183.65	0.650	0.000	1.50	3.905	2.54	34.2	0.0	123.6
165.00		1.00	1.41	12.313	13.54	177.62	0.650	0.000	5.00	12.714	8.26	111.9	0.0	402.3
170.00		1.00	1.42	12.390	13.63	171.54	0.650	0.000	5.00	12.249	7.96	108.5	0.0	387.5

Wind Loading - Shaft

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 42	

172.50 Appurtenance(s)	1.00	1.42	12.429	13.67	168.47	0.650	0.000	2.50	5.950	3.87	52.9	0.0	188.2
175.00	1.00	1.42	12.466	13.71	165.39	0.650	0.000	2.50	5.834	3.79	52.0	0.0	184.4
180.00	1.00	1.43	12.540	13.79	159.20	0.650	0.000	5.00	11.318	7.36	101.5	0.0	357.8
185.00	1.00	1.44	12.613	13.87	152.96	0.650	0.000	5.00	10.852	7.05	97.9	0.0	342.9
190.00 Appurtenance(s)	1.00	1.45	12.684	13.95	146.66	0.650	0.000	5.00	10.387	6.75	94.2	0.0	328.1
							Totals:	**190.00**			**5,170.5**		**42,865.3**

Discrete Appurtenance Forces

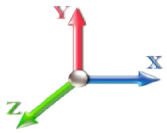
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 43	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	190.00	Low Profile Platform	1	12.684	13.952	1.00	1.00	25.00	1200.00	0.000	0.000	348.81	0.00	0.00
2	190.00	ANT150D3	1	12.753	14.029	1.00	1.00	2.18	18.00	0.000	5.000	30.58	0.00	152.91
3	172.50	Ericsson KRY 112 144/1	3	12.429	13.671	0.52	0.75	0.65	33.00	0.000	0.000	8.83	0.00	0.00
4	172.50	Ericsson Air21 B2A/B4P	3	12.429	13.671	0.65	0.75	11.78	274.50	0.000	0.000	161.11	0.00	0.00
5	172.50	Ericsson AIR 21 B4A/B2P	3	12.429	13.671	0.65	0.75	12.74	317.40	0.000	0.000	174.22	0.00	0.00
6	172.50	RFS	3	12.429	13.671	0.52	0.75	31.88	384.00	0.000	0.000	435.82	0.00	0.00
7	172.50	Ericsson Radio 4449	3	12.429	13.671	0.50	0.75	2.49	210.00	0.000	0.000	34.01	0.00	0.00
8	172.50	PRK-1245	1	12.429	13.671	1.00	1.00	9.50	464.91	0.000	0.000	129.88	0.00	0.00
9	172.50	Low Profile Platform-flat	1	12.429	13.671	1.00	1.00	25.00	1200.00	0.000	0.000	341.78	0.00	0.00
10	172.50	PV-PHK14-B +	1	12.429	13.671	1.00	1.00	10.52	345.00	0.000	0.000	143.75	0.00	0.00
11	158.50	PD458-2N	1	12.315	13.547	0.80	0.80	2.13	22.00	0.000	6.650	28.83	0.00	191.70
12	158.50	Low Profile Platform-flat	1	12.209	13.430	1.00	1.00	25.00	1200.00	0.000	0.000	335.75	0.00	0.00
13	156.00	114202C	1	12.270	13.497	1.00	1.00	2.14	24.00	0.000	6.300	28.88	0.00	181.97
14	153.00	ANT450D6-9	1	12.168	13.385	1.00	1.00	2.77	18.00	0.000	3.000	37.08	0.00	111.23
15	150.00	3 ft Standoff	2	12.068	13.275	1.00	1.00	5.26	80.00	0.000	0.000	69.83	0.00	0.00
16	145.00	Horizontal Rail & SCX1-K	1	11.982	13.181	1.00	1.00	9.97	302.36	0.000	0.000	131.41	0.00	0.00
17	145.00	TD-RRH8x20-25	3	11.982	13.181	0.52	0.75	6.29	210.00	0.000	0.000	82.87	0.00	0.00
18	145.00	Low Profile Platform-flat	1	11.982	13.181	1.00	1.00	25.00	1200.00	0.000	0.000	329.51	0.00	0.00
19	145.00	1900 MHz RRUs	3	11.982	13.181	0.66	0.75	7.52	132.00	0.000	0.000	99.17	0.00	0.00
20	145.00	800 MHz RRUs	6	11.982	13.181	0.69	0.75	10.31	318.00	0.000	0.000	135.87	0.00	0.00
21	145.00	(3) SFS-H-L (V-Braces)	1	11.982	13.181	1.00	1.00	9.70	230.00	0.000	0.000	127.85	0.00	0.00
22	145.00	APXVTM14-C-I20	3	11.982	13.181	0.58	0.75	10.98	168.60	0.000	0.000	144.78	0.00	0.00
23	145.00	NNVV-65B-R4	3	11.982	13.181	0.55	0.75	20.43	232.20	0.000	0.000	269.27	0.00	0.00
24	145.00	HRK14	1	11.982	13.181	1.00	1.00	8.13	302.36	0.000	0.000	107.16	0.00	0.00
25	145.00	PRK-1245 (kicker kit)	1	11.982	13.181	1.00	1.00	9.50	464.91	0.000	0.000	125.22	0.00	0.00
26	129.50	220-7N Omni	1	11.876	13.064	1.00	1.00	5.32	22.00	0.000	9.500	69.50	0.00	660.25
27	124.70	220-3AN	1	11.804	12.985	1.00	1.00	5.69	24.00	0.000	10.350	73.88	0.00	764.69
28	123.00	ANT450D6-9	1	11.633	12.797	1.00	1.00	2.77	18.00	0.000	3.000	35.45	0.00	106.34
29	120.00	3 ft Standoff	3	11.514	12.666	1.00	1.00	7.89	120.00	0.000	0.000	99.93	0.00	0.00
30	46.50	GPS	1	9.431	10.374	1.00	1.00	1.00	10.00	0.000	0.000	10.37	0.00	0.00
31	46.50	3 ft Standoff	1	9.431	10.374	1.00	1.00	2.63	40.00	0.000	0.000	27.28	0.00	0.00
							Totals:		**9,585.24**			**4,178.68**		

Total Applied Force Summary

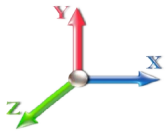
Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 44

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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		139.87	1770.89	0.00	0.00
10.00		137.39	1741.19	0.00	0.00
11.75		47.50	602.40	0.00	0.00
15.00		88.88	2166.25	0.00	0.00
19.50		128.06	2957.99	0.00	0.00
20.00		14.17	169.54	0.00	0.00
25.00		147.03	1679.08	0.00	0.00
30.00		149.93	1649.37	0.00	0.00
35.00		151.91	1619.67	0.00	0.00
40.00		153.20	1589.97	0.00	0.00
45.00		153.93	1560.26	0.00	0.00
46.50	(2) attachments	83.55	512.29	0.00	0.00
50.00		107.61	1067.71	0.00	0.00
55.00		156.66	2741.93	0.00	0.00
56.75		54.42	946.52	0.00	0.00
60.00		101.18	856.32	0.00	0.00
65.00		155.53	1295.98	0.00	0.00
70.00		154.56	1269.99	0.00	0.00
75.00		153.35	1244.00	0.00	0.00
80.00		151.93	1218.00	0.00	0.00
85.00		150.31	1192.01	0.00	0.00
90.00		148.53	1166.02	0.00	0.00
94.50		131.94	1027.20	0.00	0.00
95.00		14.74	202.10	0.00	0.00
100.00		147.00	1994.46	0.00	0.00
105.00		144.79	964.22	0.00	0.00
110.00		142.45	941.94	0.00	0.00
115.00		139.99	919.67	0.00	0.00
120.00	(3) attachments	237.35	1017.39	0.00	0.00
123.00	(1) attachments	116.48	541.06	0.00	106.34
124.70	(1) attachments	119.32	316.84	0.00	764.69
125.00		7.98	51.41	0.00	0.00
129.50	(1) attachments	188.34	783.53	0.00	660.25
130.00		13.02	83.50	0.00	0.00
135.00		129.09	822.76	0.00	0.00
140.00		126.12	800.48	0.00	0.00
144.50		112.49	1117.60	0.00	0.00
145.00	(23) attachments	1565.42	3615.76	0.00	0.00
150.00	(2) attachments	191.58	606.07	0.00	0.00
153.00	(1) attachments	108.50	326.51	0.00	111.23
155.00		46.94	202.70	0.00	0.00
156.00	(1) attachments	52.14	124.46	0.00	181.97
158.50	(2) attachments	422.20	1470.55	0.00	191.70
160.00		34.16	145.01	0.00	0.00
165.00		111.93	473.71	0.00	0.00
170.00		108.51	458.86	0.00	0.00

Total Applied Force Summary

Structure:	CT00235-B-SBA		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 45

Tower Engineering Solutions

172.50	(18) attachments	1482.26	3452.67	0.00	0.00
175.00		52.00	185.75	0.00	0.00
180.00		101.48	360.36	0.00	0.00
185.00		97.87	345.50	0.00	0.00
190.00	(2) attachments	473.59	1548.65	0.00	152.91
	Totals:	**9,349.19**	**55,918.11**	**0.00**	**2,169.09**

Linear Appurtenance Segment Forces (Factored)

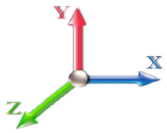
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 46	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	7.442	0.00	0.80
10.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	7.442	0.00	0.80
11.75	1/2" GPS Line	Yes	1.75	0.000	0.50	0.07	0.00	0.008	0.000	7.442	0.00	0.28
15.00	1/2" GPS Line	Yes	3.25	0.000	0.50	0.14	0.00	0.008	0.000	7.442	0.00	0.52
19.50	1/2" GPS Line	Yes	4.50	0.000	0.50	0.19	0.00	0.008	0.000	7.854	0.00	0.72
20.00	1/2" GPS Line	Yes	0.50	0.000	0.50	0.02	0.00	0.008	0.000	7.896	0.00	0.08
25.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.008	0.000	8.276	0.00	0.80
30.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	8.600	0.00	0.80
35.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	8.883	0.00	0.80
40.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	9.137	0.00	0.80
45.00	1/2" GPS Line	Yes	5.00	0.000	0.50	0.21	0.00	0.009	0.000	9.366	0.00	0.80
46.50	1/2" GPS Line	Yes	1.50	0.000	0.50	0.06	0.00	0.009	0.000	9.431	0.00	0.24
										Totals:	**0.0**	**7.4**

Calculated Forces

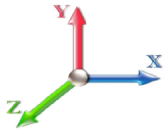
Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 47	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	-55.92	-9.37	0.00	-1169.8	0.00	1169.80	6843.68	3421.84	17482.3	8754.18	0.00	0.000	0.000	0.142
5.00	-54.14	-9.26	0.00	-1122.9	0.00	1122.97	6762.41	3381.20	16966.6	8495.95	0.02	-0.034	0.000	0.140
10.00	-52.39	-9.14	0.00	-1076.6	0.00	1076.69	6679.70	3339.85	16454.8	8239.66	0.07	-0.068	0.000	0.139
11.75	-51.79	-9.11	0.00	-1060.7	0.00	1060.70	6650.41	3325.20	16276.6	8150.43	0.10	-0.080	0.000	0.138
15.00	-49.62	-9.04	0.00	-1031.1	0.00	1031.10	6595.55	3297.78	15947.1	7985.40	0.16	-0.103	0.000	0.137
19.50	-46.66	-8.92	0.00	-990.43	0.00	990.43	6596.31	3298.16	15951.6	7987.68	0.27	-0.135	0.000	0.131
20.00	-46.49	-8.92	0.00	-985.97	0.00	985.97	6587.82	3293.91	15901.1	7962.37	0.29	-0.138	0.000	0.131
25.00	-44.80	-8.79	0.00	-941.38	0.00	941.38	6502.11	3251.06	15398.0	7710.45	0.45	-0.172	0.000	0.129
30.00	-43.15	-8.66	0.00	-897.41	0.00	897.41	6414.97	3207.48	14899.4	7460.77	0.65	-0.206	0.000	0.127
35.00	-41.52	-8.53	0.00	-854.09	0.00	854.09	6326.39	3163.20	14405.4	7213.44	0.89	-0.240	0.000	0.125
40.00	-39.93	-8.39	0.00	-811.44	0.00	811.44	6236.38	3118.19	13916.4	6968.54	1.16	-0.275	0.000	0.123
45.00	-38.37	-8.25	0.00	-769.46	0.00	769.46	6144.94	3072.47	13432.4	6726.18	1.46	-0.310	0.000	0.121
46.50	-37.85	-8.17	0.00	-757.09	0.00	757.09	6117.23	3058.61	13288.2	6653.99	1.56	-0.321	0.000	0.120
50.00	-36.78	-8.08	0.00	-728.49	0.00	728.49	6052.06	3026.03	12953.6	6486.46	1.81	-0.345	0.000	0.118
55.00	-34.04	-7.92	0.00	-688.09	0.00	688.09	5957.75	2978.87	12480.3	6249.47	2.19	-0.381	0.000	0.116
56.75	-33.09	-7.87	0.00	-674.23	0.00	674.23	5057.23	2528.61	10722.5	5369.23	2.33	-0.393	0.000	0.132
60.00	-32.23	-7.78	0.00	-648.66	0.00	648.66	5008.75	2504.38	10471.4	5243.49	2.60	-0.417	0.000	0.130
65.00	-30.93	-7.63	0.00	-609.77	0.00	609.77	4933.00	2466.50	10088.3	5051.65	3.06	-0.456	0.000	0.127
70.00	-29.65	-7.49	0.00	-571.60	0.00	571.60	4855.80	2427.90	9709.24	4861.84	3.56	-0.494	0.000	0.124
75.00	-28.41	-7.34	0.00	-534.15	0.00	534.15	4777.18	2388.59	9334.40	4674.14	4.10	-0.533	0.000	0.120
80.00	-27.19	-7.20	0.00	-497.43	0.00	497.43	4697.12	2348.56	8963.98	4488.65	4.68	-0.572	0.000	0.117
85.00	-25.99	-7.05	0.00	-461.43	0.00	461.43	4615.63	2307.81	8598.19	4305.49	5.30	-0.610	0.000	0.113
90.00	-24.82	-6.91	0.00	-426.17	0.00	426.17	4532.70	2266.35	8237.22	4124.73	5.96	-0.649	0.000	0.109
94.50	-23.79	-6.77	0.00	-395.08	0.00	395.08	4456.84	2228.42	7916.63	3964.20	6.59	-0.683	0.000	0.105
95.00	-23.59	-6.76	0.00	-391.69	0.00	391.69	4448.34	2224.17	7881.27	3946.49	6.66	-0.687	0.000	0.105
100.00	-21.59	-6.61	0.00	-357.88	0.00	357.88	3637.80	1818.90	6411.13	3210.33	7.40	-0.725	0.000	0.117
105.00	-20.63	-6.46	0.00	-324.85	0.00	324.85	3571.83	1785.92	6132.14	3070.63	8.18	-0.762	0.000	0.112
110.00	-19.68	-6.32	0.00	-292.53	0.00	292.53	3504.43	1752.22	5856.78	2932.74	9.00	-0.802	0.000	0.105
115.00	-18.76	-6.18	0.00	-260.93	0.00	260.93	3435.59	1717.80	5585.22	2796.76	9.86	-0.841	0.000	0.099
120.00	-17.74	-5.94	0.00	-230.03	0.00	230.03	3365.32	1682.66	5317.67	2662.79	10.76	-0.878	0.000	0.092
123.00	-17.20	-5.82	0.00	-212.11	0.00	212.11	3322.47	1661.24	5159.15	2583.41	11.32	-0.900	0.000	0.087
124.70	-16.89	-5.69	0.00	-201.46	0.00	201.46	3297.96	1648.98	5070.01	2538.77	11.64	-0.912	0.000	0.084
125.00	-16.83	-5.69	0.00	-199.75	0.00	199.75	3293.62	1646.81	5054.33	2530.92	11.70	-0.914	0.000	0.084
129.50	-16.05	-5.49	0.00	-173.48	0.00	173.48	3221.96	1610.98	4812.26	2409.71	12.57	-0.945	0.000	0.077
130.00	-15.97	-5.49	0.00	-170.73	0.00	170.73	3212.23	1606.11	4783.10	2395.10	12.67	-0.948	0.000	0.076
135.00	-15.14	-5.35	0.00	-143.30	0.00	143.30	3114.95	1557.47	4496.34	2251.51	13.68	-0.979	0.000	0.069
140.00	-14.34	-5.22	0.00	-116.55	0.00	116.55	3017.67	1508.83	4218.45	2112.36	14.72	-1.007	0.000	0.060
144.50	-13.23	-5.09	0.00	-93.08	0.00	93.08	1688.87	844.44	2343.95	1173.72	15.68	-1.030	0.000	0.087
145.00	-9.64	-3.46	0.00	-90.54	0.00	90.54	1685.31	842.66	2331.34	1167.40	15.79	-1.032	0.000	0.083
150.00	-9.04	-3.26	0.00	-73.24	0.00	73.24	1649.03	824.52	2206.02	1104.65	16.89	-1.062	0.000	0.072
153.00	-8.71	-3.15	0.00	-63.35	0.00	63.35	1626.65	813.33	2131.62	1067.39	17.56	-1.079	0.000	0.065
155.00	-8.51	-3.10	0.00	-57.05	0.00	57.05	1611.48	805.74	2082.37	1042.73	18.02	-1.090	0.000	0.060
156.00	-8.38	-3.05	0.00	-53.77	0.00	53.77	1603.81	801.91	2057.85	1030.46	18.25	-1.095	0.000	0.057
158.50	-6.92	-2.60	0.00	-45.96	0.00	45.96	1584.43	792.22	1996.89	999.93	18.82	-1.107	0.000	0.050
160.00	-6.78	-2.56	0.00	-42.07	0.00	42.07	1572.65	786.33	1960.55	981.73	19.17	-1.113	0.000	0.047
165.00	-6.30	-2.44	0.00	-29.27	0.00	29.27	1532.55	766.28	1840.74	921.74	20.35	-1.131	0.000	0.036
170.00	-5.85	-2.32	0.00	-17.06	0.00	17.06	1491.18	745.59	1723.12	862.84	21.54	-1.144	0.000	0.024
172.50	-2.43	-0.77	0.00	-11.25	0.00	11.25	1470.02	735.01	1665.18	833.83	22.14	-1.149	0.000	0.015

Calculated Forces

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 48

175.00	-2.24	-0.72	0.00	-9.32	0.00	9.32	1448.54	724.27	1607.86	805.12	22.74	-1.152	0.000	0.013
180.00	-1.88	-0.61	0.00	-5.73	0.00	5.73	1404.63	702.31	1495.13	748.67	23.95	-1.158	0.000	0.009
185.00	-1.54	-0.50	0.00	-2.68	0.00	2.68	1352.25	676.13	1377.77	689.91	25.17	-1.161	0.000	0.005
190.00	0.00	-0.47	0.00	-0.15	0.00	0.15	1292.39	646.19	1257.90	629.89	26.38	-1.162	0.000	0.000

Final Analysis Summary

Structure:	CT00235-B-SBA	**Code:**	EIA/TIA-222-G	6/20/2019	
Site Name:	Stony Brook	**Exposure:**	C		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 49	

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 108 mph Wind	48.6	0.00	67.02	0.00	0.00	6095.47
0.9D + 1.6W 108 mph Wind	48.5	0.00	50.25	0.00	0.00	6035.79
1.2D + 1.0Di + 1.0Wi 50 mph Wind	12.3	0.00	94.68	0.00	0.00	1561.11
1.2D + 1.0E	1.8	0.00	67.10	0.00	0.00	208.58
0.9D + 1.0E	1.8	0.00	50.33	0.00	0.00	206.41
1.0D + 1.0W 60 mph Wind	9.4	0.00	55.92	0.00	0.00	1169.80

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 108 mph Wind	-67.02	-48.57	0.00	-6095.4	0.00	-6095.4	6843.68	3421.8	17482.3	8754.18	0.00	0.706
0.9D + 1.6W 108 mph Wind	-50.25	-48.54	0.00	-6035.7	0.00	-6035.7	6843.68	3421.8	17482.3	8754.18	0.00	0.697
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-94.68	-12.30	0.00	-1561.1	0.00	-1561.1	6843.68	3421.8	17482.3	8754.18	0.00	0.192
1.2D + 1.0E	-15.98	-0.98	0.00	-32.69	0.00	-32.69	1688.87	844.44	2343.95	1173.72	144.50	0.037
0.9D + 1.0E	-11.98	-0.96	0.00	-32.35	0.00	-32.35	1688.87	844.44	2343.95	1173.72	144.50	0.035
1.0D + 1.0W 60 mph Wind	-55.92	-9.37	0.00	-1169.8	0.00	-1169.8	6843.68	3421.8	17482.3	8754.18	0.00	0.142

Base Plate Summary

Structure:	CT00235-B-SB		**Code:**	EIA/TIA-222-G	6/20/2019
Site Name:	Stony Brook		**Exposure:**	C	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 50

Tower Engineering Solutions

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	50.00	**Bolt Circle:**	70.00
Moment (kip-ft):	5800.00	**Width (in):**	71.00	**Number Bolts:**	24.00
Axial (kip):	60.00	**Style:**	Clipped	**Bolt Type:**	2.25" 18J
Shear (kip):	43.00	**Polygon Sides:**	4.00	**Bolt Diameter (in):**	2.25
Analysis		**Clip Length (in):**	13.00	**Yield (ksi):**	75.00
Moment (kip-ft):	6095.47	**Effective Len (in):**	8.22	**Ultimate (ksi):**	100.00
Axial (kip):	94.68	**Moment (kip-in):**	651.85	**Arrangement:**	Clustered
Shear (kip):	48.57	**Allow Stress (ksi):**	67.50	**Cluster Dist (in):**	6.00
		Applied Stress (ksi):	0.00	**Start Angle (deg):**	45.00
Moment Design %:	105.09	**Stress Ratio:**	0.58	Compression	
				Force (kip):	178.10
				Allowable (kip):	260.00
				Ratio:	0.70
				Tension	
				Force (kip):	170.21
				Allowable (kip):	260.00
				Ratio:	0.67

Last revised on 11/28/2017

Monopole Mat Foundation Design

			Date: 6/20/2019
Customer Name:	T-Mobile	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	190
Site Number:	CT00235-B-SBA	**Engineer Name:**	J. Chen
Engr. Number:	76514	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

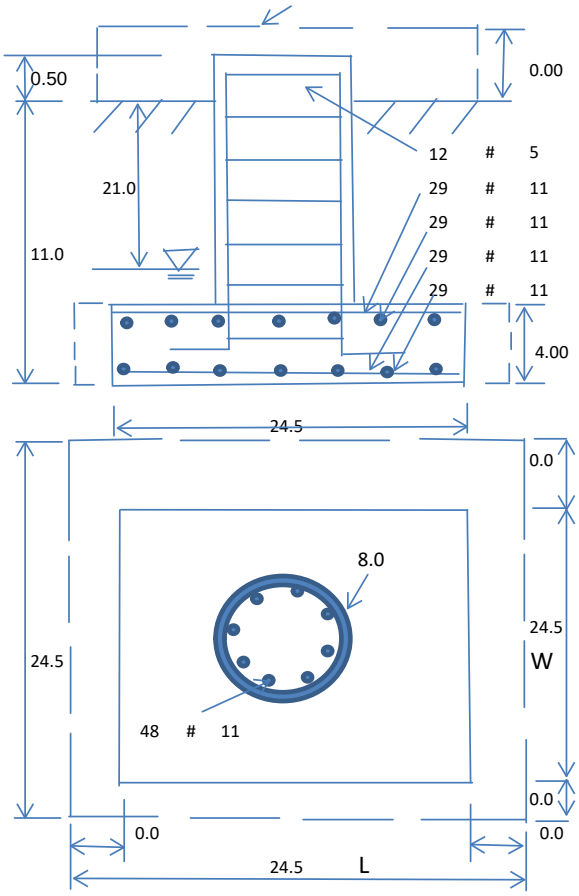
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	67.0	Shear Force (Kips):	48.6
Uplift Force (Kips):	0.0	Moment (Kips-ft):	6095.5
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	11.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	4.00
Length of Pad (ft.):	24.5	Width of Pad (ft.):	24.5
Final Length of pad (ft)	24.5	Final width of pad (ft):	24.5
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	48	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	11	
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):	29	Qty. of Rebar in Pad (W):	29	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	29	Qty. of Rebar in Pad (W):	29	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	130.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	21.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	8000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	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.):	3849.89	Total Dry Soil Weight (Kips):	500.49
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	500.49	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2777.99	Total Dry Concrete Weight (Kips):	416.70
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	416.70	Total Vertical Load on Base (Kips):	984.20

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	4226	<	Allowable Factored Soil Bearing (psf):	6000	0.70	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	10933.0	>	Design Factored Momont (kips-ft):	5827	0.53	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.88	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 Factoron Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.56		Tie/ Stirrup Area (sq.in./each):	0.31		
Calculated Moment Capacity (Mn, Kips-Ft):	135729	>	Design Factored Moment (Mu, Kips-Ft):	6460.0	0.48	OK!
Calculated Shear Capacity (Kips):	832.8	>	Design Factored Shear (Kips):	48.6	0.06	OK!
Calculated Tension Capacity (Tn, Kips):	40435	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	94986	>	Design Factored Axial Load (Pu Kips):	67.0	0.01	OK!
Moment & Axial Strength Combination:	0.48	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.010		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad						
One-Way Design Shear Capacity (L-Direction, Kips):	10703	>	One-Way Factored Shear (L-D. Kips):	282.0	0.26	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1070.3	>	One-Way Factored Shear (W-D., Kips):	282.0	0.26	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	841.5	>	One-Way Factored Shear (C-C, Kips):	272.5	0.32	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0035	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0035		
Lower Steel Pad Moment Capacity (L-Direction, Kips-ft)	86526	>	Moment at Bottom (L-Dr. K-Ft):	17107	0.20	OK!
Lower Steel Pad Moment Capacity (W-Direction, Kips-ft)	86526	>	Moment at Bottom (W-Dr. K-Ft):	17107	0.20	OK!
Lower Steel Pad Moment Capacity (Corner-Corner, K-ft):	120801	>	Moment at Bottom (C-C in D K-Ft):	2419.2	0.20	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0035	OK!	Upper Steel Reinf Ratio (W-Dir.):	0.0035		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	86526	>	Moment at the top (L-D K-Ft):	10640	0.12	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	86526	>	Moment at the top (W-Dr K-Ft):	10640	0.12	OK!
Upper Steel Pad Moment Capacity (Corner Corner. K-ft):	120801	>	Moment at the top (C-C in D K-Ft):	1006.2	0.08	OK!
(3).Check Punching Shear Capacity due to Moment in the Per:						
Moment transferred by punching shear:	24382	k-ft.	Max. factored shear stress v_{u_CD}:		4.1	Psi
Max. factored shear stress v_{u_AB}:	9.3	Psi	Factored shear Strength ϕv_n:		164.3	Psi
Max. factored shear stress v_u:	9.3	Psi	Check Usage of Punching Shear Capacity:		0.06	OK!

Pier Foundation Design For Monopole

				Date
				6/20/2019
Customer Name:	TMobile		EIA/TIA Standard:	EIA-222-G
Site Name:			Structure Height (Ft.):	190
Site Number:	CT00235-B-SBA		Engineer Name:	H. You
Engr. Number:	76514		Engineer Login ID:	

Foundation Info Obtained from: Drawings /Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	67.0	Shear Force (Kips):	48.6
Uplift Force (Kips):	0.0	Moment (Kips-ft):	6095.5

Foundation Geometries:

Mods required -Yes/No ?:	No			ft.
Diameter of Pier (ft.):	8.0	Depth of Base B. G. S. :	24.0	ft.
Pier Height A. G. (ft.):	0.50			

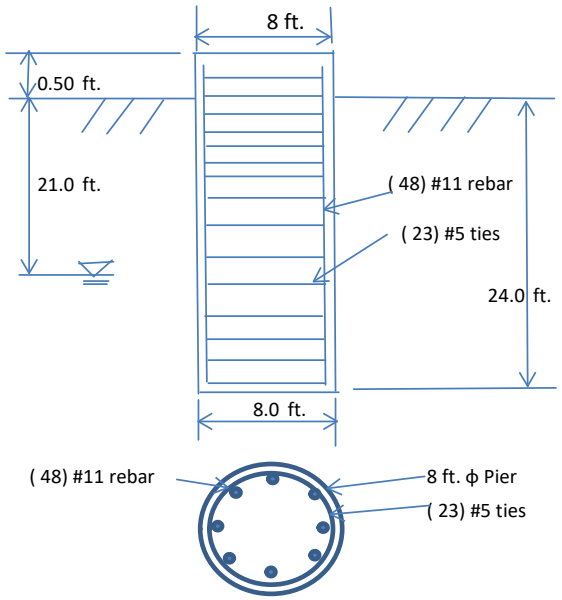
Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40	ksi
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	48	Tie Spacing:	18.0	in.
Concrete Cover (in.):	4	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	21.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)

Skin Frictions are to be obtained from: Soil Report



Monopole Pier Foundation

Depth of Layers (ft) Top	Depth of Layers (ft) Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types
0.0	4.0	140	0				
4.0	21.0	140	36	0			Sand
21.0	41.5	147	36	0			Sand
41.5	46.5	147	36	0			Sand

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

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75	
Total Dry Soil Volume from Conical Failure (cu. Ft.):	8905	Dry Soil Weight from Conical Failure:	1247	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	75	Buoyant Soil Weight from Conical Failure (Ki	8	Kips
Total Dry Concrete Volume (cu. Ft.):	1081	Total Dry Concrete Weight:	162.1	Kips
Total Buoyant Concrete Volume (cu. Ft.):	150.8	Total Buoyant Concrete Weight:	13.21	Kips
Total Effective Concrete Weight (Kips):	175.3	Total Effective Soil Weight:	1254.6	Kips
Total Effective Vertical Load on Base (Kips):	78.5			

Check Soil Capacities:

					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	10239.3	>	Design Factored Momont (kips-ft):	6909	0.67	OK!
Factor of Safety of Passive Soil Resistance against Moment:	1.48	OK!				

Check the capacities of Reinforceing Concrete:

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

Reinforcing Concrete Pier:

					Usage	
Vertical Steel Rebar Area (sq. in./each):	1.56		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	13515.8	>	Design Factored Moment (Mu, K-Ft):	6312.9	0.47	OK!
Calculated Shear Capacity (Kips):	1274.2	>	Design Factored Shear (Kips):	637.9	0.50	OK!
Calculated Tension Capacity (Tn, Kips):	4043.5	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9499	>	Design Factored Axial Load (Pu Kips):	67.0	0.01	OK!
Moment & Axial Strength Combination:	0.47	OK!	Max. Allowable Tie/Stirrup Spacing:	5.17	in.	
Pier Reinforcement Ratio:	0.010	Reinforcement Ratio is satisfied per ACI				

EXHIBIT 8

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

Post-Mod Antenna Mount Analysis Report

Existing 190-ft Monopole Tower
Customer Name: SBA Communications Corp
Customer Site Number: CT00235-B-SBA
Customer Site Name: Stony Brook
Carrier Name: T-Mobile (App#: 115643, V1)
Carrier Site ID / Name: CT11046D / Stony Brook
Site Location: Taugwonk Spur Road No. 2
Stonington, Connecticut
New London County
Latitude: 41.382249
Longitude: -71.903444

Analysis Result:

Max Structural Usage: 89.2% [Pass]

Report Prepared By: Khaibar Noorzad

7/24/19

Introduction

The purpose of this report is to summarize the analysis results on the (1) Platform w/ Kickers at 172.50' elevation including the proposed modifications to support the proposed antenna configuration. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

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

Sources of Information

Mount Drawings	Mapping by Full Metal Tower Services; Dated 04/30/2019
Antenna Loading	Provided by SBA; Application #: 115643, v1
Existing Modification	N/A
Proposed Modification	TES Project No. 78254

Analysis Criteria

Wind Speed Used in the Analysis: 128 mph (3-Sec. Gust) (Ultimate Wind Speed)
Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent
Service Load Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA 222-H/ 2015 IBC / 2018 CSBC
Exposure Category: C
Risk Category: II
Topographic Category: 1
Crest Height (Ft): 0
Ground Elevation Factor: 0.995

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

Mount Information

(1) Platform w/ Kickers at 172.50' elevation

Proposed Modifications

(1) Perfect Vision Handrail Kit: PV-PHK12-B
(3) Perfect Vision Pipe: PIPE-238X174

Final Antenna Configuration

3 Ericsson Air21 B2A/B4P
3 Ericsson AIR 21 B4A/B2P
3 RFS APXVAARR24_43-U-NA20
3 Ericsson KRY 112 144/1
3 Ericsson Radio 4449 B71+B12

Any proposed antennas not currently installed should be mounted such that the centers of the antennas do not exceed 0.5 ft vertically from the center of the Platform w/ Kickers.

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

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration after the proposed modification is successfully completed. The maximum structural usage is 89.2%, which occurs in the face horizontal. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

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

Standard Conditions

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

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

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

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

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

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

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

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

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


04.30.2019 10:59


04.30.2019 10:59

Structure: CT00235-B-SBA - Stony Brook

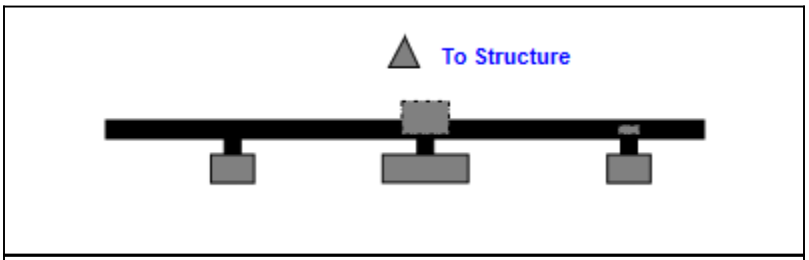
Sector: **A**

Structure Type: Monopole

Mount Elev: 172.50

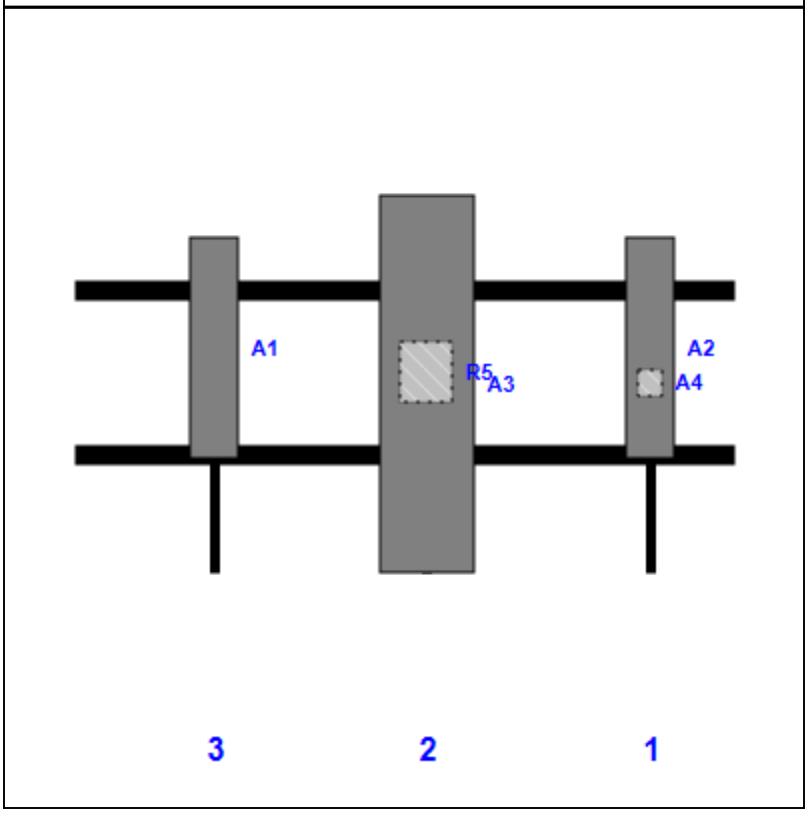
7/1/2019

Plan View



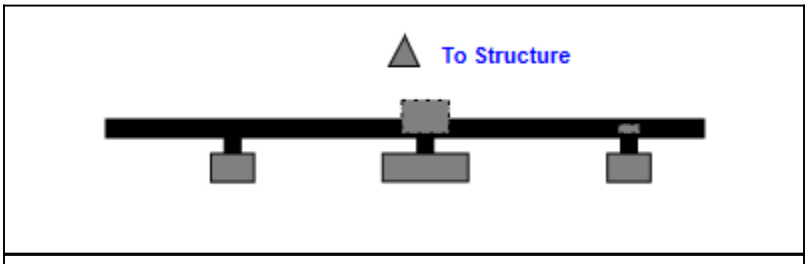
Front View

Looking Toward Structure



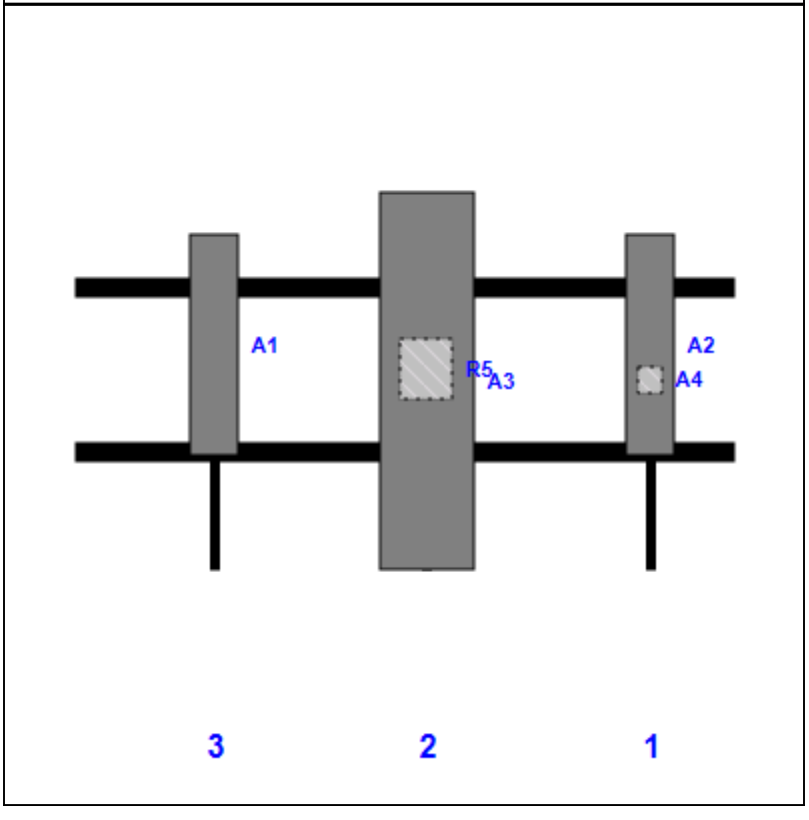
Ref #	Model	Height (in)	Width (in)	H Dist From Left	Pipe #	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A2	AIR 21 B4A/B2P	56.00	12.10	147.00	1	a	Front	27.00	0.00
A4	KRY 112 144/1	6.90	6.10	147.00	1	a	Behind	36.00	0.00
A3	APXVAARR24_43-U-NA20	95.90	24.00	90.00	2	a	Front	36.00	0.00
R5	Radio 4449 B71+B12	15.00	13.20	90.00	2	a	Behind	33.00	0.00
A1	Air21 B2A/B4P	56.00	12.10	36.00	3	a	Front	27.00	0.00

Plan View



Front View

Looking Toward Structure



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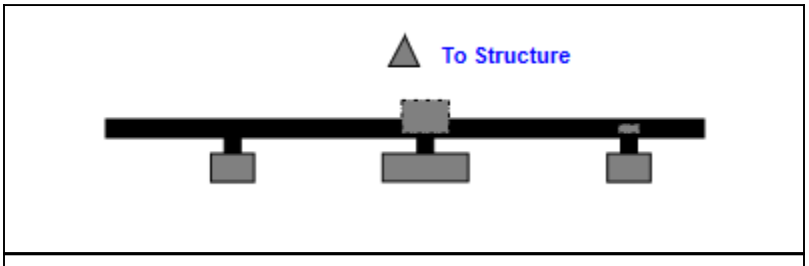
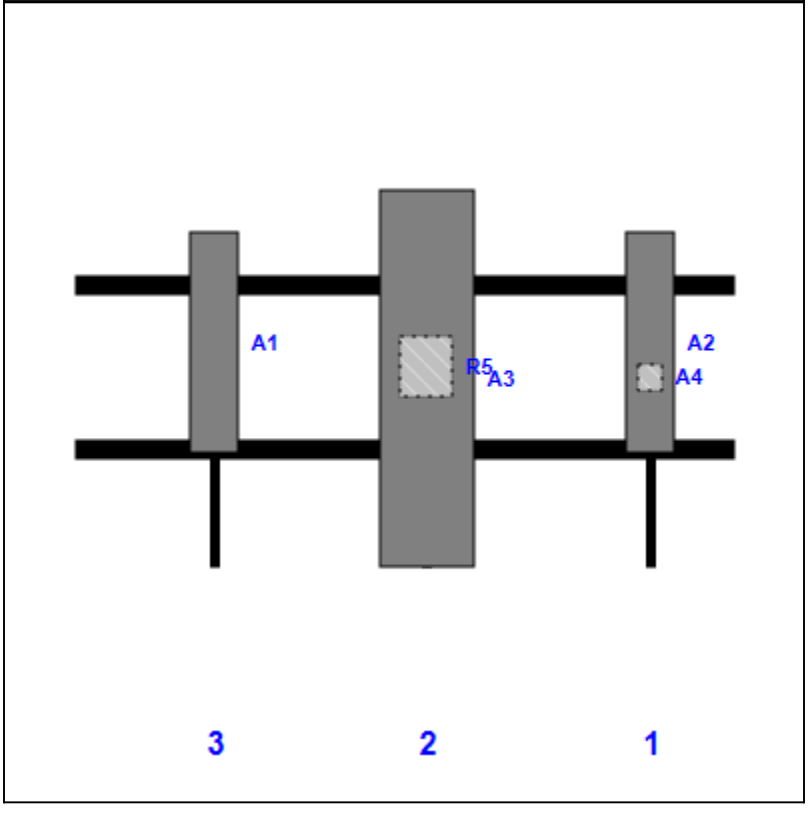
A4	KRY 112 144/1	6.90	6.10	147.00	1	a	Behind	36.00	0.00
A3	APXVAARR24_43-U-NA20	95.90	24.00	90.00	2	a	Front	36.00	0.00
R5	Radio 4449 B71+B12	15.00	13.20	90.00	2	a	Behind	33.00	0.00
A1	Air21 B2A/B4P	56.00	12.10	36.00	3	a	Front	27.00	0.00

Plan View



Front View

Looking Toward Structure



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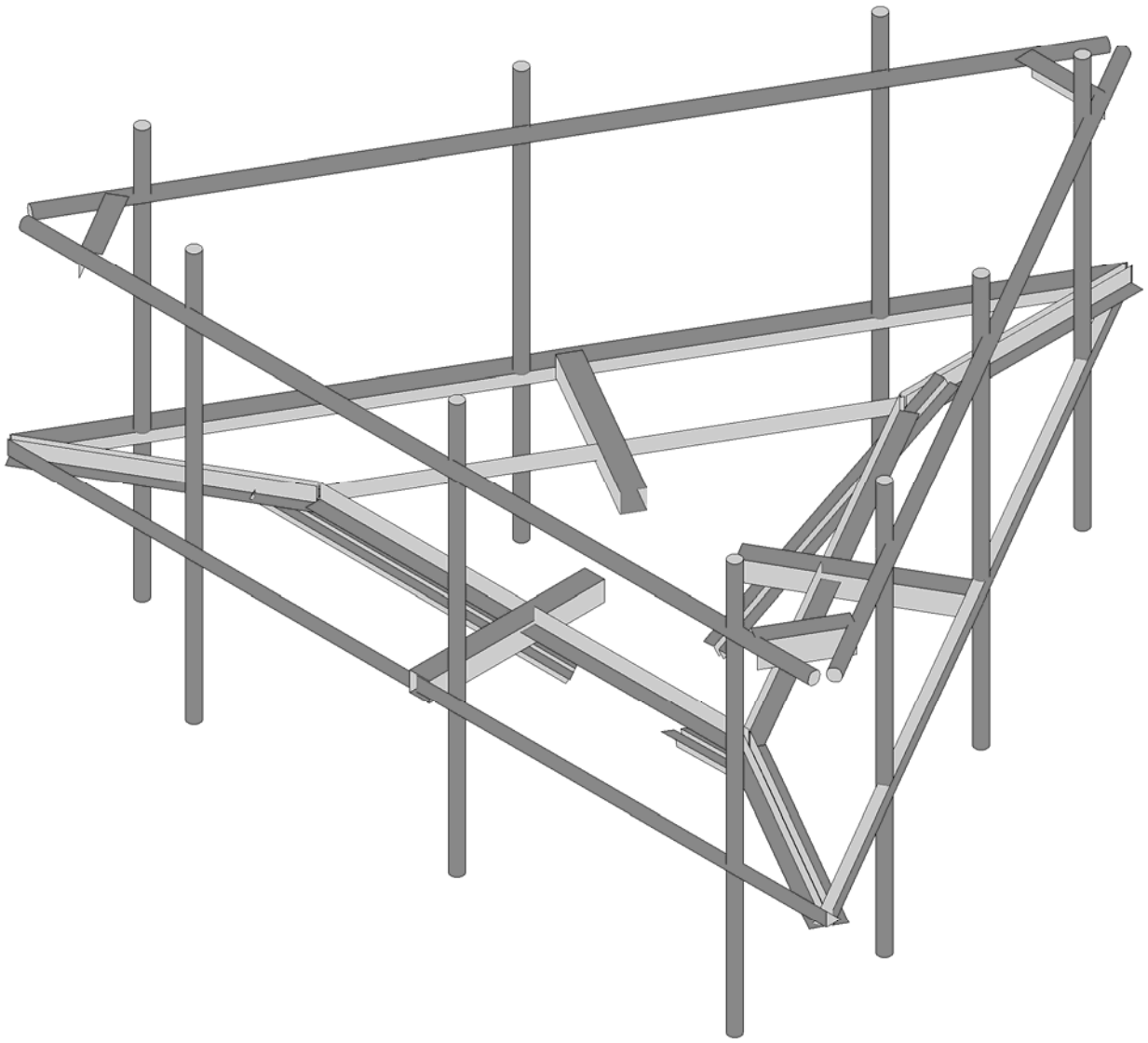
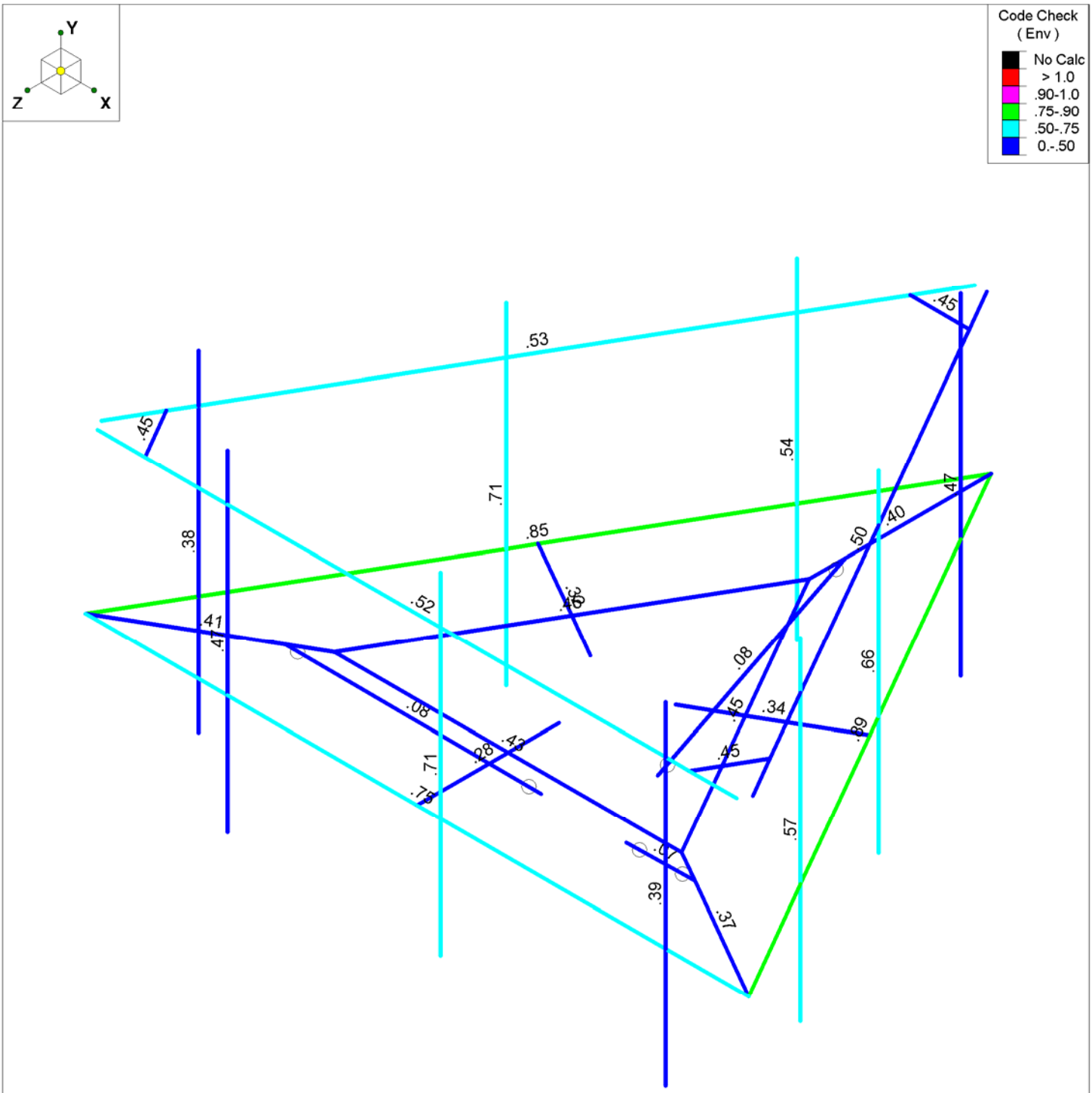
A4	KRY 112 144/1	6.90	6.10	147.00	1	a	Behind	36.00	0.00
A3	APXVAARR24_43-U-NA20	95.90	24.00	90.00	2	a	Front	36.00	0.00
R5	Radio 4449 B71+B12	15.00	13.20	90.00	2	a	Behind	33.00	0.00
A1	Air21 B2A/B4P	56.00	12.10	36.00	3	a	Front	27.00	0.00

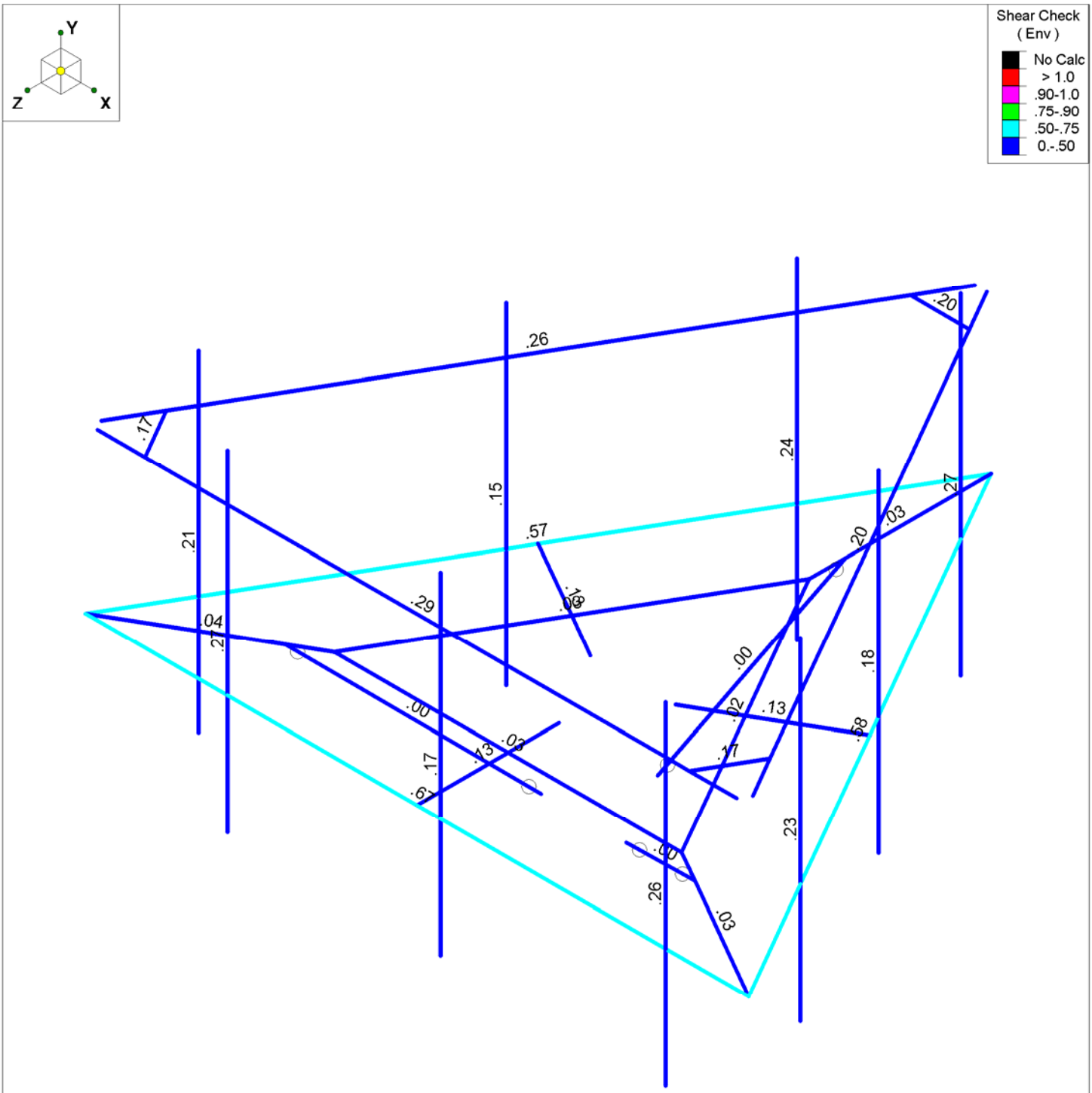


Tower Engineering Solutio...	CT00235-B-SBA_MT_LO_Loads Only_H	SK - 1
		July 1, 2019 at 8:48 AM
TES Project No. 78254		CT00235-B-SBA_78254_H_RISA_L...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.0W (Front)

Tower Engineering Solutio...	CT00235-B-SBA_MT_LO_Loads Only_H	SK - 2
		July 1, 2019 at 8:48 AM
TES Project No. 78254		CT00235-B-SBA_78254_H_RISA_L...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.0W (Front)

Tower Engineering Solutio...	CT00235-B-SBA_MT_LO_Loads Only_H	SK - 3
		July 1, 2019 at 8:48 AM
TES Project No. 78254		CT00235-B-SBA_78254_H_RISA_L...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Memb...	Surface(...
1	Antenna D	None					24			
2	Antenna Di	None					24			
3	Antenna W Front	None					24			
4	Antenna Wi Front	None					24			
5	Antenna W Side	None					24			
6	Antenna Wi Side	None					24			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1					3	
10	Structure Di	None						30	3	
11	Structure W Front	None						30		
12	Structure Wi Front	None						30		
13	Structure W Side	None						30		
14	Structure Wi Side	None						30		
15	Antenna Wm Front	None					24			
16	Antenna Wm Side	None					24			
17	Structure Wm Front	None						30		
18	Structure Wm Side	None						30		
19	Service Lv1	None					1			
20	Service Lv2	None					1			
21	BLC 9 Transient Area Loa...	None						30		
22	BLC 10 Transient Area Lo...	None						30		

Load Combinations

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
1	1.2D+1.0W (Front)	Yes	Y		1	1.2	9	1.2	3	1	11	1												
2	1.2D+1.0W (Back)	Yes	Y		1	1.2	9	1.2	3	-1	11	-1												
3	1.2D+1.0W (Left)	Yes	Y		1	1.2	9	1.2	5	1	13	1												
4	1.2D+1.0W (Right)	Yes	Y		1	1.2	9	1.2	5	-1	13	-1												
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+1.5Lm1+1.0Wm (M...	Yes	Y		1	1.2	9	1.2	7	1.5	15	1	17	1										
10	1.2D+1.5LmL2+1.0Wm (...	Yes	Y		1	1.2	9	1.2	8	1.5	15	1	17	1										
11	1.2D+1.5Lv1 (Maintenan...	Yes	Y		1	1.2	9	1.2	19	1.5														
12	1.2D+1.5Lv2 (Maintenan...	Yes	Y		1	1.2	9	1.2	20	1.5														
13	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 Diaphragm
1	N1	0	0	1.041452	0	
2	N2	0.901924	0	-0.520726	0	
3	N3	-0.901924	0	-0.520726	0	
4	N4	-7	0	4.041452	0	
5	N5	7	0	4.041452	0	
6	N6	0	0	-8.082904	0	
7	N7	0	0	4.041452	0	
8	N8	3.5	0	-2.020726	0	
9	N9	-3.5	0	-2.020726	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
10	N10	-3.666667	0	2.116951	0	
11	N11	3.666667	0	2.116951	0	
12	N12	0	0	-4.233902	0	
13	NP1	5.25	4.5	4.041452	0	
14	NP2	5.25	-2.5	4.041452	0	
15	NP3	.5	4.5	4.041452	0	
16	NP4	.5	-2.5	4.041452	0	
17	NP5	-4	4.5	4.041452	0	
18	NP6	-4	-2.5	4.041452	0	
19	NP11	-6.125	4.5	2.525907	0	
20	NP12	-6.125	-2.5	2.525907	0	
21	NP13	-3.75	4.5	-1.587713	0	
22	NP14	-3.75	-2.5	-1.587713	0	
23	NP15	-1.5	4.5	-5.484828	0	
24	NP16	-1.5	-2.5	-5.484828	0	
25	NP21	.875	4.5	-6.567359	0	
26	NP22	.875	-2.5	-6.567359	0	
27	NP23	3.25	4.5	-2.453739	0	
28	NP24	3.25	-2.5	-2.453739	0	
29	NP25	5.5	4.5	1.443376	0	
30	NP26	5.5	-2.5	1.443376	0	
31	N31	5.25	0	4.041452	0	
32	N32	.5	0	4.041452	0	
33	N33	-4	0	4.041452	0	
34	N34	0.875	0	-6.567359	0	
35	N35	3.25	0	-2.453739	0	
36	N36	5.5	0	1.443376	0	
37	N37	-6.125	0	2.525907	0	
38	N38	-3.75	0	-1.587713	0	
39	N39	-1.5	0	-5.484828	0	
40	N40	0	0	2.116951	0	
41	N41	1.833333	0	-1.058475	0	
42	N42	-1.833333	0	-1.058475	0	
43	N43	0	0	-5	0	
44	N44	0	-2	-1.041452	0	
45	N45	-4.330127	0	2.5	0	
46	N46	-0.901924	-2	0.520726	0	
47	N47	4.330127	0	2.5	0	
48	N48	0.901924	-2	0.520726	0	
49	N49	-6.75	3.5	4.041452	0	
50	N50	6.75	3.5	4.041452	0	
51	N51	5.75	3.5	4.041452	0	
52	N53	-5.75	3.5	4.041452	0	
53	N53A	0.625	3.5	-7.000372	0	
54	N54	6.375	3.5	2.95892	0	
55	N55	-6.375	3.5	2.95892	0	
56	N56	-0.625	3.5	-7.000372	0	
57	N57	6.875	3.5	3.824945	0	
58	N58	0.125	3.5	-7.866397	0	
59	N59	-0.125	3.5	-7.866397	0	
60	N60	-6.875	3.5	3.824945	0	
61	N61	5.25	3.5	4.041452	0	
62	N62	.5	3.5	4.041452	0	
63	N63	-4	3.5	4.041452	0	
64	N64	-6.125	3.5	2.525907	0	
65	N65	-3.75	3.5	-1.587713	0	
66	N66	-1.5	3.5	-5.484828	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
67	N67	.875	3.5	-6.567359	0	
68	N68	3.25	3.5	-2.453739	0	
69	N69	5.5	3.5	1.443376	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	New Support Rail PV-PHK12-B	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF	4CU5.25X0375	Beam	CU	A570 Gr.33	Typical	4.854	13.238	12.817	.228

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	AL1A	AACS14...	Beam	AA Channel	3003-H14	Typical	11.8	44.7	401	1.19

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/...	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	Rotat...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N4	N5		270	L3x3x4	Beam	Single Angle	A36 Gr.36	DR1
2	M2	N5	N6		270	L3x3x4	Beam	Single Angle	A36 Gr.36	DR1
3	M3	N6	N4		270	L3x3x4	Beam	Single Angle	A36 Gr.36	DR1
4	M4	N1	N7			HSS4x4x4	Beam	None	A500 Gr.B Rect	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotat...	Section/Shape	Type	Design List	Material	Design ...
5	M5	N2	N8			HSS4x4x4	Beam	None	A500 Gr.B Rect	DR1
6	M6	N3	N9			HSS4x4x4	Beam	None	A500 Gr.B Rect	DR1
7	M7	N4	N10		180	LL3x3x4x0	Beam	Double Angle (No Gap)	A36 Gr.36	DR1
8	M8	N5	N11		180	LL3x3x4x0	Beam	Double Angle (No Gap)	A36 Gr.36	DR1
9	M9	N6	N12		180	LL3x3x4x0	Beam	Double Angle (No Gap)	A36 Gr.36	DR1
10	M10	N10	N11			L3x3x4	Beam	Single Angle	A36 Gr.36	DR1
11	M11	N11	N12			L3x3x4	Beam	Single Angle	A36 Gr.36	DR1
12	M12	N12	N10			L3x3x4	Beam	Single Angle	A36 Gr.36	DR1
13	MP1A	NP1	NP2			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
14	MP2A	NP3	NP4			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
15	MP3A	NP5	NP6			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
16	MP1B	NP11	NP12		300	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
17	MP2B	NP13	NP14		300	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
18	MP3B	NP15	NP16		300	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
19	MP1C	NP21	NP22		60	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
20	MP2C	NP23	NP24		60	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
21	MP3C	NP25	NP26		60	PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
22	M22	N43	N44			LL2.5x2.5x3x0	Beam	Double Angle (3/8 Gap)	A36 Gr.36	Typical
23	M23	N45	N46			LL2.5x2.5x3x0	Beam	Double Angle (3/8 Gap)	A36 Gr.36	Typical
24	M24	N47	N48			LL2.5x2.5x3x0	Beam	Double Angle (3/8 Gap)	A36 Gr.36	Typical
25	M25	N49	N50			New Support Rail PV-...	Beam	Pipe	A53 Gr.B	Typical
26	M26	N57	N58			New Support Rail PV-...	Beam	Pipe	A53 Gr.B	Typical
27	M27	N59	N60			New Support Rail PV-...	Beam	Pipe	A53 Gr.B	Typical
28	M28	N51	N54		180	PL8.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
29	M29	N53A	N56		180	PL8.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
30	M30	N55	N53		180	PL8.5x3/16	Beam	Single Angle	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2						Yes			None
3	M3						Yes			None
4	M4						Yes			None
5	M5						Yes			None
6	M6						Yes			None
7	M7						Yes			None
8	M8						Yes			None
9	M9						Yes			None
10	M10						Yes			None
11	M11						Yes			None
12	M12						Yes			None
13	MP1A						Yes	-z		None
14	MP2A						Yes	-z		None
15	MP3A						Yes	-z		None
16	MP1B						Yes	+z		None
17	MP2B						Yes	+z		None
18	MP3B						Yes	+z		None
19	MP1C						Yes	+z		None
20	MP2C						Yes	+z		None
21	MP3C						Yes	+z		None
22	M22	BenPIN	BenPIN				Yes			None
23	M23	BenPIN	BenPIN				Yes			None
24	M24	BenPIN	BenPIN				Yes			None
25	M25						Yes			None
26	M26						Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
27	M27						Yes			None
28	M28						Yes			None
29	M29						Yes			None
30	M30						Yes			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[..	Lcomp bot[..	L-torqu...	Kyy	Kzz	Cb	Functi...
1	M1	L3x3x4	14			Lbyy						Gravity
2	M2	L3x3x4	14			Lbyy						Gravity
3	M3	L3x3x4	14			Lbyy						Gravity
4	M4	HSS4x4x4	3			Lbyy						Gravity
5	M5	HSS4x4x4	3			Lbyy						Gravity
6	M6	HSS4x4x4	3			Lbyy						Gravity
7	M7	LL3x3x4x0	3.849			Lbyy						Gravity
8	M8	LL3x3x4x0	3.849			Lbyy						Gravity
9	M9	LL3x3x4x0	3.849			Lbyy						Gravity
10	M10	L3x3x4	7.333			Lbyy						Gravity
11	M11	L3x3x4	7.333			Lbyy						Gravity
12	M12	L3x3x4	7.333			Lbyy						Gravity
13	MP1A	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
14	MP2A	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
15	MP3A	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
16	MP1B	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
17	MP2B	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
18	MP3B	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
19	MP1C	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
20	MP2C	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
21	MP3C	PIPE_2.0	7			Lbyy			2.1	2.1		Gravity
22	M22	LL2.5x2.5x3x0	4.435			Lbyy						Lateral
23	M23	LL2.5x2.5x3x0	4.435			Lbyy						Lateral
24	M24	LL2.5x2.5x3x0	4.435			Lbyy						Lateral
25	M25	New Support Rail P...	13.5			Lbyy						Lateral
26	M26	New Support Rail P...	13.5			Lbyy						Lateral
27	M27	New Support Rail P...	13.5			Lbyy						Lateral
28	M28	PL8.5x3/16	1.25			Lbyy						Lateral
29	M29	PL8.5x3/16	1.25			Lbyy						Lateral
30	M30	PL8.5x3/16	1.25			Lbyy						Lateral

Cold Formed Steel Design Parameters

Label	Shape	Len...	Lbyy[ft]	Lbzz[ft]	Lcomp..	Lcomp..	L-torq...	Kyy	Kzz	Cm...	Cm...	Cb	R	a[ft]	y s...	z s...
No Data to Print ...																

Aluminum Design Parameters

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

Joint Loads and Enforced Displacements

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

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Y	-45.75	0
2	MP3A	Y	-45.75	4.5
3	MP3B	Y	-45.75	0
4	MP3B	Y	-45.75	4.5
5	MP3C	Y	-45.75	0
6	MP3C	Y	-45.75	4.5
7	MP1A	Y	-45.2	0
8	MP1A	Y	-45.2	4.5
9	MP1B	Y	-45.2	0
10	MP1B	Y	-45.2	4.5
11	MP1C	Y	-45.2	0
12	MP1C	Y	-45.2	4.5
13	MP2A	Y	-64	0
14	MP2A	Y	-64	6
15	MP2B	Y	-64	0
16	MP2B	Y	-64	6
17	MP2C	Y	-64	0
18	MP2C	Y	-64	6
19	MP1A	Y	-11	3
20	MP1B	Y	-11	3
21	MP1C	Y	-11	3
22	MP2A	Y	-70	2.75
23	MP2B	Y	-70	2.75
24	MP2C	Y	-70	2.75

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Y	-53.549	0
2	MP3A	Y	-53.549	4.5
3	MP3B	Y	-53.549	0
4	MP3B	Y	-53.549	4.5
5	MP3C	Y	-53.549	0
6	MP3C	Y	-53.549	4.5
7	MP1A	Y	-53.549	0
8	MP1A	Y	-53.549	4.5
9	MP1B	Y	-53.549	0
10	MP1B	Y	-53.549	4.5
11	MP1C	Y	-53.549	0
12	MP1C	Y	-53.549	4.5
13	MP2A	Y	-135.498	0
14	MP2A	Y	-135.498	6
15	MP2B	Y	-135.498	0
16	MP2B	Y	-135.498	6
17	MP2C	Y	-135.498	0
18	MP2C	Y	-135.498	6
19	MP1A	Y	-9.162	3
20	MP1B	Y	-9.162	3
21	MP1C	Y	-9.162	3
22	MP2A	Y	-42.39	2.75
23	MP2B	Y	-42.39	2.75
24	MP2C	Y	-42.39	2.75

Member Point Loads (BLC 3 : Antenna W Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Z	-154.244	0

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
2	MP3A	Z	-154.244	4.5
3	MP3B	Z	-120.435	0
4	MP3B	Z	-120.435	4.5
5	MP3C	Z	-120.435	0
6	MP3C	Z	-120.435	4.5
7	MP1A	Z	-154.244	0
8	MP1A	Z	-154.244	4.5
9	MP1B	Z	-120.435	0
10	MP1B	Z	-120.435	4.5
11	MP1C	Z	-120.435	0
12	MP1C	Z	-120.435	4.5
13	MP2A	Z	-512.627	0
14	MP2A	Z	-512.627	6
15	MP2B	Z	-283.716	0
16	MP2B	Z	-283.716	6
17	MP2C	Z	-283.716	0
18	MP2C	Z	-283.716	6
19	MP1A	Z	-15.576	3
20	MP1B	Z	-8.327	3
21	MP1C	Z	-8.327	3
22	MP2A	Z	-62.685	2.75
23	MP2B	Z	-48.795	2.75
24	MP2C	Z	-48.795	2.75

Member Point Loads (BLC 4 : Antenna Wi Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Z	-26.34	0
2	MP3A	Z	-26.34	4.5
3	MP3B	Z	-20.959	0
4	MP3B	Z	-20.959	4.5
5	MP3C	Z	-20.959	0
6	MP3C	Z	-20.959	4.5
7	MP1A	Z	-26.34	0
8	MP1A	Z	-26.34	4.5
9	MP1B	Z	-20.959	0
10	MP1B	Z	-20.959	4.5
11	MP1C	Z	-20.959	0
12	MP1C	Z	-20.959	4.5
13	MP2A	Z	-83.126	0
14	MP2A	Z	-83.126	6
15	MP2B	Z	-47.53	0
16	MP2B	Z	-47.53	6
17	MP2C	Z	-47.53	0
18	MP2C	Z	-47.53	6
19	MP1A	Z	-3.055	3
20	MP1B	Z	-2.035	3
21	MP1C	Z	-2.035	3
22	MP2A	Z	-11.597	2.75
23	MP2B	Z	-9.283	2.75
24	MP2C	Z	-9.283	2.75

Member Point Loads (BLC 5 : Antenna W Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	X	109.166	0
2	MP3A	X	109.166	4.5
3	MP3B	X	142.975	0

Member Point Loads (BLC 5 : Antenna W Side) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	MP3B	X	142.975	4.5
5	MP3C	X	142.975	0
6	MP3C	X	142.975	4.5
7	MP1A	X	109.166	0
8	MP1A	X	109.166	4.5
9	MP1B	X	142.975	0
10	MP1B	X	142.975	4.5
11	MP1C	X	142.975	0
12	MP1C	X	142.975	4.5
13	MP2A	X	207.412	0
14	MP2A	X	207.412	6
15	MP2B	X	436.323	0
16	MP2B	X	436.323	6
17	MP2C	X	436.323	0
18	MP2C	X	436.323	6
19	MP1A	X	7.88	3
20	MP1B	X	17.546	3
21	MP1C	X	17.546	3
22	MP2A	X	58.886	2.75
23	MP2B	X	77.407	2.75
24	MP2C	X	77.407	2.75

Member Point Loads (BLC 6 : Antenna Wi Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	X	19.165	0
2	MP3A	X	19.165	4.5
3	MP3B	X	24.546	0
4	MP3B	X	24.546	4.5
5	MP3C	X	24.546	0
6	MP3C	X	24.546	4.5
7	MP1A	X	19.165	0
8	MP1A	X	19.165	4.5
9	MP1B	X	24.546	0
10	MP1B	X	24.546	4.5
11	MP1C	X	24.546	0
12	MP1C	X	24.546	4.5
13	MP2A	X	35.665	0
14	MP2A	X	35.665	6
15	MP2B	X	71.26	0
16	MP2B	X	71.26	6
17	MP2C	X	71.26	0
18	MP2C	X	71.26	6
19	MP1A	X	2.26	3
20	MP1B	X	3.62	3
21	MP1C	X	3.62	3
22	MP2A	X	11.349	2.75
23	MP2B	X	14.434	2.75
24	MP2C	X	14.434	2.75

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,%]

Member Point Loads (BLC 8 : Service Lm2) (Continued)

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

Member Point Loads (BLC 15 : Antenna Wm Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Z	-8.473	0
2	MP3A	Z	-8.473	4.5
3	MP3B	Z	-6.616	0
4	MP3B	Z	-6.616	4.5
5	MP3C	Z	-6.616	0
6	MP3C	Z	-6.616	4.5
7	MP1A	Z	-8.473	0
8	MP1A	Z	-8.473	4.5
9	MP1B	Z	-6.616	0
10	MP1B	Z	-6.616	4.5
11	MP1C	Z	-6.616	0
12	MP1C	Z	-6.616	4.5
13	MP2A	Z	-28.159	0
14	MP2A	Z	-28.159	6
15	MP2B	Z	-15.585	0
16	MP2B	Z	-15.585	6
17	MP2C	Z	-15.585	0
18	MP2C	Z	-15.585	6
19	MP1A	Z	-.856	3
20	MP1B	Z	-.457	3
21	MP1C	Z	-.457	3
22	MP2A	Z	-3.443	2.75
23	MP2B	Z	-2.68	2.75
24	MP2C	Z	-2.68	2.75

Member Point Loads (BLC 16 : Antenna Wm Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	X	5.997	0
2	MP3A	X	5.997	4.5
3	MP3B	X	7.854	0
4	MP3B	X	7.854	4.5
5	MP3C	X	7.854	0
6	MP3C	X	7.854	4.5
7	MP1A	X	5.997	0
8	MP1A	X	5.997	4.5
9	MP1B	X	7.854	0
10	MP1B	X	7.854	4.5
11	MP1C	X	7.854	0
12	MP1C	X	7.854	4.5
13	MP2A	X	11.393	0
14	MP2A	X	11.393	6
15	MP2B	X	23.968	0
16	MP2B	X	23.968	6
17	MP2C	X	23.968	0
18	MP2C	X	23.968	6
19	MP1A	X	.433	3
20	MP1B	X	.964	3
21	MP1C	X	.964	3
22	MP2A	X	3.235	2.75
23	MP2B	X	4.252	2.75
24	MP2C	X	4.252	2.75

Member Point Loads (BLC 19 : Service Lv1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M4	Y	-250	%50

Member Point Loads (BLC 20 : Service Lv2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M7	Y	-250	%50

Member Distributed Loads (BLC 10 : Structure Di)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-7.816	-7.816	0	%100
2	M2	Y	-7.816	-7.816	0	%100
3	M3	Y	-7.816	-7.816	0	%100
4	M4	Y	-9.855	-9.855	0	%100
5	M5	Y	-9.855	-9.855	0	%100
6	M6	Y	-9.855	-9.855	0	%100
7	M7	Y	-10.89	-10.89	0	%100
8	M8	Y	-10.89	-10.89	0	%100
9	M9	Y	-10.89	-10.89	0	%100
10	M10	Y	-7.816	-7.816	0	%100
11	M11	Y	-7.816	-7.816	0	%100
12	M12	Y	-7.816	-7.816	0	%100
13	MP1A	Y	-5.124	-5.124	0	%100
14	MP2A	Y	-5.124	-5.124	0	%100
15	MP3A	Y	-5.124	-5.124	0	%100
16	MP1B	Y	-5.124	-5.124	0	%100
17	MP2B	Y	-5.124	-5.124	0	%100
18	MP3B	Y	-5.124	-5.124	0	%100
19	MP1C	Y	-5.124	-5.124	0	%100
20	MP2C	Y	-5.124	-5.124	0	%100
21	MP3C	Y	-5.124	-5.124	0	%100
22	M22	Y	-9.449	-9.449	0	%100
23	M23	Y	-9.449	-9.449	0	%100
24	M24	Y	-9.449	-9.449	0	%100
25	M25	Y	-5.124	-5.124	0	%100
26	M26	Y	-5.124	-5.124	0	%100
27	M27	Y	-5.124	-5.124	0	%100
28	M28	Y	-10.498	-10.498	0	%100
29	M29	Y	-10.498	-10.498	0	%100
30	M30	Y	-10.498	-10.498	0	%100

Member Distributed Loads (BLC 11 : Structure W Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-25.327	-25.327	0	%100
2	M2	PZ	-25.327	-25.327	0	%100
3	M3	PZ	-25.327	-25.327	0	%100
4	M4	PZ	-15.853	-15.853	0	%100
5	M5	PZ	-15.853	-15.853	0	%100
6	M6	PZ	-15.853	-15.853	0	%100
7	M7	PZ	-21.273	-21.273	0	%100
8	M8	PZ	-21.273	-21.273	0	%100
9	M9	PZ	-21.273	-21.273	0	%100
10	M10	PZ	-25.327	-25.327	0	%100
11	M11	PZ	-25.327	-25.327	0	%100
12	M12	PZ	-25.327	-25.327	0	%100
13	MP1A	PZ	-12.031	-12.031	0	%100

Member Distributed Loads (BLC 11 : Structure W Front) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
14	MP2A	PZ	-12.031	-12.031	0	%100
15	MP3A	PZ	-12.031	-12.031	0	%100
16	MP1B	PZ	-12.031	-12.031	0	%100
17	MP2B	PZ	-12.031	-12.031	0	%100
18	MP3B	PZ	-12.031	-12.031	0	%100
19	MP1C	PZ	-12.031	-12.031	0	%100
20	MP2C	PZ	-12.031	-12.031	0	%100
21	MP3C	PZ	-12.031	-12.031	0	%100
22	M22	PZ	-19.801	-19.801	0	%100
23	M23	PZ	-19.801	-19.801	0	%100
24	M24	PZ	-19.801	-19.801	0	%100
25	M25	PZ	-12.031	-12.031	0	%100
26	M26	PZ	-12.031	-12.031	0	%100
27	M27	PZ	-12.031	-12.031	0	%100
28	M28	PZ	-25.796	-25.796	0	%100
29	M29	PZ	-25.796	-25.796	0	%100
30	M30	PZ	-25.796	-25.796	0	%100

Member Distributed Loads (BLC 12 : Structure Wi Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-6.904	-6.904	0	%100
2	M2	PZ	-6.904	-6.904	0	%100
3	M3	PZ	-6.904	-6.904	0	%100
4	M4	PZ	-3.846	-3.846	0	%100
5	M5	PZ	-3.846	-3.846	0	%100
6	M6	PZ	-3.846	-3.846	0	%100
7	M7	PZ	-5.799	-5.799	0	%100
8	M8	PZ	-5.799	-5.799	0	%100
9	M9	PZ	-5.799	-5.799	0	%100
10	M10	PZ	-6.904	-6.904	0	%100
11	M11	PZ	-6.904	-6.904	0	%100
12	M12	PZ	-6.904	-6.904	0	%100
13	MP1A	PZ	-3.66	-3.66	0	%100
14	MP2A	PZ	-3.66	-3.66	0	%100
15	MP3A	PZ	-3.66	-3.66	0	%100
16	MP1B	PZ	-3.66	-3.66	0	%100
17	MP2B	PZ	-3.66	-3.66	0	%100
18	MP3B	PZ	-3.66	-3.66	0	%100
19	MP1C	PZ	-3.66	-3.66	0	%100
20	MP2C	PZ	-3.66	-3.66	0	%100
21	MP3C	PZ	-3.66	-3.66	0	%100
22	M22	PZ	-5.873	-5.873	0	%100
23	M23	PZ	-5.873	-5.873	0	%100
24	M24	PZ	-5.873	-5.873	0	%100
25	M25	PZ	-3.66	-3.66	0	%100
26	M26	PZ	-3.66	-3.66	0	%100
27	M27	PZ	-3.66	-3.66	0	%100
28	M28	PZ	-5.794	-5.794	0	%100
29	M29	PZ	-5.794	-5.794	0	%100
30	M30	PZ	-5.794	-5.794	0	%100

Member Distributed Loads (BLC 13 : Structure W Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	25.327	25.327	0	%100
2	M2	PX	25.327	25.327	0	%100
3	M3	PX	25.327	25.327	0	%100

Member Distributed Loads (BLC 13 : Structure W Side) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
4	M4	PX	15.853	15.853	0	%100
5	M5	PX	15.853	15.853	0	%100
6	M6	PX	15.853	15.853	0	%100
7	M7	PX	21.273	21.273	0	%100
8	M8	PX	21.273	21.273	0	%100
9	M9	PX	21.273	21.273	0	%100
10	M10	PX	25.327	25.327	0	%100
11	M11	PX	25.327	25.327	0	%100
12	M12	PX	25.327	25.327	0	%100
13	MP1A	PX	12.031	12.031	0	%100
14	MP2A	PX	12.031	12.031	0	%100
15	MP3A	PX	12.031	12.031	0	%100
16	MP1B	PX	12.031	12.031	0	%100
17	MP2B	PX	12.031	12.031	0	%100
18	MP3B	PX	12.031	12.031	0	%100
19	MP1C	PX	12.031	12.031	0	%100
20	MP2C	PX	12.031	12.031	0	%100
21	MP3C	PX	12.031	12.031	0	%100
22	M22	PX	19.801	19.801	0	%100
23	M23	PX	19.801	19.801	0	%100
24	M24	PX	19.801	19.801	0	%100
25	M25	PX	12.031	12.031	0	%100
26	M26	PX	12.031	12.031	0	%100
27	M27	PX	12.031	12.031	0	%100
28	M28	PX	25.796	25.796	0	%100
29	M29	PX	25.796	25.796	0	%100
30	M30	PX	25.796	25.796	0	%100

Member Distributed Loads (BLC 14 : Structure Wi Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	6.904	6.904	0	%100
2	M2	PX	6.904	6.904	0	%100
3	M3	PX	6.904	6.904	0	%100
4	M4	PX	3.846	3.846	0	%100
5	M5	PX	3.846	3.846	0	%100
6	M6	PX	3.846	3.846	0	%100
7	M7	PX	5.799	5.799	0	%100
8	M8	PX	5.799	5.799	0	%100
9	M9	PX	5.799	5.799	0	%100
10	M10	PX	6.904	6.904	0	%100
11	M11	PX	6.904	6.904	0	%100
12	M12	PX	6.904	6.904	0	%100
13	MP1A	PX	3.66	3.66	0	%100
14	MP2A	PX	3.66	3.66	0	%100
15	MP3A	PX	3.66	3.66	0	%100
16	MP1B	PX	3.66	3.66	0	%100
17	MP2B	PX	3.66	3.66	0	%100
18	MP3B	PX	3.66	3.66	0	%100
19	MP1C	PX	3.66	3.66	0	%100
20	MP2C	PX	3.66	3.66	0	%100
21	MP3C	PX	3.66	3.66	0	%100
22	M22	PX	5.873	5.873	0	%100
23	M23	PX	5.873	5.873	0	%100
24	M24	PX	5.873	5.873	0	%100
25	M25	PX	3.66	3.66	0	%100
26	M26	PX	3.66	3.66	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
27	M27	PX	3.66	3.66	0	%100
28	M28	PX	5.794	5.794	0	%100
29	M29	PX	5.794	5.794	0	%100
30	M30	PX	5.794	5.794	0	%100

Member Distributed Loads (BLC 17 : Structure Wm Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-1.391	-1.391	0	%100
2	M2	PZ	-1.391	-1.391	0	%100
3	M3	PZ	-1.391	-1.391	0	%100
4	M4	PZ	-.871	-.871	0	%100
5	M5	PZ	-.871	-.871	0	%100
6	M6	PZ	-.871	-.871	0	%100
7	M7	PZ	-1.169	-1.169	0	%100
8	M8	PZ	-1.169	-1.169	0	%100
9	M9	PZ	-1.169	-1.169	0	%100
10	M10	PZ	-1.391	-1.391	0	%100
11	M11	PZ	-1.391	-1.391	0	%100
12	M12	PZ	-1.391	-1.391	0	%100
13	MP1A	PZ	-.661	-.661	0	%100
14	MP2A	PZ	-.661	-.661	0	%100
15	MP3A	PZ	-.661	-.661	0	%100
16	MP1B	PZ	-.661	-.661	0	%100
17	MP2B	PZ	-.661	-.661	0	%100
18	MP3B	PZ	-.661	-.661	0	%100
19	MP1C	PZ	-.661	-.661	0	%100
20	MP2C	PZ	-.661	-.661	0	%100
21	MP3C	PZ	-.661	-.661	0	%100
22	M22	PZ	-1.088	-1.088	0	%100
23	M23	PZ	-1.088	-1.088	0	%100
24	M24	PZ	-1.088	-1.088	0	%100
25	M25	PZ	-.661	-.661	0	%100
26	M26	PZ	-.661	-.661	0	%100
27	M27	PZ	-.661	-.661	0	%100
28	M28	PZ	-1.417	-1.417	0	%100
29	M29	PZ	-1.417	-1.417	0	%100
30	M30	PZ	-1.417	-1.417	0	%100

Member Distributed Loads (BLC 18 : Structure Wm Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	1.391	1.391	0	%100
2	M2	PX	1.391	1.391	0	%100
3	M3	PX	1.391	1.391	0	%100
4	M4	PX	.871	.871	0	%100
5	M5	PX	.871	.871	0	%100
6	M6	PX	.871	.871	0	%100
7	M7	PX	1.169	1.169	0	%100
8	M8	PX	1.169	1.169	0	%100
9	M9	PX	1.169	1.169	0	%100
10	M10	PX	1.391	1.391	0	%100
11	M11	PX	1.391	1.391	0	%100
12	M12	PX	1.391	1.391	0	%100
13	MP1A	PX	.661	.661	0	%100
14	MP2A	PX	.661	.661	0	%100
15	MP3A	PX	.661	.661	0	%100
16	MP1B	PX	.661	.661	0	%100

Member Distributed Loads (BLC 18 : Structure Wm Side) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
17	MP2B	PX	.661	.661	0	%100
18	MP3B	PX	.661	.661	0	%100
19	MP1C	PX	.661	.661	0	%100
20	MP2C	PX	.661	.661	0	%100
21	MP3C	PX	.661	.661	0	%100
22	M22	PX	1.088	1.088	0	%100
23	M23	PX	1.088	1.088	0	%100
24	M24	PX	1.088	1.088	0	%100
25	M25	PX	.661	.661	0	%100
26	M26	PX	.661	.661	0	%100
27	M27	PX	.661	.661	0	%100
28	M28	PX	1.417	1.417	0	%100
29	M29	PX	1.417	1.417	0	%100
30	M30	PX	1.417	1.417	0	%100

Member Distributed Loads (BLC 21 : BLC 9 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M3	Y	-1.033	-2.643	0	2.333
2	M3	Y	-2.643	-3.748	2.333	4.667
3	M3	Y	-3.748	-4.047	4.667	7
4	M3	Y	-4.047	-3.748	7	9.333
5	M3	Y	-3.748	-2.643	9.333	11.667
6	M3	Y	-2.643	-1.033	11.667	14
7	M6	Y	-9.533	-9.533	1.075	3
8	M7	Y	-1.002	-4.884	0	1.925
9	M7	Y	-4.884	-8.766	1.925	3.849
10	M9	Y	-1.002	-4.884	0	1.925
11	M9	Y	-4.884	-8.766	1.925	3.849
12	M12	Y	-3.821	-3.821	.013	7.32
13	M1	Y	-1.033	-2.643	0	2.333
14	M1	Y	-2.643	-3.748	2.333	4.667
15	M1	Y	-3.748	-4.047	4.667	7
16	M1	Y	-4.047	-3.748	7	9.333
17	M1	Y	-3.748	-2.643	9.333	11.667
18	M1	Y	-2.643	-1.033	11.667	14
19	M4	Y	-9.533	-9.533	1.075	3
20	M8	Y	-1.002	-4.884	0	1.925
21	M8	Y	-4.884	-8.766	1.925	3.849
22	M10	Y	-3.821	-3.821	.013	7.32
23	M2	Y	-1.033	-2.643	0	2.333
24	M2	Y	-2.643	-3.748	2.333	4.667
25	M2	Y	-3.748	-4.047	4.667	7
26	M2	Y	-4.047	-3.748	7	9.333
27	M2	Y	-3.748	-2.643	9.333	11.667
28	M2	Y	-2.643	-1.033	11.667	14
29	M5	Y	-9.533	-9.533	1.075	3
30	M11	Y	-3.821	-3.821	.013	7.32

Member Distributed Loads (BLC 22 : BLC 10 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
1	M3	Y	-2.021	-5.171	0	2.333
2	M3	Y	-5.171	-7.332	2.333	4.667
3	M3	Y	-7.332	-7.918	4.667	7
4	M3	Y	-7.918	-7.332	7	9.333
5	M3	Y	-7.332	-5.171	9.333	11.667
6	M3	Y	-5.171	-2.021	11.667	14

Member Distributed Loads (BLC 22 : BLC 10 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[ft,%]	End Location[ft,%]
7	M6	Y	-18.651	-18.651	1.075	3
8	M7	Y	-1.961	-9.555	0	1.925
9	M7	Y	-9.555	-17.15	1.925	3.849
10	M9	Y	-1.961	-9.555	0	1.925
11	M9	Y	-9.555	-17.15	1.925	3.849
12	M12	Y	-7.475	-7.475	.013	7.32
13	M1	Y	-2.021	-5.171	0	2.333
14	M1	Y	-5.171	-7.332	2.333	4.667
15	M1	Y	-7.332	-7.918	4.667	7
16	M1	Y	-7.918	-7.332	7	9.333
17	M1	Y	-7.332	-5.171	9.333	11.667
18	M1	Y	-5.171	-2.021	11.667	14
19	M4	Y	-18.651	-18.651	1.075	3
20	M8	Y	-1.961	-9.555	0	1.925
21	M8	Y	-9.555	-17.15	1.925	3.849
22	M10	Y	-7.475	-7.475	.013	7.32
23	M2	Y	-2.021	-5.171	0	2.333
24	M2	Y	-5.171	-7.332	2.333	4.667
25	M2	Y	-7.332	-7.918	4.667	7
26	M2	Y	-7.918	-7.332	7	9.333
27	M2	Y	-7.332	-5.171	9.333	11.667
28	M2	Y	-5.171	-2.021	11.667	14
29	M5	Y	-18.651	-18.651	1.075	3
30	M11	Y	-7.475	-7.475	.013	7.32

Member Area Loads (BLC 9 : Structure D)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N4	N10	N12	N6	Y	Two Way	-.005
2	N4	N5	N11	N10	Y	Two Way	-.005
3	N5	N6	N12	N11	Y	Two Way	-.005

Member Area Loads (BLC 10 : Structure Di)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N4	N10	N12	N6	Y	Two Way	-.01
2	N4	N5	N11	N10	Y	Two Way	-.01
3	N5	N6	N12	N11	Y	Two Way	-.01

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	N44	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N46	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N48	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	4411.714	4	1007.207	10	1434.673	1	-.507	1	3.042	4	.184	3
2		min	-4399.738	3	291.196	1	-1234.523	2	-3.273	6	-3.044	3	-.133	4
3	N2	max	2531.973	4	941.908	5	4088.566	1	1.684	5	3.65	2	2.786	7
4		min	-2356.597	3	295.349	2	-4206.659	2	.326	2	-3.638	1	.533	4

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
5	N3	max	2425.476	4	945.631	8	3950.706	1	1.571	8	3.4	1	-.465	3
6		min	-2608.078	3	274.167	3	-4051.308	2	.269	3	-3.42	2	-2.862	8
7	N44	max	43.227	4	1592.514	1	834.945	2	0	1	0	4	0	3
8		min	-43.083	3	-416.376	2	-3107.271	1	0	1	0	3	0	4
9	N46	max	513.163	3	1676.609	9	1647.042	9	0	1	0	2	0	2
10		min	-2849.119	9	-299.831	3	-312.316	3	0	2	0	1	0	1
11	N48	max	2429.051	7	1457.984	7	1407.228	7	0	1	0	1	0	1
12		min	-438.224	4	-256.029	4	-269.052	4	0	2	0	2	0	2
13	Totals:	max	6486.322	4	6636.424	6	6581.918	1						
14		min	-6486.322	3	2989.576	1	-6581.918	2						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
1	M1	1	max	1292.631	4	90.027	2	315.873	4	.016	1	.082	1	.136	3
2			min	-1716.748	3	-110.255	1	-84.397	3	-.015	2	-.359	2	-.557	4
3		2	max	1035.151	2	152.517	1	133.816	4	.013	2	.457	2	.466	3
4			min	-1416.816	1	-156.255	2	-238.314	3	-.014	1	-.308	1	-.386	4
5		3	max	1035.151	2	1072.448	2	889.555	6	.143	1	.428	1	.485	4
6			min	-1416.816	1	-1077.854	1	-274.668	3	-.138	2	-.705	2	-.789	3
7		4	max	898.821	2	74.893	2	155.385	4	.007	2	.22	2	.169	4
8			min	-1314.289	1	-68.732	1	-126.635	3	-.006	1	-.158	1	-.153	3
9		5	max	1373.215	3	197.535	1	175.985	4	.016	2	.251	1	.132	4
10			min	-1815.822	4	-173.349	2	-501.291	3	-.019	1	-.543	2	-.544	3
11	M2	1	max	1443.254	3	55.67	1	311.495	3	.012	2	.114	4	.095	1
12			min	-1881.1	4	-76.809	2	-79.243	4	-.011	1	-.388	3	-.529	6
13		2	max	1201.366	3	148.542	4	201.727	2	.009	3	.505	1	.403	1
14			min	-1585.908	4	-152.66	3	-308.404	1	-.011	4	-.364	2	-.324	2
15		3	max	1162.982	3	816.54	3	902.919	7	.127	4	.286	2	.333	2
16			min	-1547.524	4	-820.117	4	157.665	4	-.121	3	-.555	1	-.633	1
17		4	max	1291.452	1	54.048	1	199.084	3	.005	3	.258	3	.224	2
18			min	-1710.085	2	-47.641	2	-167.787	4	-.004	4	-.198	4	-.206	1
19		5	max	1728.877	1	182.718	4	241.451	2	.019	3	.152	2	.105	2
20			min	-2177.869	2	-158.435	3	-565.723	1	-.022	4	-.438	1	-.517	8
21	M3	1	max	1679.665	1	101.102	4	346.354	1	.017	3	.111	2	.145	2
22			min	-2112.737	2	-123.463	3	-116.544	2	-.016	4	-.383	1	-.558	1
23		2	max	1166.828	1	102.343	3	190.744	3	.013	4	.562	4	.455	2
24			min	-1549.607	2	-105.543	4	-301.268	4	-.014	3	-.416	3	-.372	1
25		3	max	1128.443	1	853.414	4	901.605	5	.123	3	.432	3	.373	1
26			min	-1511.222	2	-859.202	3	164.451	2	-.118	4	-.704	4	-.687	2
27		4	max	1210.708	4	88.777	4	200.723	1	.007	4	.214	1	.239	3
28			min	-1630.04	3	-82.286	3	-171.712	2	-.006	3	-.155	2	-.222	4
29		5	max	1446.319	4	127.84	3	196.819	3	.014	1	.222	3	.118	1
30			min	-1896.424	3	-106.148	4	-525.581	4	-.017	2	-.511	4	-.539	2
31	M4	1	max	1434.673	1	1007.386	10	4399.816	3	.184	3	3.042	4	3.273	6
32			min	-1234.523	2	291.417	1	-4411.776	4	-.133	4	-3.044	3	.507	1
33		2	max	1434.673	1	996.286	10	4387.927	3	.184	3	.251	3	2.573	6
34			min	-1234.523	2	280.318	1	-4399.886	4	-.133	4	-.263	4	.293	1
35		3	max	1322.144	1	1200.339	6	1037.007	4	.498	3	1.21	3	1.76	6
36			min	-1314.303	2	201.44	1	-1030.626	3	-.427	4	-1.211	4	.116	1
37		4	max	1322.144	1	1159.28	6	1048.897	4	.498	3	.433	3	.876	6
38			min	-1314.303	2	181.76	1	-1042.516	3	-.427	4	-.429	4	-.028	1
39		5	max	1322.144	1	1118.221	6	1060.787	4	.498	3	.362	4	.151	2
40			min	-1314.303	2	162.08	1	-1054.406	3	-.427	4	-.354	3	-.157	1
41	M5	1	max	1158.25	4	942.03	5	4525.001	1	.154	4	3.65	2	3.235	7
42			min	-961.215	3	295.482	2	-4552.342	2	-.108	3	-3.638	1	.705	4

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
43		2	max	1153.102	4	923.539	5	4516.083	1	.154	4	.562	3	2.541	7
44			min	-956.066	3	284.382	2	-4543.425	2	-.108	3	-.576	4	.456	4
45		3	max	1048.176	4	1187.084	7	625.06	2	.34	1	.748	1	1.736	7
46			min	-1043.115	3	268.536	4	-612.526	1	-.28	2	-.756	2	.235	4
47		4	max	1043.028	4	1146.025	7	633.977	2	.34	1	.286	1	.861	7
48			min	-1037.967	3	248.856	4	-621.444	1	-.28	2	-.283	2	.041	4
49		5	max	1037.879	4	1104.966	7	642.894	2	.34	1	.206	3	.13	3
50			min	-1032.818	3	229.176	4	-630.361	1	-.28	2	-.204	4	-.138	4
51	M6	1	max	1149.46	3	945.624	8	4362.122	2	.196	2	3.4	1	3.264	8
52			min	-952.246	4	274.357	3	-4355.056	1	-.15	1	-3.42	2	.537	3
53		2	max	1144.312	3	927.133	8	4353.205	2	.196	2	.598	3	2.562	8
54			min	-947.098	4	263.257	3	-4346.138	1	-.15	1	-.606	4	.336	3
55		3	max	1039.796	3	1196.312	8	715.997	1	.427	2	.795	2	1.75	8
56			min	-1034.448	4	216.241	3	-716.903	2	-.346	1	-.79	1	.158	3
57		4	max	1034.647	3	1155.253	8	724.914	1	.427	2	.254	2	.868	8
58			min	-1029.3	4	196.561	3	-725.82	2	-.346	1	-.25	1	.003	3
59		5	max	1029.499	3	1114.194	8	733.831	1	.427	2	.297	1	.13	4
60			min	-1024.151	4	176.882	3	-734.738	2	-.346	1	-.294	2	-.137	3
61	M7	1	max	3186.792	3	879.747	9	91.896	1	.003	3	.391	2	1.071	8
62			min	-2407.822	4	-282.36	3	-88.498	2	-.004	4	-.406	1	-.213	3
63		2	max	3195.656	3	893.341	9	107.249	1	.003	3	.299	2	.362	8
64			min	-2416.686	4	-268.766	3	-103.851	2	-.004	4	-.31	1	0	9
65		3	max	3204.52	3	909.176	9	122.601	1	.003	3	.192	2	.304	3
66			min	-2425.55	4	-252.931	3	-119.203	2	-.004	4	-.199	1	-.866	9
67		4	max	3213.384	3	927.253	9	137.954	1	.003	3	.133	3	.538	3
68			min	-2434.413	4	-234.855	3	-134.556	2	-.004	4	-.137	4	-1.75	9
69		5	max	3871.068	3	121.026	3	187.993	1	.003	3	.093	1	.498	3
70			min	-5372.38	4	-711.519	9	-183.413	2	-.004	4	-.093	2	-1.381	9
71	M8	1	max	3240.414	4	805.335	3	138.066	2	.003	1	.517	1	1.067	7
72			min	-2458.323	3	-255.383	4	-132.58	1	-.004	2	-.537	2	-.194	4
73		2	max	3249.278	4	818.929	3	153.419	2	.003	1	.382	1	.363	7
74			min	-2467.186	3	-241.789	4	-147.933	1	-.004	2	-.397	2	.045	4
75		3	max	3258.142	4	834.764	3	168.772	2	.003	1	.232	1	.27	4
76			min	-2476.05	3	-225.954	4	-163.286	1	-.004	2	-.242	2	-.53	3
77		4	max	3267.006	4	852.84	3	184.124	2	.003	1	.112	3	.479	4
78			min	-2484.914	3	-207.878	4	-178.638	1	-.004	2	-.116	4	-1.341	3
79		5	max	3838.16	4	104.069	4	232.676	2	.003	1	.138	2	.446	4
80			min	-5330.705	3	-531.806	3	-228.727	1	-.004	2	-.138	1	-1.095	3
81	M9	1	max	3751.742	2	902.382	1	188.268	3	.003	4	.614	4	1.155	1
82			min	-2968.222	1	-359.284	2	-183.671	4	-.003	3	-.631	3	-.311	2
83		2	max	3751.742	2	915.975	1	208.739	3	.003	4	.427	4	.366	5
84			min	-2968.222	1	-345.691	2	-204.141	4	-.003	3	-.44	3	.029	2
85		3	max	3751.742	2	931.811	1	229.209	3	.003	4	.221	4	.354	2
86			min	-2968.222	1	-329.855	2	-224.611	4	-.003	3	-.229	3	-.609	1
87		4	max	3751.742	2	949.887	1	249.679	3	.003	4	.017	2	.663	2
88			min	-2968.222	1	-311.779	2	-245.081	4	-.003	3	-.02	1	-1.514	1
89		5	max	4626.288	2	161.688	2	313.703	3	.003	4	.285	3	.606	2
90			min	-6115.095	1	-592.795	1	-309.149	4	-.003	3	-.284	4	-1.24	1
91	M10	1	max	2282.24	3	347.818	9	29.339	1	0	4	.117	3	.863	9
92			min	-3207.332	4	-75.205	3	-163.637	9	-.001	3	-.264	9	-.294	3
93		2	max	2282.24	3	328.692	9	10.765	3	0	4	.021	3	.231	4
94			min	-3207.332	4	-94.331	3	-166.188	9	-.001	3	-.039	9	-.17	3
95		3	max	837.329	1	309.506	9	116.988	7	.001	4	.157	9	-.09	1
96			min	-3207.332	4	-224.57	3	-168.738	9	-.001	3	-.057	1	-.42	9
97		4	max	2217.612	4	79.878	4	116.988	7	.001	4	.021	1	.217	3
98			min	-3124.341	3	-243.756	3	-8.917	4	0	3	-.027	2	-.168	4
99		5	max	2217.612	4	60.752	4	141.762	2	.001	4	.097	4	.679	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
100			min	-3124.341	3	-263.602	7	-43.317	1	0	3	-.218	3	-.27	4
101	M11	1	max	2208.224	4	254.497	7	-20.167	4	0	2	.16	4	.61	3
102			min	-3131.585	3	-50.931	4	-109.465	5	0	5	-.281	3	-.2	4
103		2	max	2228.331	4	229.062	3	-35.36	2	0	2	.032	4	.23	3
104			min	-3151.691	3	-70.057	4	-106.305	8	0	5	-.042	3	-.17	4
105		3	max	2699.515	2	209.876	3	107.017	5	.001	2	.217	3	-.113	2
106			min	-3604.974	1	-243.243	1	-103.016	6	0	5	-.165	4	-.317	7
107		4	max	2679.409	2	102.218	2	125.308	3	.001	2	.031	2	.269	1
108			min	-3584.868	1	-262.429	1	-24.939	4	0	1	-.036	1	-.222	2
109		5	max	2659.302	2	83.093	2	160.133	3	.001	2	.172	2	.721	1
110			min	-3564.761	1	-281.555	1	-59.764	4	0	1	-.29	1	-.321	2
111	M12	1	max	2675.465	2	283.937	1	55.73	3	0	1	.171	2	.725	1
112			min	-3592.977	1	-90.651	2	-153.156	4	-.001	2	-.289	1	-.324	2
113		2	max	2695.572	2	264.811	1	20.905	3	0	1	.029	2	.264	1
114			min	-3613.083	1	-109.776	2	-118.331	4	-.001	2	-.038	1	-.206	2
115		3	max	2715.678	2	245.625	1	167.823	9	0	5	.219	4	-.122	2
116			min	-3633.19	1	-312.389	9	-104.314	5	-.001	2	-.16	3	-.432	9
117		4	max	2205.363	3	73.422	3	168.461	9	0	7	.036	3	.248	4
118			min	-3120.341	4	-331.576	9	42.55	2	0	9	-.042	4	-.199	3
119		5	max	2185.257	3	54.296	3	169.098	9	0	7	.161	3	.864	9
120			min	-3100.235	4	-350.701	9	15.697	3	0	9	-.282	4	-.239	3
121	MP1A	1	max	107.789	7	109.62	4	155.366	1	.011	3	.011	6	0	1
122			min	54.24	1	-109.648	3	-155.355	2	-.011	4	.005	4	0	1
123		2	max	383.039	2	326.738	4	69.35	2	.408	1	.114	1	.298	2
124			min	-259.774	1	-303.688	3	-56.319	1	-.406	2	-.127	2	-.251	1
125		3	max	403.528	2	355.672	4	32.72	2	.408	1	.049	3	.348	3
126			min	-239.285	1	-332.621	3	-19.689	1	-.406	2	-.039	4	-.347	4
127		4	max	-7.289	4	21.079	3	21.142	2	0	4	.019	1	.018	3
128			min	-16.256	6	-21.079	4	-21.143	1	0	3	-.019	2	-.018	4
129		5	max	0	4	.026	3	.089	2	0	4	0	1	0	2
130			min	0	2	-.026	4	-.089	1	0	3	0	2	0	9
131	MP2A	1	max	212.298	5	207.948	4	515.87	1	.021	3	.021	6	0	1
132			min	76.8	3	-207.937	3	-515.885	2	-.021	4	.008	2	0	1
133		2	max	364.254	6	602.536	4	287.48	1	.165	4	.055	6	.495	4
134			min	101.918	1	-571.407	3	-279.264	2	-.176	3	.001	3	-.499	3
135		3	max	506.9	6	682.476	4	371.219	1	.165	4	.609	1	.563	3
136			min	193.207	1	-651.347	3	-363.003	2	-.176	3	-.549	2	-.622	4
137		4	max	-84.089	4	228.523	3	534.869	2	0	1	.405	1	.174	3
138			min	-228.554	7	-228.486	4	-534.793	1	0	7	-.405	2	-.174	4
139		5	max	0	4	.139	7	1.189	2	0	1	0	1	0	1
140			min	0	7	-.027	1	-1.113	1	0	7	0	2	0	9
141	MP3A	1	max	108.449	5	109.518	4	155.755	1	.011	3	.011	5	0	1
142			min	54.9	1	-109.497	3	-155.757	2	-.011	4	.005	3	0	1
143		2	max	297.18	2	437.898	4	55.85	2	.408	2	.129	1	.434	4
144			min	-168.175	1	-483.305	3	-43.997	1	-.401	1	-.142	2	-.487	3
145		3	max	304.469	2	458.952	4	34.796	2	.408	2	.07	1	.378	3
146			min	-160.887	1	-504.358	3	-22.943	1	-.401	1	-.063	2	-.351	4
147		4	max	-7.289	1	21.08	3	21.174	2	0	4	.019	1	.018	3
148			min	-16.256	6	-21.081	4	-21.174	1	0	3	-.019	2	-.018	4
149		5	max	0	1	.026	3	.121	2	0	4	0	1	0	1
150			min	0	2	-.027	4	-.121	1	0	3	0	2	0	9
151	MP1B	1	max	107.789	7	104.651	2	124.61	4	.01	2	-.005	3	0	1
152			min	54.24	3	-104.618	1	-124.618	3	-.01	1	-.011	7	0	1
153		2	max	431.376	4	350.583	2	50.143	3	.311	3	.101	4	.325	2
154			min	-309.064	3	-373.922	1	-63.736	4	-.309	4	-.086	3	-.367	1
155		3	max	451.865	4	376.027	2	16.715	3	.311	3	.04	1	.307	1
156			min	-288.575	3	-399.366	1	-30.307	4	-.309	4	-.051	2	-.308	2

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
157		4	max	-7.289	3	18.257	1	18.296	3	0	1	.016	4	.016	1
158			min	-16.256	8	-18.257	2	-18.296	4	0	2	-.016	3	-.016	2
159		5	max	0	3	.024	1	.064	3	0	1	0	9	0	1
160			min	0	4	-.025	2	-.063	4	0	2	0	3	0	2
161	MP2B	1	max	212.298	5	246.215	2	380.537	4	.024	2	-.008	3	0	1
162			min	76.8	9	-246.223	1	-380.525	3	-.024	1	-.021	6	0	1
163		2	max	362.258	8	555.844	2	206.275	4	.161	3	.029	2	.453	2
164			min	109.354	3	-583.581	1	-215.012	3	-.175	4	-.069	1	-.445	1
165		3	max	504.904	8	616.335	2	291.544	4	.161	3	.395	4	.624	1
166			min	200.643	3	-644.071	1	-300.281	3	-.175	4	-.454	3	-.568	2
167		4	max	-84.089	3	263.907	1	397.071	3	0	2	.301	4	.2	1
168			min	-228.554	8	-263.945	2	-397.145	4	0	8	-.301	3	-.2	2
169		5	max	0	3	-.007	2	.971	3	0	2	0	1	0	3
170			min	0	8	-.127	8	-1.045	4	0	8	0	2	0	4
171	MP3B	1	max	108.449	8	104.706	2	125.274	4	.01	2	-.005	3	0	1
172			min	54.9	4	-104.724	1	-125.276	3	-.01	1	-.011	6	0	1
173		2	max	265.464	4	471.799	4	24.887	2	.311	4	.084	4	.604	4
174			min	-132.942	3	-422.452	3	-37.382	1	-.304	3	-.07	3	-.546	3
175		3	max	272.753	4	482.325	4	14.36	2	.311	4	.043	4	.324	1
176			min	-125.653	3	-432.978	3	-26.856	1	-.304	3	-.05	3	-.353	2
177		4	max	-7.289	2	18.258	1	18.354	3	0	1	.016	4	.016	1
178			min	-16.256	5	-18.257	2	-18.354	4	0	2	-.016	3	-.016	2
179		5	max	0	2	.025	1	.121	3	0	1	0	1	0	1
180			min	0	1	-.024	2	-.121	4	0	2	0	2	0	2
181	MP1C	1	max	107.789	5	104.822	1	124.934	3	.01	1	-.005	11	0	1
182			min	54.24	10	-104.796	2	-124.953	4	-.01	2	-.011	5	0	1
183		2	max	385.717	1	295.917	4	40.712	4	.39	4	.105	3	.365	4
184			min	-262.267	2	-321.692	3	-53.616	3	-.384	3	-.092	4	-.41	3
185		3	max	406.206	1	315.217	4	7.284	4	.39	4	.034	3	.344	2
186			min	-241.778	2	-340.992	3	-20.188	3	-.384	3	-.045	4	-.344	1
187		4	max	-7.288	1	18.256	2	18.325	4	0	2	.016	3	.016	2
188			min	-16.256	6	-18.256	1	-18.324	3	0	1	-.016	4	-.016	1
189		5	max	0	1	.023	2	.092	4	0	2	0	3	0	3
190			min	0	2	-.023	1	-.091	3	0	1	0	4	0	4
191	MP2C	1	max	212.298	7	246.217	1	380.564	3	.024	1	-.008	1	0	1
192			min	76.8	12	-246.232	2	-380.567	4	-.024	2	-.021	6	0	1
193		2	max	363.002	7	514.329	1	213.014	3	.18	2	.006	4	.441	1
194			min	107.428	4	-548.551	2	-222.468	4	-.192	1	-.061	7	-.438	2
195		3	max	505.648	7	574.819	1	298.283	3	.18	2	.389	3	.569	2
196			min	198.717	4	-609.042	2	-307.737	4	-.192	1	-.449	4	-.507	1
197		4	max	-84.089	3	263.946	2	397.108	4	0	4	.301	3	.2	2
198			min	-228.553	8	-263.982	1	-397.173	3	0	7	-.301	4	-.2	1
199		5	max	0	7	.047	4	1.008	4	0	4	0	3	0	3
200			min	0	2	-.141	7	-1.073	3	0	7	0	4	0	4
201	MP3C	1	max	108.449	5	104.489	1	124.943	3	.01	1	-.005	1	0	1
202			min	54.9	12	-104.516	2	-124.951	4	-.01	2	-.011	7	0	1
203		2	max	277.18	3	554.087	1	43.208	4	.362	3	.135	3	.627	1
204			min	-148.027	4	-507.956	2	-55.317	3	-.359	4	-.121	4	-.573	2
205		3	max	284.469	3	572.32	1	24.975	4	.362	3	.054	3	.332	2
206			min	-140.738	4	-526.188	2	-37.084	3	-.359	4	-.061	4	-.358	1
207		4	max	-7.288	3	18.258	2	18.321	4	0	2	.016	3	.016	2
208			min	-16.256	8	-18.257	1	-18.32	3	0	1	-.016	4	-.016	1
209		5	max	0	3	.025	2	.088	4	0	2	0	3	0	3
210			min	0	4	-.024	1	-.087	3	0	1	0	4	0	4
211	M22	1	max	3512.183	1	35.897	5	43.909	3	0	4	0	1	0	1
212			min	-983.04	2	5.619	2	-43.909	4	0	3	0	1	0	1
213		2	max	3507.021	1	17.949	5	21.954	3	0	4	.037	3	-.005	2

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
214			min	-970.528	2	2.809	2	-21.954	4	0	3	-.037	4	-.03	5
215		3	max	3501.86	1	0	1	0	1	0	4	.049	3	-.006	2
216			min	-958.017	2	0	1	0	1	0	3	-.049	4	-.04	5
217		4	max	3496.698	1	-2.809	2	21.954	4	0	4	.037	3	-.005	2
218			min	-945.505	2	-17.949	5	-21.954	3	0	3	-.037	4	-.03	5
219		5	max	3491.537	1	-5.619	2	43.909	4	0	4	0	1	0	1
220			min	-932.994	2	-35.897	5	-43.909	3	0	3	0	1	0	1
221	M23	1	max	3676.757	9	36.476	8	34.029	1	0	2	0	1	0	1
222			min	-729.013	3	3.668	3	-34.029	2	0	1	0	1	0	1
223		2	max	3680.914	9	18.238	8	17.015	1	0	2	.028	1	-.003	3
224			min	-714.571	3	1.834	3	-17.015	2	0	1	-.028	2	-.03	8
225		3	max	3685.07	9	0	1	0	1	0	2	.038	1	-.004	3
226			min	-700.13	3	0	1	0	1	0	1	-.038	2	-.04	8
227		4	max	3689.227	9	-1.834	3	17.015	2	0	2	.028	1	-.003	3
228			min	-685.688	3	-18.238	8	-17.015	1	0	1	-.028	2	-.03	8
229		5	max	3693.384	9	-3.668	3	34.029	2	0	2	0	1	0	1
230			min	-671.247	3	-36.476	8	-34.029	1	0	1	0	1	0	1
231	M24	1	max	3164.323	3	36.476	7	34.029	2	0	1	0	1	0	1
232			min	-632.028	4	3.668	4	-34.029	1	0	2	0	1	0	1
233		2	max	3157.231	3	18.238	7	17.015	2	0	1	.028	2	-.003	4
234			min	-617.587	4	1.834	4	-17.015	1	0	2	-.028	1	-.03	7
235		3	max	3152.66	7	0	1	0	1	0	1	.038	2	-.004	4
236			min	-603.145	4	0	1	0	1	0	2	-.038	1	-.04	7
237		4	max	3157.866	7	-1.834	4	17.015	1	0	1	.028	2	-.003	4
238			min	-588.704	4	-18.238	7	-17.015	2	0	2	-.028	1	-.03	7
239		5	max	3163.072	7	-3.668	4	34.029	1	0	1	0	1	0	1
240			min	-574.262	4	-36.476	7	-34.029	2	0	2	0	1	0	1
241	M25	1	max	0	1	0	1	0	1	0	1	0	1	0	1
242			min	0	1	0	1	0	1	0	1	0	1	0	1
243		2	max	92.895	3	239.19	4	139.886	1	.292	1	.358	4	.372	4
244			min	-165.122	4	-264.337	3	-144.23	2	-.296	2	-.361	3	-.426	3
245		3	max	92.895	3	225.134	4	129.256	3	.292	1	.603	1	.49	3
246			min	-165.122	4	-278.393	3	-132.398	4	-.296	2	-.63	2	-.411	4
247		4	max	207.098	4	275.21	4	202.919	2	.419	2	.316	3	.162	3
248			min	-248.282	3	-239.216	3	-189.548	1	-.411	1	-.319	4	-.175	4
249		5	max	0	1	0	1	0	1	0	1	0	1	0	1
250			min	0	1	0	1	0	1	0	1	0	1	0	1
251	M26	1	max	0	1	.025	3	.034	3	0	1	0	1	0	1
252			min	0	1	-.006	1	-.044	1	0	1	0	1	0	1
253		2	max	142.42	1	232.491	2	167.172	4	.293	4	.43	2	.313	2
254			min	-214.248	2	-256.378	1	-172.056	3	-.296	3	-.437	1	-.363	1
255		3	max	160.001	1	218.435	2	136.72	4	.293	4	.518	4	.526	1
256			min	-231.83	2	-270.434	1	-141.603	3	-.296	3	-.542	3	-.448	2
257		4	max	218.63	3	245.255	2	170.674	1	.279	3	.373	4	.167	1
258			min	-254.467	4	-208.13	1	-163.257	2	-.273	4	-.373	3	-.181	2
259		5	max	0	1	0	7	.051	3	0	1	0	1	0	1
260			min	0	1	-.025	1	-.004	1	0	1	0	1	0	1
261	M27	1	max	0	1	.019	1	.004	2	0	1	0	1	0	1
262			min	0	1	-.019	4	-.053	4	0	1	0	1	0	1
263		2	max	99.159	4	221.437	1	139.416	2	.199	2	.368	3	.38	1
264			min	-165.364	3	-248.714	2	-143.723	1	-.2	1	-.38	4	-.437	2
265		3	max	116.741	4	207.38	1	129.265	2	.199	2	.433	3	.426	2
266			min	-182.946	3	-262.771	2	-133.572	1	-.2	1	-.458	4	-.344	1
267		4	max	272.996	1	278.168	1	220.964	4	.389	4	.395	2	.132	4
268			min	-314.128	2	-242.659	2	-210.19	3	-.383	3	-.395	1	-.144	3
269		5	max	0	1	0	9	.042	1	0	1	0	1	0	1
270			min	0	1	-.023	4	-.033	4	0	1	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
271	M28	1	max	298.317	4	347.822	1	481.998	1	.025	2	.55	4	.506	4
272			min	-322.528	3	-363.395	2	-486.036	2	-.025	1	-.599	3	-.487	3
273		2	max	294.826	4	349.811	1	484.013	1	.025	2	.459	4	.482	4
274			min	-319.038	3	-361.406	2	-488.051	2	-.025	1	-.51	3	-.463	3
275		3	max	291.335	4	351.8	1	486.029	1	.025	2	.369	4	.459	4
276			min	-315.547	3	-359.417	2	-490.067	2	-.025	1	-.421	3	-.44	3
277		4	max	287.845	4	353.79	1	488.044	1	.025	2	.318	1	.436	4
278			min	-312.056	3	-357.427	2	-492.082	2	-.025	1	-.383	2	-.419	3
279		5	max	284.354	4	355.779	1	490.059	1	.025	2	.504	1	.413	4
280			min	-308.566	3	-355.438	2	-494.097	2	-.025	1	-.57	2	-.399	3
281	M29	1	max	295.643	2	359.028	4	532.28	4	.029	3	.479	3	.487	2
282			min	-320.739	1	-371.106	3	-534.996	3	-.029	4	-.544	4	-.465	1
283		2	max	295.643	2	361.017	4	532.28	4	.029	3	.287	2	.459	2
284			min	-320.739	1	-369.116	3	-534.996	3	-.029	4	-.345	4	-.437	1
285		3	max	295.643	2	363.007	4	532.28	4	.029	3	.301	2	.433	2
286			min	-320.739	1	-367.127	3	-534.996	3	-.029	4	-.348	1	-.41	1
287		4	max	295.643	2	364.996	4	532.28	4	.029	3	.317	2	.407	2
288			min	-320.739	1	-365.138	3	-534.996	3	-.029	4	-.366	1	-.386	1
289		5	max	295.643	2	366.985	4	532.28	4	.029	3	.336	2	.381	2
290			min	-320.739	1	-363.148	3	-534.996	3	-.029	4	-.386	1	-.362	1
291	M30	1	max	327.914	3	237.694	2	464.37	2	.024	1	.65	1	.463	3
292			min	-355.757	4	-244.964	4	-467.539	1	-.024	2	-.709	2	-.449	4
293		2	max	331.405	3	239.684	2	462.354	2	.024	1	.485	1	.439	3
294			min	-359.248	4	-242.974	4	-465.524	1	-.024	2	-.546	2	-.423	4
295		3	max	334.896	3	241.673	2	460.339	2	.024	1	.322	1	.416	3
296			min	-362.738	4	-240.985	4	-463.508	1	-.024	2	-.384	2	-.398	4
297		4	max	338.386	3	243.662	2	458.324	2	.024	1	.387	3	.392	3
298			min	-366.229	4	-238.996	4	-461.493	1	-.024	2	-.442	4	-.375	4
299		5	max	341.877	3	245.652	2	456.308	2	.024	1	.509	3	.369	3
300			min	-369.72	4	-237.006	4	-459.478	1	-.024	2	-.566	4	-.353	4

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

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear Ch..	Loc[ft]	Dir	LC	phi*Pnc ...	phi*Pnt ...	phi*Mn y-y [...	phi*Mn z-z ...	Cb	Eqn
1	M2	L3x3x4	.892	14	1	.584	7	y	4	3944.532	46656	1.688	2.63	1.353	H2-1
2	M3	L3x3x4	.851	0	1	.567	7	y	3	3944.532	46656	1.688	2.82	1.625	H2-1
3	M1	L3x3x4	.747	14	3	.665	7	y	1	3944.532	46656	1.688	2.676	1.412	H2-1
4	MP2A	PIPE_2.0	.708	4.448	4	.174	4.448		3	4552.084	32130	1.872	1.872	2.074	H1-1b
5	MP2B	PIPE_2.0	.705	4.448	1	.152	4.448		4	4552.084	32130	1.872	1.872	2.057	H1-1b
6	MP2C	PIPE_2.0	.664	4.448	2	.177	4.448		1	4552.084	32130	1.872	1.872	2.035	H1-1b
7	MP3C	PIPE_2.0	.569	1.021	1	.233	4.448		4	4552.084	32130	1.872	1.872	2.167	H1-1b
8	MP3B	PIPE_2.0	.538	1.021	4	.237	4.448		4	4552.084	32130	1.872	1.872	2.307	H1-1b
9	M27	PIPE_2.0	.534	2.672	4	.262	12.3...		3	5397.31	32130	1.872	1.872	1.951	H1-1b
10	M25	PIPE_2.0	.518	7.313	2	.289	12.3...		1	5397.31	32130	1.872	1.872	3.009	H3-6
11	M26	PIPE_2.0	.496	2.672	1	.205	12.3...		4	5397.31	32130	1.872	1.872	1.511	H1-1b
12	MP3A	PIPE_2.0	.467	4.448	3	.267	1.021		2	4552.084	32130	1.872	1.872	2.079	H1-1b
13	MP1C	PIPE_2.0	.467	1.021	3	.267	4.448		4	4552.084	32130	1.872	1.872	2.276	H3-6
14	M28	PL8.5x3/...	.452	0	3	.175	1.25	z	1	30127.8...	50511.6	2.074	3.098	1.082	H2-1
15	M30	PL8.5x3/...	.446	0	2	.165	0	z	2	30127.8...	50511.6	2.074	3.098	1.023	H2-1
16	M29	PL8.5x3/...	.446	0	3	.198	0	z	4	30127.8...	50511.6	1.118	3.098	2.21	H2-1
17	M12	L3x3x4	.446	0	1	.025	7.333	y	9	14376.3...	46656	1.688	3.666	2.58	H2-1
18	M11	L3x3x4	.445	7.333	1	.021	7.333	y	5	14376.3...	46656	1.688	3.656	2.536	H2-1
19	M10	L3x3x4	.433	0	9	.025	0	y	9	14376.3...	46656	1.688	3.618	2.376	H2-1
20	M7	LL3x3x4x0	.408	3.087	9	.038	3.047	y	4	78921.8...	93312	6.48	4.911	1.561	H1-1b
21	M9	LL3x3x4x0	.403	0	1	.035	3.047	y	1	78921.8...	93312	6.48	3.069	1.623	H1-1b
22	MP1A	PIPE_2.0	.389	4.448	3	.260	1.021		2	4552.084	32130	1.872	1.872	2.237	H1-1b

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

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear Ch..	Loc[ft]	Dir	LC	phi*Pnc ...	phi*Pnt ...	phi*Mn y-y [...	phi*Mn z-z ...	Cb	Eqn
23	MP1B	PIPE_2.0	.377	4.448	1	.209	4.448		2	4552.084	32130	1.872	1.872	2.104	H1-1b
24	M8	LL3x3x4x0	.371	0	3	.034	3.047	y	3	78921.8...	93312	6.48	3.069	1.011	H1-1b
25	M5	HSS4x4x4	.345	0	1	.128	0	z	1	134360....	139518	16.181	16.181	1.555	H1-1b
26	M6	HSS4x4x4	.324	0	4	.128	0	z	2	134360....	139518	16.181	16.181	1.511	H1-1b
27	M4	HSS4x4x4	.281	0	3	.129	0	z	3	134360....	139518	16.181	16.181	1.632	H1-1b
28	M23	LL2.5x2....	.081	4.435	9	.003	4.435	z	1	45381.1...	58320	3.3	2.55	1.136	H1-1...
29	M22	LL2.5x2....	.077	0	1	.004	0	z	3	45381.1...	58320	3.3	2.55	1	H1-1...
30	M24	LL2.5x2....	.070	0	3	.003	4.435	z	2	45381.1...	58320	3.3	2.55	1.136	H1-1...

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

Member	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	phi*Pn...	phi*Tn...	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
190' MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

TOWER OWNER: SBA / TOWER OWNER SITE #: CT0235-B

CARRIER SITE #/NAME: CT11046D / STONY BROOK

COORDINATES (LATITUDE: 41.382249°, LONGITUDE: -71.903444°)

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. 76333, DATED 06/03/19.

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
E-1/PV-PHK12-B	PERFECT VISION PLATFORM HANDRAIL KIT	

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

SBA
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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
78254

CUSTOMER SITE NO:
CT00235-B-SBA

CUSTOMER SITE NAME:
STONY BROOK

TAUGWONK SPUR ROAD NO. 2
STONINGTON, CT 06378

STATE OF CONNECTICUT
JAMES R. HAYES
No. 17534
LICENSED PROFESSIONAL ENGINEER
7/9/19

DRAWN BY: RK | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/09/19

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				
			FOLLOWING ITEMS ARE "CUSTOM" PARTS				
1	1	PV-PHK12-B	PERFECT VISION PLATFORM HANDRAIL KIT	A-1	112.00	112.0	GALVANIZED
3	3	PIPE-238X174	PERFECT VISION PIPE (2.375" O.D. X 14'-6", SCH 40) A53-B	A-1	54.63	163.9	GALVANIZED (FINAL CUT LENGTH TO BE DETERMINED IN FIELD)
			NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.				
				TOTAL WEIGHT (LBS) =		**275.9**	

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(800)-487-SITE

TES JOB NO:
78254

CUSTOMER SITE NO:
CT00235-B-SBA
CUSTOMER SITE NAME:
STONY BROOK
TAUGWONK SPUR ROAD NO. 2
STONINGTON, CT 06378

DRAWN BY: RK | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/09/19

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-H, 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-2018 SECTION 1705 - TABLE 1705.2.3 FOR STEEL CONSTRUCTION AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

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

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

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

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

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

[d] BEVELED WASHER NOT USED.

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

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

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

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

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

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

SBA

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

TES JOB NO:
78254

CUSTOMER SITE NO:
CT00235-B-SBA

CUSTOMER SITE NAME:
STONY BROOK

TAUGWONK SPUR ROAD NO. 2
STONINGTON, CT 06378

DRAWN BY: RK | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/09/19

SHEET TITLE:

GENERAL NOTES

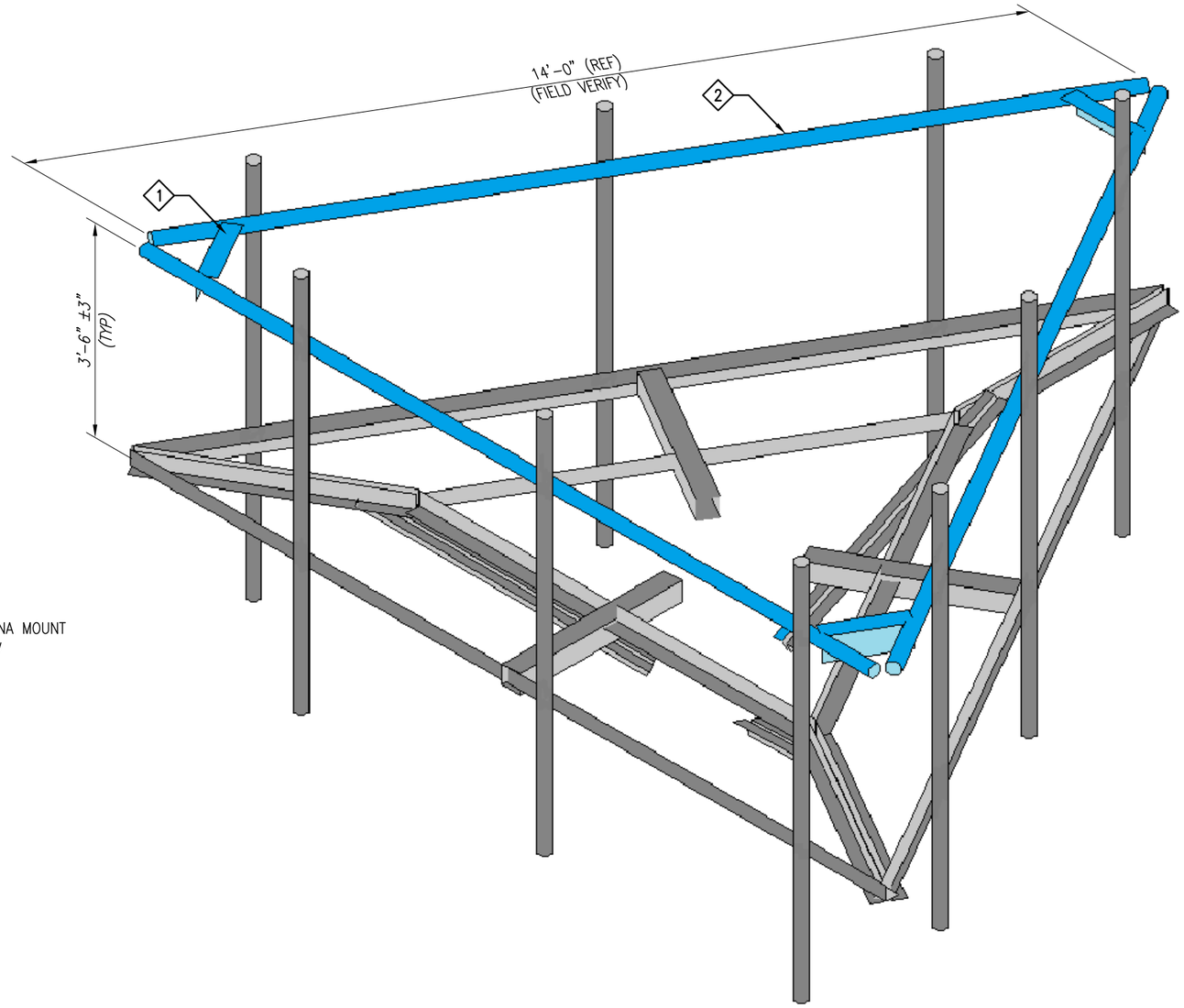
SHEET NUMBER: GN-1

REV #: 0

SCOPE OF WORK

1. INSTALL NEW PERFECT VISION PLATFORM HANDRAIL KIT. SEE SHEET E-1/PV-PHK12-B FOR DETAILS.
2. INSTALL NEW PERFECT VISION 2" PST SUPPORT RAIL PIPE (PART # PIPE-238X174). (1) PER SECTOR.
3. 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 @ 172.50' 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	PV-PHK12-B	PERFECT VISION PLATFORM HANDRAIL KIT
2	3	PIPE-238X174	PERFECT VISION PIPE (2.375" O.D. X 14'-6", SCH 40) A53

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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
78254

CUSTOMER SITE NO:
CT00235-B-SBA
CUSTOMER SITE NAME:
STONY BROOK
TAUGWONK SPUR ROAD NO. 2
STONINGTON, CT 06378

DRAWN BY: RK | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/09/19

SHEET TITLE:
ANTENNA MOUNT MODIFICATION DETAILS

SHEET NUMBER: A-1
REV #: 0

PHOTO 1

PHOTO 2

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

PHOTO 3

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

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5900 BROKEN SOUND PARKWAY, NW
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DRAWN BY: RK | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RK	07/09/19

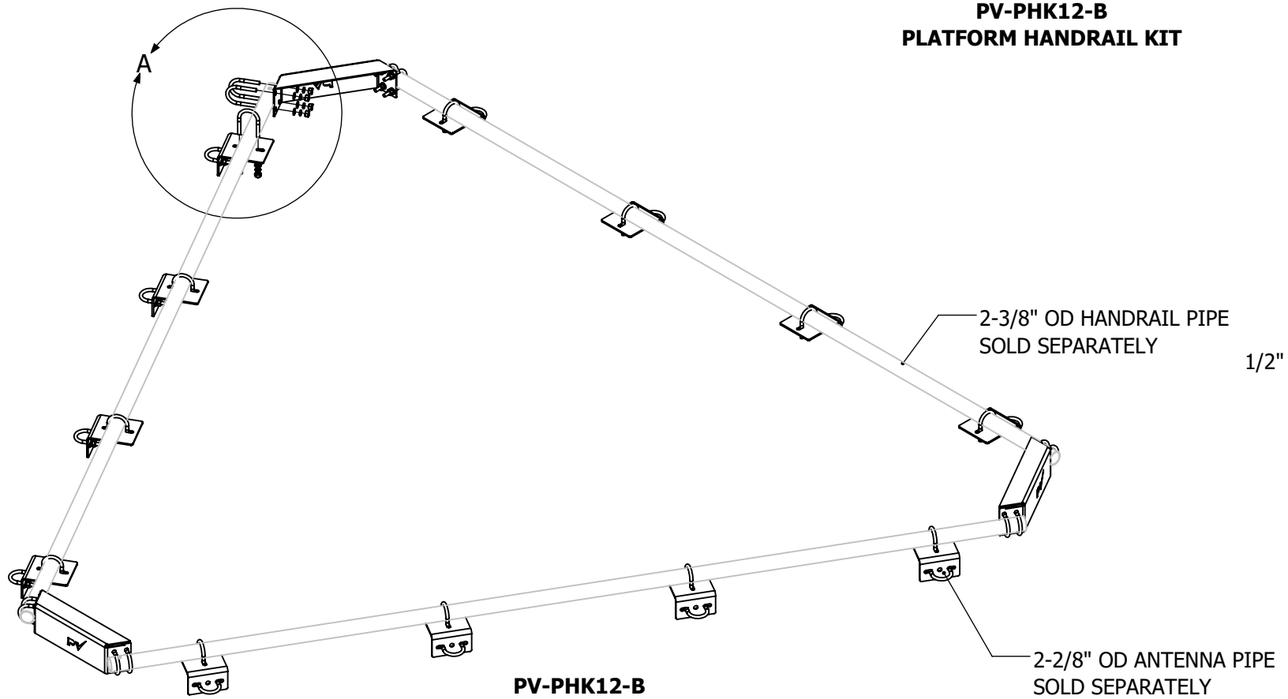
SHEET TITLE:

ANTENNA MOUNT PHOTOS

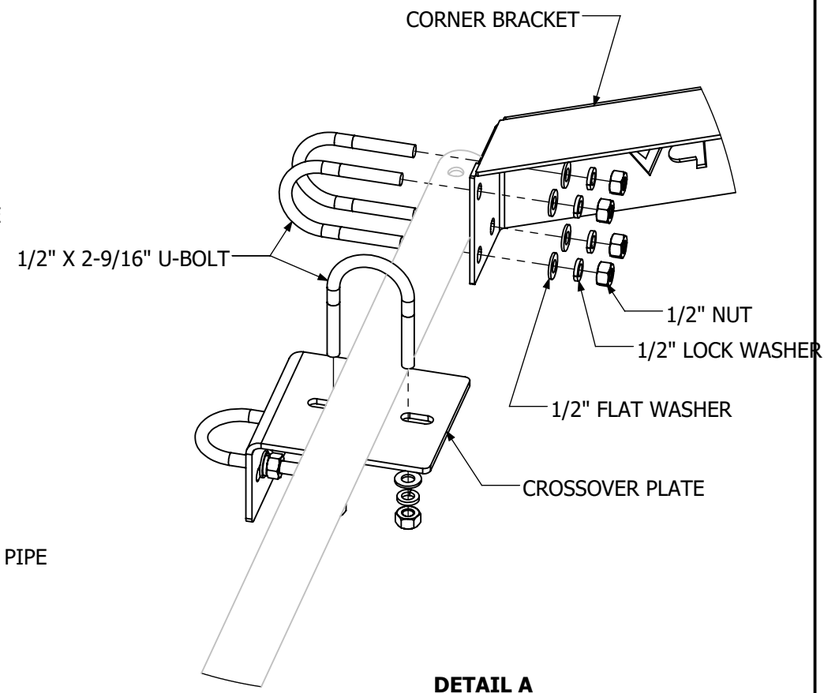
SHEET NUMBER: A-2

REV #: 0

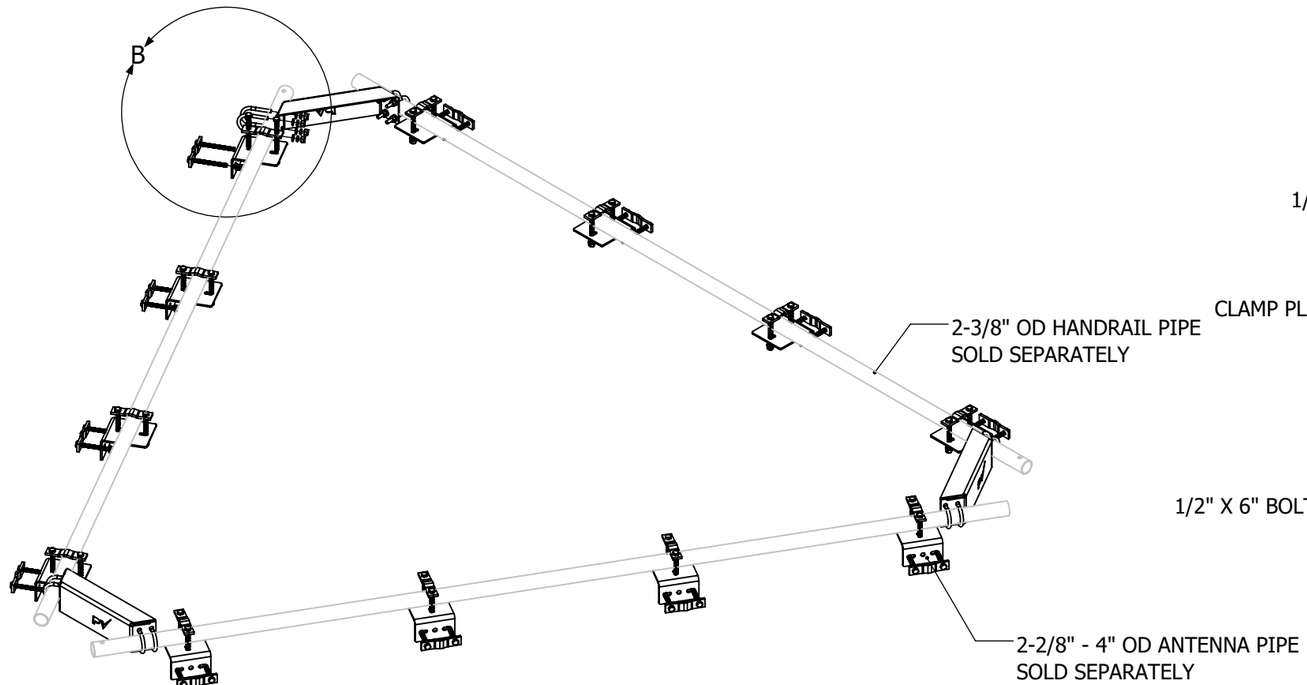
PV-PHK12-B
PLATFORM HANDRAIL KIT



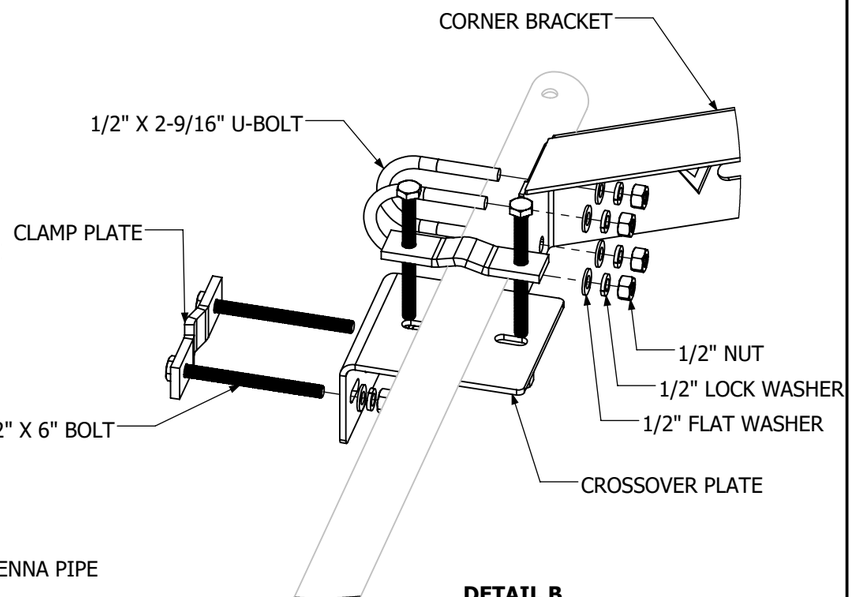
PV-PHK12-B
PLATFORM HANDRAIL KIT
WEIGHT: 118 LBS



DETAIL A



PV-UPHK12-B
UNIVERSAL PLATFORM HANDRAIL KIT
WEIGHT: 143 LBS



DETAIL B

PERFECT VISION MANUFACTURING
16101 La Grande Dr.
Little Rock, AR 72223
1-800-205-8620

STAMP:

REVISIONS:

NO.	DATE	DESCRIPTION	BY	CHK	APD
0	8/4/16	INITIAL RELEASE	DJN	AM	SS
1					
2					
3					
4					
5					

SITE INFORMATION:

DESIGN TYPE:
PLATFORM HANDRAIL KIT

SHEET TITLE:
ENGINEERING DETAIL

SHEET TITLE:	REVISION:
E-1	0

EXHIBIT 10

Transcom Engineering, Inc.
Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11046D

Stonington/ I-95/ X91_1
2 Taugwonk Spur
Stonington, CT 06378

May 14, 2019

Transcom Engineering Project Number: 737001-0002

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**7.38 %**

Transcom Engineering, Inc.

Wireless Network Design and Deployment

May 14, 2019

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

Emissions Analysis for Site: **CT11046D – Stonington/ I-95/ X91_1**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **2 Taugwonk Spur, Stonington, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **2 Taugwonk Spur, Stonington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

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

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Ericsson AIR21 (B2A/B4P)	172.5
A	2	Ericsson AIR21 (B4A/B2P)	172.5
A	3	RFS APXVAARR24_43-U-NA20	172.5
B	1	Ericsson AIR21 (B2A/B4P)	172.5
B	2	Ericsson AIR21 (B4A/B2P)	172.5
B	3	RFS APXVAARR24_43-U-NA20	172.5
C	1	Ericsson AIR21 (B2A/B4P)	172.5
C	2	Ericsson AIR21 (B4A/B2P)	172.5
C	3	RFS APXVAARR24_43-U-NA20	172.5

Table 2: Antenna Data

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

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Ericsson AIR21 (B2A/B4P)	1900 MHz (PCS)	15.9	2	55	2,139.75	0.28
Antenna A2	Ericsson AIR21 (B4A/B2P)	2100 MHz (AWS)	15.9	2	120	4,668.54	0.61
Antenna A3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.75
						Sector A Composite MPE%	**1.63**
Antenna B1	Ericsson AIR21 (B2A/B4P)	1900 MHz (PCS)	15.9	2	55	2,139.75	0.28
Antenna B2	Ericsson AIR21 (B4A/B2P)	2100 MHz (AWS)	15.9	2	120	4,668.54	0.61
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.75
						Sector B Composite MPE%	**1.63**
Antenna C1	Ericsson AIR21 (B2A/B4P)	1900 MHz (PCS)	15.9	2	55	2,139.75	0.28
Antenna C2	Ericsson AIR21 (B4A/B2P)	2100 MHz (AWS)	15.9	2	120	4,668.54	0.61
Antenna C3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.75
						Sector C Composite MPE%	**1.63**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**1.63 %**
Nextel	0.17 %
Public Safety	0.04 %
Sprint	2.85 %
CL&P	2.44 %
MetroPCS	0.25 %
Site Total MPE %:	**7.38 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	1.63 %
T-MOBILE Sector B Total:	1.63 %
T-MOBILE Sector C Total:	1.63 %
Site Total:	7.38 %

Table 5: Site MPE Summary

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) UMTS	1	1,556.18	172.5	2.02	1900 MHz (PCS)	1000	0.20%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	172.5	0.76	1900 MHz (PCS)	1000	0.08%
T-Mobile 2100 MHz (AWS) LTE	2	2,334.27	172.5	6.04	2100 MHz (AWS)	1000	0.60%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	172.5	2.05	600 MHz	400	0.51%
T-Mobile 700 MHz LTE	2	432.54	172.5	1.12	700 MHz	467	0.24%
						Total:	**1.63%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

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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:	1.63 %
Sector B:	1.63 %
Sector C:	1.63 %
T-MOBILE Maximum Total (per sector):	1.63 %
Site Total:	7.38 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.38 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

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