NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
203-435-3640
denise@northeastsitesolutions.com

June 16, 2022

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Exempt Modification Application
383 Torrington Road, Litchfield, CT 06759
Latitude: 41.766283
Longitude: -73.178527
Site #: CT46123-A _CTNH375E_SBA/T-Mobile

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing tower located at 383 Torrington Road, Litchfield, CT 06750. T-Mobile currently maintains six (6) antennas at the 108-foot level of the existing 139-foot monopole tower. The property is owned by Old Toll Gate Hill, LLC, and the tower is owned by SBA. T-Mobile now intends to replace (6) antennas and install (3) antennas. The new antennas would be installed at the 108-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable. Antenna mount modifications will be completed as per the attached TES mount analysis dated May 6, 2022.

T-Mobile Planned Modifications:
Remove:
(4) Coax – 1-5/8"

Remove and Replace:
(3) RFS APXV18-209104-C-A20 Antennas (REMOVE) - (3) COMMSCOPE VV-65A-R1 Antennas (REPLACE)
(3) ANDREW LNX-6515DS-A1M Antennas (REMOVE) - (3) ERICSSON AIR6419 B41 Antennas (REPLACE)

Install New:
(3) RFS APXVAALL24-43-U-NA20 Antennas
(3) ERICSSON 4480 B71+B85 RRU
(3) ERICSSON 4460 B25+B66 RRU
(3) HCS Fiber Cable 1.9"

Existing to Remain:
(14) Coax – 1-5/8" *
(12) TMAs *
(3) Kathrein 782 11056 Bias-Ts *

*Equipment listed for entitlement purposes only

NORTHEAST SITE SOLUTIONS

Turnkey Wireless Development

The facility was approved by the Connecticut Siting Council, Docket No. 299 on August 24, 2005. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Denise Raap, First Selectwoman and Dennis Tobin, Land Use Administrator for the Town of Litchfield, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastsitesolutions.com

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Denise Raap, First Selectwoman
Town of Litchfield
74 West Street
PO Box 488
Litchfield, CT 06759

Dennis Tobin, Land Use Administrator
Town of Litchfield
74 West Street
PO Box 488
Litchfield, CT 06759

Old Toll Gate Hill, LLC - Property Owner
387 Torrington Road
Litchfield, CT 06759

SBA - Tower Owner

Exhibit A

Original Facility Approval

DOCKET NO. 299 – Sprint Spectrum, L.P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility at 383 Torrington Road in Litchfield, Connecticut.	}	Connecticut
	}	Siting
	}	Council

August 24, 2005

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Pubic Need, as provided by General Statutes § 16-50k, be issued to Sprint Spectrum, L.P. for the construction, maintenance and operation of a wireless telecommunications facility to be located at 383 Torrington Road, in Litchfield, Connecticut.

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

1. The tower shall be designed as a monopole and shall be constructed no taller than 140 feet above ground level to provide telecommunications services to both public and private entities.

2. The Certificate Holder, in developing the facility, shall incorporate wetlands mitigation measures that shall include, but not be limited to, the installation of a small culvert underneath the proposed access road to hydraulically connect the wetlands separated by the access road and the inclusion of wildlife planting consisting of native shrubs and a wildlife conservation seed mix that would be planted in areas disturbed around the proposed facility and access road.

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

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

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

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

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

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

7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.

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

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

10. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.

11. Any request for extension of the time periods referred to in Conditions 8 and 9 shall be filed with the Council not later than sixty days prior to the expiration date of this Certificate and shall be served on all parties and intervenors and the Town of Litchfield, as listed in the service list. Any proposed modifications to this Decision and Order shall likewise be so served.

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

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Litchfield Enquirer and in the Waterbury Republican-American.

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

The parties and intervenors to this proceeding are:

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	Sprint Spectrum, L.P. d/b/a Sprint PCS	Thomas J. Regan, Esq. Brown Rudnick Berlack Israels LLP CityPlace I, 38th Floor 185 Asylum Street Hartford, CT 06103-3402 (860) 509-6522 (860) 509-6501 – f tregan@brbilaw.com
Intervenor (Approved 12/1/04)	Southwestern Bell Mobile Systems, LLC d/b/a Cingular Wireless	Wendell G. Davis, Esq. Blackwell, Davis & Spadaccini, LLC 158 East Center Street Manchester, CT 06040 860-432-0676 860-432-2926 – f wdavis@bds-law.com

Party (Approved on 1/24/05)	Town of Litchfield	Michael D. Rybak Guion, Stevens & Rybak, LLP P.O. Box 338 Litchfield, CT 06759-0338 860-567-0821 860-567-0825 – f mdr@litchlaw.com Leo Paul, Jr., First Selectman Town of Litchfield P.O. Box 488 Litchfield, CT 06759-0488 860-567-7550 860-567-7552 lfdselectman@optonline.net
Intervenor (Approved 2/2/05)	Jay Abbott 130 Norfolk Road Litchfield, CT 06759 860-567-8848 jlaskaatmarshfds@aol.com	
Intervenor (Approved 2/2/05)	Frank Rosa Georgiana Bianchi	Peter J. Tyrrell Levy & Droney, PC 74 Batterson Park Road Farmington, CT 06034 860-676-3069 860-676-3200 – f ptyrrell@ldlaw.com
Intervenor (Approved 2/2/05)	John Bolus 112 East Chestnut Hill Road Litchfield, CT 06759 860-567-4129 860-457-8720 – f Jsbolus@excite.com	
Intervenor (Approved 4/21/05)	Cellco Partnership d/b/a Verizon Wireless	Kenneth C. Baldwin, Esq. Robinson & Cole 280 Trumbull Street Hartford, CT 06103-3597 (860) 275-8200 kbaldwin@rc.com

Exhibit B

Property Card

Town of Litchfield, CT

Property Listing Report

Map Block Lot	126-036-091	Building #	1	Section #	1	Account	002199

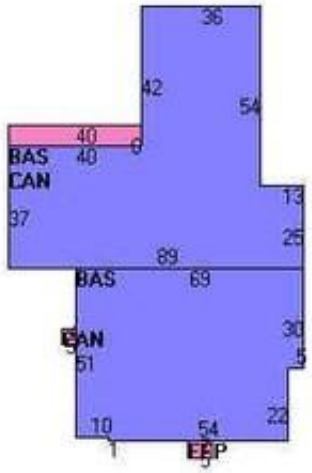
Property Information

Property Location	383 TORRINGTON RD
Owner	OLD TOLL GATE HILL LLC
Co-Owner	C/O WM PERSSONATTI
Mailing Address	387 TORRINGTON RD LITCHFIELD CT 06759-2704
Land Use	201 Commercial
Land Class	C
Zoning Code	5
Census Tract	3

Street Index	225
Acreage	6.7
Utilities	UNKNOWN
Lot Setting/Desc	UNKNOWN UNKNOWN
Additional Info	

Photo

Sketch



Primary Construction Details

Year Built	1919
Stories	1
Building Style	Multipurpose
Building Use	Comm/Ind
Building Condition	A
Interior Floors 1	Carpet
Interior Floors 2	Minimum
Total Rooms	0
Basement Garages	
Occupancy	6.00
Building Grade	

Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Bath Style	NA
Kitchen Style	NA
Roof Style	Flat
Roof Cover	Tar & Gravel
AC Type	None
Fireplaces	0

Exterior Walls	Concr/Cinder
Exterior Walls 2	Brick Veneer
Interior Walls	Typical
Interior Walls 2	NA
Heating Type	Forced Hot Air
Heating Fuel	Oil
Sq. Ft. Basement	
Fin BSMT Quality	
Extra Kitchens	

Report Created On 6/16/2022

Town of Litchfield, CT

Property Listing Report | Map Block Lot 126-036-091 | Building # 1 | Section # 1 | Account 002199

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	387620	271340
Extras	0	0
Improvements		
Outbuildings	828600	580020
Land	323050	226140
Total	1539270	1077500

Outbuilding and Extra Features

Type	Description
Paving	16000 S.F.
Cell Tower	4 UNITS
Fence	200 L.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	8117	8117
Canopy	260	0
Finished Enclosed Porch	35	0
Total Area	8412	8117

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
BOLUS ANGELA M	0164/0267	1979-01-18	0
BOLUS,ANGELA M	0225/1159	1995-02-09	0
OLD TOLL GATE HILL LLC	0234/0333	1996-11-13	0

Report Created On 6/16/2022

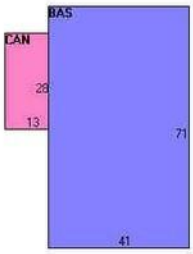
Town of Litchfield, CT

Property Listing Report

Map Block Lot	126-036-091	Building #	2	Section #	1	Account	002199

Photo

Sketch



Primary Construction Details

Year Built	1985	Bedrooms	0	Exterior Walls	Board & Batten
Stories	1	Full Bathrooms	0	Exterior Walls 2	Wood On Sheath
Building Style	Storage Building	Half Bathrooms	0	Interior Walls	Minimum
Building Use	Comm/Ind	Extra Fixtures	0	Interior Walls 2	NA
Building Condition	F	Bath Style	NA	Heating Type	None
Interior Floors 1	Concrete	Kitchen Style	NA	Heating Fuel	None
Interior Floors 2	NA	Roof Style	Gable	Sq. Ft. Basement	
Total Rooms	0	Roof Cover	Asphalt	Fin BSMT Quality	
Basement Garages	0	AC Type	None	Extra Kitchens	
Occupancy	1.00	Fireplaces	0		
Building Grade					

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	2911	2911
Canopy	364	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	3275	2911

Report Created On

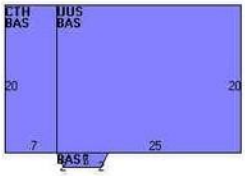
Town of Litchfield, CT

Property Listing Report

Map Block Lot	126-036-091	Building #	3	Section #	1	Account	002199

Photo

Sketch



Primary Construction Details

Year Built	1950	Bedrooms	0	Exterior Walls	Clapboard
Stories	2	Full Bathrooms	0	Exterior Walls 2	NA
Building Style	Store	Half Bathrooms	0	Interior Walls	Drywall
Building Use	Comm/Ind	Extra Fixtures	0	Interior Walls 2	NA
Building Condition	A	Bath Style	NA	Heating Type	Forced Hot Air
Interior Floors 1	Linoleum	Kitchen Style	NA	Heating Fuel	Propane
Interior Floors 2	NA	Roof Style	Gable	Sq. Ft. Basement	
Total Rooms	0	Roof Cover	Tar & Gravel	Fin BSMT Quality	
Basement Garages	0	AC Type	None	Extra Kitchens	
Occupancy	1.00	Fireplaces	0		
Building Grade					

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	652	652
Cathedral Ceiling	140	0
Unfinished Upper Story	500	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	1292	652

Report Created On

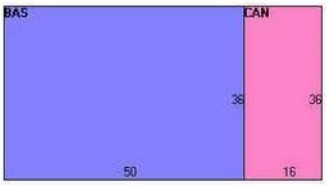
Town of Litchfield, CT

Property Listing Report

Map Block Lot	126-036-091	Building #	4	Section #	1	Account	002199

Photo

Sketch



Primary Construction Details

Year Built	1950	Bedrooms	0	Exterior Walls	Minimum
Stories	1	Full Bathrooms	0	Exterior Walls 2	Wood On Sheath
Building Style	Storage Building	Half Bathrooms	0	Interior Walls	Wall Board
Building Use	Comm/Ind	Extra Fixtures	0	Interior Walls 2	NA
Building Condition	A	Bath Style	NA	Heating Type	Forced Hot Air
Interior Floors 1	Concrete	Kitchen Style	NA	Heating Fuel	Oil
Interior Floors 2	NA	Roof Style	Gable	Sq. Ft. Basement	
Total Rooms	0	Roof Cover	Rolled	Fin BSMT Quality	
Basement Garages	0	AC Type	None	Extra Kitchens	
Occupancy	1.00	Fireplaces	0		
Building Grade					

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	1800	1800
Canopy	576	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	2376	1800

Report Created On

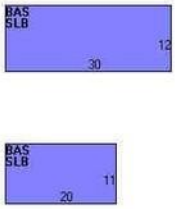
Town of Litchfield, CT

Property Listing Report

Map Block Lot	126-036-091	Building #	5	Section #	1	Account	002199

Photo

Sketch



Primary Construction Details

Year Built	2008	Bedrooms	0	Exterior Walls	Concr/Cinder
Stories	1	Full Bathrooms	0	Exterior Walls 2	NA
Building Style	Commercial	Half Bathrooms	0	Interior Walls	Minimum
Building Use	Comm/Ind	Extra Fixtures	0	Interior Walls 2	NA
Building Condition	A	Bath Style	NA	Heating Type	None
Interior Floors 1	Concrete	Kitchen Style	NA	Heating Fuel	None
Interior Floors 2	NA	Roof Style	Flat	Sq. Ft. Basement	
Total Rooms	0	Roof Cover	Tar & Gravel	Fin BSMT Quality	
Basement Garages	0	AC Type	None	Extra Kitchens	
Occupancy	0.00	Fireplaces	0		
Building Grade					

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	580	580
Slab	580	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	1160	580

Report Created On

Town of Litchfield, CT: Parcel Map

MBL: 126-036-091 LOCATION: 383 TORRINGTON RD

Disclaimer: This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Litchfield and its mapping contractors assume
no legal responsibility for the information contained herein.

1 inch = 200 feet

0 100 200 300 400 Feet

Map Produced
May 2021

Exhibit C

Construction Drawings

NH375/SPRINT607_FT

383 TORRINGTON ROAD
LITCHFIELD, CT 06759
LITCHFIELD COUNTY

SITE NO.: CTNH375E

SITE TYPE: 140'± MONOPOLE

RF DESIGN GUIDELINE: 67E5D998E ODE 6160

APPROVALS

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

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
SECTOR D:	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

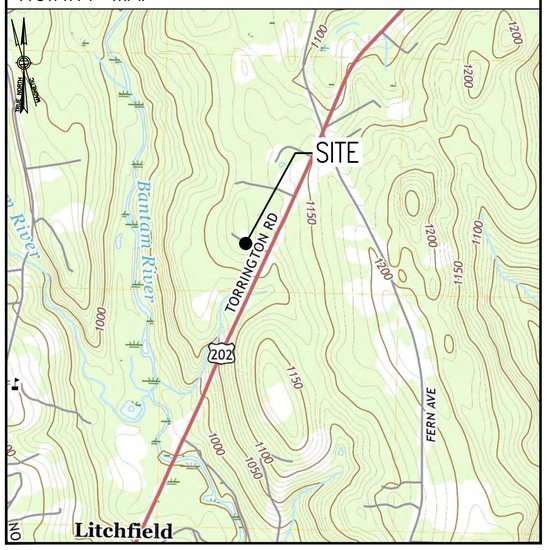
GENERAL NOTES

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

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

VICINITY MAP

SCALE: 1" = 1000'-0"



DIRECTIONS

GET ON I-495 N FROM S WASHINGTON ST. CONTINUE ON I-495 N. TAKE EXIT 58 TOWARD I-90 W. KEPP LEFT AT THE FORK, FOLLOW SIGNS FOR I-90 W/SPRINGFIELD/ALBANY, AND MERGE ONTO I-90 W. TAKE EXIT 78 TOWARD I-84. CONTINUE ONTO I-84 W. ENTERING CT. TAKE EXIT 39 TOWARD FARMINGTON/CT-4. CONTINUE ONTO STATE HWY 508. STATE HWY 508 TURNS SLIGHTLY RIGHT AND BECOMES CT-4 W. TURN RIGHT ONTO CT-177 N/CT-4 W. SLIGHT LEFT ONTO CT-4 W. TURN LEFT ONTO CT-4. CONTINUE ONTO CT-118 W/LITCHFIELD RD. CT-118 W/LITCHFIELD RD TURNS SLIGHTLY RIGHT AND BECOMES THOMASTON RD. TURN LEFT ONTO CT-118 W/EAST ST. SLIGHT RIGHT ONTO EAST ST. TURN RIGHT ONTO US-202 E/TORRINGTON RD. DESTINATION WILL BE ON THE LEFT.

SHEET INDEX

SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	TOWER ELEVATIONS & ANTENNA PLANS	1
A-3	SITE DETAILS	1
A-4	ANTENNA & FEEDLINE CHARTS	1
S-1	ANTENNA & RADIO MOUNTING DETAIL	1
E-1	ELECTRIC & GROUNDING DETAILS	1

DO NOT SCALE DRAWINGS

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

SCOPE OF WORK

REMOVE:
- 6 ANTENNAS
- 3 TMAs
- ALL DIPLEXERS
- 1 100A-2P BREAKER
- 12 1-5/8" COAX CABLES

INSTALL:
- 9 ANTENNAS
- 6 RADIOS
- 3 HYBRID FIBER CABLES
- 1 6160 EQUIPMENT CABINET
- 1 B160 BATTERY CABINET
- 1 SLACKBOX
- 1 125A-2P BREAKER
- 1 150A-2P BREAKER
- 1 25A-1P BREAKER

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.

PROJECT SUMMARY

SITE NUMBER:	CTNH375E
SITE NAME:	NH375/SPRINT607_FT
SBA SITE NUMBER:	CT46123-A
SBA SITE NAME:	LITCHFIELD
SITE ADDRESS:	383 TORRINGTON ROAD LITCHFIELD, CT 06759
PROPERTY OWNER:	OLD TOLL GATE HILL, LLC 387 TORRINGTON ROAD LITCHFIELD, CT 06759
TOWER OWNER:	SBA TOWERS IV, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	LITCHFIELD
ZONING DISTRICT:	C-202 - ROUTE 202 COMMERCE
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	140'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: N.41.7663° (41°-45'-58.6") LONGITUDE W.-73.1785° (73°-10'-42.7")

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).

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
5/27/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/27/22	ISSUED FOR CONSTRUCTION	BDJ
0	03/28/22	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CTNH375E
SITE ADDRESS:
383 TORRINGTON ROAD
LITCHFIELD, CT 06759

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.464

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SITE WORK GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

CONCRETE AND REINFORCING STEEL NOTES:

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

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

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

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

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

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

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

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

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

STRUCTURAL STEEL NOTES:

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

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

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

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

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

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

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

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

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

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

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

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

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
5/23/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/27/22	ISSUED FOR CONSTRUCTION	BDJ
0	03/28/22	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CTNH375E

SITE ADDRESS:
383 TORRINGTON ROAD
LITCHFIELD, CT 06759

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

1815.464

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.

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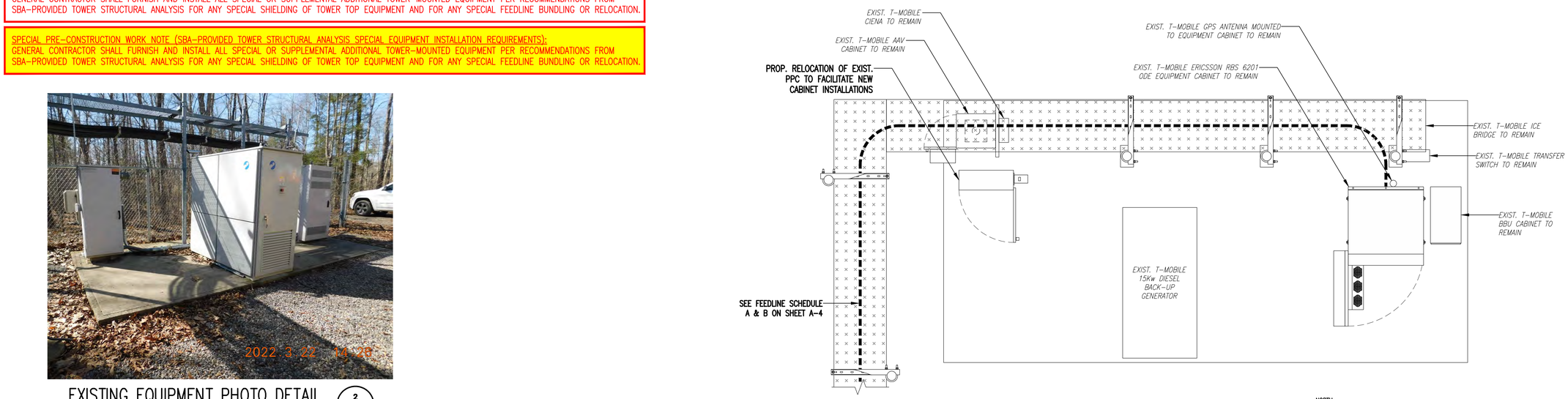
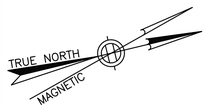
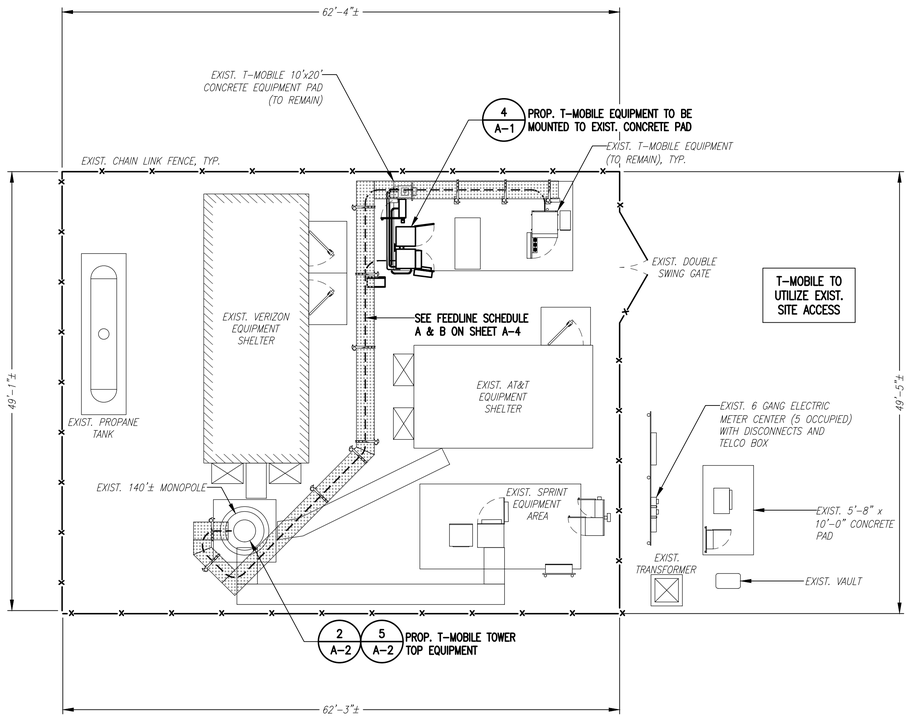
EXISTING EQUIPMENT PHOTO DETAIL (2 / A-1)
SCALE: NTS

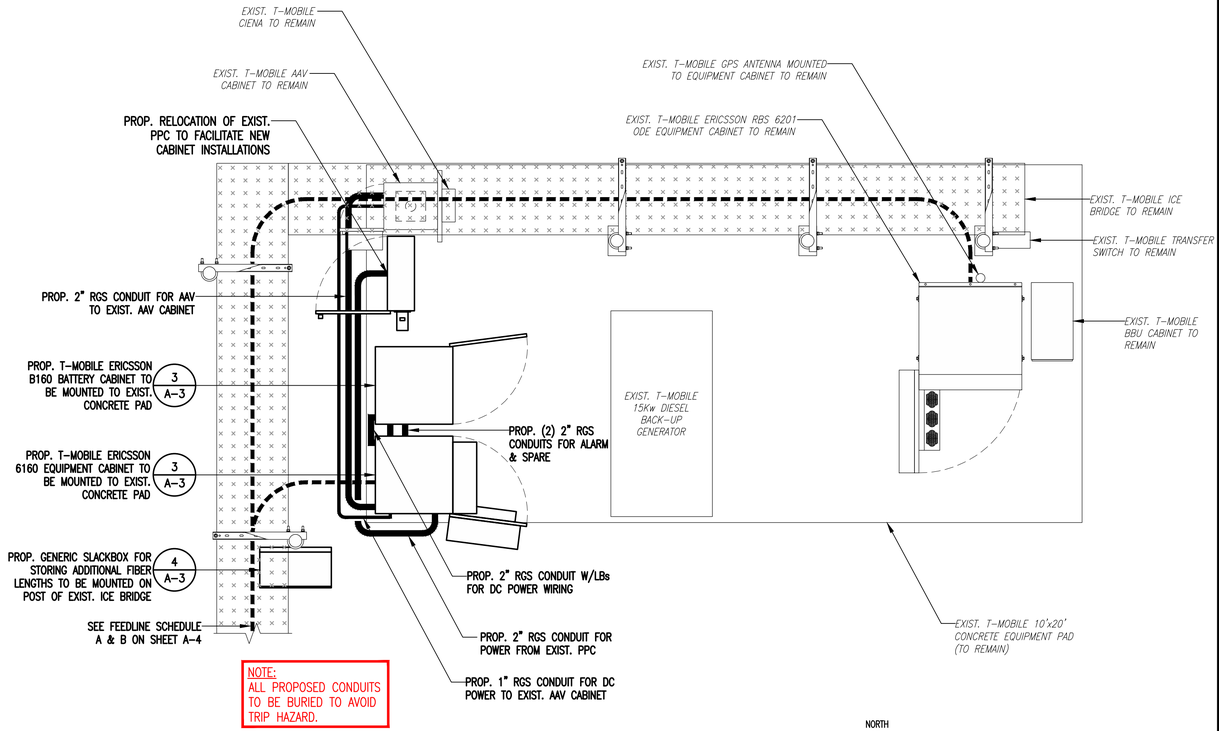


EXISTING EQUIPMENT PLAN (3 / A-1)
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"
NORTH





COMPOUND PLAN (1 / A-1)
SCALE: 1" = 8'-0"
0 4'-0" 8'-0" 16'-0" 24'-0"



NOTE:
ALL PROPOSED CONDUITS TO BE BURIED TO AVOID TRIP HAZARD.

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

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
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5/27/2022

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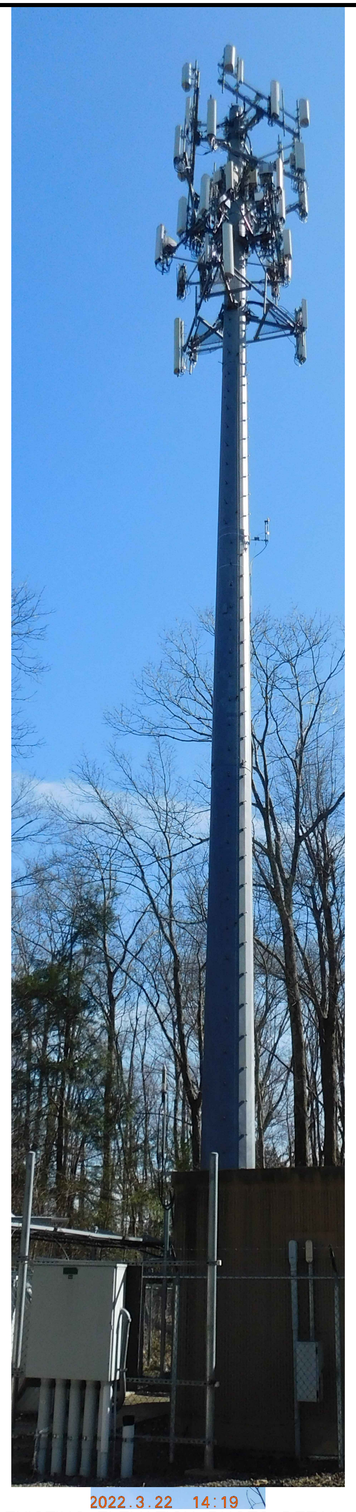
SHEET TITLE
COMPOUND & EQUIPMENT PLAN

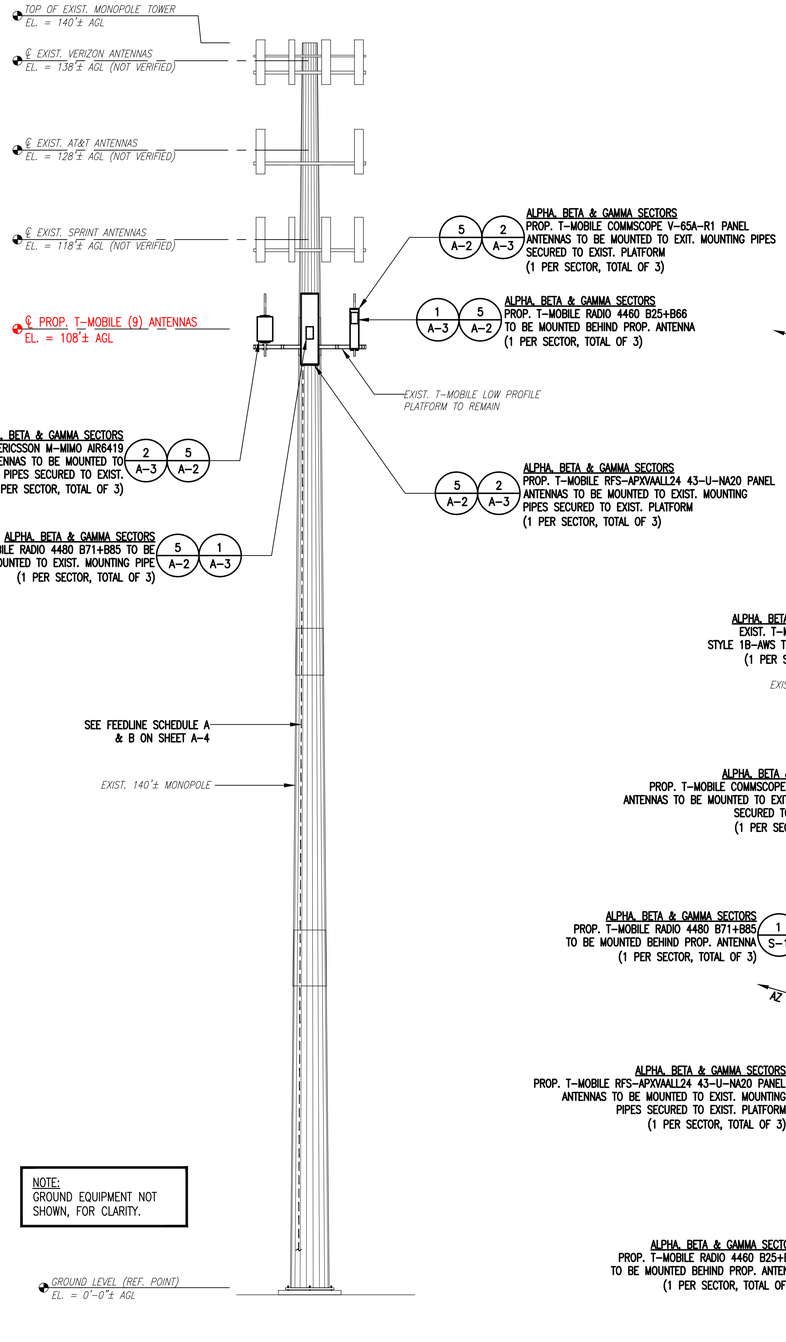
SHEET NUMBER
A-1

1815.464



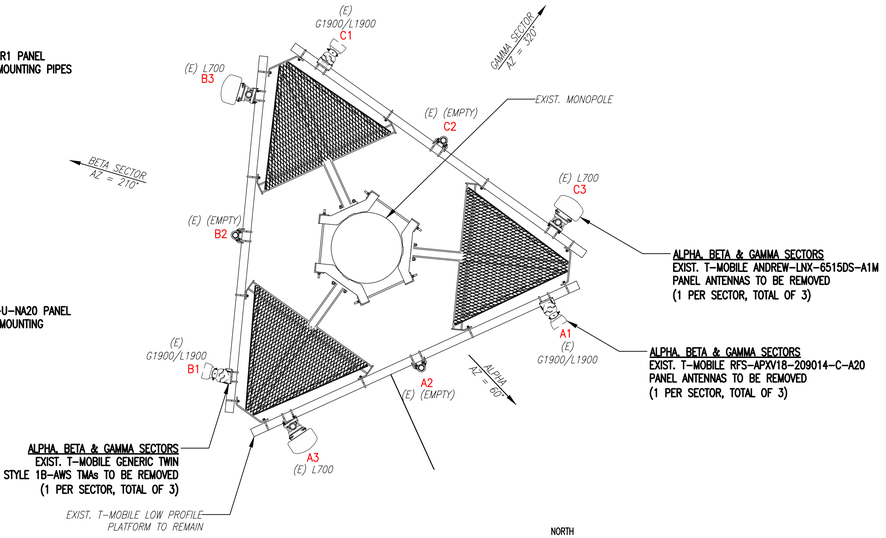
EXISTING ELEVATION PHOTO DETAIL (1 / A-2)
SCALE: NTS

EXISTING ANTENNA PHOTO (3 / A-2)
SCALE: N.T.S.

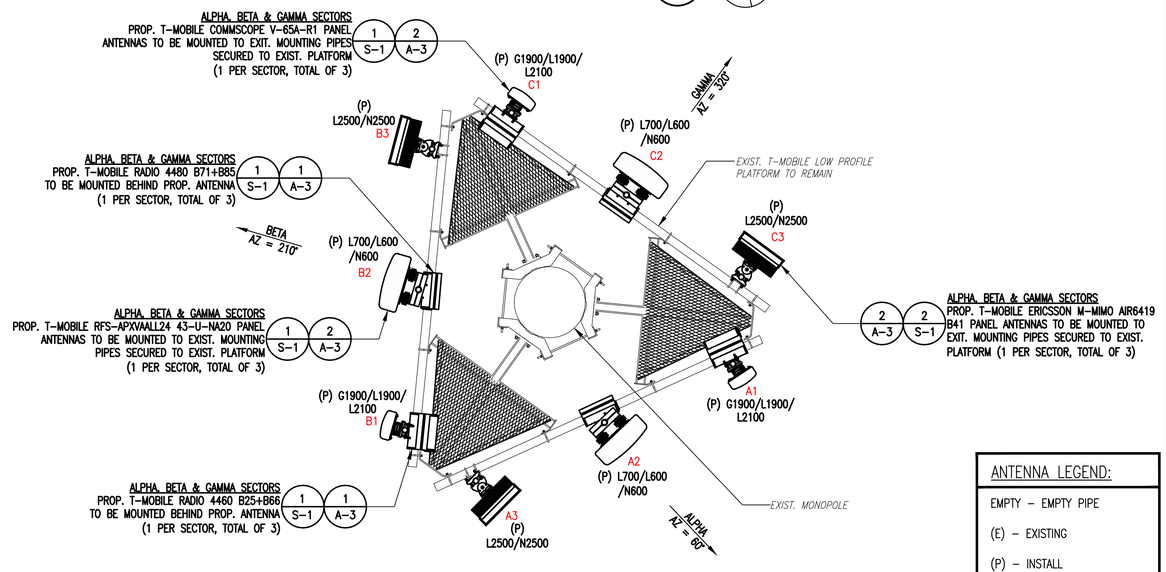


NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION (2 / A-2)
SCALE: 1" = 8'-0"
0 4' 8' 16' 24'



EXISTING ANTENNA PLAN (4 / A-2)
SCALE: N.T.S.



PROPOSED ANTENNA PLAN (5 / 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 PLANS

SHEET NUMBER

A-2

1815.464

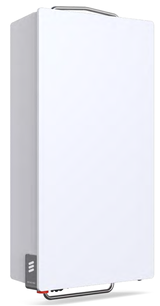
ERICSSON RADIO 4460 B25+B66

DIMENSIONS: 17.0"H x 15.1"W x 11.9"D
WEIGHT: 104.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ERICSSON RADIO 4480 B71+B85

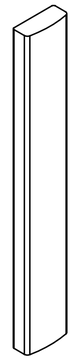
DIMENSIONS: 19.2"H x 15.1"W x 7.5"D
WEIGHT: 92.6 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

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



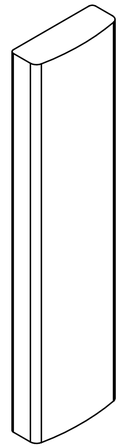
ERICSSON M-MIMO AIR6419 B41 ANTENNA

DIMENSIONS: 36.3"H x 20.9"W x 9.0"D
WEIGHT: 83.3 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



COMMSCOPE VV-65A-R1 ANTENNA

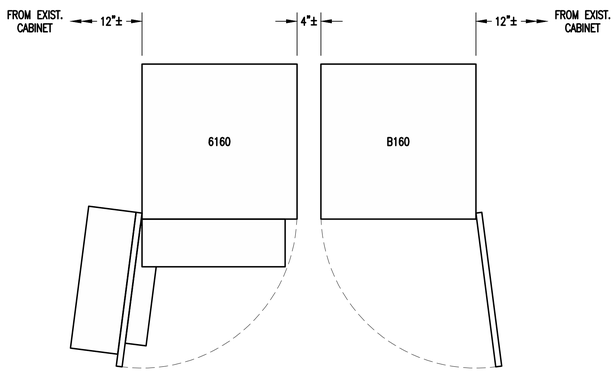
DIMENSIONS: 54.7"H x 12.1"W x 4.7"D
WEIGHT: 23.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



RFS APXVAALL24_43-U-NA20 ANTENNA

DIMENSIONS: 95.9"H x 24.0"W x 8.5"D
WEIGHT: 122.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

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



CABINETS TO BE MOUNTED PER MANUFACTURER'S SPECIFICATIONS

ERICSSON 6160 SITE SUPPORT CABINET

DIMENSIONS: 63.25"H x 26.0W x 34.0"D
QUANTITY: TOTAL OF 1

ERICSSON B160 BATTERY CABINET

DIMENSIONS: 63.25"H x 26.0W x 26.0"D
QUANTITY: TOTAL OF 1

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

SLACKBOX – HOFFMAN 32FH91 NEMA 3R ENCLOSURE

DIMENSIONS: 24.0"H x 24.0"W x 12.0"D
QUANTITY: TOTAL OF 1

SSC DETAILS
SCALE: N.T.S.
4 / A-3

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SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.464

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1 COMMSCOPE W-65A-R1	108'± AGL	60°	0°	2°	G1900/L1900 L2100	ERICSSON RADIO 4460 B25+B66	(P) (3) 1-¾" (6x24) HCS FIBER CABLES
	A2 RFS APXVAALL24_43-U-NA20	108'± AGL	60°	0°	2°	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	A3 ERICSSON M-MIMO AIR6419 B41	108'± AGL	60°	0°	2°	L2500/N2500	-	
BETA	B1 COMMSCOPE W-65A-R1	108'± AGL	210°	0°	2°	G1900/L1900 L2100	ERICSSON RADIO 4460 B25+B66	
	B2 RFS APXVAALL24_43-U-NA20	108'± AGL	210°	0°	2°	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	B3 ERICSSON M-MIMO AIR6419 B41	108'± AGL	210°	0°	2°	L2500/N2500	-	
GAMMA	C1 COMMSCOPE W-65A-R1	108'± AGL	320°	0°	2°	G1900/L1900 L2100	ERICSSON RADIO 4460 B25+B66	
	C2 RFS APXVAALL24_43-U-NA20	108'± AGL	320°	0°	2°	L700/L600/N600	ERICSSON RADIO 4480 B71+B85	
	C3 ERICSSON M-MIMO AIR6419 B41	108'± AGL	320°	0°	2°	L2500/N2500	-	

CABLE NOTE: EXISTING T-MOBILE (12) 1-⅝" COAX CABLES, TO BE CAPPED, WRAPPED & REMOVED. (1) ½" COAX CABLE USED FOR GPS ANTENNA TO REMAIN. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV3 - 04/01/22

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES		LOCATION
A	*EXISTING TO REMAIN:*	*(1) ½" COAX CABLE FOR GPS ANTENNA,*	ROUTED PER STRUCTURAL ANALYSIS
	EXISTING TO BE REMOVED:	*(12) 1-⅝" COAX CABLES, TO BE CAPPED, WRAPPED AND REMOVED.*	
B	PROPOSED:	(3) 1-¾" (6x24) HCS FIBER CABLES	

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

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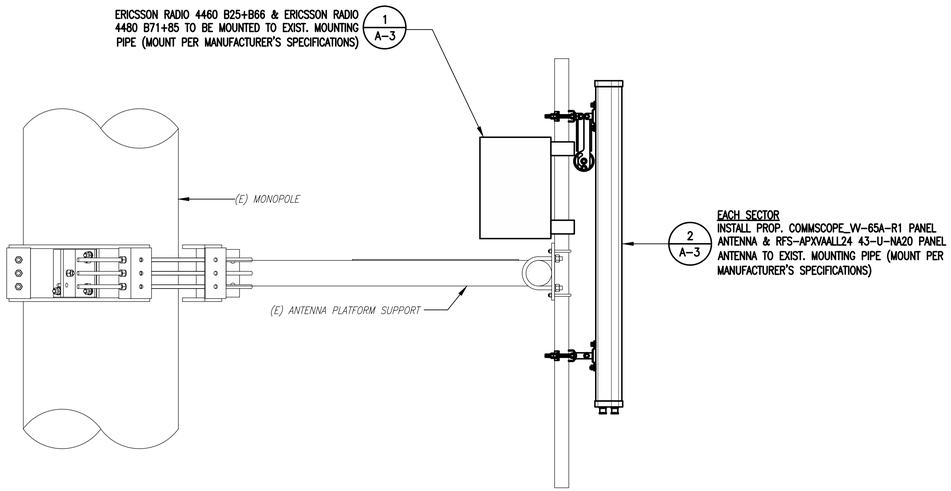
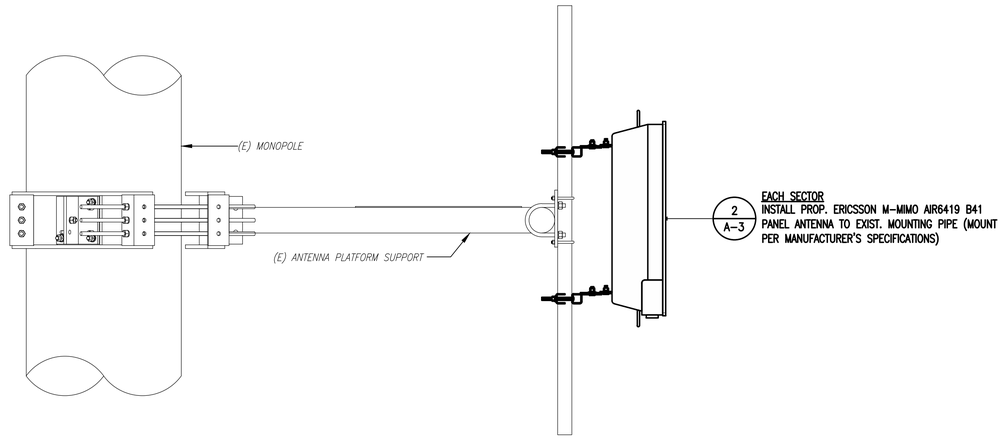
SHEET TITLE
ANTENNA & FEEDLINE CHARTS

SHEET NUMBER
A-4

1815.464



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



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

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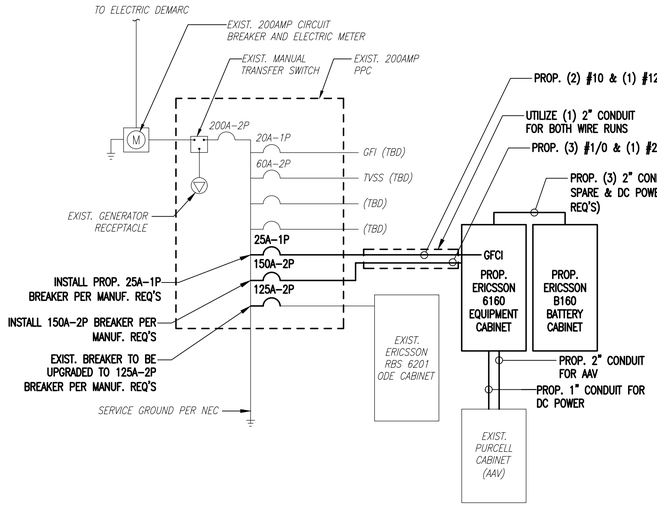
SHEET TITLE
ANTENNA & RADIO MOUNTING DETAIL

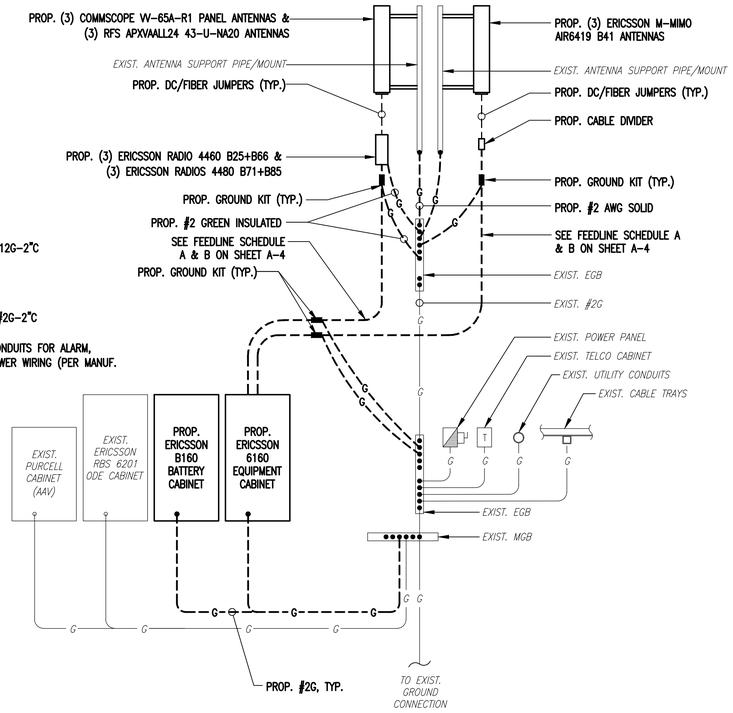
SHEET NUMBER
S-1

1815.464

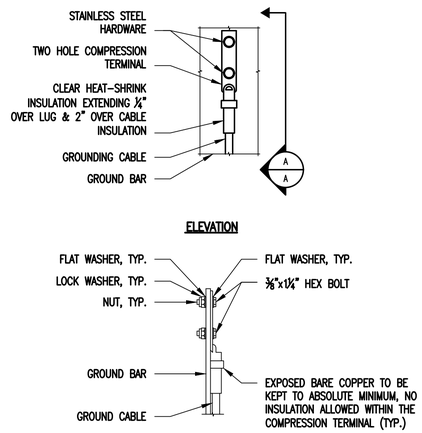
PPC PHOTO DETAIL
SCALE: NOT TO SCALE
1 E-1



ONE LINE DIAGRAM
SCALE: NOT TO SCALE
2 E-1

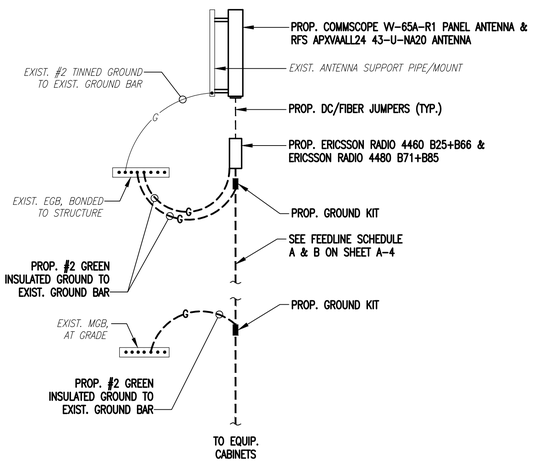


GROUNDING RISER DIAGRAM
SCALE: NOT TO SCALE
3 E-1

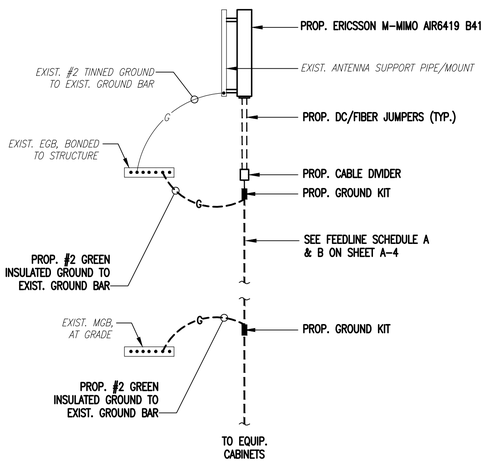


NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: NOT TO SCALE
4 E-1

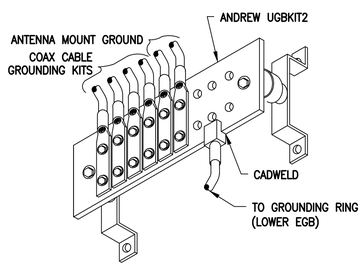


L700/L600/N600 ANTENNA & G1900/L1900/L2100 ANTENNA



L2500/N2500 ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL
SCALE: NOT TO SCALE
5 E-1



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

ELECTRICAL AND GROUNDING NOTES

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

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

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

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

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
5/27/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/27/22	ISSUED FOR CONSTRUCTION	BDJ
0	03/28/22	ISSUED FOR REVIEW	BDJ

SITE NUMBER:
CTNH375E

SITE ADDRESS:
383 TORRINGTON ROAD
LITCHFIELD, CT 06759

SHEET TITLE
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.464

Exhibit D

Structural Analysis Report

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

Structural Analysis Report

Existing 139 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT46123-A

Customer Site Name: Litchfield

Carrier Name: T-Mobile (App#: 194502, V#2)

Carrier Site ID / Name: CTNH375E / NH375/Sprint607_FT

Site Location: 383 Torrington Rd

Litchfield, Connecticut

Litchfield County

Latitude: 41.766278

Longitude: -73.178527

Analysis Result:

Max Structural Usage: 73.3% [Pass]

Max Foundation Usage: 72.1% [Pass]

Additional Usage Caused by Mount Modification: +0.6%

Report Prepared By : Mariana Franco

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

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Analysis Result:

Max Structural Usage: 73.3% [Pass]

Max Foundation Usage: 72.1% [Pass]

Additional Usage Caused by Mount Modification: +0.6%

Report Prepared By : Mariana Franco

Introduction

The purpose of this report is to summarize the analysis results on the 139 ft 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	FDH Project # 15BGLG1400 (SA Report), dated 03/19/2015
Foundation Drawing	EEI Project # 14854, dated 04/08/2008
Geotechnical Report	Clarence Welti Associates, Inc. Geotechnical Report, dated 08/19/2005
Modification Drawings	N/A
Mount Analysis	TES Project Number: 127437 Dated: 03/02/22

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 120 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.184, S_1 = 0.065

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	138.0	3	E14F05P59 Deplexer	(3) T-Arms w/ ring mount	(12) 1 5/8"	Verizon
2	137.0	6	Antel LPA-80063/4CF ___ Panel			
3	136.0	3	Commscope NHH-85B-R2B Panel			
4		3	Antel BXA-171063-8BF-EDIN-2 Panel			
5	127.0	3	RFS APXVSPP18-C-A20 - Panel	(3) T-Arms	(4) 1 1/4"	Sprint
6		3	Alcatel Lucent 1900 MHz			
7		3	Alcatel Lucent 800 MHz			
8		3	Alcatel Lucent 800 MHz Filters			
9		4	RFS ACU-A20-N RETs			
10		3	RFS APXVTM14-C-I20 - Panel			
11		3	Alcatel Lucent TD-RRH8x20-25			
12	118.0	3	Powerwave 7770 – Panel	(3) T-Arms w/ (6) 2" pipe steel brace	(12) 1 5/8" (6) 3/4" DC Power* (3) 7/16" Fiber* (1) 3" Conduit[2]	AT&T
13		1	AM-X-CD-14-65-00T- Panel			
14		18	LGP21401 TMA			
15		6	7020.00 RET			
16		3	Ericsson RRUS 11 - RRU			
17		3	Ericsson RRUS 12 - RRU			
18		18	Powerwave LGP13519 Diplexer			
19		3	Raycap DC6-48-60-18-8F ("Squid")			
20		1	AM-X-CD-16-65-00T-RET- Panel			
21		1	Cci OPA65R-BU6B - Panel			
22		2	Cci OPA65R-BU4B - Panel			
23		1	Cci HPA65R-BU6A - Panel			
24		2	SBNHH-1D65A - Panel			
25		1	800 10764 K- Panel			
26		3	B14 4478 - RRU			
27		3	4478 B5 - RRU			
28		3	RRUS 32 B30 - RRU			
29		3	4426 B66 - RRU			
30	108.0	3	RFS - APX16PV-16VL-E - Panel	Low Profile Platform	(18) 1 5/8"	T-Mobile
31		3	RFS - APXV18-209014 - Panel			
32		3	Andrew - LNX-6515DS - Panel			
33		12	TMA			
34		3	Kathrein 782 11056-Bias-T			
35	94.0	3	JMA Wireless - MX08FRO665-21 - Panel	(1) Commscope- MC-PK8-DSH- Platform w/Handrail	(1) 1.6" Hybrid	Dish Wireless
36		3	Fujitsu- TA08025-B605- RRU			
37		3	Fujitsu- TA08025-B604- RRU			
38		1	Raycap- RDIDC-9181-PF-48- OVP			

1. (1) 7/16" fiber and (2) 3/4" DC Power lines inside (2) 2" flex conduit

2. (1) 7/16" fiber and (2) 3/4" DC Power lines inside 3" Conduit

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
30	108.0	3	Commscope VV-65A-R1 - Panel	Low Profile Platform + Support Rail w/ end connections	(14) 1 5/8" (3) 1.9" Fiber	T-Mobile
31		3	Ericsson AIR6419 B41 - Panel			
32		3	RFS APXVAALL24_43-U-NA20 - Panel			
33		3	Ericsson 4460 B25 + B66			
34		3	Ericsson 4480 B71 + B85			
38		12	TMA			
39		3	Kathrein 782 11056			

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:	**73.3%**	**64.2%**	**48.8%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3274.6	31.8	73.3

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.1995 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

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

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

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

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

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

Usage Diagram - Max Ratio 73.32% at 0.0ft

Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	5/5/2022
Site Name:	Litchfield	**Exposure:**	C	
Height:	139.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

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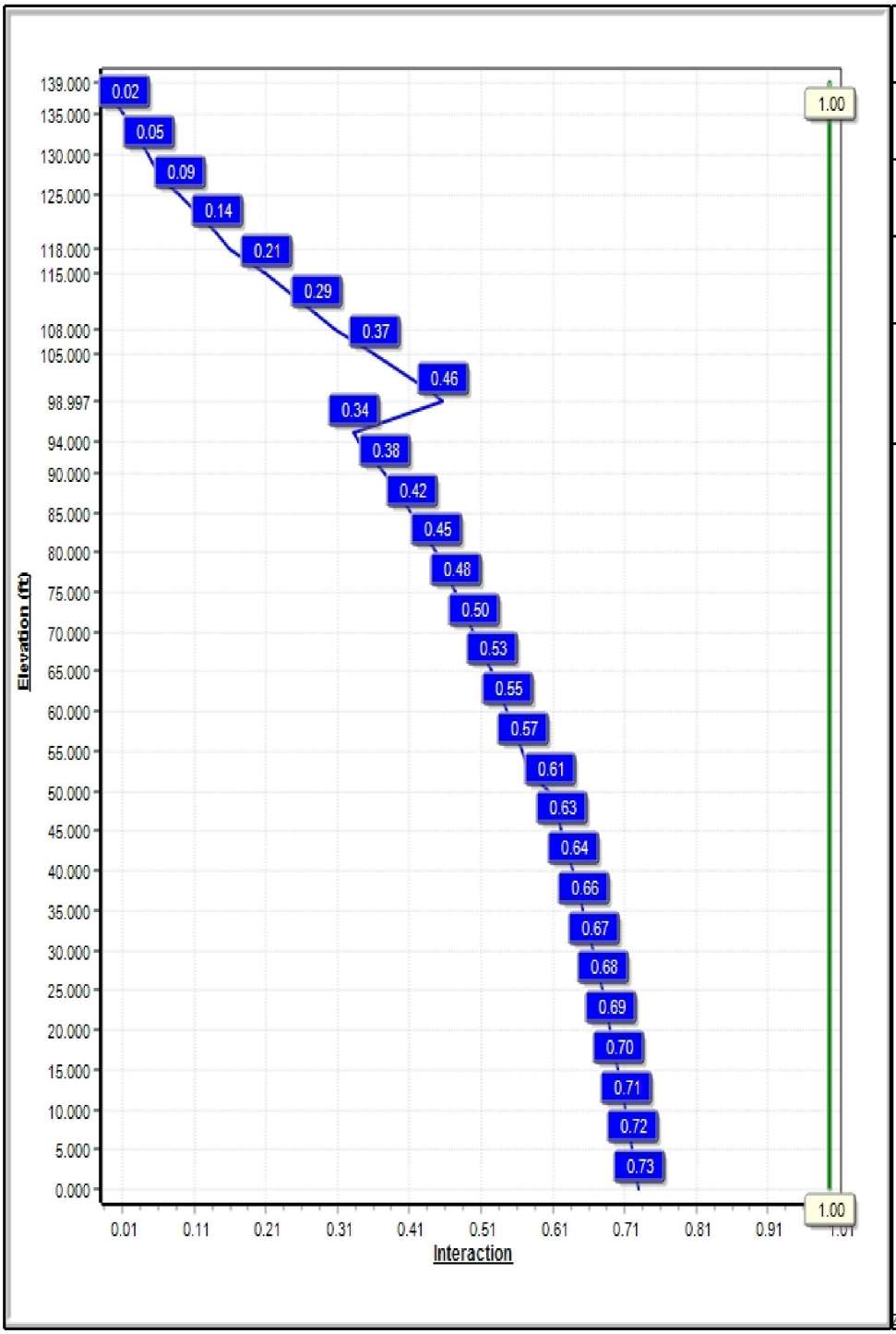
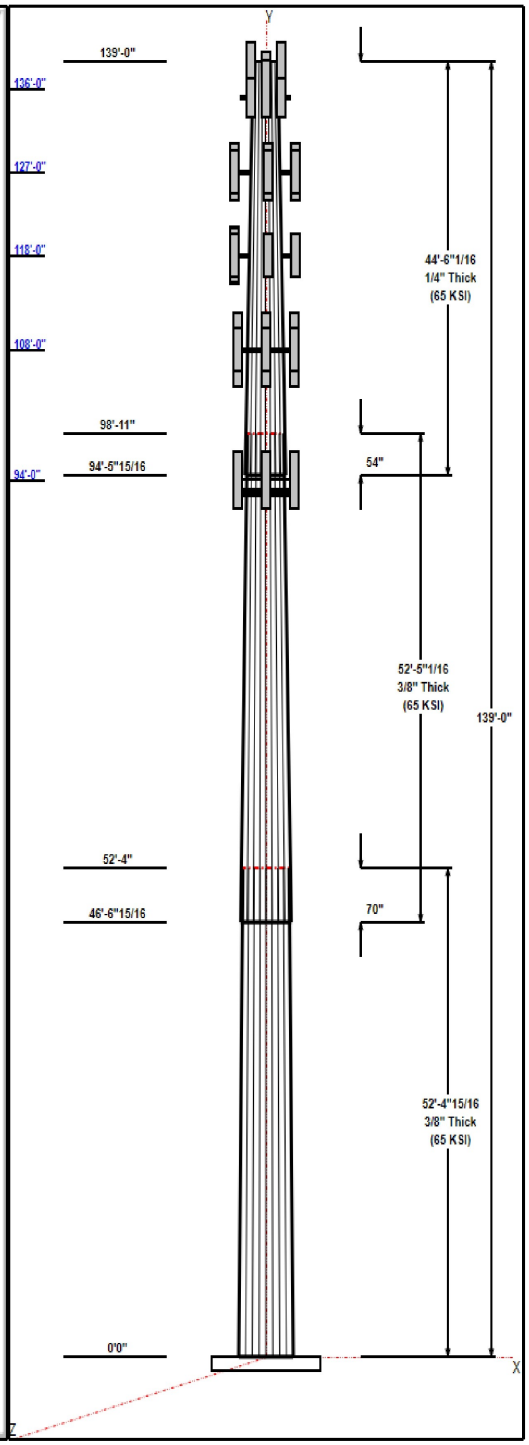
Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 93 mph Wind

Iterations: 24





Structure: CT46123-A-SBA

Type: Tapered
Site Name: Litchfield
Height: 139.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.24460

5/5/2022

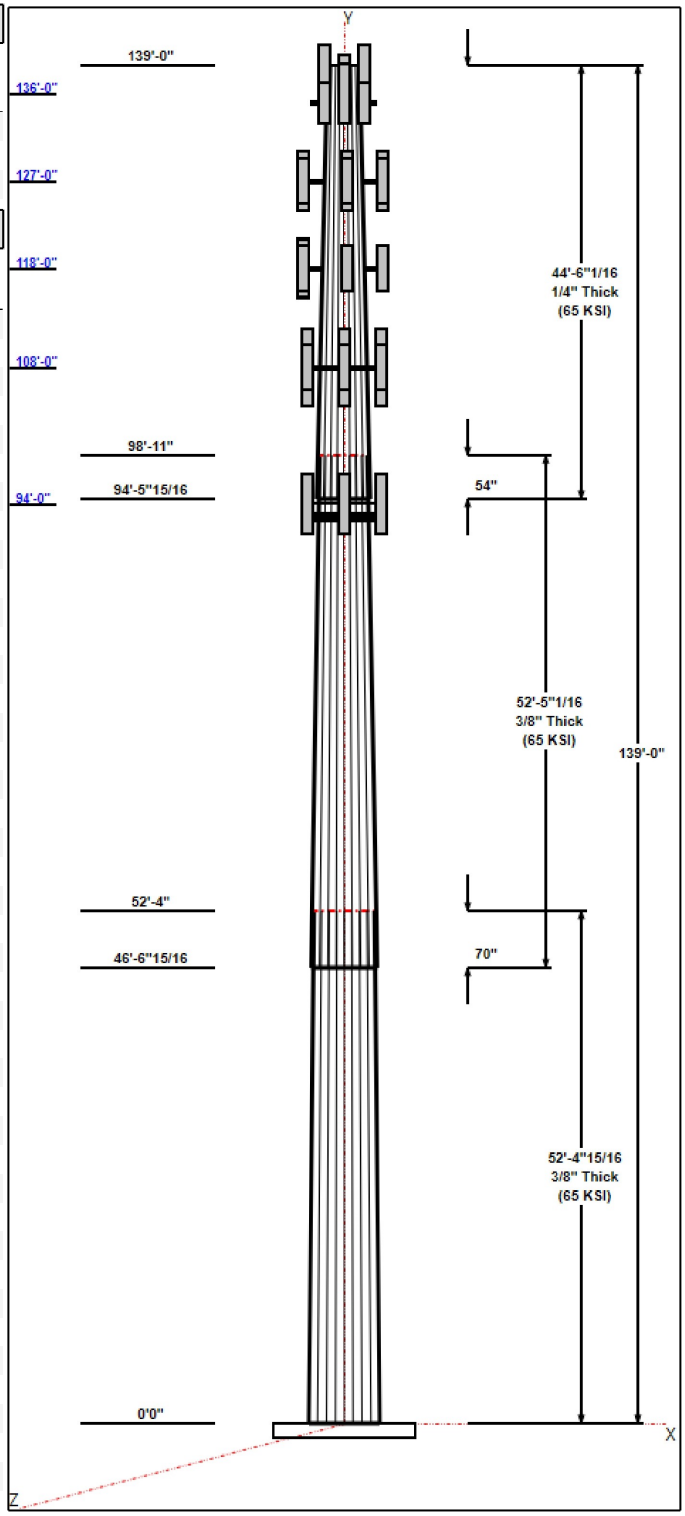
Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	52.41	40.43	53.25	0.375		0.24460	65
2	52.42	29.78	42.61	0.375	Slip	0.24460	65
3	44.50	20.50	31.39	0.250	Slip	0.24460	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
138.00	138.00	3	E14F05P59 Deplexer	Verizon
137.00	139.00	6	LPA-80063/4CF ___	Verizon
136.00	136.00	3	NHH-85B-R2B	Verizon
136.00	137.00	3	Antel	Verizon
135.00	132.00	3	T-Arms w/ Ring Mount	Verizon
127.00	127.00	3	T-Arms	Sprint Nextel
127.00	127.00	3	Collar Mounts	Sprint Nextel
127.00	127.00	3	RFS APXVSPP18-C-A20	Sprint Nextel
127.00	127.00	3	Alcatel Lucent 1900 MHz	Sprint Nextel
127.00	127.00	3	Alcatel Lucent 800 MHz	Sprint Nextel
127.00	127.00	3	Alcatel Lucent 800 MHz	Sprint Nextel
127.00	127.00	4	RFS ACU-A20-N RETs	Sprint Nextel
127.00	127.00	3	RFS APXVTM14-C-I20	Sprint Nextel
127.00	127.00	3	Alcatel Lucent	Sprint Nextel
118.00	118.00	3	T-Arms	AT&T
118.00	118.00	3	Powerwave 7770	AT&T
118.00	118.00	1	KMW	AT&T
118.00	118.00	18	LGP21401 TMA	AT&T
118.00	118.00	6	Powerwave 7020.00 RET	AT&T
118.00	118.00	3	Ericsson RRU-11-RRU	AT&T
118.00	118.00	3	Ericsson RRU-12-RRU	AT&T
118.00	118.00	18	Powerwave LGP13519	AT&T
118.00	118.00	3	Raycap DC6-48-60-18-8F	AT&T
118.00	118.00	1	OPA65R-BU6B	AT&T
118.00	118.00	2	OPA65R-BU4B	AT&T
118.00	118.00	1	HPA65R-BU6A	AT&T
118.00	118.00	2	SBNHH-1D65A	AT&T
118.00	118.00	1	800 10764 K	AT&T
118.00	118.00	3	RRUS 4478 B14	AT&T
118.00	118.00	3	RRUS 4478 B5	AT&T
118.00	118.00	3	RRUS 32 B30	AT&T
118.00	118.00	3	4426 B66	AT&T
118.00	118.00	2	Steel Brace	AT&T
118.00	118.00	1	KMW	AT&T
108.00	108.00	3	VV-65A-R1	T-Mobile
108.00	108.00	3	AIR 6419 B77G	T-Mobile
108.00	108.00	3	APXVAALL24_43-U-NA20	T-Mobile
108.00	108.00	3	4460 Radio	T-Mobile
108.00	108.00	3	4480 Radio	T-Mobile
108.00	108.00	1	support rail	T-Mobile
108.00	108.00	1	Low Profile Platform	T-Mobile
108.00	108.00	12	TMA	T-Mobile
108.00	108.00	3	Kathrein 782 11056-Bias-T	T-Mobile
94.00	94.00	3	MX08FRO665-21	Dish Wireless
94.00	94.00	1	MC-PK8-DSH	Dish Wireless
94.00	94.00	3	TA08025-B605	Dish Wireless



94.00	94.00	3	TA08025-B604	Dish Wireless
94.00	94.00	1	RDIDC-9181-PF-48	Dish Wireless

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	136.00	Inside	1 5/8" Coax	Verizon
0.00	127.00	Inside	1 1/4" Coax	Sprint Nextel
0.00	118.00	Inside	1 5/8" Coax	AT&T
0.00	118.00	Inside	2" Conduit	AT&T
0.00	118.00	Inside	3" Conduit	AT&T
0.00	118.00	Inside	3/4" DC	AT&T
0.00	118.00	Inside	7/16" Fiber	AT&T
0.00	108.00	Inside	1 5/8" Coax	T-Mobile
0.00	108.00	Inside	1.9" Fiber	T-Mobile
0.00	94.00	Inside	1.6" Hybrid	Dish Wireless

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
16	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	72.0	60.0	Round

Reactions

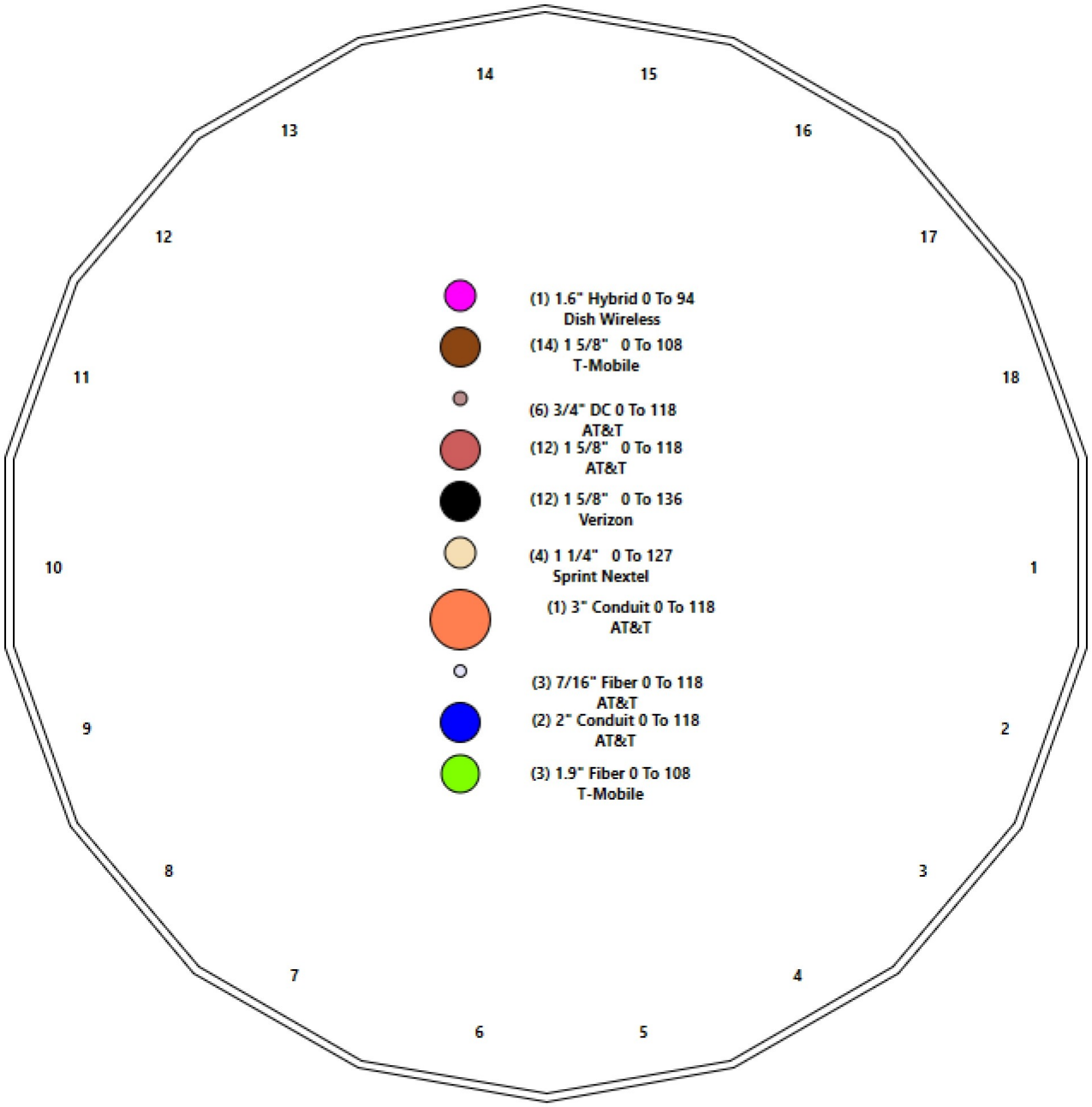
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	3274.6	31.8	48.1
0.9D + 1.6W 93 mph Wind	3238.5	31.8	36.1
1.2D + 1.0Di + 1.0Wi 50 mph Wind	983.1	9.6	73.3
1.2D + 1.0E	113.7	1.1	48.2
0.9D + 1.0E	112.4	1.1	36.1
1.0D + 1.0W 60 mph Wind	846.5	8.3	40.2

Structure: CT46123-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Litchfield
Height: 139.00 (ft)

5/5/2022

Tower Engineering Solutions



Shaft Properties

Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense 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	52.410	0.3750	65		0.00	9,863
2	18	52.420	0.3750	65	Slip	70.00	7,605
3	18	44.503	0.2500	65	Slip	54.00	3,087
					Total Shaft Weight:		**20,555**

	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	53.25	0.00	62.93	22229.35	23.63	142.00	40.43	52.41	47.67	9663.96	17.60	107.8	0.244604
2	42.61	46.58	50.27	11326.74	18.62	113.62	29.78	99.00	35.00	3825.25	12.59	79.43	0.244604
3	31.39	94.50	24.71	3025.94	20.73	125.54	20.50	139.00	16.07	832.45	13.05	82.00	0.244604

Load Summary

Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense 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	138.00	E14F05P59 Deplexer	3	8.27	0.72	0.67	26.92	1.202	0.67	0.00	0.00
2	137.00	LPA-80063/4CF ___	6	20.00	6.15	0.93	202.45	7.184	0.93	0.00	2.00
3	136.00	NHH-85B-R2B	3	43.70	8.17	0.85	245.23	9.491	0.85	0.00	0.00
4	136.00	Antel BXA-171063-8BF-EDIN-2	3	15.00	4.94	0.84	107.72	7.699	0.84	0.00	1.00
5	135.00	T-Arms w/ Ring Mount	3	400.00	10.00	0.75	676.31	18.635	0.75	0.00	-3.00
6	127.00	T-Arms	3	400.00	10.00	0.75	674.63	18.582	0.75	0.00	0.00
7	127.00	Collar Mounts	3	100.00	3.50	0.75	182.39	5.903	0.75	0.00	0.00
8	127.00	RFS APXVSPP18-C-A20	3	57.00	8.02	0.83	227.00	10.768	0.83	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	44.00	3.80	0.67	151.36	5.167	0.67	0.00	0.00
10	127.00	Alcatel Lucent 800 MHz	3	53.00	2.49	0.67	125.74	3.615	0.67	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz Filters	3	61.80	2.91	0.67	151.03	4.107	0.67	0.00	0.00
12	127.00	RFS ACU-A20-N RETs	4	1.00	0.14	0.67	5.23	0.432	0.67	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	56.00	6.34	0.79	213.24	7.434	0.79	0.00	0.00
14	127.00	Alcatel Lucent TD-RRH8x20-25	3	70.00	4.05	0.67	178.26	4.849	0.67	0.00	0.00
15	118.00	T-Arms	3	350.00	8.00	0.75	588.54	14.815	0.75	0.00	0.00
16	118.00	Powerwave 7770	3	35.00	5.50	0.73	166.26	6.538	0.73	0.00	0.00
17	118.00	KMW AM-X-CD-16-65-00T-RET w/	1	48.50	8.02	0.75	206.93	10.748	0.75	0.00	0.00
18	118.00	LGP21401 TMA	18	14.10	1.29	0.67	38.51	2.106	0.67	0.00	0.00
19	118.00	Powerwave 7020.00 RET	6	2.20	0.40	0.67	12.19	0.872	0.67	0.00	0.00
20	118.00	Ericsson RRU-11-RRU	3	50.70	2.52	0.67	137.31	3.155	0.67	0.00	0.00
21	118.00	Ericsson RRU-12-RRU	3	60.00	2.70	0.67	125.43	3.344	0.67	0.00	0.00
22	118.00	Powerwave LGP13519 Diplexer	18	5.30	0.34	0.67	14.57	0.783	0.67	0.00	0.00
23	118.00	Raycap DC6-48-60-18-8F Surge	3	32.80	0.92	1.00	95.06	1.348	1.00	0.00	0.00
24	118.00	OPA65R-BU6B	1	71.20	7.92	0.99	307.19	9.166	0.99	0.00	0.00
25	118.00	OPA65R-BU4B	2	57.00	5.94	0.79	211.15	6.946	0.79	0.00	0.00
26	118.00	HPA65R-BU6A	1	46.90	9.49	0.79	268.43	10.814	0.79	0.00	0.00
27	118.00	SBNHH-1D65A	2	33.50	5.88	0.83	187.36	6.933	0.83	0.00	0.00
28	118.00	800 10764 K	1	40.80	5.88	0.75	165.29	7.972	0.75	0.00	0.00
29	118.00	RRUS 4478 B14	3	59.40	1.65	0.67	99.88	2.156	0.67	0.00	0.00
30	118.00	RRUS 4478 B5	3	59.90	1.84	0.67	107.62	2.376	0.67	0.00	0.00
31	118.00	RRUS 32 B30	3	60.00	2.74	0.67	145.43	3.450	0.67	0.00	0.00
32	118.00	4426 B66	3	59.40	1.65	0.67	99.88	2.156	0.67	0.00	0.00
33	118.00	Steel Brace	2	140.00	3.70	1.00	311.75	7.482	1.00	0.00	0.00
34	118.00	KMW AM-X-CW-14-65-00T-RET	1	30.80	5.00	0.75	139.68	6.830	0.75	0.00	0.00
35	108.00	VV-65A-R1	3	52.90	5.92	0.76	187.68	7.016	0.76	0.00	0.00
36	108.00	AIR 6419 B77G	3	66.10	6.32	0.76	159.20	7.601	0.76	0.00	0.00
37	108.00	APXVAALL24_43-U-NA20	3	122.80	20.24	0.73	535.01	22.076	0.73	0.00	0.00
38	108.00	4460 Radio	3	109.00	2.85	0.67	178.58	3.503	0.67	0.00	0.00
39	108.00	4480 Radio	3	93.00	2.85	0.67	162.61	3.503	0.67	0.00	0.00
40	108.00	support rail	1	514.00	12.25	1.00	1104.27	23.835	1.00	0.00	0.00
41	108.00	Low Profile Platform	1	1500.00	22.00	1.00	2766.61	39.091	1.00	0.00	0.00
42	108.00	TMA	12	10.50	0.59	0.67	24.96	1.142	0.67	0.00	0.00
43	108.00	Kathrein 782 11056-Bias-T	3	11.00	0.68	0.74	27.14	1.275	0.74	0.00	0.00
44	94.00	MX08FRO665-21	3	64.50	12.49	0.74	342.09	13.888	0.74	0.00	0.00
45	94.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3337.77	82.667	1.00	0.00	0.00
46	94.00	TA08025-B605	3	75.00	1.96	0.67	124.92	2.495	0.67	0.00	0.00
47	94.00	TA08025-B604	3	63.90	1.96	0.67	112.22	2.495	0.67	0.00	0.00
48	94.00	RDIDC-9181-PF-48	1	21.90	2.01	0.50	72.72	2.552	0.50	0.00	0.00
		Totals:	**169**	**13,277.01**			**31,417.23**				

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	136.00	(12) 1 5/8" Coax	0.00	Inside
0.00	127.00	(4) 1 1/4" Coax	0.00	Inside
0.00	118.00	(12) 1 5/8" Coax	0.00	Inside
0.00	118.00	(2) 2" Conduit	0.00	Inside
0.00	118.00	(1) 3" Conduit	0.00	Inside
0.00	118.00	(6) 3/4" DC	0.00	Inside
0.00	118.00	(3) 7/16" Fiber	0.00	Inside
0.00	108.00	(14) 1 5/8" Coax	0.00	Inside
0.00	108.00	(3) 1.9" Fiber	0.00	Inside
0.00	94.00	(1) 1.6" Hybrid	0.00	Inside

Shaft Section Properties

Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	53.250	62.932	22229.4	23.63	142.00	73.6	822.2	0.0
5.00		0.3750	52.027	61.477	20722.2	23.05	138.74	74.3	784.5	1058.3
10.00		0.3750	50.804	60.021	19284.8	22.48	135.48	75.0	747.7	1033.6
15.00		0.3750	49.581	58.565	17915.5	21.90	132.22	75.6	711.7	1008.8
20.00		0.3750	48.358	57.110	16612.5	21.33	128.95	76.3	676.6	984.0
25.00		0.3750	47.135	55.654	15374.3	20.75	125.69	77.0	642.4	959.3
30.00		0.3750	45.912	54.198	14199.2	20.18	122.43	77.7	609.1	934.5
35.00		0.3750	44.689	52.743	13085.6	19.60	119.17	78.3	576.7	909.7
40.00		0.3750	43.466	51.287	12031.8	19.03	115.91	79.0	545.2	885.0
45.00		0.3750	42.243	49.831	11036.1	18.45	112.65	79.7	514.6	860.2
46.58	Bot - Section 2	0.3750	41.857	49.372	10733.9	18.27	111.62	79.9	505.1	266.1
50.00		0.3750	41.020	48.376	10096.9	17.88	109.39	80.4	484.8	1149.1
52.41	Top - Section 1	0.3750	41.180	48.567	10217.0	17.95	109.81	0.0	0.0	795.0
55.00		0.3750	40.547	47.813	9748.5	17.65	108.12	80.6	473.5	424.7
60.00		0.3750	39.324	46.357	8885.0	17.08	104.86	81.3	445.0	801.1
65.00		0.3750	38.101	44.901	8074.0	16.50	101.60	82.0	417.4	776.3
70.00		0.3750	36.878	43.446	7313.9	15.93	98.34	82.5	390.6	751.6
75.00		0.3750	35.655	41.990	6603.1	15.35	95.08	82.5	364.8	726.8
80.00		0.3750	34.432	40.534	5939.9	14.78	91.82	82.5	339.8	702.0
85.00		0.3750	33.209	39.079	5322.7	14.20	88.56	82.5	315.7	677.3
90.00		0.3750	31.986	37.623	4749.8	13.63	85.29	82.5	292.5	652.5
94.00		0.3750	31.007	36.459	4322.3	13.17	82.69	82.5	274.6	504.2
94.50	Bot - Section 3	0.3750	30.886	36.314	4271.0	13.11	82.36	82.5	272.4	61.5
95.00		0.3750	30.763	36.168	4219.5	13.05	82.03	82.5	270.2	104.3
99.00	Top - Section 2	0.2500	30.285	23.832	2716.2	19.95	121.14	0.0	0.0	813.3
100.00		0.2500	30.040	23.637	2650.2	19.78	120.16	78.1	173.8	81.0
105.00		0.2500	28.817	22.667	2337.0	18.91	115.27	79.2	159.7	393.9
108.00		0.2500	28.083	22.084	2161.5	18.40	112.33	79.8	151.6	228.4
110.00		0.2500	27.594	21.696	2049.5	18.05	110.37	80.2	146.3	149.0
115.00		0.2500	26.371	20.726	1786.6	17.19	105.48	81.2	133.4	360.9
118.00		0.2500	25.637	20.144	1640.2	16.67	102.55	81.8	126.0	208.6
120.00		0.2500	25.147	19.755	1547.2	16.33	100.59	82.2	121.2	135.8
125.00		0.2500	23.924	18.785	1330.2	15.46	95.70	82.5	109.5	327.9
127.00		0.2500	23.435	18.397	1249.5	15.12	93.74	82.5	105.0	126.5
130.00		0.2500	22.701	17.815	1134.5	14.60	90.81	82.5	98.4	184.8
135.00		0.2500	21.478	16.844	959.0	13.74	85.91	82.5	87.9	294.8
136.00		0.2500	21.234	16.650	926.3	13.57	84.94	82.5	85.9	57.0
137.00		0.2500	20.989	16.456	894.3	13.39	83.96	82.5	83.9	56.3
138.00		0.2500	20.745	16.262	863.0	13.22	82.98	82.5	81.9	55.7
139.00		0.2500	20.500	16.068	832.5	13.05	82.00	82.5	80.0	55.0
										20554.8

Wind Loading - Shaft

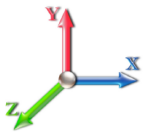
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



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	17.879	19.67	386.35	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	377.48	0.650	0.000	5.00	22.271	14.48	455.5	0.0	1270.0
10.00		1.00	0.85	17.879	19.67	368.60	0.650	0.000	5.00	21.754	14.14	444.9	0.0	1240.3
15.00		1.00	0.85	17.879	19.67	359.73	0.650	0.000	5.00	21.236	13.80	434.4	0.0	1210.6
20.00		1.00	0.90	18.971	20.87	361.40	0.650	0.000	5.00	20.719	13.47	449.6	0.0	1180.8
25.00		1.00	0.95	19.883	21.87	360.64	0.650	0.000	5.00	20.201	13.13	459.5	0.0	1151.1
30.00		1.00	0.98	20.661	22.73	358.09	0.650	0.000	5.00	19.684	12.79	465.3	0.0	1121.4
35.00		1.00	1.01	21.343	23.48	354.25	0.650	0.000	5.00	19.166	12.46	468.0	0.0	1091.7
40.00		1.00	1.04	21.951	24.15	349.43	0.650	0.000	5.00	18.649	12.12	468.3	0.0	1062.0
45.00		1.00	1.07	22.502	24.75	343.84	0.650	0.000	5.00	18.131	11.79	466.7	0.0	1032.3
46.58	Bot - Section 2	1.00	1.08	22.666	24.93	341.93	0.650	0.000	1.58	5.610	3.65	145.5	0.0	319.3
50.00		1.00	1.09	23.007	25.31	337.60	0.650	0.000	3.42	12.221	7.94	321.7	0.0	1378.9
52.41	Top - Section 1	1.00	1.10	23.236	25.56	334.41	0.650	0.000	2.41	8.458	5.50	224.8	0.0	954.0
55.00		1.00	1.12	23.473	25.82	337.08	0.650	0.000	2.59	8.956	5.82	240.5	0.0	509.6
60.00		1.00	1.14	23.907	26.30	329.92	0.650	0.000	5.00	16.896	10.98	462.1	0.0	961.3
65.00		1.00	1.16	24.313	26.74	322.36	0.650	0.000	5.00	16.379	10.65	455.6	0.0	931.6
70.00		1.00	1.17	24.696	27.17	314.46	0.650	0.000	5.00	15.861	10.31	448.1	0.0	901.9
75.00		1.00	1.19	25.057	27.56	306.24	0.650	0.000	5.00	15.344	9.97	439.8	0.0	872.2
80.00		1.00	1.21	25.400	27.94	297.75	0.650	0.000	5.00	14.827	9.64	430.8	0.0	842.4
85.00		1.00	1.22	25.726	28.30	289.02	0.650	0.000	5.00	14.309	9.30	421.1	0.0	812.7
90.00		1.00	1.24	26.037	28.64	280.05	0.650	0.000	5.00	13.792	8.96	410.8	0.0	783.0
94.00	Appurtenance(s)	1.00	1.25	26.277	28.90	272.73	0.650	0.000	4.00	10.661	6.93	320.5	0.0	605.0
94.50	Bot - Section 3	1.00	1.25	26.306	28.94	271.81	0.650	0.000	0.50	1.301	0.85	39.1	0.0	73.8
95.00		1.00	1.25	26.336	28.97	270.88	0.650	0.000	0.50	1.334	0.87	40.2	0.0	125.2
99.00	Top - Section 2	1.00	1.26	26.565	29.22	263.41	0.650	0.000	4.00	10.407	6.76	316.3	0.0	976.0
100.00		1.00	1.27	26.621	29.28	265.95	0.650	0.000	1.00	2.561	1.66	78.0	0.0	97.2
105.00		1.00	1.28	26.896	29.59	256.43	0.650	0.000	5.00	12.451	8.09	383.1	0.0	472.7
108.00	Appurtenance(s)	1.00	1.29	27.056	29.76	250.65	0.650	0.000	3.00	7.222	4.69	223.5	0.0	274.1
110.00		1.00	1.29	27.161	29.88	246.76	0.650	0.000	2.00	4.711	3.06	146.4	0.0	178.8
115.00		1.00	1.30	27.416	30.16	236.92	0.650	0.000	5.00	11.416	7.42	358.1	0.0	433.1
118.00	Appurtenance(s)	1.00	1.31	27.565	30.32	230.96	0.650	0.000	3.00	6.601	4.29	208.2	0.0	250.3
120.00		1.00	1.32	27.663	30.43	226.95	0.650	0.000	2.00	4.297	2.79	136.0	0.0	162.9
125.00		1.00	1.33	27.902	30.69	216.84	0.650	0.000	5.00	10.381	6.75	331.4	0.0	393.4
127.00	Appurtenance(s)	1.00	1.33	27.995	30.79	212.76	0.650	0.000	2.00	4.008	2.60	128.3	0.0	151.8
130.00		1.00	1.34	28.133	30.95	206.61	0.650	0.000	3.00	5.856	3.81	188.5	0.0	221.8
135.00	Appurtenance(s)	1.00	1.35	28.358	31.19	196.26	0.650	0.000	5.00	9.346	6.07	303.2	0.0	353.8
136.00	Appurtenance(s)	1.00	1.35	28.402	31.24	194.17	0.650	0.000	1.00	1.807	1.17	58.7	0.0	68.4
137.00	Appurtenance(s)	1.00	1.35	28.446	31.29	192.08	0.650	0.000	1.00	1.786	1.16	58.1	0.0	67.6
138.00	Appurtenance(s)	1.00	1.35	28.489	31.34	189.99	0.650	0.000	1.00	1.766	1.15	57.5	0.0	66.8
139.00		1.00	1.36	28.533	31.39	187.89	0.650	0.000	1.00	1.745	1.13	57.0	0.0	66.0
								Totals:	**139.00**			**11,545.2**		**24,665.8**

Discrete Appurtenance Forces

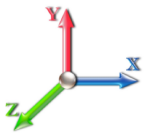
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 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	138.00	E14F05P59 Deplexer	3	28.489	31.338	0.54	0.80	1.16	29.77	0.000	0.000	58.05	0.00	0.00
2	137.00	LPA-80063/4CF ___	6	28.533	31.386	0.74	0.80	27.45	144.00	0.000	2.000	1378.65	0.00	2757.29
3	136.00	NHH-85B-R2B	3	28.402	31.242	0.68	0.80	16.67	157.32	0.000	0.000	833.13	0.00	0.00
4	136.00	Antel	3	28.446	31.290	0.67	0.80	9.96	54.00	0.000	1.000	498.59	0.00	498.59
5	135.00	T-Arms w/ Ring Mount	3	28.224	31.046	0.56	0.75	16.88	1440.00	0.000	-3.000	838.25	0.00	-2514.75
6	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.00	190.80	0.000	0.000	197.28	0.00	0.00
7	127.00	T-Arms	3	27.995	30.795	0.56	0.75	16.88	1440.00	0.000	0.000	831.46	0.00	0.00
8	127.00	Collar Mounts	3	27.995	30.795	0.56	0.75	5.91	360.00	0.000	0.000	291.01	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	27.995	30.795	0.54	0.80	6.11	158.40	0.000	0.000	301.07	0.00	0.00
10	127.00	RFS APXVSPP18-C-A20	3	27.995	30.795	0.66	0.80	15.98	205.20	0.000	0.000	787.16	0.00	0.00
11	127.00	RFS ACU-A20-N RETs	4	27.995	30.795	0.54	0.80	0.30	4.80	0.000	0.000	14.79	0.00	0.00
12	127.00	RFS APXVTM14-C-I20	3	27.995	30.795	0.63	0.80	12.02	201.60	0.000	0.000	592.28	0.00	0.00
13	127.00	Alcatel Lucent	3	27.995	30.795	0.54	0.80	6.51	252.00	0.000	0.000	320.88	0.00	0.00
14	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.68	222.48	0.000	0.000	230.56	0.00	0.00
15	118.00	RRUS 4478 B14	3	27.565	30.322	0.54	0.80	2.65	213.84	0.000	0.000	128.72	0.00	0.00
16	118.00	OPA65R-BU4B	2	27.565	30.322	0.63	0.80	7.51	136.80	0.000	0.000	364.26	0.00	0.00
17	118.00	HPA65R-BU6A	1	27.565	30.322	0.63	0.80	6.00	56.28	0.000	0.000	290.98	0.00	0.00
18	118.00	SBNHH-1D65A	2	27.565	30.322	0.66	0.80	7.81	80.40	0.000	0.000	378.84	0.00	0.00
19	118.00	800 10764 K	1	27.565	30.322	0.60	0.80	3.53	48.96	0.000	0.000	171.16	0.00	0.00
20	118.00	4426 B66	3	27.565	30.322	0.54	0.80	2.65	213.84	0.000	0.000	128.72	0.00	0.00
21	118.00	RRUS 4478 B5	3	27.565	30.322	0.54	0.80	2.96	215.64	0.000	0.000	143.54	0.00	0.00
22	118.00	RRUS 32 B30	3	27.565	30.322	0.54	0.80	4.41	216.00	0.000	0.000	213.75	0.00	0.00
23	118.00	Steel Brace	2	27.565	30.322	1.00	1.00	7.40	336.00	0.000	0.000	359.01	0.00	0.00
24	118.00	KMW	1	27.565	30.322	0.56	0.75	2.81	36.96	0.000	0.000	136.45	0.00	0.00
25	118.00	OPA65R-BU6B	1	27.565	30.322	0.79	0.80	6.27	85.44	0.000	0.000	304.32	0.00	0.00
26	118.00	Raycap DC6-48-60-18-8F	3	27.565	30.322	0.80	0.80	2.21	118.08	0.000	0.000	107.12	0.00	0.00
27	118.00	Powerwave LGP13519	18	27.565	30.322	0.54	0.80	3.28	114.48	0.000	0.000	159.15	0.00	0.00
28	118.00	Ericsson RRU-12-RRU	3	27.565	30.322	0.54	0.80	4.34	216.00	0.000	0.000	210.63	0.00	0.00
29	118.00	Ericsson RRU-11-RRU	3	27.565	30.322	0.54	0.80	4.05	182.52	0.000	0.000	196.59	0.00	0.00
30	118.00	Powerwave 7020.00 RET	6	27.565	30.322	0.54	0.80	1.29	15.84	0.000	0.000	62.41	0.00	0.00
31	118.00	LGP21401 TMA	18	27.565	30.322	0.54	0.80	12.45	304.56	0.000	0.000	603.82	0.00	0.00
32	118.00	KMW	1	27.565	30.322	0.60	0.80	4.81	58.20	0.000	0.000	233.46	0.00	0.00
33	118.00	Powerwave 7770	3	27.565	30.322	0.58	0.80	9.64	126.00	0.000	0.000	467.49	0.00	0.00
34	118.00	T-Arms	3	27.565	30.322	0.56	0.75	13.50	1260.00	0.000	0.000	654.96	0.00	0.00
35	108.00	APXVAALL24_43-U-NA20	3	27.056	29.762	0.55	0.75	33.24	442.08	0.000	0.000	1583.06	0.00	0.00
36	108.00	4460 Radio	3	27.056	29.762	0.50	0.75	4.30	392.40	0.000	0.000	204.59	0.00	0.00
37	108.00	AIR 6419 B77G	3	27.056	29.762	0.57	0.75	10.81	237.96	0.000	0.000	514.63	0.00	0.00
38	108.00	VV-65A-R1	3	27.056	29.762	0.57	0.75	10.12	190.44	0.000	0.000	482.06	0.00	0.00
39	108.00	Low Profile Platform	1	27.056	29.762	1.00	1.00	22.00	1800.00	0.000	0.000	1047.62	0.00	0.00
40	108.00	4480 Radio	3	27.056	29.762	0.50	0.75	4.30	334.80	0.000	0.000	204.59	0.00	0.00
41	108.00	support rail	1	27.056	29.762	0.75	0.75	9.19	616.80	0.000	0.000	437.50	0.00	0.00
42	108.00	TMA	12	27.056	29.762	0.50	0.75	3.56	151.20	0.000	0.000	169.41	0.00	0.00
43	108.00	Kathrein 782 11056-Bias-T	3	27.056	29.762	0.55	0.75	1.13	39.60	0.000	0.000	53.91	0.00	0.00
44	94.00	RDIDC-9181-PF-48	1	26.277	28.905	0.38	0.75	0.75	26.28	0.000	0.000	34.86	0.00	0.00
45	94.00	TA08025-B604	3	26.277	28.905	0.50	0.75	2.95	230.04	0.000	0.000	136.65	0.00	0.00
46	94.00	TA08025-B605	3	26.277	28.905	0.50	0.75	2.95	270.00	0.000	0.000	136.65	0.00	0.00
47	94.00	MC-PK8-DSH	1	26.277	28.905	1.00	1.00	37.59	2072.40	0.000	0.000	1738.44	0.00	0.00

Discrete Appurtenance Forces

Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Tower Engineering Solutions

48	94.00	MX08FRO665-21	3	26.277	28.905	0.55	0.75	20.80	232.20	0.000	0.000	961.75	0.00	0.00
							Totals:		**15,932.41**			**20,194.26**		

Total Applied Force Summary

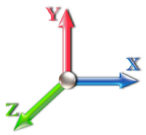
Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 12

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 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		455.53	1589.63	0.00	0.00
10.00		444.94	1559.91	0.00	0.00
15.00		434.36	1530.19	0.00	0.00
20.00		449.64	1500.47	0.00	0.00
25.00		459.50	1470.75	0.00	0.00
30.00		465.25	1441.03	0.00	0.00
35.00		467.96	1411.31	0.00	0.00
40.00		468.31	1381.59	0.00	0.00
45.00		466.75	1351.87	0.00	0.00
46.58		145.47	420.13	0.00	0.00
50.00		321.66	1597.69	0.00	0.00
52.41		224.83	1108.05	0.00	0.00
55.00		240.49	675.21	0.00	0.00
60.00		462.11	1280.94	0.00	0.00
65.00		455.57	1251.22	0.00	0.00
70.00		448.12	1221.50	0.00	0.00
75.00		439.84	1191.78	0.00	0.00
80.00		430.82	1162.06	0.00	0.00
85.00		421.13	1132.34	0.00	0.00
90.00		410.81	1102.62	0.00	0.00
94.00	(11) attachments	3328.82	3691.62	0.00	0.00
94.50		39.14	104.46	0.00	0.00
95.00		40.19	156.24	0.00	0.00
99.00		316.29	1222.76	0.00	0.00
100.00		77.99	159.18	0.00	0.00
105.00		383.11	781.39	0.00	0.00
108.00	(32) attachments	4920.92	4664.60	0.00	0.00
110.00		146.39	263.78	0.00	0.00
115.00		358.05	645.58	0.00	0.00
118.00	(80) attachments	5523.55	4413.68	0.00	0.00
120.00		136.00	199.21	0.00	0.00
125.00		331.36	484.15	0.00	0.00
127.00	(28) attachments	3694.83	3223.39	0.00	0.00
130.00		188.47	266.72	0.00	0.00
135.00	(3) attachments	1141.45	1868.69	0.00	-2514.75
136.00	(6) attachments	1390.44	294.68	0.00	498.59
137.00	(6) attachments	1436.78	211.59	0.00	2757.29
138.00	(3) attachments	115.60	96.57	0.00	0.00
139.00		56.96	66.01	0.00	0.00
	Totals:	**31,739.44**	**48,194.56**	**0.00**	**741.14**

Calculated Forces

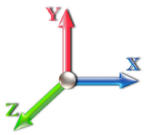
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 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	-48.14	-31.83	0.00	-3274.5	0.00	3274.59	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.733
5.00	-46.43	-31.54	0.00	-3115.4	0.00	3115.46	4110.19	2055.10	8728.63	4370.80	0.11	-0.204	0.000	0.724
10.00	-44.76	-31.25	0.00	-2957.7	0.00	2957.78	4049.41	2024.70	8394.45	4203.46	0.44	-0.413	0.000	0.715
15.00	-43.12	-30.96	0.00	-2801.5	0.00	2801.55	3986.85	1993.43	8062.85	4037.42	0.98	-0.625	0.000	0.705
20.00	-41.51	-30.65	0.00	-2646.7	0.00	2646.75	3922.52	1961.26	7734.09	3872.79	1.75	-0.842	0.000	0.694
25.00	-39.93	-30.32	0.00	-2493.5	0.00	2493.50	3856.42	1928.21	7408.45	3709.73	2.75	-1.062	0.000	0.683
30.00	-38.38	-29.98	0.00	-2341.9	0.00	2341.90	3788.55	1894.27	7086.18	3548.36	3.99	-1.285	0.000	0.670
35.00	-36.86	-29.62	0.00	-2192.0	0.00	2192.02	3718.90	1859.45	6767.57	3388.81	5.46	-1.513	0.000	0.657
40.00	-35.38	-29.26	0.00	-2043.9	0.00	2043.91	3647.48	1823.74	6452.87	3231.23	7.16	-1.743	0.000	0.643
45.00	-33.96	-28.84	0.00	-1897.6	0.00	1897.62	3574.29	1787.15	6142.37	3075.75	9.11	-1.976	0.000	0.627
46.58	-33.49	-28.75	0.00	-1852.1	0.00	1852.15	3550.85	1775.42	6045.37	3027.18	9.78	-2.052	0.000	0.622
50.00	-31.84	-28.45	0.00	-1753.7	0.00	1753.74	3499.33	1749.66	5836.32	2922.50	11.31	-2.216	0.000	0.609
52.41	-30.68	-28.24	0.00	-1685.1	0.00	1685.18	3509.27	1754.63	5876.22	2942.48	12.46	-2.332	0.000	0.582
55.00	-29.93	-28.07	0.00	-1612.0	0.00	1612.04	3469.86	1734.93	5719.21	2863.86	13.76	-2.458	0.000	0.572
60.00	-28.56	-27.66	0.00	-1471.7	0.00	1471.71	3392.44	1696.22	5419.79	2713.92	16.46	-2.683	0.000	0.551
65.00	-27.23	-27.25	0.00	-1333.4	0.00	1333.41	3313.25	1656.62	5125.48	2566.55	19.39	-2.908	0.000	0.528
70.00	-25.93	-26.84	0.00	-1197.1	0.00	1197.17	3227.80	1613.90	4829.83	2418.50	22.55	-3.130	0.000	0.503
75.00	-24.66	-26.43	0.00	-1062.9	0.00	1062.98	3119.66	1559.83	4510.01	2258.36	25.95	-3.350	0.000	0.479
80.00	-23.43	-26.01	0.00	-930.85	0.00	930.85	3011.51	1505.75	4201.15	2103.70	29.57	-3.565	0.000	0.451
85.00	-22.24	-25.60	0.00	-800.79	0.00	800.79	2903.36	1451.68	3903.25	1954.53	33.41	-3.772	0.000	0.418
90.00	-21.09	-25.18	0.00	-672.80	0.00	672.80	2795.21	1397.61	3616.30	1810.84	37.47	-3.969	0.000	0.379
94.00	-17.61	-21.62	0.00	-572.10	0.00	572.10	2708.70	1354.35	3394.63	1699.84	40.86	-4.118	0.000	0.343
94.50	-17.50	-21.58	0.00	-561.36	0.00	561.36	2697.95	1348.98	3367.59	1686.30	41.29	-4.137	0.000	0.340
95.00	-17.32	-21.55	0.00	-550.50	0.00	550.50	2687.07	1343.53	3340.31	1672.64	41.73	-4.156	0.000	0.336
99.00	-16.09	-21.17	0.00	-464.36	0.00	464.36	1671.63	835.82	2062.09	1032.58	45.26	-4.292	0.000	0.460
100.00	-15.89	-21.12	0.00	-443.12	0.00	443.12	1662.31	831.15	2033.69	1018.35	46.17	-4.326	0.000	0.445
105.00	-15.09	-20.72	0.00	-337.53	0.00	337.53	1614.76	807.38	1893.73	948.27	50.81	-4.536	0.000	0.366
108.00	-10.81	-15.45	0.00	-275.39	0.00	275.39	1585.38	792.69	1811.10	906.90	53.70	-4.648	0.000	0.311
110.00	-10.53	-15.31	0.00	-244.48	0.00	244.48	1565.43	782.72	1756.61	879.61	55.66	-4.716	0.000	0.285
115.00	-9.89	-14.91	0.00	-167.95	0.00	167.95	1514.34	757.17	1622.58	812.50	60.67	-4.859	0.000	0.214
118.00	-5.95	-9.04	0.00	-123.21	0.00	123.21	1482.83	741.42	1543.76	773.03	63.75	-4.929	0.000	0.164
120.00	-5.76	-8.89	0.00	-105.13	0.00	105.13	1461.47	730.74	1491.92	747.07	65.82	-4.968	0.000	0.145
125.00	-5.30	-8.52	0.00	-60.67	0.00	60.67	1395.63	697.82	1354.03	678.02	71.06	-5.045	0.000	0.093
127.00	-2.41	-4.56	0.00	-43.62	0.00	43.62	1366.79	683.40	1298.36	650.14	73.17	-5.067	0.000	0.069
130.00	-2.16	-4.35	0.00	-29.94	0.00	29.94	1323.53	661.77	1217.05	609.43	76.36	-5.092	0.000	0.051
135.00	-0.40	-3.05	0.00	-8.19	0.00	8.19	1251.44	625.72	1087.38	544.50	81.70	-5.116	0.000	0.015
136.00	-0.23	-1.64	0.00	-4.64	0.00	4.64	1237.02	618.51	1062.32	531.95	82.77	-5.118	0.000	0.009
137.00	-0.15	-0.19	0.00	-0.25	0.00	0.25	1222.60	611.30	1037.55	519.55	83.85	-5.119	0.000	0.001
138.00	-0.06	-0.06	0.00	-0.06	0.00	0.06	1208.18	604.09	1013.08	507.29	84.92	-5.119	0.000	0.000
139.00	0.00	-0.06	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	85.99	-5.119	0.000	0.000

Wind Loading - Shaft

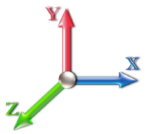
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 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	17.879	19.67	386.35	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	377.48	0.650	0.000	5.00	22.271	14.48	455.5	0.0	952.5
10.00		1.00	0.85	17.879	19.67	368.60	0.650	0.000	5.00	21.754	14.14	444.9	0.0	930.2
15.00		1.00	0.85	17.879	19.67	359.73	0.650	0.000	5.00	21.236	13.80	434.4	0.0	907.9
20.00		1.00	0.90	18.971	20.87	361.40	0.650	0.000	5.00	20.719	13.47	449.6	0.0	885.6
25.00		1.00	0.95	19.883	21.87	360.64	0.650	0.000	5.00	20.201	13.13	459.5	0.0	863.3
30.00		1.00	0.98	20.661	22.73	358.09	0.650	0.000	5.00	19.684	12.79	465.3	0.0	841.1
35.00		1.00	1.01	21.343	23.48	354.25	0.650	0.000	5.00	19.166	12.46	468.0	0.0	818.8
40.00		1.00	1.04	21.951	24.15	349.43	0.650	0.000	5.00	18.649	12.12	468.3	0.0	796.5
45.00		1.00	1.07	22.502	24.75	343.84	0.650	0.000	5.00	18.131	11.79	466.7	0.0	774.2
46.58	Bot - Section 2	1.00	1.08	22.666	24.93	341.93	0.650	0.000	1.58	5.610	3.65	145.5	0.0	239.5
50.00		1.00	1.09	23.007	25.31	337.60	0.650	0.000	3.42	12.221	7.94	321.7	0.0	1034.1
52.41	Top - Section 1	1.00	1.10	23.236	25.56	334.41	0.650	0.000	2.41	8.458	5.50	224.8	0.0	715.5
55.00		1.00	1.12	23.473	25.82	337.08	0.650	0.000	2.59	8.956	5.82	240.5	0.0	382.2
60.00		1.00	1.14	23.907	26.30	329.92	0.650	0.000	5.00	16.896	10.98	462.1	0.0	721.0
65.00		1.00	1.16	24.313	26.74	322.36	0.650	0.000	5.00	16.379	10.65	455.6	0.0	698.7
70.00		1.00	1.17	24.696	27.17	314.46	0.650	0.000	5.00	15.861	10.31	448.1	0.0	676.4
75.00		1.00	1.19	25.057	27.56	306.24	0.650	0.000	5.00	15.344	9.97	439.8	0.0	654.1
80.00		1.00	1.21	25.400	27.94	297.75	0.650	0.000	5.00	14.827	9.64	430.8	0.0	631.8
85.00		1.00	1.22	25.726	28.30	289.02	0.650	0.000	5.00	14.309	9.30	421.1	0.0	609.5
90.00		1.00	1.24	26.037	28.64	280.05	0.650	0.000	5.00	13.792	8.96	410.8	0.0	587.2
94.00	Appurtenance(s)	1.00	1.25	26.277	28.90	272.73	0.650	0.000	4.00	10.661	6.93	320.5	0.0	453.8
94.50	Bot - Section 3	1.00	1.25	26.306	28.94	271.81	0.650	0.000	0.50	1.301	0.85	39.1	0.0	55.3
95.00		1.00	1.25	26.336	28.97	270.88	0.650	0.000	0.50	1.334	0.87	40.2	0.0	93.9
99.00	Top - Section 2	1.00	1.26	26.565	29.22	263.41	0.650	0.000	4.00	10.407	6.76	316.3	0.0	732.0
100.00		1.00	1.27	26.621	29.28	265.95	0.650	0.000	1.00	2.561	1.66	78.0	0.0	72.9
105.00		1.00	1.28	26.896	29.59	256.43	0.650	0.000	5.00	12.451	8.09	383.1	0.0	354.5
108.00	Appurtenance(s)	1.00	1.29	27.056	29.76	250.65	0.650	0.000	3.00	7.222	4.69	223.5	0.0	205.6
110.00		1.00	1.29	27.161	29.88	246.76	0.650	0.000	2.00	4.711	3.06	146.4	0.0	134.1
115.00		1.00	1.30	27.416	30.16	236.92	0.650	0.000	5.00	11.416	7.42	358.1	0.0	324.8
118.00	Appurtenance(s)	1.00	1.31	27.565	30.32	230.96	0.650	0.000	3.00	6.601	4.29	208.2	0.0	187.7
120.00		1.00	1.32	27.663	30.43	226.95	0.650	0.000	2.00	4.297	2.79	136.0	0.0	122.2
125.00		1.00	1.33	27.902	30.69	216.84	0.650	0.000	5.00	10.381	6.75	331.4	0.0	295.1
127.00	Appurtenance(s)	1.00	1.33	27.995	30.79	212.76	0.650	0.000	2.00	4.008	2.60	128.3	0.0	113.9
130.00		1.00	1.34	28.133	30.95	206.61	0.650	0.000	3.00	5.856	3.81	188.5	0.0	166.3
135.00	Appurtenance(s)	1.00	1.35	28.358	31.19	196.26	0.650	0.000	5.00	9.346	6.07	303.2	0.0	265.4
136.00	Appurtenance(s)	1.00	1.35	28.402	31.24	194.17	0.650	0.000	1.00	1.807	1.17	58.7	0.0	51.3
137.00	Appurtenance(s)	1.00	1.35	28.446	31.29	192.08	0.650	0.000	1.00	1.786	1.16	58.1	0.0	50.7
138.00	Appurtenance(s)	1.00	1.35	28.489	31.34	189.99	0.650	0.000	1.00	1.766	1.15	57.5	0.0	50.1
139.00		1.00	1.36	28.533	31.39	187.89	0.650	0.000	1.00	1.745	1.13	57.0	0.0	49.5
								Totals:	**139.00**			**11,545.2**		**18,499.4**

Discrete Appurtenance Forces

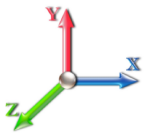
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 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	138.00	E14F05P59 Deplexer	3	28.489	31.338	0.54	0.80	1.16	22.33	0.000	0.000	58.05	0.00	0.00
2	137.00	LPA-80063/4CF ___	6	28.533	31.386	0.74	0.80	27.45	108.00	0.000	2.000	1378.65	0.00	2757.29
3	136.00	NHH-85B-R2B	3	28.402	31.242	0.68	0.80	16.67	117.99	0.000	0.000	833.13	0.00	0.00
4	136.00	Antel	3	28.446	31.290	0.67	0.80	9.96	40.50	0.000	1.000	498.59	0.00	498.59
5	135.00	T-Arms w/ Ring Mount	3	28.224	31.046	0.56	0.75	16.88	1080.00	0.000	-3.000	838.25	0.00	-2514.75
6	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.00	143.10	0.000	0.000	197.28	0.00	0.00
7	127.00	T-Arms	3	27.995	30.795	0.56	0.75	16.88	1080.00	0.000	0.000	831.46	0.00	0.00
8	127.00	Collar Mounts	3	27.995	30.795	0.56	0.75	5.91	270.00	0.000	0.000	291.01	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	27.995	30.795	0.54	0.80	6.11	118.80	0.000	0.000	301.07	0.00	0.00
10	127.00	RFS APXVSPP18-C-A20	3	27.995	30.795	0.66	0.80	15.98	153.90	0.000	0.000	787.16	0.00	0.00
11	127.00	RFS ACU-A20-N RETs	4	27.995	30.795	0.54	0.80	0.30	3.60	0.000	0.000	14.79	0.00	0.00
12	127.00	RFS APXVTM14-C-I20	3	27.995	30.795	0.63	0.80	12.02	151.20	0.000	0.000	592.28	0.00	0.00
13	127.00	Alcatel Lucent	3	27.995	30.795	0.54	0.80	6.51	189.00	0.000	0.000	320.88	0.00	0.00
14	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.68	166.86	0.000	0.000	230.56	0.00	0.00
15	118.00	RRUS 4478 B14	3	27.565	30.322	0.54	0.80	2.65	160.38	0.000	0.000	128.72	0.00	0.00
16	118.00	OPA65R-BU4B	2	27.565	30.322	0.63	0.80	7.51	102.60	0.000	0.000	364.26	0.00	0.00
17	118.00	HPA65R-BU6A	1	27.565	30.322	0.63	0.80	6.00	42.21	0.000	0.000	290.98	0.00	0.00
18	118.00	SBNHH-1D65A	2	27.565	30.322	0.66	0.80	7.81	60.30	0.000	0.000	378.84	0.00	0.00
19	118.00	800 10764 K	1	27.565	30.322	0.60	0.80	3.53	36.72	0.000	0.000	171.16	0.00	0.00
20	118.00	4426 B66	3	27.565	30.322	0.54	0.80	2.65	160.38	0.000	0.000	128.72	0.00	0.00
21	118.00	RRUS 4478 B5	3	27.565	30.322	0.54	0.80	2.96	161.73	0.000	0.000	143.54	0.00	0.00
22	118.00	RRUS 32 B30	3	27.565	30.322	0.54	0.80	4.41	162.00	0.000	0.000	213.75	0.00	0.00
23	118.00	Steel Brace	2	27.565	30.322	1.00	1.00	7.40	252.00	0.000	0.000	359.01	0.00	0.00
24	118.00	KMW	1	27.565	30.322	0.56	0.75	2.81	27.72	0.000	0.000	136.45	0.00	0.00
25	118.00	OPA65R-BU6B	1	27.565	30.322	0.79	0.80	6.27	64.08	0.000	0.000	304.32	0.00	0.00
26	118.00	Raycap DC6-48-60-18-8F	3	27.565	30.322	0.80	0.80	2.21	88.56	0.000	0.000	107.12	0.00	0.00
27	118.00	Powerwave LGP13519	18	27.565	30.322	0.54	0.80	3.28	85.86	0.000	0.000	159.15	0.00	0.00
28	118.00	Ericsson RRU-12-RRU	3	27.565	30.322	0.54	0.80	4.34	162.00	0.000	0.000	210.63	0.00	0.00
29	118.00	Ericsson RRU-11-RRU	3	27.565	30.322	0.54	0.80	4.05	136.89	0.000	0.000	196.59	0.00	0.00
30	118.00	Powerwave 7020.00 RET	6	27.565	30.322	0.54	0.80	1.29	11.88	0.000	0.000	62.41	0.00	0.00
31	118.00	LGP21401 TMA	18	27.565	30.322	0.54	0.80	12.45	228.42	0.000	0.000	603.82	0.00	0.00
32	118.00	KMW	1	27.565	30.322	0.60	0.80	4.81	43.65	0.000	0.000	233.46	0.00	0.00
33	118.00	Powerwave 7770	3	27.565	30.322	0.58	0.80	9.64	94.50	0.000	0.000	467.49	0.00	0.00
34	118.00	T-Arms	3	27.565	30.322	0.56	0.75	13.50	945.00	0.000	0.000	654.96	0.00	0.00
35	108.00	APXVAALL24_43-U-NA20	3	27.056	29.762	0.55	0.75	33.24	331.56	0.000	0.000	1583.06	0.00	0.00
36	108.00	4460 Radio	3	27.056	29.762	0.50	0.75	4.30	294.30	0.000	0.000	204.59	0.00	0.00
37	108.00	AIR 6419 B77G	3	27.056	29.762	0.57	0.75	10.81	178.47	0.000	0.000	514.63	0.00	0.00
38	108.00	VV-65A-R1	3	27.056	29.762	0.57	0.75	10.12	142.83	0.000	0.000	482.06	0.00	0.00
39	108.00	Low Profile Platform	1	27.056	29.762	1.00	1.00	22.00	1350.00	0.000	0.000	1047.62	0.00	0.00
40	108.00	4480 Radio	3	27.056	29.762	0.50	0.75	4.30	251.10	0.000	0.000	204.59	0.00	0.00
41	108.00	support rail	1	27.056	29.762	0.75	0.75	9.19	462.60	0.000	0.000	437.50	0.00	0.00
42	108.00	TMA	12	27.056	29.762	0.50	0.75	3.56	113.40	0.000	0.000	169.41	0.00	0.00
43	108.00	Kathrein 782 11056-Bias-T	3	27.056	29.762	0.55	0.75	1.13	29.70	0.000	0.000	53.91	0.00	0.00
44	94.00	RDIDC-9181-PF-48	1	26.277	28.905	0.38	0.75	0.75	19.71	0.000	0.000	34.86	0.00	0.00
45	94.00	TA08025-B604	3	26.277	28.905	0.50	0.75	2.95	172.53	0.000	0.000	136.65	0.00	0.00
46	94.00	TA08025-B605	3	26.277	28.905	0.50	0.75	2.95	202.50	0.000	0.000	136.65	0.00	0.00
47	94.00	MC-PK8-DSH	1	26.277	28.905	1.00	1.00	37.59	1554.30	0.000	0.000	1738.44	0.00	0.00

Discrete Appurtenance Forces

Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 16

Tower Engineering Solutions

48	94.00	MX08FRO665-21	3	26.277	28.905	0.55	0.75	20.80	174.15	0.000	0.000	961.75	0.00	0.00
							Totals:		**11,949.31**			**20,194.26**		

Total Applied Force Summary

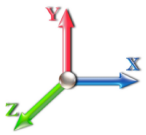
Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 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		455.53	1192.22	0.00	0.00
10.00		444.94	1169.93	0.00	0.00
15.00		434.36	1147.64	0.00	0.00
20.00		449.64	1125.35	0.00	0.00
25.00		459.50	1103.06	0.00	0.00
30.00		465.25	1080.77	0.00	0.00
35.00		467.96	1058.48	0.00	0.00
40.00		468.31	1036.19	0.00	0.00
45.00		466.75	1013.90	0.00	0.00
46.58		145.47	315.09	0.00	0.00
50.00		321.66	1198.27	0.00	0.00
52.41		224.83	831.04	0.00	0.00
55.00		240.49	506.41	0.00	0.00
60.00		462.11	960.70	0.00	0.00
65.00		455.57	938.41	0.00	0.00
70.00		448.12	916.12	0.00	0.00
75.00		439.84	893.83	0.00	0.00
80.00		430.82	871.54	0.00	0.00
85.00		421.13	849.25	0.00	0.00
90.00		410.81	826.96	0.00	0.00
94.00	(11) attachments	3328.82	2768.71	0.00	0.00
94.50		39.14	78.34	0.00	0.00
95.00		40.19	117.18	0.00	0.00
99.00		316.29	917.07	0.00	0.00
100.00		77.99	119.39	0.00	0.00
105.00		383.11	586.04	0.00	0.00
108.00	(32) attachments	4920.92	3498.45	0.00	0.00
110.00		146.39	197.83	0.00	0.00
115.00		358.05	484.18	0.00	0.00
118.00	(80) attachments	5523.55	3310.26	0.00	0.00
120.00		136.00	149.41	0.00	0.00
125.00		331.36	363.12	0.00	0.00
127.00	(28) attachments	3694.83	2417.55	0.00	0.00
130.00		188.47	200.04	0.00	0.00
135.00	(3) attachments	1141.45	1401.52	0.00	-2514.75
136.00	(6) attachments	1390.44	221.01	0.00	498.59
137.00	(6) attachments	1436.78	158.69	0.00	2757.29
138.00	(3) attachments	115.60	72.43	0.00	0.00
139.00		56.96	49.50	0.00	0.00
	Totals:	**31,739.44**	**36,145.92**	**0.00**	**741.14**

Calculated Forces

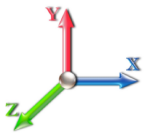
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 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	-36.09	-31.80	0.00	-3238.5	0.00	3238.50	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.722
5.00	-34.78	-31.47	0.00	-3079.4	0.00	3079.48	4110.19	2055.10	8728.63	4370.80	0.11	-0.202	0.000	0.713
10.00	-33.50	-31.14	0.00	-2922.1	0.00	2922.13	4049.41	2024.70	8394.45	4203.46	0.43	-0.408	0.000	0.704
15.00	-32.25	-30.82	0.00	-2766.4	0.00	2766.43	3986.85	1993.43	8062.85	4037.42	0.97	-0.618	0.000	0.694
20.00	-31.01	-30.47	0.00	-2612.3	0.00	2612.36	3922.52	1961.26	7734.09	3872.79	1.73	-0.831	0.000	0.683
25.00	-29.80	-30.11	0.00	-2460.0	0.00	2460.02	3856.42	1928.21	7408.45	3709.73	2.72	-1.049	0.000	0.671
30.00	-28.62	-29.73	0.00	-2309.4	0.00	2309.49	3788.55	1894.27	7086.18	3548.36	3.94	-1.269	0.000	0.659
35.00	-27.45	-29.34	0.00	-2160.8	0.00	2160.85	3718.90	1859.45	6767.57	3388.81	5.39	-1.493	0.000	0.645
40.00	-26.32	-28.95	0.00	-2014.1	0.00	2014.13	3647.48	1823.74	6452.87	3231.23	7.07	-1.720	0.000	0.631
45.00	-25.24	-28.52	0.00	-1869.3	0.00	1869.37	3574.29	1787.15	6142.37	3075.75	9.00	-1.950	0.000	0.615
46.58	-24.87	-28.42	0.00	-1824.4	0.00	1824.40	3550.85	1775.42	6045.37	3027.18	9.66	-2.025	0.000	0.610
50.00	-23.62	-28.11	0.00	-1727.1	0.00	1727.13	3499.33	1749.66	5836.32	2922.50	11.17	-2.186	0.000	0.598
52.41	-22.74	-27.90	0.00	-1659.3	0.00	1659.39	3509.27	1754.63	5876.22	2942.48	12.30	-2.301	0.000	0.571
55.00	-22.16	-27.70	0.00	-1587.1	0.00	1587.14	3469.86	1734.93	5719.21	2863.86	13.58	-2.425	0.000	0.561
60.00	-21.12	-27.28	0.00	-1448.6	0.00	1448.63	3392.44	1696.22	5419.79	2713.92	16.24	-2.646	0.000	0.540
65.00	-20.10	-26.86	0.00	-1312.2	0.00	1312.23	3313.25	1656.62	5125.48	2566.55	19.13	-2.867	0.000	0.518
70.00	-19.11	-26.44	0.00	-1177.9	0.00	1177.94	3227.80	1613.90	4829.83	2418.50	22.25	-3.087	0.000	0.493
75.00	-18.14	-26.01	0.00	-1045.7	0.00	1045.77	3119.66	1559.83	4510.01	2258.36	25.60	-3.303	0.000	0.469
80.00	-17.20	-25.60	0.00	-915.70	0.00	915.70	3011.51	1505.75	4201.15	2103.70	29.17	-3.514	0.000	0.441
85.00	-16.30	-25.18	0.00	-787.72	0.00	787.72	2903.36	1451.68	3903.25	1954.53	32.96	-3.718	0.000	0.409
90.00	-15.43	-24.76	0.00	-661.83	0.00	661.83	2795.21	1397.61	3616.30	1810.84	36.96	-3.912	0.000	0.371
94.00	-12.87	-21.26	0.00	-562.80	0.00	562.80	2708.70	1354.35	3394.63	1699.84	40.30	-4.058	0.000	0.336
94.50	-12.78	-21.22	0.00	-552.24	0.00	552.24	2697.95	1348.98	3367.59	1686.30	40.72	-4.077	0.000	0.332
95.00	-12.64	-21.19	0.00	-541.56	0.00	541.56	2687.07	1343.53	3340.31	1672.64	41.15	-4.095	0.000	0.329
99.00	-11.72	-20.83	0.00	-456.86	0.00	456.86	1671.63	835.82	2062.09	1032.58	44.64	-4.230	0.000	0.450
100.00	-11.56	-20.77	0.00	-435.96	0.00	435.96	1662.31	831.15	2033.69	1018.35	45.53	-4.263	0.000	0.436
105.00	-10.95	-20.37	0.00	-332.14	0.00	332.14	1614.76	807.38	1893.73	948.27	50.11	-4.469	0.000	0.358
108.00	-7.83	-15.20	0.00	-271.03	0.00	271.03	1585.38	792.69	1811.10	906.90	52.95	-4.579	0.000	0.304
110.00	-7.61	-15.05	0.00	-240.64	0.00	240.64	1565.43	782.72	1756.61	879.61	54.88	-4.647	0.000	0.279
115.00	-7.13	-14.67	0.00	-165.38	0.00	165.38	1514.34	757.17	1622.58	812.50	59.82	-4.787	0.000	0.209
118.00	-4.29	-8.89	0.00	-121.38	0.00	121.38	1482.83	741.42	1543.76	773.03	62.85	-4.856	0.000	0.160
120.00	-4.15	-8.74	0.00	-103.60	0.00	103.60	1461.47	730.74	1491.92	747.07	64.89	-4.895	0.000	0.142
125.00	-3.81	-8.39	0.00	-59.88	0.00	59.88	1395.63	697.82	1354.03	678.02	70.06	-4.970	0.000	0.091
127.00	-1.72	-4.50	0.00	-43.11	0.00	43.11	1366.79	683.40	1298.36	650.14	72.14	-4.992	0.000	0.068
130.00	-1.53	-4.29	0.00	-29.62	0.00	29.62	1323.53	661.77	1217.05	609.43	75.28	-5.017	0.000	0.050
135.00	-0.24	-3.03	0.00	-8.16	0.00	8.16	1251.44	625.72	1087.38	544.50	80.54	-5.041	0.000	0.015
136.00	-0.14	-1.63	0.00	-4.63	0.00	4.63	1237.02	618.51	1062.32	531.95	81.60	-5.043	0.000	0.009
137.00	-0.11	-0.18	0.00	-0.24	0.00	0.24	1222.60	611.30	1037.55	519.55	82.65	-5.044	0.000	0.001
138.00	-0.04	-0.06	0.00	-0.06	0.00	0.06	1208.18	604.09	1013.08	507.29	83.71	-5.044	0.000	0.000
139.00	0.00	-0.06	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	84.76	-5.044	0.000	0.000

Wind Loading - Shaft

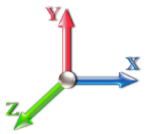
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 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	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	23.306	27.97	159.0	414.5	1684.5
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	22.863	27.44	156.0	434.7	1675.0
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	22.391	26.87	152.7	442.6	1653.2
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	21.908	26.29	158.6	444.9	1625.8
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	21.417	25.70	162.5	444.1	1595.2
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	20.922	25.11	164.9	441.1	1562.5
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	20.424	24.51	166.3	436.6	1528.3
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	19.923	23.91	166.9	430.9	1492.9
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	19.421	23.30	166.7	424.4	1456.6
46.58	Bot - Section 2	1.00	1.08	6.552	7.21	0.00	1.200	1.553	1.58	6.018	7.22	52.0	133.1	452.5
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	3.42	13.113	15.74	115.1	290.6	1669.4
52.41	Top - Section 1	1.00	1.10	6.716	7.39	0.00	1.200	1.571	2.41	9.089	10.91	80.6	202.8	1156.7
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	2.59	9.637	11.56	86.3	215.7	725.4
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	18.223	21.87	166.2	408.1	1369.4
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	17.717	21.26	164.4	399.2	1330.8
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	17.209	20.65	162.2	389.9	1291.7
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	16.701	20.04	159.7	380.2	1252.4
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	16.192	19.43	156.9	370.2	1212.6
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	15.683	18.82	153.9	359.9	1172.6
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	15.174	18.21	150.7	349.4	1132.4
94.00	Appurtenance(s)	1.00	1.25	7.595	8.35	0.00	1.200	1.666	4.00	11.771	14.13	118.0	272.6	877.6
94.50	Bot - Section 3	1.00	1.25	7.604	8.36	0.00	1.200	1.666	0.50	1.439	1.73	14.4	33.7	107.5
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	0.50	1.474	1.77	14.8	34.6	159.8
99.00	Top - Section 2	1.00	1.26	7.679	8.45	0.00	1.200	1.674	4.00	11.523	13.83	116.8	267.8	1243.8
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	1.00	2.841	3.41	28.9	66.8	164.0
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	13.854	16.63	142.2	321.6	794.3
108.00	Appurtenance(s)	1.00	1.29	7.821	8.60	0.00	1.200	1.689	3.00	8.067	9.68	83.3	188.9	463.0
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	2.00	5.275	6.33	54.7	124.1	302.9
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	12.832	15.40	134.2	298.7	731.7
118.00	Appurtenance(s)	1.00	1.31	7.968	8.76	0.00	1.200	1.704	3.00	7.453	8.94	78.4	175.0	425.3
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	2.00	4.866	5.84	51.4	114.8	277.7
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	11.809	14.17	125.7	275.0	668.5
127.00	Appurtenance(s)	1.00	1.33	8.092	8.90	0.00	1.200	1.716	2.00	4.580	5.50	48.9	108.1	259.9
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	3.00	6.716	8.06	72.1	157.8	379.6
135.00	Appurtenance(s)	1.00	1.35	8.197	9.02	0.00	1.200	1.727	5.00	10.785	12.94	116.7	250.8	604.7
136.00	Appurtenance(s)	1.00	1.35	8.210	9.03	0.00	1.200	1.728	1.00	2.095	2.51	22.7	49.7	118.1
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	1.729	1.00	2.075	2.49	22.5	49.2	116.8
138.00	Appurtenance(s)	1.00	1.35	8.235	9.06	0.00	1.200	1.731	1.00	2.054	2.47	22.3	48.7	115.5
139.00		1.00	1.36	8.247	9.07	0.00	1.200	1.732	1.00	2.034	2.44	22.1	48.2	114.2
								Totals:	**139.00**			**4,191.8**		**34,964.7**

Discrete Appurtenance Forces

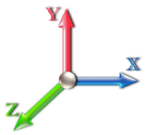
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 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	138.00	E14F05P59 Deplexer	3	8.235	9.058	0.54	0.80	1.93	88.62	0.000	0.000	17.50	0.00	0.00
2	137.00	LPA-80063/4CF ___	6	8.247	9.072	0.74	0.80	32.07	1358.71	0.000	2.000	290.93	0.00	581.86
3	136.00	NHH-85B-R2B	3	8.210	9.031	0.68	0.80	19.36	761.91	0.000	0.000	174.84	0.00	0.00
4	136.00	Antel	3	8.222	9.044	0.67	0.80	15.52	289.26	0.000	1.000	140.39	0.00	140.39
5	135.00	T-Arms w/ Ring Mount	3	8.158	8.974	0.56	0.75	31.45	2028.92	0.000	-3.000	282.19	0.00	-846.58
6	127.00	Alcatel Lucent 800 MHz	3	8.092	8.901	0.54	0.80	5.81	345.72	0.000	0.000	51.74	0.00	0.00
7	127.00	T-Arms	3	8.092	8.901	0.56	0.75	31.36	2023.88	0.000	0.000	279.12	0.00	0.00
8	127.00	Collar Mounts	3	8.092	8.901	0.56	0.75	9.96	-442.84	0.000	0.000	88.67	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	8.092	8.901	0.54	0.80	8.31	386.89	0.000	0.000	73.96	0.00	0.00
10	127.00	RFS APXVSPP18-C-A20	3	8.092	8.901	0.66	0.80	21.45	566.70	0.000	0.000	190.92	0.00	0.00
11	127.00	RFS ACU-A20-N RETs	4	8.092	8.901	0.54	0.80	0.93	16.50	0.000	0.000	8.24	0.00	0.00
12	127.00	RFS APXVTM14-C-I20	3	8.092	8.901	0.63	0.80	14.09	673.31	0.000	0.000	125.46	0.00	0.00
13	127.00	Alcatel Lucent	3	8.092	8.901	0.54	0.80	7.80	576.79	0.000	0.000	69.40	0.00	0.00
14	127.00	Alcatel Lucent 800 MHz	3	8.092	8.901	0.54	0.80	6.60	412.17	0.000	0.000	58.78	0.00	0.00
15	118.00	RRUS 4478 B14	3	7.968	8.765	0.54	0.80	3.47	307.09	0.000	0.000	30.39	0.00	0.00
16	118.00	OPA65R-BU4B	2	7.968	8.765	0.63	0.80	8.78	445.10	0.000	0.000	76.95	0.00	0.00
17	118.00	HPA65R-BU6A	1	7.968	8.765	0.63	0.80	6.83	277.81	0.000	0.000	59.90	0.00	0.00
18	118.00	SBNHH-1D65A	2	7.968	8.765	0.66	0.80	9.21	388.13	0.000	0.000	80.70	0.00	0.00
19	118.00	800 10764 K	1	7.968	8.765	0.60	0.80	4.78	136.95	0.000	0.000	41.92	0.00	0.00
20	118.00	4426 B66	3	7.968	8.765	0.54	0.80	3.47	307.09	0.000	0.000	30.39	0.00	0.00
21	118.00	RRUS 4478 B5	3	7.968	8.765	0.54	0.80	3.82	323.71	0.000	0.000	33.48	0.00	0.00
22	118.00	RRUS 32 B30	3	7.968	8.765	0.54	0.80	5.55	472.30	0.000	0.000	48.62	0.00	0.00
23	118.00	Steel Brace	2	7.968	8.765	1.00	1.00	14.97	559.49	0.000	0.000	131.16	0.00	0.00
24	118.00	KMW	1	7.968	8.765	0.56	0.75	3.84	113.94	0.000	0.000	33.67	0.00	0.00
25	118.00	OPA65R-BU6B	1	7.968	8.765	0.79	0.80	7.26	321.43	0.000	0.000	63.63	0.00	0.00
26	118.00	Raycap DC6-48-60-18-8F	3	7.968	8.765	0.80	0.80	3.23	254.75	0.000	0.000	28.35	0.00	0.00
27	118.00	Powerwave LGP13519	18	7.968	8.765	0.54	0.80	7.56	232.78	0.000	0.000	66.24	0.00	0.00
28	118.00	Ericsson RRU-12-RRU	3	7.968	8.765	0.54	0.80	5.38	365.18	0.000	0.000	47.13	0.00	0.00
29	118.00	Ericsson RRU-11-RRU	3	7.968	8.765	0.54	0.80	5.07	442.36	0.000	0.000	44.46	0.00	0.00
30	118.00	Powerwave 7020.00 RET	6	7.968	8.765	0.54	0.80	2.81	58.40	0.000	0.000	24.59	0.00	0.00
31	118.00	LGP21401 TMA	18	7.968	8.765	0.54	0.80	20.32	616.11	0.000	0.000	178.07	0.00	0.00
32	118.00	KMW	1	7.968	8.765	0.60	0.80	6.45	170.13	0.000	0.000	56.52	0.00	0.00
33	118.00	Powerwave 7770	3	7.968	8.765	0.58	0.80	11.46	519.77	0.000	0.000	100.40	0.00	0.00
34	118.00	T-Arms	3	7.968	8.765	0.56	0.75	25.00	1765.61	0.000	0.000	219.12	0.00	0.00
35	108.00	APXVAALL24_43-U-NA20	3	7.821	8.603	0.55	0.75	36.26	1678.71	0.000	0.000	311.94	0.00	0.00
36	108.00	4460 Radio	3	7.821	8.603	0.50	0.75	5.28	550.15	0.000	0.000	45.42	0.00	0.00
37	108.00	AIR 6419 B77G	3	7.821	8.603	0.57	0.75	13.00	449.16	0.000	0.000	111.81	0.00	0.00
38	108.00	VV-65A-R1	3	7.821	8.603	0.57	0.75	12.00	594.78	0.000	0.000	103.21	0.00	0.00
39	108.00	Low Profile Platform	1	7.821	8.603	1.00	1.00	39.09	2766.61	0.000	0.000	336.29	0.00	0.00
40	108.00	4480 Radio	3	7.821	8.603	0.50	0.75	5.28	492.63	0.000	0.000	45.42	0.00	0.00
41	108.00	support rail	1	7.821	8.603	0.75	0.75	17.88	1721.07	0.000	0.000	153.79	0.00	0.00
42	108.00	TMA	12	7.821	8.603	0.50	0.75	6.89	274.35	0.000	0.000	59.24	0.00	0.00
43	108.00	Kathrein 782 11056-Bias-T	3	7.821	8.603	0.55	0.75	2.12	73.62	0.000	0.000	18.26	0.00	0.00
44	94.00	RDIDC-9181-PF-48	1	7.595	8.355	0.38	0.75	0.96	64.40	0.000	0.000	8.00	0.00	0.00
45	94.00	TA08025-B604	3	7.595	8.355	0.50	0.75	3.76	338.69	0.000	0.000	31.43	0.00	0.00
46	94.00	TA08025-B605	3	7.595	8.355	0.50	0.75	3.76	381.95	0.000	0.000	31.43	0.00	0.00
47	94.00	MC-PK8-DSH	1	7.595	8.355	1.00	1.00	82.67	3310.17	0.000	0.000	690.68	0.00	0.00

Discrete Appurtenance Forces

Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Tower Engineering Solutions

48	94.00	MX08FRO665-21	3	7.595	8.355	0.55	0.75	23.12	863.37	0.000	0.000	193.19	0.00	0.00
							Totals:		**30,724.35**			**5,387.94**		

Total Applied Force Summary

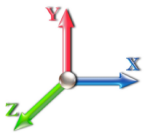
Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 22

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 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		158.99	2004.10	0.00	0.00
10.00		155.97	1994.65	0.00	0.00
15.00		152.75	1972.77	0.00	0.00
20.00		158.57	1945.39	0.00	0.00
25.00		162.48	1914.82	0.00	0.00
30.00		164.93	1882.13	0.00	0.00
35.00		166.31	1847.91	0.00	0.00
40.00		166.86	1812.53	0.00	0.00
45.00		166.74	1776.23	0.00	0.00
46.58		52.05	553.24	0.00	0.00
50.00		115.11	1888.25	0.00	0.00
52.41		80.58	1310.81	0.00	0.00
55.00		86.31	890.95	0.00	0.00
60.00		166.23	1689.00	0.00	0.00
65.00		164.35	1650.38	0.00	0.00
70.00		162.15	1611.36	0.00	0.00
75.00		159.67	1571.97	0.00	0.00
80.00		156.92	1532.26	0.00	0.00
85.00		153.94	1492.25	0.00	0.00
90.00		150.74	1451.99	0.00	0.00
94.00	(11) attachments	1072.74	6091.88	0.00	0.00
94.50		14.44	138.20	0.00	0.00
95.00		14.81	190.85	0.00	0.00
99.00		116.79	1490.57	0.00	0.00
100.00		28.86	225.97	0.00	0.00
105.00		142.18	1103.00	0.00	0.00
108.00	(32) attachments	1268.66	9249.29	0.00	0.00
110.00		54.67	387.87	0.00	0.00
115.00		134.23	944.25	0.00	0.00
118.00	(80) attachments	1474.08	8630.96	0.00	0.00
120.00		51.36	313.98	0.00	0.00
125.00		125.72	759.20	0.00	0.00
127.00	(28) attachments	995.21	4855.33	0.00	0.00
130.00		72.09	424.53	0.00	0.00
135.00	(3) attachments	398.89	2708.46	0.00	-846.58
136.00	(6) attachments	337.93	1184.22	0.00	140.39
137.00	(6) attachments	313.45	1475.49	0.00	581.86
138.00	(3) attachments	39.83	204.12	0.00	0.00
139.00		22.14	114.21	0.00	0.00
	Totals:	**9,579.73**	**73,285.37**	**0.00**	**-124.34**

Calculated Forces

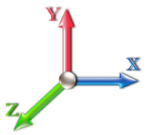
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 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	-73.28	-9.62	0.00	-983.13	0.00	983.13	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.234
5.00	-71.27	-9.54	0.00	-935.03	0.00	935.03	4110.19	2055.10	8728.63	4370.80	0.03	-0.061	0.000	0.231
10.00	-69.26	-9.45	0.00	-887.35	0.00	887.35	4049.41	2024.70	8394.45	4203.46	0.13	-0.124	0.000	0.228
15.00	-67.28	-9.37	0.00	-840.08	0.00	840.08	3986.85	1993.43	8062.85	4037.42	0.30	-0.188	0.000	0.225
20.00	-65.32	-9.28	0.00	-793.23	0.00	793.23	3922.52	1961.26	7734.09	3872.79	0.53	-0.252	0.000	0.221
25.00	-63.40	-9.18	0.00	-746.83	0.00	746.83	3856.42	1928.21	7408.45	3709.73	0.83	-0.318	0.000	0.218
30.00	-61.51	-9.08	0.00	-700.92	0.00	700.92	3788.55	1894.27	7086.18	3548.36	1.20	-0.385	0.000	0.214
35.00	-59.65	-8.97	0.00	-655.54	0.00	655.54	3718.90	1859.45	6767.57	3388.81	1.64	-0.453	0.000	0.210
40.00	-57.83	-8.86	0.00	-610.70	0.00	610.70	3647.48	1823.74	6452.87	3231.23	2.15	-0.522	0.000	0.205
45.00	-56.05	-8.72	0.00	-566.42	0.00	566.42	3574.29	1787.15	6142.37	3075.75	2.73	-0.592	0.000	0.200
46.58	-55.49	-8.69	0.00	-552.68	0.00	552.68	3550.85	1775.42	6045.37	3027.18	2.93	-0.614	0.000	0.198
50.00	-53.59	-8.60	0.00	-522.92	0.00	522.92	3499.33	1749.66	5836.32	2922.50	3.39	-0.663	0.000	0.194
52.41	-52.28	-8.53	0.00	-502.20	0.00	502.20	3509.27	1754.63	5876.22	2942.48	3.73	-0.698	0.000	0.186
55.00	-51.38	-8.48	0.00	-480.10	0.00	480.10	3469.86	1734.93	5719.21	2863.86	4.12	-0.736	0.000	0.182
60.00	-49.69	-8.35	0.00	-437.68	0.00	437.68	3392.44	1696.22	5419.79	2713.92	4.93	-0.803	0.000	0.176
65.00	-48.03	-8.22	0.00	-395.92	0.00	395.92	3313.25	1656.62	5125.48	2566.55	5.81	-0.869	0.000	0.169
70.00	-46.41	-8.09	0.00	-354.83	0.00	354.83	3227.80	1613.90	4829.83	2418.50	6.75	-0.935	0.000	0.161
75.00	-44.83	-7.95	0.00	-314.40	0.00	314.40	3119.66	1559.83	4510.01	2258.36	7.77	-1.000	0.000	0.154
80.00	-43.30	-7.81	0.00	-274.66	0.00	274.66	3011.51	1505.75	4201.15	2103.70	8.85	-1.064	0.000	0.145
85.00	-41.80	-7.67	0.00	-235.60	0.00	235.60	2903.36	1451.68	3903.25	1954.53	10.00	-1.125	0.000	0.135
90.00	-40.34	-7.53	0.00	-197.23	0.00	197.23	2795.21	1397.61	3616.30	1810.84	11.21	-1.183	0.000	0.123
94.00	-34.27	-6.34	0.00	-167.12	0.00	167.12	2708.70	1354.35	3394.63	1699.84	12.22	-1.226	0.000	0.111
94.50	-34.13	-6.33	0.00	-163.97	0.00	163.97	2697.95	1348.98	3367.59	1686.30	12.35	-1.232	0.000	0.110
95.00	-33.94	-6.32	0.00	-160.79	0.00	160.79	2687.07	1343.53	3340.31	1672.64	12.48	-1.237	0.000	0.109
99.00	-32.45	-6.19	0.00	-135.52	0.00	135.52	1671.63	835.82	2062.09	1032.58	13.53	-1.277	0.000	0.151
100.00	-32.22	-6.17	0.00	-129.31	0.00	129.31	1662.31	831.15	2033.69	1018.35	13.80	-1.287	0.000	0.146
105.00	-31.12	-6.03	0.00	-98.44	0.00	98.44	1614.76	807.38	1893.73	948.27	15.18	-1.348	0.000	0.123
108.00	-21.90	-4.55	0.00	-80.35	0.00	80.35	1585.38	792.69	1811.10	906.90	16.04	-1.381	0.000	0.102
110.00	-21.51	-4.50	0.00	-71.24	0.00	71.24	1565.43	782.72	1756.61	879.61	16.62	-1.401	0.000	0.095
115.00	-20.57	-4.35	0.00	-48.74	0.00	48.74	1514.34	757.17	1622.58	812.50	18.11	-1.443	0.000	0.074
118.00	-11.98	-2.66	0.00	-35.68	0.00	35.68	1482.83	741.42	1543.76	773.03	19.03	-1.463	0.000	0.054
120.00	-11.66	-2.61	0.00	-30.35	0.00	30.35	1461.47	730.74	1491.92	747.07	19.64	-1.474	0.000	0.049
125.00	-10.91	-2.47	0.00	-17.31	0.00	17.31	1395.63	697.82	1354.03	678.02	21.20	-1.496	0.000	0.033
127.00	-6.08	-1.34	0.00	-12.38	0.00	12.38	1366.79	683.40	1298.36	650.14	21.83	-1.502	0.000	0.023
130.00	-5.66	-1.26	0.00	-8.34	0.00	8.34	1323.53	661.77	1217.05	609.43	22.77	-1.509	0.000	0.018
135.00	-2.96	-0.79	0.00	-2.03	0.00	2.03	1251.44	625.72	1087.38	544.50	24.36	-1.516	0.000	0.006
136.00	-1.78	-0.42	0.00	-1.10	0.00	1.10	1237.02	618.51	1062.32	531.95	24.68	-1.516	0.000	0.004
137.00	-0.32	-0.07	0.00	-0.10	0.00	0.10	1222.60	611.30	1037.55	519.55	24.99	-1.517	0.000	0.000
138.00	-0.11	-0.03	0.00	-0.03	0.00	0.03	1208.18	604.09	1013.08	507.29	25.31	-1.517	0.000	0.000
139.00	0.00	-0.02	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	25.63	-1.517	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	21
Gust Response Factor	1.10				**Sds**	0.15		**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.07		**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.34		**SA**	0.03	**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		1058.3	0.00	0.03	0.02	16.37	
10.00		1033.5	0.01	0.05	0.03	22.60	
15.00		1008.8	0.02	0.07	0.04	25.04	
20.00		984.04	0.04	0.07	0.04	25.86	
25.00		959.27	0.06	0.07	0.04	26.05	
30.00		934.51	0.09	0.07	0.04	26.06	
35.00		909.74	0.12	0.07	0.03	26.03	
40.00		884.97	0.16	0.07	0.03	25.87	
45.00		860.21	0.20	0.06	0.02	25.34	
46.58	Bot - Section 2	266.12	0.21	0.06	0.02	7.81	
50.00		1149.0	0.24	0.06	0.02	33.02	
52.41	Top - Section 1	795.00	0.27	0.05	0.02	22.14	
55.00		424.71	0.30	0.05	0.01	11.19	
60.00		801.10	0.35	0.03	0.01	17.21	
65.00		776.33	0.41	0.01	0.01	10.50	
70.00		751.56	0.48	-0.01	0.01	2.06	
75.00		726.80	0.55	-0.03	0.01	-6.74	
80.00		702.03	0.63	-0.06	0.02	-14.05	
85.00		677.27	0.71	-0.09	0.03	-18.52	
90.00		652.50	0.79	-0.11	0.05	-19.71	
94.00	Appurtenance(s)	2863.2	0.86	-0.12	0.07	-83.30	
94.50	Bot - Section 3	61.49	0.87	-0.12	0.08	-1.77	
95.00		104.30	0.88	-0.12	0.08	-2.96	
99.00	Top - Section 2	813.34	0.96	-0.12	0.11	-19.14	
100.00		81.03	0.98	-0.11	0.12	-1.77	
105.00		393.90	1.08	-0.08	0.17	-4.28	
108.00	Appurtenance(s)	3732.8	1.14	-0.04	0.21	-8.00	
110.00		148.98	1.18	-0.01	0.24	0.68	
115.00		360.88	1.29	0.11	0.33	8.83	
118.00	Appurtenance(s)	3571.8	1.36	0.22	0.39	137.70	
120.00		135.77	1.41	0.30	0.44	6.63	
125.00		327.86	1.53	0.57	0.58	25.54	
127.00	Appurtenance(s)	2655.9	1.58	0.71	0.64	241.19	
130.00		184.83	1.65	0.95	0.74	20.63	
135.00	Appurtenance(s)	1494.8	1.78	1.46	0.95	224.58	
136.00	Appurtenance(s)	233.09	1.81	1.58	0.99	36.96	
137.00	Appurtenance(s)	176.33	1.84	1.71	1.04	29.46	
138.00	Appurtenance(s)	80.48	1.86	1.84	1.09	14.15	
139.00		55.01	1.89	1.98	1.14	10.16	
	Totals:	**33,831.9**				**899.4**	**Total Wind:** **31,739.4**

Calculated Forces

Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Iterations 21

Gust Response Factor	1.10			**Sds**	0.15			**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.07			**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.34	**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	-48.19	-1.08	0.00	-113.72	0.00	113.72	4169.21	2084.60	9065.11	4539.29		0.00	0.00	0.037
5.00	-46.60	-1.07	0.00	-108.31	0.00	108.31	4110.19	2055.10	8728.63	4370.80		0.00	-0.01	0.036
10.00	-45.04	-1.05	0.00	-102.96	0.00	102.96	4049.41	2024.70	8394.45	4203.46		0.02	-0.01	0.036
15.00	-43.51	-1.03	0.00	-97.69	0.00	97.69	3986.85	1993.43	8062.85	4037.42		0.03	-0.02	0.035
20.00	-42.01	-1.01	0.00	-92.52	0.00	92.52	3922.52	1961.26	7734.09	3872.79		0.06	-0.03	0.035
25.00	-40.54	-0.99	0.00	-87.46	0.00	87.46	3856.42	1928.21	7408.45	3709.73		0.10	-0.04	0.034
30.00	-39.10	-0.97	0.00	-82.50	0.00	82.50	3788.55	1894.27	7086.18	3548.36		0.14	-0.04	0.034
35.00	-37.69	-0.95	0.00	-77.65	0.00	77.65	3718.90	1859.45	6767.57	3388.81		0.19	-0.05	0.033
40.00	-36.31	-0.93	0.00	-72.91	0.00	72.91	3647.48	1823.74	6452.87	3231.23		0.25	-0.06	0.033
45.00	-34.96	-0.90	0.00	-68.28	0.00	68.28	3574.29	1787.15	6142.37	3075.75		0.32	-0.07	0.032
46.58	-34.54	-0.90	0.00	-66.86	0.00	66.86	3550.85	1775.42	6045.37	3027.18		0.34	-0.07	0.032
50.00	-32.94	-0.86	0.00	-63.79	0.00	63.79	3499.33	1749.66	5836.32	2922.50		0.40	-0.08	0.031
52.41	-31.83	-0.84	0.00	-61.71	0.00	61.71	3509.27	1754.63	5876.22	2942.48		0.44	-0.08	0.030
55.00	-31.16	-0.83	0.00	-59.52	0.00	59.52	3469.86	1734.93	5719.21	2863.86		0.48	-0.09	0.030
60.00	-29.87	-0.82	0.00	-55.35	0.00	55.35	3392.44	1696.22	5419.79	2713.92		0.58	-0.10	0.029
65.00	-28.62	-0.81	0.00	-51.25	0.00	51.25	3313.25	1656.62	5125.48	2566.55		0.68	-0.10	0.029
70.00	-27.40	-0.81	0.00	-47.19	0.00	47.19	3227.80	1613.90	4829.83	2418.50		0.80	-0.11	0.028
75.00	-26.21	-0.81	0.00	-43.13	0.00	43.13	3119.66	1559.83	4510.01	2258.36		0.92	-0.12	0.028
80.00	-25.05	-0.81	0.00	-39.07	0.00	39.07	3011.51	1505.75	4201.15	2103.70		1.05	-0.13	0.027
85.00	-23.91	-0.82	0.00	-35.00	0.00	35.00	2903.36	1451.68	3903.25	1954.53		1.19	-0.14	0.026
90.00	-22.81	-0.82	0.00	-30.92	0.00	30.92	2795.21	1397.61	3616.30	1810.84		1.34	-0.15	0.025
94.00	-19.12	-0.81	0.00	-27.66	0.00	27.66	2708.70	1354.35	3394.63	1699.84		1.47	-0.15	0.023
94.50	-19.02	-0.81	0.00	-27.26	0.00	27.26	2697.95	1348.98	3367.59	1686.30		1.49	-0.16	0.023
95.00	-18.86	-0.81	0.00	-26.85	0.00	26.85	2687.07	1343.53	3340.31	1672.64		1.50	-0.16	0.023
99.00	-17.64	-0.81	0.00	-23.62	0.00	23.62	1671.63	835.82	2062.09	1032.58		1.64	-0.16	0.033
100.00	-17.48	-0.81	0.00	-22.81	0.00	22.81	1662.31	831.15	2033.69	1018.35		1.67	-0.17	0.033
105.00	-16.70	-0.81	0.00	-18.77	0.00	18.77	1614.76	807.38	1893.73	948.27		1.85	-0.18	0.030
108.00	-12.03	-0.79	0.00	-16.35	0.00	16.35	1585.38	792.69	1811.10	906.90		1.96	-0.18	0.026
110.00	-11.77	-0.79	0.00	-14.76	0.00	14.76	1565.43	782.72	1756.61	879.61		2.04	-0.19	0.024
115.00	-11.12	-0.78	0.00	-10.79	0.00	10.79	1514.34	757.17	1622.58	812.50		2.24	-0.20	0.021
118.00	-6.71	-0.63	0.00	-8.43	0.00	8.43	1482.83	741.42	1543.76	773.03		2.37	-0.20	0.015
120.00	-6.51	-0.63	0.00	-7.17	0.00	7.17	1461.47	730.74	1491.92	747.07		2.45	-0.20	0.014
125.00	-6.03	-0.60	0.00	-4.04	0.00	4.04	1395.63	697.82	1354.03	678.02		2.67	-0.21	0.010
127.00	-2.80	-0.35	0.00	-2.84	0.00	2.84	1366.79	683.40	1298.36	650.14		2.75	-0.21	0.006
130.00	-2.54	-0.32	0.00	-1.80	0.00	1.80	1323.53	661.77	1217.05	609.43		2.89	-0.21	0.005
135.00	-0.67	-0.09	0.00	-0.18	0.00	0.18	1251.44	625.72	1087.38	544.50		3.11	-0.21	0.001
136.00	-0.37	-0.05	0.00	-0.09	0.00	0.09	1237.02	618.51	1062.32	531.95		3.15	-0.21	0.000
137.00	-0.16	-0.02	0.00	-0.04	0.00	0.04	1222.60	611.30	1037.55	519.55		3.20	-0.21	0.000
138.00	-0.07	-0.01	0.00	-0.01	0.00	0.01	1208.18	604.09	1013.08	507.29		3.24	-0.21	0.000
139.00	0.00	-0.01	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18		3.29	-0.21	0.000

Seismic Segment Forces (Factored)

Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E							**Iterations**	21
Gust Response Factor	1.10				**Sds**	0.15		**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.07		**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.34		**SA**	0.03	**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		1058.3	0.00	0.03	0.02	16.37	
10.00		1033.5	0.01	0.05	0.03	22.60	
15.00		1008.8	0.02	0.07	0.04	25.04	
20.00		984.04	0.04	0.07	0.04	25.86	
25.00		959.27	0.06	0.07	0.04	26.05	
30.00		934.51	0.09	0.07	0.04	26.06	
35.00		909.74	0.12	0.07	0.03	26.03	
40.00		884.97	0.16	0.07	0.03	25.87	
45.00		860.21	0.20	0.06	0.02	25.34	
46.58	Bot - Section 2	266.12	0.21	0.06	0.02	7.81	
50.00		1149.0	0.24	0.06	0.02	33.02	
52.41	Top - Section 1	795.00	0.27	0.05	0.02	22.14	
55.00		424.71	0.30	0.05	0.01	11.19	
60.00		801.10	0.35	0.03	0.01	17.21	
65.00		776.33	0.41	0.01	0.01	10.50	
70.00		751.56	0.48	-0.01	0.01	2.06	
75.00		726.80	0.55	-0.03	0.01	-6.74	
80.00		702.03	0.63	-0.06	0.02	-14.05	
85.00		677.27	0.71	-0.09	0.03	-18.52	
90.00		652.50	0.79	-0.11	0.05	-19.71	
94.00	Appurtenance(s)	2863.2	0.86	-0.12	0.07	-83.30	
94.50	Bot - Section 3	61.49	0.87	-0.12	0.08	-1.77	
95.00		104.30	0.88	-0.12	0.08	-2.96	
99.00	Top - Section 2	813.34	0.96	-0.12	0.11	-19.14	
100.00		81.03	0.98	-0.11	0.12	-1.77	
105.00		393.90	1.08	-0.08	0.17	-4.28	
108.00	Appurtenance(s)	3732.8	1.14	-0.04	0.21	-8.00	
110.00		148.98	1.18	-0.01	0.24	0.68	
115.00		360.88	1.29	0.11	0.33	8.83	
118.00	Appurtenance(s)	3571.8	1.36	0.22	0.39	137.70	
120.00		135.77	1.41	0.30	0.44	6.63	
125.00		327.86	1.53	0.57	0.58	25.54	
127.00	Appurtenance(s)	2655.9	1.58	0.71	0.64	241.19	
130.00		184.83	1.65	0.95	0.74	20.63	
135.00	Appurtenance(s)	1494.8	1.78	1.46	0.95	224.58	
136.00	Appurtenance(s)	233.09	1.81	1.58	0.99	36.96	
137.00	Appurtenance(s)	176.33	1.84	1.71	1.04	29.46	
138.00	Appurtenance(s)	80.48	1.86	1.84	1.09	14.15	
139.00		55.01	1.89	1.98	1.14	10.16	
	Totals:	**33,831.9**				**899.4**	**Total Wind:** **31,739.4**

Calculated Forces

Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 27

Tower Engineering Solutions

Load Case:	0.9D + 1.0E							**Iterations**	21
Gust Response Factor	1.10			**Sds**	0.15			**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.07			**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.34	**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	-36.15	-1.08	0.00	-112.40	0.00	112.40	4169.21	2084.60	9065.11	4539.29		0.00	0.00	0.033
5.00	-34.95	-1.07	0.00	-107.00	0.00	107.00	4110.19	2055.10	8728.63	4370.80		0.00	-0.01	0.033
10.00	-33.78	-1.05	0.00	-101.65	0.00	101.65	4049.41	2024.70	8394.45	4203.46		0.01	-0.01	0.033
15.00	-32.64	-1.03	0.00	-96.40	0.00	96.40	3986.85	1993.43	8062.85	4037.42		0.03	-0.02	0.032
20.00	-31.51	-1.01	0.00	-91.26	0.00	91.26	3922.52	1961.26	7734.09	3872.79		0.06	-0.03	0.032
25.00	-30.41	-0.98	0.00	-86.23	0.00	86.23	3856.42	1928.21	7408.45	3709.73		0.09	-0.04	0.031
30.00	-29.33	-0.96	0.00	-81.31	0.00	81.31	3788.55	1894.27	7086.18	3548.36		0.14	-0.04	0.031
35.00	-28.27	-0.94	0.00	-76.50	0.00	76.50	3718.90	1859.45	6767.57	3388.81		0.19	-0.05	0.030
40.00	-27.23	-0.92	0.00	-71.81	0.00	71.81	3647.48	1823.74	6452.87	3231.23		0.25	-0.06	0.030
45.00	-26.22	-0.89	0.00	-67.23	0.00	67.23	3574.29	1787.15	6142.37	3075.75		0.31	-0.07	0.029
46.58	-25.90	-0.89	0.00	-65.83	0.00	65.83	3550.85	1775.42	6045.37	3027.18		0.34	-0.07	0.029
50.00	-24.70	-0.85	0.00	-62.80	0.00	62.80	3499.33	1749.66	5836.32	2922.50		0.39	-0.08	0.029
52.41	-23.87	-0.83	0.00	-60.74	0.00	60.74	3509.27	1754.63	5876.22	2942.48		0.43	-0.08	0.027
55.00	-23.37	-0.82	0.00	-58.59	0.00	58.59	3469.86	1734.93	5719.21	2863.86		0.48	-0.09	0.027
60.00	-22.41	-0.81	0.00	-54.48	0.00	54.48	3392.44	1696.22	5419.79	2713.92		0.57	-0.09	0.027
65.00	-21.47	-0.80	0.00	-50.45	0.00	50.45	3313.25	1656.62	5125.48	2566.55		0.67	-0.10	0.026
70.00	-20.55	-0.80	0.00	-46.46	0.00	46.46	3227.80	1613.90	4829.83	2418.50		0.78	-0.11	0.026
75.00	-19.66	-0.80	0.00	-42.48	0.00	42.48	3119.66	1559.83	4510.01	2258.36		0.91	-0.12	0.025
80.00	-18.79	-0.80	0.00	-38.49	0.00	38.49	3011.51	1505.75	4201.15	2103.70		1.04	-0.13	0.025
85.00	-17.94	-0.80	0.00	-34.49	0.00	34.49	2903.36	1451.68	3903.25	1954.53		1.17	-0.14	0.024
90.00	-17.11	-0.80	0.00	-30.49	0.00	30.49	2795.21	1397.61	3616.30	1810.84		1.32	-0.15	0.023
94.00	-14.34	-0.79	0.00	-27.29	0.00	27.29	2708.70	1354.35	3394.63	1699.84		1.45	-0.15	0.021
94.50	-14.26	-0.79	0.00	-26.90	0.00	26.90	2697.95	1348.98	3367.59	1686.30		1.46	-0.15	0.021
95.00	-14.14	-0.79	0.00	-26.50	0.00	26.50	2687.07	1343.53	3340.31	1672.64		1.48	-0.15	0.021
99.00	-13.23	-0.79	0.00	-23.32	0.00	23.32	1671.63	835.82	2062.09	1032.58		1.61	-0.16	0.030
100.00	-13.11	-0.79	0.00	-22.53	0.00	22.53	1662.31	831.15	2033.69	1018.35		1.65	-0.16	0.030
105.00	-12.52	-0.79	0.00	-18.55	0.00	18.55	1614.76	807.38	1893.73	948.27		1.82	-0.17	0.027
108.00	-9.02	-0.78	0.00	-16.17	0.00	16.17	1585.38	792.69	1811.10	906.90		1.93	-0.18	0.024
110.00	-8.83	-0.78	0.00	-14.60	0.00	14.60	1565.43	782.72	1756.61	879.61		2.01	-0.18	0.022
115.00	-8.34	-0.77	0.00	-10.68	0.00	10.68	1514.34	757.17	1622.58	812.50		2.21	-0.19	0.019
118.00	-5.03	-0.63	0.00	-8.36	0.00	8.36	1482.83	741.42	1543.76	773.03		2.33	-0.20	0.014
120.00	-4.88	-0.62	0.00	-7.10	0.00	7.10	1461.47	730.74	1491.92	747.07		2.42	-0.20	0.013
125.00	-4.52	-0.59	0.00	-4.01	0.00	4.01	1395.63	697.82	1354.03	678.02		2.63	-0.21	0.009
127.00	-2.10	-0.34	0.00	-2.82	0.00	2.82	1366.79	683.40	1298.36	650.14		2.71	-0.21	0.006
130.00	-1.90	-0.32	0.00	-1.79	0.00	1.79	1323.53	661.77	1217.05	609.43		2.84	-0.21	0.004
135.00	-0.50	-0.09	0.00	-0.18	0.00	0.18	1251.44	625.72	1087.38	544.50		3.06	-0.21	0.001
136.00	-0.28	-0.05	0.00	-0.09	0.00	0.09	1237.02	618.51	1062.32	531.95		3.11	-0.21	0.000
137.00	-0.12	-0.02	0.00	-0.03	0.00	0.03	1222.60	611.30	1037.55	519.55		3.15	-0.21	0.000
138.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	1208.18	604.09	1013.08	507.29		3.20	-0.21	0.000
139.00	0.00	-0.01	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18		3.24	-0.21	0.000

Wind Loading - Shaft

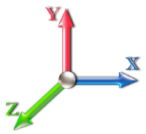
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	249.26	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	243.53	0.650	0.000	5.00	22.271	14.48	118.5	0.0	1058.3
10.00		1.00	0.85	7.442	8.19	237.81	0.650	0.000	5.00	21.754	14.14	115.8	0.0	1033.6
15.00		1.00	0.85	7.442	8.19	232.08	0.650	0.000	5.00	21.236	13.80	113.0	0.0	1008.8
20.00		1.00	0.90	7.896	8.69	233.16	0.650	0.000	5.00	20.719	13.47	117.0	0.0	984.0
25.00		1.00	0.95	8.276	9.10	232.67	0.650	0.000	5.00	20.201	13.13	119.5	0.0	959.3
30.00		1.00	0.98	8.600	9.46	231.02	0.650	0.000	5.00	19.684	12.79	121.0	0.0	934.5
35.00		1.00	1.01	8.883	9.77	228.55	0.650	0.000	5.00	19.166	12.46	121.7	0.0	909.7
40.00		1.00	1.04	9.137	10.05	225.44	0.650	0.000	5.00	18.649	12.12	121.8	0.0	885.0
45.00		1.00	1.07	9.366	10.30	221.83	0.650	0.000	5.00	18.131	11.79	121.4	0.0	860.2
46.58	Bot - Section 2	1.00	1.08	9.434	10.38	220.60	0.650	0.000	1.58	5.610	3.65	37.8	0.0	266.1
50.00		1.00	1.09	9.576	10.53	217.81	0.650	0.000	3.42	12.221	7.94	83.7	0.0	1149.1
52.41	Top - Section 1	1.00	1.10	9.672	10.64	215.75	0.650	0.000	2.41	8.458	5.50	58.5	0.0	795.0
55.00		1.00	1.12	9.770	10.75	217.47	0.650	0.000	2.59	8.956	5.82	62.6	0.0	424.7
60.00		1.00	1.14	9.951	10.95	212.85	0.650	0.000	5.00	16.896	10.98	120.2	0.0	801.1
65.00		1.00	1.16	10.120	11.13	207.97	0.650	0.000	5.00	16.379	10.65	118.5	0.0	776.3
70.00		1.00	1.17	10.279	11.31	202.87	0.650	0.000	5.00	15.861	10.31	116.6	0.0	751.6
75.00		1.00	1.19	10.430	11.47	197.58	0.650	0.000	5.00	15.344	9.97	114.4	0.0	726.8
80.00		1.00	1.21	10.572	11.63	192.10	0.650	0.000	5.00	14.827	9.64	112.1	0.0	702.0
85.00		1.00	1.22	10.708	11.78	186.46	0.650	0.000	5.00	14.309	9.30	109.6	0.0	677.3
90.00		1.00	1.24	10.838	11.92	180.68	0.650	0.000	5.00	13.792	8.96	106.9	0.0	652.5
94.00	Appurtenance(s)	1.00	1.25	10.937	12.03	175.96	0.650	0.000	4.00	10.661	6.93	83.4	0.0	504.2
94.50	Bot - Section 3	1.00	1.25	10.949	12.04	175.36	0.650	0.000	0.50	1.301	0.85	10.2	0.0	61.5
95.00		1.00	1.25	10.962	12.06	174.76	0.650	0.000	0.50	1.334	0.87	10.5	0.0	104.3
99.00	Top - Section 2	1.00	1.26	11.057	12.16	169.94	0.650	0.000	4.00	10.407	6.76	82.3	0.0	813.3
100.00		1.00	1.27	11.081	12.19	171.58	0.650	0.000	1.00	2.561	1.66	20.3	0.0	81.0
105.00		1.00	1.28	11.195	12.31	165.44	0.650	0.000	5.00	12.451	8.09	99.7	0.0	393.9
108.00	Appurtenance(s)	1.00	1.29	11.262	12.39	161.71	0.650	0.000	3.00	7.222	4.69	58.2	0.0	228.4
110.00		1.00	1.29	11.305	12.44	159.20	0.650	0.000	2.00	4.711	3.06	38.1	0.0	149.0
115.00		1.00	1.30	11.412	12.55	152.85	0.650	0.000	5.00	11.416	7.42	93.1	0.0	360.9
118.00	Appurtenance(s)	1.00	1.31	11.474	12.62	149.00	0.650	0.000	3.00	6.601	4.29	54.2	0.0	208.6
120.00		1.00	1.32	11.514	12.67	146.42	0.650	0.000	2.00	4.297	2.79	35.4	0.0	135.8
125.00		1.00	1.33	11.614	12.78	139.90	0.650	0.000	5.00	10.381	6.75	86.2	0.0	327.9
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	137.27	0.650	0.000	2.00	4.008	2.60	33.4	0.0	126.5
130.00		1.00	1.34	11.710	12.88	133.30	0.650	0.000	3.00	5.856	3.81	49.0	0.0	184.8
135.00	Appurtenance(s)	1.00	1.35	11.803	12.98	126.62	0.650	0.000	5.00	9.346	6.07	78.9	0.0	294.8
136.00	Appurtenance(s)	1.00	1.35	11.822	13.00	125.27	0.650	0.000	1.00	1.807	1.17	15.3	0.0	57.0
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	123.92	0.650	0.000	1.00	1.786	1.16	15.1	0.0	56.3
138.00	Appurtenance(s)	1.00	1.35	11.858	13.04	122.57	0.650	0.000	1.00	1.766	1.15	15.0	0.0	55.7
139.00		1.00	1.36	11.876	13.06	121.22	0.650	0.000	1.00	1.745	1.13	14.8	0.0	55.0
								Totals:	**139.00**			**3,003.4**		**20,554.8**

Discrete Appurtenance Forces

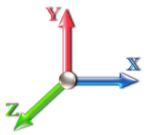
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	138.00	E14F05P59 Deplexer	3	11.858	13.044	0.54	0.80	1.16	24.81	0.000	0.000	15.10	0.00	0.00
2	137.00	LPA-80063/4CF ___	6	11.876	13.064	0.74	0.80	27.45	120.00	0.000	2.000	358.65	0.00	717.30
3	136.00	NHH-85B-R2B	3	11.822	13.004	0.68	0.80	16.67	131.10	0.000	0.000	216.73	0.00	0.00
4	136.00	Antel	3	11.840	13.024	0.67	0.80	9.96	45.00	0.000	1.000	129.71	0.00	129.71
5	135.00	T-Arms w/ Ring Mount	3	11.748	12.922	0.56	0.75	16.88	1200.00	0.000	-3.000	218.07	0.00	-654.20
6	127.00	Alcatel Lucent 800 MHz	3	11.653	12.818	0.54	0.80	4.00	159.00	0.000	0.000	51.32	0.00	0.00
7	127.00	T-Arms	3	11.653	12.818	0.56	0.75	16.88	1200.00	0.000	0.000	216.30	0.00	0.00
8	127.00	Collar Mounts	3	11.653	12.818	0.56	0.75	5.91	300.00	0.000	0.000	75.71	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	11.653	12.818	0.54	0.80	6.11	132.00	0.000	0.000	78.32	0.00	0.00
10	127.00	RFS APXVSPP18-C-A20	3	11.653	12.818	0.66	0.80	15.98	171.00	0.000	0.000	204.78	0.00	0.00
11	127.00	RFS ACU-A20-N RETs	4	11.653	12.818	0.54	0.80	0.30	4.00	0.000	0.000	3.85	0.00	0.00
12	127.00	RFS APXVTM14-C-I20	3	11.653	12.818	0.63	0.80	12.02	168.00	0.000	0.000	154.08	0.00	0.00
13	127.00	Alcatel Lucent	3	11.653	12.818	0.54	0.80	6.51	210.00	0.000	0.000	83.47	0.00	0.00
14	127.00	Alcatel Lucent 800 MHz	3	11.653	12.818	0.54	0.80	4.68	185.40	0.000	0.000	59.98	0.00	0.00
15	118.00	RRUS 4478 B14	3	11.474	12.621	0.54	0.80	2.65	178.20	0.000	0.000	33.49	0.00	0.00
16	118.00	OPA65R-BU4B	2	11.474	12.621	0.63	0.80	7.51	114.00	0.000	0.000	94.76	0.00	0.00
17	118.00	HPA65R-BU6A	1	11.474	12.621	0.63	0.80	6.00	46.90	0.000	0.000	75.70	0.00	0.00
18	118.00	SBNHH-1D65A	2	11.474	12.621	0.66	0.80	7.81	67.00	0.000	0.000	98.55	0.00	0.00
19	118.00	800 10764 K	1	11.474	12.621	0.60	0.80	3.53	40.80	0.000	0.000	44.53	0.00	0.00
20	118.00	4426 B66	3	11.474	12.621	0.54	0.80	2.65	178.20	0.000	0.000	33.49	0.00	0.00
21	118.00	RRUS 4478 B5	3	11.474	12.621	0.54	0.80	2.96	179.70	0.000	0.000	37.34	0.00	0.00
22	118.00	RRUS 32 B30	3	11.474	12.621	0.54	0.80	4.41	180.00	0.000	0.000	55.61	0.00	0.00
23	118.00	Steel Brace	2	11.474	12.621	1.00	1.00	7.40	280.00	0.000	0.000	93.40	0.00	0.00
24	118.00	KMW	1	11.474	12.621	0.56	0.75	2.81	30.80	0.000	0.000	35.50	0.00	0.00
25	118.00	OPA65R-BU6B	1	11.474	12.621	0.79	0.80	6.27	71.20	0.000	0.000	79.17	0.00	0.00
26	118.00	Raycap DC6-48-60-18-8F	3	11.474	12.621	0.80	0.80	2.21	98.40	0.000	0.000	27.87	0.00	0.00
27	118.00	Powerwave LGP13519	18	11.474	12.621	0.54	0.80	3.28	95.40	0.000	0.000	41.40	0.00	0.00
28	118.00	Ericsson RRU-12-RRU	3	11.474	12.621	0.54	0.80	4.34	180.00	0.000	0.000	54.80	0.00	0.00
29	118.00	Ericsson RRU-11-RRU	3	11.474	12.621	0.54	0.80	4.05	152.10	0.000	0.000	51.14	0.00	0.00
30	118.00	Powerwave 7020.00 RET	6	11.474	12.621	0.54	0.80	1.29	13.20	0.000	0.000	16.24	0.00	0.00
31	118.00	LGP21401 TMA	18	11.474	12.621	0.54	0.80	12.45	253.80	0.000	0.000	157.08	0.00	0.00
32	118.00	KMW	1	11.474	12.621	0.60	0.80	4.81	48.50	0.000	0.000	60.73	0.00	0.00
33	118.00	Powerwave 7770	3	11.474	12.621	0.58	0.80	9.64	105.00	0.000	0.000	121.62	0.00	0.00
34	118.00	T-Arms	3	11.474	12.621	0.56	0.75	13.50	1050.00	0.000	0.000	170.38	0.00	0.00
35	108.00	APXVAALL24_43-U-NA20	3	11.262	12.388	0.55	0.75	33.24	368.40	0.000	0.000	411.83	0.00	0.00
36	108.00	4460 Radio	3	11.262	12.388	0.50	0.75	4.30	327.00	0.000	0.000	53.22	0.00	0.00
37	108.00	AIR 6419 B77G	3	11.262	12.388	0.57	0.75	10.81	198.30	0.000	0.000	133.88	0.00	0.00
38	108.00	VV-65A-R1	3	11.262	12.388	0.57	0.75	10.12	158.70	0.000	0.000	125.41	0.00	0.00
39	108.00	Low Profile Platform	1	11.262	12.388	1.00	1.00	22.00	1500.00	0.000	0.000	272.53	0.00	0.00
40	108.00	4480 Radio	3	11.262	12.388	0.50	0.75	4.30	279.00	0.000	0.000	53.22	0.00	0.00
41	108.00	support rail	1	11.262	12.388	0.75	0.75	9.19	514.00	0.000	0.000	113.81	0.00	0.00
42	108.00	TMA	12	11.262	12.388	0.50	0.75	3.56	126.00	0.000	0.000	44.07	0.00	0.00
43	108.00	Kathrein 782 11056-Bias-T	3	11.262	12.388	0.55	0.75	1.13	33.00	0.000	0.000	14.03	0.00	0.00
44	94.00	RDIDC-9181-PF-48	1	10.937	12.031	0.38	0.75	0.75	21.90	0.000	0.000	9.07	0.00	0.00
45	94.00	TA08025-B604	3	10.937	12.031	0.50	0.75	2.95	191.70	0.000	0.000	35.55	0.00	0.00
46	94.00	TA08025-B605	3	10.937	12.031	0.50	0.75	2.95	225.00	0.000	0.000	35.55	0.00	0.00
47	94.00	MC-PK8-DSH	1	10.937	12.031	1.00	1.00	37.59	1727.00	0.000	0.000	452.25	0.00	0.00

Discrete Appurtenance Forces

Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 30

Tower Engineering Solutions

48	94.00	MX08FRO665-21	3	10.937	12.031	0.55	0.75	20.80	193.50	0.000	0.000	250.20	0.00	0.00
							Totals:		**13,277.01**			**5,253.45**		

Total Applied Force Summary

Structure:	CT46123-A-SBA		**Code:**	TIA-222-G	5/5/2022
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	C - Very Dense Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 31

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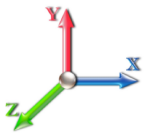
Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		118.50	1324.69	0.00	0.00
10.00		115.75	1299.92	0.00	0.00
15.00		113.00	1275.16	0.00	0.00
20.00		116.97	1250.39	0.00	0.00
25.00		119.54	1225.62	0.00	0.00
30.00		121.03	1200.86	0.00	0.00
35.00		121.74	1176.09	0.00	0.00
40.00		121.83	1151.32	0.00	0.00
45.00		121.42	1126.56	0.00	0.00
46.58		37.84	350.11	0.00	0.00
50.00		83.68	1331.41	0.00	0.00
52.41		58.49	923.38	0.00	0.00
55.00		62.56	562.67	0.00	0.00
60.00		120.22	1067.45	0.00	0.00
65.00		118.52	1042.68	0.00	0.00
70.00		116.58	1017.91	0.00	0.00
75.00		114.42	993.15	0.00	0.00
80.00		112.08	968.38	0.00	0.00
85.00		109.55	943.62	0.00	0.00
90.00		106.87	918.85	0.00	0.00
94.00	(11) attachments	865.98	3076.35	0.00	0.00
94.50		10.18	87.05	0.00	0.00
95.00		10.46	130.20	0.00	0.00
99.00		82.28	1018.97	0.00	0.00
100.00		20.29	132.65	0.00	0.00
105.00		99.66	651.15	0.00	0.00
108.00	(32) attachments	1280.16	3887.17	0.00	0.00
110.00		38.08	219.82	0.00	0.00
115.00		93.15	537.98	0.00	0.00
118.00	(80) attachments	1436.93	3678.06	0.00	0.00
120.00		35.38	166.01	0.00	0.00
125.00		86.20	403.46	0.00	0.00
127.00	(28) attachments	961.19	2686.16	0.00	0.00
130.00		49.03	222.27	0.00	0.00
135.00	(3) attachments	296.94	1557.24	0.00	-654.20
136.00	(6) attachments	361.72	245.57	0.00	129.71
137.00	(6) attachments	373.77	176.33	0.00	717.30
138.00	(3) attachments	30.07	80.48	0.00	0.00
139.00		14.82	55.01	0.00	0.00
	Totals:	**8,256.88**	**40,162.13**	**0.00**	**192.80**

Calculated Forces

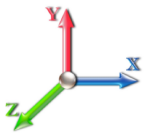
Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-40.16	-8.28	0.00	-846.50	0.00	846.50	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.196
5.00	-38.83	-8.19	0.00	-805.13	0.00	805.13	4110.19	2055.10	8728.63	4370.80	0.03	-0.053	0.000	0.194
10.00	-37.52	-8.11	0.00	-764.17	0.00	764.17	4049.41	2024.70	8394.45	4203.46	0.11	-0.107	0.000	0.191
15.00	-36.24	-8.03	0.00	-723.62	0.00	723.62	3986.85	1993.43	8062.85	4037.42	0.25	-0.162	0.000	0.188
20.00	-34.98	-7.94	0.00	-683.47	0.00	683.47	3922.52	1961.26	7734.09	3872.79	0.45	-0.217	0.000	0.185
25.00	-33.75	-7.85	0.00	-643.76	0.00	643.76	3856.42	1928.21	7408.45	3709.73	0.71	-0.274	0.000	0.182
30.00	-32.54	-7.76	0.00	-604.50	0.00	604.50	3788.55	1894.27	7086.18	3548.36	1.03	-0.332	0.000	0.179
35.00	-31.35	-7.66	0.00	-565.72	0.00	565.72	3718.90	1859.45	6767.57	3388.81	1.41	-0.391	0.000	0.175
40.00	-30.20	-7.56	0.00	-527.42	0.00	527.42	3647.48	1823.74	6452.87	3231.23	1.85	-0.450	0.000	0.172
45.00	-29.07	-7.45	0.00	-489.61	0.00	489.61	3574.29	1787.15	6142.37	3075.75	2.35	-0.510	0.000	0.167
46.58	-28.71	-7.43	0.00	-477.87	0.00	477.87	3550.85	1775.42	6045.37	3027.18	2.53	-0.530	0.000	0.166
50.00	-27.38	-7.35	0.00	-452.45	0.00	452.45	3499.33	1749.66	5836.32	2922.50	2.92	-0.572	0.000	0.163
52.41	-26.45	-7.29	0.00	-434.74	0.00	434.74	3509.27	1754.63	5876.22	2942.48	3.22	-0.602	0.000	0.155
55.00	-25.88	-7.24	0.00	-415.86	0.00	415.86	3469.86	1734.93	5719.21	2863.86	3.55	-0.635	0.000	0.153
60.00	-24.81	-7.14	0.00	-379.63	0.00	379.63	3392.44	1696.22	5419.79	2713.92	4.25	-0.693	0.000	0.147
65.00	-23.76	-7.03	0.00	-343.95	0.00	343.95	3313.25	1656.62	5125.48	2566.55	5.01	-0.751	0.000	0.141
70.00	-22.74	-6.92	0.00	-308.80	0.00	308.80	3227.80	1613.90	4829.83	2418.50	5.82	-0.808	0.000	0.135
75.00	-21.74	-6.81	0.00	-274.20	0.00	274.20	3119.66	1559.83	4510.01	2258.36	6.70	-0.865	0.000	0.128
80.00	-20.77	-6.71	0.00	-240.13	0.00	240.13	3011.51	1505.75	4201.15	2103.70	7.64	-0.920	0.000	0.121
85.00	-19.82	-6.60	0.00	-206.60	0.00	206.60	2903.36	1451.68	3903.25	1954.53	8.63	-0.974	0.000	0.113
90.00	-18.90	-6.49	0.00	-173.60	0.00	173.60	2795.21	1397.61	3616.30	1810.84	9.68	-1.024	0.000	0.103
94.00	-15.83	-5.58	0.00	-147.63	0.00	147.63	2708.70	1354.35	3394.63	1699.84	10.55	-1.063	0.000	0.093
94.50	-15.75	-5.56	0.00	-144.87	0.00	144.87	2697.95	1348.98	3367.59	1686.30	10.66	-1.068	0.000	0.092
95.00	-15.62	-5.56	0.00	-142.06	0.00	142.06	2687.07	1343.53	3340.31	1672.64	10.78	-1.073	0.000	0.091
99.00	-14.60	-5.46	0.00	-119.85	0.00	119.85	1671.63	835.82	2062.09	1032.58	11.69	-1.108	0.000	0.125
100.00	-14.46	-5.45	0.00	-114.37	0.00	114.37	1662.31	831.15	2033.69	1018.35	11.92	-1.117	0.000	0.121
105.00	-13.81	-5.34	0.00	-87.14	0.00	87.14	1614.76	807.38	1893.73	948.27	13.12	-1.171	0.000	0.100
108.00	-9.95	-3.99	0.00	-71.11	0.00	71.11	1585.38	792.69	1811.10	906.90	13.87	-1.200	0.000	0.085
110.00	-9.73	-3.95	0.00	-63.13	0.00	63.13	1565.43	782.72	1756.61	879.61	14.38	-1.217	0.000	0.078
115.00	-9.19	-3.85	0.00	-43.39	0.00	43.39	1514.34	757.17	1622.58	812.50	15.67	-1.254	0.000	0.059
118.00	-5.54	-2.33	0.00	-31.84	0.00	31.84	1482.83	741.42	1543.76	773.03	16.47	-1.272	0.000	0.045
120.00	-5.38	-2.30	0.00	-27.17	0.00	27.17	1461.47	730.74	1491.92	747.07	17.00	-1.282	0.000	0.040
125.00	-4.97	-2.20	0.00	-15.70	0.00	15.70	1395.63	697.82	1354.03	678.02	18.36	-1.302	0.000	0.027
127.00	-2.31	-1.18	0.00	-11.29	0.00	11.29	1366.79	683.40	1298.36	650.14	18.90	-1.308	0.000	0.019
130.00	-2.09	-1.13	0.00	-7.76	0.00	7.76	1323.53	661.77	1217.05	609.43	19.73	-1.314	0.000	0.014
135.00	-0.54	-0.79	0.00	-2.13	0.00	2.13	1251.44	625.72	1087.38	544.50	21.11	-1.321	0.000	0.004
136.00	-0.30	-0.43	0.00	-1.21	0.00	1.21	1237.02	618.51	1062.32	531.95	21.38	-1.321	0.000	0.003
137.00	-0.13	-0.05	0.00	-0.06	0.00	0.06	1222.60	611.30	1037.55	519.55	21.66	-1.321	0.000	0.000
138.00	-0.05	-0.02	0.00	-0.02	0.00	0.02	1208.18	604.09	1013.08	507.29	21.94	-1.321	0.000	0.000
139.00	0.00	-0.01	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	22.21	-1.321	0.000	0.000

Final Analysis Summary

Structure:	CT46123-A-SBA	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

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 93 mph Wind	31.8	0.00	48.14	0.00	0.00	3274.59
0.9D + 1.6W 93 mph Wind	31.8	0.00	36.09	0.00	0.00	3238.50
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.6	0.00	73.28	0.00	0.00	983.13
1.2D + 1.0E	1.1	0.00	48.19	0.00	0.00	113.72
0.9D + 1.0E	1.1	0.00	36.15	0.00	0.00	112.40
1.0D + 1.0W 60 mph Wind	8.3	0.00	40.16	0.00	0.00	846.50

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-48.14	-31.83	0.00	-3274.5	0.00	-3274.5	4169.21	2084.6	9065.11	4539.29	0.00	0.733
0.9D + 1.6W 93 mph Wind	-36.09	-31.80	0.00	-3238.5	0.00	-3238.5	4169.21	2084.6	9065.11	4539.29	0.00	0.722
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-73.28	-9.62	0.00	-983.13	0.00	-983.13	4169.21	2084.6	9065.11	4539.29	0.00	0.234
1.2D + 1.0E	-48.19	-1.08	0.00	-113.72	0.00	-113.72	4169.21	2084.6	9065.11	4539.29	0.00	0.037
0.9D + 1.0E	-36.15	-1.08	0.00	-112.40	0.00	-112.40	4169.21	2084.6	9065.11	4539.29	0.00	0.033
1.0D + 1.0W 60 mph Wind	-40.16	-8.28	0.00	-846.50	0.00	-846.50	4169.21	2084.6	9065.11	4539.29	0.00	0.196

Base Plate Summary

Structure:	CT46123-A-SB	**Code:**	TIA-222-G	5/5/2022	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	C - Very Dense Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 34	

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	3021.60
Axial (kip):	26.90
Shear (kip):	29.20

Analysis (1.2D + 1.6W)

Moment (kip-ft):	3274.59
Axial (kip):	48.14
Shear (kip):	31.83

Base Plate

Yield (ksi):	60.00
Width (in):	72.00
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	14.31
Moment (kip-in):	713.25
Allow Stress (ksi):	81.00
Applied Stress (ksi):	39.69
Stress Ratio:	0.49

Anchor Bolts

Bolt Circle:	62.00
Number Bolts:	16.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00

Compression

Force (kip):	163.03
Allowable (kip):	260.00
Ratio:	0.64

Tension

Force (kip):	153.87
Allowable (kip):	260.00
Ratio:	0.61

Exhibit E

Mount Analysis

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 139-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT46123-A-SBA / Litchfield

Customer Site Name: Litchfield

Carrier Name: T-Mobile (App#: 194502, V2)

Carrier Site ID / Name: CTNH375E / NH375/Sprint607_FT

Site Location: 383 Torrington Rd

Litchfield, Connecticut

Litchfield County

Latitude: 41.766278

Longitude: -73.178527

Analysis Result:

Max Structural Usage: 70.9% [Pass]

Report Prepared By : Prakash Koirala

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Litchfield, Connecticut

Litchfield County

Latitude: 41.766278

Longitude: -73.178527

Analysis Result:

Max Structural Usage: 70.9% [Pass]

Report Prepared By : Prakash Koirala

Introduction

The purpose of this report is to summarize the analysis results on the (1) Low Profile Platform at 108.00' elevation including the proposed modifications to support the proposed antenna configuration. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

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

Sources of Information

Mount Drawings	Mount Mapping by Tower Engineering Professionals, dated 4/12/2022
Antenna Loading	SBA Application #: 194502, v2, dated 5/2/2022
Existing Modification	N/A
Previous Mount Analysis Report	TES Project No. 127437, dated 05/02/2022
Proposed Modification	TES Project No. 128732

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 120 mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 93 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 0.75" radial ice concurrent
Operational Wind Speed: 30 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G
Exposure Category: C
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

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

Mount Information

(1) Low Profile Platform at 108.00' elevation

Final Antenna Configuration

3 Commscope VV-65A-R1
3 Ericsson AIR6419 B41
3 RFS APXVAALL24_43-U-NA20
12 Unknown TMA
3 Ericsson 4460 B25 + B66

3 Kathrein Scala 782 11056
3 Ericsson 4480 B71 + B85

* Equipment to be flush mounted directly to the Monopole. They are not mounted on the Low Profile Platform mounts and are not included in this mount analysis.

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 70.9%, which occurs in the mount pipe. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

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

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.

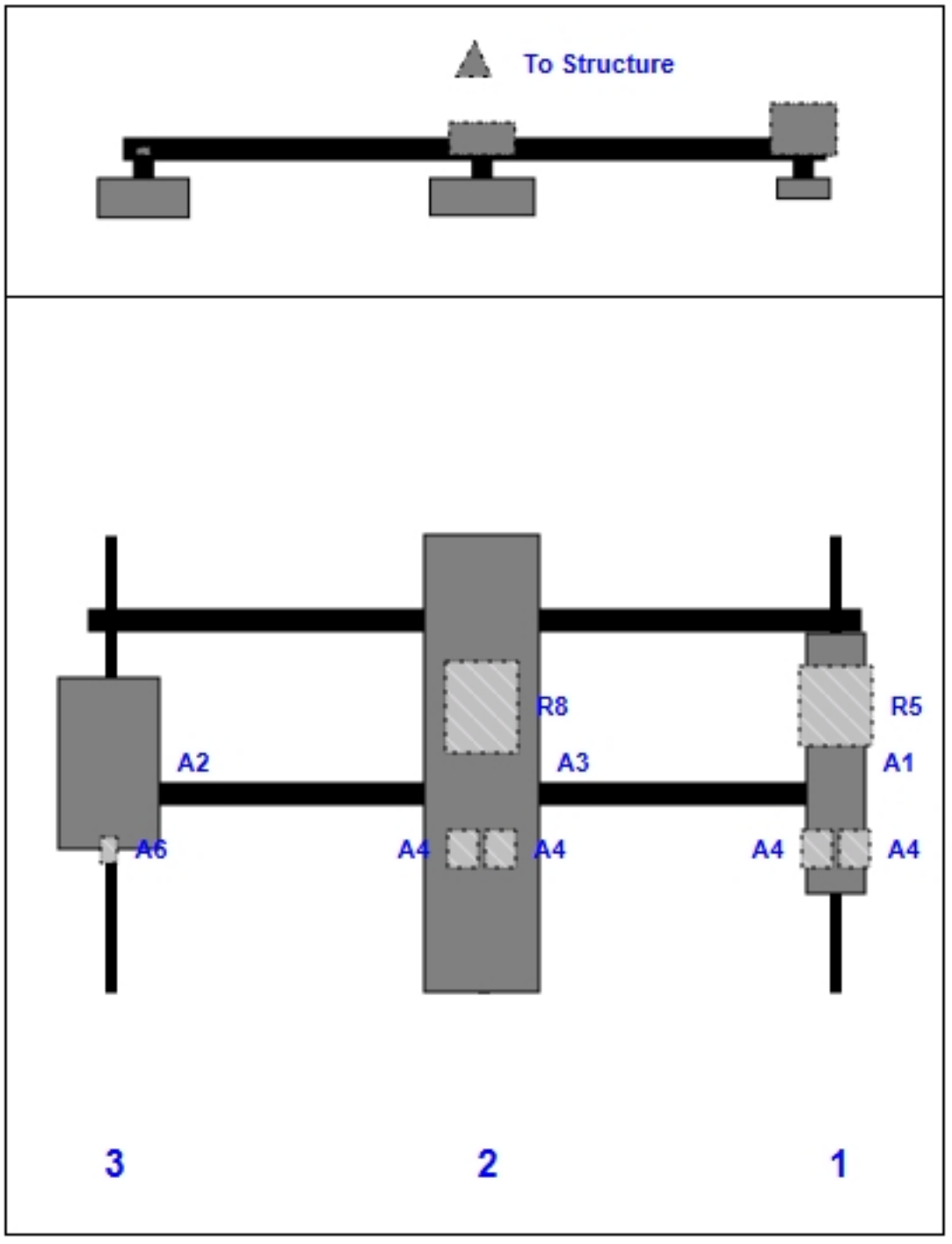
9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.

Sector: A
Structure Type: Monopole
Mount Elev: 108.00

5/6/2022

Tower Engineering Solutions

Plan View

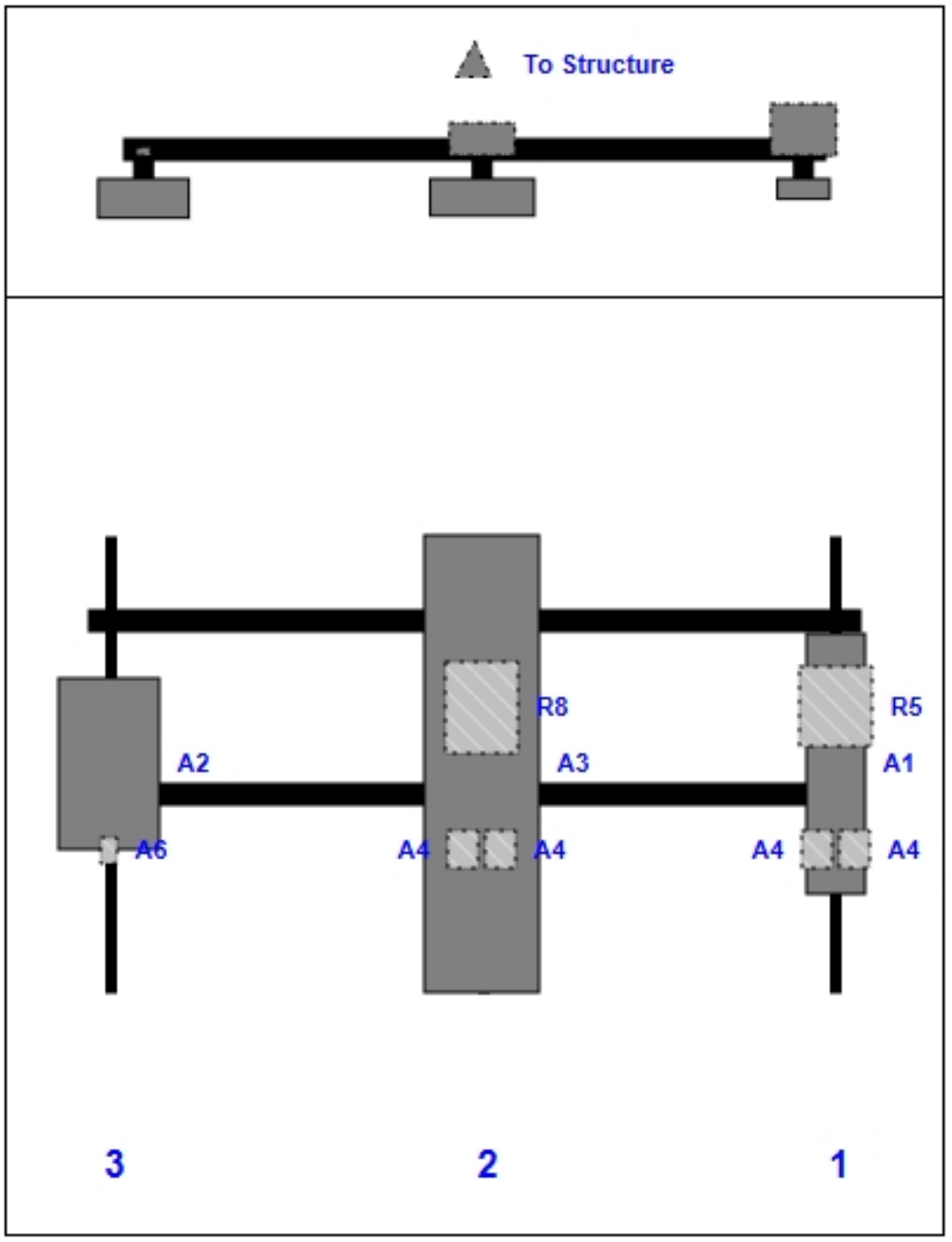


Front View

Looking Toward Structure

Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	VV-65A-R1	54.72	12.08	157.00	1	a	Front	48.00		Added	
A4	Unknown TMA	7.70	6.30	157.00	1	a	Behind	66.00	4.00	Retained	
R5	4460 B25 + B66	17.00	15.10	157.00	1	a	Behind	36.00		Added	
A4	Unknown TMA	7.70	6.30	157.00	1	b	Behind	66.00	-4.00	Retained	
A3	APXVAALL24_43-U-NA20	95.90	24.00	83.00	2	a	Front	48.00		Added	
A4	Unknown TMA	7.70	6.30	83.00	2	a	Behind	66.00	4.00	Retained	
R8	4480 B71 + B85	19.20	15.10	83.00	2	a	Behind	36.00		Added	
A4	Unknown TMA	7.70	6.30	83.00	2	b	Behind	66.00	-4.00	Retained	
A2	AIR6419 B41	36.30	20.90	5.00	3	a	Front	48.00		Added	
A6	782 11056	5.50	3.20	5.00	3	a	Behind	66.00		Retained	

Plan View



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Looking Toward Structure

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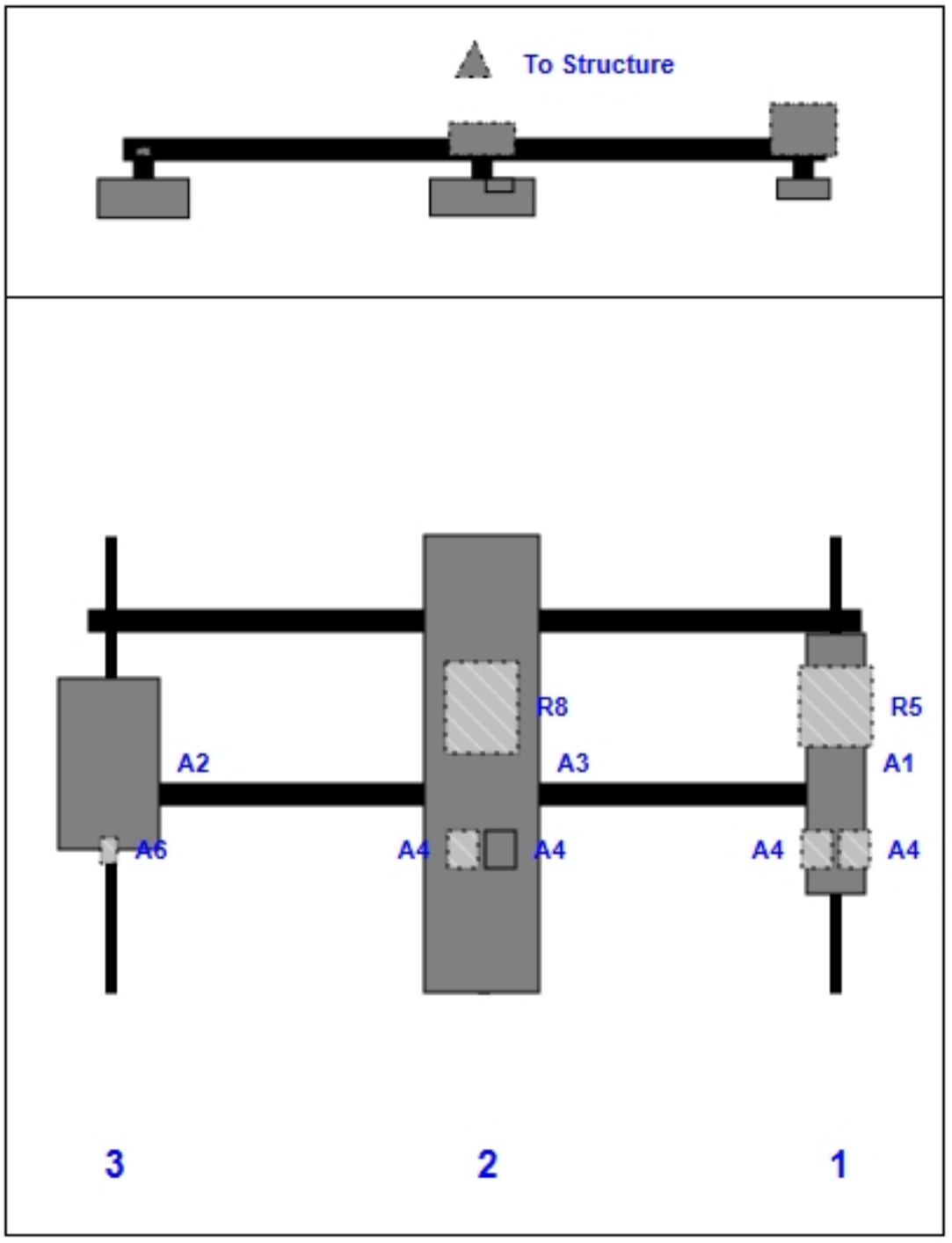
A6	782 11056	5.50	3.20	5.00	3	a	Behind	66.00		Retained	

Plan View



Front View

Looking Toward Structure

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A3	APXVAALL24_43-U-NA20	95.90	24.00	83.00	2	a	Front	48.00		Added	
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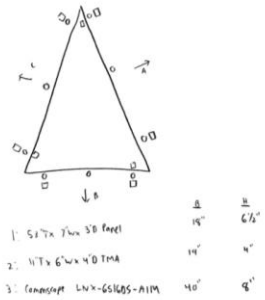
A6	782 11056	5.50	3.20	5.00	3	a	Behind	66.00		Retained	

V4.1 Updated on 12-17-2021

Antenna Mount Mapping Form (PATENT PENDING)

FCC # 1271991

Tower Owner:	SBA	**Mapping Date:**	4/12/2022
Site Name:	Litchfield	**Tower Type:**	Monopole
Site Number or ID:	CT46123-A	**Tower Height (Ft.):**	139
Mapping Contractor:	Tower Engineering Professionals	**Mount Elevation (Ft.):**	107



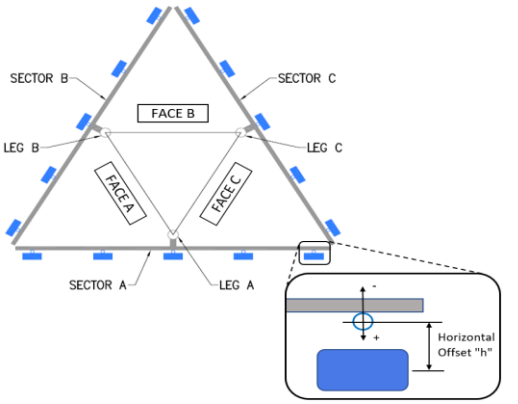
Mount Pipe Configuration and Geometries [Unit = Inches]

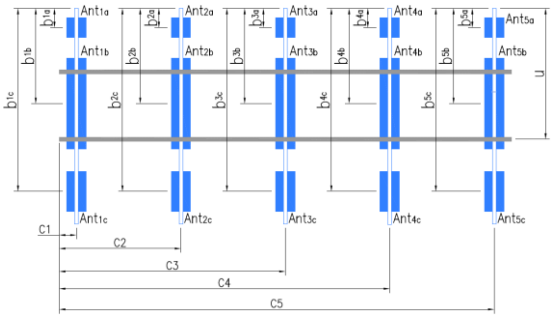
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."
A1	2.4"x6'-0"Tx0.154"TH	38.00	5.00	C1	2.4"x6'-0"Tx0.154"TH	38.00	5.00
A2	2.4"x6'-0"Tx0.154"TH	38.00	79.00	C2	2.4"x6'-0"Tx0.154"TH	38.00	79.00
A3	2.9"x8'-0"Tx0.203"TH	55.00	157.00	C3	2.9"x8'-0"Tx0.203"TH	55.00	157.00
A4				C4			
A5				C5			
A6				C6			
B1	2.4"x6'-0"Tx0.154"TH	38.00	5.00	D1			
B2	2.4"x6'-0"Tx0.154"TH	38.00	79.00	D2			
B3	2.9"x8'-0"Tx0.203"TH	55.00	157.00	D3			
B4				D4			
B5				D5			
B6				D6			

Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :	6
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :	

Please enter additional infomation or comments below.

Tower Face Width at Mount Elev. (ft.):		Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):	28.36



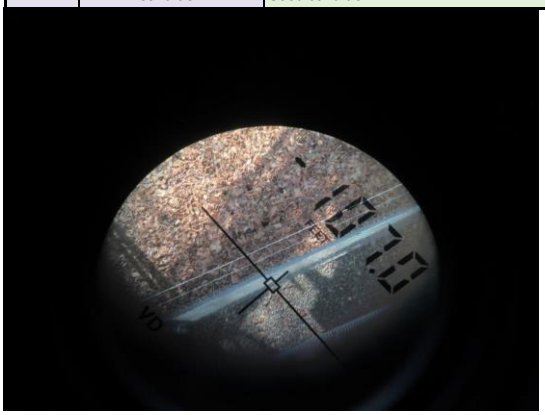


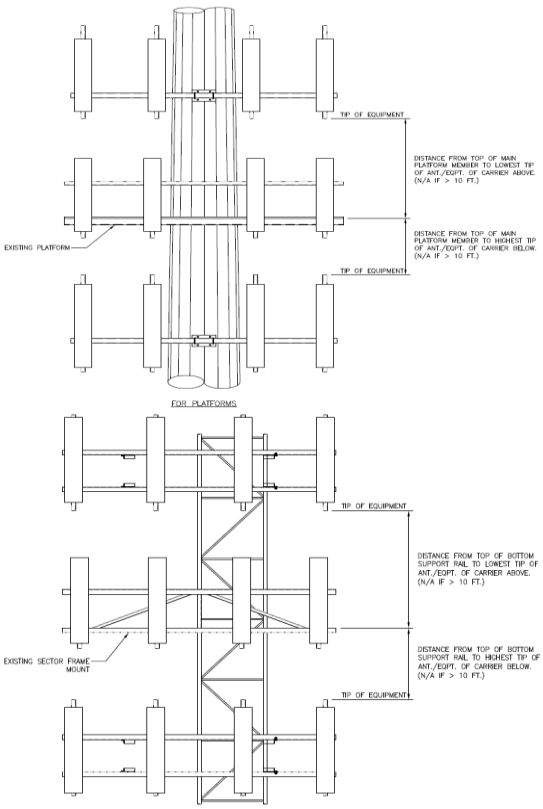
Antenna Layout (Looking Out From Tower)

Ants. Items	Enter antenna model. If not labeled, enter "Unknown". Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Mounting Locations [Units are inches and degrees] Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b}...." (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)	Antenna Azimuth (Degrees)	Photos of antennas Photo Numbers
Sector A										
Ant_{1a}	Unknown TMA	6.00	4.00	11.00	2) FH 1-5/	108.583	19.00	4.00		123
Ant_{1b}	Unknown Panel	7.00	3.00	53.00	per from T	108.667	18.00	6.50	320.00	121-122
Ant_{1c}										
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}										
Ant_{3b}	LNX-6516DS-A1M	10.59	5.20	101.46	2) FH 1-5/	108.25	40.00	8.00	320.00	69-70
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Mount Azimuth (Degree) for Each Sector				Tower Leg Azimuth (Degree) for Each Sector	
Sector A:	320.00	Deg	Leg A:		Deg
Sector B:	80.00	Deg	Leg B:		Deg
Sector C:	200.00	Deg	Leg C:		Deg
Sector D:		Deg	Leg D:		Deg

Climbing Facility Information			
Location:	350.00	Deg	Sector A
Climbing Facility	Corrosion Type:		Good condition.
	Access:		Climbing path was unobstructed.
	Condition:		Good condition.





Sector B										
Ant_{1a}	Unknown TMA	6.00	4.00	11.00	2) FH 1-5/	108.583	19.00	4.00		127
Ant_{1b}	Unknown Panel	7.00	3.00	53.00	per from T	108.667	18.00	6.50	80.00	125-126
Ant_{1c}										
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}										
Ant_{3b}	LNX-6516DS-A1M	10.59	5.20	101.46	2) FH 1-5/	108.25	40.00	8.00	80.00	72-73
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector C										
Ant_{1a}	Unknown TMA	6.00	4.00	11.00	2) FH 1-5/	108.583	19.00	4.00		132
Ant_{1b}	Unknown Panel	7.00	3.00	53.00	per from T	108.667	18.00	6.50	200.00	129-131
Ant_{1c}										
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}										
Ant_{3b}	LNX-6516DS-A1M	10.59	5.20	101.46	2) FH 1-5/	108.25	40.00	8.00	200.00	75-76
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector D										
Ant_{1a}										
Ant_{1b}										
Ant_{1c}										
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}										
Ant_{3b}										
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #
1		
2		
3		
4		
5		
6		
7		
8		

Mapping Notes
1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)
2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness.
3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.
4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.
5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.
6. Please measure and report the size and length of all existing antenna mounting pipes.
7. Please measure and report the antenna information for all sectors.
8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

Standard Conditions
1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.

Antenna Mount Mapping Form (PATENT PENDING)

FCC #
1271991

Tower Owner:	SBA	**Mapping Date:**	4/12/2022
Site Name:	Litchfield	**Tower Type:**	Monopole
Site Number or ID:	CT46123-A	**Tower Height (Ft.):**	139
Mapping Contractor:	Tower Engineering Professionals	**Mount Elevation (Ft.):**	107

Please Insert Sketches of the Antenna Mount

Litch Field

18-sided Pole

elev: 107'

Dist to Mnt about: 6'

S.C. @ 350°

Coax: (12) FH 1 5/8

~AIF: 6"

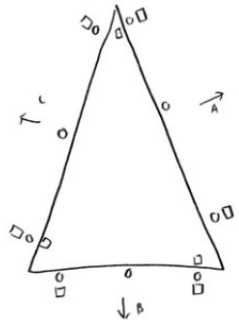
Az:

A: 320°

B: 180°

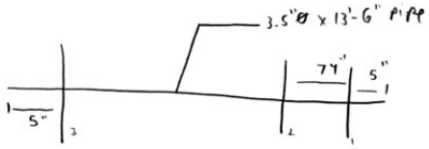
C: 200°

Plan



		B	H
1:	5.3"T x 7"W x 3"D Panel	18"	6 1/2"
2:	11"T x 6"W x 4"D TMA	19"	4"
3:	Commscope LNX-6516DS-A1M	40"	8"

Front view



Pos 1/2: 2.4"Ø x 6'-0", U: 38"

Pos 3: 2.9"Ø x 8'-0", U: 55"

MP Conner

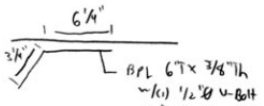
BPL 9 1/4"T x 2 1/2"D x 6 1/4"W x 3/8"Th

~(4) 1/2"Ø U-Bolts

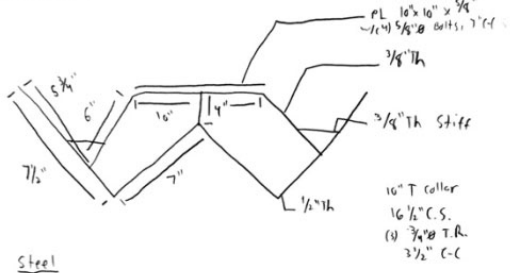
FP: 4" C-C

MP: 3" C-C H, 6" C-C V

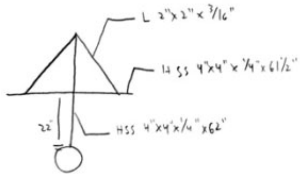
HSS-Face Conner



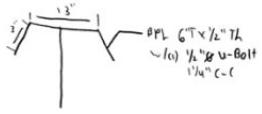
Collar Detail

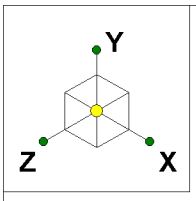


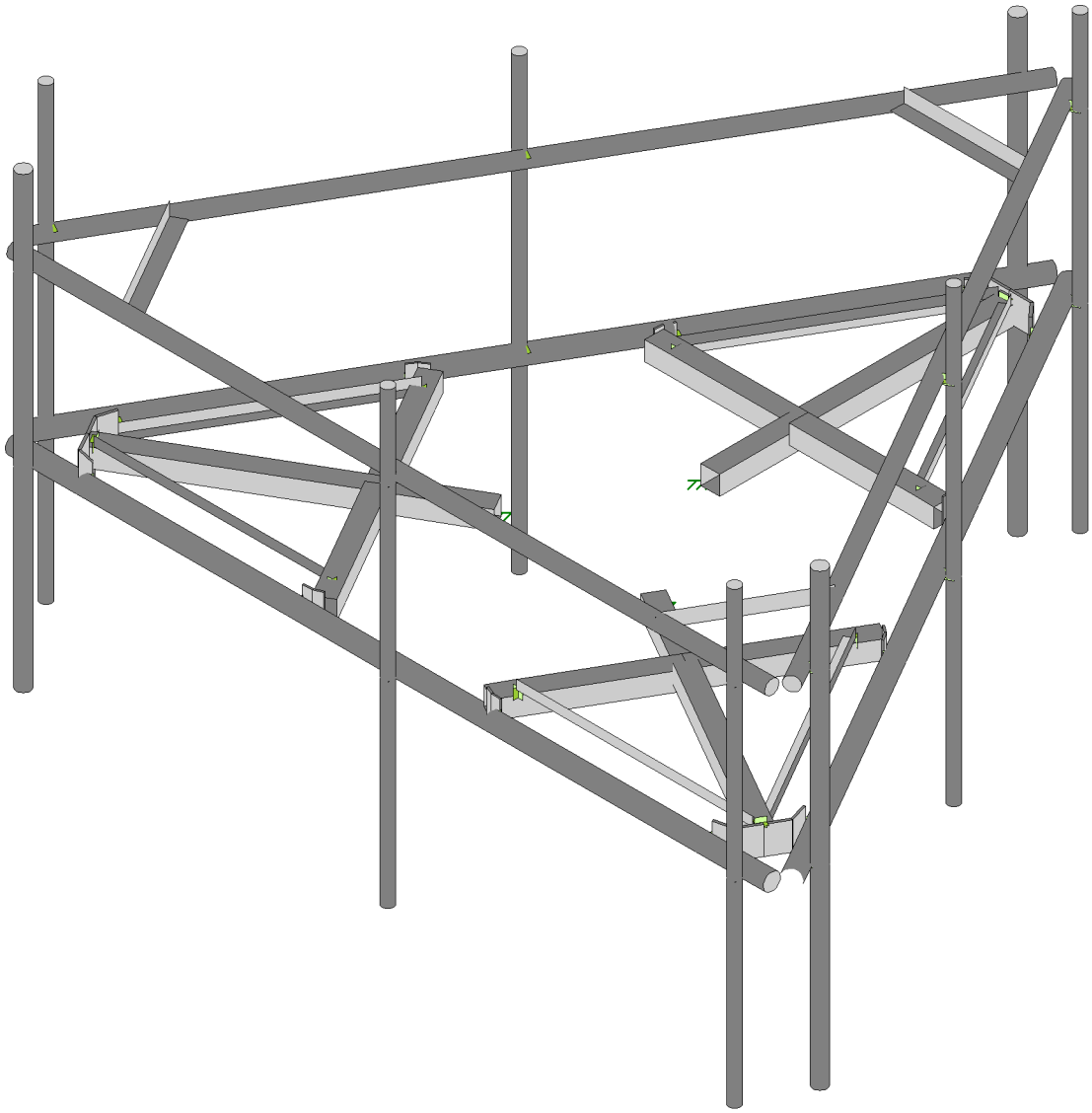
Steel



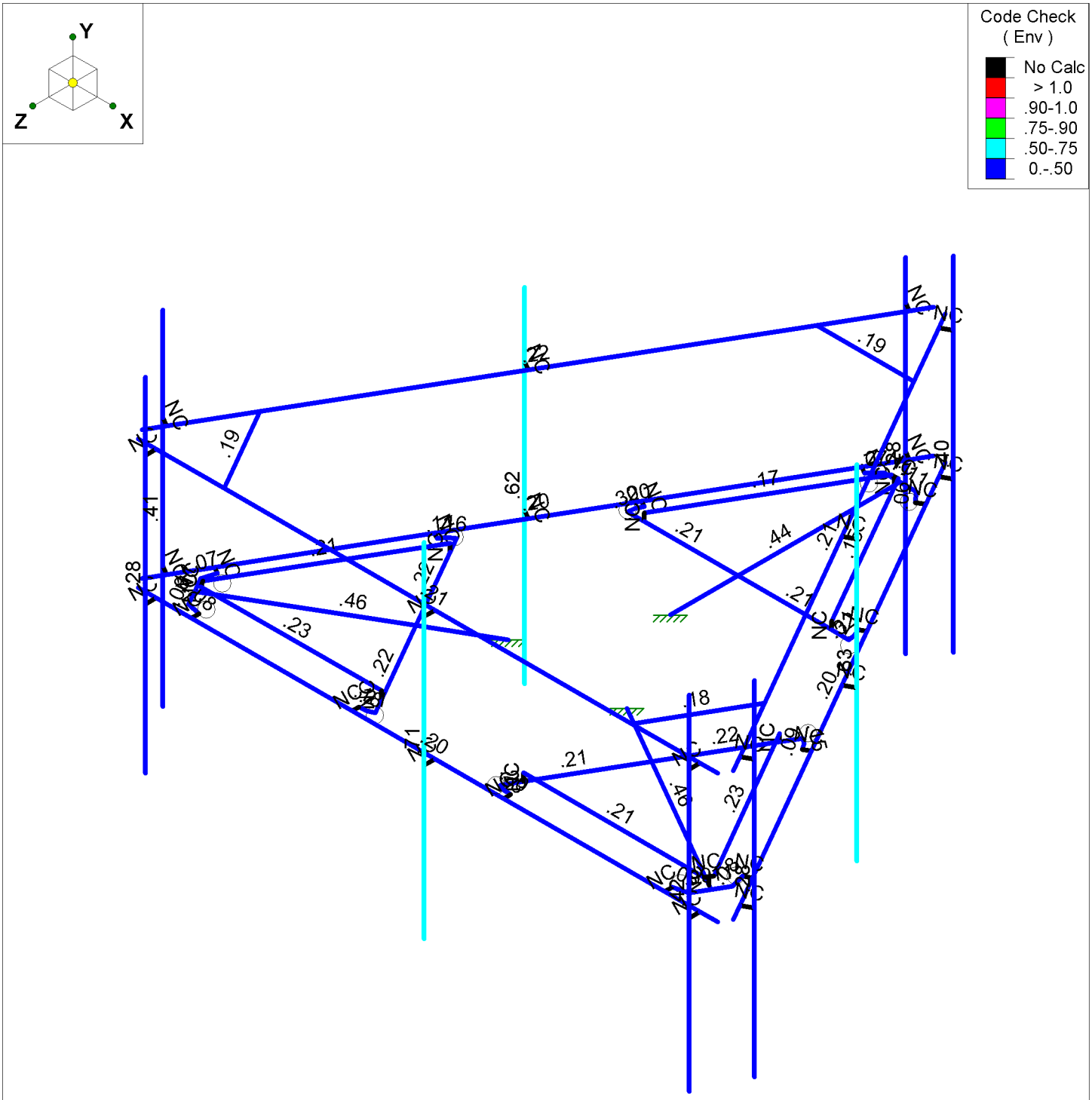
Corner Conner





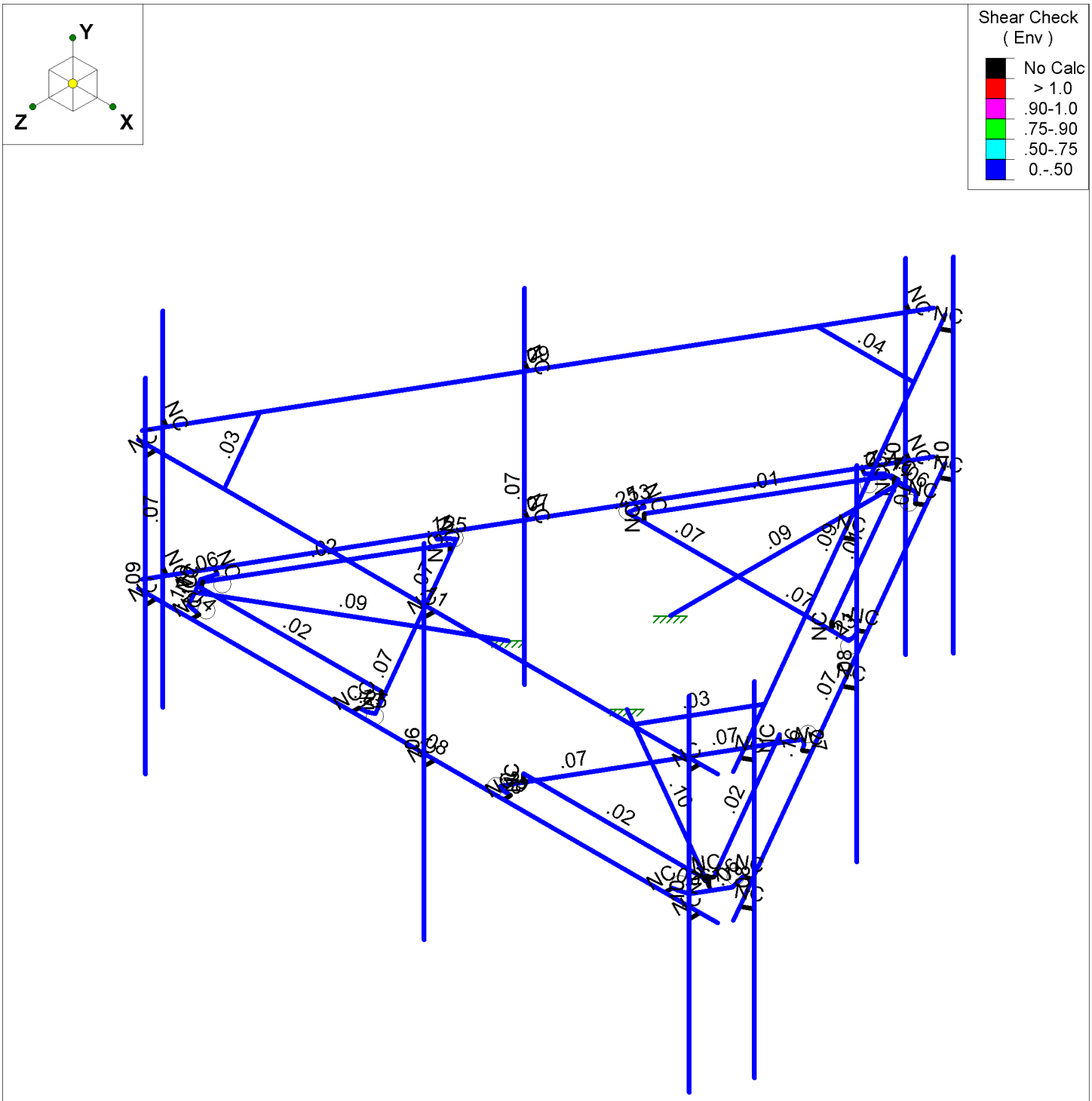


Tower Engineering Solutio...		SK - 1
		May 6, 2022 at 1:09 PM
TES Project No. 128732		CT46123-A-SBA_128732_G_RISA_...



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

Tower Engineering Solutio...		SK - 2
		May 6, 2022 at 1:09 PM
TES Project No. 128732		CT46123-A-SBA_128732_G_RISA_...



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

Tower Engineering Solutio...		SK - 3
		May 6, 2022 at 1:09 PM
TES Project No. 128732		CT46123-A-SBA_128732_G_RISA_...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					39			
2	Antenna Di	None					39			
3	Antenna W Front	None					39			
4	Antenna Wi Front	None					39			
5	Antenna W Side	None					39			
6	Antenna Wi Side	None					39			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1					5	
10	Structure Di	None						57	5	
11	Structure W Front	None						57		
12	Structure Wi Front	None						57		
13	Structure W Side	None						57		
14	Structure Wi Side	None						57		
15	BLC 9 Transient Area...	None						33		
16	BLC 10 Transient Are...	None						33		

Load Combinations

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

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	-6.748693	0	4.052255	0	
2	N2	6.751307	0	4.052255	0	
3	N5	0.001306	0	-1.593959	0	
4	N7	5.518027	0	4.052255	0	
5	N8	1.768027	0	4.052255	0	
6	N9	-1.766118	0	4.052255	0	
7	N10	-5.516118	0	4.052255	0	
8	N11	-6.267416	0	2.750972	0	
9	N14	-0.750344	0	-6.804877	0	
10	N15	0.750817	0	-6.804058	0	
11	N18	6.267889	0	2.751791	0	
12	N19	-3e-14	0	-3.17336	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
13	N20	2.180513	0	-3.17336	0	
14	N21	-2.178604	0	-3.17336	0	
15	N22	-3e-14	0	-6.948466	0	
16	N23	.375	0	-6.948466	0	
17	N24	-.375	0	-6.948466	0	
18	N25	2.58	0	-3.17336	0	
19	N26	-2.58	0	-3.17336	0	
20	N27	2.747942	0	1.587151	0	
21	N28	6.018192	0	3.473123	0	
22	N29	-2.747241	0	1.585057	0	
23	N30	-6.016118	0	3.473409	0	
24	N131	5.518027	0	3.872255	0	
25	N132	-5.516118	0	3.872255	0	
26	N133	0.594458	0	-6.714879	0	
27	N134	6.111531	0	2.840971	0	
28	N135	-6.112485	0	2.842624	0	
29	N136	-0.595413	0	-6.713226	0	
30	N137	1.768027	0	3.892255	0	
31	N138	-1.766118	0	3.892255	0	
32	N143	2.561452	0	-3.327946	0	
33	N144	-2.561452	0	-3.327946	0	
34	N145	2.180513	0.1745	-3.17336	0	
35	N146	-2.178604	0.1745	-3.17336	0	
36	N147	-3e-14	0	-6.823466	0	
37	N148	-3e-14	0.1745	-6.823466	0	
38	N149	0.0835	0.1745	-6.823466	0	
39	N150	-0.0835	0.1745	-6.823466	0	
40	N151	-3.838171	0	-0.3017	0	
41	N152	-1.658612	0	3.473406	0	
42	N153	-6.205048	0	3.149473	0	
43	N154	-5.830048	0	3.798993	0	
44	N155	-4.03821	0	-0.647666	0	
45	N156	-1.45821	0	3.821026	0	
46	N157	-4.162812	0	-0.554309	0	
47	N158	-1.60136	0	3.882255	0	
48	N159	-3.838467	0.1745	-0.3017	0	
49	N160	-1.658908	0.1745	3.473406	0	
50	N161	-5.909291	0	3.411733	0	
51	N162	-5.909291	0.1745	3.411733	0	
52	N163	-5.951045	0.1745	3.33942	0	
53	N164	-5.867545	0.1745	3.484046	0	
54	N165	1.657955	0	3.475059	0	
55	N166	3.837513	0	-0.300047	0	
56	N167	5.830048	0	3.798993	0	
57	N168	6.205048	0	3.149473	0	
58	N169	1.45821	0	3.821026	0	
59	N170	4.03821	0	-0.647666	0	
60	N171	1.60136	0	3.882255	0	
61	N172	4.162812	0	-0.554309	0	
62	N173	1.657954	0.1745	3.475059	0	
63	N174	3.837512	0.1745	-0.300047	0	
64	N175	5.91186	0	3.411733	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
65	N176	5.909295	0.1745	3.411733	0	
66	N177	5.867545	0.1745	3.484046	0	
67	N178	5.951045	0.1745	3.33942	0	
68	N107	-6.332027	0	4.052255	0	
69	N111	0.167973	0	4.052255	0	
70	N113	6.33464	0	4.052255	0	
71	N115	-6.332027	0	4.302255	0	
72	N119	0.167973	0	4.302255	0	
73	N121A	6.33464	0	4.302255	0	
74	N123A	-6.332027	4.583333	4.302255	0	
75	N124A	-6.332027	-3.416667	4.302255	0	
76	N126A	6.33464	4.5	4.302255	0	
77	N128A	6.33464	-3.5	4.302255	0	
78	N129A	0.167973	4.5	4.302255	0	
79	N130A	0.167973	-3.5	4.302255	0	
80	N131B	6.883703	0	3.818412	0	
81	N132A	0.133703	0	-7.872931	0	
82	N133B	-0.135009	0	-7.870668	0	
83	N134A	-6.885009	0	3.820675	0	
84	N99	6.67537	0	3.457568	0	
85	N100	3.42537	0	-2.171597	0	
86	N101	0.342036	0	-7.512087	0	
87	N102	6.891876	0	3.332568	0	
88	N103	3.641876	0	-2.296597	0	
89	N104	0.558543	0	-7.637087	0	
90	N105	6.891876	4.583333	3.332568	0	
91	N106	6.891876	-3.416667	3.332568	0	
92	N107A	0.558543	4.5	-7.637087	0	
93	N108	0.558543	-3.5	-7.637087	0	
94	N109	3.641876	4.5	-2.296597	0	
95	N110	3.641876	-3.5	-2.296597	0	
96	N111A	-0.343343	0	-7.509824	0	
97	N112	-3.593343	0	-1.880659	0	
98	N113A	-6.676676	0	3.459831	0	
99	N114	-0.559849	0	-7.634824	0	
100	N115A	-3.809849	0	-2.005659	0	
101	N116	-6.893182	0	3.334831	0	
102	N117	-0.559849	3.916667	-7.634824	0	
103	N118	-0.559849	-4.083333	-7.634824	0	
104	N119A	-6.893182	5.166667	3.334831	0	
105	N120	-6.893182	-2.833333	3.334831	0	
106	N121	-3.809849	4.5	-2.005659	0	
107	N122	-3.809849	-3.5	-2.005659	0	
108	N121B	-1.381062	0	0.795848	0	
109	N123	1.379756	0	0.798111	0	
110	N114A	2.625343	0	-3.557284	0	
111	N115B	4.392415	0	-0.496625	0	
112	N116A	2.486779	0	-3.477284	0	
113	N117A	4.253851	0	-0.416625	0	
114	N120A	-4.39337	0	-0.494972	0	
115	N121C	-2.626297	0	-3.555631	0	
116	N122A	-4.254805	0	-0.414972	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
117	N123B	-2.487733	0	-3.475631	0	
118	N122B	-6.748693	3	4.052255	0	
119	N123C	6.751307	3	4.052255	0	
120	N124	-6.332027	3	4.052255	0	
121	N125	0.167973	3	4.052255	0	
122	N126	6.33464	3	4.052255	0	
123	N127	-6.332027	3	4.302255	0	
124	N128	0.167973	3	4.302255	0	
125	N129	6.33464	3	4.302255	0	
126	N130	6.883703	3	3.818412	0	
127	N131A	0.133703	3	-7.872931	0	
128	N132B	6.67537	3	3.457568	0	
129	N133A	3.42537	3	-2.171597	0	
130	N134B	0.342036	3	-7.512087	0	
131	N135A	6.891876	3	3.332568	0	
132	N136A	3.641876	3	-2.296597	0	
133	N137A	0.558543	3	-7.637087	0	
134	N138A	-0.135009	3	-7.870668	0	
135	N139	-6.885009	3	3.820675	0	
136	N140	-0.343343	3	-7.509824	0	
137	N141	-3.593343	3	-1.880659	0	
138	N142	-6.676676	3	3.459831	0	
139	N143A	-0.559849	3	-7.634824	0	
140	N144A	-3.809849	3	-2.005659	0	
141	N145A	-6.893182	3	3.334831	0	
142	N146A	-4.748693	3	4.052255	0	
143	N148A	4.748693	3	4.052255	0	
144	N149A	5.883703	3	2.086361	0	
145	N150A	1.135009	3	-6.138617	0	
146	N152A	-1.135009	3	-6.138617	0	
147	N153A	-5.883703	3	2.086361	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...	Izz [in...	J [in4]
1	Footrails	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Grating Angles	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	Standoff Arm	HSS4X4X4	Beam	SquareTube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
4	Plan Bracing	HSS4X4X4	Beam	SquareTube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
5	Mount Pipe_1	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Mount Pipe 2	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
7	New Support Rail	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	New Support rail E...	L3X3X6	Beam	Single Angle	A36 Gr.36	Typical	2.11	1.75	1.75	.101
9	Footrail Connectio...	PL1/2x6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
10	Plan Bracing Conn...	PL3/8x6	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.5	58	1.2
7	Q235	29000	11154	.3	.65	.49	34	1.5	58	1.2
8	J429-Gr5	29000	11154	.3	.65	.49	92	1.5	120	1.2

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M3	N22	N24			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
2	M4	N22	N23			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
3	M5	N26	N144			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
4	M7	N25	N143			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
5	M9	N149	N145			Grating Angl...	Beam	Single Angle	A36 Gr.36	Typical
6	M10	N150	N146		270	Grating Angl...	Beam	Single Angle	A36 Gr.36	Typical
7	M11	N24	N136			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
8	M12	N23	N133			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
9	M13	N22	N5			Standoff Arm	Beam	SquareTube	A500 Gr.46	Typical
10	M14	N26	N19			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
11	M15	N19	N25			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
12	M18	N1	N2			Footrails	Beam	Pipe	A53 Gr.B	Typical
13	M70	N10	N132			RIGID	None	None	RIGID	Typical
14	M71	N7	N131			RIGID	None	None	RIGID	Typical
15	M72	N18	N134			RIGID	None	None	RIGID	Typical
16	M73	N15	N133			RIGID	None	None	RIGID	Typical
17	M74	N14	N136			RIGID	None	None	RIGID	Typical
18	M75	N11	N135			RIGID	None	None	RIGID	Typical
19	M76	N8	N137			RIGID	None	None	RIGID	Typical
20	M77	N9	N138			RIGID	None	None	RIGID	Typical
21	M82	N21	N146			RIGID	None	None	RIGID	Typical
22	M83	N20	N145			RIGID	None	None	RIGID	Typical
23	M84	N147	N148			RIGID	None	None	RIGID	Typical
24	M85	N149	N150			RIGID	None	None	RIGID	Typical
25	M86	N30	N154			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
26	M87	N30	N153			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
27	M88	N156	N158			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
28	M89	N158	N138			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
29	M90	N155	N157			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
30	M92	N163	N159			Grating Angl...	Beam	Single Angle	A36 Gr.36	Typical
31	M93	N164	N160		270	Grating Angl...	Beam	Single Angle	A36 Gr.36	Typical
32	M94	N154	N132			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
33	M95	N153	N135			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
34	M96	N156	N29			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
35	M97	N29	N155			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
36	M98	N152	N160			RIGID	None	None	RIGID	Typical
37	M99	N151	N159			RIGID	None	None	RIGID	Typical
38	M100	N161	N162			RIGID	None	None	RIGID	Typical
39	M101	N163	N164			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
40	M102	N28	N168			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
41	M103	N28	N167			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
42	M104	N170	N172			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
43	M106	N169	N171			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
44	M107	N171	N137			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
45	M108	N177	N173			Grating Angl...	Beam	Single Angle	A36 Gr.36	Typical
46	M109	N178	N174		270	Grating Angl...	Beam	Single Angle	A36 Gr.36	Typical
47	M110	N168	N134			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
48	M111	N167	N131			Footrail Con...	Beam	RECT	A36 Gr.36	Typical
49	M112	N170	N27			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
50	M113	N27	N169			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
51	M114	N166	N174			RIGID	None	None	RIGID	Typical
52	M115	N165	N173			RIGID	None	None	RIGID	Typical
53	M116	N175	N176			RIGID	None	None	RIGID	Typical
54	M117	N177	N178			RIGID	None	None	RIGID	Typical
55	M82A	N115	N107			RIGID	None	None	RIGID	Typical
56	M86A	N119	N111			RIGID	None	None	RIGID	Typical
57	M88A	N121A	N113			RIGID	None	None	RIGID	Typical
58	MP2A	N129A	N130A			Mount Pipe 1	Beam	Pipe	A53 Gr.B	Typical
59	MP1A	N126A	N128A			Mount Pipe 1	Beam	Pipe	A53 Gr.B	Typical
60	MP3A	N123A	N124A			Mount Pipe 2	Beam	Pipe	A53 Gr.B	Typical
61	M91A	N131B	N132A			Footrails	Beam	Pipe	A53 Gr.B	Typical
62	M92A	N133B	N134A			Footrails	Beam	Pipe	A53 Gr.B	Typical
63	M75A	N102	N99			RIGID	None	None	RIGID	Typical
64	M76A	N103	N100			RIGID	None	None	RIGID	Typical
65	M77A	N104	N101			RIGID	None	None	RIGID	Typical
66	MP2C	N109	N110			Mount Pipe 1	Beam	Pipe	A53 Gr.B	Typical
67	MP1C	N107A	N108			Mount Pipe 1	Beam	Pipe	A53 Gr.B	Typical
68	MP3C	N105	N106			Mount Pipe 2	Beam	Pipe	A53 Gr.B	Typical
69	M81A	N114	N111A			RIGID	None	None	RIGID	Typical
70	M82B	N115A	N112			RIGID	None	None	RIGID	Typical
71	M83A	N116	N113A			RIGID	None	None	RIGID	Typical
72	MP2B	N121	N122			Mount Pipe 1	Beam	Pipe	A53 Gr.B	Typical
73	MP1B	N119A	N120			Mount Pipe 1	Beam	Pipe	A53 Gr.B	Typical
74	MP3B	N117	N118			Mount Pipe 2	Beam	Pipe	A53 Gr.B	Typical
75	M85A	N30	N121B			Standoff Arm	Beam	SquareTube	A500 Gr.46	Typical
76	M86B	N28	N123			Standoff Arm	Beam	SquareTube	A500 Gr.46	Typical
77	M79	N114A	N116A			RIGID	None	None	RIGID	Typical
78	M80	N115B	N117A			RIGID	None	None	RIGID	Typical
79	M81	N172	N117A			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
80	M82C	N143	N116A			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
81	M83B	N120A	N122A			RIGID	None	None	RIGID	Typical
82	M84A	N121C	N123B			RIGID	None	None	RIGID	Typical
83	M85B	N144	N123B			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
84	M86C	N157	N122A			Plan Bracing...	Beam	RECT	A36 Gr.36	Typical
85	M87A	N127	N124			RIGID	None	None	RIGID	Typical
86	M88B	N128	N125			RIGID	None	None	RIGID	Typical
87	M89A	N129	N126			RIGID	None	None	RIGID	Typical
88	M90A	N122B	N123C			New Support...	Beam	Pipe	A53 Gr.B	Typical
89	M91	N135A	N132B			RIGID	None	None	RIGID	Typical
90	M92B	N136A	N133A			RIGID	None	None	RIGID	Typical
91	M93A	N137A	N134B			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
92	M94A	N130	N131A			New Support...	Beam	Pipe	A53 Gr.B	Typical
93	M95A	N143A	N140			RIGID	None	None	RIGID	Typical
94	M96A	N144A	N141			RIGID	None	None	RIGID	Typical
95	M97A	N145A	N142			RIGID	None	None	RIGID	Typical
96	M98A	N138A	N139			New Support...	Beam	Pipe	A53 Gr.B	Typical
97	M99A	N146A	N153A			New Support...	Beam	Single Angle	A36 Gr.36	Typical
98	M100A	N149A	N148A			New Support...	Beam	Single Angle	A36 Gr.36	Typical
99	M101A	N152A	N150A			New Support...	Beam	Single Angle	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M3						Yes				None
2	M4						Yes				None
3	M5						Yes				None
4	M7						Yes				None
5	M9						Yes				None
6	M10						Yes				None
7	M11						Yes				None
8	M12						Yes				None
9	M13						Yes				None
10	M14						Yes				None
11	M15						Yes				None
12	M18						Yes				None
13	M70	BenPIN					Yes	** NA **			None
14	M71	BenPIN					Yes	** NA **			None
15	M72	BenPIN					Yes	** NA **			None
16	M73	BenPIN					Yes	** NA **			None
17	M74	BenPIN					Yes	** NA **			None
18	M75	BenPIN					Yes	** NA **			None
19	M76						Yes	** NA **			None
20	M77						Yes	** NA **			None
21	M82						Yes	** NA **			None
22	M83						Yes	** NA **			None
23	M84						Yes	** NA **			None
24	M85						Yes	** NA **			None
25	M86						Yes				None
26	M87						Yes				None
27	M88						Yes				None
28	M89		BenPIN				Yes				None
29	M90						Yes				None
30	M92						Yes				None
31	M93						Yes				None
32	M94						Yes				None
33	M95						Yes				None
34	M96						Yes				None
35	M97						Yes				None
36	M98						Yes	** NA **			None
37	M99						Yes	** NA **			None
38	M100						Yes	** NA **			None
39	M101						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
40	M102						Yes				None
41	M103						Yes				None
42	M104						Yes				None
43	M106						Yes				None
44	M107		BenPIN				Yes				None
45	M108						Yes				None
46	M109						Yes				None
47	M110						Yes				None
48	M111						Yes				None
49	M112						Yes				None
50	M113						Yes				None
51	M114						Yes	** NA **			None
52	M115						Yes	** NA **			None
53	M116						Yes	** NA **			None
54	M117						Yes	** NA **			None
55	M82A						Yes	** NA **			None
56	M86A						Yes	** NA **			None
57	M88A						Yes	** NA **			None
58	MP2A						Yes				None
59	MP1A						Yes				None
60	MP3A						Yes				None
61	M91A						Yes				None
62	M92A						Yes				None
63	M75A						Yes	** NA **			None
64	M76A						Yes	** NA **			None
65	M77A						Yes	** NA **			None
66	MP2C						Yes				None
67	MP1C						Yes				None
68	MP3C						Yes				None
69	M81A						Yes	** NA **			None
70	M82B						Yes	** NA **			None
71	M83A						Yes	** NA **			None
72	MP2B						Yes				None
73	MP1B						Yes				None
74	MP3B						Yes				None
75	M85A						Yes				None
76	M86B						Yes				None
77	M79						Yes	** NA **			None
78	M80						Yes	** NA **			None
79	M81		BenPIN				Yes				None
80	M82C		BenPIN				Yes				None
81	M83B						Yes	** NA **			None
82	M84A						Yes	** NA **			None
83	M85B		BenPIN				Yes				None
84	M86C		BenPIN				Yes				None
85	M87A						Yes	** NA **			None
86	M88B						Yes	** NA **			None
87	M89A						Yes	** NA **			None
88	M90A						Yes				None
89	M91						Yes	** NA **			None
90	M92B						Yes	** NA **			None
91	M93A						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
92	M94A						Yes				None
93	M95A						Yes	** NA **			None
94	M96A						Yes	** NA **			None
95	M97A						Yes	** NA **			None
96	M98A						Yes				None
97	M99A						Yes				None
98	M100A						Yes				None
99	M101A						Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M3	Footrail Con...	.375			Lbyy			.65	.65		Lateral
2	M4	Footrail Con...	.375			Lbyy			.65	.65		Lateral
3	M5	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
4	M7	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
5	M9	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
6	M10	Grating Ang...	4.209			Lbyy			.65	.65		Lateral
7	M11	Footrail Con...	.322			Lbyy			.8	.8		Lateral
8	M12	Footrail Con...	.321			Lbyy			.8	.8		Lateral
9	M13	Standoff Arm	5.355			Lbyy			2.1	2.1		Lateral
10	M14	Plan Bracing	2.58			Lbyy			1	1		Lateral
11	M15	Plan Bracing	2.58			Lbyy			1	1		Lateral
12	M18	Footrails	13.5			Lbyy			1	1		Lateral
13	M86	Footrail Con...	.375			Lbyy			.65	.65		Lateral
14	M87	Footrail Con...	.375			Lbyy			.65	.65		Lateral
15	M88	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
16	M89	Plan Bracin...	.165			Lbyy			.8	.8		Lateral
17	M90	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
18	M92	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
19	M93	Grating Ang...	4.209			Lbyy			.65	.65		Lateral
20	M94	Footrail Con...	.322			Lbyy			.8	.8		Lateral
21	M95	Footrail Con...	.321			Lbyy			.8	.8		Lateral
22	M96	Plan Bracing	2.581			Lbyy			1	1		Lateral
23	M97	Plan Bracing	2.579			Lbyy			1	1		Lateral
24	M102	Footrail Con...	.374			Lbyy			.65	.65		Lateral
25	M103	Footrail Con...	.376			Lbyy			.65	.65		Lateral
26	M104	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
27	M106	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
28	M107	Plan Bracin...	.167			Lbyy			.8	.8		Lateral
29	M108	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
30	M109	Grating Ang...	4.209			Lbyy			.65	.65		Lateral
31	M110	Footrail Con...	.322			Lbyy			.8	.8		Lateral
32	M111	Footrail Con...	.321			Lbyy			.8	.8		Lateral
33	M112	Plan Bracing	2.581			Lbyy			1	1		Lateral
34	M113	Plan Bracing	2.579			Lbyy			1	1		Lateral
35	MP2A	Mount Pipe 1	8			Lbyy						Lateral
36	MP1A	Mount Pipe 1	8			Lbyy						Lateral
37	MP3A	Mount Pipe 2	8			Lbyy						Lateral
38	M91A	Footrails	13.5			Lbyy			1	1		Lateral
39	M92A	Footrails	13.5			Lbyy			1	1		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
40	MP2C	Mount Pipe 1	8			Lbyy						Lateral
41	MP1C	Mount Pipe 1	8			Lbyy						Lateral
42	MP3C	Mount Pipe 2	8			Lbyy						Lateral
43	MP2B	Mount Pipe 1	8			Lbyy						Lateral
44	MP1B	Mount Pipe 1	8			Lbyy						Lateral
45	MP3B	Mount Pipe 2	8			Lbyy						Lateral
46	M85A	Standoff Arm	5.353			Lbyy			2.1	2.1		Lateral
47	M86B	Standoff Arm	5.355			Lbyy			2.1	2.1		Lateral
48	M81	Plan Bracin...	.165			Lbyy			.8	.8		Lateral
49	M82C	Plan Bracin...	.167			Lbyy			.8	.8		Lateral
50	M85B	Plan Bracin...	.165			Lbyy			.8	.8		Lateral
51	M86C	Plan Bracin...	.167			Lbyy			.8	.8		Lateral
52	M90A	New Suppor...	13.5			Lbyy						Lateral
53	M94A	New Suppor...	13.5			Lbyy						Lateral
54	M98A	New Suppor...	13.5			Lbyy						Lateral
55	M99A	New Suppor...	2.27			Lbyy						Lateral
56	M100A	New Suppor...	2.27			Lbyy						Lateral
57	M101A	New Suppor...	2.27			Lbyy						Lateral

Joint Loads and Enforced Displacements

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

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	N5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N29						
3	N121B	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N123	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	N5	max	1813.848	4	3114.304	5	2887.523	1	6.887	5	2.514	3	.482	3
2		min	-1813.189	3	606.418	2	-3345.605	2	.877	2	-2.513	4	-.448	4
3	N121B	max	2346.416	4	3243.339	8	1988.264	1	-.614	1	1.326	1	-1.017	3
4		min	-2748.175	3	766.53	3	-1759.629	2	-3.598	6	-1.325	2	-6.288	8
5	N123	max	2691.562	4	3246.701	7	2061.297	1	-.567	1	1.372	2	6.229	7
6		min	-2290.478	3	766.359	4	-1831.836	2	-3.685	6	-1.372	1	1.105	4
7	Totals:	max	6851.826	4	9188.204	5	6937.084	1						
8		min	-6851.843	3	3558.468	2	-6937.07	2						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	.012	4	.015	3	.057	2	4.997e-3	2	1.377e-3	2	4.942e-3	4
2		min	-.011	3	-.431	8	-.057	1	-3.958e-3	1	-1.367e-3	1	-2.713e-3	3
3	N2	max	.011	4	-.008	4	.061	2	4.453e-3	2	1.657e-3	1	1.567e-3	4

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
4		min	-.012	3	-.446	7	-.062	1	-2.394e-3	1	-1.679e-3	2	-4.642e-3	7
5	N5	max	0	11	0	11	0	11	0	11	0	11	0	11
6		min	0	1	0	1	0	1	0	1	0	1	0	1
7	N7	max	.011	4	-.027	4	.036	3	4.394e-3	2	1.541e-3	1	8.867e-4	4
8		min	-.012	3	-.373	7	-.037	4	-2.128e-3	1	-1.491e-3	2	-5.334e-3	7
9	N8	max	.012	4	-.017	1	.023	2	5.222e-3	6	1.067e-3	2	4.142e-4	4
10		min	-.012	3	-.176	6	-.024	1	-9.079e-4	1	-1.19e-3	1	-1.93e-3	7
11	N9	max	.012	4	-.019	1	.021	2	4.95e-3	6	1.142e-3	1	3.134e-3	9
12		min	-.012	3	-.171	6	-.021	1	-1.36e-3	1	-1.002e-3	2	-4.463e-4	3
13	N10	max	.012	4	-.02	3	.038	4	4.875e-3	2	1.339e-3	2	5.489e-3	9
14		min	-.011	3	-.368	8	-.039	3	-3.494e-3	1	-1.406e-3	1	-1.65e-3	3
15	N11	max	.014	3	-.011	3	.043	4	4.296e-3	2	7.647e-4	2	5.855e-3	8
16		min	-.013	4	-.376	8	-.043	3	-2.148e-3	1	-7.018e-4	1	-2.203e-3	3
17	N14	max	.084	3	.014	2	.026	2	2.314e-3	2	2.287e-3	4	3.245e-3	4
18		min	-.084	4	-.352	5	-.025	1	-5.495e-3	1	-2.352e-3	3	-3.733e-3	3
19	N15	max	.084	3	.012	2	.025	2	1.798e-3	2	2.496e-3	4	2.862e-3	4
20		min	-.084	4	-.359	5	-.025	1	-6.121e-3	5	-2.443e-3	3	-2.933e-3	3
21	N18	max	.015	3	-.018	4	.041	3	4.771e-3	2	5.888e-4	1	2.625e-3	4
22		min	-.015	4	-.368	7	-.042	4	-2.559e-3	1	-6.659e-4	2	-5.279e-3	3
23	N19	max	.021	3	-.007	2	0	2	-5.058e-4	2	1.375e-3	4	7.13e-4	4
24		min	-.021	4	-.066	5	0	1	-5.58e-3	5	-1.377e-3	3	-7.676e-4	3
25	N20	max	.021	3	-.013	2	.031	3	-1.174e-3	2	1.001e-3	4	-6.917e-5	4
26		min	-.021	4	-.12	5	-.031	4	-6.466e-3	5	-1.017e-3	3	-3.086e-3	7
27	N21	max	.021	3	-.016	2	.031	4	-1.207e-3	2	1.049e-3	4	2.97e-3	8
28		min	-.021	4	-.115	5	-.032	3	-6.477e-3	5	-1.028e-3	3	-2.615e-5	3
29	N22	max	.083	3	.015	2	.003	2	1.402e-3	2	1.281e-3	4	9.174e-4	4
30		min	-.083	4	-.365	5	-.002	1	-6.859e-3	5	-1.271e-3	3	-1.212e-3	3
31	N23	max	.083	3	.015	2	.01	2	1.531e-3	2	2.674e-3	1	9.328e-4	4
32		min	-.083	4	-.367	5	-.009	1	-6.067e-3	5	-2.763e-3	2	-1.247e-3	3
33	N24	max	.083	3	.016	2	.01	2	2.124e-3	2	2.81e-3	2	9.465e-4	4
34		min	-.083	4	-.363	5	-.009	1	-5.515e-3	1	-2.726e-3	1	-1.233e-3	3
35	N25	max	.021	3	-.015	2	.035	3	-1.196e-3	2	1.065e-3	1	-7.14e-5	4
36		min	-.021	4	-.135	5	-.036	4	-6.61e-3	5	-1.1e-3	2	-3.126e-3	7
37	N26	max	.021	3	-.018	2	.036	4	-1.232e-3	2	1.094e-3	2	3.011e-3	8
38		min	-.021	4	-.129	5	-.036	3	-6.62e-3	5	-1.051e-3	1	-2.73e-5	3
39	N27	max	.004	1	-.012	4	.009	2	3.102e-3	6	5.705e-4	4	-7.101e-4	4
40		min	-.005	2	-.069	7	-.009	1	1.373e-4	1	-5.732e-4	3	-5.045e-3	7
41	N28	max	.016	4	-.021	4	.032	3	3.923e-3	6	8.162e-4	4	6.861e-4	4
42		min	-.016	3	-.38	7	-.033	4	-4.715e-4	1	-8.072e-4	3	-5.976e-3	7
43	N29	max	.004	2	-.011	3	.008	2	2.964e-3	6	5.874e-4	4	5.138e-3	8
44		min	-.004	1	-.069	8	-.008	1	2.029e-4	1	-5.897e-4	3	5.884e-4	3
45	N30	max	.017	4	-.014	3	.034	4	4.715e-3	9	8.549e-4	4	6.383e-3	8
46		min	-.017	3	-.382	8	-.034	3	-5.199e-4	1	-8.445e-4	3	-8.329e-4	3
47	N131	max	.015	4	-.027	4	.036	3	4.013e-3	6	2.626e-3	2	8.867e-4	4
48		min	-.015	3	-.365	7	-.037	4	-1.119e-3	1	-2.603e-3	1	-5.334e-3	7
49	N132	max	.016	4	-.021	3	.038	4	6.372e-3	9	2.489e-3	1	5.489e-3	9
50		min	-.015	3	-.363	8	-.039	3	-1.533e-3	1	-2.553e-3	2	-1.65e-3	3
51	N133	max	.084	3	.01	2	.018	2	1.569e-3	2	3.738e-3	1	1.309e-3	4
52		min	-.084	4	-.351	5	-.018	1	-6.356e-3	5	-3.734e-3	2	-1.873e-3	3
53	N134	max	.01	3	-.021	4	.033	3	3.355e-3	6	4.629e-3	4	1.889e-3	4
54		min	-.01	4	-.363	7	-.033	4	-1.084e-3	1	-4.673e-3	3	-4.58e-3	3
55	N135	max	.009	3	-.014	3	.034	4	4.064e-3	9	4.584e-3	4	6.19e-3	8

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
56		min	-.008	4	-.368	8	-.034	3	-9.486e-4	1	-4.585e-3	3	-1.465e-3	3
57	N136	max	.084	3	.01	2	.019	2	2.504e-3	2	3.764e-3	2	1.263e-3	4
58		min	-.084	4	-.347	5	-.018	1	-5.671e-3	1	-3.817e-3	1	-1.768e-3	3
59	N137	max	.011	4	-.019	1	.023	2	5.222e-3	6	1.067e-3	2	4.142e-4	4
60		min	-.011	3	-.166	6	-.024	1	-9.079e-4	1	-1.19e-3	1	-1.93e-3	7
61	N138	max	.011	4	-.021	1	.021	2	4.95e-3	6	1.142e-3	1	3.134e-3	9
62		min	-.011	3	-.162	6	-.021	1	-1.36e-3	1	-1.002e-3	2	-4.463e-4	3
63	N143	max	.028	3	-.017	2	.035	3	-1.098e-3	2	6.223e-3	4	1.153e-3	4
64		min	-.028	4	-.146	5	-.035	4	-6.493e-3	5	-6.01e-3	3	-2.236e-3	3
65	N144	max	.028	3	-.02	2	.035	4	-1.135e-3	2	5.804e-3	4	2.351e-3	4
66		min	-.028	4	-.141	5	-.036	3	-6.488e-3	5	-5.903e-3	3	-1.452e-3	3
67	N145	max	.025	3	-.013	2	.026	3	-1.174e-3	2	1.001e-3	4	-6.917e-5	4
68		min	-.021	4	-.12	5	-.037	4	-6.466e-3	5	-1.017e-3	3	-3.086e-3	7
69	N146	max	.021	3	-.016	2	.027	4	-1.207e-3	2	1.049e-3	4	2.97e-3	8
70		min	-.025	4	-.115	5	-.038	3	-6.477e-3	5	-1.028e-3	3	-2.615e-5	3
71	N147	max	.081	3	.013	2	.003	2	1.397e-3	2	1.28e-3	4	8.886e-4	4
72		min	-.081	4	-.355	5	-.002	1	-6.869e-3	5	-1.269e-3	3	-1.174e-3	3
73	N148	max	.083	3	.013	2	.006	2	1.397e-3	2	1.28e-3	4	8.886e-4	4
74		min	-.083	4	-.355	5	-.015	1	-6.869e-3	5	-1.269e-3	3	-1.174e-3	3
75	N149	max	.083	3	.013	2	.006	2	1.397e-3	2	1.28e-3	4	8.886e-4	4
76		min	-.083	4	-.355	5	-.015	1	-6.869e-3	5	-1.269e-3	3	-1.174e-3	3
77	N150	max	.083	3	.013	2	.006	2	1.397e-3	2	1.28e-3	4	8.886e-4	4
78		min	-.083	4	-.354	5	-.015	1	-6.869e-3	5	-1.269e-3	3	-1.174e-3	3
79	N151	max	.027	3	-.011	3	.02	4	1.517e-3	9	1.855e-3	4	7.453e-3	8
80		min	-.027	4	-.125	8	-.02	3	-4.694e-4	1	-1.876e-3	3	1.502e-3	3
81	N152	max	.01	4	-.012	1	.009	2	6.093e-3	6	4.768e-4	1	4.528e-3	8
82		min	-.011	3	-.124	6	-.009	1	1.045e-3	1	-4.526e-4	2	7.093e-4	3
83	N153	max	.01	2	-.012	3	.039	4	3.919e-3	9	3.778e-3	4	5.72e-3	8
84		min	-.01	1	-.384	8	-.039	3	-7.749e-4	1	-3.869e-3	3	-1.023e-3	3
85	N154	max	.017	4	-.015	3	.034	4	4.696e-3	9	2.266e-3	1	5.104e-3	9
86		min	-.016	3	-.38	8	-.034	3	-7.027e-4	1	-2.19e-3	2	-1.603e-3	3
87	N155	max	.036	3	-.011	3	.025	4	1.541e-3	9	1.954e-3	4	7.597e-3	8
88		min	-.036	4	-.14	8	-.025	3	-4.658e-4	1	-1.99e-3	3	1.525e-3	3
89	N156	max	.011	4	-.012	1	.01	2	6.202e-3	6	5.501e-4	1	4.633e-3	8
90		min	-.011	3	-.139	6	-.01	1	1.058e-3	1	-5.082e-4	2	7.359e-4	3
91	N157	max	.034	3	-.014	3	.028	4	2.546e-3	6	2.838e-3	2	6.835e-3	8
92		min	-.034	4	-.152	8	-.028	3	-8.23e-4	1	-2.693e-3	1	9.112e-4	3
93	N158	max	.011	4	-.016	1	.013	2	5.074e-3	6	2.968e-3	2	5.336e-3	8
94		min	-.011	3	-.152	6	-.013	1	-1.518e-4	1	-3.075e-3	1	7.997e-4	3
95	N159	max	.024	3	-.011	3	.02	4	1.517e-3	9	1.855e-3	4	7.453e-3	8
96		min	-.036	4	-.125	8	-.018	3	-4.694e-4	1	-1.876e-3	3	1.502e-3	3
97	N160	max	.005	4	-.012	1	.016	2	6.093e-3	6	4.768e-4	1	4.528e-3	8
98		min	-.012	3	-.124	6	-.007	1	1.045e-3	1	-4.526e-4	2	7.093e-4	3
99	N161	max	.017	4	-.015	3	.033	4	4.685e-3	9	8.56e-4	4	6.384e-3	8
100		min	-.016	3	-.372	8	-.033	3	-4.896e-4	1	-8.453e-4	3	-8.217e-4	3
101	N162	max	.006	4	-.015	3	.037	4	4.685e-3	9	8.56e-4	4	6.384e-3	8
102		min	-.014	3	-.372	8	-.033	3	-4.896e-4	1	-8.453e-4	3	-8.217e-4	3
103	N163	max	.005	4	-.014	3	.038	4	4.685e-3	9	8.56e-4	4	6.384e-3	8
104		min	-.014	1	-.372	8	-.033	3	-4.896e-4	1	-8.453e-4	3	-8.217e-4	3
105	N164	max	.007	4	-.015	3	.037	4	4.685e-3	9	8.56e-4	4	6.384e-3	8
106		min	-.015	3	-.371	8	-.032	3	-4.896e-4	1	-8.453e-4	3	-8.217e-4	3
107	N165	max	.01	4	-.011	1	.01	2	6.197e-3	6	4.905e-4	2	-8.241e-4	4

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
108		min	-.01	3	-.127	6	-.009	1	9.892e-4	1	-5.096e-4	1	-4.421e-3	7
109	N166	max	.027	3	-.015	4	.02	3	1.303e-3	2	1.855e-3	4	-1.666e-3	4
110		min	-.026	4	-.121	7	-.02	4	-5.856e-4	1	-1.829e-3	3	-7.385e-3	7
111	N167	max	.016	4	-.023	4	.032	3	3.529e-3	6	2.284e-3	2	9.398e-4	4
112		min	-.016	3	-.382	7	-.033	4	-5.509e-4	1	-2.363e-3	1	-5.279e-3	7
113	N168	max	.01	1	-.019	4	.038	3	3.222e-3	6	3.955e-3	4	1.167e-3	4
114		min	-.01	2	-.379	7	-.038	4	-1.024e-3	1	-3.865e-3	3	-4.636e-3	7
115	N169	max	.011	4	-.01	1	.011	2	6.305e-3	6	5.457e-4	2	-8.481e-4	4
116		min	-.011	3	-.143	6	-.011	1	1.006e-3	1	-5.789e-4	1	-4.526e-3	7
117	N170	max	.035	3	-.016	4	.025	3	1.329e-3	2	1.979e-3	4	-1.69e-3	4
118		min	-.035	4	-.136	7	-.025	4	-5.817e-4	1	-1.935e-3	3	-7.529e-3	7
119	N171	max	.011	4	-.014	1	.014	2	5.246e-3	6	3.572e-3	1	-9.303e-4	4
120		min	-.011	3	-.156	6	-.014	1	2.462e-5	1	-3.339e-3	2	-5.174e-3	7
121	N172	max	.033	3	-.019	4	.028	3	2.792e-3	6	2.732e-3	1	-1.027e-3	4
122		min	-.033	4	-.148	7	-.028	4	-9.409e-4	1	-2.764e-3	2	-6.694e-3	7
123	N173	max	.012	4	-.011	1	.017	2	6.197e-3	6	4.905e-4	2	-8.241e-4	4
124		min	-.005	3	-.127	6	-.007	1	9.892e-4	1	-5.096e-4	1	-4.421e-3	7
125	N174	max	.035	3	-.015	4	.02	3	1.303e-3	2	1.855e-3	4	-1.666e-3	4
126		min	-.023	4	-.121	7	-.018	4	-5.856e-4	1	-1.829e-3	3	-7.385e-3	7
127	N175	max	.016	4	-.022	4	.031	3	3.912e-3	6	8.17e-4	4	6.723e-4	4
128		min	-.016	3	-.37	7	-.032	4	-4.474e-4	1	-8.076e-4	3	-5.988e-3	7
129	N176	max	.014	4	-.022	4	.037	3	3.912e-3	6	8.17e-4	4	6.723e-4	4
130		min	-.006	3	-.37	7	-.031	4	-4.474e-4	1	-8.076e-4	3	-5.988e-3	7
131	N177	max	.015	4	-.023	4	.036	3	3.912e-3	6	8.17e-4	4	6.723e-4	4
132		min	-.007	3	-.37	7	-.031	4	-4.474e-4	1	-8.076e-4	3	-5.988e-3	7
133	N178	max	.013	4	-.022	4	.037	3	3.912e-3	6	8.17e-4	4	6.723e-4	4
134		min	-.005	3	-.37	7	-.032	4	-4.474e-4	1	-8.076e-4	3	-5.988e-3	7
135	N107	max	.012	4	.001	3	.05	2	4.997e-3	2	1.377e-3	2	4.941e-3	4
136		min	-.011	3	-.412	8	-.05	1	-3.958e-3	1	-1.366e-3	1	-2.713e-3	3
137	N111	max	.011	4	-.016	1	.04	2	5.072e-3	6	2.244e-4	3	1.436e-3	9
138		min	-.011	3	-.166	6	-.043	1	-7.098e-4	1	-2.364e-4	4	-9.349e-4	3
139	N113	max	.011	4	-.016	4	.052	2	4.453e-3	2	1.656e-3	1	1.568e-3	4
140		min	-.012	3	-.423	7	-.053	1	-2.394e-3	1	-1.678e-3	2	-4.641e-3	7
141	N115	max	.015	4	-.001	3	.05	2	4.997e-3	2	1.377e-3	2	4.941e-3	4
142		min	-.014	3	-.415	8	-.05	1	-3.958e-3	1	-1.366e-3	1	-2.713e-3	3
143	N119	max	.011	4	-.014	1	.04	2	5.072e-3	6	2.244e-4	3	1.436e-3	9
144		min	-.011	3	-.181	6	-.043	1	-7.098e-4	1	-2.364e-4	4	-9.349e-4	3
145	N121A	max	.013	4	-.019	4	.052	2	4.453e-3	2	1.656e-3	1	1.568e-3	4
146		min	-.014	3	-.431	7	-.053	1	-2.394e-3	1	-1.678e-3	2	-4.641e-3	7
147	N123A	max	.257	3	-.002	3	.342	2	5.111e-3	2	1.928e-3	4	4.9e-3	4
148		min	-.268	4	-.416	8	-.338	1	-5.15e-3	1	-1.809e-3	3	-4.657e-3	3
149	N124A	max	.2	4	-.001	3	.087	1	4.277e-3	2	1.377e-3	2	4.709e-3	9
150		min	-.108	3	-.416	8	-.131	2	-3.238e-3	1	-1.366e-3	1	-2.191e-3	3
151	N126A	max	.25	3	-.019	4	.343	2	5.028e-3	2	1.541e-3	2	3.506e-3	4
152		min	-.239	4	-.431	7	-.318	1	-4.624e-3	1	-1.872e-3	1	-4.407e-3	3
153	N128A	max	.024	4	-.019	4	.007	3	3.065e-3	6	1.656e-3	1	3.12e-5	9
154		min	-.179	7	-.431	7	-.127	8	1.426e-4	1	-1.678e-3	2	-4.145e-3	6
155	N129A	max	.231	3	-.015	1	.609	2	1.101e-2	2	4.252e-4	3	3.052e-3	4
156		min	-.236	4	-.182	6	-.599	1	-1.155e-2	1	-4.521e-4	4	-3.055e-3	3
157	N130A	max	.185	3	-.014	1	.388	2	1.505e-2	1	2.244e-4	3	6.372e-3	3
158		min	-.19	4	-.181	6	-.52	1	-1.197e-2	2	-2.364e-4	4	-6.492e-3	4
159	N131B	max	.016	3	.003	4	.041	3	5.03e-3	2	6.949e-4	1	3.267e-3	4

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
160		min	-.017	4	-.429	7	-.041	4	-3.453e-3	1	-6.941e-4	2	-5.16e-3	3
161	N132A	max	.118	3	.039	2	.029	2	2.388e-3	2	2.703e-3	4	3.048e-3	4
162		min	-.119	4	-.43	5	-.028	1	-5.764e-3	1	-2.72e-3	3	-3.238e-3	3
163	N133B	max	.115	3	.051	2	.03	2	3.201e-3	2	2.387e-3	4	3.677e-3	4
164		min	-.115	4	-.412	5	-.029	1	-5.414e-3	1	-2.376e-3	3	-3.995e-3	3
165	N134A	max	.018	2	.005	3	.042	4	4.52e-3	2	9.083e-4	2	5.832e-3	4
166		min	-.017	1	-.45	8	-.042	3	-2.79e-3	1	-9.166e-4	1	-2.679e-3	3
167	N99	max	.016	3	-.005	4	.041	3	5.03e-3	2	6.948e-4	1	3.267e-3	4
168		min	-.017	4	-.41	7	-.041	4	-3.454e-3	1	-6.94e-4	2	-5.16e-3	3
169	N100	max	.048	3	-.024	4	.025	2	9.835e-4	2	2.761e-4	1	4.982e-4	4
170		min	-.05	4	-.157	7	-.023	1	-2.457e-3	5	-2.896e-4	2	-4.001e-3	7
171	N101	max	.106	3	.028	2	.028	2	2.388e-3	2	2.703e-3	4	3.048e-3	4
172		min	-.107	4	-.407	5	-.027	1	-5.764e-3	1	-2.72e-3	3	-3.238e-3	3
173	N102	max	.016	3	.003	4	.041	3	5.03e-3	2	6.948e-4	1	3.267e-3	4
174		min	-.017	4	-.417	7	-.041	4	-3.454e-3	1	-6.94e-4	2	-5.16e-3	3
175	N103	max	.049	3	-.022	4	.025	2	9.835e-4	2	2.761e-4	1	4.982e-4	4
176		min	-.051	4	-.171	7	-.024	1	-2.457e-3	5	-2.896e-4	2	-4.001e-3	7
177	N104	max	.11	3	.032	2	.027	2	2.388e-3	2	2.703e-3	4	3.048e-3	4
178		min	-.111	4	-.416	5	-.026	1	-5.764e-3	1	-2.72e-3	3	-3.238e-3	3
179	N105	max	.275	3	.003	4	.341	2	5.376e-3	2	1.566e-3	4	4.398e-3	4
180		min	-.272	4	-.417	7	-.324	1	-4.976e-3	1	-1.456e-3	3	-4.407e-3	3
181	N106	max	.094	4	.003	4	.091	1	4.456e-3	2	6.948e-4	1	2.597e-3	4
182		min	-.173	3	-.417	7	-.156	2	-2.882e-3	1	-6.94e-4	2	-4.489e-3	3
183	N107A	max	.396	3	.032	2	.295	2	3.808e-3	2	3.675e-4	3	4.67e-3	4
184		min	-.384	4	-.416	5	-.306	1	-4.581e-3	1	-7.017e-4	4	-4.491e-3	3
185	N108	max	.057	9	.032	2	.2	5	5.719e-4	2	2.703e-3	4	1.496e-3	9
186		min	-.066	4	-.416	5	-.011	2	-4.786e-3	5	-2.72e-3	3	-8.587e-4	3
187	N109	max	.5	3	-.022	4	.356	2	5.187e-3	2	1.019e-3	4	8.688e-3	4
188		min	-.494	4	-.172	7	-.346	1	-4.734e-3	1	-1.04e-3	3	-8.151e-3	3
189	N110	max	.365	3	-.022	4	.286	2	6.956e-3	1	2.761e-4	1	1.073e-2	3
190		min	-.472	4	-.171	7	-.224	1	-8.404e-3	2	-2.896e-4	2	-1.322e-2	4
191	N111A	max	.105	3	.037	2	.029	2	3.201e-3	2	2.387e-3	4	3.677e-3	4
192		min	-.104	4	-.394	5	-.028	1	-5.414e-3	1	-2.375e-3	3	-3.995e-3	3
193	N112	max	.051	3	-.019	3	.024	2	9.083e-4	2	2.525e-4	4	4.23e-3	8
194		min	-.049	4	-.158	8	-.023	1	-2.152e-3	5	-2.716e-4	3	-7.491e-4	3
195	N113A	max	.016	3	-.001	3	.042	4	4.52e-3	2	9.082e-4	2	5.832e-3	4
196		min	-.014	4	-.427	8	-.042	3	-2.79e-3	1	-9.165e-4	1	-2.679e-3	3
197	N114	max	.108	3	.042	2	.027	2	3.201e-3	2	2.387e-3	4	3.677e-3	4
198		min	-.108	4	-.399	5	-.027	1	-5.414e-3	1	-2.375e-3	3	-3.995e-3	3
199	N115A	max	.052	3	-.017	3	.024	2	9.083e-4	2	2.525e-4	4	4.23e-3	8
200		min	-.049	4	-.172	8	-.023	1	-2.152e-3	5	-2.716e-4	3	-7.491e-4	3
201	N116	max	.016	3	.006	3	.042	4	4.52e-3	2	9.082e-4	2	5.832e-3	4
202		min	-.014	4	-.437	8	-.042	3	-2.79e-3	1	-9.165e-4	1	-2.679e-3	3
203	N117	max	.358	3	.042	2	.271	2	4.73e-3	2	8.866e-4	3	4.976e-3	4
204		min	-.353	4	-.399	5	-.271	1	-4.72e-3	1	-7.606e-4	4	-5.227e-3	3
205	N118	max	.062	9	.042	2	.191	1	1.997e-3	2	2.387e-3	4	2.18e-3	4
206		min	-.033	1	-.399	5	-.082	2	-4.207e-3	1	-2.375e-3	3	-2.498e-3	3
207	N119A	max	.313	3	.006	3	.371	2	5.126e-3	2	1.578e-3	4	5.102e-3	4
208		min	-.342	4	-.437	8	-.359	1	-4.395e-3	1	-1.906e-3	3	-4.374e-3	3
209	N120	max	.168	8	.006	3	.042	1	3.789e-3	2	9.082e-4	2	4.982e-3	8
210		min	-.05	3	-.437	8	-.101	2	-2.061e-3	1	-9.165e-4	1	-1.799e-3	3
211	N121	max	.517	3	-.017	3	.34	2	4.88e-3	2	1.039e-3	4	8.532e-3	4

Envelope Joint Displacements (Continued)

Joint			X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
212		min	-.518	4	-.173	8	-.339	1	-4.428e-3	1	-1.075e-3	3	-9.075e-3	3
213	N122	max	.462	3	-.017	3	.288	2	7.24e-3	1	2.525e-4	4	1.297e-2	3
214		min	-.351	4	-.172	8	-.235	1	-8.479e-3	2	-2.716e-4	3	-1.037e-2	4
215	N121B	max	0	11	0	11	0	11	0	11	0	11	0	11
216		min	0	1	0	1	0	1	0	1	0	1	0	1
217	N123	max	0	11	0	11	0	11	0	11	0	11	0	11
218		min	0	1	0	1	0	1	0	1	0	1	0	1
219	N114A	max	.041	3	-.018	2	.027	3	8.28e-4	2	4.134e-4	1	1.015e-3	4
220		min	-.041	4	-.165	5	-.027	4	-3.798e-3	5	-5.315e-4	2	-3.433e-3	7
221	N115B	max	.032	3	-.021	4	.031	3	1.822e-3	2	1.29e-3	4	8.167e-4	4
222		min	-.032	4	-.167	7	-.031	4	-1.969e-3	1	-1.152e-3	3	-4.815e-3	7
223	N116A	max	.041	3	-.019	2	.028	3	8.28e-4	2	4.134e-4	1	1.015e-3	4
224		min	-.042	4	-.157	5	-.028	4	-3.798e-3	5	-5.315e-4	2	-3.433e-3	7
225	N117A	max	.031	3	-.023	4	.029	3	1.822e-3	2	1.29e-3	4	8.167e-4	4
226		min	-.031	4	-.159	7	-.029	4	-1.969e-3	1	-1.152e-3	3	-4.815e-3	7
227	N120A	max	.034	3	-.016	3	.031	4	1.582e-3	2	1.219e-3	4	5.156e-3	8
228		min	-.034	4	-.172	8	-.03	3	-1.867e-3	1	-1.341e-3	3	-8.904e-4	3
229	N121C	max	.04	3	-.021	2	.028	4	7.254e-4	2	5.151e-4	3	3.266e-3	4
230		min	-.04	4	-.16	5	-.028	3	-3.595e-3	5	-3.821e-4	4	-1.498e-3	3
231	N122A	max	.033	3	-.018	3	.029	4	1.582e-3	2	1.219e-3	4	5.156e-3	8
232		min	-.033	4	-.163	8	-.028	3	-1.867e-3	1	-1.341e-3	3	-8.904e-4	3
233	N123B	max	.041	3	-.022	2	.029	4	7.254e-4	2	5.151e-4	3	3.266e-3	4
234		min	-.04	4	-.152	5	-.029	3	-3.595e-3	5	-3.821e-4	4	-1.498e-3	3
235	N122B	max	.175	3	.022	3	.239	2	5.072e-3	2	1.928e-3	4	4.861e-3	4
236		min	-.18	4	-.424	8	-.234	1	-5.111e-3	1	-1.809e-3	3	-4.618e-3	3
237	N123C	max	.175	3	-.002	4	.245	2	4.965e-3	2	1.54e-3	2	3.442e-3	4
238		min	-.18	4	-.44	7	-.225	1	-4.561e-3	1	-1.871e-3	1	-4.344e-3	3
239	N124	max	.175	3	-.001	3	.245	2	5.072e-3	2	1.928e-3	4	4.861e-3	4
240		min	-.18	4	-.416	8	-.241	1	-5.111e-3	1	-1.809e-3	3	-4.618e-3	3
241	N125	max	.175	3	-.047	1	.412	2	1.035e-2	2	4.252e-4	3	2.731e-3	4
242		min	-.18	4	-.176	6	-.393	1	-1.088e-2	1	-4.521e-4	4	-2.733e-3	3
243	N126	max	.175	3	-.02	4	.253	2	4.965e-3	2	1.541e-3	2	3.443e-3	4
244		min	-.18	4	-.429	7	-.235	1	-4.561e-3	1	-1.872e-3	1	-4.344e-3	3
245	N127	max	.169	3	-.002	3	.245	2	5.072e-3	2	1.928e-3	4	4.861e-3	4
246		min	-.175	4	-.416	8	-.241	1	-5.111e-3	1	-1.809e-3	3	-4.618e-3	3
247	N128	max	.176	3	-.015	1	.412	2	1.035e-2	2	4.252e-4	3	2.731e-3	4
248		min	-.181	4	-.182	6	-.393	1	-1.088e-2	1	-4.521e-4	4	-2.733e-3	3
249	N129	max	.171	3	-.019	4	.253	2	4.965e-3	2	1.541e-3	2	3.443e-3	4
250		min	-.176	4	-.431	7	-.235	1	-4.561e-3	1	-1.872e-3	1	-4.344e-3	3
251	N130	max	.183	3	.002	4	.239	2	5.337e-3	2	1.566e-3	4	4.359e-3	4
252		min	-.179	4	-.42	7	-.23	1	-4.937e-3	1	-1.455e-3	3	-4.368e-3	3
253	N131A	max	.314	3	.041	2	.224	2	3.745e-3	2	3.67e-4	3	4.607e-3	4
254		min	-.298	4	-.423	5	-.224	1	-4.518e-3	1	-7.012e-4	4	-4.428e-3	3
255	N132B	max	.189	3	-.008	4	.243	2	5.337e-3	2	1.566e-3	4	4.36e-3	4
256		min	-.186	4	-.414	7	-.233	1	-4.937e-3	1	-1.456e-3	3	-4.368e-3	3
257	N133A	max	.353	3	-.042	2	.261	2	4.78e-3	2	1.019e-3	4	8.109e-3	4
258		min	-.337	4	-.169	5	-.26	1	-4.327e-3	1	-1.04e-3	3	-7.573e-3	3
259	N134B	max	.316	3	.026	2	.226	2	3.745e-3	2	3.675e-4	3	4.607e-3	4
260		min	-.301	4	-.414	5	-.224	1	-4.518e-3	1	-7.017e-4	4	-4.428e-3	3
261	N135A	max	.191	3	.003	4	.239	2	5.337e-3	2	1.566e-3	4	4.36e-3	4
262		min	-.189	4	-.417	7	-.23	1	-4.937e-3	1	-1.456e-3	3	-4.368e-3	3
263	N136A	max	.354	3	-.022	4	.264	2	4.78e-3	2	1.019e-3	4	8.109e-3	4

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
264		min	-.339	4	-.172	7	-.262	1	-4.327e-3	1	-1.04e-3	3	-7.573e-3	3
265	N137A	max	.315	3	.032	2	.227	2	3.745e-3	2	3.675e-4	3	4.607e-3	4
266		min	-.3	4	-.416	5	-.224	1	-4.518e-3	1	-7.017e-4	4	-4.428e-3	3
267	N138A	max	.298	3	.056	2	.22	2	4.722e-3	2	8.86e-4	3	4.968e-3	4
268		min	-.296	4	-.405	5	-.22	1	-4.713e-3	1	-7.601e-4	4	-5.22e-3	3
269	N139	max	.19	3	.002	3	.239	2	4.924e-3	2	1.577e-3	4	4.894e-3	4
270		min	-.201	4	-.442	8	-.246	1	-4.192e-3	1	-1.906e-3	3	-4.166e-3	3
271	N140	max	.302	3	.035	2	.22	2	4.722e-3	2	8.866e-4	3	4.968e-3	4
272		min	-.299	4	-.398	5	-.22	1	-4.712e-3	1	-7.606e-4	4	-5.22e-3	3
273	N141	max	.353	3	-.044	3	.251	2	4.473e-3	2	1.039e-3	4	7.954e-3	4
274		min	-.363	4	-.17	8	-.257	1	-4.021e-3	1	-1.075e-3	3	-8.497e-3	3
275	N142	max	.198	3	-.006	3	.242	2	4.923e-3	2	1.578e-3	4	4.894e-3	4
276		min	-.208	4	-.433	8	-.248	1	-4.192e-3	1	-1.906e-3	3	-4.166e-3	3
277	N143A	max	.301	3	.042	2	.219	2	4.722e-3	2	8.866e-4	3	4.968e-3	4
278		min	-.298	4	-.399	5	-.219	1	-4.712e-3	1	-7.606e-4	4	-5.22e-3	3
279	N144A	max	.354	3	-.017	3	.253	2	4.473e-3	2	1.039e-3	4	7.954e-3	4
280		min	-.365	4	-.173	8	-.26	1	-4.021e-3	1	-1.075e-3	3	-8.497e-3	3
281	N145A	max	.201	3	.006	3	.239	2	4.923e-3	2	1.578e-3	4	4.894e-3	4
282		min	-.21	4	-.437	8	-.246	1	-4.192e-3	1	-1.906e-3	3	-4.166e-3	3
283	N146A	max	.175	3	-.055	1	.281	2	4.64e-3	2	2.766e-3	1	4.051e-3	9
284		min	-.18	4	-.369	6	-.281	1	-4.249e-3	1	-2.636e-3	2	-1.4e-3	3
285	N148A	max	.175	3	-.048	1	.29	2	4.792e-3	2	2.637e-3	2	6.625e-4	4
286		min	-.18	4	-.373	6	-.28	1	-3.994e-3	1	-3.001e-3	1	-3.823e-3	7
287	N149A	max	.22	3	-.031	4	.26	2	3.18e-3	2	2.587e-3	4	3.26e-3	4
288		min	-.221	4	-.373	7	-.248	1	-1.493e-3	1	-2.468e-3	3	-4.55e-3	3
289	N150A	max	.327	3	-.01	2	.232	2	1.89e-3	2	1.104e-3	3	3.204e-3	4
290		min	-.32	4	-.359	5	-.226	1	-4.302e-3	1	-1.46e-3	4	-2.547e-3	3
291	N152A	max	.327	3	-.016	2	.222	2	2.309e-3	2	1.775e-3	3	2.833e-3	4
292		min	-.32	4	-.355	5	-.22	1	-4.045e-3	1	-1.646e-3	4	-3.582e-3	3
293	N153A	max	.237	3	-.02	3	.254	2	3.041e-3	6	2.687e-3	4	5.144e-3	4
294		min	-.24	4	-.377	8	-.256	1	-9.767e-4	1	-3.043e-3	3	-3.224e-3	3

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

	Member	Shape	Code Check	Loc[ft]	LC	She...	Loc[ft]	.....		phi*P...	phi*P...	phi*...	phi*...	Cb	Eqn
1	MP2A	PIPE_2.0	.709	4.5	2	.062	4.5		1	1491...	32130	1.872	1.872	1.772	H1-...
2	MP2C	PIPE_2.0	.626	4.5	3	.076	4.5		4	1491...	32130	1.872	1.872	1.949	H1-...
3	MP2B	PIPE_2.0	.625	4.5	4	.075	4.5		3	1491...	32130	1.872	1.872	1.976	H1-...
4	M86B	HSS4X4X4	.461	5.355	6	.096	5.355	y	6	8219...	1395...	16.181	16.181	3.038	H1-...
5	M85A	HSS4X4X4	.458	5.353	6	.090	5.353	y	8	8221...	1395...	16.181	16.181	3.052	H1-...
6	M13	HSS4X4X4	.441	5.355	7	.089	5.355	y	7	8219...	1395...	16.181	16.181	3.137	H1-...
7	MP1A	PIPE_2.0	.419	4.5	8	.100	4.5		1	1491...	32130	1.872	1.872	1.883	H1-...
8	MP1B	PIPE_2.0	.406	5.167	5	.071	5.167		1	1491...	32130	1.872	1.872	3.068	H1-...
9	MP1C	PIPE_2.0	.404	4.5	6	.099	4.5		3	1491...	32130	1.872	1.872	1.944	H1-...
10	M7	PL3/8x6	.315	0	4	.233	0	y	8	7225...	72900	.57	9.113	1.289	H1-...
11	M5	PL3/8x6	.298	0	4	.251	0	y	7	7225...	72900	.57	9.113	1.224	H1-...
12	MP3A	PIPE_2.5	.283	4.583	7	.086	4.583		1	3003...	50715	3.596	3.596	1.992	H1-...
13	MP3C	PIPE_2.5	.279	4.583	5	.077	4.583		1	3003...	50715	3.596	3.596	2.067	H1-...
14	MP3B	PIPE_2.5	.278	3.917	6	.104	3.917		4	3003...	50715	3.596	3.596	3.861	H1-...
15	M109	L2x2x3	.234	0	8	.019	4.209	z	8	1607...	2339...	.558	1.239	2.866	H2-1
16	M93	L2x2x3	.233	0	5	.020	0	z	7	1607...	2339...	.558	1.239	2.918	H2-1

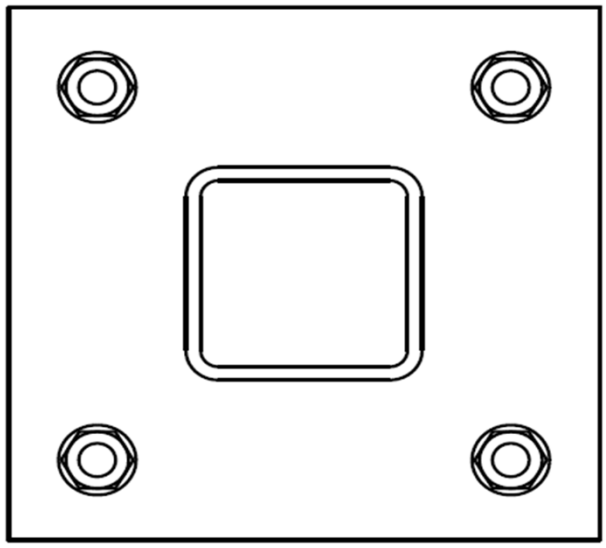
Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	She...	Loc[ft]	.....		phi*P...	phi*P...	phi*...	phi*...	Cb	Eqn
17	M106	PL3/8x6	.228	0	2	.235	0	y	5	7225...	72900	.57	9.113	1.231	H1-...
18	M112	HSS4X4X4	.219	2.581	7	.073	2.581	y	8	1356...	1395...	16.181	16.181	1.752	H1-...
19	M97	HSS4X4X4	.217	0	8	.071	0	y	7	1356...	1395...	16.181	16.181	1.747	H1-...
20	M96	HSS4X4X4	.215	2.581	6	.073	2.581	y	5	1356...	1395...	16.181	16.181	1.75	H1-...
21	M98A	PIPE_2.5	.215	7.031	5	.090	7.031		3	1248...	50715	3.596	3.596	2.172	H1-...
22	M94A	PIPE_2.5	.214	7.031	7	.092	11.391		4	1248...	50715	3.596	3.596	2.034	H1-...
23	M113	HSS4X4X4	.214	0	6	.072	0	y	5	1356...	1395...	16.181	16.181	1.745	H1-...
24	M82C	PL3/8x6	.213	0	4	.108	0	y	4	7189...	72900	.57	9.113	1.668	H1-...
25	M90A	PIPE_2.5	.212	7.031	8	.113	11.391		1	1248...	50715	3.596	3.596	2.198	H1-...
26	M14	HSS4X4X4	.210	2.58	5	.068	2.58	y	7	1356...	1395...	16.181	16.181	1.744	H1-...
27	M15	HSS4X4X4	.209	0	5	.068	0	y	8	1356...	1395...	16.181	16.181	1.74	H1-...
28	M92	L2x2x3	.207	4.21	4	.018	4.21	y	7	1607...	2339...	.558	1.2	1.848	H2-1
29	M108	L2x2x3	.206	0	5	.018	4.21	y	8	1607...	2339...	.558	1.239	2.933	H2-1
30	M88	PL3/8x6	.205	0	2	.254	0	y	5	7225...	72900	.57	9.113	1.229	H1-...
31	M18	PIPE_3.0	.204	4.922	8	.077	1.125		1	2453...	65205	5.749	5.749	2.349	H1-...
32	M107	PL3/8x6	.203	0	1	.097	0	y	1	7189...	72900	.57	9.113	1.668	H1-...
33	M91A	PIPE_3.0	.203	4.922	7	.073	4.922		8	2453...	65205	5.749	5.749	2.346	H1-...
34	M92A	PIPE_3.0	.201	4.922	5	.073	4.922		7	2453...	65205	5.749	5.749	2.322	H1-...
35	M85B	PL3/8x6	.201	0	3	.135	0	y	3	7191...	72900	.57	9.113	1.668	H1-...
36	M99A	L3X3X6	.193	0	1	.033	2.27	y	1	6089...	68364	2.307	5.322	2.19	H2-1
37	M101A	L3X3X6	.191	0	3	.038	2.27	y	3	6089...	68364	2.307	5.322	2.207	H2-1
38	M89	PL3/8x6	.184	0	1	.128	0	y	1	7191...	72900	.57	9.113	1.668	H1-...
39	M100A	L3X3X6	.181	2.27	1	.033	2.27	y	2	6089...	68364	2.307	5.322	2.194	H2-1
40	M10	L2x2x3	.174	0	6	.015	0	z	6	1607...	2339...	.558	1.239	3.011	H2-1
41	M90	PL3/8x6	.157	0	2	.252	0	y	6	7225...	72900	.57	9.113	1.292	H1-...
42	M9	L2x2x3	.154	4.21	1	.013	0	y	6	1607...	2339...	.558	1.19	1.759	H2-1
43	M104	PL3/8x6	.153	0	1	.268	0	y	6	7225...	72900	.57	9.113	1.214	H1-...
44	M102	PL1/2x6	.109	0	3	.106	0	y	5	9513...	97200	1.012	12.15	1.24	H1-...
45	M87	PL1/2x6	.108	0	4	.101	.375	y	9	9512...	97200	1.012	12.15	1.273	H1-...
46	M3	PL1/2x6	.107	0	1	.106	0	y	8	9512...	97200	1.012	12.15	1.236	H1-...
47	M4	PL1/2x6	.107	0	1	.056	0	y	7	9512...	97200	1.012	12.15	1.255	H1-...
48	M86C	PL3/8x6	.107	0	3	.146	0	y	2	7189...	72900	.57	9.113	1.668	H1-...
49	M81	PL3/8x6	.089	0	2	.161	0	y	2	7191...	72900	.57	9.113	1.667	H1-...
50	M103	PL1/2x6	.085	0	2	.058	0	y	6	9510...	97200	1.012	12.15	1.27	H1-...
51	M86	PL1/2x6	.080	0	2	.107	0	y	6	9512...	97200	1.012	12.15	1.235	H1-...
52	M111	PL1/2x6	.078	0	1	.072	0	y	2	9490...	97200	1.012	12.15	2.269	H1-...
53	M94	PL1/2x6	.077	0	1	.140	0	y	9	9487...	97200	1.012	12.15	2.187	H1-...
54	M110	PL1/2x6	.076	0	4	.060	.322	y	4	9487...	97200	1.012	12.15	1.752	H1-...
55	M95	PL1/2x6	.071	0	3	.063	0	y	4	9490...	97200	1.012	12.15	2.17	H1-...
56	M11	PL1/2x6	.071	.322	3	.059	.322	y	3	9487...	97200	1.012	12.15	2.23	H1-...
57	M12	PL1/2x6	.064	.321	4	.070	0	y	3	9490...	97200	1.012	12.15	2.276	H1-...

TES Tower Engineering Solutions	Standoff Arm Flange Connection Check			Date: 5/6/2022
	Customer:	SBA	TIA Standard:	ANSI/TIA-222-G
	Carrier:	T-MOBILE	Mount Elev. [ft]:	108
	Site Name:	Litchfield	Engineer Name:	P.Koirala
	Site Number:	CT46123-A-SBA	Project #:	128732

NOTE: The calculations shown below are for a single representative load combination for example purposes. The results for all load combinations are presented in the Results Summary Table.

RISA Member Label =	M85A	
I or J End?	J	
Load Combination # =	8	
Plate Width, Wp =	10	[In]
Plate Height, Hp =	10	[In]
Plate Thickness, tp =	0.625	[In]
Plate Fy =	36	[KSI]
Bolt Diameter, db =	0.625	[In]
Bolt Fu =	120	[KSI]
Bolt Horizontal Spacing, Sbh =	7	[In]
Bolt Vertical Spacing, Sbv =	7	[In]
Standoff Member Shape =	Rect Tube	
Member Width, Wm =	4	[In]
Member Depth, Dm =	4	[In]
Member Thickness, tm =	0.25	[In]
Standoff Weld Size =	0.1875	[In]
# Standoff Welds =	2	
Length of Stiffener, Ls =		[In]
Width of Stiffener, Ws =		[In]
Width of Notch, Wn =		[In]
Stiffener Dim 1, ds1 =		[In]
Stiffener Dim 2, ds2 =		[In]
Stiffener Fy =		[KSI]
Stiffener Weld Size =		[In]
# Stiffener Welds =		



Typical Connection Detail

NOTES

Standoff and Stiffener welds are assumed 0.1875 in.

Capacity Checks:

Max Bolt Shear =	0.843	[Kips]	
Bolt Shear Capacity =	13.81	[Kips]	
Max Bolt Shear Usage =	6.1%	PASS	
Max Bolt Tension =	6.25	[Kips]	
Bolt Tension Capacity =	20.34	[Kips]	
Max Bolt Tension Usage =	30.7%	PASS	
Max Bolt Interaction =	31.3%	PASS	
Max Plate Bending Moment =	18.67	[Kip-In]	
Length of Yield Line =	9.06	[In]	
Plate Moment Capacity =	28.65	[Kip-In]	
Max Plate Usage =	65.1%	PASS	
Max Weld Usage =	49.4%	PASS	

Tower Engineering Solutions	Standoff Arm Flange Connection Check		Date
			5/6/2022
	Customer: SBA	TIA Standard:	ANSI/TIA-222-G
	Carrier: T-MOBILE	Mount Elev. [ft]:	108
	Site Name: Litchfield	Engineer Name:	P.Koirala
	Site Number: CT46123-A-SBA	Project #:	128732

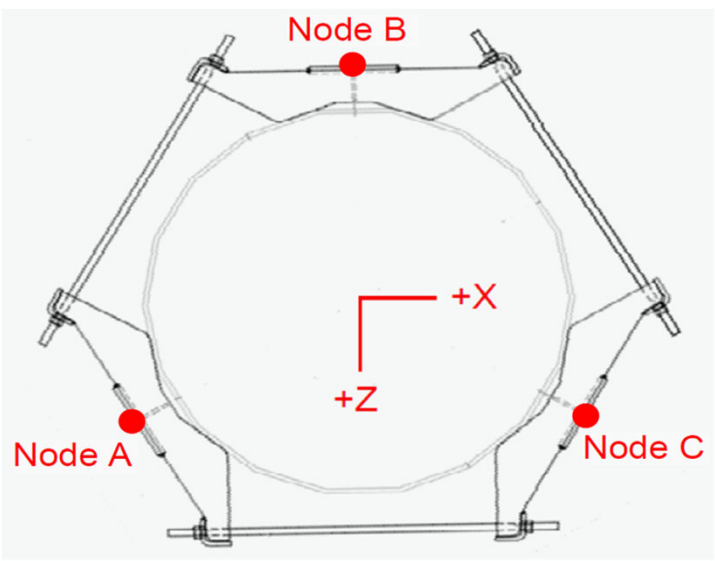
Results Summary Table

Member Label	Member End	Load Combo #	Max Bolt Shear [K]	Max Bolt Tension [K]	Bolt Shear Check	Bolt Tension Check	Bolt Interaction Check	Plate Bending Check	Weld Check
M13	J	1	0.4460	4.2668	3.2%	21.0%	21.2%	44.6%	32.2%
M13	J	2	0.1597	0.0000	1.2%	0.0%	1.2%	0.0%	11.0%
M13	J	3	0.8237	4.2988	6.0%	21.1%	21.7%	41.3%	5.5%
M13	J	4	0.8037	4.1804	5.8%	20.6%	21.1%	40.1%	34.2%
M13	J	5	0.8022	5.9669	5.8%	29.3%	29.9%	62.5%	47.1%
M13	J	6	0.7151	4.7336	5.2%	23.3%	23.8%	49.6%	42.4%
M13	J	7	0.8261	5.9135	6.0%	29.1%	29.5%	56.8%	40.2%
M13	J	8	0.7800	5.8821	5.6%	28.9%	29.4%	56.5%	48.5%
M13	J	9	0.3176	1.9353	2.3%	9.5%	9.7%	19.7%	15.6%
M13	J	10	0.2681	2.0243	1.9%	10.0%	10.1%	21.2%	15.9%
M13	J	11	0.3443	2.4393	2.5%	12.0%	12.2%	25.5%	20.2%
M85A	J	1	0.6144	2.2864	4.5%	11.2%	11.8%	22.0%	7.7%
M85A	J	2	0.6991	4.3928	5.1%	21.6%	21.9%	42.2%	34.2%
M85A	J	3	0.3369	0.5244	2.4%	2.6%	3.5%	5.0%	12.2%
M85A	J	4	0.5389	4.1935	3.9%	20.6%	21.0%	42.3%	32.0%
M85A	J	5	0.8154	5.7010	5.9%	28.0%	28.5%	56.6%	44.0%
M85A	J	6	0.8399	6.3061	6.1%	31.0%	31.5%	62.9%	50.3%
M85A	J	7	0.7670	5.2217	5.6%	25.7%	26.3%	54.4%	45.5%
M85A	J	8	0.8433	6.2482	6.1%	30.7%	31.3%	65.1%	49.4%
M85A	J	9	0.6318	4.8528	4.6%	23.9%	24.3%	49.5%	38.4%
M85A	J	10	0.6617	2.8363	4.8%	13.9%	14.7%	28.4%	22.2%
M85A	J	11	0.3548	2.5769	2.6%	12.7%	12.9%	27.0%	21.3%
M86B	J	1	0.6345	2.2547	4.6%	11.1%	11.6%	21.6%	24.7%
M86B	J	2	0.7527	4.5076	5.5%	22.2%	22.5%	43.3%	17.1%
M86B	J	3	0.4657	4.1658	3.4%	20.5%	20.8%	41.7%	28.9%
M86B	J	4	0.2893	0.6119	2.1%	3.0%	3.7%	5.9%	15.1%
M86B	J	5	0.7837	5.6995	5.7%	28.0%	28.5%	56.5%	48.7%
M86B	J	6	0.8851	6.3454	6.4%	31.2%	31.7%	63.2%	45.8%
M86B	J	7	0.8269	6.2464	6.0%	30.7%	31.2%	65.0%	48.8%
M86B	J	8	0.7923	5.2485	5.7%	25.8%	26.4%	54.6%	46.1%
M86B	J	9	0.3472	1.7391	2.5%	8.6%	8.9%	17.3%	15.6%
M86B	J	10	0.7076	2.9013	5.1%	14.3%	15.1%	29.1%	24.7%
M86B	J	11	0.3634	2.5803	2.6%	12.7%	12.9%	27.0%	21.3%

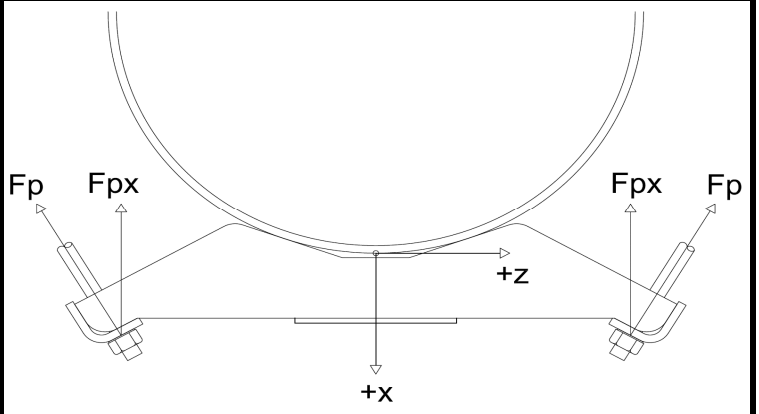
	Collar Mount Calculations		Date
			5/6/2022
Customer:	SBA	TIA Standard:	ANSI/TIA-222-G
Carrier:	T-MOBILE	Mount Elev. [ft]:	108
Site Name:	Litchfield	Engineer Name:	P.koirala
Site Number:	CT46123-A-SBA	TES Project #:	128732

NOTE: The results for all load combinations are presented in the Results Summary Table.

Collar # =	1	
RISA Joint Label =	N121B	
Load Combination # =	7	
Collar Configuration # =	1	
Applied Axial Force, Fx =	-0.567	[Kips]
Applied Moment, M_{UY} =	0.525	[Kip-Ft]
Applied Moment, M_{UZ} =	2.020	[Kip-Ft]
Collar Height, H=	10	[Inches]
# of Rows of Thread Rod, nrows =	3	
Diameter of Thread Rod, db =	0.625	[Inches]
Thread Rod Vert. Spacing, Sv =	3.5	[Inches]
Thread Rod Horiz. Spacing, Sh =	16.5	[Inches]
Thread Rod Fy =	36	[KSI]
Thread Rod Fu =	58	[KSI]
Thread Rod Pretension, Fp =	6.136	[K/bolt]
Fpx =	5.314	[K/bolt]
ϕ =	1.0	



Typical Collar Mount Configuration



Local Coordinates

Check Sliding:

$$\varphi Rns = (2 \cdot nrows \cdot Fpx - T) \cdot \mu$$

Applied Tension, T =	0.567	
Coefficient of Friction, μ =	0.30	
Applied Vertical Shear, Vy =	2.989	[Kips]
ϕRns =	9.395	
Max Usage (Vy/ϕRns):	31.8%	PASS

Check Rotation:

$$\varphi Mny = (2 \cdot nrows \cdot Fpx + Fx) \cdot (Sh/4)$$

Applied Moment, M_{UY} =	0.525	[Kip-Ft]
ϕMny =	10.765	[Kip-Ft]
Max Usage (Muy/ϕMny):	4.9%	PASS

Check Tilting:

$$\varphi Mnz = \sum_{i=1}^{nrows} (2 \cdot Fpx \cdot y_i) - \left(\frac{T \cdot H}{2}\right)$$

Applied Moment, M_{UZ} =	2.020	
ϕMnz =	13.049	
Max Usage (Muz/ϕMnz):	15.5%	PASS

Check Interaction:

$$\sqrt{\left(\frac{Vy}{\varphi Rns}\right)^2 + \left(\frac{Muy}{\varphi Mny}\right)^2 + \left(\frac{Muz}{\varphi Mnz}\right)^2} \leq 1$$

Interaction Check:	35.7%	PASS

	Collar Mount Calculations		Date
			5/6/2022
Customer:	SBA	TIA Standard:	ANSI/TIA-222-G
Carrier:	T-MOBILE	Mount Elev. [ft]:	108
Site Name:	Litchfield	Engineer Name:	P.koirala
Site Number:	CT46123-A-SBA	TES Project #:	128732

Results Summary Table

Collar #	Joint Label	Load Combo #	Tension [K]	Muy [K-Ft]	Muz [K-Ft]	Sliding Check	Rotation Check	Tilting Check	Interaction Check
1	N5	1	0.0000	1.0492	1.4037	17.7%	9.2%	10.6%	22.6%
1	N5	2	1.6936	1.2132	0.1711	6.7%	11.7%	1.4%	13.5%
1	N5	3	0.0000	2.0662	1.2227	12.0%	18.0%	9.2%	23.5%
1	N5	4	1.7012	2.2292	0.3578	12.7%	21.5%	2.8%	25.1%
1	N5	5	0.0000	0.1078	2.1935	32.6%	1.0%	16.5%	36.5%
1	N5	6	0.7165	0.5115	1.8432	29.9%	4.8%	14.2%	33.4%
1	N5	7	0.0000	0.3456	2.1223	30.9%	3.1%	16.0%	34.9%
1	N5	8	0.6879	0.7493	1.9146	31.6%	7.0%	14.7%	35.5%
1	N5	9	0.0460	0.0786	0.5683	11.2%	0.7%	4.3%	12.0%
1	N5	10	0.0000	0.0339	0.7491	10.9%	0.3%	5.6%	12.3%
1	N5	11	0.1350	0.0968	0.9231	14.1%	0.9%	7.0%	15.7%
1	N121B	1	1.9883	1.7352	0.2267	10.4%	16.9%	1.8%	19.9%
1	N121B	2	0.0000	1.5685	1.4026	15.4%	13.6%	10.6%	23.1%
1	N121B	3	1.1597	1.3261	0.5126	8.3%	12.6%	4.0%	15.6%
1	N121B	4	0.0000	1.1597	1.1174	17.2%	10.3%	8.4%	21.7%
1	N121B	5	0.7790	0.6441	1.9505	32.5%	6.0%	15.0%	36.3%
1	N121B	6	0.0000	0.2362	2.2660	33.4%	2.1%	17.1%	37.6%
1	N121B	7	0.5667	0.5251	2.0197	31.8%	4.9%	15.5%	35.7%
1	N121B	8	0.0000	0.1170	2.1976	33.9%	1.1%	16.5%	37.7%
1	N121B	9	0.3956	0.3141	2.1001	23.0%	2.9%	16.0%	28.2%
1	N121B	10	0.2983	0.2499	1.4015	17.0%	2.3%	10.6%	20.2%
1	N121B	11	0.1338	0.0973	0.9536	14.7%	0.9%	7.2%	16.4%
1	N123	1	0.0000	1.9065	2.2082	9.8%	16.4%	16.6%	25.3%
1	N123	2	1.4424	1.9063	4.0905	16.2%	18.2%	32.3%	40.4%
1	N123	3	2.4662	0.0871	4.6189	18.6%	0.9%	37.7%	42.0%
1	N123	4	0.0000	0.0819	1.6778	8.0%	0.7%	12.6%	15.0%
1	N123	5	0.0000	0.4962	7.8697	31.8%	4.4%	59.2%	67.4%
1	N123	6	0.0000	0.5005	8.4181	33.4%	4.6%	63.4%	71.8%
1	N123	7	0.1743	0.0047	8.5628	34.1%	0.0%	64.8%	73.2%
1	N123	8	0.0000	0.0013	7.7257	31.3%	0.0%	58.2%	66.0%
1	N123	9	0.0000	0.1434	2.5286	11.1%	1.3%	19.0%	22.1%
1	N123	10	0.0000	0.1998	4.0495	17.3%	1.8%	30.5%	35.1%
1	N123	11	0.0000	0.0008	3.6801	14.7%	0.0%	27.7%	31.4%

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNH375E

NH375/Sprint607_FT
383 Torrington Road
Litchfield, Connecticut 06759

May 25, 2022

EBI Project Number: 6222003374

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**29.16%**

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

May 25, 2022

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

Emissions Analysis for Site: CTNH375E - NH375/Sprint607_FT

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **383 Torrington Road** in **Litchfield, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 383 Torrington Road in Litchfield, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

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

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

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

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

13) The antennas used in this modeling are the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all

calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antenna mounting height centerline of the proposed antennas is 108 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360.00 Watts	Total TX Power (W):	360.00 Watts	Total TX Power (W):	360.00 Watts
ERP (W):	13,446.73	ERP (W):	13,446.73	ERP (W):	13,446.73
Antenna A1 MPE %:	**4.65%**	Antenna B1 MPE %:	**4.65%**	Antenna C1 MPE %:	**4.65%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200.00 Watts	Total TX Power (W):	200.00 Watts	Total TX Power (W):	200.00 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	**3.41%**	Antenna B2 MPE %:	**3.41%**	Antenna C2 MPE %:	**3.41%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts
ERP (W):	31,011.95	ERP (W):	31,011.95	ERP (W):	31,011.95
Antenna A3 MPE %:	**10.72%**	Antenna B3 MPE %:	**10.72%**	Antenna C3 MPE %:	**10.72%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	18.78%
AT&T	8.71%
Sprint	0.02%
Verizon	1.65%
Site Total MPE % :	29.16%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	18.78%
T-Mobile Sector B Total:	18.78%
T-Mobile Sector C Total:	18.78%
Site Total MPE % :	29.16%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1076.77	108.0	14.88	1900 MHz GSM	1000	1.49%
T-Mobile 1900 MHz LTE	2	2153.53	108.0	14.88	1900 MHz LTE	1000	1.49%
T-Mobile 2100 MHz LTE	2	2416.30	108.0	16.70	2100 MHz LTE	1000	1.67%
T-Mobile 600 MHz LTE	2	591.73	108.0	4.09	600 MHz LTE	400	1.02%
T-Mobile 600 MHz NR	1	1577.94	108.0	5.45	600 MHz NR	400	1.36%
T-Mobile 700 MHz LTE	2	695.22	108.0	4.80	700 MHz LTE	467	1.03%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	9619.47	108.0	33.24	2500 MHz LTE 1C & 2C Traffic	1000	3.32%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	717.84	108.0	2.48	2500 MHz LTE 1C & 2C Broadcast	1000	0.25%
T-Mobile 2500 MHz NR Traffic	1	19238.94	108.0	66.48	2500 MHz NR Traffic	1000	6.65%
T-Mobile 2500 MHz NR Broadcast	1	1435.69	108.0	4.96	2500 MHz NR Broadcast	1000	0.50%
						Total:	**18.78%**

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

Summary

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

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

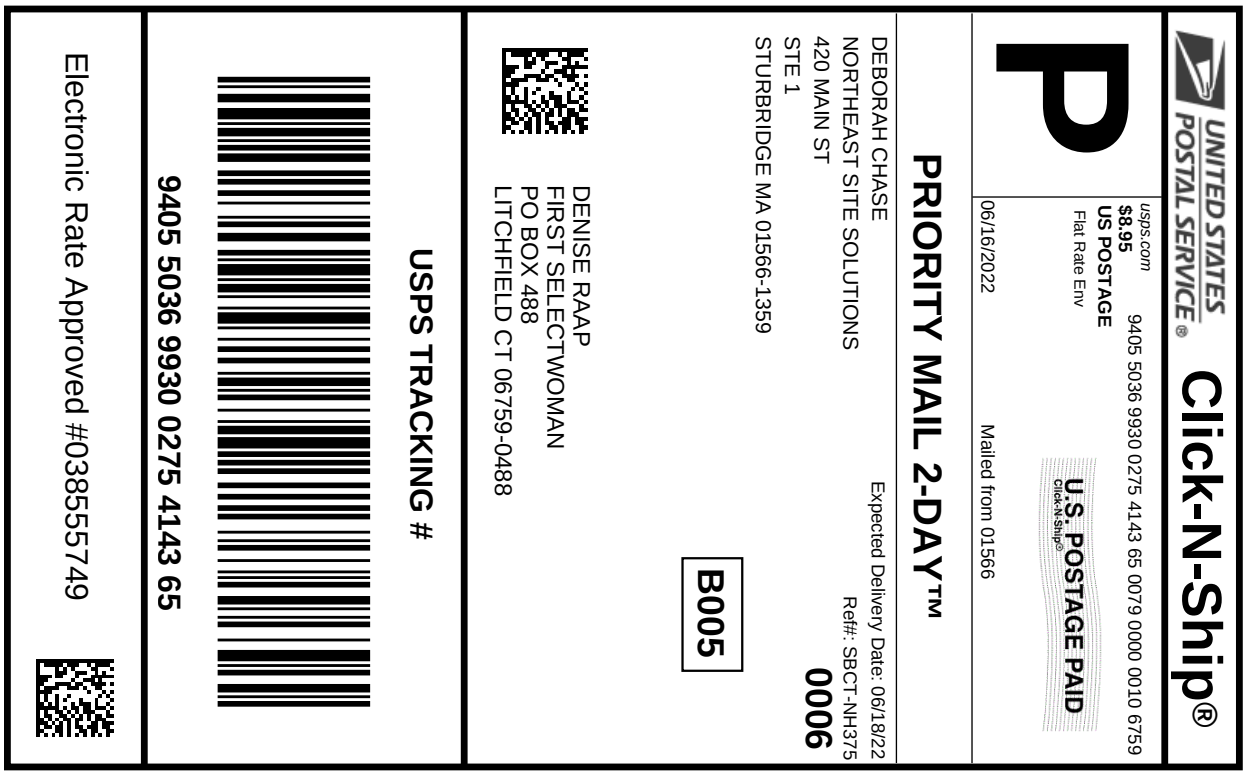
T-Mobile Sector	Power Density Value (%)
Sector A:	18.78%
Sector B:	18.78%
Sector C:	18.78%
T-Mobile Maximum MPE % (Sector A):	18.78%
Site Total:	29.16%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **29.16%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Recipient Mailings



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Instructions

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

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USPS TRACKING # :
9405 5036 9930 0275 4143 65

Trans. #:	565783359
Print Date:	06/16/2022
Ship Date:	06/16/2022
Expected Delivery Date:	06/18/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: SBCT-NH375

To: DENISE RAAP
FIRST SELECTWOMAN
PO BOX 488
LITCHFIELD CT 06759-0488

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Thank you for shipping with the United States Postal Service!
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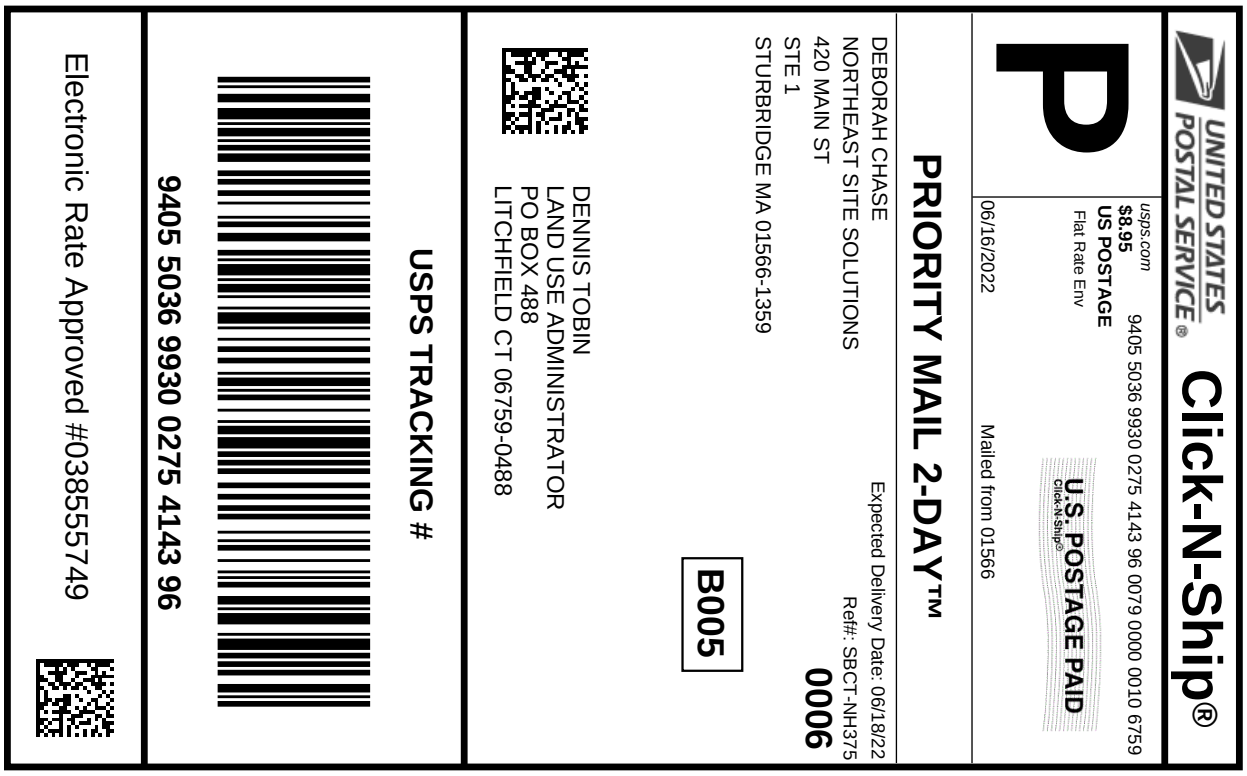

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0275 4143 96

Trans. #:	565783359
Print Date:	06/16/2022
Ship Date:	06/16/2022
Expected Delivery Date:	06/18/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: SBCT-NH375

To: DENNIS TOBIN
LAND USE ADMINISTRATOR
PO BOX 488
LITCHFIELD CT 06759-0488

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usps.com
$8.95
US POSTAGE
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06/16/2022 Mailed from 01566

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PRIORITY MAIL 2-DAY™

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NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Expected Delivery Date: 06/18/22
Ref#: SBCT-NH375

0006

R003

OLD TOLL GATE HILL LLC
387 TORRINGTON RD
LITCHFIELD CT 06759-2704

USPS TRACKING #

9405 5036 9930 0275 4144 02

Electronic Rate Approved #038555749

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0275 4144 02

Trans. #:	565783359
Print Date:	06/16/2022
Ship Date:	06/16/2022
Expected Delivery Date:	06/18/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: SBCT-NH375

To: OLD TOLL GATE HILL LLC
387 TORRINGTON RD
LITCHFIELD CT 06759-2704

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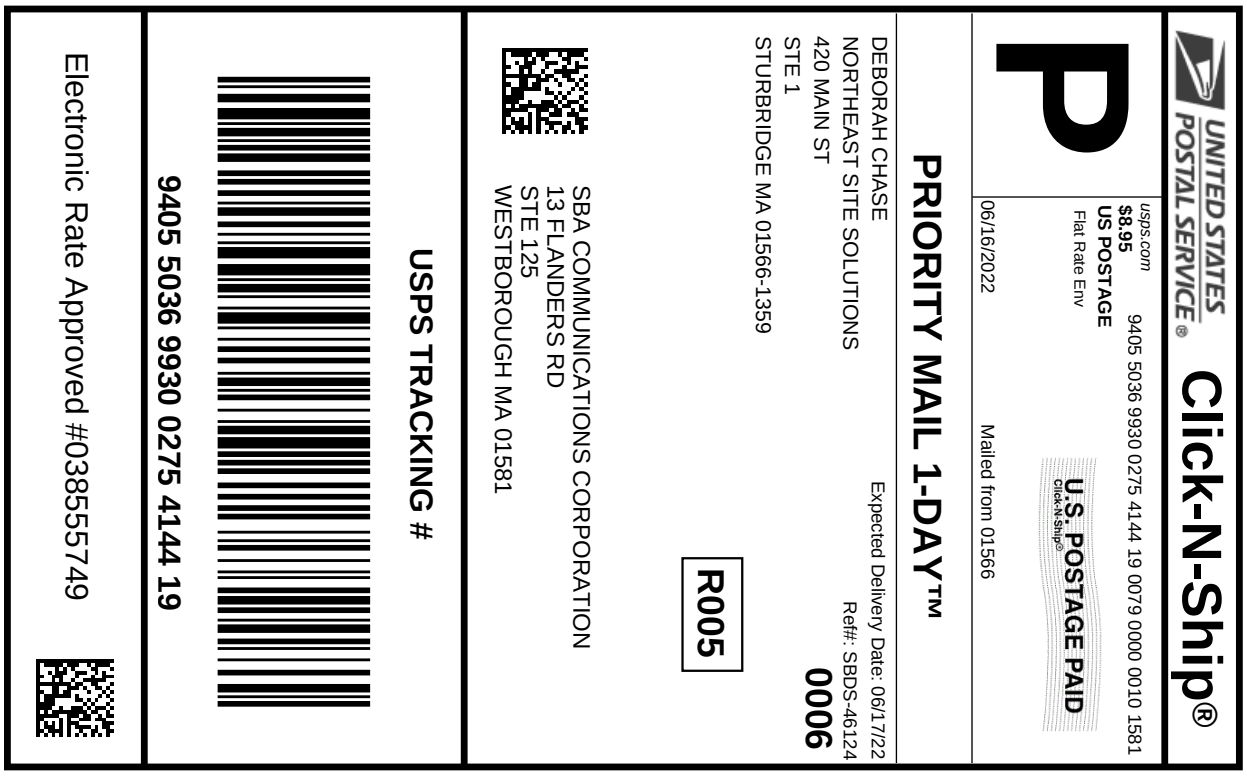

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0275 4144 19

Trans. #:	565783359
Print Date:	06/16/2022
Ship Date:	06/16/2022
Expected Delivery Date:	06/17/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: SBDS-46124

To: SBA COMMUNICATIONS CORPORATION
13 FLANDERS RD
STE 125
WESTBOROUGH MA 01581

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UNA315E_SSA-1M

UNITED STATES POSTAL SERVICE.

FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

06/21/2022 09:32 AM

Product	Qty	Unit Price	Price
Prepaid Mail Litchfield, CT 06759 Weight: 0 lb 9.70 oz Acceptance Date: Tue 06/21/2022 Tracking #: 9405 5036 9930 0275 4143 65	1		$0.00
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 1.90 oz Acceptance Date: Tue 06/21/2022 Tracking #: 9405 5036 9930 0275 4144 19	1		$0.00
Prepaid Mail Litchfield, CT 06759 Weight: 0 lb 9.70 oz Acceptance Date: Tue 06/21/2022 Tracking #: 9405 5036 9930 0275 4144 02	1		$0.00
Prepaid Mail Litchfield, CT 06759 Weight: 0 lb 11.60 oz Acceptance Date: Tue 06/21/2022 Tracking #: 9405 5036 9930 0275 4143 96	1		$0.00
Grand Total:			$0.00

****
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