



Filed by:

G. Scott Shepherd, Property Development Specialist II- SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3807 - GShepherd@sbsite.com

June 17, 2021

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

Notice of Exempt Modification

60 Commerce St.

East Haven, CT 06512

Sprint, now a part of T-Mobile USA #: CTNH723A_Sprint Keep

Latitude: 41.251233

Longitude: -72.882094

Dear Ms. Bachman:

Sprint, now a part of T-Mobile USA, hereinafter referred to as "Sprint/T-Mobile" currently maintains six (6) antennas at the 67-foot level of the existing 70-foot Monopole Tower at 60 Commerce Street., East Haven, CT. The tower is owned by SBA 2012 TC Assets, LLC. The property is owned by the Perrelli Associates, LLC. T-Mobile/T-Mobile now intends to remove six (6) antennas and replace with six (6) new L600/700/1900/2100 antennas and install three (3) new 2500 MHz antennas for a total of nine (9) antennas.

The new antennas support 5G services and would be installed at the 67-foot level of the tower.

Please note: Per the Connecticut Siting Council Website: CSC COVID 19 Guidelines.

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

Planned Modifications:

TOWER

Remove:

- (3) T-Arms



Remove and Replace:

- (3) RFS APXVSPP18-C-A20 antennas (remove) – (3) RFS APX16DWV-16DWVS-E-A20 2100MHz antennas (replace)
- (3) RFS APXVTM14-C-I20 antennas (remove) – (3) RFS APXVAALL24_43-U-NA20 600/700/1900MHz antennas (replace)
- (3) ALU TD-RRH8x20-25 RRUs (remove) – (3) Ericsson 4449 B71 + B85 RRUs (replace)
- (3) ALU 800 MHz RRUs (remove) – (3) Ericsson 4424 B25 RRUs (replace)
- (3) ALU 1900MHz RRUs (remove) – (3) Ericsson 4415 B66A RRUs (replace)
- (3) 1-5/8" coax (remove) – (3) 1.99" Hybrid (replace)

Install New:

- (3) Ericsson AIR6449 B41 2500MHz antennas
- Low Profile Platform w/Handrail SitePro1 RMQP-4096K + (WWM01-DCP)

Existing Equipment to Remain:

- (4) RFS ACU-A20-N RETs
- (3) ALU 800 MHz Filter

Entitlements Only:

- (1) 1-1/4" fiber

GROUND

Install New:

- (1) T-Mobile B160 Battery Cabinet
- (1) AAV cabinet
- (1) T-Mobile 6160 Cabinet
- (2) 2" conduits

Remain:

- (1) 20' x 11'6" Shelter
- 6' x 10' Generator Pad
- GPS Antenna

Remove:

- T-Mobile FMB



Petition No. 730
Nextel
East Haven, Connecticut
Staff Report
August 17, 2005

Nextel seeks to replace an existing lattice tower located at the back of building used by a fuel oil dealer. The height of the existing tower, including the whip antenna at the top of the tower, is 70 feet. Nextel's replacement tower would be located a few feet from the existing tower and would also be 70 feet tall. Nextel's antennas would be installed with a centerline of 67 feet and would not extend above 70 feet. Nextel would design the replacement tower to accommodate one additional carrier. Council member Gerry Heffernan and staff person David Martin met with Nextel representative Tom Flynn at the site on August 17, 2005 to conduct a field review. The building behind which the existing tower is located is in an industrial park near the Tweed-New Haven Airport. There are no residences in sight from the area of the tower, and, given the distance to the nearest residences, it is unlikely that the closest neighbors could have a view of anything more than a few feet of the top of the tower. Even that is unlikely. Nextel's proposed 800 square foot compound would be located behind the building. It would be completely screened from the industrial park's street by an existing row of 10 to 12-foot tall arbor vitae. Installation of the compound would, in all likelihood, result in a cleanup of the back of the building. The compound would include a 12 by 20-foot equipment shelter. At 70 feet, Nextel's proposed tower would be below any flight path of planes using the airport. Based upon the conditions observed during the field review, it is unlikely that the scope of the improvements described in this petition would result in any significant adverse environmental impacts. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Voluntown's First Selectman, Tracey Hanson, Planning & Zoning Chair, Scott B. Davidson, and to the property owners, Thomas M. & Patricia A. Sweet. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

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

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



Sincerely,

G. Scott Shepherd
Property Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3807 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbsite.com

Attachments

cc: Joseph A. Carfora, Mayor / with attachments
Town of East Haven, 250 Main St., East Haven, CT 06512
Joseph Budrow, Zoning Enforcement Officer / with attachments
Town of East Haven, 250 Main St., East Haven, CT 06512
Perrelli Associates, LLC / with attachments
Attention: George Perrelli, 60 Commerce St., East Haven, CT 06512

Exhibit List

Exhibit 1	Check Copy	To be invoiced at a later date per Covid guidelines.
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	CSC Petition No. 730 8/17/05
Exhibit 6	Construction Drawings	Centerline 6/4/21
Exhibit 7	Structural Analysis	TES dated 6/2/21
Exhibit 8	Mount Analysis	TES dated 5/12/21
Exhibit 9	EME Report	EBI Consulting 5/12/21

EXHIBIT 1

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

EXHIBIT 2



ORIGIN ID:BFBA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 17 JUN 21
ACTWGT: 1.00 LB
CAD: 105843304#NET14340

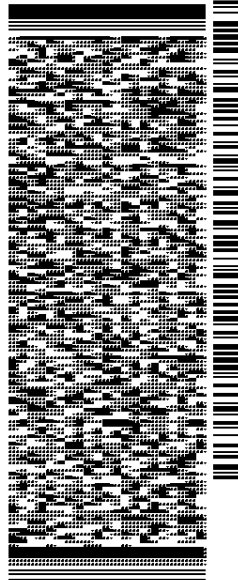
BILL SENDER

TO **MELANIE A. BACHMAN EXEC. DIR**
CONNECTICUT SITING COUNCIL
TEN FRANKLIN SQUARE

NEW BRITAIN CT 06051

(508) 251-0720 X 3807 REF: 105692009-6089
INV: DEPT:
PO:

56DJ3/B387/FE4A



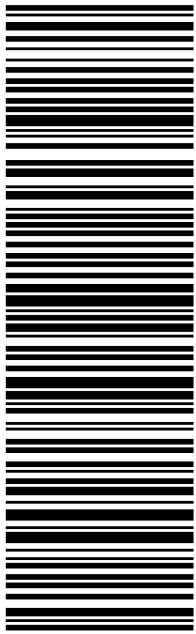
FRI - 18 JUN 10:30A

PRIORITY OVERNIGHT

TRK# 7740 3113 8588
0201

EB BDLA

06051
CT:US BDL



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Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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



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RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 17 JUN 21
ACTWGT: 1.00 LB
CAD: 105843304/NET4340

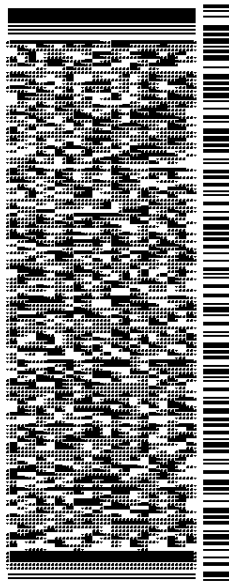
BILL SENDER

TO TOWN OF EAST HAVEN

JOSEPH A. CARFORA, MAYOR
250 MAIN ST
EAST HAVEN CT 06512

(508) 251-0720 X 3807 REF: 105692009-6089
INV. DEPT:

56DJ3/B387/FE4A

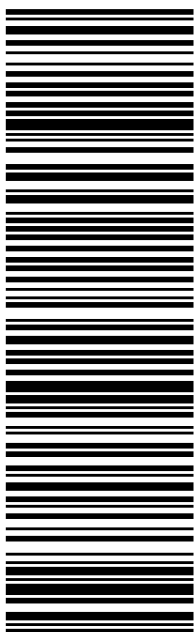


J211321033101uv

TRK# 7740 3117 0775 FRI - 18 JUN 10:30A
0201 PRIORITY OVERNIGHT

EB HVNA

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CT:US BDL



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ORIGIN ID:BBFA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 17 JUN 21
ACTWGT: 1.00 LB
CAD: 105843304/NET14340

BILL SENDER

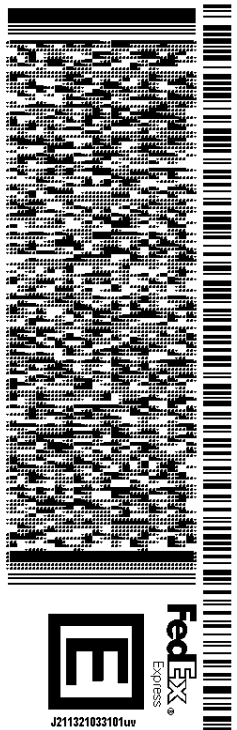
TO TOWN OF EAST HAVEN

JOSEPH BUDROW, ZONE ENF. OFFICER
250 MAIN ST
EAST HAVEN CT 06512

(508) 251-0720 X 3807 REF: 105692009-6089

INV: DEPT: PO:

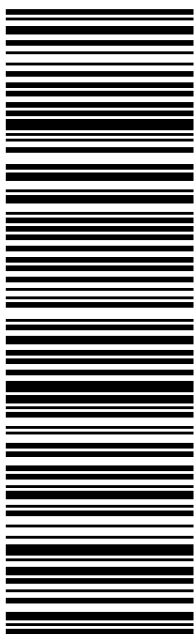
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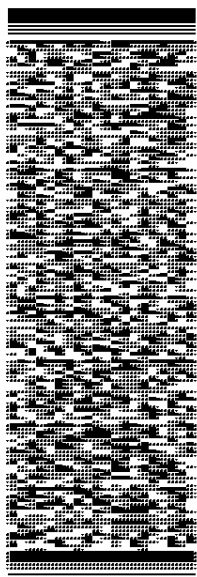
BILL SENDER

TO ATT: GEORGE PERRELLI
PERRELLI ASSOCIATES, LLC
60 COMMERCE ST

EAST HAVEN CT 06512

(508) 251-0720 X 3807 REF: 105692009-6089
INV: DEPT:
PO:

56DJ3/B387/FE4A

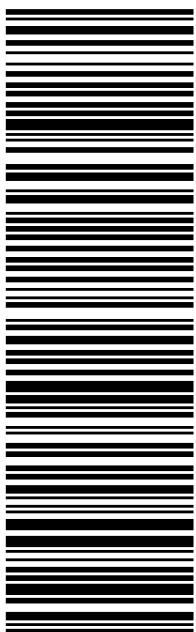


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TRK# 7740 3122 8086
0201
FRI - 18 JUN 10:30A
PRIORITY OVERNIGHT

EB HVNA

06512
CT:US BDL



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EXHIBIT 3



Town of East Haven, CT

Property Listing Report

Map Block Lot

060 0610 002

Building # 1

Unique Identifier

P0294950

Property Information

Property Location	60 COMMERCE ST
Mailing Address	60 COMMERCE ST EAST HAVEN CT 06512
Land Use	Commercial Garage
Zoning Code	LI-2
Neighborhood	IS1

Owner	PERRELLI ASSOCIATES LLC
Co-Owner	
Book / Page	1267/0276
Land Class	Commercial
Census Tract	1801000
Acreage	1.42

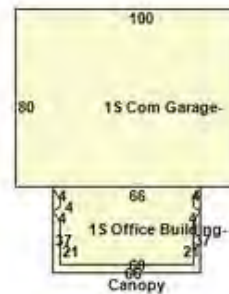
Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	568973	398280
Outbuildings	42490	29740
Land	166800	116760
Total	778263	544780

Utility Information

Electric	No
Gas	No
Sewer	Yes
Public Water	Yes
Well	No



Primary Construction Details

Year Built	1989
Building Desc.	Commercial
Building Style	
Stories	1
Exterior Walls	Metal
Exterior Walls 2	Concrete Block
Interior Walls	
Interior Walls 2	
Interior Floors 1	Carpet
Interior Floors 2	

Heating Fuel	Oil
Heating Type	FHA
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	10
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Livable Area (ft)	10199
Building Use	Commercial
Building Condition	Average
Frame Type	Average
Building Grade	5
Fireplaces	0
Wood Stoves	0
Attic Access	
Roof Style	
Roof Cover	

Bsmt Area	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Bsmt Access	
Bsmt Gar	0
Bsmt Sump Pump	No



Town of East Haven, CT

Property Listing Report

Map Block Lot

060 0610 002

Building # 1

Unique Identifier

P0294950

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Cell Towers	Cell Tower Flag Pole	1	Average	2011
Poles	Light Poles	5	Average	1989
Shed	Frame Shed	200	Excellent	2010
Shed	Frame Shed	240	Average	2006
Shed	Frame Shed	240	Excellent	2010
Cell Towers	Cell Tower Mounted roof top	1	Average	2011
Paving	Paving	8000	Average	1989

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Canopy	Canopy	375	Good	1989

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
PERRELLI ASSOCIATES LLC	1267_ 276	5/7/2002	0
PERRELLI FRANK P JR & GEORGE K	573_ 288	11/28/1989	0



Town of East Haven, CT

Property Listing Report

Map Block Lot

060 0610 002

Building # 2

Unique Identifier

P0294950



1S Cell Tower- Lat 41.15.054 N Long 72.52.918 W Tower Type: Pole Height 70 ft Antenna Owner: Tower Co. Personal Property	1S Cell Tower Lat 41.14.59 Long 73-52-58 Tower Type: Mounted Owner: Nextel	1S Cell Tower Lat 41.14.59 Long 72-52-58 Tower Type: Sprint Mast Antenna Owner: Sprint
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Primary Construction Details

Year Built	2011
Building Desc.	Cell Site
Building Style	
Stories	0
Exterior Walls	
Exterior Walls 2	
Interior Walls	
Interior Walls 2	
Interior Floors 1	
Interior Floors 2	

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Livable Area (ft)	1200
Building Use	Commercial
Building Condition	Average
Frame Type	Average
Building Grade	0
Fireplaces	0
Wood Stoves	0
Attic Access	
Roof Style	
Roof Cover	

Bsmt Area	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Bsmt Access	
Bsmt Garage	0
Bsmt Sump Pump	No

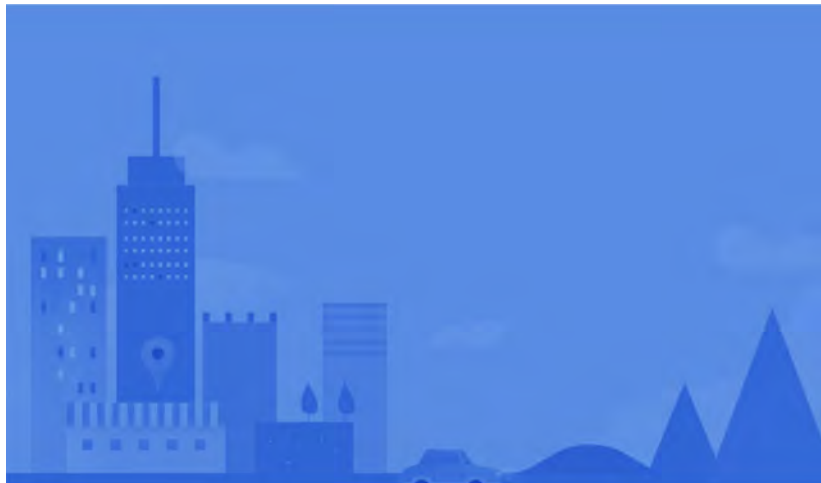
Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

EXHIBIT 4



Imagery ©2021 New York GIS, Map data ©2021 20 ft



60 Commerce St

Building



Directions



Save



Nearby



Send to your
phone



Share



60 Commerce St, East Haven, CT 06512

EXHIBIT 5

Petition No. 730
Nextel
East Haven, Connecticut
Staff Report
August 17, 2005

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At 70 feet, Nextel's proposed tower would be below any flight path of planes using the airport.

Based upon the conditions observed during the field review, it is unlikely that the scope of the improvements described in this petition would result in any significant adverse environmental impacts.

EXHIBIT 6

PROJECT INFORMATION

TOWER OWNER: SBA 2012 TC ASSETS, LLC
8501 CONGRESS AVENUE
BOCA RATON, FL 33487
PHONE: 561-226-9523

SBA TOWER ID: CT46147-A

SBA SITE NAME: NEW HAVEN TWEED

T-MOBILE SITE NAME: CTNH723A

T-MOBILE SITE NUMBER: CTNH723A

SBA SITE ADDRESS: 60 COMMERCE ST,
EAST HAVEN, CT 06512

LATITUDE: 41.25123300

LONGITUDE: -72.88205500

TOWER HEIGHT: 70'-0"± AGL

RAD CENTER: 67'-0"± AGL

ZONING JURISDICTION: TOWN OF EAST HAVEN

COUNTY: NEW HAVEN

DESCRIPTION OF WORK:
TELECOMMUNICATIONS FACILITY UPGRADE (SPRINT RETAIN);
MONOPOLE

COMPLIANCE CODES:

1. BUILDING CODE:
IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018
2. ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
3. CONCRETE CODE:
AMERICAN CONCRETE INSTITUTE (ACI) 318
4. STEEL CODE:
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC),
14TH EDITION
5. TELECOMMUNICATIONS CODE:
EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL

BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).

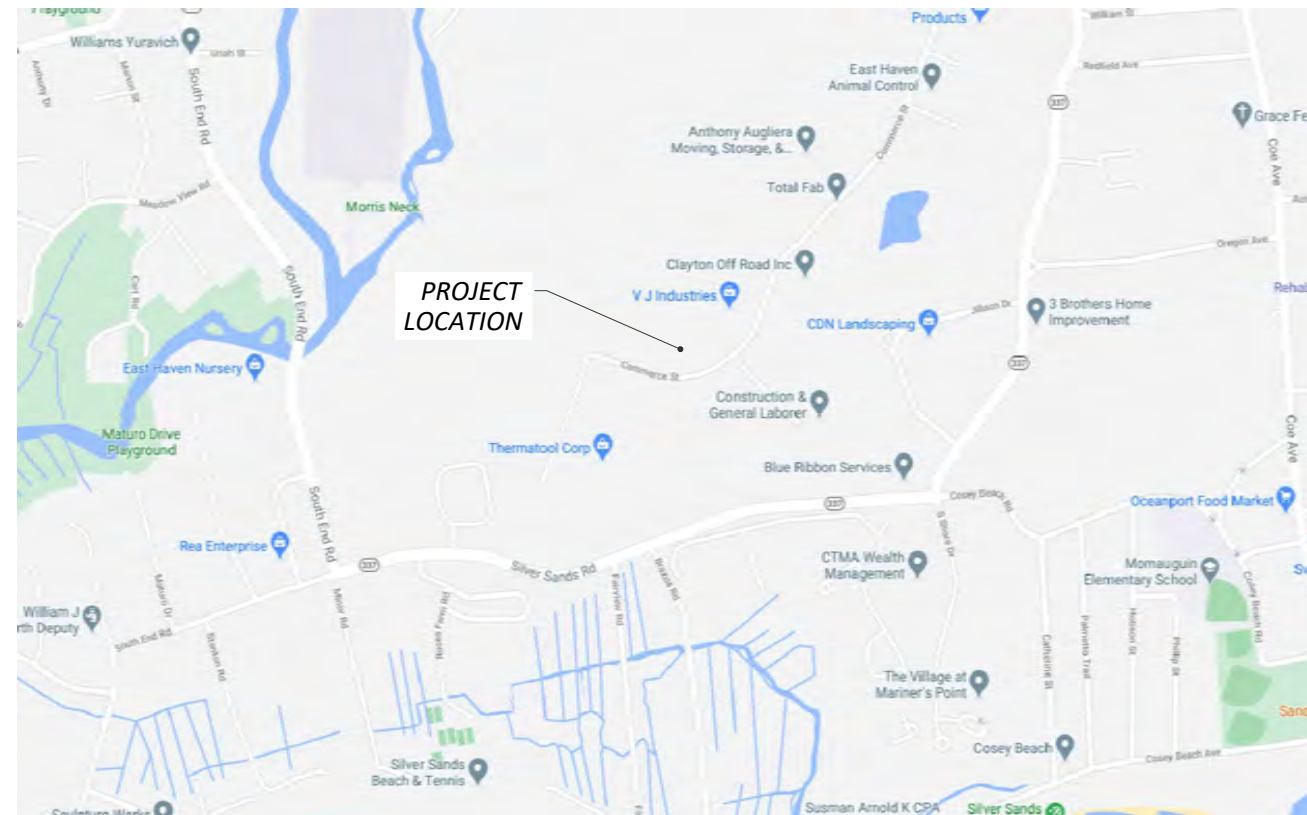
PROJECT DIRECTORY

A&E / PROJECT MANAGER:
CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE 781.713.4725

APPLICANT:
T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
FAX: (508) 286-2893

SITE NAME: CTNH723A
60 COMMERCE ST,
EAST HAVEN, CT 06512

SITE NUMBER: CTNH723A
SBA SITE #: CT46147-A
PROJECT: SPRINT RETAIN
CONFIGURATION: 67D5A998C 6160 (GSM ONLY)



VICINITY MAP
NOT TO SCALE

GENERAL NOTES:

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSE OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

DRAWING INDEX

NO.	DESCRIPTION	REV.	DATE
T-1	TITLE SHEET	2	06/04/21
GN-1	GENERAL NOTES	2	06/04/21
A-1	COMPOUND & EQUIPMENT PLANS	2	06/04/21
A-2	ANTENNA LAYOUT & ELEVATIONS	2	06/04/21
A-3	DETAILS	2	06/04/21
SN-1	STRUCTURAL NOTES	2	06/04/21
RF-1	RF PLUMBING DIAGRAM	2	06/04/21
G-1	GROUNDING DETAILS	2	06/04/21

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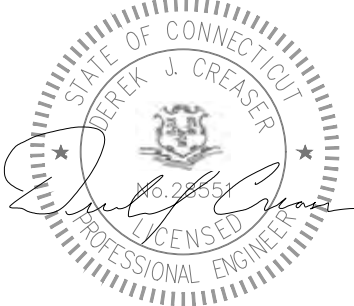
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REVISIONS

NO.	DATE	DESCRIPTION
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DESIGNED BY:	APPROVED BY:	
KT	DC	



DATE: 06/04/21

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SITE NAME: CTNH723A

SITE NUMBER: CTNH723A

SITE ADDRESS:
60 COMMERCE ST,
EAST HAVEN, CT 06512

PROJECT TYPE:
SPRINT RETAIN

SHEET TITLE:
TITLE SHEET

DRAWING #: T-1 REVISION: 2

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR – CENTERLINE COMMUNICATIONS
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – T-MOBILE

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

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

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

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

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 SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, 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.

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 OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."

17. 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.

18. THE EXISTING CELL SITE IS 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.

19. SINCE THE 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 ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES: SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE: IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018
 ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
 LIGHTNING CODE: NFPA 70-2017

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

RF NOTES

1. ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR

2. THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.

3. RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.

4. ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G. OUT DOORS-OCCUPIED, INDOORS-UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.

5. RADIO SIGNAL CABLE SHALL BE SUPPORTED AT MINIMUM OF EVERY THREE (3) FEET EXCEPT INSIDE MONOPOLES OR MONOPOLES WHERE CABLE AND CONNECTOR MANUFACTURERS SUPPORT RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURER RECOMMENDATION CABLES SUPPORT ACCESSORIES SHALL BE USED.

6. THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.

7. DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.

8. ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.

9. 7/16 DIN CONNECTORS REQUIRE NO ADDITIONAL WEATHER PROOFING IN INDOOR APPLICATIONS IF INSTALLED AND TORQUED PROPERLY. IN OUTDOOR APPLICATIONS WEATHER PROOFING IS REQUIRED AND THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED.

10. USING WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURER AND CONTRACTOR START TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR, AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER INCH OR TWO. PASS THE BUTYL RUBBER AND FINISH WITH A FINAL LAYER OF TAPE.

11. ANTENNAS SHALL BE PAINTED, WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY OF HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACES PREPARATION AND PAINTING REQUIREMENTS.

12. CABLE SHIELDS AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF THE TOWERS THAT ARE BETWEEN 60 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 60 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.

ANTENNA CABLE AND SCHEDULING NOTES

1. SUBCONTRACTOR SHALL VERIFY THE ACTUAL LENGTH IN THE FIELD BEFORE INSTALLATION.

2. TAG AND COLOR CODE ALL MAIN CABLES AT LOCATIONS PER T-MOBILE ANTENNA CABLE MARKING STANDARD:

- TOP OF TOWER END OF MAIN COAX
- BOTTOM OF TOWER END OF MAIN COAX
- DIRECTLY BEFORE AND AFTER RF EQUIPMENT
- END OF JUMPERS AT BTS EQUIPMENT

3. ANTENNAS SHALL BE PROCURED AND INSTALLED WITH DOWN TILT MOUNTING BRACKETS SUPPLIED BY ANTENNA MANUFACTURER.

4. PRIOR APPROVAL IS REQUIRED BEFORE PERFORMING ANY WORK ON EXISTING CELL SITE EQUIPMENT.

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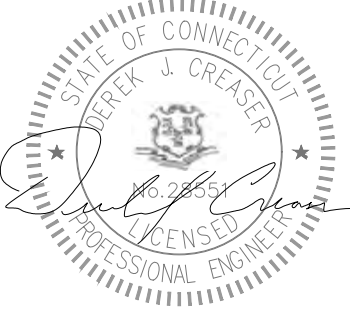


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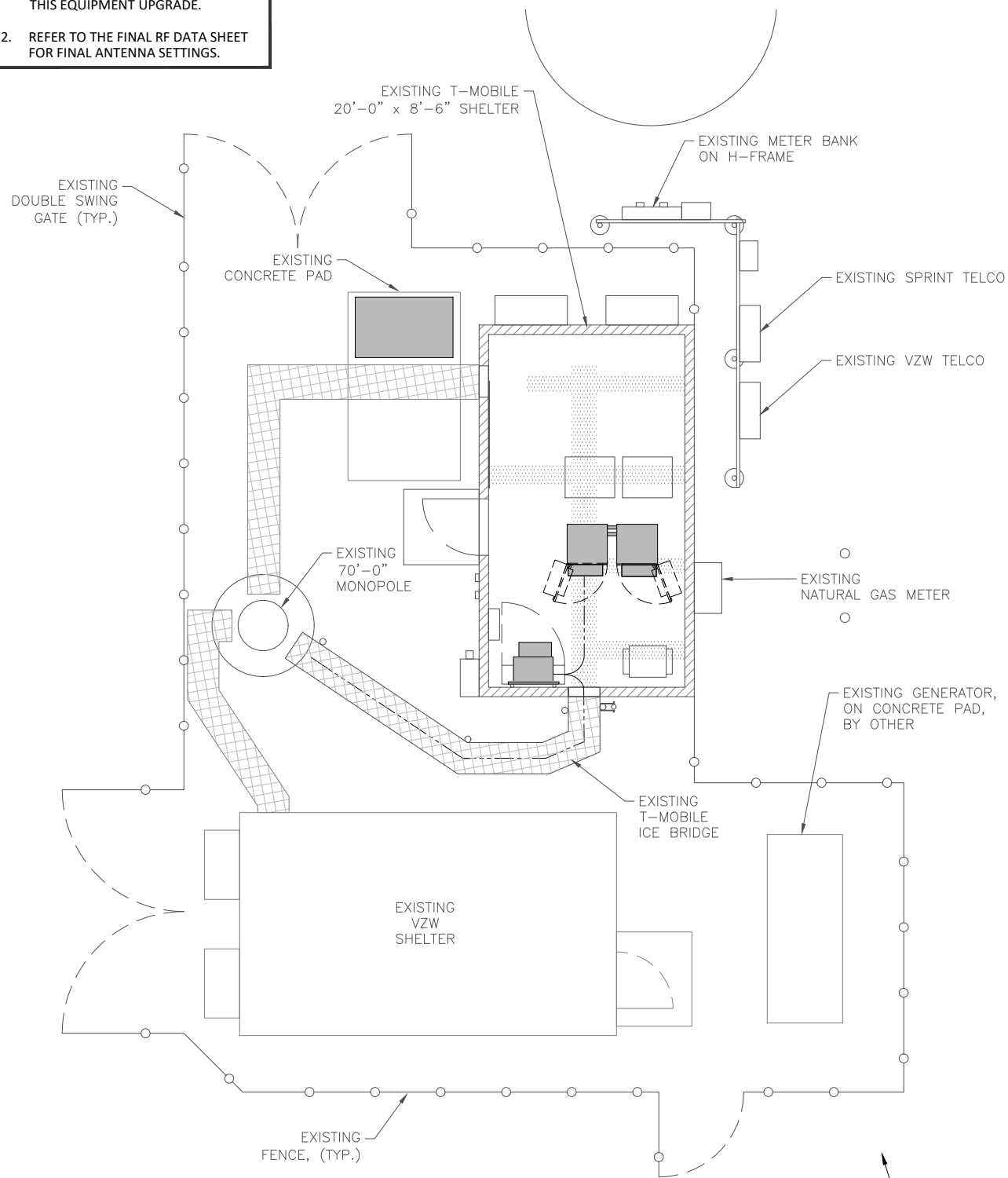
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ABBREVIATIONS

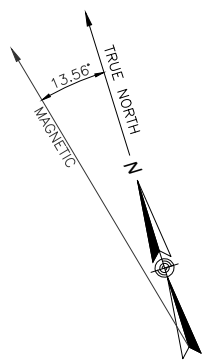
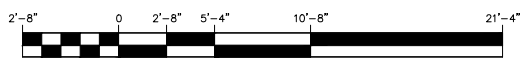
AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCIEVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

SITE NAME:	CTNH723A
SITE NUMBER:	CTNH723A
SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	GENERAL NOTES
DRAWING #:	GN-1
REVISION:	2

- NOTES:**
1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
 2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

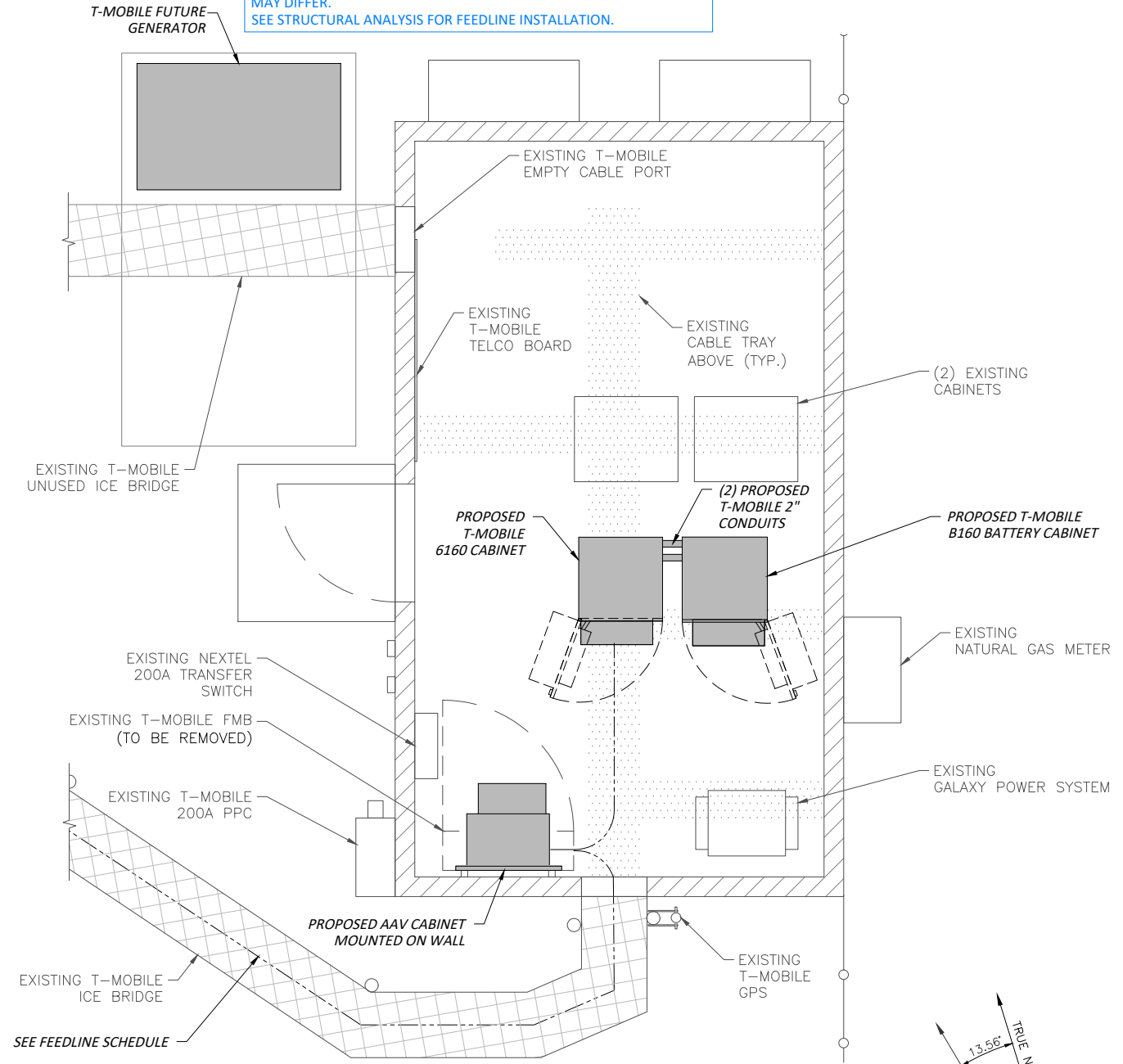


COMPOUND PLAN
 SCALE: 1/4" = 1'-0" (22"X34")
 1/8" = 1'-0" (11"X17")

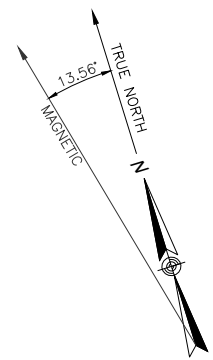
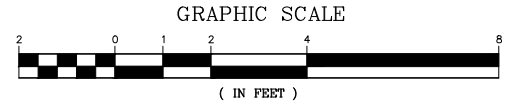


FEEDLINE SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO BE REMOVED: (3) 1-5/8" COAX (1) 1-1/4" FIBER	UP INSIDE MONOPOLE TO RAD
B	PROPOSED: (3) 6x24 HYBRID FIBER	UP INSIDE MONOPOLE TO RAD

NOTE:
 EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON COLLOCATION APPLICATION AND SBA RECORD, NOT FIELD OBSERVATIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.
 SEE STRUCTURAL ANALYSIS FOR FEEDLINE INSTALLATION.



EQUIPMENT PLAN
 SCALE: 1/2" = 1'-0" (22"X34")
 1/4" = 1'-0" (11"X17")



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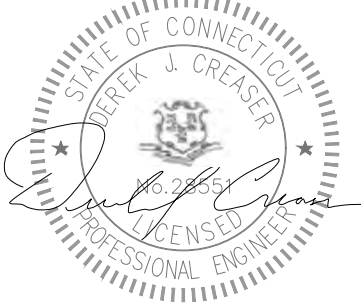


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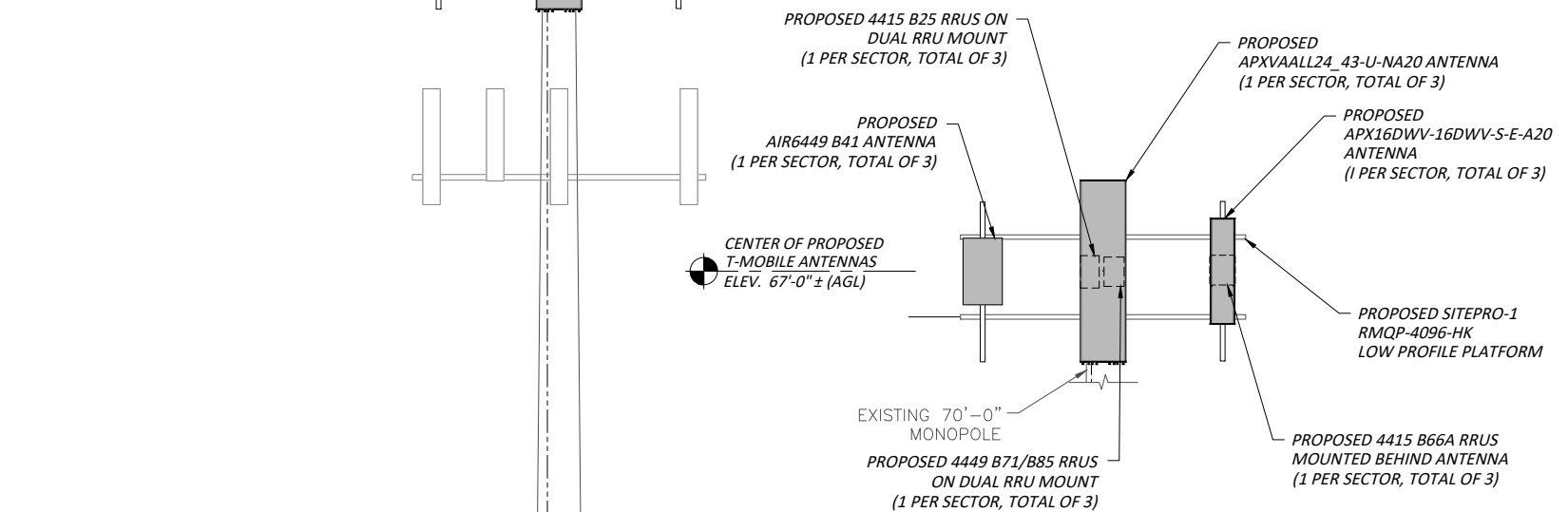
SITE NAME:	CTNH723A
SITE NUMBER:	CTNH723A
SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	COMPOUND & EQUIPMENT PLANS
DRAWING #:	A-1
REVISION:	2

TOP OF MONOPOLE
ELEV. 70'-0"± (AGL)

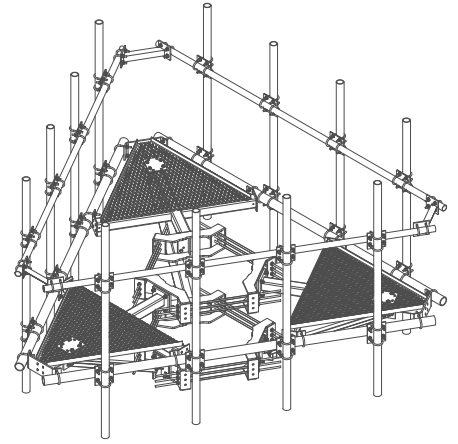
CENTER OF PROPOSED T-MOBILE ANTENNAS
ELEV. 67'-0"± (AGL)

NOTES:

1. REFERENCE STRUCTURAL ANALYSIS BY SBA FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

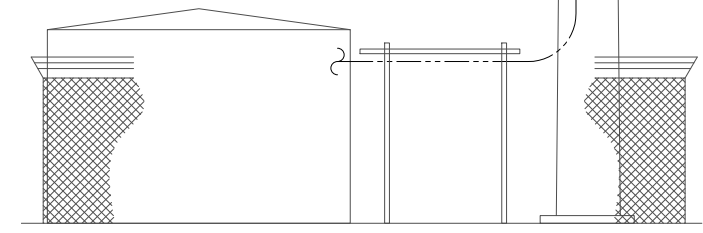


ENLARGED ANTENNA ELEVATION
SCALE: N.T.S

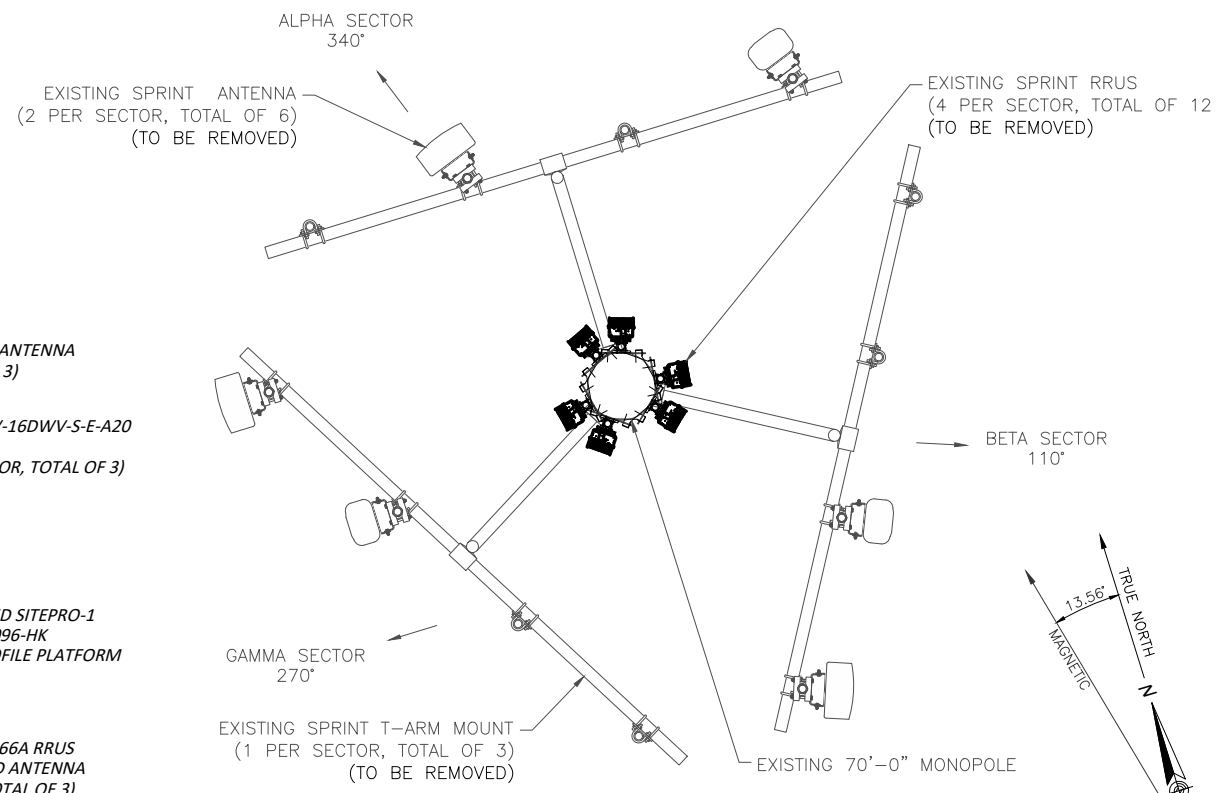
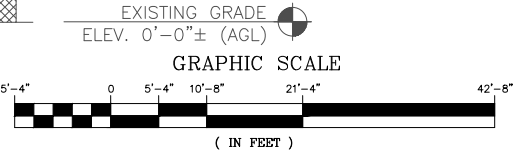


SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

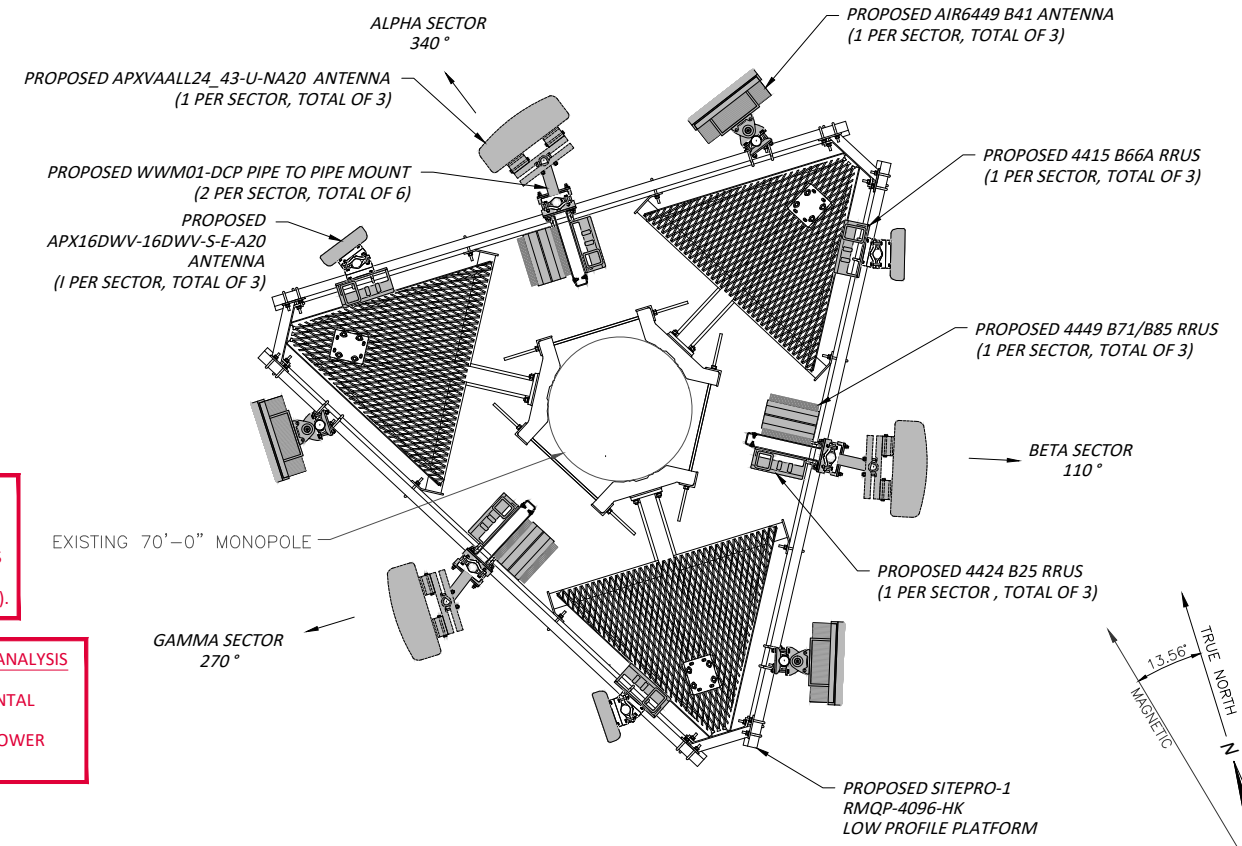
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS)
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL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



TOWER ELEVATION
SCALE: 1/4" = 1'-0" (22"x34")
1/8" = 1'-0" (11"x17")



EXISTING ANTENNA CONFIGURATION
SCALE: N.T.S



PROPOSED ANTENNA CONFIGURATION
SCALE: N.T.S

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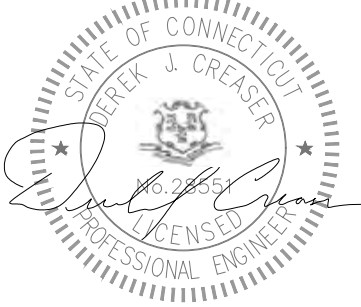
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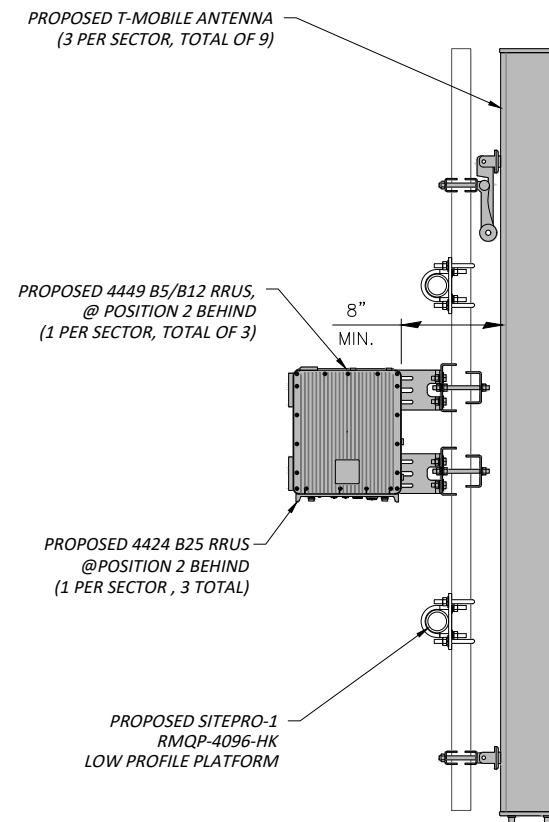
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SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	ANTENNA LAYOUT & ELEVATIONS
DRAWING #:	A-2
REVISION:	2

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA CL HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER
A1	PROPOSED	L2100	APX16DWV-16DWV-S-E-A20	55.9x13x3.15	±67'	340°		(P) (1) 4415 B66A RRUS	15.0x13.2x5.3	(P) (3) 6x24 HCS
A2	PROPOSED	L700, L600, N600, L1900, G1900	APXVAALL24_43-U-NA20	95.9x24x8.5	±67'	340°	-	(P) (1) 4449 B71 B85 RRUS (P) (1) 4424 B25 RRUS	15x13.2x10.4 16.5x13.5x9.6	
A3	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±67'	340°	-	-	-	
B1	PROPOSED	L2100	APX16DWV-16DWV-S-E-A20	55.9x13x3.15	±67'	110°	-	(P) (1) 4415 B66A RRUS	14.9x13.2x5.4	
B2	PROPOSED	L700, L600, N600, L1900, G1900	APXVAALL24_43-U-NA20	95.9x24x8.5	±67'	110°	-	(P) (1) 4449 B71 B85 RRUS (P) (1) 4424 B25 RRUS	15x13.2x10.4 16.5x13.5x9.6	
B3	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±67'	110°	-	-	-	
C1	PROPOSED	L2100	APX16DWV-16DWV-S-E-A20	55.9x13x3.15	±67'	270°	-	(P) (1) 4415 B66A RRUS	14.9x13.2x5.4	
C2	PROPOSED	L700, L600, N600, L1900, G1900	APXVAALL24_43-U-NA20	95.9x24x8.5	±67'	270°	-	(P) (1) 4449 B71 B85 RRUS (P) (1) 4424 B25 RRUS	15x13.2x10.4 16.5x13.5x9.6	
C3	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±67'	270°	-	-	-	



ANTENNA MOUNTING DETAIL
N.T.S.

- NOTES:**
1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
 2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

RRU CHART				
QUANTITY	MODEL	L	W	D
3(P)	4415 B66A	15.0"	13.2"	5.3"
3(P)	4449 B71/B85	15.0"	13.2"	10.4"
3(P)	4424 B25	16.5"	13.5"	9.6"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



RRUS DETAIL
N.T.S.

REFER TO THE FINAL RFDS AND TABLE FOR THE PROPOSED RRUS MODEL, QUANTITY, AND DIMENSIONS

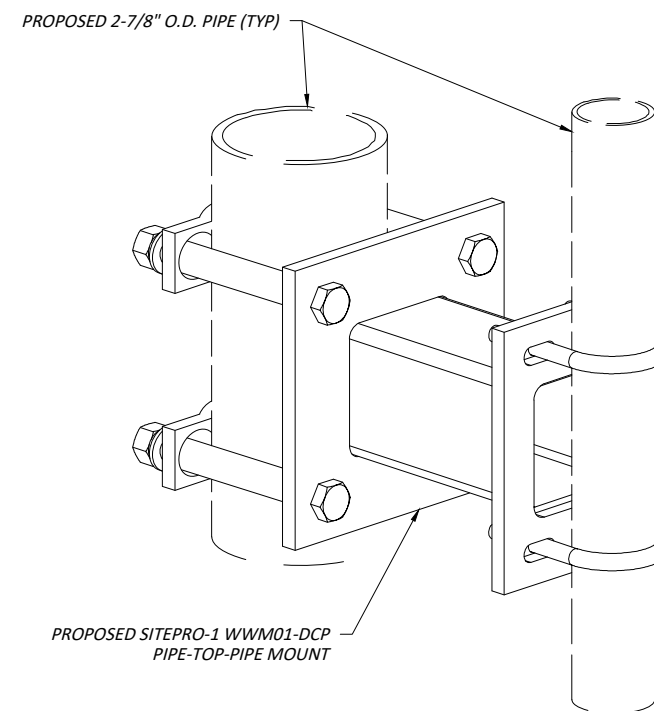


ERICSSON RBS6160 EQUIPMENT CABINET
ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 63" X 25.6" X 33.5"
WEIGHT: 188LBS (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R



ERICSSON B160 BATTERY CABINET
ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 63" X 26" X 26"
WEIGHT: 188LBS (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R

EQUIPMENT CABINET DETAIL
N.T.S.



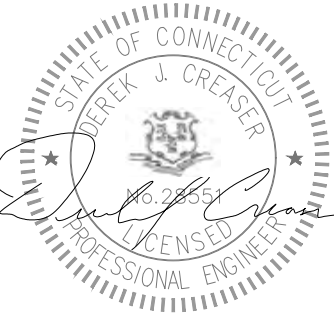
WWM01-DCP PIPE TO PIPE MOUNT DETAIL
N.T.S.

T-Mobile
NORTHEAST LLC
T-MOBILE NORTHEAST, LLC.
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CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
NO.	DATE	DESCRIPTION
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1	04/19/21	ISSUED FOR CONSTRUCTION
0	03/04/21	ISSUED FOR REVIEW
DESIGNED BY:	KT	APPROVED BY:
		DC



DATE: 06/04/21

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SITE NAME:	CTNH723A
SITE NUMBER:	CTNH723A
SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	DETAILS
DRAWING #:	A-3
REVISION:	2

STRUCTURAL NOTES:

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UN.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS ¹
N/A	MATERIAL SPECIFICATIONS REPORT ²
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS ³
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS ⁴
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION ⁵
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS ⁶
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
- PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
- PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
- HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
- ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
- AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"Ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
- CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
- EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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NORTHEAST LLC

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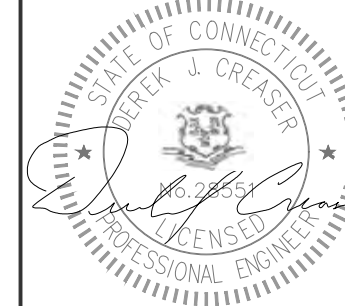
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
PHONE: (508) 251-0720



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1	04/19/21	ISSUED FOR CONSTRUCTION
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DESIGNED BY:	APPROVED BY:	
KT	DC	



DATE: 06/04/21

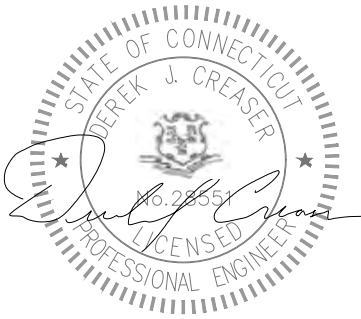
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Blank area for additional notes or signatures.

SITE NAME:	CTNH723A
SITE NUMBER:	CTNH723A
SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	STRUCTURAL NOTES
DRAWING #:	SN-1
REVISION:	2

REVISIONS		
NO.	DATE	DESCRIPTION
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DESIGNED BY: KT APPROVED BY: DC

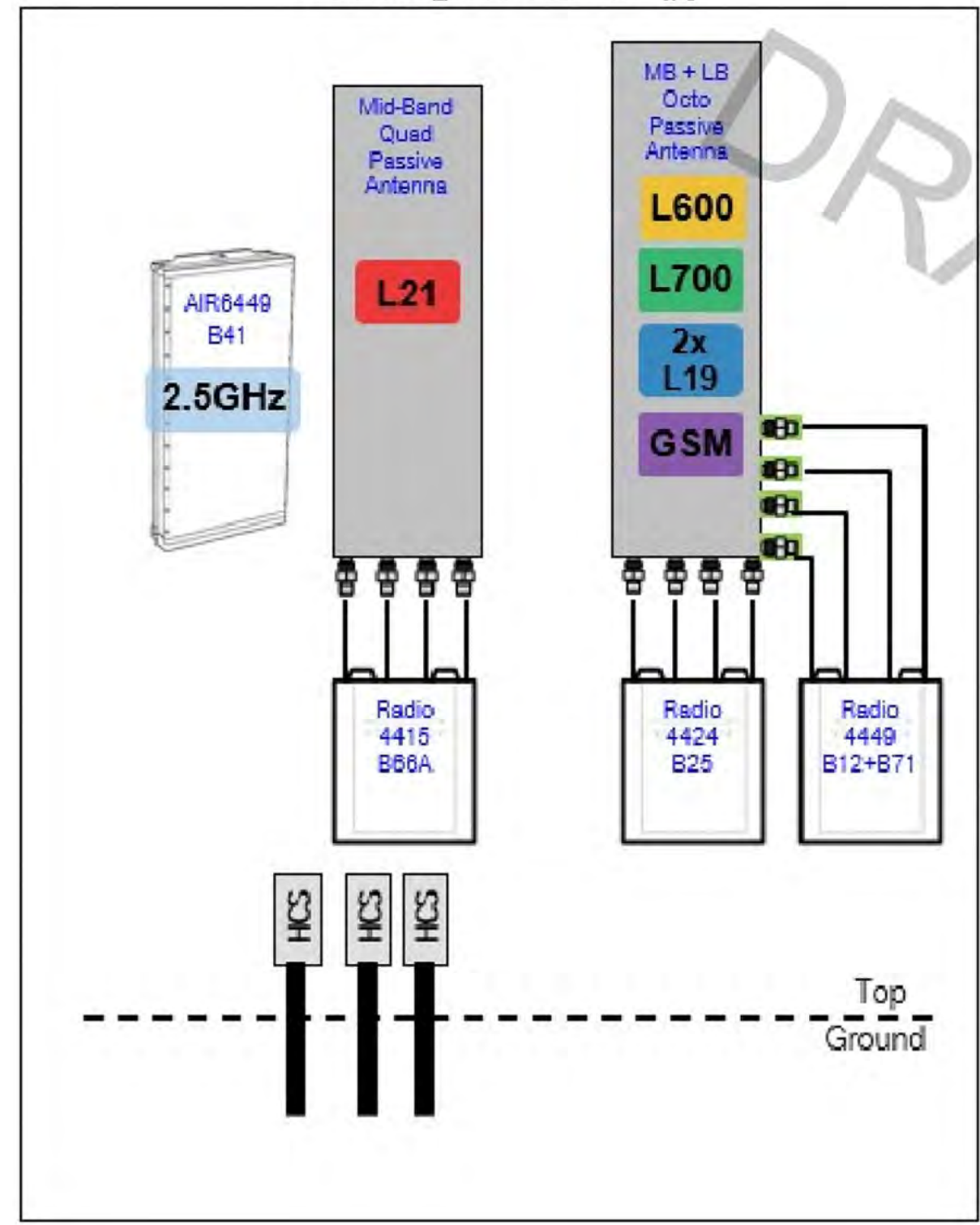


DATE: 06/04/21

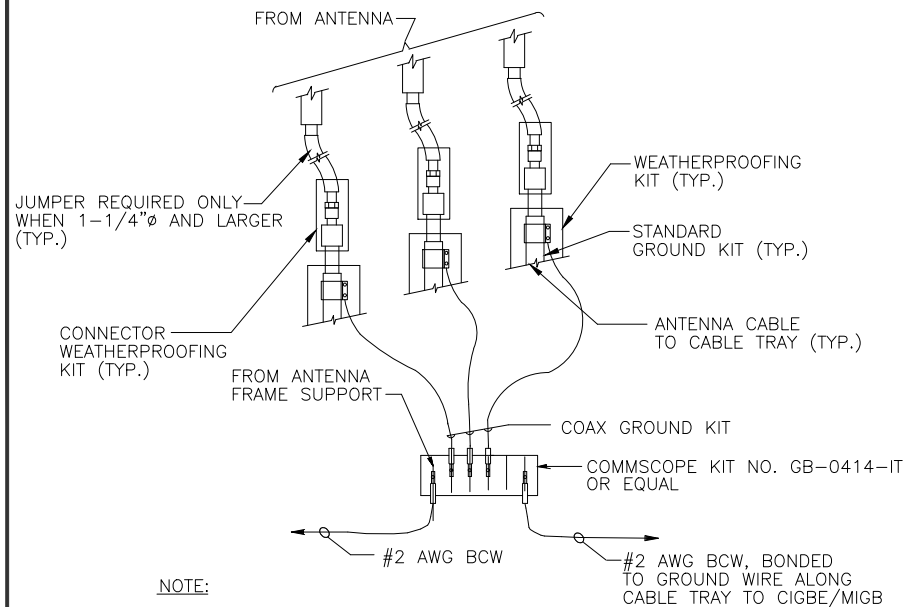
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SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	RF PLUMBING DIAGRAM
DRAWING #:	RF-1
REVISION:	2

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PLUMBING DIAGRAM
 N.T.S.



GROUNDING RISER DIAGRAM

N.T.S.

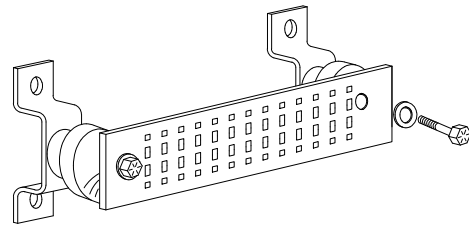
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

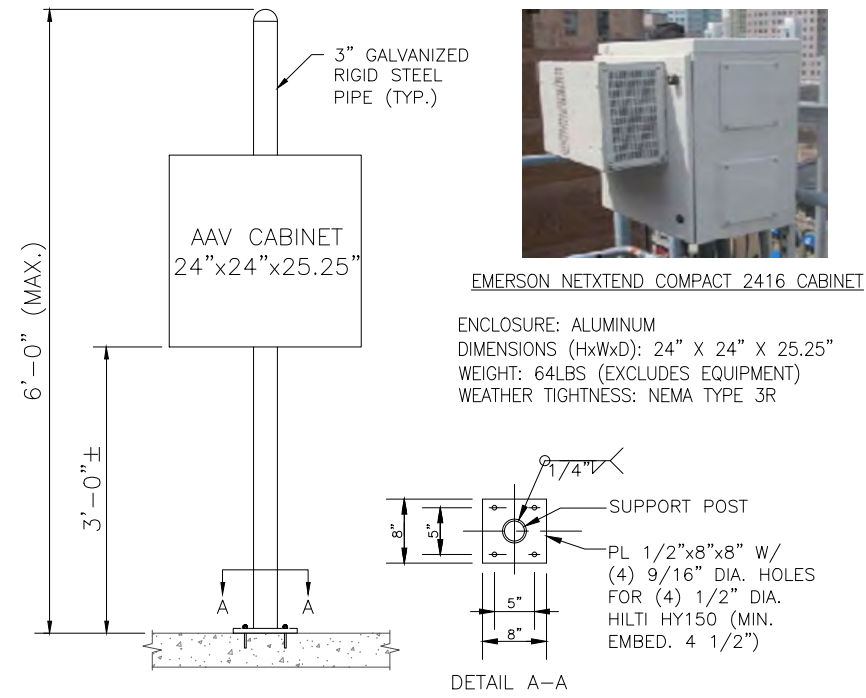
SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)



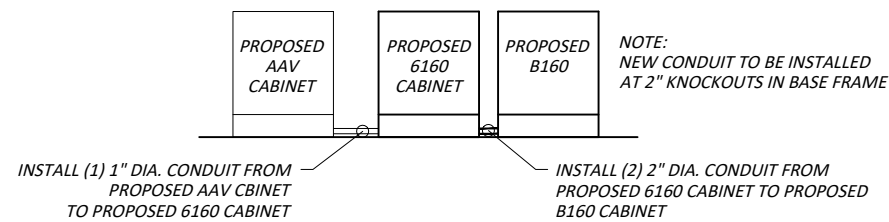
GROUND BAR DETAIL

N.T.S.

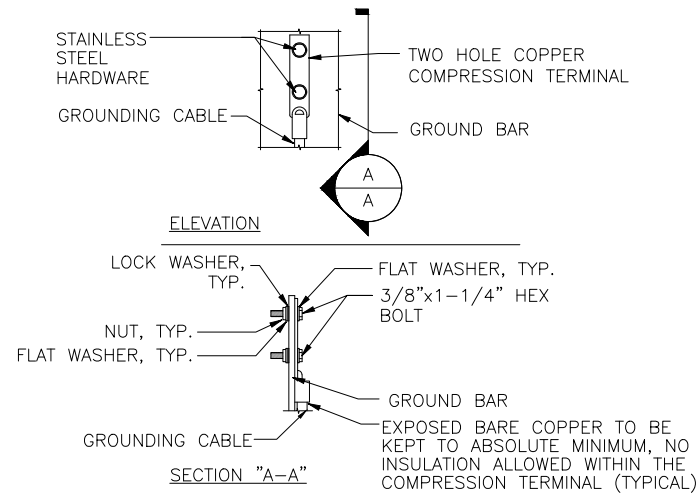


AAV CABINET DETAIL

N.T.S.



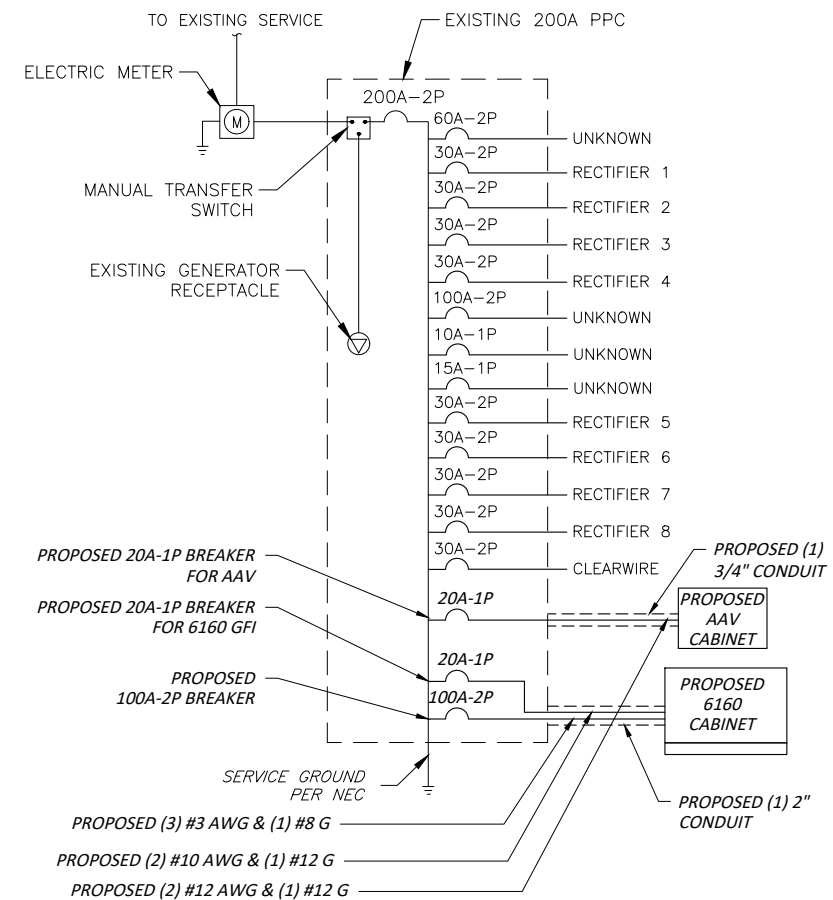
CONDUIT DETAIL



- NOTE:
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
 - CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

GROUND BAR CONNECTION DETAIL

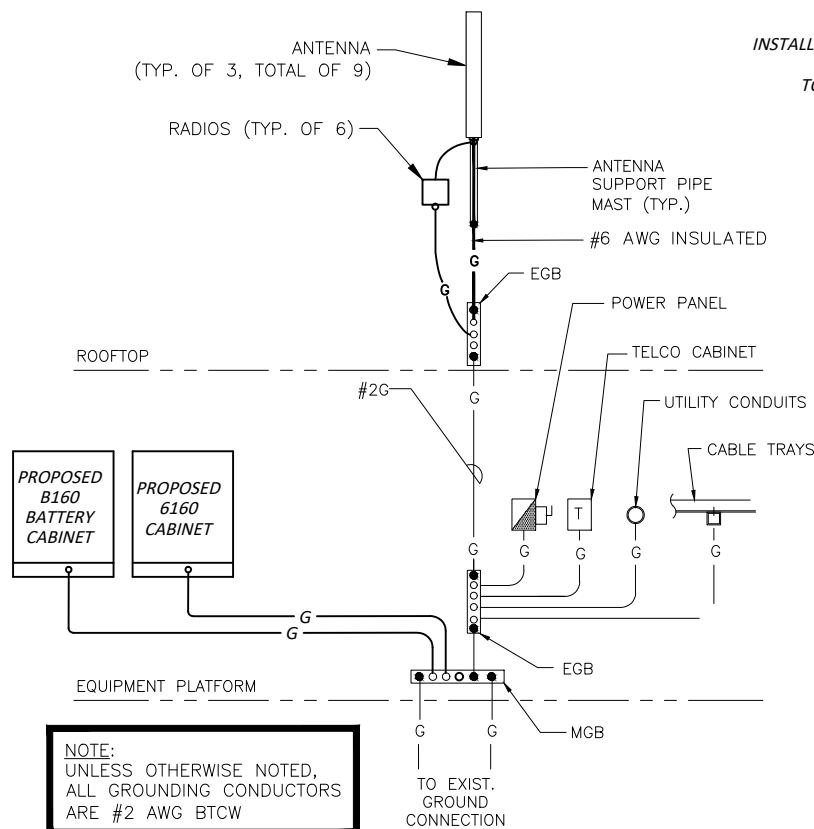
N.T.S.



NOTE: ALL WORK NEEDS TO BE PERFORMED BY LICENSED ELECTRICIAN ADHERING TO THE NEC AND LOCAL CODE REQUIREMENTS

ONE LINE POWER DIAGRAM

N.T.S.



NOTE: UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BCW

GROUNDING RISER DIAGRAM

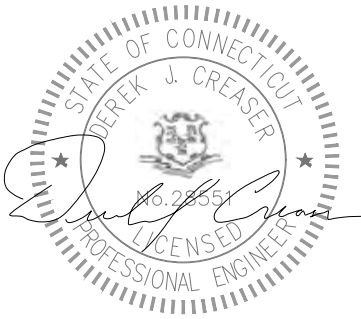
N.T.S.

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SITE NUMBER:	CTNH723A
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PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	GROUNDING DETAILS
DRAWING #:	G-1
REVISION:	2

EXHIBIT 7



Tower Engineering Solutions

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

Structural Analysis Report

Existing 70 ft Valmont Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT46147-A

Customer Site Name: New Haven Tweed

Carrier Name: T-Mobile Sprint (App#: 147976, V2)

Carrier Site ID / Name: CT70XC121 / _

Site Location: 60 Commerce Street

East Haven, Connecticut

NEW HAVEN County

Latitude: 41.251233

Longitude: -72.882094

Exp.10/31/2021



06/02/2021

Analysis Result:

Max Structural Usage: 96.2% [Pass]

Max Foundation Usage: 49.0% [Pass]

Additional Usage Caused by New Mount: +12%

Report Prepared By : Linfeng Chen

Introduction

The purpose of this report is to summarize the analysis results on the 70 ft Valmont 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	Valmont Structures (Eng. File No. A-121647-F-1008179) original design drawings dated October 11, 2005
Foundation Drawing	Valmont Structures (Eng. File No. A-121647-F-1008179) original design drawings dated October 11, 2005
Geotechnical Report	JGI Eastern, Inc. (Project No. 05557G) Geotechnical Evaluation dated September 27, 2005
Modification Drawings	N/A
Mount Analysis	TES, Job# 106912, Dated 05/12/21

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 $V_{ult} = 130.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ 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:	$S_s = 0.182$, $S_1 = 0.062$

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
-	65.0	3	RFS APXVTM14-C-I20	(3) T-Arm	(3) 1.25" Fiber (1) 0.7"	T-Mobile Sprint
-		3	RFS APXVSP18-C-A20			
-		3	ALU 1900MHz			
-		3	ALU 800MHz			
-		3	ALU TD-RRH8x20-25			
-		3	ALU 800 MHz Filter			
-		3	RFS ACU-A20-N RET			
9	55.0	3	Antel BXA 70063/6CF - Panel	(3) T-Arm	(12) 1 5/8" (1) 1-5/8" Fiber	Verizon
10		3	Antel 6CF/BXA-80063-6BF - Panel			
11		3	Antel BXA 171063/8BF - Panel			
12		3	Antel BXA 185063-8CF - Panel			
13		6	RFS FD9R6004/2C-3L			
14		3	ALU RRH-2X40AWS			
15		1	RFS DB-T1-6Z-8AB-0Z			

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	67.0	4	RFS ACU-A20-N RET	Low Profile Platform w/ Handrail SitePro1 RMQP-4096-HK	(3) 1.99" Hybrid - 6x24	T-Mobile Sprint
2		3	Ericsson 4449 B71 + B85 RRU			
3		3	Ericsson 4424 B25 RRU			
4		3	Ericsson 4415 B66A RRU			
5		3	ALU 800 MHz Filter			
6		3	RFS APX16DWV-16DWVS-E-A20 - Panel			
7		3	RFS APXVAALL24_43-U-NA20 - Panel			
8		3	Ericsson AIR6449 B41 - Panel			

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:	96.2%	49.8%	34.6%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	801.1	15.2	22.0

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.9036 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 96.19% at 0.0ft

Structure: CT46147-A-SBA
Site Name: New Haven Tweed
Height: 70.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

6/2/2021



Page: 1

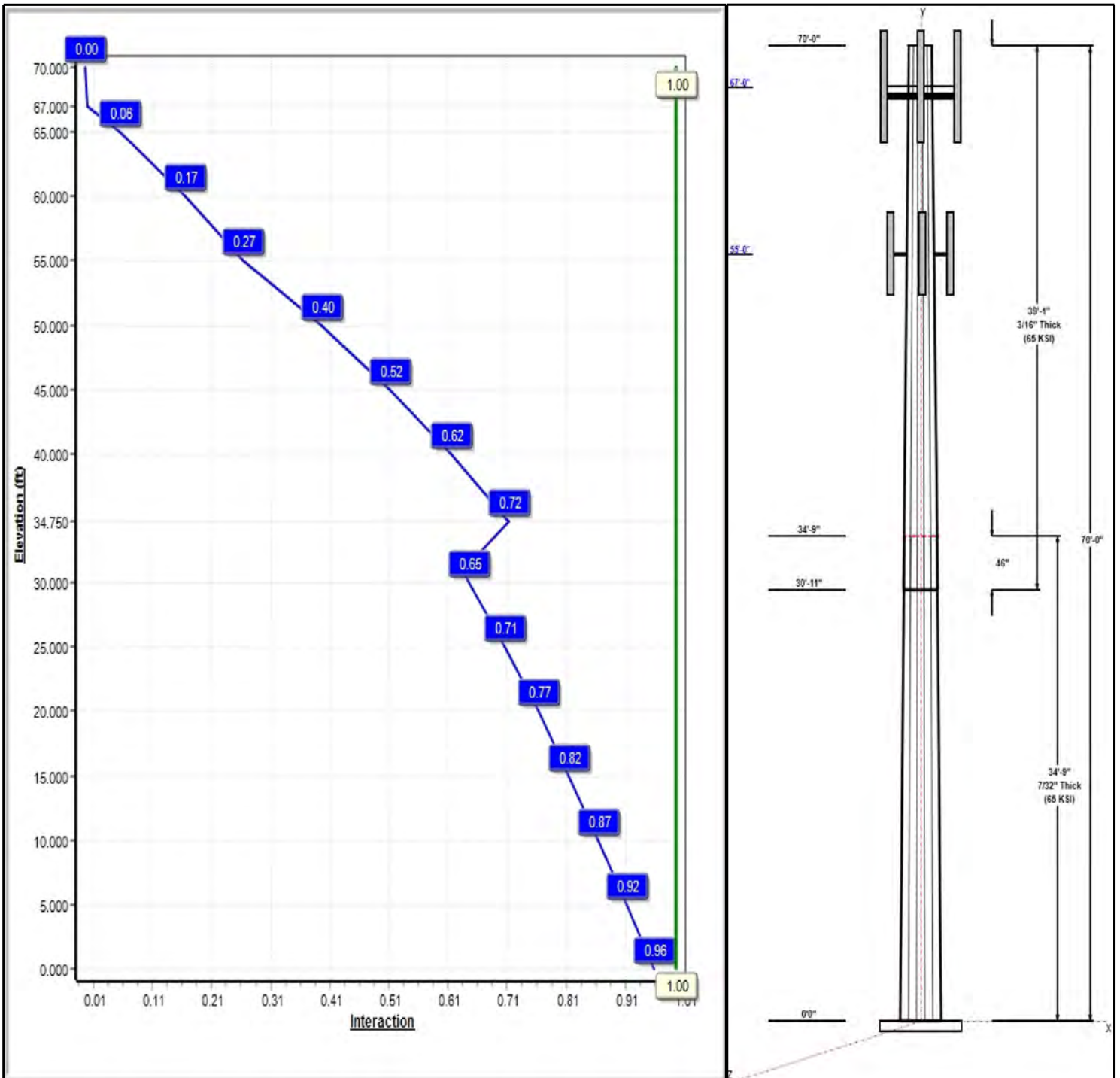
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 101 mph Wind



Iterations: 19

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Structure: CT46147-A-SBA

Type: Tapered
Site Name: New Haven Tweed
Height: 70.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.22994

6/2/2021

Page: 2



Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	34.75	24.01	32.00	0.219		0.22994	65
2	39.08	16.28	25.27	0.188	Slip	0.22994	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
67.00	67.00	1	SitePro1 RMQP-4096-HK	T-Mobile Sprint
67.00	67.00	4	RFS ACU-A20-N RET	T-Mobile Sprint
67.00	67.00	3	Ericsson 4449 B71 + B85	T-Mobile Sprint
67.00	67.00	3	Ericsson 4424 B25	T-Mobile Sprint
67.00	67.00	3	Ericsson 4415 B66A	T-Mobile Sprint
67.00	67.00	3	ALU 800 MHz Filter	T-Mobile Sprint
67.00	67.00	3	RFS	T-Mobile Sprint
67.00	67.00	3	RFS	T-Mobile Sprint
67.00	67.00	3	Ericsson AIR6449 B41	T-Mobile Sprint
55.00	55.00	3	T-Arm	Verizon
55.00	55.00	3	Antel BXA 70063/6CF	Verizon
55.00	55.00	3	Antel 6CF/BXA-80063-6BF	Verizon
55.00	55.00	3	Antel BXA 171063/8BF	Verizon
55.00	55.00	3	Antel BXA 185063-8CF	Verizon
55.00	55.00	6	RFS FD9R6004/2C-3L	Verizon
55.00	55.00	3	ALU RRRH-2X40AWS	Verizon
55.00	55.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	70.00	Outside	Step bolts (ladder)	--
0.00	67.00	Inside	1.99" Hybrid - 6x24	T-Mobile Sprint
0.00	55.00	Inside	1 5/8" Coax	Verizon
0.00	55.00	Inside	1-5/8" Fiber	Verizon

Anchor Bolts

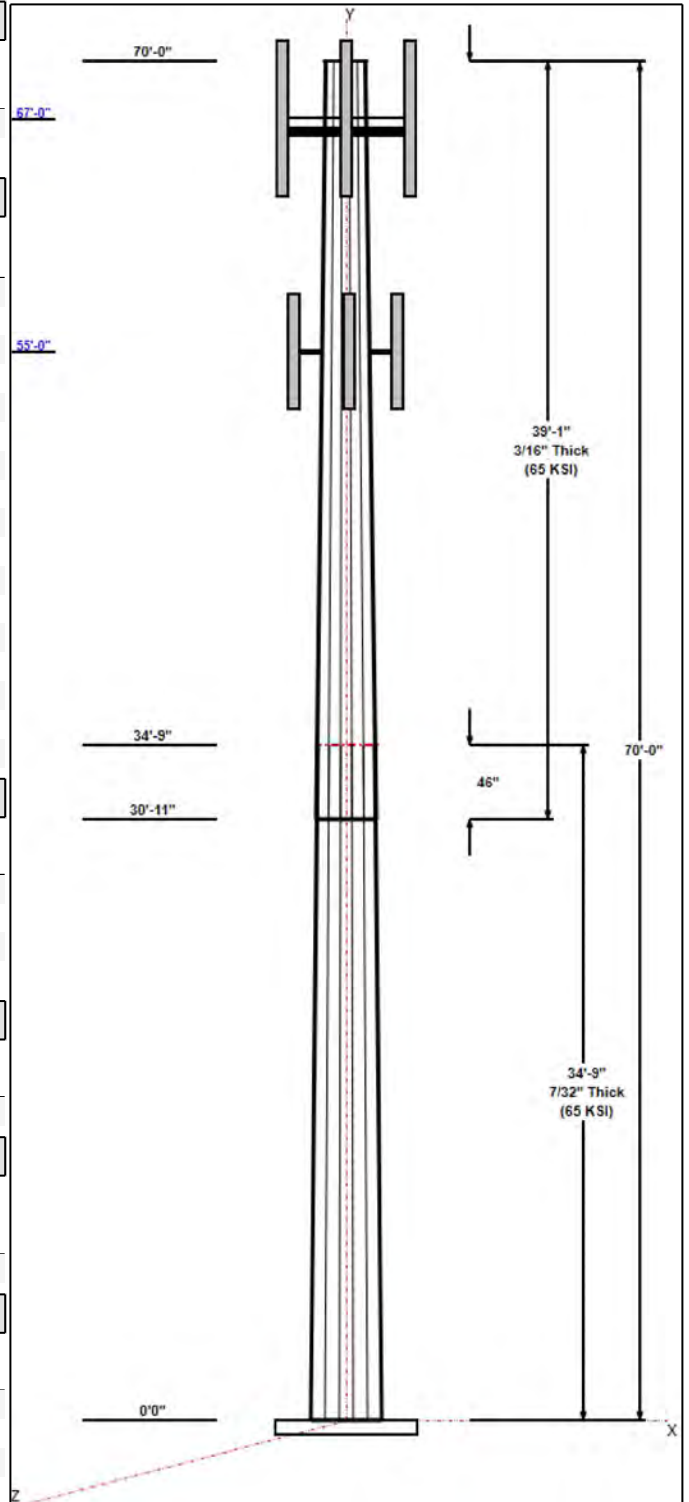
Qty	Specifications	Grade (ksi)	Arrangement
8	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	45.1	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	801.1	15.2	12.7
0.9D + 1.6W 101 mph Wind	795.2	15.2	9.5
1.2D + 1.0Di + 1.0Wi 50 mph Wind	179.6	3.3	22.0
1.2D + 1.0E	61.4	0.9	12.8
0.9D + 1.0E	60.9	0.9	9.6
1.0D + 1.0W 60 mph Wind	176.0	3.3	10.7

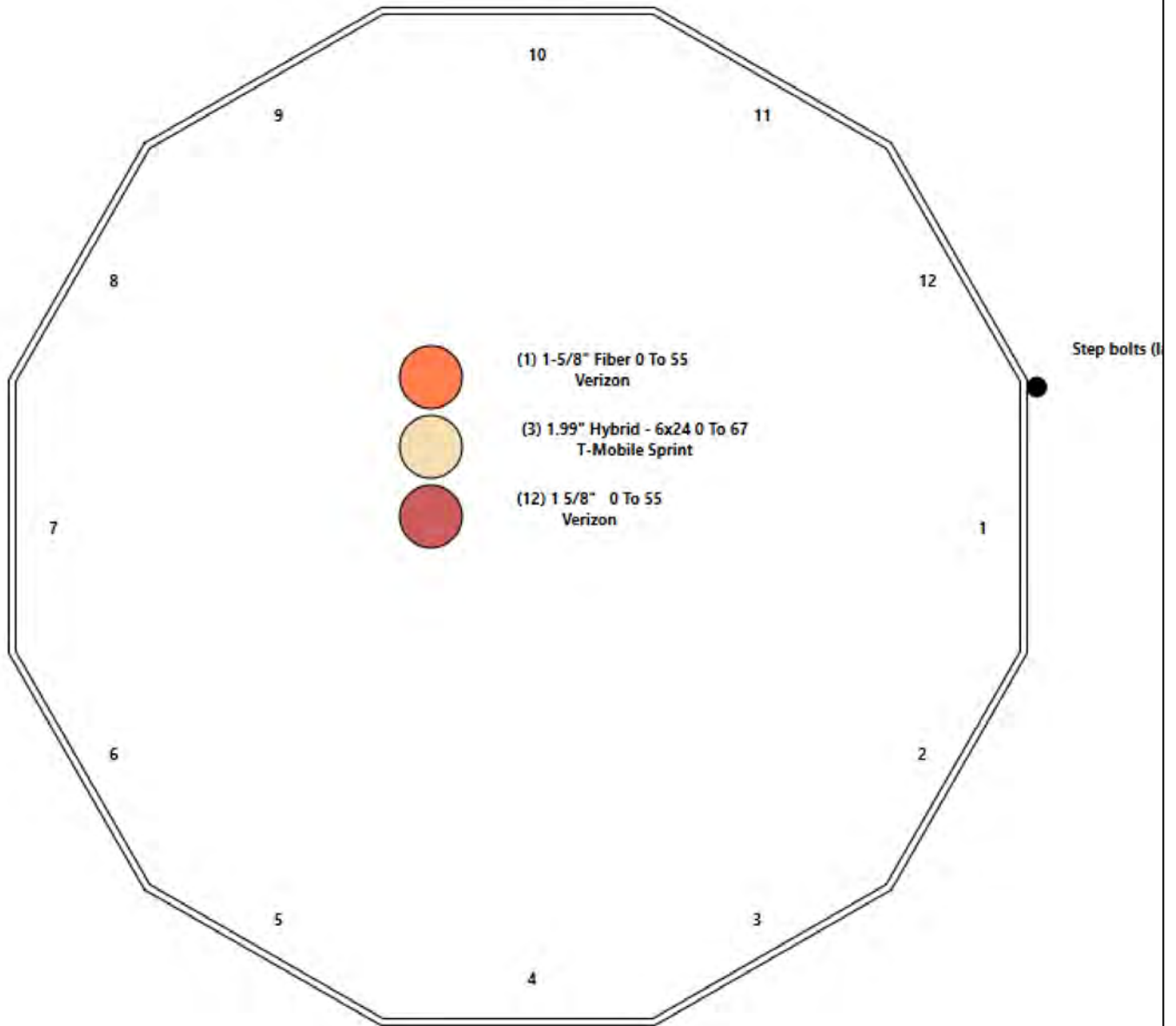


Structure: CT46147-A-SBA - Coax Line Placement

Type: Monopole
Site Name: New Haven Tweed
Height: 70.00 (ft)

6/2/2021

Page: 3



Shaft Properties

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 4

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	12	34.750	0.2190	65		0.00	2,317
2	12	39.083	0.1880	65	Slip	46.00	1,657
Total Shaft Weight:							3,974

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	32.00	0.00	22.41	2889.27	37.01	146.12	24.01	34.75	16.78	1211.98	27.23	109.6	0.229943
2	25.27	30.92	15.18	1218.78	33.87	134.40	16.28	70.00	9.74	321.98	21.06	86.60	0.229943

Load Summary

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 5

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	67.00	SitePro1 RMQP-4096-HK	1	2645.00	51.70	1.00	5200.20	86.994	1.00	0.00	0.00
2	67.00	RFS ACU-A20-N RET	4	1.00	0.14	0.79	4.96	0.414	0.75	0.00	0.00
3	67.00	Ericsson 4449 B71 + B85	3	73.20	1.97	0.67	126.47	2.495	0.67	0.00	0.00
4	67.00	Ericsson 4424 B25	3	88.00	2.05	0.67	166.31	2.595	0.67	0.00	0.00
5	67.00	Ericsson 4415 B66A	3	46.30	1.86	0.67	101.16	2.376	0.67	0.00	0.00
6	67.00	ALU 800 MHz Filter	3	8.80	0.78	0.69	25.08	1.377	0.69	0.00	0.00
7	67.00	RFS APX16DWV-16DWVS-E-A20	3	40.70	6.61	0.62	148.69	8.619	0.67	0.00	0.00
8	67.00	RFS APXVAALL24_43-U-NA20	3	128.00	20.24	0.70	509.78	21.988	0.75	0.00	0.00
9	67.00	Ericsson AIR6449 B41	3	103.00	5.65	0.71	229.50	6.527	0.75	0.00	0.00
10	55.00	T-Arm	3	400.00	10.00	0.75	652.58	17.893	0.75	0.00	0.00
11	55.00	Antel BXA 70063/6CF	3	17.00	7.57	0.73	151.14	10.070	0.75	0.00	0.00
12	55.00	Antel 6CF/BXA-80063-6BF	3	14.90	7.58	0.70	163.33	8.716	0.75	0.00	0.00
13	55.00	Antel BXA 171063/8BF	3	10.50	2.94	0.84	69.79	4.440	0.84	0.00	0.00
14	55.00	Antel BXA 185063-8CF	3	10.00	2.96	0.76	78.22	3.746	0.76	0.00	0.00
15	55.00	RFS FD9R6004/2C-3L	6	3.10	0.36	0.67	10.36	0.761	0.67	0.00	0.00
16	55.00	ALU RRRH-2X40AWS	3	44.00	2.16	0.67	98.93	3.108	0.67	0.00	0.00
17	55.00	RFS DB-T1-6Z-8AB-0Z	1	18.90	4.80	1.00	128.42	5.709	1.00	0.00	0.00
Totals:			51	5,639.70			12,973.57				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	70.00	(1) Step bolts (ladder)	1.00	Outside
0.00	67.00	(3) 1.99" Hybrid - 6x24	0.00	Inside
0.00	55.00	(12) 1 5/8" Coax	0.00	Inside
0.00	55.00	(1) 1-5/8" Fiber	0.00	Inside

Shaft Section Properties

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 6

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		0.2190	32.000	22.411	2889.3	37.01	146.12	64.4	174.4	0.0
5.00		0.2190	30.850	21.601	2586.9	35.60	140.87	65.9	162.0	374.4
10.00		0.2190	29.701	20.790	2306.4	34.20	135.62	67.4	150.0	360.6
15.00		0.2190	28.551	19.979	2047.0	32.79	130.37	69.0	138.5	346.8
20.00		0.2190	27.401	19.168	1807.7	31.38	125.12	70.5	127.5	333.0
25.00		0.2190	26.251	18.358	1587.9	29.98	119.87	72.0	116.9	319.2
30.00		0.2190	25.102	17.547	1386.7	28.57	114.62	73.6	106.7	305.4
30.92	Bot - Section 2	0.2190	24.891	17.398	1351.7	28.31	113.66	73.8	104.9	54.5
34.75	Top - Section 1	0.1880	24.385	14.648	1094.7	32.61	129.71	0.0	0.0	417.4
35.00		0.1880	24.328	14.613	1087.0	32.53	129.40	69.2	86.3	12.4
40.00		0.1880	23.178	13.917	938.9	30.89	123.29	71.0	78.3	242.7
45.00		0.1880	22.029	13.221	805.0	29.25	117.17	72.8	70.6	230.9
50.00		0.1880	20.879	12.525	684.4	27.61	111.06	74.6	63.3	219.0
55.00		0.1880	19.729	11.829	576.6	25.98	104.94	76.4	56.5	207.2
60.00		0.1880	18.579	11.133	480.7	24.34	98.83	78.2	50.0	195.3
65.00		0.1880	17.430	10.437	396.0	22.70	92.71	80.0	43.9	183.5
67.00		0.1880	16.970	10.159	365.2	22.04	90.27	80.7	41.6	70.1
70.00		0.1880	16.280	9.741	322.0	21.06	86.60	81.7	38.2	101.6
										3974.2

Wind Loading - Shaft

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 7

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 19

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	21.088	23.20	257.07	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	247.84	1.000	0.000	5.00	13.556	13.56	503.1	0.0	449.3
10.00		1.00	0.85	21.088	23.20	238.60	1.000	0.000	5.00	13.060	13.06	484.7	0.0	432.7
15.00		1.00	0.85	21.088	23.20	229.36	1.000	0.000	5.00	12.564	12.56	466.3	0.0	416.2
20.00		1.00	0.90	22.375	24.61	226.75	1.000	0.000	5.00	12.068	12.07	475.2	0.0	399.6
25.00		1.00	0.95	23.451	25.80	222.40	1.000	0.000	5.00	11.572	11.57	477.6	0.0	383.1
30.00		1.00	0.98	24.369	26.81	216.78	1.000	0.000	5.00	11.076	11.08	475.0	0.0	366.5
30.92	Bot - Section 2	1.00	0.99	24.523	26.98	215.64	1.000	0.000	0.92	1.977	1.98	85.3	0.0	65.4
34.75	Top - Section 1	1.00	1.01	25.134	27.65	210.58	1.000	0.000	3.83	8.210	8.21	363.2	0.0	500.9
35.00		1.00	1.01	25.172	27.69	213.53	1.000	0.000	0.25	0.525	0.53	23.3	0.0	14.9
40.00		1.00	1.04	25.890	28.48	206.32	1.000	0.000	5.00	10.246	10.25	466.9	0.0	291.3
45.00		1.00	1.07	26.540	29.19	198.53	1.000	0.000	5.00	9.750	9.75	455.4	0.0	277.0
50.00		1.00	1.09	27.135	29.85	190.27	1.000	0.000	5.00	9.254	9.25	442.0	0.0	262.8
55.00	Appurtenance(s)	1.00	1.12	27.685	30.45	181.60	1.000	0.000	5.00	8.758	8.76	426.8	0.0	248.6
60.00		1.00	1.14	28.197	31.02	172.59	1.000	0.000	5.00	8.262	8.26	410.0	0.0	234.4
65.00		1.00	1.16	28.676	31.54	163.28	1.000	0.000	5.00	7.767	7.77	392.0	0.0	220.2
67.00	Appurtenance(s)	1.00	1.16	28.860	31.75	159.48	1.000	0.000	2.00	2.968	2.97	150.7	0.0	84.1
70.00		1.00	1.17	29.127	32.04	153.71	1.000	0.000	3.00	4.303	4.30	220.6	0.0	121.9
Totals:									70.00			6,318.2		4,769.1

Discrete Appurtenance Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 8

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 19

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	67.00	SitePro1 RMQP-4096-HK	1	28.860	31.746	1.00	1.00	51.70	3174.00	0.000	0.000	2626.01	0.00	0.00
2	67.00	RFS	3	28.860	31.746	0.52	0.75	31.88	460.80	0.000	0.000	1619.19	0.00	0.00
3	67.00	RFS	3	28.860	31.746	0.46	0.75	9.22	146.52	0.000	0.000	468.36	0.00	0.00
4	67.00	ALU 800 MHz Filter	3	28.860	31.746	0.52	0.75	1.21	31.68	0.000	0.000	61.51	0.00	0.00
5	67.00	Ericsson 4415 B66A	3	28.860	31.746	0.50	0.75	2.80	166.68	0.000	0.000	142.42	0.00	0.00
6	67.00	Ericsson 4424 B25	3	28.860	31.746	0.50	0.75	3.09	316.80	0.000	0.000	156.97	0.00	0.00
7	67.00	Ericsson 4449 B71 + B85	3	28.860	31.746	0.50	0.75	2.97	263.52	0.000	0.000	150.84	0.00	0.00
8	67.00	RFS ACU-A20-N RET	4	28.860	31.746	0.59	0.75	0.33	4.80	0.000	0.000	16.85	0.00	0.00
9	67.00	Ericsson AIR6449 B41	3	28.860	31.746	0.53	0.75	9.03	370.80	0.000	0.000	458.45	0.00	0.00
10	55.00	RFS DB-T1-6Z-8AB-0Z	1	27.685	30.454	1.00	1.00	4.80	22.68	0.000	0.000	233.89	0.00	0.00
11	55.00	ALU RRH-2X40AWS	3	27.685	30.454	0.54	0.80	3.47	158.40	0.000	0.000	169.24	0.00	0.00
12	55.00	RFS FD9R6004/2C-3L	6	27.685	30.454	0.54	0.80	1.16	22.32	0.000	0.000	56.41	0.00	0.00
13	55.00	Antel BXA 185063-8CF	3	27.685	30.454	0.61	0.80	5.40	36.00	0.000	0.000	263.07	0.00	0.00
14	55.00	Antel BXA 171063/8BF	3	27.685	30.454	0.67	0.80	5.93	37.80	0.000	0.000	288.80	0.00	0.00
15	55.00	Antel	3	27.685	30.454	0.56	0.80	12.73	53.64	0.000	0.000	620.50	0.00	0.00
16	55.00	Antel BXA 70063/6CF	3	27.685	30.454	0.58	0.80	13.26	61.20	0.000	0.000	646.24	0.00	0.00
17	55.00	T-Arm	3	27.685	30.454	0.56	0.75	16.88	1440.00	0.000	0.000	822.25	0.00	0.00
Totals:									6,767.64			8,801.01		

Total Applied Force Summary

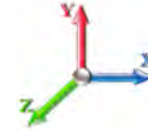
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 9

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 19

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		503.11	556.81	0.00	0.00
10.00		484.70	540.26	0.00	0.00
15.00		466.29	523.70	0.00	0.00
20.00		475.23	507.15	0.00	0.00
25.00		477.61	490.60	0.00	0.00
30.00		475.03	474.04	0.00	0.00
30.92		85.32	85.11	0.00	0.00
34.75		363.20	583.36	0.00	0.00
35.00		23.27	20.31	0.00	0.00
40.00		466.89	398.77	0.00	0.00
45.00		455.44	384.56	0.00	0.00
50.00		441.97	370.35	0.00	0.00
55.00	(25) attachments	3527.16	2188.18	0.00	0.00
60.00		410.04	260.45	0.00	0.00
65.00		391.98	246.24	0.00	0.00
67.00	(26) attachments	5851.35	5030.12	0.00	0.00
70.00		220.58	125.63	0.00	0.00
	Totals:	15,119.19	12,785.65	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

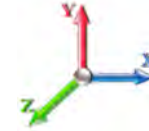
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 10

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 19

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.031	0.000	21.088	0.00	6.24
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.032	0.000	21.088	0.00	6.24
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.033	0.000	21.088	0.00	6.24
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.035	0.000	22.375	0.00	6.24
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.036	0.000	23.451	0.00	6.24
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.038	0.000	24.369	0.00	6.24
30.92	Step bolts (ladder)	Yes	0.92	0.000	1.00	0.08	0.00	0.039	0.000	24.523	0.00	1.14
34.75	Step bolts (ladder)	Yes	3.83	0.000	1.00	0.32	0.00	0.040	0.000	25.134	0.00	4.78
35.00	Step bolts (ladder)	Yes	0.25	0.000	1.00	0.02	0.00	0.040	0.000	25.172	0.00	0.31
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.041	0.000	25.890	0.00	6.24
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.043	0.000	26.540	0.00	6.24
50.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.045	0.000	27.135	0.00	6.24
55.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.048	0.000	27.685	0.00	6.24
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.050	0.000	28.197	0.00	6.24
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.054	0.000	28.676	0.00	6.24
67.00	Step bolts (ladder)	Yes	2.00	0.000	1.00	0.17	0.00	0.056	0.000	28.860	0.00	2.50
70.00	Step bolts (ladder)	Yes	3.00	0.000	1.00	0.25	0.00	0.058	0.000	29.127	0.00	3.74
Totals:											0.0	87.4

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

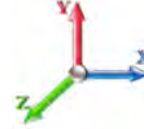


Page: 11

Load Case: 1.2D + 1.6W 101 mph Wind

Iterations 19

Dead Load Factor 1.20
Wind Load Factor 1.60



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	-12.73	-15.16	0.00	-801.07	0.00	801.07	1297.97	648.99	1704.60	841.84	0.00	0.000	0.000	0.962
5.00	-12.08	-14.74	0.00	-725.26	0.00	725.26	1280.84	640.42	1620.84	800.47	0.20	-0.376	0.000	0.916
10.00	-11.45	-14.32	0.00	-651.57	0.00	651.57	1261.47	630.74	1535.99	758.57	0.80	-0.754	0.000	0.869
15.00	-10.84	-13.92	0.00	-579.96	0.00	579.96	1239.87	619.93	1450.37	716.28	1.80	-1.134	0.000	0.819
20.00	-10.26	-13.50	0.00	-510.36	0.00	510.36	1216.02	608.01	1364.31	673.78	3.19	-1.513	0.000	0.766
25.00	-9.70	-13.07	0.00	-442.86	0.00	442.86	1189.93	594.97	1278.12	631.22	4.98	-1.888	0.000	0.710
30.00	-9.20	-12.62	0.00	-377.49	0.00	377.49	1161.61	580.80	1192.13	588.75	7.15	-2.255	0.000	0.650
30.92	-9.08	-12.55	0.00	-365.93	0.00	365.93	1156.17	578.09	1176.42	580.99	7.59	-2.325	0.000	0.638
34.75	-8.48	-12.19	0.00	-317.81	0.00	317.81	911.58	455.79	910.70	449.76	9.58	-2.601	0.000	0.717
35.00	-8.42	-12.19	0.00	-314.76	0.00	314.76	910.59	455.30	907.54	448.20	9.71	-2.620	0.000	0.712
40.00	-7.97	-11.76	0.00	-253.80	0.00	253.80	889.61	444.80	844.07	416.85	12.66	-2.992	0.000	0.618
45.00	-7.55	-11.32	0.00	-195.01	0.00	195.01	866.39	433.19	780.59	385.51	15.98	-3.332	0.000	0.515
50.00	-7.15	-10.89	0.00	-138.39	0.00	138.39	840.93	420.46	717.43	354.31	19.63	-3.626	0.000	0.400
55.00	-5.18	-7.25	0.00	-83.93	0.00	83.93	813.23	406.61	654.90	323.43	23.56	-3.857	0.000	0.266
60.00	-4.93	-6.83	0.00	-47.70	0.00	47.70	783.29	391.64	593.32	293.02	27.69	-4.020	0.000	0.169
65.00	-4.71	-6.43	0.00	-13.54	0.00	13.54	751.11	375.55	533.02	263.24	31.96	-4.110	0.000	0.058
67.00	-0.11	-0.23	0.00	-0.69	0.00	0.69	737.61	368.81	509.33	251.54	33.68	-4.121	0.000	0.003
70.00	0.00	-0.22	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	36.27	-4.121	0.000	0.000

Wind Loading - Shaft

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 12

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 19

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	21.088	23.20	257.07	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	247.84	1.000	0.000	5.00	13.556	13.56	503.1	0.0	337.0
10.00		1.00	0.85	21.088	23.20	238.60	1.000	0.000	5.00	13.060	13.06	484.7	0.0	324.6
15.00		1.00	0.85	21.088	23.20	229.36	1.000	0.000	5.00	12.564	12.56	466.3	0.0	312.1
20.00		1.00	0.90	22.375	24.61	226.75	1.000	0.000	5.00	12.068	12.07	475.2	0.0	299.7
25.00		1.00	0.95	23.451	25.80	222.40	1.000	0.000	5.00	11.572	11.57	477.6	0.0	287.3
30.00		1.00	0.98	24.369	26.81	216.78	1.000	0.000	5.00	11.076	11.08	475.0	0.0	274.9
30.92	Bot - Section 2	1.00	0.99	24.523	26.98	215.64	1.000	0.000	0.92	1.977	1.98	85.3	0.0	49.1
34.75	Top - Section 1	1.00	1.01	25.134	27.65	210.58	1.000	0.000	3.83	8.210	8.21	363.2	0.0	375.7
35.00		1.00	1.01	25.172	27.69	213.53	1.000	0.000	0.25	0.525	0.53	23.3	0.0	11.2
40.00		1.00	1.04	25.890	28.48	206.32	1.000	0.000	5.00	10.246	10.25	466.9	0.0	218.4
45.00		1.00	1.07	26.540	29.19	198.53	1.000	0.000	5.00	9.750	9.75	455.4	0.0	207.8
50.00		1.00	1.09	27.135	29.85	190.27	1.000	0.000	5.00	9.254	9.25	442.0	0.0	197.1
55.00	Appurtenance(s)	1.00	1.12	27.685	30.45	181.60	1.000	0.000	5.00	8.758	8.76	426.8	0.0	186.5
60.00		1.00	1.14	28.197	31.02	172.59	1.000	0.000	5.00	8.262	8.26	410.0	0.0	175.8
65.00		1.00	1.16	28.676	31.54	163.28	1.000	0.000	5.00	7.767	7.77	392.0	0.0	165.2
67.00	Appurtenance(s)	1.00	1.16	28.860	31.75	159.48	1.000	0.000	2.00	2.968	2.97	150.7	0.0	63.1
70.00		1.00	1.17	29.127	32.04	153.71	1.000	0.000	3.00	4.303	4.30	220.6	0.0	91.4
Totals:									70.00			6,318.2		3,576.8

Discrete Appurtenance Forces

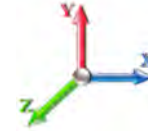
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 13

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 19

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	67.00	SitePro1 RMQP-4096-HK	1	28.860	31.746	1.00	1.00	51.70	2380.50	0.000	0.000	2626.01	0.00	0.00
2	67.00	RFS	3	28.860	31.746	0.52	0.75	31.88	345.60	0.000	0.000	1619.19	0.00	0.00
3	67.00	RFS	3	28.860	31.746	0.46	0.75	9.22	109.89	0.000	0.000	468.36	0.00	0.00
4	67.00	ALU 800 MHz Filter	3	28.860	31.746	0.52	0.75	1.21	23.76	0.000	0.000	61.51	0.00	0.00
5	67.00	Ericsson 4415 B66A	3	28.860	31.746	0.50	0.75	2.80	125.01	0.000	0.000	142.42	0.00	0.00
6	67.00	Ericsson 4424 B25	3	28.860	31.746	0.50	0.75	3.09	237.60	0.000	0.000	156.97	0.00	0.00
7	67.00	Ericsson 4449 B71 + B85	3	28.860	31.746	0.50	0.75	2.97	197.64	0.000	0.000	150.84	0.00	0.00
8	67.00	RFS ACU-A20-N RET	4	28.860	31.746	0.59	0.75	0.33	3.60	0.000	0.000	16.85	0.00	0.00
9	67.00	Ericsson AIR6449 B41	3	28.860	31.746	0.53	0.75	9.03	278.10	0.000	0.000	458.45	0.00	0.00
10	55.00	RFS DB-T1-6Z-8AB-0Z	1	27.685	30.454	1.00	1.00	4.80	17.01	0.000	0.000	233.89	0.00	0.00
11	55.00	ALU RRH-2X40AWS	3	27.685	30.454	0.54	0.80	3.47	118.80	0.000	0.000	169.24	0.00	0.00
12	55.00	RFS FD9R6004/2C-3L	6	27.685	30.454	0.54	0.80	1.16	16.74	0.000	0.000	56.41	0.00	0.00
13	55.00	Antel BXA 185063-8CF	3	27.685	30.454	0.61	0.80	5.40	27.00	0.000	0.000	263.07	0.00	0.00
14	55.00	Antel BXA 171063/8BF	3	27.685	30.454	0.67	0.80	5.93	28.35	0.000	0.000	288.80	0.00	0.00
15	55.00	Antel	3	27.685	30.454	0.56	0.80	12.73	40.23	0.000	0.000	620.50	0.00	0.00
16	55.00	Antel BXA 70063/6CF	3	27.685	30.454	0.58	0.80	13.26	45.90	0.000	0.000	646.24	0.00	0.00
17	55.00	T-Arm	3	27.685	30.454	0.56	0.75	16.88	1080.00	0.000	0.000	822.25	0.00	0.00
Totals:									5,075.73			8,801.01		

Total Applied Force Summary

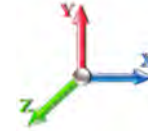
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 14

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 19

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		503.11	417.61	0.00	0.00
10.00		484.70	405.19	0.00	0.00
15.00		466.29	392.78	0.00	0.00
20.00		475.23	380.36	0.00	0.00
25.00		477.61	367.95	0.00	0.00
30.00		475.03	355.53	0.00	0.00
30.92		85.32	63.83	0.00	0.00
34.75		363.20	437.52	0.00	0.00
35.00		23.27	15.23	0.00	0.00
40.00		466.89	299.08	0.00	0.00
45.00		455.44	288.42	0.00	0.00
50.00		441.97	277.76	0.00	0.00
55.00	(25) attachments	3527.16	1641.14	0.00	0.00
60.00		410.04	195.34	0.00	0.00
65.00		391.98	184.68	0.00	0.00
67.00	(26) attachments	5851.35	3772.59	0.00	0.00
70.00		220.58	94.23	0.00	0.00
	Totals:	15,119.19	9,589.24	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

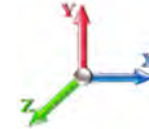
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 15

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 19

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.031	0.000	21.088	0.00	4.68
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.032	0.000	21.088	0.00	4.68
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.033	0.000	21.088	0.00	4.68
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.035	0.000	22.375	0.00	4.68
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.036	0.000	23.451	0.00	4.68
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.038	0.000	24.369	0.00	4.68
30.92	Step bolts (ladder)	Yes	0.92	0.000	1.00	0.08	0.00	0.039	0.000	24.523	0.00	0.86
34.75	Step bolts (ladder)	Yes	3.83	0.000	1.00	0.32	0.00	0.040	0.000	25.134	0.00	3.59
35.00	Step bolts (ladder)	Yes	0.25	0.000	1.00	0.02	0.00	0.040	0.000	25.172	0.00	0.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.041	0.000	25.890	0.00	4.68
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.043	0.000	26.540	0.00	4.68
50.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.045	0.000	27.135	0.00	4.68
55.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.048	0.000	27.685	0.00	4.68
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.050	0.000	28.197	0.00	4.68
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.054	0.000	28.676	0.00	4.68
67.00	Step bolts (ladder)	Yes	2.00	0.000	1.00	0.17	0.00	0.056	0.000	28.860	0.00	1.87
70.00	Step bolts (ladder)	Yes	3.00	0.000	1.00	0.25	0.00	0.058	0.000	29.127	0.00	2.81
Totals:											0.0	65.5

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



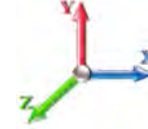
Page: 16

Load Case: 0.9D + 1.6W 101 mph Wind

Iterations 19

Dead Load Factor 0.90

Wind Load Factor 1.60



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	-9.54	-15.15	0.00	-795.20	0.00	795.20	1297.97	648.99	1704.60	841.84	0.00	0.000	0.000	0.952
5.00	-9.03	-14.71	0.00	-719.45	0.00	719.45	1280.84	640.42	1620.84	800.47	0.20	-0.373	0.000	0.906
10.00	-8.53	-14.27	0.00	-645.92	0.00	645.92	1261.47	630.74	1535.99	758.57	0.79	-0.748	0.000	0.859
15.00	-8.06	-13.85	0.00	-574.55	0.00	574.55	1239.87	619.93	1450.37	716.28	1.78	-1.125	0.000	0.809
20.00	-7.60	-13.42	0.00	-505.28	0.00	505.28	1216.02	608.01	1364.31	673.78	3.16	-1.500	0.000	0.757
25.00	-7.16	-12.98	0.00	-438.19	0.00	438.19	1189.93	594.97	1278.12	631.22	4.94	-1.871	0.000	0.701
30.00	-6.78	-12.52	0.00	-373.30	0.00	373.30	1161.61	580.80	1192.13	588.75	7.09	-2.235	0.000	0.640
30.92	-6.68	-12.45	0.00	-361.83	0.00	361.83	1156.17	578.09	1176.42	580.99	7.53	-2.304	0.000	0.629
34.75	-6.23	-12.08	0.00	-314.11	0.00	314.11	911.58	455.79	910.70	449.76	9.49	-2.576	0.000	0.706
35.00	-6.17	-12.08	0.00	-311.09	0.00	311.09	910.59	455.30	907.54	448.20	9.63	-2.595	0.000	0.702
40.00	-5.83	-11.63	0.00	-250.69	0.00	250.69	889.61	444.80	844.07	416.85	12.55	-2.962	0.000	0.609
45.00	-5.50	-11.19	0.00	-192.52	0.00	192.52	866.39	433.19	780.59	385.51	15.83	-3.298	0.000	0.506
50.00	-5.20	-10.76	0.00	-136.54	0.00	136.54	840.93	420.46	717.43	354.31	19.45	-3.589	0.000	0.392
55.00	-3.77	-7.15	0.00	-82.74	0.00	82.74	813.23	406.61	654.90	323.43	23.34	-3.817	0.000	0.261
60.00	-3.59	-6.73	0.00	-47.01	0.00	47.01	783.29	391.64	593.32	293.02	27.42	-3.977	0.000	0.165
65.00	-3.43	-6.33	0.00	-13.34	0.00	13.34	751.11	375.55	533.02	263.24	31.64	-4.066	0.000	0.056
67.00	-0.08	-0.23	0.00	-0.68	0.00	0.68	737.61	368.81	509.33	251.54	33.35	-4.076	0.000	0.003
70.00	0.00	-0.22	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	35.91	-4.077	0.000	0.000

Wind Loading - Shaft

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 17

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 18

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	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	14.591	17.51	99.5	258.0	707.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	14.169	17.00	96.7	267.4	700.1
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	13.719	16.46	93.6	268.6	684.8
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	13.257	15.91	96.0	266.2	665.8
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	12.788	15.35	97.0	261.6	644.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	12.314	14.78	97.1	255.6	622.1
30.92	Bot - Section 2	1.00	0.99	6.010	6.61	0.00	1.200	1.490	0.92	2.204	2.65	17.5	46.6	112.0
34.75	Top - Section 1	1.00	1.01	6.160	6.78	0.00	1.200	1.508	3.83	9.174	11.01	74.6	193.6	694.6
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	0.25	0.588	0.71	4.8	12.6	27.5
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	11.521	13.82	96.5	244.4	535.6
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	11.040	13.25	94.8	235.9	513.0
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	5.00	10.557	12.67	92.7	226.9	489.8
55.00	Appurtenance(s)	1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	10.074	12.09	90.2	217.5	466.1
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	9.589	11.51	87.5	207.7	442.1
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	9.104	10.93	84.5	197.5	417.7
67.00	Appurtenance(s)	1.00	1.16	7.073	7.78	0.00	1.200	1.610	2.00	3.504	4.21	32.7	77.3	161.4
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	3.00	5.111	6.13	48.2	112.2	234.1
Totals:									70.00			1,303.7		8,118.6

Discrete Appurtenance Forces

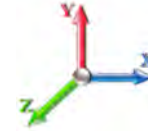
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 18

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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 18

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	67.00	SitePro1 RMQP-4096-HK	1	7.073	7.780	1.00	1.00	86.99	4974.20	0.000	0.000	676.82	0.00	0.00
2	67.00	RFS	3	7.073	7.780	0.56	0.75	37.10	1606.14	0.000	0.000	288.68	0.00	0.00
3	67.00	RFS	3	7.073	7.780	0.50	0.75	12.99	370.00	0.000	0.000	101.09	0.00	0.00
4	67.00	ALU 800 MHz Filter	3	7.073	7.780	0.52	0.75	2.14	65.51	0.000	0.000	16.63	0.00	0.00
5	67.00	Ericsson 4415 B66A	3	7.073	7.780	0.50	0.75	3.58	331.27	0.000	0.000	27.87	0.00	0.00
6	67.00	Ericsson 4424 B25	3	7.073	7.780	0.50	0.75	3.91	551.72	0.000	0.000	30.44	0.00	0.00
7	67.00	Ericsson 4449 B71 + B85	3	7.073	7.780	0.50	0.75	3.76	248.14	0.000	0.000	29.27	0.00	0.00
8	67.00	RFS ACU-A20-N RET	4	7.073	7.780	0.56	0.75	0.93	15.45	0.000	0.000	7.24	0.00	0.00
9	67.00	Ericsson AIR6449 B41	3	7.073	7.780	0.56	0.75	11.01	655.20	0.000	0.000	85.69	0.00	0.00
10	55.00	RFS DB-T1-6Z-8AB-0Z	1	6.785	7.463	1.00	1.00	5.71	105.10	0.000	0.000	42.61	0.00	0.00
11	55.00	ALU RRH-2X40AWS	3	6.785	7.463	0.54	0.80	5.00	270.98	0.000	0.000	37.30	0.00	0.00
12	55.00	RFS FD9R6004/2C-3L	6	6.785	7.463	0.54	0.80	2.45	52.08	0.000	0.000	18.27	0.00	0.00
13	55.00	Antel BXA 185063-8CF	3	6.785	7.463	0.61	0.80	6.83	240.66	0.000	0.000	50.99	0.00	0.00
14	55.00	Antel BXA 171063/8BF	3	6.785	7.463	0.67	0.80	8.95	159.26	0.000	0.000	66.81	0.00	0.00
15	55.00	Antel	3	6.785	7.463	0.60	0.80	15.69	498.93	0.000	0.000	117.09	0.00	0.00
16	55.00	Antel BXA 70063/6CF	3	6.785	7.463	0.60	0.80	18.13	336.12	0.000	0.000	135.28	0.00	0.00
17	55.00	T-Arm	3	6.785	7.463	0.56	0.75	30.19	1957.74	0.000	0.000	225.36	0.00	0.00
Totals:									12,438.51			1,957.43		

Total Applied Force Summary

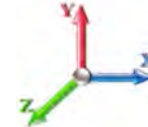
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 19

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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 18

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		99.53	827.45	0.00	0.00
10.00		96.66	821.85	0.00	0.00
15.00		93.59	807.56	0.00	0.00
20.00		95.96	789.37	0.00	0.00
25.00		97.01	768.89	0.00	0.00
30.00		97.07	746.87	0.00	0.00
30.92		17.49	134.92	0.00	0.00
34.75		74.59	790.57	0.00	0.00
35.00		4.79	33.81	0.00	0.00
40.00		96.49	661.31	0.00	0.00
45.00		94.78	639.03	0.00	0.00
50.00		92.68	616.18	0.00	0.00
55.00	(25) attachments	783.92	4213.73	0.00	0.00
60.00		87.47	487.63	0.00	0.00
65.00		84.46	463.54	0.00	0.00
67.00	(26) attachments	1296.45	8997.45	0.00	0.00
70.00		48.16	249.89	0.00	0.00
	Totals:	3,261.10	22,050.04	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 20

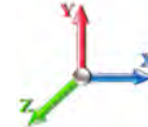


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 18

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.45	0.00	0.031	0.000	5.168	0.00	18.85
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.53	0.00	0.032	0.000	5.168	0.00	20.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.57	0.00	0.033	0.000	5.168	0.00	21.51
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.61	0.00	0.035	0.000	5.483	0.00	22.31
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.63	0.00	0.036	0.000	5.747	0.00	22.95
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.65	0.00	0.038	0.000	5.972	0.00	23.50
30.92	Step bolts (ladder)	Yes	0.92	0.000	1.00	0.30	0.00	0.039	0.000	6.010	0.00	4.33
34.75	Step bolts (ladder)	Yes	3.83	0.000	1.00	1.28	0.00	0.040	0.000	6.160	0.00	18.37
35.00	Step bolts (ladder)	Yes	0.25	0.000	1.00	0.08	0.00	0.040	0.000	6.169	0.00	1.20
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.69	0.00	0.041	0.000	6.345	0.00	24.40
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.71	0.00	0.043	0.000	6.504	0.00	24.79
50.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.72	0.00	0.045	0.000	6.650	0.00	25.14
55.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.73	0.00	0.048	0.000	6.785	0.00	25.46
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.74	0.00	0.050	0.000	6.910	0.00	25.76
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	1.75	0.00	0.054	0.000	7.028	0.00	26.04
67.00	Step bolts (ladder)	Yes	2.00	0.000	1.00	0.70	0.00	0.056	0.000	7.073	0.00	10.46
70.00	Step bolts (ladder)	Yes	3.00	0.000	1.00	1.06	0.00	0.058	0.000	7.138	0.00	15.79
Totals:											0.0	331.3

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

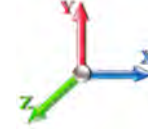


Page: 21

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

Iterations 18

Dead Load Factor 1.20
Wind Load Factor 1.00



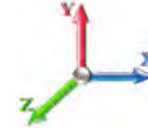
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-22.05	-3.28	0.00	-179.58	0.00	179.58	1297.97	648.99	1704.60	841.84	0.00	0.000	0.000	0.230
5.00	-21.22	-3.21	0.00	-163.19	0.00	163.19	1280.84	640.42	1620.84	800.47	0.05	-0.084	0.000	0.220
10.00	-20.39	-3.14	0.00	-147.15	0.00	147.15	1261.47	630.74	1535.99	758.57	0.18	-0.170	0.000	0.210
15.00	-19.58	-3.07	0.00	-131.45	0.00	131.45	1239.87	619.93	1450.37	716.28	0.40	-0.256	0.000	0.199
20.00	-18.78	-3.00	0.00	-116.08	0.00	116.08	1216.02	608.01	1364.31	673.78	0.72	-0.342	0.000	0.188
25.00	-18.01	-2.93	0.00	-101.07	0.00	101.07	1189.93	594.97	1278.12	631.22	1.12	-0.427	0.000	0.175
30.00	-17.26	-2.84	0.00	-86.44	0.00	86.44	1161.61	580.80	1192.13	588.75	1.62	-0.511	0.000	0.162
30.92	-17.13	-2.83	0.00	-83.84	0.00	83.84	1156.17	578.09	1176.42	580.99	1.72	-0.527	0.000	0.159
34.75	-16.33	-2.76	0.00	-72.99	0.00	72.99	911.58	455.79	910.70	449.76	2.16	-0.590	0.000	0.180
35.00	-16.30	-2.77	0.00	-72.30	0.00	72.30	910.59	455.30	907.54	448.20	2.20	-0.595	0.000	0.179
40.00	-15.63	-2.68	0.00	-58.47	0.00	58.47	889.61	444.80	844.07	416.85	2.87	-0.680	0.000	0.158
45.00	-14.99	-2.60	0.00	-45.05	0.00	45.05	866.39	433.19	780.59	385.51	3.62	-0.759	0.000	0.134
50.00	-14.38	-2.52	0.00	-32.04	0.00	32.04	840.93	420.46	717.43	354.31	4.45	-0.827	0.000	0.108
55.00	-10.17	-1.68	0.00	-19.46	0.00	19.46	813.23	406.61	654.90	323.43	5.35	-0.880	0.000	0.073
60.00	-9.69	-1.59	0.00	-11.08	0.00	11.08	783.29	391.64	593.32	293.02	6.30	-0.918	0.000	0.050
65.00	-9.22	-1.50	0.00	-3.15	0.00	3.15	751.11	375.55	533.02	263.24	7.27	-0.939	0.000	0.024
67.00	-0.25	-0.05	0.00	-0.16	0.00	0.16	737.61	368.81	509.33	251.54	7.66	-0.941	0.000	0.001
70.00	0.00	-0.05	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	8.26	-0.942	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 22

Load Case: 1.2D + 1.0E							Iterations 17
Gust Response Factor	1.10			Sds	0.19	Ss	0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10	S1	0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.59	SA	0.06	Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		374.41	0.01	0.05	0.03	7.65	
10.00		360.61	0.04	0.07	0.04	9.42	
15.00		346.82	0.09	0.07	0.04	9.88	
20.00		333.02	0.15	0.07	0.03	10.13	
25.00		319.23	0.24	0.06	0.02	9.85	
30.00		305.44	0.35	0.03	0.01	8.15	
30.92	Bot - Section 2	54.50	0.37	0.03	0.01	1.37	
34.75	Top - Section 1	417.44	0.47	0.00	0.01	6.68	
35.00		12.45	0.47	-0.01	0.01	0.19	
40.00		242.71	0.62	-0.06	0.02	-0.28	
45.00		230.87	0.78	-0.11	0.05	-2.96	
50.00		219.03	0.96	-0.12	0.11	-1.83	
55.00	Appurtenance(s)	1733.8	1.17	-0.02	0.23	32.39	
60.00		195.34	1.39	0.26	0.42	13.75	
65.00		183.50	1.63	0.87	0.71	27.09	
67.00	Appurtenance(s)	4183.0	1.73	1.25	0.86	777.19	
70.00		101.58	1.89	1.98	1.14	25.50	
Totals:		9,613.9				934.1	Total Wind: 15,119.2

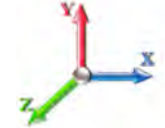
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 23

Load Case: 1.2D + 1.0E							Iterations 17
Gust Response Factor	1.10			Sds	0.19	Ss	0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10	S1	0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.59	SA	0.06	Seismic Importance Factor	1.00

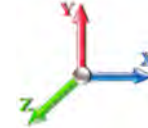
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-12.79	-0.94	0.00	-61.39	0.00	61.39	1297.97	648.99	1704.60	841.84	0.00	0.00	0.00	0.083
5.00	-12.23	-0.94	0.00	-56.68	0.00	56.68	1280.84	640.42	1620.84	800.47	0.02	-0.03	0.080	
10.00	-11.69	-0.94	0.00	-51.97	0.00	51.97	1261.47	630.74	1535.99	758.57	0.06	-0.06	0.078	
15.00	-11.16	-0.93	0.00	-47.29	0.00	47.29	1239.87	619.93	1450.37	716.28	0.14	-0.09	0.075	
20.00	-10.66	-0.93	0.00	-42.63	0.00	42.63	1216.02	608.01	1364.31	673.78	0.25	-0.12	0.072	
25.00	-10.16	-0.92	0.00	-37.99	0.00	37.99	1189.93	594.97	1278.12	631.22	0.39	-0.15	0.069	
30.00	-9.69	-0.92	0.00	-33.38	0.00	33.38	1161.61	580.80	1192.13	588.75	0.57	-0.18	0.065	
30.92	-9.60	-0.92	0.00	-32.54	0.00	32.54	1156.17	578.09	1176.42	580.99	0.61	-0.19	0.064	
34.75	-9.02	-0.91	0.00	-29.03	0.00	29.03	911.58	455.79	910.70	449.76	0.77	-0.22	0.074	
35.00	-9.00	-0.91	0.00	-28.80	0.00	28.80	910.59	455.30	907.54	448.20	0.78	-0.22	0.074	
40.00	-8.60	-0.92	0.00	-24.24	0.00	24.24	889.61	444.80	844.07	416.85	1.03	-0.25	0.068	
45.00	-8.22	-0.92	0.00	-19.66	0.00	19.66	866.39	433.19	780.59	385.51	1.31	-0.29	0.060	
50.00	-7.85	-0.92	0.00	-15.07	0.00	15.07	840.93	420.46	717.43	354.31	1.63	-0.32	0.052	
55.00	-5.66	-0.88	0.00	-10.46	0.00	10.46	813.23	406.61	654.90	323.43	1.97	-0.34	0.039	
60.00	-5.40	-0.86	0.00	-6.07	0.00	6.07	783.29	391.64	593.32	293.02	2.34	-0.36	0.028	
65.00	-5.15	-0.84	0.00	-1.75	0.00	1.75	751.11	375.55	533.02	263.24	2.73	-0.37	0.014	
67.00	-0.13	-0.03	0.00	-0.08	0.00	0.08	737.61	368.81	509.33	251.54	2.89	-0.38	0.000	
70.00	0.00	-0.03	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	3.12	-0.38	0.000	

Seismic Segment Forces (Factored)

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 24

Load Case: 0.9D + 1.0E						Iterations	17
Gust Response Factor	1.10	Sds	0.19	Ss		0.18	
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10	S1	0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.59	SA	0.06	Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		374.41	0.01	0.05	0.03	7.65	
10.00		360.61	0.04	0.07	0.04	9.42	
15.00		346.82	0.09	0.07	0.04	9.88	
20.00		333.02	0.15	0.07	0.03	10.13	
25.00		319.23	0.24	0.06	0.02	9.85	
30.00		305.44	0.35	0.03	0.01	8.15	
30.92	Bot - Section 2	54.50	0.37	0.03	0.01	1.37	
34.75	Top - Section 1	417.44	0.47	0.00	0.01	6.68	
35.00		12.45	0.47	-0.01	0.01	0.19	
40.00		242.71	0.62	-0.06	0.02	-0.28	
45.00		230.87	0.78	-0.11	0.05	-2.96	
50.00		219.03	0.96	-0.12	0.11	-1.83	
55.00	Appurtenance(s)	1733.8	1.17	-0.02	0.23	32.39	
60.00		195.34	1.39	0.26	0.42	13.75	
65.00		183.50	1.63	0.87	0.71	27.09	
67.00	Appurtenance(s)	4183.0	1.73	1.25	0.86	777.19	
70.00		101.58	1.89	1.98	1.14	25.50	
Totals:		9,613.9				934.1	Total Wind: 15,119.2

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

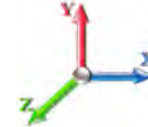
Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 25

Load Case: 0.9D + 1.0E										Iterations 17
Gust Response Factor	1.10						Sds	0.19		Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10					S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.59	SA	0.06	Seismic Importance Factor	1.00			



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-9.59	-0.94	0.00	-60.89	0.00	60.89	1297.97	648.99	1704.60	841.84	0.00	0.00	0.00	0.080
5.00	-9.17	-0.94	0.00	-56.18	0.00	56.18	1280.84	640.42	1620.84	800.47	0.02	-0.03	0.077	
10.00	-8.77	-0.93	0.00	-51.49	0.00	51.49	1261.47	630.74	1535.99	758.57	0.06	-0.06	0.075	
15.00	-8.37	-0.93	0.00	-46.83	0.00	46.83	1239.87	619.93	1450.37	716.28	0.14	-0.09	0.072	
20.00	-7.99	-0.92	0.00	-42.19	0.00	42.19	1216.02	608.01	1364.31	673.78	0.25	-0.12	0.069	
25.00	-7.62	-0.91	0.00	-37.59	0.00	37.59	1189.93	594.97	1278.12	631.22	0.39	-0.15	0.066	
30.00	-7.27	-0.91	0.00	-33.02	0.00	33.02	1161.61	580.80	1192.13	588.75	0.57	-0.18	0.062	
30.92	-7.20	-0.91	0.00	-32.19	0.00	32.19	1156.17	578.09	1176.42	580.99	0.60	-0.19	0.062	
34.75	-6.77	-0.90	0.00	-28.71	0.00	28.71	911.58	455.79	910.70	449.76	0.76	-0.21	0.071	
35.00	-6.75	-0.90	0.00	-28.48	0.00	28.48	910.59	455.30	907.54	448.20	0.77	-0.22	0.071	
40.00	-6.45	-0.91	0.00	-23.97	0.00	23.97	889.61	444.80	844.07	416.85	1.02	-0.25	0.065	
45.00	-6.16	-0.91	0.00	-19.44	0.00	19.44	866.39	433.19	780.59	385.51	1.30	-0.28	0.058	
50.00	-5.88	-0.91	0.00	-14.90	0.00	14.90	840.93	420.46	717.43	354.31	1.61	-0.31	0.049	
55.00	-4.24	-0.87	0.00	-10.36	0.00	10.36	813.23	406.61	654.90	323.43	1.95	-0.34	0.037	
60.00	-4.05	-0.86	0.00	-6.01	0.00	6.01	783.29	391.64	593.32	293.02	2.32	-0.36	0.026	
65.00	-3.86	-0.83	0.00	-1.73	0.00	1.73	751.11	375.55	533.02	263.24	2.70	-0.37	0.012	
67.00	-0.09	-0.03	0.00	-0.08	0.00	0.08	737.61	368.81	509.33	251.54	2.86	-0.37	0.000	
70.00	0.00	-0.03	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	3.09	-0.37	0.000	

Wind Loading - Shaft

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 26

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 18

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	152.72	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	147.23	1.000	0.000	5.00	13.556	13.56	111.0	0.0	374.4
10.00		1.00	0.85	7.442	8.19	141.74	1.000	0.000	5.00	13.060	13.06	106.9	0.0	360.6
15.00		1.00	0.85	7.442	8.19	136.26	1.000	0.000	5.00	12.564	12.56	102.8	0.0	346.8
20.00		1.00	0.90	7.896	8.69	134.70	1.000	0.000	5.00	12.068	12.07	104.8	0.0	333.0
25.00		1.00	0.95	8.276	9.10	132.12	1.000	0.000	5.00	11.572	11.57	105.3	0.0	319.2
30.00		1.00	0.98	8.600	9.46	128.78	1.000	0.000	5.00	11.076	11.08	104.8	0.0	305.4
30.92	Bot - Section 2	1.00	0.99	8.654	9.52	128.10	1.000	0.000	0.92	1.977	1.98	18.8	0.0	54.5
34.75	Top - Section 1	1.00	1.01	8.870	9.76	125.10	1.000	0.000	3.83	8.210	8.21	80.1	0.0	417.4
35.00		1.00	1.01	8.883	9.77	126.85	1.000	0.000	0.25	0.525	0.53	5.1	0.0	12.4
40.00		1.00	1.04	9.137	10.05	122.57	1.000	0.000	5.00	10.246	10.25	103.0	0.0	242.7
45.00		1.00	1.07	9.366	10.30	117.94	1.000	0.000	5.00	9.750	9.75	100.5	0.0	230.9
50.00		1.00	1.09	9.576	10.53	113.03	1.000	0.000	5.00	9.254	9.25	97.5	0.0	219.0
55.00	Appurtenance(s)	1.00	1.12	9.770	10.75	107.88	1.000	0.000	5.00	8.758	8.76	94.1	0.0	207.2
60.00		1.00	1.14	9.951	10.95	102.53	1.000	0.000	5.00	8.262	8.26	90.4	0.0	195.3
65.00		1.00	1.16	10.120	11.13	97.00	1.000	0.000	5.00	7.767	7.77	86.5	0.0	183.5
67.00	Appurtenance(s)	1.00	1.16	10.185	11.20	94.74	1.000	0.000	2.00	2.968	2.97	33.2	0.0	70.1
70.00		1.00	1.17	10.279	11.31	91.31	1.000	0.000	3.00	4.303	4.30	48.7	0.0	101.6
Totals:									70.00			1,393.6		3,974.2

Discrete Appurtenance Forces

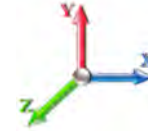
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 27

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 18

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	67.00	SitePro1 RMQP-4096-HK	1	10.185	11.203	1.00	1.00	51.70	2645.00	0.000	0.000	579.21	0.00	0.00
2	67.00	RFS	3	10.185	11.203	0.52	0.75	31.88	384.00	0.000	0.000	357.14	0.00	0.00
3	67.00	RFS	3	10.185	11.203	0.46	0.75	9.22	122.10	0.000	0.000	103.31	0.00	0.00
4	67.00	ALU 800 MHz Filter	3	10.185	11.203	0.52	0.75	1.21	26.40	0.000	0.000	13.57	0.00	0.00
5	67.00	Ericsson 4415 B66A	3	10.185	11.203	0.50	0.75	2.80	138.90	0.000	0.000	31.41	0.00	0.00
6	67.00	Ericsson 4424 B25	3	10.185	11.203	0.50	0.75	3.09	264.00	0.000	0.000	34.62	0.00	0.00
7	67.00	Ericsson 4449 B71 + B85	3	10.185	11.203	0.50	0.75	2.97	219.60	0.000	0.000	33.27	0.00	0.00
8	67.00	RFS ACU-A20-N RET	4	10.185	11.203	0.59	0.75	0.33	4.00	0.000	0.000	3.72	0.00	0.00
9	67.00	Ericsson AIR6449 B41	3	10.185	11.203	0.53	0.75	9.03	309.00	0.000	0.000	101.12	0.00	0.00
10	55.00	RFS DB-T1-6Z-8AB-0Z	1	9.770	10.747	1.00	1.00	4.80	18.90	0.000	0.000	51.59	0.00	0.00
11	55.00	ALU RRH-2X40AWS	3	9.770	10.747	0.54	0.80	3.47	132.00	0.000	0.000	37.33	0.00	0.00
12	55.00	RFS FD9R6004/2C-3L	6	9.770	10.747	0.54	0.80	1.16	18.60	0.000	0.000	12.44	0.00	0.00
13	55.00	Antel BXA 185063-8CF	3	9.770	10.747	0.61	0.80	5.40	30.00	0.000	0.000	58.03	0.00	0.00
14	55.00	Antel BXA 171063/8BF	3	9.770	10.747	0.67	0.80	5.93	31.50	0.000	0.000	63.70	0.00	0.00
15	55.00	Antel	3	9.770	10.747	0.56	0.80	12.73	44.70	0.000	0.000	136.86	0.00	0.00
16	55.00	Antel BXA 70063/6CF	3	9.770	10.747	0.58	0.80	13.26	51.00	0.000	0.000	142.54	0.00	0.00
17	55.00	T-Arm	3	9.770	10.747	0.56	0.75	16.88	1200.00	0.000	0.000	181.36	0.00	0.00
Totals:									5,639.70			1,941.21		

Total Applied Force Summary

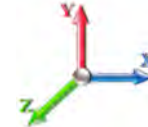
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 28

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 18

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		110.97	464.01	0.00	0.00
10.00		106.91	450.21	0.00	0.00
15.00		102.85	436.42	0.00	0.00
20.00		104.82	422.62	0.00	0.00
25.00		105.35	408.83	0.00	0.00
30.00		104.78	395.04	0.00	0.00
30.92		18.82	70.93	0.00	0.00
34.75		80.11	486.13	0.00	0.00
35.00		5.13	16.93	0.00	0.00
40.00		102.98	332.31	0.00	0.00
45.00		100.46	320.47	0.00	0.00
50.00		97.48	308.63	0.00	0.00
55.00	(25) attachments	777.97	1823.49	0.00	0.00
60.00		90.44	217.04	0.00	0.00
65.00		86.46	205.20	0.00	0.00
67.00	(26) attachments	1290.61	4191.77	0.00	0.00
70.00		48.65	104.70	0.00	0.00
	Totals:	3,334.79	10,654.71	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

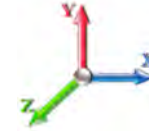
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 29

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 18

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.031	0.000	7.442	0.00	5.20
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.032	0.000	7.442	0.00	5.20
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.033	0.000	7.442	0.00	5.20
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.035	0.000	7.896	0.00	5.20
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.036	0.000	8.276	0.00	5.20
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.038	0.000	8.600	0.00	5.20
30.92	Step bolts (ladder)	Yes	0.92	0.000	1.00	0.08	0.00	0.039	0.000	8.654	0.00	0.95
34.75	Step bolts (ladder)	Yes	3.83	0.000	1.00	0.32	0.00	0.040	0.000	8.870	0.00	3.99
35.00	Step bolts (ladder)	Yes	0.25	0.000	1.00	0.02	0.00	0.040	0.000	8.883	0.00	0.26
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.041	0.000	9.137	0.00	5.20
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.043	0.000	9.366	0.00	5.20
50.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.045	0.000	9.576	0.00	5.20
55.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.048	0.000	9.770	0.00	5.20
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.050	0.000	9.951	0.00	5.20
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.00	0.42	0.00	0.054	0.000	10.120	0.00	5.20
67.00	Step bolts (ladder)	Yes	2.00	0.000	1.00	0.17	0.00	0.056	0.000	10.185	0.00	2.08
70.00	Step bolts (ladder)	Yes	3.00	0.000	1.00	0.25	0.00	0.058	0.000	10.279	0.00	3.12
Totals:											0.0	72.8

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

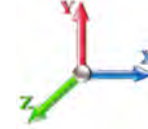


Page: 30

Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 18

Dead Load Factor 1.00
Wind Load 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	-10.65	-3.34	0.00	-175.97	0.00	175.97	1297.97	648.99	1704.60	841.84	0.00	0.000	0.000	0.217
5.00	-10.18	-3.25	0.00	-159.25	0.00	159.25	1280.84	640.42	1620.84	800.47	0.04	-0.083	0.000	0.207
10.00	-9.73	-3.15	0.00	-143.03	0.00	143.03	1261.47	630.74	1535.99	758.57	0.18	-0.166	0.000	0.196
15.00	-9.29	-3.06	0.00	-127.27	0.00	127.27	1239.87	619.93	1450.37	716.28	0.39	-0.249	0.000	0.185
20.00	-8.86	-2.97	0.00	-111.96	0.00	111.96	1216.02	608.01	1364.31	673.78	0.70	-0.332	0.000	0.173
25.00	-8.45	-2.87	0.00	-97.13	0.00	97.13	1189.93	594.97	1278.12	631.22	1.09	-0.414	0.000	0.161
30.00	-8.05	-2.77	0.00	-82.77	0.00	82.77	1161.61	580.80	1192.13	588.75	1.57	-0.495	0.000	0.148
30.92	-7.98	-2.76	0.00	-80.23	0.00	80.23	1156.17	578.09	1176.42	580.99	1.67	-0.510	0.000	0.145
34.75	-7.49	-2.68	0.00	-69.67	0.00	69.67	911.58	455.79	910.70	449.76	2.10	-0.571	0.000	0.163
35.00	-7.48	-2.68	0.00	-69.00	0.00	69.00	910.59	455.30	907.54	448.20	2.13	-0.575	0.000	0.162
40.00	-7.14	-2.58	0.00	-55.62	0.00	55.62	889.61	444.80	844.07	416.85	2.78	-0.656	0.000	0.141
45.00	-6.82	-2.48	0.00	-42.73	0.00	42.73	866.39	433.19	780.59	385.51	3.51	-0.731	0.000	0.119
50.00	-6.51	-2.39	0.00	-30.32	0.00	30.32	840.93	420.46	717.43	354.31	4.31	-0.795	0.000	0.093
55.00	-4.70	-1.59	0.00	-18.38	0.00	18.38	813.23	406.61	654.90	323.43	5.17	-0.846	0.000	0.063
60.00	-4.48	-1.50	0.00	-10.44	0.00	10.44	783.29	391.64	593.32	293.02	6.08	-0.882	0.000	0.041
65.00	-4.27	-1.41	0.00	-2.96	0.00	2.96	751.11	375.55	533.02	263.24	7.01	-0.901	0.000	0.017
67.00	-0.10	-0.05	0.00	-0.15	0.00	0.15	737.61	368.81	509.33	251.54	7.39	-0.904	0.000	0.001
70.00	0.00	-0.05	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	7.96	-0.904	0.000	0.000

Final Analysis Summary

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	6/2/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 31



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 101 mph Wind	15.2	0.00	12.73	0.00	0.00	801.07
0.9D + 1.6W 101 mph Wind	15.2	0.00	9.54	0.00	0.00	795.20
1.2D + 1.0Di + 1.0Wi 50 mph Wind	3.3	0.00	22.05	0.00	0.00	179.58
1.2D + 1.0E	0.9	0.00	12.79	0.00	0.00	61.39
0.9D + 1.0E	0.9	0.00	9.59	0.00	0.00	60.89
1.0D + 1.0W 60 mph Wind	3.3	0.00	10.65	0.00	0.00	175.97

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 101 mph Wind	-12.73	-15.16	0.00	-801.07	0.00	-801.07	1297.97	648.99	1704.60	841.84	0.00	0.962
0.9D + 1.6W 101 mph Wind	-9.54	-15.15	0.00	-795.20	0.00	-795.20	1297.97	648.99	1704.60	841.84	0.00	0.952
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-22.05	-3.28	0.00	-179.58	0.00	-179.58	1297.97	648.99	1704.60	841.84	0.00	0.230
1.2D + 1.0E	-12.79	-0.94	0.00	-61.39	0.00	-61.39	1297.97	648.99	1704.60	841.84	0.00	0.083
0.9D + 1.0E	-9.59	-0.94	0.00	-60.89	0.00	-60.89	1297.97	648.99	1704.60	841.84	0.00	0.080
1.0D + 1.0W 60 mph Wind	-10.65	-3.34	0.00	-175.97	0.00	-175.97	1297.97	648.99	1704.60	841.84	0.00	0.217



Pier Foundation Design For Monopole			Date
			6/2/2021
Customer Name:	T-Mobile Sprint	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	70
Site Number:	CT46147-A-SBA	Engineer Name:	H. You
Engr. Number:	108785	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations	Acceptable overstress ($\leq 5.0\%$)
Structure Type:	Monopole
Analysis or Design?	Analysis

Base Reactions (Factored):

Axial Load (Kips):	12.7	Shear Force (Kips):	15.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	801.1

Foundation Geometries:

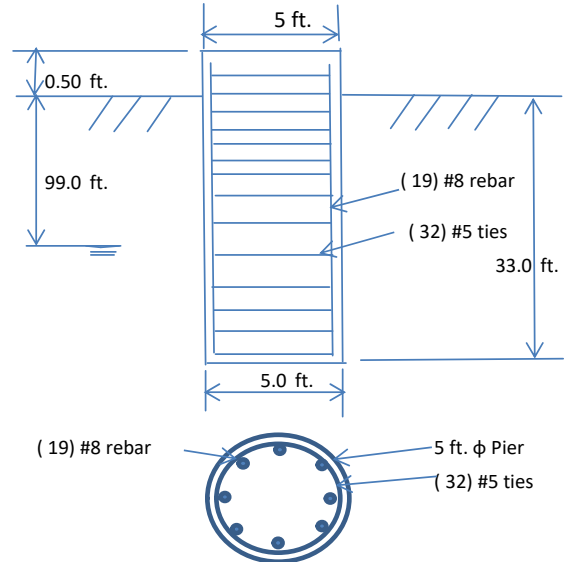
Diameter of Pier (ft.):	5.0	Depth of Base B. G. S. :	33.0 ft.
Pier Height A. G. (ft.):	0.50		

Material Properties and Rebar Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	60	ksi
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	19	Tie Spacing:	16.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)
Skin Frictions are to be obtained from:		Soil Report		



Monopole Pier Foundation

Depth of Layers (ft)		γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types					
Top	Bottom											
0.0	3.0	120	28		0	0	Sand					
3.0	8.0	120	32		0	0	Sand					
8.0	11.0	110	32		0	0	Sand					
11.0	14.0	95	32				Sand					
14.0	51.0	115	32				Sand					
51.0	56.0											

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

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75
Total Dry Soil Volume from Conical Failure (cu. Ft.):	17473	Dry Soil Weight from Conical Failure:	1819 Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	0	Buoyant Soil Weight from Conical Failure (Kips):	0 Kips
Total Dry Concrete Volume (cu. Ft.):	658	Total Dry Concrete Weight:	98.7 Kips
Total Buoyant Concrete Volume (cu. Ft.):	0.0	Total Buoyant Concrete Weight:	0.00 Kips
Total Effective Concrete Weight (Kips):	98.7	Total Effective Soil Weight:	1819.0 Kips
Total Effective Vertical Load on Base (Kips):	43.9		

Check Soil Capacities:

Allowable Foundation Overturning Resistance (kips-ft.):	12224.6	>	Design Factored Moment (kips-ft):	1149	Usage	0.09	OK!
Factor of Safety of Passive Soil Resistance against Moment:	10.64						OK!

Check the capacities of Reinforcing Concrete:

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

Reinforcing Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.31	Usage		
Calculated Moment Capacity (Mn, Kips-Ft):	1730.0	>	Design Factored Moment (Mu, K-Ft):	841.0		0.49	OK!
Calculated Shear Capacity (Kips):	444.6	>	Design Factored Shear (Kips):	74.8		0.17	OK!
Calculated Tension Capacity (Tn, Kips):	810.5	>	Design Factored Tension (Tu Kips):	0.0		0.00	OK!
Calculated Compression Capacity (Pn, Kips):	4972	>	Design Factored Axial Load (Pu Kips):	12.7		0.00	OK!
Moment & Axial Strength Combination:	0.49	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00			in.
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is satisfied per ACI				

EXHIBIT 8



Tower Engineering Solutions

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

Antenna Mount Analysis Report

Existing 70-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT46147-A-SBA / New Haven Tweed

Customer Site Name: New Haven Tweed

Carrier Name: T-Mobile Sprint (App#: 147976, V#2)

Carrier Site ID / Name: CT70XC121 / _

Site Location: 60 Commerce Street

EAST HAVEN, Connecticut

NEW HAVEN County

Latitude: 41.251233

Longitude: -72.882094

Analysis Result:

Max Structural Usage: 68.5% [Pass]

Report Prepared By: Osuba Gurung



NOTE: The proposed (1) SitePro1 Platform w/ support rails RMQP-4096-HK+ (6) WWM01-DCP mounts are not currently installed on the tower. The proposed mounts were assumed to be installed per the manufacturer's instructions, and it is assumed that they can be installed properly on the tower. TES cannot verify that the proposed mounts will fit properly and is not liable for any fit-up issues during installation.

Introduction

The purpose of this report is to summarize the analysis results on the (1) Platform w/ support rails at 67.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount info by SBA, Site name: New Haven Tweed, Dated 03/24/2014
Antenna Loading	SBA, Application #: 147976, v2, Dated 04/19/2021
Modification Drawings	N/A

Analysis Criteria

Basic Wind Speed Used in the Analysis: $V_{ULT} = 125$ mph (3-Sec. Gust) / Equivalent to
 $V_{ASD} = 97$ mph (3-Sec. Gust)

Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 0.75" radial ice concurrent

Operational Wind Speed: 60 mph +0" Radial ice

Standard/Codes: ANSI/TIA/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) Platform w/ support rails [(1) SitePro1 RMQP-4096-HK+ (6) WWM01-DCP] at 67.00' elevation

Final Antenna Configuration

- 3 RFS APX16DWV-16DWVS-E-A20
- 3 RFS APXVAALL24_43-U-NA20
- 3 Ericsson AIR6449 B41
- 4 RFS ACU-A20-N RET*
- 3 Ericsson 4449 B71 + B85
- 3 Ericsson 4424 B25
- 3 Ericsson 4415 B66A
- 3 ALU 800 MHz Filter**

* Equipment to be flush mounted directly to the Face Horizontal. They are not included in the antenna placement diagrams.

** Equipment to be flush mounted directly to the Standoff arm. They are not included in the antenna placement diagrams.

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

Analysis Results

Our calculations have determined that under design wind load the proposed mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 68.5%, which occurs in the connection plate. 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.

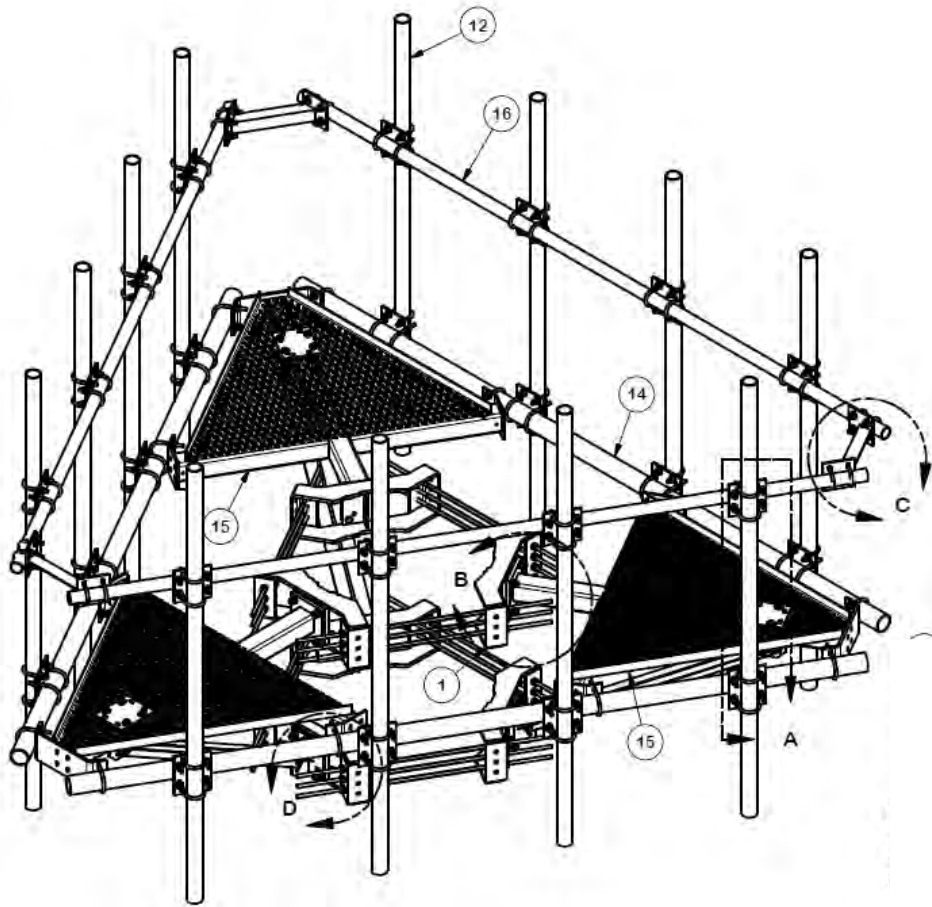
NOTE: The proposed (1) SitePro1 Platform w/ support rails RMQP-4096-HK+ (6) WWM01-DCP mounts are not currently installed on the tower. The proposed mounts were assumed to be installed per the manufacturer's instructions, and it is assumed that they can be installed properly on the tower. TES cannot verify that the proposed mounts will fit properly and is not liable for any fit-up issues during installation.

Attachments

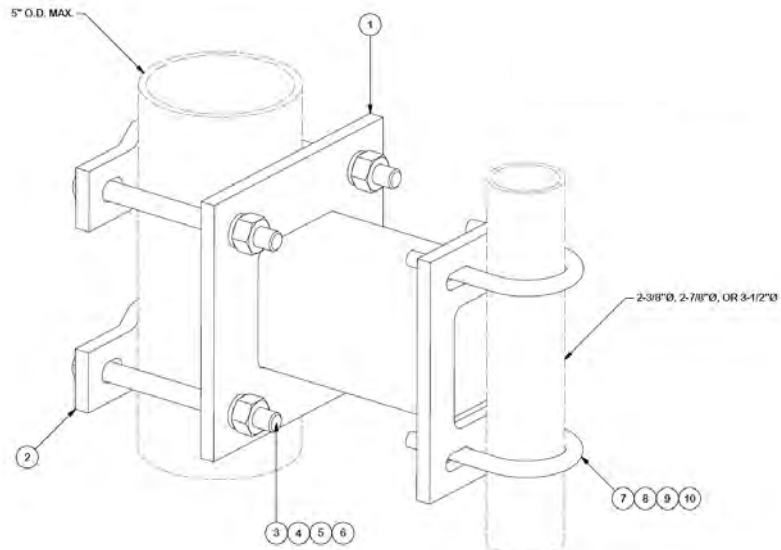
1. Mount Drawing
2. Antenna Placement Diagram
3. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.
2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.
4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.
5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.
6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.
7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.
8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.
9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.



RMQP-4096-HK



WWM01-DCP

Structure: CT46147-A-SBA - New Haven Tweed

Sector: **A**

5/12/2021

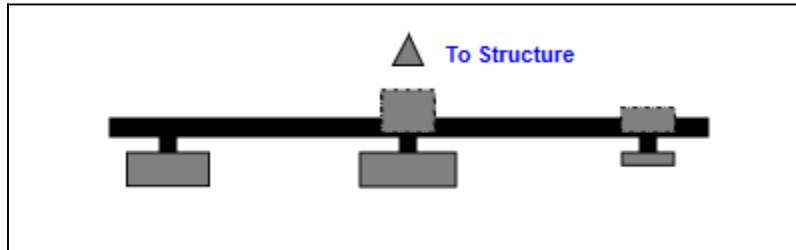
Structure Type: Monopole

Mount Elev: 67.00

Page: 1

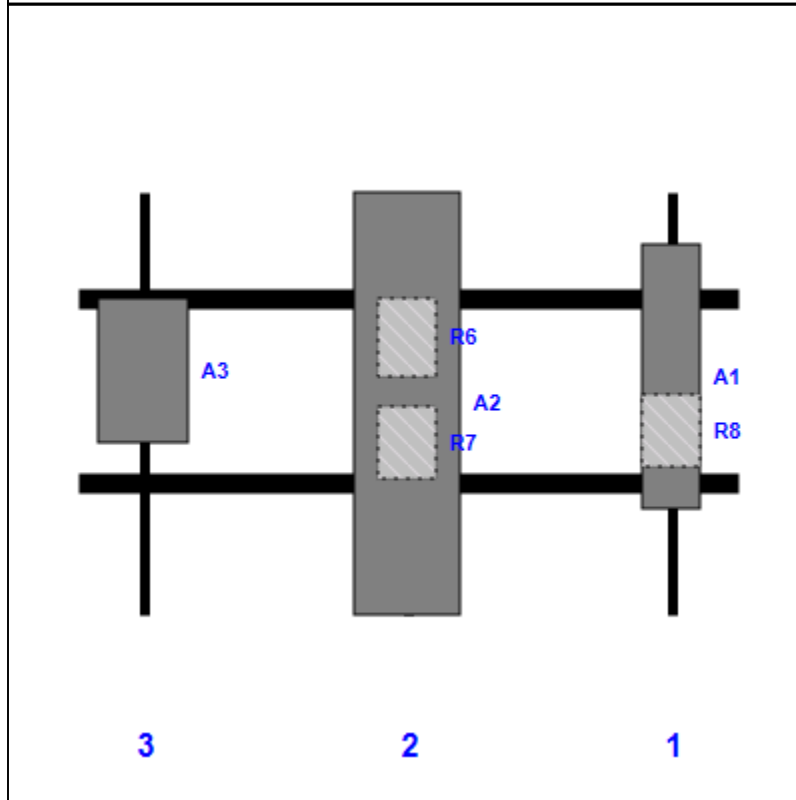


Plan View



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	APX16DWV-16DWVS-E-A20	59.90	13.00	135.00	1	a	Front	42.00			
R8	4415 B66A	16.50	13.40	135.00	1	b	Behind	54.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	75.00	2	a	Front	48.00			
R6	4449 B71 + B85	17.90	13.10	75.00	2	a	Behind	33.00			
R7	4424 B25	16.50	13.50	75.00	2	b	Behind	57.00			
A3	AIR6449 B41	33.10	20.50	15.00	3	a	Front	40.50			

Structure: CT46147-A-SBA - New Haven Tweed

Sector: B

5/12/2021

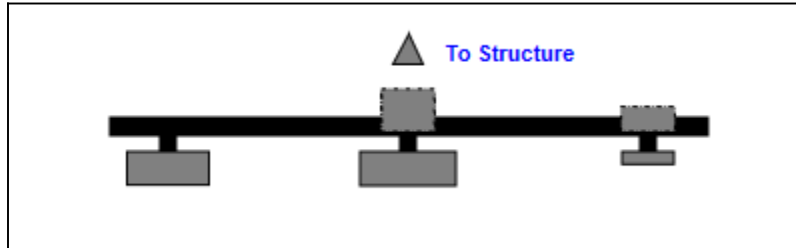
Structure Type: Monopole

Mount Elev: 67.00

Page: 2

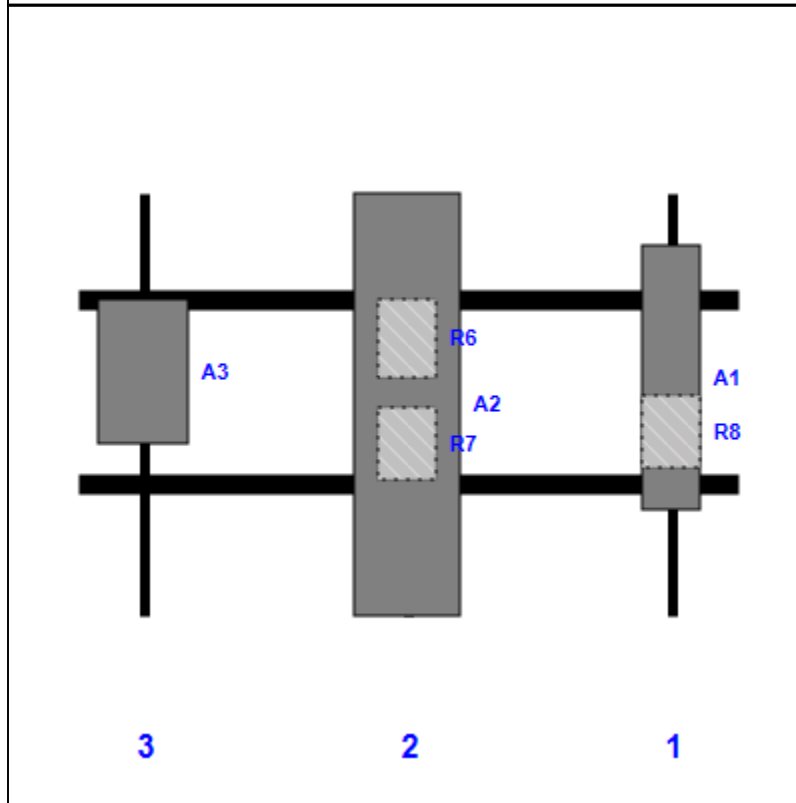


Plan View



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	APX16DWV-16DWVS-E-A20	59.90	13.00	135.00	1	a	Front	42.00			
R8	4415 B66A	16.50	13.40	135.00	1	b	Behind	54.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	75.00	2	a	Front	48.00			
R6	4449 B71 + B85	17.90	13.10	75.00	2	a	Behind	33.00			
R7	4424 B25	16.50	13.50	75.00	2	b	Behind	57.00			
A3	AIR6449 B41	33.10	20.50	15.00	3	a	Front	40.50			

Structure: CT46147-A-SBA - New Haven Tweed

Sector: **C**

5/12/2021

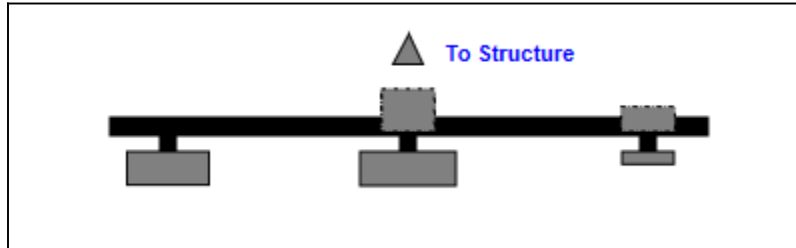
Structure Type: Monopole

Mount Elev: 67.00

Page: 3

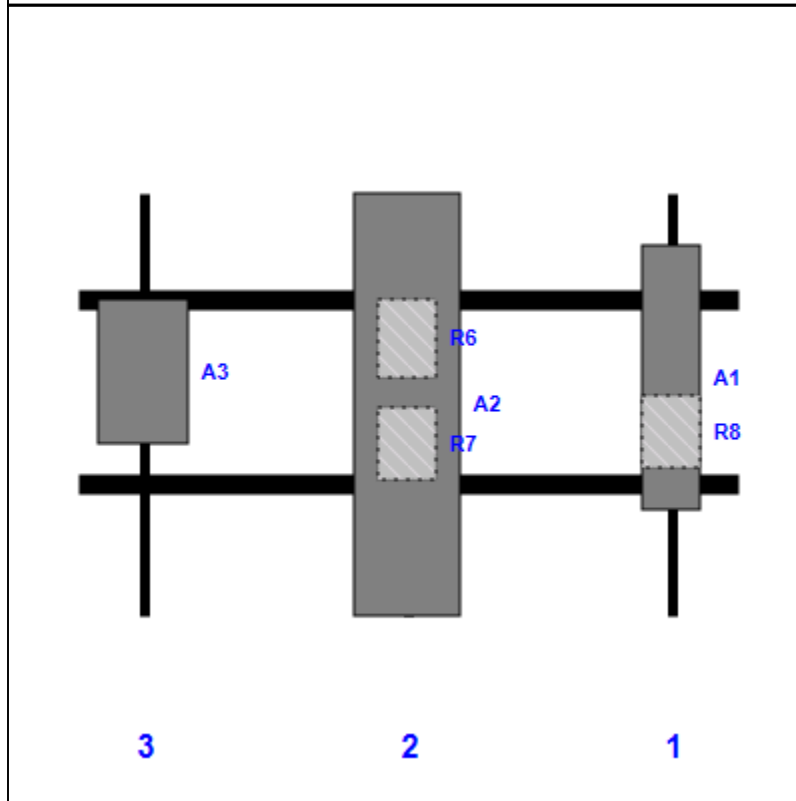


Plan View

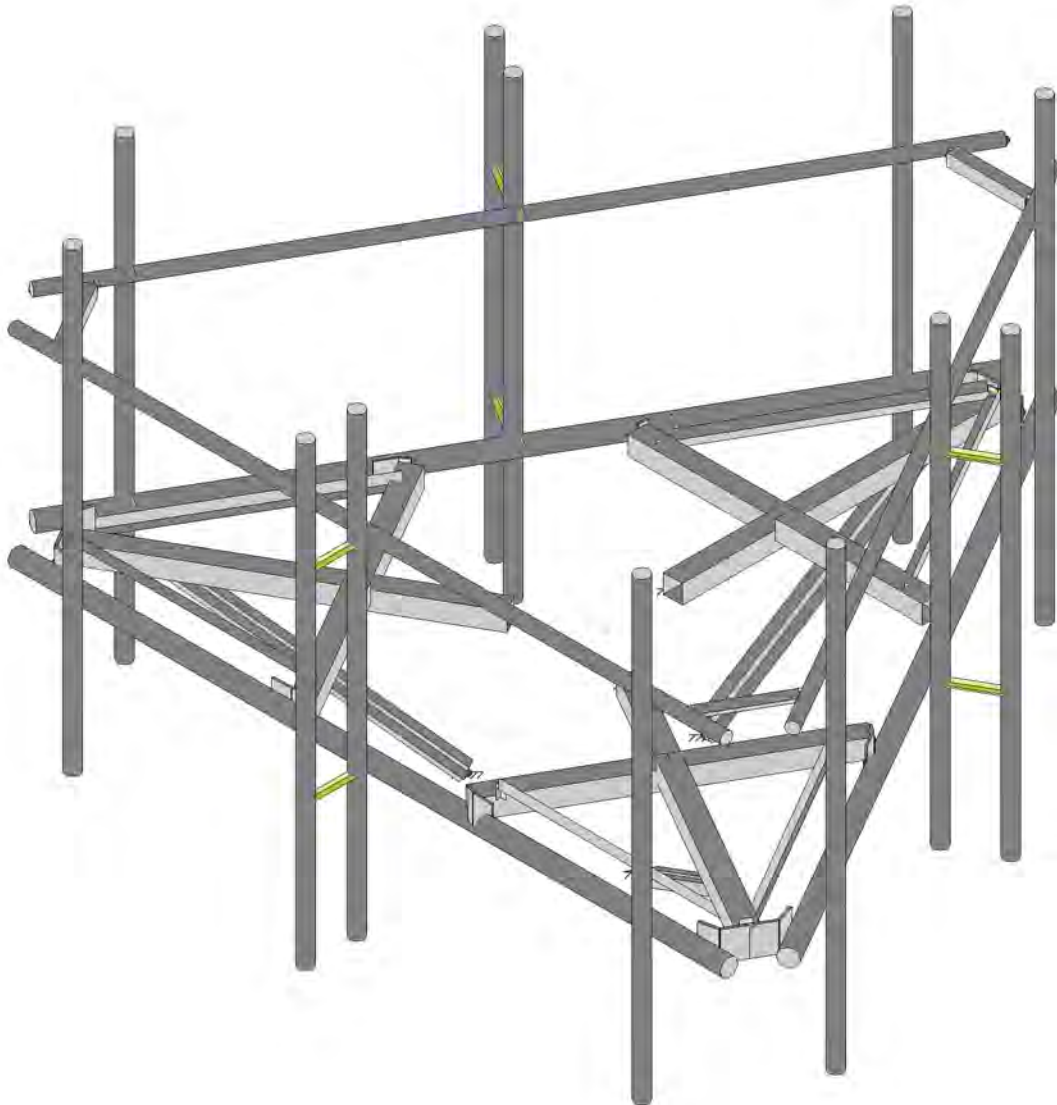
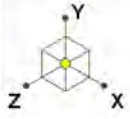


Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	APX16DWV-16DWVS-E-A20	59.90	13.00	135.00	1	a	Front	42.00			
R8	4415 B66A	16.50	13.40	135.00	1	b	Behind	54.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	75.00	2	a	Front	48.00			
R6	4449 B71 + B85	17.90	13.10	75.00	2	a	Behind	33.00			
R7	4424 B25	16.50	13.50	75.00	2	b	Behind	57.00			
A3	AIR6449 B41	33.10	20.50	15.00	3	a	Front	40.50			



Tower Engineering Solutio...

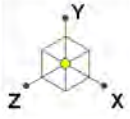
CT46147-A-SBA_MT_LO_Loads Only_G

SK - 1

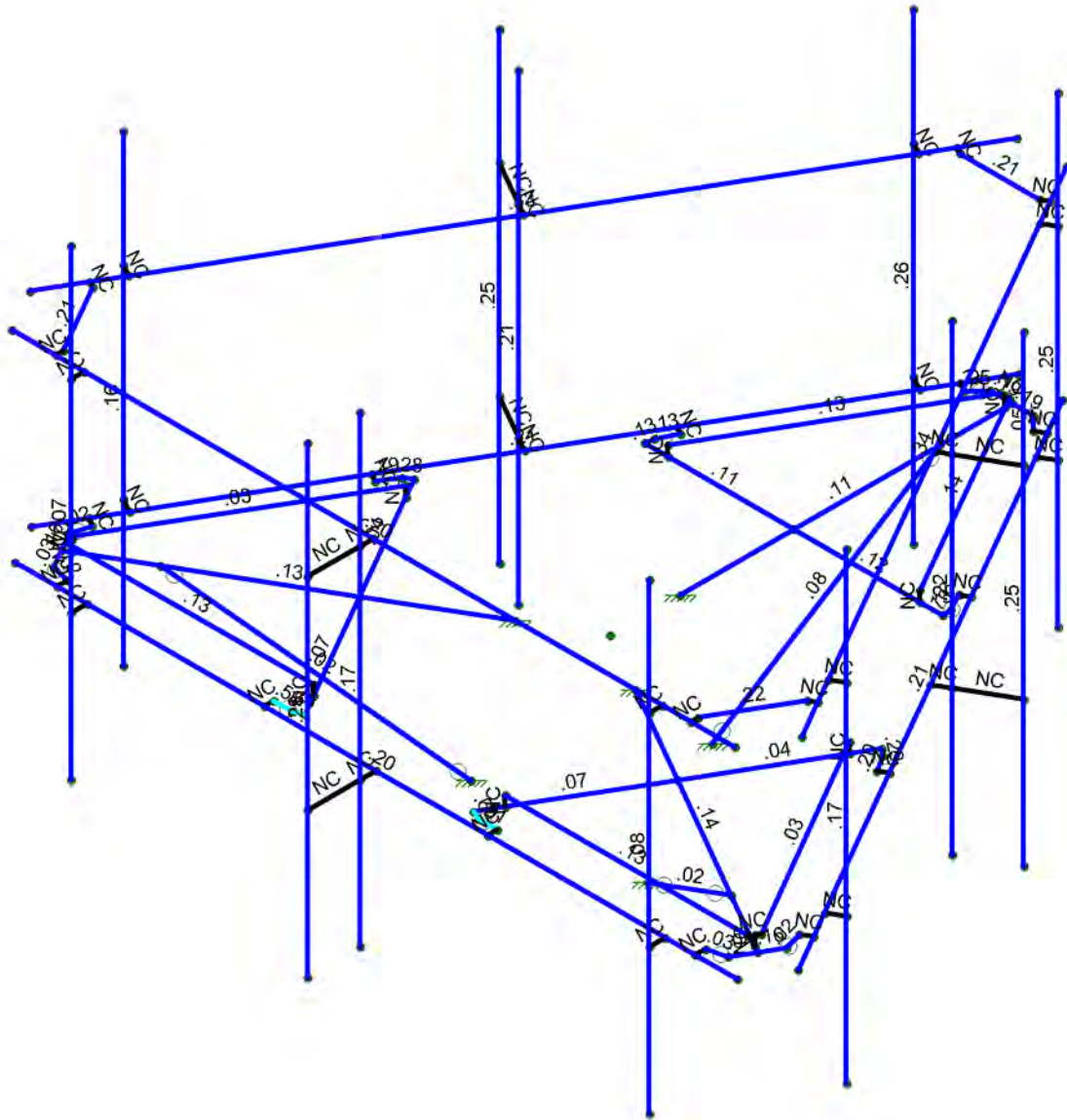
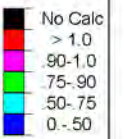
May 12, 2021 at 11:02 AM

TES Project No. 106912

CT46147-A-SBA_106912_G_RISA_...



Code Check
(LC 1)



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

Tower Engineering Solutio...

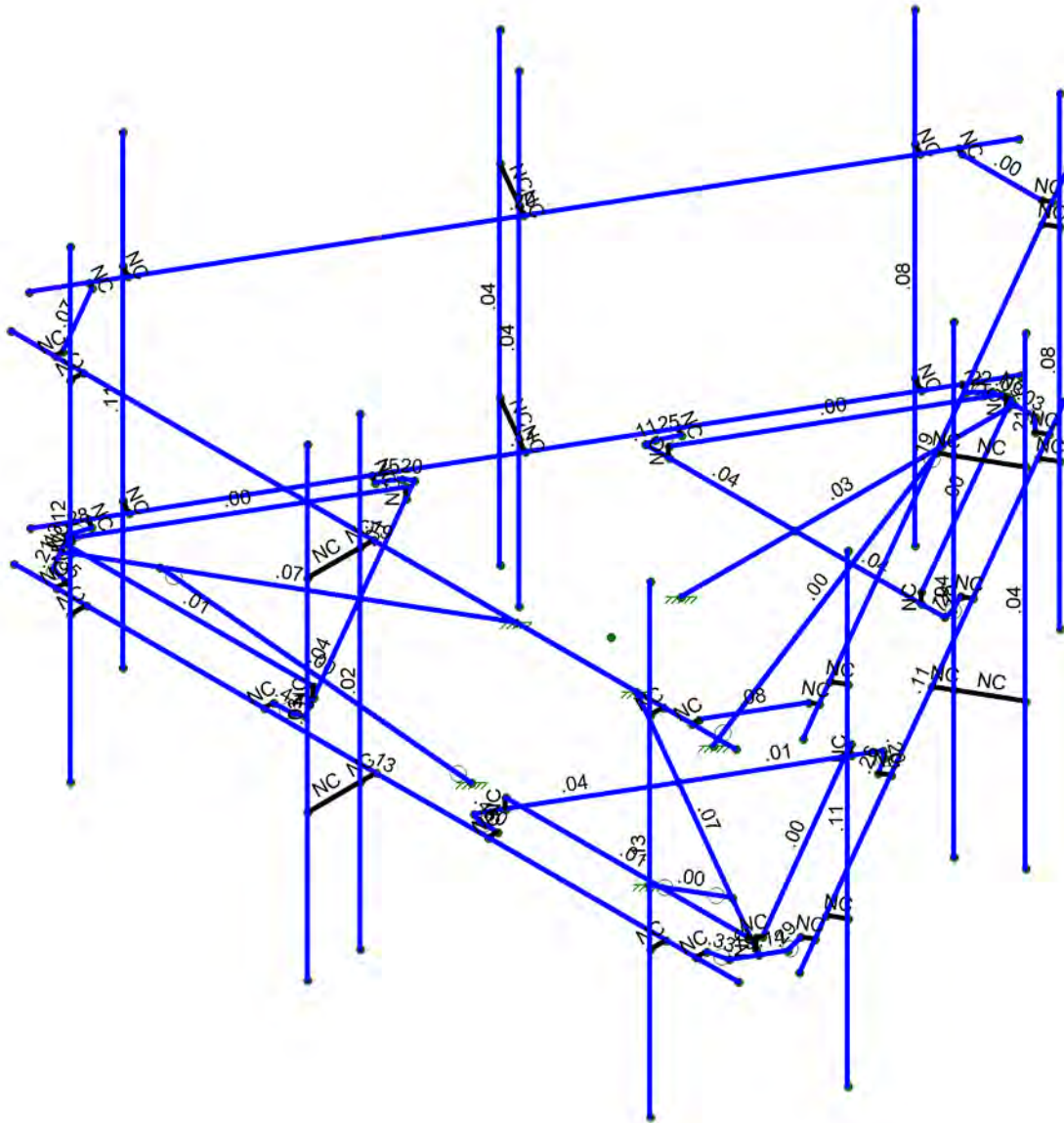
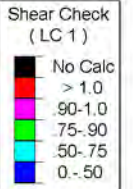
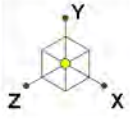
CT46147-A-SBA_MT_LO_Loads Only_G

SK - 1

May 12, 2021 at 2:19 PM

TES Project No. 106912

CT46147-A-SBA_106912_G_RISA_...



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

Tower Engineering Solutio...

CT46147-A-SBA_MT_LO_Loads Only_G

SK - 2

May 12, 2021 at 2:19 PM

TES Project No. 106912

CT46147-A-SBA_106912_G_RISA_...



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

May 12, 2021
 2:19 PM
 Checked By: _____

6 U_jW@ UX'7 U_jY_j

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Antenna D	None					34		
2	Antenna Di	None					34		
3	Antenna W Front	None					34		
4	Antenna Wi Front	None					34		
5	Antenna W Side	None					34		
6	Antenna Wi Side	None					34		
7	Service Lm1	None					1		
8	Service Lm2	None					1		
9	Structure D	None		-1				8	
10	Structure Di	None						63	6
11	Structure W Front	None						63	
12	Structure Wi Front	None						63	
13	Structure W Side	None						63	
14	Structure Wi Side	None						63	
15	BLC 9 Transient Area..	None							
16	BLC 10 Transient Are..	None						80	

@ UX'7 ca VjbU_jc_jbg

	Description	Sol.	PD.	SR.	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
1	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6								
2	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6								
3	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6								
4	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6								
5	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1				
6	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1				
7	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1				
8	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1				
9	1.2D+1.5L...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16						
10	1.2D+1.5L...	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16						
11	1.4D	Yes	Y		1	1.4	9	1.4												

< chFc`YX'GhYY'GYW_jcb'GY_j

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	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	Handrails	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Standoff Arm	HSS4X4X4	Beam	SquareTube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
5	Plan Bracing	HSS4X4X4	Beam	SquareTube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
6	Kickers	LL2.5x2.5x3x3	Beam	Double An...	A36 Gr.36	Typical	1.8	2.46	1.07	.023
7	Mount Pipes	PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	Footrail Connection Plates	PL1/2x6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
9	Plan Bracing Connection Pl...	PL3/8x6	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
10	Handrail Corner Braces	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026



<chFc`YX`GhYY`DfcdYfHjYg

	Label	E [ksi]	G [ksi]	Nu	Them (/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

A Ya Vyf`Df`ja Ufm8 UU

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	MP5A	N30	N179			Standoff Arm	Beam	SquareTube	A500 Gr.46	Typical
2	MP5C	N28	N180			Standoff Arm	Beam	SquareTube	A500 Gr.46	Typical
3	M3	N22	N24			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
4	M4	N22	N23			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
5	M5	N26	N144			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
6	M6	N144	N142			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
7	M7	N25	N143			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
8	M8	N143	N139			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
9	M9	N149	N145			Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N150	N146		270	Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N24	N136			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
12	M12	N23	N133			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
13	MP5B	N22	N5			Standoff Arm	Beam	SquareTube	A500 Gr.46	Typical
14	M14	N26	N19			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
15	M15	N19	N25			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
16	M16	N77	N78			Footrails	Beam	Pipe	A53 Gr.B	Typical
17	M17	N79	N80			Footrails	Beam	Pipe	A53 Gr.B	Typical
18	M18	N1	N2			Footrails	Beam	Pipe	A53 Gr.B	Typical
19	M19	N31	N34			Kickers	Beam	Double Angle (...)	A36 Gr.36	Typical
20	M20	N32	N35			Kickers	Beam	Double Angle (...)	A36 Gr.36	Typical
21	M21	N33	N36			Kickers	Beam	Double Angle (...)	A36 Gr.36	Typical
22	MP4A	N37	N38			Handrails	Beam	Pipe	A53 Gr.B	Typical
23	MP4C	N81	N82			Handrails	Beam	Pipe	A53 Gr.B	Typical
24	MP4B	N83	N84			Handrails	Beam	Pipe	A53 Gr.B	Typical
25	M25	N130	N125		180	Handrail Corne...	Beam	Single Angle	A36 Gr.36	Typical
26	MP3A	N41	N42			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
27	MP1A	N43	N44			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
28	MP2	N47	N48			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
29	MP3C	N49	N50			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
30	MP1C	N51	N52			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
31	MP3B	N57	N58			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
32	MP1B	N59	N60			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
33	M38	N74	N87			RIGID	None	None	RIGID	Typical
34	M39	N76	N89			RIGID	None	None	RIGID	Typical
35	M41	N73	N86			RIGID	None	None	RIGID	Typical
36	M42	N66	N95			RIGID	None	None	RIGID	Typical
37	M45	N65	N94			RIGID	None	None	RIGID	Typical
38	M46	N70	N103			RIGID	None	None	RIGID	Typical



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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A Ya Vyf Df ja Ufm8 UUf7 cbHbi YXL

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
39	M49	N69	N102			RIGID	None	None	RIGID	Typical
40	M50	N110	N90			RIGID	None	None	RIGID	Typical
41	M51	N112	N92			RIGID	None	None	RIGID	Typical
42	M53	N109	N85			RIGID	None	None	RIGID	Typical
43	M54	N114	N98			RIGID	None	None	RIGID	Typical
44	M57	N113	N93			RIGID	None	None	RIGID	Typical
45	M58	N118	N106			RIGID	None	None	RIGID	Typical
46	M61	N117	N101			RIGID	None	None	RIGID	Typical
47	M62	N39	N121			RIGID	None	None	RIGID	Typical
48	M63	N40	N122			RIGID	None	None	RIGID	Typical
49	M64	N123	N125			RIGID	None	None	RIGID	Typical
50	M65	N124	N126			RIGID	None	None	RIGID	Typical
51	M66	N127	N129			RIGID	None	None	RIGID	Typical
52	M67	N128	N130			RIGID	None	None	RIGID	Typical
53	M68	N122	N129		180	Handrail Corne...	Beam	Single Angle	A36 Gr.36	Typical
54	M69	N126	N121		180	Handrail Corne...	Beam	Single Angle	A36 Gr.36	Typical
55	M70	N10	N132			RIGID	None	None	RIGID	Typical
56	M71	N7	N131			RIGID	None	None	RIGID	Typical
57	M72	N18	N134			RIGID	None	None	RIGID	Typical
58	M73	N15	N133			RIGID	None	None	RIGID	Typical
59	M74	N14	N136			RIGID	None	None	RIGID	Typical
60	M75	N11	N135			RIGID	None	None	RIGID	Typical
61	M76	N8	N137			RIGID	None	None	RIGID	Typical
62	M77	N9	N138			RIGID	None	None	RIGID	Typical
63	M78	N16	N139			RIGID	None	None	RIGID	Typical
64	M79	N17	N140			RIGID	None	None	RIGID	Typical
65	M80	N12	N141			RIGID	None	None	RIGID	Typical
66	M81	N13	N142			RIGID	None	None	RIGID	Typical
67	M82	N21	N146			RIGID	None	None	RIGID	Typical
68	M83	N20	N145			RIGID	None	None	RIGID	Typical
69	M84	N147	N148			RIGID	None	None	RIGID	Typical
70	M85	N149	N150			RIGID	None	None	RIGID	Typical
71	M86	N30	N154			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
72	M87	N30	N153			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
73	M88	N156	N158			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
74	M89	N158	N138			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
75	M90	N155	N157			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
76	M91	N157	N141			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
77	M92	N163	N159			Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
78	M93	N164	N160		270	Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
79	M94	N154	N132			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
80	M95	N153	N135			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
81	M96	N156	N29			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
82	M97	N29	N155			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
83	M98	N152	N160			RIGID	None	None	RIGID	Typical
84	M99	N151	N159			RIGID	None	None	RIGID	Typical
85	M100	N161	N162			RIGID	None	None	RIGID	Typical
86	M101	N163	N164			RIGID	None	None	RIGID	Typical
87	M102	N28	N168			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
88	M103	N28	N167			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
89	M104	N170	N172			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
90	M105	N172	N140			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical



A Ya Vyf'DfJa Ufm8 UU'f7 cbHbi YXL

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
91	M106	N169	N171			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
92	M107	N171	N137			Plan Bracing C...	Beam	RECT	A36 Gr.36	Typical
93	M108	N177	N173			Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
94	M109	N178	N174		270	Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
95	M110	N168	N134			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
96	M111	N167	N131			Footrail Conne...	Beam	RECT	A36 Gr.36	Typical
97	M112	N170	N27			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
98	M113	N27	N169			Plan Bracing	Beam	SquareTube	A500 Gr.46	Typical
99	M114	N166	N174			RIGID	None	None	RIGID	Typical
100	M115	N165	N173			RIGID	None	None	RIGID	Typical
101	M116	N175	N176			RIGID	None	None	RIGID	Typical
102	M117	N177	N178			RIGID	None	None	RIGID	Typical
103	MP	N161A	N162A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
104	M110A	N163A	N164A			RIGID	None	None	RIGID	Typical
105	M111A	N166A	N165A			RIGID	None	None	RIGID	Typical
106	MPB	N167A	N168A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
107	M113A	N169A	N170A			RIGID	None	None	RIGID	Typical
108	M114A	N172A	N171A			RIGID	None	None	RIGID	Typical
109	MP2A	N161B	N162B			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
110	M110B	N92	N164B			RIGID	None	None	RIGID	Typical
111	M111B	N89	N163B			RIGID	None	None	RIGID	Typical
112	MP2C	N167B	N168B			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
113	M113B	N165A	N170B			RIGID	None	None	RIGID	Typical
114	M114B	N164A	N169B			RIGID	None	None	RIGID	Typical
115	MP2B	N173A	N174A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
116	M116A	N171A	N176A			RIGID	None	None	RIGID	Typical
117	M117A	N170A	N175A			RIGID	None	None	RIGID	Typical

A Ya Vyf'5 Xj Ub WX'8 UHU

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	MP5A						Yes				None
2	MP5C						Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	M6		BenPIN				Yes				None
7	M7						Yes				None
8	M8		BenPIN				Yes				None
9	M9						Yes				None
10	M10						Yes				None
11	M11		BenPIN				Yes				None
12	M12		BenPIN				Yes				None
13	MP5B						Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes				None
17	M17						Yes				None
18	M18						Yes				None
19	M19	BenPIN	BenPIN				Yes				None
20	M20	BenPIN	BenPIN				Yes				None



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

May 12, 2021
 2:19 PM
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A Ya Vyf'5 Xj Ub WX'8 UHf7 cbh7bi YXL

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
21	M21	BenPIN	BenPIN				Yes				None
22	MP4A						Yes				None
23	MP4C						Yes				None
24	MP4B						Yes				None
25	M25						Yes				None
26	MP3A						Yes				None
27	MP1A						Yes				None
28	MP2						Yes				None
29	MP3C						Yes				None
30	MP1C						Yes				None
31	MP3B						Yes				None
32	MP1B						Yes				None
33	M38						Yes	** NA **			None
34	M39						Yes	** NA **			None
35	M41						Yes	** NA **			None
36	M42						Yes	** NA **			None
37	M45						Yes	** NA **			None
38	M46						Yes	** NA **			None
39	M49						Yes	** NA **			None
40	M50						Yes	** NA **			None
41	M51						Yes	** NA **			None
42	M53						Yes	** NA **			None
43	M54						Yes	** NA **			None
44	M57						Yes	** NA **			None
45	M58						Yes	** NA **			None
46	M61						Yes	** NA **			None
47	M62						Yes	** NA **			None
48	M63						Yes	** NA **			None
49	M64						Yes	** NA **			None
50	M65						Yes	** NA **			None
51	M66						Yes	** NA **			None
52	M67						Yes	** NA **			None
53	M68						Yes				None
54	M69						Yes				None
55	M70						Yes	** NA **			None
56	M71						Yes	** NA **			None
57	M72						Yes	** NA **			None
58	M73						Yes	** NA **			None
59	M74						Yes	** NA **			None
60	M75						Yes	** NA **			None
61	M76						Yes	** NA **			None
62	M77						Yes	** NA **			None
63	M78						Yes	** NA **			None
64	M79						Yes	** NA **			None
65	M80						Yes	** NA **			None
66	M81						Yes	** NA **			None
67	M82						Yes	** NA **			None
68	M83						Yes	** NA **			None
69	M84						Yes	** NA **			None
70	M85						Yes	** NA **			None
71	M86						Yes				None
72	M87						Yes				None



Company : Tower Engineering Solutions, LLC
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 Job Number : TES Project No. 106912
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A Ya Vyf'5 Xj Ub WX'8 UHfT' cbHbi YXL

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
73	M88						Yes				None
74	M89		BenPIN				Yes				None
75	M90						Yes				None
76	M91		BenPIN				Yes				None
77	M92						Yes				None
78	M93						Yes				None
79	M94		BenPIN				Yes				None
80	M95		BenPIN				Yes				None
81	M96						Yes				None
82	M97						Yes				None
83	M98						Yes	** NA **			None
84	M99						Yes	** NA **			None
85	M100						Yes	** NA **			None
86	M101						Yes	** NA **			None
87	M102						Yes				None
88	M103						Yes				None
89	M104						Yes				None
90	M105		BenPIN				Yes				None
91	M106						Yes				None
92	M107		BenPIN				Yes				None
93	M108						Yes				None
94	M109						Yes				None
95	M110		BenPIN				Yes				None
96	M111		BenPIN				Yes				None
97	M112						Yes				None
98	M113						Yes				None
99	M114						Yes	** NA **			None
100	M115						Yes	** NA **			None
101	M116						Yes	** NA **			None
102	M117						Yes	** NA **			None
103	MP						Yes				None
104	M110A						Yes	** NA **			None
105	M111A						Yes	** NA **			None
106	MPB						Yes				None
107	M113A						Yes	** NA **			None
108	M114A						Yes	** NA **			None
109	MP2A						Yes				None
110	M110B						Yes	** NA **			None
111	M111B						Yes	** NA **			None
112	MP2C						Yes				None
113	M113B						Yes	** NA **			None
114	M114B						Yes	** NA **			None
115	MP2B						Yes				None
116	M116A						Yes	** NA **			None
117	M117A						Yes	** NA **			None

< chFc`YX'GhY'8 Yg][b'DU'Ua YhYfg

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	MP5A	Standoff Arm	5.74			Lbyy			2.1	2.1		Lateral
2	MP5C	Standoff Arm	5.741			Lbyy			2.1	2.1		Lateral



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

May 12, 2021
 2:19 PM
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<chFc`YX'GhY'8 Yg]] b'DU'Ua YhYfg f'7 cb]bi YXL

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
3	M3	Footrail Con...	.375			Lbyy			.65	.65		Lateral
4	M4	Footrail Con...	.375			Lbyy			.65	.65		Lateral
5	M5	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
6	M6	Plan Bracin...	.332			Lbyy			.8	.8		Lateral
7	M7	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
8	M8	Plan Bracin...	.333			Lbyy			.8	.8		Lateral
9	M9	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
10	M10	Grating Ang...	4.209			Lbyy			.65	.65		Lateral
11	M11	Footrail Con...	.322			Lbyy			.8	.8		Lateral
12	M12	Footrail Con...	.321			Lbyy			.8	.8		Lateral
13	MP5B	Standoff Arm	5.741			Lbyy			2.1	2.1		Lateral
14	M14	Plan Bracing	2.58			Lbyy			1	1		Lateral
15	M15	Plan Bracing	2.58			Lbyy			1	1		Lateral
16	M16	Footrails	12.5			Lbyy			1	1		Lateral
17	M17	Footrails	12.5			Lbyy			1	1		Lateral
18	M18	Footrails	12.5			Lbyy			1	1		Lateral
19	M19	Kickers	4.662			Lbyy			1	1		Lateral
20	M20	Kickers	4.664			Lbyy			1	1		Lateral
21	M21	Kickers	4.664			Lbyy			1	1		Lateral
22	MP4A	Handrails	12.5			Lbyy			1	1		Lateral
23	MP4C	Handrails	12.5			Lbyy			1	1		Lateral
24	MP4B	Handrails	12.5			Lbyy			1	1		Lateral
25	M25	Handrail Co...	1.383			Lbyy			.65	.65		Lateral
26	MP3A	Mount Pipes	8			Lbyy			1	1		Lateral
27	MP1A	Mount Pipes	8			Lbyy			1	1		Lateral
28	MP2	Mount Pipes	8			Lbyy			1	1		Lateral
29	MP3C	Mount Pipes	8			Lbyy			1	1		Lateral
30	MP1C	Mount Pipes	8			Lbyy			1	1		Lateral
31	MP3B	Mount Pipes	8			Lbyy			1	1		Lateral
32	MP1B	Mount Pipes	8			Lbyy			1	1		Lateral
33	M68	Handrail Co...	1.383			Lbyy			.65	.65		Lateral
34	M69	Handrail Co...	1.383			Lbyy			.65	.65		Lateral
35	M86	Footrail Con...	.375			Lbyy			.65	.65		Lateral
36	M87	Footrail Con...	.375			Lbyy			.65	.65		Lateral
37	M88	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
38	M89	Plan Bracin...	.332			Lbyy			.8	.8		Lateral
39	M90	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
40	M91	Plan Bracin...	.333			Lbyy			.8	.8		Lateral
41	M92	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
42	M93	Grating Ang...	4.209			Lbyy			.65	.65		Lateral
43	M94	Footrail Con...	.322			Lbyy			.8	.8		Lateral
44	M95	Footrail Con...	.321			Lbyy			.8	.8		Lateral
45	M96	Plan Bracing	2.58			Lbyy			1	1		Lateral
46	M97	Plan Bracing	2.58			Lbyy			1	1		Lateral
47	M102	Footrail Con...	.374			Lbyy			.65	.65		Lateral
48	M103	Footrail Con...	.376			Lbyy			.65	.65		Lateral
49	M104	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
50	M105	Plan Bracin...	.332			Lbyy			.8	.8		Lateral
51	M106	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
52	M107	Plan Bracin...	.333			Lbyy			.8	.8		Lateral
53	M108	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
54	M109	Grating Ang...	4.209			Lbyy			.65	.65		Lateral



<chFc`YX'GhY'8 Yg]] b'DU'Ua Yhfg'f7 cb]bi YXL

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
55	M110	Footrail Con...	.322			Lbyy			.8	.8		Lateral
56	M111	Footrail Con...	.321			Lbyy			.8	.8		Lateral
57	M112	Plan Bracing	2.579			Lbyy			1	1		Lateral
58	M113	Plan Bracing	2.581			Lbyy			1	1		Lateral
59	MP	Mount Pipes	8			Lbyy			1	1		Lateral
60	MPB	Mount Pipes	8			Lbyy			1	1		Lateral
61	MP2A	Mount Pipes	8			Lbyy			1	1		Lateral
62	MP2C	Mount Pipes	8			Lbyy			1	1		Lateral
63	MP2B	Mount Pipes	8			Lbyy			1	1		Lateral

>c]bh6 ci bXUf m7 cbX]hcbg

	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	N3						
2	N5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N29						
4	N31	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N32	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N33	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N179	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N180	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

9bj YcdY>c]bhFYUM]cbg

	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	1959.994	4	875.525	6	5696.735	1	1.215	6	3.005	3	.566	3
2		min	-1961.829	3	281.131	1	-3406.834	2	.382	1	-3.004	4	-.575	4
3	N31	max	73.747	3	2449.417	8	1891.155	8	0	4	0	3	0	3
4		min	-3264.455	8	-59.705	3	-60.342	3	0	3	0	4	0	4
5	N32	max	43.216	4	2493.683	5	250.874	2	0	11	0	4	0	3
6		min	-43.173	3	-157.655	2	-3845.782	5	0	1	0	3	0	4
7	N33	max	3273.558	7	2454.493	7	1896.417	7	0	3	0	3	0	3
8		min	-74.428	4	-60.15	4	-60.738	4	0	4	0	4	0	4
9	N179	max	4823.999	4	864.916	7	1789.286	1	.13	1	1.417	1	-.133	2
10		min	-2848.011	3	179.031	9	-2931.077	2	-.666	6	-1.421	2	-1.097	5
11	N180	max	2824.786	4	865.048	8	1833.987	1	.15	1	1.536	2	1.096	5
12		min	-4798.074	3	179.882	10	-2977.82	2	-.678	6	-1.532	1	.115	2
13	Totals:	max	7210.23	4	9264.406	7	7004.517	1						
14		min	-7210.261	3	3582.416	4	-7004.632	2						

9bj YcdYA Ya VYf'GYW]cb': cfWwg

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1	MP5A	1	max	730.915	3	160.629	3	513.745	2	.528	2	.136	2	-.013	2
2			min	-867.366	4	-1120.782	8	-527.757	1	-.518	1	-.137	1	-.158	9
3		2	max	2736.888	3	1036.982	8	78.759	4	.384	2	.109	4	1.221	4
4			min	-4884.095	4	29.501	3	-79.93	3	-.373	1	-.11	2	-.539	3
5		3	max	2766.751	3	961.925	8	61.518	4	.384	2	.211	4	.212	4
6			min	-4913.958	4	-.805	3	-62.688	3	-.373	1	-.212	3	-.563	3
7		4	max	3011.896	3	-158.924	9	1284.234	2	.449	2	.988	4	.063	9



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

May 12, 2021
 2:19 PM
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9bj YcdYA Ya VYf GYVJcb: cfWVg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
8		min	-5294.955	4	-823.933	7	-1282.475	1	-.445	1	-.987	3	-.012	8	
9	5	max	3031.302	3	-178.67	9	1317.847	2	.449	2	1.421	2	1.201	7	
10		min	-5314.361	4	-863.841	7	-1316.088	1	-.445	1	-1.417	1	.305	9	
11	MP5C	1	max	769.862	4	159.919	4	577.584	1	.544	1	.14	1	-.016	3
12		min	-905.927	3	-1124.226	7	-565.593	2	-.523	2	-.135	2	-.157	10	
13		2	max	2705.408	4	1036.812	7	81.686	4	.389	1	.108	4	1.213	3
14		min	-4850.706	3	28.559	4	-81.667	3	-.372	2	-.109	3	-.533	4	
15		3	max	2747.515	4	964.366	7	57.388	4	.389	1	.212	4	.204	3
16		min	-4892.814	3	-1.753	4	-57.368	3	-.372	2	-.213	3	-.556	4	
17		4	max	2997.905	4	-159.767	10	1321.42	1	.476	1	.977	4	.063	10
18		min	-5278.895	3	-824.046	8	-1325.826	2	-.464	2	-.974	3	-.012	4	
19		5	max	3017.312	4	-179.518	10	1355.052	1	.476	1	1.532	1	1.2	8
20		min	-5298.302	3	-863.965	8	-1359.458	2	-.464	2	-1.536	2	.307	10	
21	M3	1	max	609.456	1	562.314	5	451.821	2	.182	3	.158	1	.473	4
22		min	-424.223	2	-106.761	2	-519.444	1	-.143	4	-.161	2	-.174	3	
23		2	max	609.456	1	559.897	5	447.429	2	.182	3	.109	1	.437	4
24		min	-424.223	2	-107.909	2	-515.052	1	-.143	4	-.118	2	-.177	3	
25		3	max	609.456	1	557.48	5	443.037	2	.182	3	.061	1	.401	4
26		min	-424.223	2	-109.058	2	-510.66	1	-.143	4	-.077	2	-.179	3	
27		4	max	609.456	1	555.064	5	438.645	2	.182	3	.014	1	.366	4
28		min	-424.223	2	-110.206	2	-506.268	1	-.143	4	-.035	2	-.182	3	
29		5	max	609.456	1	552.647	5	434.253	2	.182	3	.006	2	.33	4
30		min	-424.223	2	-111.355	2	-501.876	1	-.143	4	-.039	5	-.184	3	
31	M4	1	max	598.21	1	585.45	5	516.765	1	.137	3	.16	2	.462	3
32		min	-414.629	2	-114.584	2	-447.42	2	-.17	4	-.159	1	-.179	4	
33		2	max	598.21	1	583.033	5	512.373	1	.137	3	.119	2	.427	3
34		min	-414.629	2	-115.733	2	-443.028	2	-.17	4	-.111	1	-.18	4	
35		3	max	598.21	1	580.616	5	507.981	1	.137	3	.077	2	.391	3
36		min	-414.629	2	-116.881	2	-438.636	2	-.17	4	-.063	1	-.18	4	
37		4	max	598.21	1	578.199	5	503.589	1	.137	3	.036	2	.356	3
38		min	-414.629	2	-118.03	2	-434.244	2	-.17	4	-.016	1	-.181	4	
39		5	max	598.21	1	575.783	5	499.196	1	.137	3	.041	8	.321	3
40		min	-414.629	2	-119.178	2	-429.852	2	-.17	4	-.006	3	-.181	4	
41	M5	1	max	994.629	2	757.46	5	604.861	4	.156	4	.379	3	.376	5
42		min	-739.517	1	122.502	2	-567.396	3	-.187	3	-.36	4	.034	2	
43		2	max	994.413	2	756.635	5	603.063	4	.156	4	.357	3	.346	5
44		min	-739.301	1	122.145	2	-565.599	3	-.187	3	-.337	4	.029	2	
45		3	max	994.197	2	755.809	5	601.265	4	.156	4	.335	3	.317	5
46		min	-739.085	1	121.787	2	-563.801	3	-.187	3	-.313	4	.024	2	
47		4	max	993.982	2	754.984	5	599.467	4	.156	4	.313	3	.287	5
48		min	-738.87	1	121.43	2	-562.003	3	-.187	3	-.29	4	.02	2	
49		5	max	993.766	2	754.159	5	597.67	4	.156	4	.291	3	.258	5
50		min	-738.654	1	121.072	2	-560.206	3	-.187	3	-.267	4	.015	2	
51	M6	1	max	972.525	2	754.104	5	810.604	4	.194	4	.291	3	.249	5
52		min	-720.335	1	121.458	2	-884.441	3	-.153	3	-.267	4	.04	2	
53		2	max	970.905	2	752.346	5	807.592	4	.194	4	.218	3	.186	5
54		min	-718.715	1	120.697	2	-881.429	3	-.153	3	-.2	4	.03	2	
55		3	max	969.285	2	750.589	5	804.58	4	.194	4	.145	3	.124	5
56		min	-717.095	1	119.935	2	-878.417	3	-.153	3	-.133	4	.02	2	
57		4	max	967.665	2	748.831	5	801.568	4	.194	4	.072	3	.062	5
58		min	-715.475	1	119.173	2	-875.404	3	-.153	3	-.066	4	.01	2	
59		5	max	966.045	2	747.074	5	798.555	4	.194	4	0	11	0	11



9bj YcdYA Ya VYf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
60		min	-713.855	1	118.412	2	-872.392	3	-.153	3	0	1	0	1	
61	M7	1	max	1028.394	4	758.07	5	543.118	4	.185	4	.358	3	.377	5
62		min	-767.191	1	115.994	2	-580.764	3	-.153	3	-.377	4	.031	2	
63		2	max	1028.61	4	757.244	5	541.32	4	.185	4	.335	3	.348	5
64		min	-766.976	1	115.636	2	-578.966	3	-.153	3	-.356	4	.026	2	
65		3	max	1028.825	4	756.419	5	539.522	4	.185	4	.313	3	.318	5
66		min	-766.76	1	115.278	2	-577.169	3	-.153	3	-.335	4	.022	2	
67		4	max	1029.041	4	755.594	5	537.724	4	.185	4	.29	3	.289	5
68		min	-766.544	1	114.921	2	-575.371	3	-.153	3	-.314	4	.017	2	
69		5	max	1029.257	4	754.768	5	535.927	4	.185	4	.268	3	.26	5
70		min	-766.329	1	114.563	2	-573.573	3	-.153	3	-.293	4	.013	2	
71	M8	1	max	1001.857	2	754.716	5	883.976	4	.15	4	.268	3	.251	5
72		min	-752.459	1	114.992	2	-809.071	3	-.19	3	-.293	4	.038	2	
73		2	max	1000.228	2	752.949	5	880.947	4	.15	4	.2	3	.188	5
74		min	-750.83	1	114.226	2	-806.042	3	-.19	3	-.219	4	.028	2	
75		3	max	998.598	2	751.181	5	877.918	4	.15	4	.133	3	.125	5
76		min	-749.2	1	113.46	2	-803.013	3	-.19	3	-.146	4	.019	2	
77		4	max	996.968	2	749.413	5	874.889	4	.15	4	.067	3	.062	5
78		min	-747.57	1	112.694	2	-799.984	3	-.19	3	-.073	4	.009	2	
79		5	max	995.338	2	747.645	5	871.86	4	.15	4	0	11	0	11
80		min	-745.94	1	111.928	2	-796.955	3	-.19	3	0	1	0	1	
81	M9	1	max	783.014	1	69.664	8	24.863	3	0	8	-.001	2	.094	8
82		min	-1139.731	2	2.495	3	-34.914	4	0	3	-.044	5	-.021	3	
83		2	max	775.915	1	53.289	8	12.506	3	0	8	.006	3	.041	1
84		min	-1132.632	2	-.607	3	-22.557	4	0	3	-.012	4	-.017	2	
85		3	max	768.816	1	29.172	8	5.351	2	0	8	.015	7	.016	1
86		min	-1125.534	2	-3.71	3	-15.43	1	0	3	-.006	4	-.016	2	
87		4	max	761.717	1	20.11	4	9.43	2	0	8	.014	6	-.002	3
88		min	-1118.435	2	-6.813	3	-19.508	1	0	3	-.005	1	-.03	8	
89		5	max	754.618	1	17.008	4	14.512	4	0	8	.027	4	.001	2
90		min	-1111.336	2	-26.661	7	-24.563	3	0	3	-.02	3	-.036	1	
91	M10	1	max	759.538	1	25.228	4	71.66	7	0	4	-.001	2	.023	4
92		min	-1118.169	2	-34.816	3	2.368	4	0	7	-.046	5	-.097	7	
93		2	max	752.443	1	12.868	4	55.2	7	0	4	.006	4	.016	2
94		min	-1111.074	2	-22.457	3	-.734	4	0	7	-.012	3	-.039	1	
95		3	max	745.349	1	5.096	2	30.764	7	0	4	.016	8	.016	2
96		min	-1103.98	2	-15.498	5	-3.836	4	0	7	-.006	3	-.016	1	
97		4	max	738.255	1	9.168	2	19.391	3	0	4	.014	6	.03	7
98		min	-1096.886	2	-18.8	1	-7.308	8	0	7	-.005	1	.003	4	
99		5	max	731.161	1	14.621	3	16.289	3	0	4	.026	3	.034	1
100		min	-1089.792	2	-24.209	4	-29.16	8	0	7	-.019	4	0	2	
101	M11	1	max	782.188	1	552.59	5	120.473	5	.259	3	.006	2	.177	5
102		min	-607.531	2	-112.188	2	-13.756	2	-.339	4	-.039	5	-.037	2	
103		2	max	780.304	1	550.621	5	120.861	5	.259	3	.004	2	.132	5
104		min	-605.647	2	-113.176	2	-15.521	2	-.339	4	-.029	5	-.028	2	
105		3	max	778.421	1	548.653	5	121.248	5	.259	3	.003	2	.088	5
106		min	-603.763	2	-114.163	2	-17.286	2	-.339	4	-.02	5	-.019	2	
107		4	max	776.537	1	545.951	5	121.636	5	.259	3	.002	2	.044	5
108		min	-601.879	2	-115.15	2	-19.051	2	-.339	4	-.01	5	-.009	2	
109		5	max	774.653	1	542.805	5	122.023	5	.259	3	0	11	0	11
110		min	-599.995	2	-116.137	2	-20.817	2	-.339	4	0	1	0	1	
111	M12	1	max	772.612	1	575.737	5	22.699	3	.328	3	.041	8	.183	5



9bj YcdYA Ya VYf GYV]cb: cfWVg fT cb]bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
112		min	-597.799	2	-119.969	2	-129.139	8	-.248	4	-.006	3	-.039	2	
113	2	max	770.739	1	573.59	5	20.705	3	.328	3	.031	8	.137	5	
114		min	-595.926	2	-120.95	2	-128.701	8	-.248	4	-.004	3	-.029	2	
115	3	max	768.866	1	571.442	5	18.712	3	.328	3	.02	8	.091	5	
116		min	-594.053	2	-121.932	2	-128.263	8	-.248	4	-.003	3	-.02	2	
117	4	max	766.992	1	569.294	5	16.718	3	.328	3	.01	8	.046	5	
118		min	-592.179	2	-122.913	2	-127.826	8	-.248	4	-.001	3	-.01	2	
119	5	max	765.119	1	567.147	5	16.046	2	.328	3	0	11	0	11	
120		min	-590.306	2	-123.895	2	-127.388	8	-.248	4	0	1	0	1	
121	MP5B	1	max	900.892	2	222.651	2	661.776	4	.652	4	.193	4	-.026	1
122		min	-1034.065	1	-1147.241	5	-662.96	3	-.637	3	-.191	3	-.089	7	
123	2	max	3161.546	2	1055.489	5	57.164	3	.472	4	.073	3	1.306	1	
124		min	-5315.668	1	-5.151	2	-57.715	4	-.458	3	-.073	4	-.625	2	
125	3	max	3174.135	2	979.027	5	13.324	4	.472	4	.113	3	.249	1	
126		min	-5328.257	1	-35.463	2	-13.876	3	-.458	3	-.114	4	-.6	2	
127	4	max	3406.834	2	-260.391	1	1913.537	4	.575	4	.225	4	0	9	
128		min	-5696.735	1	-834.59	6	-1915.298	3	-.566	3	-.224	3	-.013	5	
129	5	max	3406.834	2	-280.143	1	1958.368	4	.575	4	3.004	4	1.215	6	
130		min	-5696.735	1	-874.509	6	-1960.129	3	-.566	3	-3.005	3	.382	1	
131	M14	1	max	440.074	3	-121.828	2	1030.041	3	-.025	2	.36	4	.135	4
132		min	-521.83	4	-757.298	5	-773.905	4	-.37	5	-.379	3	-.199	3	
133	2	max	973.647	3	-135.116	2	132.368	3	-.088	4	.331	2	.424	5	
134		min	-879.786	4	-803.195	5	-197.398	4	-.416	7	-.244	1	-.083	2	
135	3	max	973.647	3	-143.992	2	132.368	3	-.088	4	.372	2	.949	5	
136		min	-879.786	4	-826.762	5	-197.398	4	-.416	7	-.328	1	.007	2	
137	4	max	973.647	3	-152.868	2	132.368	3	-.088	4	.427	2	1.49	5	
138		min	-879.786	4	-850.33	5	-197.398	4	-.416	7	-.426	1	.103	2	
139	5	max	973.647	3	-161.743	2	132.368	3	-.088	4	.494	2	2.046	5	
140		min	-879.786	4	-873.602	5	-197.398	4	-.416	7	-.536	1	.204	2	
141	M15	1	max	975.533	4	871.663	5	195.94	3	.419	8	.515	2	2.043	5
142		min	-882.868	3	155.376	2	-129.491	4	.075	3	-.56	1	.187	2	
143	2	max	975.533	4	848.391	5	195.94	3	.419	8	.444	2	1.488	5	
144		min	-882.868	3	146.5	2	-129.491	4	.075	3	-.446	1	.089	2	
145	3	max	975.533	4	824.824	5	195.94	3	.419	8	.387	2	.949	5	
146		min	-882.868	3	137.624	2	-129.491	4	.075	3	-.345	1	-.002	2	
147	4	max	975.533	4	801.257	5	195.94	3	.419	8	.343	2	.424	5	
148		min	-882.868	3	128.749	2	-129.491	4	.075	3	-.257	1	-.088	2	
149	5	max	408.722	4	757.922	5	830.025	3	.372	5	.358	3	.132	3	
150		min	-491.218	3	115.314	2	-1084.267	4	.022	2	-.377	4	-.197	4	
151	M16	1	max	0	11	.006	1	.008	3	0	11	0	11	0	11
152		min	0	1	0	7	-.003	1	0	1	0	1	0	1	1
153	2	max	154.812	2	148.756	2	219.618	3	.299	4	.075	2	.345	2	
154		min	-94.804	1	-225.505	1	-214.059	4	-.506	3	-.131	1	-.258	1	
155	3	max	1172.967	3	633.243	6	624.825	3	.473	4	1.259	4	-.322	10	
156		min	-1364.82	4	-622.891	5	-688.906	4	-.632	3	-1.133	3	-1.009	6	
157	4	max	211.313	1	175.982	3	186.147	2	.397	1	.08	1	.276	4	
158		min	-145.426	2	-102.305	4	-192.828	1	-.18	2	-.133	2	-.182	3	
159	5	max	0	11	0	5	.003	3	0	11	0	11	0	11	11
160		min	0	1	-.005	3	-.001	1	0	1	0	1	0	1	1
161	M17	1	max	0	11	.005	4	0	1	0	11	0	11	0	11
162		min	0	1	0	5	-.003	4	0	1	0	1	0	1	1
163	2	max	237.862	1	113.155	3	190.15	1	.165	2	.091	1	.286	3	



9bj YcdYA Ya VYf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
164		min	-173.895	2	-189.995	4	-184.537	2	-.376	1	-.145	2	-.198	4	
165	3	max	1166.447	4	628.541	5	692.258	3	.659	4	1.256	3	-.318	9	
166		min	-1353.24	3	-626.929	6	-628.14	4	-.496	3	-1.133	4	-.998	5	
167	4	max	161.142	2	206.178	1	227.646	3	.536	4	.082	2	.326	2	
168		min	-99.412	1	-132.464	2	-234.718	4	-.324	3	-.138	1	-.233	1	
169	5	max	0	11	0	8	.004	1	0	11	0	11	0	11	
170		min	0	1	-.005	1	-.008	4	0	1	0	1	0	1	
171	M18	1	max	0	11	0	11	0	11	0	11	0	11	11	
172		min	0	1	0	1	0	1	0	1	0	1	0	1	
173	2	max	293.312	4	139.802	4	215.416	2	.233	1	.183	4	.333	4	
174		min	-234.242	3	-216.081	3	-208.957	1	-.435	2	-.239	3	-.245	3	
175	3	max	932.473	2	638.602	8	518.605	2	.64	2	1.056	1	-.293	2	
176		min	-1128.164	1	-633.343	7	-581.505	1	-.479	1	-.927	2	-1.016	8	
177	4	max	275.901	3	204.782	4	218.577	1	.476	2	.18	3	.321	3	
178		min	-213.725	4	-131.847	3	-226.745	2	-.268	1	-.235	4	-.227	4	
179	5	max	0	11	0	11	0	11	0	11	0	11	0	11	
180		min	0	1	0	1	0	1	0	1	0	1	0	1	
181	M19	1	max	4497.863	8	45.583	8	35.726	2	0	3	0	11	0	11
182		min	-111.39	3	.041	3	-35.726	1	0	4	0	1	0	1	
183	2	max	4488.074	8	22.792	8	17.863	2	0	3	.031	2	0	3	
184		min	-127.333	3	.021	3	-17.863	1	0	4	-.031	1	-.04	8	
185	3	max	4478.284	8	0	11	0	11	0	3	.042	2	0	3	
186		min	-143.276	3	0	1	0	1	0	4	-.042	1	-.053	8	
187	4	max	4468.494	8	-.021	3	17.863	1	0	3	.031	2	0	3	
188		min	-159.219	3	-22.792	8	-17.863	2	0	4	-.031	1	-.04	8	
189	5	max	4458.705	8	-.041	3	35.726	1	0	3	0	11	0	11	
190		min	-175.162	3	-45.583	8	-35.726	2	0	4	0	1	0	1	
191	M20	1	max	4583.291	5	45.216	5	45.526	4	0	4	0	11	0	11
192		min	-296.295	2	1.393	2	-45.526	3	0	3	0	1	0	1	
193	2	max	4573.192	5	22.608	5	22.763	4	0	4	.04	4	-.001	2	
194		min	-311.189	2	.697	2	-22.763	3	0	3	-.04	3	-.04	5	
195	3	max	4563.094	5	0	11	0	11	0	4	.053	4	-.002	2	
196		min	-326.083	2	0	1	0	1	0	3	-.053	3	-.053	5	
197	4	max	4552.995	5	-.697	2	22.763	3	0	4	.04	4	-.001	2	
198		min	-340.977	2	-22.608	5	-22.763	4	0	3	-.04	3	-.04	5	
199	5	max	4542.897	5	-1.393	2	45.526	3	0	4	0	11	0	11	
200		min	-355.871	2	-45.216	5	-45.526	4	0	3	0	1	0	1	
201	M21	1	max	4509.447	7	45.61	7	35.742	1	0	3	0	11	0	11
202		min	-112.293	4	.054	4	-35.742	2	0	4	0	1	0	1	
203	2	max	4499.658	7	22.805	7	17.871	1	0	3	.031	1	0	4	
204		min	-128.241	4	.027	4	-17.871	2	0	4	-.031	2	-.04	7	
205	3	max	4489.87	7	0	11	0	11	0	3	.042	1	0	4	
206		min	-144.189	4	0	1	0	1	0	4	-.042	2	-.053	7	
207	4	max	4480.082	7	-.027	4	17.871	2	0	3	.031	1	0	4	
208		min	-160.137	4	-22.805	7	-17.871	1	0	4	-.031	2	-.04	7	
209	5	max	4470.294	7	-.054	4	35.742	2	0	3	0	11	0	11	
210		min	-176.085	4	-45.61	7	-35.742	1	0	4	0	1	0	1	
211	MP4A	1	max	0	11	0	11	0	11	0	11	0	11	0	11
212		min	0	1	0	1	0	1	0	1	0	1	0	1	
213	2	max	143.884	3	194.618	4	93.204	1	.109	1	.154	4	.08	4	
214		min	-164.622	4	-155.148	3	-159.914	2	-.179	2	-.14	3	-.07	3	
215	3	max	111.714	2	179.107	4	114.424	2	.109	1	.329	1	.014	1	



9bj YcdYA Ya Vyf GYVjcb : cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
216		min	-170.869	4	-187.263	3	-110.662	4	-.179	2	-.521	2	-.516	3	
217	4	max	125.111	4	161.024	4	149.195	2	.165	2	.15	3	.09	3	
218		min	-150.805	3	-200.278	3	-80.967	1	-.094	1	-.135	4	-.076	4	
219	5	max	0	11	0	11	0	11	0	11	0	11	0	11	
220		min	0	1	0	1	0	1	0	1	0	1	0	1	
221	MP4C	1	max	0	11	.006	4	.016	3	0	11	0	11	0	11
222		min	0	1	0	10	-.013	1	0	1	0	1	0	1	
223	2	max	210.145	1	167.549	2	95.248	4	.114	4	.171	2	.084	3	
224		min	-231.012	2	-129.51	1	-163.459	3	-.186	3	-.158	1	-.073	4	
225	3	max	228.65	1	177.44	2	114.939	1	.124	1	.296	4	.316	4	
226		min	-249.517	2	-190.77	1	-132.445	3	-.186	3	-.492	3	-.513	1	
227	4	max	170.572	3	164.425	2	123.632	1	.124	1	.169	4	.104	1	
228		min	-195.402	4	-203.786	1	-52.976	2	-.05	2	-.153	3	-.091	2	
229	5	max	0	11	.001	4	.016	3	0	11	0	11	0	11	
230		min	0	1	-.006	2	-.004	1	0	1	0	1	0	1	
231	MP4B	1	max	0	11	.006	2	.003	1	0	11	0	11	0	11
232		min	0	1	-.001	3	-.016	4	0	1	0	1	0	1	
233	2	max	166.132	4	194.925	1	55.861	2	.06	3	.165	3	.092	1	
234		min	-186.583	3	-156.458	2	-125.019	1	-.13	4	-.15	4	-.081	2	
235	3	max	218.652	1	180.661	1	130.634	4	.177	4	.292	3	.328	3	
236		min	-243.963	2	-160.635	2	-114.336	1	-.126	1	-.491	4	-.494	1	
237	4	max	203.596	1	134.766	1	156.712	4	.177	4	.17	2	.097	4	
238		min	-228.907	2	-173.651	2	-87.128	3	-.105	3	-.156	1	-.084	3	
239	5	max	0	11	0	9	.014	1	0	11	0	11	0	11	
240		min	0	1	-.006	3	-.016	4	0	1	0	1	0	1	
241	M25	1	max	216.741	2	415.39	3	356.539	4	.012	3	.112	1	.423	3
242		min	-436.278	1	-417.706	4	-354.28	3	-.012	4	-.063	2	-.299	4	
243	2	max	216.733	2	417.07	3	356.539	4	.012	3	.108	1	.235	3	
244		min	-436.27	1	-416.026	4	-354.28	3	-.012	4	-.059	2	-.11	4	
245	3	max	216.725	2	418.749	3	356.539	4	.012	3	.106	1	.231	1	
246		min	-436.262	1	-414.347	4	-354.28	3	-.012	4	-.056	2	-.102	2	
247	4	max	216.717	2	420.429	3	356.539	4	.012	3	.107	1	.267	4	
248		min	-436.254	1	-412.667	4	-354.28	3	-.012	4	-.054	2	-.143	3	
249	5	max	216.709	2	422.109	3	356.539	4	.012	3	.109	1	.455	4	
250		min	-436.246	1	-410.987	4	-354.28	3	-.012	4	-.054	2	-.333	3	
251	MP3A	1	max	0	11	.019	4	.052	1	0	11	0	11	0	11
252		min	0	1	-.019	3	-.052	2	0	1	0	1	0	1	
253	2	max	451.249	2	378.254	4	190.756	4	.433	2	.168	3	.605	4	
254		min	-237.515	1	-290.972	3	-70.379	3	-.358	1	-.271	4	-.486	3	
255	3	max	464.397	2	405.193	4	190.756	4	.433	2	.264	2	.123	3	
256		min	-224.367	1	-317.91	3	-70.379	3	-.358	1	-.13	1	-.178	4	
257	4	max	-13.148	10	26.955	3	27.029	2	0	11	.027	1	.027	3	
258		min	-30.793	5	-26.95	4	-27.017	1	0	1	-.027	2	-.027	4	
259	5	max	0	11	.021	7	.09	2	0	11	0	11	0	11	
260		min	0	1	-.011	4	-.078	1	0	1	0	1	0	1	
261	MP1A	1	max	0	11	.062	4	.172	1	0	11	0	11	0	11
262		min	0	1	-.061	3	-.169	2	0	1	0	1	0	1	
263	2	max	440.076	2	281.221	4	190.421	3	.364	1	.182	1	.45	4	
264		min	-291.513	1	-366.771	3	-181.946	2	-.44	2	-.268	3	-.564	3	
265	3	max	453.225	2	308.159	4	190.421	3	.364	1	.201	6	.197	3	
266		min	-278.365	1	-393.71	3	-73.303	4	-.44	2	-.05	1	-.14	4	
267	4	max	-33.212	10	71.177	3	151.026	2	0	11	.028	1	.027	3	



9bj YcdYA Ya VYf GYWjcb: cfWkg fT cbhji YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
268		min	-103.603	5	-71.188	4	-150.997	1	0	1	-.028	2	-.027	4
269	5	max	0	11	.026	3	.28	6	0	11	0	11	0	11
270		min	0	1	-.069	8	-.187	1	0	1	0	1	0	1
271	MP2	1	max	0	.03	4	.089	1	0	11	0	11	0	11
272		min	0	1	-.03	3	-.129	6	0	1	0	1	0	1
273	2	max	1619.538	1	294.387	4	242.505	1	.043	4	.318	2	.281	4
274		min	-1202.275	2	-296.799	3	-176.038	2	-.043	3	-.431	1	-.285	3
275	3	max	1632.686	1	321.325	4	269.444	1	.043	4	.081	1	.336	3
276		min	-1189.126	2	-323.737	3	-202.977	2	-.043	3	-.061	2	-.335	4
277	4	max	-13.148	10	26.943	3	27.075	2	0	11	.027	1	.027	3
278		min	-30.793	5	-26.943	4	-27.046	1	0	1	-.027	2	-.027	4
279	5	max	0	11	.004	3	.16	6	0	11	0	11	0	11
280		min	0	1	-.004	4	-.107	1	0	1	0	1	0	1
281	MP3C	1	max	0	.041	4	.03	1	0	11	0	11	0	11
282		min	0	1	-.041	3	-.03	2	0	1	0	1	0	1
283	2	max	405.115	3	88.672	5	268.548	1	.357	3	.728	2	.087	4
284		min	-190.886	4	-26.7	2	-401.98	2	-.281	4	-.578	1	-.057	3
285	3	max	418.263	3	88.672	5	295.486	1	.357	3	.195	4	.035	4
286		min	-177.737	4	-26.7	2	-428.918	2	-.281	4	-.31	3	-.129	5
287	4	max	-13.148	10	27.001	3	26.973	2	0	11	.027	1	.027	3
288		min	-30.793	5	-26.992	4	-26.984	1	0	1	-.027	2	-.027	4
289	5	max	0	11	.062	3	.035	2	0	11	0	11	0	11
290		min	0	1	-.054	4	-.053	5	0	1	0	1	0	1
291	MP1C	1	max	0	.16	4	.081	1	0	11	0	11	0	11
292		min	0	1	-.159	3	-.083	2	0	1	0	1	0	1
293	2	max	401.658	3	325.522	1	189.362	1	.332	4	.269	3	.446	4
294		min	-249.551	4	-180.731	2	-174.056	2	-.41	3	-.32	4	-.309	3
295	3	max	414.806	3	325.522	1	216.301	1	.332	4	.126	1	.113	2
296		min	-236.402	4	-180.731	2	-200.995	2	-.41	3	-.146	2	-.26	1
297	4	max	-33.212	10	131.106	3	91.114	2	0	11	.027	1	.028	3
298		min	-103.603	5	-131.074	4	-91.12	1	0	1	-.027	2	-.028	4
299	5	max	0	11	.278	7	.079	4	0	11	0	11	0	11
300		min	0	1	-.179	4	-.085	3	0	1	0	1	0	1
301	MP3B	1	max	0	.05	4	.025	4	0	11	0	11	0	11
302		min	0	1	-.05	3	-.026	3	0	1	0	1	0	1
303	2	max	436.721	4	177.481	2	199.074	1	.408	4	.283	2	.386	4
304		min	-220.612	3	-325.846	1	-184.347	2	-.33	3	-.334	1	-.531	3
305	3	max	449.87	4	177.481	2	226.012	1	.408	4	.091	1	.265	1
306		min	-207.463	3	-325.846	1	-211.285	2	-.33	3	-.112	2	-.118	2
307	4	max	-13.148	10	27.013	3	26.959	2	0	11	.027	1	.027	3
308		min	-30.793	5	-27.026	4	-26.962	1	0	1	-.027	2	-.027	4
309	5	max	0	11	.074	3	.032	3	0	11	0	11	0	11
310		min	0	1	-.088	4	-.034	4	0	1	0	1	0	1
311	MP1B	1	max	0	.135	4	.095	1	0	11	0	11	0	11
312		min	0	1	-.138	3	-.095	2	0	1	0	1	0	1
313	2	max	392.692	4	23.698	2	259.433	1	.293	3	.668	2	.157	3
314		min	-242.562	3	-89.483	5	-390.047	2	-.369	4	-.524	1	-.157	4
315	3	max	405.841	4	23.698	2	286.372	1	.293	3	.191	3	.13	5
316		min	-229.414	3	-89.483	5	-416.985	2	-.369	4	-.306	4	-.018	2
317	4	max	-33.212	10	131.025	3	91.146	2	0	11	.027	1	.028	3
318		min	-103.603	5	-131.045	4	-91.173	1	0	1	-.027	2	-.028	4
319	5	max	0	11	.131	3	.081	2	0	11	0	11	0	11



9bj YcdYA Ya VYf GYVJcb: cfWVg fT cbTbi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
320		min	0	1	-.191	8	-.176	5	0	1	0	1	0	1	
321	M38	1	max	266.357	1	600.958	6	542.135	3	.773	3	.348	1	.134	4
322		min	-145.538	2	-174.091	1	-457.249	4	-.588	4	-.447	2	-.339	3	
323		2	max	266.357	1	600.958	6	542.135	3	.773	3	.352	1	.122	4
324		min	-145.538	2	-174.091	1	-457.249	4	-.588	4	-.445	2	-.354	3	
325		3	max	266.357	1	600.958	6	542.135	3	.773	3	.356	1	.11	4
326		min	-145.538	2	-174.091	1	-457.249	4	-.588	4	-.444	2	-.384	7	
327		4	max	266.357	1	600.958	6	542.135	3	.773	3	.36	1	.097	4
328		min	-145.538	2	-174.091	1	-457.249	4	-.588	4	-.442	2	-.419	7	
329		5	max	266.357	1	600.958	6	542.135	3	.773	3	.364	1	.095	1
330		min	-145.538	2	-174.091	1	-457.249	4	-.588	4	-.44	2	-.455	7	
331	M39	1	max	1163.025	1	1100.431	5	1061.561	3	1.287	3	.996	4	1.242	2
332		min	-1031.433	2	363.312	2	-1056.59	4	-1.277	4	-1	3	-.926	1	
333		2	max	1163.025	1	1100.431	5	1061.561	3	1.287	3	.924	4	1.216	2
334		min	-1031.433	2	363.312	2	-1056.59	4	-1.277	4	-.927	3	-.959	1	
335		3	max	1163.025	1	1100.431	5	1061.561	3	1.287	3	.851	4	1.191	2
336		min	-1031.433	2	363.312	2	-1056.59	4	-1.277	4	-.854	3	-.992	1	
337		4	max	1163.025	1	1100.431	5	1061.561	3	1.287	3	.778	4	1.166	2
338		min	-1031.433	2	363.312	2	-1056.59	4	-1.277	4	-.781	3	-1.025	1	
339		5	max	1163.025	1	1100.431	5	1061.561	3	1.287	3	.705	4	1.141	2
340		min	-1031.433	2	363.312	2	-1056.59	4	-1.277	4	-.707	3	-1.059	1	
341	M41	1	max	206.284	1	565.577	6	427.936	3	.615	3	.442	2	.136	3
342		min	-82.428	2	-138.256	1	-514.681	4	-.802	4	-.343	1	-.338	4	
343		2	max	206.284	1	565.577	6	427.936	3	.615	3	.44	2	.122	3
344		min	-82.428	2	-138.256	1	-514.681	4	-.802	4	-.346	1	-.353	4	
345		3	max	206.284	1	565.577	6	427.936	3	.615	3	.438	2	.108	3
346		min	-82.428	2	-138.256	1	-514.681	4	-.802	4	-.35	1	-.381	8	
347		4	max	206.284	1	565.577	6	427.936	3	.615	3	.435	2	.093	3
348		min	-82.428	2	-138.256	1	-514.681	4	-.802	4	-.354	1	-.414	8	
349		5	max	206.284	1	565.577	6	427.936	3	.615	3	.433	2	.079	3
350		min	-82.428	2	-138.256	1	-514.681	4	-.802	4	-.358	1	-.447	8	
351	M42	1	max	341.11	4	589.647	7	488.424	1	.731	1	.221	4	.13	2
352		min	-221.146	3	-132.847	4	-403.721	2	-.545	2	-.323	3	-.336	1	
353		2	max	341.11	4	589.647	7	488.424	1	.731	1	.249	4	.129	2
354		min	-221.146	3	-132.847	4	-403.721	2	-.545	2	-.345	3	-.362	1	
355		3	max	341.11	4	589.647	7	488.424	1	.731	1	.276	4	.129	2
356		min	-221.146	3	-132.847	4	-403.721	2	-.545	2	-.367	3	-.39	5	
357		4	max	341.11	4	589.647	7	488.424	1	.731	1	.304	4	.128	2
358		min	-221.146	3	-132.847	4	-403.721	2	-.545	2	-.389	3	-.428	5	
359		5	max	341.11	4	589.647	7	488.424	1	.731	1	.332	4	.127	2
360		min	-221.146	3	-132.847	4	-403.721	2	-.545	2	-.41	3	-.466	5	
361	M45	1	max	257.987	2	553.754	7	409.821	1	.52	1	.45	3	.129	4
362		min	-136.519	1	-90.332	4	-495.779	2	-.703	2	-.35	4	-.33	3	
363		2	max	257.987	2	553.754	7	409.821	1	.52	1	.427	3	.136	4
364		min	-136.519	1	-90.332	4	-495.779	2	-.703	2	-.333	4	-.365	3	
365		3	max	257.987	2	553.754	7	409.821	1	.52	1	.404	3	.142	4
366		min	-136.519	1	-90.332	4	-495.779	2	-.703	2	-.316	4	-.4	3	
367		4	max	257.987	2	553.754	7	409.821	1	.52	1	.38	3	.148	4
368		min	-136.519	1	-90.332	4	-495.779	2	-.703	2	-.299	4	-.435	3	
369		5	max	257.987	2	553.754	7	409.821	1	.52	1	.357	3	.154	4
370		min	-136.519	1	-90.332	4	-495.779	2	-.703	2	-.281	4	-.47	3	
371	M46	1	max	268.579	2	586.172	8	511.898	2	.654	2	.372	3	.162	3



9bj YcdYA Ya Vyf GYVjcb: cfWVg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
372		min	-151.136	1	-123.734	3	-427.076	1	-.471	1	-.471	4	-.364	4	
373	2	max	268.579	2	585.745	8	511.898	2	.654	2	.352	3	.171	3	
374		min	-151.136	1	-123.734	3	-427.076	1	-.471	1	-.445	4	-.4	4	
375	3	max	268.579	2	585.319	8	511.898	2	.654	2	.333	3	.179	3	
376		min	-151.136	1	-123.734	3	-427.076	1	-.471	1	-.42	4	-.435	4	
377	4	max	268.579	2	584.892	8	511.898	2	.654	2	.313	3	.188	3	
378		min	-151.136	1	-123.734	3	-427.076	1	-.471	1	-.395	4	-.47	4	
379	5	max	268.579	2	584.466	8	511.898	2	.654	2	.293	3	.196	3	
380		min	-151.136	1	-123.734	3	-427.076	1	-.471	1	-.369	4	-.506	4	
381	M49	1	max	273.812	3	563.07	8	383.88	2	.59	2	.331	4	.113	2
382		min	-150.172	4	-122.032	3	-469.527	1	-.775	1	-.229	3	-.317	1	
383	2	max	273.812	3	563.07	8	383.88	2	.59	2	.351	4	.111	2	
384		min	-150.172	4	-122.032	3	-469.527	1	-.775	1	-.254	3	-.348	5	
385	3	max	273.812	3	563.07	8	383.88	2	.59	2	.37	4	.108	2	
386		min	-150.172	4	-122.032	3	-469.527	1	-.775	1	-.279	3	-.385	5	
387	4	max	273.812	3	563.07	8	383.88	2	.59	2	.389	4	.106	2	
388		min	-150.172	4	-122.032	3	-469.527	1	-.775	1	-.305	3	-.421	5	
389	5	max	273.812	3	563.07	8	383.88	2	.59	2	.408	4	.104	2	
390		min	-150.172	4	-122.032	3	-469.527	1	-.775	1	-.33	3	-.457	5	
391	M50	1	max	197.266	1	328.053	1	198.923	4	.646	3	.446	2	.167	4
392		min	-318.115	2	-404.53	2	-283.518	3	-.532	4	-.35	1	-.281	3	
393	2	max	197.266	1	328.053	1	198.923	4	.646	3	.445	2	.168	4	
394		min	-318.115	2	-404.53	2	-283.518	3	-.532	4	-.354	1	-.278	3	
395	3	max	197.266	1	328.053	1	198.923	4	.646	3	.443	2	.169	4	
396		min	-318.115	2	-404.53	2	-283.518	3	-.532	4	-.357	1	-.275	3	
397	4	max	197.266	1	328.053	1	198.923	4	.646	3	.442	2	.17	4	
398		min	-318.115	2	-404.53	2	-283.518	3	-.532	4	-.361	1	-.271	3	
399	5	max	197.266	1	328.053	1	198.923	4	.646	3	.44	2	.171	4	
400		min	-318.115	2	-404.53	2	-283.518	3	-.532	4	-.365	1	-.268	3	
401	M51	1	max	92.285	1	63.637	2	296.112	4	.957	3	.185	3	.344	2
402		min	-225.098	2	-48.248	1	-301.007	3	-.95	4	-.181	4	-.203	1	
403	2	max	92.285	1	63.637	2	296.112	4	.957	3	.168	3	.341	2	
404		min	-225.098	2	-48.248	1	-301.007	3	-.95	4	-.164	4	-.2	1	
405	3	max	92.285	1	63.637	2	296.112	4	.957	3	.15	3	.337	2	
406		min	-225.098	2	-48.248	1	-301.007	3	-.95	4	-.147	4	-.198	1	
407	4	max	92.285	1	63.637	2	296.112	4	.957	3	.133	3	.333	2	
408		min	-225.098	2	-48.248	1	-301.007	3	-.95	4	-.13	4	-.195	1	
409	5	max	92.285	1	63.637	2	296.112	4	.957	3	.116	3	.33	2	
410		min	-225.098	2	-48.248	1	-301.007	3	-.95	4	-.113	4	-.192	1	
411	M53	1	max	165.527	1	311.165	1	293.633	4	.513	3	.345	1	.16	3
412		min	-289.307	2	-378.689	2	-207.182	3	-.632	4	-.441	2	-.279	4	
413	2	max	165.527	1	311.165	1	293.633	4	.513	3	.348	1	.162	3	
414		min	-289.307	2	-378.689	2	-207.182	3	-.632	4	-.439	2	-.277	4	
415	3	max	165.527	1	311.165	1	293.633	4	.513	3	.351	1	.164	3	
416		min	-289.307	2	-378.689	2	-207.182	3	-.632	4	-.437	2	-.275	4	
417	4	max	165.527	1	311.165	1	293.633	4	.513	3	.354	1	.166	3	
418		min	-289.307	2	-378.689	2	-207.182	3	-.632	4	-.435	2	-.273	4	
419	5	max	165.527	1	311.165	1	293.633	4	.513	3	.358	1	.168	3	
420		min	-289.307	2	-378.689	2	-207.182	3	-.632	4	-.433	2	-.271	4	
421	M54	1	max	122.971	2	287.38	4	148.32	2	.578	4	.39	3	.185	3
422		min	-241.361	1	-364.864	3	-233.518	1	-.466	3	-.291	4	-.296	4	
423	2	max	122.971	2	287.38	4	148.32	2	.578	4	.395	3	.206	3	



9bj YcdYA Ya VYf GYVjcb: cfWkg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
424		min	-241.361	1	-364.864	3	-233.518	1	-.466	3	-.301	4	-.313	4	
425	3	max	122.971	2	287.38	4	148.32	2	.578	4	.4	3	.227	3	
426		min	-241.361	1	-364.864	3	-233.518	1	-.466	3	-.311	4	-.329	4	
427	4	max	122.971	2	287.38	4	148.32	2	.578	4	.405	3	.248	3	
428		min	-241.361	1	-364.864	3	-233.518	1	-.466	3	-.322	4	-.346	4	
429	5	max	122.971	2	287.38	4	148.32	2	.578	4	.41	3	.269	3	
430		min	-241.361	1	-364.864	3	-233.518	1	-.466	3	-.332	4	-.362	4	
431	M57	1	max	194.128	4	264.763	4	272.348	2	.553	1	.3	4	.201	1
432		min	-317.256	3	-331.85	3	-185.992	1	-.668	2	-.397	3	-.319	2	
433	2	max	194.128	4	264.763	4	272.348	2	.553	1	.295	4	.214	1	
434		min	-317.256	3	-331.85	3	-185.992	1	-.668	2	-.387	3	-.327	2	
435	3	max	194.128	4	264.763	4	272.348	2	.553	1	.291	4	.227	1	
436		min	-317.256	3	-331.85	3	-185.992	1	-.668	2	-.377	3	-.336	2	
437	4	max	194.128	4	264.763	4	272.348	2	.553	1	.286	4	.24	1	
438		min	-317.256	3	-331.85	3	-185.992	1	-.668	2	-.367	3	-.345	2	
439	5	max	194.128	4	264.763	4	272.348	2	.553	1	.281	4	.252	1	
440		min	-317.256	3	-331.85	3	-185.992	1	-.668	2	-.357	3	-.354	2	
441	M58	1	max	226.793	3	279.39	3	171.613	1	.686	2	.403	4	.221	1
442		min	-346.688	4	-356.562	4	-256.521	2	-.574	1	-.307	3	-.334	2	
443	2	max	226.793	3	279.39	3	171.613	1	.686	2	.395	4	.233	1	
444		min	-346.688	4	-356.562	4	-256.521	2	-.574	1	-.304	3	-.341	2	
445	3	max	226.793	3	279.39	3	171.613	1	.686	2	.386	4	.245	1	
446		min	-346.688	4	-356.562	4	-256.521	2	-.574	1	-.3	3	-.348	2	
447	4	max	226.793	3	279.39	3	171.613	1	.686	2	.378	4	.256	1	
448		min	-346.688	4	-356.562	4	-256.521	2	-.574	1	-.297	3	-.355	2	
449	5	max	226.793	3	279.39	3	171.613	1	.686	2	.369	4	.268	1	
450		min	-346.688	4	-356.562	4	-256.521	2	-.574	1	-.293	3	-.362	2	
451	M61	1	max	112.743	2	295.437	3	246.054	1	.437	4	.284	3	.142	4
452		min	-234.558	1	-362.972	4	-159.544	2	-.553	3	-.383	4	-.258	3	
453	2	max	112.743	2	295.437	3	246.054	1	.437	4	.296	3	.162	4	
454		min	-234.558	1	-362.972	4	-159.544	2	-.553	3	-.389	4	-.275	3	
455	3	max	112.743	2	295.437	3	246.054	1	.437	4	.307	3	.183	4	
456		min	-234.558	1	-362.972	4	-159.544	2	-.553	3	-.395	4	-.292	3	
457	4	max	112.743	2	295.437	3	246.054	1	.437	4	.318	3	.204	4	
458		min	-234.558	1	-362.972	4	-159.544	2	-.553	3	-.402	4	-.309	3	
459	5	max	112.743	2	295.437	3	246.054	1	.437	4	.33	3	.225	4	
460		min	-234.558	1	-362.972	4	-159.544	2	-.553	3	-.408	4	-.326	3	
461	M62	1	max	312.5	1	343.231	2	324.385	4	.103	1	.477	3	.201	2
462		min	-500.977	2	-329.826	1	-433.662	3	-.079	2	-.339	4	-.243	1	
463	2	max	312.5	1	343.231	2	324.385	4	.103	1	.463	3	.19	2	
464		min	-500.977	2	-329.826	1	-433.662	3	-.079	2	-.329	4	-.232	1	
465	3	max	312.5	1	343.231	2	324.385	4	.103	1	.449	3	.179	2	
466		min	-500.977	2	-329.826	1	-433.662	3	-.079	2	-.318	4	-.221	1	
467	4	max	312.5	1	343.231	2	324.385	4	.103	1	.435	3	.168	2	
468		min	-500.977	2	-329.826	1	-433.662	3	-.079	2	-.307	4	-.21	1	
469	5	max	312.5	1	343.231	2	324.385	4	.103	1	.421	3	.157	2	
470		min	-500.977	2	-329.826	1	-433.662	3	-.079	2	-.297	4	-.2	1	
471	M63	1	max	293.457	1	320.087	2	457.466	4	.071	3	.356	3	.158	3
472		min	-483.887	2	-315.725	1	-351.427	3	-.099	4	-.491	4	-.205	4	
473	2	max	293.457	1	320.087	2	457.466	4	.071	3	.345	3	.153	3	
474		min	-483.887	2	-315.725	1	-351.427	3	-.099	4	-.476	4	-.2	4	
475	3	max	293.457	1	320.087	2	457.466	4	.071	3	.333	3	.147	3	



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

May 12, 2021
 2:19 PM
 Checked By: _____

9bj YcdYA Ya VYf GYVJcb: cfWVg fT cbhji YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
476		min	-483.887	2	-315.725	1	-351.427	3	-.099	4	-.461	4	-.194	4	
477	4	max	293.457	1	320.087	2	457.466	4	.071	3	.322	3	.141	3	
478		min	-483.887	2	-315.725	1	-351.427	3	-.099	4	-.446	4	-.189	4	
479	5	max	293.457	1	320.087	2	457.466	4	.071	3	.31	3	.136	3	
480		min	-483.887	2	-315.725	1	-351.427	3	-.099	4	-.431	4	-.183	4	
481	M64	1	max	184.787	2	423.563	3	244.333	3	.154	4	.36	4	.305	3
482		min	-373.912	1	-409.815	4	-357.655	4	-.13	3	-.221	3	-.345	4	
483	2	max	184.787	2	423.563	3	244.333	3	.154	4	.348	4	.291	3	
484		min	-373.912	1	-409.815	4	-357.655	4	-.13	3	-.213	3	-.332	4	
485	3	max	184.787	2	423.563	3	244.333	3	.154	4	.336	4	.278	3	
486		min	-373.912	1	-409.815	4	-357.655	4	-.13	3	-.205	3	-.318	4	
487	4	max	184.787	2	423.563	3	244.333	3	.154	4	.325	4	.264	3	
488		min	-373.912	1	-409.815	4	-357.655	4	-.13	3	-.197	3	-.305	4	
489	5	max	184.787	2	423.563	3	244.333	3	.154	4	.313	4	.25	3	
490		min	-373.912	1	-409.815	4	-357.655	4	-.13	3	-.189	3	-.292	4	
491	M65	1	max	316.447	4	338.85	1	487.944	2	.11	1	.372	1	.255	1
492		min	-505.714	3	-333.542	2	-380.789	1	-.137	2	-.505	2	-.301	2	
493	2	max	316.447	4	338.85	1	487.944	2	.11	1	.36	1	.244	1	
494		min	-505.714	3	-333.542	2	-380.789	1	-.137	2	-.489	2	-.29	2	
495	3	max	316.447	4	338.85	1	487.944	2	.11	1	.348	1	.233	1	
496		min	-505.714	3	-333.542	2	-380.789	1	-.137	2	-.474	2	-.279	2	
497	4	max	316.447	4	338.85	1	487.944	2	.11	1	.335	1	.222	1	
498		min	-505.714	3	-333.542	2	-380.789	1	-.137	2	-.458	2	-.269	2	
499	5	max	316.447	4	338.85	1	487.944	2	.11	1	.323	1	.211	1	
500		min	-505.714	3	-333.542	2	-380.789	1	-.137	2	-.442	2	-.258	2	
501	M66	1	max	340.514	3	324.508	1	360.299	1	.145	2	.504	2	.272	1
502		min	-528.354	4	-310.722	2	-469.911	2	-.121	1	-.368	1	-.312	2	
503	2	max	340.514	3	324.508	1	360.299	1	.145	2	.489	2	.262	1	
504		min	-528.354	4	-310.722	2	-469.911	2	-.121	1	-.356	1	-.302	2	
505	3	max	340.514	3	324.508	1	360.299	1	.145	2	.473	2	.251	1	
506		min	-528.354	4	-310.722	2	-469.911	2	-.121	1	-.345	1	-.291	2	
507	4	max	340.514	3	324.508	1	360.299	1	.145	2	.458	2	.241	1	
508		min	-528.354	4	-310.722	2	-469.911	2	-.121	1	-.333	1	-.281	2	
509	5	max	340.514	3	324.508	1	360.299	1	.145	2	.443	2	.23	1	
510		min	-528.354	4	-310.722	2	-469.911	2	-.121	1	-.321	1	-.271	2	
511	M67	1	max	176.935	2	419.081	4	368.728	3	.111	4	.213	4	.271	4
512		min	-367.89	1	-414.244	3	-258.728	4	-.139	3	-.349	3	-.317	3	
513	2	max	176.935	2	419.081	4	368.728	3	.111	4	.205	4	.258	4	
514		min	-367.89	1	-414.244	3	-258.728	4	-.139	3	-.337	3	-.304	3	
515	3	max	176.935	2	419.081	4	368.728	3	.111	4	.196	4	.244	4	
516		min	-367.89	1	-414.244	3	-258.728	4	-.139	3	-.325	3	-.29	3	
517	4	max	176.935	2	419.081	4	368.728	3	.111	4	.188	4	.23	4	
518		min	-367.89	1	-414.244	3	-258.728	4	-.139	3	-.313	3	-.277	3	
519	5	max	176.935	2	419.081	4	368.728	3	.111	4	.18	4	.217	4	
520		min	-367.89	1	-414.244	3	-258.728	4	-.139	3	-.301	3	-.263	3	
521	M68	1	max	272.925	3	317.019	1	308.418	2	.009	1	.158	4	.452	4
522		min	-490.658	4	-318.34	2	-310.055	1	-.009	2	-.111	3	-.328	3	
523	2	max	269.999	3	318.698	1	310.111	2	.009	1	.141	4	.351	4	
524		min	-487.733	4	-316.66	2	-311.749	1	-.009	2	-.093	3	-.225	3	
525	3	max	267.073	3	320.378	1	311.805	2	.009	1	.126	4	.251	4	
526		min	-484.807	4	-314.98	2	-313.443	1	-.009	2	-.076	3	-.124	3	
527	4	max	264.148	3	322.058	1	313.499	2	.009	1	.113	4	.378	2	



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

May 12, 2021
 2:19 PM
 Checked By: _____

9bj YcdYA Ya VYf GYVjcb: cfWVg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
528		min	-481.881	4	-313.3	2	-315.137	1	-.009	2	-.06	3	-.255	1	
529	5	max	261.222	3	323.738	1	315.193	2	.009	1	.102	4	.531	2	
530		min	-478.955	4	-311.621	2	-316.831	1	-.009	2	-.045	3	-.411	1	
531	M69	1	max	247.695	4	334.497	2	334.197	1	.01	2	.106	2	.519	2
532		min	-465.455	3	-338.016	1	-328.15	2	-.01	1	-.06	1	-.397	1	
533		2	max	250.613	4	336.177	2	332.517	1	.01	2	.108	2	.357	2
534		min	-468.373	3	-336.337	1	-326.47	2	-.01	1	-.061	1	-.233	1	
535		3	max	253.531	4	337.857	2	330.837	1	.01	2	.119	3	.262	3
536		min	-471.291	3	-334.657	1	-324.79	2	-.01	1	-.069	4	-.135	4	
537		4	max	256.449	4	339.536	2	329.157	1	.01	2	.133	3	.354	3
538		min	-474.209	3	-332.977	1	-323.11	2	-.01	1	-.082	4	-.229	4	
539		5	max	259.367	4	341.216	2	327.477	1	.01	2	.149	3	.446	3
540		min	-477.127	3	-331.298	1	-321.43	2	-.01	1	-.096	4	-.324	4	
541	M70	1	max	325.256	4	107.91	1	662.432	3	.061	1	.145	4	.247	2
542		min	-200.562	3	-851.061	9	-807.785	4	-.079	2	-.119	3	-.241	1	
543		2	max	325.256	4	107.91	1	662.432	3	.061	1	.109	4	.269	2
544		min	-200.562	3	-851.061	9	-807.785	4	-.079	2	-.089	3	-.245	1	
545		3	max	325.256	4	107.91	1	662.432	3	.061	1	.073	4	.292	2
546		min	-200.562	3	-851.061	9	-807.785	4	-.079	2	-.06	3	-.25	1	
547		4	max	325.256	4	107.91	1	662.432	3	.061	1	.036	4	.314	2
548		min	-200.562	3	-851.061	9	-807.785	4	-.079	2	-.03	3	-.255	1	
549		5	max	325.256	4	107.91	1	662.432	3	.061	1	0	2	.337	2
550		min	-200.562	3	-851.061	9	-807.785	4	-.079	2	0	1	-.26	1	
551	M71	1	max	331.482	3	139.488	1	817.782	3	.075	2	.121	4	.23	2
552		min	-208.923	4	-837.577	10	-671.204	4	-.058	1	-.147	3	-.221	1	
553		2	max	331.482	3	139.488	1	817.782	3	.075	2	.091	4	.253	2
554		min	-208.923	4	-837.577	10	-671.204	4	-.058	1	-.11	3	-.227	1	
555		3	max	331.482	3	139.488	1	817.782	3	.075	2	.06	4	.276	2
556		min	-208.923	4	-837.577	10	-671.204	4	-.058	1	-.074	3	-.234	1	
557		4	max	331.482	3	139.488	1	817.782	3	.075	2	.03	4	.299	2
558		min	-208.923	4	-837.577	10	-671.204	4	-.058	1	-.037	3	-.24	1	
559		5	max	331.482	3	139.488	1	817.782	3	.075	2	0	3	.321	2
560		min	-208.923	4	-837.577	10	-671.204	4	-.058	1	0	2	-.246	1	
561	M72	1	max	266.3	2	175.964	4	528.067	1	.046	4	.122	2	.178	3
562		min	-141.096	1	-570.95	3	-675.108	2	-.064	3	-.095	1	-.171	4	
563		2	max	266.3	2	175.964	4	528.067	1	.046	4	.091	2	.204	3
564		min	-141.096	1	-570.95	3	-675.108	2	-.064	3	-.071	1	-.179	4	
565		3	max	266.3	2	175.964	4	528.067	1	.046	4	.061	2	.229	3
566		min	-141.096	1	-570.95	3	-675.108	2	-.064	3	-.048	1	-.187	4	
567		4	max	266.3	2	175.964	4	528.067	1	.046	4	.03	2	.255	3
568		min	-141.096	1	-570.95	3	-675.108	2	-.064	3	-.024	1	-.195	4	
569		5	max	266.3	2	175.964	4	528.067	1	.046	4	0	4	.281	3
570		min	-141.096	1	-570.95	3	-675.108	2	-.064	3	0	1	-.203	4	
571	M73	1	max	277.957	1	122.792	2	720.24	1	.077	3	.103	2	.252	3
572		min	-151.875	2	-566.587	5	-570.562	2	-.058	4	-.13	1	-.241	4	
573		2	max	277.957	1	122.792	2	720.24	1	.077	3	.077	2	.268	3
574		min	-151.875	2	-566.874	5	-570.562	2	-.058	4	-.097	1	-.241	4	
575		3	max	277.957	1	122.792	2	720.24	1	.077	3	.051	2	.285	3
576		min	-151.875	2	-567.162	5	-570.562	2	-.058	4	-.065	1	-.241	4	
577		4	max	277.957	1	122.792	2	720.24	1	.077	3	.026	2	.302	3
578		min	-151.875	2	-567.449	5	-570.562	2	-.058	4	-.032	1	-.241	4	
579		5	max	277.957	1	122.792	2	720.24	1	.077	3	0	4	.319	3



9bj YcdYA Ya VYf GYVJcb: cfWVg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
580		min	-151.875	2	-567.736	5	-570.562	2	-.058	4	0	2	-.242	4	
581	M74	1	max	274.809	1	114.951	2	581.52	2	.056	3	.132	1	.264	4
582		min	-148.841	2	-543.344	5	-732.566	1	-.074	4	-.105	2	-.256	3	
583		2	max	274.809	1	114.951	2	581.52	2	.056	3	.099	1	.281	4
584		min	-148.841	2	-543.344	5	-732.566	1	-.074	4	-.079	2	-.255	3	
585		3	max	274.809	1	114.951	2	581.52	2	.056	3	.066	1	.297	4
586		min	-148.841	2	-543.344	5	-732.566	1	-.074	4	-.052	2	-.254	3	
587		4	max	274.809	1	114.951	2	581.52	2	.056	3	.033	1	.314	4
588		min	-148.841	2	-543.344	5	-732.566	1	-.074	4	-.026	2	-.253	3	
589		5	max	274.809	1	114.951	2	581.52	2	.056	3	0	3	.331	4
590		min	-148.841	2	-543.344	5	-732.566	1	-.074	4	0	4	-.252	3	
591	M75	1	max	295.224	2	196.344	3	692.123	2	.067	4	.098	1	.171	1
592		min	-170.383	1	-581.794	8	-546.935	1	-.048	3	-.125	2	-.161	3	
593		2	max	295.224	2	196.344	3	692.123	2	.067	4	.074	1	.196	4
594		min	-170.383	1	-582.082	8	-546.935	1	-.048	3	-.093	2	-.17	3	
595		3	max	295.224	2	196.344	3	692.123	2	.067	4	.049	1	.221	4
596		min	-170.383	1	-582.369	8	-546.935	1	-.048	3	-.062	2	-.179	3	
597		4	max	295.224	2	196.344	3	692.123	2	.067	4	.025	1	.247	4
598		min	-170.383	1	-582.656	8	-546.935	1	-.048	3	-.031	2	-.187	3	
599		5	max	295.224	2	196.344	3	692.123	2	.067	4	0	3	.272	4
600		min	-170.383	1	-582.943	8	-546.935	1	-.048	3	0	8	-.196	3	
601	M76	1	max	853.149	1	-84.191	4	932.791	2	.005	1	.194	1	.164	2
602		min	-795.471	2	-746.407	7	-1210.14	1	-.006	2	-.149	2	-.211	1	
603		2	max	853.149	1	-84.191	4	932.791	2	.005	1	.145	1	.175	2
604		min	-795.471	2	-746.407	7	-1210.14	1	-.006	2	-.112	2	-.2	1	
605		3	max	853.149	1	-84.191	4	932.791	2	.005	1	.097	1	.186	2
606		min	-795.471	2	-746.407	7	-1210.14	1	-.006	2	-.075	2	-.19	1	
607		4	max	853.149	1	-84.191	4	932.791	2	.005	1	.048	1	.198	2
608		min	-795.471	2	-746.407	7	-1210.14	1	-.006	2	-.037	2	-.179	1	
609		5	max	853.149	1	-84.191	4	932.791	2	.005	1	0	3	.209	2
610		min	-795.471	2	-746.407	7	-1210.14	1	-.006	2	0	2	-.169	1	
611	M77	1	max	840.149	1	-86.777	3	1150.07	1	.006	2	.14	2	.167	2
612		min	-780.64	2	-747.942	8	-872.132	2	-.005	1	-.184	1	-.214	1	
613		2	max	840.149	1	-86.777	3	1150.07	1	.006	2	.105	2	.178	2
614		min	-780.64	2	-747.942	8	-872.132	2	-.005	1	-.138	1	-.204	1	
615		3	max	840.149	1	-86.777	3	1150.07	1	.006	2	.07	2	.189	2
616		min	-780.64	2	-747.942	8	-872.132	2	-.005	1	-.092	1	-.194	1	
617		4	max	840.149	1	-86.777	3	1150.07	1	.006	2	.035	2	.201	2
618		min	-780.64	2	-747.942	8	-872.132	2	-.005	1	-.046	1	-.183	1	
619		5	max	840.149	1	-86.777	3	1150.07	1	.006	2	0	11	.212	2
620		min	-780.64	2	-747.942	8	-872.132	2	-.005	1	0	4	-.173	1	
621	M78	1	max	873.632	4	-109.91	2	741.346	1	.004	4	.158	2	.16	3
622		min	-819.141	3	-747.698	5	-989.647	2	-.005	3	-.119	1	-.207	4	
623		2	max	873.632	4	-109.91	2	741.346	1	.004	4	.119	2	.168	3
624		min	-819.141	3	-747.698	5	-989.647	2	-.005	3	-.089	1	-.193	4	
625		3	max	873.632	4	-109.91	2	741.346	1	.004	4	.079	2	.175	3
626		min	-819.141	3	-747.698	5	-989.647	2	-.005	3	-.059	1	-.178	4	
627		4	max	873.632	4	-109.91	2	741.346	1	.004	4	.04	2	.183	3
628		min	-819.141	3	-747.698	5	-989.647	2	-.005	3	-.03	1	-.164	4	
629		5	max	873.632	4	-109.91	2	741.346	1	.004	4	0	2	.19	3
630		min	-819.141	3	-747.698	5	-989.647	2	-.005	3	0	4	-.149	4	
631	M79	1	max	546.848	4	-132.479	1	1320.814	4	.007	3	.169	3	.126	3



9bj YcdYA Ya VYf GYVjcb : cfWVg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
632		min	-482.154	3	-737.351	6	-1056.683	3	-.005	4	-.211	4	-.174	4	
633	2	max	546.848	4	-132.479	1	1320.814	4	.007	3	.127	3	.141	3	
634		min	-482.154	3	-737.351	6	-1056.683	3	-.005	4	-.158	4	-.167	4	
635	3	max	546.848	4	-132.479	1	1320.814	4	.007	3	.084	3	.156	3	
636		min	-482.154	3	-737.351	6	-1056.683	3	-.005	4	-.106	4	-.16	4	
637	4	max	546.848	4	-132.479	1	1320.814	4	.007	3	.042	3	.172	3	
638		min	-482.154	3	-737.351	6	-1056.683	3	-.005	4	-.053	4	-.153	4	
639	5	max	546.848	4	-132.479	1	1320.814	4	.007	3	0	4	.187	3	
640		min	-482.154	3	-737.351	6	-1056.683	3	-.005	4	0	3	-.146	4	
641	M80	1	max	534.415	3	-125.212	1	1159.724	4	.003	3	.228	3	.124	4
642		min	-475.197	4	-737.715	6	-1423.07	3	-.003	4	-.186	4	-.172	3	
643	2	max	534.415	3	-125.212	1	1159.724	4	.003	3	.171	3	.139	4	
644		min	-475.197	4	-737.715	6	-1423.07	3	-.003	4	-.139	4	-.165	3	
645	3	max	534.415	3	-125.212	1	1159.724	4	.003	3	.114	3	.154	4	
646		min	-475.197	4	-737.715	6	-1423.07	3	-.003	4	-.093	4	-.158	3	
647	4	max	534.415	3	-125.212	1	1159.724	4	.003	3	.057	3	.17	4	
648		min	-475.197	4	-737.715	6	-1423.07	3	-.003	4	-.046	4	-.152	3	
649	5	max	534.415	3	-125.212	1	1159.724	4	.003	3	0	3	.185	4	
650		min	-475.197	4	-737.715	6	-1423.07	3	-.003	4	0	1	-.145	3	
651	M81	1	max	886.248	3	-116.402	2	955.312	2	.008	4	.113	1	.163	4
652		min	-825.422	4	-747.036	5	-705.405	1	-.006	3	-.153	2	-.209	3	
653	2	max	886.248	3	-116.402	2	955.312	2	.008	4	.085	1	.171	4	
654		min	-825.422	4	-747.036	5	-705.405	1	-.006	3	-.115	2	-.195	3	
655	3	max	886.248	3	-116.402	2	955.312	2	.008	4	.056	1	.179	4	
656		min	-825.422	4	-747.036	5	-705.405	1	-.006	3	-.076	2	-.181	3	
657	4	max	886.248	3	-116.402	2	955.312	2	.008	4	.028	1	.186	4	
658		min	-825.422	4	-747.036	5	-705.405	1	-.006	3	-.038	2	-.167	3	
659	5	max	886.248	3	-116.402	2	955.312	2	.008	4	0	3	.194	4	
660		min	-825.422	4	-747.036	5	-705.405	1	-.006	3	0	2	-.153	3	
661	M82	1	max	28.992	8	554.016	2	938.564	2	.013	2	.123	1	.091	2
662		min	-15.915	3	-383.814	1	-622.744	1	-.031	1	-.153	2	-.075	1	
663	2	max	28.992	8	554.016	2	938.564	2	.013	2	.096	1	.067	2	
664		min	-15.915	3	-383.814	1	-622.744	1	-.031	1	-.112	2	-.058	1	
665	3	max	28.992	8	554.016	2	938.564	2	.013	2	.069	1	.042	2	
666		min	-15.915	3	-383.814	1	-622.744	1	-.031	1	-.071	2	-.042	1	
667	4	max	28.992	8	554.016	2	938.564	2	.013	2	.041	1	.018	2	
668		min	-15.915	3	-383.814	1	-622.744	1	-.031	1	-.03	2	-.025	1	
669	5	max	28.992	8	554.016	2	938.564	2	.013	2	.03	3	.003	4	
670		min	-15.915	3	-383.814	1	-622.744	1	-.031	1	-.005	4	-.017	3	
671	M83	1	max	26.489	7	396.454	1	956.967	2	.033	1	.128	1	.078	1
672		min	-16.556	4	-566.782	4	-642.514	1	-.013	2	-.157	2	-.093	2	
673	2	max	26.489	7	396.454	1	956.967	2	.033	1	.1	1	.061	1	
674		min	-16.556	4	-566.782	4	-642.514	1	-.013	2	-.115	2	-.068	2	
675	3	max	26.489	7	396.454	1	956.967	2	.033	1	.072	1	.043	1	
676		min	-16.556	4	-566.782	4	-642.514	1	-.013	2	-.073	2	-.044	2	
677	4	max	26.489	7	396.454	1	956.967	2	.033	1	.044	1	.026	1	
678		min	-16.556	4	-566.782	4	-642.514	1	-.013	2	-.031	2	-.019	2	
679	5	max	26.489	7	396.454	1	956.967	2	.033	1	.032	4	.018	4	
680		min	-16.556	4	-566.782	4	-642.514	1	-.013	2	-.006	3	-.003	3	
681	M84	1	max	139.618	5	810.524	4	1330.804	1	.195	4	.35	6	.18	4
682		min	15.915	2	-810.934	3	-1961.004	2	-.194	3	-.13	1	-.178	3	
683	2	max	139.618	5	810.524	4	1330.804	1	.195	4	.297	6	.144	4	



9bj YcdYA Ya VYf GYVjcb : cfWVg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
684		min	15.915	2	-810.934	3	-1961.004	2	-.194	3	-.072	1	-.143	3	
685	3	max	139.618	5	810.524	4	1330.804	1	.195	4	.244	6	.109	4	
686		min	15.915	2	-810.934	3	-1961.004	2	-.194	3	-.014	1	-.108	3	
687	4	max	139.618	5	810.524	4	1330.804	1	.195	4	.191	6	.074	4	
688		min	15.915	2	-810.934	3	-1961.004	2	-.194	3	.044	1	-.072	3	
689	5	max	139.618	5	810.524	4	1330.804	1	.195	4	.168	5	.038	4	
690		min	15.915	2	-810.934	3	-1961.004	2	-.194	3	-.013	2	-.037	3	
691	M85	1	max	396.469	1	-2.909	3	675.296	1	.008	3	.021	3	.048	5
692		min	-565.216	2	-70.059	8	-989.666	2	-.082	5	-.045	4	-.005	3	
693	2	max	396.469	1	-2.909	3	675.296	1	.008	3	.048	3	.051	5	
694		min	-565.216	2	-70.109	8	-989.666	2	-.082	5	-.084	4	-.004	3	
695	3	max	396.469	1	72.158	7	897.566	3	.085	5	.024	1	.055	7	
696		min	-565.216	2	-70.16	8	-989.666	2	-.082	8	-.124	4	-.003	2	
697	4	max	383.827	1	72.107	7	971.311	2	.085	5	.047	4	.052	7	
698		min	-554.016	2	2.735	4	-655.423	1	-.009	4	-.082	3	-.005	4	
699	5	max	383.827	1	72.056	7	971.311	2	.085	5	.023	4	.049	7	
700		min	-554.016	2	2.735	4	-655.423	1	-.009	4	-.044	3	-.005	4	
701	M86	1	max	692.663	4	859.751	9	491.375	3	.165	9	.164	4	.553	2
702		min	-511.777	3	-99.144	1	-556.82	4	-.117	2	-.167	3	-.257	1	
703	2	max	690.771	4	858.603	9	488.064	3	.165	9	.112	4	.505	2	
704		min	-509.885	3	-100.292	1	-553.509	4	-.117	2	-.121	3	-.247	1	
705	3	max	688.879	4	857.454	9	484.753	3	.165	9	.06	4	.458	2	
706		min	-507.993	3	-101.441	1	-550.198	4	-.117	2	-.076	3	-.238	1	
707	4	max	686.987	4	856.306	9	481.442	3	.165	9	.008	4	.411	2	
708		min	-506.101	3	-102.589	1	-546.887	4	-.117	2	-.032	7	-.228	1	
709	5	max	685.094	4	855.157	9	478.131	3	.165	9	.015	3	.363	2	
710		min	-504.209	3	-103.737	1	-543.576	4	-.117	2	-.043	4	-.219	1	
711	M87	1	max	606.431	2	600.672	8	468.533	2	.1	1	.138	1	.544	4
712		min	-426.388	1	-187.812	3	-400.529	1	-.132	2	-.136	2	-.262	3	
713	2	max	604.52	2	598.255	8	467.418	2	.1	1	.1	1	.49	4	
714		min	-424.477	1	-188.96	3	-399.414	1	-.132	2	-.092	2	-.244	3	
715	3	max	602.608	2	595.838	8	466.303	2	.1	1	.063	1	.436	4	
716		min	-422.565	1	-190.108	3	-398.299	1	-.132	2	-.048	2	-.226	3	
717	4	max	600.697	2	593.422	8	465.189	2	.1	1	.035	7	.383	4	
718		min	-420.654	1	-191.257	3	-397.184	1	-.132	2	-.014	4	-.208	3	
719	5	max	598.785	2	591.005	8	464.074	2	.1	1	.042	6	.329	4	
720		min	-418.742	1	-192.405	3	-396.069	1	-.132	2	-.012	1	-.19	3	
721	M88	1	max	1394.957	1	758.276	8	389.271	2	.162	2	.33	1	.368	8
722		min	-1118.88	2	91.276	3	-348.51	1	-.194	1	-.308	2	.051	3	
723	2	max	1394.297	1	757.451	8	387.73	2	.162	2	.317	1	.339	8	
724		min	-1118.22	2	90.919	3	-346.968	1	-.194	1	-.293	2	.047	3	
725	3	max	1393.638	1	756.625	8	386.188	2	.162	2	.303	1	.309	8	
726		min	-1117.561	2	90.561	3	-345.427	1	-.194	1	-.278	2	.042	1	
727	4	max	1392.979	1	755.8	8	384.647	2	.162	2	.29	1	.282	6	
728		min	-1116.902	2	90.203	3	-343.885	1	-.194	1	-.263	2	.031	1	
729	5	max	1392.319	1	754.975	8	383.105	2	.162	2	.276	1	.254	6	
730		min	-1116.242	2	89.846	3	-342.344	1	-.194	1	-.248	2	.021	1	
731	M89	1	max	1173.605	1	754.862	8	754.96	2	.213	2	.276	1	.249	8
732		min	-897.154	2	89.681	3	-841.511	1	-.173	1	-.248	2	.029	3	
733	2	max	1173.488	1	753.104	8	751.08	2	.213	2	.207	1	.187	8	
734		min	-897.037	2	88.92	3	-837.631	1	-.173	1	-.185	2	.022	3	
735	3	max	1173.371	1	751.347	8	747.2	2	.213	2	.138	1	.124	8	



9bj YcdYA Ya VYf GYVJcb: cfWVg fT cbhji YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
736		min	-896.92	2	88.158	3	-833.751	1	-.173	1	-.123	2	.014	3	
737	4	max	1173.254	1	749.589	8	743.32	2	.213	2	.069	1	.062	8	
738		min	-896.803	2	87.397	3	-829.871	1	-.173	1	-.061	2	.007	3	
739	5	max	1173.137	1	747.831	8	739.44	2	.213	2	0	11	0	11	
740		min	-896.686	2	86.635	3	-825.991	1	-.173	1	0	1	0	1	
741	M90	1	max	1532.146	3	748.3	6	252.196	2	.157	3	.151	4	.374	8
742		min	-1268.478	4	132.089	1	-288.927	1	-.124	4	-.169	3	.031	3	
743	2	max	1531.27	3	747.475	6	251.028	2	.157	3	.151	4	.345	8	
744		min	-1267.603	4	131.732	1	-287.759	1	-.124	4	-.171	3	.024	3	
745	3	max	1530.395	3	746.65	6	249.86	2	.157	3	.151	4	.317	8	
746		min	-1266.728	4	131.374	1	-286.591	1	-.124	4	-.172	3	.017	3	
747	4	max	1529.52	3	745.824	6	248.692	2	.157	3	.151	4	.288	8	
748		min	-1265.853	4	131.016	1	-285.423	1	-.124	4	-.174	3	.01	3	
749	5	max	1528.645	3	744.999	6	247.524	2	.157	3	.151	4	.259	8	
750		min	-1264.978	4	130.659	1	-284.255	1	-.124	4	-.176	3	.003	3	
751	M91	1	max	1438.125	3	744.859	6	532.082	3	.145	3	.151	4	.247	6
752		min	-1176.223	4	130.748	1	-457.155	4	-.185	4	-.176	3	.043	1	
753	2	max	1436.379	3	743.091	6	529.256	3	.145	3	.113	4	.185	6	
754		min	-1174.477	4	129.982	1	-454.328	4	-.185	4	-.131	3	.032	1	
755	3	max	1434.632	3	741.323	6	526.43	3	.145	3	.075	4	.123	6	
756		min	-1172.73	4	129.216	1	-451.502	4	-.185	4	-.087	3	.021	1	
757	4	max	1432.885	3	739.555	6	523.603	3	.145	3	.037	4	.062	6	
758		min	-1170.983	4	128.45	1	-448.676	4	-.185	4	-.044	3	.011	1	
759	5	max	1431.138	3	737.788	6	520.777	3	.145	3	0	11	0	11	
760		min	-1169.236	4	127.684	1	-445.85	4	-.185	4	0	1	0	1	
761	M92	1	max	1184.441	4	69.66	6	10.363	1	0	6	0	1	.093	6
762		min	-1552.238	3	1.952	1	-20.324	2	0	1	-.044	8	-.023	1	
763	2	max	1177.307	4	53.285	6	6.224	1	0	6	.007	1	.042	2	
764		min	-1545.104	3	-1.151	1	-16.185	2	0	1	-.014	2	-.018	1	
765	3	max	1170.173	4	29.168	6	5.357	3	0	6	.015	5	.015	9	
766		min	-1537.97	3	-4.253	1	-15.552	4	0	1	-.006	2	-.014	3	
767	4	max	1163.039	4	20.545	2	17.652	3	0	6	.014	7	-.008	1	
768		min	-1530.836	3	-7.356	1	-27.848	4	0	1	-.007	4	-.028	6	
769	5	max	1155.905	4	17.442	2	29.948	3	0	6	.033	3	.007	3	
770		min	-1523.702	3	-27.137	5	-40.143	4	0	1	-.025	4	-.042	4	
771	M93	1	max	1023.033	2	24.809	2	71.423	8	0	9	.004	3	.021	3
772		min	-1402.643	1	-34.535	1	3.562	3	0	5	-.046	8	-.096	8	
773	2	max	1022.991	2	8.378	2	54.963	8	0	9	.007	3	.021	3	
774		min	-1402.601	1	-18.104	1	.46	3	0	5	-.014	4	-.044	4	
775	3	max	1022.95	2	2.991	3	30.527	8	0	9	.015	6	.018	3	
776		min	-1402.56	1	-14.869	8	-2.642	3	0	5	-.006	4	-.017	4	
777	4	max	1022.908	2	14.759	1	18.116	4	0	9	.014	5	.03	5	
778		min	-1402.518	1	-24.485	2	-7.165	7	0	5	-.003	2	.001	9	
779	5	max	1022.867	2	31.19	1	15.014	4	0	9	.035	1	.03	6	
780		min	-1402.477	1	-40.916	2	-29.017	7	0	5	-.028	2	0	9	
781	M94	1	max	864.44	4	855.243	9	132.022	4	.267	1	.015	3	.275	9
782		min	-693.601	3	-103.412	1	-44.668	3	-.346	2	-.043	4	-.034	1	
783	2	max	863.605	4	854.256	9	132.217	4	.267	1	.011	3	.206	9	
784		min	-692.765	3	-104.399	1	-44.863	3	-.346	2	-.032	4	-.026	1	
785	3	max	862.769	4	853.269	9	132.412	4	.267	1	.007	3	.137	9	
786		min	-691.929	3	-105.386	1	-45.058	3	-.346	2	-.021	4	-.017	1	
787	4	max	861.933	4	852.281	9	132.607	4	.267	1	.004	3	.069	9	



9bj YcdYA Ya VYf GYVjcb: cfWVg fT cbhji YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
788		min	-691.094	3	-106.374	1	-45.253	3	-.346	2	-.011	4	-.009	1	
789	5	max	861.098	4	851.294	9	132.802	4	.267	1	0	11	0	11	
790		min	-690.258	3	-107.361	1	-45.448	3	-.346	2	0	1	0	1	
791	M95	1	max	747.098	2	590.881	8	37.278	1	.28	4	.042	6	.188	8
792		min	-575.698	1	-192.962	3	-131.727	6	-.202	3	-.012	1	-.062	3	
793	2	max	746.06	2	588.733	8	36.965	1	.28	4	.032	6	.141	8	
794		min	-574.66	1	-193.943	3	-131.658	6	-.202	3	-.009	1	-.047	3	
795	3	max	745.022	2	586.586	8	36.652	1	.28	4	.021	6	.094	8	
796		min	-573.622	1	-194.925	3	-131.589	6	-.202	3	-.006	1	-.031	3	
797	4	max	743.984	2	584.438	8	36.339	1	.28	4	.011	6	.047	8	
798		min	-572.584	1	-195.906	3	-131.521	6	-.202	3	-.003	1	-.016	3	
799	5	max	742.946	2	582.29	8	36.026	1	.28	4	0	11	0	11	
800		min	-571.546	1	-196.888	3	-131.452	6	-.202	3	0	1	0	1	
801	M96	1	max	173.634	1	-90.988	3	1425.698	1	-.04	1	.308	2	.135	2
802		min	-259.235	2	-757.841	8	-1157.595	2	-.363	6	-.33	1	-.2	1	
803	2	max	906.796	1	-108.447	3	229.572	1	-.083	2	.276	1	.432	6	
804		min	-812.117	2	-799.674	8	-295.481	2	-.416	5	-.188	2	-.137	1	
805	3	max	915.513	1	-117.322	3	234.597	1	-.083	2	.426	1	.929	6	
806		min	-820.833	2	-823.325	8	-300.506	2	-.416	5	-.381	2	.041	1	
807	4	max	924.23	1	-126.198	3	239.622	1	-.083	2	.579	1	1.454	8	
808		min	-829.55	2	-846.977	8	-305.531	2	-.416	5	-.576	2	.176	3	
809	5	max	932.947	1	-135.074	3	244.648	1	-.083	2	.735	1	2.008	8	
810		min	-838.267	2	-870.621	8	-310.556	2	-.416	5	-.775	2	.26	3	
811	M97	1	max	596.666	3	860.486	6	337.949	4	.415	7	.943	3	2.017	8
812		min	-502.147	4	177.701	1	-270.258	3	.084	4	-.988	4	.22	3	
813	2	max	587.936	3	837.216	6	322.851	4	.415	7	.774	3	1.476	8	
814		min	-493.418	4	168.826	1	-255.16	3	.084	4	-.775	4	.085	3	
815	3	max	579.207	3	813.648	6	307.753	4	.415	7	.614	3	.95	8	
816		min	-484.688	4	159.95	1	-240.063	3	.084	4	-.571	4	-.044	3	
817	4	max	570.477	3	790.081	6	292.655	4	.415	7	.464	3	.463	4	
818		min	-475.958	4	151.074	1	-224.965	3	.084	4	-.378	4	-.168	3	
819	5	max	201.634	2	747.699	6	1260.594	4	.371	8	.151	4	.094	4	
820		min	-269.357	1	131.752	1	-1516.168	3	.012	3	-.169	3	-.159	3	
821	M98	1	max	27.835	7	1402.524	1	38.385	2	.022	1	.005	1	.217	1
822		min	-14.782	4	-1022.964	2	-27.65	1	-.041	2	-.007	2	-.18	2	
823	2	max	27.835	7	1402.524	1	38.385	2	.022	1	.004	1	.156	1	
824		min	-14.782	4	-1022.964	2	-27.65	1	-.041	2	-.005	2	-.135	2	
825	3	max	27.835	7	1402.524	1	38.385	2	.022	1	.003	1	.095	1	
826		min	-14.782	4	-1022.964	2	-27.65	1	-.041	2	-.003	2	-.091	2	
827	4	max	27.835	7	1402.524	1	38.385	2	.022	1	.002	1	.034	1	
828		min	-14.782	4	-1022.964	2	-27.65	1	-.041	2	-.002	2	-.046	2	
829	5	max	27.835	7	1402.524	1	38.385	2	.022	1	0	1	0	9	
830		min	-14.782	4	-1022.964	2	-27.65	1	-.041	2	0	9	-.028	1	
831	M99	1	max	26.505	5	740.773	3	1331.797	3	.048	4	.188	4	.12	3
832		min	-17.597	2	-543.793	4	-1020.894	4	-.028	3	-.216	3	-.101	4	
833	2	max	26.505	5	740.773	3	1331.797	3	.048	4	.144	4	.087	3	
834		min	-17.597	2	-543.793	4	-1020.894	4	-.028	3	-.158	3	-.077	4	
835	3	max	26.505	5	740.773	3	1331.797	3	.048	4	.099	4	.055	3	
836		min	-17.597	2	-543.793	4	-1020.894	4	-.028	3	-.1	3	-.053	4	
837	4	max	26.505	5	740.773	3	1331.797	3	.048	4	.055	4	.023	3	
838		min	-17.597	2	-543.793	4	-1020.894	4	-.028	3	-.042	3	-.029	4	
839	5	max	26.505	5	740.773	3	1331.797	3	.048	4	.026	2	0	1	



9bj YcdYA Ya VYf GYVjcb: cfWVg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
840		min	-17.597	2	-543.793	4	-1020.894	4	-.028	3	0	1	-.015	2	
841	M100	1	max	138.657	8	1379.601	1	1329.552	3	.149	2	.139	4	.297	5
842		min	17.258	3	-814.589	2	-1009.341	4	-.15	1	-.241	3	-.091	2	
843		2	max	138.657	8	1379.601	1	1329.552	3	.149	2	.095	4	.255	5
844		min	17.258	3	-814.589	2	-1009.341	4	-.15	1	-.183	3	-.056	2	
845		3	max	138.657	8	1379.601	1	1329.552	3	.149	2	.051	4	.213	5
846		min	17.258	3	-814.589	2	-1009.341	4	-.15	1	-.131	7	-.02	2	
847		4	max	138.657	8	1379.601	1	1329.552	3	.149	2	.016	1	.171	5
848		min	17.258	3	-814.589	2	-1009.341	4	-.15	1	-.102	6	.015	2	
849		5	max	138.657	8	1379.601	1	1329.552	3	.149	2	.017	1	.146	8
850		min	17.258	3	-814.589	2	-1009.341	4	-.15	1	-.084	6	-.014	3	
851	M101	1	max	583.939	4	-1.927	1	1031.665	4	.015	1	.016	1	.048	6
852		min	-754.483	3	-69.904	6	-1355.449	3	-.084	6	-.039	2	-.009	1	
853		2	max	583.939	4	-1.927	1	1031.665	4	.015	1	.025	4	.051	6
854		min	-754.483	3	-69.955	6	-1355.449	3	-.084	6	-.062	3	-.008	1	
855		3	max	583.939	4	71.646	8	1233.603	1	.087	8	.082	2	.056	8
856		min	-754.483	3	-70.005	6	-1355.449	3	-.084	6	-.132	1	-.008	3	
857		4	max	487.853	2	71.596	8	1233.603	1	.087	8	.044	2	.053	8
858		min	-668.276	1	3.603	3	-899.635	2	-.015	3	-.08	1	-.009	3	
859		5	max	487.853	2	71.545	8	1233.603	1	.087	8	.013	3	.05	8
860		min	-668.276	1	3.603	3	-899.635	2	-.015	3	-.035	5	-.009	3	
861	M102	1	max	582.073	2	578.353	3	390.449	1	.139	2	.134	2	.551	3
862		min	-399.522	1	-167.637	4	-456.194	2	-.101	1	-.138	1	-.254	4	
863		2	max	580.178	2	577.209	3	389.355	1	.139	2	.092	2	.497	3
864		min	-397.627	1	-168.781	4	-455.099	2	-.101	1	-.102	1	-.238	4	
865		3	max	578.282	2	576.064	3	388.261	1	.139	2	.049	2	.443	3
866		min	-395.731	1	-169.926	4	-454.005	2	-.101	1	-.065	1	-.223	4	
867		4	max	576.387	2	574.92	3	387.166	1	.139	2	.007	2	.39	3
868		min	-393.836	1	-171.07	4	-452.911	2	-.101	1	-.032	8	-.207	4	
869		5	max	574.492	2	573.775	3	386.072	1	.139	2	.007	1	.336	3
870		min	-391.941	1	-172.215	4	-451.816	2	-.101	1	-.04	6	-.191	4	
871	M103	1	max	705.595	3	846.248	10	559.316	3	.107	2	.167	4	.545	2
872		min	-525.745	4	-130.492	1	-492.458	4	-.159	10	-.165	3	-.264	1	
873		2	max	703.687	3	845.095	10	556.011	3	.107	2	.12	4	.497	2
874		min	-523.837	4	-131.645	1	-489.153	4	-.159	10	-.112	3	-.252	1	
875		3	max	701.779	3	843.943	10	552.705	3	.107	2	.075	4	.448	2
876		min	-521.929	4	-132.797	1	-485.848	4	-.159	10	-.06	3	-.239	1	
877		4	max	699.87	3	842.791	10	549.4	3	.107	2	.032	8	.4	2
878		min	-520.02	4	-133.949	1	-482.542	4	-.159	10	-.008	3	-.227	1	
879		5	max	697.962	3	841.638	10	546.095	3	.107	2	.043	3	.352	2
880		min	-518.112	4	-135.102	1	-479.237	4	-.159	10	-.016	4	-.214	1	
881	M104	1	max	1442.276	4	747.849	6	305.414	1	.127	3	.172	2	.373	7
882		min	-1176.354	3	139.507	1	-267.822	2	-.158	4	-.158	1	.031	4	
883		2	max	1441.401	4	747.023	6	304.246	1	.127	3	.169	4	.344	7
884		min	-1175.479	3	139.15	1	-266.655	2	-.158	4	-.15	3	.024	4	
885		3	max	1440.526	4	746.198	6	303.078	1	.127	3	.17	4	.316	7
886		min	-1174.604	3	138.792	1	-265.487	2	-.158	4	-.149	3	.017	4	
887		4	max	1439.651	4	745.373	6	301.91	1	.127	3	.17	4	.287	7
888		min	-1173.729	3	138.435	1	-264.319	2	-.158	4	-.148	3	.01	4	
889		5	max	1438.776	4	744.547	6	300.742	1	.127	3	.171	4	.258	7
890		min	-1172.854	3	138.077	1	-263.151	2	-.158	4	-.146	3	.003	4	
891	M105	1	max	1345.294	4	744.409	6	447.369	3	.187	3	.171	4	.246	6



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

May 12, 2021
 2:19 PM
 Checked By: _____

9bj YcdYA Ya VYf GYVJcb : cfWVg fT cbhji YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
892		min	-1081.429	3	138.162	1	-521.562	4	-.146	4	-.146	3	.045	1	
893	2	max	1343.557	4	742.651	6	444.559	3	.187	3	.128	4	.184	6	
894		min	-1079.692	3	137.4	1	-518.752	4	-.146	4	-.11	3	.034	1	
895	3	max	1341.82	4	740.894	6	441.75	3	.187	3	.085	4	.123	6	
896		min	-1077.955	3	136.639	1	-515.943	4	-.146	4	-.073	3	.023	1	
897	4	max	1340.083	4	739.136	6	438.94	3	.187	3	.042	4	.061	6	
898		min	-1076.218	3	135.877	1	-513.133	4	-.146	4	-.036	3	.011	1	
899	5	max	1338.346	4	737.378	6	436.131	3	.187	3	0	11	0	11	
900		min	-1074.481	3	135.116	1	-510.324	4	-.146	4	0	1	0	1	
901	M106	1	max	1455.373	1	756.885	7	337.462	1	.191	1	.312	2	.369	7
902		min	-1180.503	2	88.716	4	-378.758	2	-.158	2	-.334	1	.049	4	
903	2	max	1454.713	1	756.06	7	335.92	1	.191	1	.297	2	.34	7	
904		min	-1179.844	2	88.359	4	-377.216	2	-.158	2	-.321	1	.045	4	
905	3	max	1454.054	1	755.234	7	334.379	1	.191	1	.282	2	.31	7	
906		min	-1179.185	2	88.001	4	-375.675	2	-.158	2	-.308	1	.042	4	
907	4	max	1453.394	1	754.409	7	332.837	1	.191	1	.268	2	.282	6	
908		min	-1178.525	2	87.644	4	-374.133	2	-.158	2	-.295	1	.035	1	
909	5	max	1452.735	1	753.584	7	331.296	1	.191	1	.253	2	.254	6	
910		min	-1177.866	2	87.286	4	-372.592	2	-.158	2	-.282	1	.024	1	
911	M107	1	max	1233.953	1	753.471	7	854.638	1	.169	1	.253	2	.25	7
912		min	-958.041	2	87.131	4	-766.915	2	-.209	2	-.282	1	.029	4	
913	2	max	1233.835	1	751.703	7	850.735	1	.169	1	.189	2	.187	7	
914		min	-957.924	2	86.365	4	-763.013	2	-.209	2	-.211	1	.021	4	
915	3	max	1233.718	1	749.935	7	846.833	1	.169	1	.126	2	.125	7	
916		min	-957.807	2	85.599	4	-759.11	2	-.209	2	-.141	1	.014	4	
917	4	max	1233.601	1	748.167	7	842.931	1	.169	1	.063	2	.062	7	
918		min	-957.69	2	84.833	4	-755.208	2	-.209	2	-.07	1	.007	4	
919	5	max	1233.484	1	746.4	7	839.028	1	.169	1	0	11	0	11	
920		min	-957.573	2	84.067	4	-751.305	2	-.209	2	0	1	0	1	
921	M108	1	max	1104.655	2	69.21	7	24.785	2	0	5	.003	4	.092	7
922		min	-1483.731	1	3.801	4	-34.939	1	0	10	-.044	7	-.021	4	
923	2	max	1104.62	2	52.835	7	8.35	2	0	5	.007	4	.044	3	
924		min	-1483.696	1	.699	4	-18.504	1	0	10	-.014	3	-.02	4	
925	3	max	1104.585	2	28.718	7	2.896	4	0	5	.015	6	.017	3	
926		min	-1483.661	1	-2.404	4	-14.431	7	0	10	-.006	3	-.017	4	
927	4	max	1104.55	2	18.677	3	14.365	1	0	5	.014	5	-.002	10	
928		min	-1483.626	1	-5.979	8	-24.519	2	0	10	-.004	2	-.029	5	
929	5	max	1104.514	2	15.574	3	30.8	1	0	5	.036	1	0	10	
930		min	-1483.591	1	-26.648	8	-40.954	2	0	10	-.028	2	-.031	6	
931	M109	1	max	1075.405	3	10.768	1	71.809	6	0	3	0	1	.025	1
932		min	-1444.716	4	-20.251	2	1.588	1	0	8	-.046	7	-.097	6	
933	2	max	1068.269	3	6.625	1	55.35	6	0	3	.007	1	.019	1	
934		min	-1437.58	4	-16.108	2	-1.514	1	0	8	-.014	2	-.041	2	
935	3	max	1061.134	3	5.286	4	30.913	6	0	3	.015	5	.014	4	
936		min	-1430.444	4	-15.372	7	-4.616	1	0	8	-.006	2	-.014	10	
937	4	max	1053.998	3	17.573	4	20.033	2	0	3	.015	8	.029	6	
938		min	-1423.309	4	-27.287	3	-7.718	1	0	8	-.006	3	.008	1	
939	5	max	1046.863	3	29.861	4	16.931	2	0	3	.032	4	.041	3	
940		min	-1416.173	4	-39.574	3	-29.561	5	0	8	-.025	3	-.007	4	
941	M110	1	max	721.881	2	572.538	3	125.691	6	.208	4	.007	1	.184	3
942		min	-550.202	1	-173.035	4	-22.875	1	-.288	3	-.04	6	-.056	4	
943	2	max	720.833	2	571.551	3	125.621	6	.208	4	.005	1	.138	3	



9bj YcdYA Ya VYf GYVjcb : cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
944		min	-549.154	1	-174.023	4	-22.557	1	-.288	3	-.03	6	-.042	4	
945	3	max	719.785	2	570.564	3	125.552	6	.208	4	.004	1	.092	3	
946		min	-548.106	1	-175.01	4	-22.24	1	-.288	3	-.02	6	-.028	4	
947	4	max	718.737	2	569.577	3	125.482	6	.208	4	.002	1	.046	3	
948		min	-547.058	1	-175.997	4	-21.922	1	-.288	3	-.01	6	-.014	4	
949	5	max	717.688	2	568.589	3	125.412	6	.208	4	0	11	0	11	
950		min	-546.009	1	-176.984	4	-21.604	1	-.288	3	0	1	0	1	
951	M111	1	max	875.824	3	841.73	10	50.024	4	.33	2	.043	3	.269	10
952		min	-704.168	4	-134.528	1	-134.689	3	-.253	1	-.016	4	-.044	1	
953	2	max	874.988	3	840.748	10	50.22	4	.33	2	.032	3	.202	10	
954		min	-703.332	4	-135.51	1	-134.885	3	-.253	1	-.012	4	-.033	1	
955	3	max	874.153	3	839.767	10	50.416	4	.33	2	.022	3	.134	10	
956		min	-702.497	4	-136.491	1	-135.081	3	-.253	1	-.008	4	-.022	1	
957	4	max	873.318	3	838.785	10	50.612	4	.33	2	.011	3	.067	10	
958		min	-701.662	4	-137.473	1	-135.277	3	-.253	1	-.004	4	-.011	1	
959	5	max	872.482	3	837.804	10	50.808	4	.33	2	0	11	0	11	
960		min	-700.826	4	-138.454	1	-135.473	3	-.253	1	0	1	0	1	
961	M112	1	max	216.656	2	-139.123	1	1429.915	4	-.012	4	.158	1	.096	3
962		min	-285.806	1	-747.254	6	-1171.915	3	-.37	7	-.172	2	-.161	4	
963	2	max	552.233	4	-158.799	1	232.056	4	-.098	3	.435	4	.452	3	
964		min	-456.198	3	-791.866	6	-298.458	3	-.412	8	-.347	3	-.159	4	
965	3	max	560.952	4	-167.67	1	247.157	4	-.098	3	.589	4	.949	7	
966		min	-464.917	3	-816.446	6	-313.56	3	-.412	8	-.544	3	-.033	4	
967	4	max	569.671	4	-176.541	1	262.259	4	-.098	3	.754	4	1.478	7	
968		min	-473.636	3	-841.025	6	-328.661	3	-.412	8	-.751	3	.099	4	
969	5	max	578.39	4	-185.413	1	277.361	4	-.098	3	.928	4	2.023	7	
970		min	-482.355	3	-863.677	6	-343.763	3	-.412	8	-.968	3	.236	4	
971	M113	1	max	954.811	1	860.448	7	300.583	2	.418	5	.729	1	2	7
972		min	-861.786	2	132.257	4	-233.632	1	.069	2	-.772	2	.25	4	
973	2	max	946.084	1	842.5	7	295.544	2	.418	5	.58	1	1.45	7	
974		min	-853.058	2	123.376	4	-228.593	1	.069	2	-.58	2	.167	4	
975	3	max	937.356	1	820.396	7	290.505	2	.418	5	.434	1	.925	6	
976		min	-844.331	2	114.496	4	-223.554	1	.069	2	-.391	2	.042	1	
977	4	max	928.629	1	795.126	7	285.466	2	.418	5	.291	1	.431	6	
978		min	-835.603	2	105.616	4	-218.515	1	.069	2	-.205	2	-.139	1	
979	5	max	153.968	1	756.454	7	1217.787	2	.362	6	.312	2	.131	2	
980		min	-241.21	2	88.425	4	-1484.378	1	.044	1	-.334	1	-.198	1	
981	M114	1	max	29.358	5	687.238	4	925.981	3	.028	4	.201	4	.111	4
982		min	-16.72	2	-490.045	3	-1238.573	4	-.046	3	-.171	3	-.091	3	
983	2	max	29.358	5	687.238	4	925.981	3	.028	4	.147	4	.081	4	
984		min	-16.72	2	-490.045	3	-1238.573	4	-.046	3	-.131	3	-.07	3	
985	3	max	29.358	5	687.238	4	925.981	3	.028	4	.093	4	.051	4	
986		min	-16.72	2	-490.045	3	-1238.573	4	-.046	3	-.091	3	-.048	3	
987	4	max	29.358	5	687.238	4	925.981	3	.028	4	.039	4	.021	4	
988		min	-16.72	2	-490.045	3	-1238.573	4	-.046	3	-.05	3	-.027	3	
989	5	max	29.358	5	687.238	4	925.981	3	.028	4	0	1	0	1	
990		min	-16.72	2	-490.045	3	-1238.573	4	-.046	3	-.025	2	-.015	2	
991	M115	1	max	26.337	8	1483.642	1	27.837	1	.041	2	.007	2	.229	1
992		min	-15.694	3	-1104.603	2	-38.527	2	-.021	1	-.005	1	-.193	2	
993	2	max	26.337	8	1483.642	1	27.837	1	.041	2	.005	2	.165	1	
994		min	-15.694	3	-1104.603	2	-38.527	2	-.021	1	-.004	1	-.145	2	
995	3	max	26.337	8	1483.642	1	27.837	1	.041	2	.003	2	.1	1	



9bj YcdYA Ya VYf GYVjcb : cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
996		min	-15.694	3	-1104.603	2	-38.527	2	-.021	1	-.003	1	-.097	2	
997	4	max	26.337	8	1483.642	1	27.837	1	.041	2	.002	2	.035	1	
998		min	-15.694	3	-1104.603	2	-38.527	2	-.021	1	-.002	1	-.049	2	
999	5	max	26.337	8	1483.642	1	27.837	1	.041	2	0	10	0	10	
1000		min	-15.694	3	-1104.603	2	-38.527	2	-.021	1	0	1	-.03	1	
1001	M116	1	max	132.841	7	1455.369	1	914.114	3	.159	1	.222	4	.298	5
1002		min	-2.5	4	-889.838	2	-1236.274	4	-.156	2	-.122	3	-.105	2	
1003	2	max	132.841	7	1455.369	1	914.114	3	.159	1	.169	4	.256	5	
1004		min	-2.5	4	-889.838	2	-1236.274	4	-.156	2	-.082	3	-.066	2	
1005	3	max	132.841	7	1455.369	1	914.114	3	.159	1	.132	8	.213	5	
1006		min	-2.5	4	-889.838	2	-1236.274	4	-.156	2	-.043	3	-.027	2	
1007	4	max	132.841	7	1455.369	1	914.114	3	.159	1	.105	6	.17	5	
1008		min	-2.5	4	-889.838	2	-1236.274	4	-.156	2	-.015	1	.012	2	
1009	5	max	132.841	7	1455.369	1	914.114	3	.159	1	.087	6	.144	7	
1010		min	-2.5	4	-889.838	2	-1236.274	4	-.156	2	-.015	1	-.013	4	
1011	M117	1	max	528.716	2	-3.879	4	970.228	2	.015	4	.012	4	.048	7
1012		min	-708.934	1	-69.339	7	-1303.841	1	-.084	7	-.035	3	-.008	4	
1013	2	max	528.716	2	-3.879	4	970.228	2	.015	4	.047	2	.051	7	
1014		min	-708.934	1	-69.39	7	-1303.841	1	-.084	7	-.084	1	-.008	4	
1015	3	max	528.716	2	72.177	6	1262.627	4	.087	6	.088	2	.056	6	
1016		min	-708.934	1	-69.441	7	-1303.841	1	-.084	7	-.139	1	-.008	4	
1017	4	max	528.681	3	72.126	6	1262.627	4	.087	6	.022	3	.053	6	
1018		min	-700.777	4	1.567	1	-937.611	3	-.016	1	-.058	4	-.009	1	
1019	5	max	528.681	3	72.076	6	1262.627	4	.087	6	.017	1	.05	6	
1020		min	-700.777	4	1.567	1	-937.611	3	-.016	1	-.039	2	-.009	1	
1021	MP	1	max	0	11	.076	4	.063	5	0	11	0	11	0	11
1022		min	0	1	-.11	7	-.041	2	0	1	0	1	0	1	1
1023	2	max	1281.239	4	262.514	4	245.709	1	.055	3	.287	2	.378	4	
1024		min	-865.217	3	-203.333	3	-278.119	2	-.053	4	-.231	1	-.278	3	
1025	3	max	1294.387	4	289.453	4	272.647	1	.055	3	.287	1	.156	3	
1026		min	-852.068	3	-230.271	3	-305.057	2	-.053	4	-.296	2	-.174	4	
1027	4	max	-13.148	10	27.045	3	26.96	2	0	11	.027	1	.027	3	
1028		min	-30.793	5	-27.019	4	-26.976	1	0	1	-.027	2	-.027	4	
1029	5	max	0	11	.131	7	.045	4	0	11	0	11	0	11	
1030		min	0	1	-.08	4	-.074	7	0	1	0	1	0	1	
1031	M110A	1	max	975.931	4	1102.817	8	971.864	1	1.08	1	.941	2	1.073	3
1032		min	-842.283	3	378.609	3	-966.711	2	-1.066	2	-.945	1	-.752	4	
1033	2	max	975.931	4	1102.817	8	971.864	1	1.08	1	.874	2	1.047	3	
1034		min	-842.283	3	378.609	3	-966.711	2	-1.066	2	-.878	1	-.784	4	
1035	3	max	975.931	4	1102.817	8	971.864	1	1.08	1	.807	2	1.02	3	
1036		min	-842.283	3	378.609	3	-966.711	2	-1.066	2	-.811	1	-.817	4	
1037	4	max	975.931	4	1102.817	8	971.864	1	1.08	1	.74	2	.994	3	
1038		min	-842.283	3	378.609	3	-966.711	2	-1.066	2	-.744	1	-.85	4	
1039	5	max	975.931	4	1102.817	8	971.864	1	1.08	1	.674	2	.968	3	
1040		min	-842.283	3	378.609	3	-966.711	2	-1.066	2	-.677	1	-.882	4	
1041	M111A	1	max	65.148	4	54.031	3	244.276	2	.903	1	.165	1	.306	3
1042		min	-199.41	7	-35.381	4	-250.613	1	-.895	2	-.16	2	-.163	4	
1043	2	max	65.148	4	54.031	3	244.276	2	.903	1	.151	1	.303	3	
1044		min	-199.41	7	-35.381	4	-250.613	1	-.895	2	-.146	2	-.161	4	
1045	3	max	65.148	4	54.031	3	244.276	2	.903	1	.137	1	.3	3	
1046		min	-199.41	7	-35.381	4	-250.613	1	-.895	2	-.132	2	-.159	4	
1047	4	max	65.148	4	54.031	3	244.276	2	.903	1	.122	1	.297	3	



9bj YcdYA Ya VYf GYVjcb : cfWkg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
1048		min	-199.41	7	-35.381	4	-250.613	1	-.895	2	-.118	2	-.157	4	
1049	5	max	65.148	4	54.031	3	244.276	2	.903	1	.108	1	.293	3	
1050		min	-199.41	7	-35.381	4	-250.613	1	-.895	2	-.104	2	-.155	4	
1051	MPB	1	max	0	.11	8	.063	5	0	11	0	11	0	11	
1052		min	0	1	-.077	3	-.04	2	0	1	0	1	0	1	
1053	2	max	1298.065	3	206.778	4	241.673	1	.05	3	.287	2	.284	4	
1054		min	-881.756	4	-263.9	3	-277.778	2	-.052	4	-.225	1	-.382	3	
1055	3	max	1311.213	3	233.716	4	268.612	1	.05	3	.285	1	.173	3	
1056		min	-868.608	4	-290.839	3	-304.716	2	-.052	4	-.296	2	-.156	4	
1057	4	max	-13.148	10	27.02	3	26.96	2	0	11	.027	1	.027	3	
1058		min	-30.793	5	-27.045	4	-26.975	1	0	1	-.027	2	-.027	4	
1059	5	max	0	11	.081	3	.045	3	0	11	0	11	0	11	
1060		min	0	1	-.131	8	-.074	8	0	1	0	1	0	1	
1061	M113A	1	max	977.749	3	1105.271	7	966.591	2	1.066	2	.936	1	1.077	4
1062		min	-844.265	4	366.798	4	-962.85	1	-1.061	1	-.939	2	-.757	3	
1063	2	max	977.749	3	1105.271	7	966.591	2	1.066	2	.87	1	1.052	4	
1064		min	-844.265	4	366.798	4	-962.85	1	-1.061	1	-.872	2	-.791	3	
1065	3	max	977.749	3	1105.271	7	966.591	2	1.066	2	.803	1	1.027	4	
1066		min	-844.265	4	366.798	4	-962.85	1	-1.061	1	-.806	2	-.824	3	
1067	4	max	977.749	3	1105.271	7	966.591	2	1.066	2	.737	1	1.001	4	
1068		min	-844.265	4	366.798	4	-962.85	1	-1.061	1	-.739	2	-.857	3	
1069	5	max	977.749	3	1105.271	7	966.591	2	1.066	2	.671	1	.976	4	
1070		min	-844.265	4	366.798	4	-962.85	1	-1.061	1	-.672	2	-.891	3	
1071	M114A	1	max	62.665	3	65.59	4	241.718	1	.894	2	.159	2	.307	4
1072		min	-199.154	8	-47.089	3	-244.364	2	-.89	1	-.157	1	-.164	3	
1073	2	max	62.665	3	65.59	4	241.718	1	.894	2	.144	2	.303	4	
1074		min	-199.154	8	-47.089	3	-244.364	2	-.89	1	-.143	1	-.162	3	
1075	3	max	62.665	3	65.59	4	241.718	1	.894	2	.13	2	.299	4	
1076		min	-199.154	8	-47.089	3	-244.364	2	-.89	1	-.129	1	-.159	3	
1077	4	max	62.665	3	65.59	4	241.718	1	.894	2	.116	2	.295	4	
1078		min	-199.154	8	-47.089	3	-244.364	2	-.89	1	-.115	1	-.156	3	
1079	5	max	62.665	3	65.59	4	241.718	1	.894	2	.102	2	.292	4	
1080		min	-199.154	8	-47.089	3	-244.364	2	-.89	1	-.102	1	-.153	3	
1081	MP2A	1	max	0	.234	4	.665	1	0	11	0	11	0	11	
1082		min	0	1	-.233	3	-1.301	6	0	1	0	1	0	1	
1083	2	max	1234.74	2	260.888	4	501.723	1	.043	4	.739	1	.334	3	
1084		min	-1472.559	1	-263.387	3	-501.875	2	-.043	3	-.74	2	-.334	4	
1085	3	max	1337.888	2	361.904	4	269.444	1	.043	4	.073	1	.335	3	
1086		min	-1369.411	1	-364.403	3	-202.977	2	-.043	3	-.053	2	-.334	4	
1087	4	max	-86.828	10	231.475	3	501.671	2	0	11	.739	1	.334	3	
1088		min	-299.86	5	-231.476	4	-501.51	1	0	1	-.739	2	-.334	4	
1089	5	max	0	11	.035	4	1.189	6	0	11	0	11	0	11	
1090		min	0	1	-.035	3	-.453	1	0	1	0	1	0	1	
1091	M110B	1	max	284.912	1	1555.565	1	29.503	4	.646	3	.072	3	.357	5
1092		min	-395.142	2	-1154.663	2	-31.962	3	-.642	4	-.07	4	-.016	2	
1093	2	max	284.912	1	1555.565	1	29.503	4	.646	3	.065	3	.246	2	
1094		min	-395.142	2	-1154.663	2	-31.962	3	-.642	4	-.063	4	-.086	1	
1095	3	max	284.912	1	1555.565	1	29.503	4	.646	3	.058	3	.507	2	
1096		min	-395.142	2	-1154.663	2	-31.962	3	-.642	4	-.057	4	-.439	1	
1097	4	max	284.912	1	1555.565	1	29.503	4	.646	3	.051	3	.769	2	
1098		min	-395.142	2	-1154.663	2	-31.962	3	-.642	4	-.05	4	-.791	1	
1099	5	max	284.912	1	1555.565	1	29.503	4	.646	3	.043	3	1.031	2	



9bj YcdYA Ya Vyf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
1100		min	-395.142	2	-1154.663	2	-31.962	3	-.642	4	-.043	4	-1.143	1	
1101	M111B	1	max	863.419	1	1530.807	2	684.759	3	.492	3	.662	4	.803	2
1102		min	-753.235	2	-1175.232	1	-682.285	4	-.487	4	-.664	3	-.601	1	
1103		2	max	863.419	1	1530.807	2	684.759	3	.492	3	.507	4	.456	2
1104		min	-753.235	2	-1175.232	1	-682.285	4	-.487	4	-.509	3	-.335	1	
1105		3	max	863.419	1	1530.807	2	684.759	3	.492	3	.352	4	.109	2
1106		min	-753.235	2	-1175.232	1	-682.285	4	-.487	4	-.354	3	-.068	1	
1107		4	max	863.419	1	1530.807	2	684.759	3	.492	3	.198	4	.198	1
1108		min	-753.235	2	-1175.232	1	-682.285	4	-.487	4	-.198	3	-.237	2	
1109		5	max	863.419	1	1530.807	2	684.759	3	.492	3	.043	4	.464	1
1110		min	-753.235	2	-1175.232	1	-682.285	4	-.487	4	-.043	3	-.584	2	
1111	MP2C	1	max	0	11	.567	4	.644	5	0	11	0	11	0	11
1112		min	0	1	-1.112	7	-.313	2	0	1	0	1	0	1	1
1113		2	max	908.22	3	434.238	4	299.292	1	.055	3	.436	1	.638	3
1114		min	-1146.617	4	-434.373	3	-299.211	2	-.053	4	-.436	2	-.638	4	
1115		3	max	1011.368	3	313.709	4	311.235	1	.055	3	.291	1	.148	3
1116		min	-1043.469	4	-255.324	3	-342.384	2	-.053	4	-.299	2	-.166	4	
1117		4	max	-86.828	10	434.135	3	298.938	2	0	11	.435	1	.638	3
1118		min	-299.86	5	-433.993	4	-299.023	1	0	1	-.435	2	-.638	4	
1119		5	max	0	11	.969	7	.246	4	0	11	0	11	0	11
1120		min	0	1	-.323	4	-.592	7	0	1	0	1	0	1	1
1121	M113B	1	max	231.727	4	1230.782	4	43.44	4	.657	1	.059	1	.352	8
1122		min	-327.693	3	-826.363	3	-47.978	3	-.652	2	-.057	2	.015	3	
1123		2	max	231.727	4	1230.782	4	43.44	4	.657	1	.056	1	.228	7
1124		min	-327.693	3	-826.363	3	-47.978	3	-.652	2	-.054	2	-.041	4	
1125		3	max	231.727	4	1230.782	4	43.44	4	.657	1	.054	1	.389	3
1126		min	-327.693	3	-826.363	3	-47.978	3	-.652	2	-.052	2	-.32	4	
1127		4	max	231.727	4	1230.782	4	43.44	4	.657	1	.051	1	.577	3
1128		min	-327.693	3	-826.363	3	-47.978	3	-.652	2	-.049	2	-.599	4	
1129		5	max	231.727	4	1230.782	4	43.44	4	.657	1	.053	4	.764	3
1130		min	-327.693	3	-826.363	3	-47.978	3	-.652	2	-.055	3	-.878	4	
1131	M114B	1	max	715.366	4	1207.71	3	639.57	1	.352	1	.627	2	.7	3
1132		min	-619.382	3	-845.959	4	-639.813	2	-.344	2	-.628	1	-.494	4	
1133		2	max	715.366	4	1207.71	3	639.57	1	.352	1	.482	2	.427	3
1134		min	-619.382	3	-845.959	4	-639.813	2	-.344	2	-.483	1	-.302	4	
1135		3	max	715.366	4	1207.71	3	639.57	1	.352	1	.337	2	.153	3
1136		min	-619.382	3	-845.959	4	-639.813	2	-.344	2	-.338	1	-.11	4	
1137		4	max	715.366	4	1207.71	3	639.57	1	.352	1	.192	2	.081	4
1138		min	-619.382	3	-845.959	4	-639.813	2	-.344	2	-.193	1	-.121	3	
1139		5	max	715.366	4	1207.71	3	639.57	1	.352	1	.055	3	.273	4
1140		min	-619.382	3	-845.959	4	-639.813	2	-.344	2	-.053	4	-.394	3	
1141	MP2B	1	max	0	11	1.118	8	.638	5	0	11	0	11	0	11
1142		min	0	1	-.571	3	-.31	2	0	1	0	1	0	1	1
1143		2	max	913.096	4	434.377	4	299.288	1	.05	3	.436	1	.638	3
1144		min	-1151.738	3	-434.242	3	-299.207	2	-.052	4	-.435	2	-.638	4	
1145		3	max	1016.245	4	257.441	4	306.523	1	.05	3	.289	1	.165	3
1146		min	-1048.589	3	-313.665	3	-341.623	2	-.052	4	-.299	2	-.149	4	
1147		4	max	-86.828	10	433.998	3	298.934	2	0	11	.435	1	.638	3
1148		min	-299.86	5	-434.14	4	-299.02	1	0	1	-.435	2	-.638	4	
1149		5	max	0	11	.328	3	.247	3	0	11	0	11	0	11
1150		min	0	1	-.974	8	-.592	8	0	1	0	1	0	1	1
1151	M116A	1	max	230.419	3	1235.893	3	45.292	4	.651	2	.056	2	.353	7



9bj YcdYA Ya VYf GYWJcb: cfWwg fT cbhpi YXL

Member	Sec	Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1152		min -327.046	4	-831.261	4	-45.129	3	-.65	1	-.054	1	.012	4
1153	2	max 230.419	3	1235.893	3	45.292	4	.651	2	.054	2	.228	8
1154		min -327.046	4	-831.261	4	-45.129	3	-.65	1	-.052	1	-.039	3
1155	3	max 230.419	3	1235.893	3	45.292	4	.651	2	.051	2	.388	4
1156		min -327.046	4	-831.261	4	-45.129	3	-.65	1	-.051	1	-.319	3
1157	4	max 230.419	3	1235.893	3	45.292	4	.651	2	.049	2	.577	4
1158		min -327.046	4	-831.261	4	-45.129	3	-.65	1	-.049	1	-.599	3
1159	5	max 230.419	3	1235.893	3	45.292	4	.651	2	.052	4	.765	4
1160		min -327.046	4	-831.261	4	-45.129	3	-.65	1	-.05	3	-.879	3
1161	M117A	1 max 716.555	3	1212.494	4	639.47	2	.344	2	.623	1	.706	4
1162		min -620.041	4	-851.158	3	-634.729	1	-.342	1	-.626	2	-.5	3
1163	2	max 716.555	3	1212.494	4	639.47	2	.344	2	.479	1	.432	4
1164		min -620.041	4	-851.158	3	-634.729	1	-.342	1	-.481	2	-.307	3
1165	3	max 716.555	3	1212.494	4	639.47	2	.344	2	.335	1	.157	4
1166		min -620.041	4	-851.158	3	-634.729	1	-.342	1	-.336	2	-.114	3
1167	4	max 716.555	3	1212.494	4	639.47	2	.344	2	.191	1	.078	3
1168		min -620.041	4	-851.158	3	-634.729	1	-.342	1	-.191	2	-.118	4
1169	5	max 716.555	3	1212.494	4	639.47	2	.344	2	.05	3	.271	3
1170		min -620.041	4	-851.158	3	-634.729	1	-.342	1	-.052	4	-.392	4

9bj YcdY5-G7 % h fl * \$!% L @F: 8 GhY 7 cXY7\ YWg

Member	Shape	Code Check	Loc[ft]	LC	Shear ...Loc[ft]	Dir	LC	phi*Pnc ...	phi*Pnt [...]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M5	PL3/8x6	.685	0	3	.439	0	y 3	72418.6...	72900	.57	9.113	1...H1-1b
2	M7	PL3/8x6	.682	0	4	.435	0	y 4	72418.6...	72900	.57	9.113	1...H1-1b
3	M106	PL3/8x6	.605	0	1	.447	0	y 1	72418.6...	72900	.57	9.113	1...H1-1b
4	M88	PL3/8x6	.596	0	1	.453	0	y 1	72418.6...	72900	.57	9.113	1...H1-1b
5	M8	PL3/8x6	.533	0	4	.442	0	y 3	69619.5...	72900	.57	9.113	1...H1-1b
6	M6	PL3/8x6	.530	0	3	.450	0	y 4	69656.14	72900	.57	9.113	1...H1-1b
7	M107	PL3/8x6	.515	0	1	.488	0	y 2	69619.5...	72900	.57	9.113	1...H1-1b
8	M89	PL3/8x6	.504	0	1	.497	0	y 2	69656.14	72900	.57	9.113	1...H1-1b
9	MP4B	PIPE 2.0	.352	6.25	4	.234	.781	3	6295.422	32130	1.872	1.872	1...H1-1b
10	MP4C	PIPE 2.0	.346	6.25	3	.251	11.719	4	6295.422	32130	1.872	1.872	1...H1-1b
11	M68	L2.5x2.5x4	.332	0	4	.073	1.383	y 1	37553.0...	38556	1.114	2.537	1...H2-1
12	M91	PL3/8x6	.325	0	3	.437	0	y 4	69619.5...	72900	.57	9.113	1...H1-1b
13	M104	PL3/8x6	.323	0	2	.368	0	y 4	72418.6...	72900	.57	9.113	1...H1-1b
14	M69	L2.5x2.5x4	.322	1.383	3	.079	0	y 1	37553.0...	38556	1.114	2.537	1...H2-1
15	M90	PL3/8x6	.319	.156	3	.364	0	y 3	72418.6...	72900	.57	9.113	1...H1-1b
16	M105	PL3/8x6	.317	0	4	.440	0	y 3	69656.14	72900	.57	9.113	1...H1-1b
17	MP4A	PIPE 2.0	.312	11.198	3	.192	11.719	1	6295.422	32130	1.872	1.872	1...H1-1b
18	MP2A	PIPE 2.5	.300	5.5	2	.043	5.5	3	30038.4...	50715	3.596	3.596	1...H1-1b
19	MP2B	PIPE 2.5	.278	5.5	4	.045	5.5	4	30038.4...	50715	3.596	3.596	1...H1-1b
20	MP2C	PIPE 2.5	.277	5.5	3	.046	5.5	3	30038.4...	50715	3.596	3.596	1...H1-1b
21	M17	PIPE 3.0	.263	6.25	3	.161	6.25	4	28250.5...	65205	5.749	5.749	1...H1-1b
22	M16	PIPE 3.0	.263	6.25	4	.155	6.25	3	28250.5...	65205	5.749	5.749	1...H1-1b
23	MP3A	PIPE 2.5	.263	5.5	4	.145	2	2	30038.4...	50715	3.596	3.596	2...H1-1b
24	MP1A	PIPE 2.5	.262	5.5	3	.151	5.5	2	30038.4...	50715	3.596	3.596	2...H1-1b
25	MP3B	PIPE 2.5	.258	5.5	1	.148	5.5	4	30038.4...	50715	3.596	3.596	2...H1-1b
26	MP1C	PIPE 2.5	.255	5.5	1	.146	5.5	3	30038.4...	50715	3.596	3.596	2...H1-1b
27	MP2	PIPE 2.5	.237	5.5	3	.036	5.5	3	30038.4...	50715	3.596	3.596	2...H1-1b
28	MP	PIPE 2.5	.232	5.5	2	.037	5.5	4	30038.4...	50715	3.596	3.596	2 H1-1b



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 106912
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

May 12, 2021
 2:19 PM
 Checked By: _____

9bj YcdY5=G7 %h fl * \$!%L @F : 8 GhY 7cXY7\ YWg f7 cbhbi YXL

Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc ...	phi*Pnt [...]	phi*Mn y...	phi*Mn z...	Cb	Eqn	
29	MPB	PIPE 2.5	.231	5.5	2	.036	5.5	3	30038.4...	50715	3.596	3.596	2...	H1-1b	
30	MP3C	PIPE 2.5	.228	5.5	2	.134	5.5	3	30038.4...	50715	3.596	3.596	2...	H1-1b	
31	MP1B	PIPE 2.5	.225	5.5	2	.137	2	4	30038.4...	50715	3.596	3.596	2...	H1-1b	
32	MP5B	HSS4X4X4	.219	5.741	4	.093	5.741	z	4	75929.9...	139518	16.181	16.181	2...	H1-1b
33	M25	L2.5x2.5x4	.205	0	1	.094	1.383	y	3	37553.0...	38556	1.114	2.537	1...	H2-1
34	M18	PIPE 3.0	.205	6.25	1	.155	8.073	2	28250.5...	65205	5.749	5.749	1...	H1-1b	
35	M4	PL1/2x6	.194	0	1	.222	0	y	4	95121.1...	97200	1.012	12.15	1...	H1-1b
36	M3	PL1/2x6	.194	0	1	.238	0	y	3	95121.1...	97200	1.012	12.15	1...	H1-1b
37	M103	PL1/2x6	.186	0	3	.229	0	y	10	95107.0...	97200	1.012	12.15	1...	H1-1b
38	M86	PL1/2x6	.185	0	4	.237	0	y	9	95121.1...	97200	1.012	12.15	1...	H1-1b
39	M10	L2x2x3	.182	0	7	.014	0	z	7	16079.0...	23392.8	.558	1.239	2...	H2-1
40	M109	L2x2x3	.181	0	6	.014	0	z	6	16079.0...	23392.8	.558	1.239	2...	H2-1
41	M9	L2x2x3	.177	0	8	.013	0	y	8	16076.33	23392.8	.558	1.239	2...	H2-1
42	M93	L2x2x3	.177	0	5	.014	0	z	5	16079.0...	23392.8	.558	1.238	2...	H2-1
43	M92	L2x2x3	.174	0	6	.013	0	y	6	16076.33	23392.8	.558	1.239	2...	H2-1
44	M108	L2x2x3	.171	0	5	.013	0	y	5	16076.33	23392.8	.558	1.237	2...	H2-1
45	M102	PL1/2x6	.161	0	1	.187	0	y	2	95135.1...	97200	1.012	12.15	1...	H1-1b
46	M87	PL1/2x6	.160	0	1	.178	0	y	2	95121.08	97200	1.012	12.15	1...	H1-1b
47	M112	HSS4X4X4	.142	2.579	7	.053	2.579	y	6	135688...	139518	16.181	16.181	1...	H1-1b
48	M97	HSS4X4X4	.142	0	8	.053	2.204	z	4	135684...	139518	16.181	16.181	1...	H1-1b
49	M14	HSS4X4X4	.138	2.58	5	.053	2.58	y	7	135684...	139518	16.181	16.181	1...	H1-1b
50	M15	HSS4X4X4	.138	0	5	.053	0	y	8	135684...	139518	16.181	16.181	1...	H1-1b
51	M96	HSS4X4X4	.137	2.58	6	.052	2.58	y	8	135684...	139518	16.181	16.181	1...	H1-1b
52	M113	HSS4X4X4	.136	0	6	.052	0	y	7	135681...	139518	16.181	16.181	1...	H1-1b
53	MP5C	HSS4X4X4	.136	5.741	1	.070	5.741	z	1	75929.8...	139518	16.181	16.181	1...	H1-1b
54	MP5A	HSS4X4X4	.128	5.74	1	.067	5.74	z	2	75956.4...	139518	16.181	16.181	1...	H1-1b
55	M20	LL2.5x2.5x3...	.104	0	5	.004	0	z	4	44189.5...	58320	3.954	2.55	1	H1-1b*
56	M21	LL2.5x2.5x3...	.102	0	7	.005	4.664	z	1	44189.7...	58320	3.954	2.55	1...	H1-1b*
57	M19	LL2.5x2.5x3...	.102	0	8	.005	4.662	z	2	44201.5...	58320	3.954	2.55	1...	H1-1b*
58	M111	PL1/2x6	.058	0	7	.443	0	y	2	94902.3...	97200	1.012	12.15	1...	H1-1b
59	M94	PL1/2x6	.057	0	4	.464	0	y	2	94875.8...	97200	1.012	12.15	1...	H1-1b
60	M95	PL1/2x6	.057	0	6	.380	0	y	4	94902.3...	97200	1.012	12.15	1...	H1-1b
61	M12	PL1/2x6	.056	0	5	.437	0	y	3	94902.3...	97200	1.012	12.15	1...	H1-1b
62	M11	PL1/2x6	.055	0	5	.452	0	y	4	94875.8...	97200	1.012	12.15	1...	H1-1b
63	M110	PL1/2x6	.054	0	6	.390	0	y	3	94875.8...	97200	1.012	12.15	1...	H1-1b

EXHIBIT 9

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

T-Mobile Existing Facility

Site ID: CTNH723A

New Haven Tweed
60 Commerce Street
East Haven, Connecticut 06512

May 12, 2021

EBI Project Number: 6221002301

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	57.71%

May 12, 2021

T-Mobile

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

Emissions Analysis for Site: CTNH723A - New Haven Tweed

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **60 Commerce Street** in **East Haven, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is $1000 \mu\text{W}/\text{cm}^2$. 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 60 Commerce Street in East Haven, 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 power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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 IC 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 IC 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 RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 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 65 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:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	65 feet	Height (AGL):	65 feet	Height (AGL):	65 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna AI MPE %:	4.82%	Antenna BI MPE %:	4.82%	Antenna CI MPE %:	4.82%
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 / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd
Height (AGL):	65 feet	Height (AGL):	65 feet	Height (AGL):	65 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	12,569.87	ERP (W):	12,569.87	ERP (W):	12,569.87
Antenna A2 MPE %:	18.90%	Antenna B2 MPE %:	18.90%	Antenna C2 MPE %:	18.90%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 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:	22.65 dBd / 17.3 dBd / 17.3 dBd / 22.65 dBd	Gain:	17.3 dBd / 17.3 dBd / 17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd / 17.3 dBd / 17.3 dBd
Height (AGL):	65 feet	Height (AGL):	65 feet	Height (AGL):	65 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	25,926.17	ERP (W):	12,888.76	ERP (W):	12,888.76
Antenna A3 MPE %:	26.78%	Antenna B3 MPE %:	13.31%	Antenna C3 MPE %:	13.31%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	50.50%
Verizon	7.21%
Site Total MPE % :	57.71%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	50.50%
T-Mobile Sector B Total:	37.03%
T-Mobile Sector C Total:	37.03%
Site Total MPE % :	57.71%

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 ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz LTE	2	2334.27	65.0	48.22	2100 MHz LTE	1000	4.82%
T-Mobile 600 MHz LTE	2	591.73	65.0	12.22	600 MHz LTE	400	3.06%
T-Mobile 600 MHz NR	1	1577.94	65.0	16.30	600 MHz NR	400	4.07%
T-Mobile 700 MHz LTE	2	695.22	65.0	14.36	700 MHz LTE	467	3.08%
T-Mobile 1900 MHz GSM	4	1052.26	65.0	43.47	1900 MHz GSM	1000	4.35%
T-Mobile 1900 MHz LTE	2	2104.51	65.0	43.47	1900 MHz LTE	1000	4.35%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	65.0	114.07	2500 MHz LTE IC & 2C Traffic	1000	11.41%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	65.0	11.09	2500 MHz LTE IC & 2C Broadcast	1000	1.11%
T-Mobile 2500 MHz NR Traffic	1	6444.38	65.0	66.56	2500 MHz NR Traffic	1000	6.66%
T-Mobile 2500 MHz NR Broadcast	1	7363.09	65.0	76.05	2500 MHz NR Broadcast	1000	7.60%
						Total:	50.50%

• 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:	50.50%
Sector B:	37.03%
Sector C:	37.03%
T-Mobile Maximum MPE % (Sector A):	50.50%
Site Total:	57.71%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **57.71%** 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.