



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

April 12, 2022

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

RE: Exempt Modification Application
285 Chamberlain Hill Road, Higganum, CT 06441
Latitude: 41.501752
Longitude: -72.618730
Site#: CT04169-A_CTHA832_SBA/T-Mobile

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing tower located at 285 Chamberlain Hill Road, Higganum, CT 06441. T-Mobile currently maintains six (6) antennas at the 185-foot level of the existing 185-foot tower. The property is owned by Ruth M. Quale, and the tower is owned by SBA. T-Mobile now intends to replace (6) existing antennas with (6) new antennas. The new antennas would be installed at the 185-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable. Antenna mount modifications will be completed as per attached Tower Engineering Solutions mount analysis dated March 28, 2022.

T-Mobile Planned Modifications:

Remove: None

Remove and Replace:

- (3) Sprint Antennas (Remove) – (3) RFS APXVAALL24-43-U-NA20 (Replace)
- (3) RFS APXVTM14-ALU-I20 Antennas (Remove) – (3) Ericsson AIR6449 B41 Antennas (Replace)
- (3) Alcatel Lucent RRH8x20 2500 MHz Radio (Remove) - (3) Ericsson 4480 B71+B85 Radio (Replace)

Install New:

- (3) Ericsson 4460 B25+B66A Radio

Existing to Remain:

- (3) Ericsson AIR32 KRD901146 Antennas*
- (3) Alcatel Lucent 800MHz Radio*
- (3) Alcatel Lucent 800 MHz Filters*
- (4) RFS ACU-A20-N RET*
- (3) Fiber Cables 2"

*Equipment listed for entitlement purposed only



This facility was approved by the Town of Haddam Planning & Zoning Commission on November 4, 1999. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-SOj-73, a copy of this letter is being sent to Robert McGarry, First Selectman, and Bill Warner, Town Planner for the Town of Haddam, as well as the property owner and the tower owner.

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

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

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

Sincerely,

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



NSS

NORTHEAST
SITE SOLUTIONS

Turnkey Wireless Development

Attachments

Cc: Robert McGarry, First Selectman
Town Office Building
30 Field Park Drive
Haddam, CT 06438

Bill Warner, Town Planner
Town Office Building
30 Field Park Drive
Haddam, CT 06438

Ruth M. Quale, Property Owner
285 Chamberlain Hill Road
Higganum, CT 06441

SBA – Tower Owner

Exhibit A

Original Facility Approval

Legal Notice of Decisions

Please print this on Thursday, November 4, 1999

The Haddam Planning and Zoning Commission of the Town of Haddam hereby gives notice of its official action concerning the following:

1. Grant a Special Permit to Construct 190 foot Communication Tower and associated structures, as shown on a map entitled "SITE PLAN PROPOSED TOWER 285 CHAMBERLAIN HILL ROAD, HIGGANUM, PROPERTY OF RUTH &, DAVID OPUSZYNSKI" dated September 7, 1999. Map 2, Lot 20-2
2. To grant a Change of Zone I-1 to C-1 for Map 49, Lot 34, 88 Bridge Street
3. Approve the Application to Amend Haddam Zoning Regulations Section 3 Definitions to add the following: Self Storage Facility.
4. Approve the Application to Amend Haddam Zoning Regulations Section 7 Commercial Zones -C-1 by adding subsection 7.3.m to permit "Self Storage Facility", as a Special Permit use.

Said official action was taken at the commission's regular meeting of November 1, 1999. The full record of the Commission's decision is on file in the Land Use Office of the Town Office Building. Dated at Haddam, CT this 2nd day of November, 1999.

Stephen Hitchcock, Chairman
Planning & Zoning Commission

TOWN OF HADDAM
PLANNING & ZONING COMMISSION

MOTION SHEET

Date: NOVEMBER 1, 1999
Applicant Name: Ruth & David Opuszynski
Property Address: 285 Chamberlain Hill Road
Assessor Map No. 2, Lot No. 20-2

Motion Made By Commissioner: Baranoff

Seconded By Commissioner: Harrel

Motion to grant a Special Permit to construct a 190 foot Communications Tower and associated structures, as shown on a map entitled "SITE PLAN PROPOSED TOWER, 285 CHAMBERLAIN HILL RD. HIGGANUM, CT. PROPERTY OF RUTH & DAVID OPUSZYNSKI" dated Sept. 7, 1999 with the following conditions:

1. Standard Special Permit Conditions.

For:	Against:	Abstain:
<u>Richard K... [Signature]</u>	_____	<u>Robert P. [Signature]</u>
<u>Edith Baranoff</u>	_____	_____
<u>Virginia Marshall</u>	_____	_____
<u>Marin J. DeNickle</u>	_____	_____
<u>Stephen Hitchcock</u>	_____	_____
_____	_____	_____

CT 4/6-9-A

APPLICANT COPY
THIS PERMIT NOT VALID UNLESS
PROPERLY RECEIPTED BY CASHIER
\$1055 \$868.60
VALIDATION

BUILDING PERMIT

APPL. AT Michael Kirby LLC DATE JANUARY 5 192020 PERMIT NO. _____
ADDRESS 70 Raymond Place (STREET) (CONTR'S LICENSE)

PERMIT TO CONSTRUCT TOWER (TYPE OF IMPROVEMENT) _____ NO. _____ STORY _____ (PROPOSED USE) _____ NUMBER OF DWELLING UNITS _____

AT (LOCATION) 235 Chamberlain Hill Rd Map 2 Lot 20-2 (STREET) _____ ZONING DISTRICT _____

BETWEEN _____ (CROSS STREET) _____ AND _____ (CROSS STREET) _____ LOT _____ BLOCK _____ LOT SIZE _____

SUBDIVISION _____ LOT _____ BLOCK _____ FT. LONG BY _____ FT. IN HEIGHT AND SHALL CONFORM IN CONSTRUCTION TO TYPE _____ USE GROUP _____ BASEMENT WALLS OR FOUNDATION _____ (TYPE)

REMARKS: Construct 10' monopole with 5 carrier on it and each carrier has 9 antennas on each carrier. Top of monopole has 1 carrier on top which makes the monopole 100' tall.

AREA OR VOLUME _____ (CUBIC/SQUARE FEET) ESTIMATED COST \$ 85,000.00 PERMIT FEE \$ 868.60

OWNER Ruth & David Dwyer BUILDING DEPT. _____ BY [Signature]
ADDRESS 235 Chamberlain Hill Rd Raymond Ct

PERMIT

JOB WEATHER CARD

APPLICANT National Tower LLC DATE January 5 192000 PERMIT NO. _____
 ADDRESS 70 Madison Place (NO.) (STREET) (CONTR'S LICENSE)

PERMIT TO Construct Tower (TYPE OF IMPROVEMENT) (NO.) STORY _____ (PROPOSED USE) NUMBER OF DWELLING UNITS _____

AT (LOCATION) 280 Chamberlain Hill Rd (NO.) (STREET) Map 2 Lot 20-2 ZONING DISTRICT _____

BETWEEN _____ (CROSS STREET) AND _____ (CROSS STREET)

SUBDIVISION _____ LOT _____ BLOCK _____ LOT SIZE _____

BUILDING IS TO BE _____ FT. WIDE BY _____ FT. LONG BY _____ FT. IN HEIGHT AND SHALL CONFORM IN CONSTRUCTION

TO TYPE _____ USE GROUP _____ BASEMENT WALLS OR FOUNDATION _____ (TYPE)

REMARKS: Construct 125' Monopole with 5 carrier on it and each carrier has 9 antennas on each carrier. Top of monopole has 1 carrier on top which makes the monopole 190' tall.

AREA OR VOLUME _____ ESTIMATED COST \$ 85,000.00 PERMIT FEE \$ 850.60

OWNER Ruth & David Opuszynski ADDRESS 280 Chamberlain Hill Rd BUILDING DEPT. 100-1000 BY _____

THIS PERMIT CONVEYS NO RIGHT TO OCCUPY ANY STREET, ALLEY OR SIDEWALK OR ANY PART THEREOF, EITHER TEMPORARILY OR PERMANENTLY. ENCROACHMENTS ON PUBLIC PROPERTY, NOT SPECIFICALLY PERMITTED UNDER THE BUILDING CODE, MUST BE APPROVED BY THE JURISDICTION. STREET OR ALLEY GRADES AS WELL AS DEPTH AND LOCATION OF PUBLIC SEWERS MAY BE OBTAINED FROM THE DEPARTMENT OF PUBLIC WORKS. THE ISSUANCE OF THIS PERMIT DOES NOT RELEASE THE APPLICANT FROM THE CONDITIONS OF ANY APPLICABLE SUBDIVISION RESTRICTIONS.

- MINIMUM OF THREE CALLED INSPECTIONS REQUIRED FOR ALL CONSTRUCTION WORK:
- FOUNDATIONS OR FOOTINGS.
 - PRIOR TO COVERING STRUCTURAL MEMBERS (READY FOR LATH OR FINISH COVERING).
 - FINAL INSPECTION BEFORE OCCUPANCY.

APPROVED PLANS MUST BE RETAINED ON JOB AND THIS CARD KEPT POSTED UNTIL FINAL INSPECTION HAS BEEN MADE. WHERE A CERTIFICATE OF OCCUPANCY IS REQUIRED, SUCH BUILDING SHALL NOT BE OCCUPIED UNTIL FINAL INSPECTION HAS BEEN MADE.

WHERE APPLICABLE SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING AND MECHANICAL INSTALLATIONS.

POST THIS CARD SO IT IS VISIBLE FROM STREET

BUILDING INSPECTION APPROVALS	PLUMBING INSPECTION APPROVALS	ELECTRICAL INSPECTION APPROVALS
1	1	1
2	2	2
HEATING INSPECTION APPROVALS	REFRIGERATION INSPECTION APPROVALS	
1	1	
2	2	
OTHER	2	

WORK SHALL NOT PROCEED UNTIL THE INSPECTOR HAS APPROVED THE VARIOUS STAGES OF CONSTRUCTION.

PERMIT WILL BECOME NULL AND VOID IF CONSTRUCTION WORK IS NOT STARTED WITHIN SIX MONTHS OF DATE THE PERMIT IS ISSUED AS NOTED ABOVE.

INSPECTIONS INDICATED ON THIS CARD CAN BE ARRANGED FOR BY TELEPHONE OR WRITTEN NOTIFICATION.

FORM NO. BOCA - BP 1994

Exhibit B

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2020.



Information on the Property Records for the Municipality of Haddam was last updated on 4/1/2022.



Parcel Information

Location:	285 CHAMBERLAIN HILL RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	C0103400	Map Block Lot:	02 020 2	Acres:	2.05
490 Acres:	0.00	Zone:	R-2	Volume / Page:	400/ 936
Developers Map / Lot:		Census:	5901		

Value Information

	Appraised Value	Assessed Value
Land	94,650	66,260
Buildings	182,020	127,410
Detached Outbuildings	2,590	1,810

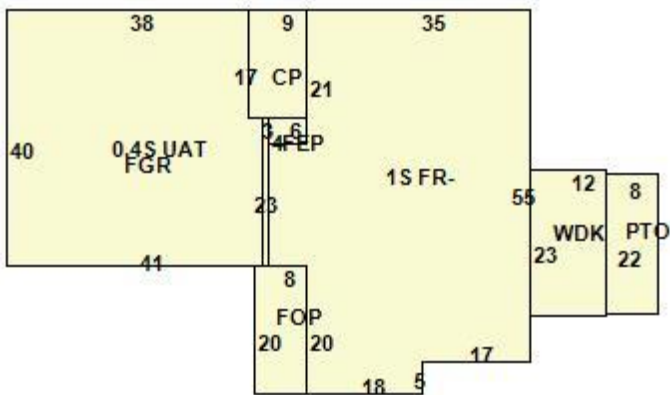
	Appraised Value	Assessed Value
Total	279,260	195,480

Owner's Information

Owner's Data

QUALE RUTH M
 285 CHAMBERLAIN HILL RD
 HIGGANUM, CT 06441

Building 1



Building Use:	Single Family	Style:	Ranch	Living Area:	2,129
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Stories:	1.00	Construction:	Wood Frame	Year Built:	1970
Total Rooms:	7	Bedrooms:	3	Full Baths:	2
Half Baths:	0	Fireplaces:	0	Heating:	Hot Water
Fuel:	Oil	Cooling Percent:	100	Basement Area:	0
Basement Finished Area:	0	Basement Garages:	0	Roof Material:	Asphalt
Siding:	Vinyl Siding	Units:			

Special Features

Fireplace	1
Wood/Pellet Stove	1

Attached Components

Type:	Year Built:	Area:
Wood Deck	1970	276
Frame Garage	1970	1,589
Concrete Patio	1970	153
Patio	2000	176
Enclosed Porch	1970	24
Open Porch	1970	160
Unfinished Attic	2012	626

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Wood Deck Detached	2000	12.00	8.00	96

Type:	Year Built:	Length:	Width:	Area:
Above Ground	2000	0.00	0.00	1
Frame Shed	1970	10.00	12.00	120
Frame Shed	1996	12.00	24.00	288

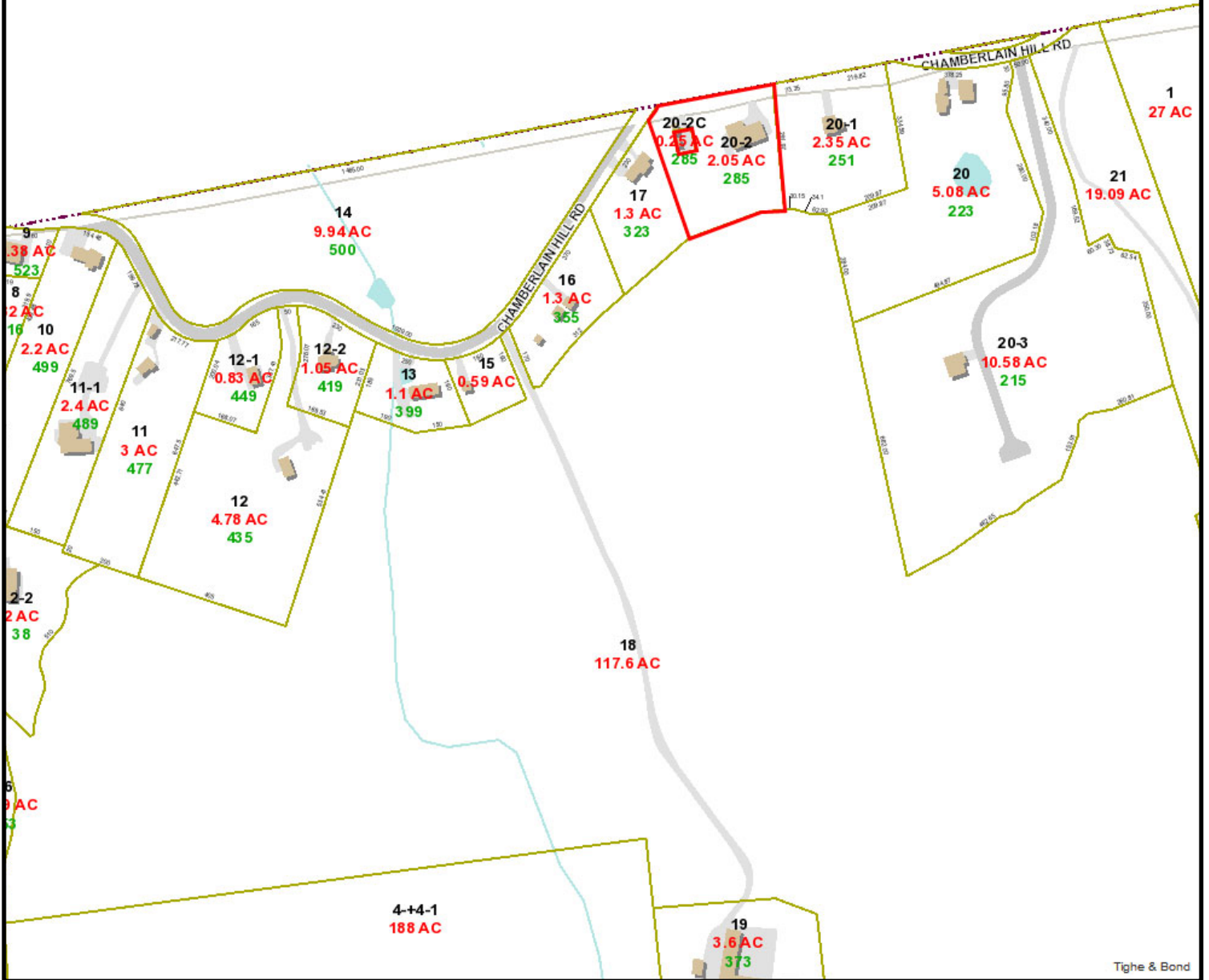
Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
QUALE RUTH M	0400	0936	06/22/2020	Name Change	\$0
OPUSZYNSKI RUTH M	0335	0144	01/13/2010		\$0
OPUSZYNSKI DAVID & RUTH M	0203	0626	09/07/1995		\$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
12101	Building	07/01/2014	No Description Given
11952	Building	01/15/2014	No Description Given
11452	Building	01/29/2013	No Description Given
11229	Building	08/08/2012	No Description Given
10857	Electrical	12/29/2011	inspect 10/24/06
10857	Addition	11/03/2011	3 C GAR W/ WRKSHP ABOVE 2340SF
8672	Electrical	05/30/2006	E-Mailed CL and P on 6/15/06 for approval

Middletown



Tighe & Bond

285 CHAMBERLAIN HILL

4/4/2022 6:46:20 PM

Scale: 1"=400'

Scale is approximate

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.



Exhibit C

Construction Drawings

PROJECT INFORMATION

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

SBA TOWER ID: CT04169-A

SBA SITE NAME: HIGGANUM

T-MOBILE SITE NAME: CTHA832A

T-MOBILE SITE NUMBER: CTHA832A

SBA SITE ADDRESS: 285 CHAMBERLAIN HILL ROAD
HIGGANUM, CT 06441

LATITUDE: 41.50176000

LONGITUDE: -72.61870000

TOWER HEIGHT: 185'-0"± AGL

RAD CENTER: 185'-0"± AGL

ZONING JURISDICTION: TOWN OF HIGGANUM

COUNTY: MIDDLESEX/HADDAM

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: CTHA832A
285 CHAMBERLAIN HILL ROAD
HIGGANUM, CT 06441

SITE NUMBER: CTHA832A
SBA SITE #: CT04169-A
PROJECT: SPRINT RETAIN
CONFIGURATION: 67E5A998E 6160



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	12/08/21
GN-1	GENERAL NOTES	2	12/08/21
A-1	COMPOUND & EQUIPMENT PLANS	2	12/08/21
A-2	ANTENNA LAYOUT & ELEVATIONS	2	12/08/21
A-3	DETAILS	2	12/08/21
SN-1	STRUCTURAL NOTES	2	12/08/21
RF-1	RF PLUMBING DIAGRAM	2	12/08/21
G-1	GROUNDING DETAILS	2	12/08/21

T-Mobile
NORTHEAST LLC

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



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

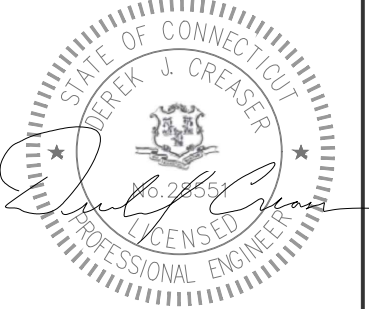


750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS

NO.	DATE	DESCRIPTION
1	02/26/21	ISSUED FOR CONSTRUCTION
0	12/09/20	ISSUED FOR REVIEW

DESIGNED BY: KT APPROVED BY: DC



DATE: 12/08/21

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT. UNLESS EXPLICITLY AGREED TO BY THE ENGINEER IN WRITING, THE ENGINEER DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.



SITE NAME: CTHA832A

SITE NUMBER: CTHA832A

SITE ADDRESS:
285 CHAMBERLAIN HILL ROAD
HIGGANUM, CT 06441

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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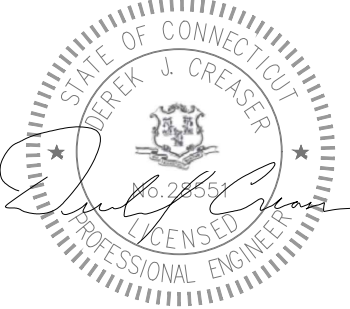
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REVISIONS

NO.	DATE	DESCRIPTION
1	02/26/21	ISSUED FOR CONSTRUCTION
0	12/09/20	ISSUED FOR REVIEW
DESIGNED BY:	APPROVED BY:	
KT	DC	



DATE: 12/08/21

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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 TRANSCIVER 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: CTHA832A

SITE NUMBER: CTHA832A

SITE ADDRESS:
285 CHAMBERLAIN HILL ROAD
HIGGANUM, CT 06441

PROJECT TYPE:
SPRINT RETAIN

SHEET TITLE:
GENERAL NOTES

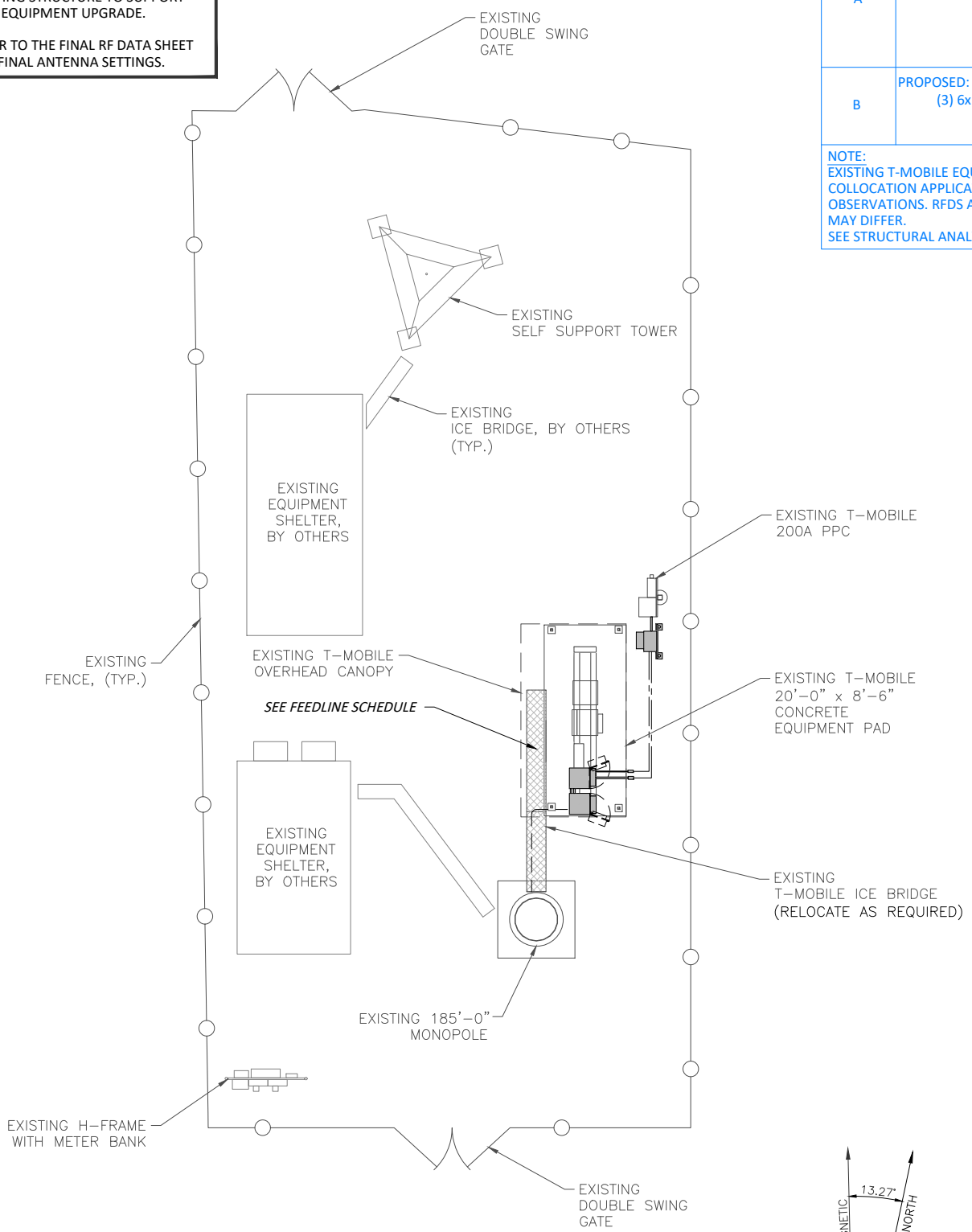
DRAWING #: GN-1 REVISION: 2

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.

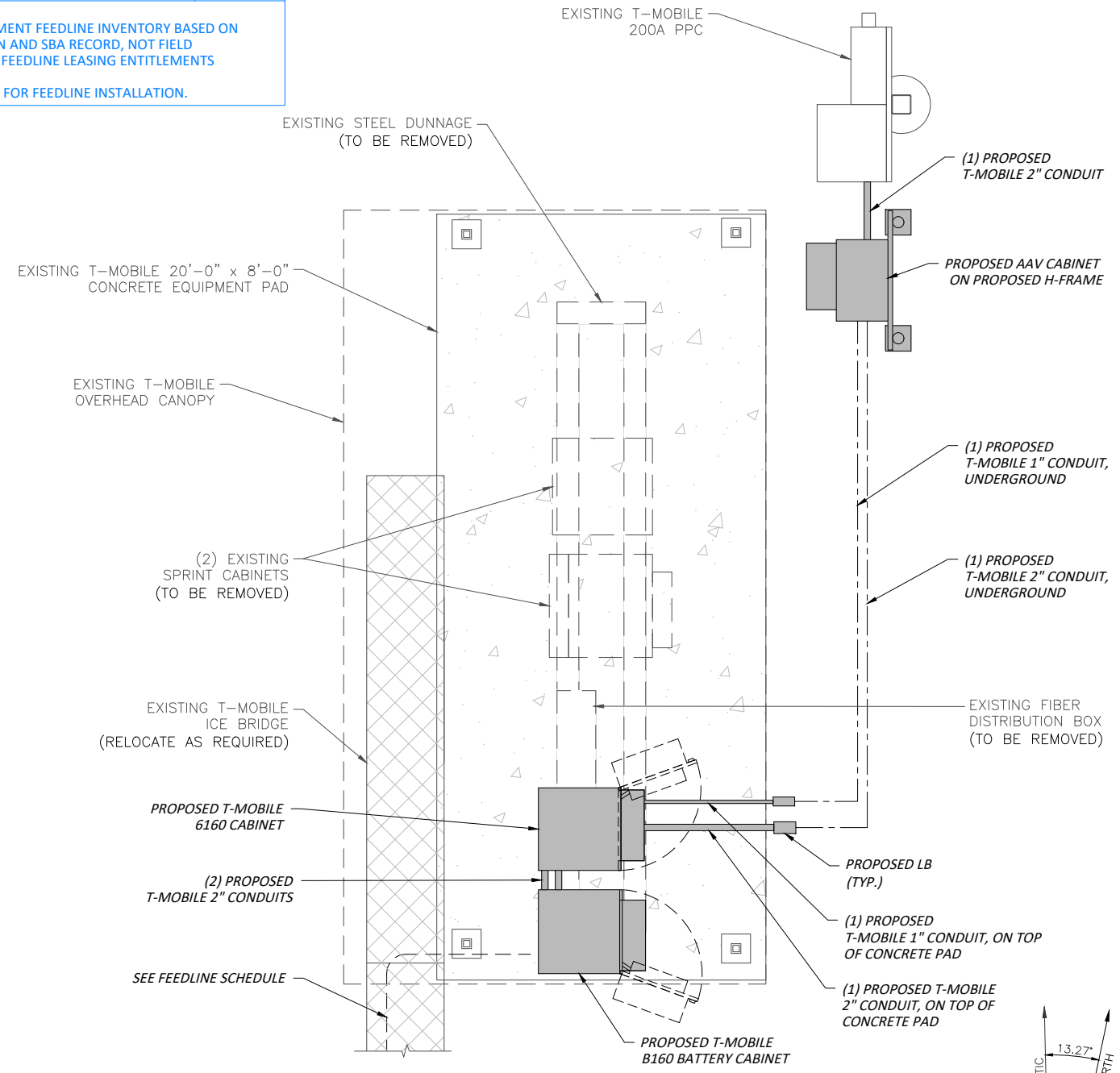
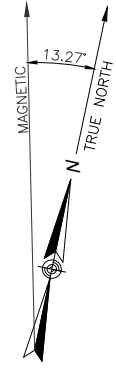
FEEDLINE SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO BE REMOVED: (3) 1-1/4" HYBRID CABLES	UP INSIDE MONOPOLE TO RAD
B	PROPOSED: (3) 6x12 (1-5/8") HYBRID FIBER	UP INSIDE MONOPOLE TO RAD

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.



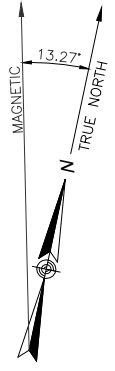
COMPOUND PLAN
SCALE: 1/8" = 1'-0" (22"x34")
1/16" = 1'-0" (11"x17")

GRAPHIC SCALE
(IN FEET)



EQUIPMENT PLAN
SCALE: 1/2" = 1'-0" (22"x34")
1" = 1'-0" (11"x17")

GRAPHIC SCALE
(IN FEET)

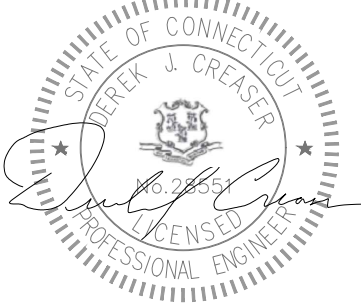


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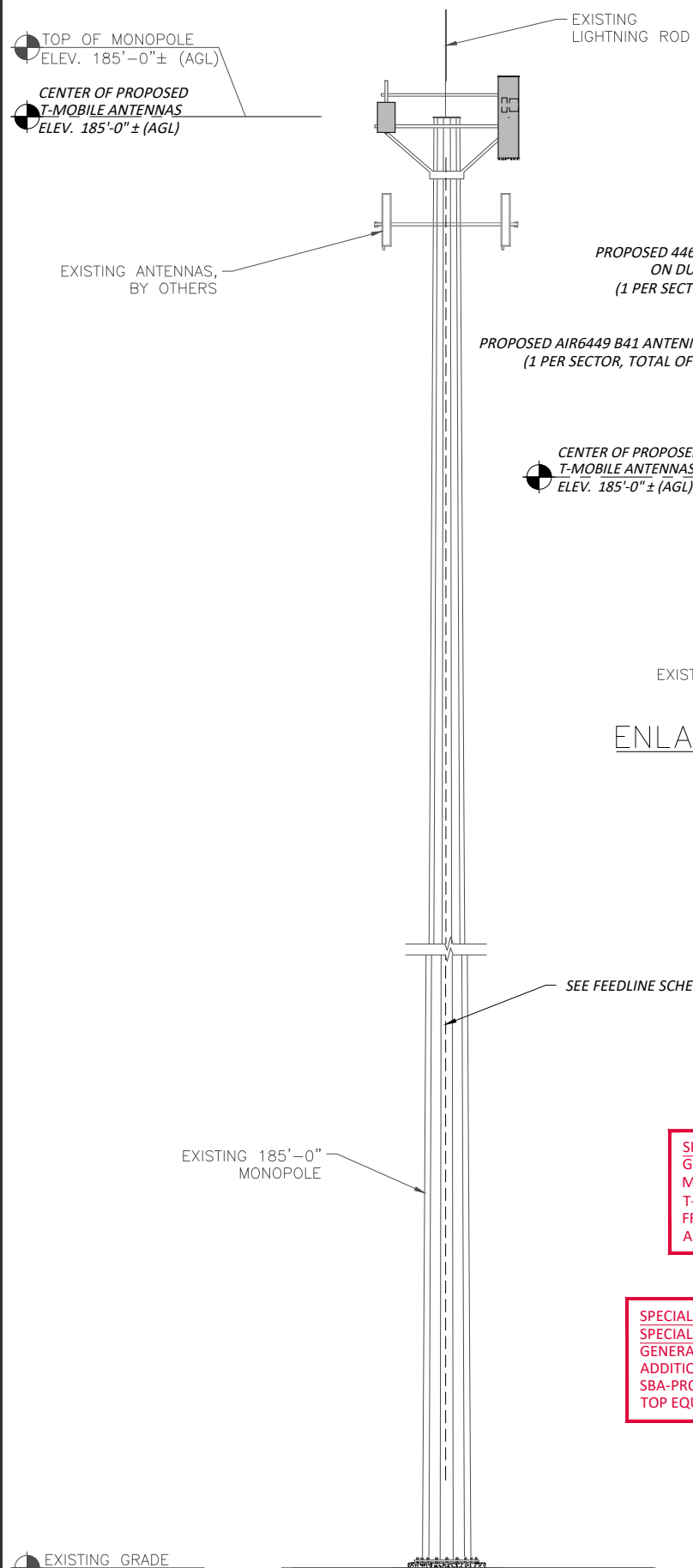
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SITE NAME:	CTHA832A
SITE NUMBER:	CTHA832A
SITE ADDRESS:	285 CHAMBERLAIN HILL ROAD HIGGANUM, CT 06441
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	COMPOUND & EQUIPMENT PLANS
DRAWING #:	A-1
REVISION:	2



TOWER ELEVATION

SCALE: 1/8" = 1'-0" (22"x34")
 1/16" = 1'-0" (11"x17")

EXISTING GRADE
 ELEV. 0'-0"± (AGL)

NOTES:

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2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

PROPOSED 4460 B25 B66 RRU'S ON DUAL RRU MOUNT (1 PER SECTOR, TOTAL OF 3)

PROPOSED APXVAALL24_43-U-NA20 ANTENNA (1 PER SECTOR, TOTAL OF 3)

PROPOSED AIR6449 B41 ANTENNA (1 PER SECTOR, TOTAL OF 3)

CENTER OF PROPOSED T-MOBILE ANTENNAS
 ELEV. 185'-0"± (AGL)

PROPOSED 4480 B71/B85 RRU'S ON DUAL RRU MOUNT (1 PER SECTOR, TOTAL OF 3)

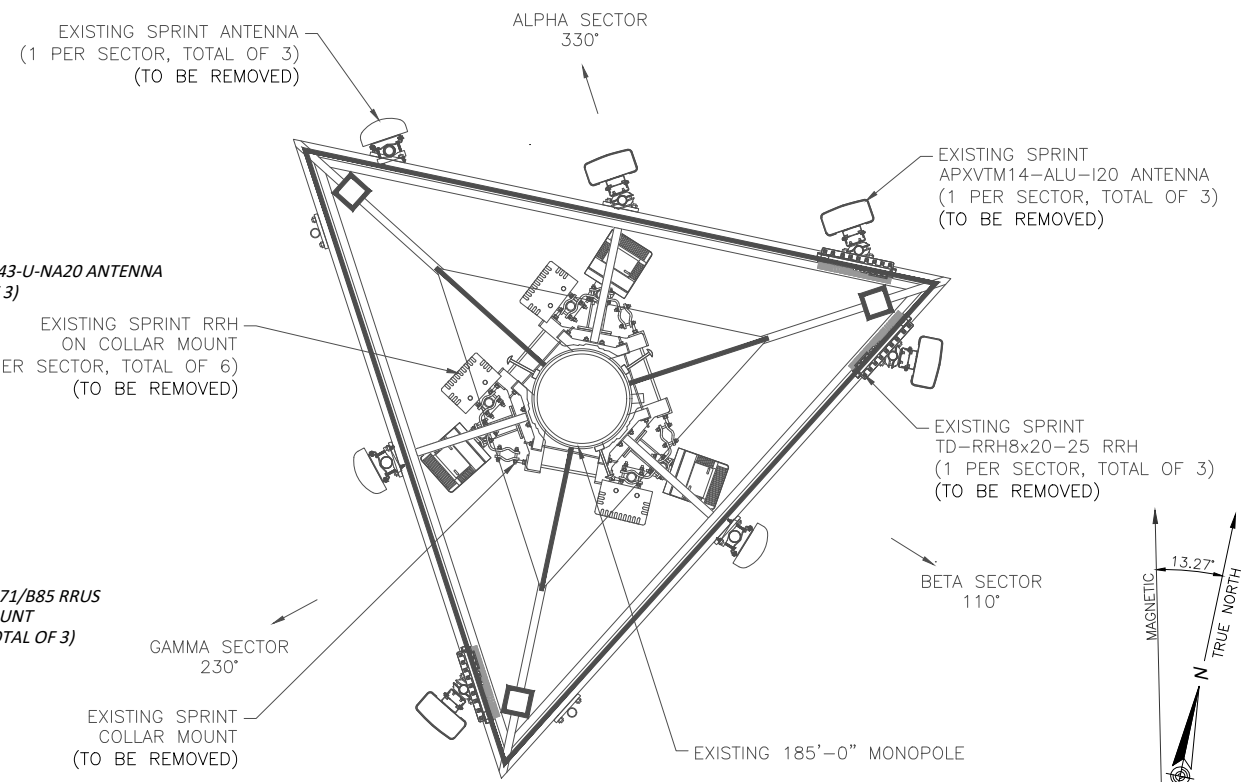
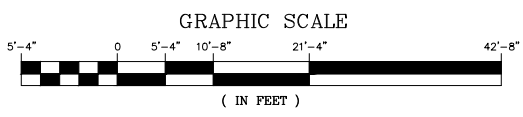
EXISTING 185'-0" MONOPOLE

ENLARGED ANTENNA ELEVATION

SCALE: N.T.S

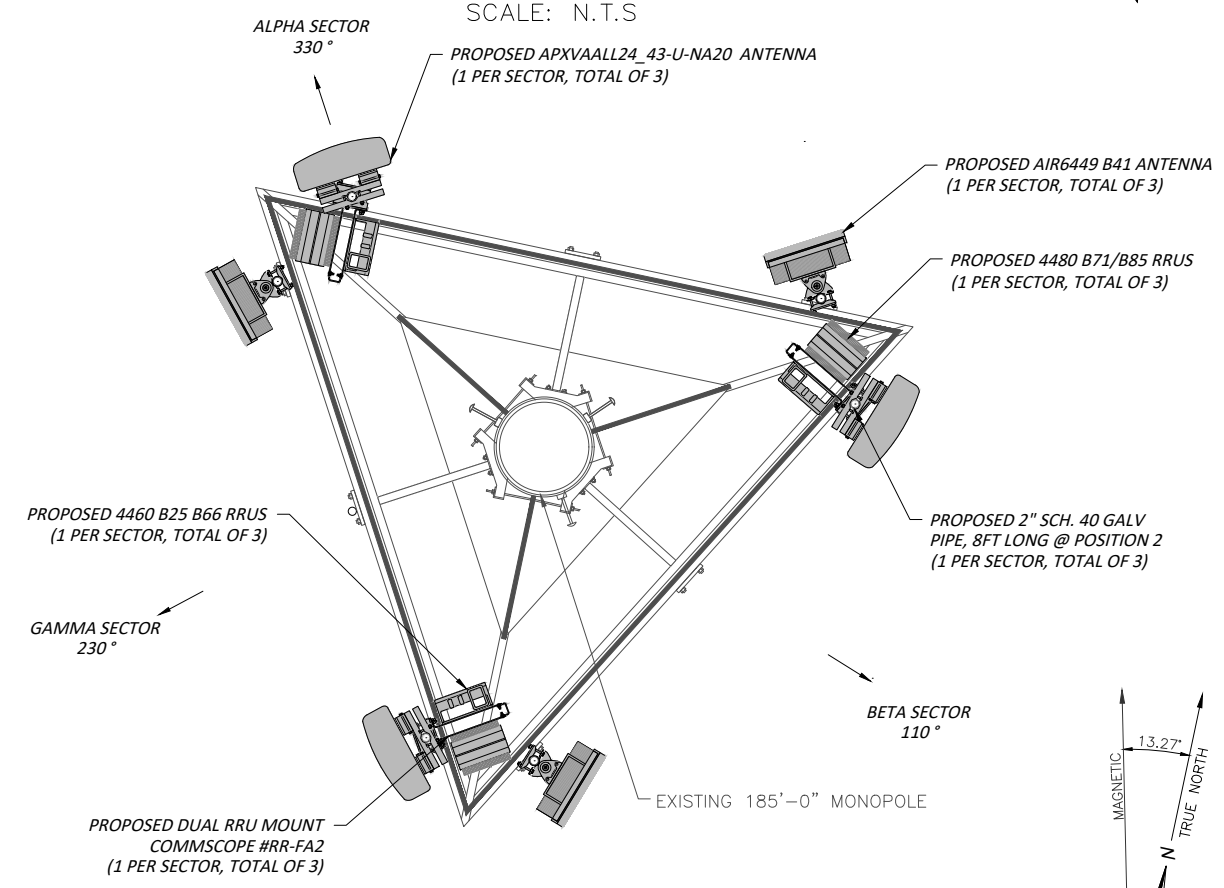
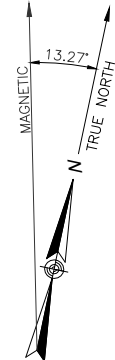
SPECIAL CONSTRUCTION NOTE:
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED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



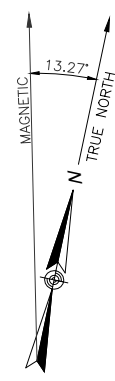
EXISTING ANTENNA CONFIGURATION

SCALE: N.T.S



PROPOSED ANTENNA CONFIGURATION

SCALE: N.T.S



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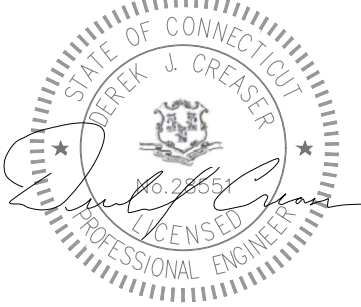


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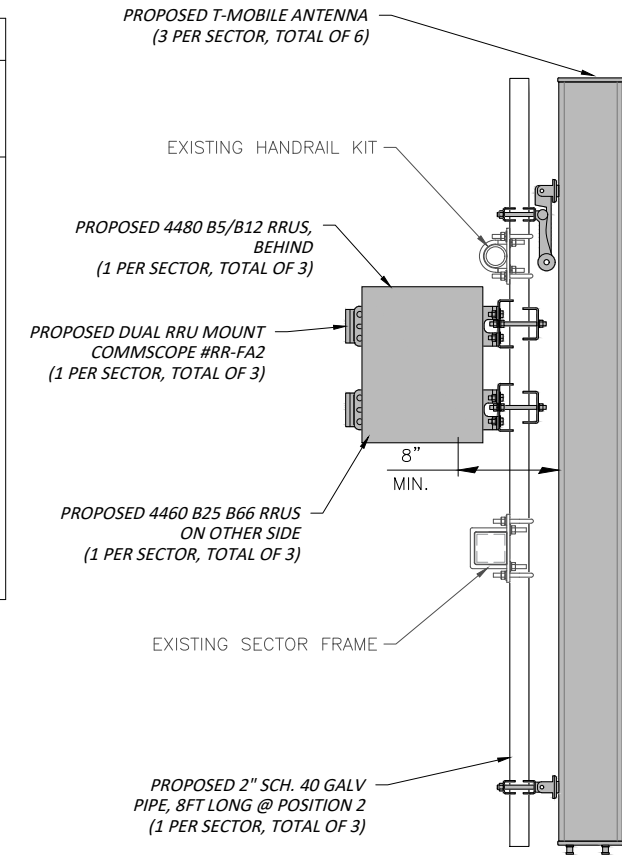
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SITE NAME:	CTHA832A
SITE NUMBER:	CTHA832A
SITE ADDRESS:	285 CHAMBERLAIN HILL ROAD HIGGANUM, CT 06441
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	ANTENNA LAYOUT & ELEVATIONS
DRAWING #:	A-2
REVISION:	2

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	L700, L600, N600, L1900	APXVAALL24_43-U -NA20	95.9x24x8.5	±185'	330°	-	(P) (1) 4480 B71 B85 RRUS (P) (1) 4460 B25 B66 RRUS	-	
A2	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±185'	330°	-	-	-	
B1	PROPOSED	L700, L600, N600, L1900	APXVAALL24_43-U -NA20	95.9x24x8.5	±185'	110°	-	(P) (1) 4480 B71 B85 RRUS (P) (1) 4460 B25 B66 RRUS	-	
B2	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±185'	110°	-	-	-	
G1	PROPOSED	L700, L600, N600, L1900	APXVAALL24_43-U -NA20	95.9x24x8.5	±185'	230°	-	(P) (1) 4480 B71 B85 RRUS (P) (1) 4460 B25 B66 RRUS	-	
G2	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±185'	230°	-	-	-	



ANTENNA MOUNTING DETAIL

N.T.S.

- NOTES:**
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 2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

RRU CHART				
QUANTITY	MODEL	L	W	D
3(P)	4449 B71/B85	15.0"	13.2"	10.4"
3(P)	4415 B25	16.5"	13.4"	5.9"

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

EQUIPMENT CABINET DETAIL

N.T.S.



ERICSSON B160 BATTERY CABINET

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

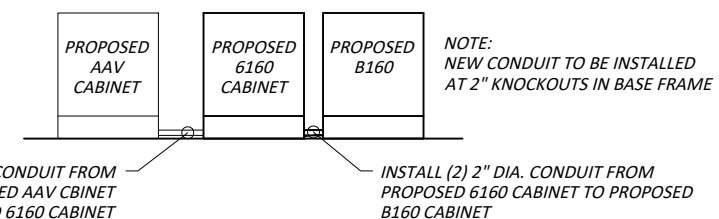


EMERSON NETXTEND COMPACT 2416 CABINET

ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 24" X 24" X 25.25"
WEIGHT: 64LBS (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R

AAV CABINET DETAIL

N.T.S.



CONDUIT DETAIL

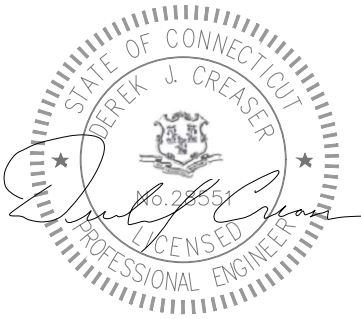
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SITE NUMBER:	CTHA832A
SITE ADDRESS:	285 CHAMBERLAIN HILL ROAD HIGGANUM, CT 06441
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	DETAILS
DRAWING #:	A-3
REVISION:	2

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.

T-Mobile
NORTHEAST LLC

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

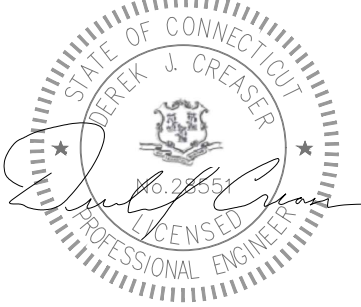


SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
PHONE: (508) 251-0720



750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
1	02/26/21	ISSUED FOR CONSTRUCTION
0	12/09/20	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION
DESIGNED BY:		APPROVED BY:
KT		DC

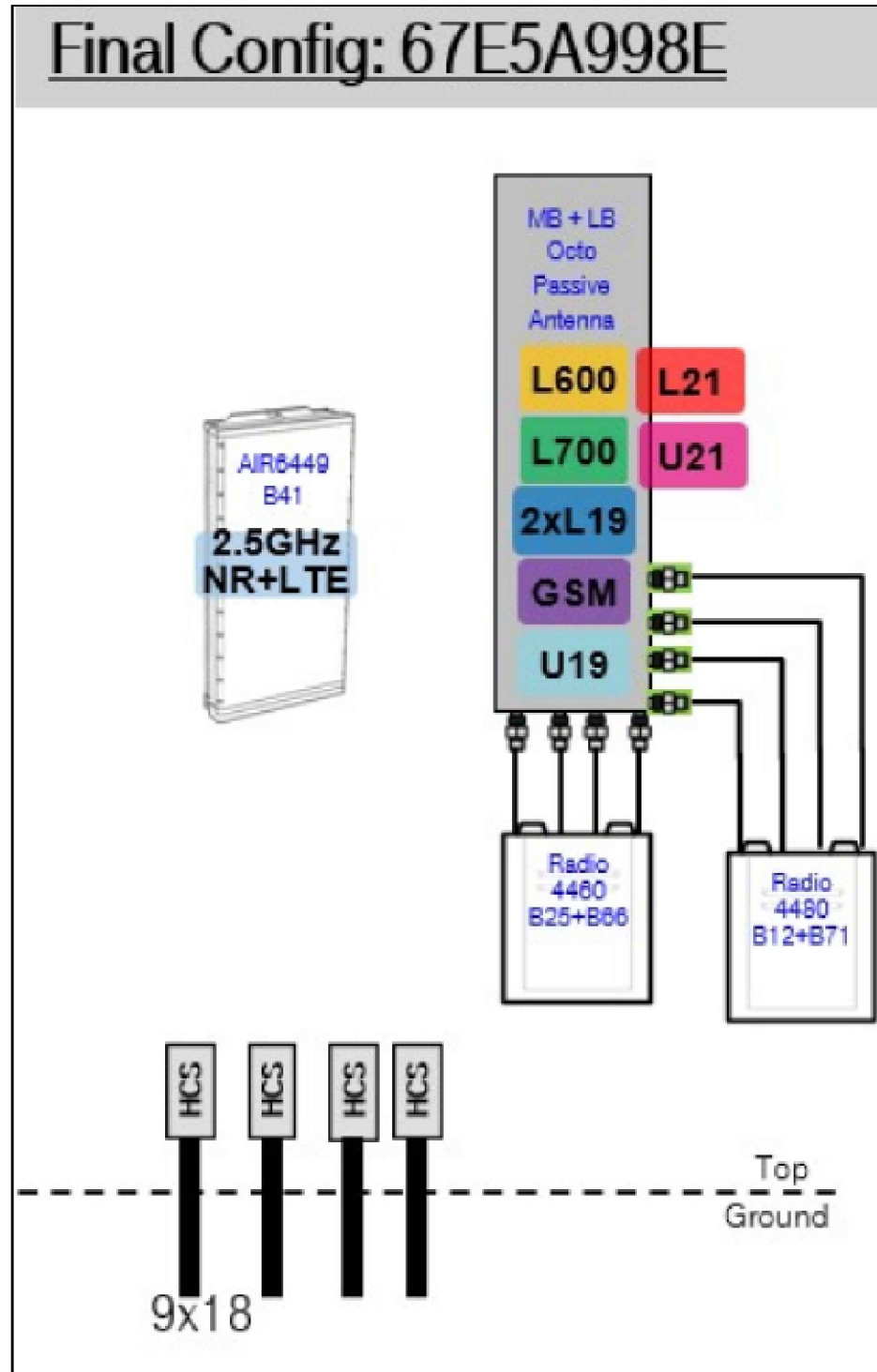


DATE: 12/08/21

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SITE NAME:	CTHA832A
SITE NUMBER:	CTHA832A
SITE ADDRESS:	285 CHAMBERLAIN HILL ROAD HIGGANUM, CT 06441
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	STRUCTURAL NOTES
DRAWING #:	SN-1
REVISION:	2

67E5A998E.jpg



Notes:

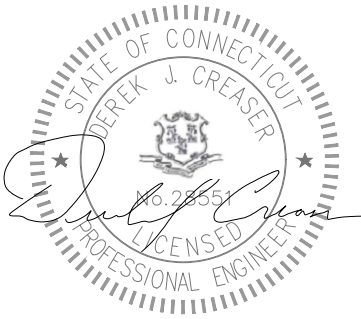
PLUMBING DIAGRAM
N.T.S.

T-Mobile
NORTHEAST LLC
T-MOBILE NORTHEAST, LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
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SBA 
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WESTBOROUGH, MA 01581
PHONE: (508) 251-0720

CENTERLINE
COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

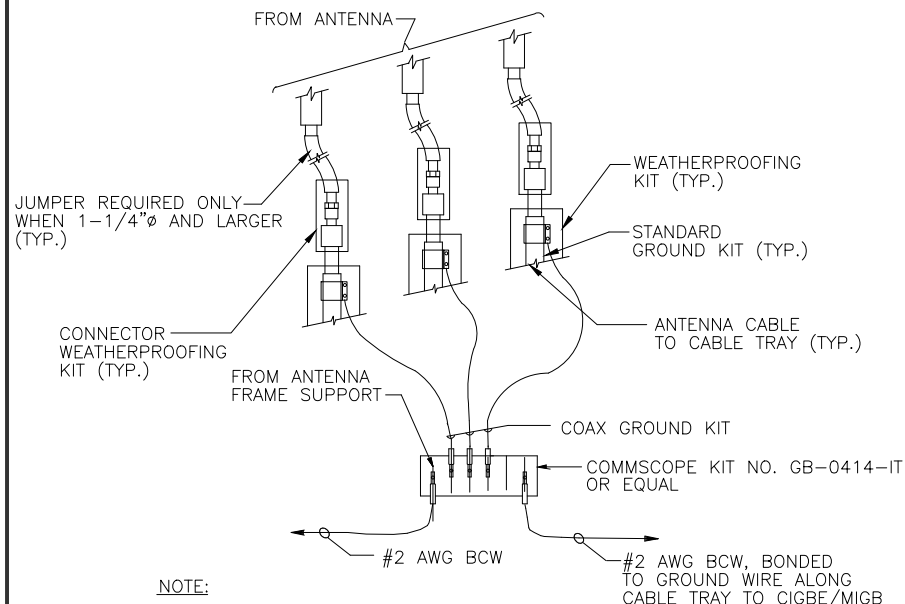
REVISIONS		
NO.	DATE	DESCRIPTION
1	02/26/21	ISSUED FOR CONSTRUCTION
0	12/09/20	ISSUED FOR REVIEW
DESIGNED BY:	APPROVED BY:	
KT	DC	



DATE: 12/08/21

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SITE NAME:	CTHA832A	
SITE NUMBER:	CTHA832A	
SITE ADDRESS:	285 CHAMBERLAIN HILL ROAD HIGGANUM, CT 06441	
PROJECT TYPE:	SPRINT RETAIN	
SHEET TITLE:	RF PLUMBING DIAGRAM	
DRAWING #:	RF-1	REVISION: 2



GROUNDING RISER DIAGRAM

N.T.S.

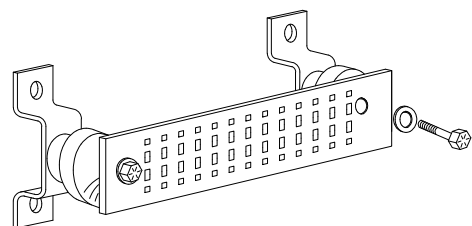
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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.

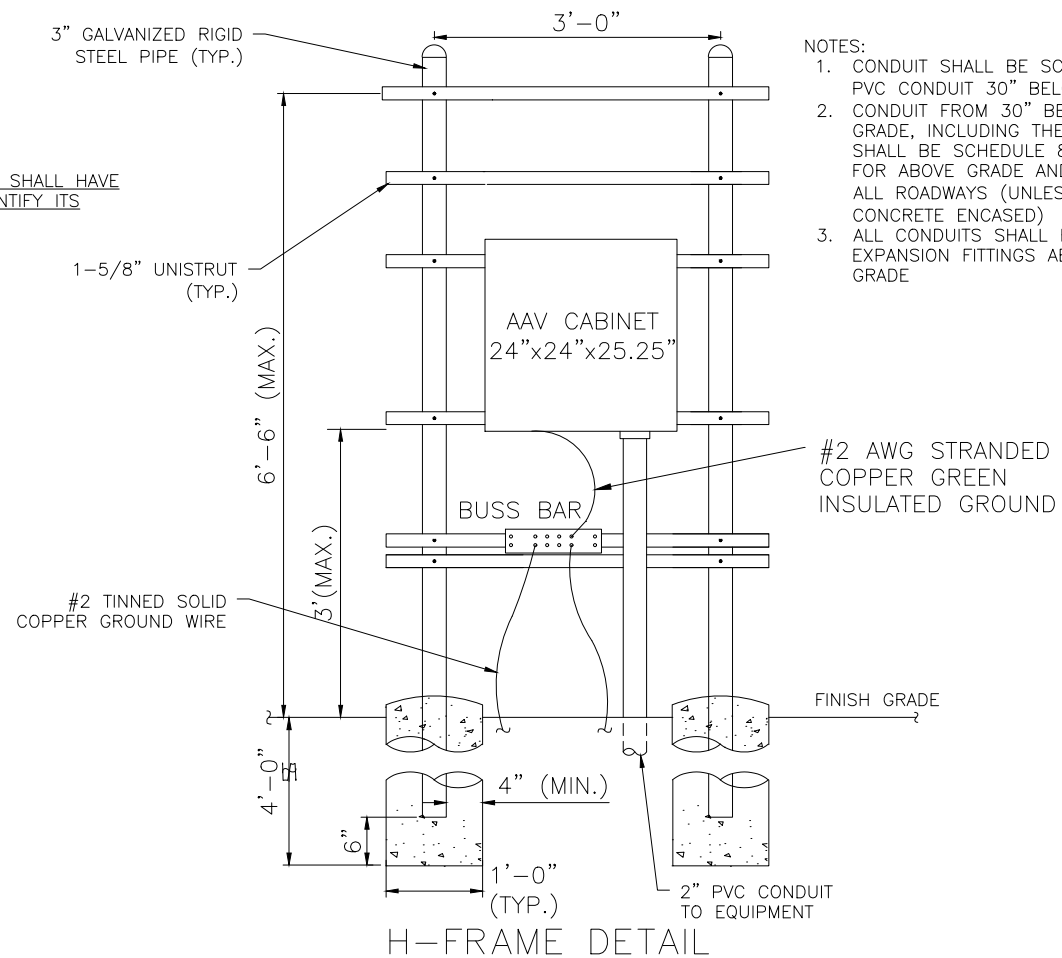
SECTION "A" - SURGE ABSORBERS

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



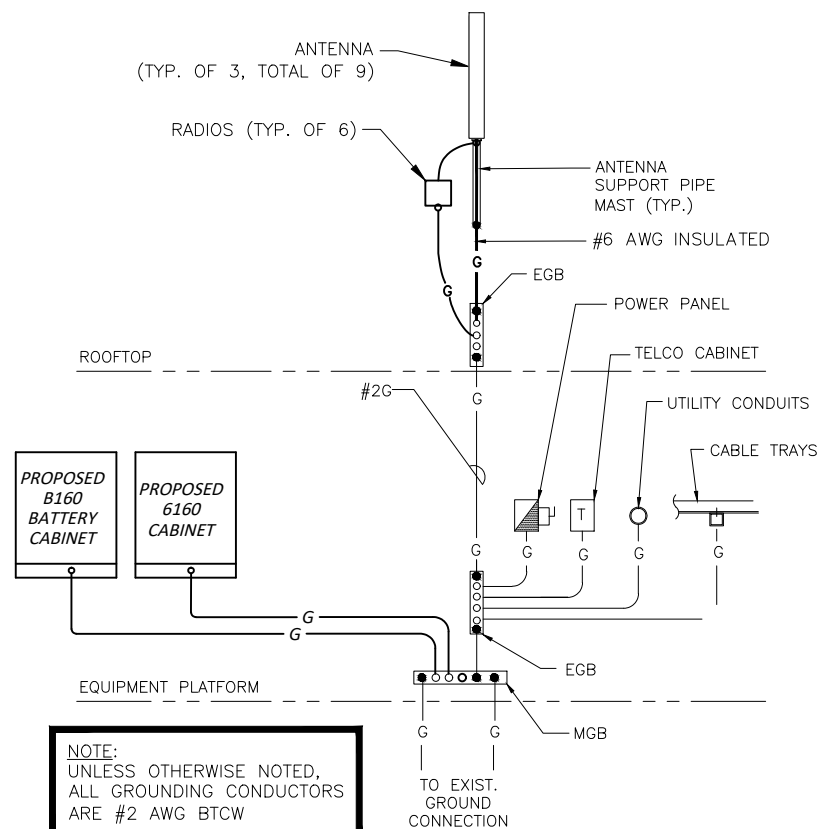
GROUND BAR DETAIL

N.T.S.



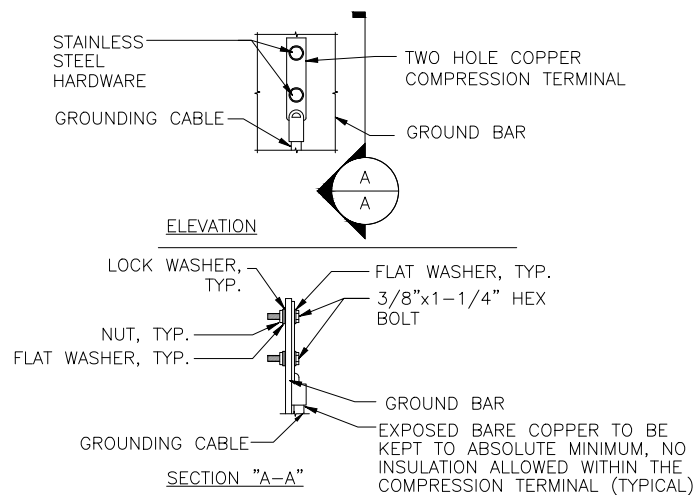
H-FRAME DETAIL

N.T.S.



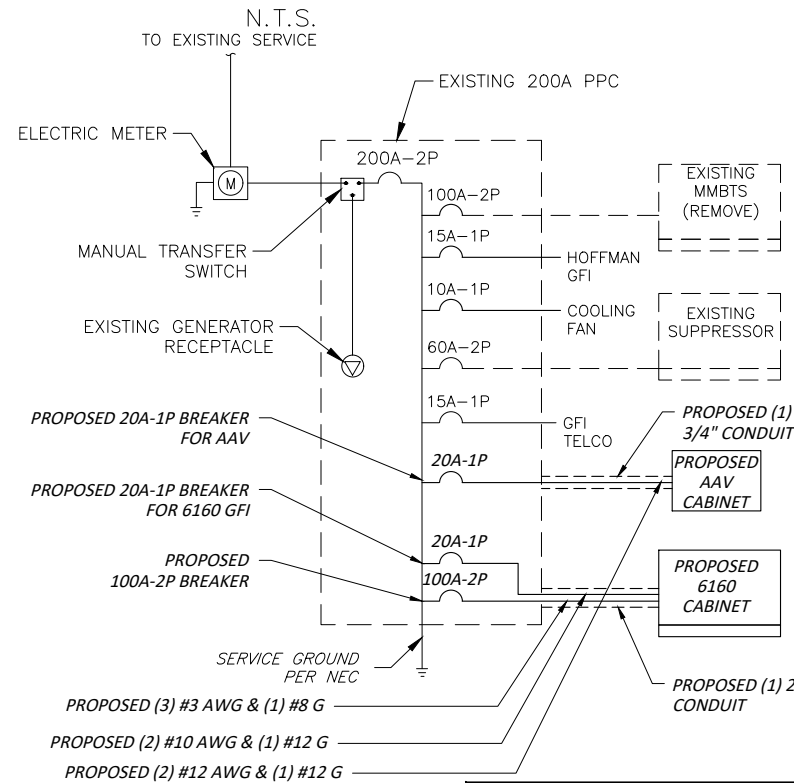
GROUNDING RISER DIAGRAM

N.T.S.



GROUND BAR CONNECTION DETAIL

N.T.S.



ONE LINE POWER DIAGRAM

N.T.S.

T-Mobile
NORTHEAST LLC

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

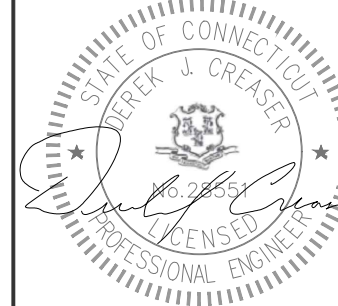


SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
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PHONE: (508) 251-0720



750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
NO.	DATE	DESCRIPTION
1	02/26/21	ISSUED FOR CONSTRUCTION
0	12/09/20	ISSUED FOR REVIEW
DESIGNED BY:	APPROVED BY:	
KT	DC	



DATE: 12/08/21

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SITE NAME:	CTHA832A
SITE NUMBER:	CTHA832A
SITE ADDRESS:	285 CHAMBERLAIN HILL ROAD HIGGANUM, CT 06441
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	GROUNDING DETAILS
DRAWING #:	G-1
REVISION:	2

Exhibit D

Structural Analysis Report



Tower Engineering Solutions

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

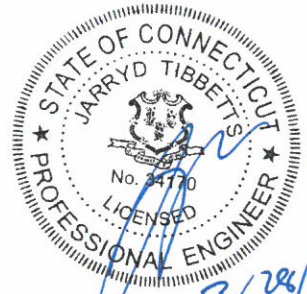
Structural Analysis Report

Existing 185 ft SUMMIT Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT04169-A-2
Customer Site Name: Higganum
Carrier Name: T-Mobile Sprint (App#: 181610, V1)
Carrier Site ID / Name: CT33XC545 / West Higganum
Site Location: 285 Chamberlain Hill Road
Higganum, Connecticut
Middlesex County
Latitude: 41.501764
Longitude: -72.618694

Analysis Result:

Max Structural Usage: 64.2% [Pass]
Max Foundation Usage: 42.0% [Pass]
Additional Usage Caused by Mount Modification: +0.7%

Report Prepared By: Mojdeh Sadeghzadeh





Tower Engineering Solutions

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

Structural Analysis Report

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Customer Name: SBA Communications Corp

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Latitude: 41.501764

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Analysis Result:

Max Structural Usage: 64.2% [Pass]

Max Foundation Usage: 42.0% [Pass]

Additional Usage Caused by Mount Modification: +0.7%

Report Prepared By: Mojdeh Sadeghzadeh

Introduction

The purpose of this report is to summarize the analysis results on the 185 ft SUMMIT Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Original structural design report prepared by Summit Manufacturing, LLC & Paul J. Ford and Company. Dated 11-29-1999. SUMMIT Job No 5350. Job No 29299-805. Previous structural report prepared by FDH Engineering, Inc. Dated 04-11-2014. Project No 1463AY1400.
Foundation Drawing	Original foundation design prepared by Summit Manufacturing, LLC & Paul J. Ford and Company. Dated 11-29-1999. SUMMIT Job No 5350. Job No 29299-805.
Geotechnical Report	Geotechnical report prepared by Criscuolo Shepard Associates, P.C. Dated 06-21-1999. File No 99137.
Modification Drawings	N/A
Mount Analysis	TES Project # 123670, dated 02/08/2022.

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 $V_{ult} = 127.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 98.0$ 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:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.179$, $S_1 = 0.062$

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
-	185.0	3	Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo) - Panel	Low Profile Platform w/ Handrail Kit (SitePro1 HRK14) & Reinforcement Kit (SitePro1 PRK 1245L)	(3) 2" Hybrid	T-Mobile Sprint
-		3	RFS - APXVAALL24_43-U-NA20 - Panel			
-		3	Ericsson - AIR6449 B41 - Panel			
-		4	RFS ACU-A20-N RET			
-		3	Ericsson 4415 B25 RRU			
-		3	ALU 800 MHz RRH			
-		3	Ericsson 4449 B71 + B85 RRU			
-		3	ALU 800 MHz Filter			
8	177.5	6	Ericsson RRU11	Collar Mount (Andrew MTC 3335)	(12) 1 5/8" [(2) 1/2" DC Power & (1) 3/8" Fiber Inside (1) 3" Innerduct]	AT&T
9	175.0	1	Raycap DC6-48-60-18-8F	Low Profile Platform		
10		6	Powerwave 7770 - Panel			
11		3	KMW AM-X-CD-16-65-00T-RET - Panel			
12		6	Powerwave LGP13519			
13		12	Powerwave LGP21401			

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	185.0	3	Ericsson AIR32 KRD901146-1_B66A_B2A (Octo) - Panel	Modified Low Profile Platform w/ Handrail Kit (SitePro1 HRK14) & Reinforcement Kit (SitePro1 PRK 1245L)	(3) 2" Hybrid	T-Mobile Sprint
2		3	RFS APXVAALL24_43-U-NA20 - Panel			
3		3	Ericsson AIR6449 B41 - Panel			
4		4	RFS ACU-A20-N RET			
5		3	ALU 800 MHz RRH			
6		3	ALU 800 MHz Filter			
7		3	Ericsson 4460 B25 + B66 RRU			
8		3	Ericsson 4480 B71 + B85 RRU			

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:	64.2%	35.4%	61.0%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3218.5	24.5	51.1

Two foundation design options were included in the referenced foundation design document. Since it is not known which option was installed, both designs were analyzed using the supplied documents and soils report and both were found adequate. Therefore, no modification to the foundation will be required. Geotechnical soil parameters were obtained from the original foundation calculations included with the referenced tower and foundation design drawings.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.3967 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 64.20% at 94.0ft

Structure: CT04169-A-2-SBA
Site Name: Higganum
Height: 185.00 (ft)
Base Elev: 0.000 (ft)

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

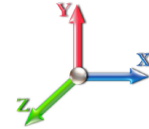
3/28/2022



Page: 1

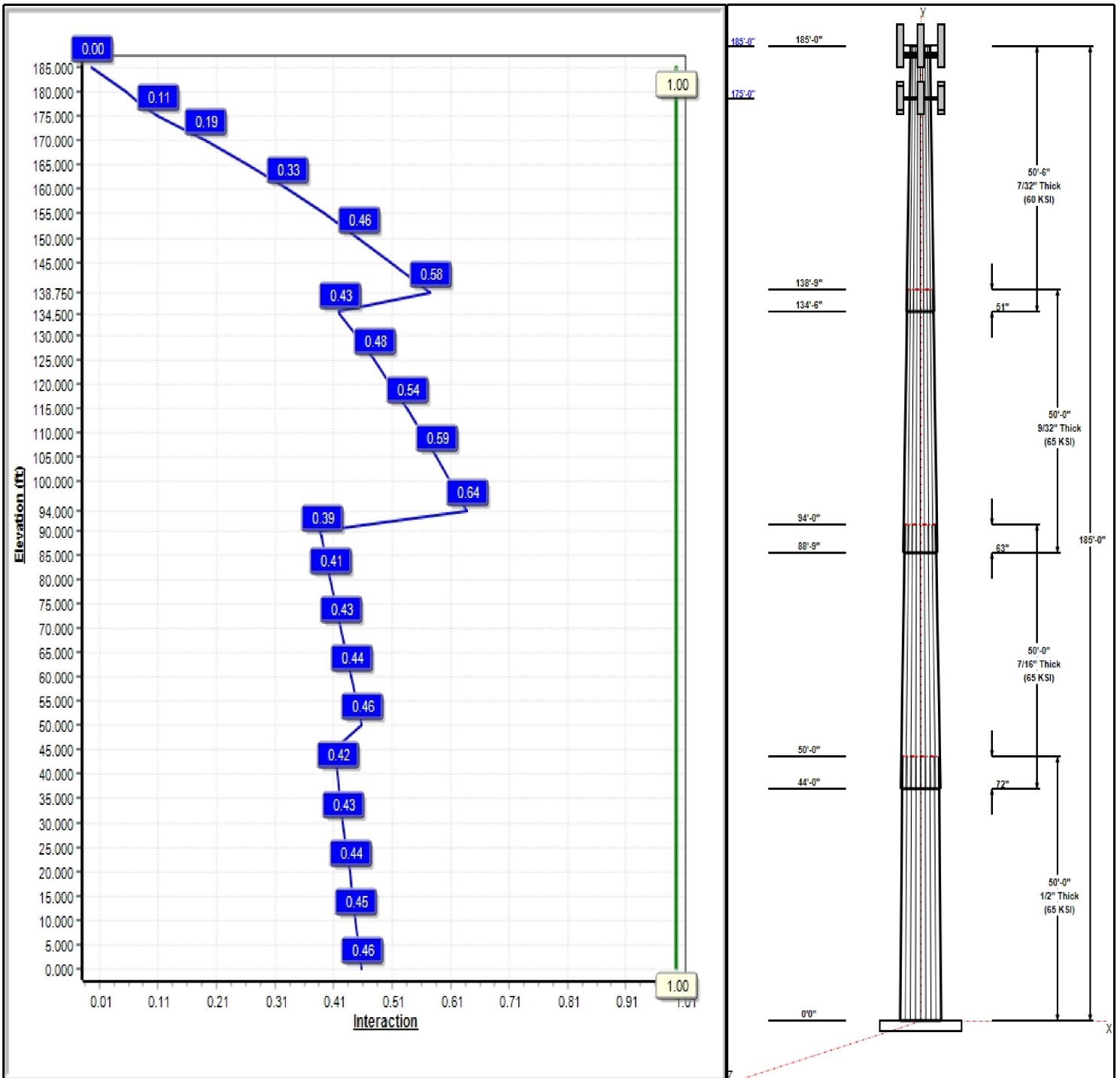
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 98 mph Wind



Iterations: 26

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Structure: CT04169-A-2-SBA

Type: Tapered
Site Name: Higganum
Height: 185.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.18003

3/28/2022

Page: 2



Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.00	46.43	55.43	0.500		0.18003	65
2	50.00	39.38	48.38	0.438	Slip	0.18003	65
3	50.00	31.89	40.89	0.281	Slip	0.18003	65
4	50.50	24.00	33.09	0.219	Slip	0.18003	60

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
185.00	188.50	1	Lightning Rod	---
185.00	185.00	1	SitePro1 HRK14	T-Mobile Sprint
185.00	185.00	1	SitePro1 PRK 1245L	T-Mobile Sprint
185.00	185.00	1	Modified Low Profile	T-Mobile Sprint
185.00	185.00	3	AIR32	T-Mobile Sprint
185.00	185.00	3	APXVAALL24_43-U-NA20	T-Mobile Sprint
185.00	185.00	3	AIR6449 B41	T-Mobile Sprint
185.00	185.00	4	RFS ACU-A20-N RET	T-Mobile Sprint
185.00	185.00	3	ALU 800 MHz RRH	T-Mobile Sprint
185.00	185.00	3	ALU 800 MHz Filter	T-Mobile Sprint
185.00	185.00	3	Ericsson 4460 B25 + B66	T-Mobile Sprint
185.00	185.00	3	Ericsson 4480 B71 + B85	T-Mobile Sprint
177.50	177.50	6	Ericsson RRU11	AT&T
177.50	177.50	1	Raycap DC6-48-60-18-8F	AT&T
177.50	177.50	1	Collar Mount (Andrew MTC	AT&T
175.00	175.00	1	Low Profile Platform	AT&T
175.00	175.00	6	Powerwave LGP13519	AT&T
175.00	175.00	12	Powerwave LGP21401	AT&T
175.00	175.00	6	Powerwave 7770	AT&T
175.00	175.00	3	KMW	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	185.00	Inside	2" Hybrid	T-Mobile Sprint
3.00	185.00	Outside	Safety Cable	T-Mobile Sprint
3.00	185.00	Outside	Step bolts (ladder)	T-Mobile Sprint
3.00	175.00	Inside	1 5/8" Coax	AT&T
3.00	175.00	Inside	1/2" DC Power	AT&T
3.00	175.00	Inside	3" Innerduct	AT&T
3.00	175.00	Inside	3/8" Fiber	AT&T

Anchor Bolts

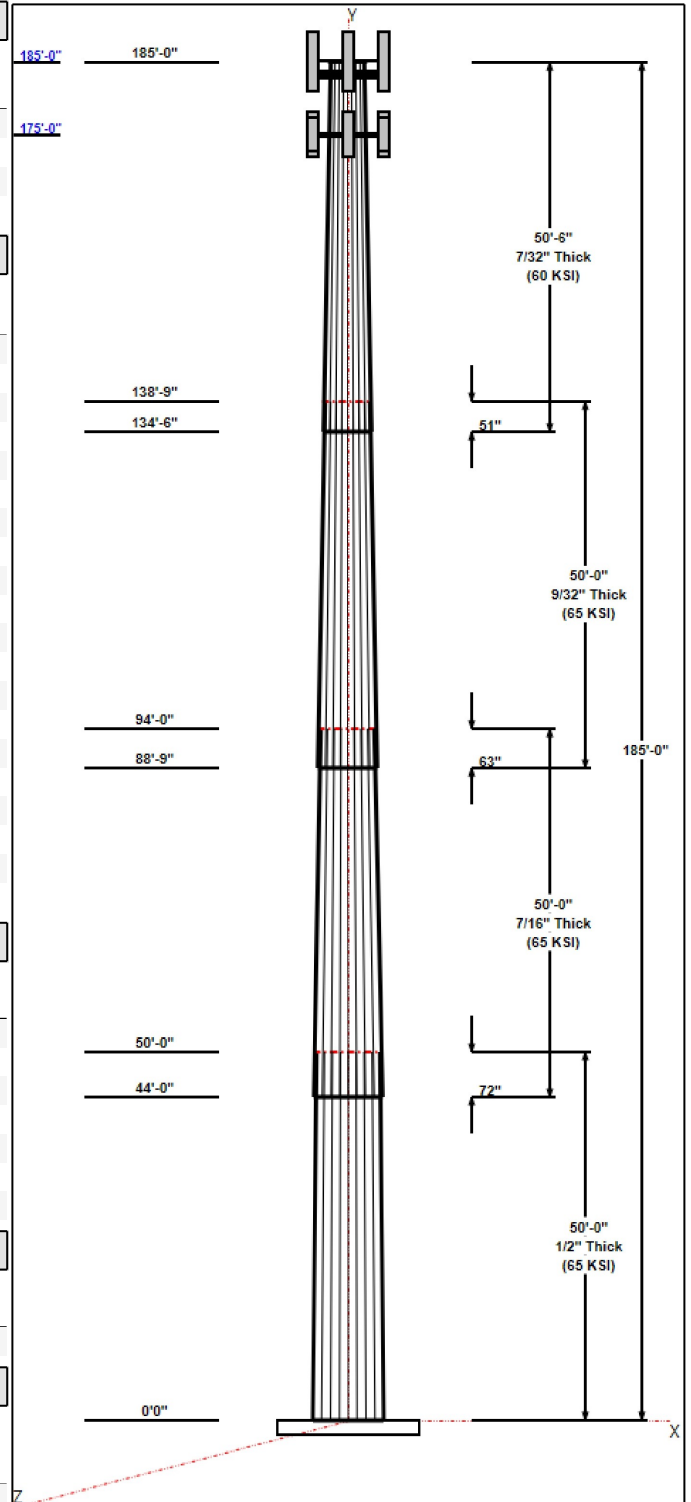
Qty	Specifications	Grade (ksi)	Arrangement
28	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	67.0	50.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 98 mph Wind	3218.5	24.5	51.1



Structure: CT04169-A-2-SBA

Type: Tapered
Site Name: Higganum
Height: 185.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.18003

3/28/2022

Page: 3



0.9D + 1.6W 98 mph Wind	3176.8	24.5	38.4
1.2D + 1.0Di + 1.0Wi 50 mph Wind	944.3	7.2	75.6
1.2D + 1.0E	358.2	2.4	51.2
0.9D + 1.0E	353.1	2.4	38.4
1.0D + 1.0W 60 mph Wind	748.5	5.7	42.6

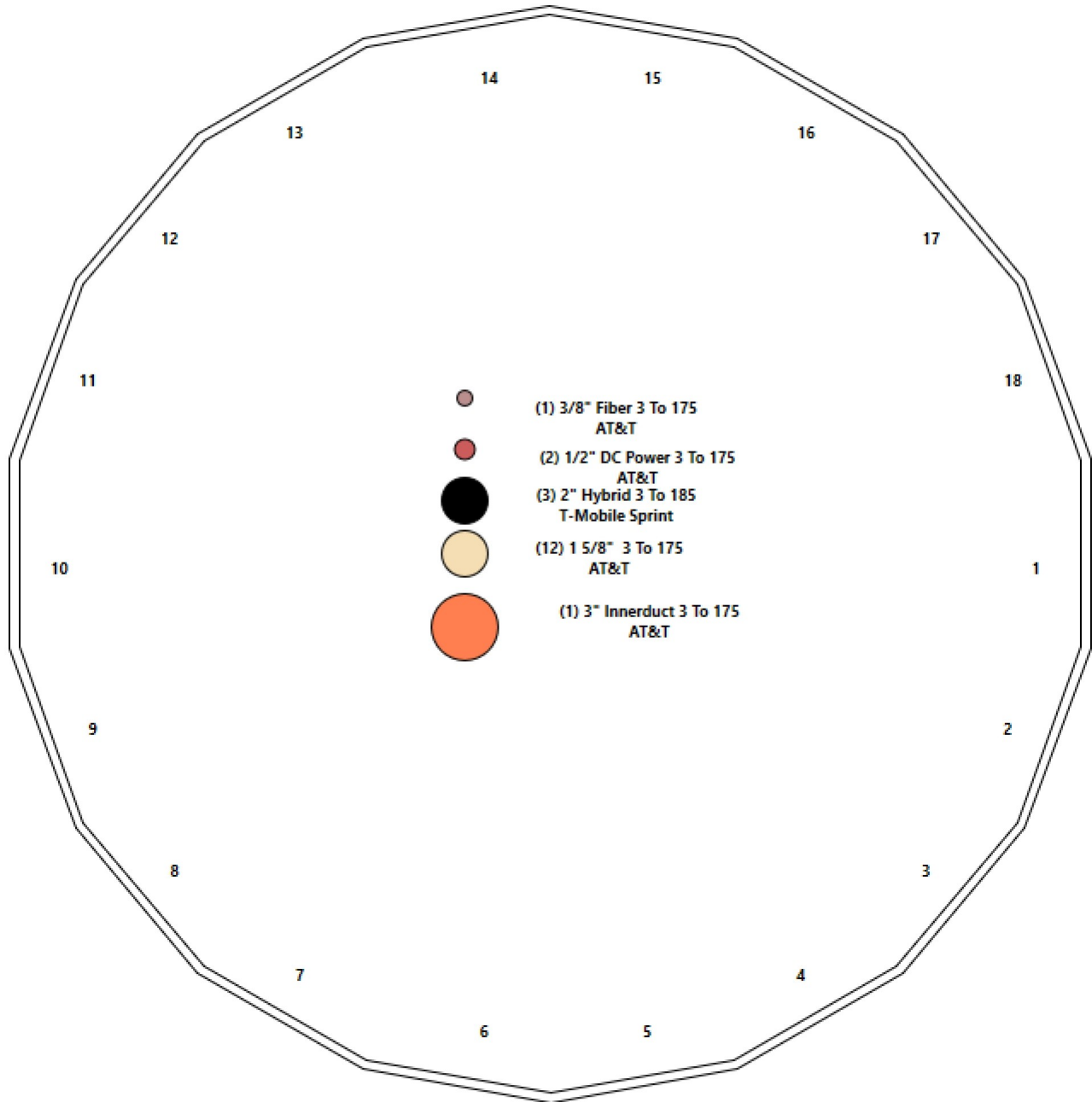
Structure: CT04169-A-2-SBA - Coax Line Placement

Type: Monopole
Site Name: Higganum
Height: 185.00 (ft)

3/28/2022



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Shaft Properties

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.000	0.5000	65		0.00	13,616
2	18	50.000	0.4375	65	Slip	72.00	10,264
3	18	50.000	0.2813	65	Slip	63.00	5,485
4	18	50.500	0.2188	60	Slip	51.00	3,380
Total Shaft Weight:							32,745

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	55.43	0.00	87.17	33230.98	18.14	110.86	46.43	50.00	72.89	19425.1	14.96	92.86	0.180028
2	48.38	44.00	66.58	19336.89	18.09	110.59	39.38	94.00	54.08	10362.7	14.46	90.02	0.180028
3	40.89	88.75	36.26	7553.96	24.22	145.36	31.89	138.75	28.22	3561.89	18.58	113.3	0.180028
4	33.09	134.5	22.83	3116.70	25.26	151.24	24.00	185.00	16.51	1180.03	17.93	109.6	0.180028

Load Summary

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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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	185.00	Lightning Rod	1	35.00	1.05	1.00	67.08	3.474	1.00	0.00	3.50
2	185.00	SitePro1 HRK14	1	302.36	8.13	1.00	668.79	16.244	1.00	0.00	0.00
3	185.00	SitePro1 PRK 1245L	1	464.91	9.50	1.00	796.34	19.659	1.00	0.00	0.00
4	185.00	Modified Low Profile Platform	1	1500.00	25.00	1.00	2836.65	45.495	1.00	0.00	0.00
5	185.00	AIR32 KRD901146-1_B66A_B2A	3	132.20	6.51	0.87	321.21	7.715	0.87	0.00	0.00
6	185.00	APXVAALL24_43-U-NA20	3	122.80	20.24	0.73	560.72	22.182	0.73	0.00	0.00
7	185.00	AIR6449 B41	3	103.00	5.65	0.71	243.02	6.621	0.71	0.00	0.00
8	185.00	RFS ACU-A20-N RET	4	1.04	0.14	0.67	5.60	0.443	0.67	0.00	0.00
9	185.00	ALU 800 MHz RRH	3	53.00	2.49	0.67	128.53	3.658	0.67	0.00	0.00
10	185.00	ALU 800 MHz Filter	3	8.80	0.78	0.67	26.82	1.441	0.67	0.00	0.00
11	185.00	Ericsson 4460 B25 + B66	3	104.00	2.85	0.67	174.06	3.539	0.67	0.00	0.00
12	185.00	Ericsson 4480 B71 + B85	3	93.00	2.85	0.67	166.46	3.539	0.67	0.00	0.00
13	177.50	Ericsson RRU11	6	50.70	2.57	0.67	133.92	3.233	0.67	0.00	0.00
14	177.50	Raycap DC6-48-60-18-8F	1	31.80	2.20	1.00	94.67	3.265	1.00	0.00	0.00
15	177.50	Collar Mount (Andrew MTC 3335)	1	150.00	5.00	1.00	277.79	8.550	1.00	0.00	0.00
16	175.00	Low Profile Platform	1	1500.00	22.00	1.00	2829.24	39.936	1.00	0.00	0.00
17	175.00	Powerwave LGP13519	6	5.30	0.13	0.67	14.95	0.306	0.67	0.00	0.00
18	175.00	Powerwave LGP21401	12	14.10	1.10	0.67	39.49	1.824	0.67	0.00	0.00
19	175.00	Powerwave 7770	6	35.00	5.51	0.73	172.76	6.583	0.73	0.00	0.00
20	175.00	KMW AM-X-CD-16-65-00T-RET	3	48.50	8.02	0.75	213.30	10.857	0.75	0.00	0.00
Totals:			65	6,699.33			15,498.97				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
3.00	185.00	(3) 2" Hybrid	0.00	Inside
3.00	185.00	(1) Safety Cable	0.38	Outside
3.00	185.00	(2) Step bolts (ladder)	0.63	Outside
3.00	175.00	(12) 1 5/8" Coax	0.00	Inside
3.00	175.00	(2) 1/2" DC Power	0.00	Inside
3.00	175.00	(1) 3" Innerduct	0.00	Inside
3.00	175.00	(1) 3/8" Fiber	0.00	Inside

Shaft Section Properties

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.5000	55.430	87.171	33231.0	18.14	110.86	80.1	1180.	0.0
5.00		0.5000	54.530	85.742	31623.9	17.82	109.06	80.4	1142.	1471.0
10.00		0.5000	53.630	84.314	30069.6	17.50	107.26	80.8	1104.	1446.7
15.00		0.5000	52.730	82.885	28567.0	17.18	105.46	81.2	1067.	1422.4
20.00		0.5000	51.829	81.457	27115.3	16.87	103.66	81.6	1030.	1398.1
25.00		0.5000	50.929	80.028	25713.6	16.55	101.86	81.9	994.4	1373.7
30.00		0.5000	50.029	78.600	24361.1	16.23	100.06	82.3	959.1	1349.4
35.00		0.5000	49.129	77.171	23056.9	15.91	98.26	82.5	924.4	1325.1
40.00		0.5000	48.229	75.743	21800.1	15.60	96.46	82.5	890.3	1300.8
44.00	Bot - Section 2	0.5000	47.509	74.600	20828.2	15.34	95.02	82.5	863.5	1023.2
45.00		0.5000	47.329	74.315	20589.8	15.28	94.66	82.5	856.9	479.5
50.00	Top - Section 1	0.4375	47.304	65.077	18059.2	17.65	108.12	0.0	0.0	2370.1
55.00		0.4375	46.403	63.827	17038.5	17.29	106.07	81.1	723.2	1096.6
60.00		0.4375	45.503	62.577	16057.0	16.93	104.01	81.5	695.0	1075.3
65.00		0.4375	44.603	61.327	15113.9	16.57	101.95	81.9	667.4	1054.0
70.00		0.4375	43.703	60.077	14208.5	16.20	99.89	82.3	640.4	1032.8
75.00		0.4375	42.803	58.828	13340.0	15.84	97.84	82.5	613.9	1011.5
80.00		0.4375	41.903	57.578	12507.6	15.48	95.78	82.5	587.9	990.3
85.00		0.4375	41.003	56.328	11710.6	15.11	93.72	82.5	562.5	969.0
88.75	Bot - Section 3	0.4375	40.328	55.390	11135.6	14.84	92.18	82.5	543.9	712.8
90.00		0.4375	40.102	55.078	10948.2	14.75	91.66	82.5	537.7	388.7
94.00	Top - Section 2	0.2813	39.945	35.412	7038.7	23.63	142.00	0.0	0.0	1229.2
95.00		0.2813	39.765	35.252	6943.3	23.52	141.36	73.7	343.9	120.2
100.00		0.2813	38.865	34.448	6479.2	22.95	138.16	74.4	328.4	592.9
105.00		0.2813	37.965	33.644	6036.2	22.39	134.96	75.1	313.2	579.3
110.00		0.2813	37.065	32.841	5613.9	21.82	131.76	75.7	298.3	565.6
115.00		0.2813	36.164	32.037	5211.7	21.26	128.56	76.4	283.8	551.9
120.00		0.2813	35.264	31.233	4829.3	20.69	125.36	77.1	269.7	538.2
125.00		0.2813	34.364	30.430	4466.0	20.13	122.16	77.7	256.0	524.6
130.00		0.2813	33.464	29.626	4121.4	19.57	118.96	78.4	242.6	510.9
134.50	Bot - Section 4	0.2813	32.654	28.903	3826.9	19.06	116.08	79.0	230.8	448.1
135.00		0.2813	32.564	28.822	3795.0	19.00	115.76	79.1	229.5	87.9
138.75	Top - Section 3	0.2188	32.326	22.297	2904.1	24.64	147.74	0.0	0.0	651.4
140.00		0.2188	32.101	22.141	2843.5	24.46	146.72	68.1	174.5	94.5
145.00		0.2188	31.201	21.516	2609.4	23.73	142.60	68.8	164.7	371.4
150.00		0.2188	30.301	20.890	2388.5	23.01	138.49	69.6	155.3	360.7
155.00		0.2188	29.401	20.265	2180.4	22.28	134.37	70.4	146.1	350.1
160.00		0.2188	28.501	19.640	1984.8	21.56	130.26	71.1	137.2	339.5
165.00		0.2188	27.601	19.015	1801.3	20.83	126.15	71.9	128.5	328.8
170.00		0.2188	26.700	18.390	1629.4	20.11	122.03	72.6	120.2	318.2
175.00		0.2188	25.800	17.765	1468.8	19.38	117.92	73.4	112.1	307.6
177.50		0.2188	25.350	17.452	1392.7	19.02	115.86	73.8	108.2	149.8
180.00		0.2188	24.900	17.140	1319.2	18.66	113.80	74.1	104.3	147.1
185.00		0.2188	24.000	16.515	1180.0	17.93	109.69	74.9	96.8	286.3

32745.3

Wind Loading - Shaft

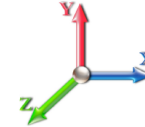
Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 98 mph Wind

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.60



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	16.350	17.98	384.58	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	16.350	17.98	378.34	0.650	0.000	5.00	23.262	15.12	435.1	0.0	1765.2
10.00		1.00	0.70	16.350	17.98	372.09	0.650	0.000	5.00	22.881	14.87	428.0	0.0	1736.0
15.00		1.00	0.70	16.350	17.98	365.84	0.650	0.000	5.00	22.500	14.63	420.8	0.0	1706.8
20.00		1.00	0.70	16.350	17.98	359.60	0.650	0.000	5.00	22.119	14.38	413.7	0.0	1677.7
25.00		1.00	0.70	16.350	17.98	353.35	0.650	0.000	5.00	21.738	14.13	406.6	0.0	1648.5
30.00		1.00	0.70	16.364	18.00	347.26	0.650	0.000	5.00	21.357	13.88	399.8	0.0	1619.3
35.00		1.00	0.73	17.100	18.81	348.60	0.650	0.000	5.00	20.977	13.63	410.4	0.0	1590.2
40.00		1.00	0.76	17.765	19.54	348.80	0.650	0.000	5.00	20.596	13.39	418.6	0.0	1561.0
44.00	Bot - Section 2	1.00	0.78	18.256	20.08	348.31	0.650	0.000	4.00	16.202	10.53	338.4	0.0	1227.8
45.00		1.00	0.79	18.374	20.21	348.10	0.650	0.000	1.00	4.087	2.66	85.9	0.0	575.4
50.00	Top - Section 1	1.00	0.81	18.935	20.83	346.66	0.650	0.000	5.00	20.204	13.13	437.7	0.0	2844.1
55.00		1.00	0.83	19.458	21.40	351.22	0.650	0.000	5.00	19.823	12.89	441.3	0.0	1315.9
60.00		1.00	0.85	19.948	21.94	348.72	0.650	0.000	5.00	19.443	12.64	443.7	0.0	1290.4
65.00		1.00	0.87	20.409	22.45	345.75	0.650	0.000	5.00	19.062	12.39	445.1	0.0	1264.9
70.00		1.00	0.89	20.846	22.93	342.38	0.650	0.000	5.00	18.681	12.14	445.5	0.0	1239.3
75.00		1.00	0.91	21.261	23.39	338.65	0.650	0.000	5.00	18.300	11.90	445.1	0.0	1213.8
80.00		1.00	0.93	21.656	23.82	334.60	0.650	0.000	5.00	17.919	11.65	443.9	0.0	1188.3
85.00		1.00	0.94	22.035	24.24	330.26	0.650	0.000	5.00	17.538	11.40	442.1	0.0	1162.8
88.75	Bot - Section 3	1.00	0.96	22.308	24.54	326.83	0.650	0.000	3.75	12.904	8.39	329.3	0.0	855.3
90.00		1.00	0.96	22.398	24.64	325.65	0.650	0.000	1.25	4.313	2.80	110.5	0.0	466.5
94.00	Top - Section 2	1.00	0.97	22.678	24.95	321.80	0.650	0.000	4.00	13.642	8.87	353.9	0.0	1475.1
95.00		1.00	0.97	22.746	25.02	325.42	0.650	0.000	1.00	3.372	2.19	87.8	0.0	144.3
100.00		1.00	0.99	23.082	25.39	320.39	0.650	0.000	5.00	16.634	10.81	439.2	0.0	711.5
105.00		1.00	1.00	23.406	25.75	315.16	0.650	0.000	5.00	16.253	10.56	435.2	0.0	695.1
110.00		1.00	1.02	23.719	26.09	309.74	0.650	0.000	5.00	15.872	10.32	430.7	0.0	678.7
115.00		1.00	1.03	24.022	26.42	304.14	0.650	0.000	5.00	15.491	10.07	425.7	0.0	662.3
120.00		1.00	1.04	24.316	26.75	298.38	0.650	0.000	5.00	15.111	9.82	420.3	0.0	645.9
125.00		1.00	1.05	24.602	27.06	292.46	0.650	0.000	5.00	14.730	9.57	414.6	0.0	629.5
130.00		1.00	1.07	24.879	27.37	286.40	0.650	0.000	5.00	14.349	9.33	408.4	0.0	613.1
134.50	Bot - Section 4	1.00	1.08	25.122	27.63	280.83	0.650	0.000	4.50	12.588	8.18	361.8	0.0	537.7
135.00		1.00	1.08	25.149	27.66	280.21	0.650	0.000	0.50	1.398	0.91	40.2	0.0	105.5
138.75	Top - Section 3	1.00	1.09	25.346	27.88	275.47	0.650	0.000	3.75	10.365	6.74	300.5	0.0	781.7
140.00		1.00	1.09	25.411	27.95	277.66	0.650	0.000	1.25	3.407	2.21	99.1	0.0	113.4
145.00		1.00	1.10	25.667	28.23	271.23	0.650	0.000	5.00	13.391	8.70	393.2	0.0	445.7
150.00		1.00	1.11	25.917	28.51	264.69	0.650	0.000	5.00	13.011	8.46	385.8	0.0	432.9
155.00		1.00	1.12	26.161	28.78	258.03	0.650	0.000	5.00	12.630	8.21	378.0	0.0	420.1
160.00		1.00	1.13	26.399	29.04	251.27	0.650	0.000	5.00	12.249	7.96	369.9	0.0	407.4
165.00		1.00	1.14	26.633	29.30	244.40	0.650	0.000	5.00	11.868	7.71	361.6	0.0	394.6
170.00		1.00	1.15	26.861	29.55	237.44	0.650	0.000	5.00	11.487	7.47	353.0	0.0	381.8
175.00	Appurtenance(s)	1.00	1.16	27.084	29.79	230.39	0.650	0.000	5.00	11.106	7.22	344.1	0.0	369.1
177.50	Appurtenance(s)	1.00	1.16	27.194	29.91	226.83	0.650	0.000	2.50	5.410	3.52	168.3	0.0	179.8
180.00		1.00	1.17	27.303	30.03	223.25	0.650	0.000	2.50	5.315	3.45	166.0	0.0	176.6
185.00	Appurtenance(s)	1.00	1.18	27.518	30.27	216.02	0.650	0.000	5.00	10.345	6.72	325.7	0.0	343.6
Totals:									185.00			15,204.4		39,294.3

Discrete Appurtenance Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

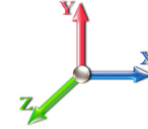


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Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	185.00	SitePro1 PRK 1245L	1	27.518	30.269	1.00	1.00	9.50	557.89	0.000	0.000	460.09	0.00	0.00
2	185.00	Ericsson 4460 B25 + B66	3	27.518	30.269	0.50	0.75	4.30	374.40	0.000	0.000	208.08	0.00	0.00
3	185.00	ALU 800 MHz Filter	3	27.518	30.269	0.50	0.75	1.18	31.68	0.000	0.000	56.95	0.00	0.00
4	185.00	ALU 800 MHz RRH	3	27.518	30.269	0.50	0.75	3.75	190.80	0.000	0.000	181.79	0.00	0.00
5	185.00	RFS ACU-A20-N RET	4	27.518	30.269	0.50	0.75	0.28	4.99	0.000	0.000	13.63	0.00	0.00
6	185.00	AIR6449 B41	3	27.518	30.269	0.53	0.75	9.03	370.80	0.000	0.000	437.13	0.00	0.00
7	185.00	APXVAALL24_43-U-NA20	3	27.518	30.269	0.55	0.75	33.24	442.08	0.000	0.000	1610.04	0.00	0.00
8	185.00	AIR32	3	27.518	30.269	0.65	0.75	12.74	475.92	0.000	0.000	617.17	0.00	0.00
9	185.00	Modified Low Profile	1	27.518	30.269	1.00	1.00	25.00	1800.00	0.000	0.000	1210.77	0.00	0.00
10	185.00	Ericsson 4480 B71 + B85	3	27.518	30.269	0.50	0.75	4.30	334.80	0.000	0.000	208.08	0.00	0.00
11	185.00	SitePro1 HRK14	1	27.518	30.269	1.00	1.00	8.13	362.83	0.000	0.000	393.74	0.00	0.00
12	185.00	Lightning Rod	1	27.665	30.432	1.00	1.00	1.05	42.00	0.000	3.500	51.13	0.00	178.94
13	177.50	Collar Mount (Andrew)	1	27.194	29.913	1.00	1.00	5.00	180.00	0.000	0.000	239.31	0.00	0.00
14	177.50	Raycap DC6-48-60-18-8F	1	27.194	29.913	1.00	1.00	2.20	38.16	0.000	0.000	105.30	0.00	0.00
15	177.50	Ericsson RRU11	6	27.194	29.913	0.54	0.80	8.27	365.04	0.000	0.000	395.58	0.00	0.00
16	175.00	KMW	3	27.084	29.792	0.60	0.80	14.44	174.60	0.000	0.000	688.13	0.00	0.00
17	175.00	Powerwave 7770	6	27.084	29.792	0.58	0.80	19.31	252.00	0.000	0.000	920.33	0.00	0.00
18	175.00	Powerwave LGP21401	12	27.084	29.792	0.54	0.80	7.08	203.04	0.000	0.000	337.26	0.00	0.00
19	175.00	Powerwave LGP13519	6	27.084	29.792	0.54	0.80	0.42	38.16	0.000	0.000	19.93	0.00	0.00
20	175.00	Low Profile Platform	1	27.084	29.792	1.00	1.00	22.00	1800.00	0.000	0.000	1048.69	0.00	0.00
Totals:									8,039.20			9,203.13		

Total Applied Force Summary

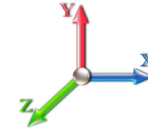
Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

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		435.09	1809.13	0.00	0.00
10.00		427.97	1845.94	0.00	0.00
15.00		420.85	1816.77	0.00	0.00
20.00		413.72	1787.61	0.00	0.00
25.00		406.60	1758.45	0.00	0.00
30.00		399.81	1729.28	0.00	0.00
35.00		410.36	1700.12	0.00	0.00
40.00		418.58	1670.95	0.00	0.00
44.00		338.38	1315.76	0.00	0.00
45.00		85.90	597.37	0.00	0.00
50.00		437.66	2954.04	0.00	0.00
55.00		441.26	1425.85	0.00	0.00
60.00		443.68	1400.33	0.00	0.00
65.00		445.05	1374.81	0.00	0.00
70.00		445.49	1349.29	0.00	0.00
75.00		445.10	1323.77	0.00	0.00
80.00		443.95	1298.25	0.00	0.00
85.00		442.10	1272.73	0.00	0.00
88.75		329.31	937.80	0.00	0.00
90.00		110.52	493.96	0.00	0.00
94.00		353.92	1563.05	0.00	0.00
95.00		87.76	166.26	0.00	0.00
100.00		439.23	821.46	0.00	0.00
105.00		435.20	805.06	0.00	0.00
110.00		430.69	788.65	0.00	0.00
115.00		425.73	772.24	0.00	0.00
120.00		420.34	755.83	0.00	0.00
125.00		414.55	739.42	0.00	0.00
130.00		408.39	723.02	0.00	0.00
134.50		361.78	636.69	0.00	0.00
135.00		40.23	116.47	0.00	0.00
138.75		300.54	864.20	0.00	0.00
140.00		99.05	140.90	0.00	0.00
145.00		393.22	555.61	0.00	0.00
150.00		385.75	542.84	0.00	0.00
155.00		377.99	530.08	0.00	0.00
160.00		369.93	517.32	0.00	0.00
165.00		361.59	504.56	0.00	0.00
170.00		352.99	491.79	0.00	0.00
175.00	(28) attachments	3358.47	2946.83	0.00	0.00
177.50	(8) attachments	908.50	778.60	0.00	0.00
180.00		166.02	192.21	0.00	0.00
185.00	(29) attachments	5774.25	5363.04	0.00	178.94
Totals:		24,407.51	51,178.36	0.00	178.94

Linear Appurtenance Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

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	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.007	0.000	16.350	0.00	0.66
5.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.007	0.000	16.350	0.00	4.99
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	16.350	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	16.350	0.00	12.48
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	16.350	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	16.350	0.00	12.48
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	16.350	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	16.350	0.00	12.48
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	16.350	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	16.350	0.00	12.48
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	16.364	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	16.364	0.00	12.48
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	17.100	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	17.100	0.00	12.48
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	17.765	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	17.765	0.00	12.48
44.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	18.256	0.00	1.31
44.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	18.256	0.00	9.98
45.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	18.374	0.00	0.33
45.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	18.374	0.00	2.50
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	18.935	0.00	1.64
50.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	18.935	0.00	12.48
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	19.458	0.00	1.64
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	19.458	0.00	12.48
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	19.948	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	19.948	0.00	12.48
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	20.409	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	20.409	0.00	12.48
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	20.846	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	20.846	0.00	12.48
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	21.261	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	21.261	0.00	12.48
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	21.656	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	21.656	0.00	12.48
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	22.035	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	22.035	0.00	12.48
88.75	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.024	0.000	22.308	0.00	1.23
88.75	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.024	0.000	22.308	0.00	9.36
90.00	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.025	0.000	22.398	0.00	0.41
90.00	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.025	0.000	22.398	0.00	3.12
94.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.025	0.000	22.678	0.00	1.31
94.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.025	0.000	22.678	0.00	9.98
95.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.025	0.000	22.746	0.00	0.33
95.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.025	0.000	22.746	0.00	2.50
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	23.082	0.00	1.64
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	23.082	0.00	12.48
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	23.406	0.00	1.64

Linear Appurtenance Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

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)
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	23.406	0.00	12.48
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	23.719	0.00	1.64
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	23.719	0.00	12.48
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	24.022	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	24.022	0.00	12.48
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	24.316	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	24.316	0.00	12.48
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	24.602	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	24.602	0.00	12.48
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	24.879	0.00	1.64
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	24.879	0.00	12.48
134.50	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.030	0.000	25.122	0.00	1.47
134.50	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.030	0.000	25.122	0.00	11.23
135.00	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.031	0.000	25.149	0.00	0.16
135.00	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.031	0.000	25.149	0.00	1.25
138.75	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	25.346	0.00	1.23
138.75	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	25.346	0.00	9.36
140.00	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	25.411	0.00	0.41
140.00	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	25.411	0.00	3.12
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	25.667	0.00	1.64
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	25.667	0.00	12.48
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.032	0.000	25.917	0.00	1.64
150.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.032	0.000	25.917	0.00	12.48
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	26.161	0.00	1.64
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	26.161	0.00	12.48
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.034	0.000	26.399	0.00	1.64
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.034	0.000	26.399	0.00	12.48
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	26.633	0.00	1.64
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	26.633	0.00	12.48
170.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	26.861	0.00	1.64
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	26.861	0.00	12.48
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.038	0.000	27.084	0.00	1.64
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.038	0.000	27.084	0.00	12.48
177.50	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.039	0.000	27.194	0.00	0.82
177.50	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.039	0.000	27.194	0.00	6.24
180.00	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.040	0.000	27.303	0.00	0.82
180.00	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.040	0.000	27.303	0.00	6.24
185.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.041	0.000	27.518	0.00	1.64
185.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.041	0.000	27.518	0.00	12.48
Totals:											0.0	513.9

Calculated Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 98 mph Wind

Iterations 26

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	-51.15	-24.47	0.00	-3218.4	0.00	3218.49	6281.65	3140.82	14160.7	7090.90	0.00	0.000	0.000	0.462
5.00	-49.28	-24.15	0.00	-3096.1	0.00	3096.15	6207.52	3103.76	13762.2	6891.36	0.07	-0.135	0.000	0.457
10.00	-47.38	-23.83	0.00	-2975.4	0.00	2975.41	6132.43	3066.22	13367.2	6693.54	0.29	-0.272	0.000	0.452
15.00	-45.51	-23.51	0.00	-2856.2	0.00	2856.28	6056.39	3028.19	12975.7	6497.49	0.65	-0.410	0.000	0.447
20.00	-43.67	-23.18	0.00	-2738.7	0.00	2738.75	5979.38	2989.69	12587.8	6303.27	1.15	-0.549	0.000	0.442
25.00	-41.86	-22.86	0.00	-2622.8	0.00	2622.84	5901.41	2950.71	12203.7	6110.93	1.80	-0.690	0.000	0.436
30.00	-40.08	-22.54	0.00	-2508.5	0.00	2508.53	5822.49	2911.24	11823.4	5920.53	2.60	-0.832	0.000	0.431
35.00	-38.33	-22.20	0.00	-2395.8	0.00	2395.84	5733.45	2866.73	11428.9	5722.98	3.54	-0.975	0.000	0.425
40.00	-36.62	-21.83	0.00	-2284.8	0.00	2284.86	5627.33	2813.66	11007.6	5512.02	4.64	-1.119	0.000	0.421
44.00	-35.28	-21.51	0.00	-2197.5	0.00	2197.53	5542.42	2771.21	10676.3	5346.10	5.63	-1.236	0.000	0.417
45.00	-34.65	-21.47	0.00	-2176.0	0.00	2176.02	5521.20	2760.60	10594.2	5305.01	5.89	-1.266	0.000	0.417
50.00	-31.66	-21.04	0.00	-2068.6	0.00	2068.69	4722.80	2361.40	9081.57	4547.53	7.30	-1.413	0.000	0.462
55.00	-30.19	-20.64	0.00	-1963.4	0.00	1963.49	4656.60	2328.30	8780.70	4396.88	8.86	-1.560	0.000	0.453
60.00	-28.74	-20.24	0.00	-1860.2	0.00	1860.27	4589.44	2294.72	8483.00	4247.80	10.57	-1.720	0.000	0.444
65.00	-27.33	-19.83	0.00	-1759.0	0.00	1759.07	4521.32	2260.66	8188.56	4100.37	12.46	-1.880	0.000	0.435
70.00	-25.94	-19.41	0.00	-1659.9	0.00	1659.92	4452.24	2226.12	7897.50	3954.62	14.52	-2.041	0.000	0.426
75.00	-24.58	-18.99	0.00	-1562.8	0.00	1562.87	4370.59	2185.30	7589.75	3800.52	16.74	-2.202	0.000	0.417
80.00	-23.25	-18.56	0.00	-1467.9	0.00	1467.93	4277.73	2138.86	7269.05	3639.93	19.13	-2.364	0.000	0.409
85.00	-21.95	-18.12	0.00	-1375.1	0.00	1375.15	4184.87	2092.43	6955.26	3482.80	21.69	-2.526	0.000	0.400
88.75	-21.00	-17.77	0.00	-1307.2	0.00	1307.22	4115.22	2057.61	6724.47	3367.23	23.73	-2.648	0.000	0.393
90.00	-20.49	-17.67	0.00	-1285.0	0.00	1285.00	4092.00	2046.00	6648.40	3329.14	24.43	-2.689	0.000	0.391
94.00	-18.92	-17.27	0.00	-1214.3	0.00	1214.32	2346.03	1173.01	3826.44	1916.06	26.73	-2.819	0.000	0.642
95.00	-18.72	-17.22	0.00	-1197.0	0.00	1197.05	2339.59	1169.79	3798.50	1902.07	27.33	-2.852	0.000	0.638
100.00	-17.85	-16.81	0.00	-1110.9	0.00	1110.96	2306.83	1153.41	3659.31	1832.38	30.44	-3.089	0.000	0.614
105.00	-17.01	-16.40	0.00	-1026.9	0.00	1026.91	2273.10	1136.55	3521.09	1763.16	33.80	-3.323	0.000	0.590
110.00	-16.18	-15.99	0.00	-944.91	0.00	944.91	2238.42	1119.21	3383.92	1694.48	37.40	-3.556	0.000	0.565
115.00	-15.38	-15.58	0.00	-864.97	0.00	864.97	2202.78	1101.39	3247.93	1626.38	41.25	-3.785	0.000	0.539
120.00	-14.59	-15.16	0.00	-787.10	0.00	787.10	2166.17	1083.09	3113.22	1558.92	45.33	-4.010	0.000	0.512
125.00	-13.83	-14.75	0.00	-711.29	0.00	711.29	2128.61	1064.30	2979.89	1492.16	49.64	-4.231	0.000	0.483
130.00	-13.09	-14.33	0.00	-637.56	0.00	637.56	2090.09	1045.04	2848.05	1426.14	54.19	-4.446	0.000	0.453
134.50	-12.46	-13.94	0.00	-573.06	0.00	573.06	2054.59	1027.30	2730.76	1367.41	58.47	-4.634	0.000	0.425
135.00	-12.32	-13.91	0.00	-566.09	0.00	566.09	2050.60	1025.30	2717.81	1360.93	58.95	-4.655	0.000	0.422
138.75	-11.46	-13.56	0.00	-513.92	0.00	513.92	1362.52	681.26	1799.45	901.06	62.67	-4.807	0.000	0.579
140.00	-11.30	-13.48	0.00	-496.97	0.00	496.97	1356.74	678.37	1779.17	890.91	63.93	-4.857	0.000	0.567
145.00	-10.73	-13.08	0.00	-429.58	0.00	429.58	1333.09	666.54	1698.46	850.49	69.14	-5.089	0.000	0.514
150.00	-10.17	-12.69	0.00	-364.17	0.00	364.17	1308.58	654.29	1618.46	810.43	74.58	-5.306	0.000	0.458
155.00	-9.64	-12.29	0.00	-300.74	0.00	300.74	1283.23	641.61	1539.27	770.78	80.23	-5.504	0.000	0.398
160.00	-9.13	-11.90	0.00	-239.29	0.00	239.29	1257.02	628.51	1460.97	731.57	86.09	-5.680	0.000	0.335
165.00	-8.64	-11.51	0.00	-179.80	0.00	179.80	1229.96	614.98	1383.68	692.87	92.11	-5.830	0.000	0.267
170.00	-8.16	-11.12	0.00	-122.27	0.00	122.27	1202.05	601.03	1307.47	654.71	98.27	-5.949	0.000	0.194
175.00	-5.58	-7.48	0.00	-66.66	0.00	66.66	1173.29	586.65	1232.46	617.14	104.54	-6.032	0.000	0.113
177.50	-4.90	-6.49	0.00	-47.97	0.00	47.97	1158.59	579.30	1195.42	598.60	107.70	-6.059	0.000	0.084
180.00	-4.72	-6.31	0.00	-31.73	0.00	31.73	1143.68	571.84	1158.72	580.22	110.87	-6.080	0.000	0.059
185.00	0.00	-5.77	0.00	-0.18	0.00	0.18	1113.22	556.61	1086.36	543.99	117.24	-6.097	0.000	0.000

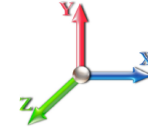
Wind Loading - Shaft

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	16.350	17.98	384.58	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	16.350	17.98	378.34	0.650	0.000	5.00	23.262	15.12	435.1	0.0	1323.9
10.00		1.00	0.70	16.350	17.98	372.09	0.650	0.000	5.00	22.881	14.87	428.0	0.0	1302.0
15.00		1.00	0.70	16.350	17.98	365.84	0.650	0.000	5.00	22.500	14.63	420.8	0.0	1280.1
20.00		1.00	0.70	16.350	17.98	359.60	0.650	0.000	5.00	22.119	14.38	413.7	0.0	1258.2
25.00		1.00	0.70	16.350	17.98	353.35	0.650	0.000	5.00	21.738	14.13	406.6	0.0	1236.4
30.00		1.00	0.70	16.364	18.00	347.26	0.650	0.000	5.00	21.357	13.88	399.8	0.0	1214.5
35.00		1.00	0.73	17.100	18.81	348.60	0.650	0.000	5.00	20.977	13.63	410.4	0.0	1192.6
40.00		1.00	0.76	17.765	19.54	348.80	0.650	0.000	5.00	20.596	13.39	418.6	0.0	1170.8
44.00	Bot - Section 2	1.00	0.78	18.256	20.08	348.31	0.650	0.000	4.00	16.202	10.53	338.4	0.0	920.9
45.00		1.00	0.79	18.374	20.21	348.10	0.650	0.000	1.00	4.087	2.66	85.9	0.0	431.5
50.00	Top - Section 1	1.00	0.81	18.935	20.83	346.66	0.650	0.000	5.00	20.204	13.13	437.7	0.0	2133.1
55.00		1.00	0.83	19.458	21.40	351.22	0.650	0.000	5.00	19.823	12.89	441.3	0.0	986.9
60.00		1.00	0.85	19.948	21.94	348.72	0.650	0.000	5.00	19.443	12.64	443.7	0.0	967.8
65.00		1.00	0.87	20.409	22.45	345.75	0.650	0.000	5.00	19.062	12.39	445.1	0.0	948.6
70.00		1.00	0.89	20.846	22.93	342.38	0.650	0.000	5.00	18.681	12.14	445.5	0.0	929.5
75.00		1.00	0.91	21.261	23.39	338.65	0.650	0.000	5.00	18.300	11.90	445.1	0.0	910.4
80.00		1.00	0.93	21.656	23.82	334.60	0.650	0.000	5.00	17.919	11.65	443.9	0.0	891.2
85.00		1.00	0.94	22.035	24.24	330.26	0.650	0.000	5.00	17.538	11.40	442.1	0.0	872.1
88.75	Bot - Section 3	1.00	0.96	22.308	24.54	326.83	0.650	0.000	3.75	12.904	8.39	329.3	0.0	641.5
90.00		1.00	0.96	22.398	24.64	325.65	0.650	0.000	1.25	4.313	2.80	110.5	0.0	349.9
94.00	Top - Section 2	1.00	0.97	22.678	24.95	321.80	0.650	0.000	4.00	13.642	8.87	353.9	0.0	1106.3
95.00		1.00	0.97	22.746	25.02	325.42	0.650	0.000	1.00	3.372	2.19	87.8	0.0	108.2
100.00		1.00	0.99	23.082	25.39	320.39	0.650	0.000	5.00	16.634	10.81	439.2	0.0	533.6
105.00		1.00	1.00	23.406	25.75	315.16	0.650	0.000	5.00	16.253	10.56	435.2	0.0	521.3
110.00		1.00	1.02	23.719	26.09	309.74	0.650	0.000	5.00	15.872	10.32	430.7	0.0	509.0
115.00		1.00	1.03	24.022	26.42	304.14	0.650	0.000	5.00	15.491	10.07	425.7	0.0	496.7
120.00		1.00	1.04	24.316	26.75	298.38	0.650	0.000	5.00	15.111	9.82	420.3	0.0	484.4
125.00		1.00	1.05	24.602	27.06	292.46	0.650	0.000	5.00	14.730	9.57	414.6	0.0	472.1
130.00		1.00	1.07	24.879	27.37	286.40	0.650	0.000	5.00	14.349	9.33	408.4	0.0	459.8
134.50	Bot - Section 4	1.00	1.08	25.122	27.63	280.83	0.650	0.000	4.50	12.588	8.18	361.8	0.0	403.3
135.00		1.00	1.08	25.149	27.66	280.21	0.650	0.000	0.50	1.398	0.91	40.2	0.0	79.1
138.75	Top - Section 3	1.00	1.09	25.346	27.88	275.47	0.650	0.000	3.75	10.365	6.74	300.5	0.0	586.3
140.00		1.00	1.09	25.411	27.95	277.66	0.650	0.000	1.25	3.407	2.21	99.1	0.0	85.1
145.00		1.00	1.10	25.667	28.23	271.23	0.650	0.000	5.00	13.391	8.70	393.2	0.0	334.2
150.00		1.00	1.11	25.917	28.51	264.69	0.650	0.000	5.00	13.011	8.46	385.8	0.0	324.7
155.00		1.00	1.12	26.161	28.78	258.03	0.650	0.000	5.00	12.630	8.21	378.0	0.0	315.1
160.00		1.00	1.13	26.399	29.04	251.27	0.650	0.000	5.00	12.249	7.96	369.9	0.0	305.5
165.00		1.00	1.14	26.633	29.30	244.40	0.650	0.000	5.00	11.868	7.71	361.6	0.0	296.0
170.00		1.00	1.15	26.861	29.55	237.44	0.650	0.000	5.00	11.487	7.47	353.0	0.0	286.4
175.00	Appurtenance(s)	1.00	1.16	27.084	29.79	230.39	0.650	0.000	5.00	11.106	7.22	344.1	0.0	276.8
177.50	Appurtenance(s)	1.00	1.16	27.194	29.91	226.83	0.650	0.000	2.50	5.410	3.52	168.3	0.0	134.8
180.00		1.00	1.17	27.303	30.03	223.25	0.650	0.000	2.50	5.315	3.45	166.0	0.0	132.4
185.00	Appurtenance(s)	1.00	1.18	27.518	30.27	216.02	0.650	0.000	5.00	10.345	6.72	325.7	0.0	257.7
Totals:									185.00			15,204.4		29,470.7

Discrete Appurtenance Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

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	185.00	SitePro1 PRK 1245L	1	27.518	30.269	1.00	1.00	9.50	418.42	0.000	0.000	460.09	0.00	0.00
2	185.00	Ericsson 4460 B25 + B66	3	27.518	30.269	0.50	0.75	4.30	280.80	0.000	0.000	208.08	0.00	0.00
3	185.00	ALU 800 MHz Filter	3	27.518	30.269	0.50	0.75	1.18	23.76	0.000	0.000	56.95	0.00	0.00
4	185.00	ALU 800 MHz RRH	3	27.518	30.269	0.50	0.75	3.75	143.10	0.000	0.000	181.79	0.00	0.00
5	185.00	RFS ACU-A20-N RET	4	27.518	30.269	0.50	0.75	0.28	3.74	0.000	0.000	13.63	0.00	0.00
6	185.00	AIR6449 B41	3	27.518	30.269	0.53	0.75	9.03	278.10	0.000	0.000	437.13	0.00	0.00
7	185.00	APXVAALL24_43-U-NA20	3	27.518	30.269	0.55	0.75	33.24	331.56	0.000	0.000	1610.04	0.00	0.00
8	185.00	AIR32	3	27.518	30.269	0.65	0.75	12.74	356.94	0.000	0.000	617.17	0.00	0.00
9	185.00	Modified Low Profile	1	27.518	30.269	1.00	1.00	25.00	1350.00	0.000	0.000	1210.77	0.00	0.00
10	185.00	Ericsson 4480 B71 + B85	3	27.518	30.269	0.50	0.75	4.30	251.10	0.000	0.000	208.08	0.00	0.00
11	185.00	SitePro1 HRK14	1	27.518	30.269	1.00	1.00	8.13	272.12	0.000	0.000	393.74	0.00	0.00
12	185.00	Lightning Rod	1	27.665	30.432	1.00	1.00	1.05	31.50	0.000	3.500	51.13	0.00	178.94
13	177.50	Collar Mount (Andrew)	1	27.194	29.913	1.00	1.00	5.00	135.00	0.000	0.000	239.31	0.00	0.00
14	177.50	Raycap DC6-48-60-18-8F	1	27.194	29.913	1.00	1.00	2.20	28.62	0.000	0.000	105.30	0.00	0.00
15	177.50	Ericsson RRU11	6	27.194	29.913	0.54	0.80	8.27	273.78	0.000	0.000	395.58	0.00	0.00
16	175.00	KMW	3	27.084	29.792	0.60	0.80	14.44	130.95	0.000	0.000	688.13	0.00	0.00
17	175.00	Powerwave 7770	6	27.084	29.792	0.58	0.80	19.31	189.00	0.000	0.000	920.33	0.00	0.00
18	175.00	Powerwave LGP21401	12	27.084	29.792	0.54	0.80	7.08	152.28	0.000	0.000	337.26	0.00	0.00
19	175.00	Powerwave LGP13519	6	27.084	29.792	0.54	0.80	0.42	28.62	0.000	0.000	19.93	0.00	0.00
20	175.00	Low Profile Platform	1	27.084	29.792	1.00	1.00	22.00	1350.00	0.000	0.000	1048.69	0.00	0.00

Totals: 6,029.40

9,203.13

Total Applied Force Summary

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

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		435.09	1356.85	0.00	0.00
10.00		427.97	1384.45	0.00	0.00
15.00		420.85	1362.58	0.00	0.00
20.00		413.72	1340.71	0.00	0.00
25.00		406.60	1318.83	0.00	0.00
30.00		399.81	1296.96	0.00	0.00
35.00		410.36	1275.09	0.00	0.00
40.00		418.58	1253.21	0.00	0.00
44.00		338.38	986.82	0.00	0.00
45.00		85.90	448.03	0.00	0.00
50.00		437.66	2215.53	0.00	0.00
55.00		441.26	1069.39	0.00	0.00
60.00		443.68	1050.25	0.00	0.00
65.00		445.05	1031.11	0.00	0.00
70.00		445.49	1011.97	0.00	0.00
75.00		445.10	992.83	0.00	0.00
80.00		443.95	973.69	0.00	0.00
85.00		442.10	954.55	0.00	0.00
88.75		329.31	703.35	0.00	0.00
90.00		110.52	370.47	0.00	0.00
94.00		353.92	1172.29	0.00	0.00
95.00		87.76	124.70	0.00	0.00
100.00		439.23	616.10	0.00	0.00
105.00		435.20	603.79	0.00	0.00
110.00		430.69	591.49	0.00	0.00
115.00		425.73	579.18	0.00	0.00
120.00		420.34	566.87	0.00	0.00
125.00		414.55	554.57	0.00	0.00
130.00		408.39	542.26	0.00	0.00
134.50		361.78	477.51	0.00	0.00
135.00		40.23	87.35	0.00	0.00
138.75		300.54	648.15	0.00	0.00
140.00		99.05	105.67	0.00	0.00
145.00		393.22	416.71	0.00	0.00
150.00		385.75	407.13	0.00	0.00
155.00		377.99	397.56	0.00	0.00
160.00		369.93	387.99	0.00	0.00
165.00		361.59	378.42	0.00	0.00
170.00		352.99	368.85	0.00	0.00
175.00	(28) attachments	3358.47	2210.12	0.00	0.00
177.50	(8) attachments	908.50	583.95	0.00	0.00
180.00		166.02	144.16	0.00	0.00
185.00	(29) attachments	5774.25	4022.28	0.00	178.94
Totals:		24,407.51	38,383.77	0.00	178.94

Linear Appurtenance Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



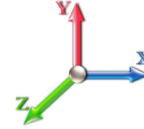
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Load Case: 0.9D + 1.6W 98 mph Wind

Iterations 26

Dead Load Factor 0.90

Wind Load Factor 1.60



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	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.007	0.000	16.350	0.00	0.49
5.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.007	0.000	16.350	0.00	3.74
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	16.350	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	16.350	0.00	9.36
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	16.350	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	16.350	0.00	9.36
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	16.350	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	16.350	0.00	9.36
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	16.350	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	16.350	0.00	9.36
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	16.364	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	16.364	0.00	9.36
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	17.100	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	17.100	0.00	9.36
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	17.765	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	17.765	0.00	9.36
44.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	18.256	0.00	0.98
44.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	18.256	0.00	7.49
45.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	18.374	0.00	0.25
45.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	18.374	0.00	1.87
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	18.935	0.00	1.23
50.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	18.935	0.00	9.36
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	19.458	0.00	1.23
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	19.458	0.00	9.36
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	19.948	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	19.948	0.00	9.36
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	20.409	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	20.409	0.00	9.36
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	20.846	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	20.846	0.00	9.36
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	21.261	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	21.261	0.00	9.36
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	21.656	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	21.656	0.00	9.36
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	22.035	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	22.035	0.00	9.36
88.75	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.024	0.000	22.308	0.00	0.92
88.75	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.024	0.000	22.308	0.00	7.02
90.00	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.025	0.000	22.398	0.00	0.31
90.00	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.025	0.000	22.398	0.00	2.34
94.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.025	0.000	22.678	0.00	0.98
94.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.025	0.000	22.678	0.00	7.49
95.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.025	0.000	22.746	0.00	0.25
95.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.025	0.000	22.746	0.00	1.87
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	23.082	0.00	1.23
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	23.082	0.00	9.36
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	23.406	0.00	1.23

Linear Appurtenance Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

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)
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	23.406	0.00	9.36
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	23.719	0.00	1.23
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	23.719	0.00	9.36
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	24.022	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	24.022	0.00	9.36
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	24.316	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	24.316	0.00	9.36
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	24.602	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	24.602	0.00	9.36
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	24.879	0.00	1.23
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	24.879	0.00	9.36
134.50	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.030	0.000	25.122	0.00	1.11
134.50	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.030	0.000	25.122	0.00	8.42
135.00	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.031	0.000	25.149	0.00	0.12
135.00	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.031	0.000	25.149	0.00	0.94
138.75	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	25.346	0.00	0.92
138.75	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	25.346	0.00	7.02
140.00	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	25.411	0.00	0.31
140.00	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	25.411	0.00	2.34
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	25.667	0.00	1.23
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	25.667	0.00	9.36
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.032	0.000	25.917	0.00	1.23
150.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.032	0.000	25.917	0.00	9.36
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	26.161	0.00	1.23
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	26.161	0.00	9.36
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.034	0.000	26.399	0.00	1.23
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.034	0.000	26.399	0.00	9.36
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	26.633	0.00	1.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	26.633	0.00	9.36
170.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	26.861	0.00	1.23
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	26.861	0.00	9.36
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.038	0.000	27.084	0.00	1.23
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.038	0.000	27.084	0.00	9.36
177.50	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.039	0.000	27.194	0.00	0.61
177.50	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.039	0.000	27.194	0.00	4.68
180.00	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.040	0.000	27.303	0.00	0.61
180.00	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.040	0.000	27.303	0.00	4.68
185.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.041	0.000	27.518	0.00	1.23
185.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.041	0.000	27.518	0.00	9.36
Totals:											0.0	385.4

Calculated Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 98 mph Wind

Iterations 26

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	-38.35	-24.45	0.00	-3176.8	0.00	3176.81	6281.65	3140.82	14160.7	7090.90	0.00	0.000	0.000	0.454
5.00	-36.94	-24.10	0.00	-3054.5	0.00	3054.55	6207.52	3103.76	13762.2	6891.36	0.07	-0.133	0.000	0.449
10.00	-35.50	-23.75	0.00	-2934.0	0.00	2934.04	6132.43	3066.22	13367.2	6693.54	0.28	-0.268	0.000	0.444
15.00	-34.09	-23.41	0.00	-2815.2	0.00	2815.27	6056.39	3028.19	12975.7	6497.49	0.64	-0.404	0.000	0.439
20.00	-32.69	-23.06	0.00	-2698.2	0.00	2698.25	5979.38	2989.69	12587.8	6303.27	1.13	-0.541	0.000	0.434
25.00	-31.33	-22.72	0.00	-2582.9	0.00	2582.95	5901.41	2950.71	12203.7	6110.93	1.77	-0.680	0.000	0.428
30.00	-29.98	-22.37	0.00	-2469.3	0.00	2469.37	5822.49	2911.24	11823.4	5920.53	2.56	-0.820	0.000	0.422
35.00	-28.66	-22.01	0.00	-2357.5	0.00	2357.52	5733.45	2866.73	11428.9	5722.98	3.50	-0.961	0.000	0.417
40.00	-27.36	-21.63	0.00	-2247.4	0.00	2247.45	5627.33	2813.66	11007.6	5512.02	4.58	-1.103	0.000	0.413
44.00	-26.36	-21.31	0.00	-2160.9	0.00	2160.92	5542.42	2771.21	10676.3	5346.10	5.55	-1.218	0.000	0.409
45.00	-25.88	-21.25	0.00	-2139.6	0.00	2139.61	5521.20	2760.60	10594.2	5305.01	5.81	-1.247	0.000	0.408
50.00	-23.62	-20.82	0.00	-2033.3	0.00	2033.36	4722.80	2361.40	9081.57	4547.53	7.19	-1.391	0.000	0.452
55.00	-22.51	-20.41	0.00	-1929.2	0.00	1929.25	4656.60	2328.30	8780.70	4396.88	8.73	-1.536	0.000	0.444
60.00	-21.42	-20.00	0.00	-1827.1	0.00	1827.18	4589.44	2294.72	8483.00	4247.80	10.42	-1.693	0.000	0.435
65.00	-20.35	-19.58	0.00	-1727.1	0.00	1727.18	4521.32	2260.66	8188.56	4100.37	12.28	-1.851	0.000	0.426
70.00	-19.30	-19.15	0.00	-1629.2	0.00	1629.29	4452.24	2226.12	7897.50	3954.62	14.30	-2.008	0.000	0.416
75.00	-18.27	-18.72	0.00	-1533.5	0.00	1533.53	4370.59	2185.30	7589.75	3800.52	16.49	-2.167	0.000	0.408
80.00	-17.26	-18.29	0.00	-1439.9	0.00	1439.91	4277.73	2138.86	7269.05	3639.93	18.84	-2.325	0.000	0.400
85.00	-16.28	-17.85	0.00	-1348.4	0.00	1348.47	4184.87	2092.43	6955.26	3482.80	21.36	-2.484	0.000	0.391
88.75	-15.57	-17.51	0.00	-1281.5	0.00	1281.55	4115.22	2057.61	6724.47	3367.23	23.36	-2.604	0.000	0.384
90.00	-15.18	-17.40	0.00	-1259.6	0.00	1259.67	4092.00	2046.00	6648.40	3329.14	24.05	-2.644	0.000	0.382
94.00	-14.00	-17.01	0.00	-1190.0	0.00	1190.06	2346.03	1173.01	3826.44	1916.06	26.31	-2.772	0.000	0.627
95.00	-13.84	-16.95	0.00	-1173.0	0.00	1173.04	2339.59	1169.79	3798.50	1902.07	26.90	-2.804	0.000	0.623
100.00	-13.18	-16.54	0.00	-1088.2	0.00	1088.29	2306.83	1153.41	3659.31	1832.38	29.96	-3.036	0.000	0.600
105.00	-12.54	-16.12	0.00	-1005.6	0.00	1005.61	2273.10	1136.55	3521.09	1763.16	33.26	-3.266	0.000	0.576
110.00	-11.91	-15.70	0.00	-925.02	0.00	925.02	2238.42	1119.21	3383.92	1694.48	36.80	-3.493	0.000	0.551
115.00	-11.30	-15.28	0.00	-846.53	0.00	846.53	2202.78	1101.39	3247.93	1626.38	40.58	-3.717	0.000	0.526
120.00	-10.71	-14.87	0.00	-770.11	0.00	770.11	2166.17	1083.09	3113.22	1558.92	44.59	-3.938	0.000	0.499
125.00	-10.13	-14.45	0.00	-695.78	0.00	695.78	2128.61	1064.30	2979.89	1492.16	48.82	-4.154	0.000	0.471
130.00	-9.57	-14.04	0.00	-623.53	0.00	623.53	2090.09	1045.04	2848.05	1426.14	53.28	-4.364	0.000	0.442
134.50	-9.10	-13.65	0.00	-560.36	0.00	560.36	2054.59	1027.30	2730.76	1367.41	57.48	-4.548	0.000	0.414
135.00	-9.00	-13.62	0.00	-553.54	0.00	553.54	2050.60	1025.30	2717.81	1360.93	57.96	-4.569	0.000	0.411
138.75	-8.35	-13.28	0.00	-502.46	0.00	502.46	1362.52	681.26	1799.45	901.06	61.60	-4.717	0.000	0.564
140.00	-8.22	-13.20	0.00	-485.85	0.00	485.85	1356.74	678.37	1779.17	890.91	62.84	-4.766	0.000	0.552
145.00	-7.79	-12.80	0.00	-419.87	0.00	419.87	1333.09	666.54	1698.46	850.49	67.95	-4.993	0.000	0.500
150.00	-7.38	-12.40	0.00	-355.88	0.00	355.88	1308.58	654.29	1618.46	810.43	73.29	-5.204	0.000	0.445
155.00	-6.98	-12.01	0.00	-293.85	0.00	293.85	1283.23	641.61	1539.27	770.78	78.84	-5.398	0.000	0.387
160.00	-6.60	-11.63	0.00	-233.78	0.00	233.78	1257.02	628.51	1460.97	731.57	84.58	-5.570	0.000	0.325
165.00	-6.23	-11.24	0.00	-175.65	0.00	175.65	1229.96	614.98	1383.68	692.87	90.49	-5.717	0.000	0.259
170.00	-5.88	-10.87	0.00	-119.42	0.00	119.42	1202.05	601.03	1307.47	654.71	96.53	-5.833	0.000	0.188
175.00	-4.02	-7.30	0.00	-65.09	0.00	65.09	1173.29	586.65	1232.46	617.14	102.68	-5.914	0.000	0.109
177.50	-3.53	-6.34	0.00	-46.84	0.00	46.84	1158.59	579.30	1195.42	598.60	105.78	-5.941	0.000	0.081
180.00	-3.40	-6.16	0.00	-30.99	0.00	30.99	1143.68	571.84	1158.72	580.22	108.89	-5.961	0.000	0.056
185.00	0.00	-5.77	0.00	-0.18	0.00	0.18	1113.22	556.61	1086.36	543.99	115.13	-5.978	0.000	0.000

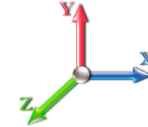
Wind Loading - Shaft

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.242	5.00	24.297	29.16	136.5	434.0	2199.1
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.331	5.00	23.990	28.79	134.8	458.3	2194.3
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.386	5.00	23.655	28.39	132.9	469.9	2176.8
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.427	5.00	23.308	27.97	130.9	476.0	2153.6
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.459	5.00	22.954	27.54	129.0	478.8	2127.3
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.486	5.00	22.596	27.11	127.0	479.4	2098.8
35.00		1.00	0.73	4.451	4.90	0.00	1.200	1.509	5.00	22.234	26.68	130.6	478.6	2068.8
40.00		1.00	0.76	4.625	5.09	0.00	1.200	1.529	5.00	21.870	26.24	133.5	476.6	2037.6
44.00	Bot - Section 2	1.00	0.78	4.752	5.23	0.00	1.200	1.544	4.00	17.232	20.68	108.1	379.5	1607.3
45.00		1.00	0.79	4.783	5.26	0.00	1.200	1.547	1.00	4.344	5.21	27.4	96.4	671.8
50.00	Top - Section 1	1.00	0.81	4.929	5.42	0.00	1.200	1.564	5.00	21.507	25.81	139.9	478.6	3322.7
55.00		1.00	0.83	5.065	5.57	0.00	1.200	1.579	5.00	21.139	25.37	141.3	474.4	1790.3
60.00		1.00	0.85	5.193	5.71	0.00	1.200	1.592	5.00	20.770	24.92	142.4	469.7	1760.1
65.00		1.00	0.87	5.313	5.84	0.00	1.200	1.605	5.00	20.399	24.48	143.1	464.6	1729.4
70.00		1.00	0.89	5.426	5.97	0.00	1.200	1.617	5.00	20.029	24.03	143.5	459.0	1698.4
75.00		1.00	0.91	5.534	6.09	0.00	1.200	1.628	5.00	19.657	23.59	143.6	453.1	1667.0
80.00		1.00	0.93	5.637	6.20	0.00	1.200	1.639	5.00	19.285	23.14	143.5	446.9	1635.2
85.00		1.00	0.94	5.736	6.31	0.00	1.200	1.649	5.00	18.912	22.69	143.2	440.4	1603.2
88.75	Bot - Section 3	1.00	0.96	5.807	6.39	0.00	1.200	1.656	3.75	13.939	16.73	106.8	326.6	1181.9
90.00		1.00	0.96	5.830	6.41	0.00	1.200	1.658	1.25	4.659	5.59	35.9	109.9	576.4
94.00	Top - Section 2	1.00	0.97	5.903	6.49	0.00	1.200	1.666	4.00	14.753	17.70	115.0	347.2	1822.3
95.00		1.00	0.97	5.921	6.51	0.00	1.200	1.667	1.00	3.650	4.38	28.5	86.5	230.8
100.00		1.00	0.99	6.008	6.61	0.00	1.200	1.676	5.00	18.030	21.64	143.0	425.5	1137.0
105.00		1.00	1.00	6.093	6.70	0.00	1.200	1.684	5.00	17.656	21.19	142.0	418.2	1113.3
110.00		1.00	1.02	6.174	6.79	0.00	1.200	1.692	5.00	17.282	20.74	140.9	410.6	1089.3
115.00		1.00	1.03	6.253	6.88	0.00	1.200	1.699	5.00	16.908	20.29	139.6	403.0	1065.3
120.00		1.00	1.04	6.330	6.96	0.00	1.200	1.707	5.00	16.533	19.84	138.1	395.1	1041.0
125.00		1.00	1.05	6.404	7.04	0.00	1.200	1.714	5.00	16.158	19.39	136.6	387.2	1016.6
130.00		1.00	1.07	6.476	7.12	0.00	1.200	1.720	5.00	15.783	18.94	134.9	379.1	992.1
134.50	Bot - Section 4	1.00	1.08	6.539	7.19	0.00	1.200	1.726	4.50	13.883	16.66	119.8	334.5	872.2
135.00		1.00	1.08	6.546	7.20	0.00	1.200	1.727	0.50	1.542	1.85	13.3	37.6	143.0
138.75	Top - Section 3	1.00	1.09	6.598	7.26	0.00	1.200	1.732	3.75	11.447	13.74	99.7	277.0	1058.7
140.00		1.00	1.09	6.615	7.28	0.00	1.200	1.733	1.25	3.768	4.52	32.9	91.8	205.2
145.00		1.00	1.10	6.681	7.35	0.00	1.200	1.739	5.00	14.841	17.81	130.9	358.8	804.4
150.00		1.00	1.11	6.746	7.42	0.00	1.200	1.745	5.00	14.465	17.36	128.8	350.2	783.1
155.00		1.00	1.12	6.810	7.49	0.00	1.200	1.751	5.00	14.089	16.91	126.6	341.5	761.7
160.00		1.00	1.13	6.872	7.56	0.00	1.200	1.757	5.00	13.713	16.46	124.4	332.8	740.1
165.00		1.00	1.14	6.933	7.63	0.00	1.200	1.762	5.00	13.336	16.00	122.0	323.9	718.5
170.00		1.00	1.15	6.992	7.69	0.00	1.200	1.767	5.00	12.960	15.55	119.6	315.0	696.8
175.00	Appurtenance(s)	1.00	1.16	7.050	7.76	0.00	1.200	1.772	5.00	12.583	15.10	117.1	305.9	675.0
177.50	Appurtenance(s)	1.00	1.16	7.079	7.79	0.00	1.200	1.775	2.50	6.150	7.38	57.5	150.7	330.5
180.00		1.00	1.17	7.107	7.82	0.00	1.200	1.777	2.50	6.056	7.27	56.8	148.4	325.0
185.00	Appurtenance(s)	1.00	1.18	7.163	7.88	0.00	1.200	1.782	5.00	11.830	14.20	111.9	287.6	631.2
Totals:									185.00			4,953.8		54,553.1

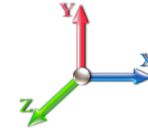
Discrete Appurtenance Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	185.00	SitePro1 PRK 1245L	1	7.163	7.879	1.00	1.00	19.66	794.23	0.000	0.000	154.90	0.00	0.00
2	185.00	Ericsson 4460 B25 + B66	3	7.163	7.879	0.50	0.75	5.33	518.59	0.000	0.000	42.03	0.00	0.00
3	185.00	ALU 800 MHz Filter	3	7.163	7.879	0.50	0.75	2.17	70.73	0.000	0.000	17.11	0.00	0.00
4	185.00	ALU 800 MHz RRH	3	7.163	7.879	0.50	0.75	5.51	354.08	0.000	0.000	43.45	0.00	0.00
5	185.00	RFS ACU-A20-N RET	4	7.163	7.879	0.50	0.75	0.89	18.20	0.000	0.000	7.02	0.00	0.00
6	185.00	AIR6449 B41	3	7.163	7.879	0.53	0.75	10.58	695.77	0.000	0.000	83.34	0.00	0.00
7	185.00	APXVAALL24_43-U-NA20	3	7.163	7.879	0.55	0.75	36.43	1755.85	0.000	0.000	287.07	0.00	0.00
8	185.00	AIR32	3	7.163	7.879	0.65	0.75	15.10	1042.96	0.000	0.000	119.00	0.00	0.00
9	185.00	Modified Low Profile	1	7.163	7.879	1.00	1.00	45.50	2836.65	0.000	0.000	358.47	0.00	0.00
10	185.00	Ericsson 4480 B71 + B85	3	7.163	7.879	0.50	0.75	5.33	504.17	0.000	0.000	42.03	0.00	0.00
11	185.00	SitePro1 HRK14	1	7.163	7.879	1.00	1.00	16.24	1031.62	0.000	0.000	127.99	0.00	0.00
12	185.00	Lightning Rod	1	7.201	7.922	1.00	1.00	3.47	65.08	0.000	3.500	27.52	0.00	96.31
13	177.50	Collar Mount (Andrew)	1	7.079	7.787	1.00	1.00	8.55	7.79	0.000	0.000	66.57	0.00	0.00
14	177.50	Raycap DC6-48-60-18-8F	1	7.079	7.787	1.00	1.00	3.27	83.33	0.000	0.000	25.43	0.00	0.00
15	177.50	Ericsson RRU11	6	7.079	7.787	0.54	0.80	10.40	864.35	0.000	0.000	80.96	0.00	0.00
16	175.00	KMW	3	7.050	7.755	0.60	0.80	19.54	529.50	0.000	0.000	151.56	0.00	0.00
17	175.00	Powerwave 7770	6	7.050	7.755	0.58	0.80	23.07	1078.56	0.000	0.000	178.88	0.00	0.00
18	175.00	Powerwave LGP21401	12	7.050	7.755	0.54	0.80	11.73	422.52	0.000	0.000	90.97	0.00	0.00
19	175.00	Powerwave LGP13519	6	7.050	7.755	0.54	0.80	0.99	79.83	0.000	0.000	7.64	0.00	0.00
20	175.00	Low Profile Platform	1	7.050	7.755	1.00	1.00	39.94	2829.24	0.000	0.000	309.71	0.00	0.00
Totals:									15,583.06			2,221.66		

Total Applied Force Summary

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		136.50	2253.92	0.00	0.00
10.00		134.77	2334.71	0.00	0.00
15.00		132.89	2319.34	0.00	0.00
20.00		130.94	2297.84	0.00	0.00
25.00		128.95	2272.82	0.00	0.00
30.00		127.05	2245.46	0.00	0.00
35.00		130.64	2216.44	0.00	0.00
40.00		133.50	2186.15	0.00	0.00
44.00		108.09	1726.63	0.00	0.00
45.00		27.43	701.68	0.00	0.00
50.00		139.93	3472.78	0.00	0.00
55.00		141.33	1941.09	0.00	0.00
60.00		142.36	1911.49	0.00	0.00
65.00		143.05	1881.40	0.00	0.00
70.00		143.46	1850.88	0.00	0.00
75.00		143.60	1819.98	0.00	0.00
80.00		143.50	1788.74	0.00	0.00
85.00		143.19	1757.20	0.00	0.00
88.75		106.85	1297.63	0.00	0.00
90.00		35.85	614.96	0.00	0.00
94.00		114.95	1946.12	0.00	0.00
95.00		28.53	261.77	0.00	0.00
100.00		143.00	1292.25	0.00	0.00
105.00		142.00	1268.89	0.00	0.00
110.00		140.85	1245.35	0.00	0.00
115.00		139.56	1221.62	0.00	0.00
120.00		138.14	1197.73	0.00	0.00
125.00		136.59	1173.68	0.00	0.00
130.00		134.92	1149.48	0.00	0.00
134.50		119.84	1014.09	0.00	0.00
135.00		13.33	158.79	0.00	0.00
138.75		99.70	1177.15	0.00	0.00
140.00		32.90	244.71	0.00	0.00
145.00		130.89	962.69	0.00	0.00
150.00		128.81	941.66	0.00	0.00
155.00		126.65	920.51	0.00	0.00
160.00		124.39	899.26	0.00	0.00
165.00		122.04	877.91	0.00	0.00
170.00		119.61	856.47	0.00	0.00
175.00	(28) attachments	855.87	5774.57	0.00	0.00
177.50	(8) attachments	230.43	1326.61	0.00	0.00
180.00		56.81	365.73	0.00	0.00
185.00	(29) attachments	1421.79	10400.89	0.00	96.31
	Totals:	7,175.49	75,569.06	0.00	96.31

Linear Appurtenance Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	2.00	0.000	0.38	0.48	0.00	0.007	0.000	4.256	0.00	5.17
5.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.52	0.00	0.007	0.000	4.256	0.00	11.31
10.00	Safety Cable	Yes	5.00	0.000	0.38	1.27	0.00	0.018	0.000	4.256	0.00	14.46
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.37	0.00	0.018	0.000	4.256	0.00	30.10
15.00	Safety Cable	Yes	5.00	0.000	0.38	1.31	0.00	0.019	0.000	4.256	0.00	15.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.42	0.00	0.019	0.000	4.256	0.00	31.28
20.00	Safety Cable	Yes	5.00	0.000	0.38	1.35	0.00	0.019	0.000	4.256	0.00	16.21
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.45	0.00	0.019	0.000	4.256	0.00	32.18
25.00	Safety Cable	Yes	5.00	0.000	0.38	1.37	0.00	0.019	0.000	4.256	0.00	16.83
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.48	0.00	0.019	0.000	4.256	0.00	32.90
30.00	Safety Cable	Yes	5.00	0.000	0.38	1.40	0.00	0.020	0.000	4.260	0.00	17.35
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.50	0.00	0.020	0.000	4.260	0.00	33.51
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.42	0.00	0.020	0.000	4.451	0.00	17.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.52	0.00	0.020	0.000	4.451	0.00	34.05
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.43	0.00	0.020	0.000	4.625	0.00	18.21
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.54	0.00	0.020	0.000	4.625	0.00	34.52
44.00	Safety Cable	Yes	4.00	0.000	0.38	1.16	0.00	0.021	0.000	4.752	0.00	14.81
44.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	1.24	0.00	0.021	0.000	4.752	0.00	27.90
45.00	Safety Cable	Yes	1.00	0.000	0.38	0.29	0.00	0.021	0.000	4.783	0.00	3.72
45.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.31	0.00	0.021	0.000	4.783	0.00	6.99
50.00	Safety Cable	Yes	5.00	0.000	0.38	1.46	0.00	0.021	0.000	4.929	0.00	18.91
50.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.57	0.00	0.021	0.000	4.929	0.00	35.34
55.00	Safety Cable	Yes	5.00	0.000	0.38	1.47	0.00	0.021	0.000	5.065	0.00	19.22
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.58	0.00	0.021	0.000	5.065	0.00	35.70
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.49	0.00	0.022	0.000	5.193	0.00	19.51
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.59	0.00	0.022	0.000	5.193	0.00	36.04
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.50	0.00	0.022	0.000	5.313	0.00	19.78
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.60	0.00	0.022	0.000	5.313	0.00	36.35
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.51	0.00	0.023	0.000	5.426	0.00	20.03
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.61	0.00	0.023	0.000	5.426	0.00	36.64
75.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.023	0.000	5.534	0.00	20.27
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.62	0.00	0.023	0.000	5.534	0.00	36.92
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.023	0.000	5.637	0.00	20.49
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.63	0.00	0.023	0.000	5.637	0.00	37.18
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.53	0.00	0.024	0.000	5.736	0.00	20.71
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.64	0.00	0.024	0.000	5.736	0.00	37.43
88.75	Safety Cable	Yes	3.75	0.000	0.38	1.15	0.00	0.024	0.000	5.807	0.00	15.65
88.75	Step bolts (ladder)	Yes	3.75	0.000	0.63	1.23	0.00	0.024	0.000	5.807	0.00	28.21
90.00	Safety Cable	Yes	1.25	0.000	0.38	0.39	0.00	0.025	0.000	5.830	0.00	5.23
90.00	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.41	0.00	0.025	0.000	5.830	0.00	9.42
94.00	Safety Cable	Yes	4.00	0.000	0.38	1.24	0.00	0.025	0.000	5.903	0.00	16.86
94.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	1.32	0.00	0.025	0.000	5.903	0.00	30.28
95.00	Safety Cable	Yes	1.00	0.000	0.38	0.31	0.00	0.025	0.000	5.921	0.00	4.22
95.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.33	0.00	0.025	0.000	5.921	0.00	7.58
100.00	Safety Cable	Yes	5.00	0.000	0.38	1.55	0.00	0.025	0.000	6.008	0.00	21.30
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.66	0.00	0.025	0.000	6.008	0.00	38.11
105.00	Safety Cable	Yes	5.00	0.000	0.38	1.56	0.00	0.026	0.000	6.093	0.00	21.48

Linear Appurtenance Segment Forces (Factored)

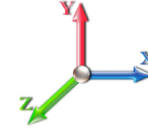
Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.67	0.00	0.026	0.000	6.093	0.00	38.32
110.00	Safety Cable	Yes	5.00	0.000	0.38	1.57	0.00	0.027	0.000	6.174	0.00	21.65
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.67	0.00	0.027	0.000	6.174	0.00	38.52
115.00	Safety Cable	Yes	5.00	0.000	0.38	1.57	0.00	0.027	0.000	6.253	0.00	21.82
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.68	0.00	0.027	0.000	6.253	0.00	38.71
120.00	Safety Cable	Yes	5.00	0.000	0.38	1.58	0.00	0.028	0.000	6.330	0.00	21.98
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.68	0.00	0.028	0.000	6.330	0.00	38.90
125.00	Safety Cable	Yes	5.00	0.000	0.38	1.59	0.00	0.029	0.000	6.404	0.00	22.14
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.69	0.00	0.029	0.000	6.404	0.00	39.08
130.00	Safety Cable	Yes	5.00	0.000	0.38	1.59	0.00	0.029	0.000	6.476	0.00	22.29
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.70	0.00	0.029	0.000	6.476	0.00	39.25
134.50	Safety Cable	Yes	4.50	0.000	0.38	1.44	0.00	0.030	0.000	6.539	0.00	20.18
134.50	Step bolts (ladder)	Yes	4.50	0.000	0.63	1.53	0.00	0.030	0.000	6.539	0.00	35.46
135.00	Safety Cable	Yes	0.50	0.000	0.38	0.16	0.00	0.031	0.000	6.546	0.00	2.24
135.00	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.17	0.00	0.031	0.000	6.546	0.00	3.94
138.75	Safety Cable	Yes	3.75	0.000	0.38	1.20	0.00	0.031	0.000	6.598	0.00	16.90
138.75	Step bolts (ladder)	Yes	3.75	0.000	0.63	1.28	0.00	0.031	0.000	6.598	0.00	29.66
140.00	Safety Cable	Yes	1.25	0.000	0.38	0.40	0.00	0.031	0.000	6.615	0.00	5.64
140.00	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.43	0.00	0.031	0.000	6.615	0.00	9.90
145.00	Safety Cable	Yes	5.00	0.000	0.38	1.61	0.00	0.031	0.000	6.681	0.00	22.71
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.71	0.00	0.031	0.000	6.681	0.00	39.74
150.00	Safety Cable	Yes	5.00	0.000	0.38	1.61	0.00	0.032	0.000	6.746	0.00	22.85
150.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.72	0.00	0.032	0.000	6.746	0.00	39.90
155.00	Safety Cable	Yes	5.00	0.000	0.38	1.62	0.00	0.033	0.000	6.810	0.00	22.98
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.72	0.00	0.033	0.000	6.810	0.00	40.05
160.00	Safety Cable	Yes	5.00	0.000	0.38	1.62	0.00	0.034	0.000	6.872	0.00	23.11
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.73	0.00	0.034	0.000	6.872	0.00	40.19
165.00	Safety Cable	Yes	5.00	0.000	0.38	1.63	0.00	0.035	0.000	6.933	0.00	23.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.73	0.00	0.035	0.000	6.933	0.00	40.33
170.00	Safety Cable	Yes	5.00	0.000	0.38	1.63	0.00	0.037	0.000	6.992	0.00	23.35
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.74	0.00	0.037	0.000	6.992	0.00	40.47
175.00	Safety Cable	Yes	5.00	0.000	0.38	1.64	0.00	0.038	0.000	7.050	0.00	23.47
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.74	0.00	0.038	0.000	7.050	0.00	40.61
177.50	Safety Cable	Yes	2.50	0.000	0.38	0.82	0.00	0.039	0.000	7.079	0.00	11.76
177.50	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.87	0.00	0.039	0.000	7.079	0.00	20.34
180.00	Safety Cable	Yes	2.50	0.000	0.38	0.82	0.00	0.040	0.000	7.107	0.00	11.79
180.00	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.87	0.00	0.040	0.000	7.107	0.00	20.37
185.00	Safety Cable	Yes	5.00	0.000	0.38	1.64	0.00	0.041	0.000	7.163	0.00	23.70
185.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	1.75	0.00	0.041	0.000	7.163	0.00	40.87
Totals:											0.0	2,102.0

Calculated Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

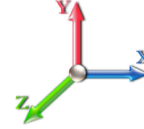


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 25

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	-75.57	-7.20	0.00	-944.31	0.00	944.31	6281.65	3140.82	14160.7	7090.90	0.00	0.000	0.000	0.145
5.00	-73.31	-7.11	0.00	-908.31	0.00	908.31	6207.52	3103.76	13762.2	6891.36	0.02	-0.040	0.000	0.144
10.00	-70.97	-7.03	0.00	-872.73	0.00	872.73	6132.43	3066.22	13367.2	6693.54	0.08	-0.080	0.000	0.142
15.00	-68.64	-6.94	0.00	-837.60	0.00	837.60	6056.39	3028.19	12975.7	6497.49	0.19	-0.120	0.000	0.140
20.00	-66.34	-6.85	0.00	-802.90	0.00	802.90	5979.38	2989.69	12587.8	6303.27	0.34	-0.161	0.000	0.138
25.00	-64.06	-6.76	0.00	-768.65	0.00	768.65	5901.41	2950.71	12203.7	6110.93	0.53	-0.202	0.000	0.137
30.00	-61.81	-6.67	0.00	-734.85	0.00	734.85	5822.49	2911.24	11823.4	5920.53	0.76	-0.244	0.000	0.135
35.00	-59.59	-6.57	0.00	-701.50	0.00	701.50	5733.45	2866.73	11428.9	5722.98	1.04	-0.286	0.000	0.133
40.00	-57.40	-6.47	0.00	-668.64	0.00	668.64	5627.33	2813.66	11007.6	5512.02	1.36	-0.328	0.000	0.132
44.00	-55.68	-6.37	0.00	-642.78	0.00	642.78	5542.42	2771.21	10676.3	5346.10	1.65	-0.362	0.000	0.130
45.00	-54.97	-6.36	0.00	-636.41	0.00	636.41	5521.20	2760.60	10594.2	5305.01	1.73	-0.371	0.000	0.130
50.00	-51.50	-6.24	0.00	-604.61	0.00	604.61	4722.80	2361.40	9081.57	4547.53	2.14	-0.414	0.000	0.144
55.00	-49.55	-6.12	0.00	-573.43	0.00	573.43	4656.60	2328.30	8780.70	4396.88	2.60	-0.457	0.000	0.141
60.00	-47.64	-6.00	0.00	-542.84	0.00	542.84	4589.44	2294.72	8483.00	4247.80	3.10	-0.504	0.000	0.138
65.00	-45.75	-5.88	0.00	-512.84	0.00	512.84	4521.32	2260.66	8188.56	4100.37	3.65	-0.550	0.000	0.135
70.00	-43.90	-5.75	0.00	-483.46	0.00	483.46	4452.24	2226.12	7897.50	3954.62	4.25	-0.597	0.000	0.132
75.00	-42.07	-5.62	0.00	-454.71	0.00	454.71	4370.59	2185.30	7589.75	3800.52	4.90	-0.644	0.000	0.129
80.00	-40.28	-5.49	0.00	-426.61	0.00	426.61	4277.73	2138.86	7269.05	3639.93	5.60	-0.691	0.000	0.127
85.00	-38.52	-5.35	0.00	-399.16	0.00	399.16	4184.87	2092.43	6955.26	3482.80	6.35	-0.738	0.000	0.124
88.75	-37.22	-5.24	0.00	-379.09	0.00	379.09	4115.22	2057.61	6724.47	3367.23	6.95	-0.774	0.000	0.122
90.00	-36.61	-5.22	0.00	-372.53	0.00	372.53	4092.00	2046.00	6648.40	3329.14	7.15	-0.786	0.000	0.121
94.00	-34.66	-5.09	0.00	-351.67	0.00	351.67	2346.03	1173.01	3826.44	1916.06	7.83	-0.823	0.000	0.198
95.00	-34.40	-5.08	0.00	-346.59	0.00	346.59	2339.59	1169.79	3798.50	1902.07	8.00	-0.833	0.000	0.197
100.00	-33.10	-4.96	0.00	-321.19	0.00	321.19	2306.83	1153.41	3659.31	1832.38	8.91	-0.901	0.000	0.190
105.00	-31.83	-4.83	0.00	-296.41	0.00	296.41	2273.10	1136.55	3521.09	1763.16	9.89	-0.969	0.000	0.182
110.00	-30.58	-4.70	0.00	-272.26	0.00	272.26	2238.42	1119.21	3383.92	1694.48	10.94	-1.036	0.000	0.174
115.00	-29.36	-4.57	0.00	-248.75	0.00	248.75	2202.78	1101.39	3247.93	1626.38	12.06	-1.102	0.000	0.166
120.00	-28.16	-4.44	0.00	-225.87	0.00	225.87	2166.17	1083.09	3113.22	1558.92	13.25	-1.167	0.000	0.158
125.00	-26.98	-4.31	0.00	-203.65	0.00	203.65	2128.61	1064.30	2979.89	1492.16	14.50	-1.230	0.000	0.149
130.00	-25.83	-4.18	0.00	-182.09	0.00	182.09	2090.09	1045.04	2848.05	1426.14	15.83	-1.292	0.000	0.140
134.50	-24.82	-4.05	0.00	-163.29	0.00	163.29	2054.59	1027.30	2730.76	1367.41	17.07	-1.345	0.000	0.132
135.00	-24.66	-4.04	0.00	-161.26	0.00	161.26	2050.60	1025.30	2717.81	1360.93	17.21	-1.351	0.000	0.131
138.75	-23.48	-3.93	0.00	-146.11	0.00	146.11	1362.52	681.26	1799.45	901.06	18.29	-1.394	0.000	0.179
140.00	-23.24	-3.90	0.00	-141.20	0.00	141.20	1356.74	678.37	1779.17	890.91	18.66	-1.409	0.000	0.176
145.00	-22.27	-3.77	0.00	-121.69	0.00	121.69	1333.09	666.54	1698.46	850.49	20.17	-1.475	0.000	0.160
150.00	-21.33	-3.64	0.00	-102.82	0.00	102.82	1308.58	654.29	1618.46	810.43	21.74	-1.536	0.000	0.143
155.00	-20.41	-3.51	0.00	-84.62	0.00	84.62	1283.23	641.61	1539.27	770.78	23.38	-1.592	0.000	0.126
160.00	-19.51	-3.37	0.00	-67.08	0.00	67.08	1257.02	628.51	1460.97	731.57	25.08	-1.641	0.000	0.107
165.00	-18.64	-3.24	0.00	-50.21	0.00	50.21	1229.96	614.98	1383.68	692.87	26.82	-1.683	0.000	0.088
170.00	-17.78	-3.10	0.00	-34.01	0.00	34.01	1202.05	601.03	1307.47	654.71	28.60	-1.716	0.000	0.067
175.00	-12.04	-2.08	0.00	-18.50	0.00	18.50	1173.29	586.65	1232.46	617.14	30.41	-1.739	0.000	0.040
177.50	-10.72	-1.81	0.00	-13.31	0.00	13.31	1158.59	579.30	1195.42	598.60	31.32	-1.747	0.000	0.031
180.00	-10.35	-1.74	0.00	-8.80	0.00	8.80	1143.68	571.84	1158.72	580.22	32.24	-1.753	0.000	0.024
185.00	0.00	-1.42	0.00	-0.10	0.00	0.10	1113.22	556.61	1086.36	543.99	34.08	-1.757	0.000	0.000

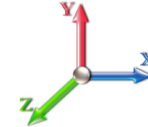
Seismic Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E				Iterations 24
Gust Response Factor	1.10	Sds	0.19	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.30	SA 0.03
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1470.9	0.00	0.03	0.02	25.82	
10.00		1446.6	0.01	0.05	0.03	37.67	
15.00		1422.3	0.01	0.06	0.03	43.56	
20.00		1398.0	0.02	0.07	0.04	46.41	
25.00		1373.7	0.03	0.07	0.04	47.67	
30.00		1349.4	0.05	0.07	0.04	48.14	
35.00		1325.1	0.07	0.07	0.04	48.28	
40.00		1300.8	0.09	0.07	0.04	48.33	
44.00	Bot - Section 2	1023.1	0.11	0.07	0.04	38.62	
45.00		479.48	0.11	0.07	0.04	18.17	
50.00	Top - Section 1	2370.0	0.14	0.07	0.03	91.50	
55.00		1096.5	0.17	0.07	0.03	42.95	
60.00		1075.3	0.20	0.06	0.02	42.30	
65.00		1054.0	0.23	0.06	0.02	40.90	
70.00		1032.7	0.27	0.05	0.01	38.34	
75.00		1011.5	0.31	0.04	0.01	34.19	
80.00		990.25	0.35	0.03	0.01	28.05	
85.00		968.99	0.40	0.02	0.01	19.71	
88.75	Bot - Section 3	712.78	0.43	0.01	0.01	9.07	
90.00		388.72	0.45	0.00	0.01	3.85	
94.00	Top - Section 2	1229.2	0.49	-0.01	0.01	0.33	
95.00		120.23	0.50	-0.02	0.01	-0.27	
100.00		592.93	0.55	-0.04	0.01	-8.73	
105.00		579.26	0.61	-0.06	0.02	-15.02	
110.00		565.58	0.67	-0.08	0.02	-19.56	
115.00		551.91	0.73	-0.10	0.04	-22.04	
120.00		538.24	0.80	-0.11	0.05	-22.47	
125.00		524.56	0.86	-0.12	0.07	-21.01	
130.00		510.89	0.93	-0.12	0.10	-17.85	
134.50	Bot - Section 4	448.11	1.00	-0.11	0.13	-12.33	
135.00		87.89	1.01	-0.11	0.13	-2.33	
138.75	Top - Section 3	651.45	1.06	-0.09	0.17	-11.78	
140.00		94.51	1.08	-0.08	0.18	-1.40	
145.00		371.38	1.16	-0.03	0.23	0.00	
150.00		360.75	1.24	0.05	0.29	6.53	
155.00		350.11	1.33	0.16	0.36	13.81	
160.00		339.47	1.41	0.31	0.45	21.75	
165.00		328.84	1.50	0.51	0.55	30.28	
170.00		318.20	1.60	0.77	0.66	39.30	
175.00	Appurtenance(s)	2364.0	1.69	1.09	0.80	374.56	
177.50	Appurtenance(s)	635.80	1.74	1.28	0.88	112.69	
180.00		147.14	1.79	1.49	0.96	28.98	
185.00	Appurtenance(s)	4443.1	1.89	1.98	1.14	1062.19	
Totals:		39,444.6				2,289.2	Total Wind: 24,407.5

Calculated Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E		Iterations 24
Gust Response Factor 1.10	Sds 0.19	Ss 0.18
Dead Load Factor 1.20	Seismic Load Factor 1.00	S1 0.06
Wind Load Factor 0.00	Structure Frequency (f1) 0.30	SA 0.03
	Seismic Importance Factor 1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-51.18	-2.45	0.00	-358.15	0.00	358.15	6281.65	3140.82	14160.7	7090.90	0.00	0.00	0.00	0.059
5.00	-49.37	-2.44	0.00	-345.90	0.00	345.90	6207.52	3103.76	13762.2	6891.36	0.01	-0.02	0.058	
10.00	-47.52	-2.41	0.00	-333.72	0.00	333.72	6132.43	3066.22	13367.2	6693.54	0.03	-0.03	0.058	
15.00	-45.70	-2.38	0.00	-321.66	0.00	321.66	6056.39	3028.19	12975.7	6497.49	0.07	-0.05	0.057	
20.00	-43.92	-2.34	0.00	-309.77	0.00	309.77	5979.38	2989.69	12587.8	6303.27	0.13	-0.06	0.056	
25.00	-42.16	-2.31	0.00	-298.05	0.00	298.05	5901.41	2950.71	12203.7	6110.93	0.20	-0.08	0.056	
30.00	-40.43	-2.27	0.00	-286.53	0.00	286.53	5822.49	2911.24	11823.4	5920.53	0.29	-0.09	0.055	
35.00	-38.73	-2.23	0.00	-275.20	0.00	275.20	5733.45	2866.73	11428.9	5722.98	0.40	-0.11	0.055	
40.00	-37.06	-2.18	0.00	-264.07	0.00	264.07	5627.33	2813.66	11007.6	5512.02	0.52	-0.13	0.054	
44.00	-35.74	-2.15	0.00	-255.34	0.00	255.34	5542.42	2771.21	10676.3	5346.10	0.63	-0.14	0.054	
45.00	-35.14	-2.13	0.00	-253.19	0.00	253.19	5521.20	2760.60	10594.2	5305.01	0.66	-0.14	0.054	
50.00	-32.19	-2.04	0.00	-242.52	0.00	242.52	4722.80	2361.40	9081.57	4547.53	0.82	-0.16	0.060	
55.00	-30.76	-2.01	0.00	-232.30	0.00	232.30	4656.60	2328.30	8780.70	4396.88	1.00	-0.18	0.059	
60.00	-29.36	-1.97	0.00	-222.26	0.00	222.26	4589.44	2294.72	8483.00	4247.80	1.20	-0.20	0.059	
65.00	-27.98	-1.93	0.00	-212.42	0.00	212.42	4521.32	2260.66	8188.56	4100.37	1.42	-0.22	0.058	
70.00	-26.63	-1.90	0.00	-202.75	0.00	202.75	4452.24	2226.12	7897.50	3954.62	1.65	-0.24	0.057	
75.00	-25.31	-1.87	0.00	-193.26	0.00	193.26	4370.59	2185.30	7589.75	3800.52	1.91	-0.26	0.057	
80.00	-24.01	-1.84	0.00	-183.92	0.00	183.92	4277.73	2138.86	7269.05	3639.93	2.19	-0.28	0.056	
85.00	-22.74	-1.82	0.00	-174.71	0.00	174.71	4184.87	2092.43	6955.26	3482.80	2.49	-0.30	0.056	
88.75	-21.80	-1.81	0.00	-167.87	0.00	167.87	4115.22	2057.61	6724.47	3367.23	2.73	-0.31	0.055	
90.00	-21.31	-1.81	0.00	-165.60	0.00	165.60	4092.00	2046.00	6648.40	3329.14	2.81	-0.32	0.055	
94.00	-19.74	-1.81	0.00	-158.36	0.00	158.36	2346.03	1173.01	3826.44	1916.06	3.08	-0.33	0.091	
95.00	-19.58	-1.81	0.00	-156.55	0.00	156.55	2339.59	1169.79	3798.50	1902.07	3.15	-0.34	0.091	
100.00	-18.75	-1.82	0.00	-147.50	0.00	147.50	2306.83	1153.41	3659.31	1832.38	3.52	-0.37	0.089	
105.00	-17.95	-1.82	0.00	-138.42	0.00	138.42	2273.10	1136.55	3521.09	1763.16	3.93	-0.40	0.086	
110.00	-17.16	-1.82	0.00	-129.32	0.00	129.32	2238.42	1119.21	3383.92	1694.48	4.37	-0.43	0.084	
115.00	-16.38	-1.83	0.00	-120.21	0.00	120.21	2202.78	1101.39	3247.93	1626.38	4.84	-0.46	0.081	
120.00	-15.63	-1.83	0.00	-111.07	0.00	111.07	2166.17	1083.09	3113.22	1558.92	5.34	-0.50	0.078	
125.00	-14.89	-1.83	0.00	-101.93	0.00	101.93	2128.61	1064.30	2979.89	1492.16	5.87	-0.53	0.075	
130.00	-14.16	-1.83	0.00	-92.77	0.00	92.77	2090.09	1045.04	2848.05	1426.14	6.44	-0.56	0.072	
134.50	-13.53	-1.83	0.00	-84.53	0.00	84.53	2054.59	1027.30	2730.76	1367.41	6.98	-0.59	0.068	
135.00	-13.41	-1.83	0.00	-83.62	0.00	83.62	2050.60	1025.30	2717.81	1360.93	7.04	-0.59	0.068	
138.75	-12.54	-1.82	0.00	-76.76	0.00	76.76	1362.52	681.26	1799.45	901.06	7.52	-0.61	0.094	
140.00	-12.40	-1.83	0.00	-74.48	0.00	74.48	1356.74	678.37	1779.17	890.91	7.68	-0.62	0.093	
145.00	-11.85	-1.83	0.00	-65.34	0.00	65.34	1333.09	666.54	1698.46	850.49	8.34	-0.65	0.086	
150.00	-11.30	-1.82	0.00	-56.20	0.00	56.20	1308.58	654.29	1618.46	810.43	9.05	-0.69	0.078	
155.00	-10.77	-1.81	0.00	-47.09	0.00	47.09	1283.23	641.61	1539.27	770.78	9.78	-0.72	0.069	
160.00	-10.25	-1.78	0.00	-38.05	0.00	38.05	1257.02	628.51	1460.97	731.57	10.55	-0.75	0.060	
165.00	-9.75	-1.75	0.00	-29.13	0.00	29.13	1229.96	614.98	1383.68	692.87	11.34	-0.77	0.050	
170.00	-9.26	-1.71	0.00	-20.38	0.00	20.38	1202.05	601.03	1307.47	654.71	12.16	-0.79	0.039	
175.00	-6.32	-1.29	0.00	-11.85	0.00	11.85	1173.29	586.65	1232.46	617.14	13.00	-0.80	0.025	
177.50	-5.54	-1.17	0.00	-8.61	0.00	8.61	1158.59	579.30	1195.42	598.60	13.42	-0.81	0.019	
180.00	-5.35	-1.14	0.00	-5.69	0.00	5.69	1143.68	571.84	1158.72	580.22	13.84	-0.81	0.014	
185.00	0.00	-1.06	0.00	0.00	0.00	0.00	1113.22	556.61	1086.36	543.99	14.69	-0.81	0.000	

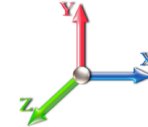
Seismic Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E				Iterations 24
Gust Response Factor	1.10	Sds	0.19	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.30	SA 0.03
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1470.9	0.00	0.03	0.02	25.82	
10.00		1446.6	0.01	0.05	0.03	37.67	
15.00		1422.3	0.01	0.06	0.03	43.56	
20.00		1398.0	0.02	0.07	0.04	46.41	
25.00		1373.7	0.03	0.07	0.04	47.67	
30.00		1349.4	0.05	0.07	0.04	48.14	
35.00		1325.1	0.07	0.07	0.04	48.28	
40.00		1300.8	0.09	0.07	0.04	48.33	
44.00	Bot - Section 2	1023.1	0.11	0.07	0.04	38.62	
45.00		479.48	0.11	0.07	0.04	18.17	
50.00	Top - Section 1	2370.0	0.14	0.07	0.03	91.50	
55.00		1096.5	0.17	0.07	0.03	42.95	
60.00		1075.3	0.20	0.06	0.02	42.30	
65.00		1054.0	0.23	0.06	0.02	40.90	
70.00		1032.7	0.27	0.05	0.01	38.34	
75.00		1011.5	0.31	0.04	0.01	34.19	
80.00		990.25	0.35	0.03	0.01	28.05	
85.00		968.99	0.40	0.02	0.01	19.71	
88.75	Bot - Section 3	712.78	0.43	0.01	0.01	9.07	
90.00		388.72	0.45	0.00	0.01	3.85	
94.00	Top - Section 2	1229.2	0.49	-0.01	0.01	0.33	
95.00		120.23	0.50	-0.02	0.01	-0.27	
100.00		592.93	0.55	-0.04	0.01	-8.73	
105.00		579.26	0.61	-0.06	0.02	-15.02	
110.00		565.58	0.67	-0.08	0.02	-19.56	
115.00		551.91	0.73	-0.10	0.04	-22.04	
120.00		538.24	0.80	-0.11	0.05	-22.47	
125.00		524.56	0.86	-0.12	0.07	-21.01	
130.00		510.89	0.93	-0.12	0.10	-17.85	
134.50	Bot - Section 4	448.11	1.00	-0.11	0.13	-12.33	
135.00		87.89	1.01	-0.11	0.13	-2.33	
138.75	Top - Section 3	651.45	1.06	-0.09	0.17	-11.78	
140.00		94.51	1.08	-0.08	0.18	-1.40	
145.00		371.38	1.16	-0.03	0.23	0.00	
150.00		360.75	1.24	0.05	0.29	6.53	
155.00		350.11	1.33	0.16	0.36	13.81	
160.00		339.47	1.41	0.31	0.45	21.75	
165.00		328.84	1.50	0.51	0.55	30.28	
170.00		318.20	1.60	0.77	0.66	39.30	
175.00	Appurtenance(s)	2364.0	1.69	1.09	0.80	374.56	
177.50	Appurtenance(s)	635.80	1.74	1.28	0.88	112.69	
180.00		147.14	1.79	1.49	0.96	28.98	
185.00	Appurtenance(s)	4443.1	1.89	1.98	1.14	1062.19	
Totals:		39,444.6				2,289.2	Total Wind: 24,407.5

Calculated Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E										Iterations 24
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) 0.30		SA 0.03		Seismic Importance Factor 1.00				



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-38.38	-2.45	0.00	-353.06	0.00	353.06	6281.65	3140.82	14160.7	7090.90	0.00	0.00	0.00	0.056
5.00	-37.03	-2.43	0.00	-340.82	0.00	340.82	6207.52	3103.76	13762.2	6891.36	0.01	-0.01	0.055	
10.00	-35.64	-2.40	0.00	-328.66	0.00	328.66	6132.43	3066.22	13367.2	6693.54	0.03	-0.03	0.055	
15.00	-34.28	-2.37	0.00	-316.64	0.00	316.64	6056.39	3028.19	12975.7	6497.49	0.07	-0.05	0.054	
20.00	-32.94	-2.33	0.00	-304.80	0.00	304.80	5979.38	2989.69	12587.8	6303.27	0.13	-0.06	0.054	
25.00	-31.62	-2.29	0.00	-293.16	0.00	293.16	5901.41	2950.71	12203.7	6110.93	0.20	-0.08	0.053	
30.00	-30.32	-2.25	0.00	-281.71	0.00	281.71	5822.49	2911.24	11823.4	5920.53	0.29	-0.09	0.053	
35.00	-29.04	-2.20	0.00	-270.48	0.00	270.48	5733.45	2866.73	11428.9	5722.98	0.39	-0.11	0.052	
40.00	-27.79	-2.16	0.00	-259.46	0.00	259.46	5627.33	2813.66	11007.6	5512.02	0.51	-0.12	0.052	
44.00	-26.80	-2.12	0.00	-250.81	0.00	250.81	5542.42	2771.21	10676.3	5346.10	0.62	-0.14	0.052	
45.00	-26.35	-2.11	0.00	-248.69	0.00	248.69	5521.20	2760.60	10594.2	5305.01	0.65	-0.14	0.052	
50.00	-24.14	-2.02	0.00	-238.14	0.00	238.14	4722.80	2361.40	9081.57	4547.53	0.81	-0.16	0.057	
55.00	-23.07	-1.98	0.00	-228.04	0.00	228.04	4656.60	2328.30	8780.70	4396.88	0.99	-0.18	0.057	
60.00	-22.02	-1.94	0.00	-218.14	0.00	218.14	4589.44	2294.72	8483.00	4247.80	1.18	-0.19	0.056	
65.00	-20.99	-1.90	0.00	-208.43	0.00	208.43	4521.32	2260.66	8188.56	4100.37	1.39	-0.21	0.055	
70.00	-19.97	-1.87	0.00	-198.91	0.00	198.91	4452.24	2226.12	7897.50	3954.62	1.63	-0.23	0.055	
75.00	-18.98	-1.84	0.00	-189.57	0.00	189.57	4370.59	2185.30	7589.75	3800.52	1.88	-0.25	0.054	
80.00	-18.01	-1.81	0.00	-180.38	0.00	180.38	4277.73	2138.86	7269.05	3639.93	2.15	-0.27	0.054	
85.00	-17.05	-1.79	0.00	-171.33	0.00	171.33	4184.87	2092.43	6955.26	3482.80	2.45	-0.29	0.053	
88.75	-16.35	-1.78	0.00	-164.61	0.00	164.61	4115.22	2057.61	6724.47	3367.23	2.68	-0.31	0.053	
90.00	-15.98	-1.78	0.00	-162.38	0.00	162.38	4092.00	2046.00	6648.40	3329.14	2.76	-0.31	0.053	
94.00	-14.80	-1.77	0.00	-155.27	0.00	155.27	2346.03	1173.01	3826.44	1916.06	3.03	-0.33	0.087	
95.00	-14.68	-1.78	0.00	-153.49	0.00	153.49	2339.59	1169.79	3798.50	1902.07	3.10	-0.33	0.087	
100.00	-14.06	-1.78	0.00	-144.60	0.00	144.60	2306.83	1153.41	3659.31	1832.38	3.47	-0.36	0.085	
105.00	-13.46	-1.79	0.00	-135.69	0.00	135.69	2273.10	1136.55	3521.09	1763.16	3.86	-0.39	0.083	
110.00	-12.87	-1.79	0.00	-126.76	0.00	126.76	2238.42	1119.21	3383.92	1694.48	4.29	-0.42	0.081	
115.00	-12.29	-1.79	0.00	-117.82	0.00	117.82	2202.78	1101.39	3247.93	1626.38	4.75	-0.46	0.078	
120.00	-11.72	-1.79	0.00	-108.87	0.00	108.87	2166.17	1083.09	3113.22	1558.92	5.25	-0.49	0.075	
125.00	-11.16	-1.79	0.00	-99.90	0.00	99.90	2128.61	1064.30	2979.89	1492.16	5.77	-0.52	0.072	
130.00	-10.62	-1.79	0.00	-90.94	0.00	90.94	2090.09	1045.04	2848.05	1426.14	6.33	-0.55	0.069	
134.50	-10.14	-1.79	0.00	-82.87	0.00	82.87	2054.59	1027.30	2730.76	1367.41	6.86	-0.57	0.066	
135.00	-10.05	-1.79	0.00	-81.97	0.00	81.97	2050.60	1025.30	2717.81	1360.93	6.92	-0.58	0.065	
138.75	-9.40	-1.79	0.00	-75.25	0.00	75.25	1362.52	681.26	1799.45	901.06	7.38	-0.60	0.090	
140.00	-9.30	-1.79	0.00	-73.01	0.00	73.01	1356.74	678.37	1779.17	890.91	7.54	-0.61	0.089	
145.00	-8.88	-1.79	0.00	-64.05	0.00	64.05	1333.09	666.54	1698.46	850.49	8.20	-0.64	0.082	
150.00	-8.47	-1.79	0.00	-55.10	0.00	55.10	1308.58	654.29	1618.46	810.43	8.88	-0.67	0.074	
155.00	-8.07	-1.77	0.00	-46.17	0.00	46.17	1283.23	641.61	1539.27	770.78	9.61	-0.70	0.066	
160.00	-7.69	-1.75	0.00	-37.31	0.00	37.31	1257.02	628.51	1460.97	731.57	10.36	-0.73	0.057	
165.00	-7.31	-1.72	0.00	-28.58	0.00	28.58	1229.96	614.98	1383.68	692.87	11.14	-0.76	0.047	
170.00	-6.94	-1.67	0.00	-20.00	0.00	20.00	1202.05	601.03	1307.47	654.71	11.94	-0.77	0.036	
175.00	-4.73	-1.27	0.00	-11.64	0.00	11.64	1173.29	586.65	1232.46	617.14	12.76	-0.79	0.023	
177.50	-4.15	-1.15	0.00	-8.46	0.00	8.46	1158.59	579.30	1195.42	598.60	13.17	-0.79	0.018	
180.00	-4.01	-1.12	0.00	-5.59	0.00	5.59	1143.68	571.84	1158.72	580.22	13.59	-0.80	0.013	
185.00	0.00	-1.06	0.00	0.00	0.00	0.00	1113.22	556.61	1086.36	543.99	14.43	-0.80	0.000	

Wind Loading - Shaft

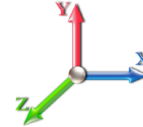
Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 25

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	235.46	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	231.63	0.650	0.000	5.00	23.262	15.12	101.9	0.0	1471.0
10.00		1.00	0.70	6.129	6.74	227.81	0.650	0.000	5.00	22.881	14.87	100.3	0.0	1446.7
15.00		1.00	0.70	6.129	6.74	223.99	0.650	0.000	5.00	22.500	14.63	98.6	0.0	1422.4
20.00		1.00	0.70	6.129	6.74	220.16	0.650	0.000	5.00	22.119	14.38	96.9	0.0	1398.1
25.00		1.00	0.70	6.129	6.74	216.34	0.650	0.000	5.00	21.738	14.13	95.3	0.0	1373.7
30.00		1.00	0.70	6.134	6.75	212.61	0.650	0.000	5.00	21.357	13.88	93.7	0.0	1349.4
35.00		1.00	0.73	6.410	7.05	213.43	0.650	0.000	5.00	20.977	13.63	96.1	0.0	1325.1
40.00		1.00	0.76	6.659	7.33	213.55	0.650	0.000	5.00	20.596	13.39	98.1	0.0	1300.8
44.00	Bot - Section 2	1.00	0.78	6.843	7.53	213.25	0.650	0.000	4.00	16.202	10.53	79.3	0.0	1023.2
45.00		1.00	0.79	6.887	7.58	213.12	0.650	0.000	1.00	4.087	2.66	20.1	0.0	479.5
50.00	Top - Section 1	1.00	0.81	7.098	7.81	212.24	0.650	0.000	5.00	20.204	13.13	102.5	0.0	2370.1
55.00		1.00	0.83	7.294	8.02	215.03	0.650	0.000	5.00	19.823	12.89	103.4	0.0	1096.6
60.00		1.00	0.85	7.477	8.22	213.50	0.650	0.000	5.00	19.443	12.64	103.9	0.0	1075.3
65.00		1.00	0.87	7.650	8.42	211.68	0.650	0.000	5.00	19.062	12.39	104.3	0.0	1054.0
70.00		1.00	0.89	7.814	8.60	209.62	0.650	0.000	5.00	18.681	12.14	104.4	0.0	1032.8
75.00		1.00	0.91	7.969	8.77	207.33	0.650	0.000	5.00	18.300	11.90	104.3	0.0	1011.5
80.00		1.00	0.93	8.118	8.93	204.85	0.650	0.000	5.00	17.919	11.65	104.0	0.0	990.3
85.00		1.00	0.94	8.260	9.09	202.20	0.650	0.000	5.00	17.538	11.40	103.6	0.0	969.0
88.75	Bot - Section 3	1.00	0.96	8.362	9.20	200.10	0.650	0.000	3.75	12.904	8.39	77.2	0.0	712.8
90.00		1.00	0.96	8.396	9.24	199.38	0.650	0.000	1.25	4.313	2.80	25.9	0.0	388.7
94.00	Top - Section 2	1.00	0.97	8.501	9.35	197.02	0.650	0.000	4.00	13.642	8.87	82.9	0.0	1229.2
95.00		1.00	0.97	8.526	9.38	199.24	0.650	0.000	1.00	3.372	2.19	20.6	0.0	120.2
100.00		1.00	0.99	8.652	9.52	196.16	0.650	0.000	5.00	16.634	10.81	102.9	0.0	592.9
105.00		1.00	1.00	8.774	9.65	192.95	0.650	0.000	5.00	16.253	10.56	102.0	0.0	579.3
110.00		1.00	1.02	8.891	9.78	189.64	0.650	0.000	5.00	15.872	10.32	100.9	0.0	565.6
115.00		1.00	1.03	9.005	9.91	186.21	0.650	0.000	5.00	15.491	10.07	99.7	0.0	551.9
120.00		1.00	1.04	9.115	10.03	182.68	0.650	0.000	5.00	15.111	9.82	98.5	0.0	538.2
125.00		1.00	1.05	9.222	10.14	179.06	0.650	0.000	5.00	14.730	9.57	97.1	0.0	524.6
130.00		1.00	1.07	9.326	10.26	175.35	0.650	0.000	5.00	14.349	9.33	95.7	0.0	510.9
134.50	Bot - Section 4	1.00	1.08	9.417	10.36	171.94	0.650	0.000	4.50	12.588	8.18	84.8	0.0	448.1
135.00		1.00	1.08	9.427	10.37	171.55	0.650	0.000	0.50	1.398	0.91	9.4	0.0	87.9
138.75	Top - Section 3	1.00	1.09	9.501	10.45	168.66	0.650	0.000	3.75	10.365	6.74	70.4	0.0	651.4
140.00		1.00	1.09	9.525	10.48	170.00	0.650	0.000	1.25	3.407	2.21	23.2	0.0	94.5
145.00		1.00	1.10	9.621	10.58	166.06	0.650	0.000	5.00	13.391	8.70	92.1	0.0	371.4
150.00		1.00	1.11	9.715	10.69	162.05	0.650	0.000	5.00	13.011	8.46	90.4	0.0	360.7
155.00		1.00	1.12	9.806	10.79	157.98	0.650	0.000	5.00	12.630	8.21	88.6	0.0	350.1
160.00		1.00	1.13	9.896	10.89	153.84	0.650	0.000	5.00	12.249	7.96	86.7	0.0	339.5
165.00		1.00	1.14	9.983	10.98	149.64	0.650	0.000	5.00	11.868	7.71	84.7	0.0	328.8
170.00		1.00	1.15	10.069	11.08	145.37	0.650	0.000	5.00	11.487	7.47	82.7	0.0	318.2
175.00	Appurtenance(s)	1.00	1.16	10.152	11.17	141.06	0.650	0.000	5.00	11.106	7.22	80.6	0.0	307.6
177.50	Appurtenance(s)	1.00	1.16	10.194	11.21	138.88	0.650	0.000	2.50	5.410	3.52	39.4	0.0	149.8
180.00		1.00	1.17	10.234	11.26	136.68	0.650	0.000	2.50	5.315	3.45	38.9	0.0	147.1
185.00	Appurtenance(s)	1.00	1.18	10.315	11.35	132.26	0.650	0.000	5.00	10.345	6.72	76.3	0.0	286.3
Totals:									185.00			3,562.0		32,745.3

Discrete Appurtenance Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



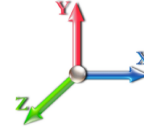
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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 25

Dead Load Factor 1.00

Wind Load Factor 1.00



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	185.00	SitePro1 PRK 1245L	1	10.315	11.346	1.00	1.00	9.50	464.91	0.000	0.000	107.79	0.00	0.00
2	185.00	Ericsson 4460 B25 + B66	3	10.315	11.346	0.50	0.75	4.30	312.00	0.000	0.000	48.75	0.00	0.00
3	185.00	ALU 800 MHz Filter	3	10.315	11.346	0.50	0.75	1.18	26.40	0.000	0.000	13.34	0.00	0.00
4	185.00	ALU 800 MHz RRH	3	10.315	11.346	0.50	0.75	3.75	159.00	0.000	0.000	42.59	0.00	0.00
5	185.00	RFS ACU-A20-N RET	4	10.315	11.346	0.50	0.75	0.28	4.16	0.000	0.000	3.19	0.00	0.00
6	185.00	AIR6449 B41	3	10.315	11.346	0.53	0.75	9.03	309.00	0.000	0.000	102.41	0.00	0.00
7	185.00	APXVAALL24_43-U-NA20	3	10.315	11.346	0.55	0.75	33.24	368.40	0.000	0.000	377.20	0.00	0.00
8	185.00	AIR32	3	10.315	11.346	0.65	0.75	12.74	396.60	0.000	0.000	144.59	0.00	0.00
9	185.00	Modified Low Profile	1	10.315	11.346	1.00	1.00	25.00	1500.00	0.000	0.000	283.66	0.00	0.00
10	185.00	Ericsson 4480 B71 + B85	3	10.315	11.346	0.50	0.75	4.30	279.00	0.000	0.000	48.75	0.00	0.00
11	185.00	SitePro1 HRK14	1	10.315	11.346	1.00	1.00	8.13	302.36	0.000	0.000	92.24	0.00	0.00
12	185.00	Lightning Rod	1	10.370	11.407	1.00	1.00	1.05	35.00	0.000	3.500	11.98	0.00	41.92
13	177.50	Collar Mount (Andrew)	1	10.194	11.213	1.00	1.00	5.00	150.00	0.000	0.000	56.06	0.00	0.00
14	177.50	Raycap DC6-48-60-18-8F	1	10.194	11.213	1.00	1.00	2.20	31.80	0.000	0.000	24.67	0.00	0.00
15	177.50	Ericsson RRU11	6	10.194	11.213	0.54	0.80	8.27	304.20	0.000	0.000	92.68	0.00	0.00
16	175.00	KMW	3	10.152	11.168	0.60	0.80	14.44	145.50	0.000	0.000	161.21	0.00	0.00
17	175.00	Powerwave 7770	6	10.152	11.168	0.58	0.80	19.31	210.00	0.000	0.000	215.61	0.00	0.00
18	175.00	Powerwave LGP21401	12	10.152	11.168	0.54	0.80	7.08	169.20	0.000	0.000	79.01	0.00	0.00
19	175.00	Powerwave LGP13519	6	10.152	11.168	0.54	0.80	0.42	31.80	0.000	0.000	4.67	0.00	0.00
20	175.00	Low Profile Platform	1	10.152	11.168	1.00	1.00	22.00	1500.00	0.000	0.000	245.69	0.00	0.00

Totals: 6,699.33

2,156.08

Total Applied Force Summary

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		101.93	1507.61	0.00	0.00
10.00		100.26	1538.28	0.00	0.00
15.00		98.59	1513.98	0.00	0.00
20.00		96.93	1489.68	0.00	0.00
25.00		95.26	1465.37	0.00	0.00
30.00		93.67	1441.07	0.00	0.00
35.00		96.14	1416.76	0.00	0.00
40.00		98.06	1392.46	0.00	0.00
44.00		79.28	1096.47	0.00	0.00
45.00		20.12	497.81	0.00	0.00
50.00		102.53	2461.70	0.00	0.00
55.00		103.38	1188.21	0.00	0.00
60.00		103.94	1166.94	0.00	0.00
65.00		104.27	1145.67	0.00	0.00
70.00		104.37	1124.41	0.00	0.00
75.00		104.28	1103.14	0.00	0.00
80.00		104.01	1081.88	0.00	0.00
85.00		103.57	1060.61	0.00	0.00
88.75		77.15	781.50	0.00	0.00
90.00		25.89	411.63	0.00	0.00
94.00		82.92	1302.54	0.00	0.00
95.00		20.56	138.55	0.00	0.00
100.00		102.90	684.55	0.00	0.00
105.00		101.96	670.88	0.00	0.00
110.00		100.90	657.21	0.00	0.00
115.00		99.74	643.53	0.00	0.00
120.00		98.48	629.86	0.00	0.00
125.00		97.12	616.19	0.00	0.00
130.00		95.68	602.51	0.00	0.00
134.50		84.76	530.57	0.00	0.00
135.00		9.42	97.06	0.00	0.00
138.75		70.41	720.17	0.00	0.00
140.00		23.21	117.41	0.00	0.00
145.00		92.12	463.01	0.00	0.00
150.00		90.37	452.37	0.00	0.00
155.00		88.55	441.74	0.00	0.00
160.00		86.67	431.10	0.00	0.00
165.00		84.71	420.46	0.00	0.00
170.00		82.70	409.83	0.00	0.00
175.00	(28) attachments	786.81	2455.69	0.00	0.00
177.50	(8) attachments	212.84	648.83	0.00	0.00
180.00		38.89	160.17	0.00	0.00
185.00	(29) attachments	1352.78	4469.20	0.00	41.92
	Totals:	5,718.13	42,648.63	0.00	41.92

Linear Appurtenance Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

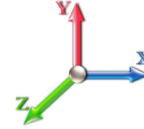


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 25

Dead Load Factor 1.00

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	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.007	0.000	6.129	0.00	0.55
5.00	Step bolts (ladder)	Yes	2.00	0.000	0.63	0.10	0.00	0.007	0.000	6.129	0.00	4.16
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	6.129	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.018	0.000	6.129	0.00	10.40
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	6.129	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	6.129	0.00	10.40
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	6.129	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	6.129	0.00	10.40
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.019	0.000	6.129	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.019	0.000	6.129	0.00	10.40
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	6.134	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	6.134	0.00	10.40
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	6.410	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	6.410	0.00	10.40
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	6.659	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.020	0.000	6.659	0.00	10.40
44.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.021	0.000	6.843	0.00	1.09
44.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.021	0.000	6.843	0.00	8.32
45.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.021	0.000	6.887	0.00	0.27
45.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.021	0.000	6.887	0.00	2.08
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	7.098	0.00	1.37
50.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	7.098	0.00	10.40
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	7.294	0.00	1.37
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.021	0.000	7.294	0.00	10.40
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	7.477	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	7.477	0.00	10.40
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.022	0.000	7.650	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.022	0.000	7.650	0.00	10.40
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	7.814	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	7.814	0.00	10.40
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	7.969	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	7.969	0.00	10.40
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.023	0.000	8.118	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.023	0.000	8.118	0.00	10.40
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.024	0.000	8.260	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.024	0.000	8.260	0.00	10.40
88.75	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.024	0.000	8.362	0.00	1.02
88.75	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.024	0.000	8.362	0.00	7.80
90.00	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.025	0.000	8.396	0.00	0.34
90.00	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.025	0.000	8.396	0.00	2.60
94.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.025	0.000	8.501	0.00	1.09
94.00	Step bolts (ladder)	Yes	4.00	0.000	0.63	0.21	0.00	0.025	0.000	8.501	0.00	8.32
95.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.025	0.000	8.526	0.00	0.27
95.00	Step bolts (ladder)	Yes	1.00	0.000	0.63	0.05	0.00	0.025	0.000	8.526	0.00	2.08
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	8.652	0.00	1.37
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.025	0.000	8.652	0.00	10.40
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	8.774	0.00	1.37

Linear Appurtenance Segment Forces (Factored)

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 25
Dead Load Factor 1.00	
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)
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.026	0.000	8.774	0.00	10.40
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	8.891	0.00	1.37
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	8.891	0.00	10.40
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	9.005	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.027	0.000	9.005	0.00	10.40
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	9.115	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.028	0.000	9.115	0.00	10.40
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	9.222	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	9.222	0.00	10.40
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	9.326	0.00	1.37
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.029	0.000	9.326	0.00	10.40
134.50	Safety Cable	Yes	4.50	0.000	0.38	0.14	0.00	0.030	0.000	9.417	0.00	1.23
134.50	Step bolts (ladder)	Yes	4.50	0.000	0.63	0.24	0.00	0.030	0.000	9.417	0.00	9.36
135.00	Safety Cable	Yes	0.50	0.000	0.38	0.02	0.00	0.031	0.000	9.427	0.00	0.14
135.00	Step bolts (ladder)	Yes	0.50	0.000	0.63	0.03	0.00	0.031	0.000	9.427	0.00	1.04
138.75	Safety Cable	Yes	3.75	0.000	0.38	0.12	0.00	0.031	0.000	9.501	0.00	1.02
138.75	Step bolts (ladder)	Yes	3.75	0.000	0.63	0.20	0.00	0.031	0.000	9.501	0.00	7.80
140.00	Safety Cable	Yes	1.25	0.000	0.38	0.04	0.00	0.031	0.000	9.525	0.00	0.34
140.00	Step bolts (ladder)	Yes	1.25	0.000	0.63	0.07	0.00	0.031	0.000	9.525	0.00	2.60
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	9.621	0.00	1.37
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.031	0.000	9.621	0.00	10.40
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.032	0.000	9.715	0.00	1.37
150.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.032	0.000	9.715	0.00	10.40
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.033	0.000	9.806	0.00	1.37
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.033	0.000	9.806	0.00	10.40
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.034	0.000	9.896	0.00	1.37
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.034	0.000	9.896	0.00	10.40
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	9.983	0.00	1.37
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.035	0.000	9.983	0.00	10.40
170.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	10.069	0.00	1.37
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.037	0.000	10.069	0.00	10.40
175.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.038	0.000	10.152	0.00	1.37
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.038	0.000	10.152	0.00	10.40
177.50	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.039	0.000	10.194	0.00	0.68
177.50	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.039	0.000	10.194	0.00	5.20
180.00	Safety Cable	Yes	2.50	0.000	0.38	0.08	0.00	0.040	0.000	10.234	0.00	0.68
180.00	Step bolts (ladder)	Yes	2.50	0.000	0.63	0.13	0.00	0.040	0.000	10.234	0.00	5.20
185.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.041	0.000	10.315	0.00	1.37
185.00	Step bolts (ladder)	Yes	5.00	0.000	0.63	0.26	0.00	0.041	0.000	10.315	0.00	10.40
Totals:											0.0	428.2

Calculated Forces

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 25
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	-42.65	-5.73	0.00	-748.45	0.00	748.45	6281.65	3140.82	14160.7	7090.90	0.00	0.000	0.000	0.112
5.00	-41.14	-5.65	0.00	-719.81	0.00	719.81	6207.52	3103.76	13762.2	6891.36	0.02	-0.031	0.000	0.111
10.00	-39.60	-5.57	0.00	-691.56	0.00	691.56	6132.43	3066.22	13367.2	6693.54	0.07	-0.063	0.000	0.110
15.00	-38.08	-5.49	0.00	-663.71	0.00	663.71	6056.39	3028.19	12975.7	6497.49	0.15	-0.095	0.000	0.108
20.00	-36.59	-5.41	0.00	-636.25	0.00	636.25	5979.38	2989.69	12587.8	6303.27	0.27	-0.128	0.000	0.107
25.00	-35.12	-5.33	0.00	-609.19	0.00	609.19	5901.41	2950.71	12203.7	6110.93	0.42	-0.160	0.000	0.106
30.00	-33.67	-5.25	0.00	-582.53	0.00	582.53	5822.49	2911.24	11823.4	5920.53	0.60	-0.193	0.000	0.104
35.00	-32.25	-5.17	0.00	-556.25	0.00	556.25	5733.45	2866.73	11428.9	5722.98	0.82	-0.226	0.000	0.103
40.00	-30.86	-5.08	0.00	-530.39	0.00	530.39	5627.33	2813.66	11007.6	5512.02	1.08	-0.260	0.000	0.102
44.00	-29.76	-5.01	0.00	-510.06	0.00	510.06	5542.42	2771.21	10676.3	5346.10	1.31	-0.287	0.000	0.101
45.00	-29.26	-5.00	0.00	-505.05	0.00	505.05	5521.20	2760.60	10594.2	5305.01	1.37	-0.294	0.000	0.101
50.00	-26.80	-4.90	0.00	-480.07	0.00	480.07	4722.80	2361.40	9081.57	4547.53	1.70	-0.328	0.000	0.111
55.00	-25.61	-4.80	0.00	-455.58	0.00	455.58	4656.60	2328.30	8780.70	4396.88	2.06	-0.362	0.000	0.109
60.00	-24.44	-4.71	0.00	-431.57	0.00	431.57	4589.44	2294.72	8483.00	4247.80	2.46	-0.399	0.000	0.107
65.00	-23.29	-4.61	0.00	-408.04	0.00	408.04	4521.32	2260.66	8188.56	4100.37	2.90	-0.437	0.000	0.105
70.00	-22.16	-4.51	0.00	-385.00	0.00	385.00	4452.24	2226.12	7897.50	3954.62	3.37	-0.474	0.000	0.102
75.00	-21.06	-4.41	0.00	-362.45	0.00	362.45	4370.59	2185.30	7589.75	3800.52	3.89	-0.511	0.000	0.100
80.00	-19.98	-4.31	0.00	-340.40	0.00	340.40	4277.73	2138.86	7269.05	3639.93	4.44	-0.549	0.000	0.098
85.00	-18.91	-4.21	0.00	-318.86	0.00	318.86	4184.87	2092.43	6955.26	3482.80	5.04	-0.586	0.000	0.096
88.75	-18.13	-4.13	0.00	-303.09	0.00	303.09	4115.22	2057.61	6724.47	3367.23	5.51	-0.615	0.000	0.094
90.00	-17.72	-4.10	0.00	-297.93	0.00	297.93	4092.00	2046.00	6648.40	3329.14	5.67	-0.624	0.000	0.094
94.00	-16.42	-4.01	0.00	-281.52	0.00	281.52	2346.03	1173.01	3826.44	1916.06	6.21	-0.654	0.000	0.154
95.00	-16.28	-4.00	0.00	-277.51	0.00	277.51	2339.59	1169.79	3798.50	1902.07	6.35	-0.662	0.000	0.153
100.00	-15.59	-3.90	0.00	-257.53	0.00	257.53	2306.83	1153.41	3659.31	1832.38	7.07	-0.717	0.000	0.147
105.00	-14.92	-3.80	0.00	-238.03	0.00	238.03	2273.10	1136.55	3521.09	1763.16	7.85	-0.771	0.000	0.142
110.00	-14.26	-3.71	0.00	-219.01	0.00	219.01	2238.42	1119.21	3383.92	1694.48	8.69	-0.825	0.000	0.136
115.00	-13.61	-3.61	0.00	-200.47	0.00	200.47	2202.78	1101.39	3247.93	1626.38	9.58	-0.878	0.000	0.129
120.00	-12.98	-3.51	0.00	-182.42	0.00	182.42	2166.17	1083.09	3113.22	1558.92	10.53	-0.930	0.000	0.123
125.00	-12.36	-3.42	0.00	-164.85	0.00	164.85	2128.61	1064.30	2979.89	1492.16	11.53	-0.982	0.000	0.116
130.00	-11.76	-3.32	0.00	-147.76	0.00	147.76	2090.09	1045.04	2848.05	1426.14	12.58	-1.031	0.000	0.109
134.50	-11.23	-3.23	0.00	-132.82	0.00	132.82	2054.59	1027.30	2730.76	1367.41	13.58	-1.075	0.000	0.103
135.00	-11.13	-3.22	0.00	-131.20	0.00	131.20	2050.60	1025.30	2717.81	1360.93	13.69	-1.080	0.000	0.102
138.75	-10.41	-3.14	0.00	-119.11	0.00	119.11	1362.52	681.26	1799.45	901.06	14.55	-1.115	0.000	0.140
140.00	-10.29	-3.12	0.00	-115.18	0.00	115.18	1356.74	678.37	1779.17	890.91	14.85	-1.127	0.000	0.137
145.00	-9.83	-3.03	0.00	-99.56	0.00	99.56	1333.09	666.54	1698.46	850.49	16.06	-1.180	0.000	0.124
150.00	-9.37	-2.94	0.00	-84.40	0.00	84.40	1308.58	654.29	1618.46	810.43	17.32	-1.231	0.000	0.111
155.00	-8.93	-2.85	0.00	-69.71	0.00	69.71	1283.23	641.61	1539.27	770.78	18.63	-1.277	0.000	0.097
160.00	-8.50	-2.76	0.00	-55.47	0.00	55.47	1257.02	628.51	1460.97	731.57	19.99	-1.317	0.000	0.083
165.00	-8.08	-2.67	0.00	-41.68	0.00	41.68	1229.96	614.98	1383.68	692.87	21.39	-1.352	0.000	0.067
170.00	-7.67	-2.58	0.00	-28.34	0.00	28.34	1202.05	601.03	1307.47	654.71	22.82	-1.380	0.000	0.050
175.00	-5.24	-1.73	0.00	-15.45	0.00	15.45	1173.29	586.65	1232.46	617.14	24.28	-1.399	0.000	0.030
177.50	-4.59	-1.50	0.00	-11.12	0.00	11.12	1158.59	579.30	1195.42	598.60	25.01	-1.405	0.000	0.023
180.00	-4.43	-1.46	0.00	-7.35	0.00	7.35	1143.68	571.84	1158.72	580.22	25.75	-1.410	0.000	0.017
185.00	0.00	-1.35	0.00	-0.04	0.00	0.04	1113.22	556.61	1086.36	543.99	27.23	-1.414	0.000	0.000

Final Analysis Summary

Structure: CT04169-A-2-SBA	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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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 98 mph Wind	24.5	0.00	51.15	0.00	0.00	3218.49
0.9D + 1.6W 98 mph Wind	24.5	0.00	38.35	0.00	0.00	3176.81
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.2	0.00	75.57	0.00	0.00	944.31
1.2D + 1.0E	2.4	0.00	51.18	0.00	0.00	358.15
0.9D + 1.0E	2.4	0.00	38.38	0.00	0.00	353.06
1.0D + 1.0W 60 mph Wind	5.7	0.00	42.65	0.00	0.00	748.45

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 98 mph Wind	-18.92	-17.27	0.00	-1214.3	0.00	-1214.3	2346.03	1173.0	3826.44	1916.06	94.00	0.642
0.9D + 1.6W 98 mph Wind	-14.00	-17.01	0.00	-1190.0	0.00	-1190.0	2346.03	1173.0	3826.44	1916.06	94.00	0.627
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-34.66	-5.09	0.00	-351.67	0.00	-351.67	2346.03	1173.0	3826.44	1916.06	94.00	0.198
1.2D + 1.0E	-12.54	-1.82	0.00	-76.76	0.00	-76.76	1362.52	681.26	1799.45	901.06	138.75	0.094
0.9D + 1.0E	-9.40	-1.79	0.00	-75.25	0.00	-75.25	1362.52	681.26	1799.45	901.06	138.75	0.090
1.0D + 1.0W 60 mph Wind	-16.42	-4.01	0.00	-281.52	0.00	-281.52	2346.03	1173.0	3826.44	1916.06	94.00	0.154

Base Plate Summary

Structure: CT04169-A-2-	Code: TIA-222-G	3/28/2022
Site Name: Higganum	Exposure: B	
Height: 185.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 50.00	Bolt Circle: 63.00
Moment (kip-ft): 5025.00	Width (in): 67.00	Number Bolts: 28.00
Axial (kip): 41.00	Style: Clipped	Bolt Type: 2.25" 18J
Shear (kip): 39.00	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis (1.2D + 1.6W)	Clip Length (in): 15.00	Yield (ksi): 75.00
Moment (kip-ft): 3218.49	Effective Len (in): 6.58	Ultimate (ksi): 100.00
Axial (kip): 51.15	Moment (kip-in): 341.70	Arrangement: Clustered
Shear (kip): 24.47	Allow Stress (ksi): 67.50	Cluster Dist (in): 6.00
	Applied Stress (ksi): 41.17	Start Angle (deg): 45.00
	Stress Ratio: 0.61	Compression
		Force (kip): 90.28
		Allowable (kip): 260.00
		Ratio: 0.35
		Tension
		Force (kip): 84.88
		Allowable (kip): 260.00
		Ratio: 0.33



Monopole Mat Foundation Design

Date

3/28/2022

Customer Name:	SBA Communcations Corp	EIA/TIA Standard:	EIA-222-G
Site Name:	Higganum	Structure Height (Ft.):	
Site Number:	CT04169-A-2-SBA	Engineer Name:	T. Alajaj
Engr. Number:		Engineer Login ID:	

Foundation Info Obtained from:

Mapping Operation
Monopole
Analysis

Structure Type:

Analysis or Design?

Base Reactions (Factored):

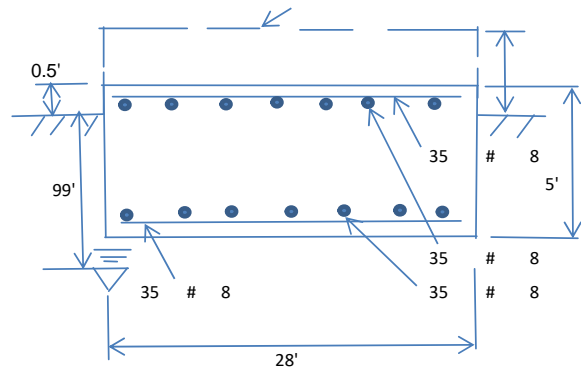
Axial Load (Kips):	51.1	Shear Force (Kips):	24.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3218.5

Allowable overstress %: 5.0%

Foundation Geometries:

Anchor Bolt Circle (ft.):	5.25	Depth of Base BG (ft.):	4.50
Thickness of Pad (ft.):	5.00	Width of Pad (ft.):	28
Length of Pad (ft.):	28		

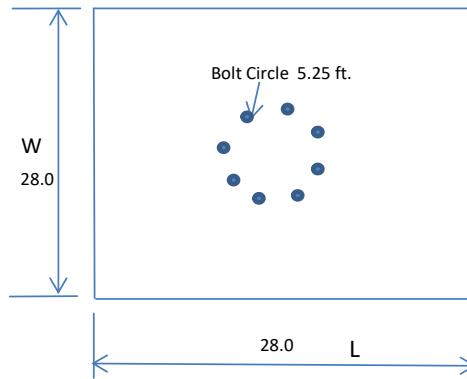
Final Length of pad (ft) 28.0 Final width of pad (ft): 28.0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	12.0	
Pad Steel Rebar Size (#):	8			
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	35	Qty. of Rebar in Pad (W):	35	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	35	Qty. of Rebar in Pad (W):	35	

Apply 1.35 factor for e/w Per G: 1.35



Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	40000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	0.00	Total Dry Soil Weight (Kips):	0.00
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	0.00	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3920.00	Total Dry Concrete Weight (Kips):	588.00
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	588.00	Total Vertical Load on Base (Kips):	639.10

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	2046	<	Allowable Factored Soil Bearing (psf):	30000	0.07	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	8124.2	>	Design Factored Momnt (kips-ft):	3234	0.40	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.51					OK!

Load/
Capacity
Ratio

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

Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1559.7	>	One-Way Factored Shear (L-D. Kips):	258.6	0.17	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1559.7	>	One-Way Factored Shear (W-D., Kips)	258.6	0.17	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1885.4	>	One-Way Factored Shear (C-C, Kips):	481.9	0.26	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0015	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0015		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	6909.6	>	Moment at Bottom (L-Direct. K-Ft):	829.5	0.12	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	6909.6	>	Moment at Bottom (W-Direct. K-Ft):	829.5	0.12	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	9742.6	>	Moment at Bottom (C-C Dir. K-Ft):	1173.1	0.12	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0015	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0015		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	6909.6	>	Moment at the top (L-Dir Kips-Ft):	88.7	0.01	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	6909.6	>	Moment at the top (W-Dir Kips-Ft):	88.7	0.01	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	9742.6	>	Moment at the top (C-C Direc. K-Ft):	482.6	0.05	OK!



Pier Foundation Design For Monopole			Date
			3/28/2022
Customer Name:	T-Mobile Sprint	EIA/TIA Standard:	TIA-222-G
Site Name:		Structure Height (Ft.):	185
Site Number:	CT04169-A-2-SBA	Engineer Name:	J. Tibbetts
Engr. Number:	126756	Engineer Login ID:	

Foundation Info Obtained from:

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

Base Reactions (Factored):

Axial Load (Kips):	51.1	Shear Force (Kips):	24.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3218.5

Foundation Geometries:

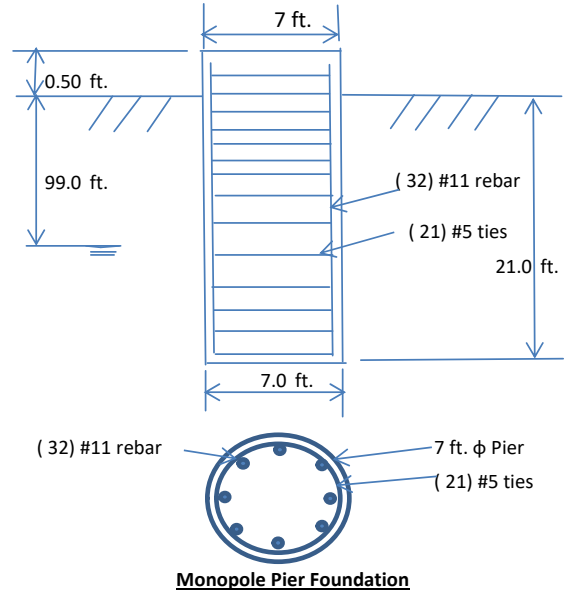
Diameter of Pier (ft.):	7.0	Depth of Base B. G. S. :	21.0	ft.
Pier Height A. G. (ft.):	0.50			

Material Properties and Rebar Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40	ksi
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	32	Tie Spacing:	18.0	in.
Concrete Cover (in.):	4	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	100	0	0		0	Clay					
3.0	14.5	100	0	11850		0	Clay					
14.5	18.5	100	0	4850		0	Clay					
18.5	23.5	100	0	4850		40000	Clay					

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.):	6013	Dry Soil Weight from Conical Failure:	601 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.):	827	Total Dry Concrete Weight:	124.1 Kips
Total Buoyant Concrete Volume (cu. Ft.):	0.0	Total Buoyant Concrete Weight:	0.00 Kips
Total Effective Concrete Weight (Kips):	124.1	Total Effective Soil Weight:	601.3 Kips
Total Effective Vertical Load on Base (Kips):	94.4		

Check Soil Capacities:

Allowable Foundation Overturning Resistance (kips-ft.):	27088.7	>	Design Factored Moment (kips-ft):	3473	Usage	0.13	OK!
Factor of Safety of Passive Soil Resistance against Moment:	7.80	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):	1.56	Tie / Stirrup Area (sq. in./each):	0.31	Usage		
Calculated Moment Capacity (Mn, Kips-Ft):	7850.8	>	Design Factored Moment (Mu, K-Ft):	3300.6	0.42	OK!
Calculated Shear Capacity (Kips):	970.0	>	Design Factored Shear (Kips):	384.4	0.40	OK!
Calculated Tension Capacity (Tn, Kips):	2695.7	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7282	>	Design Factored Axial Load (Pu Kips):	51.1	0.01	OK!
Moment & Axial Strength Combination:	0.42	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.009	Reinforcement Ratio is satisfied per ACI				

Exhibit E

Mount Analysis



Tower Engineering Solutions

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

Post-Mod Antenna Mount Analysis Report

Existing 185-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT04169-A-2-SBA / Higganum

Customer Site Name: Higganum

Carrier Name: T-Mobile Sprint (App#: 181610-1)

Carrier Site ID / Name: CT33XC545 / West Higganum

Site Location: 285 Chamberlain Hill Road

Higganum, Connecticut

Middlesex County

Latitude: 41.501764

Longitude: -72.618694

Analysis Result:

Max Structural Usage: 74.2% [Pass]



Report Prepared By: Jian Ma



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Latitude: 41.501764

Longitude: -72.618694

Analysis Result:

Max Structural Usage: 74.2% [Pass]

Report Prepared By: Jian Ma

Introduction

The purpose of this report is to summarize the analysis results on the (1) Platform w/ Support Rail at 185.00' elevation including the proposed modifications to support the proposed antenna configuration. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

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

Sources of Information

Mount Drawings	Mapping by TEP, Dated 12/09/2020
Antenna Loading	Provided by SBA Application #: 181610, v1, dated 2/7/2022
Existing Modification	N/A
Proposed Modification	TES Project No. 126757

Analysis Criteria

Basic Wind Speed Used in the Analysis: $V_{ULT} = 130$ mph (3-Sec. Gust) / Equivalent to
 $V_{ASD} = 101$ mph (3-Sec. Gust)

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

Operational Wind Speed: 30 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC

Exposure Category: B

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 Rail at 185.00' elevation

Final Antenna Configuration

3	Ericsson KRD901146-1_B66A_B2A (Octo)
3	RFS APXVAALL24_43-U-NA20
3	Ericsson AIR6449 B41
4	RFS ACU-A20-N RET
3	Ericsson 4460 B25 + B66
3	ALU 800 MHz RRH
3	Ericsson 4480 B71 + B85
3	ALU 800 MHz Filter

Analysis Results

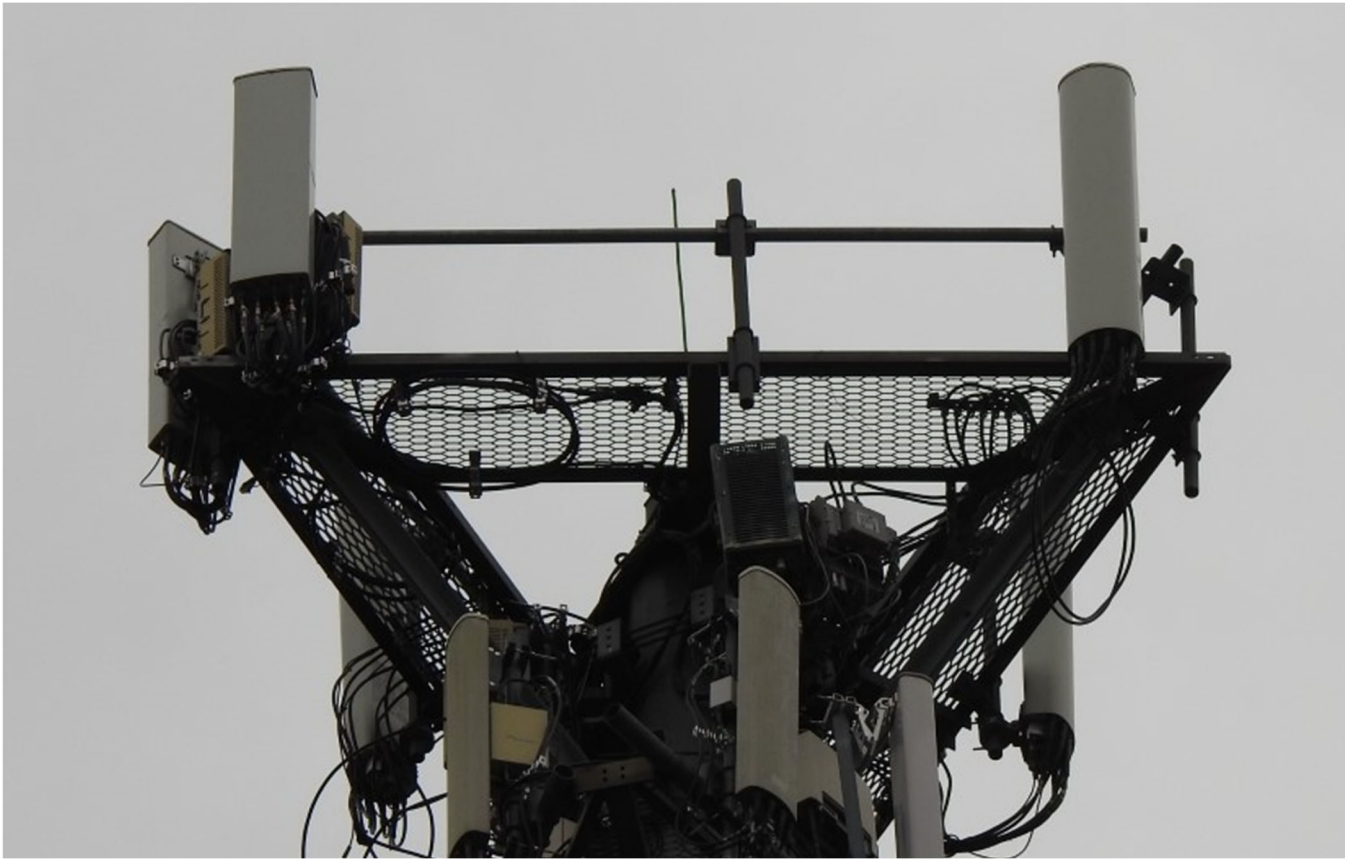
Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration after the proposed modification is successfully completed. The maximum structural usage is 74.2%, which occurs in the connection. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

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

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.



Structure: CT04169-A-2-SBA - Higganum

Sector: **A**

3/28/2022

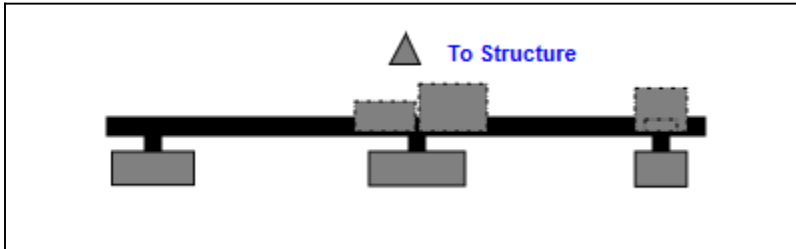
Structure Type: Monopole

Mount Elev: 185.00

Page: 1

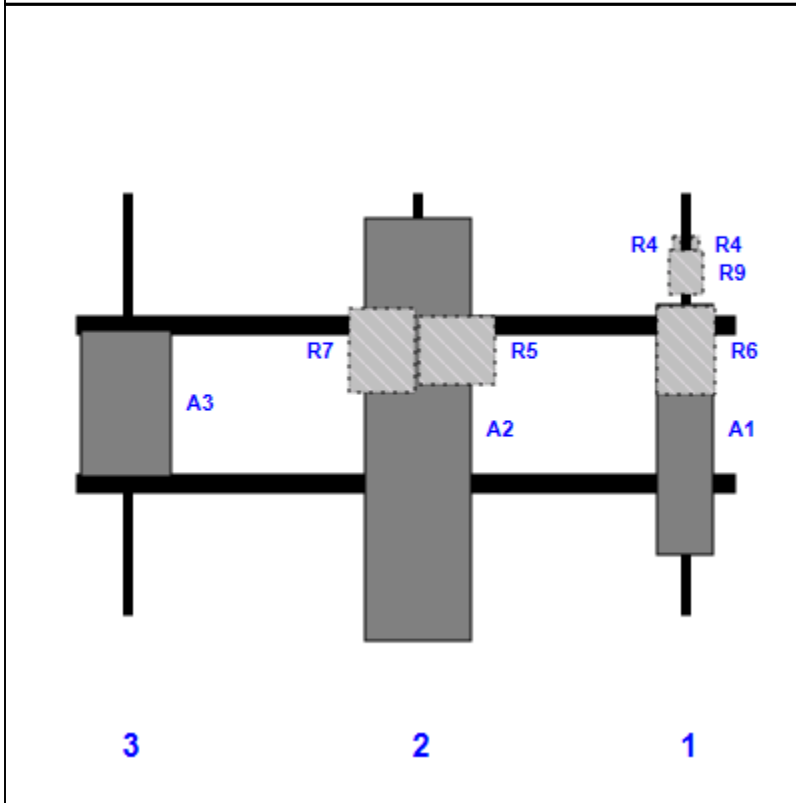


Plan View



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	KRD901146-1_B66A_B2A (Octo)	56.60	12.90	139.00	1	a	Front	54.00			
R4	ACU-A20-N RET	4.00	2.00	139.00	1	a	Behind	12.00	2.00		
R6	800 MHz RRH	19.70	13.00	139.00	1	a	Behind	36.00			
R9	800 MHz Filter	10.00	8.00	139.00	1	a	Behind	18.00			
R4	ACU-A20-N RET	4.00	2.00	139.00	1	b	Behind	12.00	-2.00		
A2	APXVAALL24_43-U-NA20	95.90	24.00	78.00	2	a	Front	54.00			
R5	4460 B25 + B66	15.10	17.00	78.00	2	a	Behind	36.00	9.00		
R7	4480 B71 + B85	19.20	15.10	78.00	2	a	Behind	36.00	-8.00		
A3	AIR6449 B41	33.10	20.50	12.00	3	a	Front	48.00			

Sector: **B**

3/28/2022

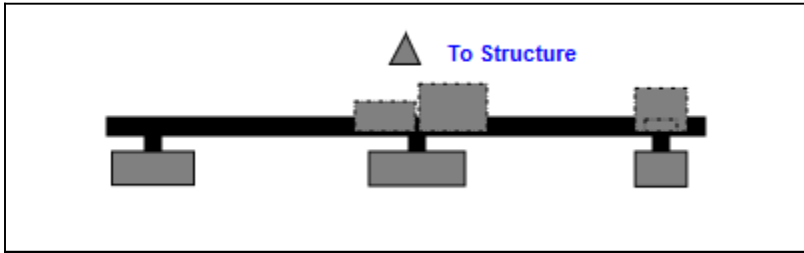
Structure Type: Monopole



Mount Elev: 185.00

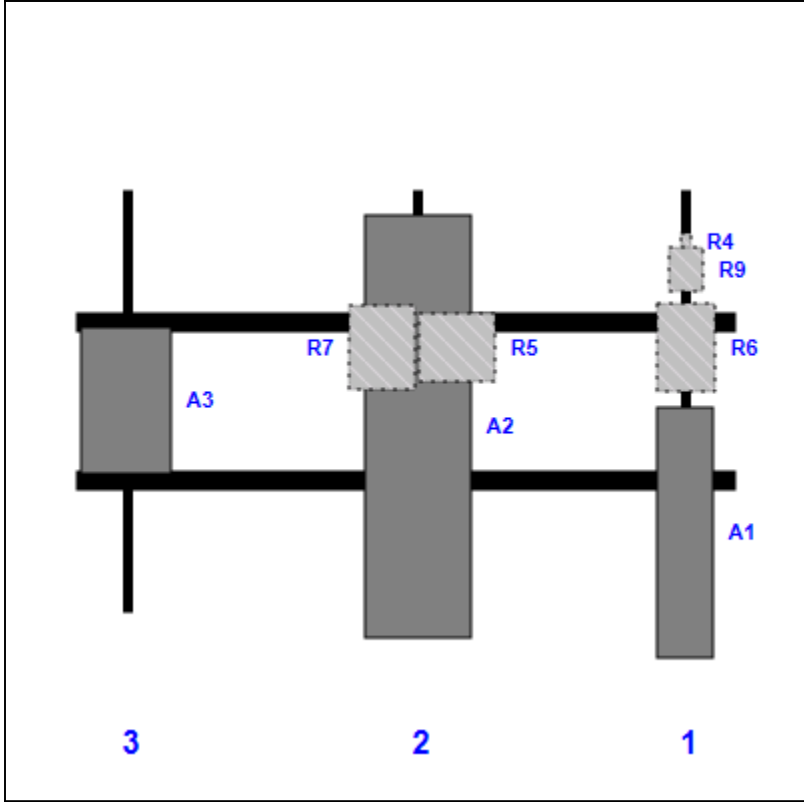
Page: 2

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	KRD901146-1_B66A_B2A (Octo)	56.60	12.90	139.00	1	a	Front	78.00			
R4	ACU-A20-N RET	4.00	2.00	139.00	1	a	Behind	12.00			
R6	800 MHz RRH	19.70	13.00	139.00	1	a	Behind	36.00			
R9	800 MHz Filter	10.00	8.00	139.00	1	a	Behind	18.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	78.00	2	a	Front	54.00			
R5	4460 B25 + B66	15.10	17.00	78.00	2	a	Behind	36.00	9.00		
R7	4480 B71 + B85	19.20	15.10	78.00	2	a	Behind	36.00	-8.00		
A3	AIR6449 B41	33.10	20.50	12.00	3	a	Front	48.00			

Sector: C

3/28/2022

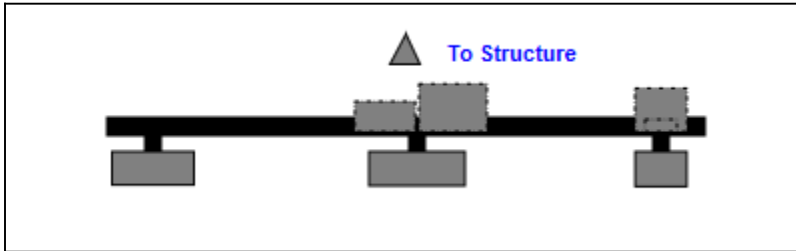
Structure Type: Monopole

Mount Elev: 185.00

Page: 3

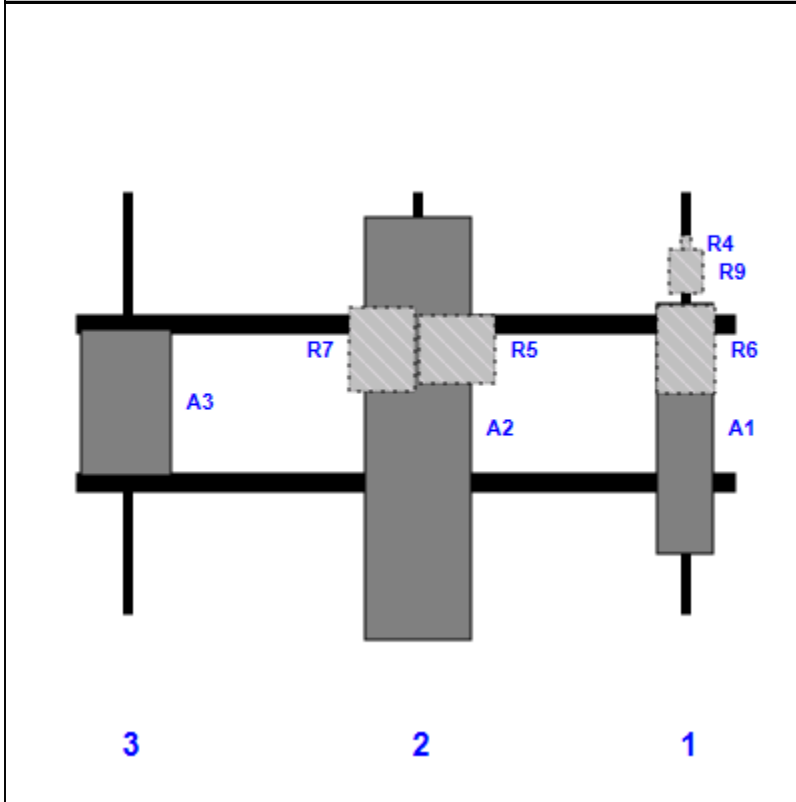


Plan View



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	KRD901146-1_B66A_B2A (Octo)	56.60	12.90	139.00	1	a	Front	54.00			
R4	ACU-A20-N RET	4.00	2.00	139.00	1	a	Behind	12.00			
R6	800 MHz RRH	19.70	13.00	139.00	1	a	Behind	36.00			
R9	800 MHz Filter	10.00	8.00	139.00	1	a	Behind	18.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	78.00	2	a	Front	54.00			
R5	4460 B25 + B66	15.10	17.00	78.00	2	a	Behind	36.00	9.00		
R7	4480 B71 + B85	19.20	15.10	78.00	2	a	Behind	36.00	-8.00		
A3	AIR6449 B41	33.10	20.50	12.00	3	a	Front	48.00			

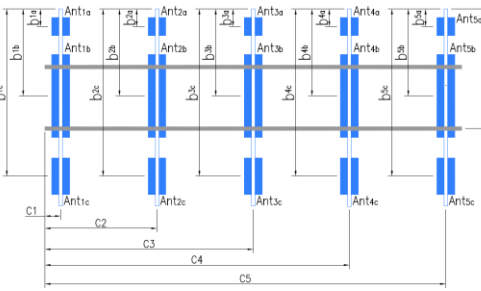
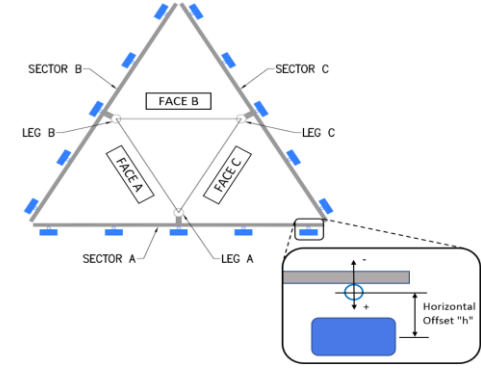
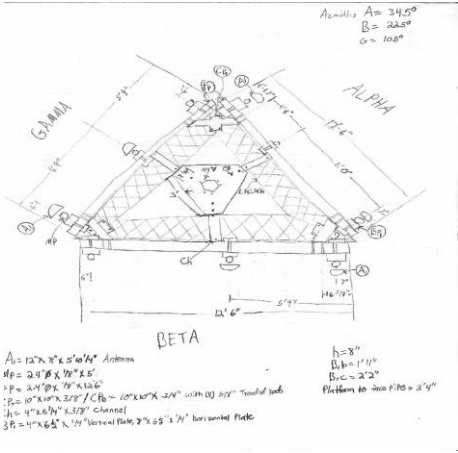


Antenna Mount Mapping Form (PATENT PENDING)

FCC #
1223974

Tower Owner:	SBA	Mapping Date:	12/9/2020
Site Name:	Higganum	Tower Type:	Monopole
Site Number or ID:	CT04169-A-2-SBA	Tower Height (Ft.):	185.417
Mapping Contractor:	TEP	Mount Elevation (Ft.):	185.417

This antenna mapping form is the property of TES and under PATENT PENDING. The formation contained herein is considered confidential in nature and is to be used only for the specific customer it was intended for. Reproduction, transmission, publication, modification or disclosure by any method is prohibited except by express written permission of TES. All means and methods are the responsibility of the contractor and the work shall be compliant with ANSI/ASSE A 10.48, OSHA, FCC, FAA and other safety requirements that may apply. TES is not warranting the usability of the safety climb as it must be assessed prior to each use in compliance with OSHA requirements.



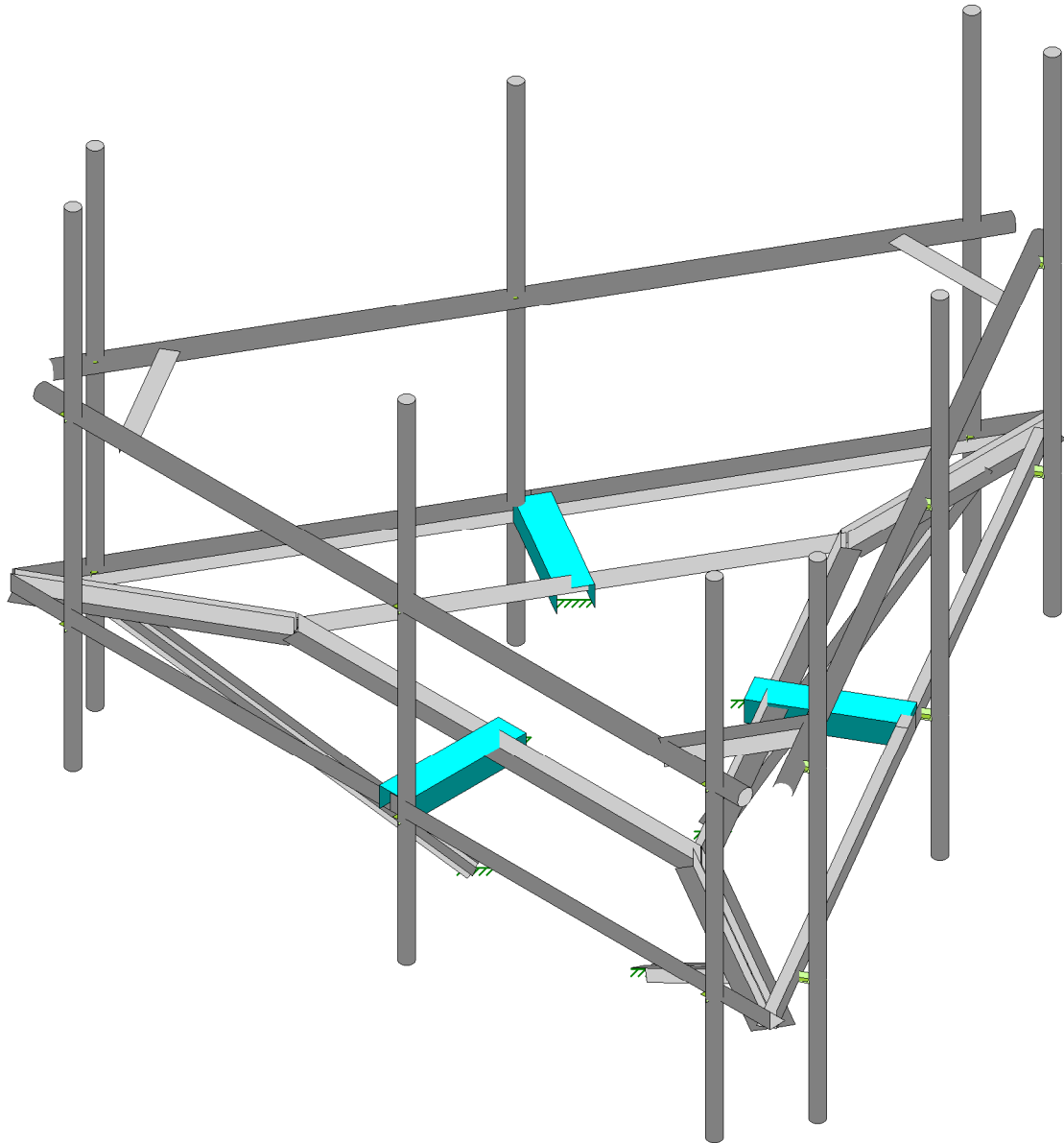
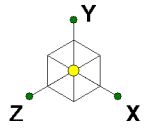
Antenna Layout (Looking Out From Tower)

Mount Pipe Configuration and Geometries [Unit = Inches]							
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "y"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "y"	Horizontal Offset "C1, C2, C3, etc."
A1	2.4" ϕ x 0.154" x 60"	56.50	6.00	C1	2.4" ϕ x 0.154" x 60"	56.50	6.00
A2	2.4" ϕ x 0.154" x 60"	56.50	79.00	C2	2.4" ϕ x 0.154" x 60"	56.50	81.00
A3	2.4" ϕ x 0.154" x 60"	58.00	144.00	C3	2.4" ϕ x 0.154" x 60"	58.00	144.00
A4				C4			
A5				C5			
A6				C6			
B1	2.4" ϕ x 0.154" x 60"	56.50	8.00	D1			
B2	2.4" ϕ x 0.154" x 60"	56.50	69.00	D2			
B3	2.4" ϕ x 0.154" x 60"	58.00	144.00	D3			
B4				D4			
B5				D5			
B6				D6			
Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :							20.00
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :							
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :							10
Please enter additional information or comments below.							
Tower Face Width at Mount Elev. (ft.):				Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):			

Ants. Items	Enter antenna model. If not labeled, enter "Unknown".					Mounting Locations [Units are inches and degrees]				Photos of antennas Photo Numbers
	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Vertical Distances "b _{1a} , b _{2a} , b _{3a} , b _{1b} ,..." (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)	Antenna Azimuth (Degrees)	
Sector A										
Ant _{1a}										
Ant _{1b}	CT33XC526	12.00	8.00	70.25		186.49	23.63	8.00	345.00	20
Ant _{1c}										
Ant _{2a}										
Ant _{2b}	EMPTY					188.459				
Ant _{2c}										
Ant _{3a}										
Ant _{3b}	CT33XC526	12.00	8.00	70.25		186.782	21.63	8.00	345.00	80
Ant _{3c}	RRH8x20-25-FEU	17.51	5.70	25.00		188.584				81
Ant _{4a}										
Ant _{4b}										
Ant _{4c}										
Ant _{5a}										
Ant _{5b}										
Ant _{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower	RRH2X50-800	13.00	12.20	19.00						
Ant on Tower	RRH1900-4x45	13.00	6.90	21.65						

Mount Azimuth (Degree) for Each Sector				Tower Leg Azimuth (Degree) for Each Sector				Sector B														
Sector A:	345.00	Deg	Leg A:		Deg			Ant _{1a}														
Sector B:	105.00	Deg	Leg B:		Deg			Ant _{1b}	CT33XC526	12.00	8.00	70.25		186.49	23.63	8.00	105.00	85				
Sector C:	225.00	Deg	Leg C:		Deg			Ant _{1c}	RRH8x20-25-FEU	17.51	5.70	25.00		188.459							83	
Sector D:		Deg	Leg D:		Deg			Ant _{2a}														
Climbing Facility Information								Ant _{2b}	CT33XC526	12.00	8.00	70.25		186.657	21.63	8.00	105.00	87,96				
Location:		Deg						Ant _{2c}														
Climbing Facility	Corrosion Type:	Good condition.						Ant _{3a}														
	Access:	Climbing path was unobstructed.						Ant _{3b}	EMPTY					188.584								
	Condition:	Good condition.						Ant _{3c}														
								Ant _{4a}														
								Ant _{4b}														
								Ant _{4c}														
								Ant _{5a}														
								Ant _{5b}														
								Ant _{5c}														
								Ant on Standoff														
								Ant on Standoff														
								Ant on Tower	RRH2X50-800	13.00	12.20	19.00									8	
								Ant on Tower	RRH1900-4x45	13.00	6.90	21.65									11	
								Sector C														
								Ant _{1a}														
								Ant _{1b}	CT33XC526	12.00	8.00	70.25		186.49	23.63	8.00	225.00	132				
								Ant _{1c}	RRH8x20-25-FEU	17.51	5.70	25.00		188.459								
								Ant _{2a}														
								Ant _{2b}	CT33XC526	12.00	8.00	70.25		186.657	21.63	8.00	225.00	133				
								Ant _{2c}														
								Ant _{3a}														
								Ant _{3b}	EMPTY					188.584								
								Ant _{3c}														
								Ant _{4a}														
								Ant _{4b}														
								Ant _{4c}														
								Ant _{5a}														
								Ant _{5b}														
								Ant _{5c}														
								Ant on Standoff														
								Ant on Standoff														
								Ant on Tower	RRH2X50-800	13.00	12.20	19.00									13	
								Ant on Tower	RRH1900-4x45	13.00	6.90	21.65										
								Sector D														
								Ant _{1a}														
								Ant _{1b}														
								Ant _{1c}														
								Ant _{2a}														
								Ant _{2b}														
								Ant _{2c}														
								Ant _{3a}														
								Ant _{3b}														
								Ant _{3c}														
								Ant _{4a}														
								Ant _{4b}														
								Ant _{4c}														
								Ant _{5a}														
								Ant _{5b}														
								Ant _{5c}														
								Ant on Standoff														
								Ant on Standoff														
								Ant on Tower														
								Ant on Tower														

Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #



Envelope Only Solution

Tower Engineering Solutio...

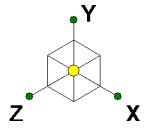
CT04169-A-2-SBA_MT_LO_Loads Only_G

SK - 1

Mar 28, 2022 at 1:45 PM

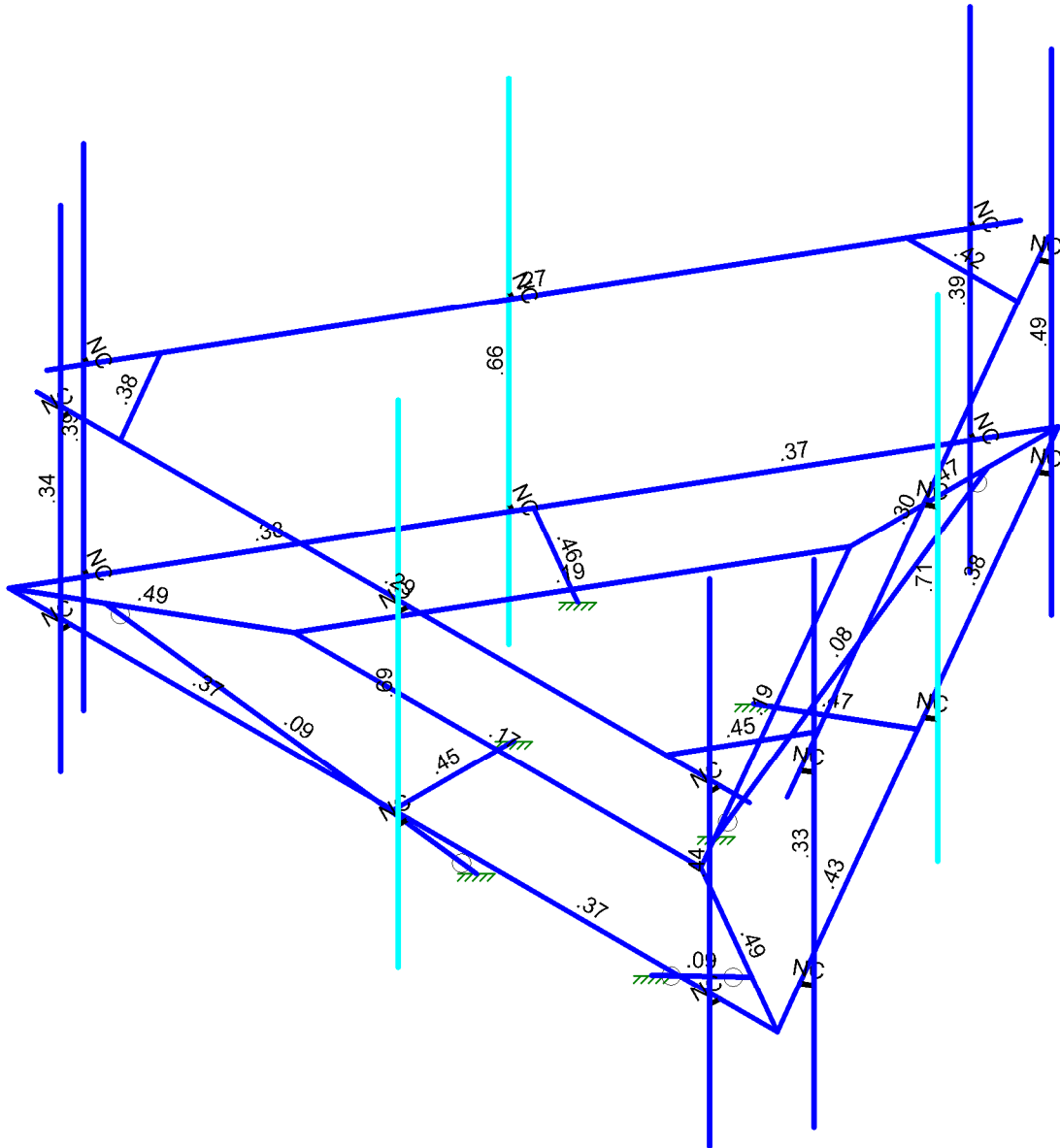
TES Project No. 126757

CT04169-A-2-SBA_126757_G_RIS...



Code Check (Env)

Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Solutio...

CT04169-A-2-SBA_MT_LO_Loads Only_G

SK - 2

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TES Project No. 126757

CT04169-A-2-SBA_126757_G_RIS...



Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(M... Surface...
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					3
10	Structure Di	None						33	3
11	Structure W Front	None						33	
12	Structure Wi Front	None						33	
13	Structure W Side	None						33	
14	Structure Wi Side	None						33	
15	BLC 9 Transient Area Loads	None						30	
16	BLC 10 Transient Area Loads	None						30	

Load Combinations

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

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	1.650581	0	
2	N2	1.429445	0	-0.825291	0	
3	N3	-1.429445	0	-0.825291	0	
4	N4	-6.2499	0	3.608381	0	
5	N5	6.2499	0	3.608381	0	
6	N6	-2e-14	0	-7.216763	0	
7	N7	-0.	0	3.608381	0	
8	N8	3.12495	0	-1.80419	0	
9	N9	-3.12495	0	-1.804191	0	
10	N10	-3.3132	0	1.912877	0	
11	N11	3.3132	0	1.912877	0	
12	N12	-1e-14	0	-3.825754	0	
13	NP1	5.3192	6	3.775381	0	
14	NP2	5.3192	-2	3.775381	0	
15	NP7	-5.2439	6	3.775381	0	
16	NP8	-5.2439	-2	3.775381	0	
17	N37	5.3192	0	3.608381	0	
18	N40	-5.2439	0	3.608381	0	
19	N49	0	0	1.912877	0	
20	N50	1.6566	0	-0.956438	0	



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 126757
 Model Name : CT04169-A-2-SBA_MT_LO_Loads Only_G

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Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
21	N51	-1.6566	0	-0.956438	0	
22	N54	-5.7981	3	3.608381	0	
23	N55	5.7981	3	3.608381	0	
24	N54A	-4.4427	3	3.608381	0	
25	N56	4.4427	3	3.608381	0	
26	N56A	6.024	3	3.217111	0	
27	N57	0.2259	3	-6.825493	0	
28	N58	5.3463	3	2.0433	0	
29	N59	0.9036	3	-5.651682	0	
30	N60	-0.2259	3	-6.825493	0	
31	N61	-6.024	3	3.217111	0	
32	N62	-0.9036	3	-5.651682	0	
33	N63	-5.3463	3	2.0433	0	
34	N64	5.3192	3	3.608381	0	
35	N66	-0.	3	3.608381	0	
36	N67	-5.2439	3	3.608381	0	
37	N40A	.25	6	3.775381	0	
38	N41	.25	-2	3.775381	0	
39	N40B	.25	3	3.608381	0	
40	N41A	.25	0	3.608381	0	
41	N42	5.3192	0	3.775381	0	
42	N43	-5.2439	0	3.775381	0	
43	N44	5.3192	3	3.775381	0	
44	N45	-5.2439	3	3.775381	0	
45	N46	.25	3	3.775381	0	
46	N47	.25	0	3.775381	0	
47	N48	0.609976	6	-6.494253	0	
48	N49A	0.609976	-2	-6.494253	0	
49	N50A	5.891526	6	2.65366	0	
50	N51A	5.891526	-2	2.65366	0	
51	N52	0.46535	0	-6.410753	0	
52	N53	5.7469	0	2.73716	0	
53	N54B	0.46535	3	-6.410753	0	
54	N55A	5.7469	3	2.73716	0	
55	N56B	3.144576	6	-2.104197	0	
56	N57A	3.144576	-2	-2.104197	0	
57	N58A	2.99995	3	-2.020697	0	
58	N59A	2.99995	0	-2.020697	0	
59	N60A	0.609976	0	-6.494253	0	
60	N61A	5.891526	0	2.65366	0	
61	N62A	0.609976	3	-6.494253	0	
62	N63A	5.891526	3	2.65366	0	
63	N64A	3.144576	3	-2.104197	0	
64	N65	3.144576	0	-2.104197	0	
65	N66A	-5.929176	6	2.718872	0	
66	N67A	-5.929176	-2	2.718872	0	
67	N68	-0.647626	6	-6.429041	0	
68	N69	-0.647626	-2	-6.429041	0	
69	N70	-5.78455	0	2.802372	0	
70	N71	-0.503	0	-6.345541	0	
71	N72	-5.78455	3	2.802372	0	
72	N73	-0.503	3	-6.345541	0	
73	N74	-3.394576	6	-1.671184	0	
74	N75	-3.394576	-2	-1.671184	0	
75	N76A	-3.24995	3	-1.587684	0	
76	N77	-3.24995	0	-1.587684	0	
77	N78	-5.929176	0	2.718872	0	



Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
78	N79	-0.647626	0	-6.429041	0	
79	N80	-5.929176	3	2.718872	0	
80	N81	-0.647626	3	-6.429041	0	
81	N82	-3.394576	3	-1.671184	0	
82	N83	-3.394576	0	-1.671184	0	
83	N84	1.429445	-3	0.825291	0	
84	N85	0	-3	-1.650581	0	
85	N86	-1.429445	-3	0.825291	0	
86	N87	-1e-14	0	-6.075754	0	
87	N89A	0	0	0	0	
88	N89	-5.261757	0	3.037877	0	
89	N91	5.261757	0	3.037877	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design L...	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Kicker	LL2.5x2.5x3x0	Beam	Double A...	A36 Gr.36	Typical	1.8	1.91	1.07	.023
2	Platfrom Angle	L3X3X4	Beam	Single A...	A36 Gr.36	Typical	1.44	1.23	1.23	.031
3	End Connection	L3X3X6	Beam	Single A...	A36 Gr.36	Typical	2.11	1.75	1.75	.101
4	Test	HSS4X4X4	Beam	Tube	A500 Gr...	Typical	3.37	7.8	7.8	12.8
5	Mount Pipes	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Support Rail	PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff Arm	5.5CU4X375	Beam	CU	A570 Gr.33	Typical	4.479	7.122	20.778	.21

Aluminum Section Sets

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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Cold Formed Steel Properties

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



Aluminum Properties

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N4	N7		270	Platfrom Angle	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N5	N8		270	Platfrom Angle	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N6	N9		270	Platfrom Angle	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N1	N7		90	Standoff Arm	Beam	CU	A570 Gr.33	Typical
5	M5	N2	N8		90	Standoff Arm	Beam	CU	A570 Gr.33	Typical
6	M6	N3	N9		90	Standoff Arm	Beam	CU	A570 Gr.33	Typical
7	M7	N4	N10		180	LL3x3x3x3	Beam	Double An...	A36 Gr.36	DR1
8	M8	N5	N11		180	LL3x3x3x3	Beam	Double An...	A36 Gr.36	DR1
9	M9	N6	N12		180	LL3x3x3x3	Beam	Double An...	A36 Gr.36	DR1
10	M10	N10	N11			L3X3X4	Beam	Single Angle	A36 Gr.36	DR1
11	M11	N11	N12			L3X3X4	Beam	Single Angle	A36 Gr.36	DR1
12	M12	N12	N10			L3X3X4	Beam	Single Angle	A36 Gr.36	DR1
13	MP1A	NP1	NP2			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
14	MP3A	NP7	NP8			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
15	M25	N54	N55			Support Rail	Beam	Pipe	A53 Gr.B	Typical
16	M26	N56A	N57			Support Rail	Beam	Pipe	A53 Gr.B	Typical
17	M27	N60	N61			Support Rail	Beam	Pipe	A53 Gr.B	Typical
18	M28	N54A	N63		90	End Connection	Beam	Single Angle	A36 Gr.36	Typical
19	M29	N62	N59		90	End Connection	Beam	Single Angle	A36 Gr.36	Typical
20	M30	N56	N58		180	End Connection	Beam	Single Angle	A36 Gr.36	Typical
21	M31	N7	N5		270	Platfrom Angle	Beam	Single Angle	A36 Gr.36	Typical
22	M32	N9	N4		270	Platfrom Angle	Beam	Single Angle	A36 Gr.36	Typical
23	M34	N8	N6		270	Platfrom Angle	Beam	Single Angle	A36 Gr.36	Typical
24	MP2A	N40A	N41			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
25	M26B	N67	N45			RIGID	Beam	None	RIGID	DR1
26	M27A	N40	N43			RIGID	Beam	None	RIGID	DR1
27	M28A	N40B	N46			RIGID	Beam	None	RIGID	DR1
28	M29A	N41A	N47			RIGID	Beam	None	RIGID	DR1
29	M30A	N64	N44			RIGID	Beam	None	RIGID	DR1
30	M31A	N37	N42			RIGID	Beam	None	RIGID	DR1
31	MP1C	N48	N49A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
32	MP3C	N50A	N51A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
33	MP2C	N56B	N57A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
34	M35	N55A	N63A			RIGID	Beam	None	RIGID	DR1
35	M36	N53	N61A			RIGID	Beam	None	RIGID	DR1
36	M37	N58A	N64A			RIGID	Beam	None	RIGID	DR1
37	M38	N59A	N65			RIGID	Beam	None	RIGID	DR1
38	M39	N54B	N62A			RIGID	Beam	None	RIGID	DR1
39	M40	N52	N60A			RIGID	Beam	None	RIGID	DR1
40	MP1B	N66A	N67A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
41	MP3B	N68	N69			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
42	MP2B	N74	N75			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
43	M44	N73	N81			RIGID	Beam	None	RIGID	DR1
44	M45	N71	N79			RIGID	Beam	None	RIGID	DR1
45	M46	N76A	N82			RIGID	Beam	None	RIGID	DR1



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 126757
 Model Name : CT04169-A-2-SBA_MT_LO_Loads Only_G

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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design R...
46	M47	N77	N83			RIGID	Beam	None	RIGID	DR1
47	M48	N72	N80			RIGID	Beam	None	RIGID	DR1
48	M49	N70	N78			RIGID	Beam	None	RIGID	DR1
49	M50	N87	N85			Kicker	Beam	Double An...	A36 Gr.36	Typical
50	M50A	N89	N86			Kicker	Beam	Double An...	A36 Gr.36	Typical
51	M51	N91	N84			Kicker	Beam	Double An...	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	M6						Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10						Yes				None
11	M11						Yes				None
12	M12						Yes				None
13	MP1A						Yes		-z		None
14	MP3A						Yes		-z		None
15	M25						Yes				None
16	M26						Yes				None
17	M27						Yes				None
18	M28						Yes				None
19	M29						Yes				None
20	M30						Yes				None
21	M31						Yes				None
22	M32						Yes				None
23	M34						Yes				None
24	MP2A						Yes		-z		None
25	M26B						Yes				None
26	M27A						Yes				None
27	M28A						Yes				None
28	M29A						Yes				None
29	M30A						Yes				None
30	M31A						Yes				None
31	MP1C						Yes		-z		None
32	MP3C						Yes		-z		None
33	MP2C						Yes		-z		None
34	M35						Yes				None
35	M36						Yes				None
36	M37						Yes				None
37	M38						Yes				None
38	M39						Yes				None
39	M40						Yes				None
40	MP1B						Yes		-z		None
41	MP3B						Yes		-z		None
42	MP2B						Yes		-z		None
43	M44						Yes				None
44	M45						Yes				None
45	M46						Yes				None
46	M47						Yes				None



Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
47	M48						Yes				None
48	M49						Yes				None
49	M50	BenPIN	BenPIN				Yes				None
50	M50A	BenPIN	BenPIN				Yes				None
51	M51	BenPIN	BenPIN				Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	Platfrom An...	6.25			Lbyy			1	1		Gravity
2	M2	Platfrom An...	6.25			Lbyy			1	1		Gravity
3	M3	Platfrom An...	6.25			Lbyy			1	1		Gravity
4	M7	LL3x3x3x3	3.391			Lbyy						Gravity
5	M8	LL3x3x3x3	3.391			Lbyy						Gravity
6	M9	LL3x3x3x3	3.391			Lbyy						Gravity
7	M10	L3X3X4	6.626			Lbyy						Gravity
8	M11	L3X3X4	6.626			Lbyy						Gravity
9	M12	L3X3X4	6.626			Lbyy						Gravity
10	MP1A	Mount Pipes	8			Lbyy						Gravity
11	MP3A	Mount Pipes	8			Lbyy						Lateral
12	M25	Support Rail	11.596			Lbyy						Lateral
13	M26	Support Rail	11.596			Lbyy						Lateral
14	M27	Support Rail	11.596			Lbyy						Lateral
15	M28	End Conne...	1.807			Lbyy						Lateral
16	M29	End Conne...	1.807			Lbyy						Lateral
17	M30	End Conne...	1.807			Lbyy						Lateral
18	M31	Platfrom An...	6.25			Lbyy			1	1		Gravity
19	M32	Platfrom An...	6.25			Lbyy			1	1		Gravity
20	M34	Platfrom An...	6.25			Lbyy			1	1		Gravity
21	MP2A	Mount Pipes	8			Lbyy						Lateral
22	MP1C	Mount Pipes	8			Lbyy						Lateral
23	MP3C	Mount Pipes	8			Lbyy						Lateral
24	MP2C	Mount Pipes	8			Lbyy						Lateral
25	MP1B	Mount Pipes	8			Lbyy						Lateral
26	MP3B	Mount Pipes	8			Lbyy						Lateral
27	MP2B	Mount Pipes	8			Lbyy						Lateral
28	M50	Kicker	5.346			Lbyy						Lateral
29	M50A	Kicker	5.346			Lbyy						Lateral
30	M51	Kicker	5.346			Lbyy						Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp ...	L-torque...	Kyy	Kzz	Cm-...	Cm-...	Cb	R	a[ft]	y sw...	z sw...
1	M4	Standoff...	1.958			Lbyy											
2	M5	Standoff...	1.958			Lbyy											
3	M6	Standoff...	1.958			Lbyy											

Aluminum Design Parameters

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



Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N84	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N85	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N86	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N1	max	4724.408	4	1560.708	8	1111.372	1	-.547	1	1.805	4	.04	4
2		min	-4730.528	3	482.706	1	-1038.522	2	-2.973	6	-1.788	3	-.039	3
3	N2	max	2272.889	4	1609.727	7	4151.459	1	1.512	7	2.165	2	2.602	7
4		min	-2277.991	3	461.907	4	-4247.838	2	.251	4	-2.108	1	.471	4
5	N3	max	2249.063	4	1583.441	5	4139.433	1	1.476	8	2.098	1	-.568	3
6		min	-2230.229	3	497.626	2	-4258.694	2	.306	3	-2.121	2	-2.543	8
7	N84	max	2465.011	7	1998.339	7	1429.698	7	0	1	0	1	0	1
8		min	-347.041	4	-281.567	4	-222.107	4	0	2	0	2	0	2
9	N85	max	53.604	4	1910.906	5	696.625	2	0	11	0	4	.001	3
10		min	-53.639	3	-473.335	2	-2721.242	5	0	1	0	3	0	4
11	N86	max	250.827	3	1980.611	8	1416.574	8	0	1	0	2	0	2
12		min	-2442.365	8	-206.223	3	-166.56	3	0	2	0	1	0	1
13	Totals:	max	7008.848	4	9832.508	5	7148.67	1						
14		min	-7008.849	3	3757.557	2	-7148.666	2						

Envelope Member Section Forces

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
1	M1	1	max	721.037	2	202.005	2	884.902	9	.015	1	.166	1	.082	3
2			min	-1164.075	1	-248.497	1	-261.827	1	-.019	2	-.421	2	-.555	8
3		2	max	615.57	2	67.889	3	209.635	4	.005	2	.255	3	.452	3
4			min	-1080.463	1	-76.226	4	-187.434	3	-.005	1	-.234	4	-.507	4
5		3	max	615.57	2	67.889	3	195.149	4	.005	2	.115	3	.162	3
6			min	-1080.463	1	-76.226	4	-201.92	3	-.005	1	-.094	4	-.199	4
7		4	max	615.57	2	67.993	1	178.459	4	.005	2	.028	4	.092	4
8			min	-1080.463	1	-76.226	4	-218.61	3	-.005	1	-.042	3	-.145	3
9		5	max	615.57	2	105.829	1	164.091	4	.005	2	.144	1	.364	4
10			min	-1080.463	1	-113.598	2	-232.979	3	-.005	1	-.231	2	-.47	3
11	M2	1	max	1002.925	3	148.227	1	809.181	3	.01	4	.1	4	.143	1
12			min	-1406.069	4	-177.54	2	-335.885	4	-.011	3	-.384	7	-.576	6
13		2	max	558.938	3	62.018	1	253.776	2	.003	1	.343	1	.473	1
14			min	-992.237	4	-73.629	2	-219.387	1	-.004	2	-.336	2	-.543	2
15		3	max	542.555	3	58.94	4	239.29	2	.003	1	.156	1	.159	1
16			min	-975.853	4	-70.039	3	-233.873	1	-.004	2	-.139	2	-.194	2
17		4	max	526.171	3	87.317	4	222.601	2	.003	1	.05	2	.127	2
18			min	-959.47	4	-98.416	3	-250.563	1	-.004	2	-.059	1	-.161	1
19		5	max	509.788	3	115.694	4	208.232	2	.003	1	.232	2	.419	2
20			min	-943.086	4	-126.793	3	-264.932	1	-.004	2	-.302	1	-.489	1
21	M3	1	max	1090.137	1	241.131	4	652.401	5	.013	3	.167	3	.096	4
22			min	-1518.471	2	-263.32	3	-215.646	2	-.015	4	-.431	4	-.512	7
23		2	max	547.663	1	67.27	2	186.466	3	.005	4	.342	4	.408	2
24			min	-981.973	2	-67.311	1	-183.567	4	-.006	3	-.303	3	-.42	1
25		3	max	531.28	1	76.729	2	171.98	3	.005	4	.168	4	.154	2
26			min	-965.59	2	-76.77	1	-198.053	4	-.006	3	-.141	3	-.178	1
27		4	max	514.896	1	86.188	2	155.29	3	.005	4	.036	3	.058	1



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...]	LC	y-y Mome...	LC	z-z Mom...	LC	
28		min	-949.206	2	-86.229	1	-214.743	4	-.006	3	-.055	4	-.128	2	
29	5	max	498.513	1	95.647	2	140.922	3	.005	4	.225	3	.285	1	
30		min	-932.823	2	-95.688	1	-229.111	4	-.006	3	-.328	4	-.439	2	
31	M4	1	max	1111.372	1	4730.539	3	-482.783	1	.04	4	2.973	6	1.788	3
32		min	-1038.522	2	-4724.428	4	-1560.737	8	-.039	3	.547	1	-1.805	4	
33		2	max	1130.137	1	402.334	3	-354.584	1	.017	3	2.221	6	.494	3
34		min	-1082.841	2	-381.45	4	-1514.382	6	-.011	4	.341	1	-.522	4	
35		3	max	1130.137	1	386.531	3	-340.572	1	.017	3	1.487	6	.301	3
36		min	-1082.841	2	-365.647	4	-1483.058	6	-.011	4	.171	1	-.339	4	
37		4	max	1130.137	1	370.728	3	-326.56	1	.017	3	.769	6	.115	3
38		min	-1082.841	2	-349.844	4	-1451.734	6	-.011	4	.008	1	-.164	4	
39		5	max	1130.137	1	354.925	3	-312.548	1	.017	3	.17	2	.141	1
40		min	-1082.841	2	-334.041	4	-1420.409	6	-.011	4	-.149	1	-.199	2	
41	M5	1	max	860.545	4	4587.581	1	-461.964	4	.036	2	3.01	7	2.108	1
42		min	-819.74	3	-4677.773	2	-1609.68	7	-.032	1	.534	4	-2.165	2	
43		2	max	879.776	4	695.558	1	-341.532	4	.015	1	2.236	7	.881	4
44		min	-858.016	3	-693.73	2	-1550.698	7	-.011	2	.336	4	-.917	3	
45		3	max	872.933	4	683.706	1	-327.52	4	.015	1	1.484	7	.588	4
46		min	-851.173	3	-681.878	2	-1519.373	7	-.011	2	.172	4	-.625	3	
47		4	max	866.09	4	671.853	1	-313.508	4	.015	1	.748	7	.297	4
48		min	-844.33	3	-670.025	2	-1488.049	7	-.011	2	.015	4	-.335	3	
49		5	max	859.247	4	660.001	1	-299.496	4	.015	1	.131	3	.153	2
50		min	-837.488	3	-658.173	2	-1456.725	7	-.011	2	-.135	4	-.192	1	
51	M6	1	max	877.725	3	4698.12	2	-497.659	2	.032	1	2.941	8	2.121	2
52		min	-838.374	4	-4581.787	1	-1583.428	5	-.034	2	.645	3	-2.098	1	
53		2	max	897.492	3	755.282	4	-399.883	3	.016	2	2.183	8	.811	4
54		min	-877.674	4	-711.423	3	-1514.973	8	-.008	1	.42	3	-.836	3	
55		3	max	890.649	3	751.331	4	-385.87	3	.016	2	1.449	8	.504	2
56		min	-870.831	4	-707.472	3	-1483.649	8	-.008	1	.228	3	-.55	1	
57		4	max	883.806	3	747.38	4	-371.858	3	.016	2	.731	8	.21	2
58		min	-863.988	4	-703.522	3	-1452.325	8	-.008	1	.042	3	-.277	1	
59		5	max	876.963	3	743.429	4	-357.846	3	.016	2	.132	4	.2	3
60		min	-857.145	4	-699.571	3	-1421	8	-.008	1	-.136	3	-.29	4	
61	M7	1	max	2362.109	3	1542.019	8	182.681	1	.003	2	.644	2	1.089	8
62		min	-1530.95	4	-229.835	3	-178.96	2	-.003	1	-.657	1	.066	3	
63		2	max	2370.998	3	1569.977	8	198.077	1	.003	2	.485	2	.257	3
64		min	-1539.84	4	-220.527	3	-194.357	2	-.003	1	-.496	1	-.377	4	
65		3	max	2745.535	3	38.67	3	257.127	1	.002	2	.29	2	.302	3
66		min	-3869.449	4	-259.502	8	-251.457	2	-.003	1	-.297	1	-.64	4	
67		4	max	2754.424	3	51.484	3	272.524	1	.002	2	.071	2	.264	3
68		min	-3878.338	4	-220.741	8	-266.853	2	-.003	1	-.072	1	-.464	4	
69		5	max	2763.313	3	66.052	3	287.92	1	.002	2	.165	1	.214	3
70		min	-3887.227	4	-186.217	4	-282.25	2	-.003	1	-.162	2	-.3	4	
71	M8	1	max	2337.84	4	1558.438	7	204.883	2	.003	1	.708	1	1.102	7
72		min	-1512.454	3	-299.798	4	-199.995	1	-.004	2	-.719	2	.006	4	
73		2	max	2346.73	4	1586.396	7	220.28	2	.003	1	.532	1	.256	4
74		min	-1521.343	3	-290.491	4	-215.391	1	-.004	2	-.539	2	-.376	3	
75		3	max	2832.363	4	44.015	4	277.381	2	.003	1	.318	1	.319	4
76		min	-3953.338	3	-260.864	7	-274.436	1	-.003	2	-.322	2	-.655	3	
77		4	max	2841.252	4	56.829	4	292.777	2	.003	1	.079	1	.276	4
78		min	-3962.227	3	-222.103	7	-289.833	1	-.003	2	-.08	2	-.475	3	
79		5	max	2850.141	4	71.397	4	308.174	2	.003	1	.175	2	.222	4
80		min	-3971.116	3	-191.274	3	-305.229	1	-.003	2	-.173	1	-.306	3	
81	M9	1	max	2705.092	2	1485.202	5	242.85	3	.004	4	.841	4	1.079	5
82		min	-1885.852	1	-470.117	2	-239.806	4	-.005	3	-.849	3	-.086	2	
83		2	max	2705.092	2	1513.16	5	263.379	3	.004	4	.629	4	.309	2
84		min	-1885.852	1	-460.809	2	-260.334	4	-.005	3	-.635	3	-.393	1	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...]	LC	y-y Mome...	LC	z-z Mom...	LC	
85		3	max	3462.255	2	66.43	2	338.061	3	.003	4	.369	4	.409	2
86			min	-4454.332	1	-245.985	5	-334.888	4	-.004	3	-.372	3	-.692	1
87		4	max	3462.255	2	79.245	2	358.59	3	.003	4	.076	4	.347	2
88			min	-4454.332	1	-215.641	1	-355.416	4	-.004	3	-.077	3	-.504	1
89		5	max	3462.255	2	93.812	2	379.118	3	.003	4	.236	3	.274	2
90			min	-4454.332	1	-201.073	1	-375.945	4	-.004	3	-.234	4	-.327	1
91	M10	1	max	1831.898	3	85.925	6	88.179	1	0	2	.064	3	.177	2
92			min	-2493.354	4	-25.719	3	-100.042	2	0	1	-.089	4	-.126	1
93		2	max	1831.898	3	66.34	2	48.064	1	0	2	.025	3	.061	4
94			min	-2493.354	4	-42.089	3	-59.927	2	0	1	-.018	4	-.072	3
95		3	max	508.219	1	59.997	4	33.953	10	0	7	.035	4	.085	1
96			min	-2493.354	4	-58.518	3	-33.336	9	0	1	-.034	3	-.126	2
97		4	max	1833.807	4	43.568	4	64.799	2	0	1	.024	4	.062	3
98			min	-2480.494	3	-68.39	2	-50.869	1	0	2	-.015	3	-.076	4
99		5	max	1833.807	4	27.199	4	104.915	2	0	1	.059	4	.186	2
100			min	-2480.494	3	-87.718	6	-90.984	1	0	2	-.082	3	-.135	1
101	M11	1	max	1495.682	4	100.853	3	61.369	4	0	1	.079	1	.202	3
102			min	-2155.588	3	-48.243	4	-70.619	3	0	2	-.105	2	-.157	4
103		2	max	1513.052	4	84.484	3	31.282	4	0	1	.029	1	.051	2
104			min	-2172.958	3	-64.612	4	-40.532	3	0	2	-.023	2	-.056	1
105		3	max	2038.638	2	81.772	2	20.097	1	0	4	.056	3	.093	4
106			min	-2610.128	1	-81.042	4	-32.346	10	0	2	-.056	4	-.12	3
107		4	max	2021.267	2	65.343	2	64.879	3	0	4	.026	3	.054	1
108			min	-2592.758	1	-78.94	1	-54.934	4	0	3	-.017	4	-.071	2
109		5	max	2003.897	2	48.974	2	94.965	3	0	4	.074	3	.197	1
110			min	-2575.387	1	-95.31	1	-85.02	4	0	3	-.094	4	-.171	2
111	M12	1	max	2031.686	2	96.085	1	83.491	3	0	4	.074	4	.194	1
112			min	-2612.925	1	-50.946	2	-91.451	4	0	3	-.096	3	-.168	2
113		2	max	2049.056	2	79.716	1	53.404	3	0	4	.025	4	.052	1
114			min	-2630.295	1	-67.315	2	-61.365	4	0	3	-.018	3	-.067	2
115		3	max	2066.427	2	76.924	3	33.532	9	0	2	.05	4	.088	3
116			min	-2647.666	1	-83.744	2	-17.839	1	0	3	-.05	2	-.109	4
117		4	max	1413.147	3	60.495	3	45.076	4	0	2	.029	1	.051	2
118			min	-2061.975	4	-82.12	4	-33.343	3	0	1	-.021	2	-.058	1
119		5	max	1395.776	3	44.126	3	75.162	4	0	2	.075	1	.206	4
120			min	-2044.604	4	-98.489	4	-63.43	3	0	1	-.099	2	-.159	3
121	MP1A	1	max	0	1	.327	4	.602	1	0	3	0	2	0	11
122			min	0	2	-.33	3	-.609	2	0	4	0	1	0	1
123		2	max	255.786	5	161.223	4	232.586	1	0	3	.057	1	.041	3
124			min	100.706	2	-161.227	3	-232.592	2	0	4	-.057	2	-.041	4
125		3	max	759.855	2	435.107	4	86.451	5	.12	1	.106	2	.164	4
126			min	-415.281	1	-467.447	3	-24.747	2	-.12	2	-.083	1	-.15	3
127		4	max	768.185	2	458.111	4	181.16	2	.12	1	.184	5	.808	3
128			min	-406.951	1	-490.452	3	-181.101	1	-.12	2	-.182	2	-.73	4
129		5	max	0	11	.12	3	.514	2	0	8	0	11	0	11
130			min	0	1	-.159	8	-.454	1	0	3	0	1	0	1
131	MP3A	1	max	0	1	.192	4	.353	1	0	3	0	11	0	11
132			min	0	2	-.203	3	-.338	2	0	4	0	1	0	1
133		2	max	166.596	5	81.691	4	160.175	1	0	3	.024	1	.023	3
134			min	70.13	2	-81.702	3	-160.16	2	0	4	-.024	2	-.023	4
135		3	max	658.82	2	393.831	4	42.179	7	.14	2	.146	2	.181	4
136			min	-415.405	1	-371.396	3	-3.245	4	-.138	1	-.105	1	-.159	3
137		4	max	667.15	2	416.836	4	50.002	5	.14	2	.149	2	.606	3
138			min	-407.075	1	-394.401	3	-9.839	2	-.138	1	-.047	1	-.63	4
139		5	max	0	11	.016	3	.058	6	0	4	0	11	0	11
140			min	0	1	-.016	4	-.046	1	0	3	0	1	0	1
141	M25	1	max	0	11	0	11	0	11	0	11	0	11	0	11



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC
142		min	0	1	0	1	0	1	0	1	0	1	0	1
143	2	max	335.393	2	310.539	4	220.909	1	.505	1	.433	4	.266	4
144		min	-339.075	1	-305.341	3	-258.154	2	-.522	2	-.431	3	-.301	3
145	3	max	335.393	2	291.787	4	182.118	1	.505	1	.736	1	.612	3
146		min	-339.075	1	-324.399	3	-217.788	2	-.522	2	-.842	2	-.606	4
147	4	max	404.333	2	385.263	4	271.197	2	.492	2	.395	3	.246	3
148		min	-363.554	1	-378.908	3	-234.213	1	-.506	1	-.403	4	-.256	4
149	5	max	0	11	0	11	0	11	0	11	0	11	0	11
150		min	0	1	0	1	0	1	0	1	0	1	0	1
151	M26	1	max	0	11	.008	1	.007	4	0	11	0	11	0
152		min	0	1	0	11	-.009	2	0	1	0	1	0	1
153	2	max	423.046	1	346.97	2	244.841	4	.456	4	.545	2	.275	2
154		min	-480.615	2	-342.833	1	-274.855	3	-.473	3	-.506	1	-.305	1
155	3	max	440.525	1	327.911	2	214.566	4	.456	4	.629	4	.716	1
156		min	-498.094	2	-361.892	1	-244.58	3	-.473	3	-.681	3	-.703	2
157	4	max	425.099	3	364.154	2	214.953	1	.323	3	.388	4	.24	1
158		min	-417.425	4	-343.728	1	-205.194	2	-.35	4	-.397	3	-.254	2
159	5	max	0	11	0	11	.008	3	0	11	0	11	0	11
160		min	0	1	-.008	1	-.002	1	0	1	0	1	0	1
161	M27	1	max	0	11	.008	2	0	5	0	11	0	11	0
162		min	0	1	0	9	-.01	4	0	1	0	1	0	1
163	2	max	418.123	4	283.16	1	200.404	2	.319	3	.413	3	.257	1
164		min	-446.983	3	-287.327	2	-212.234	1	-.325	4	-.409	4	-.299	2
165	3	max	435.602	4	264.101	1	190.313	2	.319	3	.539	3	.562	2
166		min	-464.462	3	-306.386	2	-202.143	1	-.325	4	-.58	4	-.536	1
167	4	max	319.972	4	365.184	1	298.74	4	.493	4	.487	2	.18	2
168		min	-321.346	3	-361.954	2	-271.651	3	-.506	3	-.462	1	-.185	1
169	5	max	0	11	0	11	.007	2	0	11	0	11	0	11
170		min	0	1	-.006	2	-.006	3	0	1	0	1	0	1
171	M28	1	max	317.551	3	434.85	1	540.042	1	.029	1	.603	2	.602
172		min	-391.033	4	-446.481	2	-585.088	2	-.027	2	-.614	1	-.587	3
173	2	max	312.814	3	437.586	1	543.935	1	.029	1	.274	2	.613	4
174		min	-386.295	4	-449.216	2	-581.195	2	-.027	2	-.302	1	-.607	3
175	3	max	308.076	3	440.321	1	547.827	1	.029	1	.013	1	.627	4
176		min	-381.558	4	-451.951	2	-577.303	2	-.027	2	-.062	6	-.628	3
177	4	max	303.339	3	443.056	1	551.72	1	.029	1	.329	1	.645	4
178		min	-376.82	4	-454.687	2	-573.41	2	-.027	2	-.384	2	-.651	3
179	5	max	298.601	3	445.791	1	555.613	1	.029	1	.648	1	.667	4
180		min	-372.083	4	-457.422	2	-569.517	2	-.027	2	-.712	2	-.675	3
181	M29	1	max	327.622	2	569.152	3	704.757	3	.036	3	.782	4	.713
182		min	-370.148	1	-551.679	4	-763.962	4	-.034	4	-.792	3	-.7	2
183	2	max	327.622	2	569.152	3	708.649	3	.036	3	.362	4	.669	1
184		min	-370.148	1	-551.679	4	-760.069	4	-.034	4	-.385	3	-.681	2
185	3	max	327.622	2	569.152	3	712.542	3	.036	3	.024	3	.631	1
186		min	-370.148	1	-551.679	4	-756.177	4	-.034	4	-.056	4	-.664	2
187	4	max	327.622	2	569.152	3	716.434	3	.036	3	.434	3	.597	1
188		min	-370.148	1	-551.679	4	-752.284	4	-.034	4	-.473	4	-.649	2
189	5	max	327.622	2	569.152	3	720.327	3	.036	3	.845	3	.568	1
190		min	-370.148	1	-551.679	4	-748.391	4	-.034	4	-.889	4	-.636	2
191	M30	1	max	337.292	1	658.796	1	543.06	1	.031	2	.791	2	.595
192		min	-425.222	2	-629.618	2	-598.459	2	-.028	1	-.818	1	-.534	3
193	2	max	342.029	1	662.689	1	545.795	1	.031	2	.399	2	.6	4
194		min	-429.959	2	-625.726	2	-601.194	2	-.028	1	-.433	1	-.567	3
195	3	max	346.767	1	666.582	1	548.531	1	.031	2	.007	2	.605	4
196		min	-434.697	2	-621.833	2	-603.929	2	-.028	1	-.059	5	-.604	3
197	4	max	351.504	1	670.474	1	551.266	1	.031	2	.343	1	.613	4
198		min	-439.434	2	-617.94	2	-606.664	2	-.028	1	-.385	2	-.644	3



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
199	5	max	356.242	1	674.367	1	554.001	1	.031	2	.735	1	.621	4	
200		min	-444.171	2	-614.048	2	-609.399	2	-.028	1	-.776	2	-.689	3	
201	M31	1	max	527.847	2	969.751	2	1348.271	8	.144	1	.241	1	.37	4
202			min	-1012.955	1	-1023.527	1	190.776	3	-.164	2	-.373	2	-.438	3
203		2	max	458.907	2	92.709	3	229.329	4	.003	2	.079	3	.229	3
204			min	-988.476	1	-78.81	4	-203.641	3	-.002	1	-.061	4	-.166	4
205		3	max	458.907	2	92.709	3	212.639	4	.003	2	.111	2	.165	4
206			min	-988.476	1	-78.81	4	-220.331	3	-.002	1	-.068	1	-.107	3
207		4	max	458.907	2	92.709	3	198.153	4	.003	2	.235	4	.478	4
208			min	-988.476	1	-78.81	4	-234.817	3	-.002	1	-.202	3	-.462	3
209		5	max	732.335	3	355.196	1	216.828	1	.015	2	.183	1	.113	4
210			min	-1221.748	4	-271.497	2	-949.219	10	-.015	1	-.447	2	-.561	7
211	M32	1	max	1037.435	1	819.058	4	1336.471	5	.131	3	.367	3	.299	1
212			min	-1515.167	2	-838.198	3	178.043	2	-.127	4	-.539	4	-.395	2
213		2	max	407.764	4	106.977	4	223.883	1	.004	4	.099	2	.24	2
214			min	-917.539	3	-89.269	3	-214.495	2	-.003	3	-.07	1	-.151	1
215		3	max	424.147	4	78.6	4	207.193	1	.004	4	.125	1	.154	3
216			min	-933.923	3	-60.892	3	-231.185	2	-.003	3	-.083	2	-.092	4
217		4	max	440.531	4	72.005	2	192.707	1	.004	4	.291	1	.405	1
218			min	-950.306	3	-53.566	1	-245.671	2	-.003	3	-.272	2	-.408	2
219		5	max	1021.692	4	370.091	3	282.077	3	.006	4	.171	3	.188	1
220			min	-1492.191	3	-317.432	4	-933.16	8	-.008	3	-.442	4	-.58	6
221	M34	1	max	1097.119	3	711.331	3	1390.906	7	.131	4	.348	2	.319	2
222			min	-1531.679	4	-742.762	4	203.756	4	-.128	3	-.449	1	-.364	1
223		2	max	358.638	1	95.885	1	211.645	3	.002	1	.074	4	.19	1
224			min	-850.711	2	-89.282	2	-165.156	4	-.002	2	-.067	3	-.15	2
225		3	max	375.021	1	86.426	1	194.955	3	.002	1	.15	3	.146	2
226			min	-867.095	2	-79.823	2	-181.846	4	-.002	2	-.102	4	-.08	1
227		4	max	391.405	1	76.967	1	180.469	3	.002	1	.318	3	.414	2
228			min	-883.478	2	-70.364	2	-196.332	4	-.002	2	-.265	4	-.358	1
229		5	max	1054.455	1	340.12	4	254.938	2	.01	3	.136	4	.166	3
230			min	-1537.723	2	-290.448	3	-831.66	5	-.012	4	-.412	7	-.527	8
231	MP2A	1	max	0	5	.147	8	.907	1	0	3	0	2	0	11
232			min	0	2	-.125	3	-.907	2	0	8	0	1	0	1
233		2	max	319.076	5	234.611	4	514.031	1	0	3	.025	1	.023	3
234			min	82.01	2	-234.605	3	-514.032	2	0	8	-.025	2	-.023	4
235		3	max	869.776	6	815.397	4	405.575	1	.083	4	.166	2	.393	4
236			min	283.196	1	-771.061	3	-342.38	2	-.087	3	-.078	1	-.398	3
237		4	max	896.21	6	838.401	4	513.779	2	.083	4	.757	1	1.167	3
238			min	291.526	1	-794.066	3	-513.632	1	-.087	3	-.541	2	-1.261	4
239		5	max	0	11	.173	7	1.32	6	0	4	0	11	0	11
240			min	0	1	-.003	4	-.508	1	0	7	0	1	0	1
241	M26B	1	max	160.919	1	492.498	1	288.664	4	.636	3	.16	1	.162	2
242			min	-202.759	2	-582.004	2	-265.647	3	-.68	4	-.168	2	-.176	1
243		2	max	160.919	1	492.498	1	288.664	4	.636	3	.157	1	.186	2
244			min	-202.759	2	-582.004	2	-265.647	3	-.68	4	-.164	2	-.197	1
245		3	max	160.919	1	492.498	1	288.664	4	.636	3	.153	1	.21	2
246			min	-202.759	2	-582.004	2	-265.647	3	-.68	4	-.159	2	-.217	1
247		4	max	160.919	1	492.498	1	288.664	4	.636	3	.15	1	.234	2
248			min	-202.759	2	-582.004	2	-265.647	3	-.68	4	-.155	2	-.238	1
249		5	max	160.919	1	492.498	1	288.664	4	.636	3	.146	1	.259	2
250			min	-202.759	2	-582.004	2	-265.647	3	-.68	4	-.15	2	-.258	1
251	M27A	1	max	204.781	1	735.256	2	474.727	3	.583	3	.168	2	.024	2
252			min	-162.909	2	-339.239	1	-497.673	4	-.607	4	-.16	1	-.02	1
253		2	max	204.781	1	735.256	2	474.727	3	.583	3	.163	2	-.004	4
254			min	-162.909	2	-339.239	1	-497.673	4	-.607	4	-.157	1	-.017	7
255		3	max	204.781	1	735.256	2	474.727	3	.583	3	.159	2	.008	1



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...]	LC	y-y Mome...	LC	z-z Mom...	LC	
256		min	-162.909	2	-339.239	1	-497.673	4	-.607	4	-.153	1	-.042	6	
257	4	max	204.781	1	735.256	2	474.727	3	.583	3	.155	2	.022	1	
258		min	-162.909	2	-339.239	1	-497.673	4	-.607	4	-.15	1	-.068	2	
259	5	max	204.781	1	735.256	2	474.727	3	.583	3	.15	2	.037	1	
260		min	-162.909	2	-339.239	1	-497.673	4	-.607	4	-.146	1	-.099	2	
261	M28A	1	max	377.808	1	36.572	1	423.879	4	1.427	3	.188	3	1.014	2
262		min	-444.763	2	-127.87	2	-380.674	3	-1.466	4	-.196	4	-1.012	1	
263	2	max	377.808	1	36.572	1	423.879	4	1.427	3	.172	3	1.02	2	
264		min	-444.763	2	-127.87	2	-380.674	3	-1.466	4	-.178	4	-1.013	1	
265	3	max	377.808	1	36.572	1	423.879	4	1.427	3	.156	3	1.025	2	
266		min	-444.763	2	-127.87	2	-380.674	3	-1.466	4	-.16	4	-1.015	1	
267	4	max	377.808	1	36.572	1	423.879	4	1.427	3	.14	3	1.03	2	
268		min	-444.763	2	-127.87	2	-380.674	3	-1.466	4	-.143	4	-1.016	1	
269	5	max	377.808	1	36.572	1	423.879	4	1.427	3	.124	3	1.036	2	
270		min	-444.763	2	-127.87	2	-380.674	3	-1.466	4	-.125	4	-1.018	1	
271	M29A	1	max	936.103	1	1215.692	8	1026.327	3	.932	3	.367	4	.167	2
272		min	-869.114	2	359.898	1	-1069.525	4	-1.026	4	-.36	3	-.145	1	
273	2	max	936.103	1	1215.692	8	1026.327	3	.932	3	.323	4	.145	2	
274		min	-869.114	2	359.898	1	-1069.525	4	-1.026	4	-.317	3	-.16	1	
275	3	max	936.103	1	1215.692	8	1026.327	3	.932	3	.278	4	.124	2	
276		min	-869.114	2	359.898	1	-1069.525	4	-1.026	4	-.274	3	-.175	1	
277	4	max	936.103	1	1215.692	8	1026.327	3	.932	3	.233	4	.102	2	
278		min	-869.114	2	359.898	1	-1069.525	4	-1.026	4	-.231	3	-.19	1	
279	5	max	936.103	1	1215.692	8	1026.327	3	.932	3	.189	4	.08	2	
280		min	-869.114	2	359.898	1	-1069.525	4	-1.026	4	-.188	3	-.208	5	
281	M30A	1	max	286.163	1	585.012	1	164.257	4	.82	3	.146	2	.263	2
282		min	-359.558	2	-590.915	2	-196.076	3	-.801	4	-.137	1	-.302	1	
283	2	max	286.163	1	585.012	1	164.257	4	.82	3	.142	2	.287	2	
284		min	-359.558	2	-590.915	2	-196.076	3	-.801	4	-.134	1	-.326	1	
285	3	max	286.163	1	585.012	1	164.257	4	.82	3	.138	2	.312	2	
286		min	-359.558	2	-590.915	2	-196.076	3	-.801	4	-.132	1	-.35	1	
287	4	max	286.163	1	585.012	1	164.257	4	.82	3	.134	2	.337	2	
288		min	-359.558	2	-590.915	2	-196.076	3	-.801	4	-.129	1	-.375	1	
289	5	max	286.163	1	585.012	1	164.257	4	.82	3	.13	2	.361	2	
290		min	-359.558	2	-590.915	2	-196.076	3	-.801	4	-.126	1	-.399	1	
291	M31A	1	max	293.064	1	853.121	2	625.996	3	.67	3	.137	1	.012	2
292		min	-219.641	2	-322.519	1	-594.209	4	-.592	4	-.146	2	-.013	1	
293	2	max	293.064	1	853.121	2	625.996	3	.67	3	.134	1	0	1	
294		min	-219.641	2	-322.519	1	-594.209	4	-.592	4	-.142	2	-.031	6	
295	3	max	293.064	1	853.121	2	625.996	3	.67	3	.132	1	.014	1	
296		min	-219.641	2	-322.519	1	-594.209	4	-.592	4	-.138	2	-.065	6	
297	4	max	293.064	1	853.121	2	625.996	3	.67	3	.129	1	.027	1	
298		min	-219.641	2	-322.519	1	-594.209	4	-.592	4	-.134	2	-.098	6	
299	5	max	293.064	1	853.121	2	625.996	3	.67	3	.126	1	.041	1	
300		min	-219.641	2	-322.519	1	-594.209	4	-.592	4	-.13	2	-.132	6	
301	MP1C	1	max	0	11	.591	4	.388	1	0	3	0	2	0	11
302		min	0	1	-.583	3	-.391	2	0	4	0	1	0	1	
303	2	max	245.809	8	208.305	4	173.123	1	0	3	.039	1	.046	3	
304		min	99.458	3	-208.297	3	-173.126	2	0	4	-.039	2	-.046	4	
305	3	max	627.568	3	240.91	1	441.241	1	.114	4	.169	2	.111	4	
306		min	-295.574	4	-203.911	2	-446.029	2	-.103	3	-.146	1	-.119	3	
307	4	max	635.898	3	240.91	1	464.245	1	.114	4	.76	1	.354	2	
308		min	-287.244	4	-203.911	2	-469.034	2	-.103	3	-.746	2	-.436	1	
309	5	max	0	11	.449	3	.18	6	0	4	0	11	0	11	
310		min	0	1	-.422	4	-.141	1	0	3	0	1	0	1	
311	MP3C	1	max	0	11	.299	4	.287	1	0	3	0	11	0	11
312		min	0	1	-.268	3	-.299	2	0	4	0	1	0	1	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
313	2	max	166.596	8	140.54	4	101.367	1	0	3	.024	1	.024	3	
314		min	70.13	3	-140.509	3	-101.379	2	0	4	-.024	2	-.024	4	
315	3	max	637.346	3	174.575	4	321.832	1	.11	3	.202	2	.105	4	
316		min	-375.141	4	-181.781	3	-358.281	2	-.122	4	-.191	1	-.14	3	
317	4	max	645.676	3	197.58	4	344.837	1	.11	3	.476	1	.295	2	
318		min	-366.811	4	-204.785	3	-381.286	2	-.122	4	-.537	2	-.316	1	
319	5	max	0	11	.031	3	.032	2	0	4	0	11	0	11	
320		min	0	1	-.031	4	-.032	1	0	3	0	1	0	1	
321	MP2C	1	max	0	.698	8	.305	1	0	3	0	2	0	11	
322		min	0	3	-.68	3	-.372	6	0	8	0	1	0	1	
323	2	max	319.076	8	444.16	4	304.446	1	0	3	.024	1	.024	3	
324		min	82.01	3	-444.143	3	-304.464	2	0	8	-.024	2	-.024	4	
325	3	max	895.946	7	514.837	4	736.359	1	.117	2	.393	2	.194	4	
326		min	265.496	4	-514.905	3	-808.782	2	-.113	1	-.401	1	-.232	3	
327	4	max	922.38	7	537.842	4	759.364	1	.117	2	1.095	1	.821	3	
328		min	273.826	4	-537.909	3	-831.787	2	-.113	1	-1.248	2	-.859	4	
329	5	max	0	11	.572	7	.25	4	0	4	0	11	0	11	
330		min	0	1	-.407	4	-.451	7	0	7	0	1	0	1	
331	M35	1	max	118.414	4	452.842	4	289.727	2	.671	1	.16	4	.171	3
332		min	-137.372	3	-559.648	3	-249.943	1	-.724	2	-.153	3	-.171	4	
333	2	max	118.414	4	452.842	4	289.727	2	.671	1	.15	4	.195	3	
334		min	-137.372	3	-559.648	3	-249.943	1	-.724	2	-.142	3	-.19	4	
335	3	max	118.414	4	452.842	4	289.727	2	.671	1	.14	4	.218	3	
336		min	-137.372	3	-559.648	3	-249.943	1	-.724	2	-.131	3	-.209	4	
337	4	max	118.414	4	452.842	4	289.727	2	.671	1	.13	4	.241	3	
338		min	-137.372	3	-559.648	3	-249.943	1	-.724	2	-.12	3	-.228	4	
339	5	max	118.414	4	452.842	4	289.727	2	.671	1	.127	2	.265	3	
340		min	-137.372	3	-559.648	3	-249.943	1	-.724	2	-.112	1	-.247	4	
341	M36	1	max	164.348	4	714.668	3	465.276	1	.55	4	.148	3	.014	3
342		min	-145.354	3	-297.963	4	-504.322	2	-.63	3	-.155	4	-.014	4	
343	2	max	164.348	4	714.668	3	465.276	1	.55	4	.13	3	-.001	4	
344		min	-145.354	3	-297.963	4	-504.322	2	-.63	3	-.138	4	-.023	7	
345	3	max	164.348	4	714.668	3	465.276	1	.55	4	.112	3	.011	4	
346		min	-145.354	3	-297.963	4	-504.322	2	-.63	3	-.122	4	-.049	7	
347	4	max	164.348	4	714.668	3	465.276	1	.55	4	.094	3	.024	4	
348		min	-145.354	3	-297.963	4	-504.322	2	-.63	3	-.106	2	-.076	7	
349	5	max	164.348	4	714.668	3	465.276	1	.55	4	.112	1	.036	4	
350		min	-145.354	3	-297.963	4	-504.322	2	-.63	3	-.127	2	-.105	3	
351	M37	1	max	278.852	4	56.957	4	406.495	2	1.455	1	.145	1	.796	3
352		min	-317.767	3	-157.279	3	-345.71	1	-1.519	2	-.159	2	-.807	4	
353	2	max	278.852	4	56.957	4	406.495	2	1.455	1	.13	1	.803	3	
354		min	-317.767	3	-157.279	3	-345.71	1	-1.519	2	-.142	2	-.809	4	
355	3	max	278.852	4	56.957	4	406.495	2	1.455	1	.116	1	.809	3	
356		min	-317.767	3	-157.279	3	-345.71	1	-1.519	2	-.125	2	-.811	4	
357	4	max	278.852	4	56.957	4	406.495	2	1.455	1	.101	1	.816	3	
358		min	-317.767	3	-157.279	3	-345.71	1	-1.519	2	-.108	2	-.814	4	
359	5	max	278.852	4	56.957	4	406.495	2	1.455	1	.087	1	.822	3	
360		min	-317.767	3	-157.279	3	-345.71	1	-1.519	2	-.091	2	-.816	4	
361	M38	1	max	714.359	4	1241.006	7	1049.334	1	.856	1	.277	2	.13	3
362		min	-675.371	3	346.351	4	-1110.554	2	-1.048	2	-.262	1	-.132	4	
363	2	max	714.359	4	1241.006	7	1049.334	1	.856	1	.23	2	.106	3	
364		min	-675.371	3	346.351	4	-1110.554	2	-1.048	2	-.218	1	-.147	4	
365	3	max	714.359	4	1241.006	7	1049.334	1	.856	1	.184	2	.083	3	
366		min	-675.371	3	346.351	4	-1110.554	2	-1.048	2	-.174	1	-.161	4	
367	4	max	714.359	4	1241.006	7	1049.334	1	.856	1	.138	2	.06	3	
368		min	-675.371	3	346.351	4	-1110.554	2	-1.048	2	-.131	1	-.186	8	
369	5	max	714.359	4	1241.006	7	1049.334	1	.856	1	.091	2	.036	3	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
370		min	-675.371	3	346.351	4	-1110.554	2	-1.048	2	-.087	1	-.236	8	
371	M39	1	max	207.355	4	464.883	4	238.256	2	.866	1	.079	3	.272	3
372		min	-251.247	3	-458.653	3	-247.336	1	-.877	2	-.09	4	-.31	4	
373		2	max	207.355	4	464.883	4	238.256	2	.866	1	.08	3	.291	3
374		min	-251.247	3	-458.653	3	-247.336	1	-.877	2	-.092	4	-.329	4	
375		3	max	207.355	4	464.883	4	238.256	2	.866	1	.081	3	.31	3
376		min	-251.247	3	-458.653	3	-247.336	1	-.877	2	-.094	4	-.349	4	
377		4	max	207.355	4	464.883	4	238.256	2	.866	1	.082	3	.329	3
378		min	-251.247	3	-458.653	3	-247.336	1	-.877	2	-.096	4	-.368	4	
379		5	max	207.355	4	464.883	4	238.256	2	.866	1	.083	3	.348	3
380		min	-251.247	3	-458.653	3	-247.336	1	-.877	2	-.098	4	-.387	4	
381	M40	1	max	256.317	4	746.875	7	646.672	1	.694	1	.137	2	.008	3
382		min	-212.429	3	-202.236	4	-637.796	2	-.686	2	-.124	1	-.011	4	
383		2	max	256.317	4	746.875	7	646.672	1	.694	1	.112	4	0	2
384		min	-212.429	3	-202.236	4	-637.796	2	-.686	2	-.099	3	-.033	5	
385		3	max	256.317	4	746.875	7	646.672	1	.694	1	.125	4	.006	4
386		min	-212.429	3	-202.236	4	-637.796	2	-.686	2	-.112	3	-.063	7	
387		4	max	256.317	4	746.875	7	646.672	1	.694	1	.138	4	.014	4
388		min	-212.429	3	-202.236	4	-637.796	2	-.686	2	-.124	3	-.094	7	
389		5	max	256.317	4	746.875	7	646.672	1	.694	1	.151	4	.023	4
390		min	-212.429	3	-202.236	4	-637.796	2	-.686	2	-.136	3	-.126	7	
391	MP1B	1	max	0	11	.091	4	.084	1	0	7	0	2	0	11
392		min	0	1	-.098	7	-.102	6	0	4	0	1	0	1	
393		2	max	72.563	7	61.045	4	47.826	1	0	7	.039	1	.045	3
394		min	20.138	4	-61.048	3	-47.831	2	0	4	-.039	2	-.045	4	
395		3	max	627.452	4	240.761	4	332.142	1	.12	3	.172	2	.117	4
396		min	-420.786	3	-245.109	3	-385.775	2	-.108	4	-.178	1	-.113	3	
397		4	max	635.782	4	263.765	4	355.146	1	.12	3	.51	1	.4	3
398		min	-412.456	3	-268.114	3	-408.779	2	-.108	4	-.622	2	-.388	4	
399		5	max	0	11	.248	3	.228	2	0	4	0	11	0	11
400		min	0	1	-.246	4	-.252	1	0	3	0	1	0	1	
401	MP3B	1	max	0	11	.359	4	.223	1	0	3	0	11	0	11
402		min	0	1	-.374	3	-.248	2	0	4	0	1	0	1	
403		2	max	166.596	7	140.6	4	101.303	1	0	3	.023	1	.024	3
404		min	70.13	4	-140.615	3	-101.328	2	0	4	-.024	2	-.024	4	
405		3	max	624.589	4	171.161	2	378.296	1	.117	4	.172	2	.18	4
406		min	-372.928	3	-187.668	1	-376.433	2	-.129	3	-.19	1	-.167	3	
407		4	max	632.919	4	171.161	2	401.3	1	.117	4	.59	1	.378	1
408		min	-364.598	3	-187.668	1	-399.438	2	-.129	3	-.604	2	-.332	2	
409		5	max	0	11	.049	3	.022	2	0	4	0	11	0	11
410		min	0	1	-.05	4	-.021	1	0	3	0	1	0	1	
411	MP2B	1	max	0	7	.67	4	.296	1	0	7	0	2	0	11
412		min	0	4	-.72	7	-.325	6	0	4	0	1	0	1	
413		2	max	319.076	7	444.134	4	304.438	1	0	7	.024	1	.024	3
414		min	82.01	4	-444.156	3	-304.448	2	0	4	-.024	2	-.024	4	
415		3	max	878.755	5	486.186	4	724.085	1	.094	3	.356	2	.241	4
416		min	289.995	2	-529.777	3	-719.392	2	-.102	4	-.356	1	-.198	3	
417		4	max	905.189	5	509.191	4	747.09	1	.094	3	1.116	1	.884	3
418		min	298.325	2	-552.781	3	-742.397	2	-.102	4	-1.106	2	-.754	4	
419		5	max	0	11	.399	3	.294	7	0	8	0	11	0	11
420		min	0	1	-.72	8	-.242	4	0	3	0	1	0	1	
421	M44	1	max	93.361	3	450.521	3	311.136	1	.693	2	.106	3	.233	4
422		min	-117.297	4	-547.145	4	-305.183	2	-.72	1	-.095	4	-.238	3	
423		2	max	93.361	3	450.521	3	311.136	1	.693	2	.111	3	.256	4
424		min	-117.297	4	-547.145	4	-305.183	2	-.72	1	-.1	4	-.256	3	
425		3	max	93.361	3	450.521	3	311.136	1	.693	2	.116	3	.278	4
426		min	-117.297	4	-547.145	4	-305.183	2	-.72	1	-.104	4	-.275	3	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
427	4	max	93.361	3	450.521	3	311.136	1	.693	2	.121	3	.301	4	
428		min	-117.297	4	-547.145	4	-305.183	2	-.72	1	-.109	4	-.294	3	
429	5	max	93.361	3	450.521	3	311.136	1	.693	2	.126	3	.324	4	
430		min	-117.297	4	-547.145	4	-305.183	2	-.72	1	-.113	4	-.313	3	
431	M45	1	max	189.357	3	701.113	4	520.025	2	.663	2	.1	4	.019	4
432		min	-165.442	4	-296.668	3	-526.123	1	-.639	1	-.111	3	-.019	3	
433	2	max	189.357	3	701.113	4	520.025	2	.663	2	.111	4	-.006	3	
434		min	-165.442	4	-296.668	3	-526.123	1	-.639	1	-.123	3	-.02	8	
435	3	max	189.357	3	701.113	4	520.025	2	.663	2	.123	4	.006	3	
436		min	-165.442	4	-296.668	3	-526.123	1	-.639	1	-.135	3	-.046	8	
437	4	max	189.357	3	701.113	4	520.025	2	.663	2	.134	4	.018	3	
438		min	-165.442	4	-296.668	3	-526.123	1	-.639	1	-.147	3	-.072	8	
439	5	max	189.357	3	701.113	4	520.025	2	.663	2	.145	4	.031	3	
440		min	-165.442	4	-296.668	3	-526.123	1	-.639	1	-.159	3	-.098	8	
441	M46	1	max	272.837	3	36.095	2	338.927	1	1.395	2	.143	4	.817	4
442		min	-309.334	4	-121.676	5	-312.732	2	-1.408	1	-.136	3	-.826	3	
443	2	max	272.837	3	36.095	2	338.927	1	1.395	2	.138	4	.821	4	
444		min	-309.334	4	-121.676	5	-312.732	2	-1.408	1	-.129	3	-.826	3	
445	3	max	272.837	3	36.095	2	338.927	1	1.395	2	.132	4	.826	4	
446		min	-309.334	4	-121.676	5	-312.732	2	-1.408	1	-.123	3	-.826	3	
447	4	max	272.837	3	36.095	2	338.927	1	1.395	2	.127	4	.83	4	
448		min	-309.334	4	-121.676	5	-312.732	2	-1.408	1	-.116	3	-.827	3	
449	5	max	272.837	3	36.095	2	338.927	1	1.395	2	.121	4	.834	4	
450		min	-309.334	4	-121.676	5	-312.732	2	-1.408	1	-.109	3	-.827	3	
451	M47	1	max	720.4	3	1224.207	5	1016.86	2	.888	2	.223	1	.131	4
452		min	-683.895	4	377.898	2	-1042.454	1	-.884	1	-.232	2	-.134	3	
453	2	max	720.4	3	1224.207	5	1016.86	2	.888	2	.18	1	.11	4	
454		min	-683.895	4	377.898	2	-1042.454	1	-.884	1	-.19	2	-.15	3	
455	3	max	720.4	3	1224.207	5	1016.86	2	.888	2	.136	1	.089	4	
456		min	-683.895	4	377.898	2	-1042.454	1	-.884	1	-.147	2	-.167	3	
457	4	max	720.4	3	1224.207	5	1016.86	2	.888	2	.093	1	.068	4	
458		min	-683.895	4	377.898	2	-1042.454	1	-.884	1	-.105	2	-.186	7	
459	5	max	720.4	3	1224.207	5	1016.86	2	.888	2	.049	1	.047	4	
460		min	-683.895	4	377.898	2	-1042.454	1	-.884	1	-.062	2	-.236	7	
461	M48	1	max	87.859	3	512.299	3	257.414	3	.687	2	.153	4	.138	4
462		min	-125.756	4	-536.128	4	-297.636	4	-.647	1	-.158	3	-.165	3	
463	2	max	87.859	3	512.299	3	257.414	3	.687	2	.141	4	.16	4	
464		min	-125.756	4	-536.128	4	-297.636	4	-.647	1	-.147	3	-.186	3	
465	3	max	87.859	3	512.299	3	257.414	3	.687	2	.128	4	.182	4	
466		min	-125.756	4	-536.128	4	-297.636	4	-.647	1	-.137	3	-.208	3	
467	4	max	87.859	3	512.299	3	257.414	3	.687	2	.116	4	.205	4	
468		min	-125.756	4	-536.128	4	-297.636	4	-.647	1	-.126	3	-.229	3	
469	5	max	87.859	3	512.299	3	257.414	3	.687	2	.106	1	.227	4	
470		min	-125.756	4	-536.128	4	-297.636	4	-.647	1	-.119	2	-.25	3	
471	M49	1	max	375.807	3	806.267	8	670.833	2	.662	4	.15	3	.004	1
472		min	-337.915	4	-247.97	3	-624.664	1	-.523	3	-.145	4	-.007	2	
473	2	max	375.807	3	806.267	8	670.833	2	.662	4	.128	3	.005	3	
474		min	-337.915	4	-247.97	3	-624.664	1	-.523	3	-.121	4	-.036	8	
475	3	max	375.807	3	806.267	8	670.833	2	.662	4	.106	3	.015	3	
476		min	-337.915	4	-247.97	3	-624.664	1	-.523	3	-.098	4	-.07	8	
477	4	max	375.807	3	806.267	8	670.833	2	.662	4	.091	2	.026	3	
478		min	-337.915	4	-247.97	3	-624.664	1	-.523	3	-.08	1	-.104	8	
479	5	max	375.807	3	806.267	8	670.833	2	.662	4	.119	2	.036	3	
480		min	-337.915	4	-247.97	3	-624.664	1	-.523	3	-.106	1	-.137	8	
481	M50	1	max	3271.78	5	55.324	5	53.942	3	.001	4	0	11	0	11
482		min	-914.377	2	-.723	2	-53.942	4	-.001	3	0	1	0	1	
483	2	max	3285.014	5	27.662	5	26.971	3	.001	4	.054	3	0	2	



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
484		min	-896.337	2	-361	2	-26.971	4	-0.01	3	-.054	4	-.055	5	
485	3	max	3298.248	5	0	11	0	11	.001	4	.072	3	0	2	
486		min	-878.298	2	0	1	0	1	-.001	3	-.072	4	-.074	5	
487	4	max	3311.481	5	.361	2	26.971	4	.001	4	.054	3	0	2	
488		min	-860.258	2	-27.662	5	-26.971	3	-.001	3	-.054	4	-.055	5	
489	5	max	3324.715	5	.723	2	53.942	4	.001	4	0	11	0	11	
490		min	-842.218	2	-55.324	5	-53.942	3	-.001	3	0	1	0	1	
491	M50A	1	max	3396.635	8	55.714	8	42.527	1	0	2	0	11	0	11
492		min	-440.424	3	-2.015	3	-42.527	2	0	1	0	1	0	1	
493	2	max	3409.581	8	27.857	8	21.263	1	0	2	.043	1	.002	3	
494		min	-421.431	3	-1.008	3	-21.263	2	0	1	-.043	2	-.056	8	
495	3	max	3422.527	8	0	11	0	11	0	2	.057	1	.003	3	
496		min	-402.438	3	0	1	0	1	0	1	-.057	2	-.074	8	
497	4	max	3435.473	8	1.008	3	21.263	2	0	2	.043	1	.002	3	
498		min	-383.445	3	-27.857	8	-21.263	1	0	1	-.043	2	-.056	8	
499	5	max	3448.418	8	2.015	3	42.527	2	0	2	0	11	0	11	
500		min	-364.452	3	-55.714	8	-42.527	1	0	1	0	1	0	1	
501	M51	1	max	3428.247	7	55.714	7	42.527	2	0	1	0	11	0	11
502		min	-574.659	4	-2.015	4	-42.527	1	-.001	2	0	1	0	1	
503	2	max	3441.193	7	27.857	7	21.263	2	0	1	.043	2	.002	4	
504		min	-555.667	4	-1.008	4	-21.263	1	-.001	2	-.043	1	-.056	7	
505	3	max	3454.139	7	0	11	0	11	0	1	.057	2	.003	4	
506		min	-536.674	4	0	1	0	1	-.001	2	-.057	1	-.074	7	
507	4	max	3467.085	7	1.008	4	21.263	1	0	1	.043	2	.002	4	
508		min	-517.681	4	-27.857	7	-21.263	2	-.001	2	-.043	1	-.056	7	
509	5	max	3480.031	7	2.015	4	42.527	1	0	1	0	11	0	11	
510		min	-498.688	4	-55.714	7	-42.527	2	-.001	2	0	1	0	1	

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[...Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...Cb	Eqn		
1	M31	L3X3X4	.372	6.25	6	.742	0	y 2	19639.3...	46656	1.688	3.756	3...	H2-1
2	M32	L3X3X4	.382	6.25	8	.594	0	y 3	19639.3...	46656	1.688	3.756	2...	H2-1
3	M34	L3X3X4	.383	0	1	.589	0	y 4	19639.3...	46656	1.688	3.564	1...	H2-1
4	M25	PIPE 2.5	.293	10.147	3	.183	1.45	2	16916.6...	50715	3.596	3.596	1...	H1-1b
5	M27	PIPE 2.5	.267	10.147	2	.182	10.1...	3	16916.6...	50715	3.596	3.596	1...	H1-1b
6	M26	PIPE 2.5	.299	1.45	2	.172	1.45	3	16916.6...	50715	3.596	3.596	1...	H1-1b
7	MP2C	PIPE 2.0	.710	6	2	.161	6	2	14916.0...	32130	1.872	1.872	1...	H1-1b
8	MP2A	PIPE 2.0	.692	6	4	.137	6	4	14916.0...	32130	1.872	1.872	1...	H1-1b
9	MP2B	PIPE 2.0	.659	6	1	.131	6	2	14916.0...	32130	1.872	1.872	1...	H1-1b
10	M1	L3X3X4	.366	0	6	.125	0	z 2	19639.3...	46656	1.688	3.756	3...	H2-1
11	MP1B	PIPE 2.0	.385	6	4	.111	6	3	14916.0...	32130	1.872	1.872	1...	H1-1b
12	MP3C	PIPE 2.0	.333	6	3	.109	6	2	14916.0...	32130	1.872	1.872	1...	H1-1b
13	M29	L3X3X6	.417	1.807	4	.103	1.807	z 3	63529.26	68364	2.307	5.322	2...	H2-1
14	MP3A	PIPE 2.0	.341	6	4	.102	3	2	14916.0...	32130	1.872	1.872	1...	H1-1b
15	MP3B	PIPE 2.0	.388	6	1	.100	6	3	14916.0...	32130	1.872	1.872	2...	H1-1b
16	M2	L3X3X4	.432	1.042	2	.100	0	z 3	19639.3...	46656	1.688	3.569	1...	H2-1
17	MP1A	PIPE 2.0	.441	6	3	.098	3	2	14916.0...	32130	1.872	1.872	1...	H1-1b
18	M3	L3X3X4	.374	1.042	4	.096	0	z 4	19639.3...	46656	1.688	3.564	1...	H2-1
19	MP1C	PIPE 2.0	.486	6	1	.095	6	4	14916.0...	32130	1.872	1.872	2...	H1-1b
20	M30	L3X3X6	.450	0	1	.088	0	y 2	63529.26	68364	2.307	5.322	1...	H2-1
21	M28	L3X3X6	.376	1.807	2	.080	1.807	z 1	63529.26	68364	2.307	5.322	1...	H2-1
22	M7	LL3x3x3x3	.491	0	8	.077	1.13	y 8	46411.7...	70632	5.543	2.345	1...	H1-1b
23	M8	LL3x3x3x3	.490	0	6	.075	1.13	y 6	46411.7...	70632	5.543	2.345	1...	H1-1b
24	M9	LL3x3x3x3	.469	0	5	.073	1.13	y 5	46411.7...	70632	5.543	2.345	1...	H1-1b
25	M12	L3X3X4	.194	0	2	.009	0	z 3	17607.4...	46656	1.688	3.634	2...	H2-1



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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[...Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
26	M11	L3X3X4	.192	6.626	2	.009	6.626 z 4	17607.4...	46656	1.688	3.633	2...	H2-1
27	M10	L3X3X4	.173	6.626	4	.009	6.626 z 1	17607.4...	46656	1.688	3.649	2...	H2-1
28	M50	LL2.5x2.5...	.082	5.346	5	.008	0 z 3	40505.7...	58320	3.3	2.55	1	H1-1b*
29	M51	LL2.5x2.5...	.086	5.346	7	.007	0 z 2	40505.7...	58320	3.3	2.55	1..	H1-1b*
30	M50A	LL2.5x2.5...	.085	5.346	8	.006	0 z 1	40505.7...	58320	3.3	2.55	1..	H1-1b*

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

Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	Cb	Cmyy	Cmzz	Eqn
1	M4	5.5CU4X...	.451	0	8	.244	0	y 4	120170...	133040...	6.818	18.698	2.346	.85	.85	C5.2.2-3
2	M5	5.5CU4X...	.467	0	7	.238	0	y 2	120170...	133040...	6.818	18.698	2.006	.85	.85	C5.1.2-2
3	M6	5.5CU4X...	.456	0	5	.238	0	y 2	120170...	133040...	6.818	18.698	1.993	.85	.85	C5.1.2-2

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

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

Wood Wall Panel Parameters

Label	Top Plate	Sill Plate	Studs	Min Stud Sp...	Max Stud Sp...	Green Lumb...	Header Size	Header Matl
1	Typical	2-2X6	2X6	2X6	16	16	6x8	Same as Wall

Additional Wood Wall Panel Parameters

Label	Schedule	Min. Pan...	Max. Pa...	Double S...	Max. Nai...	Min. Nail...	HD Chor...	HD Chor...	Hold Down	Chord...	Eccen...
1	Typical	IBC2012 Pan..	.375	.75	Optimum	6-in.	2-in.	2-2X6	Same as...	CAN SIMPS...	SIMP... Yes

Exhibit F

Power Density/RF Emissions Report



Radio Frequency Exposure Analysis Report

April 8, 2022

Centerline on behalf of T-Mobile
Centerline Communications Project Number: Internal

T-Mobile Site Name: SBA_CT04169-A-06__Higganum
Site Number: CTHA832A

Site Address: 285 Chamberlain Hill Rd, Higganum, CT 06441

Site Compliance Summary

T-Mobile Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	0.67486 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	0.06972%



April 8, 2022

Centerline
Attn: John Benedetto, RF Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **SBA_CT04169-A-06__Higganum**

Centerline Communications, LLC (“Centerline”) was contracted to analyze the proposed T-Mobile facility at **285 Chamberlain Hill Rd, Higganum, CT 06441** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{\text{MHz}}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of $1 \text{ mW}/\text{cm}^2$ ($1000 \mu\text{W}/\text{cm}^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.



Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.



Data & Results

The following table details the antennas and operating parameters for the T-Mobile antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.



Maximum Calculated Cumulative Power Density (Location: approximately of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	700	13.65	185.00	2.00	40.00	1853.92	0.00009	466.67	0.00002
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	185.00	4.00	60.00	4733.81	0.00015	400.00	0.00004
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	185.00	2.00	40.00	1577.94	0.00005	400.00	0.00001
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	2100	16.45	185.00	2.00	140.00	12363.97	0.00013	1000.00	0.00001
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	1900	15.45	185.00	2.00	140.00	9821.05	0.00004	1000.00	0.00000
T-Mobile A 2	ERICSSON SON_AIR6449 2500 LTE TB	2500	22.35	185.00	1.00	90.00	15461.18	0.29560	1000.00	0.02956
T-Mobile A 2	ERICSSON SON_AIR6449 2500 NR TB	2500	22.35	185.00	1.00	90.00	15461.18	0.29560	1000.00	0.02956
T-Mobile A 2	ERICSSON AIR6449 LTE BrM 02DT	2500	15.15	185.00	1.00	30.00	982.02	0.01924	1000.00	0.00192
T-Mobile A 2	ERICSSON AIR6449 LTE BrM 02DT	2500	15.15	185.00	1.00	30.00	982.02	0.01924	1000.00	0.00192
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	700	13.65	185.00	2.00	40.00	1853.92	0.00001	466.67	0.00000
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	600	12.95	185.00	4.00	60.00	4733.81	0.00008	400.00	0.00002
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	600	12.95	185.00	2.00	40.00	1577.94	0.00003	400.00	0.00001
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	2100	16.45	185.00	2.00	140.00	12363.97	0.00017	1000.00	0.00002
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	1900	15.45	185.00	2.00	140.00	9821.05	0.00010	1000.00	0.00001
T-Mobile B 4	ERICSSON SON_AIR6449 2500 LTE TB	2500	22.35	185.00	1.00	90.00	15461.18	0.00061	1000.00	0.00006
T-Mobile B 4	ERICSSON SON_AIR6449 2500 NR TB	2500	22.35	185.00	1.00	90.00	15461.18	0.00061	1000.00	0.00006
T-Mobile B 4	ERICSSON AIR6449 LTE BrM 02DT	2500	15.15	185.00	1.00	30.00	982.02	0.00001	1000.00	0.00000
T-Mobile B 4	ERICSSON AIR6449 LTE BrM 02DT	2500	15.15	185.00	1.00	30.00	982.02	0.00001	1000.00	0.00000
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	700	13.65	185.00	2.00	40.00	1853.92	0.00001	466.67	0.00000
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	600	12.95	185.00	4.00	60.00	4733.81	0.00001	400.00	0.00000
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	600	12.95	185.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	2100	16.45	185.00	2.00	140.00	12363.97	0.00000	1000.00	0.00000
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	1900	15.45	185.00	2.00	140.00	9821.05	0.00000	1000.00	0.00000
T-Mobile C 6	ERICSSON SON_AIR6449 2500 LTE TB	2500	22.35	185.00	1.00	90.00	15461.18	0.00004	1000.00	0.00000
T-Mobile C 6	ERICSSON SON_AIR6449 2500 NR TB	2500	22.35	185.00	1.00	90.00	15461.18	0.00004	1000.00	0.00000
T-Mobile C 6	ERICSSON AIR6449 LTE BrM 02DT	2500	15.15	185.00	1.00	30.00	982.02	0.00000	1000.00	0.00000
T-Mobile C 6	ERICSSON AIR6449 LTE BrM 02DT	2500	15.15	185.00	1.00	30.00	982.02	0.00000	1000.00	0.00000
AT&T A 7	POWERWAVE 7770 00	850	11.35	175.00	1.00	40.00	545.83	0.00101	566.67	0.00018



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
AT&T A 8	KMW AM-X-CD-16-65-00T-RET	700	13.15	175.00	2.00	40.00	1652.30	0.00613	466.67	0.00131
AT&T A 8	KMW AM-X-CD-16-65-00T-RET	850	13.85	175.00	2.00	40.00	1941.29	0.00644	566.67	0.00114
AT&T A 8	KMW AM-X-CD-16-65-00T-RET-	1900	14.85	175.00	4.00	40.00	4887.87	0.00859	1000.00	0.00086
AT&T A 8	KMW AM-X-CD-16-65-00T-RET-	2100	15.35	175.00	4.00	40.00	5484.28	0.00901	1000.00	0.00090
AT&T A 9	POWERWAVE 7770 00	850	11.35	175.00	1.00	40.00	545.83	0.01168	566.67	0.00206
AT&T B 10	POWERWAVE 7770 00	850	11.35	175.00	1.00	40.00	545.83	0.00004	566.67	0.00001
AT&T B 11	KMW AM-X-CD-16-65-00T-RET	700	13.15	175.00	2.00	40.00	1652.30	0.00000	466.67	0.00000
AT&T B 11	KMW AM-X-CD-16-65-00T-RET	850	13.85	175.00	2.00	40.00	1941.29	0.00000	566.67	0.00000
AT&T B 11	KMW AM-X-CD-16-65-00T-RET-	1900	14.85	175.00	4.00	40.00	4887.87	0.00002	1000.00	0.00000
AT&T B 11	KMW AM-X-CD-16-65-00T-RET-	2100	15.35	175.00	4.00	40.00	5484.28	0.00002	1000.00	0.00000
AT&T B 12	POWERWAVE 7770 00	850	11.35	175.00	1.00	40.00	545.83	0.00004	566.67	0.00001
AT&T C 13	POWERWAVE 7770 00	850	11.35	175.00	1.00	40.00	545.83	0.00000	566.67	0.00000
AT&T C 14	KMW AM-X-CD-16-65-00T-RET	700	13.15	175.00	2.00	40.00	1652.30	0.00001	466.67	0.00000
AT&T C 14	KMW AM-X-CD-16-65-00T-RET	850	13.85	175.00	2.00	40.00	1941.29	0.00001	566.67	0.00000
AT&T C 14	KMW AM-X-CD-16-65-00T-RET-	1900	14.85	175.00	4.00	40.00	4887.87	0.00000	1000.00	0.00000
AT&T C 14	KMW AM-X-CD-16-65-00T-RET-	2100	15.35	175.00	4.00	40.00	5484.28	0.00000	1000.00	0.00000
AT&T C 15	POWERWAVE 7770 00	850	11.35	175.00	1.00	40.00	545.83	0.00001	566.67	0.00000
							Cumulative Power Density:	0.67486 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	0.06972%



Summary

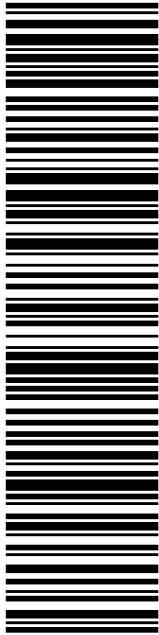
The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

Michelle Stone

Michelle Stone
RF EME Technical Writer II
Centerline Communications, LLC

Exhibit G

Recipient Mailings



USPS TRACKING #

9405 5036 9930 0222 9044 37

Electronic Rate Approved #038555749

SHIP TO: KRI PELLETIER
SBA COMMUNICATIONS CORPORATION
13 FLANDERS RD
STE 125
WESTBOROUGH MA 01581

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

Expected Delivery Date: 04/15/22
Ref#: SBCT-HA832
0006

R005

P

04/14/2022


USPS.com 9405 5036 9930 0222 9044 37 0079 0000 0010 1581

US POSTAGE
Flat Rate Env

U.S. POSTAGE PAID
Click-N-Ship®

Mailed from 01566

PRIORITY MAIL 1-DAY™



Click-N-Ship®



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0222 9044 37

Trans. #: 561311551	Priority Mail® Postage: \$8.95
Print Date: 04/14/2022	Total: \$8.95
Ship Date: 04/14/2022	
Expected Delivery Date: 04/15/2022	

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

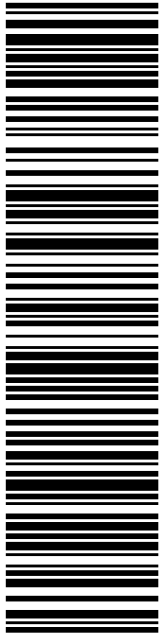
Ref#: SBCT-HA832

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

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



USPS TRACKING #

9405 5036 9930 0222 9044 51

Electronic Rate Approved #038555749

SHIP TO: ROBERT MCGARRY
FIRST SELECTMAN
30 FIELD PARK DR
HADDAM CT 06438-1140

Expected Delivery Date: 04/18/22
Ref#: SBCT-HA832
0006

R002

P


04/14/2022

U.S. POSTAGE PAID
click-n-ship®

Mailed from 01566

PRIORITY MAIL 2-DAY™

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



Click-N-Ship®

usps.com 9405 5036 9930 0222 9044 51 0079 0000 0010 6438
US POSTAGE \$8.95
Flat Rate Env



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0222 9044 51

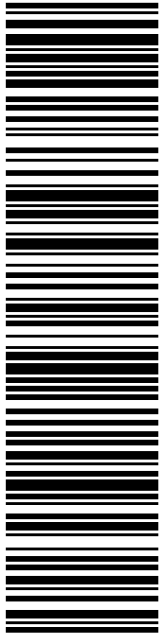
Trans. #:	561311551	Priority Mail® Postage:	\$8.95
Print Date:	04/14/2022	Total:	\$8.95
Ship Date:	04/14/2022		
Expected Delivery Date:	04/18/2022		

From:	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359	Ref#: SBCT-HA832
To:	ROBERT MCGARRY FIRST SELECTMAN 30 FIELD PARK DR HADDAM CT 06438-1140	

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



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PRIORITY MAIL 2-DAY™

Expected Delivery Date: 04/18/22
Ref#: SBCT-HA832
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R002

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

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Instructions

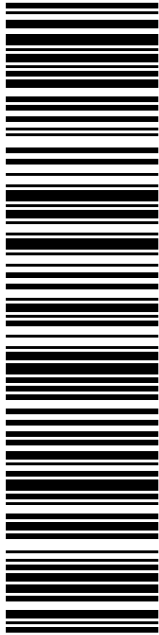
1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
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Trans. #:	561311551
Print Date:	04/14/2022
Ship Date:	04/14/2022
Expected Delivery Date:	04/18/2022
Priority Mail® Postage:	\$8.95
Total:	\$8.95
From:	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
To:	BILL WARNER TOWN PLANNER- HADDAM 30 FIELD PARK DR HADDAM CT 06438-1140
Ref#:	SBCT-HA832
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USPS TRACKING #

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SHIP TO:

RUTH QUALE
285 CHAMBERLAIN HILL RD
HIGGANUM CT 06441-4066

P

USPS.com 9405 5036 9930 0222 9044 75 0079 0000 0010 6441
US POSTAGE
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DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Expected Delivery Date: 04/18/22
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Instructions

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0222 9044 75

Trans. #: 561311551	Priority Mail® Postage: \$8.95
Print Date: 04/14/2022	Total: \$8.95
Ship Date: 04/14/2022	
Expected Delivery Date: 04/18/2022	

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

Ref#: SBCT-HA832

To: RUTH QUALE
285 CHAMBERLAIN HILL RD
HIGGANUM CT 06441-4066

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SBA-TMO



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

04/14/2022

04:04 PM

Product	Qty	Unit Price	Price
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Thu 04/14/2022 Tracking #: 9405 5036 9930 0222 9044 37	1		\$0.00
Prepaid Mail Haddam, CT 06438 Weight: 0 lb 6.80 oz Acceptance Date: Thu 04/14/2022 Tracking #: 9405 5036 9930 0222 9044 51	1		\$0.00
Prepaid Mail Higganum, CT 06441 Weight: 0 lb 6.80 oz Acceptance Date: Thu 04/14/2022 Tracking #: 9405 5036 9930 0222 9044 75	1		\$0.00
Prepaid Mail Haddam, CT 06438 Weight: 0 lb 6.80 oz Acceptance Date: Thu 04/14/2022 Tracking #: 9405 5036 9930 0222 9044 68	1		\$0.00
Grand Total:			\$0.00

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