November 14, 2022

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

Regarding: Notice of Exempt Modification – AT&T Site CT5184 / FA# 10071146
Address: 108 Foxon Road, North Branford, CT 06471

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains a wireless telecommunications facility on an existing +/- 177' monopole at the above-referenced address, latitude 41.3285919, longitude -72.8188989. Said monopole is operated by SBA Towers, LLC.

AT&T desires to modify its existing telecommunications facility by adding three (3) antennas and swapping one (1) surge arrestor and accompanying feedlines as more particularly detailed and described on the enclosed Construction Drawings prepared by TEP Northeast, last revised November 1, 2022. The centerline height of the existing antennas is and will remain at 159 feet. . This modification may include B2, B5, B17, B14, B29, B30, B66, & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned off at various times.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: The Honorable Jeffrey Macmillen, Mayor of the Town of North Branford, as elected official, Eric Knapp, Zoning Enforcement Officer and Town Planner of the Town of North Branford, SBA Towers, LLC., as tower operator, and 108 Foxon Road, LLC, as property 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). Specifically:

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

2. The proposed modifications will not require an 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 modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated June 23, 2022, and prepared by Tower Engineering Solutions, enclosed herewith.*

For the foregoing reasons, AT&T 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,

Evan Renwick

Evan Renwick
Site Acquisition Specialist
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
erenwick@clinellc.com

Enclosures:
Exhibit 1 – Construction Drawings
Exhibit 2 – Property Card and GIS
Exhibit 3 – Structural Analysis
Exhibit 4 – Mount Analysis
Exhibit 5 – RF Emissions Analysis Report Evaluation
Exhibit 6 – Original Tower Approval
Exhibit 7 – Notice Delivery Confirmations

cc: The Honorable Jeffrey Macmillen, Mayor, Town of North Branford, elected official
Eric Knapp, Zoning Enforcement Officer and Town Planner, Town of Branford
SBA Towers, LLC, as tower operator
108 Foxon Road, LLC, as property owner

EXHIBIT 1

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • PROPOSED AT&T DUAL AIR ANTENNAS: AIR6449 B77D @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • PROPOSED AT&T SURGE ARRESTOR: DC9-48-60-24-8C-EV (TOTAL OF 1). • INSTALL AT&T (3) #6 AWG DC POWER CABLES & (1) #24 PAIRS OF FIBER RUNS. • INSTALL AT&T 14'-6" HEAVY DUTY V-FRAME SECTOR MOUNT (SITEPRO1 #VFA14-H10-2120) (TYP. OF 1 PER SECTOR, TOTAL OF 3). ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION: • INSTALL 6648 + XCEDE CABLE • INSTALL IDLE • INSTALL (6) NEW -48V RECTIFIERS • INSTALL (3) NEW STRINGS OF BATTERIES BELOW POWER PLANT. • INSTALL (1) NEW BATTERY CABINET WITH (2) STRINGS OF BATTERIES. ITEMS TO BE REMOVED: • EXISTING AT&T DIPLEXERS: DBCT108F1V92-1 (TYP. OF 1 PER SECTOR, TOTAL OF 3). ITEMS TO REMAIN: • (6) ANTENNAS, (8) RRU'S, (1) SURGE ARRESTOR, (6) 1-5/8" COAX, (2) #8 AWG DC TRUNKS & (1) #18 PAIR FIBER.
SITE ADDRESS:	108 FOXON ROAD NORTH BRANFORD, CT 06471
LATITUDE:	41.3285919° N, 41° 19' 42.93" N
LONGITUDE:	72.8188989° W, 72° 49' 8.03" W
TYPE OF SITE:	MONOPOLE / OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	176'-7"±
RAD CENTER:	157'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	B
GN-1	GENERAL NOTES	B
A-1	COMPOUND & EQUIPMENT PLANS	B
A-2	ANTENNA LAYOUT PLANS & ELEVATION	B
A-3	DETAILS	B
A-4	DETAILS	B
G-1	GROUNDING DETAILS	B
RF-1	RF PLUMBING DIAGRAM	B

SITE NUMBER: CTL05184

SITE NAME: EAST HAVEN

FA CODE: 10071146

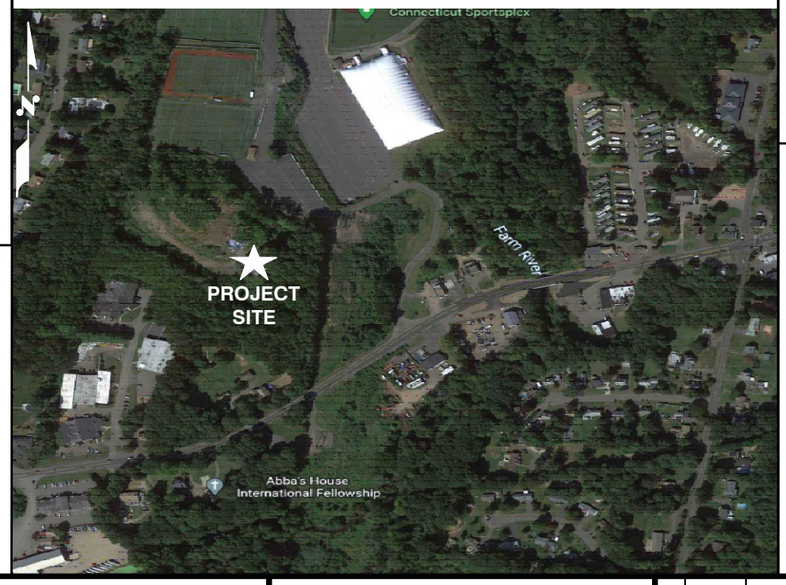
PACE ID: MRCTB053635,MRCTB053640, MRCTB055158

PROJECT: 5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

ISSUED FOR PERMITTING

VICINITY MAP

DIRECTIONS TO SITE:
START OUT GOING EAST ON ENTERPRISE DR TOWARD CAPITAL BLVD.TURN LEFT ONTO CAPITAL BLVD.TURN LEFT ONTO WEST ST.MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN.TAKE THE CT-80 EXIT, EXIT 8, TOWARD MIDDLETOWN AVE/NORTH BRANFORD/CT-17.TURN LEFT ONTO MIDDLETOWN AVE/CT-80. CONTINUE TO FOLLOW CT-80.108 FOXON RD, NORTH BRANFORD, CT 06471-1001, 108 FOXON RD IS ON THE LEFT.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES 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 AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

TEP NORTHEAST
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05184
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108 FOXON ROAD
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NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: EB

AT&T

TITLE SHEET
5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL05184	T-1	B

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

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

   CONTRACTOR – CENTERLINE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

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. TOUCH UP 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 AT&T 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 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL 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-H, STRUCTURAL STANDARDS FOR STEEL

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.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

TEP NORTHEAST
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05184
SITE NAME: EAST HAVEN
108 FOXON ROAD
NORTH BRANFORD, CT 06471
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: EB

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES

5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL05184	GN-1	B

NOTE:

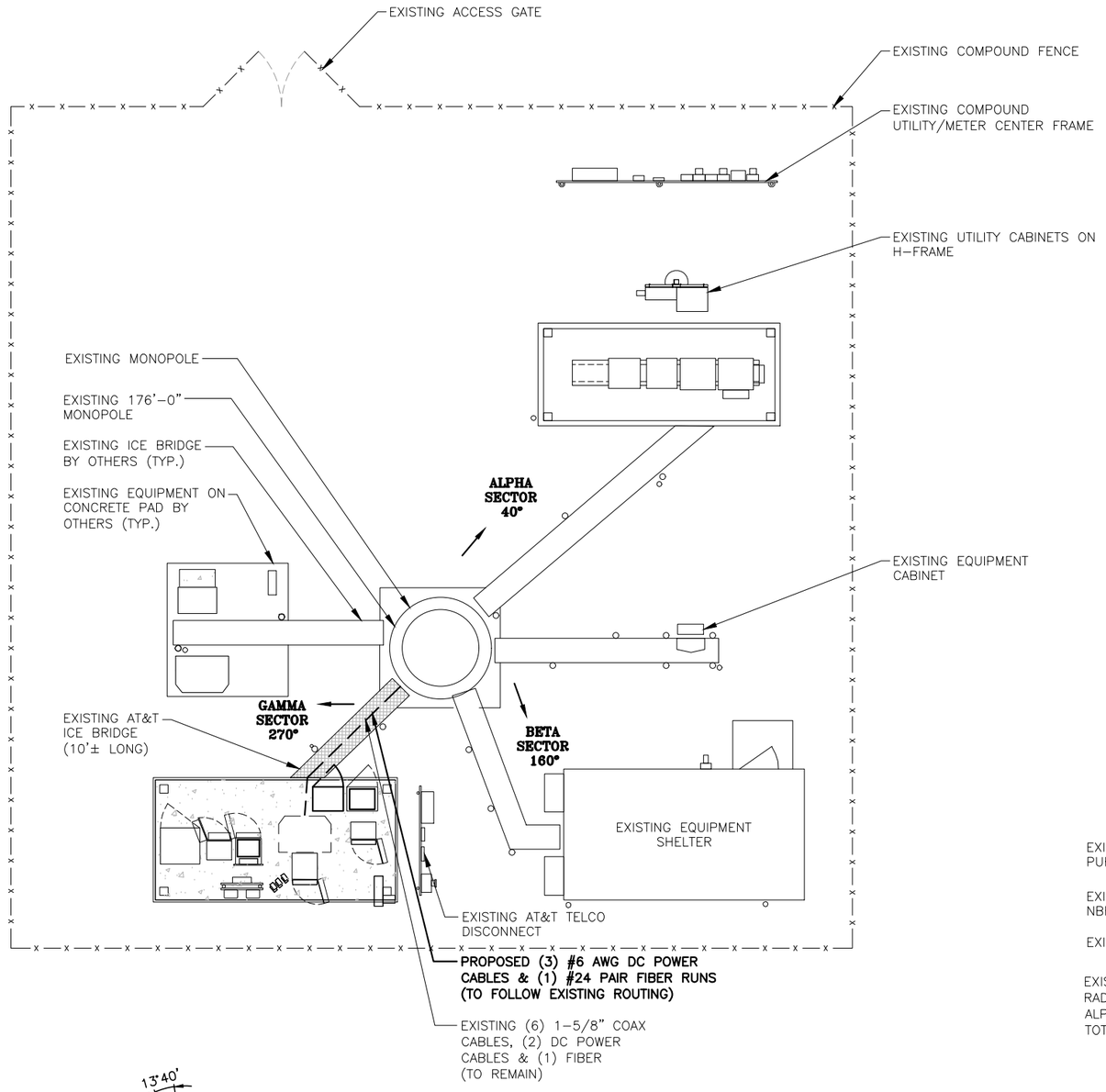
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

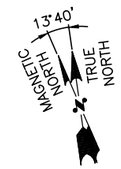
NOTE:

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

NOTE:

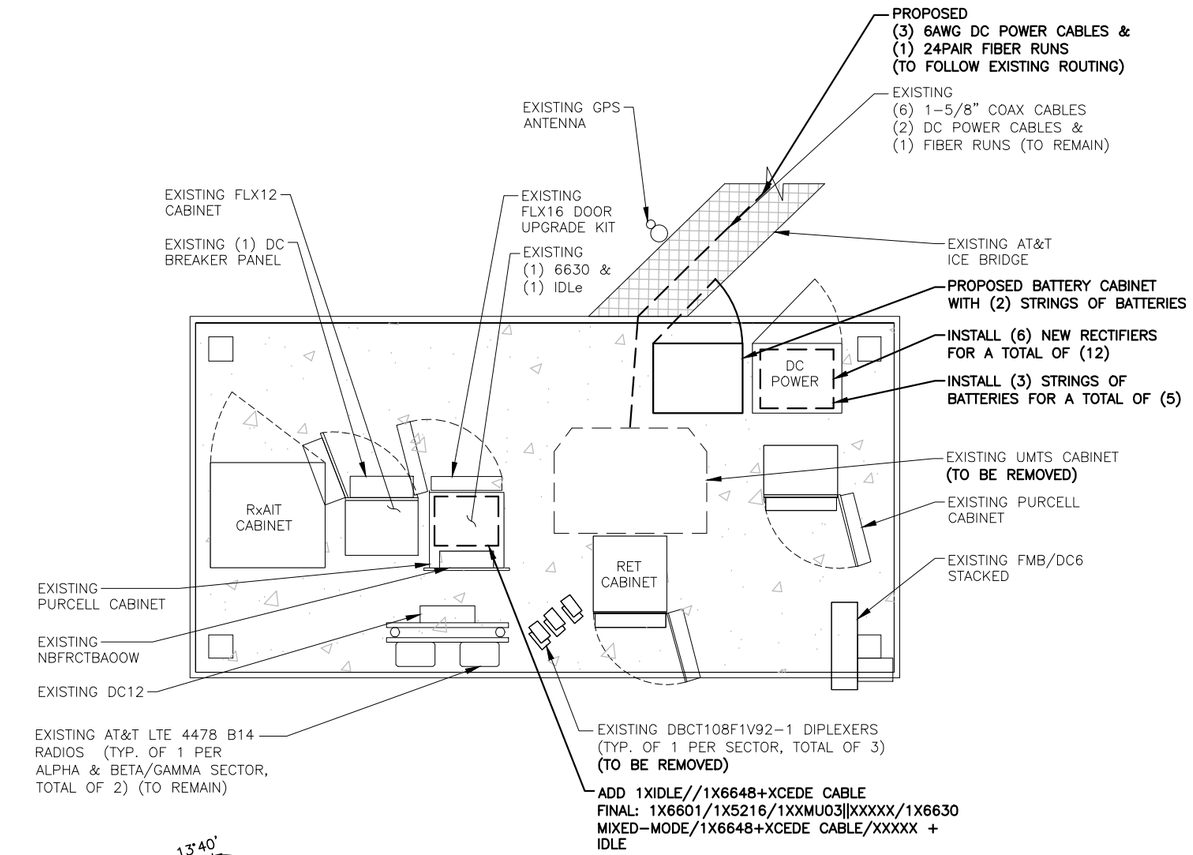
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TEP NORTHEAST,
DATED: OCTOBER 25, 2022 (REV.1)

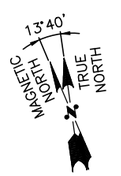




COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"





EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 3'-0" 6'-0"

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COMPOUND & EQUIPMENT PLANS
5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

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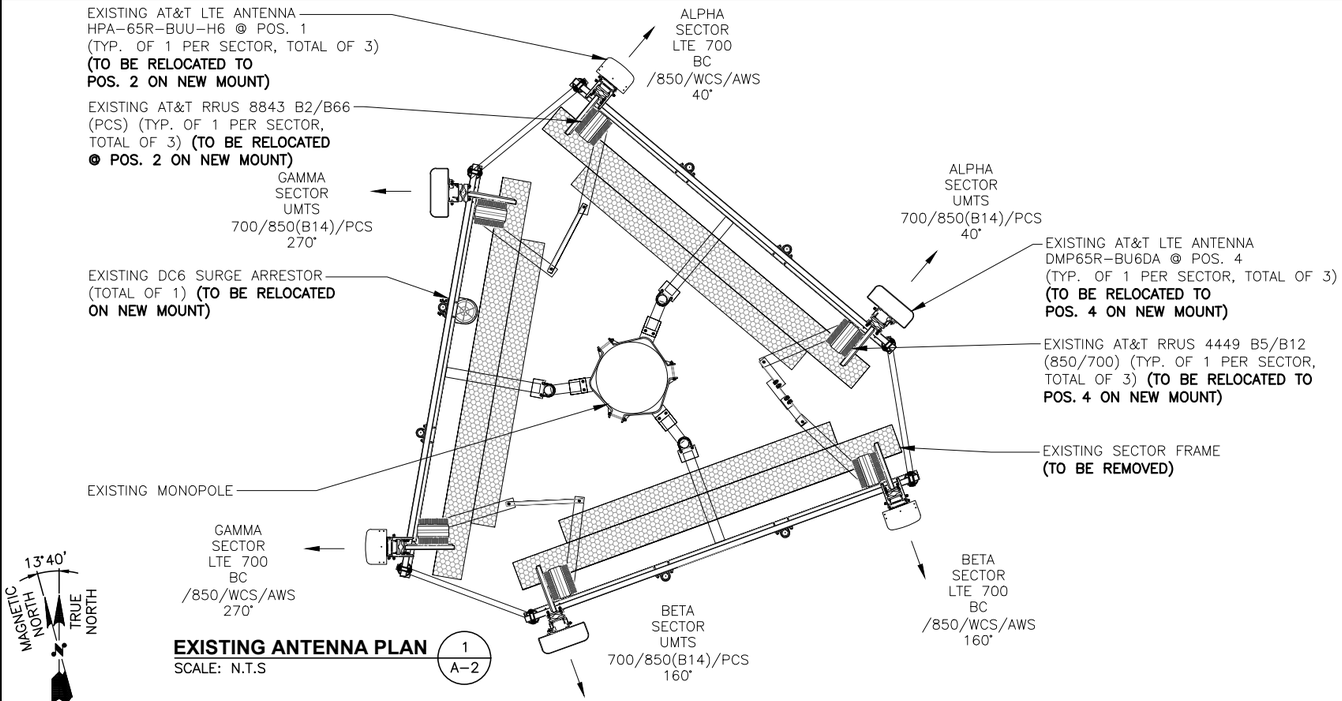
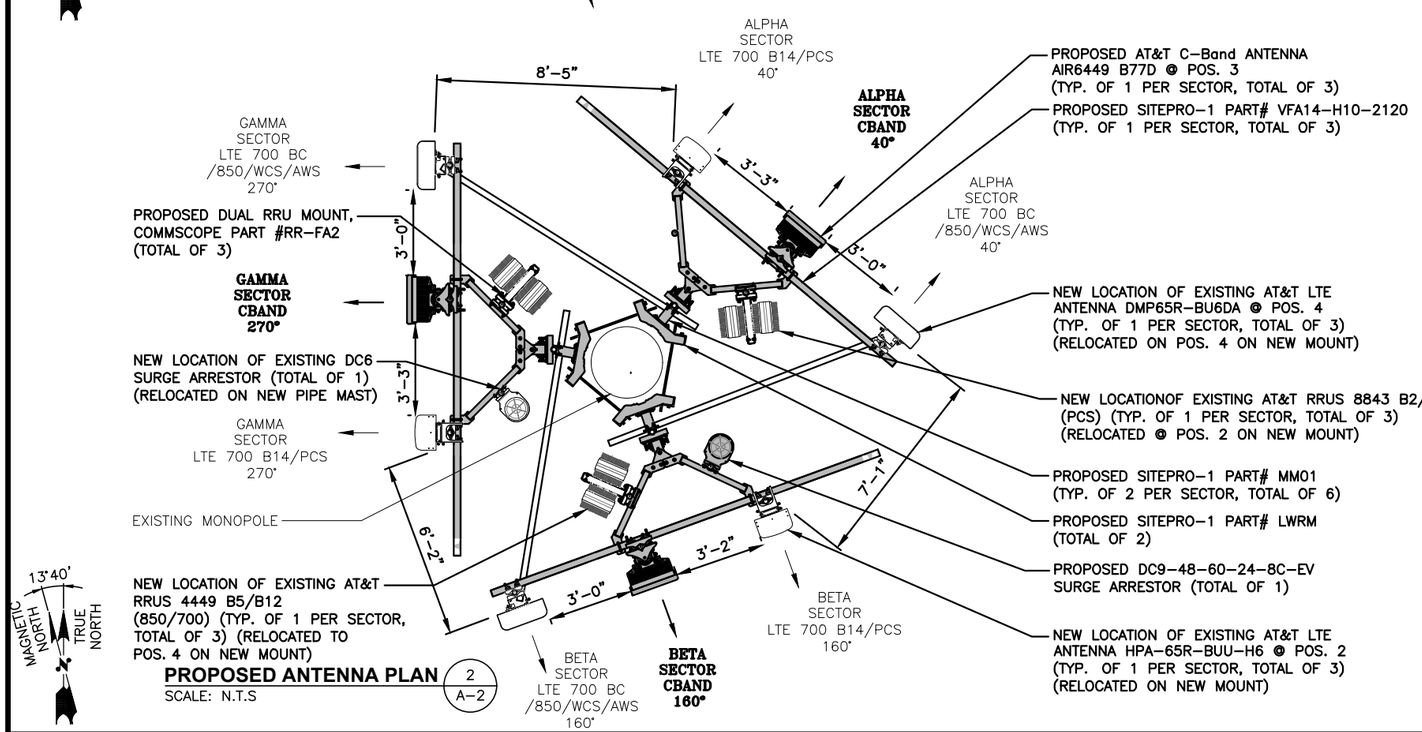
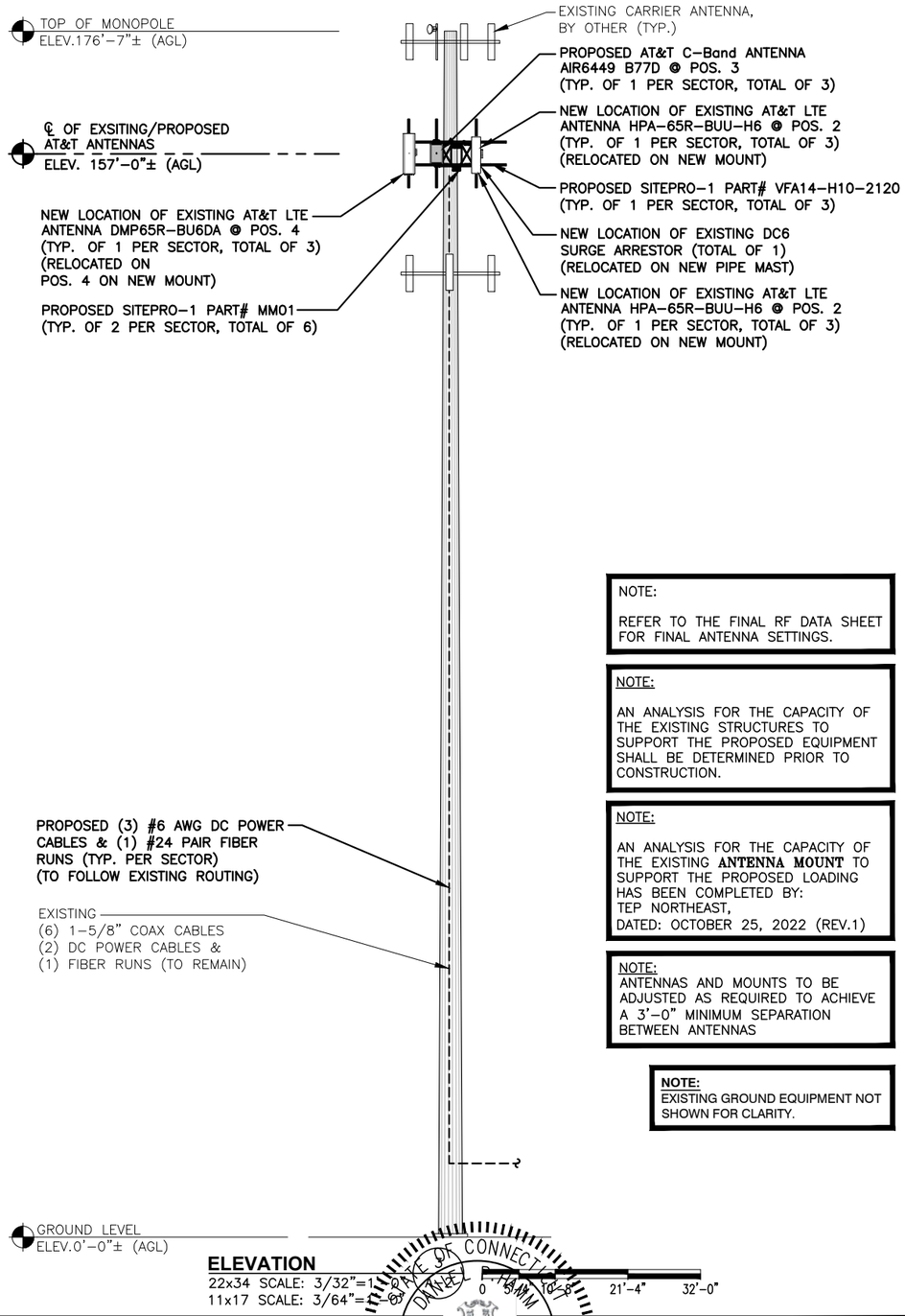


EXISTING ANTENNA PLAN 1 / A-2
SCALE: N.T.S



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



ELEVATION
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

NOTE:
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TEP NORTHEAST,
DATED: OCTOBER 25, 2022 (REV.1)

NOTE:
ANTENNAS AND MOUNTS TO BE ADJUSTED AS REQUIRED TO ACHIEVE A 3'-0" MINIMUM SEPARATION BETWEEN ANTENNAS

NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

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A	05/17/22	ISSUED FOR REVIEW	EB	AT	BPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: EB

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUT PLANS & ELEVATION
5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL05184	A-2	B

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	(2) 1–5/8 COAX	(P) (1) RAYCAP DC9–48–60–24–8C–EV
A2	EXISTING	LTE 700 B14/PCS	HPA–65R–BUU–H6	72"X14.8"X9"	157'–0"±	40°	–	(G)(E)(1) 4478 B14(700) (E)(1) 8843 B2 B66A (PCS/AWS)	–	**(P)(3) #6 AWG DC POWER & (P)(1) #24 PAIR FIBER (P)(1) Y–CABLE**	
A3	**PROPOSED**	**CBAND**	**AIR6449 B77D**	**30.4"X15.9"X8.1"**	**157'–0"±**	**40°**	–	–	–	–	
A4	EXISTING	LTE 700 BC /850/WCS/AWS	DMP65R–BU6DA	71.2"X20.7"X7.7"	157'–0"±	40°	–	(E)(1) 4449 B5/B12 (700/850)	–	**(P)(1) Y–CABLE**	
B1	–	–	–	–	–	–	–	–	–	(2) 1–5/8 COAX	I
B2	EXISTING	LTE 700 B14/PCS	HPA–65R–BUU–H6	72"X14.8"X9"	157'–0"±	160°	–	(G)(E)(1) 4478 B14(700) (E)(1) 8843 B2 B66A (PCS/AWS)	–	**(P)(1) Y–CABLE**	
B3	**PROPOSED**	**CBAND**	**AIR6449 B77D**	**30.4"X15.9"X8.1"**	**157'–0"±**	**160°**	–	–	–	–	
B4	EXISTING	LTE 700 BC /850/WCS/AWS	DMP65R–BU6DA	71.2"X20.7"X7.7"	157'–0"±	160°	–	(E)(1) 4449 B5/B12 (700/850)	–	**(P)(1) Y–CABLE**	
C1	–	–	–	–	–	–	–	–	–	(2) 1–5/8 COAX	(E) (1) RAYCAP DC6–48–60–18–8F
C2	EXISTING	LTE 700 B14/PCS	HPA–65R–BUU–H6	72"X14.8"X9"	157'–0"±	270°	–	(E)(1) 8843 B2 B66A (PCS/AWS)	–	(E)(2) DC POWER & (E)(1) FIBER **(P)(1) Y–CABLE**	
C3	**PROPOSED**	**CBAND**	**AIR6449 B77D**	**30.4"X15.9"X8.1"**	**157'–0"±**	**270°**	–	–	–	–	
C4	EXISTING	LTE 700 BC /850/WCS/AWS	DMP65R–BU6DA	71.2"X20.7"X7.7"	157'–0"±	270°	–	(E)(1) 4449 B5/B12 (700/850)	–	**(P)(1) Y–CABLE**	

FINAL ANTENNA SCHEDULE (1 / A–3)
SCALE: N.T.S

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
(E)(G)(2)	4478 B14 (700)	18.1"x13.4"x8.3"
(E)(3)	8843 B2/B66 (PCS/AWS)	14.9"x13.2"x10.9"
(E)(3)	4449 B5/B12 (850/700)	17.9"x13.2"x10.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

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

NOTE:

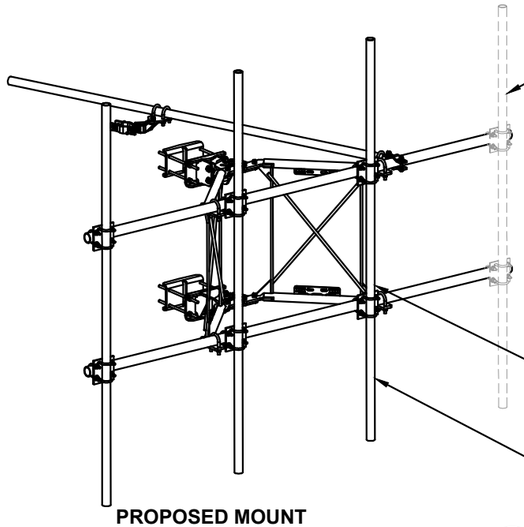
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TEP NORTHEAST,
DATED: OCTOBER 25, 2022 (REV.1)

NOTE:

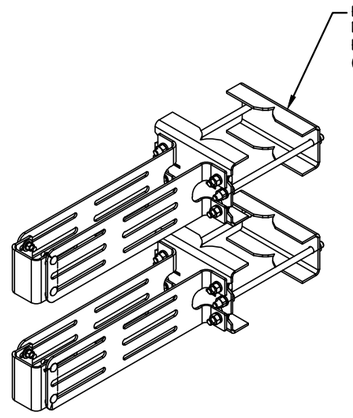
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

PROPOSED BATTERY CABINET WITH (2) STRINGS OF BATTERIES

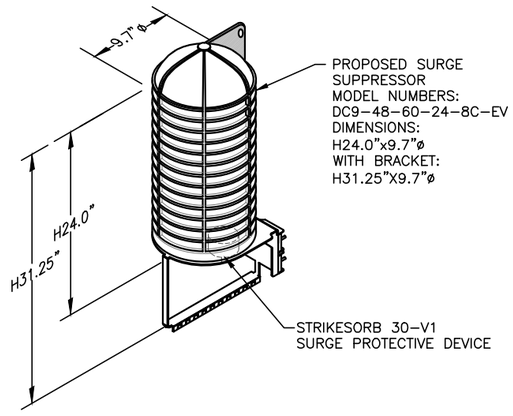
PROPOSED BATTERY CABINET DETAIL (4 / A–3)
SCALE: N.T.S



PROPOSED MOUNT (SITEPRO1 #VFA14-H10-2120) DETAIL (2 / A–3)
22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"



PROPOSED BACK TO BACK MOUNT COMMSCOPE (RR-FA2) (3 / A–6)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (5 / A–3)
SCALE: N.T.S

TEP NORTHEAST
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05184
SITE NAME: EAST HAVEN
108 FOXON ROAD
NORTH BRANFORD, CT 06471
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: EB

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T
DETAILS
5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL05184	A–3	B

NOTE:

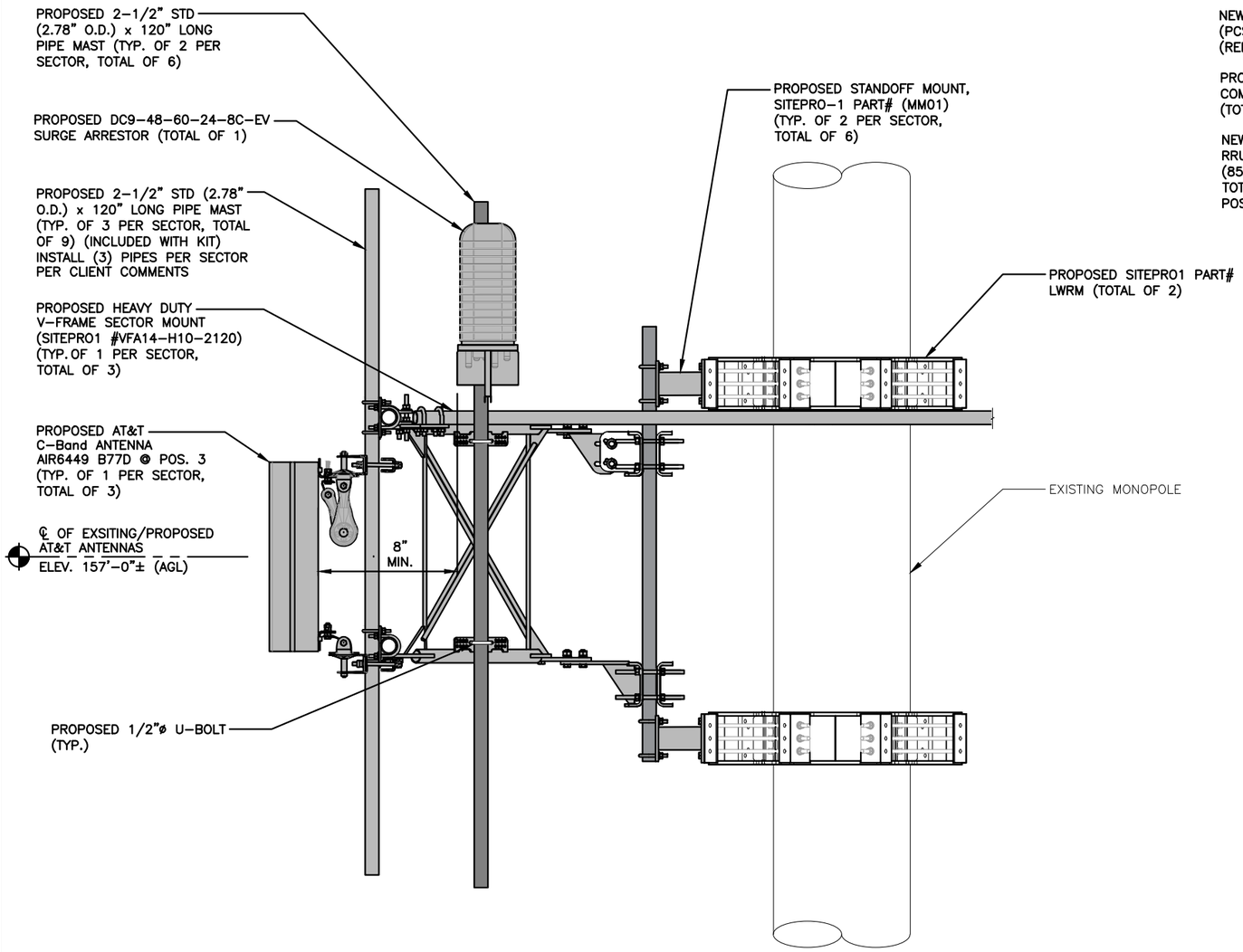
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TEP NORTHEAST,
DATED: OCTOBER 25, 2022 (REV.1)

NOTE:

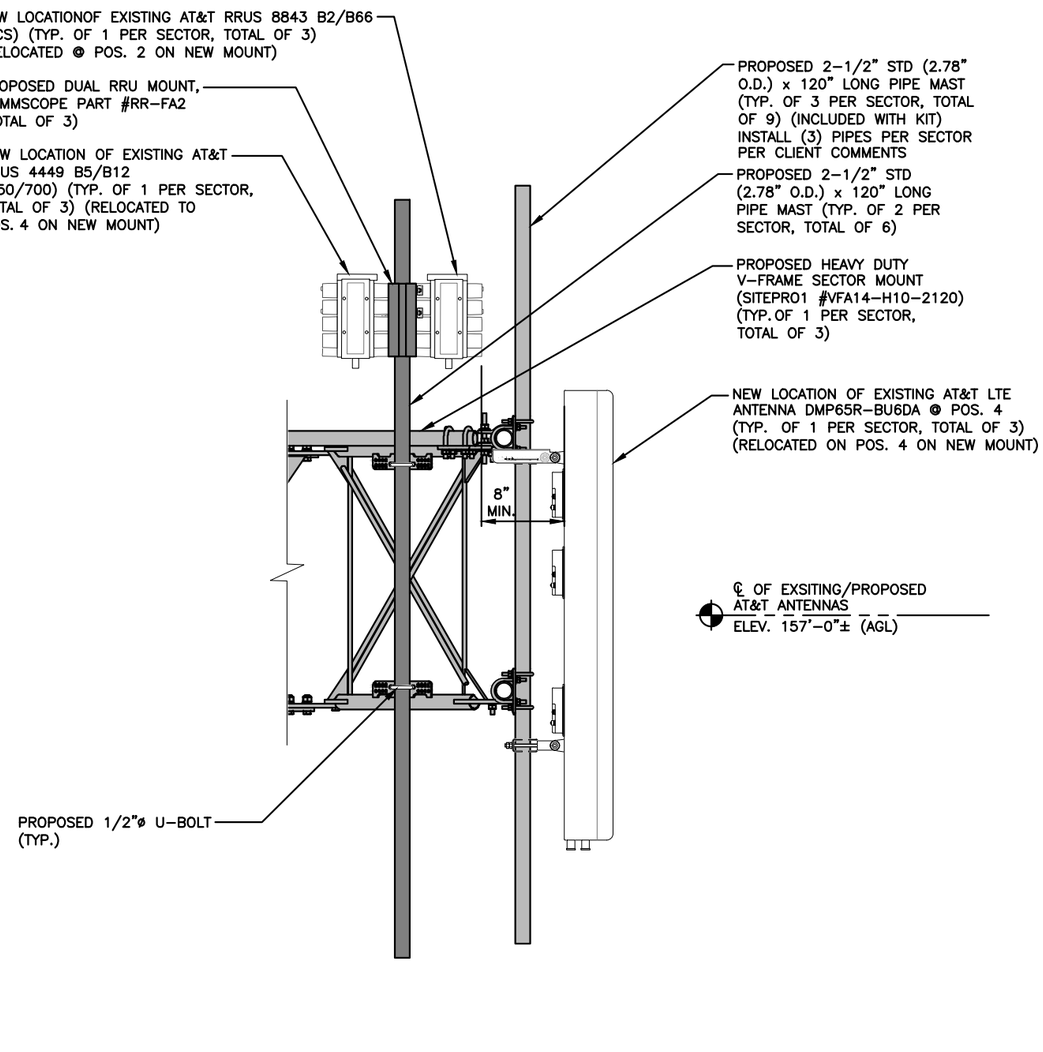
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



PROPOSED ANTENNA @ POS. 3 (TYP. EACH SECTOR) (1 / A–4)

22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"

0 0'–6" 1'–0" 2'–0" 3'–0"



PROPOSED ANTENNA @ POS. 4 (TYP. EACH SECTOR) (2 / A–4)

22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"

0 0'–6" 1'–0" 2'–0" 3'–0"

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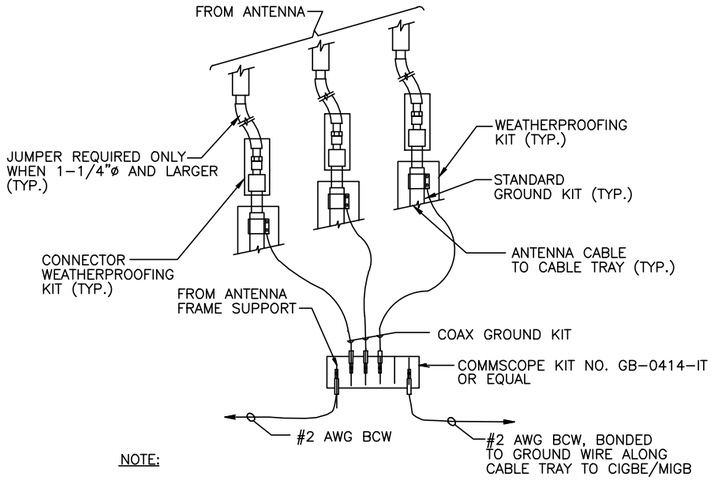
STATE OF CONNECTICUT · DANIEL P. HAMM · No. 21178 · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS

5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL05184	A–4	B



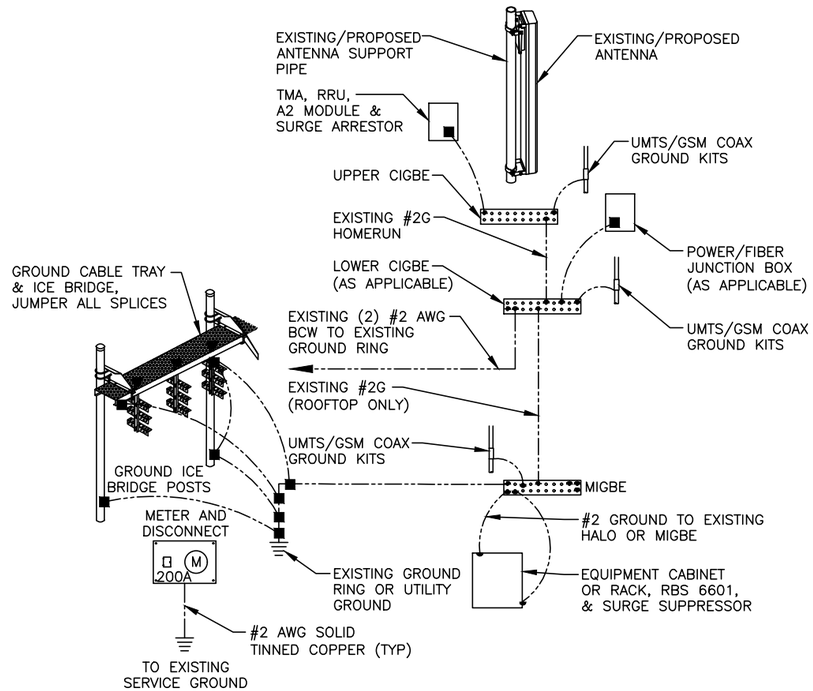
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

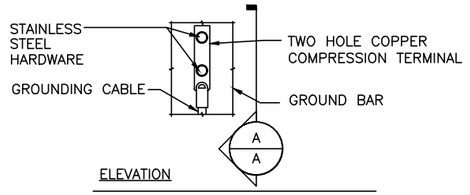
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

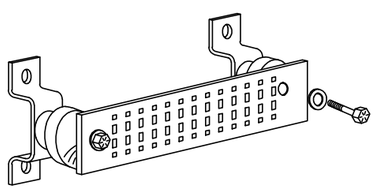
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

TEP NORTHEAST
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
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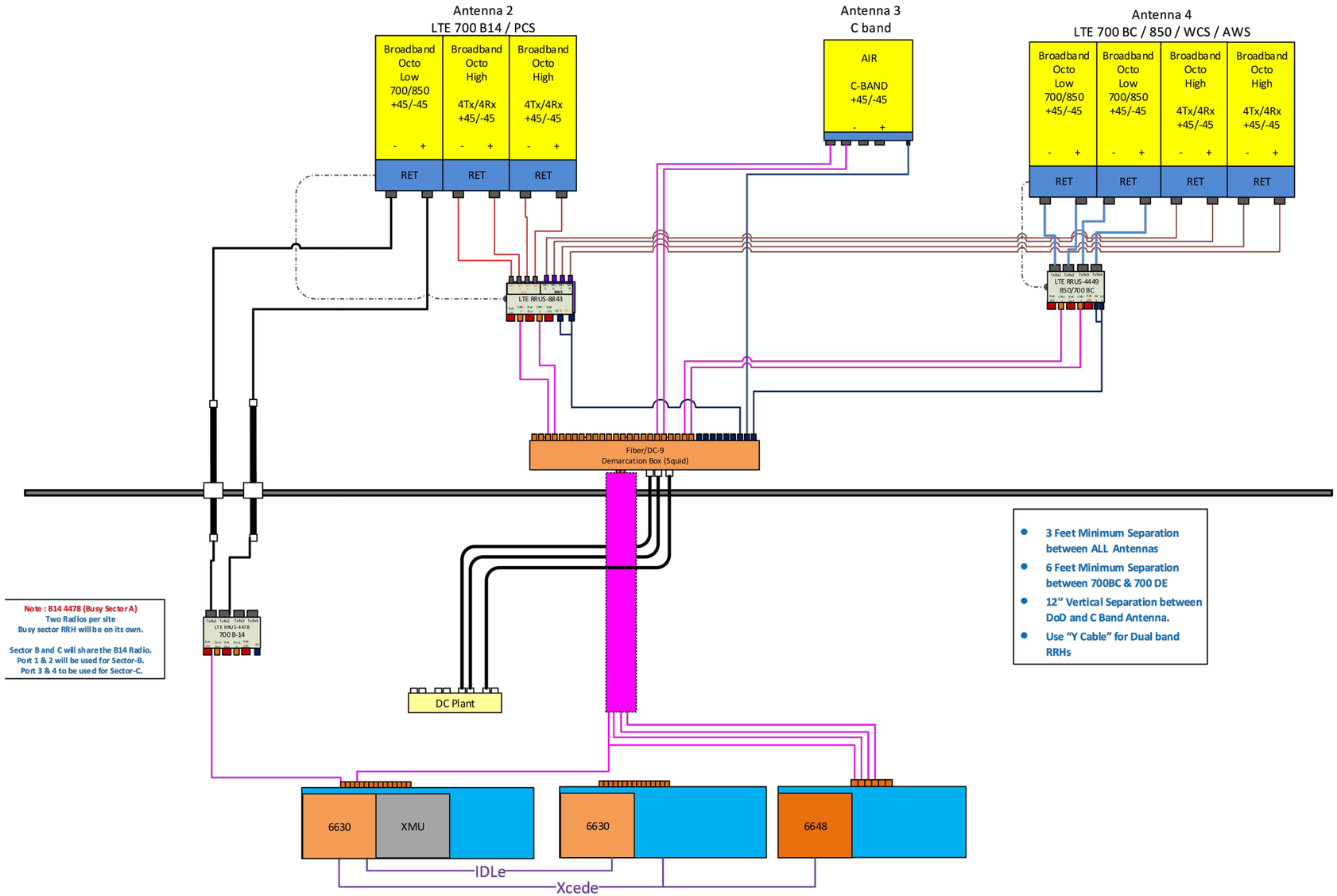
STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL05184	G-1	B



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

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

TEP NORTHEAST
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: EB

AT&T

RF PLUMBING DIAGRAM
5G NR RADIO, 5G NR ACTIVATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL05184	RF–1	B

EXHIBIT 2

Property Location 150 FOXON RD | Map ID 14/ 14/ / / | Bldg Name | State Use 3880
Vision ID 889 | Account # 000912 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 1 | Print Date

CURRENT OWNER

108 FOXON ROAD LLC

250 TOTOKET RD

NORTH BRANF CT 06471-1035

TOPO	UTILITIES	STRT / ROAD	LOCATION
5 Steep		1 Paved	3 Rural
8 Ledge			

SUPPLEMENTAL DATA

Alt Prcl ID	000912	Block	
Sub-Div		Fire	
Need Lette		Schoo	
Ward		Heart	
Prec.		Freeze	
Tract	1861		
GIS ID	889	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Assessed	Assessed
COM LAND	2-1	338,600	237,100
		Total 338,600	237,100

6099

NORTH
BRANFORD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
108 FOXON ROAD LLC	0288	0237	02-09-2000	U	V	0	
CANDELORA SALVATORE A +	0288	0236	02-09-2000	U	V	0	
CANDELORA SALVATORE A	0253	0851	07-22-1996	Q	V	125,000	00
CORBIN-SMITH ASSOCIATES	0136	0602	03-19-1981			0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed V	Year	Code	Assessed
2019	2-1	237,100	2018	2-1	237,100	2017	2-1	237,100
	Total	237100		Total	237100		Total	237100

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
3500			C	RP

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	0
Appraised Xf (B) Value (Bldg)	0
Appraised Ob (B) Value (Bldg)	0
Appraised Land Value (Bldg)	338,600
Special Land Value	0
Total Appraised Parcel Value	338,600
Valuation Method	C
Total Appraised Parcel Value	338,600

NOTES

CT SPORTS PLEX ENTRANCE -INCLUDES
(P/O GOLF DRIVING RANGE)
SEE 22/6-1 FOR PRO SHOP
10/1/00 CELL TOWER
11/21/00 294-643 LNDLEAS
TOWER ON ACCT-09122 SBA
10/1/02 ADD TELCOMM ELEC BLDGS = PP
10/1/07 ADD NEXTEL 12X20 ELCB-NOT ON PP
NEW CABINET AND ANTENNA '10

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments
15-95B	12-11-2014		Remove 3 ante	11,500		100		Remove 3 coax cables plus as
12-0251	10-16-2012	RE	Remodel	20,000		100		ALTERATIONS TO EXISTING
12-0087	08-23-2012	EL	Electric	800		100	10-01-2012	400 AMP + BREAKERS.
10-0020	02-17-2010	CM	Commercial	20,000		100		ANTENNA TOWER, REMV, R
09-0071	05-08-2009	CM	Commercial	20,000		100		CABINET & 3 ANTENNAS
6654	11-02-2001	CM	Commercial	83,900		100		TELECOMM BLD
6598	10-10-2001	CM	Commercial	34,000		100		TELCOMM BLDG

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result
12-29-2010	MLB			46	Change Value Chang
12-19-2005	BT			43	Change Reinspection
08-03-2000	TM				

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	Size Adj	Site Index	Cond.	Nbhd.	Nbhd. Adj	Notes	Location Adjustment		Adj Unit P	Land Value
1	3880	OTHR OUTDR	I3		13.270	AC	15,000	1.00000	0	1.00		1.000	POWER LINES/TOPO		1.0000	15,000	199,100
1	3880	OTHR OUTDR			0.230	AC	652,174	0.93000	0	1.00		1.000	CELL SITE		1.0000	606,521.8	139,500
		Total Card Land Units			13.500	AC	Parcel Total Land Area			13.5000					Total Land Value		338,600

Property Location	150 FOXON RD		Map ID	14/ 14/ / /		Bldg Name	State Use 3880
Vision ID 889		Account # 000912		Bldg # 1	Sec # 1 of 1	Card # 1 of 1	Print Date

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	94	Outbuildings
Model	00	Vacant
Grade:		
Stories:		
Occupancy		
Exterior Wall 1		
Exterior Wall 2		
Roof Structure:		
Roof Cover		
Interior Wall 1		
Interior Wall 2		
Interior Flr 1		
Interior Flr 2		
Heat Fuel		
Heat Type:		
AC Type:		
Total Bedrooms		
Total Bthrms:		
Total Half Baths		
Total Xtra Fixtrs		
Total Rooms:		
Bath Style:		
Kitchen Style:		

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd	Description

CONDO DATA

Parcel Id		C		Owne	0.0
		B		S	

Adjust Type	Code	Description	Factor%
Condo Flr			
Condo Unit			

COST / MARKET VALUATION

Building Value New	0
Year Built	0
Effective Year Built	0
Depreciation Code	
Remodel Rating	
Year Remodeled	
Depreciation %	
Functional Obsol	0
External Obsol	0
Trend Factor	1
Condition	
Condition %	0
Percent Good	
RCNLD	0
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	

No Sketch

OB - OUTBUILDING & YARD ITEMS(L) / XF - BUILDING EXTRA FEATURES(B)

Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Gd	Grade	Grade Adj.	Appr. Value

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
	Ttl Gross Liv / Lease Area	0	0			

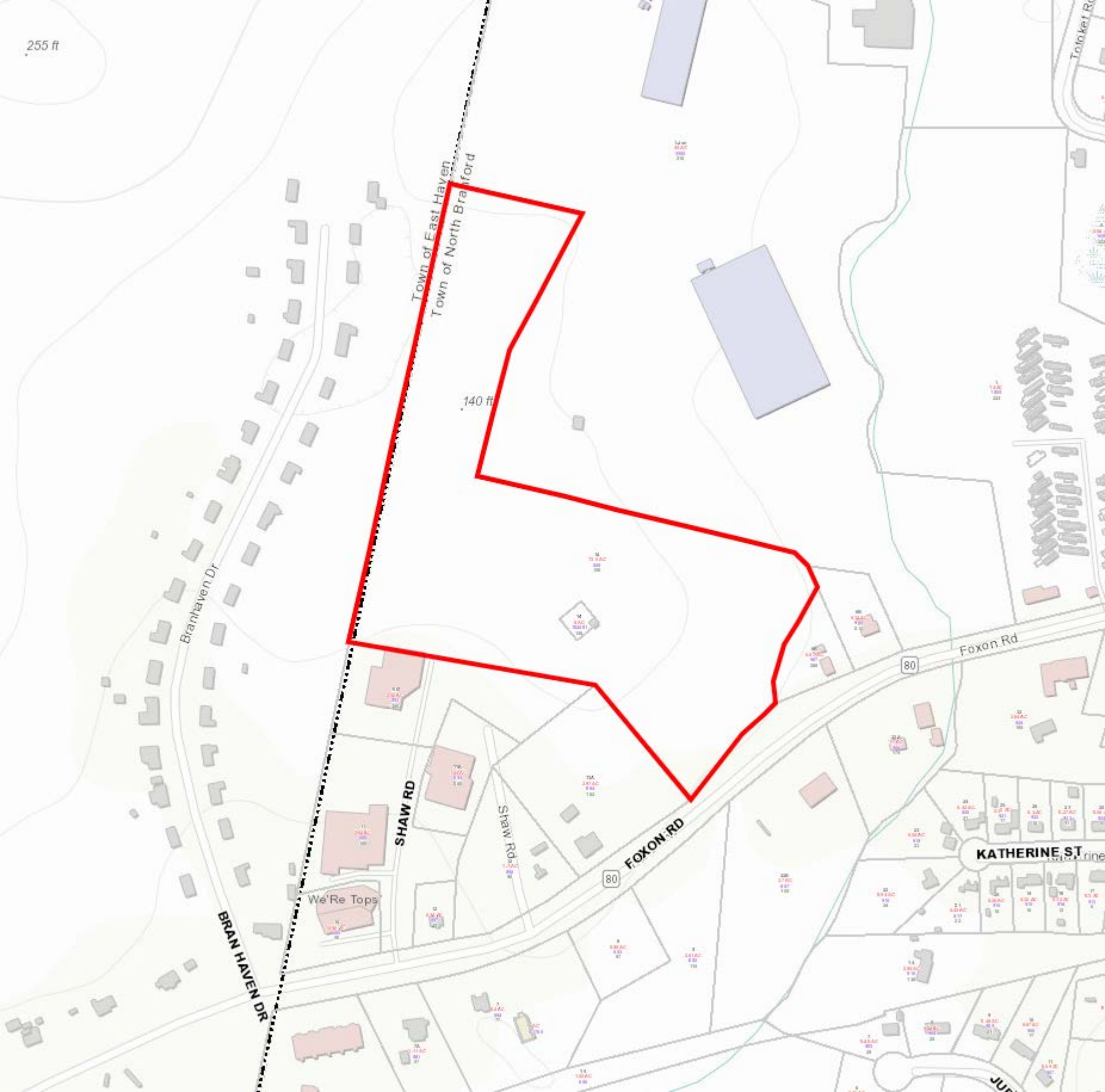
255 ft
Town of East Haven
Town of North Branford
140 ft
Branhaven Dr
Foxon Rd
80
SHAW RD
Straw Rd
FOXON RD
80
KATHERINE ST
We'Re Tops
BRAN HAVEN DR

EXHIBIT 3

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

Structural Analysis Report

Existing 175 ft Nudd Corporation Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT03110-S
Customer Site Name: North Branford
Carrier Name: AT&T (App#: 200322, V#2)
Carrier Site ID / Name: CT5184 / East Haven
Site Location: 108 Foxon Road
North Branford, Connecticut
New Haven County
Latitude: 41.328208
Longitude: -72.819063

Exp. 01/31/2024

06/23/2022

Analysis Result:

Max Structural Usage: 73.9% [Pass]

Max Foundation Usage: 37% [Pass]

Additional Usage Caused by Mount Modification: +3.5%

Report Prepared By : Mariana Franco

Introduction

The purpose of this report is to summarize the analysis results on the 175 ft Nudd Corporation 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	Fred A. Nudd Corporation, Project 7735: #10125-053, original design drawing dated September, 2000
Foundation Drawing	Fred A. Nudd Corporation, Project 7735: #10125-053, original design drawing dated September, 2000
Geotechnical Report	Jaworski Geotech, Inc. Geotechnical Report, dated 06/01/2000
Modification Drawings	Paul J. Ford and Company, Project # 41702-0001, post-modification calculations dated 05/10/2002
Mount Analysis	Hudson Design Group LLC Site# CT5184 Dated: 06/01/22

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 130.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 101.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft.

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	175.0	3	RFS APXVTM14-C-120 - Panel	(3) T-Arms w/ work Platform	(4) 1 1/4"	Sprint
2		3	RFS APXVSPP18-C-A20 - Panel			
3		3	ALU 800 MHz RRU			
4		3	ALU 1900MHz RRU			
5		3	ALU TD-RRH8x20-25			
6		3	ALU 800 MHz Filter			
7		4	RFS ACU-A20-N			
	157.0	6	Allgon 7184 Panel	(3) T-Arm w/ Platform	(9) 1-5/8" (1) 3/8" Fiber (2) 1/2" DC	AT&T
		3	CCI HPA-65R-BUU-H6 Panel			
		3	CCI DMP65R-BU6DA Panel			
		6	Powerwave LGP 21401			
		6	Powerwave 7020 RET			
		3	Ericsson RRUS-11			
		3	Ericsson RRUS 8843 B2/B66A			
		3	Ericsson RRUS 4449 B5/B12			
		1	Raycap DC6-48-60-18-8F			
19	141.0	3	Ericsson Air 6449 B41 Panel	(1) Low Profile Platform w/ SUPPORT RAIL & V-Bracing & Connect Kit	(9) 1-5/8" Coax (4) 1-5/8" Fiber	T-Mobile
20		3	AIR32 KRD901146-1_B66A_B2A			
21		3	RFS APXVAALL24-43-U-NA20 Panel			
22		3	Ericsson KRY 112 144/1 TMA			
23		3	Commscope SDX1926Q-43 DIplexeer			
24		3	Ericsson Radio 4449 B71+B85			
25		3	Ericsson 4415 B25			
26	75.0	1	GPS	Flush Mount	(1) 1/2"	Sprint

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
8	158.8	3	Ericsson Air6419 N77G - Panel	(3) T-Arm w/ Platform + (1) Sitepro 1 PRK-SFS-L + (1) Sitepro 1 PRK-1245L + (6) Stiff arms	(3) 0.92" DC Power (9) 1-5/8" (2) 1/2" DC Power (1) 1/2" Fiber (1) 3/8" Fiber	AT&T
9	157.0	3	Cci OPA65R-BU6DA - Panel			
10		3	Ericsson 4478 B14			
11		1	Raycap DC9-48-60-24-8C-EV			
12		3	CCI DMP65R-BU6DA - Panel			
13		3	Ericsson RRUS 8843 B2 B66A			
14		3	Ericsson RRUS 4449 B5/B12			
15		6	Powewave LGP21401 TMA			
16		1	Raycap DC6-48-60-18-8F			
17		6	Powerwave 7020.00 RET			
18	155.2	3	Ericsson Air6449 N77D - Panel			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**73.9%**	**25.6%**	**52.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	4695.2	39.0	84.8

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.1672 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

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

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

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

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

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

Usage Diagram - Max Ratio 73.87% at 18.0ft

Structure:	CT03110-S-SBA	**Code:**	EIA/TIA-222-G	6/23/2022
Site Name:	North Branford	**Exposure:**	C	
Height:	175.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

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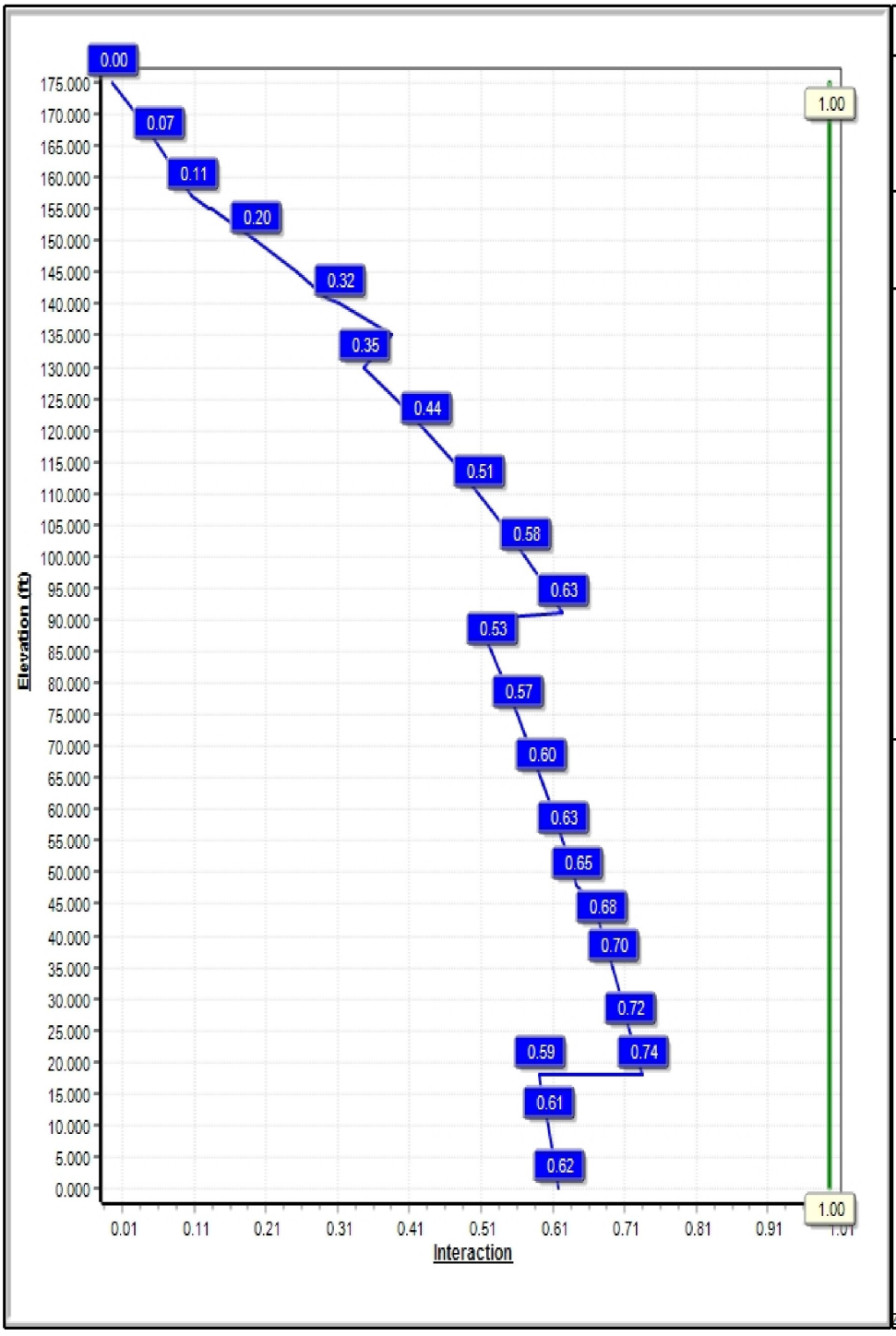
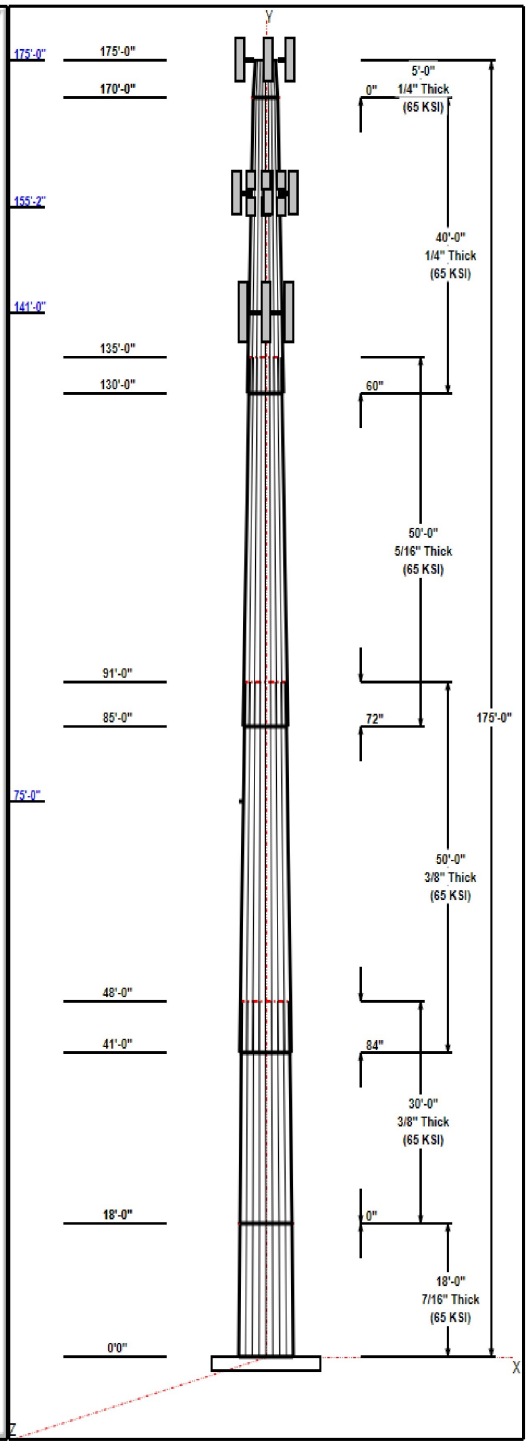
Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 101 mph Wind

Iterations: 24





Structure: CT03110-S-SBA

Type: Tapered
Site Name: North Branford
Height: 175.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.24214

6/23/2022

Tower Engineering Solutions

Shaft Properties

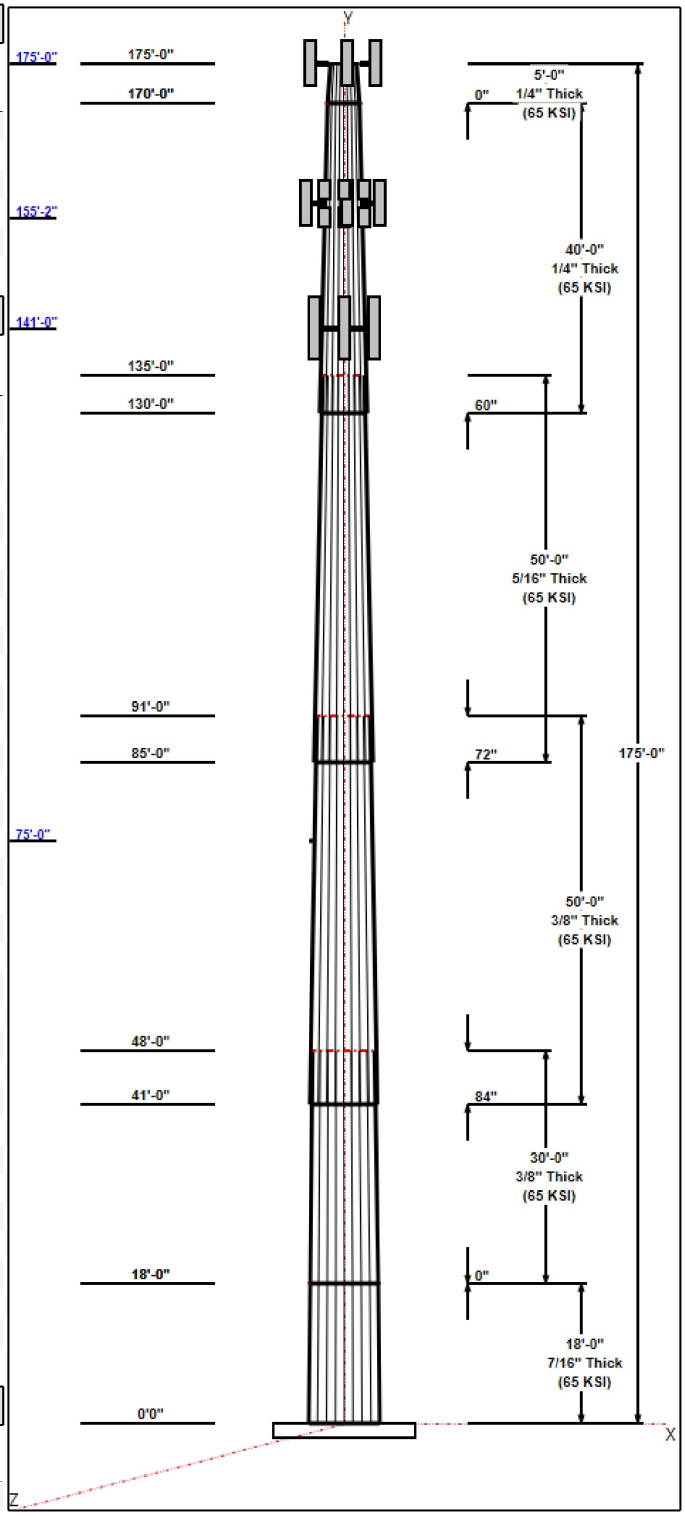
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	18.00	60.14	64.50	0.438		0.24214	65
2	30.00	52.88	60.14	0.375	Butt	0.24214	65
3	50.00	43.22	55.32	0.375	Slip	0.24214	65
4	50.00	33.19	45.29	0.313	Slip	0.24214	65
5	40.00	25.21	34.90	0.250	Slip	0.24214	65
6	5.00	24.00	25.21	0.250	Butt	0.24214	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
175.00	175.00	3	APXVTM14-C-120	Sprint
175.00	175.00	3	APXVSPP18-C-A20	Sprint
175.00	175.00	3	ALU 800 MHz RRU	Sprint
175.00	175.00	3	ALU 1900MHz RRU	Sprint
175.00	175.00	3	TD-RRH8x20-25	Sprint
175.00	175.00	3	800 MHz Filter	Sprint
175.00	175.00	4	ACU-A20-N	Sprint
175.00	175.00	3	T-Arm w/ work Platform	Sprint
158.80	158.80	3	AIR 6419 B77G	AT&T
157.00	157.00	3	OPA65R-BU6DA	AT&T
157.00	157.00	3	B14 4478	AT&T
157.00	157.00	1	DC9-48-60-24-8C-EV	AT&T
157.00	157.00	1	(3) SFS-H-L (V-Braces)	AT&T
157.00	157.00	1	PRK-1245 (kicker kit)	AT&T
157.00	157.00	1	(3) Stabilizer Kit (12' FW)	AT&T
157.00	157.00	3	DMP65R-BU6DA	AT&T
157.00	157.00	3	Ericsson RRUS 8843	AT&T
157.00	157.00	3	Ericsson RRUS 4449	AT&T
157.00	157.00	3	T-Arm w/ Platform	AT&T
157.00	157.00	6	Powerwave LGP 21401	AT&T
157.00	157.00	1	Raycap DC6-48-60-18-8F	AT&T
157.00	157.00	6	Powerwave 7020 RET	AT&T
155.20	155.20	3	AIR 6449 B77D	AT&T
141.00	141.00	3	KRY 112 144	T-Mobile
141.00	141.00	1	Support rail / End	T-Mobile
141.00	141.00	3	APXVAALL24-43-U-NA20	T-Mobile
141.00	141.00	3	AIR6449 B41	T-Mobile
141.00	141.00	3	AIR32	T-Mobile
141.00	141.00	3	SDX1926Q-43	T-Mobile
141.00	141.00	3	4449 B71 + B85	T-Mobile
141.00	141.00	3	RRUS 4415 B25	T-Mobile
141.00	141.00	1	(3) SFS-H (V-Braces)	T-Mobile
141.00	141.00	1	Low Profile Platform	T-Mobile
75.00	75.00	1	GPS	Sprint

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	175.00	Outside	1 1/4" Coax	Sprint
0.00	175.00	Outside	Safety Cable	
0.00	175.00	Outside	Step bolts (ladder)	
0.00	157.00	Inside	0.92" DC	AT&T
0.00	157.00	Inside	1-5/8" Coax	AT&T
0.00	157.00	Inside	1/2" DC	AT&T



0.00	157.00	Inside	1/2" Fiber	AT&T
0.00	157.00	Inside	3/8" Fiber	AT&T
0.00	147.00	Inside	1-5/8" Coax	T-Mobile
0.00	147.00	Inside	1-5/8" Fiber	T-Mobile
0.00	75.00	Inside	1/2" Coax	Sprint

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
24	2.00" A687	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	84.5	50.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	4695.2	39.0	55.1
0.9D + 1.6W 101 mph Wind	4650.1	39.0	41.3
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1257.8	10.5	84.8
1.0D + 1.0W 60 mph Wind	1030.1	8.6	46.0

Structure: CT03110-S-SBA - Coax Line Placement

Type: Monopole
Site Name: North Branford
Height: 175.00 (ft)

6/23/2022

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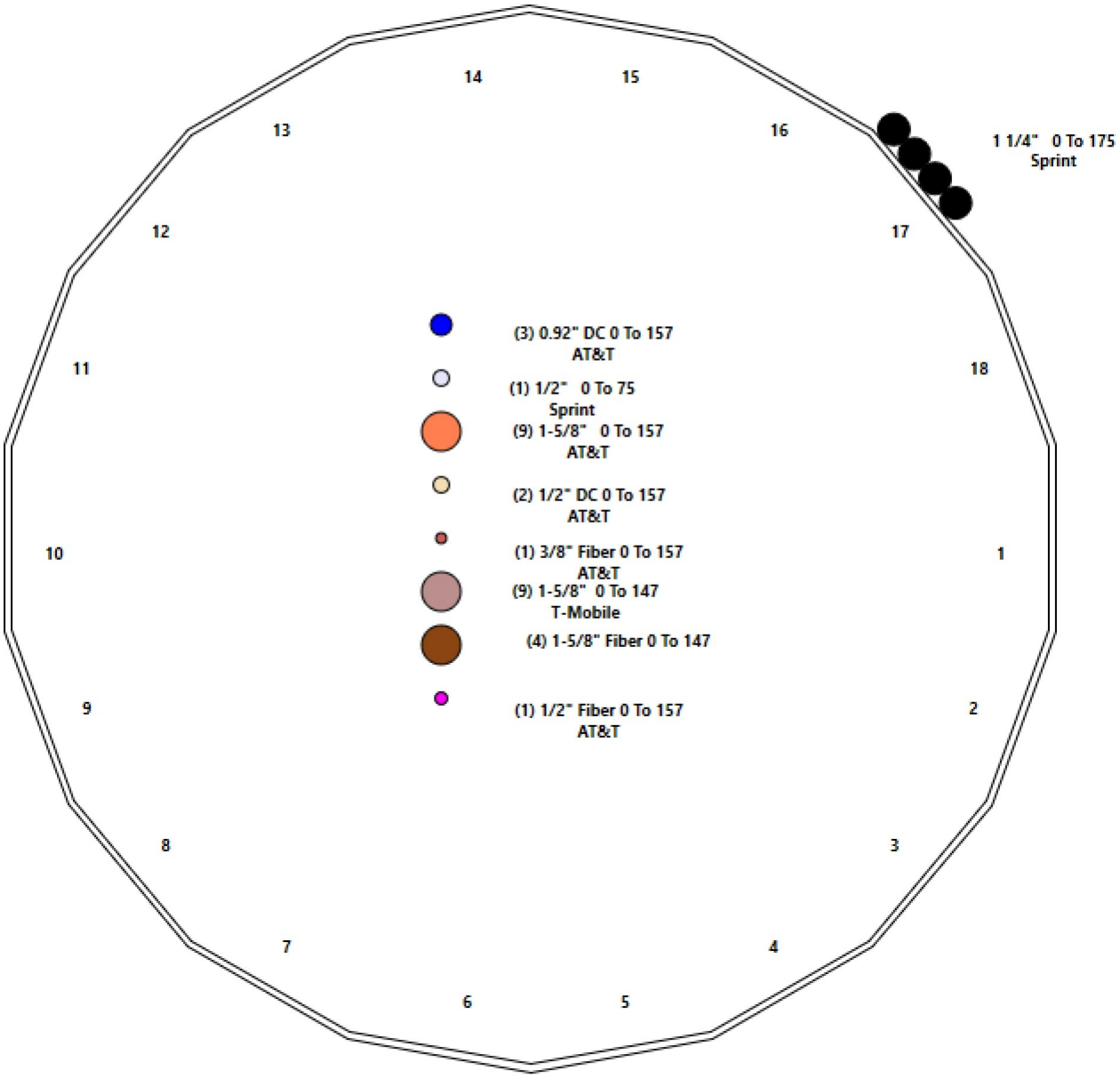

Shaft Properties

Structure:	CT03110-S-SBA		**Code:**	TIA-222-G	6/23/2022
Site Name:	North Branford		**Exposure:**	C	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	18.000	0.4375	65		0.00	5,263
2	18	30.000	0.3750	65	Flange	0.00	6,820
3	18	50.000	0.3750	65	Slip	84.00	9,901
4	18	50.000	0.3125	65	Slip	72.00	6,569
5	18	40.000	0.2500	65	Slip	60.00	3,219
6	18	5.000	0.2500	65	Flange	0.00	329
					Total Shaft Weight:		**32,101**

	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	64.50	0.00	88.96	46124.76	24.59	147.43	60.14	18.00	82.90	37336.2	22.83	137.4	0.242143
2	60.14	18.00	71.13	32103.14	26.87	160.38	52.88	48.00	62.49	21762.4	23.45	141.0	0.242143
3	55.32	41.00	65.40	24946.58	24.60	147.53	43.22	91.00	50.99	11822.9	18.91	115.2	0.242143
4	45.29	85.00	44.61	11404.15	24.15	144.94	33.19	135.00	32.60	4451.65	17.31	106.1	0.242143
5	34.90	130.0	27.49	4169.27	23.20	139.59	25.21	170.00	19.81	1559.03	16.37	100.8	0.242143
6	25.21	170.0	19.81	1559.03	16.37	100.84	24.00	175.00	18.84	1343.00	15.52	96.00	0.242143

Load Summary

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	175.00	APXVTM14-C-120	3	56.00	6.34	0.79	259.40	9.336	0.80	0.00	0.00
2	175.00	APXVSPP18-C-A20	3	57.00	8.02	0.83	232.54	10.857	0.84	0.00	0.00
3	175.00	ALU 800 MHz RRU	3	53.00	2.49	0.67	128.11	3.651	0.67	0.00	0.00
4	175.00	ALU 1900MHz RRU	3	44.00	3.80	0.67	154.86	5.212	0.67	0.00	0.00
5	175.00	TD-RRH8x20-25	3	70.00	4.05	0.67	182.54	4.877	0.67	0.00	0.00
6	175.00	800 MHz Filter	3	10.00	0.42	0.67	35.39	1.038	0.67	0.00	0.00
7	175.00	ACU-A20-N	4	1.00	0.14	0.67	5.36	0.441	0.68	0.00	0.00
8	175.00	T-Arm w/ work Platform	3	400.00	10.00	0.75	683.57	18.862	0.75	0.00	0.00
9	158.80	AIR 6419 B77G	3	66.10	3.80	0.76	162.86	4.600	0.76	0.00	0.00
10	157.00	OPA65R-BU6DA	3	63.30	12.71	0.73	352.27	14.205	0.73	0.00	0.00
11	157.00	B14 4478	3	59.90	1.84	0.67	107.12	2.369	0.67	0.00	0.00
12	157.00	DC9-48-60-24-8C-EV	1	26.20	1.14	1.00	132.67	2.734	1.00	0.00	0.00
13	157.00	(3) SFS-H-L (V-Braces)	1	230.00	6.70	1.00	552.59	13.748	1.00	0.00	0.00
14	157.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	790.94	19.493	1.00	0.00	0.00
15	157.00	(3) Stabilizer Kit (12' FW)	1	180.00	6.10	1.00	407.21	12.517	1.00	0.00	0.00
16	157.00	DMP65R-BU6DA	3	79.40	12.71	0.67	375.29	14.181	0.67	0.00	0.00
17	157.00	Ericsson RRUS 8843 B2/B66A	3	72.00	1.64	0.67	119.06	2.139	0.67	0.00	0.00
18	157.00	Ericsson RRUS 4449 B5/B12	3	73.00	1.97	0.67	128.14	2.520	0.67	0.00	0.00
19	157.00	T-Arm w/ Platform	3	400.00	12.00	0.75	680.51	22.519	0.75	0.00	0.00
20	157.00	Powerwave LGP 21401	6	14.10	1.29	0.50	39.22	2.130	0.50	0.00	0.00
21	157.00	Raycap DC6-48-60-18-8F	1	32.80	1.47	1.00	96.86	2.173	1.00	0.00	0.00
22	157.00	Powerwave 7020 RET	6	2.20	0.40	0.50	12.48	0.886	0.50	0.00	0.00
23	155.20	AIR 6449 B77D	3	88.00	4.13	0.00	226.10	4.990	0.00	0.00	0.00
24	141.00	KRY 112 144	3	11.00	0.41	0.67	21.71	0.882	0.67	0.00	0.00
25	141.00	Support rail / End connection Kits / V	1	650.00	15.50	1.00	1461.72	31.630	1.00	0.00	0.00
26	141.00	APXVAALL24-43-U-NA20	3	128.00	20.24	0.70	555.51	22.128	0.70	0.00	0.00
27	141.00	AIR6449 B41	3	103.00	5.65	0.71	239.27	6.595	0.71	0.00	0.00
28	141.00	AIR32	3	132.20	6.51	0.87	315.23	7.683	0.87	0.00	0.00
29	141.00	SDX1926Q-43	3	17.60	0.32	0.67	42.68	0.584	0.67	0.00	0.00
30	141.00	4449 B71 + B85	3	73.20	1.97	0.67	130.59	2.536	0.67	0.00	0.00
31	141.00	RRUS 4415 B25	3	46.00	1.64	0.67	86.85	2.152	0.67	0.00	0.00
32	141.00	(3) SFS-H (V-Braces)	1	197.00	6.30	1.00	470.35	12.856	1.00	0.00	0.00
33	141.00	Low Profile Platform	1	1200.00	25.00	1.00	2240.67	45.813	1.00	0.00	0.00
34	75.00	GPS	1	10.00	1.00	1.00	37.36	1.664	1.00	0.00	0.00
		Totals:	**91**	**9,400.81**			**22,180.75**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	175.00	(4) 1 1/4" Coax	0.00	Outside
0.00	175.00	(1) Safety Cable	0.00	Outside
0.00	175.00	(1) Step bolts (ladder)	0.00	Outside
0.00	157.00	(3) 0.92" DC	0.00	Inside
0.00	157.00	(9) 1-5/8" Coax	0.00	Inside
0.00	157.00	(2) 1/2" DC	0.00	Inside
0.00	157.00	(1) 1/2" Fiber	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	157.00	(1) 3/8" Fiber			0.00	Inside					
0.00	147.00	(9) 1-5/8" Coax			0.00	Inside					
0.00	147.00	(4) 1-5/8" Fiber			0.00	Inside					
0.00	75.00	(1) 1/2" Coax			0.00	Inside					

Shaft Section Properties

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

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Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.4375	64.500	88.956	46124.8	24.59	147.43	72.5	1408.	0.0
5.00		0.4375	63.289	87.274	43558.7	24.10	144.66	73.1	1355.	1499.2
10.00		0.4375	62.079	85.593	41089.7	23.61	141.89	73.6	1303.	1470.6
15.00		0.4375	60.868	83.912	38715.8	23.12	139.13	74.2	1252.	1442.0
18.00	Top - Section 1	0.4375	60.141	82.903	37336.3	22.83	137.47	74.6	1222.	851.5
18.00	Bot - Section 2	0.3750	60.141	71.134	32103.1	26.63	160.38	69.8	1051.	
20.00		0.3750	59.657	70.558	31329.1	26.64	159.09	70.1	1034.	482.1
25.00		0.3750	58.446	69.117	29448.5	26.07	155.86	70.7	992.4	1188.2
30.00		0.3750	57.236	67.676	27644.7	25.50	152.63	71.4	951.3	1163.7
35.00		0.3750	56.025	66.235	25916.2	24.93	149.40	72.1	911.1	1139.2
40.00		0.3750	54.814	64.794	24261.2	24.36	146.17	72.7	871.8	1114.7
41.00	Bot - Section 3	0.3750	54.572	64.506	23938.9	24.25	145.53	72.9	864.0	220.0
45.00		0.3750	53.604	63.353	22678.3	23.79	142.94	73.4	833.3	1752.5
48.00	Top - Section 2	0.3750	53.627	63.381	22708.4	23.81	143.01	0.0	0.0	1293.7
50.00		0.3750	53.143	62.805	22094.5	23.58	141.71	73.7	818.9	429.4
55.00		0.3750	51.932	61.364	20608.3	23.01	138.49	74.3	781.6	1056.3
60.00		0.3750	50.721	59.923	19190.3	22.44	135.26	75.0	745.2	1031.8
65.00		0.3750	49.511	58.482	17838.9	21.87	132.03	75.7	709.7	1007.3
70.00		0.3750	48.300	57.041	16552.4	21.30	128.80	76.3	675.0	982.7
75.00		0.3750	47.089	55.600	15329.4	20.73	125.57	77.0	641.2	958.2
80.00		0.3750	45.879	54.159	14168.1	20.16	122.34	77.7	608.3	933.7
85.00	Bot - Section 4	0.3750	44.668	52.718	13067.0	19.59	119.11	78.4	576.2	909.2
90.00		0.3750	43.457	51.277	12024.5	19.02	115.89	79.0	545.0	1633.5
91.00	Top - Section 3	0.3125	43.840	43.172	10334.4	23.33	140.29	0.0	0.0	321.3
95.00		0.3125	42.871	42.212	9659.8	22.78	137.19	74.6	443.8	581.1
100.00		0.3125	41.661	41.011	8858.6	22.10	133.31	75.4	418.8	708.0
105.00		0.3125	40.450	39.810	8103.0	21.41	129.44	76.2	394.6	687.5
110.00		0.3125	39.239	38.609	7391.6	20.73	125.57	77.0	371.0	667.1
115.00		0.3125	38.029	37.408	6723.2	20.05	121.69	77.8	348.2	646.7
120.00		0.3125	36.818	36.207	6096.3	19.36	117.82	78.6	326.1	626.2
125.00		0.3125	35.607	35.007	5509.6	18.68	113.94	79.4	304.8	605.8
130.00	Bot - Section 5	0.3125	34.396	33.806	4961.8	18.00	110.07	80.2	284.1	585.4
135.00	Top - Section 4	0.2500	33.686	26.530	3747.3	22.35	134.74	0.0	0.0	1024.5
140.00		0.2500	32.475	25.570	3354.8	21.49	129.90	76.1	203.5	443.2
141.00		0.2500	32.233	25.377	3279.7	21.32	128.93	76.3	200.4	86.7
145.00		0.2500	31.264	24.609	2990.7	20.64	125.06	77.1	188.4	340.2
150.00		0.2500	30.054	23.648	2653.9	19.79	120.21	78.1	173.9	410.5
155.00		0.2500	28.843	22.688	2343.5	18.93	115.37	79.1	160.0	394.2
155.20		0.2500	28.794	22.649	2331.6	18.90	115.18	79.2	159.5	15.4
157.00		0.2500	28.359	22.303	2226.4	18.59	113.43	79.5	154.6	137.7
158.80		0.2500	27.923	21.958	2124.4	18.28	111.69	79.9	149.9	135.5
160.00		0.2500	27.632	21.727	2058.2	18.08	110.53	80.1	146.7	89.2
165.00		0.2500	26.421	20.766	1797.1	17.22	105.69	81.1	134.0	361.5
170.00	Top - Section 5	0.2500	25.211	19.806	1559.0	16.37	100.84	82.1	121.8	345.1
170.00	Bot - Section 6	0.2500	25.211	19.806	1559.0	16.37	100.84	82.1	121.8	
175.00		0.2500	24.000	18.845	1343.0	15.52	96.00	82.5	110.2	328.8
										32101.0

Wind Loading - Shaft

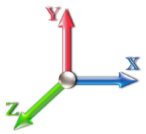
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	508.23	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	498.69	0.650	0.000	5.00	27.033	17.57	652.2	0.0	1799.0
10.00		1.00	0.85	21.088	23.20	489.15	0.650	0.000	5.00	26.521	17.24	639.8	0.0	1764.7
15.00		1.00	0.85	21.088	23.20	479.61	0.650	0.000	5.00	26.009	16.91	627.4	0.0	1730.4
18.00	Top - Section 1	1.00	0.88	21.884	24.07	482.75	0.650	0.000	3.00	15.360	9.98	384.5	0.0	1021.7
20.00		1.00	0.90	22.375	24.61	484.20	0.650	0.000	2.00	10.137	6.59	259.5	0.0	578.6
25.00		1.00	0.95	23.451	25.80	485.65	0.650	0.000	5.00	24.984	16.24	670.3	0.0	1425.8
30.00		1.00	0.98	24.369	26.81	484.81	0.650	0.000	5.00	24.472	15.91	682.2	0.0	1396.4
35.00		1.00	1.01	25.172	27.69	482.31	0.650	0.000	5.00	23.960	15.57	690.0	0.0	1367.0
40.00		1.00	1.04	25.890	28.48	478.57	0.650	0.000	5.00	23.448	15.24	694.5	0.0	1337.6
41.00	Bot - Section 3	1.00	1.05	26.025	28.63	477.70	0.650	0.000	1.00	4.628	3.01	137.8	0.0	264.0
45.00		1.00	1.07	26.540	29.19	473.84	0.650	0.000	4.00	18.561	12.06	563.6	0.0	2102.9
48.00	Top - Section 2	1.00	1.08	26.903	29.59	470.60	0.650	0.000	3.00	13.706	8.91	421.8	0.0	1552.5
50.00		1.00	1.09	27.135	29.85	475.00	0.650	0.000	2.00	9.035	5.87	280.5	0.0	515.3
55.00		1.00	1.12	27.685	30.45	468.86	0.650	0.000	5.00	22.228	14.45	704.0	0.0	1267.6
60.00		1.00	1.14	28.197	31.02	462.15	0.650	0.000	5.00	21.716	14.12	700.5	0.0	1238.1
65.00		1.00	1.16	28.676	31.54	454.93	0.650	0.000	5.00	21.204	13.78	695.6	0.0	1208.7
70.00		1.00	1.17	29.127	32.04	447.28	0.650	0.000	5.00	20.692	13.45	689.5	0.0	1179.3
75.00	Appurtenance(s)	1.00	1.19	29.553	32.51	439.25	0.650	0.000	5.00	20.179	13.12	682.2	0.0	1149.9
80.00		1.00	1.21	29.958	32.95	430.87	0.650	0.000	5.00	19.667	12.78	674.0	0.0	1120.4
85.00	Bot - Section 4	1.00	1.22	30.342	33.38	422.19	0.650	0.000	5.00	19.155	12.45	664.9	0.0	1091.0
90.00		1.00	1.24	30.710	33.78	413.22	0.650	0.000	5.00	18.907	12.29	664.2	0.0	1960.2
91.00	Top - Section 3	1.00	1.24	30.781	33.86	411.40	0.650	0.000	1.00	3.720	2.42	131.0	0.0	385.6
95.00		1.00	1.25	31.061	34.17	409.98	0.650	0.000	4.00	14.675	9.54	521.5	0.0	697.3
100.00		1.00	1.27	31.399	34.54	400.56	0.650	0.000	5.00	17.883	11.62	642.3	0.0	849.6
105.00		1.00	1.28	31.723	34.89	390.92	0.650	0.000	5.00	17.370	11.29	630.4	0.0	825.0
110.00		1.00	1.29	32.035	35.24	381.08	0.650	0.000	5.00	16.858	10.96	617.8	0.0	800.5
115.00		1.00	1.30	32.336	35.57	371.06	0.650	0.000	5.00	16.346	10.62	604.7	0.0	776.0
120.00		1.00	1.32	32.627	35.89	360.86	0.650	0.000	5.00	15.834	10.29	591.0	0.0	751.5
125.00		1.00	1.33	32.909	36.20	350.49	0.650	0.000	5.00	15.321	9.96	576.8	0.0	727.0
130.00	Bot - Section 5	1.00	1.34	33.182	36.50	339.98	0.650	0.000	5.00	14.809	9.63	562.1	0.0	702.5
135.00	Top - Section 4	1.00	1.35	33.446	36.79	329.31	0.650	0.000	5.00	14.508	9.43	555.1	0.0	1229.4
140.00		1.00	1.36	33.703	37.07	323.50	0.650	0.000	5.00	13.996	9.10	539.6	0.0	531.9
141.00	Appurtenance(s)	1.00	1.36	33.754	37.13	321.33	0.650	0.000	1.00	2.738	1.78	105.7	0.0	104.0
145.00		1.00	1.37	33.953	37.35	312.59	0.650	0.000	4.00	10.746	6.98	417.4	0.0	408.2
150.00		1.00	1.38	34.196	37.62	301.56	0.650	0.000	5.00	12.972	8.43	507.5	0.0	492.6
155.00		1.00	1.39	34.433	37.88	290.41	0.650	0.000	5.00	12.459	8.10	490.8	0.0	473.0
155.20	Appurtenance(s)	1.00	1.39	34.443	37.89	289.96	0.650	0.000	0.20	0.488	0.32	19.2	0.0	18.5
157.00	Appurtenance(s)	1.00	1.39	34.526	37.98	285.92	0.650	0.000	1.80	4.353	2.83	171.9	0.0	165.2
158.80	Appurtenance(s)	1.00	1.40	34.609	38.07	281.86	0.650	0.000	1.80	4.286	2.79	169.7	0.0	162.7
160.00		1.00	1.40	34.664	38.13	279.15	0.650	0.000	1.20	2.821	1.83	111.9	0.0	107.0
165.00		1.00	1.41	34.890	38.38	267.79	0.650	0.000	5.00	11.435	7.43	456.4	0.0	433.8
170.00	Top - Section 5	1.00	1.42	35.110	38.62	256.32	0.650	0.000	5.00	10.923	7.10	438.7	0.0	414.2
175.00	Appurtenance(s)	1.00	1.42	35.324	38.86	244.76	0.650	0.000	5.00	10.410	6.77	420.7	0.0	394.6
								Totals:	**175.00**			**21,461.3**		**38,521.2**

Discrete Appurtenance Forces

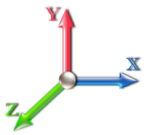
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	T-Arm w/ work Platform	3	35.324	38.857	0.56	0.75	16.88	1440.00	0.000	0.000	1049.14	0.00	0.00
2	175.00	ACU-A20-N	4	35.324	38.857	0.60	0.90	0.34	4.80	0.000	0.000	20.99	0.00	0.00
3	175.00	800 MHz Filter	3	35.324	38.857	0.60	0.90	0.76	36.00	0.000	0.000	47.24	0.00	0.00
4	175.00	TD-RRH8x20-25	3	35.324	38.857	0.60	0.90	7.33	252.00	0.000	0.000	455.49	0.00	0.00
5	175.00	ALU 1900MHz RRU	3	35.324	38.857	0.60	0.90	6.87	158.40	0.000	0.000	427.38	0.00	0.00
6	175.00	ALU 800 MHz RRU	3	35.324	38.857	0.60	0.90	4.50	190.80	0.000	0.000	280.04	0.00	0.00
7	175.00	APXVSPP18-C-A20	3	35.324	38.857	0.75	0.90	17.97	205.20	0.000	0.000	1117.39	0.00	0.00
8	175.00	APXVTM14-C-120	3	35.324	38.857	0.71	0.90	13.52	201.60	0.000	0.000	840.75	0.00	0.00
9	158.80	AIR 6419 B77G	3	34.609	38.070	0.61	0.80	6.93	237.96	0.000	0.000	422.20	0.00	0.00
10	157.00	Raycap DC6-48-60-18-8F	1	34.526	37.979	1.00	1.00	1.47	39.36	0.000	0.000	89.33	0.00	0.00
11	157.00	Powerwave LGP 21401	6	34.526	37.979	0.40	0.80	3.10	101.52	0.000	0.000	188.13	0.00	0.00
12	157.00	Powerwave 7020 RET	6	34.526	37.979	0.40	0.80	0.96	15.84	0.000	0.000	58.34	0.00	0.00
13	157.00	Ericsson RRUS 4449	3	34.526	37.979	0.54	0.80	3.17	262.80	0.000	0.000	192.49	0.00	0.00
14	157.00	Ericsson RRUS 8843	3	34.526	37.979	0.54	0.80	2.64	259.20	0.000	0.000	160.25	0.00	0.00
15	157.00	DMP65R-BU6DA	3	34.526	37.979	0.54	0.80	20.44	285.84	0.000	0.000	1241.93	0.00	0.00
16	157.00	T-Arm w/ Platform	3	34.526	37.979	0.56	0.75	20.25	1440.00	0.000	0.000	1230.52	0.00	0.00
17	157.00	(3) Stabilizer Kit (12' FW)	1	34.526	37.979	0.75	0.75	4.57	216.00	0.000	0.000	278.01	0.00	0.00
18	157.00	PRK-1245 (kicker kit)	1	34.526	37.979	1.00	1.00	9.50	557.89	0.000	0.000	577.28	0.00	0.00
19	157.00	DC9-48-60-24-8C-EV	1	34.526	37.979	0.80	0.80	0.91	31.44	0.000	0.000	55.42	0.00	0.00
20	157.00	B14 4478	3	34.526	37.979	0.54	0.80	2.96	215.64	0.000	0.000	179.79	0.00	0.00
21	157.00	OPA65R-BU6DA	3	34.526	37.979	0.58	0.80	22.27	227.88	0.000	0.000	1353.14	0.00	0.00
22	157.00	(3) SFS-H-L (V-Braces)	1	34.526	37.979	1.00	1.00	6.70	276.00	0.000	0.000	407.14	0.00	0.00
23	155.20	AIR 6449 B77D	3	34.443	37.887	0.00	1.00	12.39	316.80	0.000	0.000	751.07	0.00	0.00
24	141.00	4449 B71 + B85	3	33.754	37.129	0.50	0.75	2.97	263.52	0.000	0.000	176.42	0.00	0.00
25	141.00	APXVAALL24-43-U-NA20	3	33.754	37.129	0.52	0.75	31.88	460.80	0.000	0.000	1893.77	0.00	0.00
26	141.00	AIR6449 B41	3	33.754	37.129	0.53	0.75	9.03	370.80	0.000	0.000	536.20	0.00	0.00
27	141.00	AIR32	3	33.754	37.129	0.65	0.75	12.74	475.92	0.000	0.000	757.04	0.00	0.00
28	141.00	SDX1926Q-43	3	33.754	37.129	0.50	0.75	0.48	63.36	0.000	0.000	28.66	0.00	0.00
29	141.00	KRY 112 144	3	33.754	37.129	0.50	0.75	0.62	39.60	0.000	0.000	36.72	0.00	0.00
30	141.00	RRUS 4415 B25	3	33.754	37.129	0.50	0.75	2.47	165.60	0.000	0.000	146.87	0.00	0.00
31	141.00	(3) SFS-H (V-Braces)	1	33.754	37.129	0.75	0.75	4.72	236.40	0.000	0.000	280.70	0.00	0.00
32	141.00	Low Profile Platform	1	33.754	37.129	1.00	1.00	25.00	1440.00	0.000	0.000	1485.17	0.00	0.00
33	141.00	Support rail / End	1	33.754	37.129	0.75	0.75	11.63	780.00	0.000	0.000	690.60	0.00	0.00
34	75.00	GPS	1	29.553	32.509	1.00	1.00	1.00	12.00	0.000	0.000	52.01	0.00	0.00
							Totals:		**11,280.97**			**17,507.61**		

Total Applied Force Summary

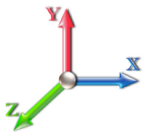
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		652.16	1972.49	0.00	0.00
10.00		639.80	1938.17	0.00	0.00
15.00		627.44	1903.84	0.00	0.00
18.00		384.53	1125.83	0.00	0.00
20.00		259.48	647.97	0.00	0.00
25.00		670.28	1599.33	0.00	0.00
30.00		682.23	1569.91	0.00	0.00
35.00		689.98	1540.49	0.00	0.00
40.00		694.48	1511.07	0.00	0.00
41.00		137.79	298.68	0.00	0.00
45.00		563.55	2241.72	0.00	0.00
48.00		421.83	1656.58	0.00	0.00
50.00		280.46	584.65	0.00	0.00
55.00		704.01	1441.03	0.00	0.00
60.00		700.51	1411.61	0.00	0.00
65.00		695.61	1382.19	0.00	0.00
70.00		689.47	1352.77	0.00	0.00
75.00	(1) attachments	734.26	1335.35	0.00	0.00
80.00		674.02	1292.97	0.00	0.00
85.00		664.90	1263.55	0.00	0.00
90.00		664.24	2132.72	0.00	0.00
91.00		130.99	420.07	0.00	0.00
95.00		521.46	835.32	0.00	0.00
100.00		642.34	1022.08	0.00	0.00
105.00		630.38	997.56	0.00	0.00
110.00		617.81	973.05	0.00	0.00
115.00		604.67	948.53	0.00	0.00
120.00		590.99	924.01	0.00	0.00
125.00		576.81	899.49	0.00	0.00
130.00		562.15	874.98	0.00	0.00
135.00		555.13	1401.93	0.00	0.00
140.00		539.64	704.37	0.00	0.00
141.00	(24) attachments	6137.87	4434.52	0.00	0.00
145.00		417.41	546.24	0.00	0.00
150.00		507.46	615.61	0.00	0.00
155.00		490.80	562.97	0.00	0.00
155.20	(3) attachments	770.29	338.91	0.00	0.00
157.00	(35) attachments	6183.68	4127.00	0.00	0.00
158.80	(3) attachments	591.90	409.16	0.00	0.00
160.00		111.85	112.72	0.00	0.00
165.00		456.41	457.50	0.00	0.00
170.00		438.71	437.89	0.00	0.00
175.00	(25) attachments	4659.11	2907.08	0.00	0.00
	Totals:	**38,968.89**	**55,153.89**	**0.00**	**0.00**

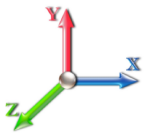
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	15.84
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	6.24
10.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	15.84
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	6.24
15.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	15.84
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	6.24
18.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	21.884	0.00	9.50
18.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	21.884	0.00	0.98
18.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	21.884	0.00	3.74
20.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	22.375	0.00	6.34
20.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	22.375	0.00	0.66
20.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	22.375	0.00	2.50
25.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.451	0.00	15.84
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.451	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.451	0.00	6.24
30.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.369	0.00	15.84
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.369	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.369	0.00	6.24
35.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.172	0.00	15.84
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.172	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.172	0.00	6.24
40.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.890	0.00	15.84
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.890	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.890	0.00	6.24
41.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	26.025	0.00	3.17
41.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	26.025	0.00	0.33
41.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	26.025	0.00	1.25
45.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	26.540	0.00	12.67
45.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	26.540	0.00	1.31
45.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	26.540	0.00	4.99
48.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.903	0.00	9.50
48.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.903	0.00	0.98
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.903	0.00	3.74
50.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.135	0.00	6.34
50.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.135	0.00	0.66
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.135	0.00	2.50
55.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.685	0.00	15.84
55.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.685	0.00	1.64
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.685	0.00	6.24
60.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.197	0.00	15.84
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.197	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.197	0.00	6.24
65.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.676	0.00	15.84
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.676	0.00	1.64

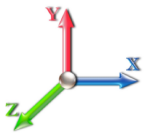
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.676	0.00	6.24
70.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.127	0.00	15.84
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.127	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.127	0.00	6.24
75.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.553	0.00	15.84
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.553	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.553	0.00	6.24
80.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.958	0.00	15.84
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.958	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.958	0.00	6.24
85.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.342	0.00	15.84
85.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.342	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.342	0.00	6.24
90.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.710	0.00	15.84
90.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.710	0.00	1.64
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.710	0.00	6.24
91.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	30.781	0.00	3.17
91.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	30.781	0.00	0.33
91.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	30.781	0.00	1.25
95.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	31.061	0.00	12.67
95.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	31.061	0.00	1.31
95.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	31.061	0.00	4.99
100.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.399	0.00	15.84
100.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.399	0.00	1.64
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.399	0.00	6.24
105.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.723	0.00	15.84
105.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.723	0.00	1.64
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.723	0.00	6.24
110.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.035	0.00	15.84
110.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.035	0.00	1.64
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.035	0.00	6.24
115.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.336	0.00	15.84
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.336	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.336	0.00	6.24
120.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.627	0.00	15.84
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.627	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.627	0.00	6.24
125.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.909	0.00	15.84
125.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.909	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.909	0.00	6.24
130.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.182	0.00	15.84
130.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.182	0.00	1.64
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.182	0.00	6.24
135.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.446	0.00	15.84
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.446	0.00	1.64
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.446	0.00	6.24
140.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.703	0.00	15.84

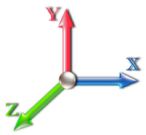
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
140.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.703	0.00	1.64
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.703	0.00	6.24
141.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	33.754	0.00	3.17
141.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	33.754	0.00	0.33
141.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	33.754	0.00	1.25
145.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	33.953	0.00	12.67
145.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	33.953	0.00	1.31
145.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	33.953	0.00	4.99
150.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.196	0.00	15.84
150.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.196	0.00	1.64
150.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.196	0.00	6.24
155.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.433	0.00	15.84
155.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.433	0.00	1.64
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.433	0.00	6.24
155.20	1 1/4" Coax	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	34.443	0.00	0.63
155.20	Safety Cable	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	34.443	0.00	0.07
155.20	Step bolts (ladder)	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	34.443	0.00	0.25
157.00	1 1/4" Coax	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.526	0.00	5.70
157.00	Safety Cable	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.526	0.00	0.59
157.00	Step bolts (ladder)	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.526	0.00	2.25
158.80	1 1/4" Coax	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.609	0.00	5.70
158.80	Safety Cable	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.609	0.00	0.59
158.80	Step bolts (ladder)	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.609	0.00	2.25
160.00	1 1/4" Coax	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	34.664	0.00	3.80
160.00	Safety Cable	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	34.664	0.00	0.39
160.00	Step bolts (ladder)	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	34.664	0.00	1.50
165.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.890	0.00	15.84
165.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.890	0.00	1.64
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.890	0.00	6.24
170.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.110	0.00	15.84
170.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.110	0.00	1.64
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.110	0.00	6.24
175.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.324	0.00	15.84
175.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.324	0.00	1.64
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.324	0.00	6.24
									Totals:		**0.0**	**830.1**

Calculated Forces

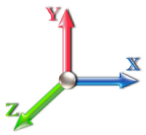
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-55.10	-39.04	0.00	-4695.1	0.00	4695.19	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.623
5.00	-53.04	-38.52	0.00	-4500.0	0.00	4500.00	5738.51	2869.25	14833.4	7427.75	0.08	-0.142	0.000	0.615
10.00	-51.00	-38.00	0.00	-4307.4	0.00	4307.43	5672.18	2836.09	14377.6	7199.49	0.30	-0.286	0.000	0.607
15.00	-49.03	-37.46	0.00	-4117.4	0.00	4117.44	5604.11	2802.06	13924.1	6972.40	0.68	-0.431	0.000	0.599
18.00	-47.86	-37.13	0.00	-4005.0	0.00	4005.07	5562.44	2781.22	13653.2	6836.76	0.98	-0.521	0.000	0.595
18.00	-47.86	-37.13	0.00	-4005.0	0.00	4005.07	4468.60	2234.30	10991.3	5503.84	0.98	-0.521	0.000	0.739
20.00	-47.14	-36.96	0.00	-3930.8	0.00	3930.81	4449.40	2224.70	10854.8	5435.51	1.21	-0.581	0.000	0.734
25.00	-45.43	-36.41	0.00	-3746.0	0.00	3746.02	4400.18	2200.09	10514.1	5264.91	1.92	-0.756	0.000	0.722
30.00	-43.76	-35.84	0.00	-3563.9	0.00	3563.98	4349.23	2174.61	10174.3	5094.75	2.80	-0.932	0.000	0.710
35.00	-42.12	-35.26	0.00	-3384.7	0.00	3384.78	4296.53	2148.27	9835.69	4925.16	3.88	-1.111	0.000	0.697
40.00	-40.56	-34.61	0.00	-3208.5	0.00	3208.51	4242.10	2121.05	9498.40	4756.26	5.14	-1.292	0.000	0.684
41.00	-40.21	-34.53	0.00	-3173.9	0.00	3173.90	4231.01	2115.50	9431.14	4722.58	5.41	-1.329	0.000	0.682
45.00	-37.91	-33.99	0.00	-3035.8	0.00	3035.80	4185.94	2092.97	9162.77	4588.20	6.59	-1.477	0.000	0.671
48.00	-36.21	-33.59	0.00	-2933.8	0.00	2933.82	4187.05	2093.52	9169.29	4591.46	7.55	-1.589	0.000	0.648
50.00	-35.56	-33.37	0.00	-2866.6	0.00	2866.65	4164.11	2082.05	9035.54	4524.49	8.24	-1.665	0.000	0.642
55.00	-34.03	-32.73	0.00	-2699.8	0.00	2699.80	4105.54	2052.77	8702.63	4357.78	10.08	-1.844	0.000	0.628
60.00	-32.55	-32.08	0.00	-2536.1	0.00	2536.15	4045.24	2022.62	8371.99	4192.22	12.11	-2.025	0.000	0.613
65.00	-31.09	-31.44	0.00	-2375.7	0.00	2375.73	3983.21	1991.60	8043.90	4027.93	14.32	-2.207	0.000	0.598
70.00	-29.67	-30.79	0.00	-2218.5	0.00	2218.55	3919.43	1959.72	7718.60	3865.04	16.73	-2.390	0.000	0.582
75.00	-28.27	-30.09	0.00	-2064.6	0.00	2064.60	3853.92	1926.96	7396.37	3703.68	19.34	-2.574	0.000	0.565
80.00	-26.91	-29.44	0.00	-1914.1	0.00	1914.15	3786.67	1893.34	7077.46	3543.99	22.13	-2.759	0.000	0.547
85.00	-25.59	-28.80	0.00	-1766.9	0.00	1766.94	3717.69	1858.85	6762.13	3386.09	25.12	-2.944	0.000	0.529
90.00	-23.44	-28.07	0.00	-1622.9	0.00	1622.95	3646.97	1823.48	6450.65	3230.12	28.30	-3.128	0.000	0.509
91.00	-22.99	-27.95	0.00	-1594.8	0.00	1594.88	2873.92	1436.96	5143.64	2575.64	28.96	-3.166	0.000	0.628
95.00	-22.10	-27.45	0.00	-1483.0	0.00	1483.08	2834.39	1417.20	4959.20	2483.29	31.68	-3.315	0.000	0.605
100.00	-21.02	-26.83	0.00	-1345.8	0.00	1345.82	2783.42	1391.71	4730.46	2368.74	35.26	-3.523	0.000	0.576
105.00	-19.97	-26.21	0.00	-1211.6	0.00	1211.69	2730.70	1365.35	4503.96	2255.33	39.06	-3.728	0.000	0.545
110.00	-18.95	-25.59	0.00	-1080.6	0.00	1080.66	2676.25	1338.13	4279.98	2143.17	43.07	-3.929	0.000	0.512
115.00	-17.96	-24.98	0.00	-952.72	0.00	952.72	2620.07	1310.03	4058.76	2032.40	47.29	-4.125	0.000	0.476
120.00	-17.01	-24.38	0.00	-827.82	0.00	827.82	2562.14	1281.07	3840.57	1923.14	51.71	-4.313	0.000	0.437
125.00	-16.08	-23.78	0.00	-705.93	0.00	705.93	2502.48	1251.24	3625.68	1815.54	56.32	-4.492	0.000	0.396
130.00	-15.19	-23.19	0.00	-587.02	0.00	587.02	2441.09	1220.54	3414.34	1709.71	61.11	-4.659	0.000	0.350
135.00	-13.78	-22.56	0.00	-471.05	0.00	471.05	1793.55	896.77	2465.05	1234.36	66.07	-4.811	0.000	0.390
140.00	-13.10	-21.98	0.00	-358.25	0.00	358.25	1751.71	875.86	2319.73	1161.59	71.17	-4.943	0.000	0.317
141.00	-9.19	-15.49	0.00	-336.27	0.00	336.27	1743.14	871.57	2290.90	1147.15	72.21	-4.973	0.000	0.299
145.00	-8.66	-15.05	0.00	-274.30	0.00	274.30	1708.14	854.07	2176.40	1089.82	76.42	-5.079	0.000	0.257
150.00	-8.06	-14.50	0.00	-199.08	0.00	199.08	1662.84	831.42	2035.30	1019.16	81.80	-5.191	0.000	0.200
155.00	-7.54	-13.96	0.00	-126.58	0.00	126.58	1615.80	807.90	1896.71	949.77	87.28	-5.279	0.000	0.138
155.20	-7.27	-13.17	0.00	-123.79	0.00	123.79	1613.88	806.94	1891.23	947.02	87.50	-5.282	0.000	0.135
157.00	-3.73	-6.63	0.00	-100.09	0.00	100.09	1596.49	798.25	1842.04	922.39	89.49	-5.306	0.000	0.111
158.80	-3.37	-6.01	0.00	-88.15	0.00	88.15	1578.88	789.44	1793.22	897.94	91.49	-5.328	0.000	0.100
160.00	-3.27	-5.89	0.00	-80.94	0.00	80.94	1567.02	783.51	1760.89	881.75	92.83	-5.342	0.000	0.094
165.00	-2.85	-5.39	0.00	-51.52	0.00	51.52	1516.50	758.25	1628.10	815.26	98.45	-5.387	0.000	0.065
170.00	-2.45	-4.91	0.00	-24.57	0.00	24.57	1464.25	732.13	1498.59	750.41	104.10	-5.417	0.000	0.034
170.00	-2.45	-4.91	0.00	-24.57	0.00	24.57	1464.25	732.13	1498.59	750.41	104.10	-5.417	0.000	0.034
175.00	0.00	-4.66	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	109.77	-5.429	0.000	0.000

Wind Loading - Shaft

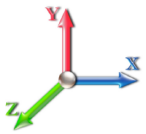
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	508.23	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	498.69	0.650	0.000	5.00	27.033	17.57	652.2	0.0	1349.3
10.00		1.00	0.85	21.088	23.20	489.15	0.650	0.000	5.00	26.521	17.24	639.8	0.0	1323.5
15.00		1.00	0.85	21.088	23.20	479.61	0.650	0.000	5.00	26.009	16.91	627.4	0.0	1297.8
18.00	Top - Section 1	1.00	0.88	21.884	24.07	482.75	0.650	0.000	3.00	15.360	9.98	384.5	0.0	766.3
20.00		1.00	0.90	22.375	24.61	484.20	0.650	0.000	2.00	10.137	6.59	259.5	0.0	433.9
25.00		1.00	0.95	23.451	25.80	485.65	0.650	0.000	5.00	24.984	16.24	670.3	0.0	1069.4
30.00		1.00	0.98	24.369	26.81	484.81	0.650	0.000	5.00	24.472	15.91	682.2	0.0	1047.3
35.00		1.00	1.01	25.172	27.69	482.31	0.650	0.000	5.00	23.960	15.57	690.0	0.0	1025.3
40.00		1.00	1.04	25.890	28.48	478.57	0.650	0.000	5.00	23.448	15.24	694.5	0.0	1003.2
41.00	Bot - Section 3	1.00	1.05	26.025	28.63	477.70	0.650	0.000	1.00	4.628	3.01	137.8	0.0	198.0
45.00		1.00	1.07	26.540	29.19	473.84	0.650	0.000	4.00	18.561	12.06	563.6	0.0	1577.2
48.00	Top - Section 2	1.00	1.08	26.903	29.59	470.60	0.650	0.000	3.00	13.706	8.91	421.8	0.0	1164.4
50.00		1.00	1.09	27.135	29.85	475.00	0.650	0.000	2.00	9.035	5.87	280.5	0.0	386.4
55.00		1.00	1.12	27.685	30.45	468.86	0.650	0.000	5.00	22.228	14.45	704.0	0.0	950.7
60.00		1.00	1.14	28.197	31.02	462.15	0.650	0.000	5.00	21.716	14.12	700.5	0.0	928.6
65.00		1.00	1.16	28.676	31.54	454.93	0.650	0.000	5.00	21.204	13.78	695.6	0.0	906.5
70.00		1.00	1.17	29.127	32.04	447.28	0.650	0.000	5.00	20.692	13.45	689.5	0.0	884.5
75.00	Appurtenance(s)	1.00	1.19	29.553	32.51	439.25	0.650	0.000	5.00	20.179	13.12	682.2	0.0	862.4
80.00		1.00	1.21	29.958	32.95	430.87	0.650	0.000	5.00	19.667	12.78	674.0	0.0	840.3
85.00	Bot - Section 4	1.00	1.22	30.342	33.38	422.19	0.650	0.000	5.00	19.155	12.45	664.9	0.0	818.3
90.00		1.00	1.24	30.710	33.78	413.22	0.650	0.000	5.00	18.907	12.29	664.2	0.0	1470.2
91.00	Top - Section 3	1.00	1.24	30.781	33.86	411.40	0.650	0.000	1.00	3.720	2.42	131.0	0.0	289.2
95.00		1.00	1.25	31.061	34.17	409.98	0.650	0.000	4.00	14.675	9.54	521.5	0.0	523.0
100.00		1.00	1.27	31.399	34.54	400.56	0.650	0.000	5.00	17.883	11.62	642.3	0.0	637.2
105.00		1.00	1.28	31.723	34.89	390.92	0.650	0.000	5.00	17.370	11.29	630.4	0.0	618.8
110.00		1.00	1.29	32.035	35.24	381.08	0.650	0.000	5.00	16.858	10.96	617.8	0.0	600.4
115.00		1.00	1.30	32.336	35.57	371.06	0.650	0.000	5.00	16.346	10.62	604.7	0.0	582.0
120.00		1.00	1.32	32.627	35.89	360.86	0.650	0.000	5.00	15.834	10.29	591.0	0.0	563.6
125.00		1.00	1.33	32.909	36.20	350.49	0.650	0.000	5.00	15.321	9.96	576.8	0.0	545.2
130.00	Bot - Section 5	1.00	1.34	33.182	36.50	339.98	0.650	0.000	5.00	14.809	9.63	562.1	0.0	526.8
135.00	Top - Section 4	1.00	1.35	33.446	36.79	329.31	0.650	0.000	5.00	14.508	9.43	555.1	0.0	922.1
140.00		1.00	1.36	33.703	37.07	323.50	0.650	0.000	5.00	13.996	9.10	539.6	0.0	398.9
141.00	Appurtenance(s)	1.00	1.36	33.754	37.13	321.33	0.650	0.000	1.00	2.738	1.78	105.7	0.0	78.0
145.00		1.00	1.37	33.953	37.35	312.59	0.650	0.000	4.00	10.746	6.98	417.4	0.0	306.2
150.00		1.00	1.38	34.196	37.62	301.56	0.650	0.000	5.00	12.972	8.43	507.5	0.0	369.5
155.00		1.00	1.39	34.433	37.88	290.41	0.650	0.000	5.00	12.459	8.10	490.8	0.0	354.8
155.20	Appurtenance(s)	1.00	1.39	34.443	37.89	289.96	0.650	0.000	0.20	0.488	0.32	19.2	0.0	13.9
157.00	Appurtenance(s)	1.00	1.39	34.526	37.98	285.92	0.650	0.000	1.80	4.353	2.83	171.9	0.0	123.9
158.80	Appurtenance(s)	1.00	1.40	34.609	38.07	281.86	0.650	0.000	1.80	4.286	2.79	169.7	0.0	122.0
160.00		1.00	1.40	34.664	38.13	279.15	0.650	0.000	1.20	2.821	1.83	111.9	0.0	80.3
165.00		1.00	1.41	34.890	38.38	267.79	0.650	0.000	5.00	11.435	7.43	456.4	0.0	325.3
170.00	Top - Section 5	1.00	1.42	35.110	38.62	256.32	0.650	0.000	5.00	10.923	7.10	438.7	0.0	310.6
175.00	Appurtenance(s)	1.00	1.42	35.324	38.86	244.76	0.650	0.000	5.00	10.410	6.77	420.7	0.0	295.9
								Totals:	**175.00**			**21,461.3**		**28,890.9**

Discrete Appurtenance Forces

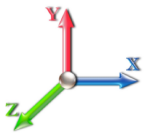
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	T-Arm w/ work Platform	3	35.324	38.857	0.56	0.75	16.88	1080.00	0.000	0.000	1049.14	0.00	0.00
2	175.00	ACU-A20-N	4	35.324	38.857	0.60	0.90	0.34	3.60	0.000	0.000	20.99	0.00	0.00
3	175.00	800 MHz Filter	3	35.324	38.857	0.60	0.90	0.76	27.00	0.000	0.000	47.24	0.00	0.00
4	175.00	TD-RRH8x20-25	3	35.324	38.857	0.60	0.90	7.33	189.00	0.000	0.000	455.49	0.00	0.00
5	175.00	ALU 1900MHz RRU	3	35.324	38.857	0.60	0.90	6.87	118.80	0.000	0.000	427.38	0.00	0.00
6	175.00	ALU 800 MHz RRU	3	35.324	38.857	0.60	0.90	4.50	143.10	0.000	0.000	280.04	0.00	0.00
7	175.00	APXVSPP18-C-A20	3	35.324	38.857	0.75	0.90	17.97	153.90	0.000	0.000	1117.39	0.00	0.00
8	175.00	APXVTM14-C-120	3	35.324	38.857	0.71	0.90	13.52	151.20	0.000	0.000	840.75	0.00	0.00
9	158.80	AIR 6419 B77G	3	34.609	38.070	0.61	0.80	6.93	178.47	0.000	0.000	422.20	0.00	0.00
10	157.00	Raycap DC6-48-60-18-8F	1	34.526	37.979	1.00	1.00	1.47	29.52	0.000	0.000	89.33	0.00	0.00
11	157.00	Powerwave LGP 21401	6	34.526	37.979	0.40	0.80	3.10	76.14	0.000	0.000	188.13	0.00	0.00
12	157.00	Powerwave 7020 RET	6	34.526	37.979	0.40	0.80	0.96	11.88	0.000	0.000	58.34	0.00	0.00
13	157.00	Ericsson RRUS 4449	3	34.526	37.979	0.54	0.80	3.17	197.10	0.000	0.000	192.49	0.00	0.00
14	157.00	Ericsson RRUS 8843	3	34.526	37.979	0.54	0.80	2.64	194.40	0.000	0.000	160.25	0.00	0.00
15	157.00	DMP65R-BU6DA	3	34.526	37.979	0.54	0.80	20.44	214.38	0.000	0.000	1241.93	0.00	0.00
16	157.00	T-Arm w/ Platform	3	34.526	37.979	0.56	0.75	20.25	1080.00	0.000	0.000	1230.52	0.00	0.00
17	157.00	(3) Stabilizer Kit (12' FW)	1	34.526	37.979	0.75	0.75	4.57	162.00	0.000	0.000	278.01	0.00	0.00
18	157.00	PRK-1245 (kicker kit)	1	34.526	37.979	1.00	1.00	9.50	418.42	0.000	0.000	577.28	0.00	0.00
19	157.00	DC9-48-60-24-8C-EV	1	34.526	37.979	0.80	0.80	0.91	23.58	0.000	0.000	55.42	0.00	0.00
20	157.00	B14 4478	3	34.526	37.979	0.54	0.80	2.96	161.73	0.000	0.000	179.79	0.00	0.00
21	157.00	OPA65R-BU6DA	3	34.526	37.979	0.58	0.80	22.27	170.91	0.000	0.000	1353.14	0.00	0.00
22	157.00	(3) SFS-H-L (V-Braces)	1	34.526	37.979	1.00	1.00	6.70	207.00	0.000	0.000	407.14	0.00	0.00
23	155.20	AIR 6449 B77D	3	34.443	37.887	0.00	1.00	12.39	237.60	0.000	0.000	751.07	0.00	0.00
24	141.00	4449 B71 + B85	3	33.754	37.129	0.50	0.75	2.97	197.64	0.000	0.000	176.42	0.00	0.00
25	141.00	APXVAALL24-43-U-NA20	3	33.754	37.129	0.52	0.75	31.88	345.60	0.000	0.000	1893.77	0.00	0.00
26	141.00	AIR6449 B41	3	33.754	37.129	0.53	0.75	9.03	278.10	0.000	0.000	536.20	0.00	0.00
27	141.00	AIR32	3	33.754	37.129	0.65	0.75	12.74	356.94	0.000	0.000	757.04	0.00	0.00
28	141.00	SDX1926Q-43	3	33.754	37.129	0.50	0.75	0.48	47.52	0.000	0.000	28.66	0.00	0.00
29	141.00	KRY 112 144	3	33.754	37.129	0.50	0.75	0.62	29.70	0.000	0.000	36.72	0.00	0.00
30	141.00	RRUS 4415 B25	3	33.754	37.129	0.50	0.75	2.47	124.20	0.000	0.000	146.87	0.00	0.00
31	141.00	(3) SFS-H (V-Braces)	1	33.754	37.129	0.75	0.75	4.72	177.30	0.000	0.000	280.70	0.00	0.00
32	141.00	Low Profile Platform	1	33.754	37.129	1.00	1.00	25.00	1080.00	0.000	0.000	1485.17	0.00	0.00
33	141.00	Support rail / End	1	33.754	37.129	0.75	0.75	11.63	585.00	0.000	0.000	690.60	0.00	0.00
34	75.00	GPS	1	29.553	32.509	1.00	1.00	1.00	9.00	0.000	0.000	52.01	0.00	0.00
							Totals:		**8,460.73**			**17,507.61**		

Total Applied Force Summary

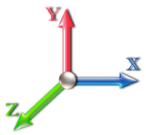
Structure:	CT03110-S-SBA		**Code:**	TIA-222-G	6/23/2022
Site Name:	North Branford		**Exposure:**	C	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		652.16	1479.37	0.00	0.00
10.00		639.80	1453.63	0.00	0.00
15.00		627.44	1427.88	0.00	0.00
18.00		384.53	844.37	0.00	0.00
20.00		259.48	485.98	0.00	0.00
25.00		670.28	1199.50	0.00	0.00
30.00		682.23	1177.43	0.00	0.00
35.00		689.98	1155.37	0.00	0.00
40.00		694.48	1133.30	0.00	0.00
41.00		137.79	224.01	0.00	0.00
45.00		563.55	1681.29	0.00	0.00
48.00		421.83	1242.43	0.00	0.00
50.00		280.46	438.49	0.00	0.00
55.00		704.01	1080.77	0.00	0.00
60.00		700.51	1058.71	0.00	0.00
65.00		695.61	1036.64	0.00	0.00
70.00		689.47	1014.58	0.00	0.00
75.00	(1) attachments	734.26	1001.51	0.00	0.00
80.00		674.02	969.73	0.00	0.00
85.00		664.90	947.66	0.00	0.00
90.00		664.24	1599.54	0.00	0.00
91.00		130.99	315.05	0.00	0.00
95.00		521.46	626.49	0.00	0.00
100.00		642.34	766.56	0.00	0.00
105.00		630.38	748.17	0.00	0.00
110.00		617.81	729.78	0.00	0.00
115.00		604.67	711.40	0.00	0.00
120.00		590.99	693.01	0.00	0.00
125.00		576.81	674.62	0.00	0.00
130.00		562.15	656.23	0.00	0.00
135.00		555.13	1051.45	0.00	0.00
140.00		539.64	528.28	0.00	0.00
141.00	(24) attachments	6137.87	3325.89	0.00	0.00
145.00		417.41	409.68	0.00	0.00
150.00		507.46	461.71	0.00	0.00
155.00		490.80	422.23	0.00	0.00
155.20	(3) attachments	770.29	254.18	0.00	0.00
157.00	(35) attachments	6183.68	3095.25	0.00	0.00
158.80	(3) attachments	591.90	306.87	0.00	0.00
160.00		111.85	84.54	0.00	0.00
165.00		456.41	343.13	0.00	0.00
170.00		438.71	328.42	0.00	0.00
175.00	(25) attachments	4659.11	2180.31	0.00	0.00
	Totals:	**38,968.89**	**41,365.42**	**0.00**	**0.00**

Linear Appurtenance Segment Forces (Factored)

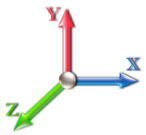
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	11.88
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	4.68
10.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	11.88
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	4.68
15.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	11.88
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.088	0.00	4.68
18.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	21.884	0.00	7.13
18.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	21.884	0.00	0.74
18.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	21.884	0.00	2.81
20.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	22.375	0.00	4.75
20.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	22.375	0.00	0.49
20.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	22.375	0.00	1.87
25.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.451	0.00	11.88
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.451	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.451	0.00	4.68
30.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.369	0.00	11.88
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.369	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.369	0.00	4.68
35.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.172	0.00	11.88
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.172	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.172	0.00	4.68
40.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.890	0.00	11.88
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.890	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.890	0.00	4.68
41.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	26.025	0.00	2.38
41.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	26.025	0.00	0.25
41.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	26.025	0.00	0.94
45.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	26.540	0.00	9.50
45.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	26.540	0.00	0.98
45.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	26.540	0.00	3.74
48.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.903	0.00	7.13
48.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.903	0.00	0.74
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.903	0.00	2.81
50.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.135	0.00	4.75
50.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.135	0.00	0.49
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.135	0.00	1.87
55.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.685	0.00	11.88
55.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.685	0.00	1.23
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.685	0.00	4.68
60.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.197	0.00	11.88
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.197	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.197	0.00	4.68
65.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.676	0.00	11.88
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.676	0.00	1.23

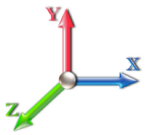
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.676	0.00	4.68
70.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.127	0.00	11.88
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.127	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.127	0.00	4.68
75.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.553	0.00	11.88
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.553	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.553	0.00	4.68
80.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.958	0.00	11.88
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.958	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.958	0.00	4.68
85.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.342	0.00	11.88
85.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.342	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.342	0.00	4.68
90.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.710	0.00	11.88
90.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.710	0.00	1.23
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.710	0.00	4.68
91.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	30.781	0.00	2.38
91.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	30.781	0.00	0.25
91.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	30.781	0.00	0.94
95.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	31.061	0.00	9.50
95.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	31.061	0.00	0.98
95.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	31.061	0.00	3.74
100.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.399	0.00	11.88
100.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.399	0.00	1.23
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.399	0.00	4.68
105.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.723	0.00	11.88
105.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.723	0.00	1.23
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.723	0.00	4.68
110.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.035	0.00	11.88
110.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.035	0.00	1.23
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.035	0.00	4.68
115.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.336	0.00	11.88
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.336	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.336	0.00	4.68
120.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.627	0.00	11.88
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.627	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.627	0.00	4.68
125.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.909	0.00	11.88
125.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.909	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.909	0.00	4.68
130.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.182	0.00	11.88
130.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.182	0.00	1.23
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.182	0.00	4.68
135.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.446	0.00	11.88
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.446	0.00	1.23
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.446	0.00	4.68
140.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.703	0.00	11.88

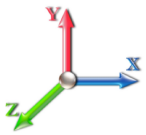
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (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: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
140.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.703	0.00	1.23
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.703	0.00	4.68
141.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	33.754	0.00	2.38
141.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	33.754	0.00	0.25
141.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	33.754	0.00	0.94
145.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	33.953	0.00	9.50
145.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	33.953	0.00	0.98
145.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	33.953	0.00	3.74
150.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.196	0.00	11.88
150.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.196	0.00	1.23
150.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.196	0.00	4.68
155.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.433	0.00	11.88
155.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.433	0.00	1.23
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.433	0.00	4.68
155.20	1 1/4" Coax	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	34.443	0.00	0.48
155.20	Safety Cable	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	34.443	0.00	0.05
155.20	Step bolts (ladder)	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	34.443	0.00	0.19
157.00	1 1/4" Coax	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.526	0.00	4.28
157.00	Safety Cable	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.526	0.00	0.44
157.00	Step bolts (ladder)	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.526	0.00	1.68
158.80	1 1/4" Coax	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.609	0.00	4.28
158.80	Safety Cable	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.609	0.00	0.44
158.80	Step bolts (ladder)	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	34.609	0.00	1.68
160.00	1 1/4" Coax	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	34.664	0.00	2.85
160.00	Safety Cable	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	34.664	0.00	0.29
160.00	Step bolts (ladder)	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	34.664	0.00	1.12
165.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.890	0.00	11.88
165.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.890	0.00	1.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.890	0.00	4.68
170.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.110	0.00	11.88
170.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.110	0.00	1.23
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.110	0.00	4.68
175.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.324	0.00	11.88
175.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.324	0.00	1.23
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.324	0.00	4.68
									Totals:		**0.0**	**622.6**

Calculated Forces

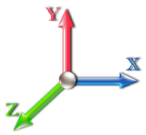
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.32	-39.02	0.00	-4650.1	0.00	4650.14	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.615
5.00	-39.74	-38.46	0.00	-4455.0	0.00	4455.04	5738.51	2869.25	14833.4	7427.75	0.08	-0.140	0.000	0.607
10.00	-38.20	-37.91	0.00	-4262.7	0.00	4262.72	5672.18	2836.09	14377.6	7199.49	0.30	-0.283	0.000	0.599
15.00	-36.70	-37.35	0.00	-4073.1	0.00	4073.15	5604.11	2802.06	13924.1	6972.40	0.67	-0.427	0.000	0.591
18.00	-35.81	-37.01	0.00	-3961.1	0.00	3961.10	5562.44	2781.22	13653.2	6836.76	0.97	-0.516	0.000	0.586
18.00	-35.81	-37.01	0.00	-3961.1	0.00	3961.10	4468.60	2234.30	10991.3	5503.84	0.97	-0.516	0.000	0.728
20.00	-35.25	-36.82	0.00	-3887.0	0.00	3887.08	4449.40	2224.70	10854.8	5435.51	1.20	-0.575	0.000	0.723
25.00	-33.95	-36.23	0.00	-3703.0	0.00	3703.01	4400.18	2200.09	10514.1	5264.91	1.90	-0.748	0.000	0.711
30.00	-32.67	-35.64	0.00	-3521.8	0.00	3521.84	4349.23	2174.61	10174.3	5094.75	2.77	-0.922	0.000	0.699
35.00	-31.42	-35.02	0.00	-3343.6	0.00	3343.66	4296.53	2148.27	9835.69	4925.16	3.83	-1.099	0.000	0.686
40.00	-30.24	-34.36	0.00	-3168.5	0.00	3168.55	4242.10	2121.05	9498.40	4756.26	5.08	-1.278	0.000	0.674
41.00	-29.96	-34.27	0.00	-3134.1	0.00	3134.19	4231.01	2115.50	9431.14	4722.58	5.35	-1.315	0.000	0.671
45.00	-28.22	-33.73	0.00	-2997.1	0.00	2997.13	4185.94	2092.97	9162.77	4588.20	6.52	-1.460	0.000	0.660
48.00	-26.94	-33.31	0.00	-2895.9	0.00	2895.95	4187.05	2093.52	9169.29	4591.46	7.47	-1.571	0.000	0.637
50.00	-26.43	-33.08	0.00	-2829.3	0.00	2829.32	4164.11	2082.05	9035.54	4524.49	8.15	-1.646	0.000	0.632
55.00	-25.27	-32.42	0.00	-2663.9	0.00	2663.92	4105.54	2052.77	8702.63	4357.78	9.97	-1.823	0.000	0.618
60.00	-24.14	-31.76	0.00	-2501.8	0.00	2501.81	4045.24	2022.62	8371.99	4192.22	11.97	-2.001	0.000	0.603
65.00	-23.03	-31.10	0.00	-2343.0	0.00	2343.00	3983.21	1991.60	8043.90	4027.93	14.16	-2.181	0.000	0.588
70.00	-21.95	-30.44	0.00	-2187.4	0.00	2187.49	3919.43	1959.72	7718.60	3865.04	16.54	-2.361	0.000	0.572
75.00	-20.88	-29.73	0.00	-2035.2	0.00	2035.28	3853.92	1926.96	7396.37	3703.68	19.11	-2.543	0.000	0.555
80.00	-19.85	-29.08	0.00	-1886.6	0.00	1886.62	3786.67	1893.34	7077.46	3543.99	21.87	-2.725	0.000	0.538
85.00	-18.85	-28.43	0.00	-1741.2	0.00	1741.23	3717.69	1858.85	6762.13	3386.09	24.83	-2.907	0.000	0.520
90.00	-17.24	-27.71	0.00	-1599.1	0.00	1599.10	3646.97	1823.48	6450.65	3230.12	27.97	-3.089	0.000	0.500
91.00	-16.88	-27.59	0.00	-1571.3	0.00	1571.39	2873.92	1436.96	5143.64	2575.64	28.62	-3.126	0.000	0.616
95.00	-16.20	-27.09	0.00	-1461.0	0.00	1461.02	2834.39	1417.20	4959.20	2483.29	31.30	-3.272	0.000	0.594
100.00	-15.38	-26.46	0.00	-1325.5	0.00	1325.59	2783.42	1391.71	4730.46	2368.74	34.84	-3.477	0.000	0.566
105.00	-14.58	-25.83	0.00	-1193.3	0.00	1193.31	2730.70	1365.35	4503.96	2255.33	38.58	-3.680	0.000	0.535
110.00	-13.81	-25.21	0.00	-1064.1	0.00	1064.16	2676.25	1338.13	4279.98	2143.17	42.54	-3.878	0.000	0.502
115.00	-13.06	-24.60	0.00	-938.10	0.00	938.10	2620.07	1310.03	4058.76	2032.40	46.71	-4.070	0.000	0.467
120.00	-12.34	-24.00	0.00	-815.08	0.00	815.08	2562.14	1281.07	3840.57	1923.14	51.07	-4.256	0.000	0.429
125.00	-11.64	-23.41	0.00	-695.06	0.00	695.06	2502.48	1251.24	3625.68	1815.54	55.62	-4.432	0.000	0.388
130.00	-10.97	-22.83	0.00	-578.01	0.00	578.01	2441.09	1220.54	3414.34	1709.71	60.34	-4.596	0.000	0.343
135.00	-9.91	-22.22	0.00	-463.86	0.00	463.86	1793.55	896.77	2465.05	1234.36	65.24	-4.746	0.000	0.382
140.00	-9.40	-21.65	0.00	-352.78	0.00	352.78	1751.71	875.86	2319.73	1161.59	70.27	-4.876	0.000	0.310
141.00	-6.59	-15.25	0.00	-331.14	0.00	331.14	1743.14	871.57	2290.90	1147.15	71.30	-4.905	0.000	0.293
145.00	-6.19	-14.81	0.00	-270.12	0.00	270.12	1708.14	854.07	2176.40	1089.82	75.45	-5.010	0.000	0.252
150.00	-5.75	-14.28	0.00	-196.05	0.00	196.05	1662.84	831.42	2035.30	1019.16	80.75	-5.120	0.000	0.196
155.00	-5.37	-13.76	0.00	-124.66	0.00	124.66	1615.80	807.90	1896.71	949.77	86.16	-5.206	0.000	0.135
155.20	-5.18	-12.97	0.00	-121.91	0.00	121.91	1613.88	806.94	1891.23	947.02	86.38	-5.209	0.000	0.132
157.00	-2.66	-6.53	0.00	-98.57	0.00	98.57	1596.49	798.25	1842.04	922.39	88.34	-5.234	0.000	0.109
158.80	-2.40	-5.91	0.00	-86.81	0.00	86.81	1578.88	789.44	1793.22	897.94	90.32	-5.255	0.000	0.098
160.00	-2.33	-5.79	0.00	-79.72	0.00	79.72	1567.02	783.51	1760.89	881.75	91.64	-5.268	0.000	0.092
165.00	-2.02	-5.31	0.00	-50.75	0.00	50.75	1516.50	758.25	1628.10	815.26	97.17	-5.313	0.000	0.064
170.00	-1.74	-4.84	0.00	-24.21	0.00	24.21	1464.25	732.13	1498.59	750.41	102.75	-5.343	0.000	0.033
170.00	-1.74	-4.84	0.00	-24.21	0.00	24.21	1464.25	732.13	1498.59	750.41	102.75	-5.343	0.000	0.033
175.00	0.00	-4.66	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	108.34	-5.354	0.000	0.000

Wind Loading - Shaft

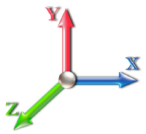
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	28.069	33.68	191.5	502.1	2301.1
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	27.631	33.16	188.5	528.8	2293.5
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	27.164	32.60	185.3	540.6	2271.0
18.00	Top - Section 1	1.00	0.88	5.363	5.90	0.00	1.200	1.412	3.00	16.065	19.28	113.7	326.6	1348.4
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	2.00	10.613	12.74	76.8	218.4	797.0
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	26.200	31.44	198.8	547.5	1973.3
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	25.710	30.85	202.7	546.5	1943.0
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	25.217	30.26	205.3	543.8	1910.8
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	24.722	29.67	207.1	539.7	1877.3
41.00	Bot - Section 3	1.00	1.05	6.378	7.02	0.00	1.200	1.533	1.00	4.884	5.86	41.1	107.7	371.7
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	4.00	19.593	23.51	168.2	433.4	2536.4
48.00	Top - Section 2	1.00	1.08	6.593	7.25	0.00	1.200	1.557	3.00	14.484	17.38	126.1	323.0	1875.5
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	2.00	9.556	11.47	83.9	214.3	729.6
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	23.544	28.25	210.9	529.1	1796.7
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	23.043	27.65	210.2	521.8	1759.9
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	22.542	27.05	209.1	513.9	1722.7
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	22.039	26.45	207.7	505.6	1684.9
75.00	Appurtenance(s)	1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	21.536	25.84	205.9	496.9	1646.7
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	21.033	25.24	203.8	487.8	1608.2
85.00	Bot - Section 4	1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	20.529	24.63	201.5	478.3	1569.4
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	20.289	24.35	201.6	475.1	2435.3
91.00	Top - Section 3	1.00	1.24	7.544	8.30	0.00	1.200	1.660	1.00	3.997	4.80	39.8	94.6	480.2
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	4.00	15.786	18.94	158.6	372.1	1069.4
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	5.00	19.279	23.13	195.8	454.9	1304.4
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	18.774	22.53	192.7	444.4	1269.4
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	18.268	21.92	189.3	433.7	1234.2
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	17.762	21.31	185.8	422.8	1198.8
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	17.256	20.71	182.1	411.8	1163.2
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	16.749	20.10	178.3	400.5	1127.5
130.00	Bot - Section 5	1.00	1.34	8.132	8.95	0.00	1.200	1.720	5.00	16.243	19.49	174.4	389.1	1091.6
135.00	Top - Section 4	1.00	1.35	8.197	9.02	0.00	1.200	1.727	5.00	15.947	19.14	172.5	383.0	1612.4
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	5.00	15.440	18.53	168.3	371.3	903.1
141.00	Appurtenance(s)	1.00	1.36	8.272	9.10	0.00	1.200	1.734	1.00	3.027	3.63	33.1	73.8	177.8
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	4.00	11.906	14.29	130.8	287.6	695.8
150.00		1.00	1.38	8.381	9.22	0.00	1.200	1.745	5.00	14.426	17.31	159.6	347.5	840.1
155.00		1.00	1.39	8.439	9.28	0.00	1.200	1.751	5.00	13.918	16.70	155.0	335.4	808.4
155.20	Appurtenance(s)	1.00	1.39	8.441	9.29	0.00	1.200	1.751	0.20	0.546	0.66	6.1	13.4	31.9
157.00	Appurtenance(s)	1.00	1.39	8.462	9.31	0.00	1.200	1.753	1.80	4.879	5.85	54.5	119.0	284.2
158.80	Appurtenance(s)	1.00	1.40	8.482	9.33	0.00	1.200	1.755	1.80	4.813	5.78	53.9	117.4	280.1
160.00		1.00	1.40	8.495	9.34	0.00	1.200	1.757	1.20	3.172	3.81	35.6	77.6	184.6
165.00		1.00	1.41	8.551	9.41	0.00	1.200	1.762	5.00	12.903	15.48	145.6	310.9	744.7
170.00	Top - Section 5	1.00	1.42	8.604	9.46	0.00	1.200	1.767	5.00	12.395	14.87	140.8	298.5	712.6
175.00	Appurtenance(s)	1.00	1.42	8.657	9.52	0.00	1.200	1.772	5.00	11.887	14.26	135.8	285.9	680.5
								Totals:	**175.00**			**6,528.0**		**54,347.2**

Discrete Appurtenance Forces

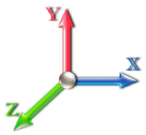
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	T-Arm w/ work Platform	3	8.657	9.523	0.56	0.75	31.83	2050.72	0.000	0.000	303.10	0.00	0.00
2	175.00	ACU-A20-N	4	8.657	9.523	0.61	0.90	1.08	17.05	0.000	0.000	10.29	0.00	0.00
3	175.00	800 MHz Filter	3	8.657	9.523	0.60	0.90	1.88	112.16	0.000	0.000	17.88	0.00	0.00
4	175.00	TD-RRH8x20-25	3	8.657	9.523	0.60	0.90	8.82	589.63	0.000	0.000	84.01	0.00	0.00
5	175.00	ALU 1900MHz RRU	3	8.657	9.523	0.60	0.90	9.43	397.38	0.000	0.000	89.78	0.00	0.00
6	175.00	ALU 800 MHz RRU	3	8.657	9.523	0.60	0.90	6.61	352.83	0.000	0.000	62.90	0.00	0.00
7	175.00	APXVSPP18-C-A20	3	8.657	9.523	0.76	0.90	24.62	583.31	0.000	0.000	234.49	0.00	0.00
8	175.00	APXVTM14-C-120	3	8.657	9.523	0.72	0.90	20.17	811.79	0.000	0.000	192.04	0.00	0.00
9	158.80	AIR 6419 B77G	3	8.482	9.330	0.61	0.80	8.39	460.14	0.000	0.000	78.29	0.00	0.00
10	157.00	Raycap DC6-48-60-18-8F	1	8.462	9.308	1.00	1.00	2.17	86.72	0.000	0.000	20.23	0.00	0.00
11	157.00	Powerwave LGP 21401	6	8.462	9.308	0.40	0.80	5.11	209.61	0.000	0.000	47.57	0.00	0.00
12	157.00	Powerwave 7020 RET	6	8.462	9.308	0.40	0.80	2.13	60.09	0.000	0.000	19.80	0.00	0.00
13	157.00	Ericsson RRUS 4449	3	8.462	9.308	0.54	0.80	4.05	393.41	0.000	0.000	37.71	0.00	0.00
14	157.00	Ericsson RRUS 8843	3	8.462	9.308	0.54	0.80	3.44	364.38	0.000	0.000	32.02	0.00	0.00
15	157.00	DMP65R-BU6DA	3	8.462	9.308	0.54	0.80	22.80	971.61	0.000	0.000	212.24	0.00	0.00
16	157.00	T-Arm w/ Platform	3	8.462	9.308	0.56	0.75	38.00	2041.53	0.000	0.000	353.70	0.00	0.00
17	157.00	(3) Stabilizer Kit (12' FW)	1	8.462	9.308	0.75	0.75	9.39	373.21	0.000	0.000	87.38	0.00	0.00
18	157.00	PRK-1245 (kicker kit)	1	8.462	9.308	1.00	1.00	19.49	788.83	0.000	0.000	181.44	0.00	0.00
19	157.00	DC9-48-60-24-8C-EV	1	8.462	9.308	0.80	0.80	2.19	120.81	0.000	0.000	20.36	0.00	0.00
20	157.00	B14 4478	3	8.462	9.308	0.54	0.80	3.81	322.19	0.000	0.000	35.46	0.00	0.00
21	157.00	OPA65R-BU6DA	3	8.462	9.308	0.58	0.80	24.89	1094.79	0.000	0.000	231.64	0.00	0.00
22	157.00	(3) SFS-H-L (V-Braces)	1	8.462	9.308	1.00	1.00	13.75	497.59	0.000	0.000	127.96	0.00	0.00
23	155.20	AIR 6449 B77D	3	8.441	9.285	0.00	1.00	14.97	731.11	0.000	0.000	139.01	0.00	0.00
24	141.00	4449 B71 + B85	3	8.272	9.099	0.50	0.75	3.82	260.48	0.000	0.000	34.78	0.00	0.00
25	141.00	APXVAALL24-43-U-NA20	3	8.272	9.099	0.52	0.75	34.85	1743.33	0.000	0.000	317.13	0.00	0.00
26	141.00	AIR6449 B41	3	8.272	9.099	0.53	0.75	10.54	684.52	0.000	0.000	95.86	0.00	0.00
27	141.00	AIR32	3	8.272	9.099	0.65	0.75	15.04	1025.01	0.000	0.000	136.84	0.00	0.00
28	141.00	SDX1926Q-43	3	8.272	9.099	0.50	0.75	0.88	138.61	0.000	0.000	8.01	0.00	0.00
29	141.00	KRY 112 144	3	8.272	9.099	0.50	0.75	1.33	62.44	0.000	0.000	12.10	0.00	0.00
30	141.00	RRUS 4415 B25	3	8.272	9.099	0.50	0.75	3.24	259.95	0.000	0.000	29.52	0.00	0.00
31	141.00	(3) SFS-H (V-Braces)	1	8.272	9.099	0.75	0.75	9.64	422.75	0.000	0.000	87.74	0.00	0.00
32	141.00	Low Profile Platform	1	8.272	9.099	1.00	1.00	45.81	2180.67	0.000	0.000	416.88	0.00	0.00
33	141.00	Support rail / End	1	8.272	9.099	0.75	0.75	23.72	1441.72	0.000	0.000	215.86	0.00	0.00
34	75.00	GPS	1	7.243	7.967	1.00	1.00	1.66	31.36	0.000	0.000	13.26	0.00	0.00
							Totals:		**21,681.72**			**3,987.28**		

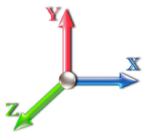
Total Applied Force Summary

Structure:	CT03110-S-SBA		**Code:**	TIA-222-G	6/23/2022
Site Name:	North Branford		**Exposure:**	C	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 25

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		191.48	2541.90	0.00	0.00
10.00		188.49	2540.95	0.00	0.00
15.00		185.31	2522.75	0.00	0.00
18.00		113.73	1500.63	0.00	0.00
20.00		76.82	898.94	0.00	0.00
25.00		198.76	2230.90	0.00	0.00
30.00		202.68	2202.73	0.00	0.00
35.00		205.35	2172.48	0.00	0.00
40.00		207.06	2140.66	0.00	0.00
41.00		41.11	424.47	0.00	0.00
45.00		168.22	2748.30	0.00	0.00
48.00		126.06	2034.93	0.00	0.00
50.00		83.88	836.11	0.00	0.00
55.00		210.86	2064.26	0.00	0.00
60.00		210.19	2028.70	0.00	0.00
65.00		209.11	1992.53	0.00	0.00
70.00		207.67	1955.82	0.00	0.00
75.00	(1) attachments	219.16	1950.00	0.00	0.00
80.00		203.83	1880.08	0.00	0.00
85.00		201.51	1842.09	0.00	0.00
90.00		201.56	2708.86	0.00	0.00
91.00		39.80	534.94	0.00	0.00
95.00		158.63	1288.88	0.00	0.00
100.00		195.82	1579.56	0.00	0.00
105.00		192.66	1545.31	0.00	0.00
110.00		189.32	1510.82	0.00	0.00
115.00		185.80	1476.10	0.00	0.00
120.00		182.13	1441.17	0.00	0.00
125.00		178.31	1406.04	0.00	0.00
130.00		174.35	1370.73	0.00	0.00
135.00		172.55	1892.12	0.00	0.00
140.00		168.35	1183.45	0.00	0.00
141.00	(24) attachments	1387.78	8453.37	0.00	0.00
145.00		130.77	920.49	0.00	0.00
150.00		159.59	1072.00	0.00	0.00
155.00		155.04	1007.81	0.00	0.00
155.20	(3) attachments	145.10	771.00	0.00	0.00
157.00	(35) attachments	1461.99	7680.82	0.00	0.00
158.80	(3) attachments	132.17	788.29	0.00	0.00
160.00		35.57	216.68	0.00	0.00
165.00		145.63	878.85	0.00	0.00
170.00		140.78	847.30	0.00	0.00
175.00	(25) attachments	1130.33	5730.50	0.00	0.00
	Totals:	**10,515.30**	**84,814.29**	**0.00**	**0.00**

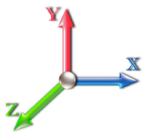
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	59.22
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	12.93
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	18.85
10.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	62.77
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	14.46
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	20.46
15.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	65.01
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	15.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	21.51
18.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	5.363	0.00	39.64
18.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	5.363	0.00	9.56
18.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	5.363	0.00	13.21
20.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	5.483	0.00	26.67
20.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	5.483	0.00	6.48
20.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	5.483	0.00	8.92
25.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.747	0.00	68.03
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.747	0.00	16.83
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.747	0.00	22.95
30.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.972	0.00	69.16
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.972	0.00	17.35
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.972	0.00	23.50
35.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	70.14
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	17.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	23.98
40.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.345	0.00	71.00
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.345	0.00	18.21
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.345	0.00	24.40
41.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	6.378	0.00	14.23
41.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	6.378	0.00	3.66
41.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	6.378	0.00	4.90
45.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	6.504	0.00	57.42
45.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	6.504	0.00	14.86
45.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	6.504	0.00	19.83
48.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	6.593	0.00	43.33
48.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	6.593	0.00	11.27
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	6.593	0.00	15.00
50.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	6.650	0.00	28.99
50.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	6.650	0.00	7.56
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	6.650	0.00	10.06
55.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.785	0.00	73.14
55.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.785	0.00	19.22
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.785	0.00	25.46
60.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.910	0.00	73.73
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.910	0.00	19.51
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.910	0.00	25.76
65.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.028	0.00	74.29
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.028	0.00	19.78

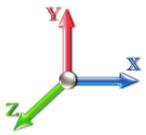
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.028	0.00	26.04
70.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	74.82
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	20.03
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	26.31
75.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.243	0.00	75.31
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.243	0.00	20.27
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.243	0.00	26.56
80.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.342	0.00	75.77
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.342	0.00	20.49
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.342	0.00	26.79
85.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.436	0.00	76.21
85.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.436	0.00	20.71
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.436	0.00	27.02
90.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.526	0.00	76.63
90.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.526	0.00	20.91
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.526	0.00	27.23
91.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	7.544	0.00	15.34
91.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	7.544	0.00	4.19
91.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	7.544	0.00	5.45
95.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	7.612	0.00	61.63
95.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	7.612	0.00	16.89
95.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	7.612	0.00	21.95
100.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.695	0.00	77.41
100.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.695	0.00	21.30
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.695	0.00	27.63
105.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.774	0.00	77.78
105.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.774	0.00	21.48
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.774	0.00	27.82
110.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.851	0.00	78.13
110.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.851	0.00	21.65
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.851	0.00	28.00
115.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.925	0.00	78.47
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.925	0.00	21.82
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.925	0.00	28.18
120.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.996	0.00	78.79
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.996	0.00	21.98
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.996	0.00	28.34
125.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.065	0.00	79.11
125.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.065	0.00	22.14
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.065	0.00	28.51
130.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.132	0.00	79.41
130.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.132	0.00	22.29
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.132	0.00	28.67
135.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.197	0.00	79.71
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.197	0.00	22.43
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.197	0.00	28.82
140.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.260	0.00	79.99

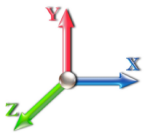
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
140.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.260	0.00	22.57
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.260	0.00	28.97
141.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	8.272	0.00	16.01
141.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	8.272	0.00	4.52
141.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	8.272	0.00	5.80
145.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	8.321	0.00	64.21
145.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	8.321	0.00	18.17
145.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	8.321	0.00	23.29
150.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.381	0.00	80.53
150.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.381	0.00	22.85
150.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.381	0.00	29.25
155.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.439	0.00	80.80
155.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.439	0.00	22.98
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.439	0.00	29.39
155.20	1 1/4" Coax	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	8.441	0.00	3.23
155.20	Safety Cable	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	8.441	0.00	0.92
155.20	Step bolts (ladder)	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	8.441	0.00	1.18
157.00	1 1/4" Coax	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	8.462	0.00	29.12
157.00	Safety Cable	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	8.462	0.00	8.29
157.00	Step bolts (ladder)	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	8.462	0.00	10.60
158.80	1 1/4" Coax	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	8.482	0.00	29.16
158.80	Safety Cable	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	8.482	0.00	8.31
158.80	Step bolts (ladder)	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	8.482	0.00	10.62
160.00	1 1/4" Coax	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	8.495	0.00	19.45
160.00	Safety Cable	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	8.495	0.00	5.55
160.00	Step bolts (ladder)	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	8.495	0.00	7.08
165.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.551	0.00	81.30
165.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.551	0.00	23.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.551	0.00	29.65
170.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.604	0.00	81.54
170.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.604	0.00	23.35
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.604	0.00	29.78
175.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.657	0.00	81.77
175.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.657	0.00	23.47
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.657	0.00	29.90
										Totals:	**0.0**	**4,263.7**

Calculated Forces

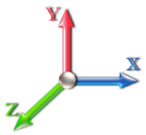
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-84.81	-10.54	0.00	-1257.8	0.00	1257.82	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.179
5.00	-82.26	-10.41	0.00	-1205.1	0.00	1205.11	5738.51	2869.25	14833.4	7427.75	0.02	-0.038	0.000	0.177
10.00	-79.71	-10.27	0.00	-1153.0	0.00	1153.08	5672.18	2836.09	14377.6	7199.49	0.08	-0.076	0.000	0.174
15.00	-77.19	-10.12	0.00	-1101.7	0.00	1101.73	5604.11	2802.06	13924.1	6972.40	0.18	-0.116	0.000	0.172
18.00	-75.68	-10.03	0.00	-1071.3	0.00	1071.36	5562.44	2781.22	13653.2	6836.76	0.26	-0.139	0.000	0.170
18.00	-75.68	-10.03	0.00	-1071.3	0.00	1071.36	4468.60	2234.30	10991.3	5503.84	0.26	-0.139	0.000	0.212
20.00	-74.78	-9.99	0.00	-1051.3	0.00	1051.30	4449.40	2224.70	10854.8	5435.51	0.32	-0.156	0.000	0.210
25.00	-72.54	-9.85	0.00	-1001.3	0.00	1001.33	4400.18	2200.09	10514.1	5264.91	0.51	-0.202	0.000	0.207
30.00	-70.33	-9.69	0.00	-952.10	0.00	952.10	4349.23	2174.61	10174.3	5094.75	0.75	-0.249	0.000	0.203
35.00	-68.15	-9.54	0.00	-903.63	0.00	903.63	4296.53	2148.27	9835.69	4925.16	1.04	-0.297	0.000	0.199
40.00	-66.01	-9.35	0.00	-855.95	0.00	855.95	4242.10	2121.05	9498.40	4756.26	1.37	-0.345	0.000	0.196
41.00	-65.58	-9.33	0.00	-846.60	0.00	846.60	4231.01	2115.50	9431.14	4722.58	1.45	-0.355	0.000	0.195
45.00	-62.83	-9.19	0.00	-809.27	0.00	809.27	4185.94	2092.97	9162.77	4588.20	1.76	-0.395	0.000	0.191
48.00	-60.79	-9.07	0.00	-781.71	0.00	781.71	4187.05	2093.52	9169.29	4591.46	2.02	-0.425	0.000	0.185
50.00	-59.95	-9.02	0.00	-763.57	0.00	763.57	4164.11	2082.05	9035.54	4524.49	2.20	-0.445	0.000	0.183
55.00	-57.88	-8.84	0.00	-718.48	0.00	718.48	4105.54	2052.77	8702.63	4357.78	2.69	-0.493	0.000	0.179
60.00	-55.84	-8.66	0.00	-674.29	0.00	674.29	4045.24	2022.62	8371.99	4192.22	3.24	-0.541	0.000	0.175
65.00	-53.85	-8.47	0.00	-631.01	0.00	631.01	3983.21	1991.60	8043.90	4027.93	3.83	-0.589	0.000	0.170
70.00	-51.88	-8.29	0.00	-588.64	0.00	588.64	3919.43	1959.72	7718.60	3865.04	4.47	-0.638	0.000	0.166
75.00	-49.93	-8.09	0.00	-547.20	0.00	547.20	3853.92	1926.96	7396.37	3703.68	5.17	-0.687	0.000	0.161
80.00	-48.05	-7.90	0.00	-506.75	0.00	506.75	3786.67	1893.34	7077.46	3543.99	5.91	-0.735	0.000	0.156
85.00	-46.20	-7.72	0.00	-467.23	0.00	467.23	3717.69	1858.85	6762.13	3386.09	6.71	-0.784	0.000	0.150
90.00	-43.49	-7.50	0.00	-428.64	0.00	428.64	3646.97	1823.48	6450.65	3230.12	7.56	-0.833	0.000	0.145
91.00	-42.95	-7.47	0.00	-421.14	0.00	421.14	2873.92	1436.96	5143.64	2575.64	7.73	-0.843	0.000	0.178
95.00	-41.66	-7.33	0.00	-391.26	0.00	391.26	2834.39	1417.20	4959.20	2483.29	8.46	-0.882	0.000	0.172
100.00	-40.08	-7.14	0.00	-354.63	0.00	354.63	2783.42	1391.71	4730.46	2368.74	9.41	-0.937	0.000	0.164
105.00	-38.53	-6.96	0.00	-318.91	0.00	318.91	2730.70	1365.35	4503.96	2255.33	10.42	-0.991	0.000	0.156
110.00	-37.02	-6.78	0.00	-284.10	0.00	284.10	2676.25	1338.13	4279.98	2143.17	11.49	-1.044	0.000	0.146
115.00	-35.54	-6.60	0.00	-250.21	0.00	250.21	2620.07	1310.03	4058.76	2032.40	12.61	-1.096	0.000	0.137
120.00	-34.10	-6.42	0.00	-217.22	0.00	217.22	2562.14	1281.07	3840.57	1923.14	13.78	-1.145	0.000	0.126
125.00	-32.69	-6.23	0.00	-185.15	0.00	185.15	2502.48	1251.24	3625.68	1815.54	15.01	-1.192	0.000	0.115
130.00	-31.32	-6.05	0.00	-153.98	0.00	153.98	2441.09	1220.54	3414.34	1709.71	16.28	-1.236	0.000	0.103
135.00	-29.43	-5.86	0.00	-123.71	0.00	123.71	1793.55	896.77	2465.05	1234.36	17.60	-1.276	0.000	0.117
140.00	-28.24	-5.67	0.00	-94.41	0.00	94.41	1751.71	875.86	2319.73	1161.59	18.95	-1.310	0.000	0.097
141.00	-19.82	-4.10	0.00	-88.74	0.00	88.74	1743.14	871.57	2290.90	1147.15	19.23	-1.318	0.000	0.089
145.00	-18.90	-3.96	0.00	-72.34	0.00	72.34	1708.14	854.07	2176.40	1089.82	20.34	-1.346	0.000	0.077
150.00	-17.83	-3.78	0.00	-52.56	0.00	52.56	1662.84	831.42	2035.30	1019.16	21.77	-1.376	0.000	0.062
155.00	-16.83	-3.60	0.00	-33.66	0.00	33.66	1615.80	807.90	1896.71	949.77	23.23	-1.399	0.000	0.046
155.20	-16.06	-3.44	0.00	-32.94	0.00	32.94	1613.88	806.94	1891.23	947.02	23.28	-1.400	0.000	0.045
157.00	-8.42	-1.79	0.00	-26.75	0.00	26.75	1596.49	798.25	1842.04	922.39	23.81	-1.406	0.000	0.034
158.80	-7.64	-1.64	0.00	-23.52	0.00	23.52	1578.88	789.44	1793.22	897.94	24.34	-1.412	0.000	0.031
160.00	-7.42	-1.60	0.00	-21.55	0.00	21.55	1567.02	783.51	1760.89	881.75	24.70	-1.416	0.000	0.029
165.00	-6.54	-1.44	0.00	-13.54	0.00	13.54	1516.50	758.25	1628.10	815.26	26.19	-1.428	0.000	0.021
170.00	-5.70	-1.27	0.00	-6.37	0.00	6.37	1464.25	732.13	1498.59	750.41	27.69	-1.436	0.000	0.012
170.00	-5.70	-1.27	0.00	-6.37	0.00	6.37	1464.25	732.13	1498.59	750.41	27.69	-1.436	0.000	0.012
175.00	0.00	-1.13	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	29.19	-1.439	0.000	0.000

Wind Loading - Shaft

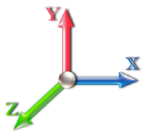
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	301.92	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	296.25	0.650	0.000	5.00	27.033	17.57	143.8	0.0	1499.2
10.00		1.00	0.85	7.442	8.19	290.58	0.650	0.000	5.00	26.521	17.24	141.1	0.0	1470.6
15.00		1.00	0.85	7.442	8.19	284.92	0.650	0.000	5.00	26.009	16.91	138.4	0.0	1442.0
18.00	Top - Section 1	1.00	0.88	7.723	8.50	286.78	0.650	0.000	3.00	15.360	9.98	84.8	0.0	851.5
20.00		1.00	0.90	7.896	8.69	287.64	0.650	0.000	2.00	10.137	6.59	57.2	0.0	482.1
25.00		1.00	0.95	8.276	9.10	288.50	0.650	0.000	5.00	24.984	16.24	147.8	0.0	1188.2
30.00		1.00	0.98	8.600	9.46	288.00	0.650	0.000	5.00	24.472	15.91	150.5	0.0	1163.7
35.00		1.00	1.01	8.883	9.77	286.52	0.650	0.000	5.00	23.960	15.57	152.2	0.0	1139.2
40.00		1.00	1.04	9.137	10.05	284.30	0.650	0.000	5.00	23.448	15.24	153.2	0.0	1114.7
41.00	Bot - Section 3	1.00	1.05	9.184	10.10	283.78	0.650	0.000	1.00	4.628	3.01	30.4	0.0	220.0
45.00		1.00	1.07	9.366	10.30	281.49	0.650	0.000	4.00	18.561	12.06	124.3	0.0	1752.5
48.00	Top - Section 2	1.00	1.08	9.494	10.44	279.57	0.650	0.000	3.00	13.706	8.91	93.0	0.0	1293.7
50.00		1.00	1.09	9.576	10.53	282.18	0.650	0.000	2.00	9.035	5.87	61.9	0.0	429.4
55.00		1.00	1.12	9.770	10.75	278.53	0.650	0.000	5.00	22.228	14.45	155.3	0.0	1056.3
60.00		1.00	1.14	9.951	10.95	274.54	0.650	0.000	5.00	21.716	14.12	154.5	0.0	1031.8
65.00		1.00	1.16	10.120	11.13	270.26	0.650	0.000	5.00	21.204	13.78	153.4	0.0	1007.3
70.00		1.00	1.17	10.279	11.31	265.71	0.650	0.000	5.00	20.692	13.45	152.1	0.0	982.7
75.00	Appurtenance(s)	1.00	1.19	10.430	11.47	260.94	0.650	0.000	5.00	20.179	13.12	150.5	0.0	958.2
80.00		1.00	1.21	10.572	11.63	255.96	0.650	0.000	5.00	19.667	12.78	148.7	0.0	933.7
85.00	Bot - Section 4	1.00	1.22	10.708	11.78	250.80	0.650	0.000	5.00	19.155	12.45	146.7	0.0	909.2
90.00		1.00	1.24	10.838	11.92	245.48	0.650	0.000	5.00	18.907	12.29	146.5	0.0	1633.5
91.00	Top - Section 3	1.00	1.24	10.863	11.95	244.40	0.650	0.000	1.00	3.720	2.42	28.9	0.0	321.3
95.00		1.00	1.25	10.962	12.06	243.55	0.650	0.000	4.00	14.675	9.54	115.0	0.0	581.1
100.00		1.00	1.27	11.081	12.19	237.96	0.650	0.000	5.00	17.883	11.62	141.7	0.0	708.0
105.00		1.00	1.28	11.195	12.31	232.23	0.650	0.000	5.00	17.370	11.29	139.0	0.0	687.5
110.00		1.00	1.29	11.305	12.44	226.39	0.650	0.000	5.00	16.858	10.96	136.3	0.0	667.1
115.00		1.00	1.30	11.412	12.55	220.43	0.650	0.000	5.00	16.346	10.62	133.4	0.0	646.7
120.00		1.00	1.32	11.514	12.67	214.37	0.650	0.000	5.00	15.834	10.29	130.4	0.0	626.2
125.00		1.00	1.33	11.614	12.78	208.21	0.650	0.000	5.00	15.321	9.96	127.2	0.0	605.8
130.00	Bot - Section 5	1.00	1.34	11.710	12.88	201.97	0.650	0.000	5.00	14.809	9.63	124.0	0.0	585.4
135.00	Top - Section 4	1.00	1.35	11.803	12.98	195.63	0.650	0.000	5.00	14.508	9.43	122.4	0.0	1024.5
140.00		1.00	1.36	11.894	13.08	192.18	0.650	0.000	5.00	13.996	9.10	119.0	0.0	443.2
141.00	Appurtenance(s)	1.00	1.36	11.912	13.10	190.89	0.650	0.000	1.00	2.738	1.78	23.3	0.0	86.7
145.00		1.00	1.37	11.982	13.18	185.70	0.650	0.000	4.00	10.746	6.98	92.1	0.0	340.2
150.00		1.00	1.38	12.068	13.27	179.14	0.650	0.000	5.00	12.972	8.43	111.9	0.0	410.5
155.00		1.00	1.39	12.152	13.37	172.52	0.650	0.000	5.00	12.459	8.10	108.3	0.0	394.2
155.20	Appurtenance(s)	1.00	1.39	12.155	13.37	172.26	0.650	0.000	0.20	0.488	0.32	4.2	0.0	15.4
157.00	Appurtenance(s)	1.00	1.39	12.185	13.40	169.85	0.650	0.000	1.80	4.353	2.83	37.9	0.0	137.7
158.80	Appurtenance(s)	1.00	1.40	12.214	13.44	167.44	0.650	0.000	1.80	4.286	2.79	37.4	0.0	135.5
160.00		1.00	1.40	12.233	13.46	165.83	0.650	0.000	1.20	2.821	1.83	24.7	0.0	89.2
165.00		1.00	1.41	12.313	13.54	159.08	0.650	0.000	5.00	11.435	7.43	100.7	0.0	361.5
170.00	Top - Section 5	1.00	1.42	12.390	13.63	152.27	0.650	0.000	5.00	10.923	7.10	96.8	0.0	345.1
175.00	Appurtenance(s)	1.00	1.42	12.466	13.71	145.40	0.650	0.000	5.00	10.410	6.77	92.8	0.0	328.8
								Totals:	**175.00**			**4,733.6**		**32,101.0**

Discrete Appurtenance Forces

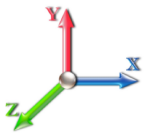
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	T-Arm w/ work Platform	3	12.466	13.713	0.56	0.75	16.88	1200.00	0.000	0.000	231.40	0.00	0.00
2	175.00	ACU-A20-N	4	12.466	13.713	0.60	0.90	0.34	4.00	0.000	0.000	4.63	0.00	0.00
3	175.00	800 MHz Filter	3	12.466	13.713	0.60	0.90	0.76	30.00	0.000	0.000	10.42	0.00	0.00
4	175.00	TD-RRH8x20-25	3	12.466	13.713	0.60	0.90	7.33	210.00	0.000	0.000	100.47	0.00	0.00
5	175.00	ALU 1900MHz RRU	3	12.466	13.713	0.60	0.90	6.87	132.00	0.000	0.000	94.26	0.00	0.00
6	175.00	ALU 800 MHz RRU	3	12.466	13.713	0.60	0.90	4.50	159.00	0.000	0.000	61.77	0.00	0.00
7	175.00	APXVSPP18-C-A20	3	12.466	13.713	0.75	0.90	17.97	171.00	0.000	0.000	246.46	0.00	0.00
8	175.00	APXVTM14-C-120	3	12.466	13.713	0.71	0.90	13.52	168.00	0.000	0.000	185.44	0.00	0.00
9	158.80	AIR 6419 B77G	3	12.214	13.435	0.61	0.80	6.93	198.30	0.000	0.000	93.12	0.00	0.00
10	157.00	Raycap DC6-48-60-18-8F	1	12.185	13.403	1.00	1.00	1.47	32.80	0.000	0.000	19.70	0.00	0.00
11	157.00	Powerwave LGP 21401	6	12.185	13.403	0.40	0.80	3.10	84.60	0.000	0.000	41.50	0.00	0.00
12	157.00	Powerwave 7020 RET	6	12.185	13.403	0.40	0.80	0.96	13.20	0.000	0.000	12.87	0.00	0.00
13	157.00	Ericsson RRUS 4449	3	12.185	13.403	0.54	0.80	3.17	219.00	0.000	0.000	42.46	0.00	0.00
14	157.00	Ericsson RRUS 8843	3	12.185	13.403	0.54	0.80	2.64	216.00	0.000	0.000	35.35	0.00	0.00
15	157.00	DMP65R-BU6DA	3	12.185	13.403	0.54	0.80	20.44	238.20	0.000	0.000	273.93	0.00	0.00
16	157.00	T-Arm w/ Platform	3	12.185	13.403	0.56	0.75	20.25	1200.00	0.000	0.000	271.41	0.00	0.00
17	157.00	(3) Stabilizer Kit (12' FW)	1	12.185	13.403	0.75	0.75	4.57	180.00	0.000	0.000	61.32	0.00	0.00
18	157.00	PRK-1245 (kicker kit)	1	12.185	13.403	1.00	1.00	9.50	464.91	0.000	0.000	127.33	0.00	0.00
19	157.00	DC9-48-60-24-8C-EV	1	12.185	13.403	0.80	0.80	0.91	26.20	0.000	0.000	12.22	0.00	0.00
20	157.00	B14 4478	3	12.185	13.403	0.54	0.80	2.96	179.70	0.000	0.000	39.66	0.00	0.00
21	157.00	OPA65R-BU6DA	3	12.185	13.403	0.58	0.80	22.27	189.90	0.000	0.000	298.46	0.00	0.00
22	157.00	(3) SFS-H-L (V-Braces)	1	12.185	13.403	1.00	1.00	6.70	230.00	0.000	0.000	89.80	0.00	0.00
23	155.20	AIR 6449 B77D	3	12.155	13.371	0.00	1.00	12.39	264.00	0.000	0.000	165.66	0.00	0.00
24	141.00	4449 B71 + B85	3	11.912	13.103	0.50	0.75	2.97	219.60	0.000	0.000	38.91	0.00	0.00
25	141.00	APXVAALL24-43-U-NA20	3	11.912	13.103	0.52	0.75	31.88	384.00	0.000	0.000	417.70	0.00	0.00
26	141.00	AIR6449 B41	3	11.912	13.103	0.53	0.75	9.03	309.00	0.000	0.000	118.27	0.00	0.00
27	141.00	AIR32	3	11.912	13.103	0.65	0.75	12.74	396.60	0.000	0.000	166.98	0.00	0.00
28	141.00	SDX1926Q-43	3	11.912	13.103	0.50	0.75	0.48	52.80	0.000	0.000	6.32	0.00	0.00
29	141.00	KRY 112 144	3	11.912	13.103	0.50	0.75	0.62	33.00	0.000	0.000	8.10	0.00	0.00
30	141.00	RRUS 4415 B25	3	11.912	13.103	0.50	0.75	2.47	138.00	0.000	0.000	32.39	0.00	0.00
31	141.00	(3) SFS-H (V-Braces)	1	11.912	13.103	0.75	0.75	4.72	197.00	0.000	0.000	61.91	0.00	0.00
32	141.00	Low Profile Platform	1	11.912	13.103	1.00	1.00	25.00	1200.00	0.000	0.000	327.58	0.00	0.00
33	141.00	Support rail / End	1	11.912	13.103	0.75	0.75	11.63	650.00	0.000	0.000	152.32	0.00	0.00
34	75.00	GPS	1	10.430	11.473	1.00	1.00	1.00	10.00	0.000	0.000	11.47	0.00	0.00
							Totals:		**9,400.81**			**3,861.60**		

Total Applied Force Summary

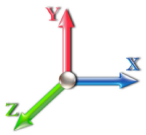
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	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		143.84	1643.74	0.00	0.00
10.00		141.12	1615.14	0.00	0.00
15.00		138.39	1586.54	0.00	0.00
18.00		84.81	938.19	0.00	0.00
20.00		57.23	539.97	0.00	0.00
25.00		147.84	1332.77	0.00	0.00
30.00		150.48	1308.26	0.00	0.00
35.00		152.19	1283.74	0.00	0.00
40.00		153.18	1259.22	0.00	0.00
41.00		30.39	248.90	0.00	0.00
45.00		124.30	1868.10	0.00	0.00
48.00		93.04	1380.48	0.00	0.00
50.00		61.86	487.21	0.00	0.00
55.00		155.28	1200.86	0.00	0.00
60.00		154.51	1176.34	0.00	0.00
65.00		153.43	1151.82	0.00	0.00
70.00		152.07	1127.31	0.00	0.00
75.00	(1) attachments	161.95	1112.79	0.00	0.00
80.00		148.67	1077.47	0.00	0.00
85.00		146.65	1052.96	0.00	0.00
90.00		146.51	1777.27	0.00	0.00
91.00		28.89	350.06	0.00	0.00
95.00		115.02	696.10	0.00	0.00
100.00		141.68	851.73	0.00	0.00
105.00		139.04	831.30	0.00	0.00
110.00		136.27	810.87	0.00	0.00
115.00		133.37	790.44	0.00	0.00
120.00		130.35	770.01	0.00	0.00
125.00		127.23	749.58	0.00	0.00
130.00		123.99	729.15	0.00	0.00
135.00		122.44	1168.27	0.00	0.00
140.00		119.03	586.98	0.00	0.00
141.00	(24) attachments	1353.81	3695.43	0.00	0.00
145.00		92.07	455.20	0.00	0.00
150.00		111.93	513.01	0.00	0.00
155.00		108.25	469.14	0.00	0.00
155.20	(3) attachments	169.90	282.43	0.00	0.00
157.00	(35) attachments	1363.91	3439.16	0.00	0.00
158.80	(3) attachments	130.55	340.96	0.00	0.00
160.00		24.67	93.93	0.00	0.00
165.00		100.67	381.25	0.00	0.00
170.00		96.76	364.91	0.00	0.00
175.00	(25) attachments	1027.64	2422.56	0.00	0.00
	Totals:	**8,595.24**	**45,961.58**	**0.00**	**0.00**

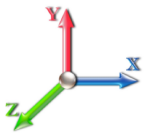
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	13.20
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
10.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	13.20
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
15.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	13.20
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
18.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.723	0.00	7.92
18.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.723	0.00	0.82
18.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.723	0.00	3.12
20.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.896	0.00	5.28
20.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.896	0.00	0.55
20.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.896	0.00	2.08
25.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.276	0.00	13.20
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.276	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.276	0.00	5.20
30.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.600	0.00	13.20
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.600	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.600	0.00	5.20
35.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.883	0.00	13.20
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.883	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.883	0.00	5.20
40.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.137	0.00	13.20
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.137	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.137	0.00	5.20
41.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	9.184	0.00	2.64
41.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	9.184	0.00	0.27
41.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	9.184	0.00	1.04
45.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	9.366	0.00	10.56
45.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	9.366	0.00	1.09
45.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	9.366	0.00	4.16
48.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	9.494	0.00	7.92
48.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	9.494	0.00	0.82
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	9.494	0.00	3.12
50.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	9.576	0.00	5.28
50.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	9.576	0.00	0.55
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	9.576	0.00	2.08
55.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.770	0.00	13.20
55.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.770	0.00	1.37
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.770	0.00	5.20
60.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.951	0.00	13.20
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.951	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.951	0.00	5.20
65.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.120	0.00	13.20
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.120	0.00	1.37

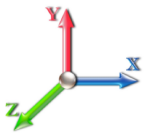
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 34	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

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)
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.120	0.00	5.20
70.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.279	0.00	13.20
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.279	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.279	0.00	5.20
75.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.430	0.00	13.20
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.430	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.430	0.00	5.20
80.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.572	0.00	13.20
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.572	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.572	0.00	5.20
85.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	13.20
85.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	5.20
90.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.838	0.00	13.20
90.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.838	0.00	1.37
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.838	0.00	5.20
91.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	10.863	0.00	2.64
91.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	10.863	0.00	0.27
91.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	10.863	0.00	1.04
95.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	10.962	0.00	10.56
95.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	10.962	0.00	1.09
95.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	10.962	0.00	4.16
100.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.081	0.00	13.20
100.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.081	0.00	1.37
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.081	0.00	5.20
105.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.195	0.00	13.20
105.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.195	0.00	1.37
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.195	0.00	5.20
110.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.305	0.00	13.20
110.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.305	0.00	1.37
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.305	0.00	5.20
115.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.412	0.00	13.20
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.412	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.412	0.00	5.20
120.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.514	0.00	13.20
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.514	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.514	0.00	5.20
125.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.614	0.00	13.20
125.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.614	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.614	0.00	5.20
130.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.710	0.00	13.20
130.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.710	0.00	1.37
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.710	0.00	5.20
135.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.803	0.00	13.20
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.803	0.00	1.37
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.803	0.00	5.20
140.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.894	0.00	13.20

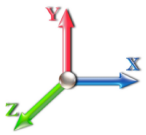
Linear Appurtenance Segment Forces (Factored)

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 35	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

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)
140.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.894	0.00	1.37
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.894	0.00	5.20
141.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	11.912	0.00	2.64
141.00	Safety Cable	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	11.912	0.00	0.27
141.00	Step bolts (ladder)	Yes	1.00	0.000	0.00	0.00	0.00	0.000	0.000	11.912	0.00	1.04
145.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	11.982	0.00	10.56
145.00	Safety Cable	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	11.982	0.00	1.09
145.00	Step bolts (ladder)	Yes	4.00	0.000	0.00	0.00	0.00	0.000	0.000	11.982	0.00	4.16
150.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.068	0.00	13.20
150.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.068	0.00	1.37
150.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.068	0.00	5.20
155.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.152	0.00	13.20
155.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.152	0.00	1.37
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.152	0.00	5.20
155.20	1 1/4" Coax	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	12.155	0.00	0.53
155.20	Safety Cable	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	12.155	0.00	0.05
155.20	Step bolts (ladder)	Yes	0.20	0.000	0.00	0.00	0.00	0.000	0.000	12.155	0.00	0.21
157.00	1 1/4" Coax	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	12.185	0.00	4.75
157.00	Safety Cable	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	12.185	0.00	0.49
157.00	Step bolts (ladder)	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	12.185	0.00	1.87
158.80	1 1/4" Coax	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	12.214	0.00	4.75
158.80	Safety Cable	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	12.214	0.00	0.49
158.80	Step bolts (ladder)	Yes	1.80	0.000	0.00	0.00	0.00	0.000	0.000	12.214	0.00	1.87
160.00	1 1/4" Coax	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	12.233	0.00	3.17
160.00	Safety Cable	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	12.233	0.00	0.33
160.00	Step bolts (ladder)	Yes	1.20	0.000	0.00	0.00	0.00	0.000	0.000	12.233	0.00	1.25
165.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.313	0.00	13.20
165.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.313	0.00	1.37
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.313	0.00	5.20
170.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.390	0.00	13.20
170.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.390	0.00	1.37
170.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.390	0.00	5.20
175.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.466	0.00	13.20
175.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.466	0.00	1.37
175.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	12.466	0.00	5.20
									Totals:		**0.0**	**691.8**

Calculated Forces

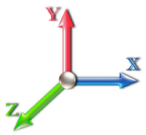
Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 36	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.96	-8.61	0.00	-1030.1	0.00	1030.13	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.142
5.00	-44.31	-8.49	0.00	-987.10	0.00	987.10	5738.51	2869.25	14833.4	7427.75	0.02	-0.031	0.000	0.141
10.00	-42.69	-8.37	0.00	-944.66	0.00	944.66	5672.18	2836.09	14377.6	7199.49	0.07	-0.063	0.000	0.139
15.00	-41.10	-8.25	0.00	-902.82	0.00	902.82	5604.11	2802.06	13924.1	6972.40	0.15	-0.095	0.000	0.137
18.00	-40.16	-8.17	0.00	-878.08	0.00	878.08	5562.44	2781.22	13653.2	6836.76	0.22	-0.114	0.000	0.136
18.00	-40.16	-8.17	0.00	-878.08	0.00	878.08	4468.60	2234.30	10991.3	5503.84	0.22	-0.114	0.000	0.169
20.00	-39.62	-8.13	0.00	-861.74	0.00	861.74	4449.40	2224.70	10854.8	5435.51	0.27	-0.128	0.000	0.167
25.00	-38.28	-8.01	0.00	-821.09	0.00	821.09	4400.18	2200.09	10514.1	5264.91	0.42	-0.166	0.000	0.165
30.00	-36.97	-7.88	0.00	-781.06	0.00	781.06	4349.23	2174.61	10174.3	5094.75	0.61	-0.204	0.000	0.162
35.00	-35.68	-7.74	0.00	-741.68	0.00	741.68	4296.53	2148.27	9835.69	4925.16	0.85	-0.244	0.000	0.159
40.00	-34.42	-7.60	0.00	-702.97	0.00	702.97	4242.10	2121.05	9498.40	4756.26	1.13	-0.283	0.000	0.156
41.00	-34.16	-7.58	0.00	-695.37	0.00	695.37	4231.01	2115.50	9431.14	4722.58	1.19	-0.291	0.000	0.155
45.00	-32.29	-7.46	0.00	-665.05	0.00	665.05	4185.94	2092.97	9162.77	4588.20	1.44	-0.324	0.000	0.153
48.00	-30.91	-7.37	0.00	-642.67	0.00	642.67	4187.05	2093.52	9169.29	4591.46	1.66	-0.348	0.000	0.147
50.00	-30.42	-7.32	0.00	-627.93	0.00	627.93	4164.11	2082.05	9035.54	4524.49	1.81	-0.365	0.000	0.146
55.00	-29.22	-7.18	0.00	-591.33	0.00	591.33	4105.54	2052.77	8702.63	4357.78	2.21	-0.404	0.000	0.143
60.00	-28.04	-7.03	0.00	-555.44	0.00	555.44	4045.24	2022.62	8371.99	4192.22	2.65	-0.444	0.000	0.139
65.00	-26.88	-6.89	0.00	-520.28	0.00	520.28	3983.21	1991.60	8043.90	4027.93	3.14	-0.484	0.000	0.136
70.00	-25.75	-6.75	0.00	-485.83	0.00	485.83	3919.43	1959.72	7718.60	3865.04	3.67	-0.524	0.000	0.132
75.00	-24.63	-6.59	0.00	-452.10	0.00	452.10	3853.92	1926.96	7396.37	3703.68	4.24	-0.564	0.000	0.128
80.00	-23.55	-6.45	0.00	-419.15	0.00	419.15	3786.67	1893.34	7077.46	3543.99	4.85	-0.605	0.000	0.125
85.00	-22.50	-6.31	0.00	-386.91	0.00	386.91	3717.69	1858.85	6762.13	3386.09	5.51	-0.645	0.000	0.120
90.00	-20.72	-6.15	0.00	-355.39	0.00	355.39	3646.97	1823.48	6450.65	3230.12	6.20	-0.685	0.000	0.116
91.00	-20.37	-6.12	0.00	-349.24	0.00	349.24	2873.92	1436.96	5143.64	2575.64	6.35	-0.694	0.000	0.143
95.00	-19.67	-6.01	0.00	-324.76	0.00	324.76	2834.39	1417.20	4959.20	2483.29	6.94	-0.726	0.000	0.138
100.00	-18.81	-5.87	0.00	-294.70	0.00	294.70	2783.42	1391.71	4730.46	2368.74	7.73	-0.772	0.000	0.131
105.00	-17.98	-5.74	0.00	-265.34	0.00	265.34	2730.70	1365.35	4503.96	2255.33	8.56	-0.817	0.000	0.124
110.00	-17.17	-5.60	0.00	-236.66	0.00	236.66	2676.25	1338.13	4279.98	2143.17	9.44	-0.861	0.000	0.117
115.00	-16.38	-5.47	0.00	-208.65	0.00	208.65	2620.07	1310.03	4058.76	2032.40	10.37	-0.904	0.000	0.109
120.00	-15.60	-5.34	0.00	-181.31	0.00	181.31	2562.14	1281.07	3840.57	1923.14	11.34	-0.945	0.000	0.100
125.00	-14.85	-5.21	0.00	-154.63	0.00	154.63	2502.48	1251.24	3625.68	1815.54	12.35	-0.984	0.000	0.091
130.00	-14.12	-5.08	0.00	-128.60	0.00	128.60	2441.09	1220.54	3414.34	1709.71	13.40	-1.021	0.000	0.081
135.00	-12.95	-4.94	0.00	-103.21	0.00	103.21	1793.55	896.77	2465.05	1234.36	14.48	-1.054	0.000	0.091
140.00	-12.37	-4.82	0.00	-78.51	0.00	78.51	1751.71	875.86	2319.73	1161.59	15.60	-1.083	0.000	0.075
141.00	-8.70	-3.39	0.00	-73.69	0.00	73.69	1743.14	871.57	2290.90	1147.15	15.83	-1.089	0.000	0.069
145.00	-8.24	-3.30	0.00	-60.12	0.00	60.12	1708.14	854.07	2176.40	1089.82	16.76	-1.113	0.000	0.060
150.00	-7.73	-3.18	0.00	-43.63	0.00	43.63	1662.84	831.42	2035.30	1019.16	17.93	-1.137	0.000	0.047
155.00	-7.26	-3.06	0.00	-27.75	0.00	27.75	1615.80	807.90	1896.71	949.77	19.14	-1.156	0.000	0.034
155.20	-6.99	-2.89	0.00	-27.13	0.00	27.13	1613.88	806.94	1891.23	947.02	19.19	-1.157	0.000	0.033
157.00	-3.57	-1.45	0.00	-21.94	0.00	21.94	1596.49	798.25	1842.04	922.39	19.62	-1.162	0.000	0.026
158.80	-3.24	-1.32	0.00	-19.32	0.00	19.32	1578.88	789.44	1793.22	897.94	20.06	-1.167	0.000	0.024
160.00	-3.14	-1.29	0.00	-17.74	0.00	17.74	1567.02	783.51	1760.89	881.75	20.36	-1.170	0.000	0.022
165.00	-2.76	-1.18	0.00	-11.30	0.00	11.30	1516.50	758.25	1628.10	815.26	21.59	-1.180	0.000	0.016
170.00	-2.40	-1.08	0.00	-5.39	0.00	5.39	1464.25	732.13	1498.59	750.41	22.83	-1.187	0.000	0.009
170.00	-2.40	-1.08	0.00	-5.39	0.00	5.39	1464.25	732.13	1498.59	750.41	22.83	-1.187	0.000	0.009
175.00	0.00	-1.03	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	24.07	-1.189	0.000	0.000

Final Analysis Summary

Structure:	CT03110-S-SBA	**Code:**	TIA-222-G	6/23/2022	
Site Name:	North Branford	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 37	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	39.0	0.00	55.10	0.00	0.00	4695.19
0.9D + 1.6W 101 mph Wind	39.0	0.00	41.32	0.00	0.00	4650.14
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.5	0.00	84.81	0.00	0.00	1257.82
1.0D + 1.0W 60 mph Wind	8.6	0.00	45.96	0.00	0.00	1030.13

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-47.86	-37.13	0.00	-4005.0	0.00	-4005.0	5562.44	2781.2	13653.2	6836.76	18.00	0.739
0.9D + 1.6W 101 mph Wind	-35.81	-37.01	0.00	-3961.1	0.00	-3961.1	5562.44	2781.2	13653.2	6836.76	18.00	0.728
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-75.68	-10.03	0.00	-1071.3	0.00	-1071.3	5562.44	2781.2	13653.2	6836.76	18.00	0.212
1.0D + 1.0W 60 mph Wind	-40.16	-8.17	0.00	-878.08	0.00	-878.08	5562.44	2781.2	13653.2	6836.76	18.00	0.169

Base Plate Summary

Structure:	CT03110-S-SB		**Code:**	TIA-222-G	6/23/2022
Site Name:	North Branford		**Exposure:**	C	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 38

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	5240.00
Axial (kip):	51.00
Shear (kip):	41.49

Analysis (1.2D + 1.6W)

Moment (kip-ft):	4695.19
Axial (kip):	55.10
Shear (kip):	39.04

Base Plate

Yield (ksi):	50.00
Width (in):	84.50
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	14.71
Moment (kip-in):	-537.67
Allow Stress (ksi):	67.50
Applied Stress (ksi):	-35.10
Stress Ratio:	-0.52

Anchor Bolts

Bolt Circle:	58.00
Number Bolts:	24.00
Bolt Type:	2.00" A687
Bolt Diameter (in):	2.00
Yield (ksi):	105.00
Ultimate (ksi):	150.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00

Compression

Force (kip):	73.48
Allowable (kip):	300.00
Ratio:	0.26

Tension

Force (kip):	66.41
Allowable (kip):	300.00
Ratio:	0.23

Monopole Mat Foundation Design

				Date
				6/23/2022
Customer Name:	AT&T	**EIA/TIA Standard:**	TIA-222-G
Site Name:		**Structure Height (Ft.):**	175
Site Number:	CT03110-S-SBA	**Engineer Name:**	M. Franco
Engr. Number:	130839	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

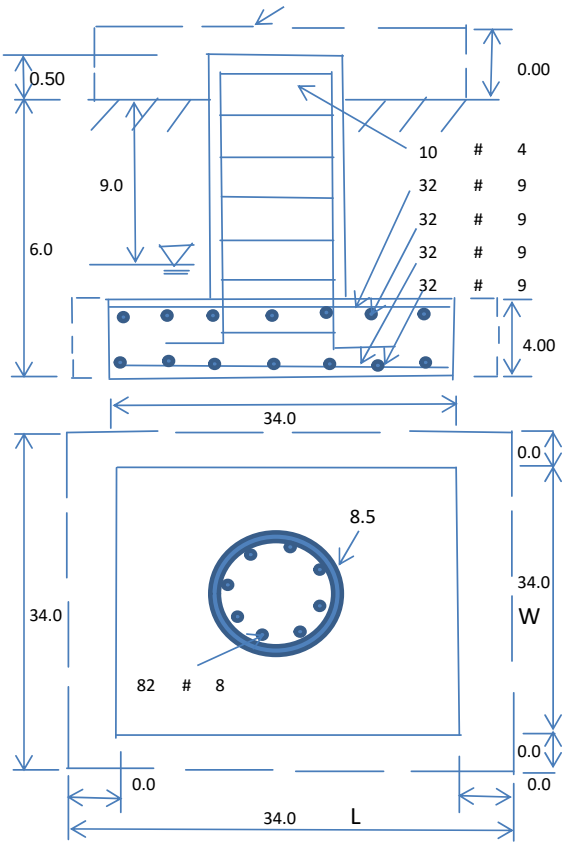
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	55.1	Shear Force (Kips):	39.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4695.2
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.5	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	4.00
Length of Pad (ft.):	34	Width of Pad (ft.):	34
Final Length of pad (ft)	34.0	Final width of pad (ft):	34.0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	82	Tie Spacing (in):	8.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
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):	32	Qty. of Rebar in Pad (W):	32	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	32	Qty. of Rebar in Pad (W):	32	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	9.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	5000	Ultimate Skin Friction:	175	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	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.):	2198.51	Total Dry Soil Weight (Kips):	263.82
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	263.82	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	4765.86	Total Dry Concrete Weight (Kips):	714.88
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	714.88	Total Vertical Load on Base (Kips):	1033.80

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	1357	<	Allowable Factored Soil Bearing (psf):	3750	0.36	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	15910.8	>	Design Factored Momont (kips-ft):	4949	0.31	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	3.22	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75			
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00			
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	12788.7	>	Design Factored Moment (Mu, Kips-F	4792.7	0.37	OK!
Calculated Shear Capacity (Kips):	916.1	>	Design Factored Shear (Kips):	39.0	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	3498.1	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	10749.2	>	Design Factored Axial Load (Pu Kips):	55.1	0.01	OK!
Moment & Axial Strength Combination:	0.37	OK!	Check Tie Spacing (Design/Required):		0.6667	OK!
Pier Reinforcement Ratio:	0.008		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	1489.6	>	One-Way Factored Shear (L-D. Kips):	287.3	0.19	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1489.6	>	One-Way Factored Shear (W-D., Kips)	287.3	0.19	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1409.7	>	One-Way Factored Shear (C-C, Kips):	260.4	0.18	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0018		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	6266.1	>	Moment at Bottom (L-Dir. K-Ft):	2267.5	0.36	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	6266.1	>	Moment at Bottom (W-Dir. K-Ft):	2267.5	0.36	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	8821.3	>	Moment at Bottom (C-C Dir. K-Ft):	3206.8	0.36	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0018		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	6266.1	>	Moment at the top (L-Dir K-Ft):	866.4	0.14	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	6266.1	>	Moment at the top (W-Dir K-Ft):	866.4	0.14	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	8821.3	>	Moment at the top (C-C Dir. K-Ft):	810.2	0.09	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1878.1	k-ft.	Max. factored shear stress v_{u_CD}:		2.5	Psi
Max. factored shear stress v_{u_AB}:	6.6	Psi	Factored shear Strength ϕv_n:		164.3	Psi
Max. factored shear stress v_u:	6.6	Psi	Check Usage of Punching Shear Capacity:		0.04	OK!

EXHIBIT 4

October 25, 2022 (Rev.1)
June 1, 2022

Centerline Communications
750 West Center Street, Suite #301
West Bridgewater, MA 02379

RE:		
	Site Number:	CT5184
	FA Number:	10071146
	PACE Number:	MRCTB055158
	PT Number:	2051A11KMW
	TEP Number:	354341
	Site Name:	EAST HAVEN
	Site Address:	108 Foxon Road North Branford, CT 06471

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by Centerline Communications to perform a mount analysis on the proposed AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (3) HPA-65R-BUU-H6 Antennas (72.3"x14.4"x7.3" – Wt. = 43 lbs. /each)
- (3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)
- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (1) DC6-48-60-18-8F Surge Arrestor (31.4"x10.2" Ø – Wt. = 29 lbs.)
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. 82 lbs. /each)**
- **(1) DC9-48-60-24-8C-EV Surge Arrestor (31.4"x10.2" Ø – Wt. = 29 lbs.)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1, P/N VFA14-H10-2120, dated December 7, 2020; P/N MM01, dated May 10, 2010; and P/N LWRM, dated July 25, 2012, were used to perform this analysis. TEP NE's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on March 16, 2022.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.17 in was used for this analysis.
- TEP NE considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- TEP NE considers this site to be topographic category 3; tower is located at the upper half of a hill.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.179 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.061.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mounts are to be secured to the existing monopole with ring mounts and threaded rods. TEP NE considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the Proposed SitePro1 P/N VFA14-H10-2120 mounts, Proposed SitePro1 P/N MM01 standoffs, and Proposed SitePro1 P/N LWRM collar mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	9	LC83	88%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1, P/N VFA14-H10-2120, dated December 7, 2020.
- Fabrication drawings prepared by SitePro1, P/N MM01, dated May 10, 2010.
- Fabrication drawings prepared by SitePro1, P/N LWRM, dated July 25, 2012.

This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. TEP NE performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

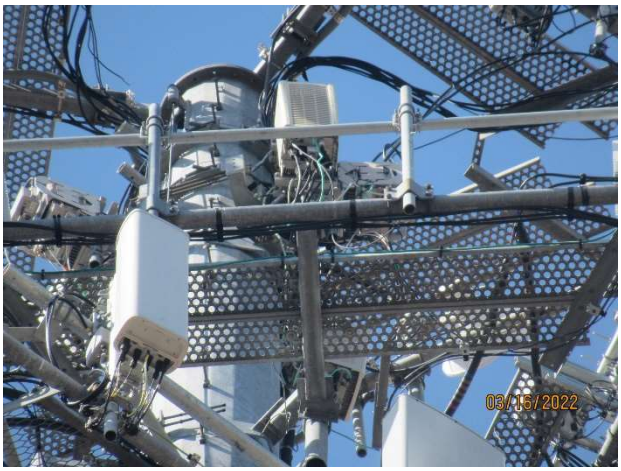
Respectfully Submitted,
TEP Northeast

Michael Cabral
Director

Daniel P. Hamm, PE
Vice President

FIELD PHOTOS:
** Existing mounts to be removed and replaced.*

FIELD PHOTOS: (CONT.)
** Existing mounts to be removed and replaced.*



Wind & Ice
Calculations

Date: 10/25/2022
Project Name: EAST HAVEN
Project No.: CT5184
Designed By: CL **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	157	(ft)
z_g=	900	(ft)
α=	9.5	
K_z=	**1.392**	

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}=	**1**	
K_h=	1	
K_c=	1.0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	157	
z_s=	167	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.99	(from 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category= **1**

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.00	in
Importance Factor = I=	1.00	(from Table 2-3)
K_{iz} =	1.17	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 1.17 in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	176.58	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

F= $q_z * G_h * (EPA)_A$

q_z= $0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	1.392	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**56.86**	K_e=	0.99	(from 2.6.8)
$q_{z\,(ice)}$=	**8.41**	K_d=	0.95	(from Table 2-2)
$q_{z\,(30)}$=	**3.03**	V_{max}=	130	mph (Ultimate Wind Speed)
		$V_{max\,(ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{-1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.17** in | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	5.02	1.31	539	96	29
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	231	42	12
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	723	123	38
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.20	77	16	4
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.90	1.20	80	17	4
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	89	17	5
DC9-48-60-24-8C-EV Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	89	17	5
5/8" Round Bar	0.6	12.0		0.05	0.05	1.20	4		
3/4" Round Bar	0.8	12.0		0.06	0.06	1.20	4		
2" Pipe	2.4	12.0		0.20	0.20	1.20	14		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	16		
3" Pipe	3.5	12.0		0.29	0.29	1.20	20		
PL 3-1/2x5/8"	0.6	12.0		0.05	0.05	2.00	6		
PL 11-1/4x5/8"	0.6	12.0		0.05	0.05	2.00	6		
HSS 4x4	4.0	12.0		0.33	0.33	2.00	38		

Date: 10/25/2022
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Project No.: CT5184
Designed By: CL Checked By: MSC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	539	312	482
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	231	156	212
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	723	319	622
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	77	93	81
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	80	112	88

WIND LOADS WITH ICE:

HPA-65R-BUU-H6 Antenna	74.6	16.7	9.6	8.68	5.00	4.46	7.74	1.29	1.42	94	60	85
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.96	1.81	2.55	1.20	1.20	42	30	39
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.76	5.13	3.19	7.33	1.23	1.41	122	61	107
8843 B2/B66A RRH	17.2	13.2	15.5	1.58	1.86	1.30	1.11	1.20	1.20	16	19	17
4449 B5/B12 RRH	20.2	11.7	15.5	1.65	2.18	1.72	1.30	1.20	1.20	17	22	18

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	29	17	26
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	11
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	33
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	6	5

Date: 10/25/2022
Project Name: EAST HAVEN
Project No.: CT5184
Designed By: CL Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	539	312	369
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	231	156	175
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	723	319	420
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	77	93	89
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	80	112	104

WIND LOADS WITH ICE:

HPA-65R-BUU-H6 Antenna	74.6	16.7	9.6	8.68	5.00	4.46	7.74	1.29	1.42	94	60	68
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.96	1.81	2.55	1.20	1.20	42	30	33
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.76	5.13	3.19	7.33	1.23	1.41	122	61	76
8843 B2/B66A RRH	17.2	13.2	15.5	1.58	1.86	1.30	1.11	1.20	1.20	16	19	18
4449 B5/B12 RRH	20.2	11.7	15.5	1.65	2.18	1.72	1.30	1.20	1.20	17	22	21

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	29	17	20
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	22
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	5
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	6	6

Date: 10/25/2022
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Designed By: CL Checked By: MSC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	539	312	312
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	231	156	156
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	723	319	319
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	77	93	93
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	80	112	112

WIND LOADS WITH ICE:

HPA-65R-BUU-H6 Antenna	74.6	16.7	9.6	8.68	5.00	4.46	7.74	1.29	1.42	94	60	60
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.96	1.81	2.55	1.20	1.20	42	30	30
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.76	5.13	3.19	7.33	1.23	1.41	122	61	61
8843 B2/B66A RRH	17.2	13.2	15.5	1.58	1.86	1.30	1.11	1.20	1.20	16	19	19
4449 B5/B12 RRH	20.2	11.7	15.5	1.65	2.18	1.72	1.30	1.20	1.20	17	22	22

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	29	17	17
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	8
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	17
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	5
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	6	6

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Designed By: CL Checked By: MSC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	539	312	369
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	231	156	175
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	723	319	420
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	77	93	89
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	80	112	104

WIND LOADS WITH ICE:

HPA-65R-BUU-H6 Antenna	74.6	16.7	9.6	8.68	5.00	4.46	7.74	1.29	1.42	94	60	68
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.96	1.81	2.55	1.20	1.20	42	30	33
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.76	5.13	3.19	7.33	1.23	1.41	122	61	76
8843 B2/B66A RRH	17.2	13.2	15.5	1.58	1.86	1.30	1.11	1.20	1.20	16	19	18
4449 B5/B12 RRH	20.2	11.7	15.5	1.65	2.18	1.72	1.30	1.20	1.20	17	22	21

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	29	17	20
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	22
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	5
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	6	6

Date: 10/25/2022
Project Name: EAST HAVEN
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Designed By: CL Checked By: MSC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.17	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	539	312	482
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	231	156	212
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	723	319	622
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	77	93	81
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	80	112	88

WIND LOADS WITH ICE:

HPA-65R-BUU-H6 Antenna	74.6	16.7	9.6	8.68	5.00	4.46	7.74	1.29	1.42	94	60	85
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.96	1.81	2.55	1.20	1.20	42	30	39
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.76	5.13	3.19	7.33	1.23	1.41	122	61	107
8843 B2/B66A RRH	17.2	13.2	15.5	1.58	1.86	1.30	1.11	1.20	1.20	16	19	17
4449 B5/B12 RRH	20.2	11.7	15.5	1.65	2.18	1.72	1.30	1.20	1.20	17	22	18

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H6 Antenna	72.3	14.4	7.3	7.23	3.67	5.02	9.90	1.31	1.50	29	17	26
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	11
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	33
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	6	5

Date: 10/25/2022
Project Name: EAST HAVEN
Project No.: CT5184
Designed By: CL **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.17 in.
Density of ice: 56 pcf

HPA-65R-BUU-H6 Antenna

Weight of ice based on total radial SF area:

Height (in):	72.3	
Width (in):	14.4	
Depth (in):	7.3	
Total weight of ice on object:		149 lbs
Weight of object:	43.0 lbs	
Combined weight of ice and object:		192 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:		74 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		156 lbs

DMP65R-BU6DA Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		197 lbs
Weight of object:	80.0 lbs	
Combined weight of ice and object:		277 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		32 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		104 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		37 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		110 lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		43 lbs
Weight of object:	29 lbs	
Combined weight of ice and object:		72 lbs

DC9-48-60-24-8C-EV Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		43 lbs
Weight of object:	29 lbs	
Combined weight of ice and object:		72 lbs

5/8" Round Bar

Per foot weight of ice:

diameter (in):	0.625	
Per foot weight of ice on object:		3 plf

3/4" Round Bar

Per foot weight of ice:

diameter (in):	0.75	
Per foot weight of ice on object:		3 plf

2" Pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

2-1/2" Pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		6 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		7 plf

PL 3-1/2x5/8"

Weight of ice based on total radial SF area:

Height (in):	0.625	
Width (in):	3.5	
Per foot weight of ice on object:		7 plf

PL 11-1/4x5/8"

Weight of ice based on total radial SF area:

Height (in):	0.625	
Width (in):	11.25	
Per foot weight of ice on object:		18 plf

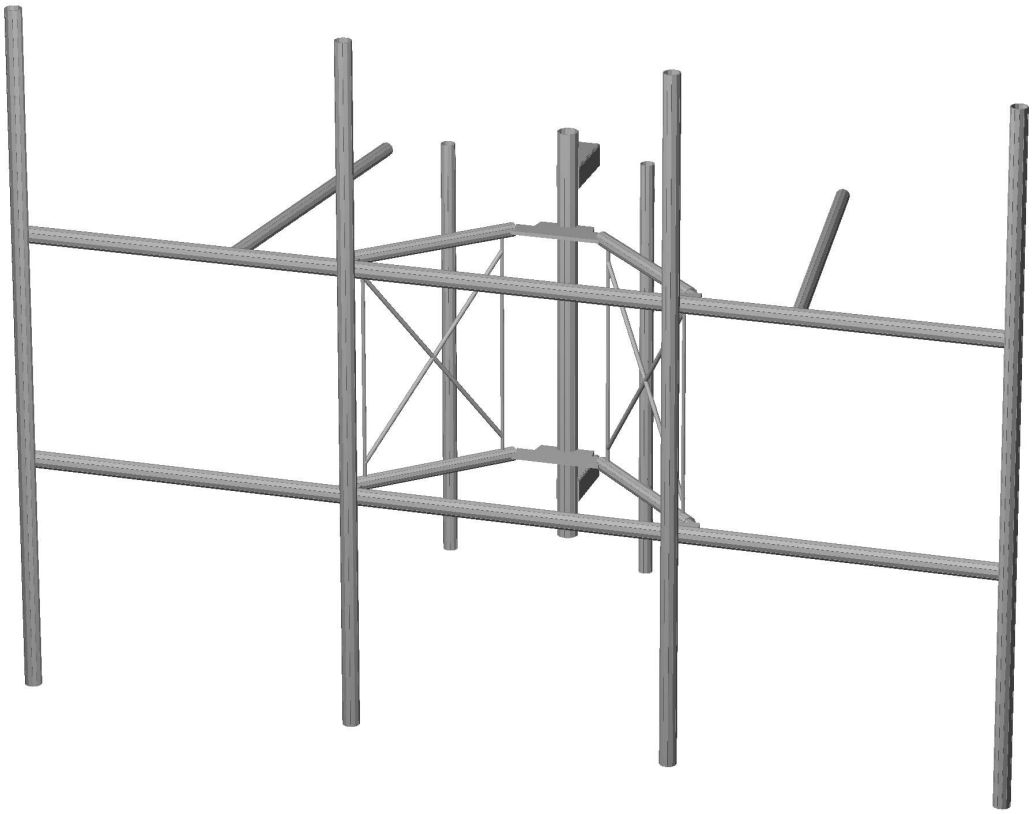
HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		10 plf

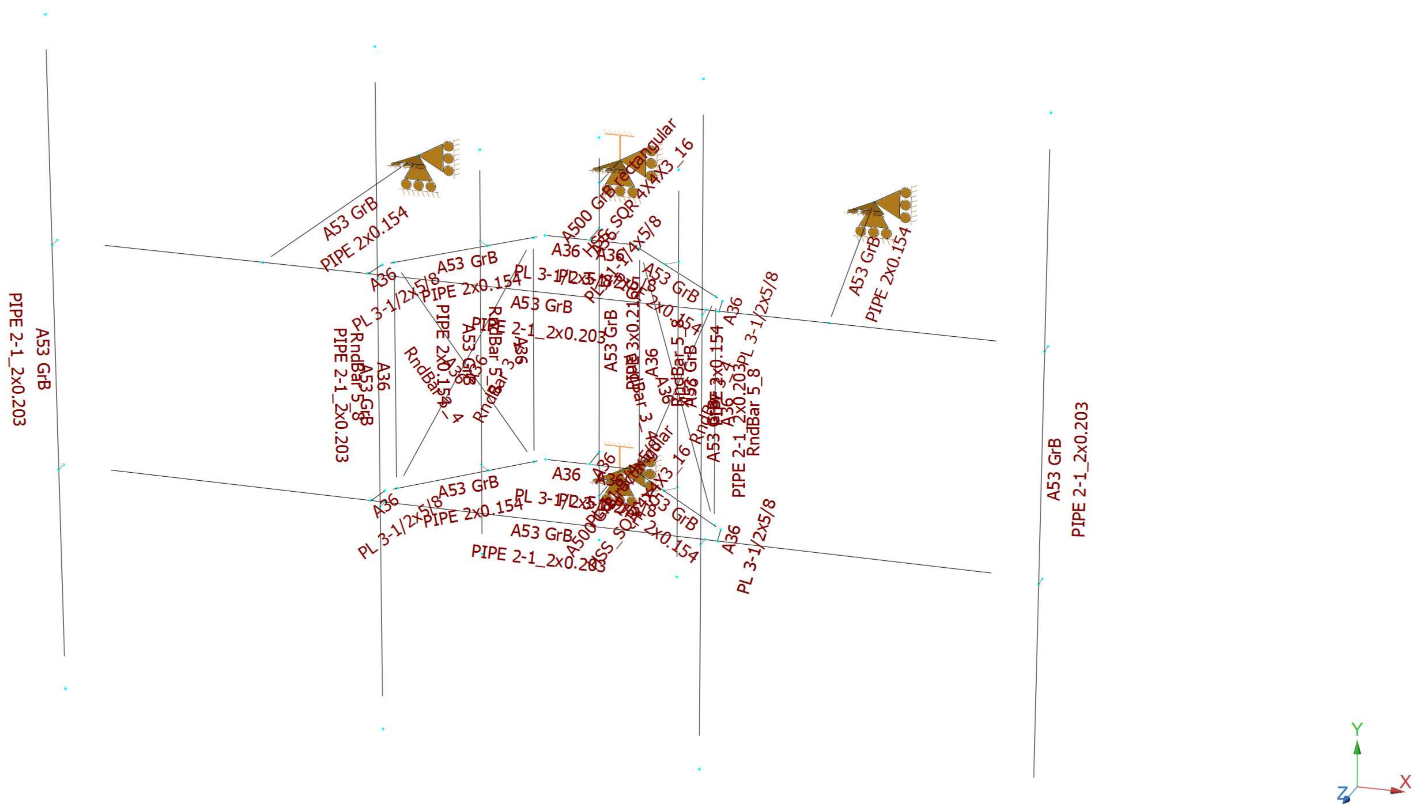
Mount Calculations
(Proposed Conditions)

Current Date: 10/25/2022 11:19 AM
Units system: English

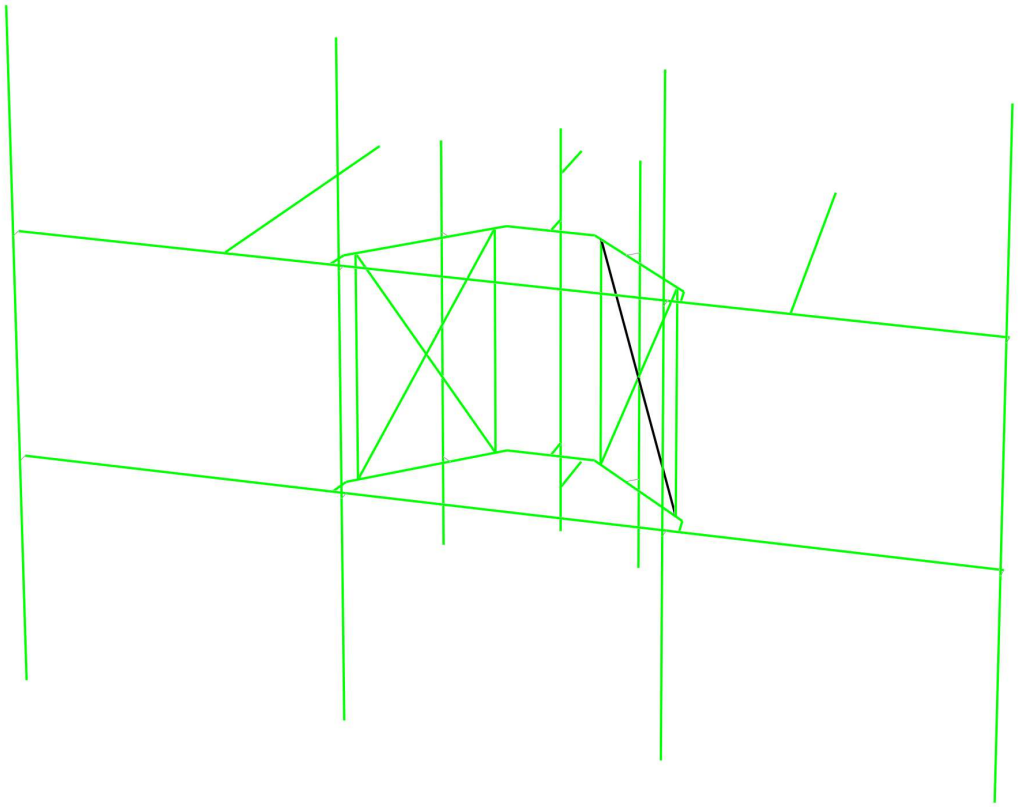


RAM® Elements
CONNECT Edition

Current Date: 10/25/2022 11:19 AM
Units system: English

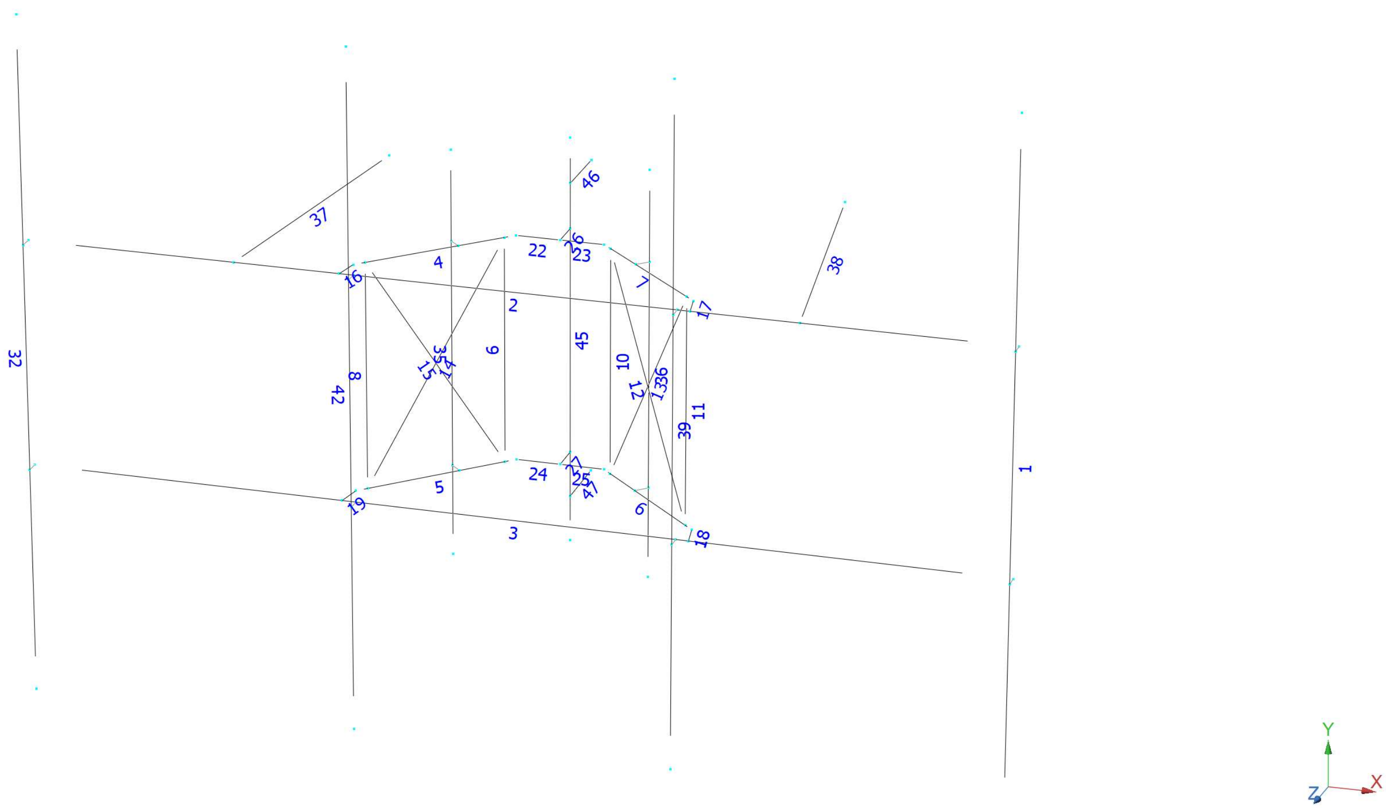


Design status
- Not designed
- Error on design
- Design O.K.
- With warnings



RAM® Elements
CONNECT Edition

Current Date: 10/25/2022 11:20 AM
Units system: English



RAM® Elements
CONNECT Edition

Current Date: 10/25/2022 11:20 AM
Units system: English

Load data

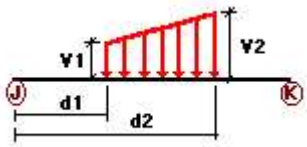
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL
LLa4	500 lb Live Load Antenna 4	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.016	-0.016	0.00	No	100.00	Yes
	2	z	-0.016	-0.016	0.00	No	100.00	Yes
	3	z	-0.016	-0.016	0.00	No	100.00	Yes
	4	z	-0.014	-0.014	0.00	No	100.00	Yes
	5	z	-0.014	-0.014	0.00	No	100.00	Yes
	6	z	-0.014	-0.014	0.00	No	100.00	Yes
	7	z	-0.014	-0.014	0.00	No	100.00	Yes
	8	z	-0.004	-0.004	0.00	No	100.00	Yes
	9	z	-0.004	-0.004	0.00	No	100.00	Yes
	10	z	-0.004	-0.004	0.00	No	100.00	Yes
	11	z	-0.004	-0.004	0.00	No	100.00	Yes
	12	z	-0.004	-0.004	0.00	No	100.00	Yes
	13	z	-0.004	-0.004	0.00	No	100.00	Yes
	14	z	-0.004	-0.004	0.00	No	100.00	Yes
	15	z	-0.004	-0.004	0.00	No	100.00	Yes
	16	z	-0.006	-0.006	0.00	No	100.00	Yes
	17	z	-0.006	-0.006	0.00	No	100.00	Yes
	18	z	-0.006	-0.006	0.00	No	100.00	Yes
	19	z	-0.006	-0.006	0.00	No	100.00	Yes
	22	z	-0.006	-0.006	0.00	No	100.00	Yes
	23	z	-0.006	-0.006	0.00	No	100.00	Yes
	24	z	-0.006	-0.006	0.00	No	100.00	Yes
	25	z	-0.006	-0.006	0.00	No	100.00	Yes
	26	z	-0.006	-0.006	0.00	No	100.00	Yes
	27	z	-0.006	-0.006	0.00	No	100.00	Yes
	32	z	-0.016	-0.016	0.00	Yes	15.00	Yes
		z	-0.016	-0.016	85.00	Yes	100.00	Yes
	35	z	-0.014	-0.014	0.00	No	100.00	Yes
	36	z	-0.014	-0.014	0.00	No	100.00	Yes
	37	z	-0.014	-0.014	0.00	No	100.00	Yes
	38	z	-0.014	-0.014	0.00	No	100.00	Yes
	39	z	-0.016	-0.016	0.00	Yes	15.00	Yes
		z	-0.016	-0.016	85.00	Yes	100.00	Yes
	42	z	-0.016	-0.016	0.00	Yes	28.00	Yes
		z	-0.016	-0.016	62.00	Yes	100.00	Yes
	45	z	-0.02	-0.02	0.00	No	100.00	Yes
	46	z	-0.038	-0.038	0.00	No	100.00	Yes
	47	z	-0.038	-0.038	0.00	No	100.00	Yes
W30	1	z	-0.016	-0.016	0.00	No	100.00	Yes
	2	z	-0.016	-0.016	0.00	No	100.00	Yes
	3	z	-0.016	-0.016	0.00	No	100.00	Yes
	4	z	-0.014	-0.014	0.00	No	100.00	Yes
	5	z	-0.014	-0.014	0.00	No	100.00	Yes
	6	z	-0.014	-0.014	0.00	No	100.00	Yes
	7	z	-0.014	-0.014	0.00	No	100.00	Yes
	8	z	-0.004	-0.004	0.00	No	100.00	Yes
	9	z	-0.004	-0.004	0.00	No	100.00	Yes
	10	z	-0.004	-0.004	0.00	No	100.00	Yes
	11	z	-0.004	-0.004	0.00	No	100.00	Yes
	12	z	-0.004	-0.004	0.00	No	100.00	Yes
	13	z	-0.004	-0.004	0.00	No	100.00	Yes
	14	z	-0.004	-0.004	0.00	No	100.00	Yes
	15	z	-0.004	-0.004	0.00	No	100.00	Yes
	16	z	-0.006	-0.006	0.00	No	100.00	Yes
	17	z	-0.006	-0.006	0.00	No	100.00	Yes
	18	z	-0.006	-0.006	0.00	No	100.00	Yes
	19	z	-0.006	-0.006	0.00	No	100.00	Yes
	22	z	-0.006	-0.006	0.00	No	100.00	Yes
	23	z	-0.006	-0.006	0.00	No	100.00	Yes
	24	z	-0.006	-0.006	0.00	No	100.00	Yes

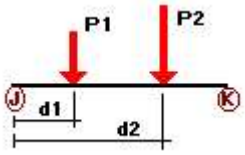
	25	z	-0.006	-0.006	0.00	No	100.00	Yes
	26	z	-0.006	-0.006	0.00	No	100.00	Yes
	27	z	-0.006	-0.006	0.00	No	100.00	Yes
	32	z	-0.016	-0.016	0.00	Yes	15.00	Yes
		z	-0.016	-0.016	85.00	Yes	100.00	Yes
	35	z	-0.014	-0.014	0.00	No	100.00	Yes
	36	z	-0.014	-0.014	0.00	No	100.00	Yes
	37	z	-0.014	-0.014	0.00	No	100.00	Yes
	38	z	-0.014	-0.014	0.00	No	100.00	Yes
	39	z	-0.016	-0.016	0.00	Yes	15.00	Yes
		z	-0.016	-0.016	85.00	Yes	100.00	Yes
	42	z	-0.016	-0.016	0.00	Yes	28.00	Yes
		z	-0.016	-0.016	62.00	Yes	100.00	Yes
	45	z	-0.02	-0.02	0.00	No	100.00	Yes
	46	z	-0.038	-0.038	0.00	No	100.00	Yes
	47	z	-0.038	-0.038	0.00	No	100.00	Yes
W60	1	x	-0.016	-0.016	0.00	No	100.00	Yes
	4	x	-0.014	-0.014	0.00	No	100.00	Yes
	5	x	-0.014	-0.014	0.00	No	100.00	Yes
	6	x	-0.014	-0.014	0.00	No	100.00	Yes
	7	x	-0.014	-0.014	0.00	No	100.00	Yes
	8	x	-0.004	-0.004	0.00	No	100.00	Yes
	9	x	-0.004	-0.004	0.00	No	100.00	Yes
	10	x	-0.004	-0.004	0.00	No	100.00	Yes
	11	x	-0.004	-0.004	0.00	No	100.00	Yes
	12	x	-0.004	-0.004	0.00	No	100.00	Yes
	13	x	-0.004	-0.004	0.00	No	100.00	Yes
	14	x	-0.004	-0.004	0.00	No	100.00	Yes
	15	x	-0.004	-0.004	0.00	No	100.00	Yes
	16	x	-0.006	-0.006	0.00	No	100.00	Yes
	17	x	-0.006	-0.006	0.00	No	100.00	Yes
	18	x	-0.006	-0.006	0.00	No	100.00	Yes
	19	x	-0.006	-0.006	0.00	No	100.00	Yes
	22	x	-0.006	-0.006	0.00	No	100.00	Yes
	23	x	-0.006	-0.006	0.00	No	100.00	Yes
	24	x	-0.006	-0.006	0.00	No	100.00	Yes
	25	x	-0.006	-0.006	0.00	No	100.00	Yes
	26	x	-0.006	-0.006	0.00	No	100.00	Yes
	27	x	-0.006	-0.006	0.00	No	100.00	Yes
	32	x	-0.016	-0.016	0.00	No	100.00	Yes
	35	x	-0.014	-0.014	0.00	No	100.00	Yes
	36	x	-0.014	-0.014	0.00	No	100.00	Yes
	37	x	-0.014	-0.014	0.00	No	100.00	Yes
	38	x	-0.014	-0.014	0.00	No	100.00	Yes
	39	x	-0.016	-0.016	0.00	No	100.00	Yes
	42	x	-0.016	-0.016	0.00	No	100.00	Yes
	45	x	-0.02	-0.02	0.00	No	100.00	Yes
	46	x	-0.038	-0.038	0.00	No	100.00	Yes
	47	x	-0.038	-0.038	0.00	No	100.00	Yes
W90	1	x	-0.016	-0.016	0.00	No	100.00	Yes
	4	x	-0.014	-0.014	0.00	No	100.00	Yes
	5	x	-0.014	-0.014	0.00	No	100.00	Yes
	6	x	-0.014	-0.014	0.00	No	100.00	Yes
	7	x	-0.014	-0.014	0.00	No	100.00	Yes
	8	x	-0.004	-0.004	0.00	No	100.00	Yes
	9	x	-0.004	-0.004	0.00	No	100.00	Yes
	10	x	-0.004	-0.004	0.00	No	100.00	Yes
	11	x	-0.004	-0.004	0.00	No	100.00	Yes
	12	x	-0.004	-0.004	0.00	No	100.00	Yes
	13	x	-0.004	-0.004	0.00	No	100.00	Yes

	14	x	-0.004	-0.004	0.00	No	100.00	Yes
	15	x	-0.004	-0.004	0.00	No	100.00	Yes
	16	x	-0.006	-0.006	0.00	No	100.00	Yes
	17	x	-0.006	-0.006	0.00	No	100.00	Yes
	18	x	-0.006	-0.006	0.00	No	100.00	Yes
	19	x	-0.006	-0.006	0.00	No	100.00	Yes
	22	x	-0.006	-0.006	0.00	No	100.00	Yes
	23	x	-0.006	-0.006	0.00	No	100.00	Yes
	24	x	-0.006	-0.006	0.00	No	100.00	Yes
	25	x	-0.006	-0.006	0.00	No	100.00	Yes
	26	x	-0.006	-0.006	0.00	No	100.00	Yes
	27	x	-0.006	-0.006	0.00	No	100.00	Yes
	32	x	-0.016	-0.016	0.00	No	100.00	Yes
	35	x	-0.014	-0.014	0.00	No	100.00	Yes
	36	x	-0.014	-0.014	0.00	No	100.00	Yes
	37	x	-0.014	-0.014	0.00	No	100.00	Yes
	38	x	-0.014	-0.014	0.00	No	100.00	Yes
	39	x	-0.016	-0.016	0.00	No	100.00	Yes
	42	x	-0.016	-0.016	0.00	No	100.00	Yes
	45	x	-0.02	-0.02	0.00	No	100.00	Yes
	46	x	-0.038	-0.038	0.00	No	100.00	Yes
	47	x	-0.038	-0.038	0.00	No	100.00	Yes
W120	1	x	-0.016	-0.016	0.00	No	100.00	Yes
	4	x	-0.014	-0.014	0.00	No	100.00	Yes
	5	x	-0.014	-0.014	0.00	No	100.00	Yes
	6	x	-0.014	-0.014	0.00	No	100.00	Yes
	7	x	-0.014	-0.014	0.00	No	100.00	Yes
	8	x	-0.004	-0.004	0.00	No	100.00	Yes
	9	x	-0.004	-0.004	0.00	No	100.00	Yes
	10	x	-0.004	-0.004	0.00	No	100.00	Yes
	11	x	-0.004	-0.004	0.00	No	100.00	Yes
	12	x	-0.004	-0.004	0.00	No	100.00	Yes
	13	x	-0.004	-0.004	0.00	No	100.00	Yes
	14	x	-0.004	-0.004	0.00	No	100.00	Yes
	15	x	-0.004	-0.004	0.00	No	100.00	Yes
	16	x	-0.006	-0.006	0.00	No	100.00	Yes
	17	x	-0.006	-0.006	0.00	No	100.00	Yes
	18	x	-0.006	-0.006	0.00	No	100.00	Yes
	19	x	-0.006	-0.006	0.00	No	100.00	Yes
	22	x	-0.006	-0.006	0.00	No	100.00	Yes
	23	x	-0.006	-0.006	0.00	No	100.00	Yes
	24	x	-0.006	-0.006	0.00	No	100.00	Yes
	25	x	-0.006	-0.006	0.00	No	100.00	Yes
	26	x	-0.006	-0.006	0.00	No	100.00	Yes
	27	x	-0.006	-0.006	0.00	No	100.00	Yes
	32	x	-0.016	-0.016	0.00	No	100.00	Yes
	35	x	-0.014	-0.014	0.00	No	100.00	Yes
	36	x	-0.014	-0.014	0.00	No	100.00	Yes
	37	x	-0.014	-0.014	0.00	No	100.00	Yes
	38	x	-0.014	-0.014	0.00	No	100.00	Yes
	39	x	-0.016	-0.016	0.00	No	100.00	Yes
	42	x	-0.016	-0.016	0.00	No	100.00	Yes
	45	x	-0.02	-0.02	0.00	No	100.00	Yes
	46	x	-0.038	-0.038	0.00	No	100.00	Yes
	47	x	-0.038	-0.038	0.00	No	100.00	Yes
W150	1	z	0.016	0.016	0.00	No	100.00	Yes
	2	z	0.016	0.016	0.00	No	100.00	Yes
	3	z	0.016	0.016	0.00	No	100.00	Yes
	4	z	0.014	0.014	0.00	No	100.00	Yes
	5	z	0.014	0.014	0.00	No	100.00	Yes

	6	z	0.014	0.014	0.00	No	100.00	Yes
	7	z	0.014	0.014	0.00	No	100.00	Yes
	8	z	0.004	0.004	0.00	No	100.00	Yes
	9	z	0.004	0.004	0.00	No	100.00	Yes
	10	z	0.004	0.004	0.00	No	100.00	Yes
	11	z	0.004	0.004	0.00	No	100.00	Yes
	12	z	0.004	0.004	0.00	No	100.00	Yes
	13	z	0.004	0.004	0.00	No	100.00	Yes
	14	z	0.004	0.004	0.00	No	100.00	Yes
	15	z	0.004	0.004	0.00	No	100.00	Yes
	16	z	0.006	0.006	0.00	No	100.00	Yes
	17	z	0.006	0.006	0.00	No	100.00	Yes
	18	z	0.006	0.006	0.00	No	100.00	Yes
	19	z	0.006	0.006	0.00	No	100.00	Yes
	22	z	0.006	0.006	0.00	No	100.00	Yes
	23	z	0.006	0.006	0.00	No	100.00	Yes
	24	z	0.006	0.006	0.00	No	100.00	Yes
	25	z	0.006	0.006	0.00	No	100.00	Yes
	26	z	0.006	0.006	0.00	No	100.00	Yes
	27	z	0.006	0.006	0.00	No	100.00	Yes
	32	z	0.016	0.016	0.00	No	100.00	Yes
	35	z	0.014	0.014	0.00	No	100.00	Yes
	36	z	0.014	0.014	0.00	No	100.00	Yes
	37	z	0.014	0.014	0.00	No	100.00	Yes
	38	z	0.014	0.014	0.00	No	100.00	Yes
	39	z	0.016	0.016	0.00	No	100.00	Yes
	42	z	0.016	0.016	0.00	No	100.00	Yes
	45	z	0.02	0.02	0.00	No	100.00	Yes
	46	z	0.038	0.038	0.00	No	100.00	Yes
	47	z	0.038	0.038	0.00	No	100.00	Yes
Di	1	y	-0.006	-0.006	0.00	No	100.00	Yes
	2	y	-0.006	-0.006	0.00	No	100.00	Yes
	3	y	-0.006	-0.006	0.00	No	100.00	Yes
	4	y	-0.005	-0.005	0.00	No	100.00	Yes
	5	y	-0.005	-0.005	0.00	No	100.00	Yes
	6	y	-0.005	-0.005	0.00	No	100.00	Yes
	7	y	-0.005	-0.005	0.00	No	100.00	Yes
	8	y	-0.003	-0.003	0.00	No	100.00	Yes
	9	y	-0.003	-0.003	0.00	No	100.00	Yes
	10	y	-0.003	-0.003	0.00	No	100.00	Yes
	11	y	-0.003	-0.003	0.00	No	100.00	Yes
	12	y	-0.003	-0.003	0.00	No	100.00	Yes
	13	y	-0.003	-0.003	0.00	No	100.00	Yes
	14	y	-0.003	-0.003	0.00	No	100.00	Yes
	15	y	-0.003	-0.003	0.00	No	100.00	Yes
	16	y	-0.007	-0.007	0.00	No	100.00	Yes
	17	y	-0.007	-0.007	0.00	No	100.00	Yes
	18	y	-0.007	-0.007	0.00	No	100.00	Yes
	19	y	-0.007	-0.007	0.00	No	100.00	Yes
	22	y	-0.007	-0.007	0.00	No	100.00	Yes
	23	y	-0.007	-0.007	0.00	No	100.00	Yes
	24	y	-0.007	-0.007	0.00	No	100.00	Yes
	25	y	-0.007	-0.007	0.00	No	100.00	Yes
	26	y	-0.018	-0.018	0.00	No	100.00	Yes
	27	y	-0.018	-0.018	0.00	No	100.00	Yes
	32	y	-0.006	-0.006	0.00	No	100.00	Yes
	35	y	-0.005	-0.005	0.00	No	100.00	Yes
	36	y	-0.005	-0.005	0.00	No	100.00	Yes
	37	y	-0.005	-0.005	0.00	No	100.00	Yes
	38	y	-0.005	-0.005	0.00	No	100.00	Yes

	39	y	-0.006	-0.006	0.00	No	100.00	Yes
	42	y	-0.006	-0.006	0.00	No	100.00	Yes
	45	y	-0.007	-0.007	0.00	No	100.00	Yes
	46	y	-0.01	-0.01	0.00	No	100.00	Yes
	47	y	-0.01	-0.01	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	32	y	-0.04	2.50	No
		y	-0.04	7.50	No
	35	y	-0.073	2.50	No
		y	-0.072	2.50	No
		y	-0.029	4.00	No
	39	y	-0.022	2.50	No
		y	-0.022	7.50	No
	42	y	-0.041	3.00	No
		y	-0.041	6.00	No
Wo	32	z	-0.362	2.50	No
		z	-0.362	7.50	No
	35	z	-0.08	2.50	No
		z	-0.077	2.50	No
		z	-0.089	4.00	No
	39	z	-0.27	2.50	No
		z	-0.27	7.50	No
	42	z	-0.116	3.00	No
		z	-0.116	6.00	No
W30	32	3	-0.311	2.50	No
		3	-0.311	7.50	No
	35	3	-0.088	2.50	No
		3	-0.089	4.00	No
	39	3	-0.241	2.50	No
		3	-0.241	7.50	No
	42	3	-0.106	3.00	No
		3	-0.106	6.00	No
W60	32	3	-0.21	2.50	No
		3	-0.21	7.50	No
	35	3	-0.104	2.50	No
		3	-0.089	4.00	No
	39	3	-0.185	2.50	No
		3	-0.185	7.50	No
	42	3	-0.088	3.00	No
		3	-0.088	6.00	No
W90	32	x	-0.16	2.50	No
		x	-0.16	7.50	No
	35	x	-0.112	2.50	No
		x	-0.089	4.00	No
	39	x	-0.156	2.50	No
		x	-0.156	7.50	No

	42	x	-0.078	3.00	No
		x	-0.078	6.00	No
W120	32	2	-0.21	2.50	No
		2	-0.21	7.50	No
	35	2	-0.104	2.50	No
		2	-0.089	4.00	No
	39	2	-0.185	2.50	No
		2	-0.185	7.50	No
	42	2	-0.088	3.00	No
		2	-0.088	6.00	No
W150	32	2	-0.311	2.50	No
		2	-0.311	7.50	No
	35	2	-0.088	2.50	No
		2	-0.089	4.00	No
	39	2	-0.241	2.50	No
		2	-0.241	7.50	No
	42	2	-0.106	3.00	No
		2	-0.106	6.00	No
Di	32	y	-0.099	2.50	No
		y	-0.099	7.50	No
	35	y	-0.037	2.50	No
		y	-0.032	2.50	No
		y	-0.043	4.00	No
	39	y	-0.075	2.50	No
		y	-0.075	7.50	No
	42	y	-0.037	3.00	No
		y	-0.037	6.00	No
WI0	32	z	-0.062	2.50	No
		z	-0.062	7.50	No
	35	z	-0.017	2.50	No
		z	-0.016	2.50	No
		z	-0.017	4.00	No
	39	z	-0.048	2.50	No
		z	-0.048	7.50	No
	42	z	-0.021	3.00	No
		z	-0.021	6.00	No
WI30	32	3	-0.054	2.50	No
		3	-0.054	7.50	No
	35	3	-0.018	2.50	No
		3	-0.017	4.00	No
	39	3	-0.043	2.50	No
		3	-0.043	7.50	No
	42	3	-0.02	3.00	No
		3	-0.02	6.00	No
WI60	32	3	-0.038	2.50	No
		3	-0.038	7.50	No
	35	3	-0.021	2.50	No
		3	-0.017	4.00	No
	39	3	-0.034	2.50	No
		3	-0.034	7.50	No
	42	3	-0.017	3.00	No
		3	-0.017	6.00	No
WI90	32	x	-0.031	2.50	No
		x	-0.031	7.50	No
	35	x	-0.022	2.50	No
		x	-0.017	4.00	No
	39	x	-0.03	2.50	No
		x	-0.03	7.50	No
	42	x	-0.015	3.00	No
		x	-0.015	6.00	No

WI120	32	2	-0.038	2.50	No
		2	-0.038	7.50	No
	35	2	-0.021	2.50	No
		2	-0.017	4.00	No
	39	2	-0.034	2.50	No
		2	-0.034	7.50	No
	42	2	-0.017	3.00	No
		2	-0.017	6.00	No
WI150	32	2	-0.054	2.50	No
		2	-0.054	7.50	No
	35	2	-0.018	2.50	No
		2	-0.017	4.00	No
	39	2	-0.043	2.50	No
		2	-0.043	7.50	No
	42	2	-0.02	3.00	No
		2	-0.02	6.00	No
WL0	32	z	-0.019	2.50	No
		z	-0.019	7.50	No
	35	z	-0.004	2.50	No
		z	-0.004	2.50	No
		z	-0.005	4.00	No
	39	z	-0.015	2.50	No
		z	-0.015	7.50	No
	42	z	-0.006	3.00	No
		z	-0.006	6.00	No
WL30	32	3	-0.017	2.50	No
		3	-0.017	7.50	No
	35	3	-0.005	2.50	No
		3	-0.005	4.00	No
	39	3	-0.013	2.50	No
		3	-0.013	7.50	No
	42	3	-0.006	3.00	No
		3	-0.006	6.00	No
WL60	32	3	-0.011	2.50	No
		3	-0.011	7.50	No
	35	3	-0.006	2.50	No
		3	-0.005	4.00	No
	39	3	-0.01	2.50	No
		3	-0.01	7.50	No
	42	3	-0.005	3.00	No
		3	-0.005	6.00	No
WL90	32	x	-0.009	2.50	No
		x	-0.009	7.50	No
	35	x	-0.006	2.50	No
		x	-0.005	4.00	No
	39	x	-0.009	2.50	No
		x	-0.009	7.50	No
	42	x	-0.004	3.00	No
		x	-0.004	6.00	No
WL120	32	2	-0.011	2.50	No
		2	-0.011	7.50	No
	35	2	-0.006	2.50	No
		2	-0.005	4.00	No
	39	2	-0.01	2.50	No
		2	-0.01	7.50	No
	42	2	-0.005	3.00	No
		2	-0.005	6.00	No
WL150	32	2	-0.017	2.50	No
		2	-0.017	7.50	No
	35	2	-0.005	2.50	No

		2	-0.005	4.00	No
	39	2	-0.013	2.50	No
		2	-0.013	7.50	No
	42	2	-0.006	3.00	No
		2	-0.006	6.00	No
LL1	2	y	-0.25	50.00	Yes
LL2	2	y	-0.25	100.00	Yes
LL3	2	y	-0.25	0.00	Yes
LLa1	1	y	-0.50	50.00	Yes
LLa2	39	y	-0.50	50.00	Yes
LLa3	42	y	-0.50	50.00	Yes
LLa4	32	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load Antenna 4	No	0.00	0.00	0.00

RAM® Elements
CONNECT Edition

Current Date: 10/25/2022 11:20 AM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2

LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2
LC64=1.2D+WL0+1.6LLa3
LC65=1.2D+WL30+1.6LLa3
LC66=1.2D+WL60+1.6LLa3
LC67=1.2D+WL90+1.6LLa3
LC68=1.2D+WL120+1.6LLa3
LC69=1.2D+WL150+1.6LLa3
LC70=1.2D-WL0+1.6LLa3
LC71=1.2D-WL30+1.6LLa3
LC72=1.2D-WL60+1.6LLa3
LC73=1.2D-WL90+1.6LLa3
LC74=1.2D-WL120+1.6LLa3
LC75=1.2D-WL150+1.6LLa3
LC76=1.2D+WL0+1.6LLa4
LC77=1.2D+WL30+1.6LLa4
LC78=1.2D+WL60+1.6LLa4
LC79=1.2D+WL90+1.6LLa4
LC80=1.2D+WL120+1.6LLa4
LC81=1.2D+WL150+1.6LLa4
LC82=1.2D-WL0+1.6LLa4
LC83=1.2D-WL30+1.6LLa4
LC84=1.2D-WL60+1.6LLa4
LC85=1.2D-WL90+1.6LLa4
LC86=1.2D-WL120+1.6LLa4
LC87=1.2D-WL150+1.6LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X3_16	**46**	LC4 at 0.00%	0.20	OK	Eq. H1-1b
		47	LC10 at 0.00%	**0.22**	**OK**	Eq. H1-1b
	PIPE 2-1_2x0.203	**1**	LC47 at 33.33%	0.51	OK	Eq. H1-1b
		2	LC7 at 20.54%	**0.74**	**OK**	Eq. H1-1b
		3	LC76 at 31.25%	0.69	OK	Eq. H1-1b
		32	LC77 at 33.33%	0.57	OK	Eq. H1-1b
		39	LC47 at 33.33%	0.26	OK	Eq. H1-1b
		42	LC77 at 33.33%	0.28	OK	Eq. H1-1b
	PIPE 2x0.154	**4**	LC81 at 93.75%	**0.48**	**OK**	Eq. H1-1b
		5	LC83 at 93.75%	0.48	OK	Eq. H1-1b
		6	LC41 at 93.75%	0.38	OK	Eq. H1-1b
		7	LC51 at 93.75%	0.39	OK	Eq. H1-1b
		35	LC79 at 22.92%	0.24	OK	Eq. H1-1b
		36	LC40 at 22.92%	0.18	OK	Eq. H1-1b
		37	LC7 at 0.00%	0.40	OK	Eq. H1-1b
		38	LC10 at 100.00%	0.15	OK	Eq. H1-1b
	PIPE 3x0.216	**45**	LC4 at 77.50%	**0.29**	**OK**	Eq. H1-1b
	PL 11-1/4x5/8	**26**	LC25 at 100.00%	**0.26**	**OK**	Eq. H1-1b
		27	LC32 at 100.00%	0.20	OK	Eq. H1-1b
	PL 3-1/2x5/8	**16**	LC76 at 100.00%	0.47	OK	Eq. H1-1b
		17	LC40 at 100.00%	0.42	OK	Eq. H1-1b
		18	LC41 at 100.00%	0.56	OK	Eq. H1-1b
		19	LC83 at 100.00%	0.65	OK	Eq. H1-1b
		22	LC77 at 100.00%	**0.78**	**OK**	Eq. H1-1b

	23	LC51 at 0.00%	0.64	OK	Eq. H1-1b
	24	LC87 at 100.00%	0.75	OK	Eq. H1-1b
	25	LC41 at 0.00%	0.61	OK	Eq. H1-1b
RndBar 3_4	**12**	LC40 at 0.00%	0.30	OK	Eq. H1-1a
	13	LC41 at 0.00%	0.22	OK	Eq. H1-1b
	14	LC82 at 0.00%	**0.39**	**OK**	Eq. H1-1a
	15	LC83 at 100.00%	0.30	OK	Eq. H1-1b
RndBar 5_8	**8**	LC87 at 87.50%	0.74	OK	Eq. H1-1a
	9	LC83 at 87.50%	**0.88**	**OK**	Eq. H1-1a
	10	LC41 at 87.50%	0.73	OK	Eq. H1-1a
	11	LC40 at 87.50%	0.63	OK	Eq. H1-1a

RAM® Elements
CONNECT Edition

Current Date: 10/25/2022 11:20 AM
Units system: English

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	2.00	0
2	-0.6362	0.00	2.4783	0
3	0.00	-3.3333	2.00	0
4	-0.6362	-3.3333	2.4783	0
5	0.6362	-3.3333	2.4783	0
6	0.6362	0.00	2.4783	0
7	7.00	-6.6667	4.83	0
8	7.00	3.3333	4.83	0
9	-7.00	0.00	4.63	0
10	7.00	0.00	4.63	0
11	-7.00	-3.3333	4.63	0
12	7.00	-3.3333	4.63	0
13	-2.4126	0.00	4.2374	0
14	-2.4126	-3.3333	4.2374	0
15	2.4126	-3.3333	4.2374	0
16	2.4126	0.00	4.2374	0
17	-2.2835	0.00	4.1096	0
18	-2.2835	-3.3333	4.1096	0
19	-0.7653	0.00	2.6062	0
20	-0.7653	-3.3333	2.6062	0
21	0.7653	0.00	2.6062	0
22	0.7653	-3.3333	2.6062	0
23	2.2835	0.00	4.1096	0

24	2.2835	-3.3333	4.1096	0
25	-2.4792	0.00	4.63	0
26	2.4792	0.00	4.63	0
27	2.4792	-3.3333	4.63	0
28	-2.4792	-3.3333	4.63	0
29	7.00	3.33E-06	4.83	0
30	7.00	-3.3333	4.83	0
31	0.00	0.00	2.4783	0
32	0.00	-3.3333	2.4783	0
33	-1.2713	0.00	3.1073	0
34	-1.2713	-3.3333	3.1073	0
35	-1.4213	0.00	2.9573	0
36	-1.4213	-3.3333	2.9573	0
37	1.2713	0.00	3.1073	0
38	1.2713	-3.3333	3.1073	0
39	1.4213	0.00	2.9573	0
40	1.4213	-3.3333	2.9573	0
41	-7.00	-6.6667	4.83	0
42	-7.00	3.3333	4.83	0
43	-7.00	3.33E-06	4.83	0
44	-7.00	-3.3333	4.83	0
45	-1.4213	-4.6667	2.9573	0
46	1.4213	-4.6667	2.9573	0
47	-1.4213	1.3333	2.9573	0
48	1.4213	1.3333	2.9573	0
49	-4.00	0.00	4.63	0
50	-3.3572	0.00	-0.1711	0
51	4.00	0.00	4.63	0
52	3.3572	0.00	-0.1711	0
53	2.30	-6.6667	4.83	0
54	2.30	3.3333	4.83	0
55	2.30	0.00	4.63	0
56	2.30	-3.3333	4.63	0
57	2.30	3.33E-06	4.83	0
58	2.30	-3.3333	4.83	0
59	-2.28	-6.6667	4.83	0
60	-2.28	3.3333	4.83	0
61	-2.28	0.00	4.63	0
62	-2.28	-3.3333	4.63	0
63	-2.28	3.33E-06	4.83	0
64	-2.28	-3.3333	4.83	0
65	0.00	1.3333	2.00	0
66	0.00	-4.6667	2.00	0
67	0.00	0.6667	2.00	0
68	0.00	-4.00	2.00	0
69	0.00	0.6667	1.00	0
70	0.00	-4.00	1.00	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
50	1	1	1	0	0	0
52	1	1	1	0	0	0
69	1	1	1	0	1	0
70	1	1	1	0	1	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	8	7		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
2	9	10		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
3	11	12		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
4	13	2		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
5	14	4		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
6	15	5		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
7	16	6		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
8	17	18		RndBar 5_8	A36	0.00	0.00	0.00
9	19	20		RndBar 5_8	A36	0.00	0.00	0.00
10	21	22		RndBar 5_8	A36	0.00	0.00	0.00
11	23	24		RndBar 5_8	A36	0.00	0.00	0.00
12	21	24		RndBar 3_4	A36	0.00	0.00	0.00
13	22	23		RndBar 3_4	A36	0.00	0.00	0.00
14	18	19		RndBar 3_4	A36	0.00	0.00	0.00
15	17	20		RndBar 3_4	A36	0.00	0.00	0.00
16	13	25		PL 3-1/2x5/8	A36	0.00	0.00	0.00
17	16	26		PL 3-1/2x5/8	A36	0.00	0.00	0.00
18	15	27		PL 3-1/2x5/8	A36	0.00	0.00	0.00
19	14	28		PL 3-1/2x5/8	A36	0.00	0.00	0.00
22	2	31		PL 3-1/2x5/8	A36	0.00	0.00	0.00
23	31	6		PL 3-1/2x5/8	A36	0.00	0.00	0.00
24	4	32		PL 3-1/2x5/8	A36	0.00	0.00	0.00
25	32	5		PL 3-1/2x5/8	A36	0.00	0.00	0.00
26	31	1		PL 11-1/4x5/8	A36	11.25	9.25	0.00
27	32	3		PL 11-1/4x5/8	A36	11.25	9.25	0.00
32	42	41		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
35	47	45		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
36	48	46		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
37	49	50		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
38	52	51		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
39	54	53		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
42	60	59		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
45	66	65		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
46	69	67		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
47	70	68		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00

Orientation of local axes

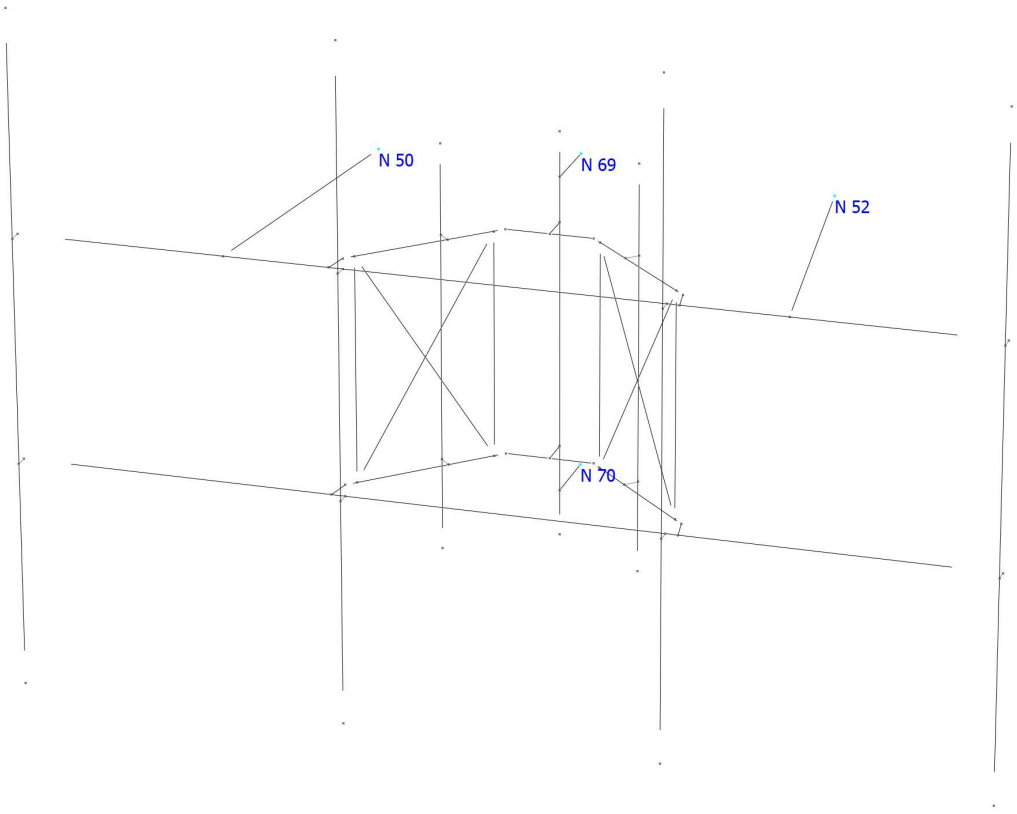
Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	315.00	0	0.00	0.00	0.00
8	0.00	2	0.00	0.00	1.00
9	0.00	2	0.00	0.00	1.00
10	0.00	2	0.00	0.00	1.00
11	0.00	2	0.00	0.00	1.00
16	90.00	0	0.00	0.00	0.00
17	90.00	0	0.00	0.00	0.00
18	90.00	0	0.00	0.00	0.00
19	90.00	0	0.00	0.00	0.00
22	90.00	0	0.00	0.00	0.00
23	90.00	0	0.00	0.00	0.00
24	90.00	0	0.00	0.00	0.00
25	90.00	0	0.00	0.00	0.00
26	90.00	0	0.00	0.00	0.00
27	90.00	0	0.00	0.00	0.00
32	315.00	0	0.00	0.00	0.00
35	315.00	0	0.00	0.00	0.00
39	315.00	0	0.00	0.00	0.00
42	315.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
12	0.00	-3.50	0.00	0.00	3.50	0.00
13	0.00	3.50	0.00	0.00	-3.50	0.00
14	0.00	3.50	0.00	0.00	-3.50	0.00
15	0.00	-3.50	0.00	0.00	3.50	0.00
26	0.00	-0.625	0.00	0.00	-0.625	0.00
27	0.00	-0.625	0.00	0.00	-0.625	0.00

Hinges

	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
13	0	0	0	0	0	0	0	0	0	0	Tension only
15	0	0	0	0	0	0	0	0	0	0	Tension only
16	1	1	0	0	0	0	0	0	0	0	Full
17	1	1	0	0	0	0	0	0	0	0	Full
18	1	1	0	0	0	0	0	0	0	0	Full
19	1	1	0	0	0	0	0	0	0	0	Full


N 50
N 69
N 52
N 70

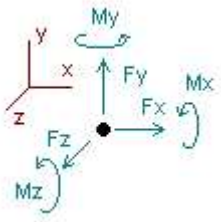

Y
X
Z

RAM® Elements
CONNECT Edition

Current Date: 10/25/2022 11:21 AM
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

	Forces [Kip]			Moments [Kip*ft]		
Node	**FX**	**FY**	**FZ**	**MX**	**MY**	**MZ**
Condition **LC1=1.2D+Wo**						
50	-0.27308	-0.00962	1.63486	0.00000	0.00000	0.00000
52	0.08402	0.01262	0.59460	0.00000	0.00000	0.00000
69	0.40748	0.41674	-1.11710	0.00000	0.35763	0.00000
70	-0.21842	0.79677	1.96518	0.00000	-0.01183	0.00000
SUM	0.00000	1.21652	3.07754	0.00000	0.34580	0.00000
Condition **LC2=1.2D+W30**						
50	-0.21611	-0.00940	1.45012	0.00000	0.00000	0.00000
52	0.04860	0.01786	0.20386	0.00000	0.00000	0.00000
69	0.92936	0.43609	-0.98089	0.00000	0.95032	0.00000
70	0.29386	0.77196	1.71816	0.00000	0.63927	0.00000
SUM	1.05571	1.21652	2.39125	0.00000	1.58958	0.00000
Condition **LC3=1.2D+W60**						
50	-0.12100	-0.00939	1.11768	0.00000	0.00000	0.00000
52	-0.01916	0.02761	-0.49308	0.00000	0.00000	0.00000
69	1.51911	0.55577	-0.88780	0.00000	1.59893	0.00000
70	0.79616	0.64253	1.08274	0.00000	1.28765	0.00000
SUM	2.17512	1.21652	0.81954	0.00000	2.88658	0.00000
Condition **LC4=1.2D+W90**						
50	-0.02882	-0.00056	0.60966	0.00000	0.00000	0.00000
52	-0.02616	0.02429	-0.59400	0.00000	0.00000	0.00000
69	1.52395	0.60040	-0.78400	0.00000	1.63608	0.00000
70	0.87561	0.59239	0.76834	0.00000	1.29008	0.00000
SUM	2.34458	1.21652	0.00000	0.00000	2.92616	0.00000
Condition **LC5=1.2D+W120**						
50	0.07178	0.01075	0.01604	0.00000	0.00000	0.00000
52	-0.02540	0.01871	-0.60862	0.00000	0.00000	0.00000
69	1.33820	0.64663	-0.68085	0.00000	1.45443	0.00000
70	0.79054	0.54043	0.45389	0.00000	1.05262	0.00000
SUM	2.17512	1.21652	-0.81954	0.00000	2.50706	0.00000

Condition **LC6=1.2D+W150**

50	0.18388	0.02602	-0.91793	0.00000	0.00000	0.00000
52	-0.11125	0.01602	-0.90413	0.00000	0.00000	0.00000
69	0.69653	0.78200	-0.56183	0.00000	0.78274	0.00000
70	0.28655	0.39247	-0.28576	0.00000	0.35327	0.00000
SUM	1.05571	1.21652	-2.66965	0.00000	1.13601	0.00000

Condition **LC7=1.2D-Wo**

50	0.27950	0.04238	-1.61905	0.00000	0.00000	0.00000
52	-0.08356	0.00400	-0.60886	0.00000	0.00000	0.00000
69	0.03389	0.77980	-0.42583	0.00000	0.06240	0.00000
70	-0.22983	0.39033	-0.42381	0.00000	-0.49036	0.00000
SUM	0.00000	1.21652	-3.07754	0.00000	-0.42796	0.00000

Condition **LC8=1.2D-W30**

50	0.22203	0.04260	-1.44562	0.00000	0.00000	0.00000
52	-0.04893	-0.00105	-0.22274	0.00000	0.00000	0.00000
69	-0.48654	0.75647	-0.54822	0.00000	-0.52693	0.00000
70	-0.74228	0.41849	-0.17467	0.00000	-1.14251	0.00000
SUM	-1.05571	1.21652	-2.39125	0.00000	-1.66944	0.00000

Condition **LC9=1.2D-W60**

50	0.12518	0.04247	-1.11248	0.00000	0.00000	0.00000
52	0.02007	-0.01035	0.47456	0.00000	0.00000	0.00000
69	-1.07553	0.63742	-0.64206	0.00000	-1.17505	0.00000
70	-1.24484	0.54697	0.46044	0.00000	-1.79159	0.00000
SUM	-2.17512	1.21652	-0.81954	0.00000	-2.96664	0.00000

Condition **LC10=1.2D-W90**

50	0.03260	0.03304	-0.60113	0.00000	0.00000	0.00000
52	0.02774	-0.00717	0.57764	0.00000	0.00000	0.00000
69	-1.08032	0.59469	-0.75059	0.00000	-1.21266	0.00000
70	-1.32460	0.59596	0.77408	0.00000	-1.79508	0.00000
SUM	-2.34458	1.21652	0.00000	0.00000	-3.00773	0.00000

Condition **LC11=1.2D-W120**

50	-0.06767	0.02125	-0.00230	0.00000	0.00000	0.00000
52	0.02732	-0.00177	0.59491	0.00000	0.00000	0.00000
69	-0.89512	0.55068	-0.86057	0.00000	-1.03232	0.00000
70	-1.23965	0.64635	1.08750	0.00000	-1.55772	0.00000
SUM	-2.17512	1.21652	0.81954	0.00000	-2.59004	0.00000

Condition **LC12=1.2D-W150**

50	-0.17908	0.00574	0.93939	0.00000	0.00000	0.00000
52	0.11317	0.00073	0.89377	0.00000	0.00000	0.00000
69	-0.25415	0.41769	-0.98928	0.00000	-0.36254	0.00000
70	-0.73565	0.79236	1.82577	0.00000	-0.85768	0.00000
SUM	-1.05571	1.21652	2.66965	0.00000	-1.22021	0.00000

Condition **LC13=0.9D+Wo**

50	-0.27365	-0.01304	1.63344	0.00000	0.00000	0.00000
52	0.08399	0.01060	0.59653	0.00000	0.00000	0.00000
69	0.35165	0.26677	-0.92435	0.00000	0.30429	0.00000
70	-0.16199	0.64805	1.77191	0.00000	0.05143	0.00000
SUM	0.00000	0.91239	3.07754	0.00000	0.35572	0.00000

Condition **LC14=0.9D+W30**

50	-0.21668	-0.01288	1.44872	0.00000	0.00000	0.00000
52	0.04857	0.01578	0.20581	0.00000	0.00000	0.00000
69	0.87368	0.28619	-0.78831	0.00000	0.89712	0.00000
70	0.35014	0.62330	1.52503	0.00000	0.70224	0.00000
SUM	1.05571	0.91239	2.39125	0.00000	1.59935	0.00000

Condition **LC15=0.9D+W60**

50	-0.12157	-0.01299	1.11630	0.00000	0.00000	0.00000
52	-0.01920	0.02542	-0.49108	0.00000	0.00000	0.00000
69	1.46342	0.40600	-0.69549	0.00000	1.54575	0.00000
70	0.85246	0.49396	0.88981	0.00000	1.35051	0.00000
SUM	2.17512	0.91239	0.81954	0.00000	2.89626	0.00000

Condition **LC16=0.9D+W90**

50	-0.02941	-0.00434	0.60834	0.00000	0.00000	0.00000
52	-0.02620	0.02209	-0.59200	0.00000	0.00000	0.00000
69	1.46841	0.45074	-0.59190	0.00000	1.58306	0.00000
70	0.93178	0.44391	0.57556	0.00000	1.35286	0.00000
SUM	2.34458	0.91239	0.00000	0.00000	2.93592	0.00000

Condition **LC17=0.9D+W120**

50	0.07117	0.00675	0.01480	0.00000	0.00000	0.00000
52	-0.02544	0.01651	-0.60663	0.00000	0.00000	0.00000
69	1.28283	0.49709	-0.48897	0.00000	1.40160	0.00000
70	0.84656	0.39205	0.26126	0.00000	1.11535	0.00000
SUM	2.17512	0.91239	-0.81954	0.00000	2.51695	0.00000

Condition **LC18=0.9D+W150**

50	0.18323	0.02169	-0.91906	0.00000	0.00000	0.00000
52	-0.11129	0.01378	-0.90210	0.00000	0.00000	0.00000
69	0.64142	0.63265	-0.37035	0.00000	0.73014	0.00000
70	0.34235	0.24427	-0.47813	0.00000	0.41592	0.00000
SUM	1.05571	0.91239	-2.66965	0.00000	1.14606	0.00000

Condition **LC19=0.9D-Wo**

50	0.27882	0.03778	-1.62007	0.00000	0.00000	0.00000
52	-0.08359	0.00186	-0.60680	0.00000	0.00000	0.00000
69	-0.02110	0.63041	-0.23458	0.00000	0.00995	0.00000
70	-0.17413	0.24233	-0.61609	0.00000	-0.42744	0.00000
SUM	0.00000	0.91239	-3.07754	0.00000	-0.41749	0.00000

Condition **LC20=0.9D-W30**

50	0.22134	0.03805	-1.44659	0.00000	0.00000	0.00000
52	-0.04896	-0.00300	-0.22053	0.00000	0.00000	0.00000
69	-0.54156	0.60657	-0.35704	0.00000	-0.57939	0.00000
70	-0.68653	0.27076	-0.36709	0.00000	-1.07910	0.00000
SUM	-1.05571	0.91239	-2.39125	0.00000	-1.65850	0.00000

Condition **LC21=0.9D-W60**

50	0.12450	0.03802	-1.11344	0.00000	0.00000	0.00000
52	0.02004	-0.01212	0.47682	0.00000	0.00000	0.00000
69	-1.13048	0.48715	-0.45075	0.00000	-1.22744	0.00000
70	-1.18918	0.39934	0.26783	0.00000	-1.72795	0.00000
SUM	-2.17512	0.91239	-0.81954	0.00000	-2.95539	0.00000

Condition **LC22=0.9D-W90**

50	0.03194	0.02880	-0.60227	0.00000	0.00000	0.00000
52	0.02770	-0.00916	0.57959	0.00000	0.00000	0.00000
69	-1.13561	0.44510	-0.55864	0.00000	-1.26544	0.00000
70	-1.26861	0.44765	0.58132	0.00000	-1.73173	0.00000
SUM	-2.34458	0.91239	0.00000	0.00000	-2.99716	0.00000

Condition **LC23=0.9D-W120**

50	-0.06830	0.01724	-0.00352	0.00000	0.00000	0.00000
52	0.02728	-0.00377	0.59686	0.00000	0.00000	0.00000
69	-0.95060	0.40102	-0.66838	0.00000	-1.08529	0.00000
70	-1.18350	0.49790	0.89458	0.00000	-1.49436	0.00000
SUM	-2.17512	0.91239	0.81954	0.00000	-2.57965	0.00000

Condition **LC24=0.9D-W150**

50	-0.17968	0.00207	0.93805	0.00000	0.00000	0.00000
52	0.11314	-0.00124	0.89568	0.00000	0.00000	0.00000
69	-0.30989	0.26783	-0.79668	0.00000	-0.41576	0.00000
70	-0.67928	0.64374	1.63259	0.00000	-0.79422	0.00000
SUM	-1.05571	0.91239	2.66965	0.00000	-1.20998	0.00000

Condition **LC25=1.2D+Di+WI0**

50	-0.03496	0.02975	0.24346	0.00000	0.00000	0.00000
52	0.00280	0.01781	0.00281	0.00000	0.00000	0.00000
69	0.54183	1.02150	-1.42334	0.00000	0.50640	0.00000
70	-0.50967	1.03973	1.48906	0.00000	-0.53836	0.00000
SUM	0.00000	2.10878	0.31200	0.00000	-0.03196	0.00000

Condition **LC26=1.2D+Di+WI30**

50	-0.02576	0.02969	0.21701	0.00000	0.00000	0.00000
52	-0.00336	0.01877	-0.06579	0.00000	0.00000	0.00000
69	0.63664	1.02678	-1.40535	0.00000	0.61291	0.00000
70	-0.41731	1.03353	1.44434	0.00000	-0.42038	0.00000
SUM	0.19021	2.10878	0.19021	0.00000	0.19253	0.00000

Condition **LC27=1.2D+Di+WI60**

50	-0.01674	0.03096	0.16044	0.00000	0.00000	0.00000
52	-0.00267	0.01814	-0.05897	0.00000	0.00000	0.00000
69	0.60806	1.02289	-1.38171	0.00000	0.58696	0.00000
70	-0.43591	1.03679	1.43298	0.00000	-0.45383	0.00000
SUM	0.15274	2.10878	0.15273	0.00000	0.13313	0.00000

Condition **LC28=1.2D+Di+WI90**

50	-0.00030	0.03267	0.07052	0.00000	0.00000	0.00000
52	-0.00415	0.01761	-0.07926	0.00000	0.00000	0.00000
69	0.61306	1.03200	-1.36521	0.00000	0.59762	0.00000
70	-0.41762	1.02650	1.37395	0.00000	-0.44835	0.00000
SUM	0.19100	2.10878	0.00000	0.00000	0.14928	0.00000

Condition **LC29=1.2D+Di+WI120**

50	0.01819	0.03500	-0.04045	0.00000	0.00000	0.00000
52	-0.00373	0.01652	-0.07902	0.00000	0.00000	0.00000
69	0.57495	1.04125	-1.34827	0.00000	0.55938	0.00000
70	-0.43668	1.01600	1.31500	0.00000	-0.49758	0.00000
SUM	0.15274	2.10878	-0.15274	0.00000	0.06181	0.00000

Condition **LC30=1.2D+Di+WI150**

50	0.02406	0.03540	-0.06724	0.00000	0.00000	0.00000
52	-0.00550	0.01664	-0.09837	0.00000	0.00000	0.00000
69	0.59013	1.03836	-1.32772	0.00000	0.57956	0.00000
70	-0.41848	1.01838	1.30312	0.00000	-0.47620	0.00000
SUM	0.19021	2.10878	-0.19021	0.00000	0.10336	0.00000

Condition **LC31=1.2D+Di-WI0**

50	0.04630	0.03913	-0.22171	0.00000	0.00000	0.00000
52	-0.00070	0.01434	-0.04959	0.00000	0.00000	0.00000
69	0.46593	1.04137	-1.30064	0.00000	0.44661	0.00000
70	-0.51154	1.01393	1.25994	0.00000	-0.63223	0.00000
SUM	0.00000	2.10878	-0.31200	0.00000	-0.18562	0.00000

Condition **LC32=1.2D+Di-WI30**

50	0.03709	0.03921	-0.19556	0.00000	0.00000	0.00000
52	0.00545	0.01338	0.01890	0.00000	0.00000	0.00000
69	0.37115	1.03598	-1.31827	0.00000	0.34018	0.00000
70	-0.60391	1.02021	1.30472	0.00000	-0.75026	0.00000
SUM	-0.19021	2.10878	-0.19021	0.00000	-0.41008	0.00000

Condition **LC33=1.2D+Di-WI60**

50	0.02806	0.03791	-0.13890	0.00000	0.00000	0.00000
52	0.00477	0.01402	0.01212	0.00000	0.00000	0.00000
69	0.39974	1.03992	-1.34202	0.00000	0.36614	0.00000
70	-0.58531	1.01693	1.31607	0.00000	-0.71681	0.00000
SUM	-0.15274	2.10878	-0.15274	0.00000	-0.35067	0.00000

Condition **LC34=1.2D+Di-WI90**

50	0.01160	0.03620	-0.04892	0.00000	0.00000	0.00000
52	0.00626	0.01455	0.03244	0.00000	0.00000	0.00000
69	0.39475	1.03083	-1.35860	0.00000	0.35547	0.00000
70	-0.60360	1.02720	1.37508	0.00000	-0.72231	0.00000
SUM	-0.19100	2.10878	0.00000	0.00000	-0.36683	0.00000

Condition **LC35=1.2D+Di-WI120**

50	-0.00689	0.03386	0.06217	0.00000	0.00000	0.00000
52	0.00584	0.01563	0.03225	0.00000	0.00000	0.00000
69	0.43285	1.02163	-1.37569	0.00000	0.39369	0.00000
70	-0.58454	1.03766	1.43400	0.00000	-0.67306	0.00000
SUM	-0.15274	2.10878	0.15273	0.00000	-0.27937	0.00000

Condition **LC36=1.2D+Di-WI150**

50	-0.01277	0.03346	0.08907	0.00000	0.00000	0.00000
52	0.00763	0.01551	0.05164	0.00000	0.00000	0.00000
69	0.41767	1.02456	-1.39637	0.00000	0.37349	0.00000
70	-0.60274	1.03525	1.44587	0.00000	-0.69444	0.00000
SUM	-0.19021	2.10878	0.19021	0.00000	-0.32095	0.00000

Condition **LC37=1.2D+1.6LL1**

50	0.00316	0.01604	-0.00075	0.00000	0.00000	0.00000
52	-0.00052	0.00844	-0.01357	0.00000	0.00000	0.00000
69	0.22172	0.79564	-1.06954	0.00000	0.21166	0.00000
70	-0.22436	0.79640	1.08386	0.00000	-0.25201	0.00000
SUM	0.00000	1.61652	0.00000	0.00000	-0.04035	0.00000

Condition **LC38=1.2D+1.6LL2**

50	-0.00048	0.00791	-0.01886	0.00000	0.00000	0.00000
52	-0.00342	0.02378	0.01171	0.00000	0.00000	0.00000
69	-0.35602	0.79459	-1.07747	0.00000	-0.31910	0.00000
70	0.35992	0.79025	1.08462	0.00000	0.41881	0.00000
SUM	0.00000	1.61652	0.00000	0.00000	0.09971	0.00000

Condition **LC39=1.2D+1.6LL3**

50	0.00605	0.03129	0.02457	0.00000	0.00000	0.00000
52	0.00314	0.00023	-0.03148	0.00000	0.00000	0.00000
69	0.79950	0.79447	-1.07767	0.00000	0.74252	0.00000
70	-0.80868	0.79052	1.08458	0.00000	-0.92316	0.00000
SUM	0.00000	1.61652	0.00000	0.00000	-0.18064	0.00000

Condition **LC40=1.2D+WL0+1.6LLa1**

50	-0.01464	-0.00088	0.01429	0.00000	0.00000	0.00000
52	-0.01070	0.03229	0.01826	0.00000	0.00000	0.00000
69	-0.92528	0.98363	-1.40949	0.00000	-0.85050	0.00000
70	0.95062	1.00147	1.46993	0.00000	1.08202	0.00000
SUM	0.00000	2.01652	0.09300	0.00000	0.23151	0.00000

Condition **LC41=1.2D+WL30+1.6LLa1**

50	-0.01210	-0.00096	0.00823	0.00000	0.00000	0.00000
52	-0.01265	0.03268	-0.00326	0.00000	0.00000	0.00000
69	-0.89590	0.98504	-1.40391	0.00000	-0.81709	0.00000
70	0.97864	0.99975	1.45692	0.00000	1.11884	0.00000
SUM	0.05798	2.01652	0.05798	0.00000	0.30175	0.00000

Condition **LC42=1.2D+WL60+1.6LLa1**

50	-0.00873	-0.00053	-0.01291	0.00000	0.00000	0.00000
52	-0.01242	0.03244	-0.00089	0.00000	0.00000	0.00000
69	-0.90628	0.98342	-1.39464	0.00000	-0.82652	0.00000
70	0.97197	1.00118	1.45299	0.00000	1.10663	0.00000
SUM	0.04455	2.01652	0.04455	0.00000	0.28011	0.00000

Condition **LC43=1.2D+WL90+1.6LLa1**

50	-0.00397	-0.00009	-0.03911	0.00000	0.00000	0.00000
52	-0.01284	0.03231	-0.00667	0.00000	0.00000	0.00000
69	-0.90521	0.98615	-1.38999	0.00000	-0.82387	0.00000
70	0.97702	0.99815	1.43577	0.00000	1.10789	0.00000
SUM	0.05500	2.01652	0.00000	0.00000	0.28402	0.00000

Condition **LC44=1.2D+WL120+1.6LLa1**

50	0.00134	0.00051	-0.07101	0.00000	0.00000	0.00000
52	-0.01272	0.03199	-0.00671	0.00000	0.00000	0.00000
69	-0.91573	0.98897	-1.38538	0.00000	-0.83435	0.00000
70	0.97167	0.99504	1.41854	0.00000	1.09389	0.00000
SUM	0.04455	2.01652	-0.04455	0.00000	0.25954	0.00000

Condition **LC45=1.2D+WL150+1.6LLa1**

50	0.00358	0.00065	-0.08147	0.00000	0.00000	0.00000
52	-0.01337	0.03205	-0.01366	0.00000	0.00000	0.00000
69	-0.91036	0.98770	-1.37726	0.00000	-0.82718	0.00000
70	0.97813	0.99611	1.41441	0.00000	1.10127	0.00000
SUM	0.05798	2.01652	-0.05798	0.00000	0.27409	0.00000

Condition **LC46=1.2D-WL0+1.6LLa1**

50	0.01009	0.00165	-0.12687	0.00000	0.00000	0.00000
52	-0.01192	0.03132	0.00085	0.00000	0.00000	0.00000
69	-0.94798	0.98848	-1.36888	0.00000	-0.86687	0.00000
70	0.94981	0.99507	1.40190	0.00000	1.05471	0.00000
SUM	0.00000	2.01652	-0.09300	0.00000	0.18785	0.00000

Condition **LC47=1.2D-WL30+1.6LLa1**

50	0.00755	0.00173	-0.12084	0.00000	0.00000	0.00000
52	-0.00998	0.03093	0.02236	0.00000	0.00000	0.00000
69	-0.97735	0.98706	-1.37443	0.00000	-0.90027	0.00000
70	0.92179	0.99680	1.41492	0.00000	1.01789	0.00000
SUM	-0.05798	2.01652	-0.05798	0.00000	0.11761	0.00000

Condition **LC48=1.2D-WL60+1.6LLa1**

50	0.00419	0.00130	-0.09968	0.00000	0.00000	0.00000
52	-0.01021	0.03117	0.02000	0.00000	0.00000	0.00000
69	-0.96698	0.98869	-1.38370	0.00000	-0.89084	0.00000
70	0.92846	0.99536	1.41885	0.00000	1.03009	0.00000
SUM	-0.04455	2.01652	-0.04455	0.00000	0.13925	0.00000

Condition **LC49=1.2D-WL90+1.6LLa1**

50	-0.00058	0.00086	-0.07348	0.00000	0.00000	0.00000
52	-0.00979	0.03131	0.02577	0.00000	0.00000	0.00000
69	-0.96804	0.98596	-1.38836	0.00000	-0.89349	0.00000
70	0.92341	0.99839	1.43607	0.00000	1.02883	0.00000
SUM	-0.05500	2.01652	0.00000	0.00000	0.13534	0.00000

Condition **LC50=1.2D-WL120+1.6LLa1**

50	-0.00589	0.00025	-0.04157	0.00000	0.00000	0.00000
52	-0.00991	0.03162	0.02582	0.00000	0.00000	0.00000
69	-0.95752	0.98315	-1.39299	0.00000	-0.88301	0.00000
70	0.92876	1.00150	1.45329	0.00000	1.04283	0.00000
SUM	-0.04455	2.01652	0.04455	0.00000	0.15982	0.00000

Condition **LC51=1.2D-WL150+1.6LLa1**

50	-0.00813	0.00011	-0.03110	0.00000	0.00000	0.00000
52	-0.00926	0.03156	0.03278	0.00000	0.00000	0.00000
69	-0.96289	0.98442	-1.40112	0.00000	-0.89018	0.00000
70	0.92230	1.00042	1.45742	0.00000	1.03546	0.00000
SUM	-0.05798	2.01652	0.05798	0.00000	0.14527	0.00000

Condition **LC52=1.2D+WL0+1.6LLa2**

50	-0.00983	0.01270	0.06354	0.00000	0.00000	0.00000
52	-0.00190	0.01060	-0.01204	0.00000	0.00000	0.00000
69	-0.15646	0.99327	-1.42359	0.00000	-0.13614	0.00000
70	0.16819	0.99994	1.46509	0.00000	0.11126	0.00000
SUM	0.00000	2.01652	0.09300	0.00000	-0.02489	0.00000

Condition **LC53=1.2D+WL30+1.6LLa2**

50	-0.00730	0.01262	0.05752	0.00000	0.00000	0.00000
52	-0.00384	0.01093	-0.03353	0.00000	0.00000	0.00000
69	-0.12716	0.99472	-1.41809	0.00000	-0.10281	0.00000
70	0.19628	0.99824	1.45208	0.00000	0.14815	0.00000
SUM	0.05798	2.01652	0.05798	0.00000	0.04534	0.00000

Condition **LC54=1.2D+WL60+1.6LLa2**

50	-0.00393	0.01307	0.03639	0.00000	0.00000	0.00000
52	-0.00360	0.01070	-0.03117	0.00000	0.00000	0.00000
69	-0.13753	0.99309	-1.40882	0.00000	-0.11224	0.00000
70	0.18961	0.99965	1.44815	0.00000	0.13595	0.00000
SUM	0.04455	2.01652	0.04455	0.00000	0.02371	0.00000

Condition **LC55=1.2D+WL90+1.6LLa2**

50	0.00084	0.01353	0.01022	0.00000	0.00000	0.00000
52	-0.00402	0.01055	-0.03695	0.00000	0.00000	0.00000
69	-0.13650	0.99582	-1.40419	0.00000	-0.10961	0.00000
70	0.19469	0.99662	1.43092	0.00000	0.13725	0.00000
SUM	0.05500	2.01652	0.00000	0.00000	0.02764	0.00000

Condition **LC56=1.2D+WL120+1.6LLa2**

50	0.00615	0.01415	-0.02165	0.00000	0.00000	0.00000
52	-0.00390	0.01023	-0.03700	0.00000	0.00000	0.00000
69	-0.14704	0.99864	-1.39958	0.00000	-0.12010	0.00000
70	0.18934	0.99349	1.41368	0.00000	0.12328	0.00000
SUM	0.04455	2.01652	-0.04455	0.00000	0.00318	0.00000

Condition **LC57=1.2D+WL150+1.6LLa2**

50	0.00840	0.01429	-0.03209	0.00000	0.00000	0.00000
52	-0.00455	0.01028	-0.04394	0.00000	0.00000	0.00000
69	-0.14170	0.99738	-1.39150	0.00000	-0.11296	0.00000
70	0.19583	0.99456	1.40955	0.00000	0.13069	0.00000
SUM	0.05798	2.01652	-0.05798	0.00000	0.01773	0.00000

Condition **LC58=1.2D-WL0+1.6LLa2**

50	0.01493	0.01532	-0.07748	0.00000	0.00000	0.00000
52	-0.00311	0.00958	-0.02947	0.00000	0.00000	0.00000
69	-0.17928	0.99813	-1.38308	0.00000	-0.15261	0.00000
70	0.16747	0.99348	1.39703	0.00000	0.08412	0.00000
SUM	0.00000	2.01652	-0.09300	0.00000	-0.06848	0.00000

Condition **LC59=1.2D-WL30+1.6LLa2**

50	0.01240	0.01540	-0.07149	0.00000	0.00000	0.00000
52	-0.00118	0.00925	-0.00800	0.00000	0.00000	0.00000
69	-0.20857	0.99666	-1.38854	0.00000	-0.18593	0.00000
70	0.13937	0.99520	1.41005	0.00000	0.04722	0.00000
SUM	-0.05798	2.01652	-0.05798	0.00000	-0.13871	0.00000

Condition **LC60=1.2D-WL60+1.6LLa2**

50	0.00902	0.01495	-0.05034	0.00000	0.00000	0.00000
52	-0.00142	0.00949	-0.01035	0.00000	0.00000	0.00000
69	-0.19820	0.99830	-1.39783	0.00000	-0.17651	0.00000
70	0.14604	0.99378	1.41398	0.00000	0.05942	0.00000
SUM	-0.04455	2.01652	-0.04455	0.00000	-0.11708	0.00000

Condition **LC61=1.2D-WL90+1.6LLa2**

50	0.00425	0.01450	-0.02417	0.00000	0.00000	0.00000
52	-0.00099	0.00964	-0.00457	0.00000	0.00000	0.00000
69	-0.19923	0.99557	-1.40246	0.00000	-0.17913	0.00000
70	0.14097	0.99682	1.43121	0.00000	0.05812	0.00000
SUM	-0.05500	2.01652	0.00000	0.00000	-0.12101	0.00000

Condition **LC62=1.2D-WL120+1.6LLa2**

50	-0.00106	0.01387	0.00771	0.00000	0.00000	0.00000
52	-0.00111	0.00995	-0.00452	0.00000	0.00000	0.00000
69	-0.18869	0.99275	-1.40708	0.00000	-0.16864	0.00000
70	0.14632	0.99994	1.44844	0.00000	0.07209	0.00000
SUM	-0.04455	2.01652	0.04455	0.00000	-0.09655	0.00000

Condition **LC63=1.2D-WL150+1.6LLa2**

50	-0.00331	0.01373	0.01816	0.00000	0.00000	0.00000
52	-0.00047	0.00991	0.00243	0.00000	0.00000	0.00000
69	-0.19403	0.99401	-1.41518	0.00000	-0.17578	0.00000
70	0.13983	0.99887	1.45257	0.00000	0.06468	0.00000
SUM	-0.05798	2.01652	0.05798	0.00000	-0.11110	0.00000

Condition **LC64=1.2D+WL0+1.6LLa3**

50	-0.00726	0.01618	0.06261	0.00000	0.00000	0.00000
52	0.00069	0.00694	-0.01095	0.00000	0.00000	0.00000
69	0.61941	0.99320	-1.42375	0.00000	0.57274	0.00000
70	-0.61284	1.00019	1.46508	0.00000	-0.58505	0.00000
SUM	0.00000	2.01652	0.09300	0.00000	-0.01231	0.00000

Condition **LC65=1.2D+WL30+1.6LLa3**

50	-0.00473	0.01611	0.05659	0.00000	0.00000	0.00000
52	-0.00123	0.00725	-0.03242	0.00000	0.00000	0.00000
69	0.64866	0.99466	-1.41822	0.00000	0.60603	0.00000
70	-0.58471	0.99849	1.45204	0.00000	-0.54810	0.00000
SUM	0.05798	2.01652	0.05798	0.00000	0.05793	0.00000

Condition **LC66=1.2D+WL60+1.6LLa3**

50	-0.00135	0.01658	0.03545	0.00000	0.00000	0.00000
52	-0.00100	0.00702	-0.03007	0.00000	0.00000	0.00000
69	0.63828	0.99302	-1.40894	0.00000	0.59660	0.00000
70	-0.59138	0.99990	1.44811	0.00000	-0.56030	0.00000
SUM	0.04455	2.01652	0.04455	0.00000	0.03630	0.00000

Condition **LC67=1.2D+WL90+1.6LLa3**

50	0.00342	0.01707	0.00929	0.00000	0.00000	0.00000
52	-0.00142	0.00686	-0.03584	0.00000	0.00000	0.00000
69	0.63929	0.99574	-1.40430	0.00000	0.59921	0.00000
70	-0.58628	0.99685	1.43086	0.00000	-0.55898	0.00000
SUM	0.05500	2.01652	0.00000	0.00000	0.04023	0.00000

Condition **LC68=1.2D+WL120+1.6LLa3**

50	0.00874	0.01772	-0.02259	0.00000	0.00000	0.00000
52	-0.00130	0.00655	-0.03589	0.00000	0.00000	0.00000
69	0.62873	0.99854	-1.39968	0.00000	0.58870	0.00000
70	-0.59162	0.99370	1.41361	0.00000	-0.57293	0.00000
SUM	0.04455	2.01652	-0.04455	0.00000	0.01577	0.00000

Condition **LC69=1.2D+WL150+1.6LLa3**

50	0.01099	0.01788	-0.03303	0.00000	0.00000	0.00000
52	-0.00195	0.00658	-0.04283	0.00000	0.00000	0.00000
69	0.63405	0.99728	-1.39158	0.00000	0.59582	0.00000
70	-0.58510	0.99477	1.40946	0.00000	-0.56550	0.00000
SUM	0.05798	2.01652	-0.05798	0.00000	0.03032	0.00000

Condition **LC70=1.2D-WL0+1.6LLa3**

50	0.01752	0.01895	-0.07842	0.00000	0.00000	0.00000
52	-0.00051	0.00590	-0.02837	0.00000	0.00000	0.00000
69	0.59647	0.99800	-1.38315	0.00000	0.55619	0.00000
70	-0.61348	0.99366	1.39694	0.00000	-0.61208	0.00000
SUM	0.00000	2.01652	-0.09300	0.00000	-0.05590	0.00000

Condition **LC71=1.2D-WL30+1.6LLa3**

50	0.01499	0.01903	-0.07243	0.00000	0.00000	0.00000
52	0.00141	0.00559	-0.00690	0.00000	0.00000	0.00000
69	0.56723	0.99653	-1.38864	0.00000	0.52290	0.00000
70	-0.64162	0.99537	1.40999	0.00000	-0.64903	0.00000
SUM	-0.05798	2.01652	-0.05798	0.00000	-0.12613	0.00000

Condition **LC72=1.2D-WL60+1.6LLa3**

50	0.01161	0.01856	-0.05128	0.00000	0.00000	0.00000
52	0.00118	0.00582	-0.00926	0.00000	0.00000	0.00000
69	0.57761	0.99818	-1.39793	0.00000	0.53233	0.00000
70	-0.63495	0.99396	1.41392	0.00000	-0.63683	0.00000
SUM	-0.04455	2.01652	-0.04455	0.00000	-0.10450	0.00000

Condition **LC73=1.2D-WL90+1.6LLa3**

50	0.00684	0.01807	-0.02511	0.00000	0.00000	0.00000
52	0.00160	0.00598	-0.00348	0.00000	0.00000	0.00000
69	0.57660	0.99546	-1.40258	0.00000	0.52973	0.00000
70	-0.64004	0.99701	1.43117	0.00000	-0.63816	0.00000
SUM	-0.05500	2.01652	0.00000	0.00000	-0.10843	0.00000

Condition **LC74=1.2D-WL120+1.6LLa3**

50	0.00152	0.01741	0.00677	0.00000	0.00000	0.00000
52	0.00148	0.00630	-0.00342	0.00000	0.00000	0.00000
69	0.58716	0.99266	-1.40722	0.00000	0.54024	0.00000
70	-0.63471	1.00015	1.44842	0.00000	-0.62421	0.00000
SUM	-0.04455	2.01652	0.04455	0.00000	-0.08397	0.00000

Condition **LC75=1.2D-WL150+1.6LLa3**

50	-0.00073	0.01726	0.01723	0.00000	0.00000	0.00000
52	0.00213	0.00626	0.00352	0.00000	0.00000	0.00000
69	0.58184	0.99392	-1.41533	0.00000	0.53311	0.00000
70	-0.64122	0.99908	1.45256	0.00000	-0.63163	0.00000
SUM	-0.05798	2.01652	0.05798	0.00000	-0.09852	0.00000

Condition **LC76=1.2D+WL0+1.6LLa4**

50	0.00152	0.03763	0.09303	0.00000	0.00000	0.00000
52	0.00556	-0.00683	-0.06005	0.00000	0.00000	0.00000
69	1.39170	0.98354	-1.41009	0.00000	1.29055	0.00000
70	-1.39878	1.00218	1.47011	0.00000	-1.55935	0.00000
SUM	0.00000	2.01652	0.09300	0.00000	-0.26880	0.00000

Condition **LC77=1.2D+WL30+1.6LLa4**

50	0.00404	0.03758	0.08701	0.00000	0.00000	0.00000
52	0.00364	-0.00654	-0.08152	0.00000	0.00000	0.00000
69	1.42073	0.98499	-1.40455	0.00000	1.32364	0.00000
70	-1.37043	1.00048	1.45704	0.00000	-1.52212	0.00000
SUM	0.05798	2.01652	0.05798	0.00000	-0.19848	0.00000

Condition **LC78=1.2D+WL60+1.6LLa4**

50	0.00743	0.03811	0.06584	0.00000	0.00000	0.00000
52	0.00387	-0.00677	-0.07917	0.00000	0.00000	0.00000
69	1.41037	0.98331	-1.39520	0.00000	1.31422	0.00000
70	-1.37713	1.00186	1.45308	0.00000	-1.53439	0.00000
SUM	0.04455	2.01652	0.04455	0.00000	-0.22017	0.00000

Condition **LC79=1.2D+WL90+1.6LLa4**

50	0.01222	0.03867	0.03964	0.00000	0.00000	0.00000
52	0.00345	-0.00693	-0.08494	0.00000	0.00000	0.00000
69	1.41129	0.98599	-1.39048	0.00000	1.31673	0.00000
70	-1.37196	0.99878	1.43578	0.00000	-1.53300	0.00000
SUM	0.05500	2.01652	0.00000	0.00000	-0.21627	0.00000

Condition **LC80=1.2D+WL120+1.6LLa4**

50	0.01756	0.03943	0.00773	0.00000	0.00000	0.00000
52	0.00357	-0.00722	-0.08497	0.00000	0.00000	0.00000
69	1.40069	0.98868	-1.38579	0.00000	1.30618	0.00000
70	-1.37727	0.99564	1.41849	0.00000	-1.54691	0.00000
SUM	0.04455	2.01652	-0.04455	0.00000	-0.24073	0.00000

Condition **LC81=1.2D+WL150+1.6LLa4**

50	0.01981	0.03961	-0.00273	0.00000	0.00000	0.00000
52	0.00293	-0.00719	-0.09191	0.00000	0.00000	0.00000
69	1.40592	0.98740	-1.37766	0.00000	1.31321	0.00000
70	-1.37067	0.99669	1.41432	0.00000	-1.53938	0.00000
SUM	0.05798	2.01652	-0.05798	0.00000	-0.22617	0.00000

Condition **LC82=1.2D-WL0+1.6LLa4**

50	0.02637	0.04083	-0.04818	0.00000	0.00000	0.00000
52	0.00436	-0.00783	-0.07740	0.00000	0.00000	0.00000
69	1.36845	0.98790	-1.36917	0.00000	1.27368	0.00000
70	-1.39918	0.99561	1.40175	0.00000	-1.58611	0.00000
SUM	0.00000	2.01652	-0.09300	0.00000	-0.31243	0.00000

Condition **LC83=1.2D-WL30+1.6LLa4**

50	0.02385	0.04088	-0.04218	0.00000	0.00000	0.00000
52	0.00628	-0.00812	-0.05593	0.00000	0.00000	0.00000
69	1.33943	0.98641	-1.37469	0.00000	1.24060	0.00000
70	-1.42754	0.99734	1.41482	0.00000	-1.62333	0.00000
SUM	-0.05798	2.01652	-0.05798	0.00000	-0.38273	0.00000

Condition **LC84=1.2D-WL60+1.6LLa4**

50	0.02046	0.04035	-0.02101	0.00000	0.00000	0.00000
52	0.00605	-0.00790	-0.05830	0.00000	0.00000	0.00000
69	1.34978	0.98814	-1.38403	0.00000	1.25001	0.00000
70	-1.42083	0.99593	1.41878	0.00000	-1.61108	0.00000
SUM	-0.04455	2.01652	-0.04455	0.00000	-0.36107	0.00000

Condition **LC85=1.2D-WL90+1.6LLa4**

50	0.01567	0.03978	0.00519	0.00000	0.00000	0.00000
52	0.00647	-0.00775	-0.05254	0.00000	0.00000	0.00000
69	1.34884	0.98551	-1.38873	0.00000	1.24748	0.00000
70	-1.42598	0.99898	1.43608	0.00000	-1.61250	0.00000
SUM	-0.05500	2.01652	0.00000	0.00000	-0.36501	0.00000

Condition **LC86=1.2D-WL120+1.6LLa4**

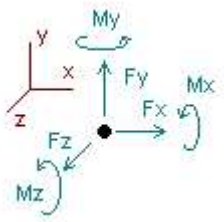
50	0.01033	0.03903	0.03711	0.00000	0.00000	0.00000
52	0.00635	-0.00746	-0.05251	0.00000	0.00000	0.00000
69	1.35944	0.98284	-1.39343	0.00000	1.25804	0.00000
70	-1.42067	1.00211	1.45337	0.00000	-1.59859	0.00000
SUM	-0.04455	2.01652	0.04455	0.00000	-0.34056	0.00000

Condition **LC87=1.2D-WL150+1.6LLa4**

50	0.00808	0.03884	0.04758	0.00000	0.00000	0.00000
52	0.00699	-0.00749	-0.04556	0.00000	0.00000	0.00000
69	1.35422	0.98412	-1.40157	0.00000	1.25100	0.00000
70	-1.42727	1.00104	1.45754	0.00000	-1.60613	0.00000
SUM	-0.05798	2.01652	0.05798	0.00000	-0.35513	0.00000

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2
LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2

LC64=1.2D+WL0+1.6LLa3
LC65=1.2D+WL30+1.6LLa3
LC66=1.2D+WL60+1.6LLa3
LC67=1.2D+WL90+1.6LLa3
LC68=1.2D+WL120+1.6LLa3
LC69=1.2D+WL150+1.6LLa3
LC70=1.2D-WL0+1.6LLa3
LC71=1.2D-WL30+1.6LLa3
LC72=1.2D-WL60+1.6LLa3
LC73=1.2D-WL90+1.6LLa3
LC74=1.2D-WL120+1.6LLa3
LC75=1.2D-WL150+1.6LLa3
LC76=1.2D+WL0+1.6LLa4
LC77=1.2D+WL30+1.6LLa4
LC78=1.2D+WL60+1.6LLa4
LC79=1.2D+WL90+1.6LLa4
LC80=1.2D+WL120+1.6LLa4
LC81=1.2D+WL150+1.6LLa4
LC82=1.2D-WL0+1.6LLa4
LC83=1.2D-WL30+1.6LLa4
LC84=1.2D-WL60+1.6LLa4
LC85=1.2D-WL90+1.6LLa4
LC86=1.2D-WL120+1.6LLa4
LC87=1.2D-WL150+1.6LLa4

		Forces						Moments					
Node		**Fx** [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
50	Max	0.280	LC7	0.043	LC8	1.635	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.274	LC13	-0.013	LC13	-1.620	LC19	0.00000	LC1	0.00000	LC1	0.00000	LC1
52	Max	0.113	LC12	0.033	LC41	0.896	LC24	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.111	LC18	-0.012	LC21	-0.904	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
69	Max	1.524	LC4	1.041	LC31	-0.235	LC19	0.00000	LC1	1.63608	LC4	0.00000	LC1
	Min	-1.136	LC22	0.267	LC13	-1.424	LC64	0.00000	LC1	-1.26544	LC22	0.00000	LC1
70	Max	0.979	LC41	1.040	LC25	1.965	LC1	0.00000	LC1	1.35286	LC16	0.00000	LC1
	Min	-1.428	LC83	0.242	LC19	-0.616	LC19	0.00000	LC1	-1.79508	LC10	0.00000	LC1

Connection Check

Date: 10/25/2022
Project Name: EAST HAVEN
Project No.: CT5184
Designed By: CL **Checked By:** MSC

CHECK THRU BOLT CONNECTION CAPACITY → THREADED RODS AT COLLAR MOUNT

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 5/8" Threaded Rod

Allowable Tensile Load =

F_{Tall} = 6673 lbs.

Allowable Shear Load =

F_{Vall} = 4004 lbs.

TENSILE FORCES

Reaction **F =** 1965 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1428 lbs. (See Bentley Output)
Reactions in Y direction: 1040 lbs. (See Bentley Output)

Resultant: 1767 lbs.

No. of Supports = 1
No. of Bolts / Support = 3

Tension Design Load /Bolts =

f_t = 655.00 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 588.86 lbs. < 4004 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.098	+	0.147	=	0.245	<	1.0	**Therefore, OK !**

Date: 10/25/2022
Project Name: EAST HAVEN
Project No.: CT5184
Designed By: CL **Checked By:** MSC

CHECK THRU BOLT CONNECTION CAPACITY → THRU BOLTS AT STANDOFF

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 5/8" Bolt

Allowable Tensile Load =

F_{Tall} = 13806 lbs.

Allowable Shear Load =

F_{vall} = 8283 lbs.

CONNECTION PLATE CONFIGURATION (4-BOLTS)

$N_{BOLT\ ROWS}$	=	2	rows	d_Y	=	6	in (Min.)
N_{BOLTS}	=	2	bolts/row	d_X	=	6	in (Min.)

TENSILE FORCES

Moment in X axis:	0	lb-ft.	(See Bentley Output)
Couple Reaction from M_X:	0	lbs.	
Moment in Y axis:	1795	lb-ft.	(See Bentley Output)
Couple Reaction from M_Y:	7180	lbs.	
Reaction in Z direction:	1965	lbs.	(See Bentley Output)
Resultant:	4081	lbs.	

SHEAR FORCES

Moment in Z axis:	0	lb-ft.	(See Bentley Output)
Couple Reaction from M_Z:	0	lbs.	
Reaction in X direction:	1428	lbs.	(See Bentley Output)
Reaction in Y direction:	1040	lbs.	(See Bentley Output)
Resultant:	442	lbs.	

Tension Design Load /Bolts =

f_t= 4081.25 lbs. < 13806 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 441.64 lbs. < 8283.5 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.296	+	0.053	=	0.349	<	1.0	**Therefore, OK !**

EXHIBIT 5

Radio Frequency Exposure Analysis Report

August 31, 2022

Centerline on behalf of AT&T

AT&T Site Name: EAST HAVEN
Site Number: CT5184
FA#: 10071146
USID: 44031

Site Address: 108 FOXON ROAD, NORTH BRANFORD, CT 06471

Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2023

Signed 31 August 2022

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	2.63545 µW/cm^2
Cumulative General Population % MPE (Ground Level):	0.28762%

August 31, 2022

Centerline
Attn: Jennifer Iliades, Project Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **EAST HAVEN**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed AT&T facility at **108 FOXON ROAD, NORTH BRANFORD, CT 06471** 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 ($\mu W/cm^2$). 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 ($f_{MHz}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of 1 mW/cm^2 (1000 $\mu W/cm^2$). 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 AT&T 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 ground level.

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 @ Ground Level (Location: approximately 10' northeast 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 ($\mu W/cm^2$)	General Population MPE Limit ($\mu W/cm^2$)	General Population % MPE
AT&T A 1	CCI OPA65R-BU6D	700	11.85	159.00	2.00	30.00	918.65	0.02233	466.67	0.00479
AT&T A 1	CCI OPA65R-BU6D	2100	15.25	159.00	4.00	30.00	4019.59	0.04338	1000.00	0.00434
AT&T A 2	ERICSSON AIR6449	3700	23.55	157.50	1.00	108.40	24548.74	0.53433	1000.00	0.05343
AT&T A 3	ERICSSON AIR6419	3450	23.55	160.50	1.00	108.40	24548.74	0.51386	1000.00	0.05139
AT&T A 4	CCI DMP65R-BU6D	700	11.75	159.00	2.00	30.00	897.74	0.02002	466.67	0.00429
AT&T A 4	CCI DMP65R-BU6D	850	11.45	159.00	4.00	30.00	1675.64	0.04387	566.67	0.00774
AT&T A 4	CCI DMP65R-BU6D	1900	14.35	159.00	4.00	30.00	3267.24	0.03830	1000.00	0.00383
AT&T B 5	CCI OPA65R-BU6D	700	11.85	159.00	2.00	30.00	918.65	0.00000	466.67	0.00000
AT&T B 5	CCI OPA65R-BU6D	2100	15.25	159.00	4.00	30.00	4019.59	0.00001	1000.00	0.00000
AT&T B 6	ERICSSON AIR6449	3700	23.55	157.50	1.00	108.40	24548.74	0.00106	1000.00	0.00011
AT&T B 7	ERICSSON AIR6419	3450	23.55	160.50	1.00	108.40	24548.74	0.00102	1000.00	0.00010
AT&T B 8	CCI DMP65R-BU6D	700	11.75	159.00	2.00	30.00	897.74	0.00001	466.67	0.00000
AT&T B 8	CCI DMP65R-BU6D	850	11.45	159.00	4.00	30.00	1675.64	0.00008	566.67	0.00001
AT&T B 8	CCI DMP65R-BU6D	1900	14.35	159.00	4.00	30.00	3267.24	0.00007	1000.00	0.00001
AT&T C 9	CCI OPA65R-BU6D	700	11.85	159.00	2.00	30.00	918.65	0.00004	466.67	0.00001
AT&T C 9	CCI OPA65R-BU6D	2100	15.25	159.00	4.00	30.00	4019.59	0.00004	1000.00	0.00000
AT&T C 10	ERICSSON AIR6449	3700	23.55	157.50	1.00	108.40	24548.74	0.00764	1000.00	0.00076
AT&T C 11	ERICSSON AIR6419	3450	23.55	160.50	1.00	108.40	24548.74	0.00734	1000.00	0.00073
AT&T C 12	CCI DMP65R-BU6D	700	11.75	159.00	2.00	30.00	897.74	0.00007	466.67	0.00002
AT&T C 12	CCI DMP65R-BU6D	850	11.45	159.00	4.00	30.00	1675.64	0.00013	566.67	0.00002
AT&T C 12	CCI DMP65R-BU6D	1900	14.35	159.00	4.00	30.00	3267.24	0.00001	1000.00	0.00000
Sprint A 13	GENERIC PANEL 6FT	862	12.62	177.00	2.00	40.00	1462.48	0.01914	574.67	0.00333
Sprint A 13	GENERIC PANEL 6FT	1900	15.84	177.00	2.00	60.00	4604.49	0.03162	1000.00	0.00316
Sprint A 14	GENERIC PANEL 6FT	2500	14.49	177.00	1.00	34.70	975.73	0.01047	1000.00	0.00105
Sprint A 15	GENERIC MICROWAVE 1FT	23000	38.55	177.00	1.00	0.10	716.14	0.00000	1000.00	0.00000
Sprint B 16	GENERIC PANEL 6FT	862	12.62	177.00	2.00	40.00	1462.48	0.00053	574.67	0.00009
Sprint B 16	GENERIC PANEL 6FT	1900	15.84	177.00	2.00	60.00	4604.49	0.00091	1000.00	0.00009
Sprint B 17	GENERIC PANEL 6FT	2500	14.49	177.00	1.00	34.70	975.73	0.00026	1000.00	0.00003
Sprint B 18	GENERIC MICROWAVE 1FT	23000	38.55	177.00	1.00	0.10	716.14	0.00000	1000.00	0.00000
Sprint C 19	GENERIC PANEL 6FT	862	12.62	177.00	2.00	40.00	1462.48	0.00001	574.67	0.00000
Sprint C 19	GENERIC PANEL 6FT	1900	15.84	177.00	2.00	60.00	4604.49	0.00009	1000.00	0.00001
Sprint C 20	GENERIC PANEL 6FT	2500	14.49	177.00	1.00	34.70	975.73	0.00000	1000.00	0.00000
Sprint C 21	GENERIC MICROWAVE 1FT	23000	38.55	177.00	1.00	0.10	716.14	0.00000	1000.00	0.00000
T-Mobile A 22	NOKIA AEHC	2500	20.57	149.00	2.00	80.00	18244.00	0.61226	1000.00	0.06123
T-Mobile A 22	NOKIA AEHC	2500	20.49	149.00	2.00	80.00	17911.01	0.46234	1000.00	0.04623

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (μW/cm²)	General Population MPE Limit (μW/cm²)	General Population % MPE
T-Mobile A 23	GENERIC PANEL 6FT	600	12.33	149.00	2.00	60.00	2052.02	0.05413	400.00	0.01353
T-Mobile A 23	GENERIC PANEL 6FT	700	12.33	149.00	2.00	60.00	2052.02	0.05413	466.67	0.01160
T-Mobile A 24	ERICSSON AIR 32	2100	15.55	149.00	4.00	30.00	4307.06	0.07980	1000.00	0.00798
T-Mobile A 24	ERICSSON AIR 32	1900	15.65	149.00	4.00	30.00	4407.39	0.07488	1000.00	0.00749
T-Mobile B 25	NOKIA AEHC	2500	20.57	149.00	2.00	80.00	18244.00	0.00016	1000.00	0.00002
T-Mobile B 25	NOKIA AEHC	2500	20.49	149.00	2.00	80.00	17911.01	0.00007	1000.00	0.00001
T-Mobile B 26	GENERIC PANEL 6FT	600	12.33	149.00	2.00	60.00	2052.02	0.00025	400.00	0.00006
T-Mobile B 26	GENERIC PANEL 6FT	700	12.33	149.00	2.00	60.00	2052.02	0.00025	466.67	0.00005
T-Mobile B 27	ERICSSON AIR 32	2100	15.55	149.00	4.00	30.00	4307.06	0.00005	1000.00	0.00001
T-Mobile B 27	ERICSSON AIR 32	1900	15.65	149.00	4.00	30.00	4407.39	0.00007	1000.00	0.00001
T-Mobile C 28	NOKIA AEHC	2500	20.57	149.00	2.00	80.00	18244.00	0.00009	1000.00	0.00001
T-Mobile C 28	NOKIA AEHC	2500	20.49	149.00	2.00	80.00	17911.01	0.00007	1000.00	0.00001
T-Mobile C 29	GENERIC PANEL 6FT	600	12.33	149.00	2.00	60.00	2052.02	0.00010	400.00	0.00002
T-Mobile C 29	GENERIC PANEL 6FT	700	12.33	149.00	2.00	60.00	2052.02	0.00010	466.67	0.00002
T-Mobile C 30	ERICSSON AIR 32	2100	15.55	149.00	4.00	30.00	4307.06	0.00005	1000.00	0.00001
T-Mobile C 30	ERICSSON AIR 32	1900	15.65	149.00	4.00	30.00	4407.39	0.00001	1000.00	0.00000
							Cumulative Power Density:	**2.63545 μW/cm²**	**Cumulative % MPE:**	**0.28762%**

Note: T-Mobile antenna models are estimated based on images provided in the construction drawing.

Summary

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

Katrina Styx
RF EME Technical Writer
Centerline Communications, LLC

EXHIBIT 6

CERTIFICATE ISSUED

DATE ______

BUILDING PERMIT - CERTIFICATE OF OCCUPANCY

DATE: August 24, 2000   PERMIT NO.: [illegible]

APPLICANT: SBA, Inc.   ADDRESS: 60 Eastern Blvd., Glastonbury, CT [illegible] (NO.) (STREET) (CONTR'S LICENSE)

PERMIT TO: Telecommunication Tower (TYPE OF IMPROVEMENT) (___) (NO.) STORY ______ (PROPOSED USE) NUMBER OF DWELLING UNITS ______

AT (LOCATION): ______ (NO.) 160 a/k/a 150 Fenn Road (STREET)   ZONING DISTRICT: I-3

BETWEEN ______ (CROSS STREET) AND ______ (CROSS STREET)

SUBDIVISION ______ LOT 14 BLOCK 14 LOT SIZE 13.3 acres

BUILDING IS TO BE ______ FT. WIDE BY ______ FT. LONG BY 180 FT. IN HEIGHT AND SHALL CONFORM IN CONSTRUCTION TO TYPE ______ USE GROUP ______ BASEMENT WALLS OR FOUNDATION ______ (TYPE)

REMARKS: Install 180' telecommunication tower (monopole) per all applicable codes.

AREA OR VOLUME ______ (CUBIC/SQUARE FEET)

OWNER: 160 Fenn Road LLC

ADDRESS: 250 Talcott Road, [illegible], CT 06471

SEE REVERSE ... TO ... CERTIFICATE

FORM NO. [illegible] - BP 11/94

INSPECTION RECORD

DATE	NOTES AND REMARKS	INSPECTOR
9/4/00	Elec pipes + Trench for Tower	J.O
9/18/00	Tower foundation	D.M.
9/21/00	[illegible] Elec Trench + grounding of Tower pad	J.O
9/29/00	temp Elec pole. + inspected elec panel board by tower. CALLED in for Service 9/29/00	D.M
1/24/01	FINAL OK	[illegible]

EXHIBIT 7

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030335634148

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

09/13/2022

Delivered On

11/15/2022 11:08 A.M.

Delivered To

250 TOTOKET RD
NORTH BRANFORD, CT, 06471, US

Received By

CANDELORA

Left At

Inside Delivery

Reference Number(s)

CT5184-CSC_108 FOXON RD, LLC

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 11/18/2022 10:57 A.M. EST

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030330957700

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

09/13/2022

Delivered On

11/15/2022 12:36 P.M.

Delivered To

TOWN MANAGER
909 FOXON RD
NORTH BRANFORD, CT, 06471, US

Received By

GINA

Left At

Inside Delivery

Reference Number(s)

CT5184- CSC_MAYOR

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 11/18/2022 10:58 A.M. EST

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030335987311

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

09/13/2022

Delivered On

11/17/2022 11:10 A.M.

Delivered To

8051 CONGRESS AVE
BOCA RATON, FL, 33487, US

Received By

MILLER

Left At

Mail Room

Reference Number(s)

CT5184-CSC_SBA PROPERTIES, LLC

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 11/18/2022 10:59 A.M. EST

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030339509928

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

09/13/2022

Delivered On

11/15/2022 12:35 P.M.

Delivered To

909 FOXON RD
NORTH BRANFORD, CT, 06471, US

Received By

LYNN

Left At

Inside Delivery

Reference Number(s)

CT5184-CSC_ZEO & TOWN PLANNER

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 11/18/2022 11:01 A.M. EST