STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

October 26, 2020

Sharon R. Keefe
Smartlink, LLC
85 Rangeway Road
Building 3, Suite 102
North Billerica, MA 01862

RE: **EM-AT&T-137-201007** – AT&T notice of intent to modify an existing telecommunications facility located 173 S Broad Street, Stonington, Connecticut.

Dear Ms. Keefe:

The Connecticut Siting Council (Council) is in receipt of your correspondence of October 21, 2020 submitted in response to the Council's October 16, 2020 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

s/ Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/IN/emr

From: Sharon Keefe <sharon.keefe@smartlinkgroup.com>
Sent: Wednesday, October 21, 2020 11:47 AM
To: Fontaine, Lisa <Lisa.Fontaine@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: RE: Incomplete Letter for EM-AT&T-137-201007
Importance: High

Good Morning Lisa,

As per the incomplete letter correspondence, I have attached the updated filing with the missing items included –

1. No radio frequency emission report was provided with the request; and
   - ***RF EM report attached***
2. No proof of notice to the Town's chief elected official (CEO) and the underlying property owner was provided with the request.
   - ***CEO (Danielle Chesebrough-1st Selectman; delivered 10/1/20, proof of delivery attached)***
   - ***Property Owner – Town of Stonington Police Dept; delivered 10/19/20, proof of delivery attached)***

Please let me know if anything further is needed.

Thank you,

Sharon R. Keefe
Project Manager – AT&T New England
Smartlink
c. 978-930-3918

September 28, 2020

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

Re:	**Notice of Exempt Modification – Antenna and RRU changes**
Property Address:	**173 S Broad Street Stonington, CT 06378**
Applicant:	**New Cingular Wireless PCS, LLC (AT&T Mobility)**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application 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).

AT&T currently maintains a wireless telecommunications facility consisting of twelve (12) wireless telecommunication antennas at an antenna center line height of 120 feet on an existing 180-foot self-support tower, owned by SBA Communications Corporation at 805 Congress Avenue, Boca Raton, FL 33487. AT&T now intends to remove three (3) 4' CSS DUO1417-8686-40i Panel Antennas, remove three (3) 4' KMW AM-X-CD-14-65-00T panel antennas, and swap these for three (3) 4' CCI DMP65R-BU4DA panel antennas and three (3) 4' CCI OP65R-BU4DA panel antennas. In addition, AT&T intends to remove sis (6) RRUS-11 and replace with three (3) 4449 V5/B12 RRU, three (3) 4478 B14 RRU as well as add three (3) new 8843 B2 B66 RRU. AT&T is also proposing to add (1) Raycap Squid, as well as one (1) fiber line, (2) DC Power Cables and one (1) Y-Cable to their equipment configuration. All the changes will take place on the existing antenna mounts.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5I0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Lawrence Stannard – Building Official, Town of Stonington, CT at 152 Elm St Stonington, CT 06378 and Danielle Chesebrough – First Selectman, Town of Stonington, CT at 152 Elm St. Stonington, CT 06378. A copy of this letter is being sent to the property owner, Town of Stonington at 152 Elm St. Stonington, CT 06378 and to the tower company, SBA Communications Corporation at 805 Congress Avenue, Boca Raton, FL 33487.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-CING-137-110406** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 173 South Broad Street, **Stonington**, Connecticut.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 120 -foot level of the 180-foot self-support tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the 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 (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

85 Rangeway Road
Bldg. 3, Suite 102
Billerica, MA 01862

Sharon R. Keefe
Project Manager – AT&T New England
sharon.Keefe@smartlinkgroup.com
c. 978-930-3918
www.smartlinkgroup.com

CC w/enclosures:
Lawrence Stannard – Building Official, Town of Stonington, CT
Danielle Chesebrough – First Selectman, Town of Stonington,
CT Town of Stonington, CT Police Dept - Property Owner
SBA Communications – Tower Company

September 29, 2020

Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Original Zoning Decision
Property Address:173 S. Broad St. Stonington, CT 06378
Applicant: New Cingular Wireless PCS, LLC (AT&T Mobility)

To Whom It May Concern;

Upon review of the above referenced property, and consultation with the Town of Stonington Building Dept., it has been determined that the original zoning decision cannot be located for this site. Additional inquiries may be directed to the Town of Stonington Building Dept., at (860) 535-5075.

Thank you.

85 Rangeway Road
Bldg. 3, Suite 102
Billerica, MA 01862

Sharon R. Keefe
Project Manager – AT&T New England
sharon.Keefe@smartlinkgroup.com
c. 978-930-3918
www.smartlinkgroup.com

CASH ONLY IF ALL *CheckLock*™ SECURITY FEATURES LISTED ON BACK INDICATE NO TAMPERING OR COPYING

Smartlink, LLC
1997 Annapolis Exchange Parkway, Suite 200
Annapolis, MD 21401

COMPASS BANK
61-118/620

10745

8/13/2020

PAY TO THE ORDER OF Connecticut Citing Council $ 625.00

Six Hundred and Twenty Five --- DOLLARS

MEMO CSC Fee
CTL02231- 103918 - 2020

⑈010745⑈ ⑆062001186⑆ 6764486399⑈

Smartlink, LLC 10745

8/13/2020

$625.00

Sharon Keefe

103918

CSC Fee
CTL02231 - 103918 - 2020

Smartlink, LLC 10745

Town of Stonington, CT

Property Listing Report

Map Block Lot	37-1-2	Building #	1	Section #	1	Account	00623600

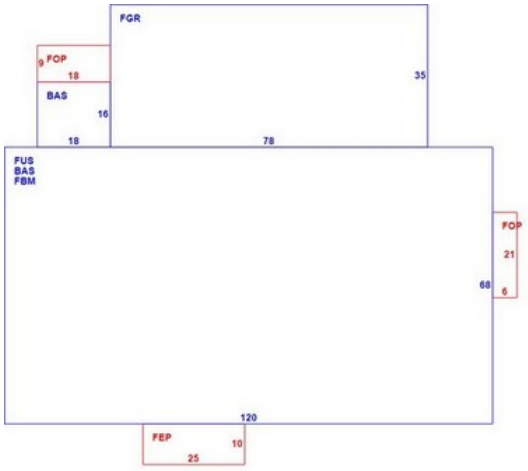
Property Information

Property Location	173 S BROAD ST
Owner	STONINGTON TOWN OF
Co-Owner	POLICE STATION
Mailing Address	152 ELM ST STONINGTON CT 06378
Land Use	9031 MUN POLICE
Land Class	E
Zoning Code	M-1
Census Tract	7051

Street Index	5000
Acreage	11.47
Utilities	
Lot Setting/Desc	Suburban
Survey Map #	NA
School District	
Fire District	Pawcatuck
Trash Day	T
Polling Place (District)	2

Photo

Sketch



Primary Construction Details

Year Built	2000
Stories	2
Building Style	Other Municip
Building Use	Ind/Comm
Building Condition	G
Occupancy	1
Extra Fixtures	
Bath Style	NA
Kitchen Style	NA
AC Type	Central
Heating Type	Forced Air-Duc
Heating Fuel	Gas

Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Total Rooms	0
Roof Style	Flat
Roof Cover	Tar & Gravel
Interior Floors 1	Vinyl/Asphalt
Interior Floors 2	Carpet
Exterior Walls	Brick/Masonry
Exterior Walls 2	NA
Interior Walls	Drywall/Sheet
Interior Walls 2	NA

(*Industrial / Commercial Details)

Building Desc.	MUN POLICE
Building Grade	Good
Heat / AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths / Plumbing	ABOVE AVERAGE
Ceiling / Wall	SUS-CEIL & WL
Rooms / Prtns	ABOVE AVERAGE
Wall Height	10
First Floor Use	9031

Report Created On 9/29/2020

Town of Stonington, CT

Property Listing Report | Map Block Lot 37-1-2 | Building # 1 | Section # 1 | Account 00623600

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	2454200	1717900
Extras	187100	131000
Improvements		
Outbuildings	277200	194100
Land	1394200	976000
Total	4312700	3019000

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	8448	8448
Basement, Finished	8160	5712
Porch, Enclosed	250	0
Garage	2730	2457
Porch, Open	288	0
Upper Story, Finished	8160	8160
Total Area	28036	24777

Outbuilding and Extra Features

Type	Description
PAVING-ASPHALT	37018.00 S.F.
SPRINKLERS-WET	11428.00 S.F.
ELV1	3.00 UNIT
CELL TOWER	1.00 UNIT
COMM MAS	1710.00 SF
GAS TANK	1.00 UNIT
GOOD QUALITY	484.00 S.F.
LIGHTS-IN W/PL	9.00 UNITS
FENCE-6' CHAIN	400.00 L.F.

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
STONINGTON TOWN OF	0432/0629	3/1/1999	0
STONINGTON TOWN OF	0432/0627	3/1/1999	0
OLIVERIO SAMUEL F & MARIE A	0208/0086	9/16/1974	0
OLIVERIO SAMUEL F & MARIE A	0180/0588	3/30/1971	0
OLIVERIO SAMUEL F & MARIE A	0166/0143	4/24/1968	0

Report Created On 9/29/2020

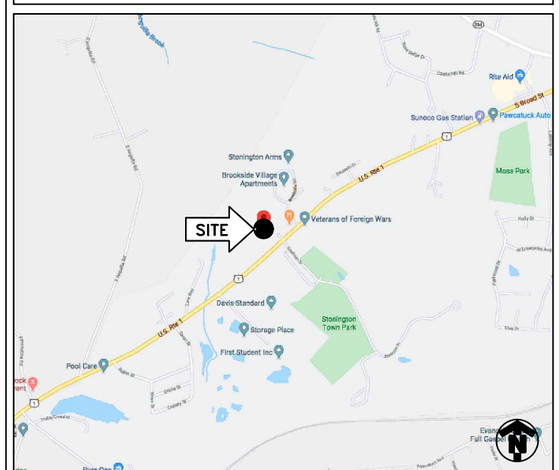
SHEET INDEX

DRIVING DIRECTIONS

FROM 550 COCHITUATE RD.:

GET ON I-90 EAST/MASSACHUETTS TURNPIKE. HEAD NORTHWEST TOWARD LEGGATT MCCALL CONN. TURN LEFT ONTO LEGGATT MCCALL CON. CONTINUE ONTO BURR STREET. TURN LEFT ONTO COCHITUATE ROAD. USE THE RIGHT LANE TO TAKE THE RAMP TO I-90 EAST/MASSPIKE WEST/SPRINGFIELD/BOSTON. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-90 EAST/I-95/MASSACHUETTS TURNPIKE/BOSTON AND MERGE ONTO I-90 EAST/MASSACHUETTS TURNPIKE. FOLLOW I-95 SOUTH/MA-128 SOUTH TO CT-49 SOUTH IN NORTH STONINGTON. TAKE EXIT 92 FROM I-95 SOUTH. MERGE ONTO I-90 EAST/MASSACHUETTS TURNPIKE (SIGNS FOR I-90 EAST/I-95/BOSTON). USE THE RIGHT 2 LANES TO TAKE EXIT 14 TOWARD N.H.-MAINE/I-95/MA-128/SOUTH SHORE. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-95 SOUTH/STATE ROUTE 128 SOUTH/CAPE COD/SOUTH SHORE AND MERGE ONTO I-95 SOUTH/MA-128 SOUTH. USE THE RIGHT 2 LANES TO TAKE THE I-95 SOUTH EXIT TOWARD PROVIDENCE RI. CONTINUE ONTO I-95 SOUTH. KEEP RIGHT AT THE FORK TO STAY ON I-95 SOUTH. TAKE EXIT 92 FOR CT-49 TOWARD CT-2/PAWCATUCK/NO. STONINGTON. FOLLOW CT-49 SOUTH, CT-2 EAST/LIBERTY STREET AND WEST BROAD STREET TO SPELLMAN DRIVE IN STONINGTON. TURN LEFT ONTO CT-49 SOUTH. USE ANY LANE TO TURN LEFT ONTO CT-2 EAST/LIBERTY STREET. TURN RIGHT ONTO MORGAN STREET. TURN RIGHT ONTO MORGAN STREET. TURN RIGHT ONTO WEST BROAD STREET. SLIGHT LEFT ONTO BROAD STREET. TURN RIGHT ONTO SPELLMAN DRIVE.

LOCATION MAP



PROJECT

LTE 2C/3C/5G NR/RETROFIT

SITE NAME

STONINGTON - BROAD STREET

CELL SITE ID

CTL02231

FA SITE NUMBER

10049131

PACE ID

MRCTB048204/MRCTB048186/MRCTB047266
MRCTB047203/MRCTB047284

SITE ADDRESS

173 SOUTH BROAD STREET
STONINGTON, CT 06378

STRUCTURE TYPE

SELF SUPPORT

PROJECT TEAM

smartlink

PROJECT MANAGER

INFINIGY

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

ENGINEER

SCOPE OF WORK (PER LTE RFDS, DATED 07/22/2020 V3.00):

- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED.
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- FACILITY HAS NO PLUMBING OR REFRIGERANTS.
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
- ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RRU AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.

TOWER
- REMOVE (6) PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS
- REMOVE (3) RRUS-11
- INSTALL (3) B14 4478
- INSTALL (3) 4449 B5/B12
- INSTALL (3) 8843 B2/B66A
- INSTALL (1) DC ONLY 'SQUID' W/ (3) DC CABLES

GROUND
- ADD 6630
- ADD IDLe CABLE
- ADD DC12

PROJECT SUMMARY

SITE NAME:	STONINGTON - BROAD STREET	
CELL SITE ID:	CTL02231	
FA SITE #:	10049131	
SITE ADDRESS:	171 SOUTH BROAD STREET STONINGTON, CT 06378	
COUNTY:	NEW LONDON	
SITE COORDINATES: LATITUDE: LONGITUDE:	 41.3690750° N 71.8623719° W	 (NAD 83) (NAD 83)
RAD CENTER	±120'	(AGL)
LANDLORD:	TBD	
APPLICANT:	AT&T MOBILITY 550 COCHITUATE RD. FRAMINGHAM, MA 01701	
CLIENT REPRESENTATIVE:	SMARTLINK, LLC 85 RANGEWAY RD., BUILDING 3, SUITE 102 NORTH BILLERICA, MA 01862	
CONTACT:	SHARON KEEFE (978) 930-3918	
ENGINEER:	INFINIGY 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205	
CONTACT:	ALEX WELLER (518) 690-0790	
BUILDING CODE:	2018 CT STATE BUILDING CODE 2015 INTERNATIONAL BUILDING CODE ANSI/TIA-222 G 2015 INTERNATIONAL PLUMBING CODE 2015 INTERNATIONAL MECHANICAL CODE 2015 INTERNATIONAL ENERGY CONSERVATION CODE 2017 NFPA 70	
ELECTRICAL CODE:	NATIONAL ELECTRICAL CODE (LATEST EDITION)	

811 Know what's below. Call before you dig.

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT, CONTACT CALL BEFORE YOU DIG
TOLL FREE: 1-800-922-4455 OR www.cbyd.com
CONNECTICUT STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

INFINIGY
INFINIGY ENGINEERING, P.LLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT
THOMAS J. TVARDEK
24705
LICENSED
PROFESSIONAL ENGINEER
9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

Project Title:
STONINGTON-
BROAD STREET
CTL02231
FA# 10049131
171 SOUTHBROAD STREET
STONINGTON,CT 06378

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20

CD

Drawing Title
TITLE PAGE

Drawing Number
T1

GENERAL NOTES

PART 1 – GENERAL REQUIREMENTS

1.1 THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
C. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC").
D. AND NFPA 101 (LIFE SAFETY CODE).
E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM).
F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE).

1.2 DEFINITIONS:
A: WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B: COMPANY: AT&T CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D: CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E: THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

1.3 POINT OF CONTACT: COMMUNICATION BETWEEN THE COMPANY AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE COMPANY SITE DEVELOPMENT SPECIALIST OR OTHER PROJECT COORDINATOR APPOINTED TO MANAGE THE PROJECT FOR THE COMPANY.

1.4 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.5 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES, AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

1.6 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.7 NOTICE TO PROCEED:
A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED.
B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE AT&T WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – EXECUTION

2.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE, POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

2.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

2.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

2.4 COMPANY FURNISHED MATERIAL AND EQUIPMENT: ALL HANDLING, STORAGE AND INSTALLATION OF COMPANY FURNISHED MATERIAL AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
A. CONTRACTOR SHALL PROCURE ALL OTHER REQUIRED WORK RELATED MATERIALS NOT PROVIDED BY AT&T TO SUCCESSFULLY CONSTRUCT A WIRELESS FACILITY.

2.5 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

2.6 EXISTING CONDITIONS: NOTIFY THE COMPANY REPRESENTATIVE OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

PART 3 – RECEIPT OF MATERIAL & EQUIPMENT

3.1 RECEIPT OF MATERIAL AND EQUIPMENT: CONTRACTOR IS RESPONSIBLE FOR AT&T PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
A. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
B. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
C. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
D. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO AT&T OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
E. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
F. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

PART 4 – GENERAL REQUIREMENTS FOR CONSTRUCTION

4.1 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

4.2 EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

4.3 CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
A. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
B. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

4.4 CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION.

4.5 CONDUCT TESTING AS REQUIRED HEREIN.

PART 5 – TESTS AND INSPECTIONS

5.1 TESTS AND INSPECTIONS:
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL COORDINATE TEST AND INSPECTION SCHEDULES WITH COMPANY'S REPRESENTATIVE WHO MUST BE ON SITE TO WITNESS SUCH TESTS AND INSPECTIONS.

C. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.

D. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.

E. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.

F. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.

G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PART 6 – TRENCHING AND BACKFILLING

6.1 TRENCHING AND BACKFILLING: THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.

A. PROTECTION OF EXISTING UTILITIES: THE CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND THE RESPECTIVE UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION OPERATIONS IN EACH RESPECTIVE AREA TO ASCERTAIN THE LOCATIONS OF KNOWN UTILITY LINES. THE LOCATIONS, NUMBER AND TYPES OF EXISTING UTILITY LINES DETAILED ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE AND DO NOT REPRESENT EXACT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL LINES DAMAGED DURING EXCAVATION AND ALL ASSOCIATED OPERATIONS. ALL UTILITY LINES UNCOVERED DURING THE EXCAVATION OPERATIONS, SHALL BE PROTECTED FROM DAMAGE DURING EXCAVATION AND ASSOCIATED OPERATIONS. ALL REPAIRS SHALL BE APPROVED BY THE UTILITY COMPANY.

B. HAND DIGGING: UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.

C. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING AND TO PREVENT SLIDES OR CAVE-INS. ALL EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

D. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING OR BY OTHER APPROVED METHOD.

E. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. UNLESS OTHERWISE INDICATED, EXCAVATION SHALL BE BY OPEN CUT, EXCEPT THAT SHORT SECTIONS OF A TRENCH MAY BE TUNNELED IF, THE CONDUIT CAN BE SAFELY AND PROPERLY INSTALLED AND BACKFILL CAN BE PROPERLY TAMPED IN SUCH TUNNEL SECTIONS. EARTH EXCAVATION SHALL COMPRISE ALL MATERIALS AND SHALL INCLUDE CLAY, SILT, SAND, MUCK, GRAVEL, HARDPAN, LOOSE SHALE, AND LOOSE STONE.

F. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE, AND THE BANKS SHALL BE AS NEARLY VERTICAL AS PRACTICABLE. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE NECESSARY, THE ROCK SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF 6 INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR SPECIFIED. OVER DEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVER DEPTHS SHALL BE THOROUGHLY BACK FILLED AND TAMPED TO THE APPROPRIATE GRADE. WHENEVER WET OR OTHERWISE UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE CONDUIT OR CABLE IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SUCH SOLID SHALL BE REMOVED TO A MINIMUM OVER DEPTH OF 6 INCHES AND THE TRENCH BACKFILLED TO THE PROPER GRADE WITH EARTH OF OTHER SUITABLE MATERIAL, AS HEREINAFTER SPECIFIED.

G. BACKFILLING OF TRENCHES. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. WHERE COMPACTED BACKFILL IS NOT INDICATED THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH SELECT MATERIAL SUCH AS EXCAVATED SOILS THAT ARE FREE OF ROOTS, SOD, RUBBISH OR STONES, DEPOSITED IN 6 INCH LAYERS AND THOROUGHLY AND CAREFULLY RAMMED UNTIL THE CONDUIT OR CABLE HAS A COVER OF NOT LESS THAN 1 FOOT. THE REMAINDER OF THE BACKFILL MATERIAL SHALL BE GRANULAR IN NATURE AND SHALL NOT CONTAIN ROOTS, SOD, RUBBING, OR STONES OF 2-1/2 INCH MAXIMUM DIMENSION. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED. SETTLING THE BACKFILL WITH WATER WILL BE PERMITTED. THE SURFACE SHALL BE GRADED TO A REASONABLE UNIFORMITY AND THE MOUNDING OVER THE TRENCHES LEFT IN A UNIFORM AND NEAT CONDITION.

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH
F	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
T	TRANSFORMER
M	KILOWATT HOUR METER
JB	JUNCTION BOX
PB	PULL BOX TO NEC/TELCO STANDARDS
----------	UNDERGROUND UTILITIES
	EXOTHERMIC WELD CONNECTION
	MECHANICAL CONNECTION
OR	GROUND ROD
OR	GROUND ROD WITH INSPECTION SLEEVE
	GROUND BAR
	120AC DUPLEX RECEPTACLE
G	GROUND CONDUCTOR
	DC POWER AND FIBER OPTIC TRUNK CABLES
	DC POWER CABLES
# / #	REPRESENTS DETAIL NUMBER / REF. DRAWING NUMBER

ABBREVIATIONS

CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MIGB	MASTER ISOLATED GROUND BAR
SST	SELF SUPPORTING TOWER
GPS	GLOBAL POSITIONING SYSTEM
TYP.	TYPICAL
DWG	DRAWING
BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
PVC	POLYVINYL CHLORIDE
CAB	CABINET
C	CONDUIT
SS	STAINLESS STEEL
G	GROUND
AWG	AMERICAN WIRE GAUGE
RGS	RIGID GALVANIZED STEEL
AHJ	AUTHORITY HAVING JURISDICTION
TTLNA	TOWER TOP LOW NOISE AMPLIFIER
UNO	UNLESS NOTED OTHERWISE
EMT	ELECTRICAL METALLIC TUBING
AGL	ABOVE GROUND LEVEL

INFINIGY
INFINIGY ENGINEERING, P.LLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT
24705
LICENSED PROFESSIONAL ENGINEER
9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

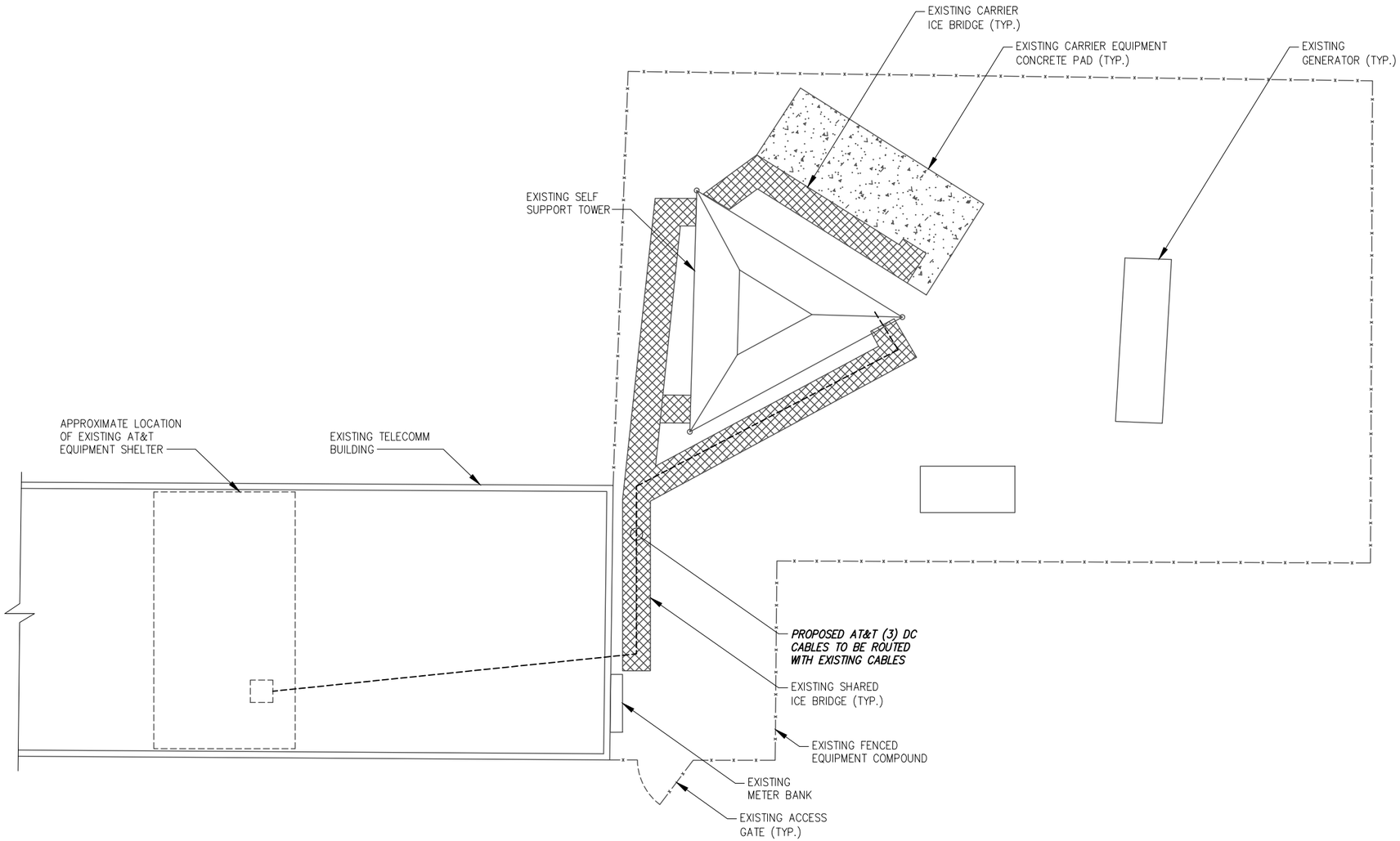
Project Title:
STONINGTON-
BROAD STREET
CTL02231
FA# 10049131
171 SOUTHBROAD STREET
STONINGTON,CT 06378

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20
CD

Drawing Title
GENERAL NOTES

Drawing Number
C1



TRUE NORTH

1 SITE PLAN
SCALE: AS NOTED

GRAPHIC SCALE:

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

BASEMAPPING PREPARED FROM A SITE WALK PERFORMED BY INFINIGY ENGINEERING AND PROVIDED INFORMATION, AND DOES NOT REPRESENT AN ACTUAL FIELD SURVEY.

INFINIGY
INFINIGY ENGINEERING, P.LLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT
LICENSED PROFESSIONAL ENGINEER
24705
9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

Project Title:
STONINGTON-
BROAD STREET
CTL02231
FA# 10049131
171 SOUTHBROAD STREET
STONINGTON,CT 06378

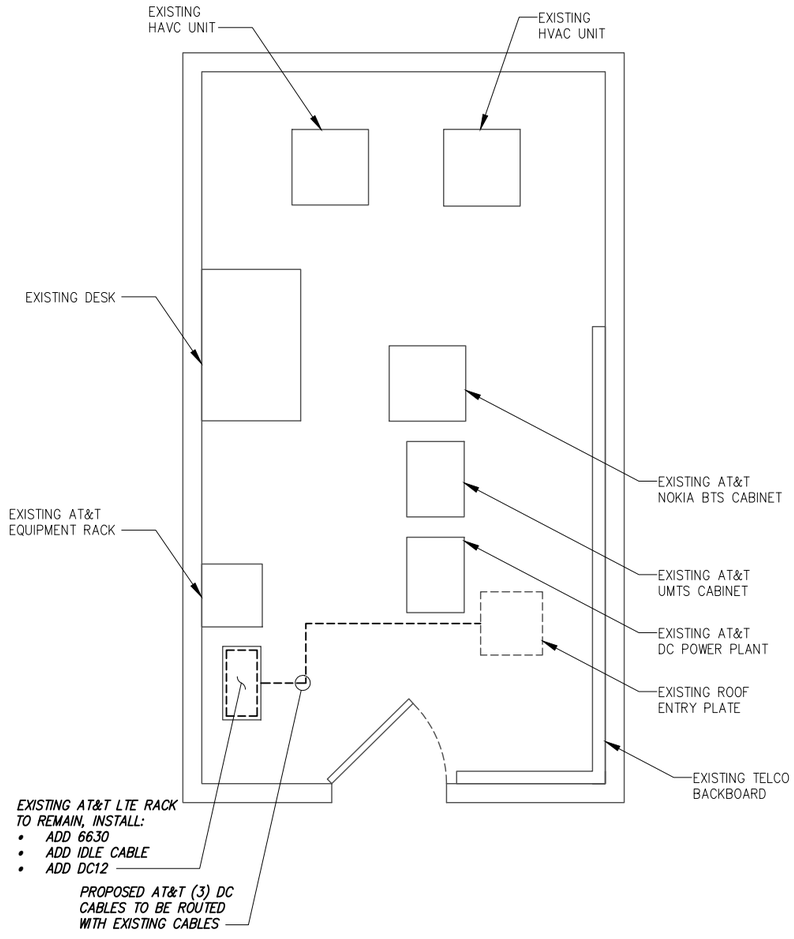
Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20

CD

Drawing Title
OVERALL SITE PLAN

Drawing Number
C2



TRUE NORTH

1 ENLARGED SITE PLAN
SCALE: AS NOTED

GRAPHIC SCALE:

4' 2' 0 2' 4'

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

INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT
ANTHONY S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER

9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

Project Title:
STONINGTON-
BROAD STREET

CTL02231
FA# 10049131

171 SOUTHBROAD STREET
STONINGTON,CT 06378

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20

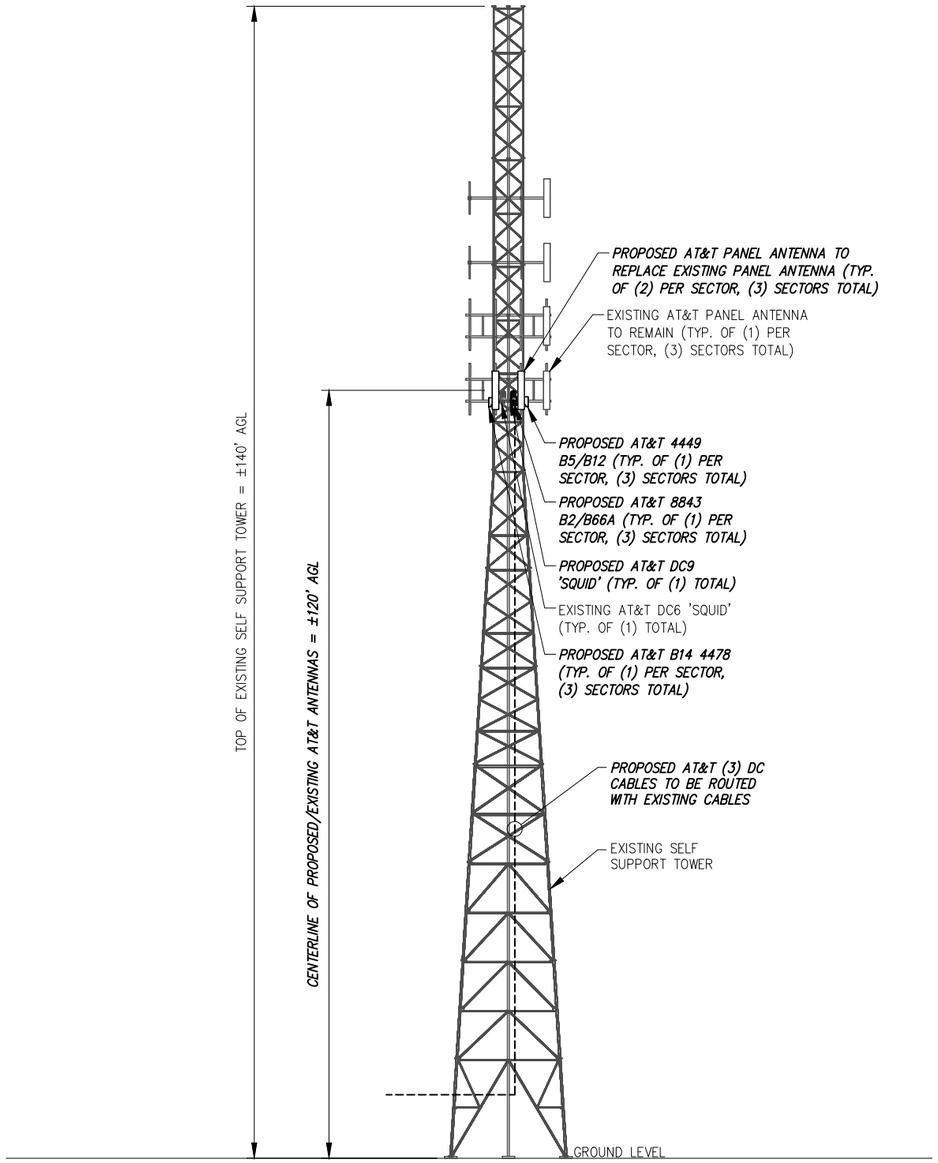
CD

Drawing Title
ENLARGED SITE PLAN

Drawing Number
C2A

NOTE:
- *INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY STRUCTURAL ANALYSIS.*
- *FOR STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE 'MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 07/15/20.*

NOTE:
- 3' MINIMUM SEPARATION BETWEEN ALL LTE ANTENNAS
- 6' MINIMUM SEPARATION BETWEEN 700 BC/700 DE ANTENNAS



1 ELEVATION VIEW
NOT TO SCALE

FINAL ANTENNA CONFIGURATION & CABLE SCHEDULE BASED ON LTE RFDS DATED 07/22/20, V 3.00

SECTOR	ANTENNA POSITION	ANTENNA STATUS & TECHNOLOGY	ANTENNA MANF/MODEL	TMA/ DIPLEXER	RRUS	AZIMUTH	ANTENNA ℄ HEIGHT	CABLE FEEDER TYPE	CABLE FEEDER LENGTH	RAYCAP UNIT
ALPHA	A-1	(E) UMTS 850	POWERWAVE 7770	(1) (E) TT19-08BP111-001	--	143°	±120'	(4) (E) 1-5/8 COAX CABLES	±180'	(1) (E) DC6 'SQUID', (1) (P) DC9 'SQUID'
	A-2	*(P) LTE 700/850/5G 850*	*CCI DMP65R-BU4DA*	--	*(1) (P) 4449 B5/B12 (1) (P) 8843 B2/B66A*	*23°*	*±120'*	(2) (E) DC CALES (1) (E) FIBER CABLE	--	
	A-3	*(P) LTE 700*	*CCI OPA65R-BU4DA*	--	*(1) (P) B14 4478*	*23°*	*±120'*	SEE A-2 FOR CABLE INFORMATION	--	
	A-4	--	--	--	--	--	--	--	--	
BETA	B-1	(E) UMTS 850	POWERWAVE 7770	(1) (E) TT19-08BP111-001	--	263°	±120'	(4) (E) 1-5/8 COAX CABLES	±180'	
	B-2	*(P) LTE 700/850/5G 850*	*CCI DMP65R-BU4DA*	--	*(1) (P) 4449 B5/B12 (1) (P) 8843 B2/B66A*	*143°*	*±120'*	*(3) (P) DC CABLES*	--	
	B-3	*(P) LTE 700*	*CCI OPA65R-BU4DA*	--	*(1) (P) B14 4478*	*143°*	*±120'*	SEE A-2 FOR CABLE INFORMATION	--	
	B-4	--	--	--	--	--	--	--	--	
GAMMA	G-1	(E) UMTS 850	POWERWAVE 7770	(1) (E) TT19-08BP111-001	--	23°	±120'	(4) (E) 1-5/8 COAX CABLES	±180'	
	G-2	*(P) LTE 700/850/5G 850*	*CCI DMP65R-BU4DA*	--	*(1) (P) 4449 B5/B12 (1) (P) 8843 B2/B66A*	*263°*	*±120'*	SEE A-2 FOR CABLE INFORMATION	--	
	G-3	*(P) LTE 700*	*CCI OPA65R-BU4DA*	--	*(1) (P) B14 4478*	*263°*	*±120'*	SEE A-2 FOR CABLE INFORMATION	--	
	G-4	--	--	--	--	--	--	--	--	

2 AT&T ANTENNA SCHEDULE
NOT TO SCALE

INFINIGY
INFINIGY ENGINEERING, P.LLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT 24705 LICENSED PROFESSIONAL ENGINEER
9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

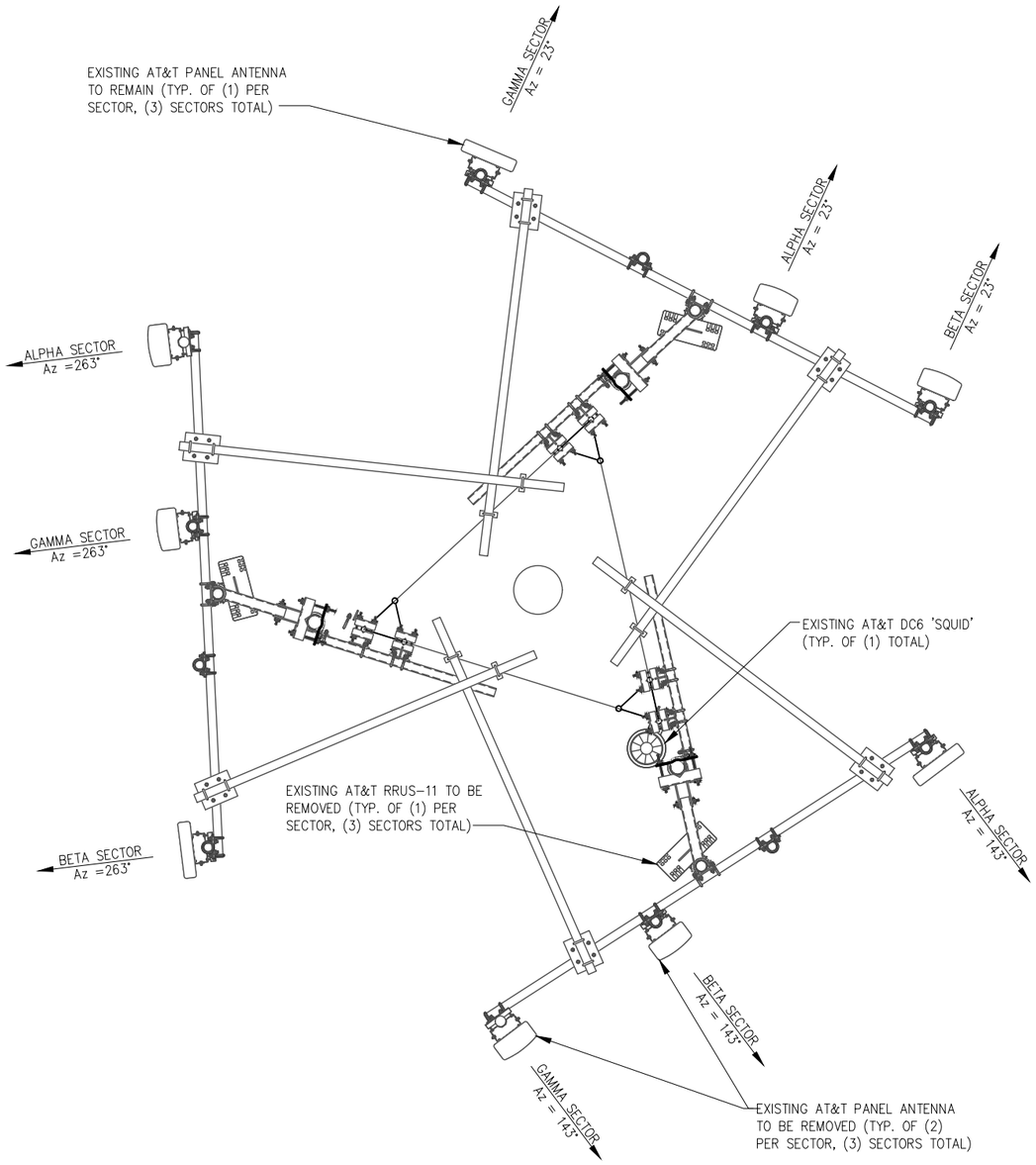
Project Title:
STONINGTON-BROAD STREET
CTL02231
FA# 10049131
171 SOUTHBROAD STREET
STONINGTON,CT 06378

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20
CD

Drawing Title
ELEVATION VIEW

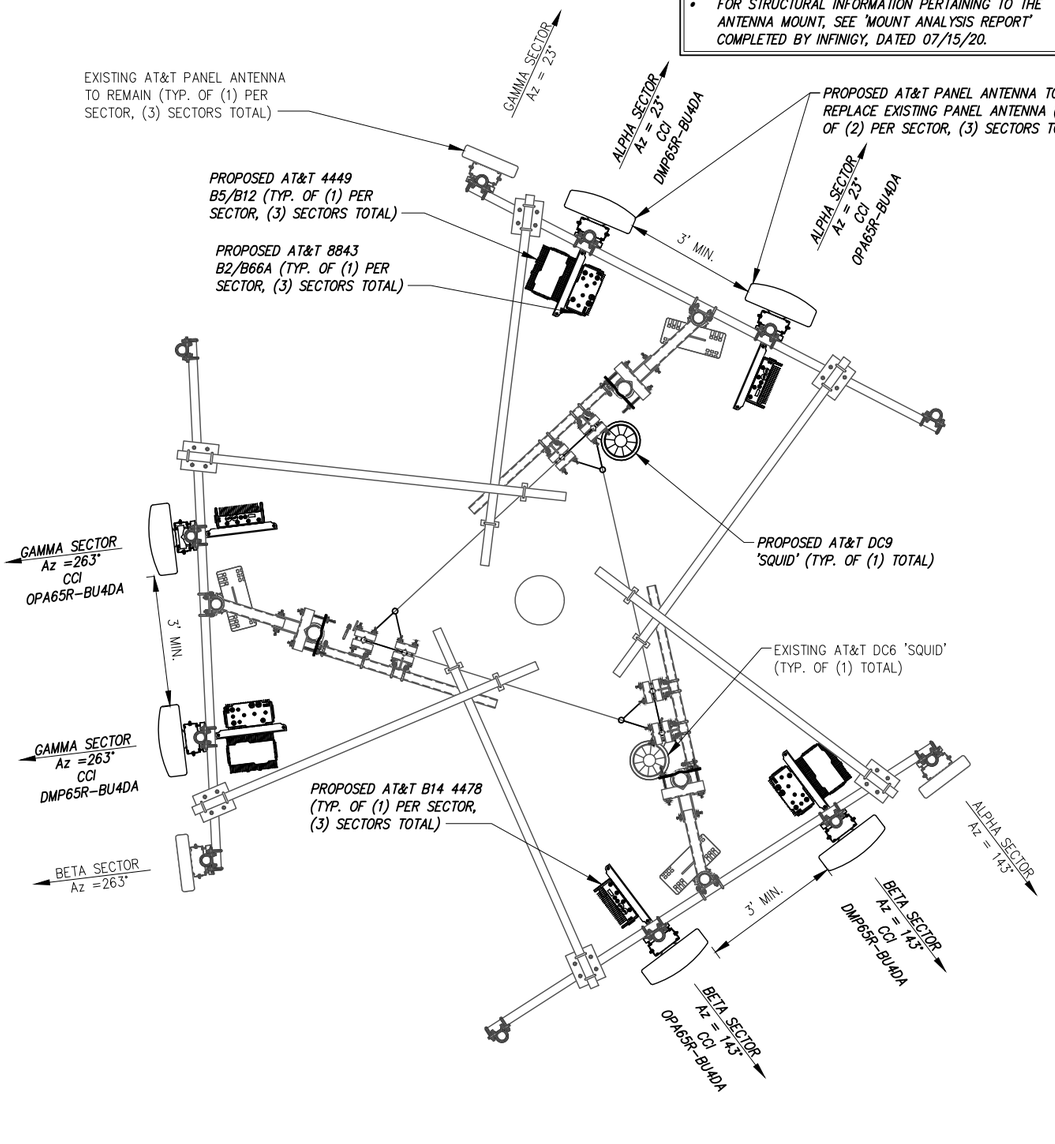
Drawing Number
C3



1 EXISTING ANTENNA ORIENTATION PLAN
NOT TO SCALE

NOTE:
- 3' MINIMUM SEPARATION BETWEEN ALL LTE ANTENNAS
- 6' MINIMUM SEPARATION BETWEEN 700 BC/700 DE ANTENNAS

NOTE:
- *INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY STRUCTURAL ANALYSIS.*
- *FOR STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE 'MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 07/15/20.*



2 PROPOSED ANTENNA ORIENTATION PLAN
NOT TO SCALE

INFINIGY
INFINIGY ENGINEERING, P.LLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT
U.S.A.
24705
LICENSED PROFESSIONAL ENGINEER

9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

Project Title:
STONINGTON-BROAD STREET
CTL02231
FA# 10049131
171 SOUTHBROAD STREET
STONINGTON,CT 06378

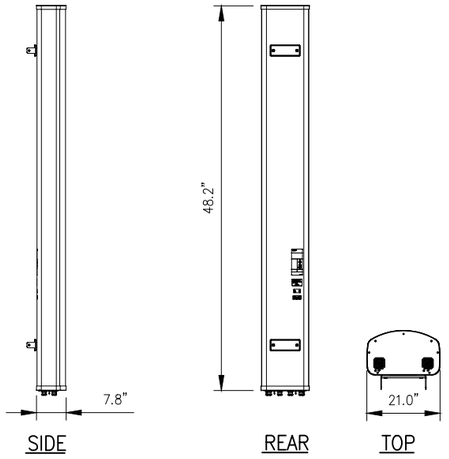
Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20

CD

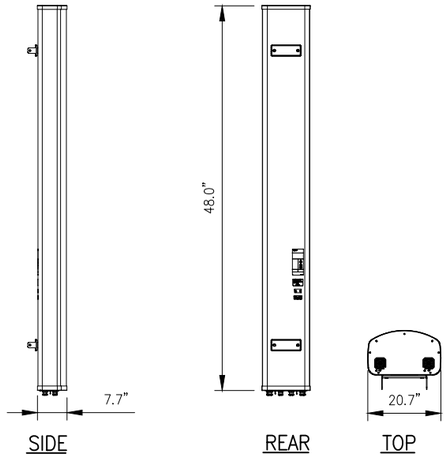
Drawing Title
ANTENNA ORIENTATION PLAN

Drawing Number
C4



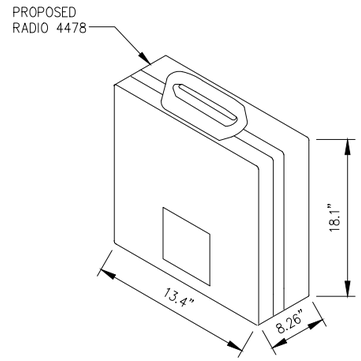
CCI MODEL NO.:	OPA65R-BU4DA
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	48.2"x21.0"x7.8"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	52.5 LBS
CONNECTOR:	7-16 DIN FEMALE

1 ANTENNA DETAIL
-- NOT TO SCALE



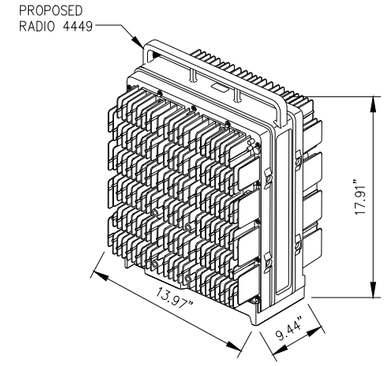
CCI MODEL NO.:	DMP65R-BU4DA
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	48.0"x20.7"x7.7"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	67.9 LBS
CONNECTOR:	7-16 DIN FEMALE

2 ANTENNA DETAIL
-- NOT TO SCALE



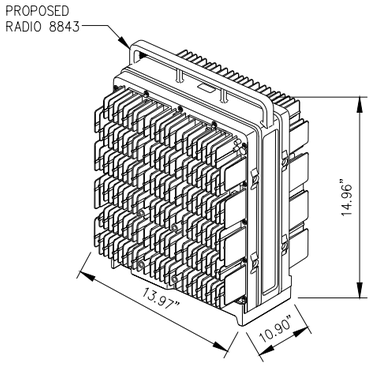
RADIO 4478-B14 SPECIFICATIONS
- HxWxD, (INCHES) : 18.1"x13.4"x8.26"
- WEIGHT (LBS) : 59.5
- COLOR : GRAY
- MOUNTING BRACKET: SXK1250244/1

3 ERICSSON RADIO 4478-B14 DETAIL
-- NOT TO SCALE



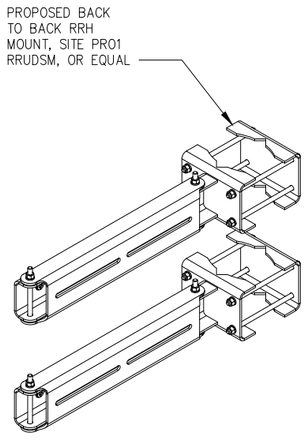
RADIO 4449 SPECIFICATIONS
- HxWxD, (INCHES) : 17.91"x13.97"x9.44"
- WEIGHT (LBS) : 70.54
- COLOR : GRAY

4 ERICSSON RADIO 4449 DETAIL
-- NOT TO SCALE

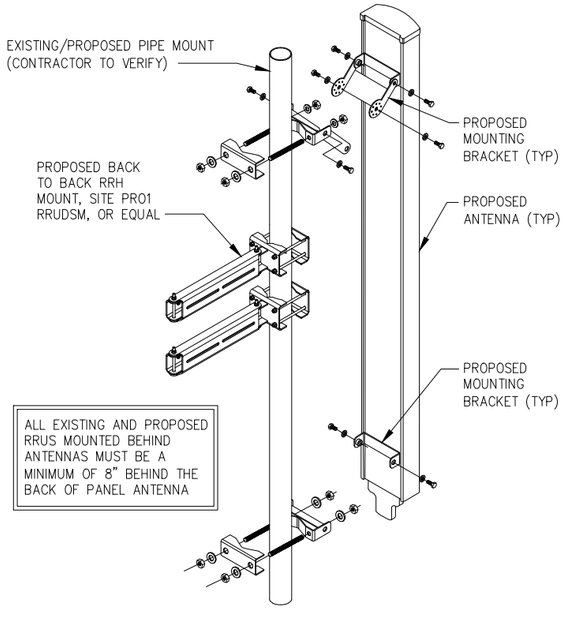


RADIO 8843 SPECIFICATIONS
- HxWxD, (INCHES) : 14.96"x13.97"x10.90"
- WEIGHT (LBS) : 71.87
- COLOR : GRAY

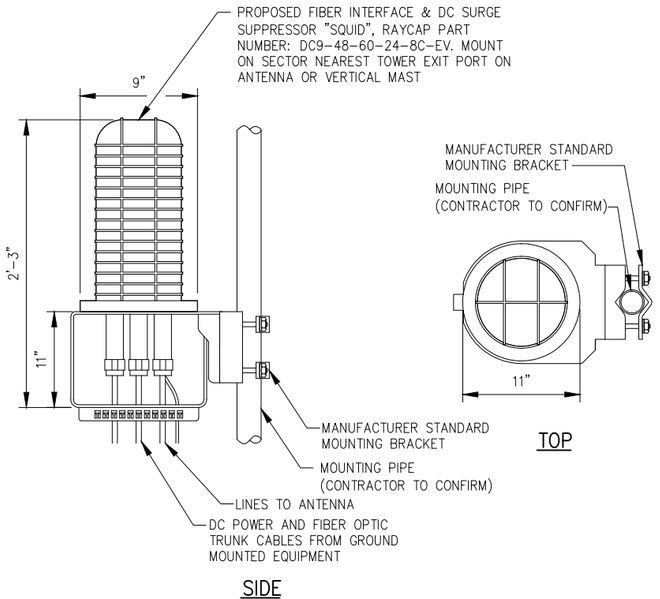
5 ERICSSON RADIO 8843 DETAIL
-- NOT TO SCALE



6 BACK TO BACK PIPE MOUNT DETAIL
-- NOT TO SCALE



7 ANTENNA MOUNTING DETAIL
-- NOT TO SCALE



8 SQUID DETAIL
-- NOT TO SCALE

INFINIGY
INFINIGY ENGINEERING, P.LLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT
STEVEN
24705
LICENSED
PROFESSIONAL ENGINEER
9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

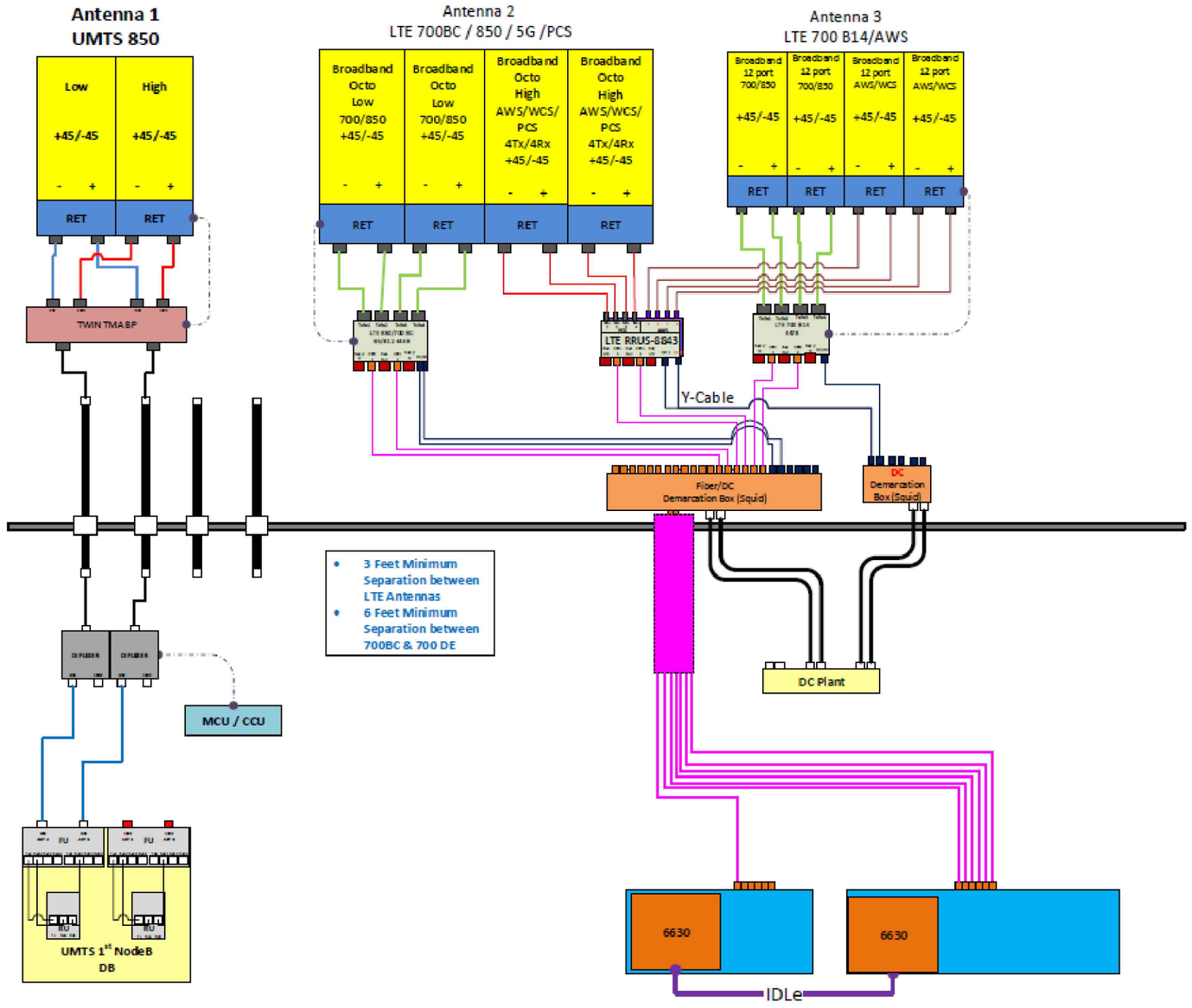
Project Title:
STONINGTON-
BROAD STREET
CTL02231
FA# 10049131
171 SOUTHBROAD STREET
STONINGTON,CT 06378

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20
CD

Drawing Title
EQUIPMENT DETAILS

Drawing Number
C5



ALPHA/BETA/GAMMA

1 PLUMBING DIAGRAM (FINAL CONFIGURATION)
NOT TO SCALE

*BASED ON LTE RFDS, DATED 07/22/2020, V3.00

INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT
BRIAN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

Project Title:
STONINGTON-
BROAD STREET

CTL02231
FA# 10049131

171 SOUTHBROAD STREET
STONINGTON,CT 06378

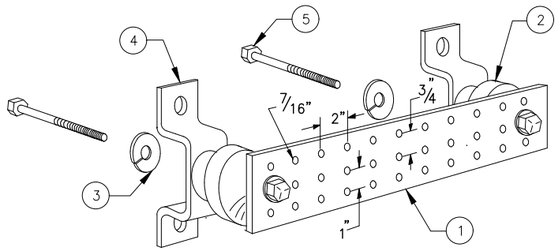
Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20

CD

Drawing Title
PLUMBING DIAGRAM

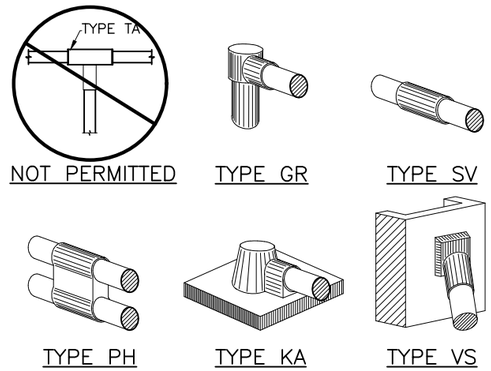
Drawing Number
C6



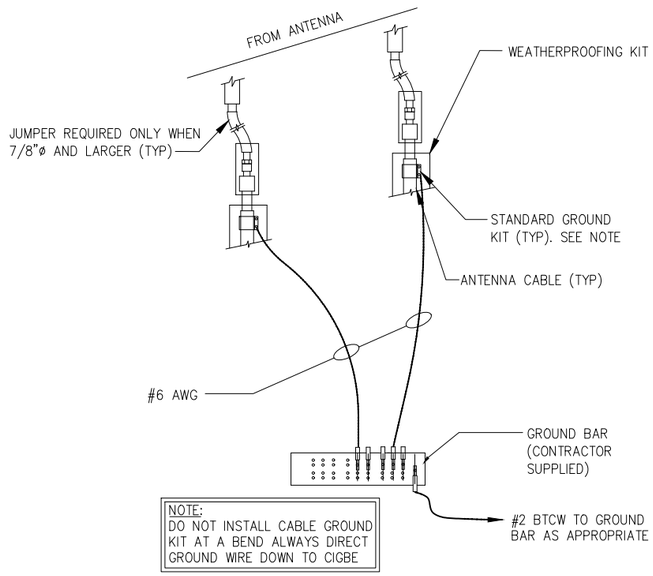
LEGEND

1 – SOLID TINNED COPPER GROUND BAR, 1/4"x 4"x 20" MIN., NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2 – INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
3 – 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
4 – WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056
5 – 5/8-11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1
6 – GROUND BAR SHALL BE SIZED TO ACCOMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY
7 – GROUND BARS SHALL NEITHER BE FIELD FABRICATED NOR NEW HOLES DRILLED
8 – GROUND LUGS SHALL MATCH THE HOLE SPACING ON THE BAR
9 – HARDWARE DIAMETER SHALL BE MINIMUM 3/8"

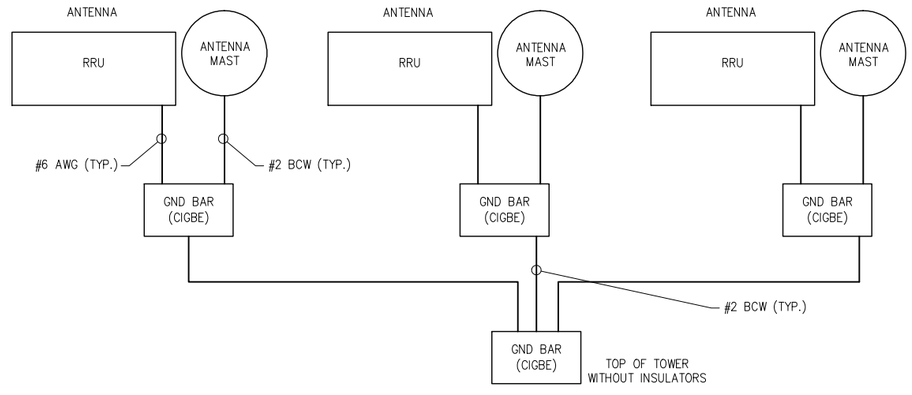
1 GROUND BAR
NOT TO SCALE



2 CADWELDS (TYPICAL)
NOT TO SCALE



3 CONNECTION OF GROUND WIRES TO GROUNDING BARS @ ANTENNAS
NOT TO SCALE



4 SCHEMATIC DIAGRAM GROUNDING SYSTEM
NOT TO SCALE

INFINIGY
INFINIGY ENGINEERING, P.LLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

at&t

STATE OF CONNECTICUT
BRIAN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
9/17/20

No.	Submittal / Revision	App'd	Date
2	REVISED FOR PERMIT	BMM	09/17/20
1	ISSUED FOR PERMIT	BMM	08/06/20
0	ISSUED FOR REVIEW	BMM	07/28/20

Drawn: BMM Date: 07/28/20
Designed: ASW Date: 07/28/20
Checked: ASW Date: 07/28/20

Project Number: 499-006

Project Title:
STONINGTON-BROAD STREET
CTL02231
FA# 10049131
171 SOUTHBROAD STREET
STONINGTON,CT 06378

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 09/17/20
CD

Drawing Title
GROUNDING DETAILS

Drawing Number
C7

INFINIGY

FROM ZERO TO INFINIGY

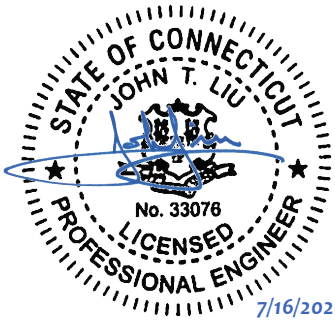
the solutions are endless

Mount Analysis Report

July 15, 2020

AT&T Site Name	STONINGTON-BROAD ST
AT&T Site Number	CTL02231
AT&T FA Number	10049131
Infinigy Job Number	1106-A0001-H
Client	Smartlink
Carrier	AT&T
Site Location	171 South Broad Street Stonington CT 06378 41° 22' 8.67" N NAD83 71° 51' 44.53884" W NAD83
Mount Centerline EL.	120.0 ft
Mount Type	Sector Frame
Structural Usage Ratio	**46.8%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The mounts and connections for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.



John T. Liu,
Project Engineer

Engineering Consultant to Infinigy

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Connecticut License No. 33076, Expiration Date: 1/31/2021.

Contents

Introduction

Infinigy Engineering has been requested to perform a mount analysis on the Proposed AT&T mounts. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 17.04 analysis software.

Supporting Documentation

Construction Drawings	Hudson Design Group, Site ID: CT2231, dated November 4, 2010
Proposed Loading	AT&T RDFS ID: 65086, Site ID: CTL02231, dated June 26, 2020
Mount Mapping	Infinigy, Site ID: CTL02231, Job # 1106-A0001-H dated June 30, 2020

Analysis Code Requirements

Wind Speed	129 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust, V_{ASD}) w/ 1.0" ice
TIA Revision	ANSI/TIA-222-H
Adopted IBC	2018 IBC
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Spectral Response	S_s = 0.183 g / S_1 = 0.052 g
Site Class	D-Stiff Soil (Assumed)

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The mounts and connections are therefore deemed adequate to support the final loading configuration as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

John T. Liu, P.E.
Engineering Consultant to Infinigy
structural@infinigy.com

Final Configuration Loading

Mount CL (ft)	Rad. HT (ft)	Vert. O/S (ft)	Horiz. O/S (ft)*	Qty	Appurtenance	Carrier
120.0	120.0	0.0	4.5	3	CCI Antennas DMP65R-BU4DA	AT&T
			8.0	3	CCI Antennas OPA65R-BU4DA	
			0.0	3	Powerwave 7770	
			0.0	3	Powerwave TT19-08BP111-001	
			4.5	3	Ericsson 4449 B5/B12	
			4.5	3	Ericsson 8843 B2/B66A	
			8.0	3	Ericsson 4478 B14	
			--	1	Raycap DC6 Squid	
			--	1	Raycap DC9 Squid	

***Horizontal Offset is defined as the distance from the left most edge of the mount face horizontal when viewed facing the tower**

Structure Usages

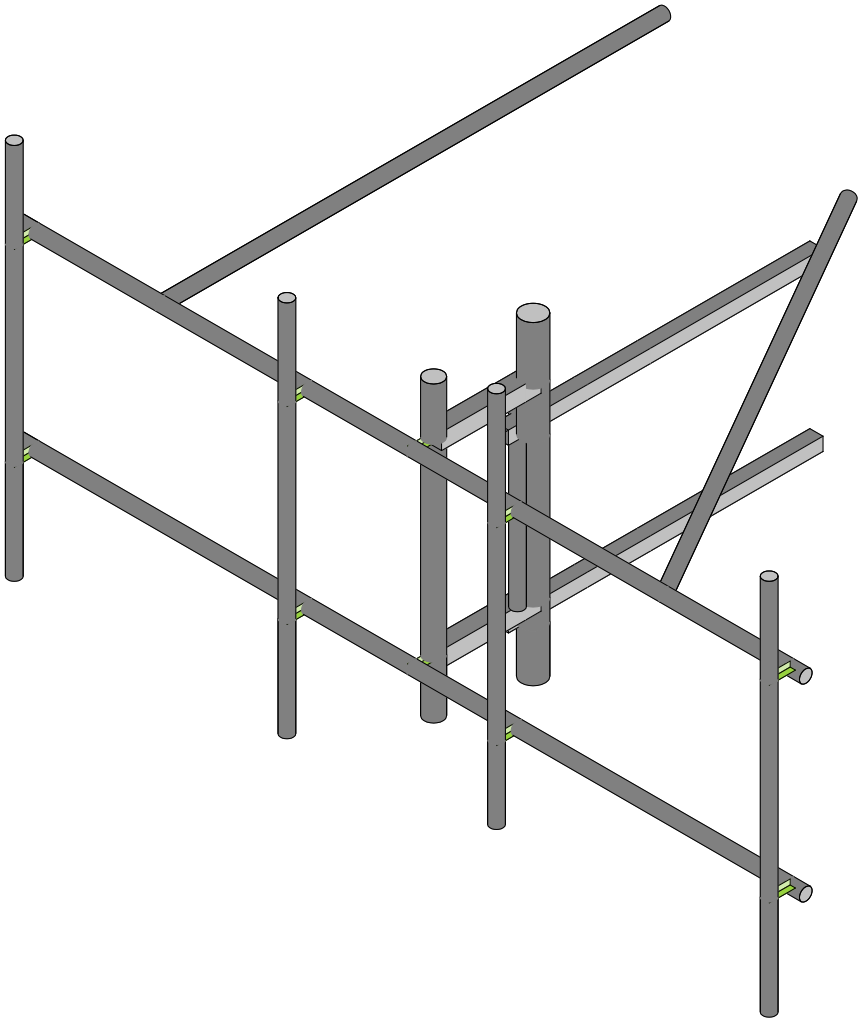
Horizontal	46.8%	Pass
Mount Pipe	28.4%	Pass
Standoff	17.3%	Pass
Bracing	8.6%	Pass
RATING =	**46.8%**	**Pass**

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

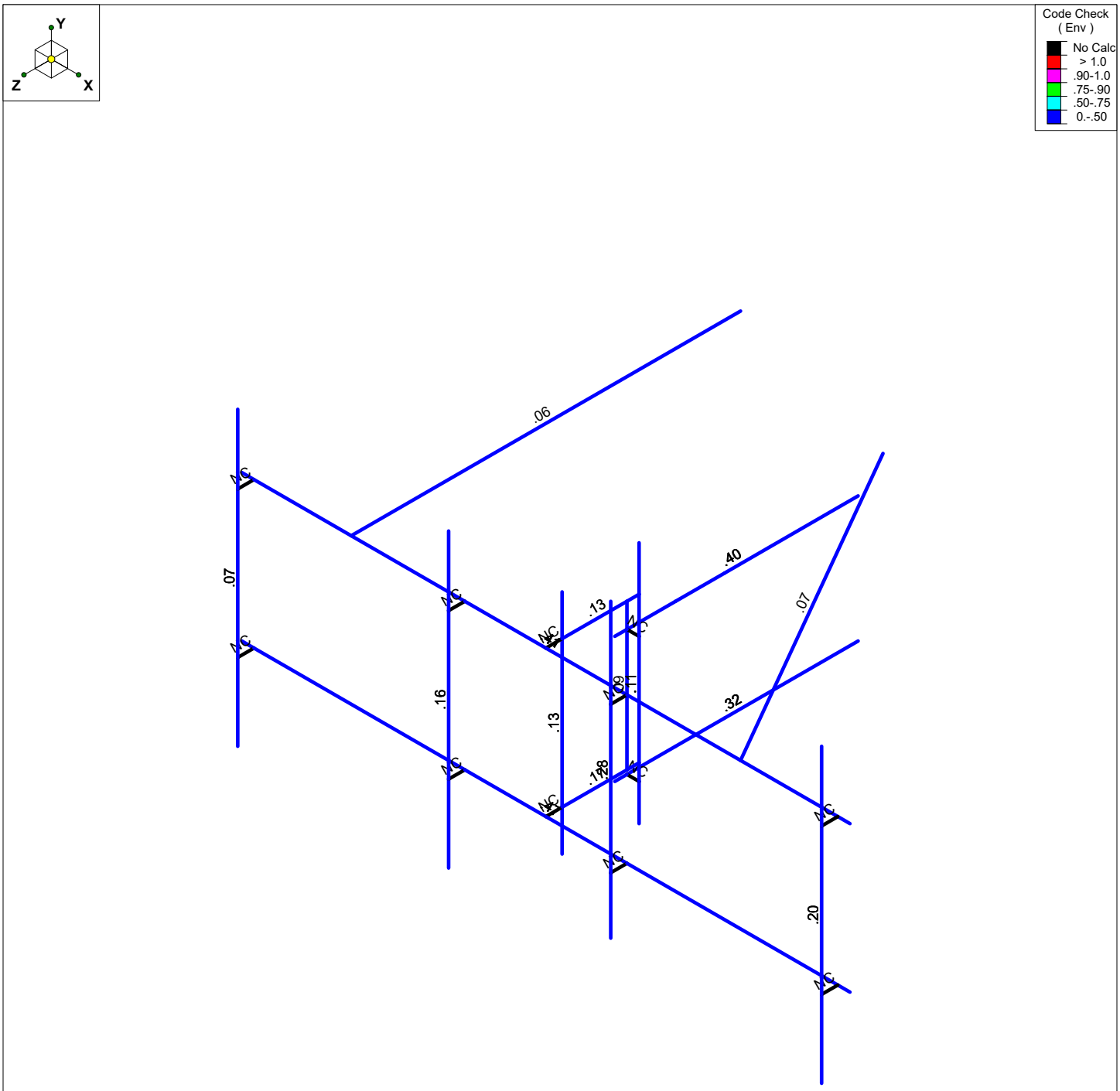
Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the proposed carriers mount structure only and does not reflect adequacy of the existing tower, other mounts, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.



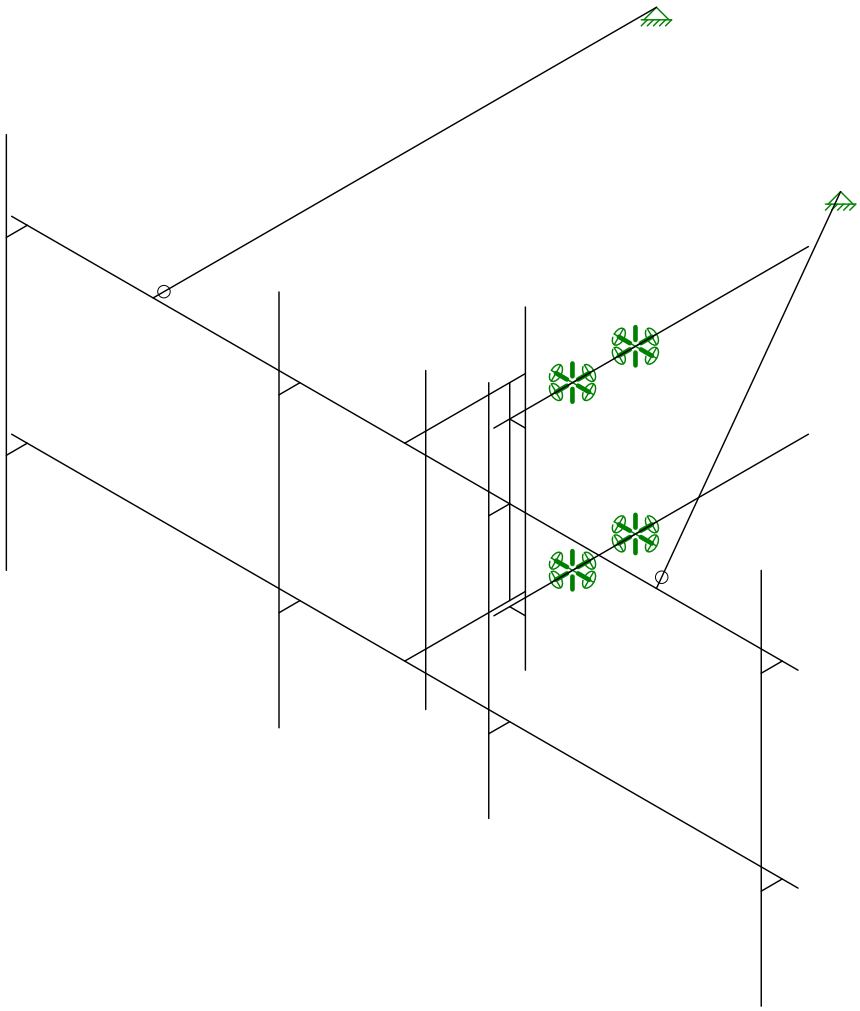
Envelope Only Solution

AT&T	CTL02231	Proposed Configuration
Infinigy Engineering PLLC		July 15, 2020 at 4:52 PM
		CTL02231.r3d



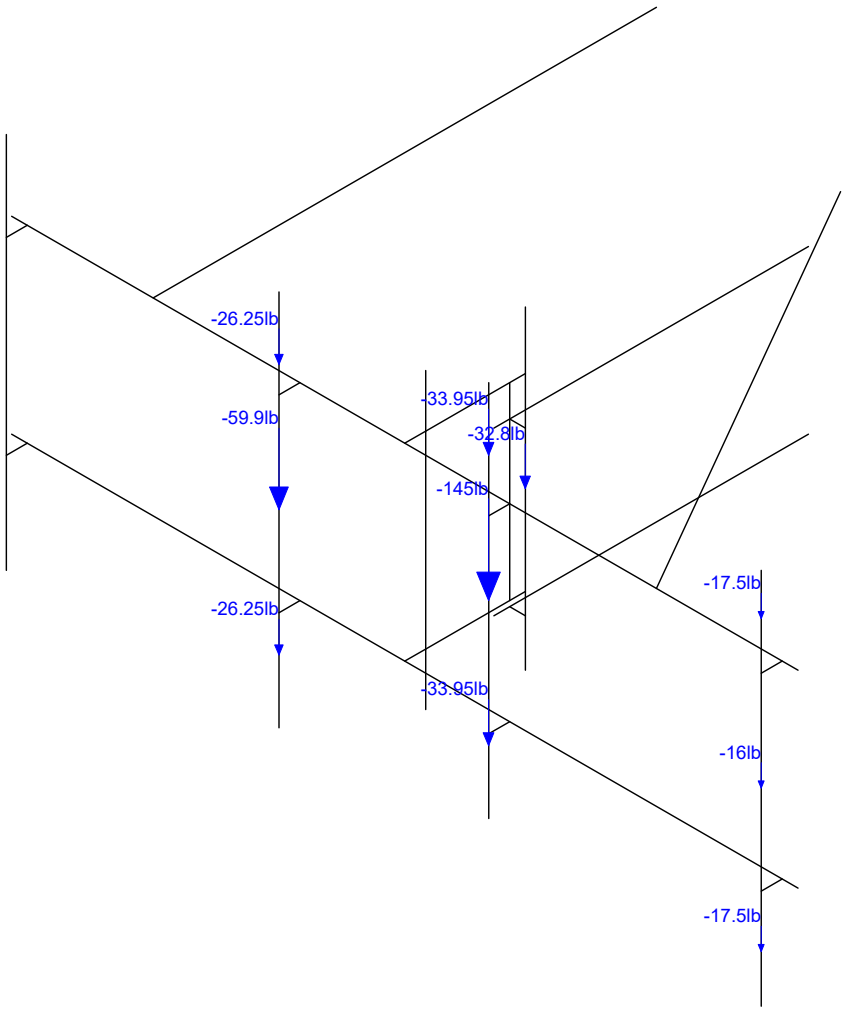
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

AT&T	CTL02231	Member Stresses
Infinigy Engineering PLLC		July 15, 2020 at 4:53 PM
		CTL02231.r3d



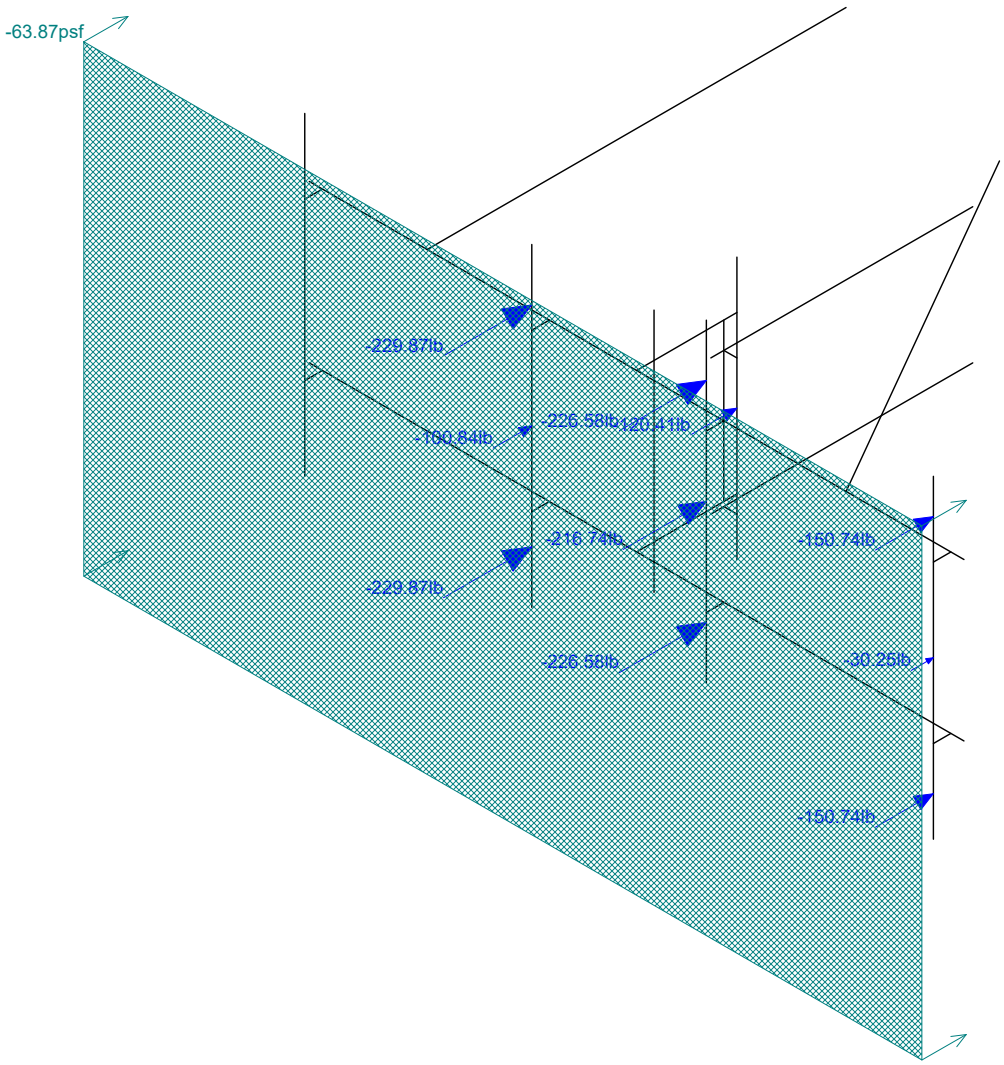
Envelope Only Solution

AT&T	CTL02231	Boundary Conditions
Infinigy Engineering PLLC		July 15, 2020 at 4:53 PM
		CTL02231.r3d



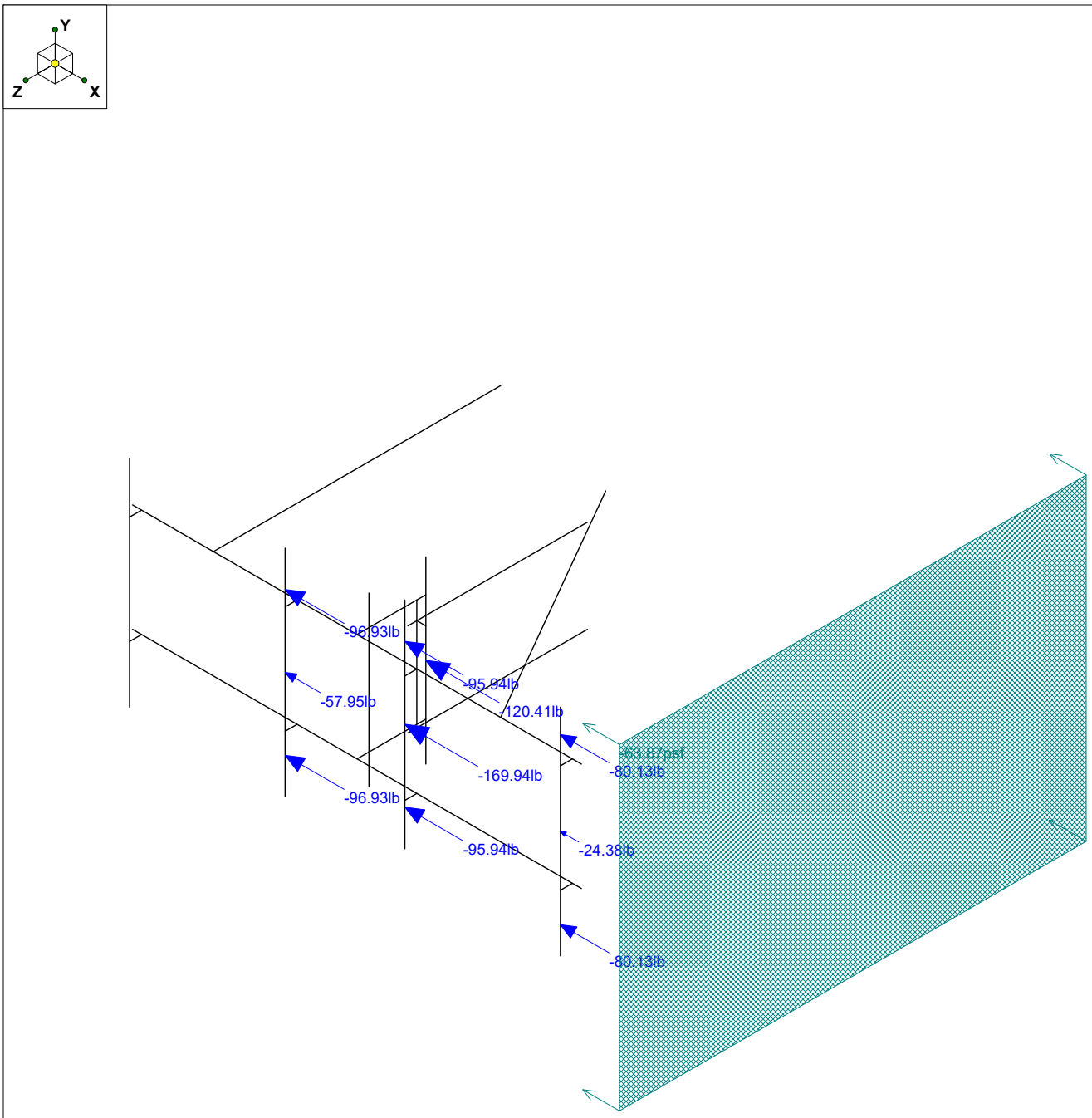
Loads: BLC 1, Self Weight
Envelope Only Solution

AT&T	CTL02231	Self Weight
Infinigy Engineering PLLC		July 15, 2020 at 4:54 PM
		CTL02231.r3d



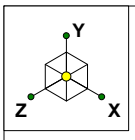
Loads: BLC 2, Wind Load AZI 000
Envelope Only Solution

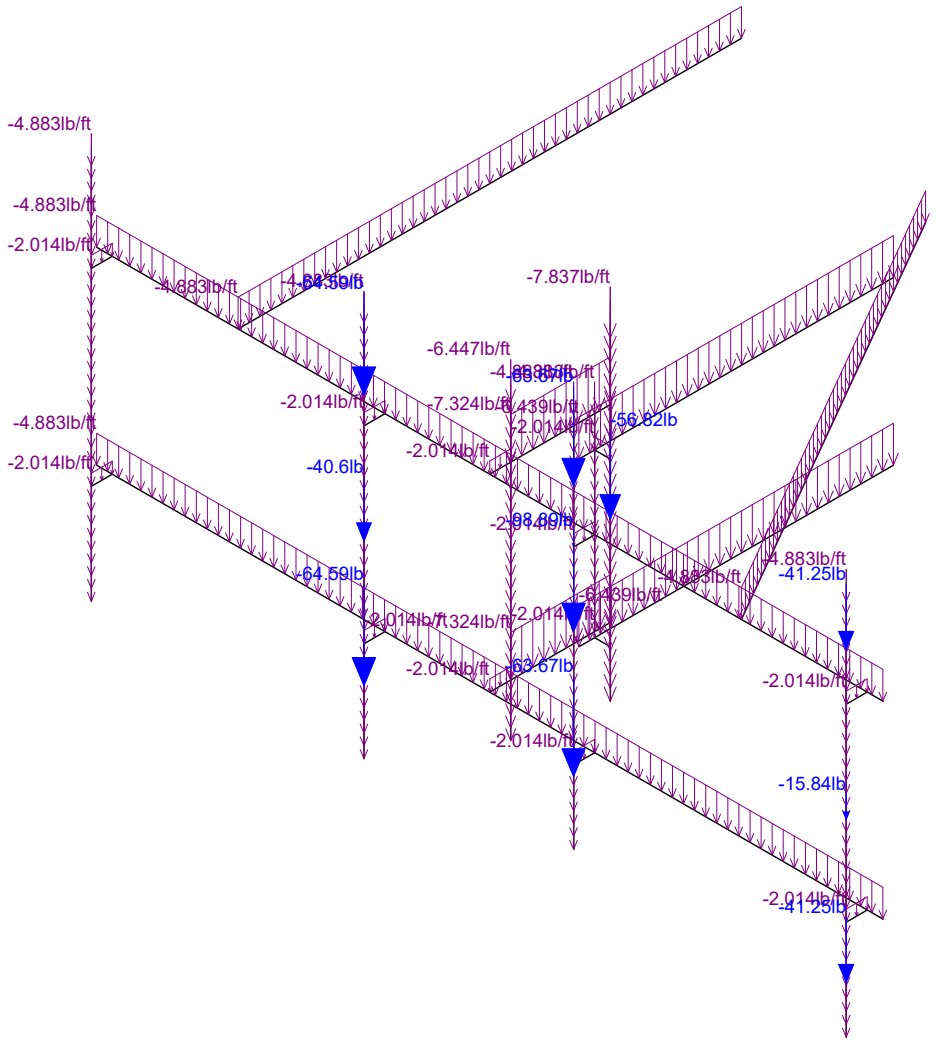
AT&T	CTL02231	Wind Load AZI 000
Infinigy Engineering PLLC		July 15, 2020 at 4:55 PM
		CTL02231.r3d



Loads: BLC 3, Wind Load AZI 090
Envelope Only Solution

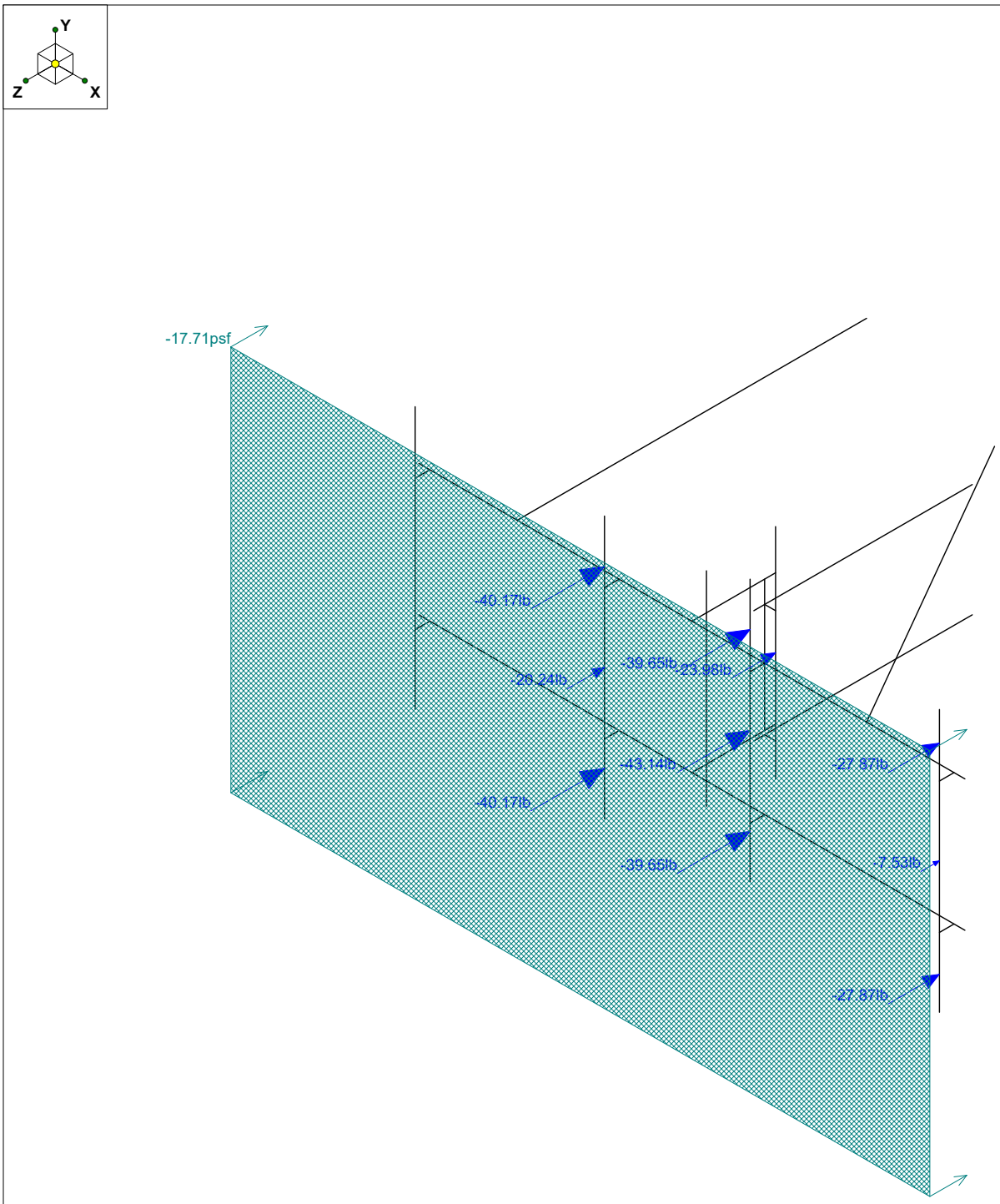
AT&T	CTL02231	Wind Load AZI 090
Infinigy Engineering PLLC		July 15, 2020 at 4:56 PM
		CTL02231.r3d





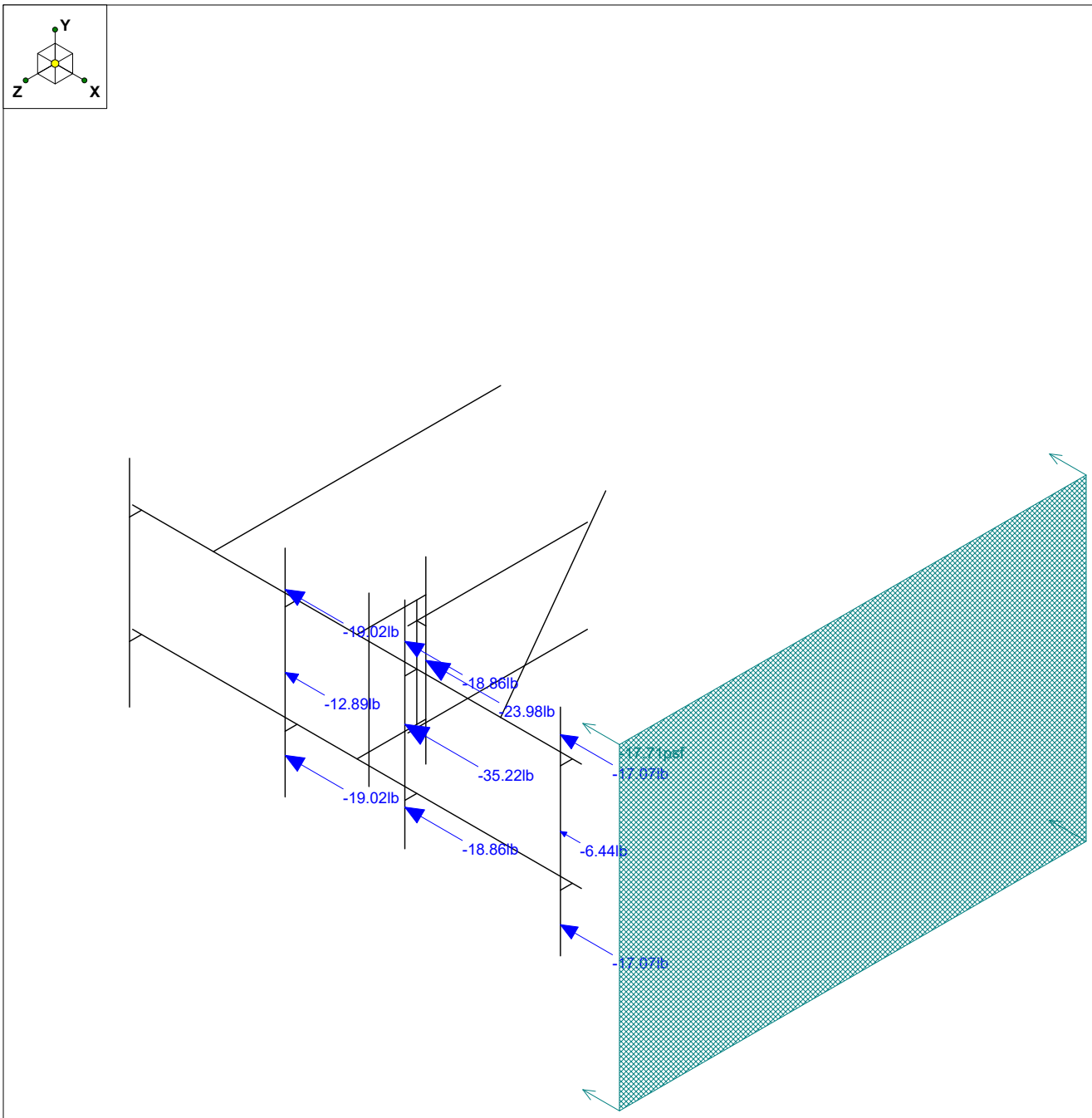
Loads: BLC 4, Ice Weight
Envelope Only Solution

AT&T	CTL02231	Ice Weight
Infinigy Engineering PLLC		July 15, 2020 at 4:54 PM
		CTL02231.r3d



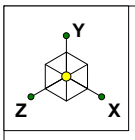
Loads: BLC 5, Wind + Ice Load AZI 000
Envelope Only Solution

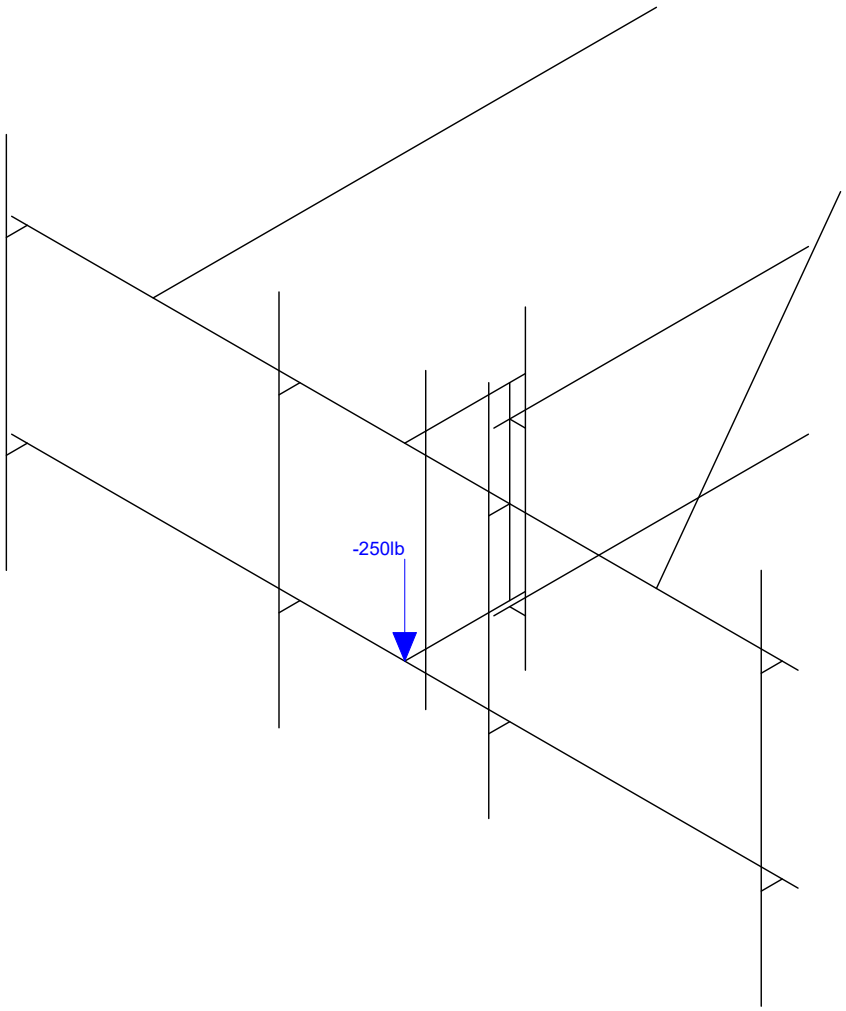
AT&T	CTL02231	Wind + Ice Load AZI 000
Infinigy Engineering PLLC		July 15, 2020 at 4:55 PM
		CTL02231.r3d



Loads: BLC 6, Wind + Ice Load AZI 090
Envelope Only Solution

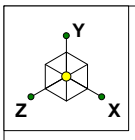
AT&T	CTL02231	Wind + Ice Load AZI 090
Infinigy Engineering PLLC		July 15, 2020 at 4:55 PM
		CTL02231.r3d

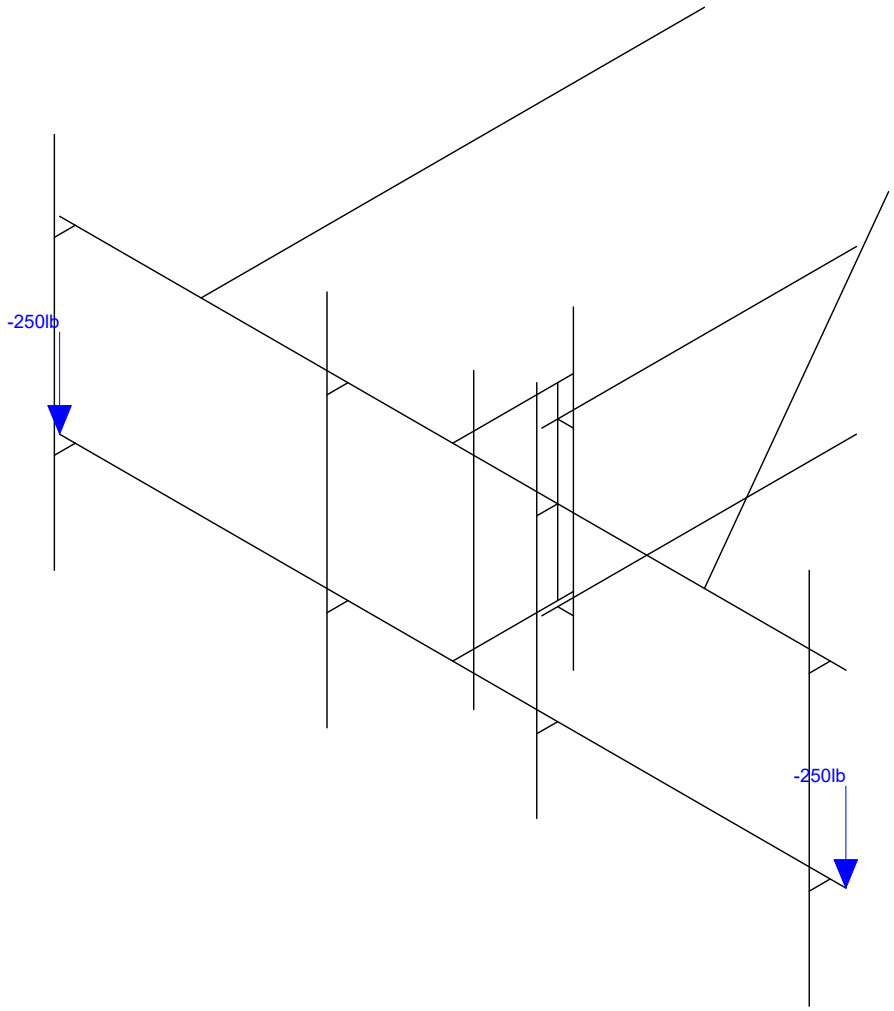




Loads: BLC 7, Service Live 1
Envelope Only Solution

AT&T	CTL02231	Service Live 1
Infinigy Engineering PLLC		July 15, 2020 at 4:54 PM
		CTL02231.r3d





Loads: BLC 8, Service Live 2
Envelope Only Solution

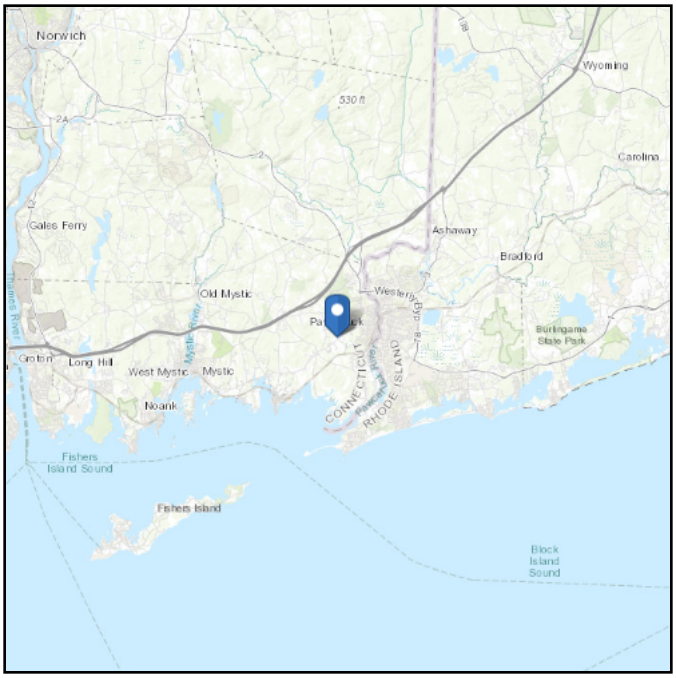
AT&T	CTL02231	Service Live 2
Infinigy Engineering PLLC		July 15, 2020 at 4:55 PM
		CTL02231.r3d

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 38.69 ft (NAVD 88)
Latitude: 41.369075
Longitude: -71.862372



Wind

Results:

Wind Speed:	129 Vmph
10-year MRI	76 Vmph
25-year MRI	87 Vmph
50-year MRI	100 Vmph
100-year MRI	106 Vmph
Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4
Date Accessed:	Tue Jul 14 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

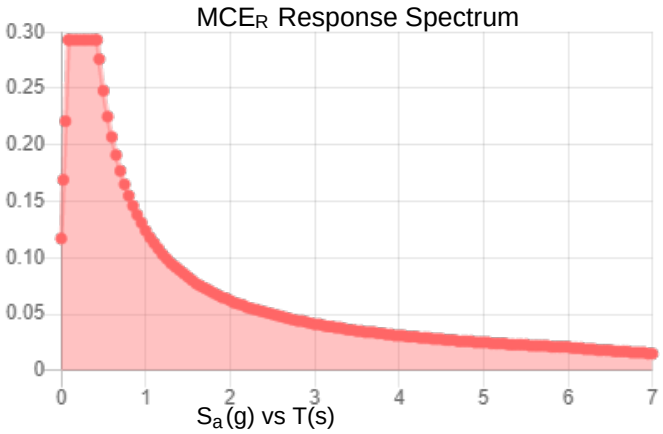
Seismic

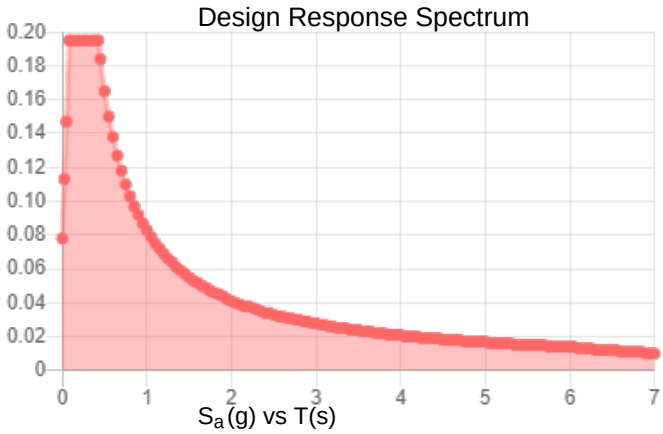
Site Soil Class: D - Stiff Soil

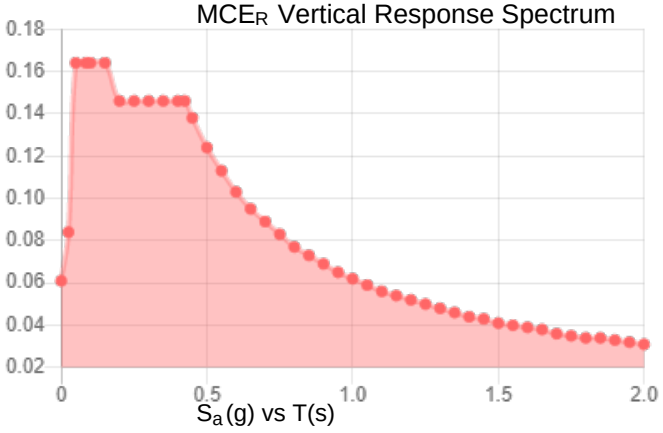
Results:

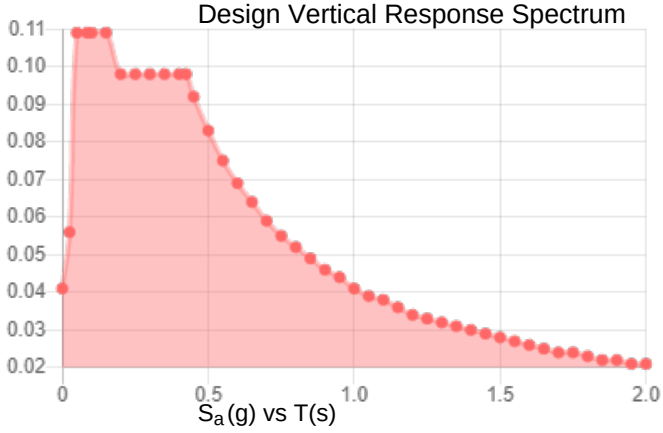
S_S :	0.183	S_{D1} :	0.083
S_1 :	0.052	T_L :	6
F_a :	1.6	PGA :	0.1
F_v :	2.4	PGA_M :	0.16
S_{MS} :	0.293	F_{PGA} :	1.6
S_{M1} :	0.124	I_e :	1
S_{DS} :	0.195	C_v :	0.7

Seismic Design Category B









Data Accessed: Tue Jul 14 2020

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Jul 14 2020

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	HP1	N9	N8			2" Pipe	Beam	Pipe	A53 Gr.B	Typical
2	M2	N12A	N11			2" Pipe	Beam	Pipe	A53 Gr.B	Typical
3	M3	N10	N14			RIGID	None	None	RIGID	Typical
4	M4	N12	N13			RIGID	None	None	RIGID	Typical
5	M5	N18	N16			RIGID	None	None	RIGID	Typical
6	M6	N17	N15			RIGID	None	None	RIGID	Typical
7	MP4	N19	N20			2" Pipe	Beam	Pipe	A53 Gr.B	Typical
8	M8	N24	N22			RIGID	None	None	RIGID	Typical
9	M9	N23	N21			RIGID	None	None	RIGID	Typical
10	MP3	N25	N26			2" Pipe	Beam	Pipe	A53 Gr.B	Typical
11	M11	N30	N28			RIGID	None	None	RIGID	Typical
12	M12	N29	N27			RIGID	None	None	RIGID	Typical
13	MP2	N31	N32			2" Pipe	Beam	Pipe	A53 Gr.B	Typical
14	M14	N36	N34			RIGID	None	None	RIGID	Typical
15	M15	N35	N33			RIGID	None	None	RIGID	Typical
16	MP1	N37	N38			2" Pipe	Beam	Pipe	A53 Gr.B	Typical
17	M17	N39	N40			3" Pipe	Beam	Pipe	A53 Gr.B	Typical
18	M18	N14	N44			HSS3x3x4	Beam	SquareTube	A500 Gr.B...	Typical
19	M19	N13	N43			HSS3x3x4	Beam	SquareTube	A500 Gr.B...	Typical
20	M20	N42	N41			2" Pipe	Beam	Pipe	A53 Gr.B	Typical
21	MP5	N45	N46			4" Pipe	Beam	Pipe	A53 Gr.B	Typical
22	M22	N49	N47			RIGID	None	None	RIGID	Typical
23	M23	N50	N48			RIGID	None	None	RIGID	Typical
24	M24	N52	N54			HSS2.5x2.5x4	Beam	SquareTube	A500 Gr.B...	Typical
25	M25	N51	N53			HSS2.5x2.5x4	Beam	SquareTube	A500 Gr.B...	Typical
26	M26	N59A	N61			2" Pipe	Beam	Pipe	A53 Gr.B	Typical
27	M27	N60A	N62			2" Pipe	Beam	Pipe	A53 Gr.B	Typical

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm (/1...	Density[lb/...	Yield[psi]	Ry	Fu[psi]	Rt
1	A992	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
2	A36 Gr.36	2.9e+7	1.115e+7	.3	.65	490	36000	1.5	58000	1.2
3	A572 Gr.50	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
4	A500 Gr.B RND	2.9e+7	1.115e+7	.3	.65	527	42000	1.4	58000	1.3
5	A500 Gr.B Rect	2.9e+7	1.115e+7	.3	.65	527	46000	1.4	58000	1.3
6	A53 Gr.B	2.9e+7	1.115e+7	.3	.65	490	35000	1.6	60000	1.2
7	A1085	2.9e+7	1.115e+7	.3	.65	490	50000	1.4	65000	1.3

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	HP1	2" Pipe	150	75	75	Lbyy	75	75				Lateral
2	M2	2" Pipe	150	48	48	Lbyy	48	48				Lateral
3	MP4	2" Pipe	72	36	36	Lbyy	36	36				Lateral
4	MP3	2" Pipe	72	36	36	Lbyy	36	36				Lateral
5	MP2	2" Pipe	72	36	36	Lbyy	36	36				Lateral
6	MP1	2" Pipe	72	36	36	Lbyy	36	36				Lateral
7	M17	3" Pipe	56	36	36	Lbyy	36	36				Lateral
8	M18	HSS3x3x4	19	16	16	Lbyy	16	16				Lateral
9	M19	HSS3x3x4	19	16	16	Lbyy	16	16				Lateral
10	M20	2" Pipe	36			Lbyy			.65	.65		Lateral
11	MP5	4" Pipe	60	31	31	Lbyy	31	31				Lateral
12	M24	HSS2.5x2.5...	60	33	33	Lbyy	33	33				Lateral
13	M25	HSS2.5x2.5...	60	33	33	Lbyy	33	33				Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
14	M26	2" Pipe	96			Lbyy						Lateral
15	M27	2" Pipe	96			Lbyy						Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	2" Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	3" Pipe	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	4" Pipe	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	HSS3x3x4	HSS3X3X4	Beam	SquareTube	A500 Gr.B R...	Typical	2.44	3.02	3.02	5.08
5	HSS2.5x2.5x4	HSS2.5X2.5X4	Beam	SquareTube	A500 Gr.B R...	Typical	1.97	1.63	1.63	2.79

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self Weight	DL		-1			11			
2	Wind Load AZI 000	WLZ					11		1	
3	Wind Load AZI 090	WLX					11		1	
4	Ice Weight	OL1					11	27		
5	Wind + Ice Load AZI 000	OL2					11		1	
6	Wind + Ice Load AZI 090	OL3					11		1	
7	Service Live 1	LL					1			
8	Service Live 2	OL4					2			
9	Service Live 3	OL5								
10	Seismic Load AZI 000	ELZ					11			
11	Seismic Load AZI 090	ELX					11			
12	BLC 2 Transient Area Loads	None						12		
13	BLC 3 Transient Area Loads	None						23		
14	BLC 5 Transient Area Loads	None						12		
15	BLC 6 Transient Area Loads	None						23		

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	B...	F...	B...	F.....	F.....	...	...	F...	B.....
1	1.4D	Yes	Y		DL	1.4															
2	1.2D + 1W AZI 000	Yes	Y		DL	1.2	W...	1													
3	1.2D + 1W AZI 030	Yes	Y		DL	1.2	W...	.866	WLX	.5											
4	1.2D + 1W AZI 060	Yes	Y		DL	1.2	W...	.5	WLX	.866											
5	1.2D + 1W AZI 090	Yes	Y		DL	1.2			WLX	1											
6	1.2D + 1W AZI 120	Yes	Y		DL	1.2	W...	-.5	WLX	.866											
7	1.2D + 1W AZI 150	Yes	Y		DL	1.2	W...	-.866	WLX	.5											
8	1.2D + 1W AZI 180	Yes	Y		DL	1.2	W...	-1													
9	1.2D + 1W AZI 210	Yes	Y		DL	1.2	W...	-.866	WLX	-.5											
10	1.2D + 1W AZI 240	Yes	Y		DL	1.2	W...	-.5	WLX	-.866											
11	1.2D + 1W AZI 270	Yes	Y		DL	1.2			WLX	-1											
12	1.2D + 1W AZI 300	Yes	Y		DL	1.2	W...	.5	WLX	-.866											
13	1.2D + 1W AZI 330	Yes	Y		DL	1.2	W...	.866	WLX	-.5											
14	0.9D + 1W AZI 000	Yes	Y		DL	.9	W...	1													
15	0.9D + 1W AZI 030	Yes	Y		DL	.9	W...	.866	WLX	.5											
16	0.9D + 1W AZI 060	Yes	Y		DL	.9	W...	.5	WLX	.866											
17	0.9D + 1W AZI 090	Yes	Y		DL	.9			WLX	1											
18	0.9D + 1W AZI 120	Yes	Y		DL	.9	W...	-.5	WLX	.866											
19	0.9D + 1W AZI 150	Yes	Y		DL	.9	W...	-.866	WLX	.5											
20	0.9D + 1W AZI 180	Yes	Y		DL	.9	W...	-1													
21	0.9D + 1W AZI 210	Yes	Y		DL	.9	W...	-.866	WLX	-.5											

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	B...	F...	B...	F.....	F.....	...	...	F...	B.....
22	0.9D + 1W AZI 240	Yes	Y		DL	.9	W...	-.5	WLX	-.866											
23	0.9D + 1W AZI 270	Yes	Y		DL	.9			WLX	-1											
24	0.9D + 1W AZI 300	Yes	Y		DL	.9	W...	.5	WLX	-.866											
25	0.9D + 1W AZI 330	Yes	Y		DL	.9	W...	.866	WLX	-.5											
26	1.2D + 1.0Di	Yes	Y		DL	1.2	OL1	1													
27	1.2D + 1.0Di + 1.0Wi AZI 000	Yes	Y		DL	1.2	OL1	1	OL2	1											
28	1.2D + 1.0Di + 1.0Wi AZI 030	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	.5									
29	1.2D + 1.0Di + 1.0Wi AZI 060	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	.866									
30	1.2D + 1.0Di + 1.0Wi AZI 090	Yes	Y		DL	1.2	OL1	1			OL3	1									
31	1.2D + 1.0Di + 1.0Wi AZI 120	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	.866									
32	1.2D + 1.0Di + 1.0Wi AZI 150	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	.5									
33	1.2D + 1.0Di + 1.0Wi AZI 180	Yes	Y		DL	1.2	OL1	1	OL2	-1											
34	1.2D + 1.0Di + 1.0Wi AZI 210	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	-.5									
35	1.2D + 1.0Di + 1.0Wi AZI 240	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	-.866									
36	1.2D + 1.0Di + 1.0Wi AZI 270	Yes	Y		DL	1.2	OL1	1			OL3	-1									
37	1.2D + 1.0Di + 1.0Wi AZI 300	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	-.866									
38	1.2D + 1.0Di + 1.0Wi AZI 330	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	-.5									
39	(1.2+0.2Sds) + 1.0 E AZI 000	Yes	Y		DL	1.239	ELZ	1													
40	(1.2+0.2Sds) + 1.0 E AZI 030	Yes	Y		DL	1.239	ELZ	.866	ELX	.5											
41	(1.2+0.2Sds) + 1.0 E AZI 060	Yes	Y		DL	1.239	ELZ	.5	ELX	.866											
42	(1.2+0.2Sds) + 1.0 E AZI 090	Yes	Y		DL	1.239			ELX	1											
43	(1.2+0.2Sds) + 1.0 E AZI 120	Yes	Y		DL	1.239	ELZ	-.5	ELX	.866											
44	(1.2+0.2Sds) + 1.0 E AZI 150	Yes	Y		DL	1.239	ELZ	-.866	ELX	.5											
45	(1.2+0.2Sds) + 1.0 E AZI 180	Yes	Y		DL	1.239	ELZ	-1													
46	(1.2+0.2Sds) + 1.0 E AZI 210	Yes	Y		DL	1.239	ELZ	-.866	ELX	-.5											
47	(1.2+0.2Sds) + 1.0 E AZI 240	Yes	Y		DL	1.239	ELZ	-.5	ELX	-.866											
48	(1.2+0.2Sds) + 1.0 E AZI 270	Yes	Y		DL	1.239			ELX	-1											
49	(1.2+0.2Sds) + 1.0 E AZI 300	Yes	Y		DL	1.239	ELZ	.5	ELX	-.866											
50	(1.2+0.2Sds) + 1.0 E AZI 330	Yes	Y		DL	1.239	ELZ	.866	ELX	-.5											
51	(0.9-0.2Sds) + 1.0E AZI 000	Yes	Y		DL	.861	ELZ	1													
52	(0.9-0.2Sds) + 1.0E AZI 030	Yes	Y		DL	.861	ELZ	.866	ELX	.5											
53	(0.9-0.2Sds) + 1.0E AZI 060	Yes	Y		DL	.861	ELZ	.5	ELX	.866											
54	(0.9-0.2Sds) + 1.0E AZI 090	Yes	Y		DL	.861			ELX	1											
55	(0.9-0.2Sds) + 1.0E AZI 120	Yes	Y		DL	.861	ELZ	-.5	ELX	.866											
56	(0.9-0.2Sds) + 1.0E AZI 150	Yes	Y		DL	.861	ELZ	-.866	ELX	.5											
57	(0.9-0.2Sds) + 1.0E AZI 180	Yes	Y		DL	.861	ELZ	-1													
58	(0.9-0.2Sds) + 1.0E AZI 210	Yes	Y		DL	.861	ELZ	-.866	ELX	-.5											
59	(0.9-0.2Sds) + 1.0E AZI 240	Yes	Y		DL	.861	ELZ	-.5	ELX	-.866											
60	(0.9-0.2Sds) + 1.0E AZI 270	Yes	Y		DL	.861			ELX	-1											
61	(0.9-0.2Sds) + 1.0E AZI 300	Yes	Y		DL	.861	ELZ	.5	ELX	-.866											
62	(0.9-0.2Sds) + 1.0E AZI 330	Yes	Y		DL	.861	ELZ	.866	ELX	-.5											
63	1.2D + 1.5L + 1.0WL (30 mph) AZI 000	Yes	Y		DL	1.2	LL	1.5	WLZ	.054											
64	1.2D + 1.5L + 1.0WL (30 mph) AZI 030	Yes	Y		DL	1.2	LL	1.5	WLZ	.047	WLX	.027									
65	1.2D + 1.5L + 1.0WL (30 mph) AZI 060	Yes	Y		DL	1.2	LL	1.5	WLZ	.027	WLX	.047									
66	1.2D + 1.5L + 1.0WL (30 mph) AZI 090	Yes	Y		DL	1.2	LL	1.5			WLX	.054									
67	1.2D + 1.5L + 1.0WL (30 mph) AZI 120	Yes	Y		DL	1.2	LL	1.5	WLZ	-.027	WLX	.047									
68	1.2D + 1.5L + 1.0WL (30 mph) AZI 150	Yes	Y		DL	1.2	LL	1.5	WLZ	-.047	WLX	.027									
69	1.2D + 1.5L + 1.0WL (30 mph) AZI 180	Yes	Y		DL	1.2	LL	1.5	WLZ	-.054											
70	1.2D + 1.5L + 1.0WL (30 mph) AZI 210	Yes	Y		DL	1.2	LL	1.5	WLZ	-.047	WLX	-.027									
71	1.2D + 1.5L + 1.0WL (30 mph) AZI 240	Yes	Y		DL	1.2	LL	1.5	WLZ	-.027	WLX	-.047									
72	1.2D + 1.5L + 1.0WL (30 mph) AZI 270	Yes	Y		DL	1.2	LL	1.5			WLX	-.054									
73	1.2D + 1.5L + 1.0WL (30 mph) AZI 300	Yes	Y		DL	1.2	LL	1.5	WLZ	.027	WLX	-.047									
74	1.2D + 1.5L + 1.0WL (30 mph) AZI 330	Yes	Y		DL	1.2	LL	1.5	WLZ	.047	WLX	-.027									

Joint Loads and Enforced Displacements

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

Member Area Loads (BLC 2 : Wind Load AZI 000)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N81	N82	N84	N83	PZ	Open Structure	-63.87

Member Area Loads (BLC 3 : Wind Load AZI 090)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N82	N85	N87	N84	PX	Open Structure	-63.87

Member Area Loads (BLC 5 : Wind + Ice Load AZI 000)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N81	N82	N84	N83	PZ	Open Structure	-17.71

Member Area Loads (BLC 6 : Wind + Ice Load AZI 090)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N82	N85	N87	N84	PX	Open Structure	-17.71

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-33.95	12
2	MP3	Y	-26.25	12
3	MP1	Y	-17.5	8
4	MP1	Y	-16	36
5	MP2	Y	-70	36
6	MP2	Y	-75	36
7	MP3	Y	-59.9	36
8	MP5	Y	-32.8	30
9	MP2	Y	-33.95	60
10	MP3	Y	-26.25	60
11	MP1	Y	-17.5	63

Member Point Loads (BLC 2 : Wind Load AZI 000)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-226.58	12
2	MP3	Z	-229.87	12
3	MP1	Z	-150.74	8
4	MP1	Z	-30.25	36
5	MP2	Z	-108.37	36
6	MP2	Z	-108.37	36
7	MP3	Z	-100.84	36
8	MP5	Z	-120.41	30
9	MP2	Z	-226.58	60
10	MP3	Z	-229.87	60
11	MP1	Z	-150.74	63

Member Point Loads (BLC 3 : Wind Load AZI 090)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-95.94	12
2	MP3	X	-96.93	12

Member Point Loads (BLC 3 : Wind Load AZI 090) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP1	X	-80.13	8
4	MP1	X	-24.38	36
5	MP2	X	-77.17	36
6	MP2	X	-92.77	36
7	MP3	X	-57.95	36
8	MP5	X	-120.41	30
9	MP2	X	-95.94	60
10	MP3	X	-96.93	60
11	MP1	X	-80.13	63

Member Point Loads (BLC 4 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-63.67	12
2	MP3	Y	-64.59	12
3	MP1	Y	-41.25	8
4	MP1	Y	-15.84	36
5	MP2	Y	-47.07	36
6	MP2	Y	-51.82	36
7	MP3	Y	-40.6	36
8	MP5	Y	-56.82	30
9	MP2	Y	-63.67	60
10	MP3	Y	-64.59	60
11	MP1	Y	-41.25	63

Member Point Loads (BLC 5 : Wind + Ice Load AZI 000)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-39.65	12
2	MP3	Z	-40.17	12
3	MP1	Z	-27.87	8
4	MP1	Z	-7.53	36
5	MP2	Z	-21.57	36
6	MP2	Z	-21.57	36
7	MP3	Z	-20.24	36
8	MP5	Z	-23.98	30
9	MP2	Z	-39.65	60
10	MP3	Z	-40.17	60
11	MP1	Z	-27.87	63

Member Point Loads (BLC 6 : Wind + Ice Load AZI 090)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-18.86	12
2	MP3	X	-19.02	12
3	MP1	X	-17.07	8
4	MP1	X	-6.44	36
5	MP2	X	-16.29	36
6	MP2	X	-18.93	36
7	MP3	X	-12.89	36
8	MP5	X	-23.98	30
9	MP2	X	-18.86	60
10	MP3	X	-19.02	60
11	MP1	X	-17.07	63

Member Point Loads (BLC 7 : Service Live 1)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	HP1	Y	-250	%50

Member Point Loads (BLC 8 : Service Live 2)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	HP1	Y	-250	0
2	HP1	Y	-250	%100

Member Point Loads (BLC 10 : Seismic Load AZI 000)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-3.48	12
2	MP3	Z	-2.69	12
3	MP1	Z	-1.79	8
4	MP1	Z	-1.64	36
5	MP2	Z	-7.18	36
6	MP2	Z	-7.69	36
7	MP3	Z	-6.14	36
8	MP5	Z	-3.36	30
9	MP2	Z	-3.48	60
10	MP3	Z	-2.69	60
11	MP1	Z	-1.79	63

Member Point Loads (BLC 11 : Seismic Load AZI 090)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-3.48	12
2	MP3	X	-2.69	12
3	MP1	X	-1.79	8
4	MP1	X	-1.64	36
5	MP2	X	-7.18	36
6	MP2	X	-7.69	36
7	MP3	X	-6.14	36
8	MP5	X	-3.36	30
9	MP2	X	-3.48	60
10	MP3	X	-2.69	60
11	MP1	X	-1.79	63

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	HP1	PIPE_2.0	.468	75	2	.175	75		8	20114.4...	32130	1871.625	1871.625	1	H1-1b
2	M2	PIPE_2.0	.414	123....	2	.186	121....		2	26521.4...	32130	1871.625	1871.625	1	H1-1b
3	M25	HSS2.5X2.5...	.402	15	12	.144	15	z	12	74647.6...	81558	5623.5	5623.5	1	H1-1b
4	M24	HSS2.5X2.5...	.319	15	6	.087	15	z	12	74647.6...	81558	5623.5	5623.5	1	H1-1b
5	MP2	PIPE_2.0	.284	22.5	37	.199	22.5		8	28843.4...	32130	1871.625	1871.625	1	H1-1b
6	MP1	PIPE_2.0	.203	17.25	8	.054	17.25		8	28843.4...	32130	1871.625	1871.625	1	H1-1b
7	M19	HSS3X3X4	.173	19	30	.082	19	y	38	99620.2...	101016	8556	8556	1	H1-1b
8	MP3	PIPE_2.0	.159	17.25	29	.081	17.25		4	28843.4...	32130	1871.625	1871.625	1	H1-1b
9	M17	PIPE_3.0	.129	45.5	27	.059	45.5		27	62138.0...	65205	5748.75	5748.75	1	H1-1b
10	M18	HSS3X3X4	.126	0	12	.049	15.833	z	12	99620.2...	101016	8556	8556	1	H1-1b
11	MP5	PIPE_4.0	.114	20	36	.138	50.625		12	91270.6...	93240	10631.25	10631.25	1	H1-1b
12	M20	PIPE_2.0	.086	0	35	.033	36		13	30698.0...	32130	1871.625	1871.625	2....	H1-1b
13	M27	PIPE_2.0	.073	96	14	.004	96		12	14916.0...	32130	1871.625	1871.625	1....	H1-1b*
14	MP4	PIPE_2.0	.071	52.5	35	.021	17.25		9	28843.4...	32130	1871.625	1871.625	1	H1-1b
15	M26	PIPE_2.0	.065	48	5	.006	0		11	14916.0...	32130	1871.625	1871.625	1....	H1-1b

SBA Communications Corporation
8051 Congress Avenue
Boca Raton, FL 33487-1307

T + 561.995.7670
F + 561.995.7626

sbasite.com

Structural Analysis Report

Client: AT&T

Client Site ID / Name: CTL02231 / Stonington- South Broad St
Application #: 133654, v1

SBA Site ID / Name: CT03241-S / Stonington 2, CT

180' Self Supporting Tower

173 South Broad Street
Pawcatuck, CT 06379-1995
Lat: 41.369067, Long: -71.862361

Project number: CT03241-ATT-081220

Analysis Results

Tower	96.3%	Pass
Foundation	74.0%	Pass

Change in tower stress due to mount modification / replacement	N/A

Prepared by:

Daniel Yohannes,
Structural Engineer II
561-322-7936
dyohannes@sbasite.com

Reviewed by:

Nitesh Ahuja, P.E.
Director of Engineering
561-226-9452
nahuja@sbasite.com

August 18, 2020

Table of Contents

Introduction

The purpose of this report is to summarize the analysis results on the 180' Self Supporting Tower to support the proposed antennas and transmissions lines in addition to those currently installed.

Table 1 List of Documents Used

Item	Document
Tower Design	Pirod , Job #: A-116770 , Dated: 2/25/2000
Foundation Design	Pirod , Job #: A-116770 , Dated: 2/25/2000
Geotechnical report	JGI , Project # 99731G , Dated: 3/1/2000
Modification drawings	N/A
Latest SA Report	TES, Project # 90357, dated 12/10/2019

Analysis Criteria

Table 2 Code Related Data

Jurisdiction (State/County/City)	Connecticut / New London / Pawcatuck
Governing Codes	ANSI/TIA-222-H , 2018 IBC
Ultimate Wind Speed (3-Sec gust)	137 mph
Wind Speed with Ice (3-Sec gust)	50 mph
Service Wind Speed (3-Sec gust)	60 mph
Ice Thickness	1 in
Risk category *	III
Exposure Category	C
Topographic Category	1
Crest Height	0 ft.
Ground Elevation	39.04 ft.
Seismic Parameter S_s	0.183
Seismic Parameter S_1	0.052

*This structural analysis is based upon the tower being classified as a Risk category III; 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.

Appurtenance Loading

Existing Loading:

Table 3 Existing Appurtenances

Mount Elev. (ft)	CL Elev. (ft)	Type	Qty	Manufacturer	Model	Feed Line Size	Mount Type Qty.	Carrier
179	190	Omni	2	Celwave	PD220	(4) 7/8"	(3) 10' Rigid Side Arms	Stonington Police
	189.3	Omni	1	Celwave	PD1142-1			
	180	Yagi	1		Yagi			
	175	Dipole	1		10' dipole			
178	178	Panel	1		2' x 1' Panel	(1) 7/8"	Direct Mount	
165	173	Dipole	2	Decibel	DB212	(2) 7/8"	(2) Standoffs	
150	150	Panel	6	Decibel	DB844H90-XY	(12) 1-5/8"	(3) T-Frames	Verizon
		Panel	3	JMA Wireless	MX06FRO660-03			
		Diplexer	3	Commscope	CBC426T-DS-43			
		Diplexer	3	Commscope	CBC1923T-DS-43			
140	140	Panel	3	Ericsson	Air 21 B2A/B4P	(9) 1-5/8" (4) 1-5/8" Fiber	(3) T-Frames w/ Mods (MetroSite MS-HR35-18 Support Rail Pipe Kits (2) MS-C1B-350P V-Bracing Kits (3) MS-STZ-350P Stabilizer Adapter Kits (3) MS-STZ-2PST Stabilizer Kits	T-Mobile
		Panel	3	Ericsson	Air 21 B4A/B2P			
		Panel	3	RFS	APXVAARR24_43-U-NA20			
		TMA	3	Ericsson	KRY 112 144/1			
		RRU	3	Ericsson	Radio 4449 B71+B12			
120	120	Panel	3	KMW	DUO1417-8686-40i	(12) 1-5/8" (1) 1/2" Fiber (2) 3/4" DC	(3) T-Frames	AT&T
		Panel	6	Powerwave	7770			
		Panel	3	KMW	AM-X-CD-14-65-00T			
		TMA	6	Powerwave	TT19-08BP111-001 TMA			
		RRU	6	Ericsson	RRUS-11			
		Other	1	Raycap	DC6-48-60-18-8F			
101	106.9	Omni	1	Celwave	PD1167	(2) 7/8"	(2) 3' Standoffs	Stonington Police
	106	Dipole	1		10' dipole			
90	99.167	Dipole	1	Decibel	DS4C06F36D-N	(1) 7/8"	Direct Mount	
75	75	GPS	1		GPS Receiver		Direct Mount	Verizon
63	63	Omni	1		DB437 Yagi	(1) 7/8"	Direct Mount	Stonington Police
51	60.167	Dipole	1	Decibel	DB413-B	(1) 7/8"	Direct Mount	
42	43	Omni	1		2' Omni	(2) 7/8"	(1) Standoff	
	42	Omni	2	Decibel	DB437 Yagi		Direct Mount	

Proposed Loading:

Information pertaining to proposed antennas and transmission lines were based upon the Application #: 133654, v1 from AT&T and is listed in Table 4.

Table 4 Proposed Appurtenances

Mount Elev. (ft)	CL Elev. (ft)	Type	Qty	Manufacturer	Model	Feed Line Size	Mount Type Qty.	Carrier
120	120	Panel	6	Powerwave	7770	(12) 1-5/8" (1) 1/2" Fiber (2) 3/4" DC (1) Y-cable	(3) T-Frames	AT&T
		Panel	3	Cci Antennas	DMP65R-BU4DA			
		Panel	3	Cci Antennas	OPA65R-BU4DA			
		TMA	6	Powerwave	TT19-08BP111-001 TMA			
		RRU	3	Ericsson	4449 B5/B12			
		RRU	3	Ericsson	RRUS-4478 B14			
		RRU	3	Ericsson	RRUS 8843 B2 B66A			
		Others	2	Raycap	DC6-48-60-18-8F			

Note: AT&T loading includes FirstNET equipment

Analysis Results

Tower

The results of the structural analysis are shown below in table 5. Additional information for the tower analysis is provided within the Appendix.

Table 5 Tower Analysis Summary

Structural Component	% capacity	Analysis Result
Leg	96.3	Pass
Diagonal	84.7	Pass
Horizontal	67.5	Pass
Top girt	54.5	Pass
Bottom girt	83.6	Pass
Bolt	84.7	Pass
Anchor Bolt	62.2	Pass

Foundation

The results of the foundation analysis are shown below in table 6. Additional information for the foundation analysis is provided within the Appendix.

Table 6 Foundation Analysis Summary

Structural Component	Max Usage (%)	Analysis Result
Foundation	74.0	Pass

Conclusions

Based on the analysis results, the existing tower and foundation were found to be ***sufficient*** to safely support the equipment listed in this analysis. No modification to the tower and foundation is needed at this time.

Installation Requirements

This analysis was performed under the assumption that the carrier will place the proposed equipment and feed lines at the installation height listed in Table 4 and in accordance with the coax layout shown. TMAs and RRUs are to be installed on existing mounts behind tenant's antennas unless otherwise noted. No equipment is to be installed directly in the climbing path. All equipment is to be installed per mount manufacturer specifications. In case site conditions do not allow for the required installation parameters to be met the carrier must notify SBA Communications Corporation engineers for approval of an alternative placement.

Assumptions and Limitations

Assumptions

This analysis was completed based on the following assumptions:

- Tower and foundation were built in accordance to manufacturer specifications.
- Tower and foundation has been properly maintained in accordance with the manufacturer's specifications
- All existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion
- Welds and bolts are assumed able to carry their intended original design loads.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 3 and 4.
- This analysis may be affected if any assumptions are not valid or have been made in error. SBA should be notified to determine the effect on the structural integrity of the tower.

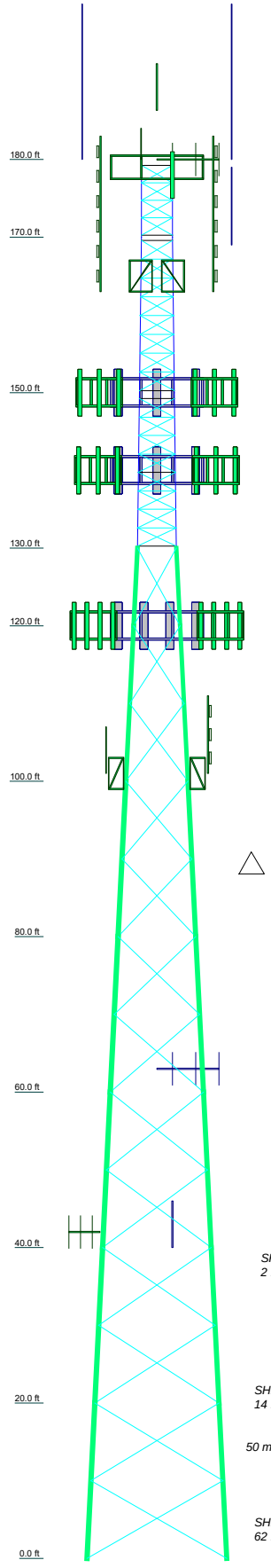
Limitations

The computer generated analysis performed by the tower software is limited to theoretical capacities of the towers structural members and does not account for any missing or damaged members or connections. The tower and foundation are assumed to have been properly designed, fabricated, installed and maintained, barring any conflicting findings from the most recent inspection.

SBA Communications Corporation has used its due diligence to verify the information provided to perform this analysis. It is unreasonable to perform a more detailed inspection of a tower and its components. This report is not a condition assessment of the tower or foundation.

Appendix

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1	
Legs	#12 - 2.25" - 1.25" conn. (Pirod 105220)		#12 - 2.00" - 1.25" conn. (Pirod 105219)		C	B	A	SR 2	SR 1 1/2		
Leg Grade	A572-50										
Diagonals	L3 1/2x3 1/2x5/16		L3x3x5/16		L3x3x3/16		L2 1/2x2 1/2x3/16	SR 1	SR 3/4		
Diagonal Grade	A36							A572-50			
Top Girts				N.A.				SR 1	SR 7/8		
Mid Girts				N.A.				SR 1	N.A.		
Bottom Girts				N.A.				SR 1	SR 7/8		
Horizontals				N.A.				SR 7/8	SR 3/4		
Face Width (ft)	18	16	14	12	10	8	6	4.5	4		
# Panels @ (ft)				13 @ 10				8 @ 2.375	8 @ 2.41667	4 @ 2.26042	
Weight (K)	27.6	5.2	5.0	4.2	4.1	2.8	2.4	1.1	1.6	0.9	0.4



ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 414 K
SHEAR: 41 K

UPLIFT: -372 K
SHEAR: 37 K

AXIAL 57 K
SHEAR 2 K *MOMENT 293 kip-ft*
TORQUE 0 kip-ft
SEISMIC

AXIAL 110 K
SHEAR 14 K *MOMENT 1409 kip-ft*
TORQUE 3 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 55 K
SHEAR 62 K *MOMENT 6170 kip-ft*
TORQUE 22 kip-ft
REACTIONS - 137 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	180	(3) Stabilizer Kit (4' FW)	140
Yagi	180	Air 21 B2A/B4P (55.9" x 12" x 7.8") w/ mount pipe	140
Seismic Load @180	180	Air 21 B2A/B4P (55.9" x 12" x 7.8") w/ mount pipe	140
PD1142	179	Air 21 B2A/B4P (55.9" x 12" x 7.8") w/ mount pipe	140
PD220	179	Seismic Load @130	130
10' dipole	179	DMP65R-BU4DA (48" x 20.7" x 7.7") w/ mount pipe	120
(3) 10 ft face mounted side arm	179	DMP65R-BU4DA (48" x 20.7" x 7.7") w/ mount pipe	120
PD220	179	OPA65R-BU4DA (46" x 21" x 7.8") w/ mount pipe	120
2' x 1' Panel	178	OPA65R-BU4DA (46" x 21" x 7.8") w/ mount pipe	120
Seismic Load @170	170	OPA65R-BU4DA (46" x 21" x 7.8") w/ mount pipe	120
6' Standoff	165	(2) TT19-08BP111-001 TMA (9.9" x 6.7" x 5.4")	120
6' Standoff	165	(2) TT19-08BP111-001 TMA (9.9" x 6.7" x 5.4")	120
DB212	165	(2) TT19-08BP111-001 TMA (9.9" x 6.7" x 5.4")	120
DB212	165	4449 B5/B12 (17.9" x 13.19" x 9.44")	120
(2) DB844H90-XY (48" x 6" x 8.5") w/ mount pipe	150	4449 B5/B12 (17.9" x 13.19" x 9.44")	120
MX06FRO660-03 (71.1" x 15.4" x 10.7") w/ mount pipe	150	4449 B5/B12 (17.9" x 13.19" x 9.44")	120
MX06FRO660-03 (71.1" x 15.4" x 10.7") w/ mount pipe	150	RRUS-4478 B14 (16.5" x 13.4" x 7.7")	120
MX06FRO660-03 (71.1" x 15.4" x 10.7") w/ mount pipe	150	RRUS-4478 B14 (16.5" x 13.4" x 7.7")	120
CBC426T-DS-43 (6" x 4.8" x 3.4")	150	RRUS-4478 B14 (16.5" x 13.4" x 7.7")	120
CBC426T-DS-43 (6" x 4.8" x 3.4")	150	RRUS 8843 B2 B66A (14.9" x 13.2" x 10.9")	120
CBC426T-DS-43 (6" x 4.8" x 3.4")	150	RRUS 8843 B2 B66A (14.9" x 13.2" x 10.9")	120
CBC1923T-DS-43 (6.9" x 5.5" x 4")	150	RRUS 8843 B2 B66A (14.9" x 13.2" x 10.9")	120
CBC1923T-DS-43 (6.9" x 5.5" x 4")	150	DC6-48-60-18-8F (24" x 11" x 18.5")	120
CBC1923T-DS-43 (6.9" x 5.5" x 4")	150	DC6-48-60-18-8F (24" x 11" x 18.5")	120
15' Pirod Universal T-Frame	150	15' Pirod Universal T-Frame	120
15' Pirod Universal T-Frame	150	15' Pirod Universal T-Frame	120
15' Pirod Universal T-Frame	150	15' Pirod Universal T-Frame	120
(2) DB844H90-XY (48" x 6" x 8.5") w/ mount pipe	150	(2) 7770 (55" x 11" x 5") w/ mount pipe	120
(2) DB844H90-XY (48" x 6" x 8.5") w/ mount pipe	150	(2) 7770 (55" x 11" x 5") w/ mount pipe	120
Seismic Load @150	150	(2) 7770 (55" x 11" x 5") w/ mount pipe	120
Air 21 B4A/B2P (55.9" x 12" x 7.8") w/ mount pipe	140	DMP65R-BU4DA (48" x 20.7" x 7.7") w/ mount pipe	120
Air 21 B4A/B2P (55.9" x 12" x 7.8") w/ mount pipe	140	Seismic Load @120	120
Air 21 B4A/B2P (55.9" x 12" x 7.8") w/ mount pipe	140	3' Standoff Mount	101
APXVAARR24_43-U-NA20 (95.9" x 24" x 8.7") w/ mount pipe	140	3' Standoff Mount	101
APXVAARR24_43-U-NA20 (95.9" x 24" x 8.7") w/ mount pipe	140	10' dipole	101
APXVAARR24_43-U-NA20 (95.9" x 24" x 8.7") w/ mount pipe	140	Celwave - PD1167	101
KRY 112 144/1 (6.9" x 6.1" x 2.7")	140	Seismic Load @100	100
KRY 112 144/1 (6.9" x 6.1" x 2.7")	140	Decibel - DB212	90
KRY 112 144/1 (6.9" x 6.1" x 2.7")	140	Seismic Load @80	80
Radio 4449 B71+B12 (13.1" x 14.9" x 9.2")	140	GPS	75
Radio 4449 B71+B12 (13.1" x 14.9" x 9.2")	140	Decibel - DB437	63
Radio 4449 B71+B12 (13.1" x 14.9" x 9.2")	140	Seismic Load @60	60
15' Pirod Universal T-Frame	140	Decibel - DB212	51
15' Pirod Universal T-Frame	140	2' Omni	42
15' Pirod Universal T-Frame	140	Decibel - DB437	42
(3) HR w/ Double V-Brace Kits	140	2' Standoff Mount	42
		Seismic Load @40	40
		Seismic Load @20	20

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	#12 - 1.25" - 1.00" conn. (Pirod 105244)	C	#12 - 1.75" - 1.25" conn. (Pirod 105218)
B	#12 - 1.50" - 1.00" conn. (Pirod 105217)		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

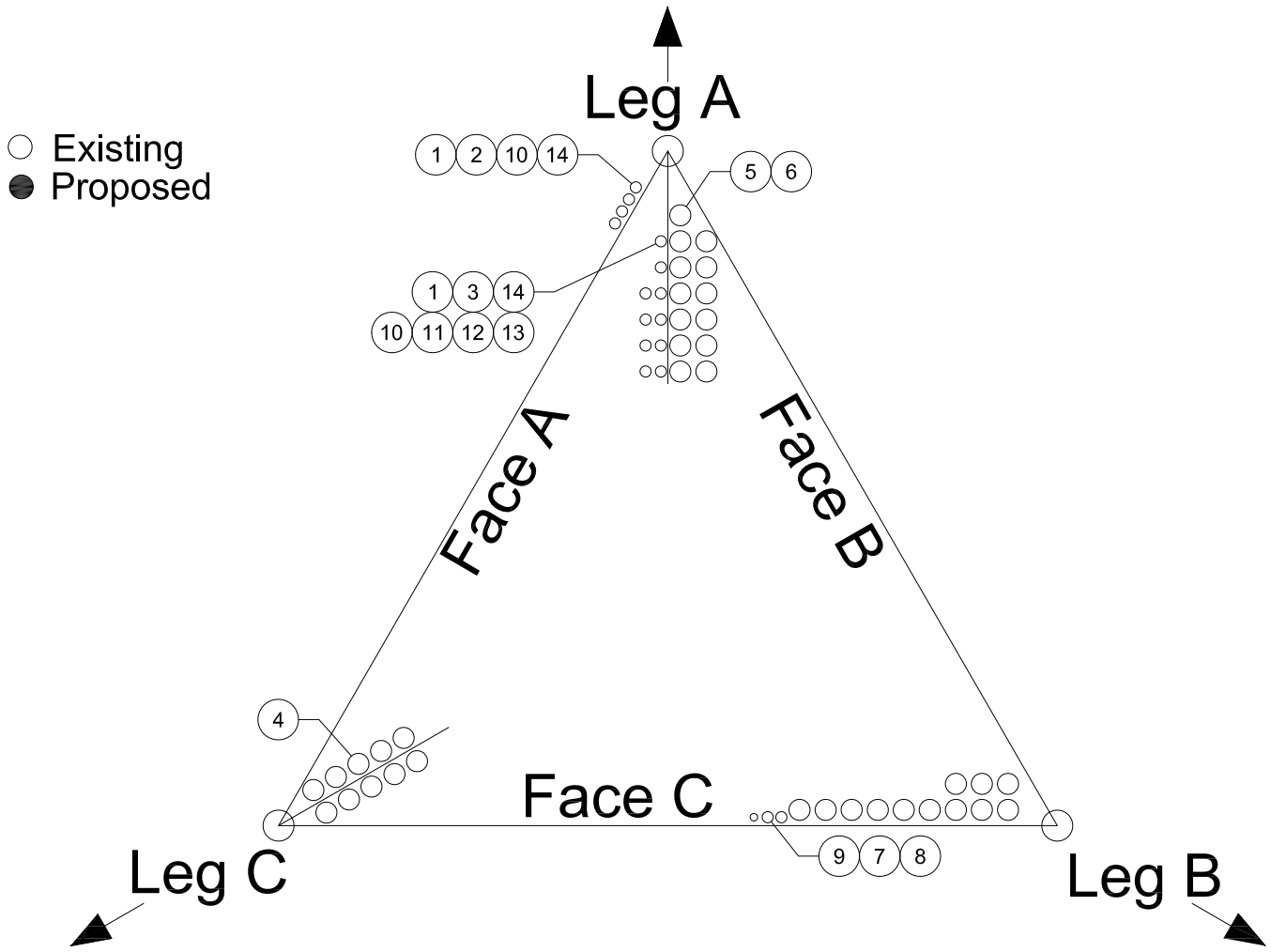
TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 137 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 96.3%

SBA Communications
8051 Congress Avenue
Boca Raton, FL 33487-1307
Phone: 5619957670
FAX: 5619957626

Job:			
Project:	CT03241-ATT-081220		
Client:	Drawn by: Daniel Yohannes		App'd:
Code: TIA-222-H	Date: 08/18/20		Scale: NTS
Path: C:\Temp\CT03241-S\Towercalc\CT03241-ATT-081220.eri			Dwg No. E-1

Coax Layout



CT03241-S					
#	CARRIER	SIZE	QTY.	ELEVATION	NOTES
1	Stonington Police	7/8"	4	179'	
2	Stonington Police	7/8"	1	178'	
3	Stonington Police	7/8"	2	165'	
4	Verizon	1-5/8"	12	150'	
5	T-Mobile	1-5/8"	9	140'	
6	T-Mobile	1-5/8"	4	140'	Fiber
7	AT&T	1-5/8"	12	120'	
8	AT&T	3/4"	2	120'	DC Power
9	AT&T	1/2"	1	120'	Fiber
10	Stonington Police	7/8"	2	101'	
11	Stonington Police	7/8"	1	90'	
12	Stonington Police	7/8"	1	63'	
13	Stonington Police	7/8"	1	51'	
14	Stonington Police	7/8"	2	42'	

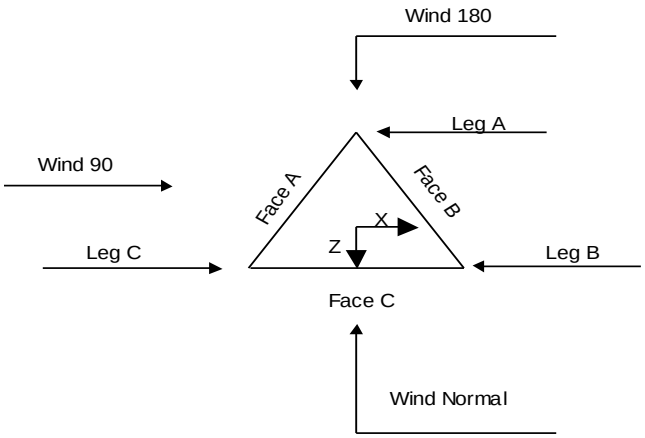
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 4.00 ft at the top and 18.00 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Tower base elevation above sea level: 39.04 ft.
Basic wind speed of 137 mph.
Risk Category III.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	180.00-170.00		#48 1.50"Lx0.750"D (106778-RAO)	4.00	1	10.00
T2	170.00-150.00	aa-pirod	#54/48 1.50"Lx0.750"D (100316)	4.00	1	20.00
T3	150.00-130.00	aa-pirod	#60/54 2.00"Lx1.000"DTrans(114529)	4.50	1	20.00
T4	130.00-120.00		U- 6,12Z,1.00"D x 10'	5.00	1	10.00
T5	120.00-100.00		U- 8,12Z,1.00"D x 20'	6.00	1	20.00
T6	100.00-80.00		U-10,12Z,1.00"D x 20'	8.00	1	20.00
T7	80.00-60.00		U-12,12Z,1.25"D x 20'	10.00	1	20.00
T8	60.00-40.00		U-14,12Z,1.25"D x 20'	12.00	1	20.00
T9	40.00-20.00		U-16,12Z,1.25"D x 20'	14.00	1	20.00
T10	20.00-0.00		U-18,12Z,1.25"D x 20'	16.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	180.00-170.00	2.26	X Brace	No	Steps	9.0000	2.5000
T2	170.00-150.00	2.42	X Brace	No	Steps	5.5000	2.5000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T3	150.00-130.00	2.38	X Brace	No	Steps	9.5000	2.5000
T4	130.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T5	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T6	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-170.00	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 170.00-150.00	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T3 150.00-130.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 130.00-120.00	Truss Leg	#12 - 1.25" - 1.00" conn. (Pirod 105244)	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 120.00-100.00	Truss Leg	#12 - 1.50" - 1.00" conn. (Pirod 105217)	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 100.00-80.00	Truss Leg	#12 - 1.75" - 1.25" conn. (Pirod 105218)	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 80.00-60.00	Truss Leg	#12 - 2.00" - 1.25" conn. (Pirod 105219)	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T8 60.00-40.00	Truss Leg	#12 - 2.00" - 1.25" conn. (Pirod 105219)	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T9 40.00-20.00	Truss Leg	#12 - 2.25" - 1.25" conn. (Pirod 105220)	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T10 20.00-0.00	Truss Leg	#12 - 2.25" - 1.25" conn. (Pirod 105220)	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-170.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 170.00-150.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 150.00-130.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 180.00-170.00	None	Solid Round		A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 170.00-150.00	None	Solid Round		A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 150.00-130.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 180.00-170.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T2 170.00-150.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T3 150.00-130.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T4 130.00-120.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T5 120.00-100.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T6 100.00-80.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T7 80.00-60.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T8 60.00-40.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T9 40.00-20.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T10 20.00-0.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	No	Yes	1	1	1	1	1	1	1	1
180.00-170.00				1	1	1	1	1	1	1
T2	No	No	1	1	1	1	1	1	1	1
170.00-150.00				1	1	1	1	1	1	1
T3	No	No	1	1	1	1	1	1	1	1
150.00-130.00				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
130.00-120.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T9	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T10	Yes	No	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Truss-Leg K Factors: Truss-Legs Used As Leg Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals	Truss-Legs Used As Inner Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4	1	0.5	0.7	1	0.5	0.7
130.00-120.00						
T5	1	0.5	0.7	1	0.5	0.7
120.00-100.00						
T6	1	0.5	0.7	1	0.5	0.7
100.00-80.00						
T7	1	0.5	0.7	1	0.5	0.7
80.00-60.00						
T8	1	0.5	0.7	1	0.5	0.7
60.00-40.00						
T9	1	0.5	0.7	1	0.5	0.7
40.00-20.00						
T10	1	0.5	0.7	1	0.5	0.7
20.00-0.00						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
180.00-170.00														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T2 170.00-150.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 150.00-130.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 130.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 180.00-170.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T2 170.00-150.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 150.00-130.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T4 130.00-120.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T5 120.00-100.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T6 100.00-80.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T7 80.00-60.00	5.0000	12.2500	5.0000	12.2500	0.0000	0.0000	0.0000	0.0000
T8 60.00-40.00	5.0000	12.2500	5.0000	12.2500	0.0000	0.0000	0.0000	0.0000
T9 40.00-20.00	5.0000	12.2500	5.0000	12.2500	0.0000	0.0000	0.0000	0.0000
T10 20.00-0.00	5.0000	12.2500	5.0000	12.2500	0.0000	0.0000	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-170.00	Sleeve DS	0.5625 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 170.00-150.00	Sleeve DS	0.5625 A325X	3	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325X	0
T3 150.00-130.00	Flange	1.0000 A325X	6	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325X	0
T4 130.00-120.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T5 120.00-100.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T6 100.00-80.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T7 80.00-60.00	Flange	1.2500 A325N	6	1.2500 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T8 60.00-40.00	Flange	1.2500 A325N	6	1.2500 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T9 40.00-20.00	Flange	1.2500 A325N	6	1.2500 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T10 20.00-0.00	Flange	1.2500 A687	6	1.2500 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
********													
7/8	A	No	No	Ar (CaAa)	180.00 - 165.00	-6.0000	0.45	3	3	0.5000	1.1100		0.54
7/8	A	No	No	Ar (CaAa)	165.00 - 101.00	-6.0000	0.45	4	4	0.5000	1.1100		0.54
7/8	A	No	No	Ar (CaAa)	101.00 - 90.00	-6.0000	0.45	6	6	0.5000	1.1100		0.54
7/8	A	No	No	Ar (CaAa)	90.00 - 63.00	-6.0000	0.45	7	7	0.5000	1.1100		0.54
7/8	A	No	No	Ar (CaAa)	63.00 - 51.00	-6.0000	0.45	8	8	0.5000	1.1100		0.54
7/8	A	No	No	Ar (CaAa)	51.00 - 43.00	-6.0000	0.45	9	9	0.5000	1.1100		0.54
7/8	A	No	No	Ar (CaAa)	43.00 - 5.00	-6.0000	0.45	10	10	0.5000	1.1100		0.54
***													
7/8	A	No	No	Ar (CaAa)	42.00 - 5.00	0.0000	0.45	4	4	0.5000	1.1100		0.54
7/8	A	No	No	Ar (CaAa)	101.00 - 42.00	0.0000	0.45	3	3	0.5000	1.1100		0.54
7/8	A	No	No	Ar (CaAa)	180.00 - 101.00	0.0000	0.45	2	2	0.5000	1.1100		0.54
***													
Feedline Ladder	C	No	No	Af (CaAa)	150.00 - 5.00	-6.0000	0.45	1	1	0.5000	0.5000		6.00
1 5/8 Coax	C	No	No	Ar (CaAa)	150.00 - 5.00	-6.0000	0.45	12	6	0.5000	1.9800		1.04
***													
Feedline	B	No	No	Af (CaAa)	140.00 -	-6.0000	-0.45	1	1	0.5000	0.5000		6.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Ladder					5.00								
1 5/8 (9 coax and 4 fiber) ***	B	No	No	Ar (CaAa)	140.00 - 5.00	-6.0000	-0.45	13	7	0.5000	1.9800		0.82
Feedline Ladder	C	No	No	Af (CaAa)	120.00 - 5.00	0.0000	-0.15	1	1	0.5000	0.5000		6.00
1 5/8	C	No	No	Ar (CaAa)	120.00 - 5.00	0.0000	-0.15	12	9	0.5000	1.9800		1.04
1/2" Fiber	C	No	No	Ar (CaAa)	120.00 - 5.00	0.0000	-0.08	1	1	0.4200 0.5000	0.4200		0.08
3/4" DC Cable	C	No	No	Ar (CaAa)	120.00 - 5.00	0.0000	-0.08	2	2	0.5000	1.1100		0.54

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	180.00-170.00	A	0.000	0.000	5.550	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	170.00-150.00	A	0.000	0.000	12.765	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T3	150.00-130.00	A	0.000	0.000	13.320	0.000	0.06
		B	0.000	0.000	26.573	0.000	0.17
		C	0.000	0.000	49.187	0.000	0.37
T4	130.00-120.00	A	0.000	0.000	6.660	0.000	0.03
		B	0.000	0.000	26.573	0.000	0.17
		C	0.000	0.000	24.593	0.000	0.18
T5	120.00-100.00	A	0.000	0.000	13.653	0.000	0.07
		B	0.000	0.000	53.147	0.000	0.33
		C	0.000	0.000	103.653	0.000	0.76
T6	100.00-80.00	A	0.000	0.000	21.090	0.000	0.10
		B	0.000	0.000	53.147	0.000	0.33
		C	0.000	0.000	103.653	0.000	0.76
T7	80.00-60.00	A	0.000	0.000	22.533	0.000	0.11
		B	0.000	0.000	53.147	0.000	0.33
		C	0.000	0.000	103.653	0.000	0.76
T8	60.00-40.00	A	0.000	0.000	26.196	0.000	0.13
		B	0.000	0.000	53.147	0.000	0.33
		C	0.000	0.000	103.653	0.000	0.76
T9	40.00-20.00	A	0.000	0.000	31.080	0.000	0.15
		B	0.000	0.000	53.147	0.000	0.33
		C	0.000	0.000	103.653	0.000	0.76
T10	20.00-0.00	A	0.000	0.000	23.310	0.000	0.11
		B	0.000	0.000	39.860	0.000	0.25
		C	0.000	0.000	77.740	0.000	0.57

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	180.00-170.00	A	1.359	0.000	0.000	18.337	0.000	0.17
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	170.00-150.00	A	1.347	0.000	0.000	39.220	0.000	0.37
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T3	150.00-130.00	A	1.329	0.000	0.000	39.882	0.000	0.38
		B		0.000	0.000	29.460	0.000	0.54
		C		0.000	0.000	53.143	0.000	1.06
T4	130.00-120.00	A	1.314	0.000	0.000	19.840	0.000	0.19
		B		0.000	0.000	29.382	0.000	0.54
		C		0.000	0.000	26.493	0.000	0.53
T5	120.00-100.00	A	1.297	0.000	0.000	40.003	0.000	0.38
		B		0.000	0.000	58.590	0.000	1.06
		C		0.000	0.000	145.421	0.000	2.39
T6	100.00-80.00	A	1.271	0.000	0.000	52.038	0.000	0.54
		B		0.000	0.000	58.322	0.000	1.05
		C		0.000	0.000	144.604	0.000	2.36
T7	80.00-60.00	A	1.240	0.000	0.000	54.148	0.000	0.56
		B		0.000	0.000	57.993	0.000	1.04
		C		0.000	0.000	143.605	0.000	2.33
T8	60.00-40.00	A	1.199	0.000	0.000	60.054	0.000	0.62
		B		0.000	0.000	57.567	0.000	1.02
		C		0.000	0.000	142.306	0.000	2.28
T9	40.00-20.00	A	1.139	0.000	0.000	67.714	0.000	0.70
		B		0.000	0.000	56.947	0.000	0.99
		C		0.000	0.000	140.418	0.000	2.21
T10	20.00-0.00	A	1.021	0.000	0.000	49.690	0.000	0.48
		B		0.000	0.000	41.789	0.000	0.70
		C		0.000	0.000	102.506	0.000	1.56

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	180.00-170.00	-0.1791	-3.1835	-0.1479	-2.6693
T2	170.00-150.00	-0.1807	-3.2673	-0.1606	-2.9474
T3	150.00-130.00	-10.6456	-6.6992	-6.8052	-4.3640
T4	130.00-120.00	-7.8420	-8.4413	-4.5761	-4.9327
T5	120.00-100.00	-3.8224	-6.7043	-2.3642	-3.0754
T6	100.00-80.00	-4.4160	-8.5116	-2.9700	-5.1024
T7	80.00-60.00	-5.1112	-10.0451	-3.6916	-6.6264
T8	60.00-40.00	-5.7398	-11.5073	-4.1467	-7.6109
T9	40.00-20.00	-6.0038	-12.8139	-4.4539	-8.1660
T10	20.00-0.00	-5.3415	-11.1713	-3.9565	-7.4025

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	7/8	170.00 - 180.00	0.0000	0.0000
T1	12	7/8	170.00 - 180.00	0.6000	0.5487
T2	2	7/8	165.00 - 170.00	0.0000	0.0000
T2	3	7/8	150.00 - 165.00	0.0000	0.0000
T2	12	7/8	150.00 - 170.00	0.6000	0.5844
T3	3	7/8	130.00 - 150.00	0.0000	0.0000
T3	12	7/8	130.00 - 150.00	0.6000	0.5645
T3	14	Feedline Ladder	130.00 - 150.00	0.6000	0.5645
T3	15	1 5/8 Coax	130.00 - 150.00	0.6000	0.5645
T3	17	Feedline Ladder	130.00 - 140.00	0.6000	0.5645
T3	18	1 5/8 (9 coax and 4 fiber)	130.00 - 140.00	0.6000	0.5645
T4	3	7/8	120.00 - 130.00	0.0000	0.0000
T4	12	7/8	120.00 - 130.00	0.6000	0.4223
T4	14	Feedline Ladder	120.00 - 130.00	0.6000	0.4223
T4	15	1 5/8 Coax	120.00 - 130.00	0.6000	0.4223
T4	17	Feedline Ladder	120.00 - 130.00	0.6000	0.4223
T4	18	1 5/8 (9 coax and 4 fiber)	120.00 - 130.00	0.6000	0.4223
T5	3	7/8	101.00 - 120.00	0.0000	0.0000
T5	4	7/8	100.00 - 101.00	0.0000	0.0000
T5	11	7/8	100.00 - 101.00	0.6000	0.4847
T5	12	7/8	101.00 - 120.00	0.6000	0.4847
T5	14	Feedline Ladder	100.00 - 120.00	0.6000	0.4847
T5	15	1 5/8 Coax	100.00 - 120.00	0.6000	0.4847
T5	17	Feedline Ladder	100.00 - 120.00	0.6000	0.4847
T5	18	1 5/8 (9 coax and 4 fiber)	100.00 - 120.00	0.6000	0.4847
T5	20	Feedline Ladder	100.00 - 120.00	0.6000	0.4847
T5	21	1 5/8	100.00 - 120.00	0.6000	0.4847
T5	22	1/2" Fiber	100.00 - 120.00	0.6000	0.4847
T5	23	3/4" DC Cable	100.00 - 120.00	0.6000	0.4847
T6	4	7/8	90.00 - 100.00	0.0000	0.0000
T6	5	7/8	80.00 - 90.00	0.0000	0.0000
T6	11	7/8	80.00 - 100.00	0.6000	0.5474
T6	14	Feedline Ladder	80.00 - 100.00	0.6000	0.5474

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	15	1 5/8 Coax	80.00 - 100.00	0.6000	0.5474
T6	17	Feedline Ladder	80.00 - 100.00	0.6000	0.5474
T6	18	1 5/8 (9 coax and 4 fiber)	80.00 - 100.00	0.6000	0.5474
T6	20	Feedline Ladder	80.00 - 100.00	0.6000	0.5474
T6	21	1 5/8	80.00 - 100.00	0.6000	0.5474
T6	22	1/2" Fiber	80.00 - 100.00	0.6000	0.5474
T6	23	3/4" DC Cable	80.00 - 100.00	0.6000	0.5474
T7	5	7/8	63.00 - 80.00	0.0000	0.0000
T7	6	7/8	60.00 - 63.00	0.0000	0.0000
T7	11	7/8	60.00 - 80.00	0.6000	0.6000
T7	14	Feedline Ladder	60.00 - 80.00	0.6000	0.6000
T7	15	1 5/8 Coax	60.00 - 80.00	0.6000	0.6000
T7	17	Feedline Ladder	60.00 - 80.00	0.6000	0.6000
T7	18	1 5/8 (9 coax and 4 fiber)	60.00 - 80.00	0.6000	0.6000
T7	20	Feedline Ladder	60.00 - 80.00	0.6000	0.6000
T7	21	1 5/8	60.00 - 80.00	0.6000	0.6000
T7	22	1/2" Fiber	60.00 - 80.00	0.6000	0.6000
T7	23	3/4" DC Cable	60.00 - 80.00	0.6000	0.6000
T8	6	7/8	51.00 - 60.00	0.0000	0.0000
T8	7	7/8	43.00 - 51.00	0.0000	0.0000
T8	8	7/8	40.00 - 43.00	0.0000	0.0000
T8	10	7/8	40.00 - 42.00	0.6000	0.6000
T8	11	7/8	42.00 - 60.00	0.6000	0.6000
T8	14	Feedline Ladder	40.00 - 60.00	0.6000	0.6000
T8	15	1 5/8 Coax	40.00 - 60.00	0.6000	0.6000
T8	17	Feedline Ladder	40.00 - 60.00	0.6000	0.6000
T8	18	1 5/8 (9 coax and 4 fiber)	40.00 - 60.00	0.6000	0.6000
T8	20	Feedline Ladder	40.00 - 60.00	0.6000	0.6000
T8	21	1 5/8	40.00 - 60.00	0.6000	0.6000
T8	22	1/2" Fiber	40.00 - 60.00	0.6000	0.6000
T8	23	3/4" DC Cable	40.00 - 60.00	0.6000	0.6000
T9	8	7/8	20.00 - 40.00	0.0000	0.0000
T9	10	7/8	20.00 - 40.00	0.6000	0.6000
T9	14	Feedline Ladder	20.00 - 40.00	0.6000	0.6000
T9	15	1 5/8 Coax	20.00 - 40.00	0.6000	0.6000
T9	17	Feedline Ladder	20.00 - 40.00	0.6000	0.6000
T9	18	1 5/8 (9 coax and 4 fiber)	20.00 - 40.00	0.6000	0.6000
T9	20	Feedline Ladder	20.00 - 40.00	0.6000	0.6000
T9	21	1 5/8	20.00 - 40.00	0.6000	0.6000
T9	22	1/2" Fiber	20.00 - 40.00	0.6000	0.6000
T9	23	3/4" DC Cable	20.00 - 40.00	0.6000	0.6000
T10	8	7/8	5.00 - 20.00	0.0000	0.0000
T10	10	7/8	5.00 - 20.00	0.6000	0.6000
T10	14	Feedline Ladder	5.00 - 20.00	0.6000	0.6000
T10	15	1 5/8 Coax	5.00 - 20.00	0.6000	0.6000
T10	17	Feedline Ladder	5.00 - 20.00	0.6000	0.6000
T10	18	1 5/8 (9 coax and 4 fiber)	5.00 - 20.00	0.6000	0.6000
T10	20	Feedline Ladder	5.00 - 20.00	0.6000	0.6000
T10	21	1 5/8	5.00 - 20.00	0.6000	0.6000
T10	22	1/2" Fiber	5.00 - 20.00	0.6000	0.6000
T10	23	3/4" DC Cable	5.00 - 20.00	0.6000	0.6000

User Defined Loads - Seismic

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
Seismic Load @180	180.00	0.00	0.0000	0.05	0.00	0.00	0.11
Seismic Load @170	170.00	0.00	0.0000	0.05	0.00	0.00	0.10
Seismic Load @150	150.00	0.00	0.0000	0.31	0.00	0.00	0.77
Seismic Load @130	130.00	0.00	0.0000	0.06	0.00	0.00	0.09
Seismic Load @120	120.00	0.00	0.0000	0.27	0.00	0.00	0.51
Seismic Load @100	100.00	0.00	0.0000	0.16	0.00	0.00	0.22
Seismic Load @80	80.00	0.00	0.0000	0.21	0.00	0.00	0.23
Seismic Load @60	60.00	0.00	0.0000	0.22	0.00	0.00	0.18
Seismic Load @40	40.00	0.00	0.0000	0.25	0.00	0.00	0.13
Seismic Load @20	20.00	0.00	0.0000	0.24	0.00	0.00	0.06

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod	C	From Leg	0.00 0.00 2.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice	0.50 1.00 1.50	0.50 1.00 1.50	0.00 0.00 0.00
***									
PD220	B	From Face	10.00 0.00 11.00	0.0000	179.00	No Ice 1/2" Ice 1" Ice	3.08 5.30 7.54	3.08 5.30 7.54	0.02 0.05 0.09
PD220	A	From Face	10.00 0.00 11.00	0.0000	179.00	No Ice 1/2" Ice 1" Ice	3.08 5.30 7.54	3.08 5.30 7.54	0.02 0.05 0.09
PD1142	C	From Face	10.00 0.00 10.30	0.0000	179.00	No Ice 1/2" Ice 1" Ice	1.32 3.21 5.12	1.32 3.21 5.12	0.01 0.02 0.05
Yagi	C	From Face	6.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice	3.36 4.20 5.04	1.00 1.25 1.50	0.03 0.04 0.04
10' dipole	B	From Face	10.00 0.00 -5.00	0.0000	179.00	No Ice 1/2" Ice 1" Ice	3.00 4.03 5.03	3.00 4.03 5.03	0.02 0.04 0.07
(3) 10 ft face mounted side arm	C	None		0.0000	179.00	No Ice 1/2" Ice 1" Ice	64.90 85.95 107.00	64.90 85.95 107.00	0.57 0.86 1.16
***									
2' x 1' Panel	B	From Leg	0.00 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	2.80 3.16 3.52	2.80 3.16 3.52	0.03 0.04 0.06
***									
DB212	C	From Leg	6.00 0.00 8.00	0.0000	165.00	No Ice 1/2" Ice 1" Ice	6.50 8.13 9.75	6.50 8.13 9.75	0.03 0.07 0.13
DB212	B	From Leg	6.00 0.00 8.00	0.0000	165.00	No Ice 1/2" Ice 1" Ice	6.50 8.13 9.75	6.50 8.13 9.75	0.03 0.07 0.13
6' Standoff	C	From Leg	0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	2.24 3.19	5.32 7.69	0.12 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	4.14	10.06	0.20
6' Standoff	B	From Leg	0.00	0.0000	165.00	No Ice	2.24	5.32	0.12
			0.00			1/2" Ice	3.19	7.69	0.16
			0.00			1" Ice	4.14	10.06	0.20
***									
(2) DB844H90-XY (48" x 6" x 8.5") w/ mount pipe	A	From Leg	3.00	0.0000	150.00	No Ice	3.82	5.70	0.04
			0.00			1/2" Ice	4.53	6.81	0.08
			0.00			1" Ice	5.24	7.92	0.12
(2) DB844H90-XY (48" x 6" x 8.5") w/ mount pipe	B	From Leg	3.00	0.0000	150.00	No Ice	3.82	5.70	0.04
			0.00			1/2" Ice	4.53	6.81	0.08
			0.00			1" Ice	5.24	7.92	0.12
(2) DB844H90-XY (48" x 6" x 8.5") w/ mount pipe	C	From Leg	3.00	0.0000	150.00	No Ice	3.82	5.70	0.04
			0.00			1/2" Ice	4.53	6.81	0.08
			0.00			1" Ice	5.24	7.92	0.12
MX06FRO660-03 (71.1" x 15.4" x 10.7") w/ mount pipe	A	From Leg	3.00	0.0000	150.00	No Ice	10.33	9.21	0.09
			0.00			1/2" Ice	11.02	10.46	0.17
			0.00			1" Ice	11.70	11.72	0.26
MX06FRO660-03 (71.1" x 15.4" x 10.7") w/ mount pipe	B	From Leg	3.00	0.0000	150.00	No Ice	10.33	9.21	0.09
			0.00			1/2" Ice	11.01	10.46	0.17
			0.00			1" Ice	11.70	11.71	0.26
MX06FRO660-03 (71.1" x 15.4" x 10.7") w/ mount pipe	C	From Leg	3.00	0.0000	150.00	No Ice	10.33	9.21	0.09
			0.00			1/2" Ice	11.01	10.46	0.17
			0.00			1" Ice	11.70	11.71	0.26
CBC426T-DS-43 (6" x 4.8" x 3.4")	A	From Leg	3.00	0.0000	150.00	No Ice	0.24	0.17	0.01
			0.00			1/2" Ice	0.30	0.22	0.01
			0.00			1" Ice	0.35	0.27	0.01
CBC426T-DS-43 (6" x 4.8" x 3.4")	B	From Leg	3.00	0.0000	150.00	No Ice	0.24	0.17	0.01
			0.00			1/2" Ice	0.30	0.22	0.01
			0.00			1" Ice	0.35	0.27	0.01
CBC426T-DS-43 (6" x 4.8" x 3.4")	C	From Leg	3.00	0.0000	150.00	No Ice	0.24	0.17	0.01
			0.00			1/2" Ice	0.30	0.22	0.01
			0.00			1" Ice	0.35	0.27	0.01
CBC1923T-DS-43 (6.9" x 5.5" x 4")	A	From Leg	3.00	0.0000	150.00	No Ice	0.32	0.23	0.01
			0.00			1/2" Ice	0.38	0.29	0.01
			0.00			1" Ice	0.45	0.35	0.01
CBC1923T-DS-43 (6.9" x 5.5" x 4")	B	From Leg	3.00	0.0000	150.00	No Ice	0.32	0.23	0.01
			0.00			1/2" Ice	0.38	0.29	0.01
			0.00			1" Ice	0.45	0.35	0.01
CBC1923T-DS-43 (6.9" x 5.5" x 4")	C	From Leg	3.00	0.0000	150.00	No Ice	0.32	0.23	0.01
			0.00			1/2" Ice	0.38	0.29	0.01
			0.00			1" Ice	0.45	0.35	0.01
15' Pirod Universal T-Frame	A	From Leg	1.50	0.0000	150.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	18.75	18.75	0.63
			0.00			1" Ice	22.50	22.50	0.75
15' Pirod Universal T-Frame	B	From Leg	1.50	0.0000	150.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	18.75	18.75	0.63
			0.00			1" Ice	22.50	22.50	0.75
15' Pirod Universal T-Frame	C	From Leg	1.50	0.0000	150.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	18.75	18.75	0.63
			0.00			1" Ice	22.50	22.50	0.75
***									
Air 21 B2A/B4P (55.9" x 12" x 7.8") w/ mount pipe	A	From Leg	3.00	0.0000	140.00	No Ice	6.83	6.16	0.12
			0.00			1/2" Ice	7.54	7.31	0.18
			0.00			1" Ice	8.25	8.47	0.23
Air 21 B2A/B4P (55.9" x 12" x 7.8") w/ mount pipe	B	From Leg	3.00	0.0000	140.00	No Ice	6.83	6.16	0.12
			0.00			1/2" Ice	7.54	7.31	0.18
			0.00			1" Ice	8.25	8.47	0.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Air 21 B2A/B4P (55.9" x 12" x 7.8") w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.83 7.54 8.25	6.16 7.31 8.47	0.12 0.18 0.23
Air 21 B4A/B2P (55.9" x 12" x 7.8") w/ mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.83 7.54 8.25	6.16 7.31 8.47	0.12 0.18 0.23
Air 21 B4A/B2P (55.9" x 12" x 7.8") w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.83 7.54 8.25	6.16 7.31 8.47	0.12 0.18 0.23
Air 21 B4A/B2P (55.9" x 12" x 7.8") w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.83 7.54 8.25	6.16 7.31 8.47	0.12 0.18 0.23
APXVAARR24_43-U-NA20 (95.9" x 24" x 8.7") w/ mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	20.24 20.90 21.56	10.79 12.19 13.58	0.16 0.30 0.44
APXVAARR24_43-U-NA20 (95.9" x 24" x 8.7") w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	20.24 20.90 21.56	10.79 12.19 13.58	0.16 0.30 0.44
APXVAARR24_43-U-NA20 (95.9" x 24" x 8.7") w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	20.24 20.90 21.56	10.79 12.19 13.58	0.16 0.30 0.44
KRY 112 144/1 (6.9" x 6.1" x 2.7")	A	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.35 0.42 0.49	0.16 0.21 0.26	0.01 0.01 0.02
KRY 112 144/1 (6.9" x 6.1" x 2.7")	B	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.35 0.42 0.49	0.16 0.21 0.26	0.01 0.01 0.02
KRY 112 144/1 (6.9" x 6.1" x 2.7")	C	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.35 0.42 0.49	0.16 0.21 0.26	0.01 0.01 0.02
Radio 4449 B71+B12 (13.1" x 14.9" x 9.2")	A	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.63 1.77 1.91	1.00 1.12 1.23	0.07 0.09 0.10
Radio 4449 B71+B12 (13.1" x 14.9" x 9.2")	B	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.63 1.77 1.91	1.00 1.12 1.23	0.07 0.09 0.10
Radio 4449 B71+B12 (13.1" x 14.9" x 9.2")	C	From Leg	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.63 1.77 1.91	1.00 1.12 1.23	0.07 0.09 0.10
15' Pirod Universal T-Frame	A	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	15.00 18.75 22.50	15.00 18.75 22.50	0.50 0.63 0.75
15' Pirod Universal T-Frame	B	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	15.00 18.75 22.50	15.00 18.75 22.50	0.50 0.63 0.75
15' Pirod Universal T-Frame	C	From Leg	1.50 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	15.00 18.75 22.50	15.00 18.75 22.50	0.50 0.63 0.75
(3) HR w/ Double V-Brace Kits	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice	15.00 18.75 22.50	15.00 18.75 22.50	0.65 0.81 0.97
(3) Stabilizer Kit (4' FW)	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.70 4.63 5.55	3.70 4.63 5.55	0.14 0.17 0.21
***									
(2) 7770 (55" x 11" x 5") w/ mount pipe	A	From Leg	3.00 0.00	0.0000	120.00	No Ice 1/2" Ice	6.32 7.03	4.83 5.97	0.06 0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	7.73	7.12	0.16
(2) 7770 (55" x 11" x 5") w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	6.32 7.03 7.73	4.83 5.97 7.12	0.06 0.11 0.16
(2) 7770 (55" x 11" x 5") w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	6.32 7.03 7.73	4.83 5.97 7.12	0.06 0.11 0.16
DMP65R-BU4DA (48" x 20.7" x 7.7") w/ mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.23 9.97 10.71	5.41 6.51 7.62	0.10 0.17 0.23
DMP65R-BU4DA (48" x 20.7" x 7.7") w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.23 9.97 10.71	5.41 6.51 7.62	0.10 0.17 0.23
DMP65R-BU4DA (48" x 20.7" x 7.7") w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.23 9.97 10.71	5.41 6.51 7.62	0.10 0.17 0.23
OPA65R-BU4DA (46" x 21" x 7.8") w/ mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.04 9.79 10.53	5.27 6.36 7.46	0.08 0.15 0.22
OPA65R-BU4DA (46" x 21" x 7.8") w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.04 9.79 10.53	5.27 6.36 7.46	0.08 0.15 0.22
OPA65R-BU4DA (46" x 21" x 7.8") w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	9.04 9.79 10.53	5.27 6.36 7.46	0.08 0.15 0.22
(2) TT19-08BP111-001 TMA (9.9" x 6.7" x 5.4")	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.55 0.64 0.72	0.45 0.53 0.60	0.02 0.02 0.03
(2) TT19-08BP111-001 TMA (9.9" x 6.7" x 5.4")	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.55 0.64 0.72	0.45 0.53 0.60	0.02 0.02 0.03
(2) TT19-08BP111-001 TMA (9.9" x 6.7" x 5.4")	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.55 0.64 0.72	0.45 0.53 0.60	0.02 0.02 0.03
4449 B5/B12 (17.9" x 13.19" x 9.44")	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.97 2.12 2.28	1.41 1.55 1.68	0.07 0.09 0.10
4449 B5/B12 (17.9" x 13.19" x 9.44")	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.97 2.12 2.28	1.41 1.55 1.68	0.07 0.09 0.10
4449 B5/B12 (17.9" x 13.19" x 9.44")	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.97 2.12 2.28	1.41 1.55 1.68	0.07 0.09 0.10
RRUS-4478 B14 (16.5" x 13.4" x 7.7")	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.84 1.99 2.14	1.06 1.18 1.30	0.06 0.07 0.09
RRUS-4478 B14 (16.5" x 13.4" x 7.7")	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.84 1.99 2.14	1.06 1.18 1.30	0.06 0.07 0.09
RRUS-4478 B14 (16.5" x 13.4" x 7.7")	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.84 1.99 2.14	1.06 1.18 1.30	0.06 0.07 0.09
RRUS 8843 B2 B66A (14.9" x 13.2" x 10.9")	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.64 1.78 1.92	1.35 1.48 1.62	0.07 0.09 0.10
RRUS 8843 B2 B66A (14.9" x 13.2" x 10.9")	B	From Leg	3.00 0.00	0.0000	120.00	No Ice 1/2" Ice	1.64 1.78	1.35 1.48	0.07 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	1.92	1.62	0.10
RRUS 8843 B2 B66A (14.9" x 13.2" x 10.9")	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.64 1.78 1.92	1.35 1.48 1.62	0.07 0.09 0.10
DC6-48-60-18-8F (24" x 11" x 18.5")	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	2.20 2.38 2.55	3.70 3.91 4.12	0.03 0.06 0.09
DC6-48-60-18-8F (24" x 11" x 18.5")	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	2.20 2.38 2.55	3.70 3.91 4.12	0.03 0.06 0.09
15' Pirod Universal T-Frame	A	From Leg	1.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	15.00 18.75 22.50	15.00 18.75 22.50	0.50 0.63 0.75
15' Pirod Universal T-Frame	B	From Leg	1.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	15.00 18.75 22.50	15.00 18.75 22.50	0.50 0.63 0.75
15' Pirod Universal T-Frame	C	From Leg	1.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	15.00 18.75 22.50	15.00 18.75 22.50	0.50 0.63 0.75
***									
3' Standoff Mount	B	From Leg	1.50 0.00 0.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice	4.50 5.63 6.75	4.50 5.63 6.75	0.12 0.15 0.18
3' Standoff Mount	C	From Leg	1.50 0.00 0.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice	4.50 5.63 6.75	4.50 5.63 6.75	0.12 0.15 0.18
10' dipole	B	From Leg	3.00 0.00 5.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice	3.76 4.03 5.03	3.76 4.03 5.03	0.03 0.04 0.07
Celwave - PD1167	C	From Leg	3.00 0.00 3.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice	1.47 1.84 2.21	1.47 1.84 2.21	0.01 0.01 0.01
***									
Decibel - DB212	C	From Leg	0.50 0.00 8.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	5.50 6.88 8.25	5.50 6.88 8.25	0.07 0.09 0.11
***									
GPS	C	From Leg	0.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	1.00 1.25 1.50	1.00 1.25 1.50	0.01 0.01 0.01
***									
Decibel - DB437	A	From Leg	0.50 0.00 0.00	0.0000	63.00	No Ice 1/2" Ice 1" Ice	0.80 1.00 1.20	0.80 1.00 1.20	0.01 0.02 0.02
***									
Decibel - DB212	B	From Leg	0.50 0.00 8.00	0.0000	51.00	No Ice 1/2" Ice 1" Ice	4.37 5.46 6.55	4.37 5.46 6.55	0.03 0.04 0.05
***									
2' Standoff Mount	A	From Leg	1.00 0.00 0.00	0.0000	42.00	No Ice 1/2" Ice 1" Ice	4.50 5.63 6.75	4.50 5.63 6.75	0.12 0.15 0.18
2' Omni	A	From Leg	2.00 0.00 1.00	0.0000	42.00	No Ice 1/2" Ice 1" Ice	0.30 0.38 0.45	0.30 0.38 0.45	0.01 0.01 0.01
***									
Decibel - DB437	C	From Leg	0.50	0.0000	42.00	No Ice	0.90	0.90	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	1.62	1.62	0.01
			0.00			1" Ice	2.34	2.34	0.01

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
#12 - 1.25" - 1.00" conn. (Pirod 105244)	999.6067	2671.6876	0.59	0.42	6.9417	18.5534	3.6816
#12 - 1.50" - 1.00" conn. (Pirod 105217)	1907.4792	5718.2137	0.62	0.78	6.6232	19.8549	5.3014
#12 - 1.75" - 1.25" conn. (Pirod 105218)	2269.1322	6228.9329	0.76	0.75	7.8789	21.6282	7.2158
#12 - 2.00" - 1.25" conn. (Pirod 105219)	2260.7557	5826.0501	1.03	0.74	7.8498	20.2293	9.4248
#12 - 2.00" - 1.25" conn. (Pirod 105219)	2260.7557	5765.6653	1.03	0.71	7.8498	20.0197	9.4248
#12 - 2.25" - 1.25" conn. (Pirod 105220)	2387.7320	5746.1718	1.20	0.68	8.2907	19.9520	11.9282
#12 - 2.25" - 1.25" conn. (Pirod 105220)	2387.7320	5571.2232	1.20	0.59	8.2907	19.3445	11.9282

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice

Comb. No.	Description
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service
51	1.2 Dead+1.0 Ev+1.0 Eh 0 deg
52	0.9 Dead-1.0 Ev+1.0 Eh 0 deg
53	1.2 Dead+1.0 Ev+1.0 Eh 30 deg
54	0.9 Dead-1.0 Ev+1.0 Eh 30 deg
55	1.2 Dead+1.0 Ev+1.0 Eh 60 deg
56	0.9 Dead-1.0 Ev+1.0 Eh 60 deg
57	1.2 Dead+1.0 Ev+1.0 Eh 90 deg
58	0.9 Dead-1.0 Ev+1.0 Eh 90 deg
59	1.2 Dead+1.0 Ev+1.0 Eh 120 deg
60	0.9 Dead-1.0 Ev+1.0 Eh 120 deg
61	1.2 Dead+1.0 Ev+1.0 Eh 150 deg
62	0.9 Dead-1.0 Ev+1.0 Eh 150 deg
63	1.2 Dead+1.0 Ev+1.0 Eh 180 deg
64	0.9 Dead-1.0 Ev+1.0 Eh 180 deg
65	1.2 Dead+1.0 Ev+1.0 Eh 210 deg
66	0.9 Dead-1.0 Ev+1.0 Eh 210 deg
67	1.2 Dead+1.0 Ev+1.0 Eh 240 deg
68	0.9 Dead-1.0 Ev+1.0 Eh 240 deg
69	1.2 Dead+1.0 Ev+1.0 Eh 270 deg
70	0.9 Dead-1.0 Ev+1.0 Eh 270 deg
71	1.2 Dead+1.0 Ev+1.0 Eh 300 deg
72	0.9 Dead-1.0 Ev+1.0 Eh 300 deg
73	1.2 Dead+1.0 Ev+1.0 Eh 330 deg
74	0.9 Dead-1.0 Ev+1.0 Eh 330 deg

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 170	6.107	39	0.3525	0.0190
T2	170 - 150	5.366	39	0.3470	0.0164
T3	150 - 130	3.959	39	0.3016	0.0127
T4	130 - 120	2.753	39	0.2408	0.0135
T5	120 - 100	2.270	39	0.2052	0.0118
T6	100 - 80	1.495	39	0.1520	0.0087
T7	80 - 60	0.923	39	0.1113	0.0057
T8	60 - 40	0.510	39	0.0797	0.0039
T9	40 - 20	0.228	39	0.0484	0.0024
T10	20 - 0	0.063	39	0.0240	0.0012

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	Lightning Rod	39	6.107	0.3525	0.0190	110395
179.00	PD220	39	6.033	0.3522	0.0188	110395
178.00	2' x 1' Panel	39	5.958	0.3519	0.0186	110395
170.00	Seismic Load @170	39	5.366	0.3470	0.0164	56981
165.00	DB212	39	5.002	0.3394	0.0135	42064
150.00	(2) DB844H90-XY (48" x 6" x 8.5") w/ mount pipe	39	3.959	0.3016	0.0127	24202
140.00	Air 21 B2A/B4P (55.9" x 12" x 7.8") w/ mount pipe	39	3.321	0.2728	0.0143	17128
130.00	Seismic Load @130	39	2.753	0.2408	0.0135	13588
120.00	(2) 7770 (55" x 11" x 5") w/ mount pipe	39	2.270	0.2052	0.0118	18157
101.00	3' Standoff Mount	39	1.529	0.1543	0.0088	23654
100.00	Seismic Load @100	39	1.495	0.1520	0.0087	23959
90.00	Decibel - DB212	39	1.187	0.1305	0.0071	26946
80.00	Seismic Load @80	39	0.923	0.1113	0.0057	30535
75.00	GPS	39	0.806	0.1029	0.0051	32060
63.00	Decibel - DB437	39	0.563	0.0844	0.0041	35984
60.00	Seismic Load @60	39	0.510	0.0797	0.0039	37004
51.00	Decibel - DB212	39	0.368	0.0653	0.0032	39431
42.00	2' Standoff Mount	39	0.251	0.0513	0.0025	41944
40.00	Seismic Load @40	39	0.228	0.0484	0.0024	42222
20.00	Seismic Load @20	39	0.063	0.0240	0.0012	40546

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 170	31.893	3	1.8439	0.0989
T2	170 - 150	28.017	3	1.8153	0.0854
T3	150 - 130	20.654	3	1.5750	0.0664
T4	130 - 120	14.361	3	1.2564	0.0705
T5	120 - 100	11.837	3	1.0697	0.0613
T6	100 - 80	7.796	3	0.7930	0.0452
T7	80 - 60	4.811	2	0.5804	0.0296

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T8	60 - 40	2.658	2	0.4155	0.0204
T9	40 - 20	1.188	2	0.2520	0.0124
T10	20 - 0	0.330	2	0.1248	0.0061

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	Lightning Rod	3	31.893	1.8439	0.0989	21477
179.00	PD220	3	31.504	1.8426	0.0981	21477
178.00	2' x 1' Panel	3	31.114	1.8411	0.0972	21477
170.00	Seismic Load @170	3	28.017	1.8153	0.0854	11088
165.00	DB212	3	26.113	1.7750	0.0703	8192
150.00	(2) DB844H90-XY (48" x 6" x 8.5") w/ mount pipe	3	20.654	1.5750	0.0664	4691
140.00	Air 21 B2A/B4P (55.9" x 12" x 7.8") w/ mount pipe	3	17.324	1.4242	0.0746	3268
130.00	Seismic Load @130	3	14.361	1.2564	0.0705	2606
120.00	(2) 7770 (55" x 11" x 5") w/ mount pipe	3	11.837	1.0697	0.0613	3482
101.00	3' Standoff Mount	3	7.971	0.8047	0.0460	4528
100.00	Seismic Load @100	3	7.796	0.7930	0.0452	4586
90.00	Decibel - DB212	2	6.187	0.6805	0.0370	5157
80.00	Seismic Load @80	2	4.811	0.5804	0.0296	5844
75.00	GPS	2	4.201	0.5364	0.0268	6137
63.00	Decibel - DB437	2	2.934	0.4397	0.0216	6893
60.00	Seismic Load @60	2	2.658	0.4155	0.0204	7090
51.00	Decibel - DB212	2	1.918	0.3401	0.0168	7559
42.00	2' Standoff Mount	2	1.307	0.2670	0.0132	8046
40.00	Seismic Load @40	2	1.188	0.2520	0.0124	8100
20.00	Seismic Load @20	2	0.330	0.1248	0.0061	7786

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Leg	A325N	0.5625	3	4.02	22.37	0.180 ✔	1	Bolt DS
T2	170	Leg	A325X	0.5625	3	13.94	27.96	0.499 ✔	1	Bolt DS
T3	150	Leg	A325X	1.0000	6	17.24	54.52	0.316 ✔	1	Bolt Tension
T4	130	Leg	A325N	1.0000	6	17.76	54.52	0.326 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9.04	10.66	0.847 ✔	1	Member Block Shear
T5	120	Leg	A325N	1.0000	6	27.00	54.52	0.495 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9.70	11.68	0.831 ✔	1	Member Block Shear
T6	100	Leg	A325N	1.0000	6	34.83	54.52	0.639 ✔	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	1.0000	1	8.86	11.68	0.758 ✔	1	Member Block Shear
T7	80	Leg	A325N	1.2500	6	42.02	87.22	0.482 ✔	1	Bolt Tension
		Diagonal	A325N	1.2500	1	9.22	20.30	0.454 ✔	1	Member Block Shear
T8	60	Leg	A325N	1.2500	6	48.52	87.22	0.556 ✔	1	Bolt Tension
		Diagonal	A325N	1.2500	1	9.62	20.30	0.474 ✔	1	Member Block Shear
T9	40	Leg	A325N	1.2500	6	54.68	87.22	0.627 ✔	1	Bolt Tension
		Diagonal	A325N	1.2500	1	10.27	23.70	0.433 ✔	1	Member Block Shear
T10	20	Leg	A687	1.2500	6	60.29	90.85	0.664 ✔	1	Bolt Tension
		Diagonal	A325N	1.2500	1	11.54	23.70	0.487 ✔	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	1 1/2	10.00	2.26	72.3 K=1.00	1.7672	-11.06	54.24	0.204 [1] ✔
T2	170 - 150	1 1/2	20.00	2.42	77.3 K=1.00	1.7672	-41.47	51.35	0.808 [1] ✔
T3	150 - 130	2	20.00	2.38	57.0 K=1.00	3.1416	-107.31	111.47	0.963 [1] ✔
T4	130 - 120	#12 - 1.25" - 1.00" conn. (Pirod 105244)	10.02	10.02	45.4 K=1.00	3.6816	-114.92	142.49	0.806 [1] ✔
T5	120 - 100	#12 - 1.50" - 1.00" conn. (Pirod 105217)	20.03	10.02	37.8 K=1.00	5.3014	-177.24	214.86	0.825 [1] ✔
T6	100 - 80	#12 - 1.75" - 1.25" conn. (Pirod 105218)	20.03	10.02	32.4 K=1.00	7.2158	-227.81	300.68	0.758 [1] ✔
T7	80 - 60	#12 - 2.00" - 1.25" conn. (Pirod 105219)	20.03	10.02	28.4 K=1.00	9.4248	-275.89	399.87	0.690 [1] ✔
T8	60 - 40	#12 - 2.00" - 1.25" conn. (Pirod 105219)	20.03	10.02	28.4 K=1.00	9.4248	-320.34	399.87	0.801 [1] ✔
T9	40 - 20	#12 - 2.25" - 1.25" conn. (Pirod 105220)	20.03	10.02	25.2 K=1.00	11.9282	-363.24	512.38	0.709 [1] ✔
T10	20 - 0	#12 - 2.25" - 1.25" conn. (Pirod 105220)	20.03	10.02	25.2 K=1.00	11.9282	-402.64	512.38	0.786 [1] ✔

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	130 - 120	0.5	1.48	99.7	165.67	0.1963	1.73	4.22	0.412 ✔
T5	120 - 100	0.5	1.47	98.8	238.57	0.1963	2.31	4.26	0.543 ✔
T6	100 - 80	0.5	1.46	98.0	324.71	0.1963	1.42	4.29	0.332 ✔
T7	80 - 60	0.625	1.45	77.8	424.12	0.3068	1.34	8.09	0.165 ✔
T8	60 - 40	0.625	1.45	77.8	424.12	0.3068	1.15	8.09	0.142 ✔
T9	40 - 20	0.625	1.43	77.1	536.77	0.3068	0.94	8.13	0.116 ✔
T10	20 - 0	0.625	1.43	77.1	536.77	0.3068	1.21	8.13	0.148 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	3/4	4.59	2.23	128.2 K=0.90	0.4418	-2.46	6.07	0.405 [1] ✔
T2	170 - 150	3/4	5.08	2.48	159.0 K=1.00	0.4418	-2.90	3.95	0.735 [1] ✔
T3	150 - 130	1	5.50	2.68	128.4 K=1.00	0.7854	-6.40	10.75	0.595 [1] ✔
T4	130 - 120	L2 1/2x2 1/2x3/16	9.89	5.19	125.8 K=1.00	0.9020	-9.70	16.32	0.594 [1] ✔
T5	120 - 100	L3x3x3/16	10.31	5.34	110.7 K=1.03	1.0900	-9.78	23.80	0.411 [1] ✔
T6	100 - 80	L3x3x3/16	11.98	6.10	122.8 K=1.00	1.0900	-9.02	20.56	0.439 [1] ✔
T7	80 - 60	L3x3x5/16	13.17	6.62	134.9 K=1.00	1.7800	-9.25	27.98	0.331 [1] ✔
T8	60 - 40	L3x3x5/16	14.68	7.36	149.9 K=1.00	1.7800	-9.76	22.66	0.431 [1] ✔
T9	40 - 20	L3 1/2x3 1/2x5/16	16.29	8.16	141.8 K=1.00	2.0900	-10.48	29.73	0.352 [1] ✔
T10	20 - 0	L3 1/2x3 1/2x5/16	17.97	8.99	156.4 K=1.00	2.0900	-12.47	24.45	0.510 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	3/4	4.00	3.88	173.6 K=0.70	0.4418	-0.20	3.31	0.062 [1] ✔
T2	170 - 150	7/8	4.37	4.25	233.1 K=1.00	0.6013	-0.95	2.50	0.379 [1] ✔
		KL/R > 200 (C) - 59							
T3	150 - 130	7/8	4.58	4.41	242.1 K=1.00	0.6013	-1.57	2.32	0.675 [1] ✔
		KL/R > 200 (C) - 160							

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	7/8	4.00	3.88	148.8 K=0.70	0.6013	-0.52	6.14	0.086 [1] ✔
T2	170 - 150	7/8	4.01	3.89	213.2 K=1.00	0.6013	-0.91	2.99	0.305 [1] ✔
		KL/R > 200 (C) - 41							
T3	150 - 130	1	4.52	4.35	208.9 K=1.00	0.7854	-2.21	4.06	0.545 [1] ✔
		KL/R > 200 (C) - 105							

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	7/8	4.00	3.88	148.8 K=0.70	0.6013	-0.93	6.14	0.151 [1] ✔
T2	170 - 150	7/8	4.49	4.37	239.7 K=1.00	0.6013	-1.57	2.36	0.666 [1] ✔
		KL/R > 200 (C) - 43							
T3	150 - 130	1	4.99	4.83	231.8 K=1.00	0.7854	-2.76	3.30	0.836 [1] ✔
		KL/R > 200 (C) - 107							

[1] P_u / ϕP_n controls

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	150 - 130	1	4.76	4.59	220.4 K=1.00	0.7854	-0.62	3.65	0.169 [1] ✔
		KL/R > 200 (C) - 112							

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	1 1/2	10.00	0.21	6.7	0.8575	12.05	41.80	0.288 [1 #] ✔
T2	170 - 150	1 1/2	20.00	0.21	6.7	1.7672	41.81	79.52	0.526 [1] ✔
T3	150 - 130	2	20.00	0.21	5.0	3.1416	103.47	141.37	0.732 [1] ✔
T4	130 - 120	#12 - 1.25" - 1.00" conn. (Pirod 105244)	10.02	10.02	45.4	3.6816	106.56	165.67	0.643 [1] ✔
T5	120 - 100	#12 - 1.50" - 1.00" conn. (Pirod 105217)	20.03	10.02	37.8	5.3014	161.99	238.57	0.679 [1] ✔
T6	100 - 80	#12 - 1.75" - 1.25" conn. (Pirod 105218)	20.03	10.02	32.4	7.2158	208.97	324.71	0.644 [1] ✔
T7	80 - 60	#12 - 2.00" - 1.25" conn. (Pirod 105219)	20.03	10.02	28.4	9.4248	252.09	424.12	0.594 [1] ✔
T8	60 - 40	#12 - 2.00" - 1.25" conn. (Pirod 105219)	20.03	10.02	28.4	9.4248	291.13	424.12	0.686 [1] ✔
T9	40 - 20	#12 - 2.25" - 1.25" conn. (Pirod 105220)	20.03	10.02	25.2	11.9282	328.09	536.77	0.611 [1] ✔
T10	20 - 0	#12 - 2.25" - 1.25" conn. (Pirod 105220)	20.03	10.02	25.2	11.9282	361.73	536.77	0.674 [1] ✔

[1] P_u / ϕP_n controls
[#] Based on net area of leg in section below

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	130 - 120	0.5	1.48	99.7	165.67	0.1963	1.73	4.22	0.412

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T5	120 - 100	0.5	1.47	98.8	238.57	0.1963	2.31	4.26	0.543
T6	100 - 80	0.5	1.46	98.0	324.71	0.1963	1.42	4.29	0.332
T7	80 - 60	0.625	1.45	77.8	424.12	0.3068	1.34	8.09	0.165
T8	60 - 40	0.625	1.45	77.8	424.12	0.3068	1.15	8.09	0.142
T9	40 - 20	0.625	1.43	77.1	536.77	0.3068	0.94	8.13	0.116
T10	20 - 0	0.625	1.43	77.1	536.77	0.3068	1.21	8.13	0.148

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	3/4	4.59	2.23	142.4	0.4418	2.46	19.88	0.124 [1]
T2	170 - 150	3/4	5.08	2.48	159.0	0.4418	2.85	19.88	0.143 [1]
T3	150 - 130	1	5.34	2.60	124.6	0.7854	6.42	35.34	0.182 [1]
T4	130 - 120	L2 1/2x2 1/2x3/16	9.89	5.19	83.2	0.5183	9.04	22.55	0.401 [1]
T5	120 - 100	L3x3x3/16	10.31	5.34	70.9	0.6593	9.70	28.68	0.338 [1]
T6	100 - 80	L3x3x3/16	11.98	6.10	80.6	0.6593	8.86	28.68	0.309 [1]
T7	80 - 60	L3x3x5/16	12.48	6.28	85.1	1.0127	9.22	44.05	0.209 [1]
T8	60 - 40	L3x3x5/16	14.68	7.36	99.0	1.0127	9.62	44.05	0.218 [1]
T9	40 - 20	L3 1/2x3 1/2x5/16	16.29	8.16	93.4	1.2452	10.27	54.17	0.190 [1]
T10	20 - 0	L3 1/2x3 1/2x5/16	17.97	8.99	102.7	1.2452	11.54	54.17	0.213 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	3/4	4.00	3.88	248.0	0.4418	0.23	19.88	0.012 [1]

SiteSafe
A QUALTEK Company

8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 ● 703.276.1169 fax
info@sitesafe.com ● www.sitesafe.com

Smartlink on behalf of AT&T Mobility, LLC
Site FA – 10049131
Site ID – CTL02231
USID – 65086
Site Name – STONINGTON - BROAD ST
(Power Density)

171 S. Broad Street
Stonington, CT 06378

Latitude: N41-22-08.67
Longitude: W71-51-44.54
Structure Type: Self-Support

Report generated date: October 7, 2020
Report by: Nick Kutzke
Customer Contact: Sharon Keefe

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

Signed 07 October 2020

Table of Contents

1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
Compliant per FCC Rules and Regulations?	Will Be Compliant
Compliant per AT&T Mobility, LLC's Policy?	No

The following documents were provided by the client and were utilized to create this report:

RFDS: 10049131 PM201 080620 CTL02231

CD's: 10049131_AE201_200917_CTL02231_REV2

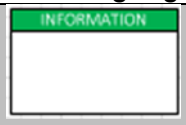
RF Powers Used: Max RRH Powers

1.2 Fall Arrest Anchor Point Summary

Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	Y	0	N

1.3 Signage Summary

a. Pre-Site Visit AT&T Signage (Existing Signage)

AT&T Signage Locations	 Information 1	 Information 2	 Notice	 Notice 2	 Caution	 Caution 2	 Warning	 Warning 2	 Barriers
Access Point(s)									
Alpha									
Beta									
Gamma									

b. Proposed AT&T Signage

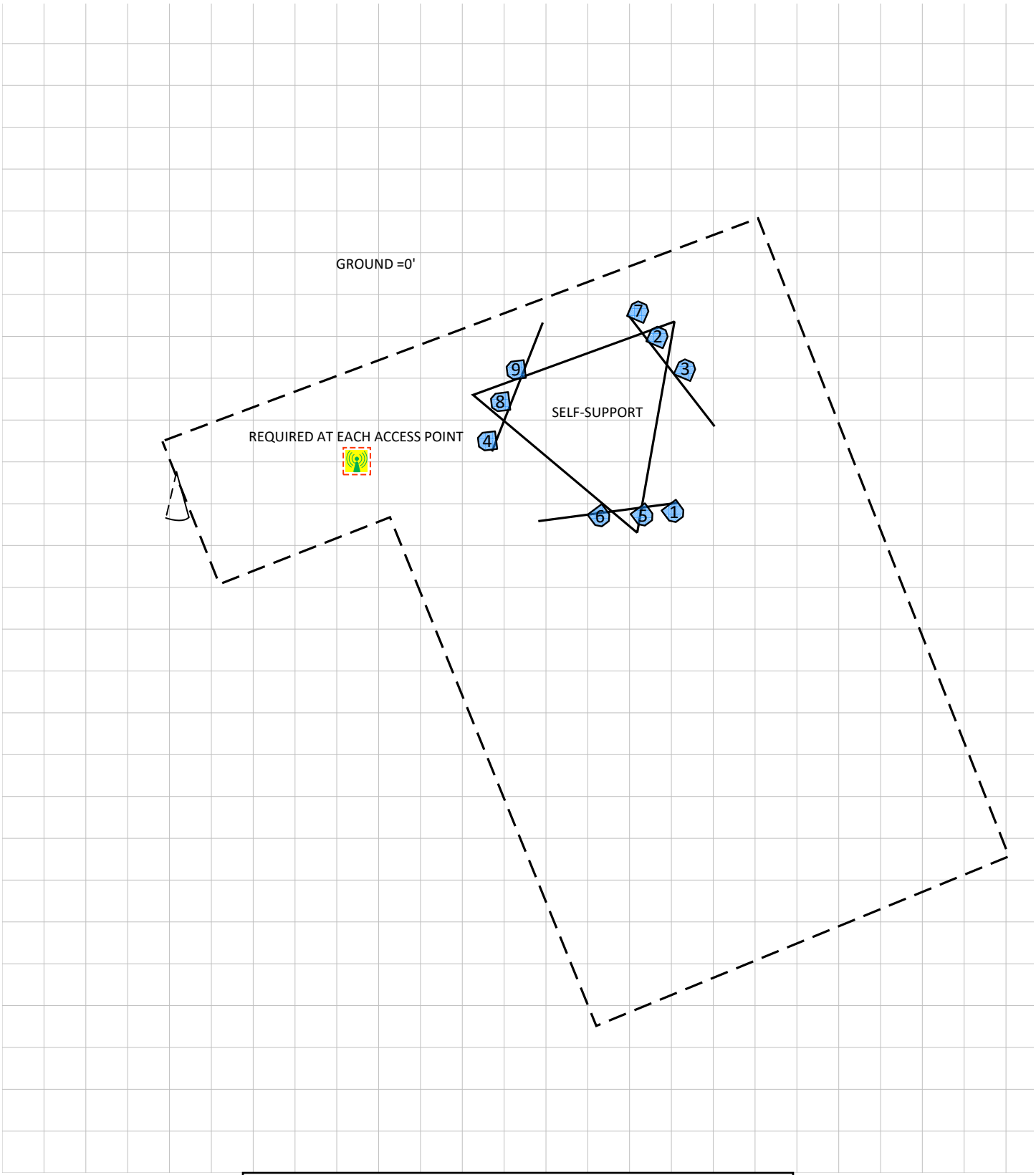
AT&T Signage Locations	 Information 1	 Information 2	 Notice	 Notice 2	 Caution	 Caution 2B	 Warning	 Warning 2	 Barriers
Access Point(s)						**1**			
Alpha									
Beta									
Gamma									

2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- RF Exposure Diagram – Elevation View

Site Scale Map For: STONINGTON - BROAD ST



Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Sign Legend

Notice | Notice 2 | Caution | Caution 2B | Warning | Warning 2 | Info | Info 2 | RF Emissions Diagram | Locked Ladder

Existing Barrier

Proposed Barrier/Sign

Remove Sign X

(Feet)

0 6.2 12.4

www.sitesafe.com
10/7/2020 9:11:02 AM

3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z	MDT	EDT
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	UMTS	143	82.0	4.6	40	TPO	Watt	0	1	566.3	11.51	117.7'	0°	0°
2	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	737	LTE	23	65.4	4	160	TPO	Watt	0	1	1581.7	9.95	118'	0°	2°
2	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	850	LTE	23	68.8	4	80	TPO	Watt	0	1	847.4	10.25	118'	0°	2°
2	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	1900	LTE	23	67.9	4	160	TPO	Watt	0	1	3541	13.45	118'	0°	2°
2	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	850	5G	23	68.8	4	80	TPO	Watt	0	1	847.4	10.25	118'	0°	2°
3	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU4D	Panel	763	LTE	23	61.1	4	160	TPO	Watt	0	1	1774.7	10.45	118'	0°	2°
3	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU4D	Panel	2100	LTE	23	70.3	4	160	TPO	Watt	0	1	4065.6	14.05	118'	0°	2°
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	LTE	263	82.0	4.6	40	TPO	Watt	0	1	566.3	11.51	117.7'	0°	3°
5	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	737	LTE	143	65.4	4	160	TPO	Watt	0	1	1581.7	9.95	118'	0°	2°
5	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	850	LTE	143	68.8	4	80	TPO	Watt	0	1	847.4	10.25	118'	0°	2°
5	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	1900	LTE	143	67.9	4	160	TPO	Watt	0	1	3541	13.45	118'	0°	2°
5	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	850	5G	143	68.8	4	80	TPO	Watt	0	1	847.4	10.25	118'	0°	2°
6	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU4D	Panel	763	LTE	143	61.1	4	160	TPO	Watt	0	1	1774.7	10.45	118'	0°	2°
6	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU4D	Panel	2100	LTE	143	70.3	4	160	TPO	Watt	0	1	4065.6	14.05	118'	0°	2°
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	UMTS	23	82.0	4.6	40	TPO	Watt	0	1	566.3	11.51	117.7'	0°	0°
8	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	737	LTE	263	65.4	4	160	TPO	Watt	0	1	1581.7	9.95	118'	0°	2°
8	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	850	LTE	263	68.8	4	80	TPO	Watt	0	1	847.4	10.25	118'	0°	2°
8	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	1900	LTE	263	67.9	4	160	TPO	Watt	0	1	3541	13.45	118'	0°	2°
8	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU4D	Panel	850	5G	263	68.8	4	80	TPO	Watt	0	1	847.4	10.25	118'	0°	2°
9	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU4D	Panel	763	LTE	263	61.1	4	160	TPO	Watt	0	1	1774.7	10.45	118'	0°	2°

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z	MDT	EDT
9	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU4D	Panel	2100	LTE	263	70.3	4	160	TPO	Watt	0	1	4065.6	14.05	118'	0°	2°

Note: The Z reference indicates the bottom of the antenna height **above ground level (AGL).** Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. Proposed equipment is tagged as (Proposed) under Operator or Antenna Make & Model.

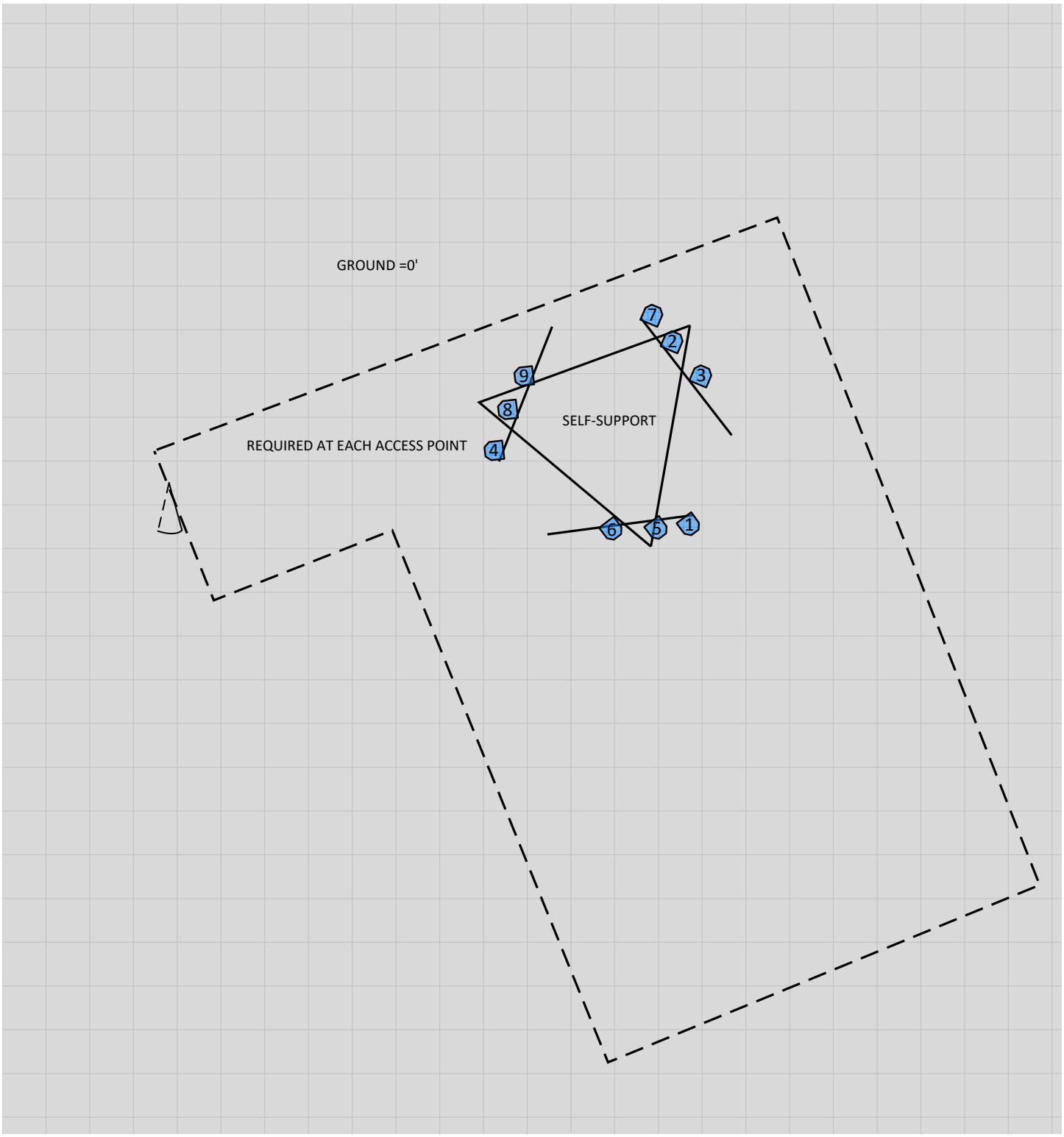
4 Emission Predictions

In the RF Exposure Simulations below, all heights are reflected with respect to ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

- GROUND = 0'

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: STONINGTON - BROAD ST



% of FCC Public Exposure Limit
Spatially Averaged

% of FCC Public Exposure Limit

0-5	5-100	100-500	500-5000	5000+

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Existing Barrier — Proposed Barrier/Sign — — — Remove Sign X — Locked Ladder

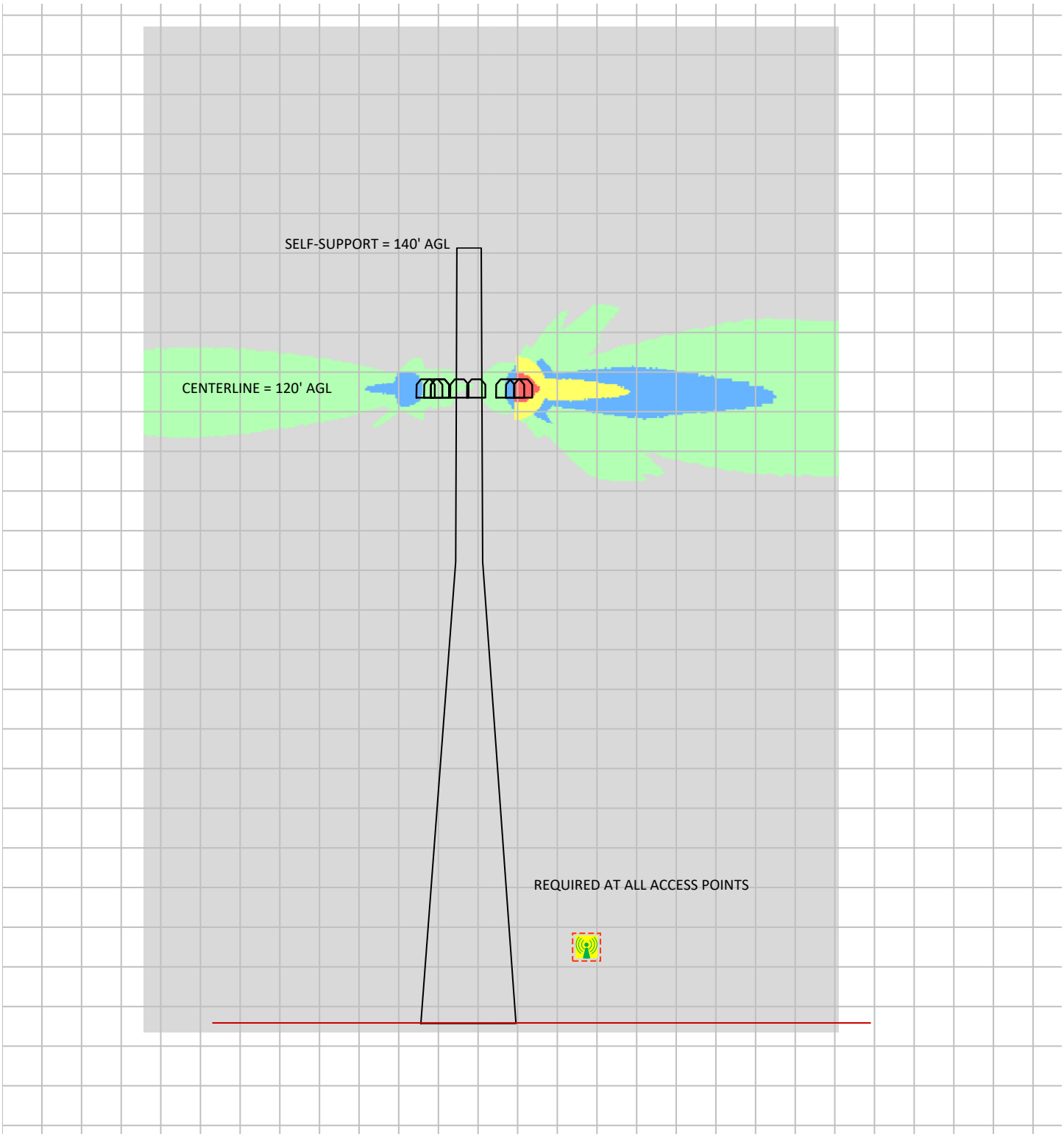
(Feet)

0 6.1 12.2

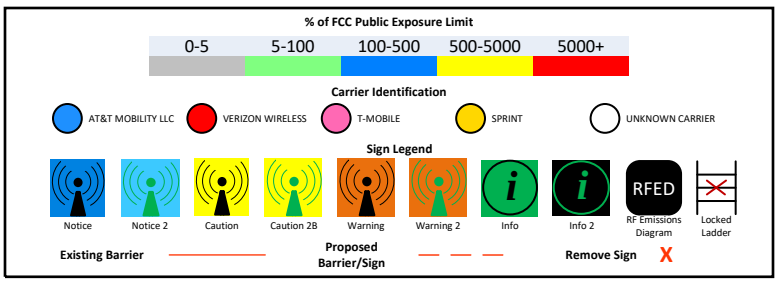
www.sitesafe.com
10/7/2020 9:11:56 AM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: STONINGTON - BROAD ST
Elevation View



% of FCC Public Exposure Limit
Single Level (0)



(Feet)

0 14.2 28.4

www.sitesafe.com
10/7/2020 9:27:28 AM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Single Level (0)

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the proposed AT&T Mobility, LLC deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC's RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Self-Support Access Location(s)

(1) Caution 2B sign required at each access location.

Notes:

- Data concerning all other carriers on site was unavailable and therefore not included in this report.
- Signage may already be in place. Sitesafe does not have record of any existing signage because there were no previous visits or data supplied regarding them. All remediation is based on a worst-case scenario.
- Any existing signage that conflicts with the proposed signage in this report should be removed per AT&T Signage Posting Rules.

6 Engineer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms:

That I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

That I am an employee of Site Safe, LLC, in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Nick Kutzke.

October 7, 2020

Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for evaluating the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996, the FCC periodically reviews these rules and regulations as per their congressional mandate.

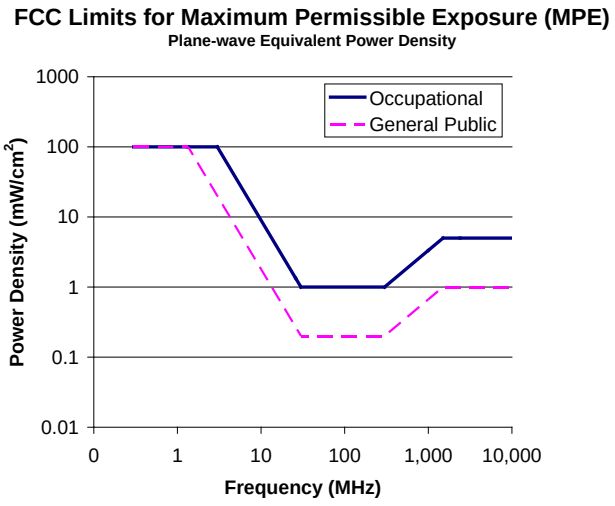
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lockout/Tagout procedure aimed to control the unexpected energization or startup of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a worker's understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet-based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3-foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram(s): Section 4 of this report contains RF Diagram(s) that outline various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst-case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit. **Gray areas are accessible to anyone**.
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers**.
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.**
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

If trained occupational personnel require access to areas that are delineated as above 100% of the limit, Sitesafe recommends that they utilize the proper personal protection equipment (RF monitors), coordinate with the carriers to reduce or shutdown power, or make real-time power density measurements with the appropriate power density meter to determine real-time MPE levels. This will allow the personnel to ensure that their work area is within exposure limits.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Appendix F – Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible for taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site complies with FCC standards with regards to Human Exposure to Radio Frequency Electromagnetic Fields from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

Gain (of an antenna) – The ratio of the maximum power in a given direction to the maximum power in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antenna as compared to an omnidirectional antenna.

General Population/Uncontrolled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **unaware** of the potential for exposure and who have no control over their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use its industry specific knowledge of antenna models to select a worst-case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of RF exposure on humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Exposure or Electromagnetic Fields – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy a 6-foot tall human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix G – References

The following references can be followed for further information about RF Health and Safety.

Site Safe, LLC
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-Ionizing Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	170 - 150	7/8	4.37	4.25	233.1	0.6013	1.01	27.06	0.037 [1]
T3	150 - 130	7/8	4.58	4.41	242.1	0.6013	1.67	27.06	0.062 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	7/8	4.00	3.88	212.6	0.6013	0.53	27.06	0.020 [1]
T2	170 - 150	7/8	4.01	3.89	213.2	0.6013	0.90	27.06	0.033 [1]
T3	150 - 130	1	4.52	4.35	208.9	0.7854	2.18	35.34	0.062 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	7/8	4.00	3.88	212.6	0.6013	0.94	27.06	0.035 [1]
T2	170 - 150	7/8	4.49	4.37	239.7	0.6013	1.58	27.06	0.059 [1]
T3	150 - 130	1	4.99	4.83	231.8	0.7854	2.95	35.34	0.083 [1]

[1] P_u / ϕP_n controls

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	150 - 130	1	4.76	4.59	220.4	0.7854	0.66	35.34	0.019 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	180 - 170	Leg	1 1/2	3	12.05	41.80	28.8	Pass
T2	170 - 150	Leg	1 1/2	39	-41.47	51.35	80.8	Pass
T3	150 - 130	Leg	2	103	-107.31	111.47	96.3	Pass
T4	130 - 120	Leg	#12 - 1.25" - 1.00" conn. (Pirod 105244)	169	-114.92	142.49	80.6	Pass
T5	120 - 100	Leg	#12 - 1.50" - 1.00" conn. (Pirod 105217)	178	-177.24	214.86	82.5	Pass
T6	100 - 80	Leg	#12 - 1.75" - 1.25" conn. (Pirod 105218)	193	-227.81	300.68	75.8	Pass
T7	80 - 60	Leg	#12 - 2.00" - 1.25" conn. (Pirod 105219)	208	-275.89	399.87	69.0	Pass
T8	60 - 40	Leg	#12 - 2.00" - 1.25" conn. (Pirod 105219)	223	-320.34	399.87	80.1	Pass
T9	40 - 20	Leg	#12 - 2.25" - 1.25" conn. (Pirod 105220)	238	-363.24	512.38	70.9	Pass
T10	20 - 0	Leg	#12 - 2.25" - 1.25" conn. (Pirod 105220)	253	-402.64	512.38	78.6	Pass
T1	180 - 170	Diagonal	3/4	13	-2.46	6.07	40.5	Pass
T2	170 - 150	Diagonal	3/4	47	-2.90	3.95	73.5	Pass
T3	150 - 130	Diagonal	1	114	-6.40	10.75	59.5	Pass
T4	130 - 120	Diagonal	L2 1/2x2 1/2x3/16	171	-9.70	16.32	59.4 84.7 (b)	Pass
T5	120 - 100	Diagonal	L3x3x3/16	189	-9.78	23.80	41.1 83.1 (b)	Pass
T6	100 - 80	Diagonal	L3x3x3/16	198	-9.02	20.56	43.9 75.8 (b)	Pass
T7	80 - 60	Diagonal	L3x3x5/16	213	-9.25	27.98	33.1 45.4 (b)	Pass
T8	60 - 40	Diagonal	L3x3x5/16	228	-9.76	22.66	43.1 47.4 (b)	Pass
T9	40 - 20	Diagonal	L3 1/2x3 1/2x5/16	243	-10.48	29.73	35.2 43.3 (b)	Pass
T10	20 - 0	Diagonal	L3 1/2x3 1/2x5/16	258	-12.47	24.45	51.0	Pass
T1	180 - 170	Horizontal	3/4	23	-0.20	3.31	6.2	Pass
T2	170 - 150	Horizontal	7/8	59	-0.95	2.50	37.9	Pass
T3	150 - 130	Horizontal	7/8	160	-1.57	2.32	67.5	Pass
T1	180 - 170	Top Girt	7/8	4	-0.52	6.14	8.6	Pass
T2	170 - 150	Top Girt	7/8	41	-0.91	2.99	30.5	Pass
T3	150 - 130	Top Girt	1	105	-2.21	4.06	54.5	Pass
T1	180 - 170	Bottom Girt	7/8	9	-0.93	6.14	15.1	Pass
T2	170 - 150	Bottom Girt	7/8	43	-1.57	2.36	66.6	Pass
T3	150 - 130	Bottom Girt	1	107	-2.76	3.30	83.6	Pass
T3	150 - 130	Mid Girt	1	112	-0.62	3.65	16.9	Pass
							Summary	
						Leg (T3)	96.3	Pass
						Diagonal (T4)	84.7	Pass
						Horizontal (T3)	67.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Top Girt (T3)	54.5	Pass
						Bottom Girt (T3)	83.6	Pass
						Mid Girt (T3)	16.9	Pass
						Bolt Checks	84.7	Pass
						RATING =	**96.3**	**Pass**

V3.4 - 05/06/2020

Self Support Anchor Bolt Check

Project Information			
SBA Project # :	CT03241-ATT-081220		
Code :	H		
Leg Reaction			
Uplift(kips):	372	Shear (kips) :	37
Comp(kips):	414	Shear (kips) :	41

Bolt Information	
Quantity :	6
Diameter (in) :	1.25
Assumed ungrouted gap (in) :	0
Bolt Fy (ksi) :	105
Bolt Fu (AISC Table 2-6) (ksi):	150

Strength Reduction Factors	
Tension :	0.75
Compression :	0.90
Shear :	0.75
Flexure :	0.9

Bolt Capacity : 62.2% ***Pass***

Mat Foundation Design for Self Supporting Tower

				Date
				8/12/2020
	Customer Name:		EIA/TIA Standard:	EIA-222-H
	Site Name:		Structure Height (Ft.):	180
	Site Nmber:	CT03241-ATT-081220	Engineer Name:	D. Yohannes
	Engr. Number:		Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Analysis or Design? Analysis

Number of Tower Legs: 3 Legs

Base Reactions (Factored):

(1). Individual Leg:

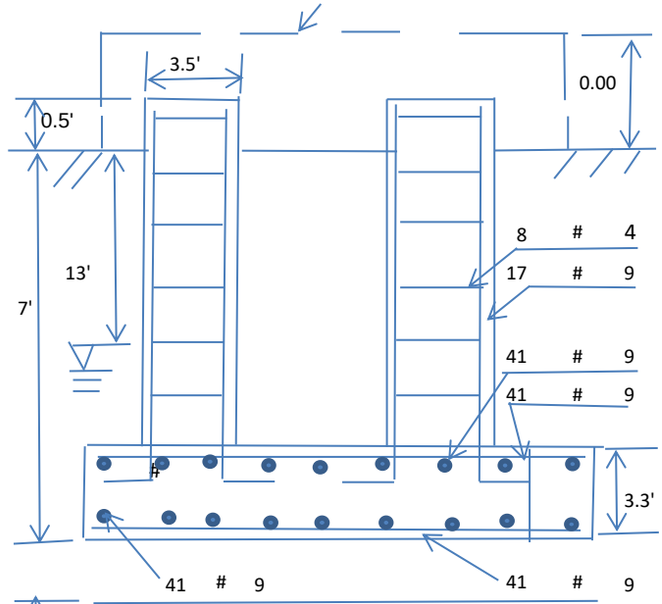
Axial Load (Kips):	414.0	Uplift Force (Kips):	372.0
Shear Force (Kips):	41.0		

(2). Tower Base:

Total Vertical Load (Kips):	55.0	Total Shear Force (Kips):	62.0
Moment (Kips-ft):	6170.0		

Foundation Geometries:

Leg distance (Center-to-Center ft.):		18.0	Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	Round	3.5	Pier Height A. G. (ft.):	0.50
Tower center to mat center (ft):		2.599	Depth of Base BG (ft.):	7.0
Length of Pad (ft.):		27	Width of Pad (ft.):	27
Thickness of Pad (ft):		3.25		



Material Properties and Reabr Info:

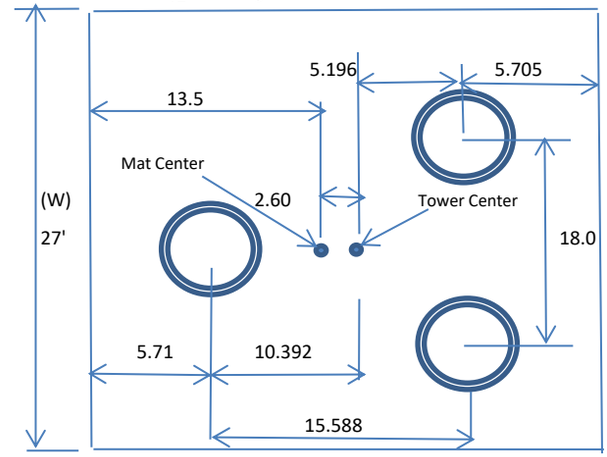
Concrete Strength (psi):	4500	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	17	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

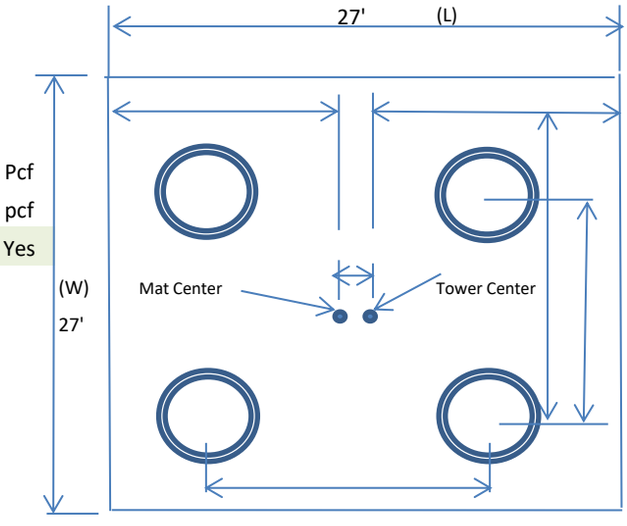
Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	41	Qty. of Rebar in Pad (W):	41

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	41	Qty. of Rebar in Pad (W):	41





Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	57.6	Pcf
Water Table B.G.S. (ft):	13.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	12000	Consider ties in concrete shear strength:		Yes
Consider Soil Lateral Resistance ?	No			

Apply 1.35 for e/w per G/H: 1.35

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 | Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	2625.51	Total Dry Soil Weight (Kips):	315.06
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	315.06	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2491.92	Total Dry Concrete Weight (Kips):	373.79
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	373.79	Total Vertical Load on Base (Kips):	743.85

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3967.47	<	Allowable Factored Soil Bearing (psf):	9000	0.44	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	9112.0	>	Design Factored Momont (kips-ft):	6778	0.74	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.34	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			
(1) Concrete Pier:					Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	732.7	>	Design Factored Moment (Mu, Kips-Ft):	174.3	0.24	OK!
Calculated Shear Capacity (Kips):	108.9	>	Design Factored Shear (Kips):	41.0	0.38	OK!
Calculated Tension Capacity (Tn, Kips):	918.0	>	Design Factored Tension (Tu Kips):	372.0	0.41	OK!
Calculated Compression Capacity (Pn, Kips):	2721.8	>	Design Factored Axial Load (Pu Kips):	414.0	0.15	OK!
Moment & Tension Strength Combination:	0.24	OK!	Check Tie Spacing (Design/Req'd):	1.00		
Pier Reinforcement Ratio:	0.012	Reinforcement Ratio is satisfied per ACI				

(2).Concrete Pad:

One-Way Design Shear Capacity (L or W Direction, Kips):	1155.3	>	One-Way Factored Shear (L/W-Dir Kips)	245.7	0.21	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):	972.5	>	One-Way Factored Shear (Dia. Dir, Kips)	304.3	0.31	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct.):	0.0036		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0032		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):	6349.6	>	Moment at Bottom (L-Direct. K-Ft):	978.6	0.15	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):	6203.9	>	Moment at Bottom (Dia. Dir. K-Ft):	2308.6	0.37	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):	0.0036		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0032		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):	6349.6	>	Moment at the top (L-Dir Kips-Ft):	393.5	0.06	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):	6203.9	>	Moment at the top (Dia. Dir., K-Ft):	722.9	0.12	OK!
Punching Failure Capacity From Down Load (Kips):	1735.0	>	Punch. Failure Factored Shear (K):	414.0	0.24	OK!
Punching Failure Capacity From Uplift (Kips):	1575.3	>	Punch. Failure Factored Shear (K):	372.0	0.24	OK!

(3). Check Max. eccentricity of Loading:

The maximum eccentricity of Loading:	9.11	ft.	Allowable eccentricity (0.45 W, ft.):	12.15	OK!

IMPORTANT!
FedEx is closely monitoring the Wildfires in the Northwest. Learn More

771652661942

Delivered
Thursday 10/01/2020 at 12:01 pm

DELIVERED

Signed for by: J.LOMBARDO

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Smartlink LLC
Sharon Keefe
85 Rangeway Rd

TO

Town of Stonington
Lawrence Stannard - Bldg Official
152 Elm Street

Ask FedEx

Bldg 3, Suite 102
NORTH BILLERICA, MA US 01862
978 930-3918

STONINGTON, CT US 06378
860 535-5075

Shipment Facts

TRACKING NUMBER
771652661942

SERVICE
FedEx Standard Overnight

WEIGHT
1 lbs / 0.45 kgs

DELIVERY ATTEMPTS
1

DELIVERED TO
Receptionist/Front Desk

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

TERMS
Shipper

SHIPPER REFERENCE
AT&T CTL02231

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT
9/30/2020 by 4:30 pm

SHIP DATE
Tue 9/29/2020

ACTUAL DELIVERY
Thu 10/01/2020 12:01 pm

Travel History

Local Scan Time

Thursday , 10/01/2020		
12:01 pm	STONINGTON, CT	Delivered
9:06 am	NORWICH, CT	On FedEx vehicle for delivery
8:49 am	NORWICH, CT	At local FedEx facility

5:12 am	EAST GRANBY, CT	At destination sort facility
5:08 am	NEWARK, NJ	Departed FedEx location
Wednesday , 9/30/2020		
11:25 pm	NEWARK, NJ	Arrived at FedEx location
8:01 pm	WILMINGTON, MA	Left FedEx origin facility
Tuesday , 9/29/2020		
6:41 pm	WILMINGTON, MA	Picked up
12:33 am		Shipment information sent to FedEx

IMPORTANT!
FedEx is closely monitoring the Wildfires in the Northwest. Learn More

771652675434

Delivered
Thursday 10/01/2020 at 9:44 am

DELIVERED

Signed for by: B.HAMPTON

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Smartlink LLC
Sharon Keefe
85 Rangeway Rd

TO

SBA Communications
Zoning/Permitting Admin.
8051 Congress Avenue

Ask FedEx

Bldg 3, Suite 102
NORTH BILLERICA, MA US 01862
978 930-3918

BOCA RATON, FL US 33487
561 226-9476

Shipment Facts

TRACKING NUMBER
771652675434

SERVICE
FedEx Standard Overnight

WEIGHT
1 lbs / 0.45 kgs

DELIVERY ATTEMPTS
1

DELIVERED TO
Receptionist/Front Desk

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

TERMS
Shipper

SHIPPER REFERENCE
AT&T CSC CTL02231

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT
9/30/2020 by 4:30 pm

SHIP DATE
Tue 9/29/2020

ACTUAL DELIVERY
Thu 10/01/2020 9:44 am

Travel History

Local Scan Time

Thursday , 10/01/2020		
9:44 am	BOCA RATON, FL	Delivered
8:37 am	BOCA RATON, FL	On FedEx vehicle for delivery
8:14 am	BOCA RATON, FL	At local FedEx facility

7:01 am	FORT LAUDERDALE, FL	At destination sort facility
4:06 am	MEMPHIS, TN	Departed FedEx location
12:13 am	MEMPHIS, TN	Arrived at FedEx location
Wednesday , 9/30/2020		
8:30 pm	WILMINGTON, MA	Left FedEx origin facility
Tuesday , 9/29/2020		
6:41 pm	WILMINGTON, MA	Picked up
12:38 am		Shipment information sent to FedEx

IMPORTANT!

FedEx is closely monitoring the Wildfires in the Northwest. Learn More

771652670936

Delivered
Thursday 10/01/2020 at 11:59 am

DELIVERED

Signed for by: L.PACKER

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Smartlink LLC
Sharon Keefe
85 Rangeway Rd

TO

Town of Stonington
Danielle Chesebrough-1st Selectman
152 Elm St

Bldg 3, Suite 102
NORTH BILLERICA, MA US 01862
978 930-3918

STONINGTON, CT US 06378
860 535-5050

Shipment Facts

TRACKING NUMBER
771652670936

SERVICE
FedEx Standard Overnight

WEIGHT
0.5 lbs / 0.23 kgs

DELIVERY ATTEMPTS
1

DELIVERED TO
Receptionist/Front Desk

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
0.5 lbs / 0.23 kgs

TERMS
Shipper

SHIPPER REFERENCE
AT&T CTL02231

PACKAGING
FedEx Envelope

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT
9/30/2020 by 4:30 pm

SHIP DATE
Tue 9/29/2020

ACTUAL DELIVERY
Thu 10/01/2020 11:59 am

Travel History

Local Scan Time

Thursday , 10/01/2020		
11:59 am	STONINGTON, CT	Delivered
		Delivered to address other than recipient
11:59 am	NORWICH, CT	Delivery exception
		Customer not available or business closed

Customer not available or business closed

9:06 am	NORWICH, CT	On FedEx vehicle for delivery
8:37 am	NORWICH, CT	At local FedEx facility
5:12 am	EAST GRANBY, CT	At destination sort facility
5:08 am	NEWARK, NJ	Departed FedEx location
Wednesday , 9/30/2020		
11:25 pm	NEWARK, NJ	Arrived at FedEx location
8:01 pm	WILMINGTON, MA	Left FedEx origin facility
Tuesday , 9/29/2020		
6:41 pm	WILMINGTON, MA	Picked up
12:36 am		Shipment information sent to FedEx

Sharon Keefe

From: TrackingUpdates@fedex.com
Sent: Monday, October 19, 2020 10:27 AM
To: Sharon Keefe
Subject: FedEx Shipment 771822139744: Your package has been delivered

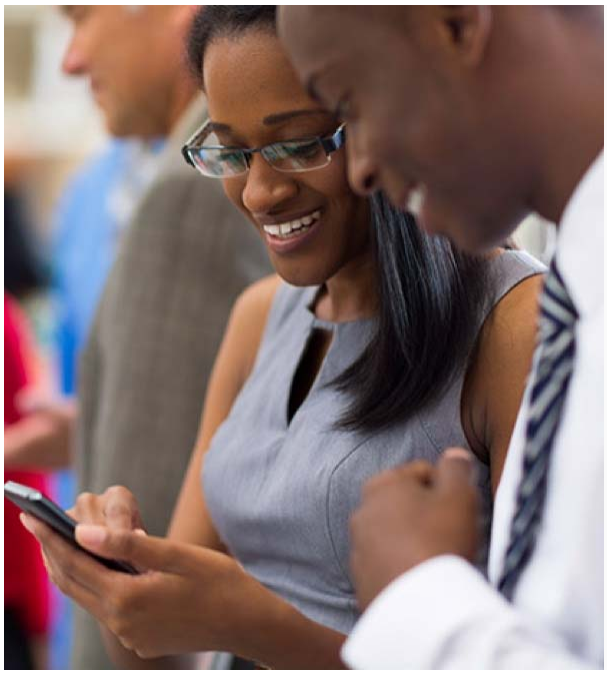
Hi. Your package was delivered Mon, 10/19/2020 at 10:20am.

Delivered to 152 ELM ST, STONINGTON, CT 06378
Received by L.PACKER

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	771822139744
FROM	Smartlink Group 85 Rangeway Rd. Bldg 3, Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of Stonington Police Dept - Owner 173 S Broad St. 152 ELM ST STONINGTON, CT, US, 06378

REFERENCE	AT&T CSC Notice CTL02231
SHIPPER REFERENCE	AT&T CSC Notice CTL02231
SHIP DATE	Fri 10/16/2020 07:35 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	STONINGTON, CT, US, 06378
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	2.00 LB
SERVICE TYPE	FedEx Standard Overnight



Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:26 AM CDT 10/19/2020.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.