



QC Development

PO Box 916

Storrs, CT 06268

860-670-9068

Mark.Roberts@QCDevelopment.net

September 30, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT1116
12 Nepaug Road, Burlington, CT 06013
N 41.78246111
W 72.9896333

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 120-foot level of the existing 120-foot Monopole at 12 Nepaug Road, Burlington, CT. The structure is owned by Crown Castle and the property is owned by Regional School District #10. AT&T now intends to remove three (3) Powerwave antennas and three (3) KMW antennas and replace them with three (3) CCI HPA65R-BU6A and three (3) Kathrein 800-10965 antennas. AT&T will also replace three (3) Ericsson RRUS-11 Remote Radio Units (RRU) with three (3) Ericsson 8843-B2/B66 and add three (3) Ericsson 4449 B5/B12 RRUs. The new antennas and RRUs will also be installed at the 120-foot level of the tower.

This facility was approved by the Siting Council on February 18th, 2004 in Docket # 268. The decision limited the height of the structure to 120 feet. No increase in the tower's total height is proposed by AT&T so this modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Theodore Shafer, First Selectman of the Town of Burlington, as local elected official, the Burlington Zoning

Office, and the tower and property owners.

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

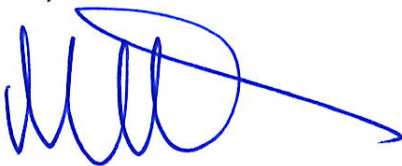
1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that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

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

Please feel free to call me at (860) 670-9068 with any questions regarding this matter.

Thank you for your consideration.

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Theodore Shafer - Elected Official
Gerald Burns – Zoning Enforcement Officer
Howard Theiry – Superintendent, Regional School District #10
Crown Castle - as tower owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							4.97%
AT&T GSM	1	283	119	0.0080	880	0.5867	0.14%
AT&T UMTS	2	565	119	0.0318	880	0.5867	0.54%
AT&T UMTS	4	525	119	0.0591	1900	1.0000	0.59%
AT&T LTE	1	1313	119	0.0370	734	0.4893	0.76%
AT&T LTE	2	875	119	0.0493	1900	1.0000	0.49%
Site Total							7.49%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							4.97%
AT&T UMTS	1	565	120	0.0156	850	0.5667	0.28%
AT&T LTE	1	1476	120	0.0408	700	0.4667	0.88%
AT&T LTE	1	1000	120	0.0277	850	0.5667	0.49%
AT&T LTE	1	1000	120	0.0277	850	0.5667	0.49%
AT&T LTE	2	3664	120	0.2028	1900	1.0000	1.60%
AT&T LTE	1	3837	120	0.1062	2100	1.0000	0.76%
Site Total							9.46%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Note: Proposed Loading may also include corrections to certain Existing Loading values

PROJECT INFORMATION

SCOPE OF WORK: **ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:**

- INSTALL NEW HANDRAIL KIT, SITEPRO-1 PART # HRK14 (OR APPROVED EQUAL) HANDRAIL KIT IS REQUIRED PER AT&T TECHNICAL DIRECTIVE TO STABILIZE EXISTING CANTILEVERED ANTENNAS
- NEW AT&T ANTENNAS: (HPA-65R-BU6A) MOUNTED @ POSITION 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: (800-10965) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 8843 B2/B66A (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SURGE ARRESTOR (DC6-48-60-18-8C-EV) (TOTAL OF 1) & (2) DC POWER & (1) FIBER LINE IN 2" FLEX CONDUIT (TO FOLLOW EXISTING ROUTE)

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- SWAP BB FOR RBS 6630, ADD 5G RBS 6630 & ADD IDLE IN EXISTING LTE RACK
- NEW AT&T NETSURE 7100 POWER PLANT & BATTERIES (TO REPLACE EXISTING TYCO GALAXY GPS2424)
- NEW AT&T FIBER MANAGEMENT BOX ATTACHED TO EXISTING ICE BRIDGE POST

ITEMS TO BE REMOVED FROM LOCATION:

- EXISTING AT&T RRUS 11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T ANTENNA (AM-X-CD-16-65-00T-RET) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T ANTENNA (7770) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3)

SITE ADDRESS: 12 NEPAUG ROAD
BURLINGTON, CT 06013

LATITUDE: 41.782453° N, 41° 46' 56.83" N
LONGITUDE: 72.989631° W, 72° 59' 22.67" W

TYPE OF SITE: MONOPOLE / EQUIPMENT SHELTER

STRUCTURE HEIGHT: 120'±
RAD CENTER: 120'±

CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT1116

SITE NAME: BURLINGTON-NEPAUG ROAD

FA CODE: 10090883

PACE ID: MRCTB039642, MRCTB039633,

MRCTB039639, MRCTB039640

PROJECT: LTE 2C_3C_4C 2019 UPGRADE

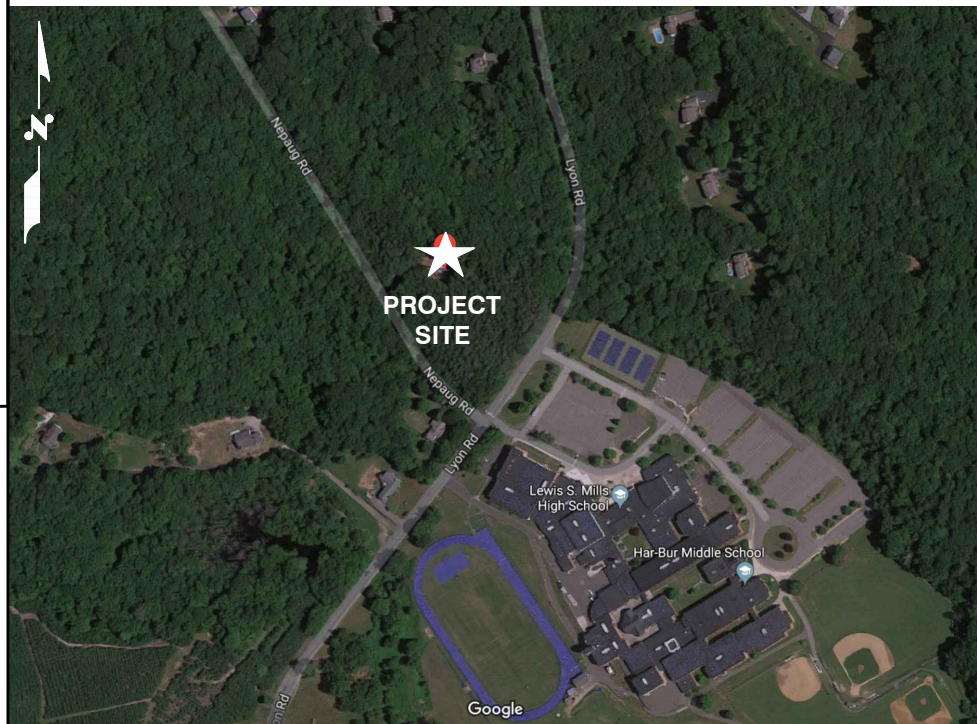
DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ANTENNA LAYOUTS & ELEVATION	1
A-3	DETAILS	1
SN-1	STRUCTURAL NOTES	1
S-1	STRUCTURAL DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1
G-1	GROUNDING DETAILS	1

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO CT-9 N VIA EXIT 22N TOWARD NEW BRITAIN 11.1 MILES. MERGE ONTO I-84 W/US-6 W VIA EXIT 32 ONT THE LEFT TOWARD WATERBURY/CT-4. MERGE ONTO CT-4 W/FARMINGTON AVE VIA EXIT 39 TOWARD FARMINGTON 5.8 MILES. TURN SLIGHT RIGHT ONTO MAIN ST/CT-4. CONTINUE TO FOLLOW CT-4 2.6 MILES. TURN LEFT AT SPIELMAN HWY/CT-4 4.0 MILES. TURN RIGHT ONTO LYON RD. TAKE THE FIRST LEFT ONTO NEPAUG RD. 12 NEPAUG RD IS ON THE RIGHT.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS



CALL BEFORE YOU DIG



CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

HGD HUDSON Design Group LLC
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
TEL: (978) 557-5553 FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY SALEM, NH 03079

SITE NUMBER: CT1116
SITE NAME: BURLINGTON-NEPAUG ROAD
CCI SITE #: 845993
12 NEPAUG ROAD
BURLINGTON, CT 06013
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	09/25/19	ISSUED FOR CONSTRUCTION	RC	AT	DPH
0	09/09/19	ISSUED FOR REVIEW	EB	AT	DPH
A	09/04/19	ISSUED FOR REVIEW	EB	AT	DPH

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

Daniel P. Hamm
No. 24178
LICENSED PROFESSIONAL ENGINEER

SITE NUMBER	DRAWING NUMBER	REV
CT1116	T-1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – SAI
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

**BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
 ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)**

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

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

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

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

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

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

45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1116
SITE NAME: BURLINGTON-NEPAUG ROAD
CCI SITE #: 845993
 12 NEPAUG ROAD
 BURLINGTON, CT 06013
 HARTFORD COUNTY

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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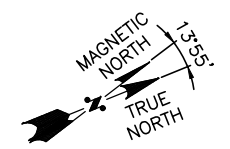
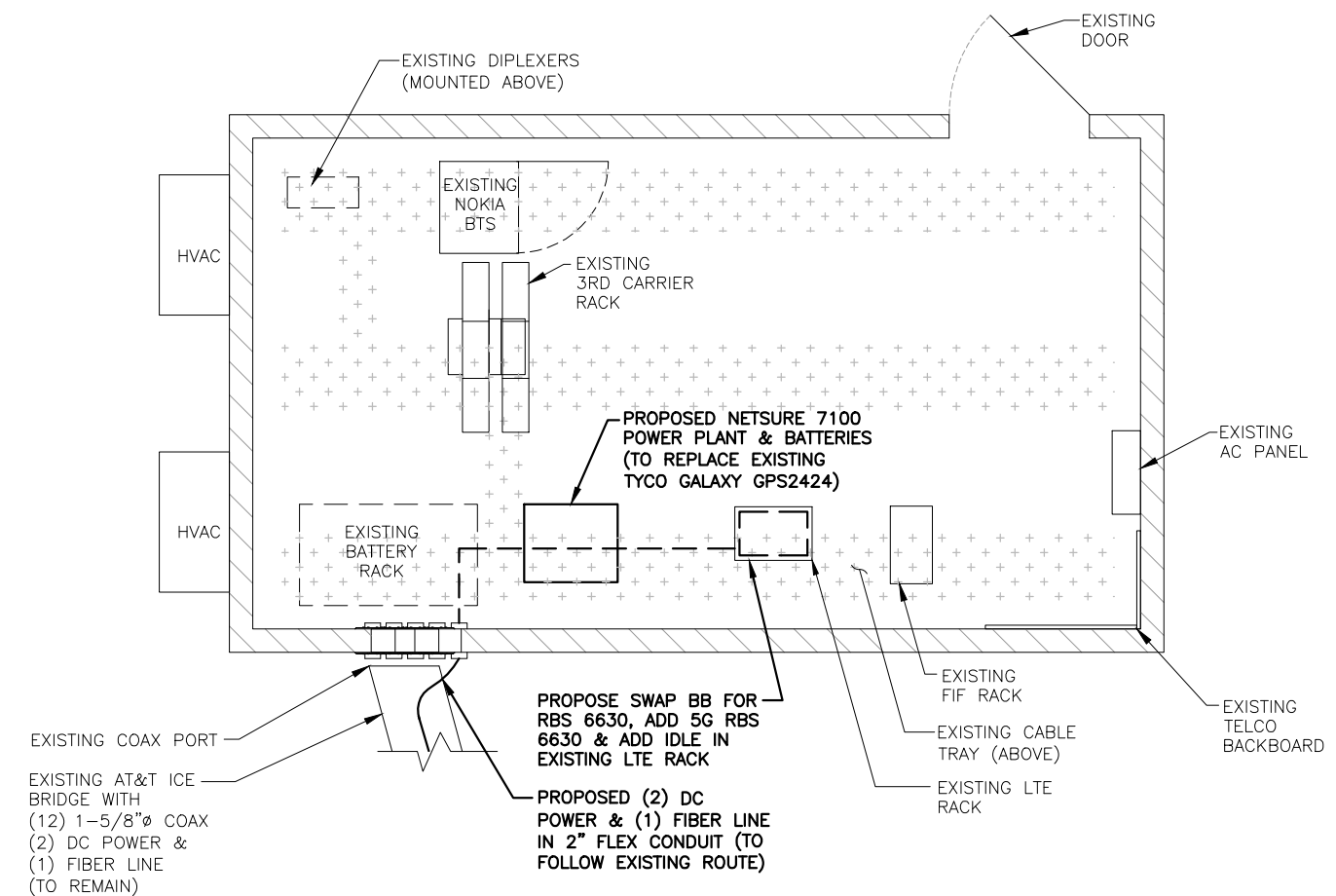
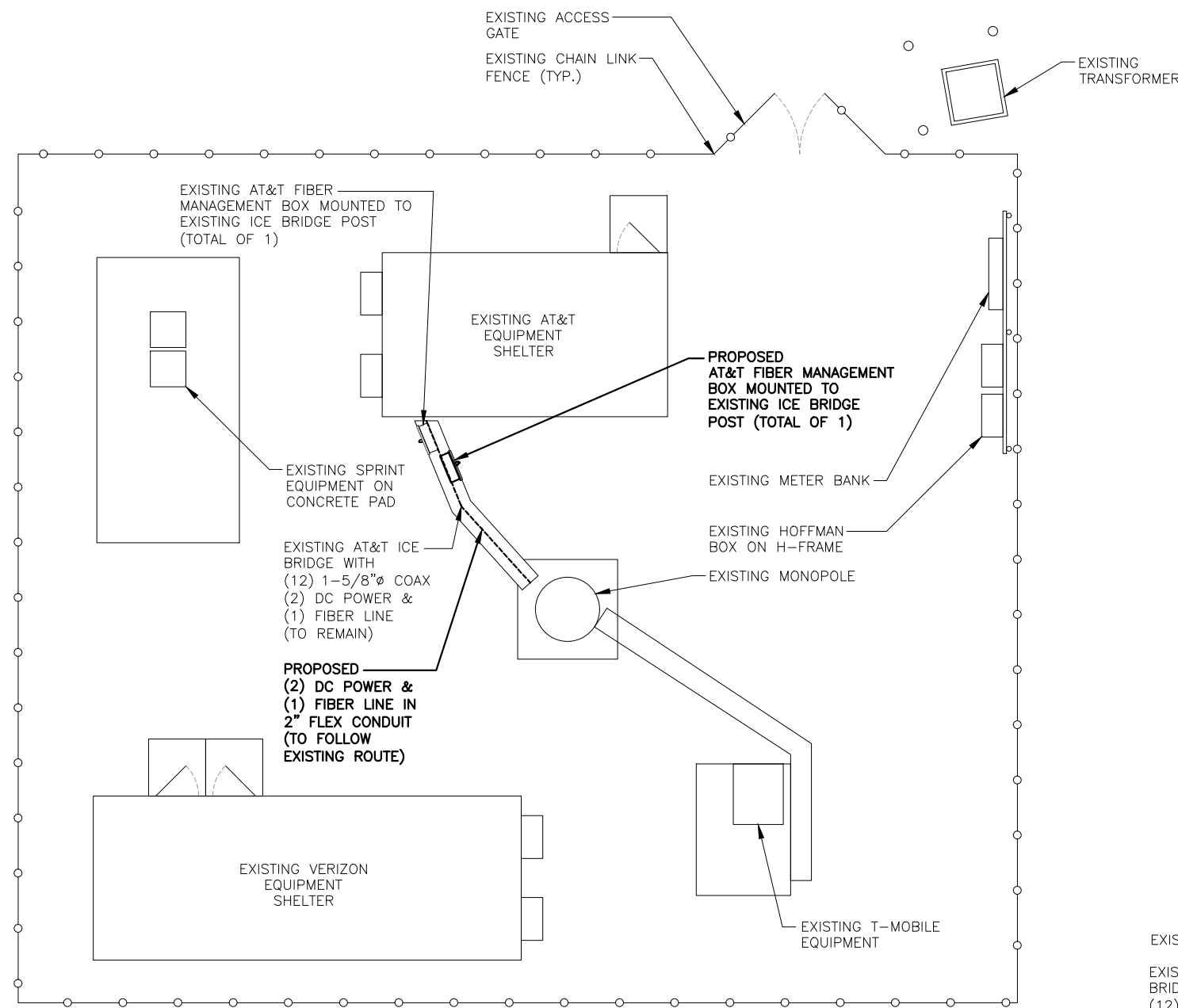
AT&T
 GENERAL NOTES
 (LTE 2C-3C-4C)

SITE NUMBER	DRAWING NUMBER	REV
CT1116	GN-1	1

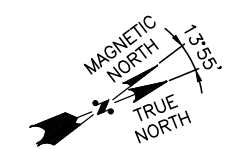
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: AUGUST 29, 2019



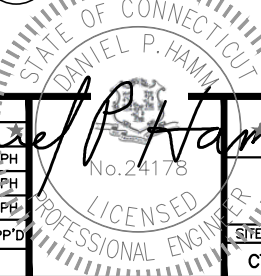
COMPOUND PLAN
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"
1
A-1

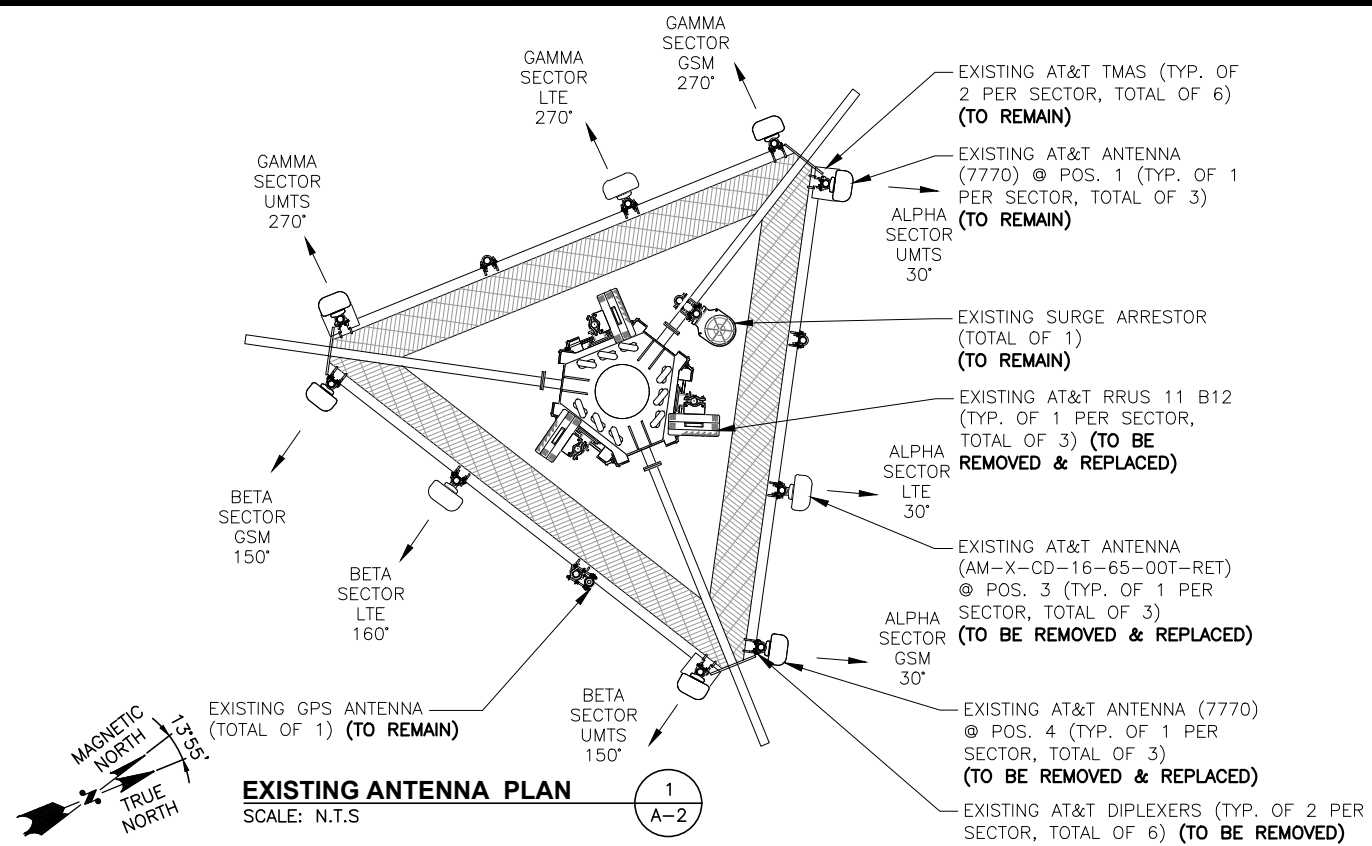


EQUIPMENT PLAN
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
2
A-1

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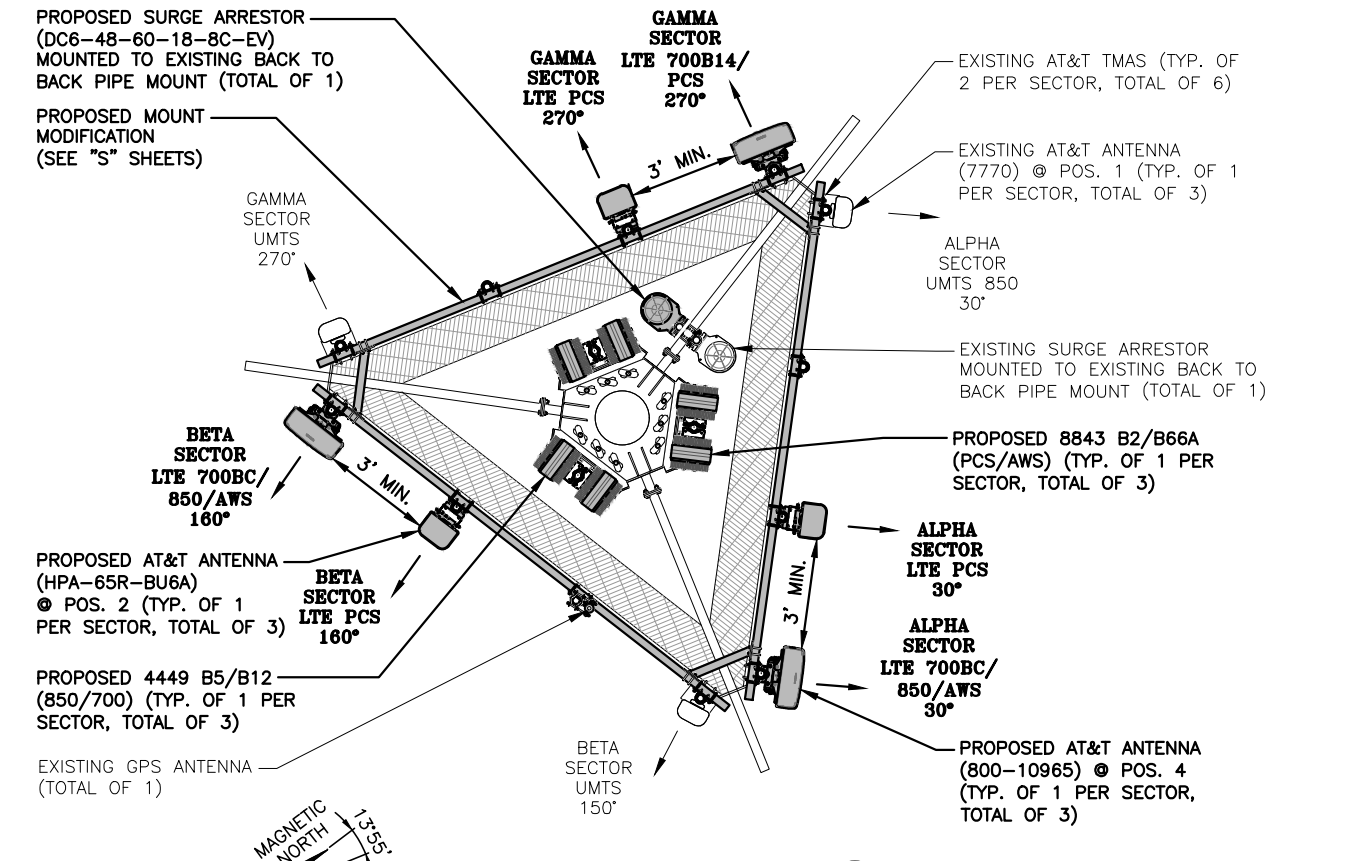
SCALE: AS SHOWN
DESIGNED BY: AT
DRAWN BY: EB





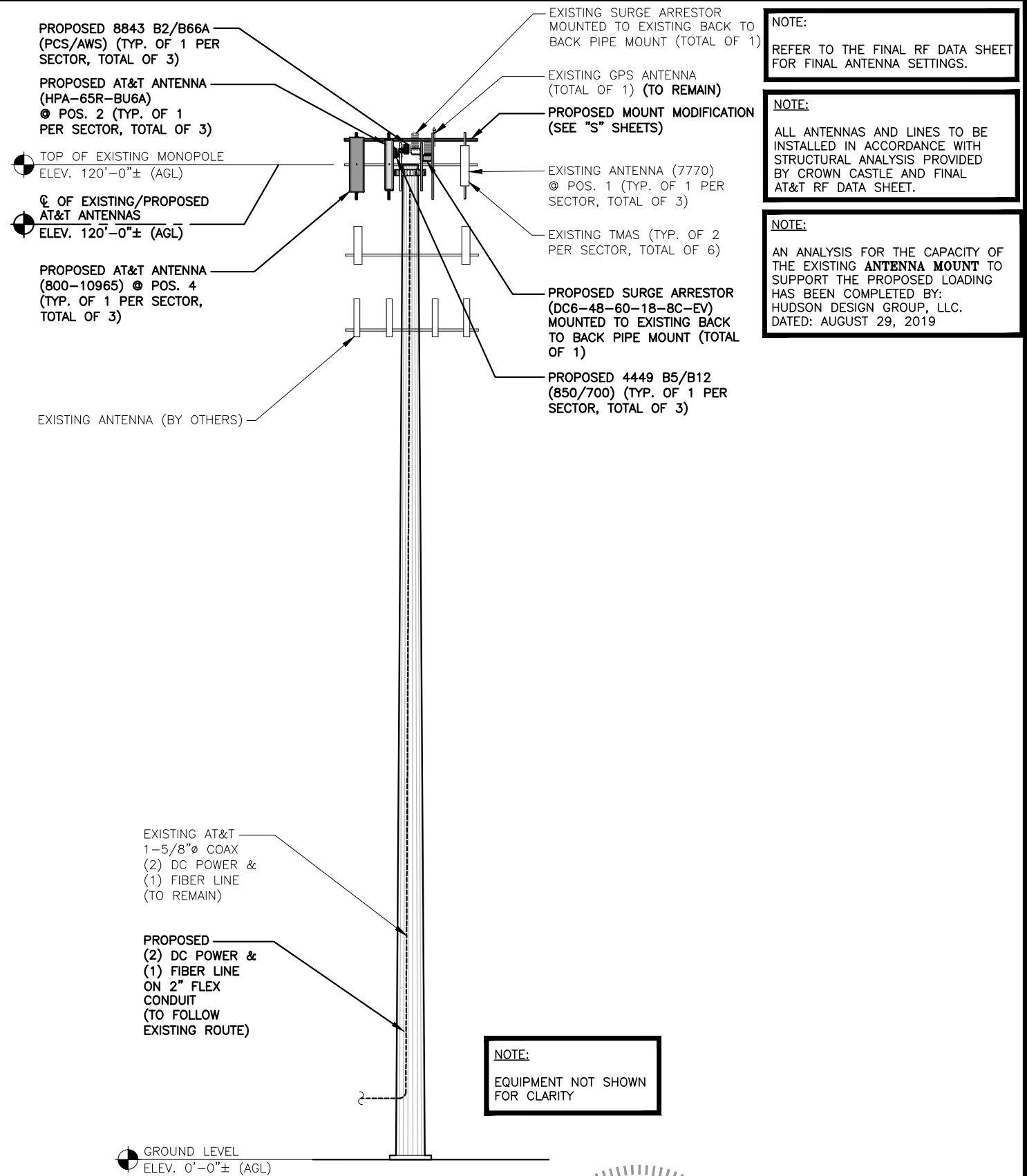
EXISTING ANTENNA PLAN
SCALE: N.T.S.

1
A-2



PROPOSED ANTENNA PLAN
SCALE: N.T.S.

2
A-2



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

3
A-2

HDG HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1116
SITE NAME: BURLINGTON-NEPAUG ROAD
CCI SITE #: 845993
12 NEPAUG ROAD
BURLINGTON, CT 06013
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	09/25/19	ISSUED FOR CONSTRUCTION	RC	AT	DPH
0	09/09/19	ISSUED FOR REVIEW	EB	AT	DPH
A	09/04/19	ISSUED FOR REVIEW	EB	AT	DPH

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

Daniel P. Hamm
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T
ANTENNA LAYOUTS & ELEVATION
(LTE 2C-3C-4C)
SITE NUMBER: CT1116 DRAWING NUMBER: A-2 REV: 1

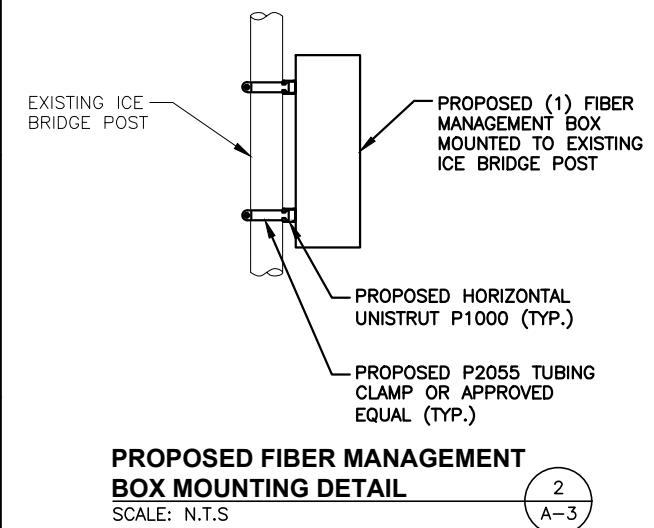
ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA CL. HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	7770	55X11X5	±120'	30°	(E)(2) LGP21401	-	-	(2) 1-5/8 COAX (LENGTH=150'±)	(E) (1) RAYCAP DC6-48-60-18-8C
A2	-	-	-	-	-	-	-	-	-	-	
A3	PROPOSED	LTE 700B14/PCS	HPA-65R-BU6A	71.2X11.7X8.4	±120'	30°	-	(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	(2) 1-5/8 COAX (LENGTH=150'±)	
A4	PROPOSED	LTE 700BC/850/AWS	800-10965	78.7X20X6.9	±120'	30°	-	(P) 4449 B5/B12 (850/700)	14.9X13.2X10.4	-	(P) (1) RAYCAP DC6-48-60-18-8C-EV
B1	EXISTING	UMTS DB	7770	55X11X5	±120'	150°	(E)(2) LGP21401	-	-	(2) 1-5/8 COAX (LENGTH=150'±)	
B2	-	-	-	-	-	-	-	-	-	-	
B3	PROPOSED	LTE 700B14/PCS	HPA-65R-BU6A	71.2X11.7X8.4	±120'	160°	-	(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	(2) 1-5/8 COAX (LENGTH=150'±)	(P) (1) RAYCAP DC6-48-60-18-8C-EV
B4	PROPOSED	LTE 700BC/850/AWS	800-10965	78.7X20X6.9	±120'	160°	-	(P) 4449 B5/B12 (850/700)	14.9X13.2X10.4	-	
C1	EXISTING	UMTS DB	7770	55X11X5	±120'	270°	(E)(2) LGP21401	-	-	(2) 1-5/8 COAX (LENGTH=150'±)	
C2	-	-	-	-	-	-	-	-	-	-	-
C3	PROPOSED	LTE 700B14/PCS	HPA-65R-BU6A	71.2X11.7X8.4	±120'	270°	-	(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	(2) 1-5/8 COAX (LENGTH=150'±)	
C4	PROPOSED	LTE 700BC/850/AWS	800-10965	78.7X20X6.9	±120'	270°	-	(P) 4449 B5/B12 (850/700)	14.9X13.2X10.4	-	

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

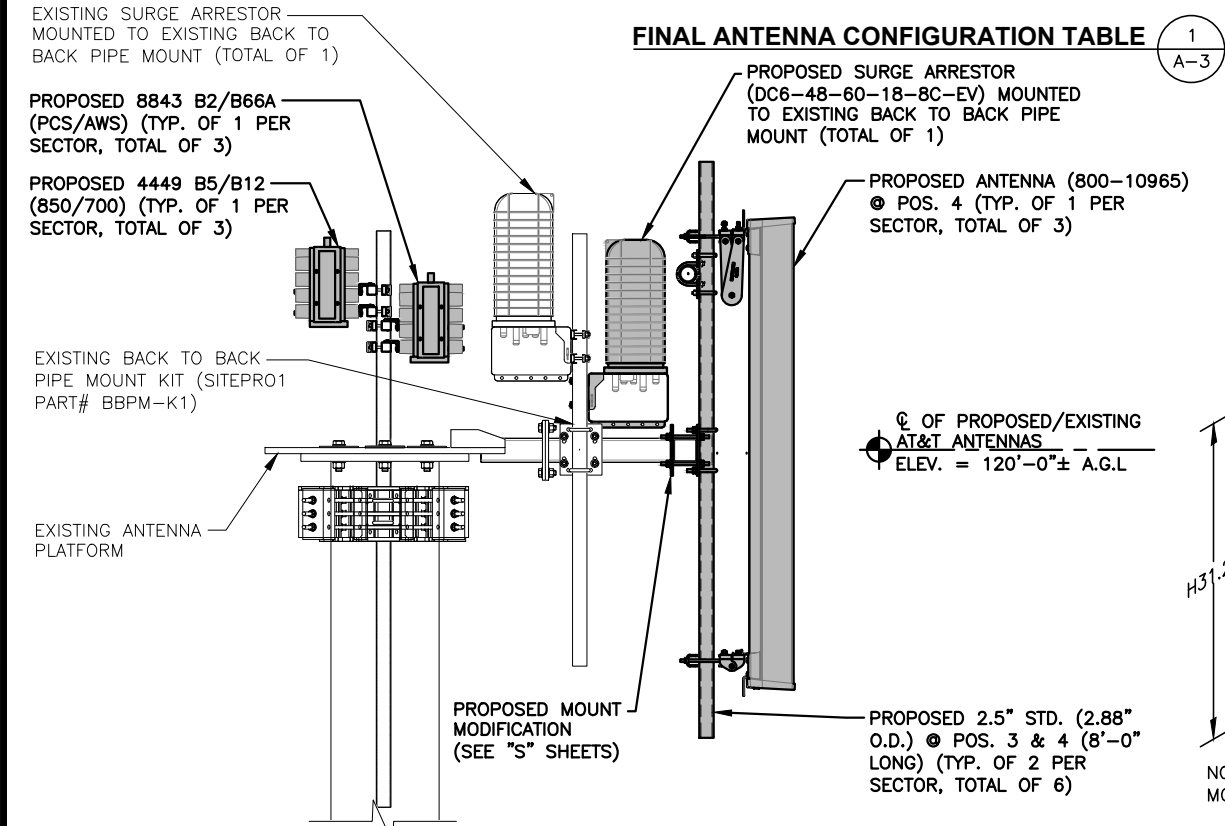
NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: AUGUST 29, 2019

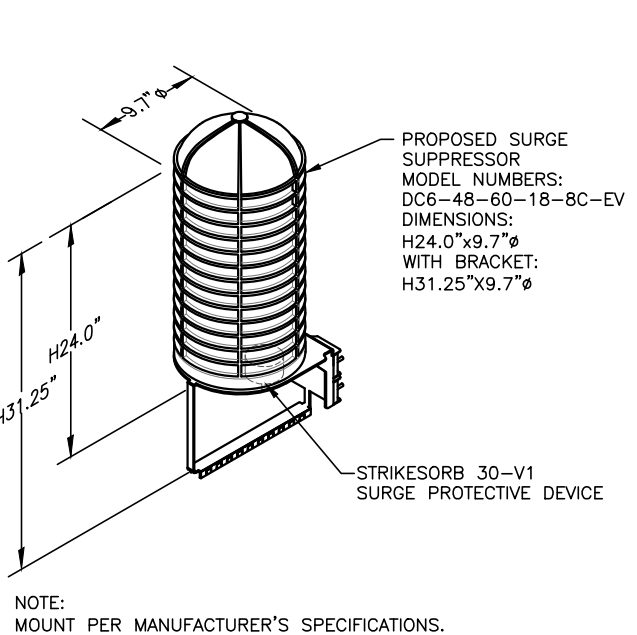


PROPOSED FIBER MANAGEMENT BOX MOUNTING DETAIL
SCALE: N.T.S. 2 A-3

FINAL ANTENNA CONFIGURATION TABLE 1 A-3



PROPOSED ANTENNA & RRU'S MOUNTING DETAIL @ POS. 4 3 A-4
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

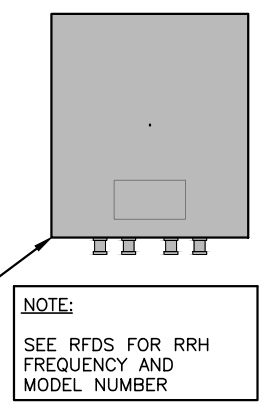


DC SURGE SUPPRESSOR DETAIL 4 A-3
SCALE: N.T.S

RRU CHART				
QUANTITY	MODEL	L	W	D
3(P)	4449 B5/B12	14.9"	13.2"	10.4"
3(P)	8843 B2/B66A	14.9"	13.2"	10.9"

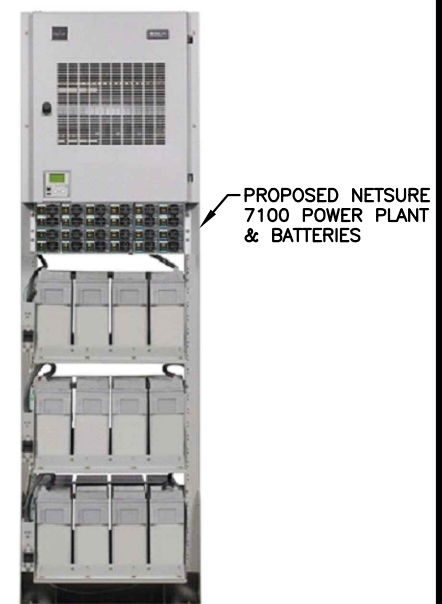
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



NOTE:
SEE RFDS FOR RRU FREQUENCY AND MODEL NUMBER

RRU DETAIL 5 A-3
SCALE: N.T.S



NETSURE 7100 DC POWER PLANT 6 A-3
SCALE: N.T.S

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

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NO.	DATE	REVISIONS	BY	CHK	APP'D

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

SITE NUMBER	DRAWING NUMBER	REV
CT1116	A-3	1

STRUCTURAL NOTES:

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

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

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

45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1116
SITE NAME: BURLINGTON-NEPAUG ROAD
CCI SITE #: 845993
12 NEPAUG ROAD
BURLINGTON, CT 06013
HARTFORD COUNTY

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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

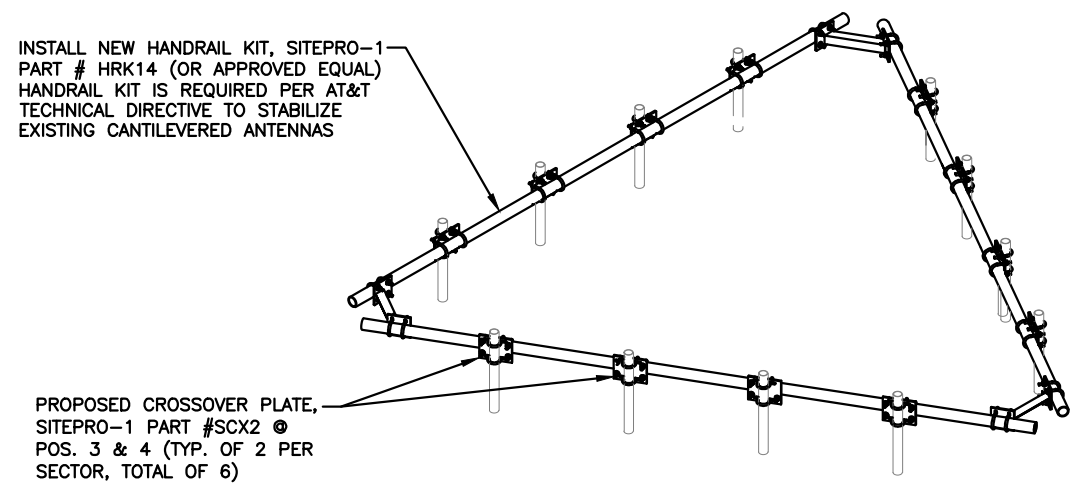
AT&T
STRUCTURAL NOTES
(LTE 2C-3C-4C)

SITE NUMBER	DRAWING NUMBER	REV
CT1116	S-1	1

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

NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: AUGUST 29, 2019



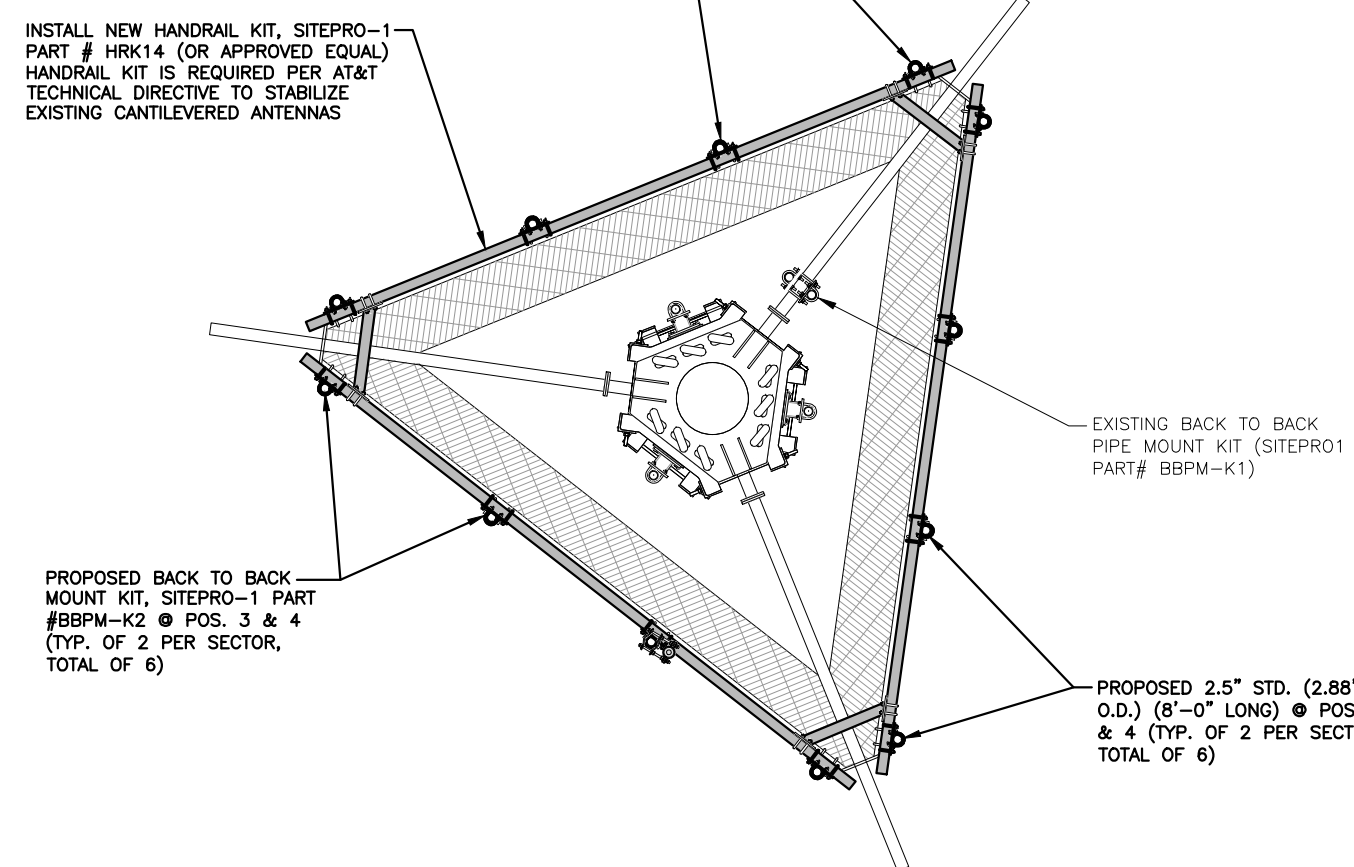
PROPOSED CROSSOVER PLATE, SITEPRO-1 PART #SCX2 @ POS. 3 & 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED CROSSOVER PLATE, SITEPRO-1 PART #SCX2 @ POS. 3 & 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED HANDRAIL KIT DETAIL

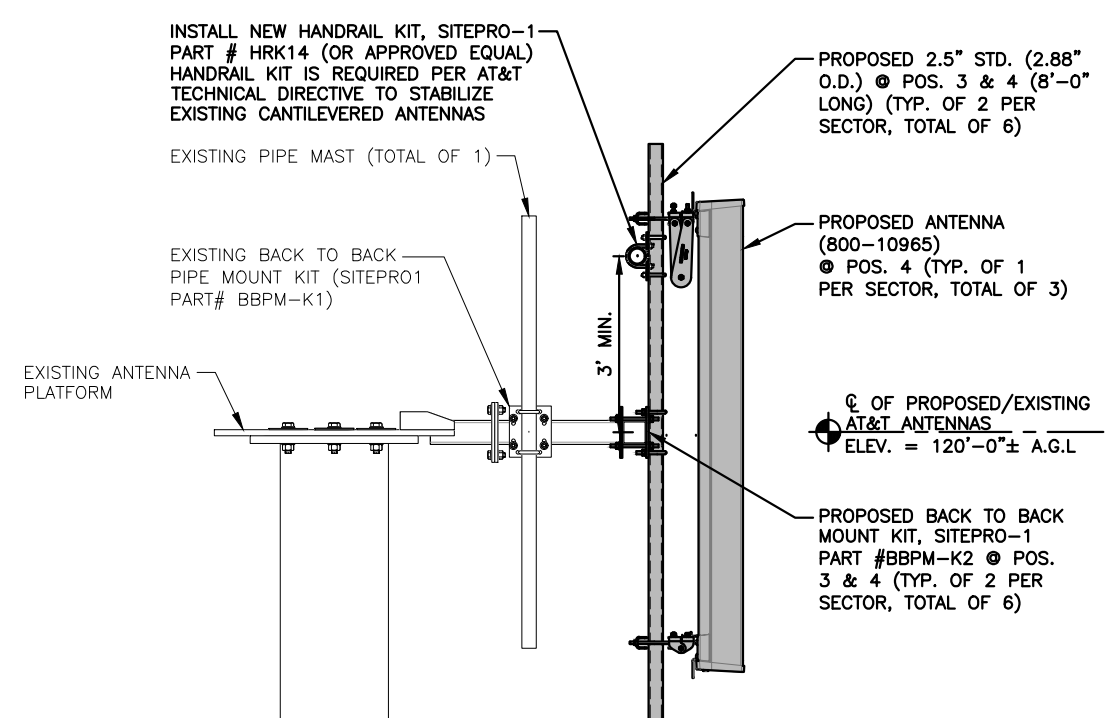
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

1
S-1



PROPOSED BACK TO BACK MOUNT KIT, SITEPRO-1 PART #BBPM-K2 @ POS. 3 & 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED 2.5" STD. (2.88" O.D.) (8'-0" LONG) @ POS. 3 & 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6)



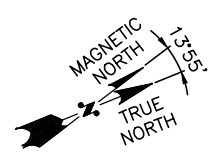
INSTALL NEW HANDRAIL KIT, SITEPRO-1 PART # HRK14 (OR APPROVED EQUAL) HANDRAIL KIT IS REQUIRED PER AT&T TECHNICAL DIRECTIVE TO STABILIZE EXISTING CANTILEVERED ANTENNAS

PROPOSED 2.5" STD. (2.88" O.D.) @ POS. 3 & 4 (8'-0" LONG) (TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED ANTENNA (800-10965) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3)

CL OF PROPOSED/EXISTING AT&T ANTENNAS
ELEV. = 120'-0" ± A.G.L.

PROPOSED BACK TO BACK MOUNT KIT, SITEPRO-1 PART #BBPM-K2 @ POS. 3 & 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6)



PROPOSED MOUNT MODIFICATION PLAN

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

2
S-1



PROPOSED MOUNT MODIFICATION ELEVATION DETAIL

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

3
A-4



HGD HUDSON Design Group LLC
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

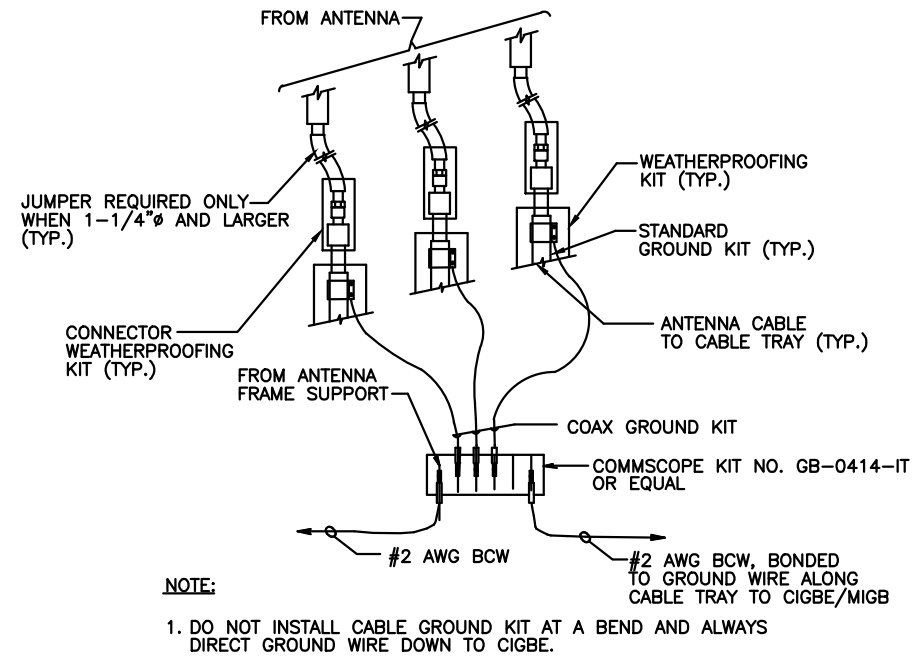
SITE NUMBER: CT1116
SITE NAME: BURLINGTON-NEPAUG ROAD
CCI SITE #: 845993
12 NEPAUG ROAD
BURLINGTON, CT 06013
HARTFORD COUNTY

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

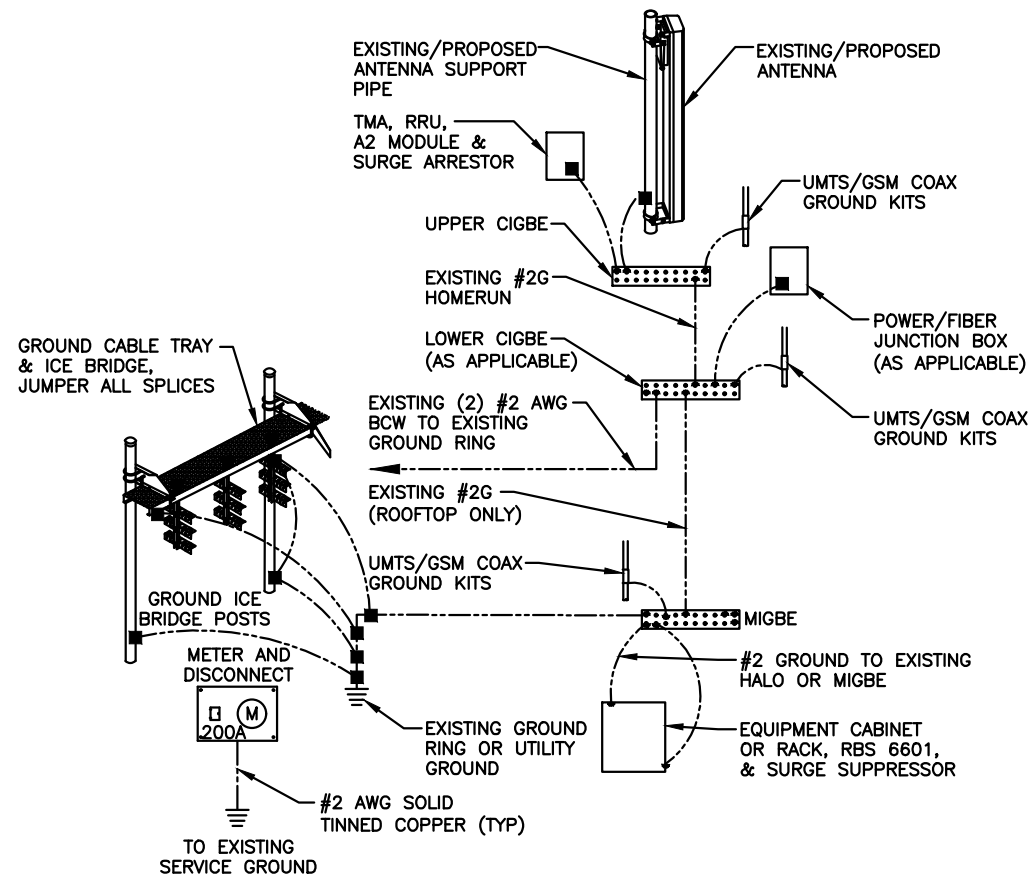
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STATE OF CONNECTICUT
DANIEL P. HAMM
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LICENSED PROFESSIONAL ENGINEER

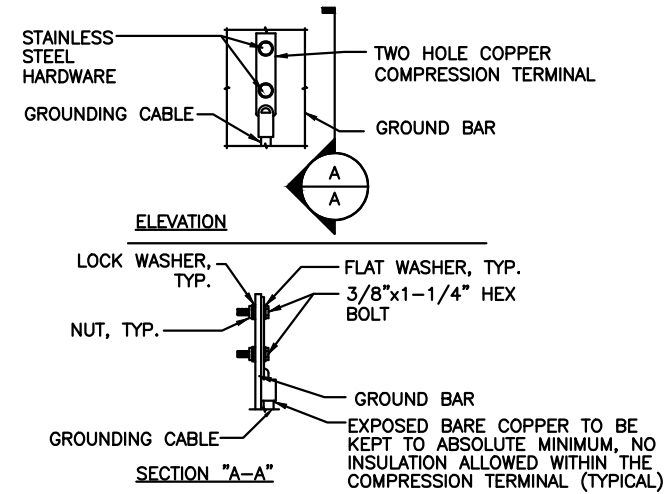
AT&T
STRUCTURAL DETAILS
(LTE 2C-3C-4C)
SITE NUMBER: CT1116
DRAWING NUMBER: S-1
REV: 1



GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
SCALE: N.T.S. G-1



GROUNDING RISER DIAGRAM 2
SCALE: N.T.S. G-1



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

TYPICAL GROUND BAR CONNECTION DETAIL 3
SCALE: N.T.S. G-1

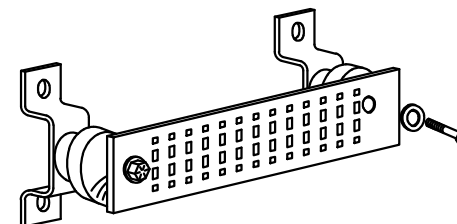
FACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

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



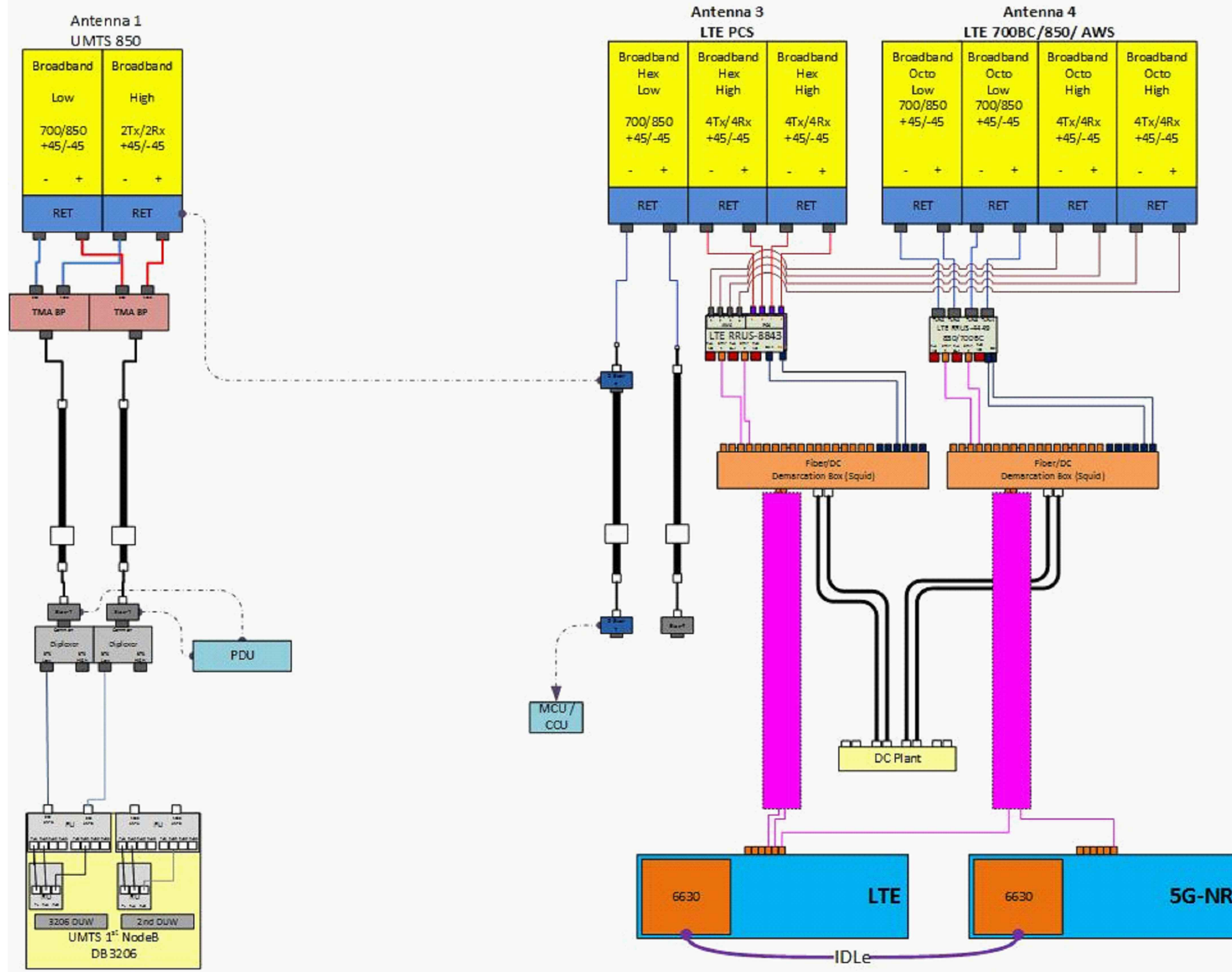
GROUND BAR - DETAIL 4
SCALE: N.T.S. G-1

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

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

AT&T		
GROUNDING DETAILS (LTE 2C-3C-4C)		
SITE NUMBER	DRAWING NUMBER	REV
CT1116	G-1	1



RF PLUMBING DIAGRAM 1
SCALE: N.T.S. RF-1

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

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

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

AT&T		
RF PLUMBING DIAGRAM (LTE 2C-3C-4C)		
SITE NUMBER	DRAWING NUMBER	REV
CT1116	RF-1	1



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Date: **September 10, 2019**

Amanda D Brown
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

Subject: **Structural Analysis Report**

Carrier Designation: **AT&T Mobility Co-Locate**

Carrier Site Number: CT1116
Carrier Site Name: Burlington West

Crown Castle Designation: **Crown Castle BU Number:** 845993
Crown Castle Site Name: BURLINGTON-NEPAUG ROAD
Crown Castle JDE Job Number: 588451
Crown Castle Work Order Number: 1787732
Crown Castle Order Number: 503641 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1787732

Site Data: **12 NEPAUG ROAD, BURLINGTON, Hartford County, CT**
Latitude 41° 46' 56.86", Longitude -72° 59' 22.68"
120 Foot - Monopole Tower

Dear Amanda D Brown,

Crown Castle is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 54.7%**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Saijun Zhou / SDH

Respectfully submitted by:

Maham Barimani, P.E.
Senior Project Engineer

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1) INTRODUCTION

This tower is a 120 ft Monopole tower designed by EEI in 2004 and mapped by FDH in 2016.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
119.0	119.0	3	cci antennas	HPA65R-BU6A	12	1-5/8
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 8843 B2/B66A		
		1	gps	GPS_A		
		3	kathrein	80010965K		
		3	powerwave technologies	7770.00		
		6	powerwave technologies	LGP13519		
		6	powerwave technologies	LGP21401		
		2	raycap	DC6-48-60-18-8F		
		1	mount mod	sitepro 1 HRK14		
		1	tower mounts	Platform Mount [LP 1201-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
109.0	110.0	3	alcatel lucent	PCS 1900MHZ 4X45W 65MHZ	3	1-1/4 7/8
		6	alcatel lucent	RRH2X50-800		
		3	alcatel lucent	TD-RRH8X20-25		
		3	kmw communications	ETCR-654L12H6 w/ Mount Pipe		
	109.0	1	tower mounts	Platform Mount [LP 1201-1_KCKR]		
99.0	99.0	3	alcatel lucent	RRH2x60-700	8	1-5/8
		3	alcatel lucent	RRH4X45-AWS4 B66		
		6	antel	LPA-80080/4CF w/ Mount Pipe		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	nokia	AIRSCALE RRH 4T4R B5 160W		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		1	tower mounts	Platform Mount [LP 602-1_KCKR]		
88.0	90.0	3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe	8	1-5/8
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	88.0	1	tower mounts	T-Arm Mount [TA 602-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Jaworski Geotech, Inc.	4551029	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FDH (Mapping)	5072131	CCISITES
4-TOWER MANUFACTURER DRAWINGS	FDH (Mapping)	5117503	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	URS	4551035	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built and maintained in accordance with the manufacturer's specifications.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	120 - 97	Pole	TP28.93x22.69x0.1875	1	-10.05	1014.80	18.2	Pass
L2	97 - 48	Pole	TP39.7x27.5729x0.25	2	-23.35	1867.11	53.7	Pass
L3	48 - 0	Pole	TP51.04x38.0569x0.3125	3	-35.93	3090.62	54.7	Pass
							Summary	
						Pole (L3)	54.7	Pass
						Rating =	54.7	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	53.1	Pass
1	Base Plate	0	36.8	Pass
1	Base Foundation Structure	0	45.0	Pass
1	Base Foundation Soil Interaction	0	41.1	Pass

Structure Rating (max from all components) =	54.7%
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Notes:

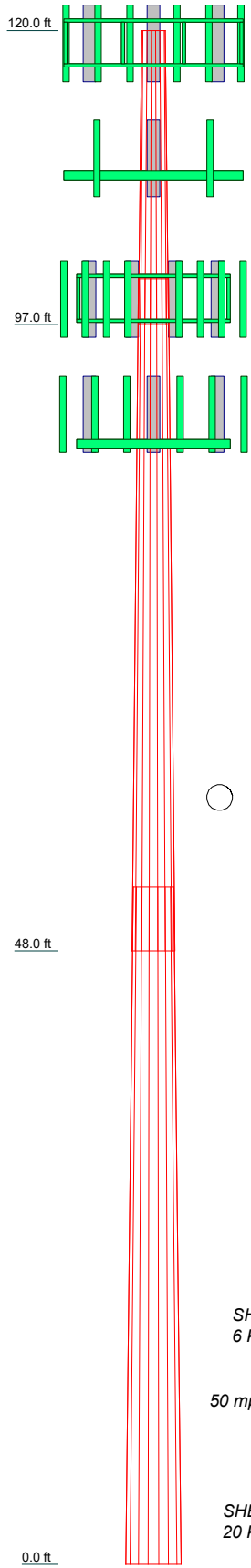
- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3
Length (ft)	23.00	52.62	52.96
Number of Sides	18	18	18
Thickness (in)	0.1875	0.2500	0.3125
Socket Length (ft)	3.62	4.96	
Top Dia (in)	22.6900	27.5729	38.0569
Bot Dia (in)	28.9300	39.7000	51.0400
Grade		A572-65	
Weight (K)	1.2	4.7	7.9



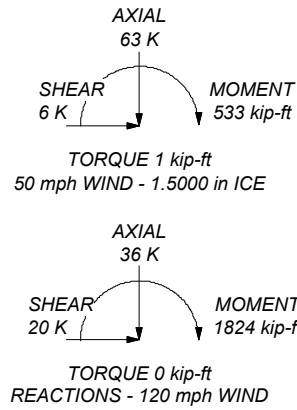
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 54.7%

ALL REACTIONS
ARE FACTORED



CROWN CASTLE
The Pathway to Possible

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Project:			
Client:	Crown Castle	Drawn by:	Steven Hu
Code:	TIA-222-H	Date:	09/10/19
Path:			Scale: NTS
			Dwg No. E-1

Tower Input Data

The tower is a monopole.
 This tower is designed using the TIA-222-H standard.
 The following design criteria apply:

- 1) Tower is located in Hartford County, Connecticut.
- 2) Tower base elevation above sea level: 826.00 ft.
- 3) Basic wind speed of 120 mph.
- 4) Risk Category II.
- 5) Exposure Category B.
- 6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 7) Topographic Category: 1.
- 8) Crest Height: 0.00 ft.
- 9) Nominal ice thickness of 1.5000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50 °F.
- 14) Deflections calculated using a wind speed of 60 mph.
- 15) A non-linear (P-delta) analysis was used.
- 16) Pressures are calculated at each section.
- 17) Stress ratio used in pole design is 1.05.
- 18) Tower analysis based on target reliabilities in accordance with Annex S.
- 19) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 20) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets ✓ Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	120.00-97.00	23.00	3.62	18	22.6900	28.9300	0.1875	0.7500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	97.00-48.00	52.62	4.96	18	27.5729	39.7000	0.2500	1.0000	A572-65 (65 ksi)
L3	48.00-0.00	52.96		18	38.0569	51.0400	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	23.0111	13.3918	856.7181	7.9884	11.5265	74.3258	1714.5635	6.6972	3.6634	19.538
	29.3474	17.1054	1785.3331	10.2036	14.6964	121.4807	3573.0155	8.5543	4.7617	25.396
L2	28.8068	21.6807	2044.8607	9.6996	14.0070	145.9883	4092.4120	10.8424	4.4128	17.651
	40.2739	31.3036	6154.9624	14.0048	20.1676	305.1906	12318.023	15.6548	6.5472	26.189
L3	39.8305	37.4377	6738.3192	13.3993	19.3329	348.5416	13485.504	18.7224	6.1480	19.674
	51.7792	50.3153	16357.795	18.0083	25.9283	630.8853	32737.114	25.1625	8.4330	26.986

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
L1 120.00-97.00				1	1	1			
L2 97.00-48.00				1	1	1			
L3 48.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter r in	Perimeter r in	Weight plf

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA} ft ² /ft	Weight plf

5/8 rod/step	C	No	No	CaAa (Out Of Face)	120.00 - 8.00	2	No Ice	0.02
							1/2" Ice	0.12
							1" Ice	0.22
							2" Ice	0.42
Safety Line (3/8")	C	No	No	CaAa (Out Of Face)	120.00 - 8.00	1	No Ice	0.04
							1/2" Ice	0.14
							1" Ice	0.24
							2" Ice	0.44
119 LDF4-50A(1/2)	A	No	No	Inside Pole	119.00 - 4.00	2	No Ice	0.00
							1/2" Ice	0.00
							1" Ice	0.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
LDF5-50A(7/8)	A	No	No	Inside Pole	119.00 - 4.00	2	2" Ice	0.00	0.15
							No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
LDF7-50A(1-5/8)	A	No	No	Inside Pole	119.00 - 4.00	12	2" Ice	0.00	0.33
							No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
FIBER-GUARD/FLEX 2` (2)	A	No	No	Inside Pole	119.00 - 4.00	1	2" Ice	0.00	0.82
							No Ice	0.00	0.22
							1/2" Ice	0.00	0.22
							1" Ice	0.00	0.22
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	119.00 - 4.00	1	2" Ice	0.00	0.22
							No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	119.00 - 4.00	2	2" Ice	0.00	0.06
							No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
109 P HB114-08U3M12-XXXF(7/8)	C	No	No	Inside Pole	109.00 - 4.00	1	2" Ice	0.00	0.58
							No Ice	0.00	0.68
							1/2" Ice	0.00	0.68
							1" Ice	0.00	0.68
HB114-1-08U4-M5F(1-1/4)	C	No	No	Inside Pole	109.00 - 4.00	3	2" Ice	0.00	0.68
							No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
99 R LDF7-50A(1-5/8)	C	No	No	Inside Pole	99.00 - 4.00	6	2" Ice	0.00	1.30
							No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	99.00 - 4.00	2	2" Ice	0.00	0.82
							No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
88 R LDF7-50A(1-5/8)	B	No	No	Inside Pole	88.00 - 4.00	6	2" Ice	0.00	1.30
							No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	B	No	No	Inside Pole	88.00 - 4.00	1	2" Ice	0.00	0.82
							No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
HCS 6X12 4AWG(1-5/8)	B	No	No	Inside Pole	88.00 - 4.00	1	2" Ice	0.00	1.07
							No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
***							2" Ice	0.00	2.40

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	120.00-97.00	A	0.000	0.000	0.000	0.000	0.27
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.783	0.09

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L2	97.00-48.00	A	0.000	0.000	0.000	0.000	0.60
		B	0.000	0.000	0.000	0.000	0.34
		C	0.000	0.000	0.000	3.797	0.63
L3	48.00-0.00	A	0.000	0.000	0.000	0.000	0.54
		B	0.000	0.000	0.000	0.000	0.37
		C	0.000	0.000	0.000	3.100	0.56

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} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	120.00-97.00	A	1.436	0.000	0.000	0.000	0.000	0.27
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	21.593	0.27
L2	97.00-48.00	A	1.378	0.000	0.000	0.000	0.000	0.60
		B		0.000	0.000	0.000	0.000	0.34
		C		0.000	0.000	0.000	46.002	1.02
L3	48.00-0.00	A	1.231	0.000	0.000	0.000	0.000	0.54
		B		0.000	0.000	0.000	0.000	0.37
		C		0.000	0.000	0.000	36.171	0.86

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	120.00-97.00	-0.5966	0.3444	-2.9131	1.6819
L2	97.00-48.00	-0.6044	0.3489	-3.1692	1.8297
L3	48.00-0.00	-0.5003	0.2888	-2.7694	1.5989

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
119P HPA65R-BU6A	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 7.85 1/2" 8.30 Ice 8.76 1" Ice 9.69	5.55 6.00 6.46 7.40	0.04 0.09 0.15 0.28

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
HPA65R-BU6A	B	From Leg	4.00	0.0000	119.00	2" Ice			
						No Ice	7.85	5.55	0.04
						1/2"	8.30	6.00	0.09
						Ice	8.76	6.46	0.15
HPA65R-BU6A	C	From Leg	4.00	0.0000	119.00	1" Ice	9.69	7.40	0.28
						2" Ice			
						No Ice	7.85	5.55	0.04
						1/2"	8.30	6.00	0.09
80010965K	A	From Leg	4.00	0.0000	119.00	Ice	8.76	6.46	0.15
						1" Ice	9.69	7.40	0.28
						2" Ice			
						No Ice	12.23	4.21	0.13
80010965K	B	From Leg	4.00	0.0000	119.00	1/2"	13.00	4.88	0.21
						Ice	13.79	5.57	0.29
						1" Ice	15.41	6.99	0.48
						2" Ice			
80010965K	C	From Leg	4.00	0.0000	119.00	No Ice	12.23	4.21	0.13
						1/2"	13.00	4.88	0.21
						Ice	13.79	5.57	0.29
						1" Ice	15.41	6.99	0.48
RRUS 8843 B2/B66A	A	From Leg	4.00	0.0000	119.00	2" Ice			
						No Ice	1.64	1.35	0.07
						1/2"	1.80	1.50	0.09
						Ice	1.97	1.65	0.11
RRUS 8843 B2/B66A	B	From Leg	4.00	0.0000	119.00	1" Ice	2.32	1.99	0.16
						2" Ice			
						No Ice	1.64	1.35	0.07
						1/2"	1.80	1.50	0.09
RRUS 8843 B2/B66A	C	From Leg	4.00	0.0000	119.00	Ice	1.97	1.65	0.11
						1" Ice	2.32	1.99	0.16
						2" Ice			
						No Ice	1.64	1.35	0.07
RRUS 4449 B5/B12	B	From Leg	4.00	0.0000	119.00	1/2"	1.80	1.50	0.09
						Ice	1.97	1.65	0.11
						1" Ice	2.32	1.99	0.16
						2" Ice			
(2) RRUS 4449 B5/B12	C	From Leg	4.00	0.0000	119.00	No Ice	1.97	1.41	0.07
						1/2"	2.14	1.56	0.09
						Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	119.00	2" Ice			
						No Ice	1.21	1.21	0.02
						1/2"	1.89	1.89	0.04
						Ice	2.11	2.11	0.07
7770.00	A	From Leg	4.00	0.0000	119.00	1" Ice	2.57	2.57	0.13
						2" Ice			
						No Ice	5.51	2.93	0.04
						1/2"	5.87	3.27	0.07
7770.00	B	From Leg	4.00	0.0000	119.00	Ice	6.23	3.63	0.11
						1" Ice	6.99	4.35	0.20
						2" Ice			
						No Ice	5.51	2.93	0.04
7770.00	B	From Leg	4.00	0.0000	119.00	1/2"	5.87	3.27	0.07
						Ice	6.23	3.63	0.11
						1" Ice	6.99	4.35	0.20
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft ²	ft ²	K	
7770.00	C	From Leg	4.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	5.51	2.93	0.04
								1/2"	5.87	3.27	0.07
								Ice	6.23	3.63	0.11
GPS_A	A	From Leg	4.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	0.26	0.26	0.00
								1/2"	0.32	0.32	0.00
								Ice	0.39	0.39	0.01
(2) LGP21401	A	From Leg	4.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	1.10	0.21	0.01
								1/2"	1.24	0.27	0.02
								Ice	1.38	0.35	0.03
(2) LGP21401	B	From Leg	4.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	1.10	0.21	0.01
								1/2"	1.24	0.27	0.02
								Ice	1.38	0.35	0.03
(2) LGP21401	C	From Leg	4.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	1.10	0.21	0.01
								1/2"	1.24	0.27	0.02
								Ice	1.38	0.35	0.03
DC6-48-60-18-8F	A	From Leg	1.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	1.21	1.21	0.02
								1/2"	1.89	1.89	0.04
								Ice	2.11	2.11	0.07
(2) LGP13519	A	From Leg	4.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	0.29	0.18	0.01
								1/2"	0.36	0.24	0.01
								Ice	0.44	0.31	0.01
(2) LGP13519	B	From Leg	4.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	0.29	0.18	0.01
								1/2"	0.36	0.24	0.01
								Ice	0.44	0.31	0.01
(2) LGP13519	C	From Leg	4.00	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	0.29	0.18	0.01
								1/2"	0.36	0.24	0.01
								Ice	0.44	0.31	0.01
4' x 3" Pipe Mount	A	From Leg	0.50	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	1.00	1.00	0.03
								1/2"	1.25	1.25	0.04
								Ice	1.50	1.50	0.05
4' x 3" Pipe Mount	B	From Leg	0.50	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	1.00	1.00	0.03
								1/2"	1.25	1.25	0.04
								Ice	1.50	1.50	0.05
4' x 3" Pipe Mount	C	From Leg	0.50	0.00	0.00	0.0000	119.00	2" Ice			
								No Ice	1.00	1.00	0.03
								1/2"	1.25	1.25	0.04
								Ice	1.50	1.50	0.05
Platform Mount [LP 1201-1_HR-3]	B	None				0.0000	119.00	2" Ice			
								No Ice	29.96	29.96	2.62
								1/2"	36.80	36.80	3.38
								Ice	43.24	43.24	4.28
								1" Ice	55.52	55.52	6.43

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						2" Ice			
*** 109 R ***									
ETCR-654L12H6 w/ Mount Pipe	A	From Leg	4.00	0.0000	109.00	No Ice	10.90	4.61	0.10
			0.00			1/2"	11.57	5.18	0.19
			1.00			Ice	12.24	5.77	0.28
						1" Ice	13.64	7.00	0.51
ETCR-654L12H6 w/ Mount Pipe	B	From Leg	4.00	0.0000	109.00	No Ice	10.90	4.61	0.10
			0.00			1/2"	11.57	5.18	0.19
			1.00			Ice	12.24	5.77	0.28
						1" Ice	13.64	7.00	0.51
ETCR-654L12H6 w/ Mount Pipe	C	From Leg	4.00	0.0000	109.00	No Ice	10.90	4.61	0.10
			0.00			1/2"	11.57	5.18	0.19
			1.00			Ice	12.24	5.77	0.28
						1" Ice	13.64	7.00	0.51
(2) RRH2X50-800	A	From Leg	4.00	0.0000	109.00	No Ice	1.70	1.28	0.05
			0.00			1/2"	1.86	1.43	0.07
			1.00			Ice	2.03	1.58	0.09
						1" Ice	2.40	1.91	0.14
(2) RRH2X50-800	B	From Leg	4.00	0.0000	109.00	No Ice	1.70	1.28	0.05
			0.00			1/2"	1.86	1.43	0.07
			1.00			Ice	2.03	1.58	0.09
						1" Ice	2.40	1.91	0.14
(2) RRH2X50-800	C	From Leg	4.00	0.0000	109.00	No Ice	1.70	1.28	0.05
			0.00			1/2"	1.86	1.43	0.07
			1.00			Ice	2.03	1.58	0.09
						1" Ice	2.40	1.91	0.14
TD-RRH8X20-25	A	From Leg	4.00	0.0000	109.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			1.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
TD-RRH8X20-25	B	From Leg	4.00	0.0000	109.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			1.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
TD-RRH8X20-25	C	From Leg	4.00	0.0000	109.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			1.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
PCS 1900MHZ 4X45W 65MHZ	A	From Leg	4.00	0.0000	109.00	No Ice	2.31	2.23	0.06
			0.00			1/2"	2.52	2.43	0.08
			1.00			Ice	2.73	2.64	0.11
						1" Ice	3.17	3.08	0.17
PCS 1900MHZ 4X45W 65MHZ	B	From Leg	4.00	0.0000	109.00	No Ice	2.31	2.23	0.06
			0.00			1/2"	2.52	2.43	0.08
			1.00			Ice	2.73	2.64	0.11
						1" Ice	3.17	3.08	0.17
PCS 1900MHZ 4X45W 65MHZ	C	From Leg	4.00	0.0000	109.00	No Ice	2.31	2.23	0.06
			0.00			1/2"	2.52	2.43	0.08
			1.00			Ice	2.73	2.64	0.11
						1" Ice	3.17	3.08	0.17
(3) 6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	109.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral						Vert
			ft	ft	°	ft	ft ²	ft ²	K	
						1" Ice	3.06	3.06	0.09	
(3) 6' x 2" Mount Pipe	B	From Leg	4.00	0.00	0.0000	109.00	2" Ice	1.43	1.43	0.02
							No Ice	1.92	1.92	0.03
							1/2"	2.29	2.29	0.05
							Ice	3.06	3.06	0.09
(3) 6' x 2" Mount Pipe	C	From Leg	4.00	0.00	0.0000	109.00	2" Ice	1.43	1.43	0.02
							No Ice	1.92	1.92	0.03
							1/2"	2.29	2.29	0.05
							Ice	3.06	3.06	0.09
Platform Mount [LP 1201-1_KCKR]	C	None			0.0000	109.00	2" Ice	29.60	29.60	2.38
							No Ice	36.33	36.33	3.07
							1/2"	43.26	43.26	3.86
							Ice	57.72	57.72	5.75
*** 99 R ***										
(2) LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	99.00	2" Ice	2.86	6.57	0.03
							No Ice	3.22	7.19	0.08
							1/2"	3.59	7.84	0.13
							Ice	4.34	9.17	0.25
(2) LPA-80080/4CF w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	99.00	2" Ice	2.86	6.57	0.03
							No Ice	3.22	7.19	0.08
							1/2"	3.59	7.84	0.13
							Ice	4.34	9.17	0.25
(2) LPA-80080/4CF w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	99.00	2" Ice	2.86	6.57	0.03
							No Ice	3.22	7.19	0.08
							1/2"	3.59	7.84	0.13
							Ice	4.34	9.17	0.25
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	99.00	2" Ice	5.50	4.38	0.10
							No Ice	5.97	4.84	0.17
							1/2"	6.45	5.30	0.25
							Ice	7.44	6.26	0.46
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	99.00	2" Ice	5.50	4.38	0.10
							No Ice	5.97	4.84	0.17
							1/2"	6.45	5.30	0.25
							Ice	7.44	6.26	0.46
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	99.00	2" Ice	5.50	4.38	0.10
							No Ice	5.97	4.84	0.17
							1/2"	6.45	5.30	0.25
							Ice	7.44	6.26	0.46
RRH2x60-700	A	From Leg	4.00	0.00	0.0000	99.00	2" Ice	3.50	1.82	0.06
							No Ice	3.76	2.05	0.08
							1/2"	4.03	2.29	0.11
							Ice	4.58	2.79	0.17
RRH2x60-700	B	From Leg	4.00	0.00	0.0000	99.00	2" Ice	3.50	1.82	0.06
							No Ice	3.76	2.05	0.08
							1/2"	4.03	2.29	0.11
							Ice	4.58	2.79	0.17
RRH2x60-700	C	From Leg	4.00	0.00	0.0000	99.00	2" Ice	3.50	1.82	0.06
							No Ice	3.76	2.05	0.08
							1/2"	4.03	2.29	0.11
							Ice	4.58	2.79	0.17
RRH4X45-AWS4 B66	A	From Leg	4.00	0.00	0.0000	99.00	2" Ice	2.66	1.59	0.06
							No Ice	2.88	1.77	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			Ice 3.10	1.96	0.11
						1" Ice 3.58	2.36	0.17
						2" Ice		
RRH4X45-AWS4 B66	B	From Leg	4.00	0.0000	99.00	No Ice 2.66	1.59	0.06
			0.00			1/2" 2.88	1.77	0.08
			0.00			Ice 3.10	1.96	0.11
						1" Ice 3.58	2.36	0.17
						2" Ice		
RRH4X45-AWS4 B66	C	From Leg	4.00	0.0000	99.00	No Ice 2.66	1.59	0.06
			0.00			1/2" 2.88	1.77	0.08
			0.00			Ice 3.10	1.96	0.11
						1" Ice 3.58	2.36	0.17
						2" Ice		
AIRSCALE RRH 4T4R B5 160W	A	From Leg	4.00	0.0000	99.00	No Ice 1.29	0.72	0.04
			0.00			1/2" 1.43	0.83	0.05
			0.00			Ice 1.58	0.96	0.06
						1" Ice 1.90	1.22	0.09
						2" Ice		
AIRSCALE RRH 4T4R B5 160W	B	From Leg	4.00	0.0000	99.00	No Ice 1.29	0.72	0.04
			0.00			1/2" 1.43	0.83	0.05
			0.00			Ice 1.58	0.96	0.06
						1" Ice 1.90	1.22	0.09
						2" Ice		
AIRSCALE RRH 4T4R B5 160W	C	From Leg	4.00	0.0000	99.00	No Ice 1.29	0.72	0.04
			0.00			1/2" 1.43	0.83	0.05
			0.00			Ice 1.58	0.96	0.06
						1" Ice 1.90	1.22	0.09
						2" Ice		
(2) DB-T1-6Z-8AB-0Z	A	From Leg	4.00	0.0000	99.00	No Ice 4.80	2.00	0.04
			0.00			1/2" 5.07	2.19	0.08
			0.00			Ice 5.35	2.39	0.12
						1" Ice 5.93	2.81	0.21
						2" Ice		
Platform Mount [LP 602- 1_KCKR]	C	None		0.0000	99.00	No Ice 42.30	42.30	1.62
						1/2" 49.04	49.04	2.38
						Ice 55.87	55.87	3.27
						1" Ice 69.85	69.85	5.40
						2" Ice		
88 R APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00	0.0000	88.00	No Ice 14.69	6.87	0.19
			0.00			1/2" 15.46	7.55	0.31
			2.00			Ice 16.23	8.25	0.46
						1" Ice 17.82	9.67	0.79
						2" Ice		
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00	0.0000	88.00	No Ice 14.69	6.87	0.19
			0.00			1/2" 15.46	7.55	0.31
			2.00			Ice 16.23	8.25	0.46
						1" Ice 17.82	9.67	0.79
						2" Ice		
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00	0.0000	88.00	No Ice 14.69	6.87	0.19
			0.00			1/2" 15.46	7.55	0.31
			2.00			Ice 16.23	8.25	0.46
						1" Ice 17.82	9.67	0.79
						2" Ice		
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00	0.0000	88.00	No Ice 6.75	6.07	0.15
			0.00			1/2" 7.20	6.87	0.21
			2.00			Ice 7.65	7.58	0.28
						1" Ice 8.57	9.06	0.44
						2" Ice		
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00	0.0000	88.00	No Ice 6.75	6.07	0.15
			0.00			1/2" 7.20	6.87	0.21
			2.00			Ice 7.65	7.58	0.28
						1" Ice 8.57	9.06	0.44
						2" Ice		
AIR 32 B2A/B66AA w/	C	From Leg	4.00	0.0000	88.00	No Ice 6.75	6.07	0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
Mount Pipe			0.00 2.00		1/2" Ice 1" Ice 2" Ice	7.20 7.65 8.57	6.87 7.58 9.06	0.21 0.28 0.44	
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.59	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.59	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.59	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
RADIO 4449 B12/B71	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
RADIO 4449 B12/B71	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
RADIO 4449 B12/B71	C	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
T-Arm Mount [TA 602-3]	B	None		0.0000	88.00	No Ice 1/2" Ice 1" Ice 2" Ice	13.40 16.44 19.70 25.86	13.40 16.44 19.70 25.86	0.77 1.00 1.29 2.05

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

Comb. No.	Description
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
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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 97	Pole	Max Tension	2	0.00	-0.00	-0.00
			Max. Compression	26	-21.09	0.79	-0.73
			Max. Mx	20	-10.06	109.37	-0.67
			Max. My	14	-10.05	0.50	-109.14
			Max. Vy	8	8.03	-108.62	-0.40
			Max. Vx	14	8.01	0.50	-109.14
			Max. Torque	7			0.33
L2	97 - 48	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.96	-0.14	-0.12
			Max. Mx	8	-23.36	-829.70	-0.26
			Max. My	14	-23.35	0.01	-836.97
			Max. Vy	8	17.15	-829.70	-0.26
			Max. Vx	14	17.31	0.01	-836.97
			Max. Torque	19			-0.47
L3	48 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.40	0.44	-0.45
			Max. Mx	8	-35.93	-1808.21	-0.35
			Max. My	14	-35.93	0.02	-1824.25
			Max. Vy	8	19.79	-1808.21	-0.35
			Max. Vx	14	19.95	0.02	-1824.25
			Max. Torque	38			0.70

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	63.40	0.00	-5.88
	Max. H _x	20	35.94	19.76	0.00
	Max. H _z	2	35.94	0.00	19.92
	Max. M _x	2	1823.28	0.00	19.92
	Max. M _z	8	1808.21	-19.76	-0.00
	Max. Torsion	38	0.70	2.92	5.09
	Min. Vert	7	26.96	-17.11	9.96
	Min. H _x	8	35.94	-19.76	-0.00
	Min. H _z	14	35.94	-0.00	-19.92
	Min. M _x	14	-1824.25	-0.00	-19.92
	Min. M _z	20	-1807.98	19.76	0.00
	Min. Torsion	32	-0.70	-2.92	-5.09

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	29.95	0.00	0.00	0.38	-0.09	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	35.94	-0.00	-19.92	-1823.28	-0.25	0.16
0.9 Dead+1.0 Wind 0 deg - No Ice	26.96	-0.00	-19.92	-1804.72	-0.21	0.17
1.2 Dead+1.0 Wind 30 deg - No Ice	35.94	9.88	-17.25	-1579.02	-904.27	0.22
0.9 Dead+1.0 Wind 30 deg - No Ice	26.96	9.88	-17.25	-1562.95	-894.97	0.22
1.2 Dead+1.0 Wind 60 deg - No Ice	35.94	17.11	-9.96	-911.52	-1566.04	0.22
0.9 Dead+1.0 Wind 60 deg - No Ice	26.96	17.11	-9.96	-902.30	-1549.95	0.22
1.2 Dead+1.0 Wind 90 deg - No Ice	35.94	19.76	0.00	0.35	-1808.21	0.17
0.9 Dead+1.0 Wind 90 deg - No Ice	26.96	19.76	0.00	0.23	-1789.64	0.16
1.2 Dead+1.0 Wind 120 deg - No Ice	35.94	17.11	9.96	912.26	-1565.91	0.06
0.9 Dead+1.0 Wind 120 deg - No Ice	26.96	17.11	9.96	902.79	-1549.82	0.05
1.2 Dead+1.0 Wind 150 deg - No Ice	35.94	9.88	17.25	1579.86	-904.04	-0.06
0.9 Dead+1.0 Wind 150 deg - No Ice	26.96	9.88	17.25	1563.54	-894.74	-0.07
1.2 Dead+1.0 Wind 180 deg - No Ice	35.94	0.00	19.92	1824.25	0.02	-0.16
0.9 Dead+1.0 Wind 180 deg - No Ice	26.96	0.00	19.92	1805.43	0.05	-0.17
1.2 Dead+1.0 Wind 210 deg - No Ice	35.94	-9.88	17.25	1579.99	904.05	-0.22
0.9 Dead+1.0 Wind 210 deg - No Ice	26.96	-9.88	17.25	1563.67	894.80	-0.22
1.2 Dead+1.0 Wind 240 deg - No Ice	35.94	-17.11	9.96	912.50	1565.81	-0.22
0.9 Dead+1.0 Wind 240 deg - No Ice	26.96	-17.11	9.96	903.02	1549.78	-0.22
1.2 Dead+1.0 Wind 270 deg - No Ice	35.94	-19.76	-0.00	0.62	1807.98	-0.17
0.9 Dead+1.0 Wind 270 deg - No Ice	26.96	-19.76	-0.00	0.49	1789.47	-0.16
1.2 Dead+1.0 Wind 300 deg - No Ice	35.94	-17.11	-9.96	-911.29	1565.68	-0.07
0.9 Dead+1.0 Wind 300 deg - No Ice	26.96	-17.11	-9.96	-902.07	1549.65	-0.05

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
- No Ice						
1.2 Dead+1.0 Wind 330 deg	35.94	-9.88	-17.25	-1578.89	903.81	0.05
- No Ice						
0.9 Dead+1.0 Wind 330 deg	26.96	-9.88	-17.25	-1562.82	894.58	0.07
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	63.40	0.00	0.00	0.45	0.44	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	63.40	0.00	-5.88	-531.83	0.24	-0.58
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	63.40	2.93	-5.09	-460.62	-264.67	-0.31
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	63.40	5.07	-2.94	-265.86	-458.54	0.05
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	63.40	5.85	-0.00	0.27	-529.42	0.39
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	63.40	5.07	2.94	266.45	-458.33	0.63
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	63.40	2.92	5.09	461.36	-264.31	0.70
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	63.40	-0.00	5.88	532.78	0.66	0.58
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	63.40	-2.93	5.09	461.57	265.56	0.31
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	63.40	-5.07	2.94	266.81	459.43	-0.05
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	63.40	-5.85	0.00	0.69	530.31	-0.39
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	63.40	-5.07	-2.94	-265.49	459.22	-0.63
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	63.40	-2.92	-5.09	-460.41	265.20	-0.70
Dead+Wind 0 deg - Service	29.95	-0.00	-4.69	-426.31	-0.13	0.04
Dead+Wind 30 deg - Service	29.95	2.33	-4.06	-369.16	-211.64	0.05
Dead+Wind 60 deg - Service	29.95	4.03	-2.34	-212.98	-366.48	0.05
Dead+Wind 90 deg - Service	29.95	4.65	0.00	0.37	-423.14	0.04
Dead+Wind 120 deg - Service	29.95	4.03	2.35	213.73	-366.44	0.01
Dead+Wind 150 deg - Service	29.95	2.33	4.06	369.93	-211.59	-0.01
Dead+Wind 180 deg - Service	29.95	0.00	4.69	427.11	-0.06	-0.04
Dead+Wind 210 deg - Service	29.95	-2.33	4.06	369.96	211.45	-0.05
Dead+Wind 240 deg - Service	29.95	-4.03	2.34	213.78	366.28	-0.05
Dead+Wind 270 deg - Service	29.95	-4.65	-0.00	0.43	422.95	-0.04
Dead+Wind 300 deg - Service	29.95	-4.03	-2.35	-212.93	366.25	-0.01
Dead+Wind 330 deg - Service	29.95	-2.33	-4.06	-369.13	211.40	0.01

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-29.95	0.00	0.00	29.95	0.00	0.000%
2	-0.00	-35.94	-19.92	0.00	35.94	19.92	0.000%
3	-0.00	-26.96	-19.92	0.00	26.96	19.92	0.000%
4	9.88	-35.94	-17.25	-9.88	35.94	17.25	0.000%
5	9.88	-26.96	-17.25	-9.88	26.96	17.25	0.000%
6	17.11	-35.94	-9.96	-17.11	35.94	9.96	0.000%
7	17.11	-26.96	-9.96	-17.11	26.96	9.96	0.000%
8	19.76	-35.94	0.00	-19.76	35.94	-0.00	0.000%
9	19.76	-26.96	0.00	-19.76	26.96	-0.00	0.000%
10	17.11	-35.94	9.96	-17.11	35.94	-9.96	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
11	17.11	-26.96	9.96	-17.11	26.96	-9.96	0.000%
12	9.88	-35.94	17.25	-9.88	35.94	-17.25	0.000%
13	9.88	-26.96	17.25	-9.88	26.96	-17.25	0.000%
14	0.00	-35.94	19.92	-0.00	35.94	-19.92	0.000%
15	0.00	-26.96	19.92	-0.00	26.96	-19.92	0.000%
16	-9.88	-35.94	17.25	9.88	35.94	-17.25	0.000%
17	-9.88	-26.96	17.25	9.88	26.96	-17.25	0.000%
18	-17.11	-35.94	9.96	17.11	35.94	-9.96	0.000%
19	-17.11	-26.96	9.96	17.11	26.96	-9.96	0.000%
20	-19.76	-35.94	-0.00	19.76	35.94	0.00	0.000%
21	-19.76	-26.96	-0.00	19.76	26.96	0.00	0.000%
22	-17.11	-35.94	-9.96	17.11	35.94	9.96	0.000%
23	-17.11	-26.96	-9.96	17.11	26.96	9.96	0.000%
24	-9.88	-35.94	-17.25	9.88	35.94	17.25	0.000%
25	-9.88	-26.96	-17.25	9.88	26.96	17.25	0.000%
26	0.00	-63.40	0.00	0.00	63.40	0.00	0.000%
27	0.00	-63.40	-5.88	-0.00	63.40	5.88	0.000%
28	2.93	-63.40	-5.09	-2.93	63.40	5.09	0.000%
29	5.07	-63.40	-2.94	-5.07	63.40	2.94	0.000%
30	5.85	-63.40	-0.00	-5.85	63.40	0.00	0.000%
31	5.07	-63.40	2.94	-5.07	63.40	-2.94	0.000%
32	2.92	-63.40	5.09	-2.92	63.40	-5.09	0.000%
33	-0.00	-63.40	5.88	0.00	63.40	-5.88	0.000%
34	-2.93	-63.40	5.09	2.93	63.40	-5.09	0.000%
35	-5.07	-63.40	2.94	5.07	63.40	-2.94	0.000%
36	-5.85	-63.40	0.00	5.85	63.40	-0.00	0.000%
37	-5.07	-63.40	-2.94	5.07	63.40	2.94	0.000%
38	-2.92	-63.40	-5.09	2.92	63.40	5.09	0.000%
39	-0.00	-29.95	-4.69	0.00	29.95	4.69	0.000%
40	2.33	-29.95	-4.06	-2.33	29.95	4.06	0.000%
41	4.03	-29.95	-2.34	-4.03	29.95	2.34	0.000%
42	4.65	-29.95	0.00	-4.65	29.95	-0.00	0.000%
43	4.03	-29.95	2.35	-4.03	29.95	-2.35	0.000%
44	2.33	-29.95	4.06	-2.33	29.95	-4.06	0.000%
45	0.00	-29.95	4.69	-0.00	29.95	-4.69	0.000%
46	-2.33	-29.95	4.06	2.33	29.95	-4.06	0.000%
47	-4.03	-29.95	2.34	4.03	29.95	-2.34	0.000%
48	-4.65	-29.95	-0.00	4.65	29.95	0.00	0.000%
49	-4.03	-29.95	-2.35	4.03	29.95	2.35	0.000%
50	-2.33	-29.95	-4.06	2.33	29.95	4.06	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00027101
3	Yes	4	0.00000001	0.00014511
4	Yes	5	0.00000001	0.00077250
5	Yes	5	0.00000001	0.00037052
6	Yes	5	0.00000001	0.00076546
7	Yes	5	0.00000001	0.00036727
8	Yes	4	0.00000001	0.00022748
9	Yes	4	0.00000001	0.00009839
10	Yes	5	0.00000001	0.00076804
11	Yes	5	0.00000001	0.00036797
12	Yes	5	0.00000001	0.00077289
13	Yes	5	0.00000001	0.00037061
14	Yes	4	0.00000001	0.00026524
15	Yes	4	0.00000001	0.00013971
16	Yes	5	0.00000001	0.00076806
17	Yes	5	0.00000001	0.00036784
18	Yes	5	0.00000001	0.00077295
19	Yes	5	0.00000001	0.00037053
20	Yes	4	0.00000001	0.00023031

21	Yes	4	0.00000001	0.00010023
22	Yes	5	0.00000001	0.00076808
23	Yes	5	0.00000001	0.00036878
24	Yes	5	0.00000001	0.00076538
25	Yes	5	0.00000001	0.00036670
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00029593
28	Yes	5	0.00000001	0.00037767
29	Yes	5	0.00000001	0.00037862
30	Yes	5	0.00000001	0.00029400
31	Yes	5	0.00000001	0.00038284
32	Yes	5	0.00000001	0.00037642
33	Yes	5	0.00000001	0.00029622
34	Yes	5	0.00000001	0.00038233
35	Yes	5	0.00000001	0.00037977
36	Yes	5	0.00000001	0.00029416
37	Yes	5	0.00000001	0.00037627
38	Yes	5	0.00000001	0.00038430
39	Yes	4	0.00000001	0.00003517
40	Yes	4	0.00000001	0.00023005
41	Yes	4	0.00000001	0.00022391
42	Yes	4	0.00000001	0.00003396
43	Yes	4	0.00000001	0.00022693
44	Yes	4	0.00000001	0.00023137
45	Yes	4	0.00000001	0.00003527
46	Yes	4	0.00000001	0.00022579
47	Yes	4	0.00000001	0.00023078
48	Yes	4	0.00000001	0.00003395
49	Yes	4	0.00000001	0.00022708
50	Yes	4	0.00000001	0.00022381

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 97	11.622	45	0.8071	0.0001
L2	100.62 - 48	8.404	45	0.7636	0.0003
L3	52.96 - 0	2.293	45	0.4043	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.00	HPA65R-BU6A	45	11.453	0.8057	0.0001	53505
109.00	ETCR-654L12H6 w/ Mount Pipe	45	9.775	0.7886	0.0002	24320
99.00	(2) LPA-80080/4CF w/ Mount Pipe	45	8.145	0.7570	0.0003	13116
88.00	APXVAARR24_43-U-NA20 w/ Mount Pipe	45	6.458	0.6960	0.0003	9574

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 97	49.690	14	3.4482	0.0025
L2	100.62 - 48	35.937	14	3.2677	0.0019
L3	52.96 - 0	9.801	14	1.7292	0.0009

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
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Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.00	HPA65R-BU6A	14	48.969	3.4425	0.0024	12707
109.00	ETCR-654L12H6 w/ Mount Pipe	14	41.796	3.3726	0.0022	5775
99.00	(2) LPA-80080/4CF w/ Mount Pipe	14	34.831	3.2394	0.0019	3111
88.00	APXVAARR24_43-U-NA20 w/ Mount Pipe	14	27.618	2.9796	0.0016	2257

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	KI/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	120 - 97 (1)	TP28.93x22.69x0.1875	23.00	0.00	0.0	16.5209	-10.05	966.47	0.010
L2	97 - 48 (2)	TP39.7x27.5729x0.25	52.62	0.00	0.0	30.3965	-23.35	1778.20	0.013
L3	48 - 0 (3)	TP51.04x38.0569x0.3125	52.96	0.00	0.0	50.3153	-35.93	2943.45	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	120 - 97 (1)	TP28.93x22.69x0.1875	109.61	608.22	0.180	0.00	608.22	0.000
L2	97 - 48 (2)	TP39.7x27.5729x0.25	836.97	1521.46	0.550	0.00	1521.46	0.000
L3	48 - 0 (3)	TP51.04x38.0569x0.3125	1824.25	3247.13	0.562	0.00	3247.13	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	120 - 97 (1)	TP28.93x22.69x0.1875	8.03	289.94	0.028	0.02	704.88	0.000
L2	97 - 48 (2)	TP39.7x27.5729x0.25	17.31	533.46	0.032	0.31	1789.61	0.000
L3	48 - 0 (3)	TP51.04x38.0569x0.3125	19.95	883.03	0.023	0.17	3922.84	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L1	120 - 97 (1)	0.010	0.180	0.000	0.028	0.000	0.191	1.050	4.8.2
L2	97 - 48 (2)	0.013	0.550	0.000	0.032	0.000	0.564	1.050	4.8.2
L3	48 - 0 (3)	0.012	0.562	0.000	0.023	0.000	0.575	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	120 - 97	Pole	TP28.93x22.69x0.1875	1	-10.05	1014.80	18.2	Pass	
L2	97 - 48	Pole	TP39.7x27.5729x0.25	2	-23.35	1867.11	53.7	Pass	
L3	48 - 0	Pole	TP51.04x38.0569x0.3125	3	-35.93	3090.62	54.7	Pass	
							Summary		
							Pole (L3)	54.7	Pass
							RATING =	54.7	Pass

APPENDIX B
BASE LEVEL DRAWING



(PROPOSED EQUIPMENT CONFIGURATION)

- (1) 3/8" TO 119 FT LEVEL
- (2) 1/2" TO 119 FT LEVEL
- (2) 3/4" TO 119 FT LEVEL
- (2) 7/8" TO 119 FT LEVEL
- (12) 1-5/8" TO 119 FT LEVEL
- (1) 2" TO 119 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)

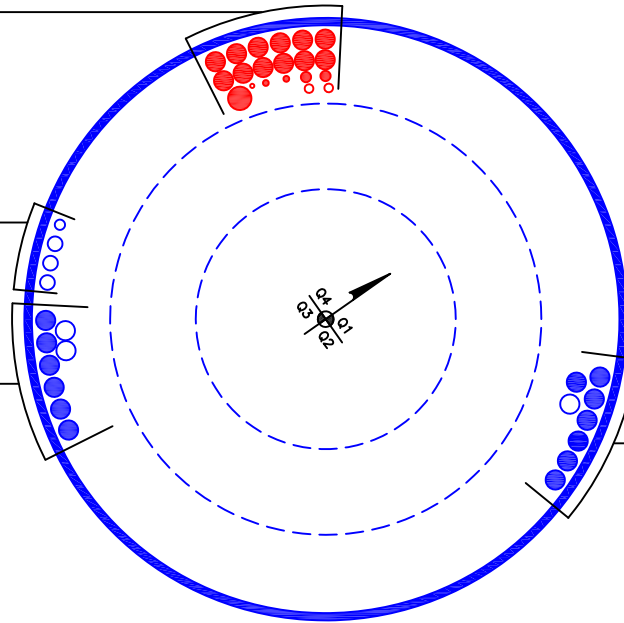
- (1) 7/8" TO 109 FT LEVEL
- (3) 1-1/4" TO 109 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)

- (8) 1-5/8" TO 99 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)

- (8) 1-5/8" TO 88 FT LEVEL



APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

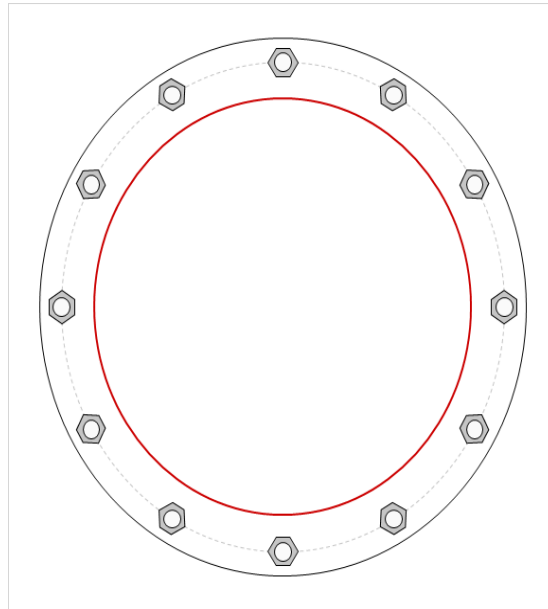


Site Info	
BU #	845993
Site Name	RLINGTON-NEPAUG RC
Order #	503641 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	4

Applied Loads	
Moment (kip-ft)	1824.25
Axial Force (kips)	35.93
Shear Force (kips)	19.95

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
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Anchor Rod Data
(12) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 60" BC
Base Plate Data
66" OD x 2.25" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi)
Stiffener Data
N/A
Pole Data
51.04" x 0.3125" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
$Pu_c = 124.54$	$\phi Pn_c = 243.75$	Stress Rating
$Vu = 1.66$	$\phi Vn = 73.13$	53.1%
$Mu = 4.32$	$\phi Mn = 94.7$	Pass
Base Plate Summary		
Max Stress (ksi):	20.86	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	36.8%	Pass

Pier and Pad Foundation



BU #: 845993
 Site Name: BURLINGTON-NE
 App. Number: 503641 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

Top & Bot. Pad Rein. Different?:
 Block Foundation?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	36	kips
Base Shear, V_u comp:	20	kips
Moment, M_u :	1824	ft-kips
Tower Height, H :	120	ft
BP Dist. Above Fdn, bp_{dist} :	6.25	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	155.14	20.00	12.3%	Pass
<i>Bearing Pressure (ksf)</i>	12.40	1.36	10.4%	Pass
<i>Overtuning (kip*ft)</i>	4745.47	1952.42	41.1%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	3981.76	1882.00	45.0%	Pass
<i>Pier Compression (kip)</i>	31187.52	61.58	0.2%	Pass
<i>Pad Flexure (kip*ft)</i>	3178.02	653.81	19.6%	Pass
<i>Pad Shear - 1-way (kips)</i>	896.51	101.12	10.7%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.190	0.020	9.8%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	3527.78	1129.20	30.5%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	7	ft
Ext. Above Grade, E :	0.9	ft
Pier Rebar Size, Sc :	8	
Pier Rebar Quantity, mc :	30	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Soil Rating*:	41.1%
Structural Rating*:	45.0%

Pad Properties		
Depth, D :	5	ft
Pad Width, W :	25	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Top), Sp_{top} :	8	
Pad Top Rebar Quantity (Top), mp_{top} :	22	
Pad Rebar Size (Bottom), Sp :	8	
Pad Rebar Quantity (Bottom), mp :	29	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, Fy :	60	ksi
Concrete Compressive Strength, $F'c$:	4	ksi
Dry Concrete Density, δc :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	120	pcf
Ultimate Net Bearing, Q_{net} :	16.000	ksf
Cohesion, Cu :	0.000	ksf
Friction Angle, ϕ :	30	degrees
SPT Blow Count, N_{blows} :	27	
Base Friction, μ :	0.45	
Neglected Depth, N :	4.17	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	4	ft

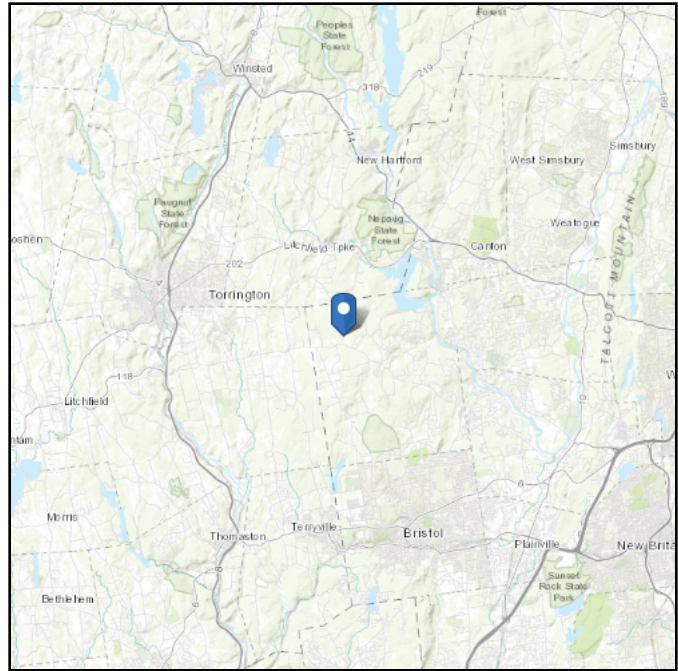
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 826.42 ft (NAVD 88)
Latitude: 41.782461
Longitude: -72.989633



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

120 mph per 2018 CSBC Appendix V

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Mon Sep 09 2019

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 7-10 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 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

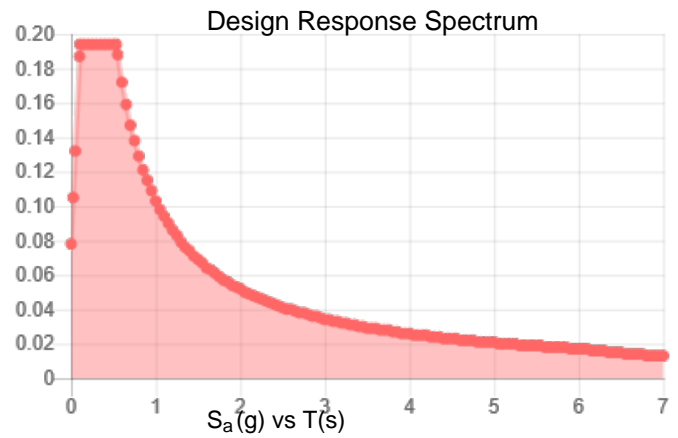
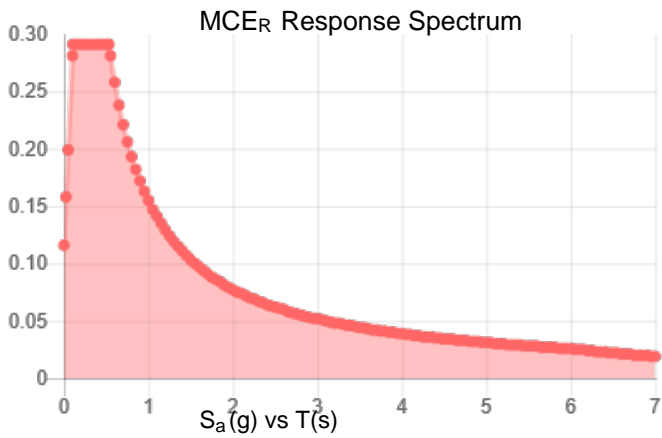
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.182	S_{DS} :	0.194
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.092
S_{MS} :	0.291	PGA _M :	0.147
S_{M1} :	0.155	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Mon Sep 09 2019

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Mon Sep 09 2019

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 50-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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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August 29, 2019



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT1116 (LTE 2C/3C/4C)
 FA Number: 10090883
 PACE Number: MRCTB039642
 PT Number: 2051A0PFLV
 Site Name: BURLINGTON – NEPAUG ROAD
 Site Address: 12 Nepaug Road
 Burlington, CT 06013

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mount to determine their capability of supporting the following additional loading:

- (3) 7770 Antennas (55.0"x11.0"x5.0" - Wt. = 35 lbs. /each)
- (6) LGP21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(3) HPA65R-BU6A Antennas (71.1"x11.7"x7.6" – Wt. = 42 lbs. /each)**
- **(3) 800-10965 Antennas (78.7"x20.0"x6.9"– Wt. = 109 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each) (Tower Mount)**
- **(3) B5/B12 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each) (Tower Mount)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mount. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mount on August 28, 2019.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.71 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing monopole with a ring mount. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mount **IS CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Install new handrail kit, SitePro1 P/N HRK14 (or approved equal). Handrail kit is required per AT&T Technical Directive to stabilize existing cantilevered antennas.**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 2C/3C/4C) Mount Rating	1	LC9	41%	PASS
Modified (LTE 2C/3C/4C) Mount Rating	3	LC9	44%	PASS

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:







HUDSON
Design Group LLC

**Wind & Ice
Calculations**

Date: 8/29/2019
 Project Name: BURLINGTON-NEPAUG ROAD
 Project No.: CT1116
 Designed By: LBW Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

$K_z =$ **1.315**

$z =$ 120 (ft)
 $z_g =$ 900 (ft)
 $\alpha =$ 9.5

$K_{zmin} \leq K_z \leq 2.01$

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

$K_h = e^{(fz/H)}$

$K_{zt} =$ #DIV/0!

$K_h =$ #DIV/0!

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

$K_c =$ 1 (from Table 2-4)

$K_t =$ 0 (from Table 2-5)

f = 0 (from Table 2-5)

z = 120

$z_s =$ 880 (Mean elevation of base of structure above sea level)

H = 0 (Ht. of the crest above surrounding terrain)

$K_{zt} =$ 1.00 (from 2.6.6.2.1)

$K_e =$ 0.97 (from 2.6.8)

Category = **1**

2.6.10 Design Ice Thickness

Max Ice Thickness =

$t_i =$ **1.50** in

Importance Factor =

l = **1.0** (from Table 2-3)

$K_{iz} =$ **1.14** (from Sec. 2.6.10)

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

$t_{iz} =$ **1.71** in

Date: 8/29/2019
 Project Name: BURLINGTON-NEPAUG ROAD
 Project No.: CT1116
 Designed By: LBW Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$ ht. of structure

$h = 119$

$G_h = 0.85$

2.6.9.2 Guyed Masts

$G_h = 0.85$

2.6.9.3 Pole Structures

$G_h = 1.1$

2.6.9 Appurtenances

$G_h = 1.0$

2.6.9.4 Structures Supported on Other Structures

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

$G_h = 1.35$

$G_h = 1.00$

2.6.11.2 Design Wind Force on Appurtenances

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

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

$q_z = 44.61$
 $q_z (ice) = 7.75$
 $q_z (30) = 2.79$

$K_z = 1.315$ (from 2.6.5.2)
 $K_{zt} = 1.0$ (from 2.6.6.2.1)
 $K_s = 1.0$ (from 2.6.7)
 $K_e = 0.97$ (from 2.6.8)
 $K_d = 0.95$ (from Table 2-2)
 $V_{max} = 120$ mph (Ultimate Wind Speed)
 $V_{max (ice)} = 50$ mph
 $V_{30} = 30$ mph

Table 2-2

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

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 Project Name: BURLINGTON-NEPAUG ROAD
 Project No.: CT1116
 Designed By: LBW Checked By: MSC



Determine Ca:

Table 2-9

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

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

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

Ice Thickness = **1.71 in** **Angle = 0 (deg)** **Equivalent Angle = 180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	246	59	15
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	6.08	1.36	350	82	22
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	616	131	39
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	73	20	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	73	20	5
LGP21401 TMA	14.4	2.7	9.0	0.27	5.33	1.33	16	8	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	50	14	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	11	6	1
2x2 Angle	2.0	12.0		0.17	0.17	2.00	15	9	1
HSS 4x4	4.0	12.0		0.33	0.33	1.25	19	8	1

Date: 8/29/2019
 Project Name: BURLINGTON-NEPAUG ROAD
 Project No.: CT1116
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 30 (deg)

Ice Thickness = 1.71 in.

Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area (normal)</u>	<u>Flat Area (side)</u>	<u>Aspect Ratio</u>	<u>Aspect Ratio</u>	<u>Ca (normal)</u>	<u>Ca (side)</u>	<u>Force (lbs) (normal)</u>	<u>Force (lbs) (side)</u>	<u>Force (lbs) (angle)</u>
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	246	131	217
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	350	248	325
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	616	260	527
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	73	60	70
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	73	58	69
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	24

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.85	3.41	4.05	6.94	1.27	1.40	57	37	52
HPA65R-BU6A Antenna	74.5	15.1	11.0	7.82	5.70	4.93	6.77	1.31	1.39	79	61	75
800-10965 Antenna	82.1	23.4	10.3	13.35	5.88	3.51	7.96	1.24	1.43	129	65	113
B2/B66A 8843 RRH	18.3	16.6	14.3	2.11	1.82	1.10	1.28	1.20	1.20	20	17	19
B5/B12 4449 RRH	18.3	16.6	13.8	2.11	1.76	1.10	1.33	1.20	1.20	20	16	19
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.44	1.22	1.20	7	14	9

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	14
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	22	15	20
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	39	16	33
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	2

Date: 8/29/2019
 Project Name: BURLINGTON-NEPAUG ROAD
 Project No.: CT11116
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 60 (deg) Ice Thickness = 1.71 in. Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	246	131	159
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	350	248	273
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	616	260	349
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	73	60	64
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	73	58	61
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	40

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.85	3.41	4.05	6.94	1.27	1.40	57	37	42
HPA65R-BU6A Antenna	74.5	15.1	11.0	7.82	5.70	4.93	6.77	1.31	1.39	79	61	66
800-10965 Antenna	82.1	23.4	10.3	13.35	5.88	3.51	7.96	1.24	1.43	129	65	81
B2/B66A 8843 RRH	18.3	16.6	14.3	2.11	1.82	1.10	1.28	1.20	1.20	20	17	18
B5/B12 4449 RRH	18.3	16.6	13.8	2.11	1.76	1.10	1.33	1.20	1.20	20	16	17
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.44	1.22	1.20	7	14	12

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	10
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	22	15	17
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	39	16	22
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	3

Date: 8/29/2019
 Project Name: BURLINGTON-NEPAUG ROAD
 Project No.: CT1114
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.71 in. Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	246	131	131
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	350	248	248
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	616	260	260
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	73	60	60
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	73	58	58
LGP21401 TMA	14.4	2.7	9.0	0.27	0.27	5.33	1.60	1.33	1.20	16	48	18

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.85	3.11	4.05	6.94	1.27	1.40	57	37	37
HPA65R-BU6A Antenna	74.5	15.1	11.0	7.82	5.70	4.93	6.77	1.31	1.39	79	61	61
800-10965 Antenna	82.1	23.4	10.3	13.35	5.88	3.51	7.96	1.24	1.43	129	65	65
B2/B66A 8843 RRH	18.3	16.6	14.3	2.11	1.82	1.10	1.28	1.20	1.20	20	17	17
B5/B12 4449 RRH	18.3	16.6	13.8	2.11	1.76	1.10	1.33	1.20	1.20	20	16	16
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.44	1.22	1.20	7	14	14

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	8
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	22	15	15
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	39	16	16
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.27	5.33	1.60	1.33	1.20	1	3	3

Date: 8/29/2019
 Project Name: BURLINGTON-NEPAUG ROAD
 Project No.: CT1116
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.71 in. Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	246	131	159
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	350	248	273
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	616	260	349
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	73	60	64
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	73	58	61
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	40

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.85	3.41	4.05	6.94	1.27	1.40	57	37	42
HPA65R-BU6A Antenna	74.5	15.1	11.0	7.82	5.70	4.93	6.77	1.31	1.39	79	61	66
800-10965 Antenna	82.1	23.4	10.3	13.35	5.88	3.51	7.96	1.24	1.43	129	65	81
B2/B66A 8843 RRH	18.3	16.6	14.3	2.11	1.82	1.10	1.28	1.20	1.20	20	17	18
B5/B12 4449 RRH	18.3	16.6	13.8	2.11	1.76	1.10	1.33	1.20	1.20	20	16	17
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.44	1.22	1.20	7	14	12

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	10
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	22	15	17
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	39	16	22
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	3

Date: 8/29/2019
 Project Name: BURLINGTON-NEPAUG ROAD
 Project No.: CT1116
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.71 in. Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	246	131	217
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	350	248	325
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	616	260	527
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	73	60	70
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	73	58	69
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	24

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.85	3.41	4.05	6.94	1.27	1.40	57	37	52
HPA65R-BU6A Antenna	74.5	15.1	11.0	7.82	5.70	4.93	6.77	1.31	1.39	79	61	75
800-10965 Antenna	82.1	23.4	10.3	13.95	5.88	3.51	7.96	1.24	1.43	129	65	113
B2/B66A 8843 RRH	18.3	16.6	14.3	2.11	1.82	1.10	1.28	1.20	1.20	20	17	19
B5/B12 4449 RRH	18.3	16.6	13.8	2.11	1.76	1.10	1.33	1.20	1.20	20	16	19
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.44	1.22	1.20	7	14	9

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	14
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	22	15	20
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	39	16	33
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	5	4	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	2

Date: 8/29/2019

Project Name: BURLINGTON-NEPAUG ROAD

Project No.: CT1116

Designed By: LBW Checked By: MSC



HUDSON
Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.71 in.
Density of ice: 56 pcf

7770 Antenna

Weight of ice based on total radial SF area:
Height (in): 55.0
Width (in): 11.0
Depth (in): 5.0
Total weight of ice on object: 132 lbs
Weight of object: 35.0 lbs
Combined weight of ice and object: 167 lbs

HPA65R-BU6A Antenna

Weight of ice based on total radial SF area:
Height (in): 71.1
Width (in): 11.7
Depth (in): 7.6
Total weight of ice on object: 194 lbs
Weight of object: 42.0 lbs
Combined weight of ice and object: 236 lbs

800-10965 Antenna

Weight of ice based on total radial SF area:
Height (in): 78.7
Width (in): 20.0
Depth (in): 6.9
Total weight of ice on object: 313 lbs
Weight of object: 109.0 lbs
Combined weight of ice and object: 422 lbs

B2/B66A 8843 RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 10.9
Total weight of ice on object: 49 lbs
Weight of object: 72.0 lbs
Combined weight of ice and object: 121 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 10.4
Total weight of ice on object: 48 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 121 lbs

LGP21401 TMA

Weight of ice based on total radial SF area:
Height (in): 14.4
Width (in): 2.7
Depth (in): 9.0
Total weight of ice on object: 28 lbs
Weight of object: 19.0 lbs
Combined weight of ice and object: 47 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:
Depth (in): 24.0
Diameter(in): 9.7
Total weight of ice on object: 48 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 81 lbs

2" pipe

Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 9 plf

HSS 4x4

Weight of ice based on total radial SF area:
Height (in): 4
Width (in): 4
Per foot weight of ice on object: 15 plf

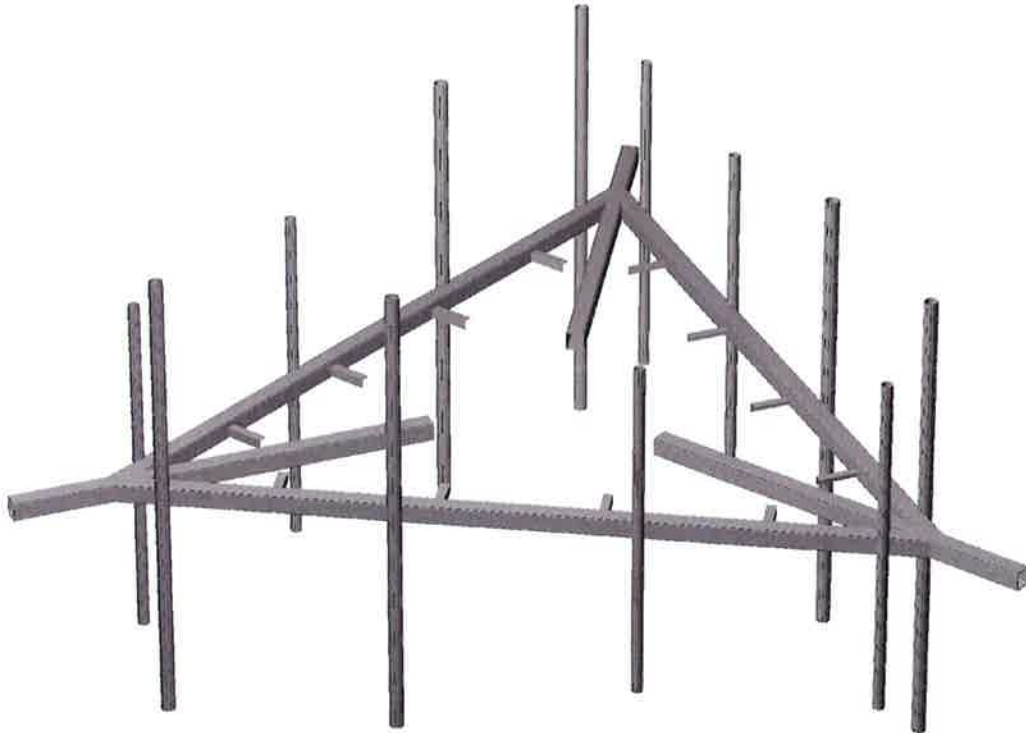
L 2x2 Angles

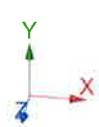
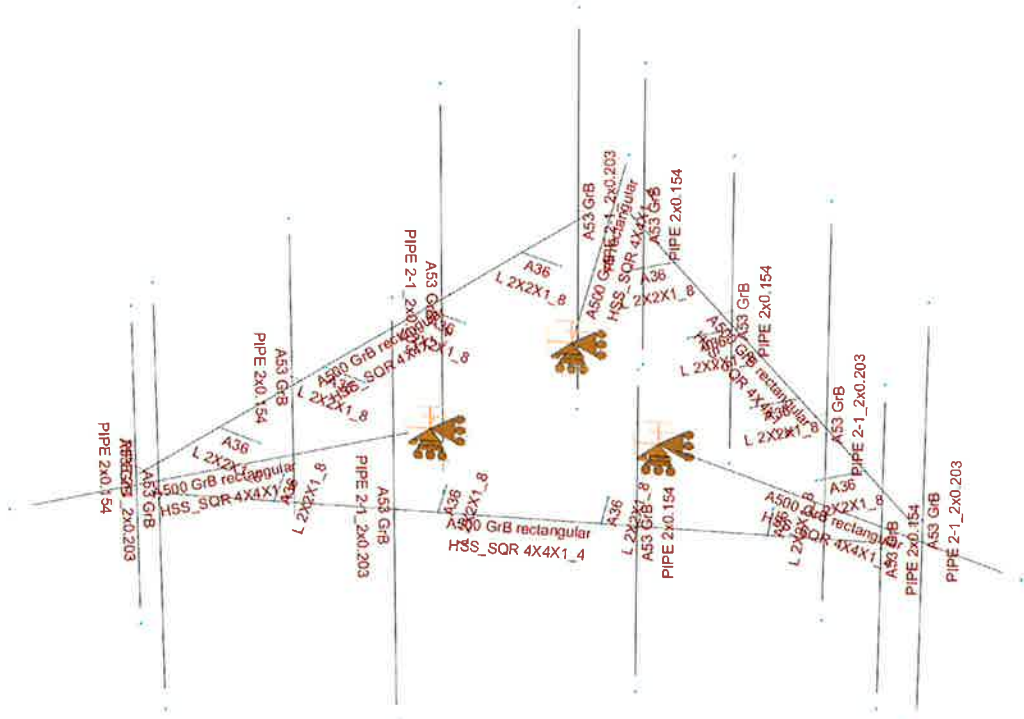
Weight of ice based on total radial SF area:
Height (in): 2
Width (in): 2
Per foot weight of ice on object: 9 plf



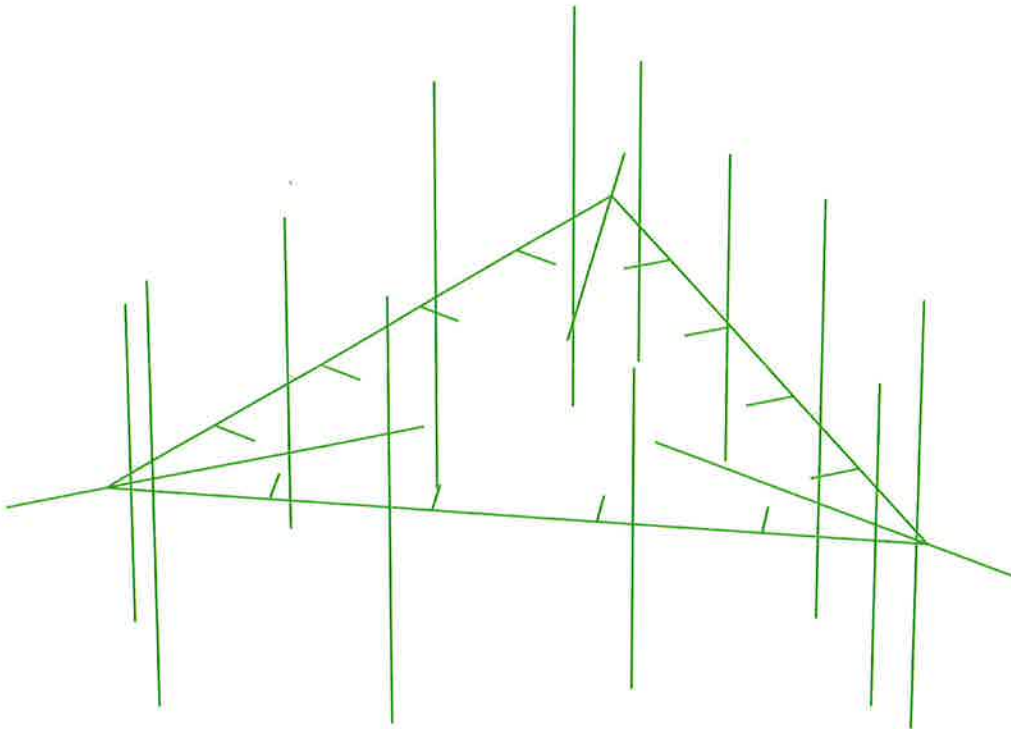
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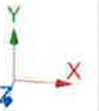
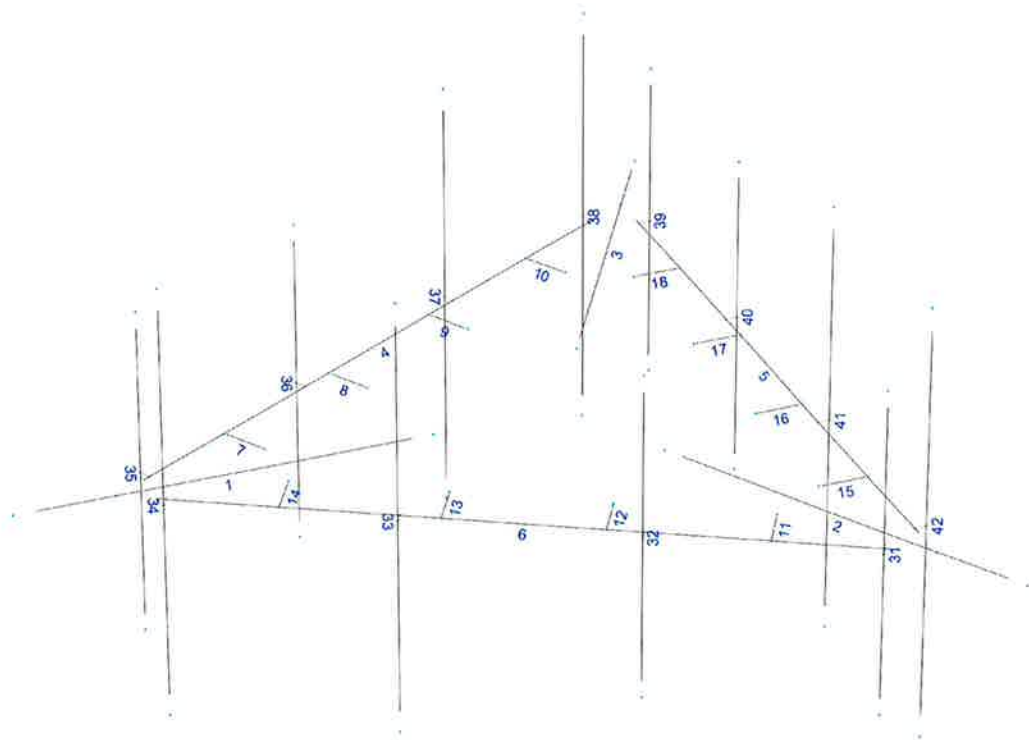
**Mount Calculations
(Existing Conditions)**





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





Current Date: 8/29/2019 4:09 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1116\LTE 2C-3C-4C\CT1116 (LTE 2C-3C-4C).retx

Load data

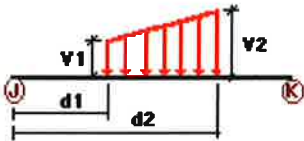
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No </td <td>LL</td>	LL
LLa4	250 lb Live Load Antenna 4	No	LL

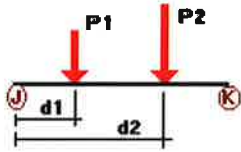
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	4	y	-0.01	0.00	0.00	No	0.00	No
	5	y	-0.01	0.00	0.00	No	0.00	No
	6	y	-0.01	0.00	0.00	No	0.00	No
	7	y	-0.01	0.00	0.00	No	0.00	No
	8	y	-0.01	0.00	0.00	No	0.00	No
	9	y	-0.01	0.00	0.00	No	0.00	No
	10	y	-0.01	0.00	0.00	No	0.00	No
	11	y	-0.01	0.00	0.00	No	0.00	No
	12	y	-0.01	0.00	0.00	No	0.00	No
	13	y	-0.01	0.00	0.00	No	0.00	No
	14	y	-0.01	0.00	0.00	No	0.00	No
	15	y	-0.01	0.00	0.00	No	0.00	No
	16	y	-0.01	0.00	0.00	No	0.00	No
	17	y	-0.01	0.00	0.00	No	0.00	No

	18	y	-0.01	0.00	0.00	No	0.00	No
W0	1	z	-0.019	0.00	0.00	No	0.00	No
	2	z	-0.019	0.00	0.00	No	0.00	No
	3	z	-0.019	0.00	0.00	No	0.00	No
	4	z	-0.019	0.00	0.00	No	0.00	No
	5	z	-0.019	0.00	0.00	No	0.00	No
	6	z	-0.019	0.00	0.00	No	0.00	No
	35	z	-0.011	0.00	0.00	No	0.00	No
	36	z	-0.011	0.00	0.00	No	0.00	No
	37	z	-0.011	0.00	0.00	No	0.00	No
	38	z	-0.011	0.00	0.00	No	0.00	No
	39	z	-0.011	0.00	0.00	No	0.00	No
	40	z	-0.011	0.00	0.00	No	0.00	No
	41	z	-0.011	0.00	0.00	No	0.00	No
	42	z	-0.011	0.00	0.00	No	0.00	No
W30	1	x	-0.019	0.00	0.00	No	0.00	No
	2	x	-0.019	0.00	0.00	No	0.00	No
	3	x	-0.019	0.00	0.00	No	0.00	No
	4	x	-0.019	0.00	0.00	No	0.00	No
	5	x	-0.019	0.00	0.00	No	0.00	No
	6	x	-0.019	0.00	0.00	No	0.00	No
	31	x	-0.011	0.00	0.00	No	0.00	No
	32	x	-0.011	0.00	0.00	No	0.00	No
	33	x	-0.011	0.00	0.00	No	0.00	No
	34	x	-0.011	0.00	0.00	No	0.00	No
	35	x	-0.011	0.00	0.00	No	0.00	No
	36	x	-0.011	0.00	0.00	No	0.00	No
	37	x	-0.011	0.00	0.00	No	0.00	No
	38	x	-0.011	0.00	0.00	No	0.00	No
Di	1	y	-0.015	0.00	0.00	No	0.00	No
	2	y	-0.015	0.00	0.00	No	0.00	No
	3	y	-0.015	0.00	0.00	No	0.00	No
	4	y	-0.015	0.00	0.00	No	0.00	No
	5	y	-0.015	0.00	0.00	No	0.00	No
	6	y	-0.015	0.00	0.00	No	0.00	No
	7	y	-0.009	0.00	0.00	No	0.00	No
	8	y	-0.009	0.00	0.00	No	0.00	No
	9	y	-0.009	0.00	0.00	No	0.00	No
	10	y	-0.009	0.00	0.00	No	0.00	No
	11	y	-0.009	0.00	0.00	No	0.00	No
	12	y	-0.009	0.00	0.00	No	0.00	No
	13	y	-0.009	0.00	0.00	No	0.00	No
	14	y	-0.009	0.00	0.00	No	0.00	No
	15	y	-0.009	0.00	0.00	No	0.00	No
	16	y	-0.009	0.00	0.00	No	0.00	No
	17	y	-0.009	0.00	0.00	No	0.00	No
	18	y	-0.009	0.00	0.00	No	0.00	No
	31	y	-0.009	0.00	0.00	No	0.00	No
	32	y	-0.009	0.00	0.00	No	0.00	No
	33	y	-0.009	0.00	0.00	No	0.00	No
	34	y	-0.009	0.00	0.00	No	0.00	No
	35	y	-0.009	0.00	0.00	No	0.00	No
	36	y	-0.009	0.00	0.00	No	0.00	No
	37	y	-0.009	0.00	0.00	No	0.00	No
	38	y	-0.009	0.00	0.00	No	0.00	No
	39	y	-0.009	0.00	0.00	No	0.00	No
	40	y	-0.009	0.00	0.00	No	0.00	No
	41	y	-0.009	0.00	0.00	No	0.00	No
	42	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	31	y	-0.018	1.00	No
		y	-0.018	4.50	No
		y	-0.038	5.50	No
	33	y	-0.021	1.50	No
		y	-0.021	6.50	No
	34	y	-0.055	1.00	No
		y	-0.055	6.50	No
	35	y	-0.018	1.00	No
		y	-0.018	4.50	No
		y	-0.038	5.50	No
	37	y	-0.021	1.50	No
		y	-0.021	6.50	No
	38	y	-0.055	1.00	No
		y	-0.055	6.50	No
	39	y	-0.018	1.00	No
		y	-0.018	4.50	No
		y	-0.038	5.50	No
	41	y	-0.021	1.50	No
		y	-0.021	6.50	No
	42	y	-0.055	1.00	No
		y	-0.055	6.50	No
W0	31	z	-0.123	1.00	No
		z	-0.123	4.50	No
		z	-0.032	5.50	No
	33	z	-0.176	1.50	No
		z	-0.176	6.50	No
	34	z	-0.309	1.00	No
		z	-0.309	6.50	No
	35	z	-0.08	1.00	No
		z	-0.08	4.50	No
		z	-0.08	5.50	No
	37	z	-0.137	1.50	No
		z	-0.137	6.50	No
	38	z	-0.175	1.00	No
		z	-0.175	6.50	No
	39	z	-0.08	1.00	No
		z	-0.08	4.50	No
		z	-0.08	5.50	No
	41	z	-0.137	1.50	No
		z	-0.137	6.50	No
	42	z	-0.175	1.00	No
		z	-0.175	6.50	No
W30	31	x	-0.066	1.00	No
		x	-0.066	4.50	No
		x	-0.096	5.50	No
	33	x	-0.124	1.50	No
		x	-0.124	6.50	No
	34	x	-0.131	1.00	No
		x	-0.131	6.50	No
	35	x	-0.109	1.00	No
		x	-0.109	4.50	No
		x	-0.048	5.50	No

	37	x	-0.163	1.50	No
		x	-0.163	6.50	No
	38	x	-0.264	1.00	No
		x	-0.264	6.50	No
	39	x	-0.109	1.00	No
		x	-0.109	4.50	No
		x	-0.048	5.50	No
	41	x	-0.163	1.50	No
		x	-0.163	6.50	No
	42	x	-0.264	1.00	No
		x	-0.264	6.50	No
Di	31	y	-0.066	1.00	No
		y	-0.066	4.50	No
		y	-0.056	5.50	No
	33	y	-0.097	1.50	No
		y	-0.097	6.50	No
	34	y	-0.157	1.00	No
		y	-0.157	6.50	No
	35	y	-0.066	1.00	No
		y	-0.066	4.50	No
		y	-0.056	5.50	No
	37	y	-0.097	1.50	No
		y	-0.097	6.50	No
	38	y	-0.157	1.00	No
		y	-0.157	6.50	No
	39	y	-0.066	1.00	No
		y	-0.066	4.50	No
		y	-0.056	5.50	No
	41	y	-0.097	1.50	No
		y	-0.097	6.50	No
	42	y	-0.157	1.00	No
		y	-0.157	6.50	No
Wi0	31	z	-0.03	1.00	No
		z	-0.03	4.50	No
		z	-0.016	5.50	No
	33	z	-0.042	1.50	No
		z	-0.042	6.50	No
	34	z	-0.066	1.00	No
		z	-0.066	6.50	No
	35	z	-0.022	1.00	No
		z	-0.022	4.50	No
		z	-0.024	5.50	No
	37	z	-0.033	1.50	No
		z	-0.033	6.50	No
	38	z	-0.041	1.00	No
		z	-0.041	6.50	No
	39	z	-0.022	1.00	No
		z	-0.022	4.50	No
		z	-0.024	5.50	No
	41	z	-0.033	1.50	No
		z	-0.033	6.50	No
	42	z	-0.041	1.00	No
		z	-0.041	6.50	No
Wi30	31	x	-0.019	1.00	No
		x	-0.019	4.50	No
		x	-0.034	5.50	No
	33	x	-0.031	1.50	No
		x	-0.031	6.50	No
	34	x	-0.033	1.00	No
		x	-0.033	6.50	No

	35	x	-0.027	1.00	No
		x	-0.027	4.50	No
		x	-0.018	5.50	No
	37	x	-0.038	1.50	No
		x	-0.038	6.50	No
	38	x	-0.057	1.00	No
		x	-0.057	6.50	No
	39	x	-0.027	1.00	No
		x	-0.027	4.50	No
		x	-0.018	5.50	No
	41	x	-0.038	1.50	No
		x	-0.038	6.50	No
	42	x	-0.057	1.00	No
		x	-0.057	6.50	No
WLO	31	z	-0.008	1.00	No
		z	-0.008	4.50	No
		z	-0.002	5.50	No
	33	z	-0.011	1.50	No
		z	-0.011	6.50	No
	34	z	-0.02	1.00	No
		z	-0.02	6.50	No
	35	z	-0.005	1.00	No
		z	-0.005	4.50	No
		z	-0.006	5.50	No
	37	z	-0.009	1.50	No
		z	-0.009	6.50	No
	38	z	-0.011	1.00	No
		z	-0.011	6.50	No
	39	z	-0.005	1.00	No
		z	-0.005	4.50	No
		z	-0.006	5.50	No
	41	z	-0.009	1.50	No
		z	-0.009	6.50	No
	42	z	-0.011	1.00	No
		z	-0.011	6.50	No
WL30	31	x	-0.005	1.00	No
		x	-0.005	4.50	No
		x	-0.006	5.50	No
	33	x	-0.008	1.50	No
		x	-0.008	6.50	No
	34	x	-0.009	1.00	No
		x	-0.009	6.50	No
	35	x	-0.007	1.00	No
		x	-0.007	4.50	No
		x	-0.004	5.50	No
	37	x	-0.011	1.50	No
		x	-0.011	6.50	No
	38	x	-0.017	1.00	No
		x	-0.017	6.50	No
	39	x	-0.007	1.00	No
		x	-0.007	4.50	No
		x	-0.004	5.50	No
	41	x	-0.011	1.50	No
		x	-0.011	6.50	No
	42	x	-0.017	1.00	No
		x	-0.017	6.50	No
LL1	6	y	-0.25	6.75	No
LL2	6	y	-0.25	0.00	No
LLa1	31	y	-0.25	3.00	No
LLa2	32	y	-0.25	3.00	No

LLa3	33	y	-0.25	4.00	No
LLa4	34	y	-0.25	4.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+Wi0
- LC10=1.2DL+Di+Wi30
- LC11=1.2DL+Di-Wi0
- LC12=1.2DL+Di-Wi30
- LC13=1.2DL
- LC15=1.2DL+1.5LL1
- LC16=1.2DL+1.5LL2
- LC17=1.2DL+WL0+1.5LLa1
- LC18=1.2DL+WL30+1.5LLa1
- LC19=1.2DL-WL0+1.5LLa1
- LC20=1.2DL-WL30+1.5LLa1
- LC21=1.2DL+WL0+1.5LLa2
- LC22=1.2DL+WL30+1.5LLa2
- LC23=1.2DL-WL0+1.5LLa2
- LC24=1.2DL-WL30+1.5LLa2
- LC25=1.2DL+WL0+1.5LLa3
- LC26=1.2DL+WL30+1.5LLa3
- LC27=1.2DL-WL0+1.5LLa3
- LC28=1.2DL-WL30+1.5LLa3
- LC29=1.2DL+WL0+1.5LLa4
- LC30=1.2DL+WL30+1.5LLa4
- LC31=1.2DL-WL0+1.5LLa4
- LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	1	LC9 at 0.00%	0.41	OK	
		2	LC10 at 0.00%	0.41	OK	
		3	LC10 at 0.00%	0.41	OK	
		4	LC10 at 100.00%	0.16	OK	
		5	LC10 at 100.00%	0.17	OK	
		6	LC11 at 100.00%	0.17	OK	
	L 2X2X1_8	7	LC10 at 0.00%	0.02	OK	
		8	LC10 at 0.00%	0.02	OK	
		9	LC10 at 0.00%	0.02	OK	
		10	LC10 at 0.00%	0.02	OK	
		11	LC10 at 0.00%	0.02	OK	
		12	LC10 at 0.00%	0.02	OK	
		13	LC10 at 0.00%	0.02	OK	
		14	LC10 at 0.00%	0.02	OK	
		15	LC10 at 0.00%	0.02	OK	
		16	LC10 at 0.00%	0.02	OK	

	17	LC10 at 0.00%	0.02	OK
	18	LC10 at 0.00%	0.02	OK
<hr/>				
PIPE 2-1_2x0.203	33	LC1 at 50.00%	0.12	OK
	34	LC1 at 46.88%	0.24	OK
	37	LC2 at 50.00%	0.14	OK
	38	LC2 at 46.88%	0.22	OK
	41	LC1 at 50.00%	0.12	OK
	42	LC2 at 46.88%	0.20	OK
<hr/>				
PIPE 2x0.154	31	LC2 at 50.00%	0.21	OK
	32	LC2 at 50.00%	0.03	OK
	35	LC1 at 50.00%	0.20	OK
	36	LC1 at 50.00%	0.03	OK
	39	LC1 at 50.00%	0.20	OK
	40	LC1 at 50.00%	0.03	OK

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Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	-1.9305	0.00	1.1146	0
3	-8.2627	0.00	4.7705	0
4	-6.7495	0.00	3.8968	0
5	0.00	0.00	-2.2292	0
6	0.00	0.00	-9.541	0
7	0.00	0.00	-7.7937	0
8	1.9305	0.00	1.1146	0
9	8.2627	0.00	4.7705	0
10	6.7495	0.00	3.8968	0
12	-5.3996	0.00	1.5587	0
13	-4.0497	0.00	-0.7794	0
14	-2.6998	0.00	-3.1175	0
15	-1.3499	0.00	-5.4556	0
16	-4.0497	0.00	3.8968	0
17	-1.3499	0.00	3.8968	0
18	1.3499	0.00	3.8968	0
19	4.0497	0.00	3.8968	0
20	5.3996	0.00	1.5587	0
21	4.0497	0.00	-0.7794	0
22	2.6998	0.00	-3.1175	0
23	1.3499	0.00	-5.4556	0

24	-4.6418	0.00	1.9962	0
25	-3.2919	0.00	-0.3419	0
26	-1.942	0.00	-2.68	0
27	-0.5921	0.00	-5.0181	0
28	0.5921	0.00	-5.0181	0
29	1.942	0.00	-2.68	0
30	3.2919	0.00	-0.3419	0
31	4.6418	0.00	1.9962	0
32	4.0497	0.00	3.0218	0
33	1.3499	0.00	3.0218	0
34	-1.3499	0.00	3.0218	0
35	-4.0497	0.00	3.0218	0
44	5.9195	-3.00	4.0968	0
45	1.9612	-3.00	4.0968	0
46	-2.0388	-4.00	4.0968	0
47	-5.9138	-4.00	4.0968	0
48	5.9195	3.00	4.0968	0
49	1.9612	3.00	4.0968	0
50	-2.0388	4.00	4.0968	0
51	-5.9138	4.00	4.0968	0
60	-6.5077	-3.00	3.078	0
61	-4.5286	-3.00	-0.3499	0
62	-2.5286	-4.00	-3.8141	0
63	-0.5911	-4.00	-7.1699	0
64	-6.5077	3.00	3.078	0
65	-4.5286	3.00	-0.3499	0
66	-2.5286	4.00	-3.8141	0
67	-0.5911	4.00	-7.1699	0
76	0.5882	-3.00	-7.1749	0
77	2.5673	-3.00	-3.7469	0
78	4.5673	-4.00	-0.2828	0
79	6.5048	-4.00	3.0731	0
80	0.5882	3.00	-7.1749	0
81	2.5673	3.00	-3.7469	0
82	4.5673	4.00	-0.2828	0
83	6.5048	4.00	3.0731	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
2	1	1	1	1	1	1
5	1	1	1	1	1	1
8	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	2	3		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	8	9		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
3	5	6		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
4	4	7		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
5	7	10		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
6	10	4		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
7	12	24		L 2X2X1_8	A36	0.00	0.00	0.00
8	13	25		L 2X2X1_8	A36	0.00	0.00	0.00
9	14	26		L 2X2X1_8	A36	0.00	0.00	0.00
10	15	27		L 2X2X1_8	A36	0.00	0.00	0.00
11	19	32		L 2X2X1_8	A36	0.00	0.00	0.00
12	18	33		L 2X2X1_8	A36	0.00	0.00	0.00
13	17	34		L 2X2X1_8	A36	0.00	0.00	0.00
14	16	35		L 2X2X1_8	A36	0.00	0.00	0.00
15	20	31		L 2X2X1_8	A36	0.00	0.00	0.00
16	21	30		L 2X2X1_8	A36	0.00	0.00	0.00
17	22	29		L 2X2X1_8	A36	0.00	0.00	0.00
18	23	28		L 2X2X1_8	A36	0.00	0.00	0.00
31	48	44		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
32	49	45		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
33	50	46		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
34	51	47		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
35	64	60		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
36	65	61		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
37	66	62		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
38	67	63		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
39	80	76		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
40	81	77		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
41	82	78		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
42	83	79		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
7	180.00	0	0.00	0.00	0.00
8	180.00	0	0.00	0.00	0.00
9	180.00	0	0.00	0.00	0.00
10	180.00	0	0.00	0.00	0.00
11	180.00	0	0.00	0.00	0.00
12	180.00	0	0.00	0.00	0.00
13	180.00	0	0.00	0.00	0.00
14	180.00	0	0.00	0.00	0.00
15	180.00	0	0.00	0.00	0.00
16	180.00	0	0.00	0.00	0.00
17	180.00	0	0.00	0.00	0.00
18	180.00	0	0.00	0.00	0.00

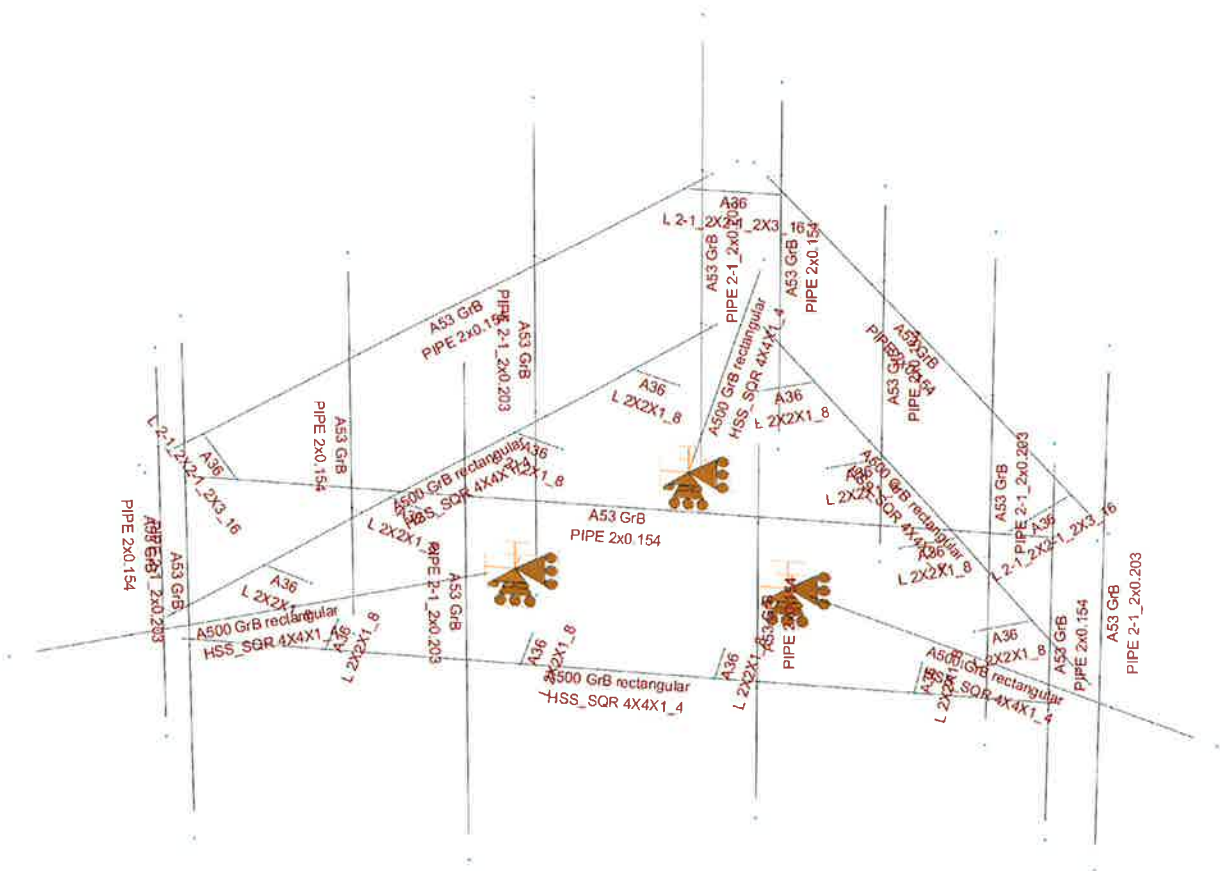


HUDSON
Design Group LLC

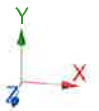
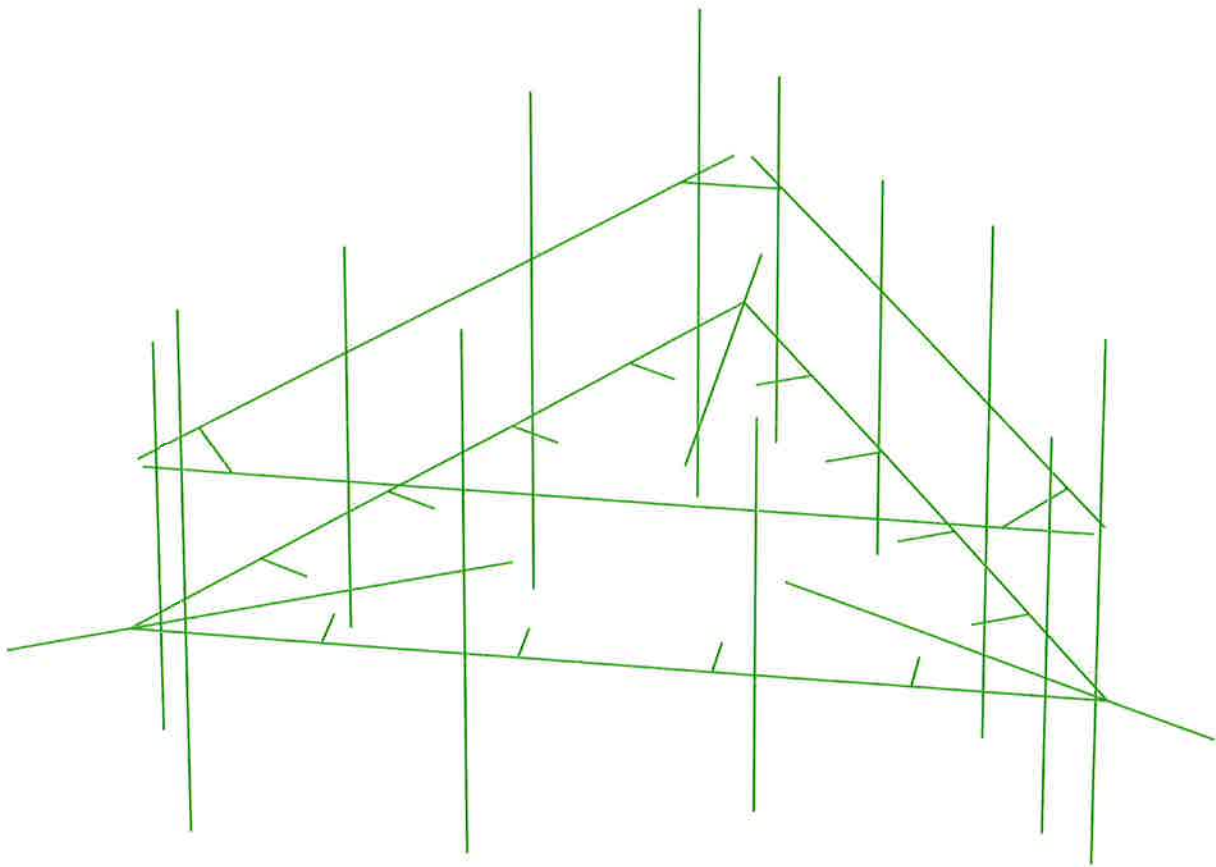
**Mount Calculations
(Modified Conditions)**

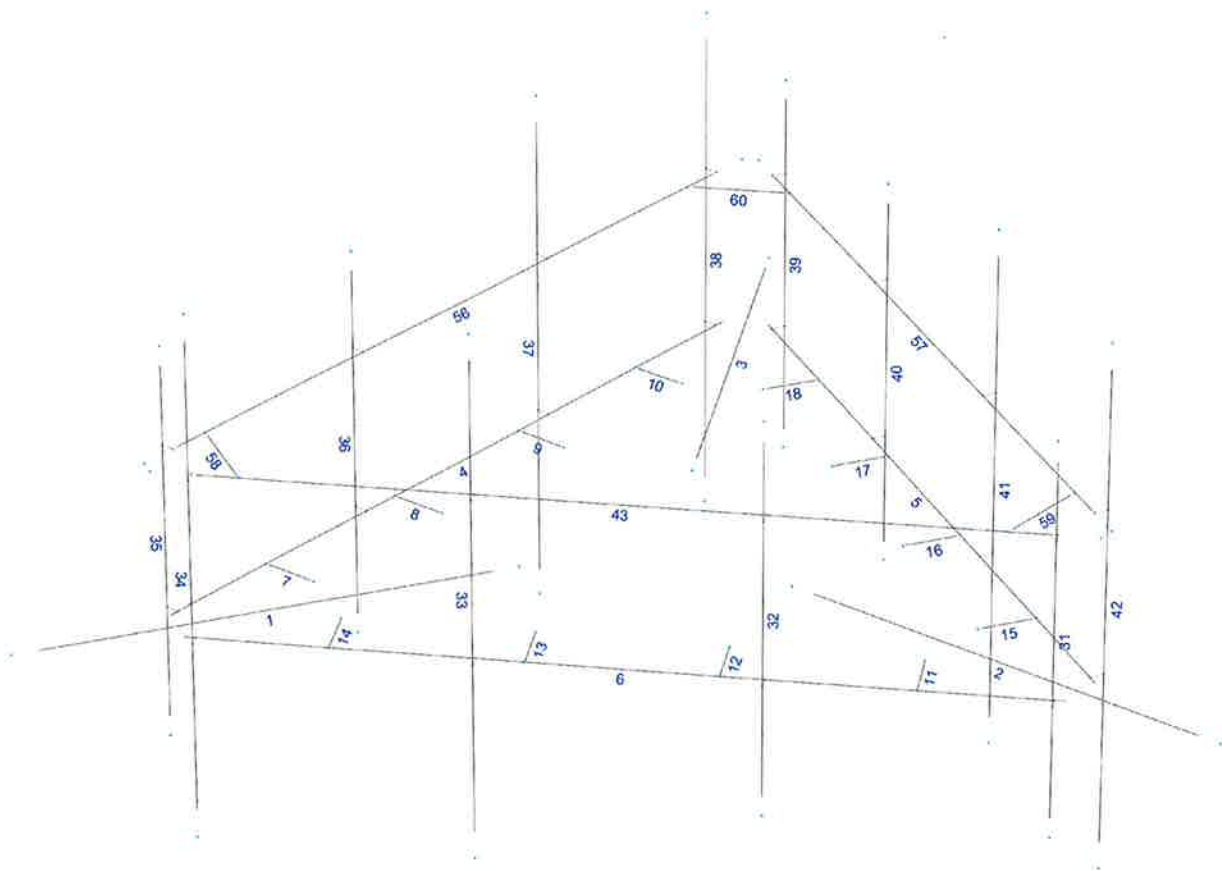
Install new handrail kit, SitePro1 P/N HRK14 (or approved equal). Handrail kit is required per AT&T Technical Directive to stabilize existing cantilevered antennas.





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





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Load data

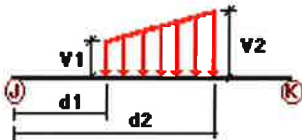
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No </td <td>LL</td>	LL
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members

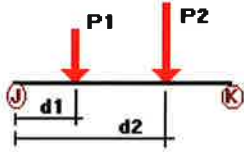


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	4	y	-0.01	0.00	0.00	No	0.00	No
	5	y	-0.01	0.00	0.00	No	0.00	No
	6	y	-0.01	0.00	0.00	No	0.00	No
	7	y	-0.01	0.00	0.00	No	0.00	No
	8	y	-0.01	0.00	0.00	No	0.00	No
	9	y	-0.01	0.00	0.00	No	0.00	No
	10	y	-0.01	0.00	0.00	No	0.00	No
	11	y	-0.01	0.00	0.00	No	0.00	No
	12	y	-0.01	0.00	0.00	No	0.00	No
	13	y	-0.01	0.00	0.00	No	0.00	No
	14	y	-0.01	0.00	0.00	No	0.00	No
	15	y	-0.01	0.00	0.00	No	0.00	No
	16	y	-0.01	0.00	0.00	No	0.00	No
	17	y	-0.01	0.00	0.00	No	0.00	No

W0	18	y	-0.01	0.00	0.00	No	0.00	No
	1	z	-0.019	0.00	0.00	No	0.00	No
	2	z	-0.019	0.00	0.00	No	0.00	No
	3	z	-0.019	0.00	0.00	No	0.00	No
	4	z	-0.019	0.00	0.00	No	0.00	No
	5	z	-0.019	0.00	0.00	No	0.00	No
	6	z	-0.019	0.00	0.00	No	0.00	No
	35	z	-0.011	0.00	0.00	No	0.00	No
	36	z	-0.011	0.00	0.00	No	0.00	No
	37	z	-0.011	0.00	0.00	No	0.00	No
	38	z	-0.011	0.00	0.00	No	0.00	No
	39	z	-0.011	0.00	0.00	No	0.00	No
	40	z	-0.011	0.00	0.00	No	0.00	No
	41	z	-0.011	0.00	0.00	No	0.00	No
	42	z	-0.011	0.00	0.00	No	0.00	No
	43	z	-0.011	0.00	0.00	No	0.00	No
	56	z	-0.011	0.00	0.00	No	0.00	No
	57	z	-0.011	0.00	0.00	No	0.00	No
W30	1	x	-0.019	0.00	0.00	No	0.00	No
	2	x	-0.019	0.00	0.00	No	0.00	No
	3	x	-0.019	0.00	0.00	No	0.00	No
	4	x	-0.019	0.00	0.00	No	0.00	No
	5	x	-0.019	0.00	0.00	No	0.00	No
	6	x	-0.019	0.00	0.00	No	0.00	No
	31	x	-0.011	0.00	0.00	No	0.00	No
	32	x	-0.011	0.00	0.00	No	0.00	No
	33	x	-0.011	0.00	0.00	No	0.00	No
	34	x	-0.011	0.00	0.00	No	0.00	No
	35	x	-0.011	0.00	0.00	No	0.00	No
	36	x	-0.011	0.00	0.00	No	0.00	No
	37	x	-0.011	0.00	0.00	No	0.00	No
	38	x	-0.011	0.00	0.00	No	0.00	No
	43	x	-0.011	0.00	0.00	No	0.00	No
	56	x	-0.011	0.00	0.00	No	0.00	No
	57	x	-0.011	0.00	0.00	No	0.00	No
	Di	1	y	-0.015	0.00	0.00	No	0.00
2		y	-0.015	0.00	0.00	No	0.00	No
3		y	-0.015	0.00	0.00	No	0.00	No
4		y	-0.015	0.00	0.00	No	0.00	No
5		y	-0.015	0.00	0.00	No	0.00	No
6		y	-0.015	0.00	0.00	No	0.00	No
7		y	-0.009	0.00	0.00	No	0.00	No
8		y	-0.009	0.00	0.00	No	0.00	No
9		y	-0.009	0.00	0.00	No	0.00	No
10		y	-0.009	0.00	0.00	No	0.00	No
11		y	-0.009	0.00	0.00	No	0.00	No
12		y	-0.009	0.00	0.00	No	0.00	No
13		y	-0.009	0.00	0.00	No	0.00	No
14		y	-0.009	0.00	0.00	No	0.00	No
15		y	-0.009	0.00	0.00	No	0.00	No
16		y	-0.009	0.00	0.00	No	0.00	No
17		y	-0.009	0.00	0.00	No	0.00	No
18		y	-0.009	0.00	0.00	No	0.00	No
31	y	-0.009	0.00	0.00	No	0.00	No	
32	y	-0.009	0.00	0.00	No	0.00	No	
33	y	-0.009	0.00	0.00	No	0.00	No	
34	y	-0.009	0.00	0.00	No	0.00	No	
35	y	-0.009	0.00	0.00	No	0.00	No	
36	y	-0.009	0.00	0.00	No	0.00	No	
37	y	-0.009	0.00	0.00	No	0.00	No	

38	y	-0.009	0.00	0.00	No	0.00	No
39	y	-0.009	0.00	0.00	No	0.00	No
40	y	-0.009	0.00	0.00	No	0.00	No
41	y	-0.009	0.00	0.00	No	0.00	No
42	y	-0.009	0.00	0.00	No	0.00	No
43	y	-0.009	0.00	0.00	No	0.00	No
56	y	-0.009	0.00	0.00	No	0.00	No
57	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%	
DL	31	y	-0.018	1.00	No	
		y	-0.018	4.50	No	
		y	-0.038	5.50	No	
	33	y	-0.021	1.50	No	
		y	-0.021	6.50	No	
	34	y	-0.055	1.00	No	
		y	-0.055	6.50	No	
	35	y	-0.018	1.00	No	
		y	-0.018	4.50	No	
		y	-0.038	5.50	No	
	37	y	-0.021	1.50	No	
		y	-0.021	6.50	No	
	38	y	-0.055	1.00	No	
		y	-0.055	6.50	No	
	39	y	-0.018	1.00	No	
		y	-0.018	4.50	No	
		y	-0.038	5.50	No	
	41	y	-0.021	1.50	No	
		y	-0.021	6.50	No	
		y	-0.055	1.00	No	
	42	y	-0.055	6.50	No	
W0		31	z	-0.123	1.00	No
			z	-0.123	4.50	No
	33	z	-0.032	5.50	No	
		z	-0.176	1.50	No	
	34	z	-0.176	6.50	No	
		z	-0.309	1.00	No	
35	z	-0.309	6.50	No		
	z	-0.08	1.00	No		
	z	-0.08	4.50	No		
37	z	-0.08	5.50	No		
	z	-0.137	1.50	No		
	z	-0.137	6.50	No		
38	z	-0.175	1.00	No		
	z	-0.175	6.50	No		
39	z	-0.08	1.00	No		
	z	-0.08	4.50	No		

		z	-0.08	5.50	No
	41	z	-0.137	1.50	No
		z	-0.137	6.50	No
	42	z	-0.175	1.00	No
		z	-0.175	6.50	No
W30	31	x	-0.066	1.00	No
		x	-0.066	4.50	No
		x	-0.096	5.50	No
	33	x	-0.124	1.50	No
		x	-0.124	6.50	No
	34	x	-0.131	1.00	No
		x	-0.131	6.50	No
	35	x	-0.109	1.00	No
		x	-0.109	4.50	No
		x	-0.048	5.50	No
	37	x	-0.163	1.50	No
		x	-0.163	6.50	No
	38	x	-0.264	1.00	No
		x	-0.264	6.50	No
	39	x	-0.109	1.00	No
		x	-0.109	4.50	No
		x	-0.048	5.50	No
	41	x	-0.163	1.50	No
		x	-0.163	6.50	No
	42	x	-0.264	1.00	No
		x	-0.264	6.50	No
Di	31	y	-0.066	1.00	No
		y	-0.066	4.50	No
		y	-0.056	5.50	No
	33	y	-0.097	1.50	No
		y	-0.097	6.50	No
	34	y	-0.157	1.00	No
		y	-0.157	6.50	No
	35	y	-0.066	1.00	No
		y	-0.066	4.50	No
		y	-0.056	5.50	No
	37	y	-0.097	1.50	No
		y	-0.097	6.50	No
	38	y	-0.157	1.00	No
		y	-0.157	6.50	No
	39	y	-0.066	1.00	No
		y	-0.066	4.50	No
		y	-0.056	5.50	No
	41	y	-0.097	1.50	No
		y	-0.097	6.50	No
	42	y	-0.157	1.00	No
		y	-0.157	6.50	No
Wi0	31	z	-0.03	1.00	No
		z	-0.03	4.50	No
		z	-0.016	5.50	No
	33	z	-0.042	1.50	No
		z	-0.042	6.50	No
	34	z	-0.066	1.00	No
		z	-0.066	6.50	No
	35	z	-0.022	1.00	No
		z	-0.022	4.50	No
		z	-0.024	5.50	No
	37	z	-0.033	1.50	No
		z	-0.033	6.50	No
	38	z	-0.041	1.00	No

		z	-0.041	6.50	No
	39	z	-0.022	1.00	No
		z	-0.022	4.50	No
		z	-0.024	5.50	No
	41	z	-0.033	1.50	No
		z	-0.033	6.50	No
	42	z	-0.041	1.00	No
		z	-0.041	6.50	No
Wi30	31	x	-0.019	1.00	No
		x	-0.019	4.50	No
		x	-0.034	5.50	No
	33	x	-0.031	1.50	No
		x	-0.031	6.50	No
	34	x	-0.033	1.00	No
		x	-0.033	6.50	No
	35	x	-0.027	1.00	No
		x	-0.027	4.50	No
		x	-0.018	5.50	No
	37	x	-0.038	1.50	No
		x	-0.038	6.50	No
	38	x	-0.057	1.00	No
		x	-0.057	6.50	No
	39	x	-0.027	1.00	No
		x	-0.027	4.50	No
		x	-0.018	5.50	No
	41	x	-0.038	1.50	No
		x	-0.038	6.50	No
	42	x	-0.057	1.00	No
		x	-0.057	6.50	No
WLO	31	z	-0.008	1.00	No
		z	-0.008	4.50	No
		z	-0.002	5.50	No
	33	z	-0.011	1.50	No
		z	-0.011	6.50	No
	34	z	-0.02	1.00	No
		z	-0.02	6.50	No
	35	z	-0.005	1.00	No
		z	-0.005	4.50	No
		z	-0.006	5.50	No
	37	z	-0.009	1.50	No
		z	-0.009	6.50	No
	38	z	-0.011	1.00	No
		z	-0.011	6.50	No
	39	z	-0.005	1.00	No
		z	-0.005	4.50	No
		z	-0.006	5.50	No
	41	z	-0.009	1.50	No
		z	-0.009	6.50	No
	42	z	-0.011	1.00	No
		z	-0.011	6.50	No
WL30	31	x	-0.005	1.00	No
		x	-0.005	4.50	No
		x	-0.006	5.50	No
	33	x	-0.008	1.50	No
		x	-0.008	6.50	No
	34	x	-0.009	1.00	No
		x	-0.009	6.50	No
	35	x	-0.007	1.00	No
		x	-0.007	4.50	No
		x	-0.004	5.50	No

	37	x	-0.011	1.50	No
		x	-0.011	6.50	No
	38	x	-0.017	1.00	No
		x	-0.017	6.50	No
	39	x	-0.007	1.00	No
		x	-0.007	4.50	No
		x	-0.004	5.50	No
	41	x	-0.011	1.50	No
		x	-0.011	6.50	No
	42	x	-0.017	1.00	No
		x	-0.017	6.50	No
LL1	6	y	-0.25	6.75	No
	43	y	-0.25	6.75	No
LL2	6	y	-0.25	0.00	No
	43	y	-0.25	0.00	No
LLa1	31	y	-0.25	3.00	No
LLa2	32	y	-0.25	3.00	No
LLa3	33	y	-0.25	4.00	No
LLa4	34	y	-0.25	4.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00

LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+Wi0
- LC10=1.2DL+Di+Wi30
- LC11=1.2DL+Di-Wi0
- LC12=1.2DL+Di-Wi30
- LC13=1.2DL
- LC15=1.2DL+1.5LL1
- LC16=1.2DL+1.5LL2
- LC17=1.2DL+WL0+1.5LLa1
- LC18=1.2DL+WL30+1.5LLa1
- LC19=1.2DL-WL0+1.5LLa1
- LC20=1.2DL-WL30+1.5LLa1
- LC21=1.2DL+WL0+1.5LLa2
- LC22=1.2DL+WL30+1.5LLa2
- LC23=1.2DL-WL0+1.5LLa2
- LC24=1.2DL-WL30+1.5LLa2
- LC25=1.2DL+WL0+1.5LLa3
- LC26=1.2DL+WL30+1.5LLa3
- LC27=1.2DL-WL0+1.5LLa3
- LC28=1.2DL-WL30+1.5LLa3
- LC29=1.2DL+WL0+1.5LLa4
- LC30=1.2DL+WL30+1.5LLa4
- LC31=1.2DL-WL0+1.5LLa4
- LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	1	LC11 at 0.00%	0.44	OK	
		2	LC12 at 0.00%	0.43	OK	
		3	LC9 at 0.00%	0.44	OK	
		4	LC12 at 100.00%	0.19	OK	
		5	LC10 at 100.00%	0.19	OK	
		6	LC9 at 100.00%	0.19	OK	
	L 2-1_2X2-1_2X3_16	58	LC1 at 100.00%	0.31	OK	
		59	LC2 at 100.00%	0.21	OK	
		60	LC4 at 100.00%	0.28	OK	
	L 2X2X1_8	7	LC10 at 0.00%	0.02	OK	
		8	LC10 at 0.00%	0.02	OK	
		9	LC10 at 0.00%	0.02	OK	
		10	LC10 at 0.00%	0.02	OK	
		11	LC10 at 0.00%	0.02	OK	
		12	LC10 at 0.00%	0.02	OK	

13	LC10 at 0.00%	0.02	OK
14	LC10 at 0.00%	0.02	OK
15	LC10 at 0.00%	0.02	OK
16	LC10 at 0.00%	0.02	OK
17	LC10 at 0.00%	0.02	OK
18	LC10 at 0.00%	0.02	OK

PIPE 2-1_2x0.203

33	LC2 at 60.42%	0.14	OK
34	LC1 at 60.42%	0.19	OK
37	LC1 at 60.42%	0.15	OK
38	LC4 at 60.42%	0.18	OK
41	LC2 at 60.42%	0.14	OK
42	LC2 at 60.42%	0.18	OK

PIPE 2x0.154

31	LC2 at 64.58%	0.20	OK
32	LC4 at 64.58%	0.18	OK
35	LC1 at 64.58%	0.20	OK
36	LC1 at 25.00%	0.18	OK
39	LC2 at 64.58%	0.19	OK
40	LC1 at 64.58%	0.19	OK
43	LC4 at 90.18%	0.17	OK
56	LC2 at 91.07%	0.22	OK
57	LC1 at 91.07%	0.18	OK

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Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	-1.9305	0.00	1.1146	0
3	-8.2627	0.00	4.7705	0
4	-6.7495	0.00	3.8968	0
5	0.00	0.00	-2.2292	0
6	0.00	0.00	-9.541	0
7	0.00	0.00	-7.7937	0
8	1.9305	0.00	1.1146	0
9	8.2627	0.00	4.7705	0
10	6.7495	0.00	3.8968	0
12	-5.3996	0.00	1.5587	0
13	-4.0497	0.00	-0.7794	0
14	-2.6998	0.00	-3.1175	0
15	-1.3499	0.00	-5.4556	0
16	-4.0497	0.00	3.8968	0
17	-1.3499	0.00	3.8968	0
18	1.3499	0.00	3.8968	0
19	4.0497	0.00	3.8968	0
20	5.3996	0.00	1.5587	0
21	4.0497	0.00	-0.7794	0
22	2.6998	0.00	-3.1175	0
23	1.3499	0.00	-5.4556	0

24	-4.6418	0.00	1.9962	0
25	-3.2919	0.00	-0.3419	0
26	-1.942	0.00	-2.68	0
27	-0.5921	0.00	-5.0181	0
28	0.5921	0.00	-5.0181	0
29	1.942	0.00	-2.68	0
30	3.2919	0.00	-0.3419	0
31	4.6418	0.00	1.9962	0
32	4.0497	0.00	3.0218	0
33	1.3499	0.00	3.0218	0
34	-1.3499	0.00	3.0218	0
35	-4.0497	0.00	3.0218	0
44	5.9195	-2.00	4.0968	0
45	1.9612	-2.00	4.0968	0
46	-2.0388	-3.00	4.0968	0
47	-5.9138	-3.00	4.0968	0
48	5.9195	4.00	4.0968	0
49	1.9612	4.00	4.0968	0
50	-2.0388	5.00	4.0968	0
51	-5.9138	5.00	4.0968	0
60	-6.5077	-2.00	3.078	0
61	-4.5286	-2.00	-0.3499	0
62	-2.5286	-3.00	-3.8141	0
63	-0.5911	-3.00	-7.1699	0
64	-6.5077	4.00	3.078	0
65	-4.5286	4.00	-0.3499	0
66	-2.5286	5.00	-3.8141	0
67	-0.5911	5.00	-7.1699	0
76	0.5882	-2.00	-7.1749	0
77	2.5673	-2.00	-3.7469	0
78	4.5673	-3.00	-0.2828	0
79	6.5048	-3.00	3.0731	0
80	0.5882	4.00	-7.1749	0
81	2.5673	4.00	-3.7469	0
82	4.5673	5.00	-0.2828	0
83	6.5048	5.00	3.0731	0
111	-5.2495	2.50	3.8968	0
112	5.2495	2.50	3.8968	0
113	-0.75	2.50	-6.4946	0
114	-5.9995	2.50	2.5978	0
115	5.9995	2.50	2.5978	0
116	0.75	2.50	-6.4946	0
117	-6.4995	2.50	3.8968	0
118	6.4995	2.50	3.8968	0
119	-0.125	2.50	-7.5772	0
120	-6.6245	2.50	3.6803	0
121	6.6245	2.50	3.6803	0
122	0.125	2.50	-7.5772	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
2	1	1	1	1	1	1
5	1	1	1	1	1	1
8	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	2	3		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	8	9		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
3	5	6		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
4	4	7		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
5	7	10		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
6	10	4		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
7	12	24		L 2X2X1_8	A36	0.00	0.00	0.00
8	13	25		L 2X2X1_8	A36	0.00	0.00	0.00
9	14	26		L 2X2X1_8	A36	0.00	0.00	0.00
10	15	27		L 2X2X1_8	A36	0.00	0.00	0.00
11	19	32		L 2X2X1_8	A36	0.00	0.00	0.00
12	18	33		L 2X2X1_8	A36	0.00	0.00	0.00
13	17	34		L 2X2X1_8	A36	0.00	0.00	0.00
14	16	35		L 2X2X1_8	A36	0.00	0.00	0.00
15	20	31		L 2X2X1_8	A36	0.00	0.00	0.00
16	21	30		L 2X2X1_8	A36	0.00	0.00	0.00
17	22	29		L 2X2X1_8	A36	0.00	0.00	0.00
18	23	28		L 2X2X1_8	A36	0.00	0.00	0.00
31	48	44		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
32	49	45		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
33	50	46		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
34	51	47		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
35	64	60		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
36	65	61		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
37	66	62		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
38	67	63		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
39	80	76		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
40	81	77		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
41	82	78		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
42	83	79		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
43	117	118		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
56	120	119		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
57	122	121		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
58	114	111		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
59	112	115		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
60	116	113		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
7	180.00	0	0.00	0.00	0.00
8	180.00	0	0.00	0.00	0.00
9	180.00	0	0.00	0.00	0.00
10	180.00	0	0.00	0.00	0.00
11	180.00	0	0.00	0.00	0.00
12	180.00	0	0.00	0.00	0.00
13	180.00	0	0.00	0.00	0.00
14	180.00	0	0.00	0.00	0.00
15	180.00	0	0.00	0.00	0.00
16	180.00	0	0.00	0.00	0.00
17	180.00	0	0.00	0.00	0.00
18	180.00	0	0.00	0.00	0.00
31	0.00	2	1.00	0.00	0.00
32	0.00	2	1.00	0.00	0.00
33	0.00	2	1.00	0.00	0.00
34	0.00	2	1.00	0.00	0.00
35	0.00	2	1.00	0.00	0.00
36	0.00	2	1.00	0.00	0.00
37	0.00	2	1.00	0.00	0.00
38	0.00	2	1.00	0.00	0.00
39	0.00	2	1.00	0.00	0.00
40	0.00	2	1.00	0.00	0.00
41	0.00	2	1.00	0.00	0.00
42	0.00	2	1.00	0.00	0.00
58	90.00	0	0.00	0.00	0.00
59	90.00	0	0.00	0.00	0.00
60	90.00	0	0.00	0.00	0.00

12 NEPAUG RD

Location 12 NEPAUG RD

Mblu 5/11 / 17/A /

Acct# 30303110

Owner REGIONAL SCHOOL DISTRICT #10

PBN

Assessment \$94,850

Appraisal \$135,500

PID 2391

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$0	\$135,500	\$135,500

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$0	\$94,850	\$94,850

Owner of Record

Owner REGIONAL SCHOOL DISTRICT #10
Co-Owner
Address 24 LYON ROAD
 BURLINGTON, CT 06013

Sale Price \$0
Certificate
Book & Page 360/ 463
Sale Date 09/11/2019

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
REGIONAL SCHOOL DISTRICT #10	\$0		360/ 463	09/11/2019
WEAVER AUDREY S TR AND HERBERT F EST OF	\$0		345/ 798	11/10/2016
WEAVER AUDREY S TR AND HERBERT F EST OF	\$0		345/ 797	11/10/2016
WEAVER TRUSTEE AUDREY S OF THE AUDREY S	\$0		0280/0489	08/07/2008
WEAVER AUDREY S AND	\$0		0274/0105	10/22/2007

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

Replacement Cost: \$0

Building Percent

Good:

Replacement Cost

Less Depreciation: \$0

Building Attributes	
Field	Description
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

Building Photo



(http://images.vgsi.com/photos/BurlingtonCTPhotos//00\00\93\56.jpg)

Building Layout

(http://images.vgsi.com/photos/BurlingtonCTPhotos//Sketches/2391_2353.jpg)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 9030
Description Municipal Mdl-00
Zone R44
Neighborhood 3000
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 6.94
Frontage
Depth
Assessed Value \$94,850
Appraised Value \$135,500

Outbuildings

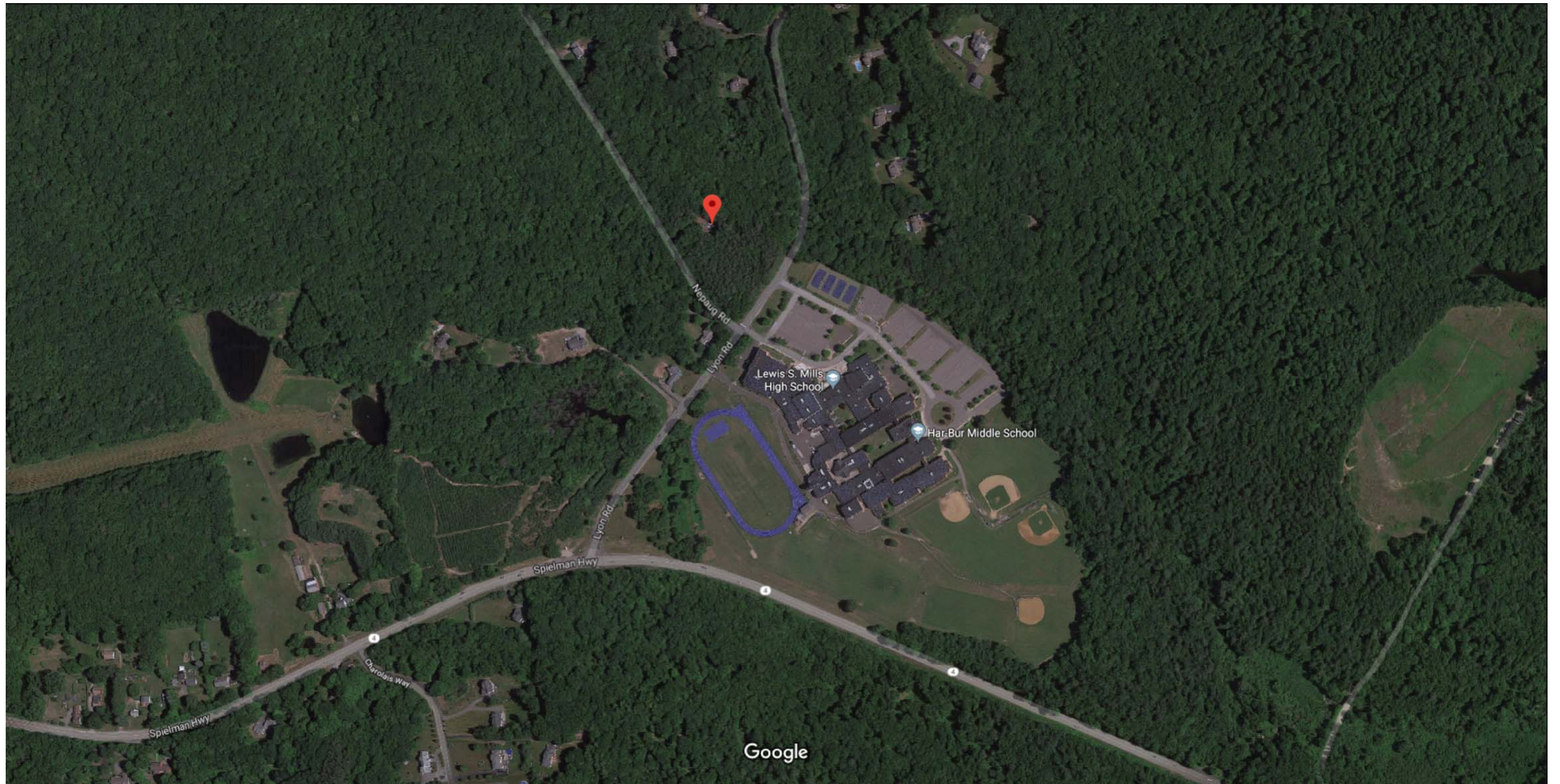
Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$0	\$125,600	\$125,600
2017	\$0	\$269,100	\$269,100
2016	\$0	\$269,100	\$269,100

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$0	\$87,920	\$87,920
2017	\$0	\$188,370	\$188,370
2016	\$0	\$188,370	\$188,370

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Google

DOCKET NO. 268 - AT&T Wireless PCS, LLC d/b/a AT&T Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility located near Lyon and Nepaug Roads in Burlington, Connecticut.	} } } }	Connecticut Siting Council February 18, 2004
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**Decision and Order:
Burlington Site CT-828**

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the proposed site, located at the intersection of Lyon and Nepaug Roads, Burlington, Connecticut.

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

1. The tower shall be constructed no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
 - b) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
7. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

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

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

The parties and intervenors to this proceeding are:

Applicant

AT&T Wireless PCS, LLC
d/b/a AT&T Wireless

Intervenor


Sprint Spectrum, L.P.
d/b/a Sprint PCS

Its Representative

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
90 Maple Avenue
White Plains, New York 10601

Its Representative

Thomas J. Regan, Esq.
Brown Rudnick Berlack Israels
CityPlace 1
185 Asylum Street
Hartford, CT 06103



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PRIORITY MAIL 1-DAY™

Expected Delivery Date: 10/01/19

MARK J ROBERTS
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 PO BOX 916
 STORRS CT 06268-0916

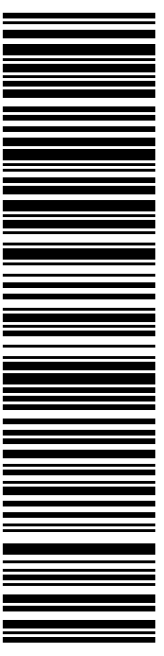
0024

Carrier -- Leave if No Response

R007

SHIP TO: MR. HOWARD THIERY
 REGIONAL SCHOOL DISTRICT #10
 24 LYON RD
 BURLINGTON CT 06013-1330

USPS TRACKING #



9405 5036 9930 0125 1576 88

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9405 5036 9930 0125 1576 88

Trans. #: 473688372	Priority Mail® Postage: \$7.35
Print Date: 09/30/2019	Total: \$7.35
Ship Date: 09/30/2019	
Expected Delivery Date: 10/01/2019	


From: MARK J ROBERTS
 QC DEVELOPMENT
 PO BOX 916
 STORRS CT 06268-0916

To: MR. HOWARD THIERY
 REGIONAL SCHOOL DISTRICT #10
 24 LYON RD
 BURLINGTON CT 06013-1330

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 \$7.35

09/30/2019

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PRIORITY MAIL 1-DAY™

Expected Delivery Date: 10/01/19

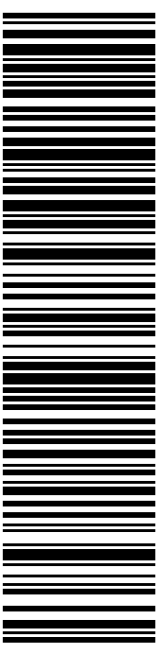
0024

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SHIP TO: MR. THEODORE SHAFER
 TOWN OF BURLINGTON
 200 SPIELMAN HWY
 CC: MR GERALD BURNS - ZEO
 BURLINGTON CT 06013-1735

USPS TRACKING #



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Electronic Rate Approved #038555749



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9405 5036 9930 0125 1576 95

Trans. #: 473688372	Priority Mail® Postage: \$7.35
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Ship Date: 09/30/2019	
Expected Delivery Date: 10/01/2019	

From: MARK J ROBERTS
 QC DEVELOPMENT
 PO BOX 916
 STORRS CT 06268-0916

To: MR. THEODORE SHAFER
 TOWN OF BURLINGTON
 200 SPIELMAN HWY
 CC: MR GERALD BURNS - ZEO
 BURLINGTON CT 06013-1735

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