



QC Development

PO Box 916

Storrs, CT 06268

860-670-9068

Mark.Roberts@QCDevelopment.net

February 15, 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) – CT2233
812 Middletown Road, Colchester, CT 06415
N 41.58666667
W 72.37777778

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 160-foot level of the existing 179-foot Monopole at 812 Middletown Rd, Colchester, CT. The tower is owned by American Tower and the property is owned by Lorraine M. Leone. AT&T now intends to replace three (3) Powerwave and (3) KMW antennas with (2) Kathrein 800-10964 and (4) Kathrein 800-10966 antennas. AT&T will also swap (3) Ericsson RRUS-11 Remote Radio Units for (3) Ericsson 4449-B5/B12s and add (3) Ericsson 8843-B25/B66 and (3) Ericsson 4478-B14 Remote Radio Units (RRU). The Antennas and RRUs will be installed at the 160-foot level of the tower.

This facility was approved by the Siting Council in Docket # 218 on May 7, 2002. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. 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 Art Shilosky, First Selectman of the Town of Colchester, and the Colchester Planning & Zoning Department as

well as the property owner and tower owner.

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

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

For the foregoing reasons, 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: Art Shilosky - Elected Official
Randall Benson - Town Planner
Lorraine M. Leone - Property Owner
American Tower - 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*							1.08%
AT&T GSM	1	283	147	0.0043	880	0.5867	0.07%
AT&T UMTS	2	565	147	0.0171	880	0.5867	0.29%
AT&T UMTS	4	525	147	0.0318	1900	1.0000	0.32%
AT&T LTE	1	1615	147	0.0245	734	0.4893	0.50%
AT&T LTE	2	875	147	0.0265	1900	1.0000	0.27%
Site Total							2.53%

*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*							1.08%
AT&T UMTS	1	268	147	0.0048	850	0.5667	0.09%
AT&T LTE	1	1476	147	0.0267	700	0.4667	0.57%
AT&T LTE	1	1000	147	0.0181	850	0.5667	0.32%
AT&T 5G	1	1000	147	0.0181	850	0.5667	0.32%
AT&T LTE	2	3664	147	0.1326	1900	1.0000	1.33%
AT&T LTE	1	3837	147	0.0694	2100	1.0000	0.69%
Site Total							5.42%

*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

PROJECT INFORMATION

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

- PROPOSED NEW 12' HD V-BOOM SECTOR MOUNT (SABRE PART# C10857001C) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL NEW 2-1/2" STD (2.88" O.D.) (10'-0" LONG) PIPE MASTS BEHIND PROPOSED (800-10964) & (800-10966) (TYP. OF 2 PER SECTOR, TOTAL OF 6)
- NEW AT&T ANTENNAS: (800-10964) (TOTAL OF 2 PER ALPHA SECTOR).
- NEW AT&T ANTENNAS: (800-10966) (TYP. OF 2 PER BETA & GAMMA SECTORS, TOTAL OF 4).
- NEW AT&T RRUS: B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B2/B66A 8843 (1900/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8C (TOTAL OF 1) WITH (2) DC POWER & (1) FIBER CABLE IN 2" FLEX CONDUIT (TO FOLLOW EXISTING).
- NEW AT&T SURGE ARRESTOR: DC6-48-60-0-8C-EV (TOTAL OF 1) WITH (2) DC POWER ONLY IN 2" FLEX CONDUIT (TO FOLLOW EXISTING).
- PROPOSED (3) 3/8" HOMERUN RET CABLES.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- SWAP BASEBAND FOR RBS 6630.
- ADD RBS 6630 FOR 5G.
- ADD (1) XMU.

SITE ADDRESS: 856 MIDDLETOWN ROAD
COLCHESTER, CT 06415

LATITUDE: 41.551625 N, 41° 33' 05.85" N

LONGITUDE: 72.425793 W, 72° 25' 32.86" W

TYPE OF SITE: MONOPOLE / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 179'-0"±

RAD CENTER: 160'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT2233

SITE NAME: COLCHESTER MIDDLETOWN RD

FA CODE: 10049133

PACE ID: MRCTB035133, MRCTB035151, MRCTB035193

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 N VIA THE RAMP ON THE LEFT TOWARD HARTFORD 4.5 MILES. MERGE ONTO CT-3 N VIA EXIT 25 TOWARD GLASTONBURY. MERGE ONTO CT-2 E TOWARD NORWICH 15.8 MILES. TAKE THE CT-149 EXIT, EXIT 16, TOWARD WESTCHESTER/MOODUS. TURN RIGHT ONTO WESTCHESTER RD/CT-149. TURN RIGHT ONTO MIDDLETOWN RD/CT-16. 856 MIDDLETOWN 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.

ATC SITE NAME: COLCHESTER SOUTH CT
ATC SITE #: 411179

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: CT2233
SITE NAME: COLCHESTER MIDDLETOWN RD
ATC SITE #: 411179
856 MIDDLETOWN ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

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

1		02/08/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC		AT&T	
A		01/30/19	ISSUED FOR REVIEW	AM	AT	DJC		TITLE SHEET (LTE 2C_3C_4C_5C)	
NO.	DATE	REVISIONS		BY	CHK	APP'D	SITE NUMBER	DRAWING NUMBER	REV
SCALE: AS SHOWN		DESIGNED BY: AT		DRAWN BY: AM			CT2233	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) 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 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 AWS 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. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF 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	RAD	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

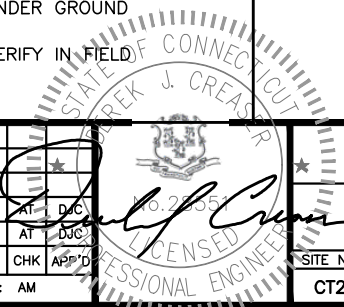
SITE NUMBER: CT2233
SITE NAME: COLCHESTER MIDDLETOWN RD
ATC SITE #: 411179

856 MIDDLETOWN ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	02/08/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	01/30/19	ISSUED FOR REVIEW	AM	AT	DJC

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



AT&T

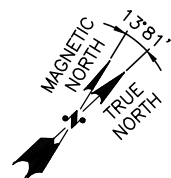
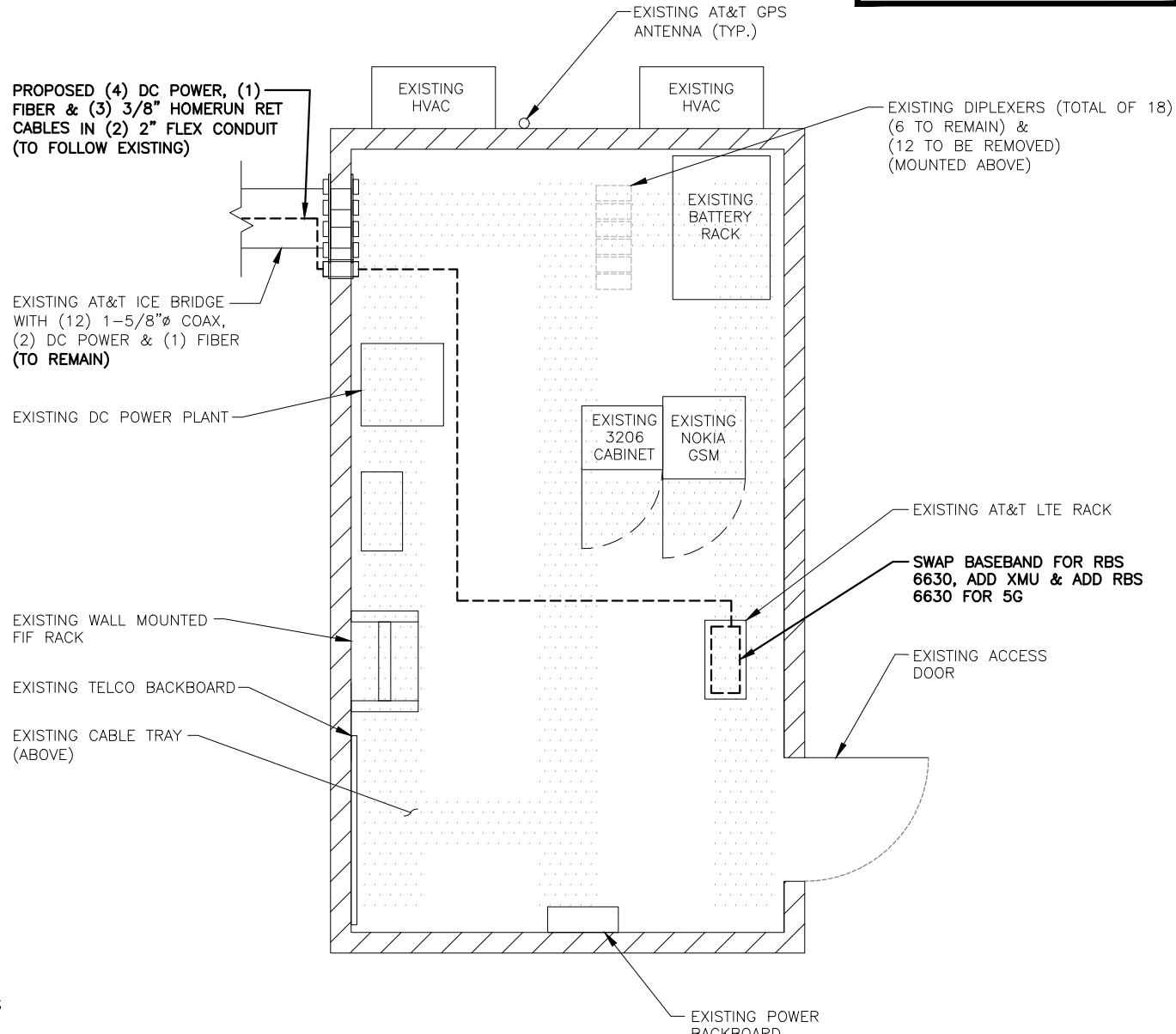
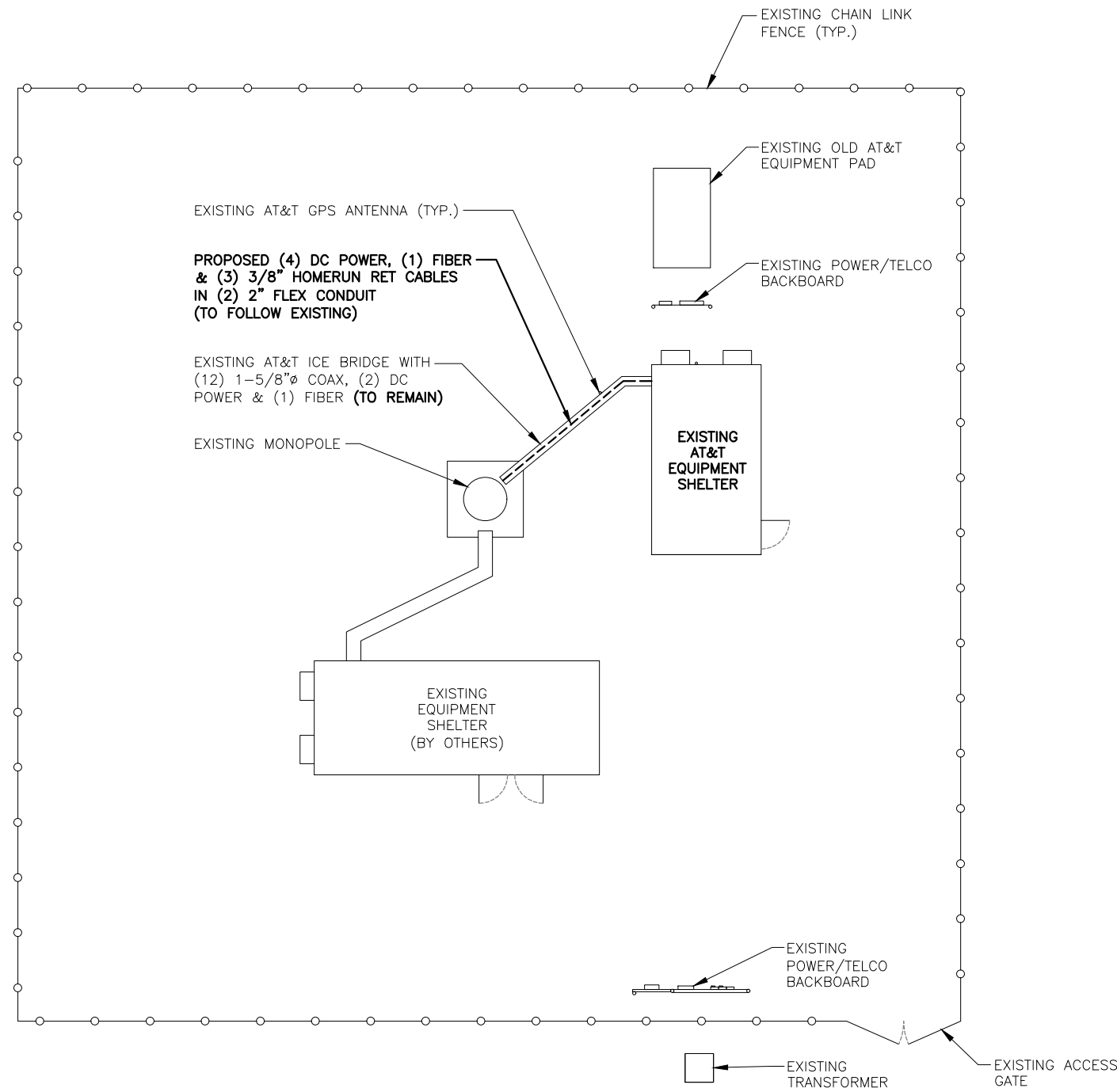
GENERAL NOTES
(LTE 2C_3C_4C_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT2233	GN-1	1

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING PROFESSIONALS, INC, DATED: JANUARY 25, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

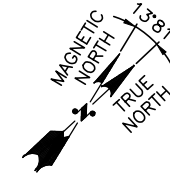
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JANUARY 7, 2019 (REV.1)



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

1
A-1



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

2
A-1



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

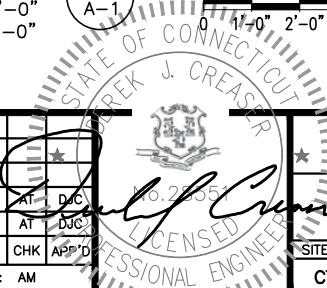
SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2233
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ATC SITE #: 411179
856 MIDDLETOWN ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

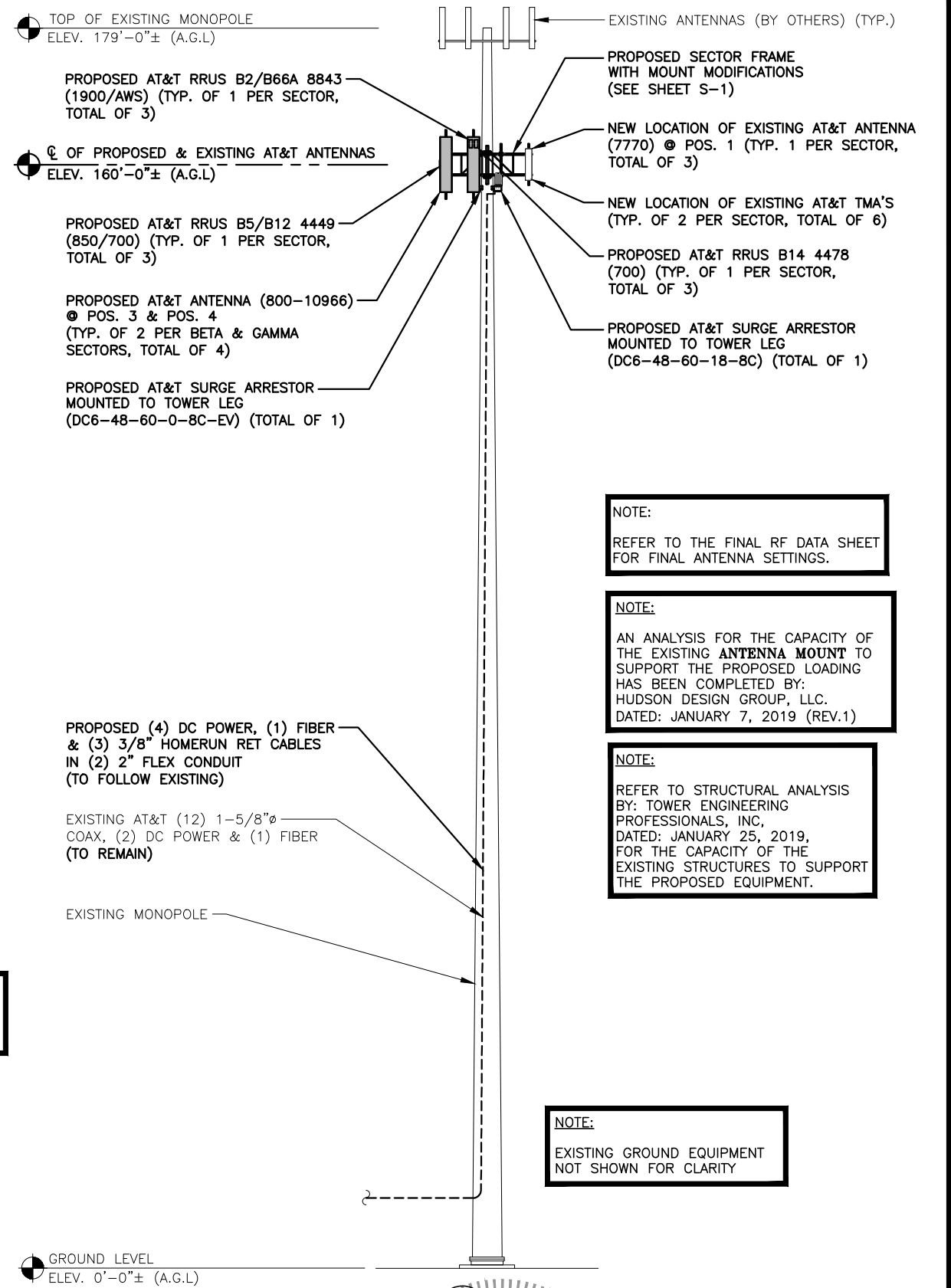
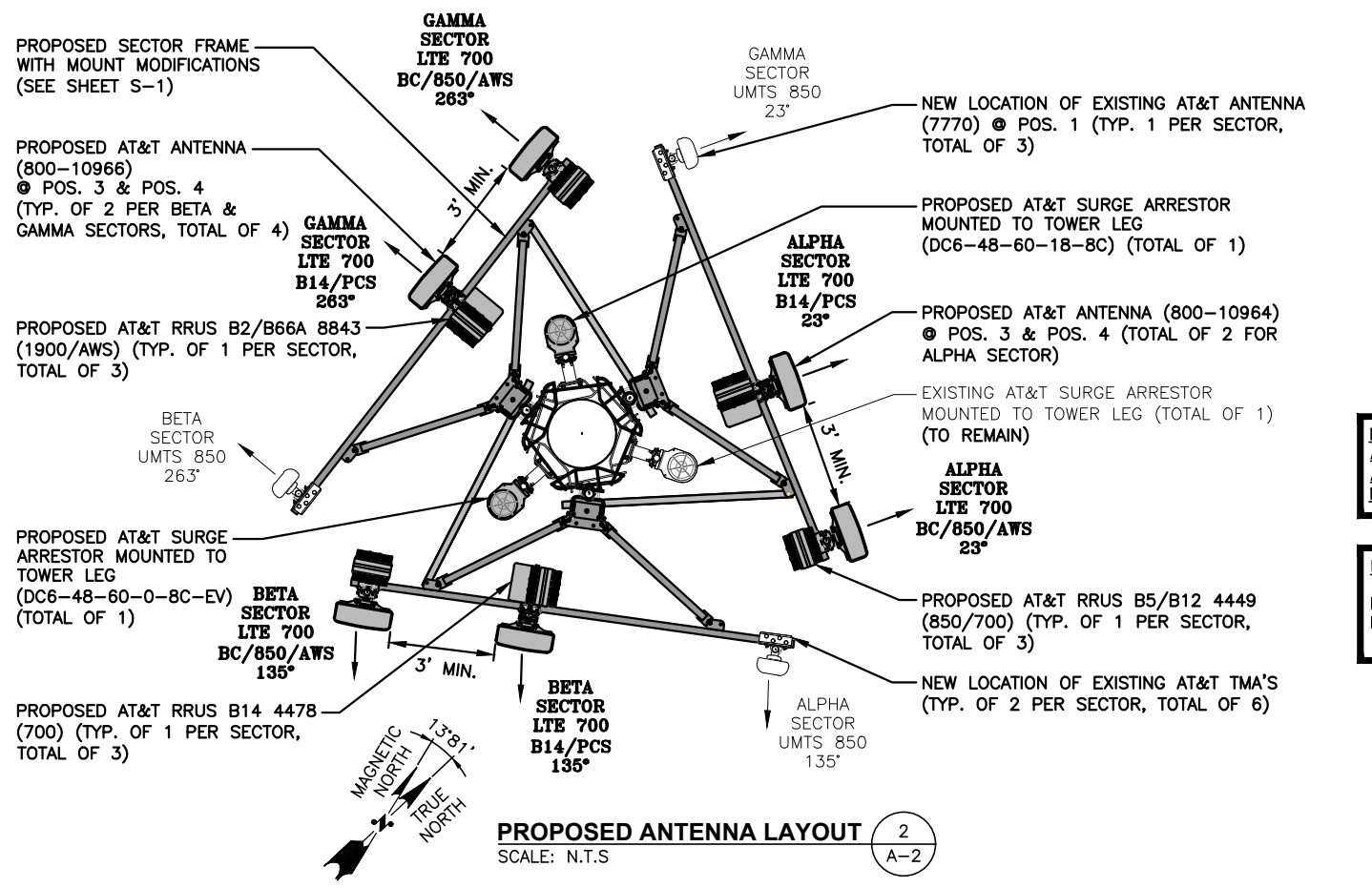
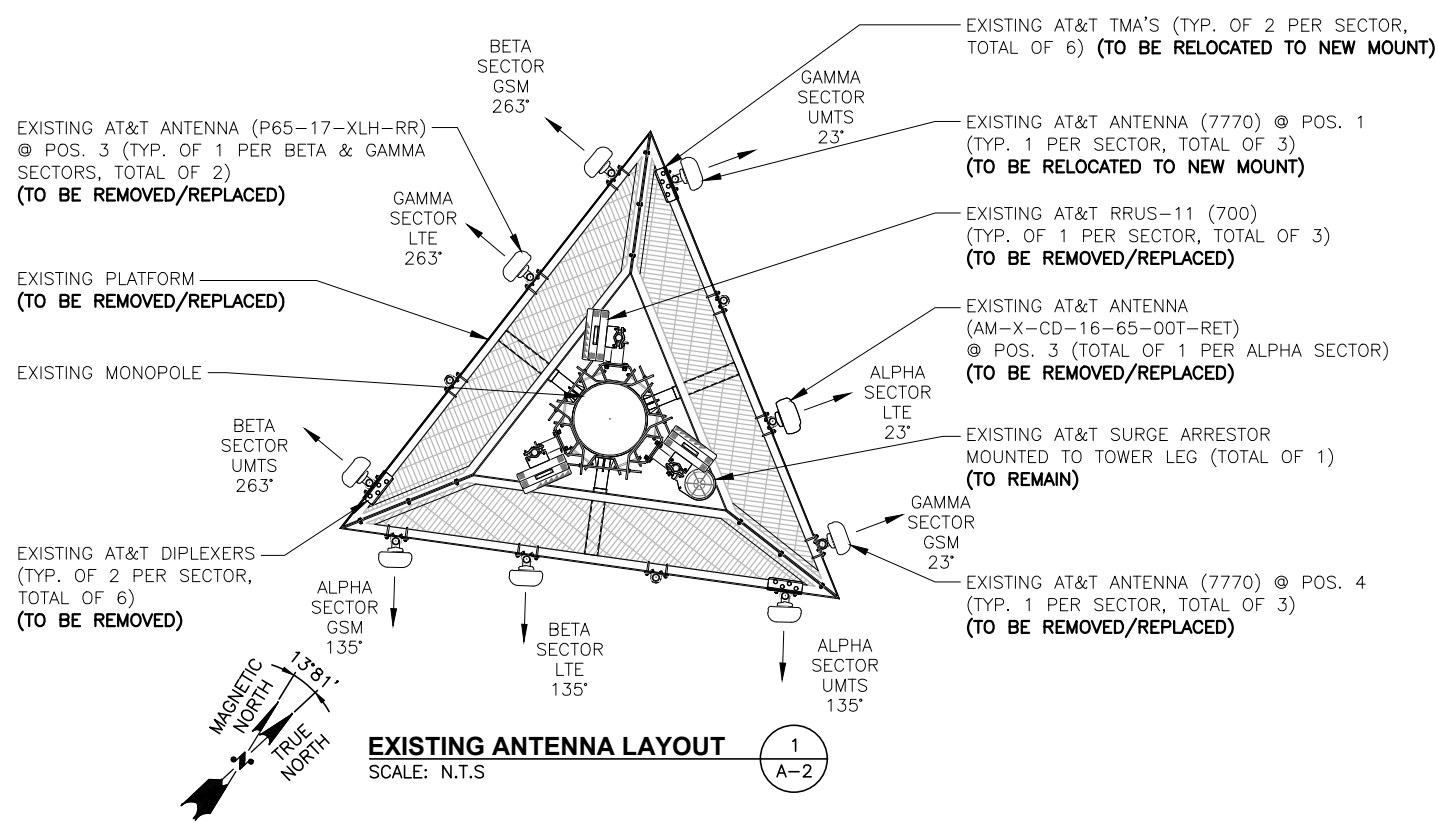
at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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A	01/30/19	ISSUED FOR REVIEW	AM	AT	DJC

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



AT&T
COMPOUND & EQUIPMENT PLAN
(LTE 2C_3C_4C_5C)
SITE NUMBER: CT2233 DRAWING NUMBER: A-1 REV: 1



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

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NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING PROFESSIONALS, INC, DATED: JANUARY 25, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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

NOTE:
PROPOSED ANTENNA MOUNT TO BE ROTATED TO MATCH LTE AZIMUTHS

NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

HG 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: CT2233
SITE NAME: COLCHESTER MIDDLETOWN RD
ATC SITE #: 411179
856 MIDDLETOWN ROAD COLCHESTER, CT 06415
NEW LONDON COUNTY

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

1	02/08/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	01/30/19	ISSUED FOR REVIEW	AM	AT	DJC
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: AM		

AT&T
ANTENNA LAYOUTS & ELEVATION (LTE 2C_3C_4C_5C)
SITE NUMBER: CT2233
DRAWING NUMBER: A-2
REV: 1

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING PROFESSIONALS, INC., DATED: JANUARY 25, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

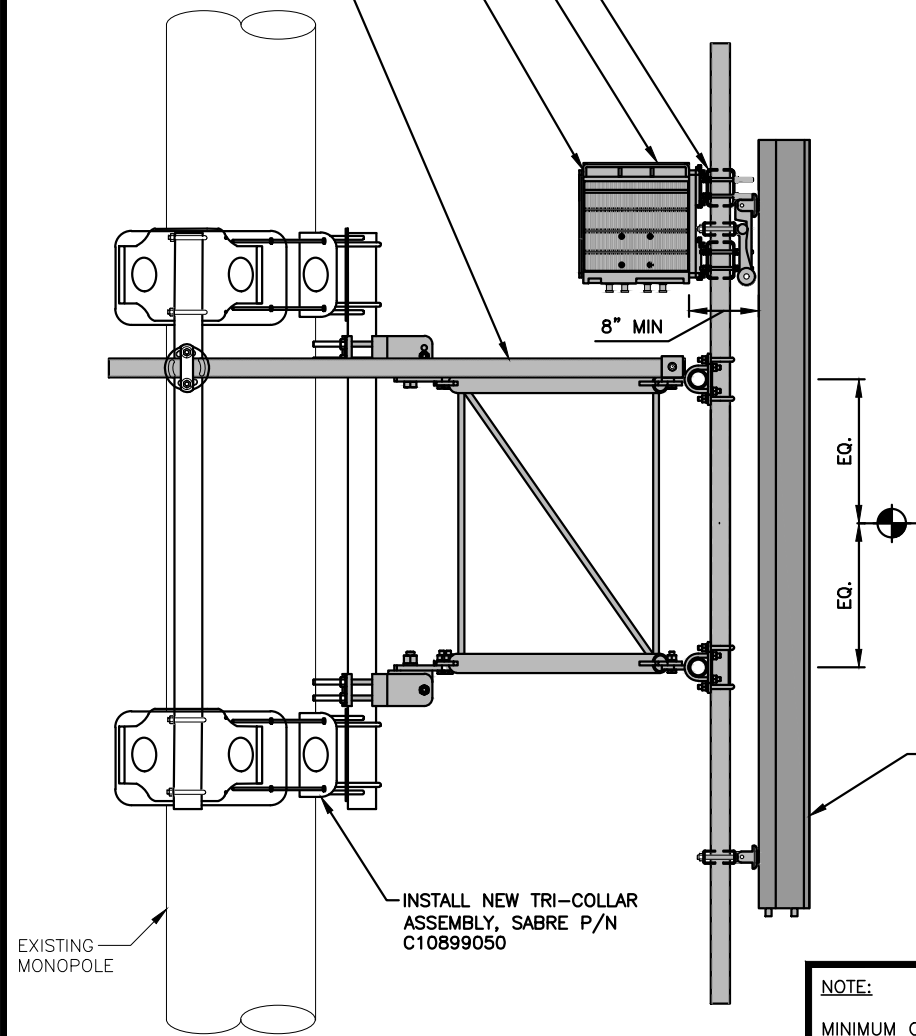
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JANUARY 7, 2019 (REV.1)

PROPOSED RRU BACK TO BACK TO BACK MOUNT BRACKET PART# SXK1250461/1 (OR APPROVAL EQUAL)

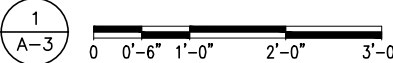
PROPOSED AT&T RRUS B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T RRUS B2/B66A 8843 (1900/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED SECTOR FRAME WITH MOUNT MODIFICATIONS (SEE SHEET S-1)



PROPOSED LTE ANTENNA & RRH MOUNTING DETAIL
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"



NOTE:
MINIMUM OF 8" SEPARATION REQUIRED BETWEEN THE BACK OF ANTENNA AND THE RRH.

PROPOSED AT&T ANTENNA (800-10966)
⊙ POS. 3 & POS. 4
(TYP. OF 2 PER BETA & GAMMA SECTORS, TOTAL OF 4)

⊙ OF PROPOSED & EXISTING AT&T ANTENNAS
ELEV. 160'-0"± (A.G.L.)

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ⌀ HEIGHT	AZIMUTH	TMA/DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	7770	55X11X5	±160'	135°	(E)(2)(G) POWERWAVE LGP 21901 (E)(2) POWERWAVE LGP 21401	--	--	(2) 1-5/8" (210'±) (1)(P) 3/8" RET CABLE	(E) (1) RAYCAP DC6-48-60-18-8C
A2	-	-	-	-	-	-	--	--	--	(2) 1-5/8" (210'±) (FOR FUTURE USE)	
A3	PROPOSED	LTE 700 B14/PCS	800-10964	59X20X6.9	±160'	23°	--	(P)(1) B14 4478 (700) (P)(1) B2/B66A 8843 (1900/AWS)	18.1X13.4X8.26 14.9X13.2X10.9	--	
A4	PROPOSED	LTE 700 BC/AWS/850	800-10964	59X20X6.9	±160'	23°	--	(P)(1) B5/B12 4449 (850/700/AWS)	14.9X13.2X5.4	--	
B1	EXISTING	UMTS 850	7770	55X11X5	±160'	263°	(E)(2)(G) POWERWAVE LGP 21901 (E)(2) POWERWAVE LGP 21401	--	--	(2) 1-5/8" (210'±) (1)(P) 3/8" RET CABLE	(P) (1) RAYCAP DC6-48-60-18-8C
B2	-	-	-	-	-	-	--	--	--	(2) 1-5/8" (210'±) (FOR FUTURE USE)	
B3	PROPOSED	LTE 700 B14/PCS	800-10966	96X20X6.9	±160'	135°	--	(P)(1) B14 4478 (700) (P)(1) B2/B66A 8843 (1900/AWS)	18.1X13.4X8.26 14.9X13.2X10.9	--	
B4	PROPOSED	LTE 700 BC/AWS/850	800-10966	96X20X6.9	±160'	135°	--	(P)(1) B5/B12 4449 (850/700/AWS)	14.9X13.2X5.4	--	
C1	EXISTING	UMTS 850	7770	55X11X5	±160'	23°	(E)(2)(G) POWERWAVE LGP 21901 (E)(2) POWERWAVE LGP 21401	--	--	(2) 1-5/8" (210'±) (1)(P) 3/8" RET CABLE	(P) (1) RAYCAP DC6-48-60-0-8C-EV
C2	-	-	-	-	-	-	--	--	--	(2) 1-5/8" (210'±) (FOR FUTURE USE)	
C3	PROPOSED	LTE 700 B14/PCS	800-10966	96X20X6.9	±160'	263°	--	(P)(1) B14 4478 (700) (P)(1) B2/B66A 8843 (1900/AWS)	18.1X13.4X8.26 14.9X13.2X10.9	--	
C4	PROPOSED	LTE 700 BC/AWS/850	800-10966	96X20X6.9	±160'	263°	--	(P)(1) B5/B12 4449 (850/700/AWS)	14.9X13.2X5.4	--	

FINAL ANTENNA SCHEDULE
SCALE: N.T.S.

RRU CHART

QUANTITY	MODEL	L	W	D
3(P)	B14 4478 (700)	18.1"	13.4"	8.3"
3(P)	B2/B66A 8843 (1900/AWS)	14.9"	13.2"	10.9"
3(P)	B5/B12 4449 (700/850)	14.9"	13.2"	5.4"

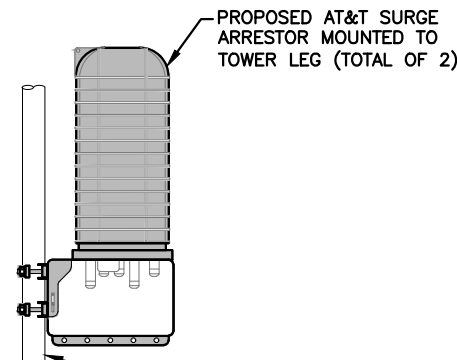
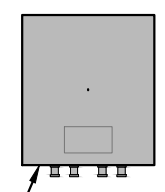
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

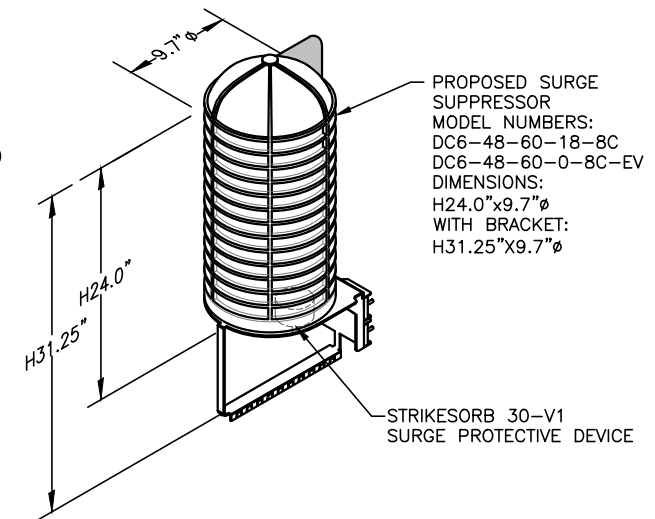
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL
SCALE: N.T.S.



PROPOSED SURGE ARRESTOR MOUNTING DETAIL
SCALE: N.T.S.

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



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL
SCALE: N.T.S.

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AT&T
DETAILS
(LTE 2C_3C_4C_5C)
SITE NUMBER: CT2233
DRAWING NUMBER: A-3
REV: 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:	

NOTES:

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

NOTES:

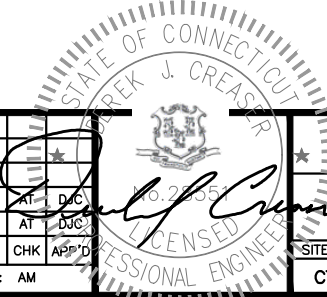
- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"Ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- VERIFICATION OF EXISTING ROOF CONSTRUCTION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

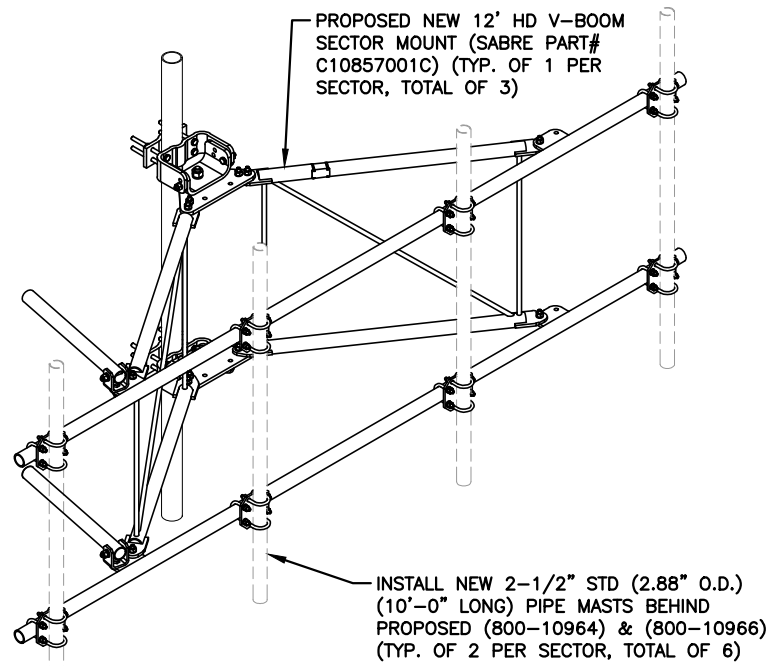
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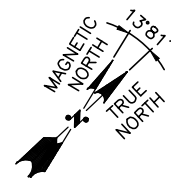
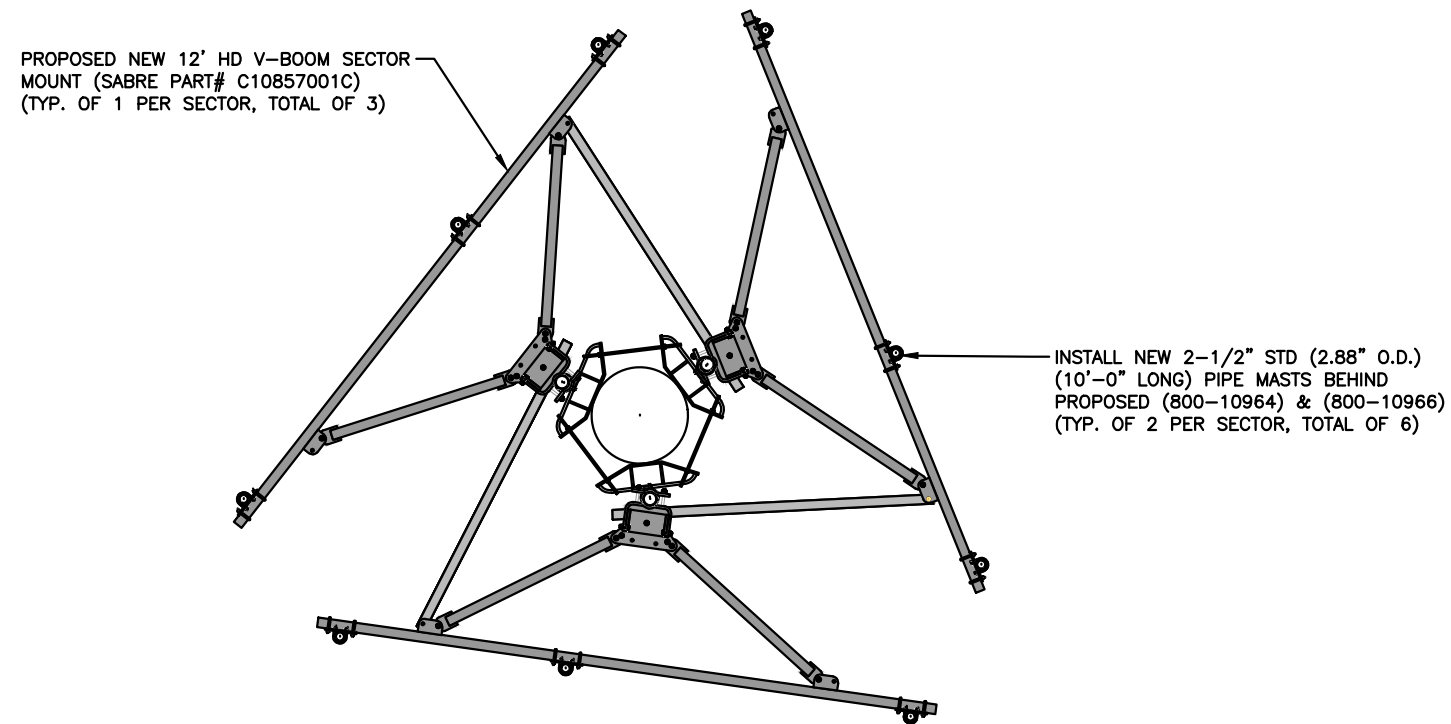
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NO.	DATE	REVISIONS		BY	CHK	APP'D	SITE NUMBER	DRAWING NUMBER	REV
SCALE: AS SHOWN		DESIGNED BY: AT		DRAWN BY: AM			CT2233	SN-1	1



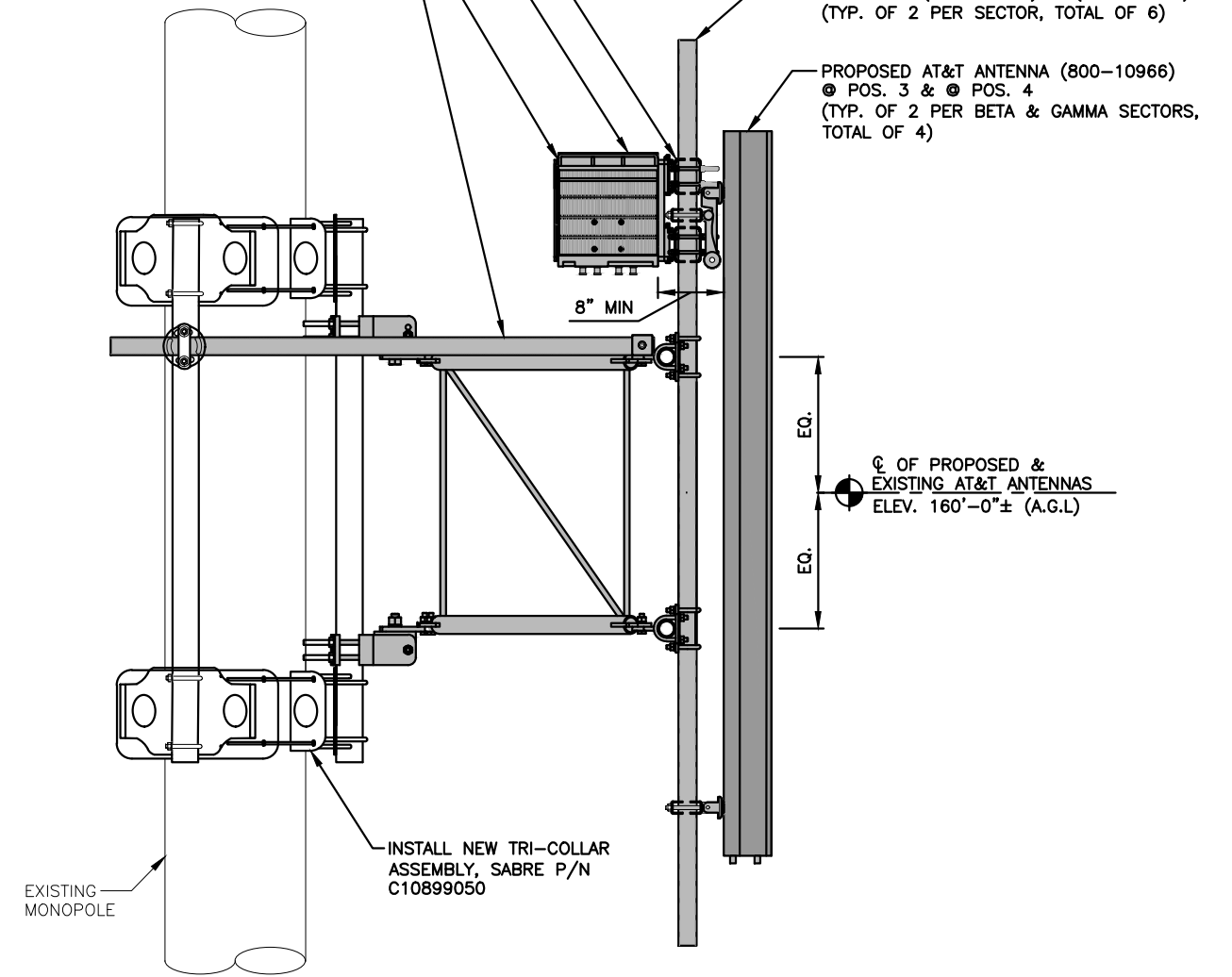
12' HD V-BOOM DETAIL 1
SCALE: N.T.S. S-1



PROPOSED REINFORCEMENT PLAN 2
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0" S-1



- PROPOSED RRU BACK TO BACK TO BACK MOUNT BRACKET PART# SXX1250461/1 (OR APPROVAL EQUAL)
- PROPOSED AT&T RRUS B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- PROPOSED AT&T RRUS B2/B66A 8843 (1900/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- PROPOSED NEW 12' HD V-BOOM SECTOR MOUNT (SABRE PART# C10857001C) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

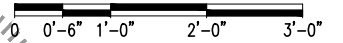


NOTE:
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NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

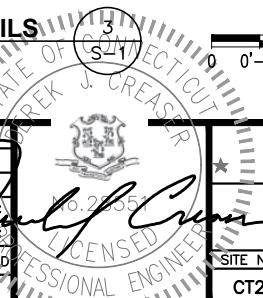
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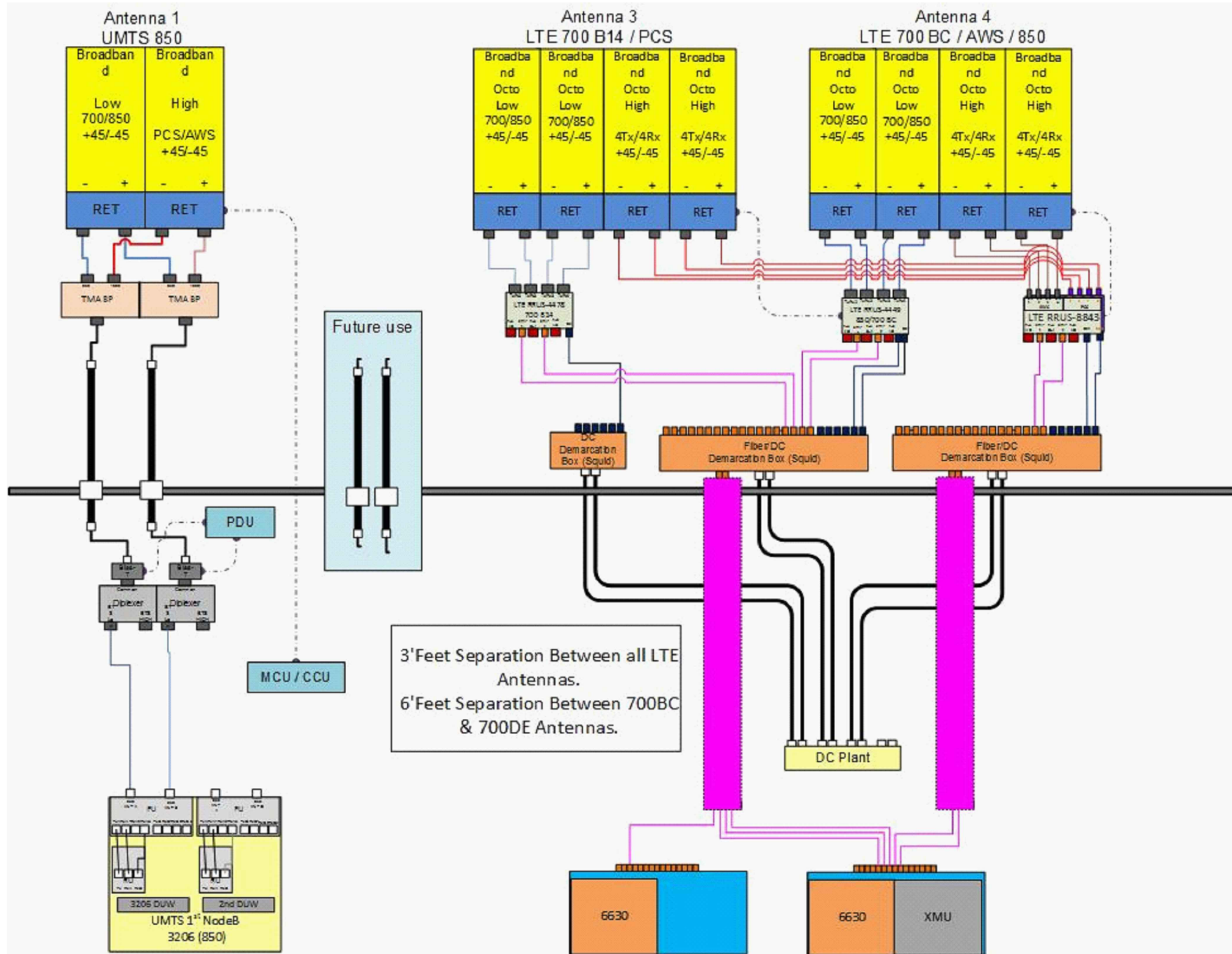
PROPOSED MOUNT MODIFICATIONS DETAILS 3
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0" S-1



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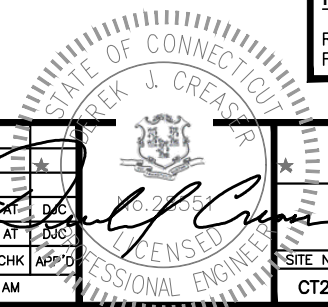
RF PLUMBING DIAGRAM 1
SCALE: N.T.S. RF-1

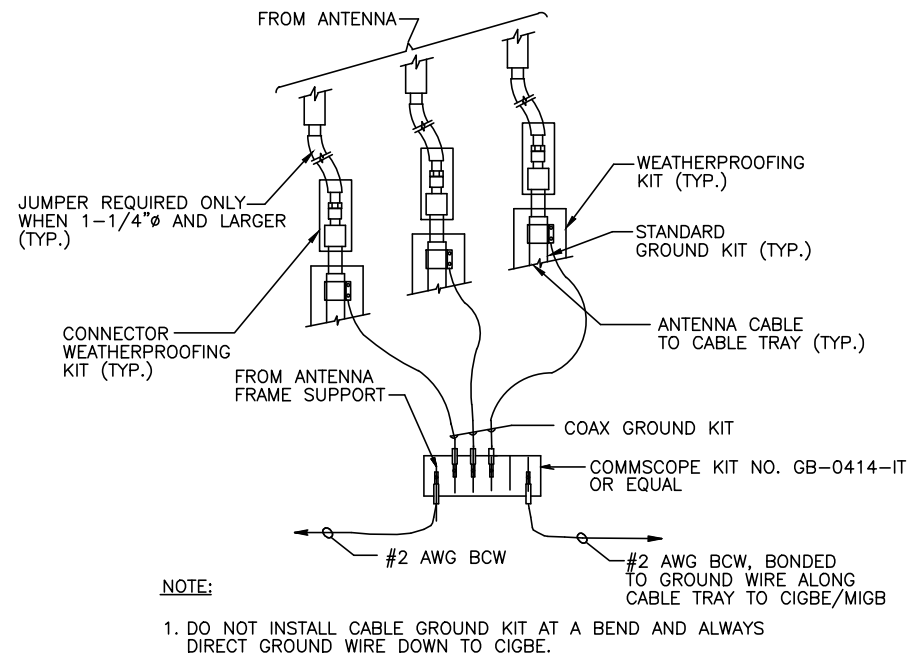
NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

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

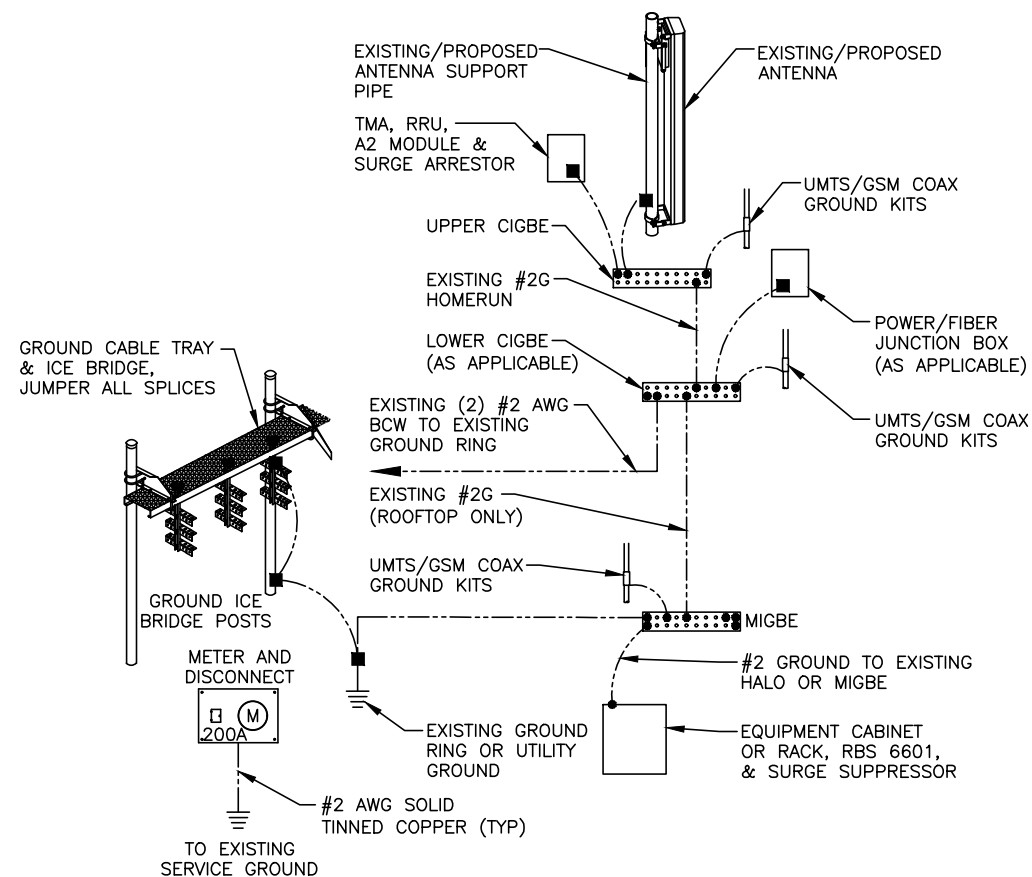
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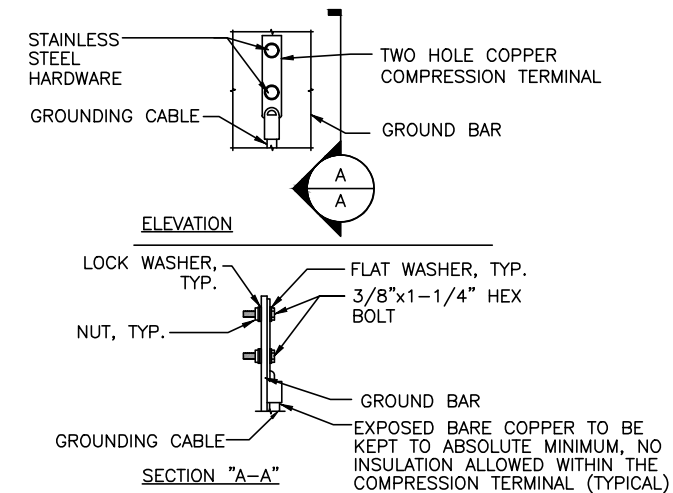




GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
SCALE: N.T.S. G-1



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



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

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

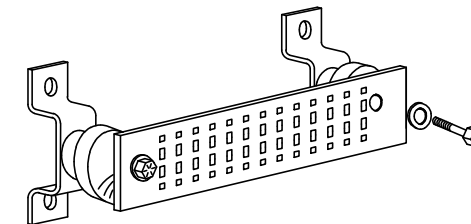
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

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



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

				STATE OF CONNECTICUT BREK J. CREASER LICENSED PROFESSIONAL ENGINEER		AT&T	
				18.2553		GROUNDING DETAILS (LTE 2C_3C_4C_5C)	
NO.	DATE	REVISIONS	BY	CHK	APP'D	SITE NUMBER	DRAWING NUMBER
1	02/08/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC	CT2233	G-1
A	01/30/19	ISSUED FOR REVIEW	AM	AT	DJC		
SCALE: AS SHOWN				DESIGNED BY: AT	DRAWN BY: AM		
							1



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by



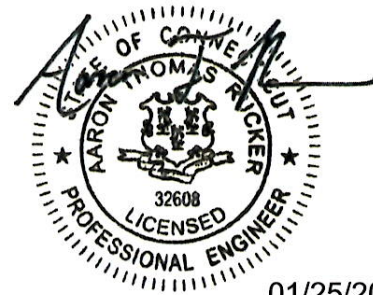
**TOWER
ENGINEERING
PROFESSIONALS**

Structural Analysis Report

Structure : 179 ft Monopole
ATC Site Name : Colchester South CT
ATC Site Number : 411179
Engineering Number : OAA745206_C3_01
Proposed Carrier : AT&T Mobility
Carrier Site Name : Colchester Middletown Rd
Carrier Site Number : CT2233
Site Location : 856 Middletown Road
Colchester, CT 06415-2309
41.551600,-72.425800
County : New London
Date : January 25, 2019
Max Usage : 59%
Result : Pass

Prepared By:
Austin E. Wilson
TEP

Reviewed By:



01/25/2019

COA: PEC.0001553



Table of Contents

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Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 179 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	EI project# 11294, dated November 3, 2003
Foundation Drawing	EI project# 11294, dated October 30, 2003
Geotechnical Report	CHA project# 11869.1003.1502, dated September 20, 2002

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	101 mph (3-Second Gust, V_{asd}) / 130 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Spectral Response:	$S_s = 0.17$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
180.0	6	Amphenol Antel LPA-80080-4CF-EDIN-0	Low Profile Platform	(2) 1 1/4" Hybriflex Cable (2) 1 5/8" (1.63"-41.3mm) Fiber (18) 1 5/8" Coax	VERIZON WIRELESS
	3	Andrew LNX-6514DS-A1M			
	3	Alcatel-Lucent RRH2X60-AWS Band 4			
	3	Alcatel-Lucent RRH2X60-1900A-4R			
	6	Commscope HBXX-6517DS-A2M			
	2	RFS DB-T1-6Z-8AB-0Z			
160.0	3	Powerwave Allgon 7770.00	-	(12) 1 5/8" Coax (1) 0.33" (8.7mm) Fiber (2) 0.78" (19.7mm) 8 AWG 6	AT&T MOBILITY
	6	Powerwave Allgon LGP21401			
	1	Raycap DC6-48-60-18-8F(32.8 lbs)			
	6	Powerwave Allgon LGP21901			
	3	Kathrein Scala Smart Bias Tee			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
160.0	2	Powerwave Allgon P65-17-XLH-RR	Low Profile Platform	-	AT&T MOBILITY
	3	Powerwave Allgon 7770.00			
	1	KMW AM-X-CD-14-65-00T-RET			
159.0	6	Ericsson RRUS-11			

Proposed Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
160.0	1	Raycap DC6-48-60-0-8C-EV	Sabre C108570001C Sector Frames w/ modifications	(1) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (2) 2" conduit (1) 3" conduit	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8C			
	3	Ericsson RRUS 4449 B5, B12			
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4478 B14			
	2	Kathrein Scala 80010964			
	4	Kathrein Scala 80010966			

¹ Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	48%	Pass
Shaft	51%	Pass
Base Plate	58%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,806.8	5,139.2	3,031.4	59%
Shear (Kips)	30.4	41.0	24.4	59%

* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
160.0	Raycap DC6-48-60-0-8C-EV	AT&T MOBILITY	1.564	1.173
	Ericsson RRUS 8843 B2, B66A			
	Ericsson RRUS 4478 B14			
	Ericsson RRUS 4449 B5, B12			
	Raycap DC6-48-60-18-8C			
	Kathrein Scala 80010964			
Kathrein Scala 80010966				

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

December 12, 2018
January 7, 2019 (Rev.1)



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT2233 (LTE 2C/3C/4C/5C)
 FA Number: 10049133
 PACE Number: MRCTB035151
 PT Number: 2051A0KPHB
 Site Name: COLCHESTER MIDDLETOWN RD
 Site Address: 856 Middletown Road
 Colchester, CT 06415

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna/RRH mounts to determine their capability of supporting the following 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 Arrestors (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(2) 800-10964 Antennas (59.0"x20"x6.9" – Wt. = 44 lbs. /each)**
- **(4) 800-10966 Antennas (96.0"x 20.0"x6.9" – Wt. = 115 lbs. /each)**
- **(3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 71 lbs. /each)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(2) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)**

**Proposed equipment shown in bold*

HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on December 6, 2018. Mount fabrication drawings prepared by Sabre Industries Towers & Poles (P/N C10857001C) dated December 22, 2015 were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-G, 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 – R11.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-G Annex B, 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 0.75 in. Per the AT&T Mount Technical Directive and Appendix N of the Connecticut State Building Code, an ultimate wind speed of 130 mph was converted to a nominal wind speed. A minimum wind speed value of 105 mph per the TIA-222-G and an escalated ice thickness of 1.76 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- 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 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the new Sabre Industries C10857001C mounts **ARE CAPABLE** of supporting the proposed installation with the following modifications:

- **Install new 2.5" std. (2.88" O.D.) pipe masts behind proposed 800-10964 and 800-10966 Antennas (typ. of 2 per sector, total of 6).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed (LTE 2C/3C/4C/5C) Mount Rating	28	LC1	100%	FAIL
Proposed (LTE 2C/3C/4C/5C) Mount Rating	3	LC7	83%	PASS

Reference Documents:

- Fabrication drawings prepared by Sabre Industries Towers and Poles, P/N C10857001C, dated December 22, 2015.

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 proposed mount will be 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
Structural Dept. Head



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

*Note: Existing mount to be removed.







HUDSON
Design Group LLC

Wind & Ice Calculations

Date: 1/4/2019
 Project Name: COLCHESTER MIDDLETOWN RD
 Project No.: CT2233
 Designed By: JP Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

$z = 160$ (ft)
 $z_g = 1200$ (ft)
 $\alpha = 7.0$
 $K_z = 1.130$

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

Table 2-4

Exposure	Z _g	α	K _{zmin}	K _e
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

2.6.6.4 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

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

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

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

$K_h = \text{\#DIV/0!}$

$K_e = 0.9$ (from Table 2-4)

$K_t =$ (from Table 2-5)

$f =$ (from Table 2-5)

$z = 160$

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

$K_{zt} = 1.00$

$K_{iz} = 1.17$ (from Sec. 2.6.8)

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

Category = 1

2.6.8 Design Ice Thickness

Max Ice Thickness =

$t_i = 0.75$ in

Importance Factor, $I_{ice} =$

$I_{ice} = 1.00$ (from Table 2-3)

$$t_{iz} = 2.0 * t_i * I_{ice} * K_{iz} * (K_{zt})^{0.35}$$

$t_{iz} = 1.76$ in

2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

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

h= 188 Gh= 0.85

2.6.7.2 Guyed Masts Gh= 0.85

2.6.7.3 Pole Structures Gh= 1.1

2.6.9 Appurtenances Gh= 1.0

2.6.7.4 Structures Supported on Other Structures

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

Gh= 1.35 Gh= 1.00

2.6.9.2 Design Wind Force on Appurtenances

State Code Ultimate Design Wind Speed: $V_{ult} = 130$ mph

Nomial Design Wind Speed, $V_{asd} = V_{ult} \sqrt{0.6}$ $V_{asd} = 101$ mph

V_{asd} per the AT&T Mount Technical Directive and Connecticut State Building Code, Latest Edition.

Per TIA-222-G, $V_{min} = 105$ mph $V_{max} = 120$ mph

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

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

$q_z =$	30.31
$q_{z(ice)} =$	6.87
$q_{z(30)} =$	2.47

$K_z =$	1.130
$K_{zt} =$	1.0
$K_d =$	0.95 (from Table 2-2)
$V_{asd} =$	105 mph
$V_{max(ice)} =$	50 mph
$V_{30} =$	30 mph
$I =$	1.0 (from Table 2-3)
$I_{wice} =$	1.0 (from Table 2-3)

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

Determine Ca:

Table 2-8

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
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (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 = **1.76 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)
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	526	145	43
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	167	53	14
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	60	20	5
4449 B5/B12 RRH (Shielded)	17.9	0.0	9.4	0.00	0.00	1.20	0	4	0
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.10	1.20	95	30	8
8843 B2/B66A RRH (Shielded)	20.4	0.0	7.5	0.00	0.00	1.20	0	5	0
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	61	21	5
4478 B14 RRH (Shielded)	18.1	0.0	8.3	0.00	0.00	1.20	0	4	0
LGP21401 TMA	14.4	9.0	2.7	0.90	1.60	1.20	33	13	3
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	34	12	3
3/4" Roundbar	0.8	12.0		0.06	0.06	1.20	2	4	0
2" Pipe	2.4	12.0		0.20	0.20	1.20	7	5	1
2.5" Pipe	2.9	12.0		0.24	0.24	1.20	9	6	1

WIND LOADS

Angle = **90** (deg)

Ice Thickness = **1.76** in.

Equivalent Angle = **210** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	526	227	451
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	167	89	147
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	60	42	55
4449 B5/B12 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	30	42	33
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	95	39	81
8843 B2/B66A RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	48	39	45
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	61	38	55
4478 B14 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	31	38	33
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	33	11	27

WIND LOADS WITH ICE:

800-10966 Antenna	99.5	23.5	10.4	16.25	7.20	4.23	9.56	1.28	1.49	143	73	125
7770 Antenna	58.5	14.5	8.5	5.90	3.46	4.03	6.87	1.27	1.39	51	33	47
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	19
4449 B5/B12 RRH (Shielded)	21.4	8.4	12.9	1.24	1.92	2.56	1.66	1.20	1.20	10	16	12
8843 B2/B66A RRH	23.9	22.0	11.0	3.66	1.83	1.09	2.17	1.20	1.20	30	15	26
8843 B2/B66A RRH (Shielded)	23.9	11.0	11.0	1.83	1.83	2.17	2.17	1.20	1.20	15	15	15
4478 B14 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	21	15	19
4478 B14 RRH (Shielded)	21.6	8.5	11.8	1.27	1.77	2.56	1.83	1.20	1.20	10	15	12
LGP21401 TMA	17.9	12.5	6.2	1.56	0.77	1.43	2.88	1.20	1.22	13	6	11

WIND LOADS AT 30 MPH:

800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	43	19	37
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	12
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	5
4449 B5/B12 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	2	3	3
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	7
8843 B2/B66A RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	4	3	4
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	5
4478 B14 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	3	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2

WIND LOADS

Angle = 60 (deg)

Ice Thickness = 1.76 in.

Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (slide)	Ratio (normal)	Ratio (slide)	Ca (normal)	Ca (slide)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	526	227	302
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	167	89	103
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	60	42	47
4449 B5/B12 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	45	42	43
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	95	39	53
8843 B2/B66A RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	71	39	47
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	61	38	44
4478 B14 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	46	38	40
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	33	11	16

WIND LOADS WITH ICE:

800-10966 Antenna	99.5	23.5	10.4	16.25	7.20	4.23	9.56	1.28	1.49	143	73	91
7770 Antenna	58.5	14.5	8.5	5.90	3.46	4.03	6.87	1.27	1.39	51	33	38
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	17
4449 B5/B12 RRH (Shielded)	21.4	12.5	12.9	1.86	1.92	1.71	1.66	1.20	1.20	15	16	16
8843 B2/B66A RRH	23.9	22.0	11.0	3.66	1.83	1.09	2.17	1.20	1.20	30	15	19
8843 B2/B66A RRH (Shielded)	23.9	16.5	11.0	2.74	1.83	1.45	2.17	1.20	1.20	23	15	17
4478 B14 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	21	15	16
4478 B14 RRH (Shielded)	21.6	12.7	11.8	1.90	1.77	1.70	1.83	1.20	1.20	16	15	15
LGP21401 TMA	17.9	12.5	6.2	1.56	0.77	1.43	2.88	1.20	1.22	13	6	8

WIND LOADS AT 30 MPH:

800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	43	19	25
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	9
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
4449 B5/B12 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	4	3	4
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	4
8843 B2/B66A RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	6	3	4
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
4478 B14 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	4	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1

WIND LOADS

Angle = **90** (deg)

Ice Thickness = **1.76** 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)
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	526	227	227
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	167	89	89
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	60	42	42
4449 B5/B12 RRH (Shielded)	17.9	0.0	9.4	0.00	1.17	0.00	1.90	1.20	1.20	0	42	42
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	95	39	39
8843 B2/B66A RRH (Shielded)	20.4	0.0	7.5	0.00	1.06	0.00	2.72	1.20	1.21	0	39	39
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	61	38	38
4478 B14 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	38	38
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	33	11	11

WIND LOADS WITH ICE:

800-10966 Antenna	99.5	23.5	10.4	16.25	7.20	4.23	9.56	1.28	1.49	143	73	73
7770 Antenna	58.5	14.5	8.5	5.90	3.46	4.03	6.87	1.27	1.39	51	33	33
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	16
4449 B5/B12 RRH (Shielded)	21.4	3.5	12.9	0.52	1.92	6.10	1.66	1.36	1.20	5	16	16
8843 B2/B66A RRH	23.9	22.0	11.0	3.66	1.83	1.09	2.17	1.20	1.20	30	15	15
8843 B2/B66A RRH (Shielded)	23.9	3.5	11.0	0.58	1.83	6.81	2.17	1.39	1.20	6	15	15
4478 B14 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	21	15	15
4478 B14 RRH (Shielded)	21.6	3.5	11.8	0.53	1.77	6.15	1.83	1.36	1.20	5	15	15
LGP21401 TMA	17.9	12.5	6.2	1.56	0.77	1.43	2.88	1.20	1.22	13	6	6

WIND LOADS AT 30 MPH:

800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	43	19	19
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	7
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	3
4449 B5/B12 RRH (Shielded)	17.9	0.0	9.4	0.00	1.17	0.00	1.90	1.20	1.20	0	3	3
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	3
8843 B2/B66A RRH (Shielded)	20.4	0.0	7.5	0.00	1.06	0.00	2.72	1.20	1.21	0	3	3
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
4478 B14 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1

WIND LOADS

Angle = **120** (deg)

Ice Thickness = **1.76** 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)
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	526	227	302
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	167	89	108
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	60	42	47
4449 B5/B12 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	45	42	43
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	95	39	53
8843 B2/B66A RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	71	39	47
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	61	38	44
4478 B14 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	46	38	40
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	33	11	16

WIND LOADS WITH ICE:

800-10966 Antenna	99.5	23.5	10.4	16.25	7.20	4.23	9.56	1.28	1.49	143	73	91
7770 Antenna	58.5	14.5	8.5	5.90	3.46	4.03	6.87	1.27	1.39	51	33	38
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	17
4449 B5/B12 RRH (Shielded)	21.4	12.5	12.9	1.86	1.92	1.71	1.66	1.20	1.20	15	16	16
8843 B2/B66A RRH	23.9	22.0	11.0	3.66	1.83	1.09	2.17	1.20	1.20	30	15	19
8843 B2/B66A RRH (Shielded)	23.9	16.5	11.0	2.74	1.83	1.45	2.17	1.20	1.20	23	15	17
4478 B14 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	21	15	16
4478 B14 RRH (Shielded)	21.6	12.7	11.8	1.90	1.77	1.70	1.83	1.20	1.20	16	15	15
LGP21401 TMA	17.9	12.5	6.2	1.56	0.77	1.43	2.88	1.20	1.22	13	6	8

WIND LOADS AT 30 MPH:

800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	43	19	25
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	9
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
4449 B5/B12 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	4	3	4
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	4
8843 B2/B66A RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	6	3	4
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
4478 B14 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	4	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1

WIND LOADS

Angle = 150 (deg)

Ice Thickness = 1.76 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)
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	526	227	451
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	167	89	147
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	60	42	55
4449 B5/B12 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	30	42	33
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	95	39	81
8843 B2/B66A RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	48	39	45
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	61	38	55
4478 B14 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	31	38	33
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	33	11	27

WIND LOADS WITH ICE:

800-10966 Antenna	99.5	23.5	10.4	16.25	7.20	4.23	9.56	1.28	1.49	143	73	125
7770 Antenna	58.5	14.5	8.5	5.90	3.46	4.03	6.87	1.27	1.39	51	33	47
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	19
4449 B5/B12 RRH (Shielded)	21.4	8.4	12.9	1.24	1.92	2.56	1.66	1.20	1.20	10	16	12
8843 B2/B66A RRH	23.9	22.0	11.0	3.66	1.83	1.09	2.17	1.20	1.20	30	15	26
8843 B2/B66A RRH (Shielded)	23.9	11.0	11.0	1.83	1.83	2.17	2.17	1.20	1.20	15	15	15
4478 B14 RRH	21.6	16.9	11.8	2.54	1.77	1.28	1.83	1.20	1.20	21	15	19
4478 B14 RRH (Shielded)	21.6	8.5	11.8	1.27	1.77	2.56	1.83	1.20	1.20	10	15	12
LGP21401 TMA	17.9	12.5	6.2	1.56	0.77	1.43	2.88	1.20	1.22	13	6	11

WIND LOADS AT 30 MPH:

800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	43	19	37
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	12
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	5
4449 B5/B12 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	2	3	3
8843 B2/B66A RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	8	3	7
8843 B2/B66A RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	4	3	4
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	5
4478 B14 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	3	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2

Date: 1/4/2018
 Project Name: COLCHESTER MIDDLETOWN RD
 Project No.: CT2233
 Designed By: JP Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.76 in.
 Density of ice: 56 pcf

800-10966 Antenna

Weight of ice based on total radial SF area:
 Height (in): 96.0
 Width (in): 20.0
 Depth (in): 6.9
 Total weight of ice on object: 394 lbs
 Weight of object: 115 lbs
Combined weight of ice and object: 509 lbs

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: 136 lbs
 Weight of object: 35 lbs
Combined weight of ice and object: 171 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:
 Height (in): 18.0
 Width (in): 13.2
 Depth (in): 9.5
 Total weight of ice on object: 58 lbs
 Weight of object: 71 lbs
Combined weight of ice and object: 129 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:
 Height (in): 14.9
 Width (in): 13.2
 Depth (in): 10.9
 Total weight of ice on object: 50 lbs
 Weight of object: 72 lbs
Combined weight of ice and object: 122 lbs

4478 B14 RRH

Weight of ice based on total radial SF area:
 Height (in): 18.1
 Width (in): 13.4
 Depth (in): 8.3
 Total weight of ice on object: 57 lbs
 Weight of object: 60 lbs
Combined weight of ice and object: 117 lbs

LGP21401 TMA

Weight of ice based on total radial SF area:
 Height (in): 14.4
 Width (in): 9.0
 Depth (in): 2.7
 Total weight of ice on object: 29 lbs
 Weight of object: 19 lbs
Combined weight of ice and object: 48 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: 49 lbs
 Weight of object: 33 lbs
Combined weight of ice and object: 82 lbs

3/4" Round Bar

Per foot weight of ice:
 diameter (in): 0.75
Per foot weight of ice on object: 5 plf

2" pipe

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

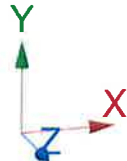
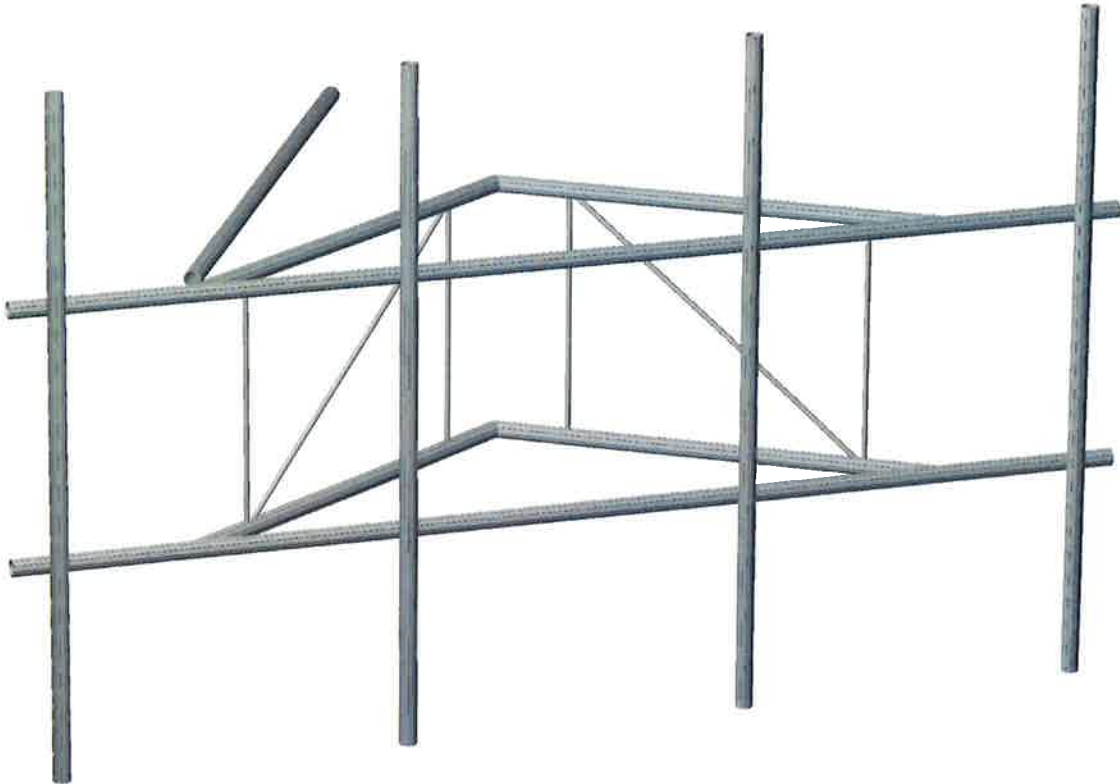
2-1/2" pipe

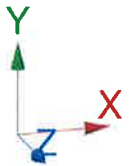
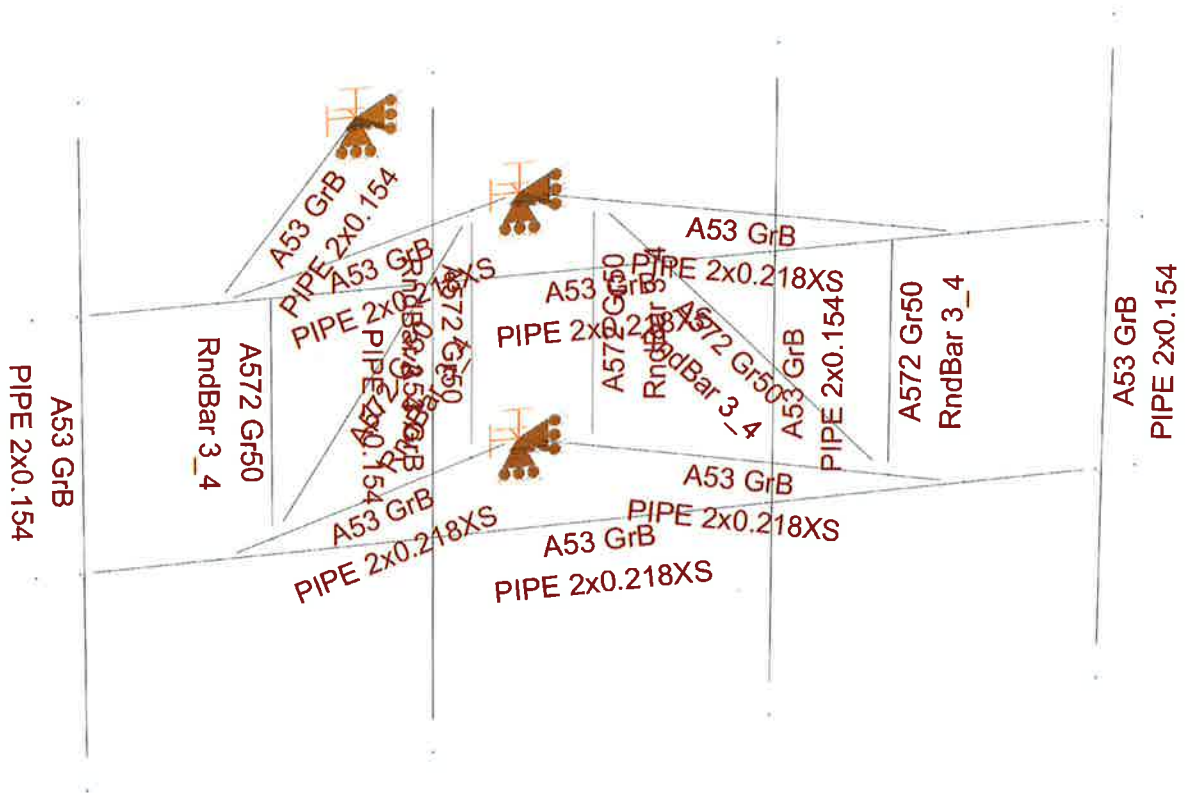
Per foot weight of ice:
 diameter (in): 2.88
Per foot weight of ice on object: 10 plf






HUDSON
Design Group LLC

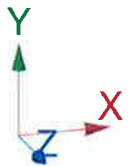
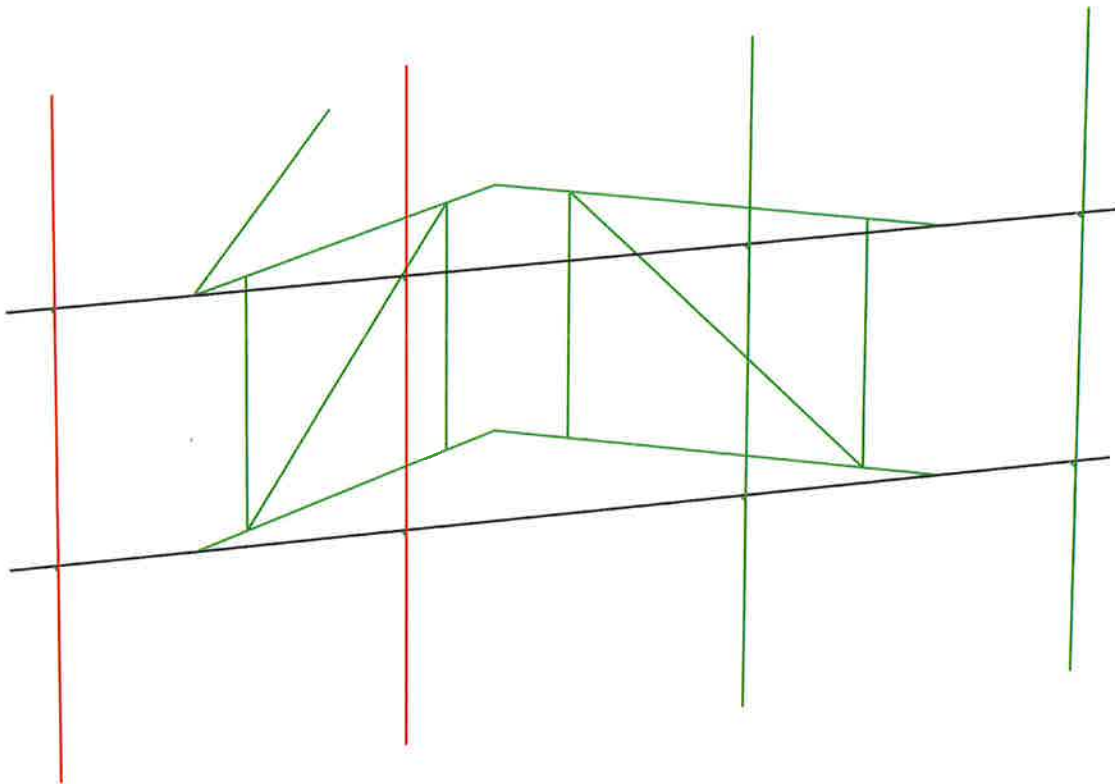
**2C/3C/4C/5C Mount Calculations
(Proposed Conditions)**

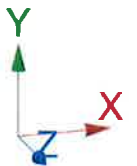
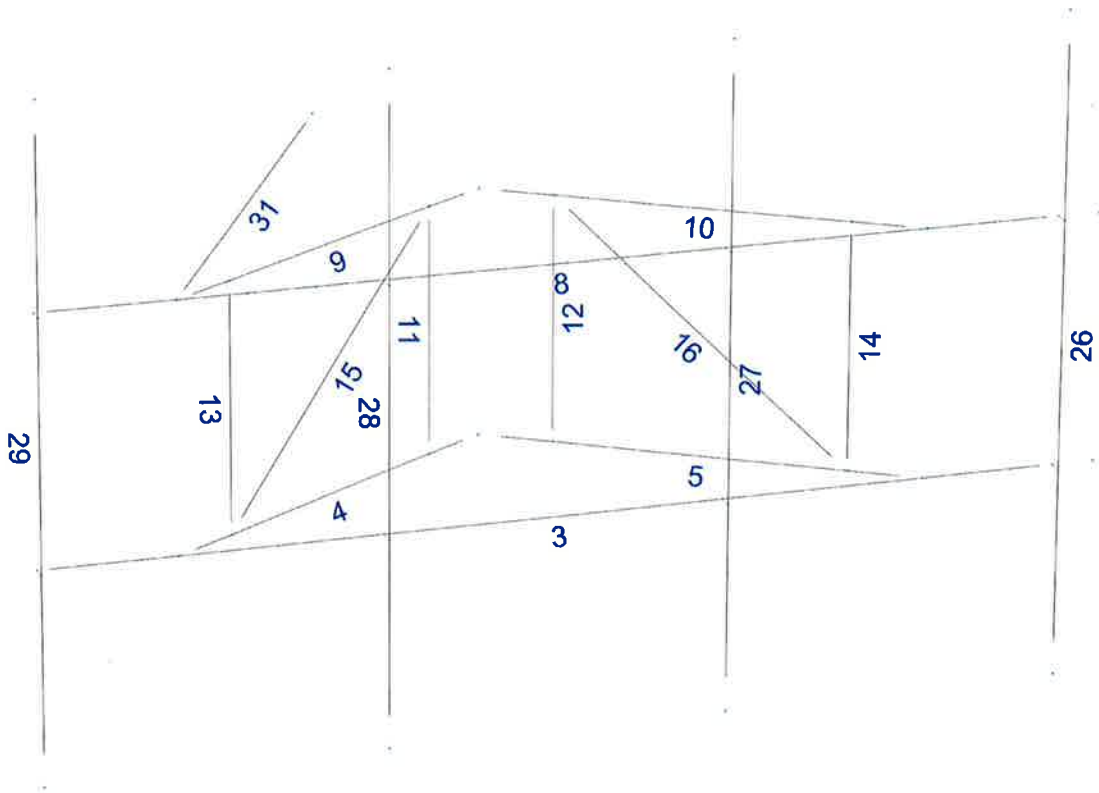




Design status

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





Current Date: 1/7/2019 10:11 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2233\2C-3C-4C-5C\Rev.1\CT2233 (Rev.1).etx

Load data

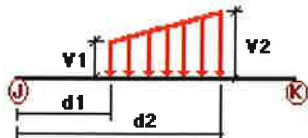
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

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

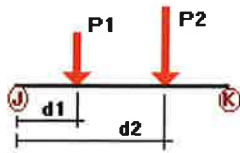
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	3	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	4	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	8	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	28	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	29	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
W30	3	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	4	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	8	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	28	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	29	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
W60	3	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	4	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	8	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	28	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	29	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
W90	4	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	x	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	x	-0.007	-0.007	0.00	Yes	100.00	Yes

	28	x	-0.007	-0.007	0.00	Yes	100.00	Yes
	29	x	-0.007	-0.007	0.00	Yes	100.00	Yes
	31	X	-0.007	-0.007	0.00	Yes	100.00	Yes
W120	3	Z	0.007	0.007	0.00	Yes	100.00	Yes
	4	Z	0.007	0.007	0.00	Yes	100.00	Yes
	5	Z	0.007	0.007	0.00	Yes	100.00	Yes
	8	Z	0.007	0.007	0.00	Yes	100.00	Yes
	9	Z	0.007	0.007	0.00	Yes	100.00	Yes
	10	Z	0.007	0.007	0.00	Yes	100.00	Yes
	11	Z	0.002	0.002	0.00	Yes	100.00	Yes
	12	Z	0.002	0.002	0.00	Yes	100.00	Yes
	13	Z	0.002	0.002	0.00	Yes	100.00	Yes
	14	Z	0.002	0.002	0.00	Yes	100.00	Yes
	15	Z	0.002	0.002	0.00	Yes	100.00	Yes
	16	Z	0.002	0.002	0.00	Yes	100.00	Yes
	26	3	0.007	0.007	0.00	Yes	100.00	Yes
	27	3	0.007	0.007	0.00	Yes	100.00	Yes
	28	3	0.007	0.007	0.00	Yes	100.00	Yes
	29	3	0.007	0.007	0.00	Yes	100.00	Yes
W150	3	Z	0.007	0.007	0.00	Yes	100.00	Yes
	4	Z	0.007	0.007	0.00	Yes	100.00	Yes
	5	Z	0.007	0.007	0.00	Yes	100.00	Yes
	8	Z	0.007	0.007	0.00	Yes	100.00	Yes
	9	Z	0.007	0.007	0.00	Yes	100.00	Yes
	10	Z	0.007	0.007	0.00	Yes	100.00	Yes
	11	Z	0.002	0.002	0.00	Yes	100.00	Yes
	12	Z	0.002	0.002	0.00	Yes	100.00	Yes
	13	Z	0.002	0.002	0.00	Yes	100.00	Yes
	14	Z	0.002	0.002	0.00	Yes	100.00	Yes
	15	Z	0.002	0.002	0.00	Yes	100.00	Yes
	16	Z	0.002	0.002	0.00	Yes	100.00	Yes
	26	3	0.007	0.007	0.00	Yes	100.00	Yes
	27	3	0.007	0.007	0.00	Yes	100.00	Yes
	28	3	0.007	0.007	0.00	Yes	100.00	Yes
	29	3	0.007	0.007	0.00	Yes	100.00	Yes
Di	3	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	4	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	5	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	8	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	9	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	10	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	11	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	12	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	13	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	14	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	15	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	16	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	26	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	27	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	28	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	29	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	31	Y	-0.009	-0.009	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%	
D	26	y	-0.018	1.50	No	
		y	-0.018	6.50	No	
		y	-0.038	3.00	No	
	28	y	-0.058	0.50	No	
		y	-0.058	7.50	No	
		y	-0.058	7.50	No	
Wo	26	y	-0.071	1.50	No	
		z	-0.084	1.50	No	
		z	-0.084	6.50	No	
	28	z	-0.264	0.50	No	
		z	-0.264	7.50	No	
		z	-0.264	7.50	No	
W30	26	2	-0.074	1.50	No	
		2	-0.074	6.50	No	
		2	-0.027	3.00	No	
		2	-0.226	0.50	No	
		2	-0.226	7.50	No	
		2	-0.045	1.50	No	
	29	2	-0.033	3.00	No	
		2	-0.226	0.50	No	
		2	-0.226	7.50	No	
		2	-0.033	1.50	No	
		2	-0.055	1.50	No	
		2	-0.055	6.50	No	
W60	26	2	-0.055	6.50	No	
		2	-0.016	3.00	No	
		2	-0.016	3.00	No	
	28	2	-0.152	0.50	No	
		2	-0.152	7.50	No	
		2	-0.047	1.50	No	
29	2	-0.04	3.00	No		
	2	-0.152	0.50	No		
	2	-0.152	7.50	No		
	2	-0.043	1.50	No		
	W90	26	x	-0.045	1.50	No
			x	-0.045	6.50	No
x			-0.011	3.00	No	
28		x	-0.114	0.50	No	
		x	-0.114	7.50	No	
		x	-0.039	1.50	No	
29	x	-0.038	3.00	No		
	x	-0.114	0.50	No		
	x	-0.114	7.50	No		
	x	-0.042	1.50	No		
	W120	26	3	0.055	1.50	No
			3	0.055	6.50	No
3			0.016	3.00	No	
28		3	0.152	0.50	No	
		3	0.152	7.50	No	
		3	0.047	1.50	No	
29		3	0.04	3.00	No	
		3	0.152	0.50	No	
		3	0.152	7.50	No	
29	3	0.043	1.50	No		

W150	26	3	0.074	1.50	No	
		3	0.074	6.50	No	
		3	0.027	3.00	No	
	28	3	0.226	0.50	No	
		3	0.226	7.50	No	
		3	0.045	1.50	No	
	29	3	0.033	3.00	No	
		3	0.226	0.50	No	
		3	0.226	7.50	No	
Di	26	y	-0.068	1.50	No	
		y	-0.068	6.50	No	
		y	-0.058	3.00	No	
	28	y	-0.197	0.50	No	
		y	-0.197	7.50	No	
		y	-0.05	1.50	No	
	29	y	-0.057	3.00	No	
		y	-0.197	0.50	No	
		y	-0.197	7.50	No	
W10	26	z	-0.027	1.50	No	
		z	-0.027	6.50	No	
		z	-0.073	0.50	No	
	28	z	-0.073	7.50	No	
		z	-0.073	0.50	No	
		z	-0.073	7.50	No	
	W130	26	2	-0.024	1.50	No
			2	-0.024	6.50	No
			2	-0.011	3.00	No
28		2	-0.063	0.50	No	
		2	-0.063	7.50	No	
		2	-0.015	1.50	No	
29		2	-0.012	3.00	No	
		2	-0.063	0.50	No	
		2	-0.063	7.50	No	
W160	26	2	-0.012	1.50	No	
		2	-0.019	1.50	No	
		2	-0.019	6.50	No	
	28	2	-0.008	3.00	No	
		2	-0.046	0.50	No	
		2	-0.046	7.50	No	
	29	2	-0.017	1.50	No	
		2	-0.015	3.00	No	
		2	-0.046	0.50	No	
W190	26	2	-0.046	7.50	No	
		2	-0.016	1.50	No	
		x	-0.017	1.50	No	
	28	x	-0.017	6.50	No	
		x	-0.006	3.00	No	
		x	-0.037	0.50	No	
	29	x	-0.037	7.50	No	
		x	-0.015	1.50	No	
		x	-0.015	3.00	No	
W1120	26	x	-0.037	0.50	No	
		x	-0.037	7.50	No	
		x	-0.016	1.50	No	
	28	3	0.019	1.50	No	
		3	0.019	6.50	No	
		3	0.008	3.00	No	
	29	3	0.046	0.50	No	
		3	0.046	7.50	No	
		3	0.046	1.50	No	

		3	0.046	7.50	No
		3	0.017	1.50	No
		3	0.015	3.00	No
	29	3	0.046	0.50	No
		3	0.046	7.50	No
WI150	26	3	0.016	1.50	No
		3	0.024	1.50	No
		3	0.024	6.50	No
	28	3	0.011	3.00	No
		3	0.063	0.50	No
		3	0.063	7.50	No
		3	0.015	1.50	No
		3	0.012	3.00	No
	29	3	0.063	0.50	No
		3	0.063	7.50	No
WLO	26	3	0.012	1.50	No
		z	-0.007	1.50	No
		z	-0.007	6.50	No
	28	z	-0.022	0.50	No
		z	-0.022	7.50	No
	29	z	-0.022	0.50	No
WL30	26	z	-0.022	7.50	No
		2	-0.007	1.50	No
		2	-0.007	6.50	No
		2	-0.003	3.00	No
	28	2	-0.019	0.50	No
		2	-0.019	7.50	No
		2	-0.004	1.50	No
		2	-0.003	3.00	No
	29	2	-0.019	0.50	No
		2	-0.019	7.50	No
WL60	26	2	-0.003	1.50	No
		2	-0.005	1.50	No
		2	-0.005	6.50	No
	28	2	-0.002	3.00	No
		2	-0.013	0.50	No
		2	-0.013	7.50	No
		2	-0.004	1.50	No
		2	-0.004	3.00	No
	29	2	-0.013	0.50	No
		2	-0.013	7.50	No
WL90	26	2	-0.004	1.50	No
		x	-0.004	1.50	No
		x	-0.004	6.50	No
		x	-0.001	3.00	No
	28	x	-0.01	0.50	No
		x	-0.01	7.50	No
		x	-0.004	1.50	No
		x	-0.004	3.00	No
	29	x	-0.01	0.50	No
		x	-0.01	7.50	No
WL120	26	x	-0.004	1.50	No
		3	0.005	1.50	No
		3	0.005	6.50	No
		3	0.002	3.00	No
	28	3	0.013	0.50	No
		3	0.013	7.50	No
		3	0.004	1.50	No
		3	0.004	3.00	No
	29	3	0.013	0.50	No

		3	0.013	7.50	No
		3	0.004	1.50	No
WL150	26	3	0.007	1.50	No
		3	0.007	6.50	No
		3	0.003	3.00	No
	28	3	0.019	0.50	No
		3	0.019	7.50	No
		3	0.004	1.50	No
		3	0.003	3.00	No
	29	3	0.019	0.50	No
		3	0.019	7.50	No
		3	0.003	1.50	No
LL1	8	y	-0.25	0.00	Yes
LL2	8	y	-0.25	50.00	Yes
LL3	8	y	-0.25	100.00	Yes
LLa1	26	y	-0.25	50.00	Yes
LLa2	27	y	-0.25	50.00	Yes
LLa3	28	y	-0.25	50.00	Yes
LLa4	29	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

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

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	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
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	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

Steel Code Check

Report: Summary - Group by member**Load conditions to be included in design :**

LC1=1.2D+1.6Wo
LC2=1.2D+1.6W30
LC3=1.2D+1.6W60
LC4=1.2D+1.6W90
LC5=1.2D+1.6W120
LC6=1.2D+1.6W150
LC7=1.2D-1.6Wo
LC8=1.2D-1.6W30
LC9=1.2D-1.6W60
LC10=1.2D-1.6W90
LC11=1.2D-1.6W120
LC12=1.2D-1.6W150
LC13=0.9D+1.6Wo
LC14=0.9D+1.6W30
LC15=0.9D+1.6W60
LC16=0.9D+1.6W90
LC17=0.9D+1.6W120
LC18=0.9D+1.6W150
LC19=0.9D-1.6Wo
LC20=0.9D-1.6W30
LC21=0.9D-1.6W60
LC22=0.9D-1.6W90
LC23=0.9D-1.6W120
LC24=0.9D-1.6W150
LC25=1.2D+Di+WIo
LC26=1.2D+Di+Wl30
LC27=1.2D+Di+Wl60
LC28=1.2D+Di+Wl90
LC29=1.2D+Di+Wl120
LC30=1.2D+Di+Wl150
LC31=1.2D+Di-WIo
LC32=1.2D+Di-Wl30
LC33=1.2D+Di-Wl60
LC34=1.2D+Di-Wl90
LC35=1.2D+Di-Wl120
LC36=1.2D+Di-Wl150
LC37=0.9D
LC38=1.2D+1.6LL1
LC39=1.2D+1.6LL2
LC40=1.2D+1.6LL3
LC41=1.2D+WLo+LLa1
LC42=1.2D+Wl30+LLa1
LC43=1.2D+Wl60+LLa1
LC44=1.2D+Wl90+LLa1
LC45=1.2D+Wl120+LLa1
LC46=1.2D+Wl150+LLa1
LC47=1.2D-WLo+LLa1
LC48=1.2D-Wl30+LLa1
LC49=1.2D-Wl60+LLa1
LC50=1.2D-Wl90+LLa1
LC51=1.2D-Wl120+LLa1
LC52=1.2D-Wl150+LLa1

LC53=1.2D+WL0+LLa2
 LC54=1.2D+WL30+LLa2
 LC55=1.2D+WL60+LLa2
 LC56=1.2D+WL90+LLa2
 LC57=1.2D+WL120+LLa2
 LC58=1.2D+WL150+LLa2
 LC59=1.2D-WL0+LLa2
 LC60=1.2D-WL30+LLa2
 LC61=1.2D-WL60+LLa2
 LC62=1.2D-WL90+LLa2
 LC63=1.2D-WL120+LLa2
 LC64=1.2D-WL150+LLa2
 LC65=1.2D+WL0+LLa3
 LC66=1.2D+WL30+LLa3
 LC67=1.2D+WL60+LLa3
 LC68=1.2D+WL90+LLa3
 LC69=1.2D+WL120+LLa3
 LC70=1.2D+WL150+LLa3
 LC71=1.2D-WL0+LLa3
 LC72=1.2D-WL30+LLa3
 LC73=1.2D-WL60+LLa3
 LC74=1.2D-WL90+LLa3
 LC75=1.2D-WL120+LLa3
 LC76=1.2D-WL150+LLa3
 LC77=1.2D+WL0+LLa4
 LC78=1.2D+WL30+LLa4
 LC79=1.2D+WL60+LLa4
 LC80=1.2D+WL90+LLa4
 LC81=1.2D+WL120+LLa4
 LC82=1.2D+WL150+LLa4
 LC83=1.2D-WL0+LLa4
 LC84=1.2D-WL30+LLa4
 LC85=1.2D-WL60+LLa4
 LC86=1.2D-WL90+LLa4
 LC87=1.2D-WL120+LLa4
 LC88=1.2D-WL150+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2x0.154	26	LC40 at 31.25%	0.36	OK	Eq. H1-1b
		27	LC2 at 31.25%	0.36	OK	Eq. H1-1b
		28	LC1 at 68.75%	1.00	N.G.	Eq. H1-1b
		29	LC1 at 68.75%	1.00	N.G.	Eq. H1-1b
		31	LC2 at 0.00%	0.37	OK	Eq. H1-1a
	PIPE 2x0.218XS	3	LC7 at 16.96%	0.92	With warnings	Eq. H1-1a
		4	LC32 at 100.00%	0.40	OK	Eq. H1-1b
		5	LC2 at 100.00%	0.34	OK	Eq. H1-1b
		8	LC1 at 16.67%	0.68	With warnings	Eq. H1-1b
		9	LC31 at 100.00%	0.48	OK	Eq. H1-1b
		10	LC26 at 100.00%	0.28	OK	Eq. H1-1b
	RndBar 3_4	11	LC31 at 0.00%	0.57	OK	Eq. H1-1a
		12	LC25 at 100.00%	0.31	OK	Eq. H1-1a
		13	LC25 at 100.00%	0.77	OK	Eq. H1-1a
		14	LC26 at 0.00%	0.38	OK	Eq. H1-1a
		15	LC25 at 100.00%	0.35	OK	Eq. H1-1a
		16	LC25 at 100.00%	0.15	OK	Eq. H1-1b

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	6.50	0.00	0.00	0
3	-6.50	0.00	0.00	0
8	-4.40	0.00	0.00	0
9	4.40	0.00	0.00	0
10	0.00	0.00	-3.00	0
11	-3.6667	0.00	-0.50	0
12	3.6667	0.00	-0.50	0
13	0.7333	0.00	-2.50	0
14	-0.7333	0.00	-2.50	0
16	6.50	3.00	0.00	0
17	-6.50	3.00	0.00	0
22	-4.40	3.00	0.00	0
23	4.40	3.00	0.00	0
24	0.00	3.00	-3.00	0
25	-3.6667	3.00	-0.50	0
26	3.6667	3.00	-0.50	0
27	0.7333	3.00	-2.50	0
28	-0.7333	3.00	-2.50	0
33	-6.00	5.50	0.20	0
34	6.00	5.50	0.20	0
35	-6.00	-2.50	0.20	0

36	6.00	-2.50	0.20	0
42	2.00	5.50	0.20	0
43	2.00	-2.50	0.20	0
48	-2.00	5.50	0.20	0
49	-2.00	-2.50	0.20	0
51	-1.00	3.00	-6.50	0
52	-3.60	3.00	0.00	0
53	-2.80	3.00	0.00	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
10	1	1	1	1	1	1
24	1	1	1	1	1	1
51	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
3	3	2		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
4	8	10		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
5	9	10		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
8	17	16		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
9	22	24		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
10	23	24		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
11	14	28		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
12	27	13		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
13	25	11		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
14	12	26		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
15	28	11		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
16	27	12		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
26	34	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
27	42	43		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	48	49		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
29	33	35		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
31	22	51		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
26	45.00	0	0.00	0.00	0.00
27	45.00	0	0.00	0.00	0.00
28	45.00	0	0.00	0.00	0.00
29	45.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX	DJY	DJZ	DKX	DKY	DKZ
	[in]	[in]	[in]	[in]	[in]	[in]
31	0.00	2.00	0.00	0.00	2.00	0.00

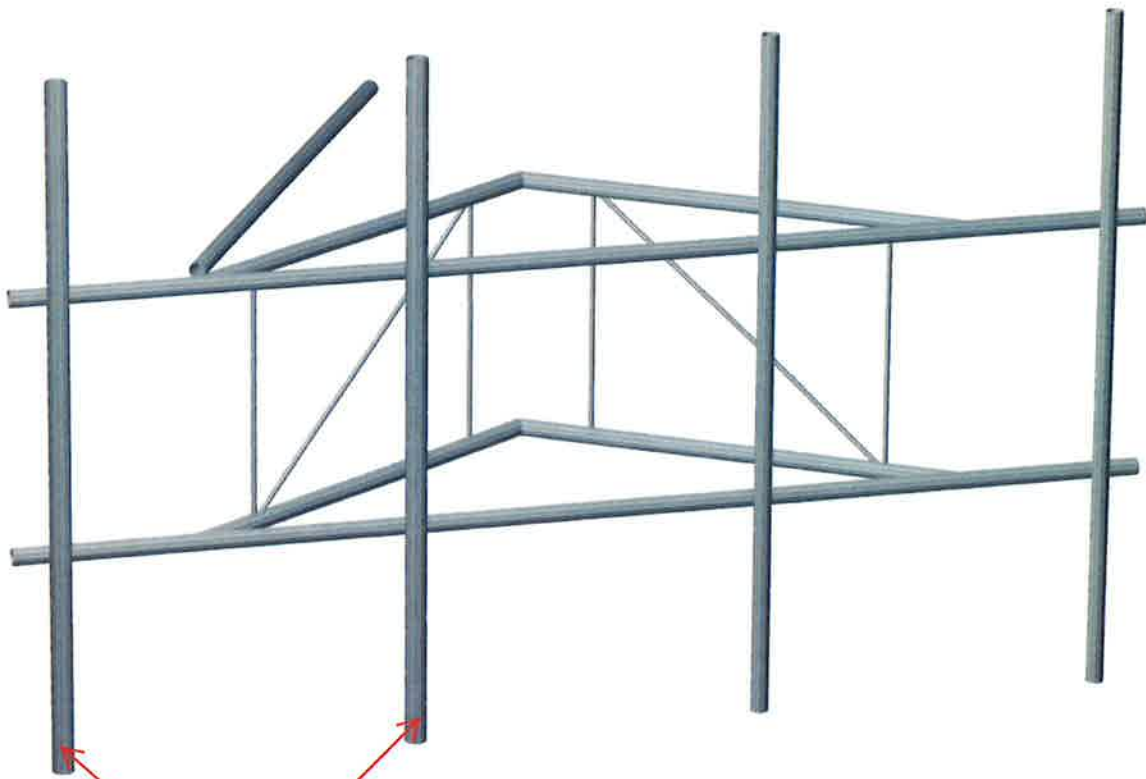
Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
15	0	0	0	0	0	0	0	0	0	0	Tension only
16	0	0	0	0	0	0	0	0	0	0	Tension only

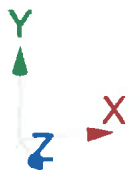


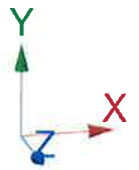
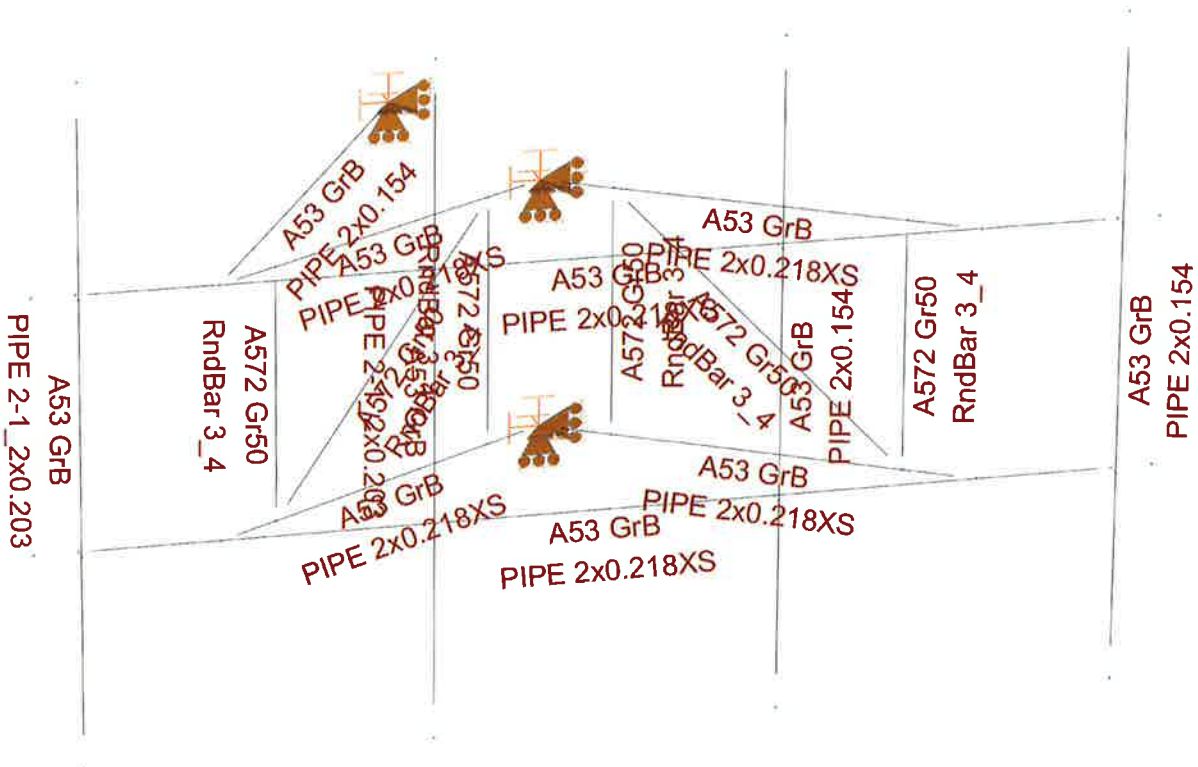
HUDSON
Design Group LLC

**2C/3C/4C/5C Mount Calculations
(Modified Conditions)**






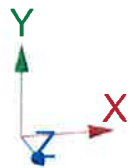
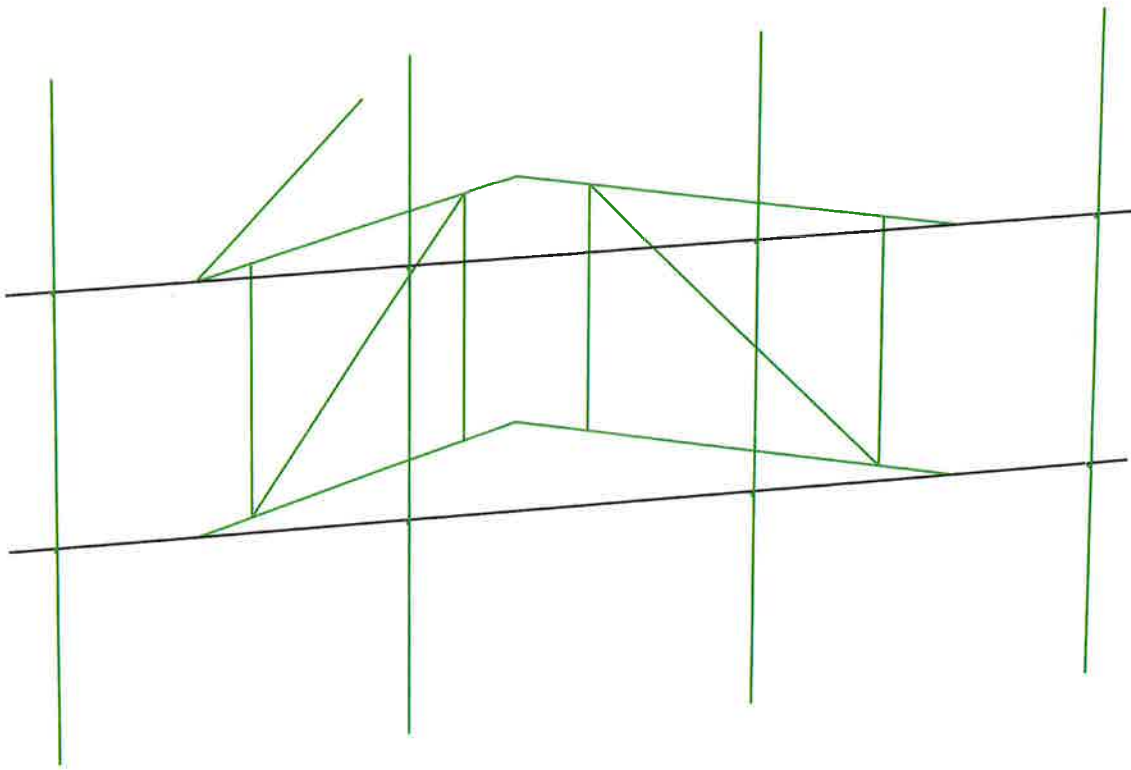
Install new 2.5" std. (2.88" O.D.) pipe masts behind proposed 800-10964 and 800-10966 Antennas (typ. of 2 per sector, total of 6).

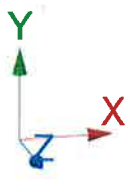
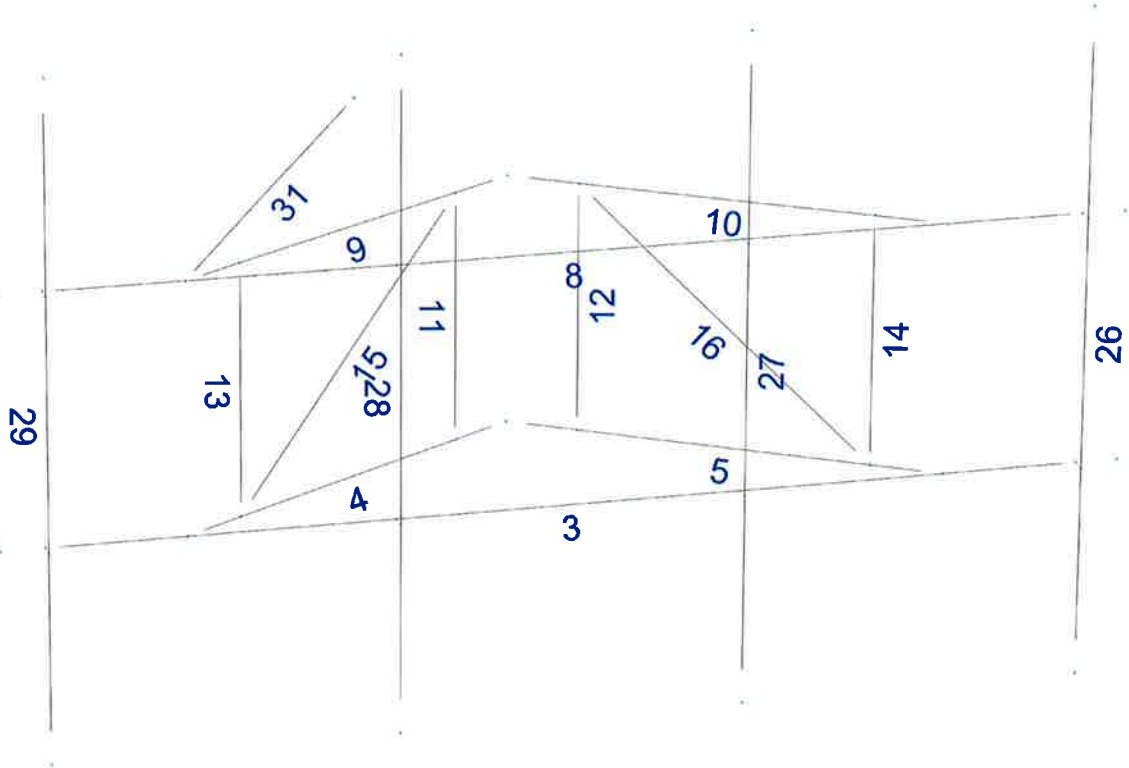




Design status

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





Current Date: 1/7/2019 10:10 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2233\2C-3C-4C-5C\Rev.1\CT2233 (Rev.1) (MOD).etzl

Load data

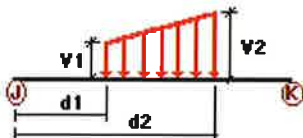
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

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

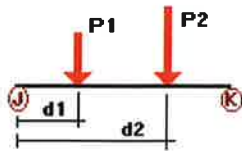
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	3	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	4	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	8	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	28	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	29	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
W30	3	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	4	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	8	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	28	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	29	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
W60	3	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	4	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	8	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	Z	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	28	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	29	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
W90	4	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	5	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	9	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	10	X	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	12	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	13	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	14	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	15	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	16	x	-0.002	-0.002	0.00	Yes	100.00	Yes
	26	x	-0.007	-0.007	0.00	Yes	100.00	Yes
	27	x	-0.007	-0.007	0.00	Yes	100.00	Yes

	28	x	-0.009	-0.009	0.00	Yes	100.00	Yes
	29	x	-0.009	-0.009	0.00	Yes	100.00	Yes
	31	X	-0.007	-0.007	0.00	Yes	100.00	Yes
W120	3	Z	0.007	0.007	0.00	Yes	100.00	Yes
	4	Z	0.007	0.007	0.00	Yes	100.00	Yes
	5	Z	0.007	0.007	0.00	Yes	100.00	Yes
	8	Z	0.007	0.007	0.00	Yes	100.00	Yes
	9	Z	0.007	0.007	0.00	Yes	100.00	Yes
	10	Z	0.007	0.007	0.00	Yes	100.00	Yes
	11	Z	0.002	0.002	0.00	Yes	100.00	Yes
	12	Z	0.002	0.002	0.00	Yes	100.00	Yes
	13	Z	0.002	0.002	0.00	Yes	100.00	Yes
	14	Z	0.002	0.002	0.00	Yes	100.00	Yes
	15	Z	0.002	0.002	0.00	Yes	100.00	Yes
	16	Z	0.002	0.002	0.00	Yes	100.00	Yes
	26	3	0.007	0.007	0.00	Yes	100.00	Yes
	27	3	0.007	0.007	0.00	Yes	100.00	Yes
	28	3	0.009	0.009	0.00	Yes	100.00	Yes
	29	3	0.009	0.009	0.00	Yes	100.00	Yes
W150	3	Z	0.007	0.007	0.00	Yes	100.00	Yes
	4	Z	0.007	0.007	0.00	Yes	100.00	Yes
	5	Z	0.007	0.007	0.00	Yes	100.00	Yes
	8	Z	0.007	0.007	0.00	Yes	100.00	Yes
	9	Z	0.007	0.007	0.00	Yes	100.00	Yes
	10	Z	0.007	0.007	0.00	Yes	100.00	Yes
	11	Z	0.002	0.002	0.00	Yes	100.00	Yes
	12	Z	0.002	0.002	0.00	Yes	100.00	Yes
	13	Z	0.002	0.002	0.00	Yes	100.00	Yes
	14	Z	0.002	0.002	0.00	Yes	100.00	Yes
	15	Z	0.002	0.002	0.00	Yes	100.00	Yes
	16	Z	0.002	0.002	0.00	Yes	100.00	Yes
	26	3	0.007	0.007	0.00	Yes	100.00	Yes
	27	3	0.007	0.007	0.00	Yes	100.00	Yes
	28	3	0.009	0.009	0.00	Yes	100.00	Yes
	29	3	0.009	0.009	0.00	Yes	100.00	Yes
Di	3	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	4	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	5	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	8	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	9	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	10	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	11	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	12	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	13	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	14	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	15	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	16	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	26	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	27	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	28	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	29	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	31	Y	-0.009	-0.009	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	26	y	-0.018	1.50	No
		y	-0.018	6.50	No
		y	-0.038	3.00	No
	28	y	-0.058	0.50	No
		y	-0.058	7.50	No
	29	y	-0.058	0.50	No
Wo	26	y	-0.071	1.50	No
		z	-0.084	1.50	No
		z	-0.084	6.50	No
	28	z	-0.264	0.50	No
		z	-0.264	7.50	No
	29	z	-0.264	0.50	No
W30	26	2	-0.074	1.50	No
		2	-0.074	6.50	No
		2	-0.027	3.00	No
		2	-0.226	0.50	No
		2	-0.226	7.50	No
		2	-0.045	1.50	No
	29	2	-0.033	3.00	No
		2	-0.226	0.50	No
		2	-0.226	7.50	No
		2	-0.033	1.50	No
		2	-0.055	1.50	No
		2	-0.055	6.50	No
W60	28	2	-0.016	3.00	No
		2	-0.152	0.50	No
		2	-0.152	7.50	No
	29	2	-0.047	1.50	No
		2	-0.04	3.00	No
		2	-0.152	0.50	No
W90	26	2	-0.152	7.50	No
		2	-0.043	1.50	No
		x	-0.045	1.50	No
		x	-0.045	6.50	No
		x	-0.011	3.00	No
		x	-0.011	3.00	No
	28	x	-0.114	0.50	No
		x	-0.114	7.50	No
		x	-0.039	1.50	No
		x	-0.038	3.00	No
		x	-0.114	0.50	No
		x	-0.114	7.50	No
W120	26	3	-0.042	1.50	No
		3	0.055	1.50	No
		3	0.055	6.50	No
		3	0.016	3.00	No
		3	0.152	0.50	No
		3	0.152	7.50	No
	28	3	0.047	1.50	No
		3	0.04	3.00	No
		3	0.152	0.50	No
		3	0.152	7.50	No
		3	0.043	1.50	No
		3	0.043	1.50	No

W150	26	3	0.074	1.50	No
		3	0.074	6.50	No
		3	0.027	3.00	No
	28	3	0.226	0.50	No
		3	0.226	7.50	No
		3	0.045	1.50	No
	29	3	0.033	3.00	No
		3	0.226	0.50	No
		3	0.226	7.50	No
Di	26	3	0.033	1.50	No
		y	-0.068	1.50	No
		y	-0.068	6.50	No
	28	y	-0.058	3.00	No
		y	-0.197	0.50	No
		y	-0.197	7.50	No
	29	y	-0.05	1.50	No
		y	-0.057	3.00	No
		y	-0.197	0.50	No
W10	26	y	-0.197	7.50	No
		y	-0.058	1.50	No
		z	-0.027	1.50	No
	28	z	-0.027	6.50	No
		z	-0.073	0.50	No
		z	-0.073	7.50	No
	29	z	-0.073	0.50	No
		z	-0.073	7.50	No
		z	-0.073	1.50	No
W130	26	2	-0.024	1.50	No
		2	-0.024	6.50	No
		2	-0.011	3.00	No
	28	2	-0.063	0.50	No
		2	-0.063	7.50	No
		2	-0.015	1.50	No
	29	2	-0.012	3.00	No
		2	-0.063	0.50	No
		2	-0.063	7.50	No
W160	26	2	-0.012	1.50	No
		2	-0.019	1.50	No
		2	-0.019	6.50	No
	28	2	-0.008	3.00	No
		2	-0.046	0.50	No
		2	-0.046	7.50	No
	29	2	-0.017	1.50	No
		2	-0.015	3.00	No
		2	-0.046	0.50	No
W190	26	2	-0.046	7.50	No
		2	-0.016	1.50	No
		x	-0.017	1.50	No
	28	x	-0.017	6.50	No
		x	-0.006	3.00	No
		x	-0.037	0.50	No
	29	x	-0.037	7.50	No
		x	-0.015	1.50	No
		x	-0.015	3.00	No
W1120	26	x	-0.037	0.50	No
		x	-0.037	7.50	No
		x	-0.016	1.50	No
	28	3	0.019	1.50	No
		3	0.019	6.50	No
		3	0.008	3.00	No
		3	0.046	0.50	No

		3	0.046	7.50	No
		3	0.017	1.50	No
		3	0.015	3.00	No
	29	3	0.046	0.50	No
		3	0.046	7.50	No
WI150	26	3	0.016	1.50	No
		3	0.024	1.50	No
		3	0.024	6.50	No
	28	3	0.011	3.00	No
		3	0.063	0.50	No
		3	0.063	7.50	No
		3	0.015	1.50	No
		3	0.012	3.00	No
	29	3	0.063	0.50	No
		3	0.063	7.50	No
WL0	26	z	-0.007	1.50	No
		z	-0.007	6.50	No
	28	z	-0.022	0.50	No
		z	-0.022	7.50	No
	29	z	-0.022	0.50	No
WL30	26	z	-0.022	7.50	No
		2	-0.007	1.50	No
		2	-0.007	6.50	No
	28	2	-0.003	3.00	No
		2	-0.019	0.50	No
		2	-0.019	7.50	No
		2	-0.004	1.50	No
		2	-0.003	3.00	No
	29	2	-0.019	0.50	No
		2	-0.019	7.50	No
WL60	26	2	-0.003	1.50	No
		2	-0.005	1.50	No
		2	-0.005	6.50	No
	28	2	-0.002	3.00	No
		2	-0.013	0.50	No
		2	-0.013	7.50	No
		2	-0.004	1.50	No
		2	-0.004	3.00	No
	29	2	-0.013	0.50	No
		2	-0.013	7.50	No
WL90	26	2	-0.004	1.50	No
		x	-0.004	1.50	No
		x	-0.004	6.50	No
	28	x	-0.001	3.00	No
		x	-0.01	0.50	No
		x	-0.01	7.50	No
		x	-0.004	1.50	No
		x	-0.004	3.00	No
	29	x	-0.01	0.50	No
		x	-0.01	7.50	No
WL120	26	x	-0.004	1.50	No
		3	0.005	1.50	No
		3	0.005	6.50	No
		3	0.002	3.00	No
	28	3	0.013	0.50	No
		3	0.013	7.50	No
		3	0.004	1.50	No
		3	0.004	3.00	No
	29	3	0.013	0.50	No

		3	0.013	7.50	No
		3	0.004	1.50	No
WL150	26	3	0.007	1.50	No
		3	0.007	6.50	No
		3	0.003	3.00	No
	28	3	0.019	0.50	No
		3	0.019	7.50	No
		3	0.004	1.50	No
		3	0.003	3.00	No
	29	3	0.019	0.50	No
		3	0.019	7.50	No
		3	0.003	1.50	No
LL1	8	y	-0.25	0.00	Yes
LL2	8	y	-0.25	50.00	Yes
LL3	8	y	-0.25	100.00	Yes
LLa1	26	y	-0.25	50.00	Yes
LLa2	27	y	-0.25	50.00	Yes
LLa3	28	y	-0.25	50.00	Yes
LLa4	29	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

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

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	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
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	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

Current Date: 1/7/2019 10:09 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2233\2C-3C-4C-5C\Rev.1\CT2233 (Rev.1) (MOD).etx

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+1.6Wo
LC2=1.2D+1.6W30
LC3=1.2D+1.6W60
LC4=1.2D+1.6W90
LC5=1.2D+1.6W120
LC6=1.2D+1.6W150
LC7=1.2D-1.6Wo
LC8=1.2D-1.6W30
LC9=1.2D-1.6W60
LC10=1.2D-1.6W90
LC11=1.2D-1.6W120
LC12=1.2D-1.6W150
LC13=0.9D+1.6Wo
LC14=0.9D+1.6W30
LC15=0.9D+1.6W60
LC16=0.9D+1.6W90
LC17=0.9D+1.6W120
LC18=0.9D+1.6W150
LC19=0.9D-1.6Wo
LC20=0.9D-1.6W30
LC21=0.9D-1.6W60
LC22=0.9D-1.6W90
LC23=0.9D-1.6W120
LC24=0.9D-1.6W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W1150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W1150
LC37=0.9D
LC38=1.2D+1.6LL1
LC39=1.2D+1.6LL2
LC40=1.2D+1.6LL3
LC41=1.2D+W10+LLa1
LC42=1.2D+W130+LLa1
LC43=1.2D+W160+LLa1
LC44=1.2D+W190+LLa1
LC45=1.2D+W120+LLa1
LC46=1.2D+W1150+LLa1
LC47=1.2D-W10+LLa1
LC48=1.2D-W130+LLa1
LC49=1.2D-W160+LLa1
LC50=1.2D-W190+LLa1
LC51=1.2D-W120+LLa1
LC52=1.2D-W1150+LLa1

LC53=1.2D+WL0+LLa2
 LC54=1.2D+WL30+LLa2
 LC55=1.2D+WL60+LLa2
 LC56=1.2D+WL90+LLa2
 LC57=1.2D+WL120+LLa2
 LC58=1.2D+WL150+LLa2
 LC59=1.2D-WL0+LLa2
 LC60=1.2D-WL30+LLa2
 LC61=1.2D-WL60+LLa2
 LC62=1.2D-WL90+LLa2
 LC63=1.2D-WL120+LLa2
 LC64=1.2D-WL150+LLa2
 LC65=1.2D+WL0+LLa3
 LC66=1.2D+WL30+LLa3
 LC67=1.2D+WL60+LLa3
 LC68=1.2D+WL90+LLa3
 LC69=1.2D+WL120+LLa3
 LC70=1.2D+WL150+LLa3
 LC71=1.2D-WL0+LLa3
 LC72=1.2D-WL30+LLa3
 LC73=1.2D-WL60+LLa3
 LC74=1.2D-WL90+LLa3
 LC75=1.2D-WL120+LLa3
 LC76=1.2D-WL150+LLa3
 LC77=1.2D+WL0+LLa4
 LC78=1.2D+WL30+LLa4
 LC79=1.2D+WL60+LLa4
 LC80=1.2D+WL90+LLa4
 LC81=1.2D+WL120+LLa4
 LC82=1.2D+WL150+LLa4
 LC83=1.2D-WL0+LLa4
 LC84=1.2D-WL30+LLa4
 LC85=1.2D-WL60+LLa4
 LC86=1.2D-WL90+LLa4
 LC87=1.2D-WL120+LLa4
 LC88=1.2D-WL150+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	28	LC1 at 68.75%	0.53	OK	Eq. H1-1b
		29	LC1 at 68.75%	0.53	OK	Eq. H1-1b
	PIPE 2x0.154	26	LC40 at 31.25%	0.36	OK	Eq. H1-1b
		27	LC2 at 31.25%	0.36	OK	Eq. H1-1b
		31	LC2 at 0.00%	0.41	OK	Eq. H1-1a
	PIPE 2x0.218XS	3	LC7 at 16.96%	0.83	With warnings	Eq. H1-1a
		4	LC32 at 100.00%	0.41	OK	Eq. H1-1b
		5	LC2 at 100.00%	0.33	OK	Eq. H1-1b
		8	LC7 at 15.97%	0.64	With warnings	Eq. H1-1b
		9	LC30 at 100.00%	0.49	OK	Eq. H1-1b
		10	LC26 at 100.00%	0.28	OK	Eq. H1-1b
	RndBar 3_4	11	LC31 at 0.00%	0.58	OK	Eq. H1-1a
		12	LC26 at 100.00%	0.31	OK	Eq. H1-1a
		13	LC36 at 100.00%	0.76	OK	Eq. H1-1a
		14	LC26 at 0.00%	0.38	OK	Eq. H1-1a
		15	LC25 at 100.00%	0.35	OK	Eq. H1-1a
		16	LC25 at 100.00%	0.15	OK	Eq. H1-1b

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	6.50	0.00	0.00	0
3	-6.50	0.00	0.00	0
8	-4.40	0.00	0.00	0
9	4.40	0.00	0.00	0
10	0.00	0.00	-3.00	0
11	-3.6667	0.00	-0.50	0
12	3.6667	0.00	-0.50	0
13	0.7333	0.00	-2.50	0
14	-0.7333	0.00	-2.50	0
16	6.50	3.00	0.00	0
17	-6.50	3.00	0.00	0
22	-4.40	3.00	0.00	0
23	4.40	3.00	0.00	0
24	0.00	3.00	-3.00	0
25	-3.6667	3.00	-0.50	0
26	3.6667	3.00	-0.50	0
27	0.7333	3.00	-2.50	0
28	-0.7333	3.00	-2.50	0
33	-6.00	5.50	0.20	0
34	6.00	5.50	0.20	0
35	-6.00	-2.50	0.20	0

36	6.00	-2.50	0.20	0
42	2.00	5.50	0.20	0
43	2.00	-2.50	0.20	0
48	-2.00	5.50	0.20	0
49	-2.00	-2.50	0.20	0
51	-1.00	3.00	-6.50	0
52	-3.60	3.00	0.00	0
53	-2.80	3.00	0.00	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
10	1	1	1	1	1	1
24	1	1	1	1	1	1
51	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
3	3	2		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
4	8	10		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
5	9	10		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
8	17	16		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
9	22	24		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
10	23	24		PIPE 2x0.218XS	A53 GrB	0.00	0.00	0.00
11	14	28		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
12	27	13		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
13	25	11		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
14	12	26		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
15	28	11		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
16	27	12		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
26	34	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
27	42	43		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	48	49		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
29	33	35		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
31	22	51		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
26	45.00	0	0.00	0.00	0.00
27	45.00	0	0.00	0.00	0.00
28	45.00	0	0.00	0.00	0.00
29	45.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX	DJY	DJZ	DKX	DKY	DKZ
	[in]	[in]	[in]	[in]	[in]	[in]
31	0.00	2.00	0.00	0.00	2.00	0.00

Hinges

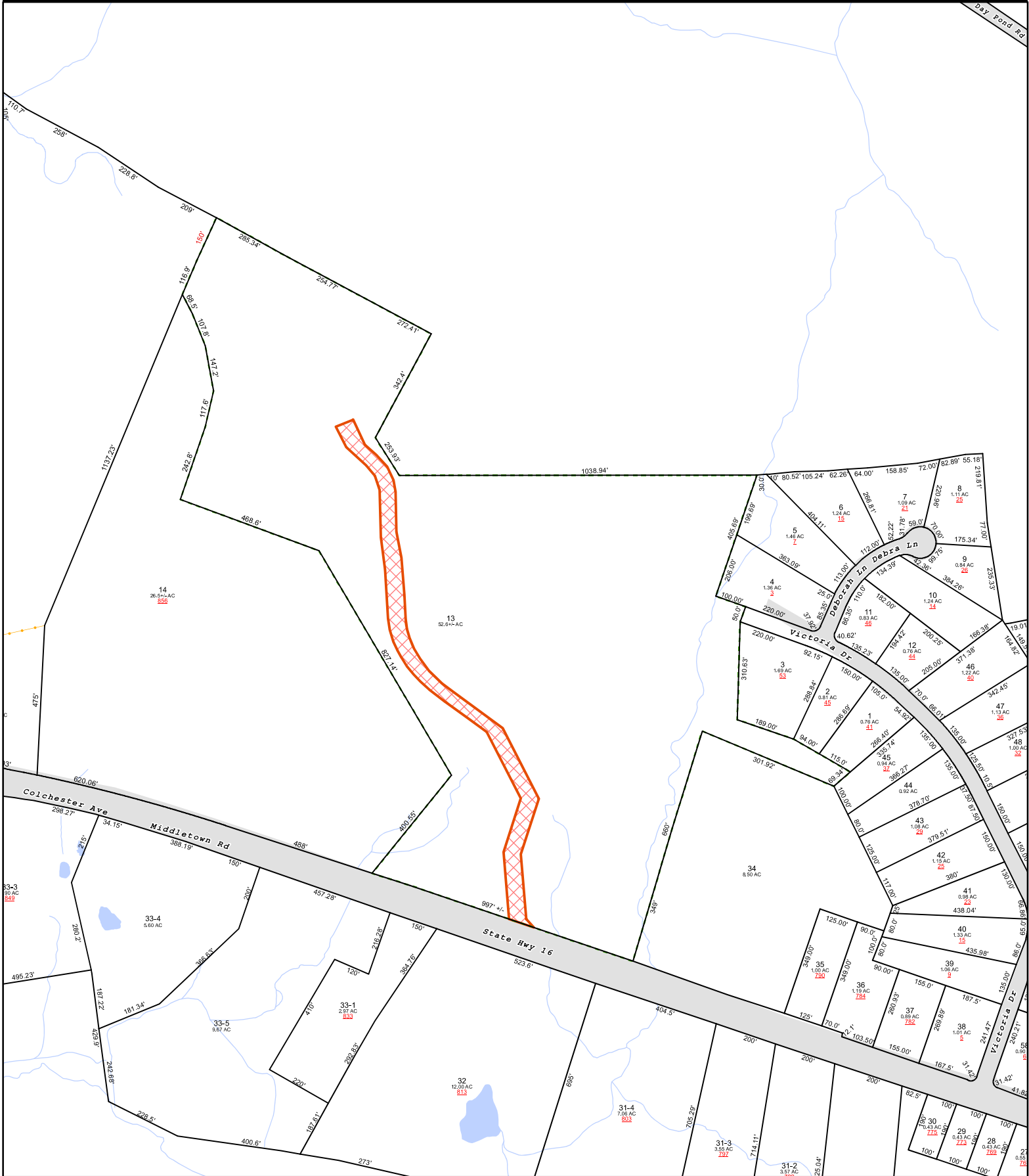
Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
15	0	0	0	0	0	0	0	0	0	0	Tension only
16	0	0	0	0	0	0	0	0	0	0	Tension only



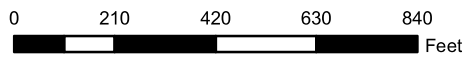
Town of Colchester, Connecticut - Assessment Parcel Map

Parcel: 4W-13-013-000

Address: 812 MIDDLETOWN RD



Approximate Scale: 1 inch = 400 feet



Map Produced: September 2018 / Grand List: 2017

Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Colchester and its mapping contractors assume no legal responsibility for the information contained herein.



Town of Colchester, CT

Property Listing Report

Map Block Lot

4W-13/013-000

Account

L0208300

PID

2915

Property Information

Property Location	812 MIDDLETOWN RD
Owner	LEONE LORRAINE M
Co-Owner	
Mailing Address	6 NORTH CT COLCHESTER CT 06415
Land Use	1300 Vacant Lnd
Land Class	R
Zoning Code	R60
Census Tract	7
Sub Lot	
Neighborhood	0050
Acreage	52.6
Utilities	
Lot Setting/Desc	
Survey Map	
Additional Info	

Photo




Sketch

Primary Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Floors	
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

Exterior Walls	
Interior Walls	
Heating Type	
Heating Fuel	
AC Type	
Gross Bldg Area	
Total Living Area	




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Expected Delivery Date: 02/19/19

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0024

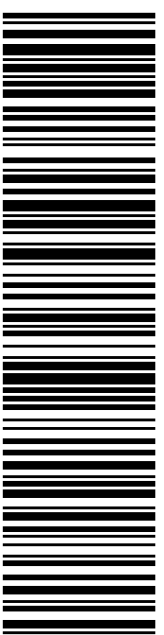
Carrier -- Leave if No Response

C001

SHIP TO: MR. ART SHILOSKY
 TOWN OF COLCHESTER
 127 NORWICH AVE
 COLCHESTER CT 06415-1230

CC: MR RANDALL BENSON, TOWN PLANNER
 COLCHESTER CT 06415-1230

USPS TRACKING #



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5. Mail your package on the "Ship Date" you selected when creating this label.

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Trans. #: 456810187	Priority Mail® Postage: \$7.35
Print Date: 02/14/2019	Total: \$7.35
Ship Date: 02/16/2019	
Expected Delivery Date: 02/19/2019	


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

To: MR. ART SHILOSKY
 TOWN OF COLCHESTER
 127 NORWICH AVE
 CC: MR RANDALL BENSON, TOWN PLANNER
 COLCHESTER CT 06415-1230

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PRIORITY MAIL 1-DAY™

MARK J ROBERTS
 QC DEVELOPMENT
 PO BOX 916
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Expected Delivery Date: 02/19/19

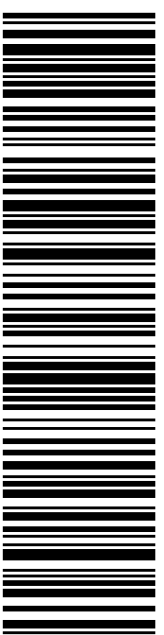
0024

SHIP TO:
 MS. LORRAINE M LEONE
 6 NORTH CT
 COLCHESTER CT 06415-2168

Carrier -- Leave if No Response

R012

USPS TRACKING #



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4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0418 5228 96

Trans. #: 456810187	Priority Mail® Postage: \$7.35
Print Date: 02/14/2019	Total: \$7.35
Ship Date: 02/16/2019	
Expected Delivery Date: 02/19/2019	

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

To: MS. LORRAINE M LEONE
 6 NORTH CT
 COLCHESTER CT 06415-2168

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