May 19, 2022

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

Regarding: Notice of Exempt Modification – AT&T Site CT5022 / FA# 10108711
Address: 100 Reef Road, Fairfield, CT 06824

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains a wireless telecommunications facility on an existing +/- 150' monopole at the above-referenced address, latitude 41.1396919, longitude -73.2577989. Said monopole is owned by The Town of Fairfield.

AT&T desires to modify its existing telecommunications facility by swapping twelve (12) antennas, swapping nine (9) remote radio units (RRUS), adding one (1) surge arrestor and accompanying feedlines, and swapping mounts as more particularly detailed and described on the enclosed Construction Drawings prepared by Hudson Design Group, LLC., last revised May 12, 2022. The centerline height of the existing antennas is and will remain at 130 feet. This modification may include B2, B5, B17, B14, B29, B30, B66, & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned off at various times.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: The Honorable Brenda Kupchick, First Selectwoman of the Town of Fairfield, as elected official, Matt Decker, Zoning Enforcement Officer, Jim Wendt, Town Planner of the Town of Fairfield and The Town of Fairfield as tower operator/property owner.

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

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

2. The proposed modifications will not require an extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

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

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated May 16, 2022, and prepared by Hudson Design Group, LLC, enclosed herewith.*

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

Sincerely,

Evan Renwick

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

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

cc: The Honorable Brennda Kupchick, First Selectwoman, Town of Fairfield elected official
Matt Decker, Zoning Enforcement Officer, Town of Fairfield
Jim Wendt Town Planner, Town of Fairfield
The Town of Fairfield, as tower operator/property owner

EXHIBIT 1

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
- NEW AT&T ANTENNA SECTOR MOUNT SITEPRO1 PART# (VFA14-H10-2120) (TOTAL OF 3)
- NEW AT&T SITEPRO1 PART# (LWRM) COLLAR MOUNT KIT.
- NEW AT&T ANTENNAS: DMP65R-BU6DA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6449 N77D (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6419 N77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: QD6616-7 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRU: 4415 B25 (1900) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRU: 4449 B5/B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SQUID: DC9-48-60-24-8C-EV (TOTAL OF 1)
- NEW AT&T (1) #6 AWG DC TRUNK & (1) 24 PAIR FIBER TRUNK
- NEW AT&T (3) Y-CABLES.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- ADD 6673 FHG, INSTALLED IN EXISTING LTE RACK
- ADD FIBER TRAY IN EXISTING LTE RACK
- INSTALL (1) DC12 TO EXISTING LTE RACK
- INSTALL FIBER MANAGEMENT BOX
- INSTALL (3) 48V RECTIFIERS IN EXISTING POWER PLANT
- INSTALL 7C 700 DE RRH 2012 B29 3X GROUND MOUNTED USING REMAINING 6 FEEDER LINES (TYP. OF 1 PER SECTOR, TOTAL OF 3)

ITEMS TO BE REMOVED:
- EXISTING AT&T ANTENNA SECTOR MOUNT AND RING MOUNT (TOTAL OF 3).
- EXISTING AT&T RING MOUNT (TOTAL OF 1).
- EXISTING AT&T UMTS ANTENNA: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T LTE ANTENNA: P65-16-XLH-RR (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T LTE ANTENNA: 800-10965 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T LTE ANTENNA: HPA-65R-BUU-H6 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T DIPLEXER: LGP21901 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T DIPLEXER: DBCT108F1V92-1 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T DIPLEXER: DBC0061F1V51-2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T TMA: LGP21401 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T RRU: 4478 B5 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRU: RRUS-11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRU: RRUS-12 B2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T SQUID: DC6-48-60-0-8F (TOTAL OF 1)

ITEMS TO REMAIN:
- (9) RRU'S, (2) SQUID, (6) COAX CABLES, (6) DC POWER & (2) FIBER.

SITE ADDRESS:	100 REEF ROAD FAIRFIELD, CT 06824
LATITUDE:	41.139590° N, 41° 08' 22.53" N
LONGITUDE:	73.257370° W, 73° 15' 26.54" W
TYPE OF SITE:	ROOF TOP / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	150'-0"±
RAD CENTER:	LTE= 130'-0"± / DOD + C-BAND= 131'-9"± & 128'-2"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
GN-1	GENERAL NOTES	0
A-1	ROOFTOP & EQUIPMENT PLANS	0
A-2	ANTENNA LAYOUT PLANS	0
A-3	ELEVATION	0
A-4	DETAILS	0
A-5	DETAILS	0
G-1	GROUNDING DETAILS	0
RF-1	RF PLUMBING DIAGRAM	0

SITE NUMBER: CT5022

SITE NAME: FAIRFIELD

FA CODE: 10108711

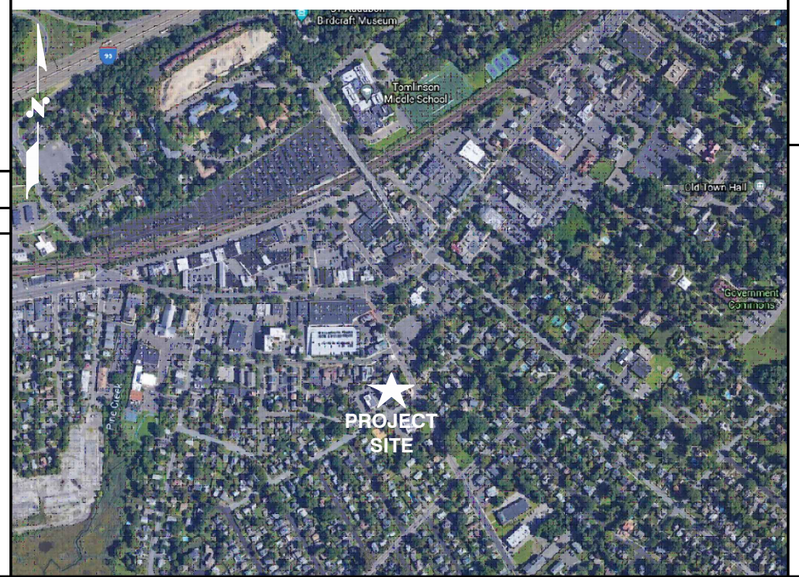
PACE ID: MRCTB051425, MRCTB051274, MRCTB051440, MRCTB051268

PROJECT: BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO WEST ST. TURN LEFT TO MERGE ONTO I-91 S TOWARD NEW HAVEN. TAKE EXIT 17 FOR CT-15 S/W CROSS PKWY. TAKE EXIT 52 FOR CT- 8 S. MERGE ONTO CT-8 S VIA EXIT 52 TOWARD BRIDGEPORT.MERGE ONTO I-95 S TOWARD NY CITY. TAKE THE MILL PLAIN ROAD EXIT, EXIT 21. TURN LEFT ONTO MILL PLAIN RD. TURN LEFT ONTO POST RD/US-1 N. TURN RIGHT ONTO REEF RD.



GENERAL NOTES

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

72 HOURS

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

UNDERGROUND SERVICE ALERT

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

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

SITE NUMBER: CT5022
SITE NAME: FAIRFIELD

100 REEF ROAD
FAIRFIELD, CT 06824
FAIRFIELD COUNTY

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

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

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

AT&T

TITLE SHEET
BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

SITE NUMBER	DRAWING NUMBER	REV
CT5022	T-1	0

GROUNDING NOTES

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES

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

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

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

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

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

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

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

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

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

ABBREVIATIONS

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

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

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

SITE NUMBER: CT5022
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: EB

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

AT&T

GENERAL NOTES

BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

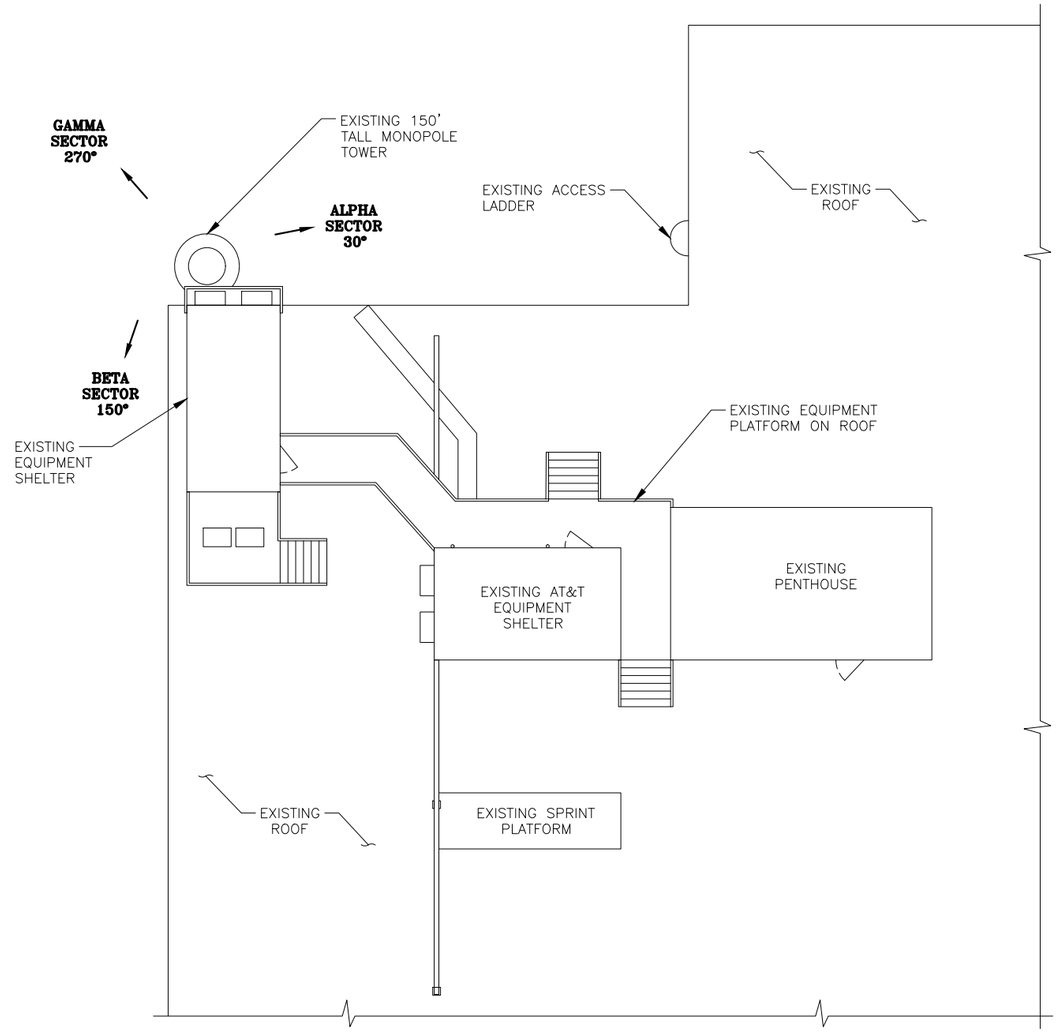
SITE NUMBER	DRAWING NUMBER	REV
CT5022	GN-1	0

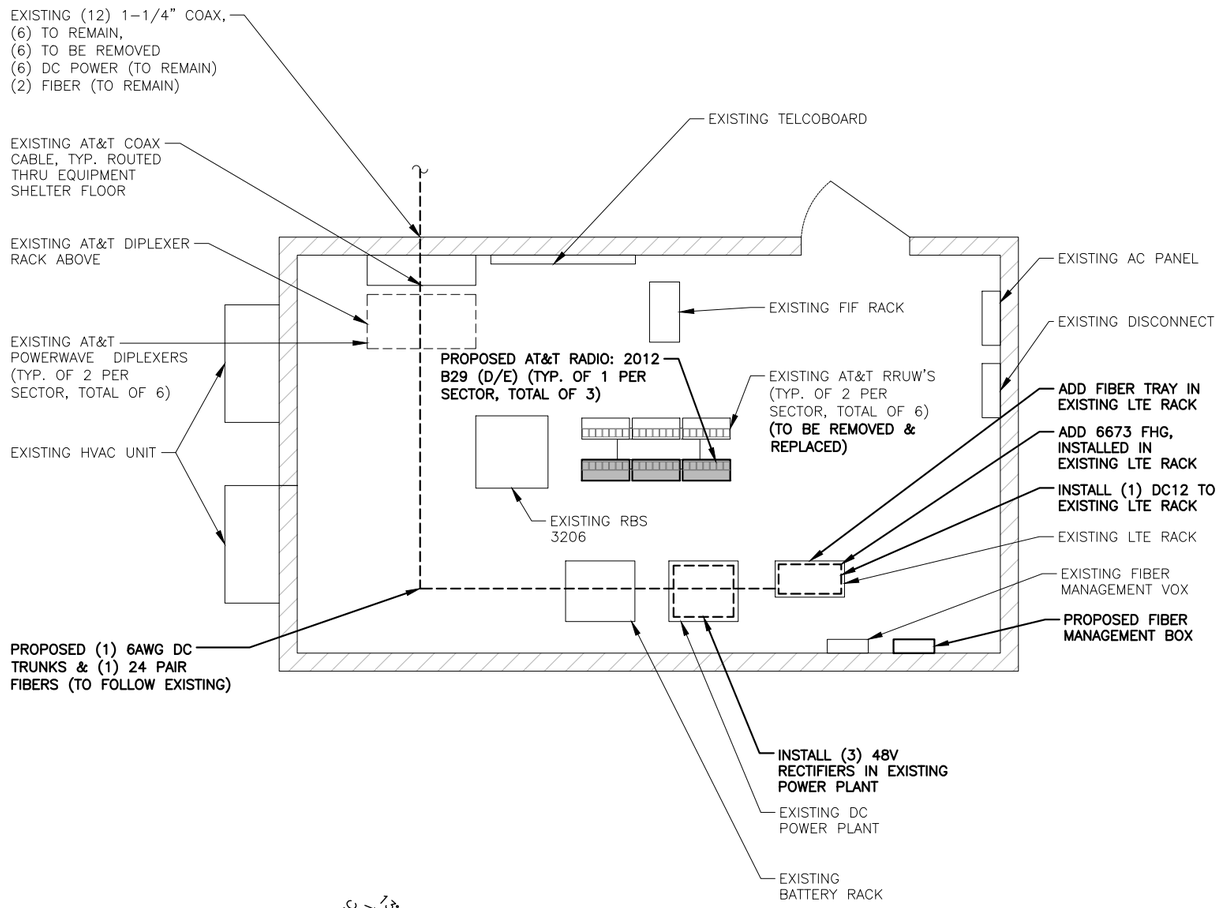
NOTE:

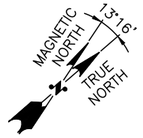
REFER TO THE FINAL RFDS V3.0 DATED: 02/09/2022 SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DATED: MARCH 30, 2022

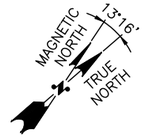






PARTIAL ROOF PLAN (1 / A-1)
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

0 2'-0" 4'-0" 8'-0" 12'-0"



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

0 1'-0" 2'-0" 4'-0" 6'-0"

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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FAX: (978) 336-5586

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AT&T

ROOFTOP & EQUIPMENT PLANS
BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

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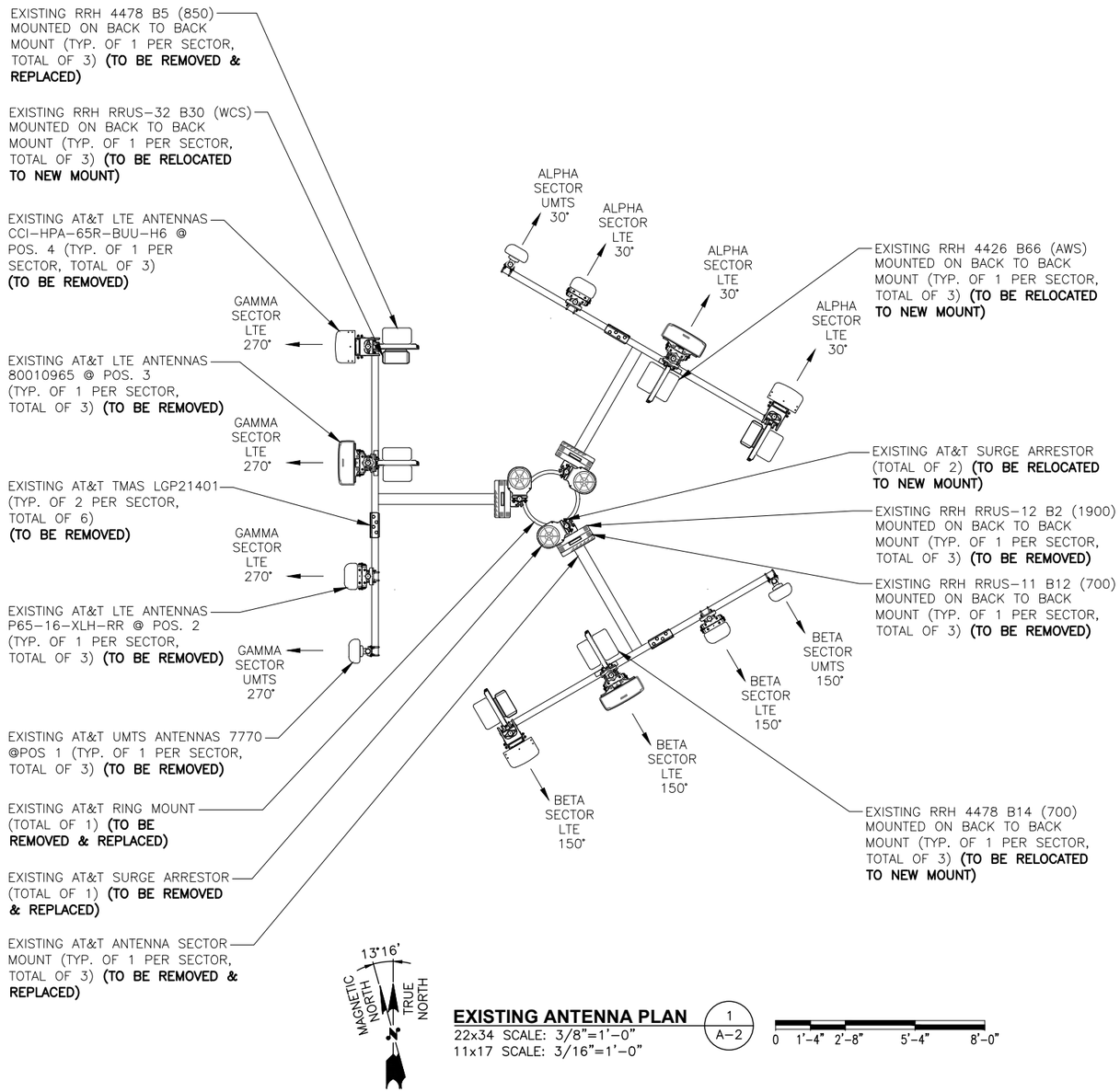
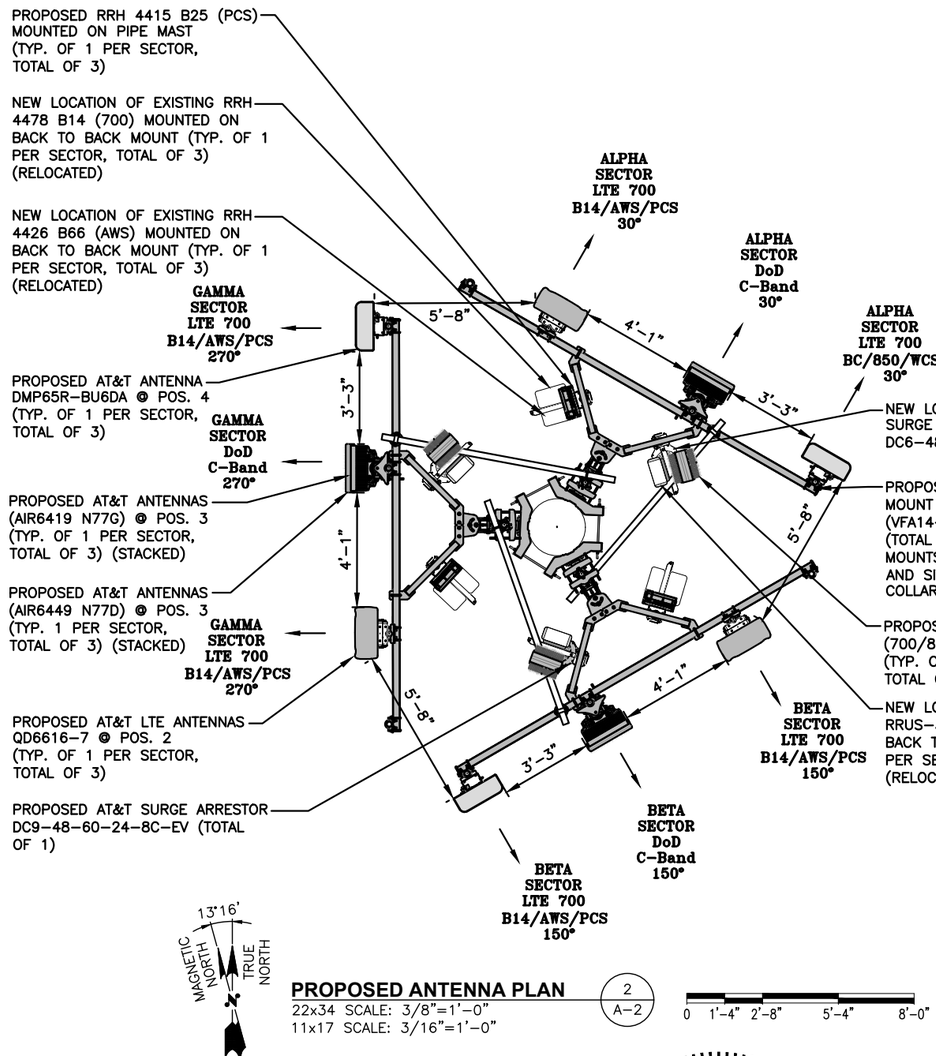


EXISTING ANTENNA PLAN (1 / A-2)
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"



PROPOSED ANTENNA PLAN (2 / A-2)
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"

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

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

SITE NUMBER: CT5022
SITE NAME: FAIRFIELD

100 REEF ROAD
FAIRFIELD, CT 06824
FAIRFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK'D	APP'D
0	05/12/22	ISSUED FOR PERMITTING	MB	AT	DPH
A	12/20/21	ISSUED FOR REVIEW	EB	AT	DPH

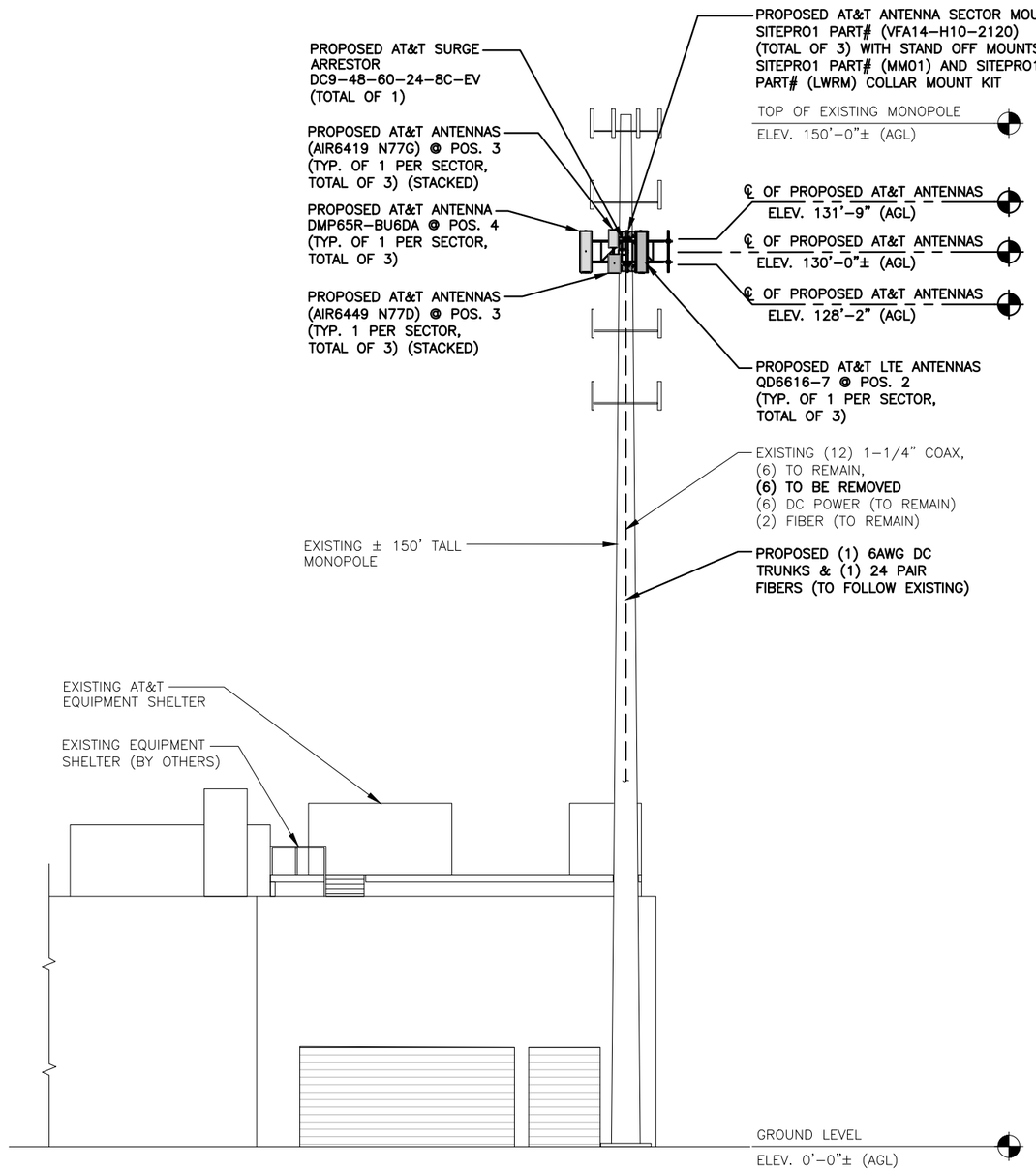
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: EB

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

AT&T

ANTENNA LAYOUT PLANS
BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

SITE NUMBER	DRAWING NUMBER	REV
CT5022	A-2	0



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

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

NOTE:

REFER TO THE FINAL RFDS V3.0 DATED: 02/09/2022 SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

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

AT&T

ELEVATION

BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

SITE NUMBER	DRAWING NUMBER	REV
CT5022	A-3	0

NOTE:

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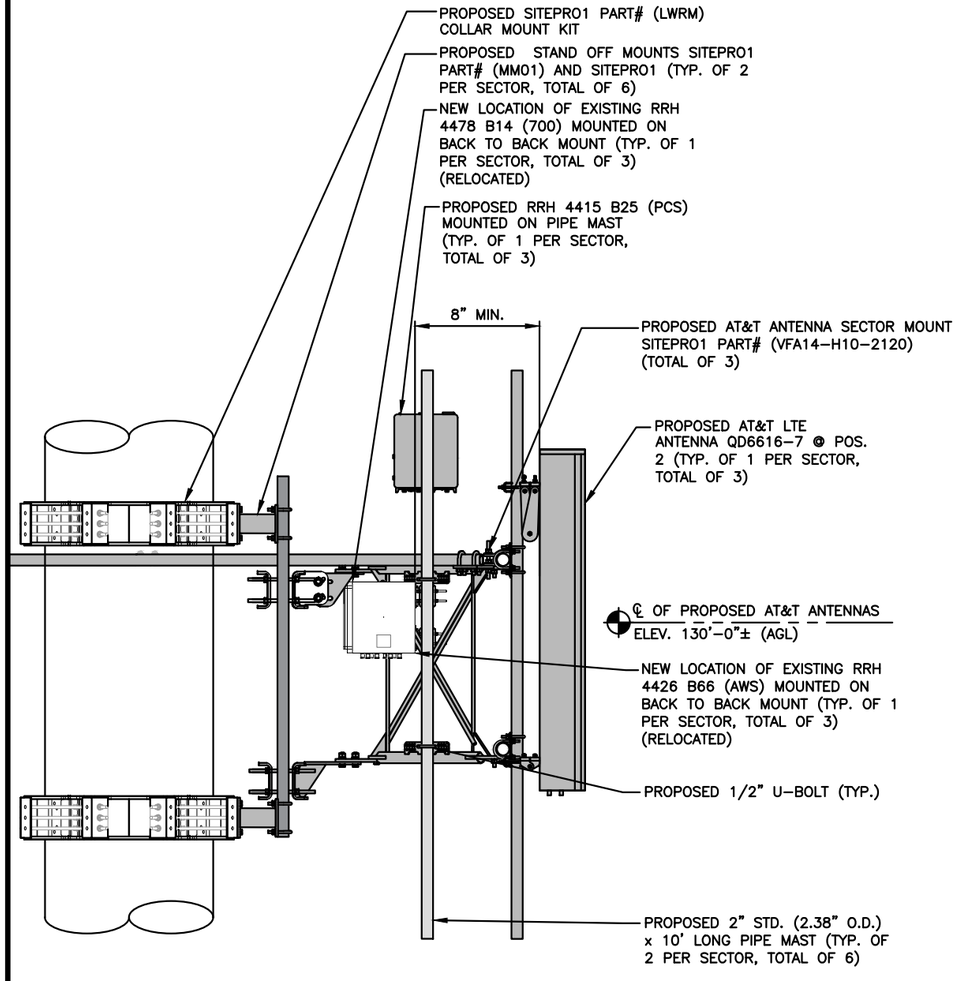
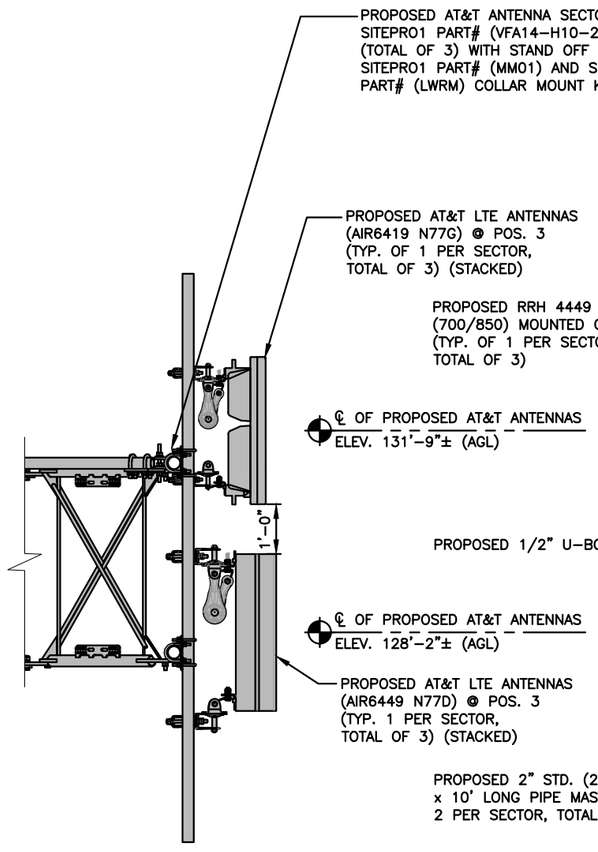


PROPOSED LTE ANTENNA MOUNTING DETAIL (POS. 2)

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

1 / A-4

0 8" 1'-4" 2'-8" 4'-0"

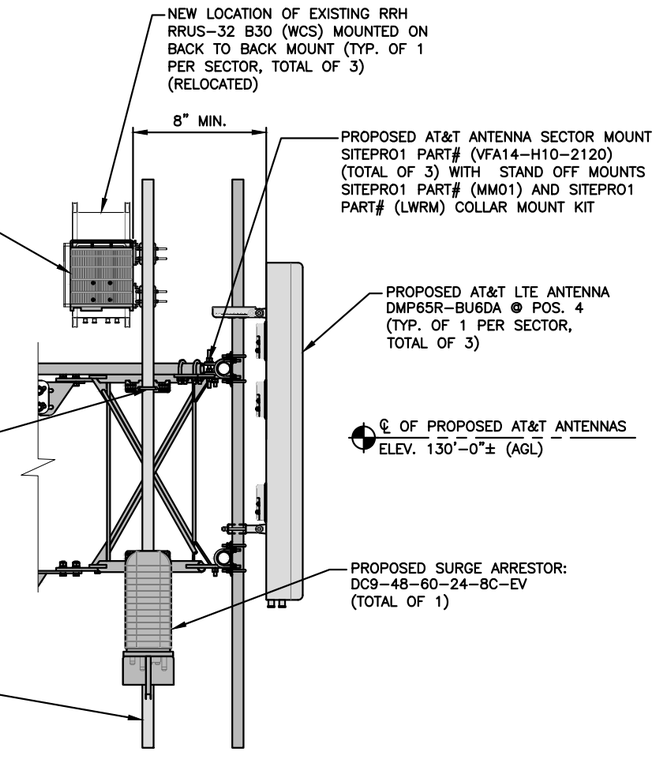


PROPOSED LTE ANTENNA MOUNTING DETAIL (POS. 3)

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

2 / A-4

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED LTE ANTENNA MOUNTING DETAIL (POS.4)

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

3 / A-4

0 8" 1'-4" 2'-8" 4'-0"

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

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

AT&T

DETAILS

LBBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

SITE NUMBER	DRAWING NUMBER	REV
CT5022	A-4	0

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	(2) 1–1/4" COAX	(P) (1) RAYCAP DC9–48–60–24–8C–EV
A2	PROPOSED	LTE 700 B14/AWS/PCS	QD6616–7	71.2X20.7X9.7	130'–0"±	30°	–	(E)(1) 4478 B14 (700) (E)(1) 4426 B66 (AWS) (P)(1) 4415 B25 (PCS) (P)(1)(G) 2012 B29 (D/E)	– – 16.6"x13.5"x6.3" 16.5"x13.5"x4.9"	(E)(2) DC POWER (P)(1) #6 AWG DC TRUNK & (P)(1) 24 PAIR FIBER TRUNK	
A3	PROPOSED	DOD C–BAND	AIR 6419 N77G AIR 6449 N77D	31.1"X16.1X7.3" 30.4"X15.9"X8.1"	131'–9"± 128'–2"±	30°	–	–	– –	–	
A4	PROPOSED	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2X20.7X7.7	130'–0"±	30°	–	(E)(1) RRUS–32 B30 (WCS) (P)(1) 4449 B5/B12 (850/700)	– 17.9"x13.2"x10.4"	(P)(1)Y–CABLE	
B1	–	–	–	–	–	–	–	–	–	(2) 1–1/4" COAX	(E) (1) RAYCAP DC6–48–60–18–8F
B2	PROPOSED	LTE 700 B14/AWS/PCS	QD6616–7	71.2X20.7X9.7	130'–0"±	150°	–	(E)(1) 4478 B14 (700) (E)(1) 4426 B66 (AWS) (P)(1) 4415 B25 (PCS) (P)(1)(G) 2012 B29 (D/E)	– – 16.6"x13.5"x6.3" 16.5"x13.5"x4.9"	(E)(2) DC POWER & (E)(1) FIBER	
B3	PROPOSED	DOD C–BAND	AIR 6419 N77G AIR 6449 N77D	31.1"X16.1X7.3" 30.4"X15.9"X8.1"	131'–9"± 128'–2"±	150°	–	–	– –	–	
B4	PROPOSED	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2X20.7X7.7	130'–0"±	150°	–	(E)(1) RRUS–32 B30 (WCS) (P)(1) 4449 B5/B12 (850/700)	– 17.9"x13.2"x10.4"	(P)(1)Y–CABLE	
C1	–	–	–	–	–	–	–	–	–	(2) 1–1/4" COAX	(E) (1) RAYCAP DC6–48–60–18–8F
C2	PROPOSED	LTE 700 B14/AWS/PCS	QD6616–7	71.2X20.7X9.7	130'–0"±	270°	–	(E)(1) 4478 B14 (700) (E)(1) 4426 B66 (AWS) (P)(1) 4415 B25 (PCS) (P)(1)(G) 2012 B29 (D/E)	– – 16.6"x13.5"x6.3" 16.5"x13.5"x4.9"	(E)(2) DC POWER & (E)(1) FIBER	
C3	PROPOSED	DOD C–BAND	AIR 6419 N77G AIR 6449 N77D	31.1"X16.1X7.3" 30.4"X15.9"X8.1"	131'–9"± 128'–2"±	270°	–	–	– –	–	
C4	PROPOSED	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2X20.7X7.7	130'–0"±	270°	–	(E)(1) RRUS–32 B30 (WCS) (P)(1) 4449 B5/B12 (850/700)	– 17.9"x13.2"x10.4"	(P)(1)Y–CABLE	

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
3(E)	4426 B66 (AWS)	14.9"x13.2"x5.8"
3(E)	4478 B14 (700)	18.1"x13.4"x8.3"
3(P)	4415 B25 (PCS)	16.6"x13.5"x6.3"
3(E)	RRUS–32 B30 (WCS)	27.2"x12.1"x7"
3(P)(G)	2012 B29 (D/E)	16.5"x13.5"x4.9"
3(P)	4449 B5/B12 (850/700)	17.9"x13.2"x10.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

REFER TO THE FINAL RFDS V3.0 DATED: 02/09/2022 SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

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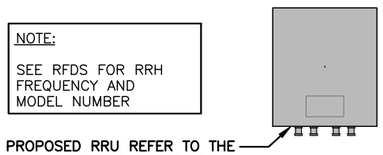
FINAL ANTENNA SCHEDULE

SCALE: N.T.S

1 / A–5



NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

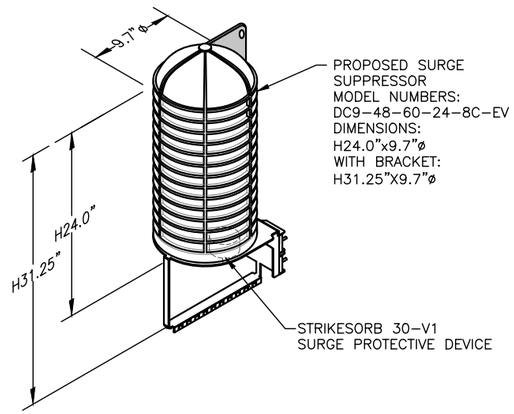
PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL

SCALE: N.T.S

2 / A–5

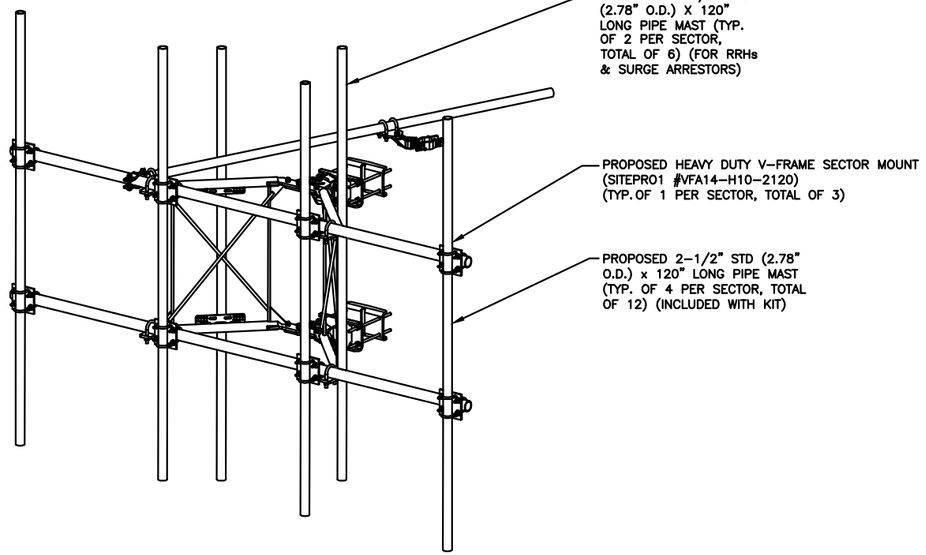


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL

SCALE: N.T.S

3 / A–5



PROPOSED MOUNT (SITEPRO1 #VFA14-H10-2120) DETAIL

SCALE: N.T.S

4 / A–5

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
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SITE NUMBER: CT5022
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100 REEF ROAD
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FAIRFIELD COUNTY

at&t
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ROCKY HILL, CT 06067

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A	12/20/21	ISSUED FOR REVIEW	EB	AT	DPH

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

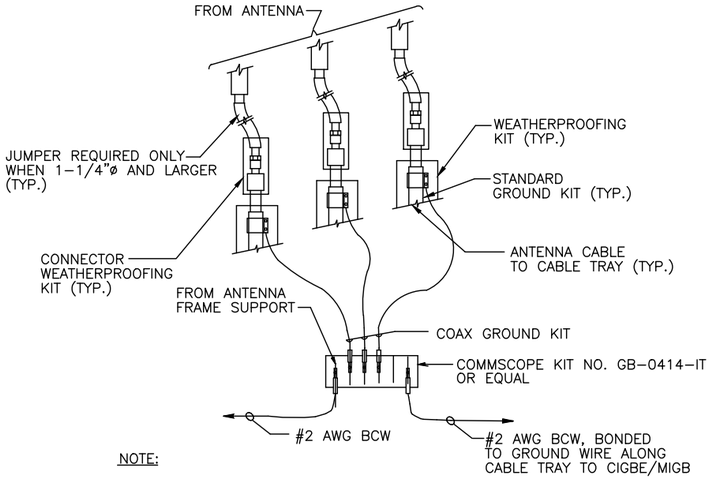
STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS

BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

SITE NUMBER	DRAWING NUMBER	REV
CT5022	A–5	0

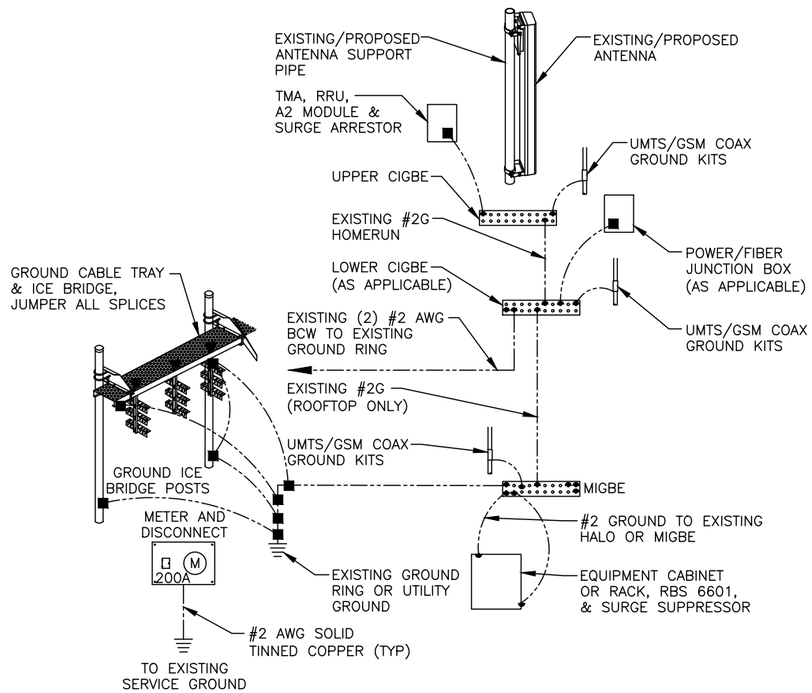


NOTE:

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

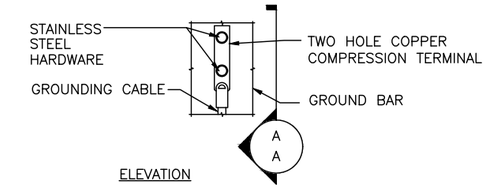
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S

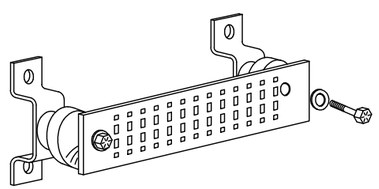
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED) (4 / G-1)

SCALE: N.T.S

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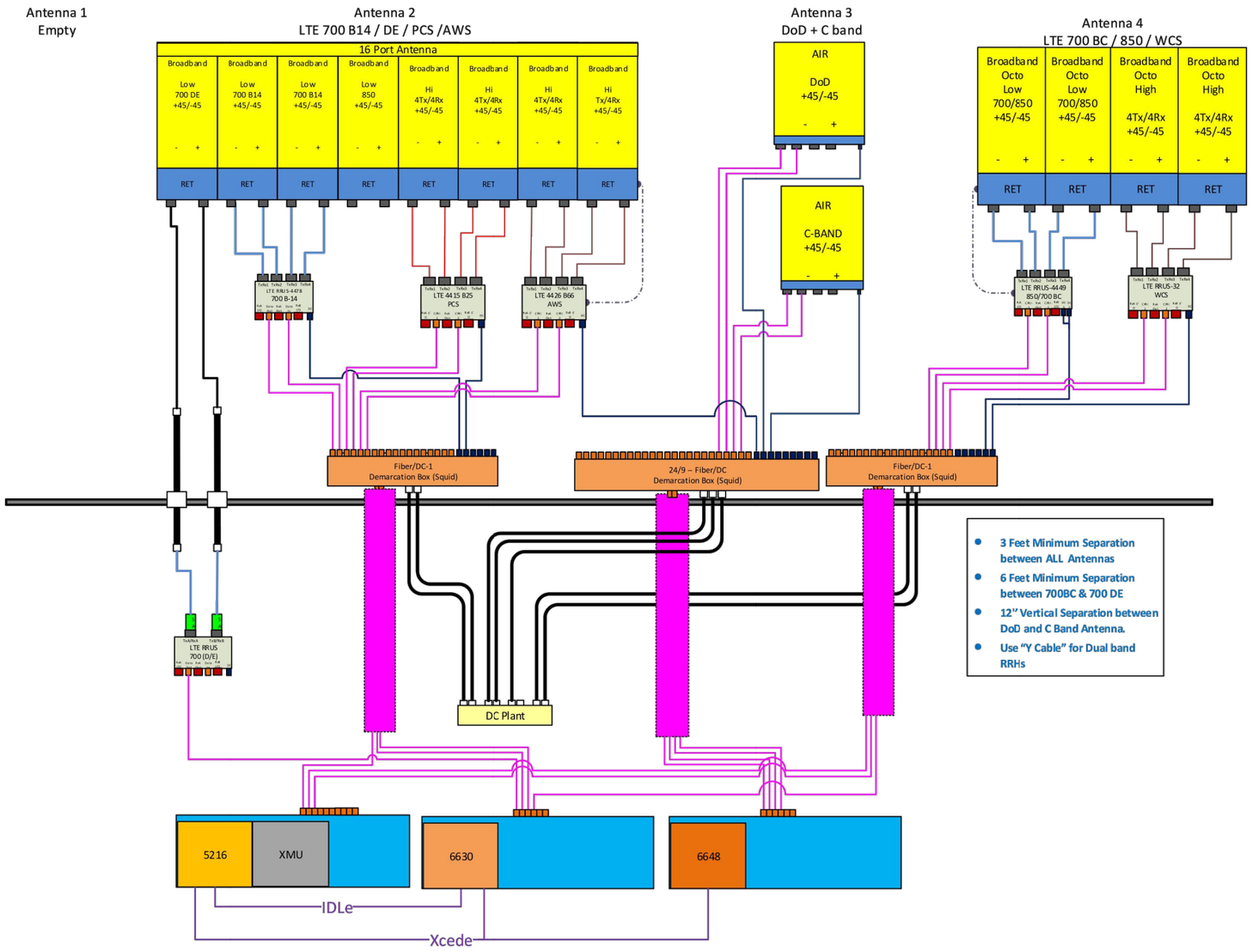
GROUNDING DETAILS
BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

SITE NUMBER	DRAWING NUMBER	REV
CT5022	G-1	0



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

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

NOTE:

REFER TO THE FINAL RFDS V3.0 DATED: 02/09/2022 SHEET FOR FINAL ANTENNA SETTINGS.

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RF PLUMBING DIAGRAM
BBU RECONFIGURATION, 4TXRX ANTENNA RETROFIT, 5G NR 1SR CBAND 2021

SITE NUMBER	DRAWING NUMBER	REV
CT5022	RF–1	0

EXHIBIT 2

Property Location 100 REEF ROAD | Map ID 182/ 670/ / / | Bldg Name | State Use 9031
Vision ID 16390 | Account # 05288 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 2 | Print Date 3/19/2021 8:01:54 AM

CURRENT OWNER

FAIRFIELD TOWN OF

725 OLD POST ROAD

FAIRFIELD CT 06824

TOPO	UTILITIES	STRT / ROAD	LOCATION
1 Level	1 All Public	1 Paved	2 Suburban
			A
			K

SUPPLEMENTAL DATA

Alt Prcl ID	00182 00670 00000	Legal	POLICE D
Assoc.		Descrip	EPT/ OPE
Lots		Descrip	RATION H
I&E SuppF		Record Ma	OPE
Notice		Multi Fam	
Census	616		
GIS ID	1826700000	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
EX COM LN	21	1,479,100	1,035,370
EX COM BL	22	6,422,400	4,495,680
EX CM OTB	25	147,500	103,250
Total		8,049,000	5,634,300

6051

FAIRFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
FAIRFIELD TOWN OF	0137	0640	01-01-1800	U	V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2020	21	1,035,370	2020	21	1,035,370	2019	21	1,071,700
	22	4,495,680		22	4,495,680		22	3,280,830
	25	103,250		25	103,250		25	97,860
	Total	5634300		Total	5634300		Total	4450390

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
0010				

NOTES

1STFL-48X89=3BAY AUTO REPAIR&GARAGE
132X68=OFFICES & CELLS,INT ALTS 2001=NV
2NDFL=LOCKERS,OFFICES,EXERCISE ROOM
FBM=SHOOTING RANGE&OFFICE COMBINED
OIL & GAS - ELE=2000# 125FPM 4STPS
150 FT COMMUNICATIONS TOWER

8/14/19 C/O 158549 CREATE DATA ROOM *
10/1/19 158843 AT&T ANTENNA *
10/1/19 159297 SPRINT ANTENNAS (3) *
* PER PERMIT - COMPLETE - NO CHANGE
10/1/14 150374 SLR PNLS (80) COMP-NC

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	6,194,800
Appraised Xf (B) Value (Bldg)	227,600
Appraised Ob (B) Value (Bldg)	147,500
Appraised Land Value (Bldg)	1,479,100
Special Land Value	0
Total Appraised Parcel Value	8,049,000
Valuation Method	C
Total Appraised Parcel Value	8,049,000

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments
161197	09-09-2020	CC		20,000	10-01-2020	100	10-01-2020	**T MOBILE**UPGRADE & RE
158843	04-26-2019	CM		25,000	10-01-2019	100	10-01-2019	**AT & T**REPLACE ANTENN
159297	03-06-2019	CM		25,000	10-01-2019	100	10-01-2019	**SPRINT**REPLACE 3 ANTE
158549	03-06-2019	CM		0	10-01-2019	100	10-01-2019	**POLICE DEPT**CONVERT
154966	01-18-2017	CM	Commercial	5,000	04-27-2017	100	04-27-2017	AT&T-REPL 3 RADIOS
152120	05-07-2015	CM	Commercial		09-15-2015	100	09-15-2015	MERO PCS REMV 4 ANTENN
150493	04-09-2014	RE	Remodel	12,000	06-25-2014	100	10-01-2014	SWAP ANTENNAS & EQUIP

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result
10-01-2019	KC			40	No change
04-27-2017	JP			40	No change
09-15-2015	JW			22	Bldg Permit Listed
01-29-2015	RH			09	Msmt Est Refusal - No Acc
01-24-2015	PJ			43	Change - Reinspection/Rer
06-25-2014	KC			40	No change
07-31-2013	KC			40	No change

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	I. Factor	Site Index	Cond.	Nbhd.	Nhbd Adj	Notes	Location Adjustment		Adj Unit Pric	Land Value
1	9031	Police Dept	A		65,200	SF	19.73	1.00000	C	1.00	C3	1.150			0		1,479,100
		Total Card Land Units			1.497	AC	Parcel Total Land Area:			1.4968						Total Land Value	1,479,100

Property Location	100 REEF ROAD		Map ID	182/ 670/ / /		Bldg Name	State Use 9031
Vision ID 16390		Account # 05288		Bldg # 1	Sec # 1 of 1	Card # 1 of 2	Print Date 3/19/2021 8:01:55 AM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	511	Police Station
Model	96	Ind/Comm
Grade	04	Average Plus
Stories:	2	
Occupancy	1.00	
Exterior Wall 1	20	Brick/Masonry
Exterior Wall 2		
Roof Structure	01	Flat
Roof Cover	02	Rolled Compos
Interior Wall 1	01	Minim/Masonry
Interior Wall 2	05	Drywall
Interior Floor 1	05	Vinyl/Asphalt
Interior Floor 2	14	Carpet
Heating Fuel	03	Gas
Heating Type	05	Hot Water
AC Type	03	Central
Bldg Use	9031	Police Dept
Total Rooms		
Total Bedrms	00	
Total Baths	0	
Liv Area		
Effect Area		
Heat/AC	02	Heat/AC Split
Frame Type	06	Fireprf Steel
Baths/Plumbing	02	Average
Ceiling/Wall	03	Sus-Ceil/Mn Wl
Rooms/Prtns	02	Average
Wall Height	14.00	
% Comn Wall	0.00	
1st Floor Use:	9031	

CONSTRUCTION DETAIL (CONTINUED)

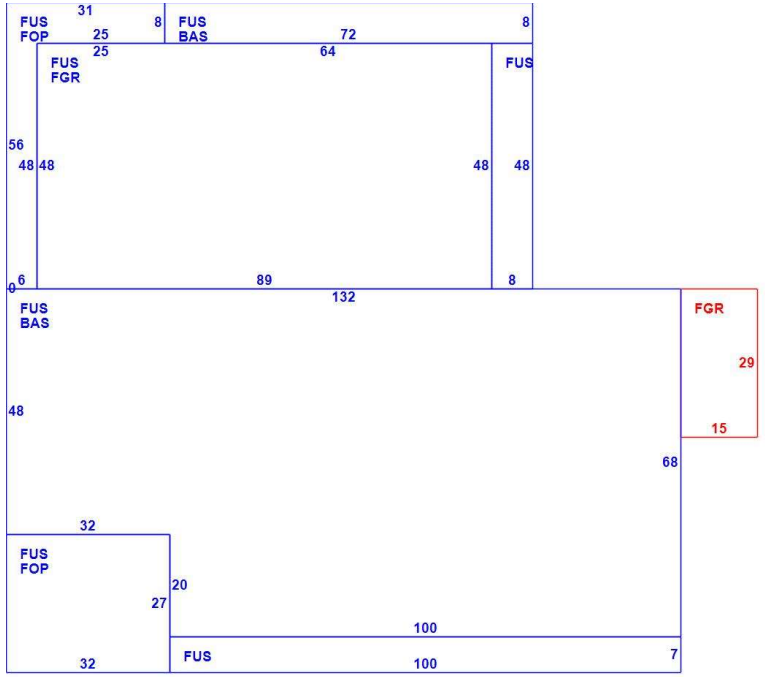
Element	Cd	Description

MIXED USE

Code	Description	Percentage
9031	Police Dept	100
		0
		0

COST / MARKET VALUATION

RCN	6,121,929
Year Built	1975
Effective Year Built	
Depreciation Code	6
Remodel Rating	
Year Remodeled	
Depreciation %	11
Functional Obsol	0
External Obsol	0
Trend Factor	1
Condition	
Condition %	
Percent Good	89
Cns Sect Rcnld	5,448,500
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	



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

Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Good	Grade	Grade Adj	Appr. Value
MEZ1	MEZZANINE-U	B	1,760	24.00	1983		89		0.00	37,600
VLT1	VAULT-AVG	B	84	330.00	1983		89		0.00	24,700
LT1	LIGHTS-IN W/P	L	9	840.00	2001		90		0.00	6,800
FN3	FENCE-6' CHAI	L	300	10.50	2001		90		0.00	2,800
PAV1	PAVING-ASPH	L	40,000	3.70	2001		90		0.00	133,200
SHD2	W/LIGHTS ETC	L	300	17.50	2001		90		0.00	4,700
ELV1	PASS ELEV	B	2	37000.00	1983		89		0.00	65,900
ELV2	FREIGHT ELEV	B	2	26500.00	1983		89		0.00	47,200
SPAN	SOLAR PANEL	B	80	0.00			89		0.00	0

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	8,912	8,912		224.38	1,999,657
FGR	Garage	0	4,707		112.21	528,186
FOP	Porch, Open, Finished	0	1,400		56.09	78,532
FUS	Upper Story, Finished	15,668	15,668		224.38	3,515,555
	Ttl Gross Liv / Lease Area	24,580	30,687	27,284		6,121,930

Property Location 100 REEF ROAD | Map ID 182/ 670/ / / | Bldg Name | State Use 9031
Vision ID 16390 | Account # 05288 | Bldg # 2 | Sec # 1 of 1 | Card # 2 of 2 | Print Date 3/19/2021 8:01:56 AM

CURRENT OWNER

FAIRFIELD TOWN OF

725 OLD POST ROAD

FAIRFIELD CT 06824

TOPO	UTILITIES	STRT / ROAD	LOCATION
1 Level	1 All Public	1 Paved	2 Suburban
			A
			K

SUPPLEMENTAL DATA

Alt Prcl ID	00182 00670 00000	Legal	POLICE D
Assoc.		Descrip	EPT/ OPE
Lots		Descrip	RATION H
I&E SuppF		Record Ma	OPE
Notice		Multi Fam	
Census	616		
GIS ID	1826700000	Assoc Pid#	

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
EX COM LN	21	1,479,100	1,035,370
EX COM BL	22	6,422,400	4,495,680
EX CM OTB	25	147,500	103,250
Total		8,049,000	5,634,300

6051

FAIRFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
FAIRFIELD TOWN OF	0137	0640	01-01-1800	U	V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2020	21	1,035,370	2020	21	1,035,370	2019	21	1,071,700
	22	4,495,680		22	4,495,680		22	3,280,830
	25	103,250		25	103,250		25	97,860
	Total	5634300		Total	5634300		Total	4450390

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
0010				

NOTES

1ST FLR=OFFICES/SHELTER 14 BEDS
2ND FLR=OFFICES/SHELTER 18 BEDS
INT ALTS 2002 - C/A OFFICES ONLY
REMODEL BATHS 2004
ELEV=2STPS 2100#95FPM PAS
2/29/14 C/O 148082 ANTENNAS (OLD WORK)

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	6,194,800
Appraised Xf (B) Value (Bldg)	227,600
Appraised Ob (B) Value (Bldg)	147,500
Appraised Land Value (Bldg)	1,479,100
Special Land Value	0
Total Appraised Parcel Value	8,049,000
Valuation Method	C
Total Appraised Parcel Value	8,049,000

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	I. Factor	Site Index	Cond.	Nbhd.	Nhbd Adj	Notes	Location Adjustment		Adj Unit Pric	Land Value
2	9031	Police Dept	A		0	SF	0	1.00000	0	1.00		1.000			0		0
				Total Card Land Units	0.000	AC	Parcel Total Land Area:	1.4968								Total Land Value	1,479,100

Property Location 100 REEF ROAD | Map ID 182/ 670/ / / | Bldg Name | State Use 9031
Vision ID 16390 | Account # 05288 | Bldg # 2 | Sec # 1 of 1 | Card # 2 of 2 | Print Date 3/19/2021 8:01:58 AM

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	500	Office
Model	96	Ind/Comm
Grade	03	Average
Stories:	2	
Occupancy	1.00	
Exterior Wall 1	20	Brick/Masonry
Exterior Wall 2		
Roof Structure	01	Flat
Roof Cover	02	Rolled Compos
Interior Wall 1	03	Plastered
Interior Wall 2	01	Minim/Masonry
Interior Floor 1	05	Vinyl/Asphalt
Interior Floor 2		
Heating Fuel	03	Gas
Heating Type	05	Hot Water
AC Type	03	Central
Bldg Use	9031	Police Dept
Total Rooms		
Total Bedrms	00	
Total Baths	0	
Liv Area		
Effect Area		
Heat/AC	00	None
Frame Type	03	Masonry
Baths/Plumbing	02	Average
Ceiling/Wall	04	Ceil & Min Wl
Rooms/Prtns	02	Average
Wall Height	10.00	
% Comn Wall	0.00	
1st Floor Use:	9031	

CONSTRUCTION DETAIL (CONTINUED)

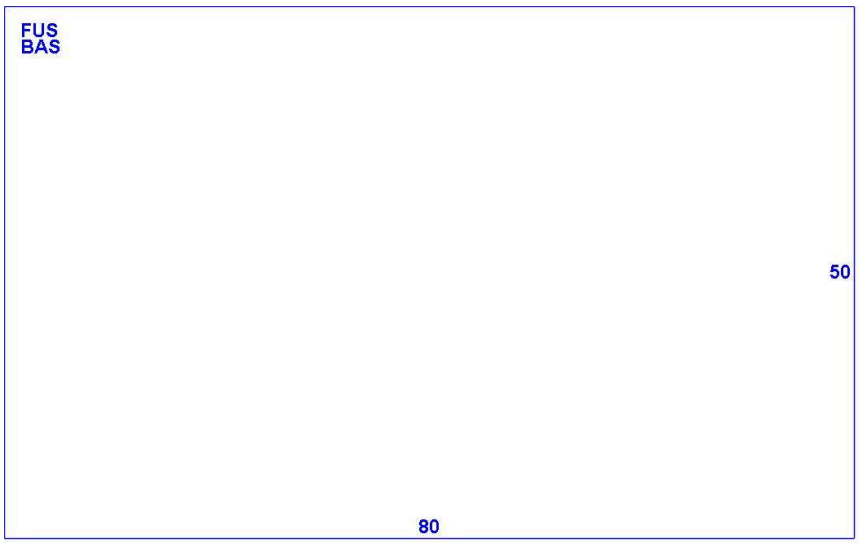
Element	Cd	Description

MIXED USE

Code	Description	Percentage
9031	Police Dept	100
		0
		0

COST / MARKET VALUATION

RCN	1,332,640
Year Built	1953
Effective Year Built	
Depreciation Code	3
Remodel Rating	
Year Remodeled	
Depreciation %	44
Functional Obsol	0
External Obsol	0
Trend Factor	1
Condition	
Condition %	
Percent Good	56
Cns Sect Rcnld	746,300
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	



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

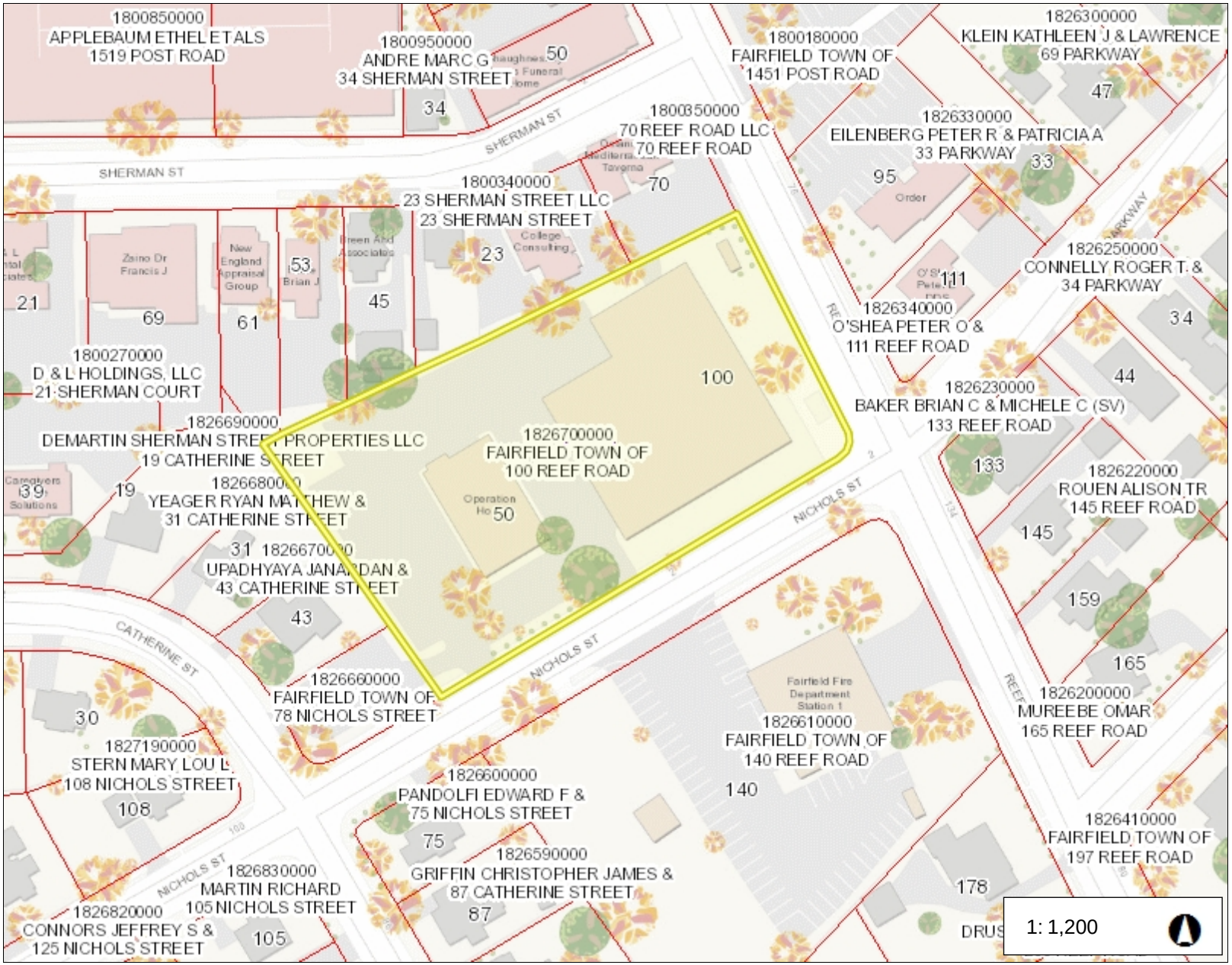
Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Good	Grade	Grade Adj	Appr. Value
SPR1	SPRINKLERS-	B	8,000	2.40	1971		56		0.00	10,800
ELV1	PASS ELEV	B	2	37000.00	1971		56		0.00	41,400

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	4,000	4,000		166.58	666,320
FUS	Upper Story, Finished	4,000	4,000		166.58	666,320
	Ttl Gross Liv / Lease Area	8,000	8,000	8,000		1,332,640

Town of Fairfield

Title



Legend

- Parcels
- Local Basin Boundary
  - Major
  - Regional
  - Subregional
  - Local
- Local Basin Area

200.0 0 100.00 200.0 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere
Created by Greater Bridgeport Regional Council

METROCOG
Connecticut Metropolitan Council of Governments

EXHIBIT 3

STRUCTURAL ANALYSIS REPORT

For

SITE NUMBER: CT5022
SITE NAME: FAIRFIELD
FA CODE: 10108711

100 REEF ROAD
FAIRFIELD, CT 06824

Antennas Mounted to the Monopole

Prepared for:

CENTERLINE COMMUNICATIONS

at&t

Dated: May 16, 2022

Prepared by:

HDG | HUDSON Design Group LLC

45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com

STATE OF CONNECTICUT
GI KAI WANG
No. 28220
LICENSED
PROFESSIONAL ENGINEER

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the 145' monopole supporting the proposed AT&T's antennas located at elevation 130' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's existing and proposed antennas listed below.

Record drawings of the existing monopole prepared by Valmont Industries, Inc., dated May 19, 1994, were available for our use. The previous structural analysis report prepared by CENTEK Engineering, Inc., dated February 28, 2019, was also available and obtained for our use.

Tower mapping report prepared by ProVertic LLC, dated December 21, 2021, was provided to this office.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing monopole and foundation **are in conformance** with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The monopole structure is rated at **87.9%** - (Base Plate at EL.0' Controlling).

HUDSON Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	(1) Lightning Rod	148'	Top Of Monopole
	(1) Omni 3"x12'	149'	T - Frame
	(2) 10' Dipole	147'	T - Frame
	(9) 5' Panel Antennas	143'	T - Frame
	(1) 10' Dipole	142'	T - Frame
	(1) Panel Antenna 2'X2'	138'	T - Frame
	(3) AIR 21 B2A B4P Antennas	137'	T - Frame
	(3) AIR 21 B4A B2P Antennas	137'	T - Frame
	(3) ATMAA1412D-1A20	137'	T - Frame
AT&T	***(3) QD6616-7 Antennas***	130'	***VFA14-H10-2120***
AT&T	***(3) DMP65R-BU6DA Antennas***	130'	***VFA14-H10-2120***
AT&T	***(3) AIR6419 B77G Antennas***	130'	***VFA14-H10-2120***
AT&T	***(3) AIR6449 B77D Antennas***	130'	***VFA14-H10-2120***
AT&T	***(3) 4415 B25***	130'	***VFA14-H10-2120***
AT&T	***(3) 4449 B5/B12***	130'	***VFA14-H10-2120***
AT&T	***(1) DC9-48-60-24-8C-EV***	130'	***VFA14-H10-2120***
AT&T	(3) RRUS-32 B30	130'	***VFA14-H10-2120***
AT&T	(3) 4478 B14	130'	***VFA14-H10-2120***
AT&T	(3) 4426 B66	130'	***VFA14-H10-2120***
AT&T	(2) DC6-48-60-18-8F	130'	***VFA14-H10-2120***
	(1) Omni 3"x12'	116'	Low Profile Platform
	(3) NNVV-65B-R4 Antennas	110'	Low Profile Platform
	(6) RRH-800	110'	Low Profile Platform
	(3) RRH-1900	110'	Low Profile Platform

Proposed AT&T Appurtenances shown in Bold.

AT&T EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
AT&T	(6) 1 1/4" Cables	130'	Inside Monopole
AT&T	(6) DC Power Cables	130'	Inside Monopole
AT&T	(2) Fiber Cables	130'	Inside Monopole
AT&T	***(1) DC Power Cable***	130'	Inside Monopole
AT&T	***(1) Fiber Cable***	130'	Inside Monopole

Proposed AT&T Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	74.2 %	90.83 – 145	PASS	
Pole Section-L2	75.2 %	70 – 90.83	PASS	
Pole Section-L3	70.2 %	42.83 – 70	PASS	
Pole Section-L5	62.4 %	0 – 42.83	PASS	
Base Plate & Anchor Bolts	**87.9 %**	0	PASS	**Controlling**

DESIGN CRITERIA:

1. EIA/TIA-222-H Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures

2. Connecticut State Building Code

   City/Town: Fairfield
   County: Fairfield
   Basic Wind Speed: 129 mph
   Risk Category: III
   Exposure Category: B
   Topographic Category: 1
   Ice Thickness: 1.0 inch

ASSUMPTIONS:

1. The monopole and foundation are properly constructed and maintained. 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.

2. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

4. All prior structural modifications, if any, are assumed to be as per the data supplied (if available), and installed properly.

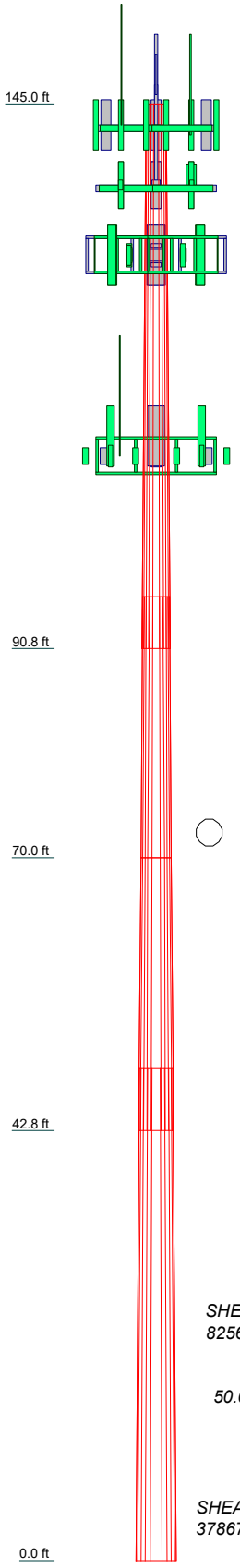
SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas, RRHs and surge arrestor be mounted on the proposed sector mount supported by the monopole.

HUDSON
Design Group LLC

TNX INPUT/OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	54.17	12	0.2810	5.17	23.6100	33.4800		4714.0
2	26.00	12	0.3750		31.9760	36.6900		3627.8
3	27.17	12	0.4500	6.17	36.6900	41.6400		5186.5
4	49.00	12	0.6000		39.6159	48.6900		14030.0
							A572-65	27558.2



ALL REACTIONS ARE FACTORED

AXIAL 78360 lb
SHEAR 8256 lb
MOMENT 962528 lb-ft
TORQUE 227 lb-ft
50.0 mph WIND - 1.0000 in ICE

AXIAL 51725 lb
SHEAR 37867 lb
MOMENT 4099093 lb-ft
TORQUE 755 lb-ft
REACTIONS - 129.0 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Omni 3"x12'	149	4426 B66	130
Lightning Rod	148	4426 B66	130
10' Dipole	147	4426 B66	130
10' Dipole	147	DC6-48-60-18-8F	130
(3) Panel Antenna 5'x12"x6" w/mount pipe	143	DC6-48-60-18-8F	130
(3) Panel Antenna 5'x12"x6" w/mount pipe	143	QD6616-7 w/mount pipe (ATI - Proposed)	130
(3) Panel Antenna 5'x12"x6" w/mount pipe	143	QD6616-7 w/mount pipe	130
PiROD 12' T-Frame	143	QD6616-7 w/mount pipe	130
PiROD 12' T-Frame	143	DMP65R-BU6DA w/mount pipe	130
PiROD 12' T-Frame	143	DMP65R-BU6DA w/mount pipe	130
10' Dipole	142	DMP65R-BU6DA w/mount pipe	130
Panel Antenna 2'X2'	138	AIR 6419 N77G w/mount pipe	130
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	137	AIR 6419 N77G w/mount pipe	130
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	137	AIR 6419 N77G w/mount pipe	130
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	137	AIR 6449 N77D w/mount pipe	130
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	137	AIR 6449 N77D w/mount pipe	130
RFS ATMAA1412D-1A20	137	AIR 6449 N77D w/mount pipe	130
RFS ATMAA1412D-1A20	137	4415 B25	130
RFS ATMAA1412D-1A20	137	4415 B25	130
PiROD 12' T-Frame	137	4415 B25	130
PiROD 12' T-Frame	137	4449 B5/B12	130
PiROD 12' T-Frame	137	4449 B5/B12	130
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	137	4449 B5/B12	130
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	137	DC9-48-60-24-8C-EV	130
RRUS-32 B30 (ATI - Existing)	130	VFA14-H10-2120	130
RRUS-32 B30	130	VFA14-H10-2120	130
RRUS-32 B30	130	VFA14-H10-2120	130
4478 B14	130	Omni 3"x12'	116
4478 B14	130	NNVV-65B-R4 w/ Mount Pipe	110
4478 B14	130	NNVV-65B-R4 w/ Mount Pipe	110
		(2) RRH-800	110
		(2) RRH-800	110
		(2) RRH-800	110
		RRH-1900	110
		RRH-1900	110
		RRH-1900	110
		PiROD 13' Platform w/handrail	110
		NNVV-65B-R4 w/ Mount Pipe	110

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 129.0 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50.0 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Risk Category III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 87.9%

Hudson Design Group LLC
45 Beechwood Drive
North Andover, MA 01845
Phone: (P) 978.557.5553
FAX: (F) 978.336.5586

Job: **CT5022**			
Project: ***145 ft Monopole***			
Client: AT&T	Drawn by: kw		App'd:
Code: TIA-222-H	Date: 05/16/22		Scale: NTS
Path: C:\CT5022\CT5022.eri			Dwg No. E-1

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
Tower base elevation above sea level: 12.00 ft.
Basic wind speed of 129.0 mph.
Risk Category III.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.0 pcf.
A wind speed of 50.0 mph is used in combination with ice.
Temperature drop of 50.0 °F.
Deflections calculated using a wind speed of 60.0 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	145.00-90.83	54.17	5.17	12	23.6100	33.4800	0.2810	1.1240	A572-65 (65 ksi)
L2	90.83-70.00	26.00	0.00	12	31.9760	36.6900	0.3750	1.5000	A572-65 (65 ksi)
L3	70.00-42.83	27.17	6.17	12	36.6900	41.6400	0.4500	1.8000	A572-65 (65 ksi)
L4	42.83-0.00	49.00		12	39.6159	48.6900	0.6000	2.4000	A572-65 (65 ksi)

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
1 5/8 Fiber	C	No	Surface Ar (CaAa)	143.00 - 12.00	4	4	0.000 0.000	1.9800		2.34
1 1/4 Fiber Cable	C	No	Surface Ar (CaAa)	137.00 - 12.00	1	1	0.000 0.000	1.5500		0.66

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
7/8	C	No	Surface Ar (CaAa)	110.00 - 12.00	1	1	0.000 0.000	1.1100		0.54

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
7/8	C	No	No	Inside Pole	143.00 - 12.00	4	No Ice	0.00	0.54
							1/2" Ice	0.00	0.54
							1" Ice	0.00	0.54
******									
1 5/8	C	No	No	Inside Pole	137.00 - 12.00	6	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
1 1/4	C	No	No	Inside Pole	137.00 - 12.00	6	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
7/8	A	No	No	Inside Pole	137.00 - 12.00	3	No Ice	0.00	0.54
							1/2" Ice	0.00	0.54
							1" Ice	0.00	0.54
******									
1 1/4 (AT&T - existing)	C	No	No	Inside Pole	130.00 - 12.00	6	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
DC Power Cable	C	No	No	Inside Pole	130.00 - 12.00	6	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
FB-L98B-002	C	No	No	Inside Pole	130.00 - 12.00	2	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
******									
DC Power Cable (AT&T - proposed)	C	No	No	Inside Pole	130.00 - 12.00	1	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
FB-L98B-002	C	No	No	Inside Pole	130.00 - 12.00	1	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
******									
1 1/4 Fiber Cable	C	No	No	Inside Pole	110.00 - 12.00	3	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Lightning Rod	A	From Leg	0.00	0.0000	148.00	No Ice	0.75	0.75	10.00
			0.00			1/2" Ice	1.25	1.25	40.00
			0.00			1" Ice	1.75	1.75	70.00
10' Dipole	A	From Leg	3.00	0.0000	147.00	No Ice	3.45	3.45	25.00
			0.00			1/2" Ice	4.97	4.97	53.13
			0.00			1" Ice	5.57	5.57	87.92
10' Dipole	B	From Leg	3.00	0.0000	147.00	No Ice	3.45	3.45	25.00
			0.00			1/2" Ice	4.97	4.97	53.13
			0.00			1" Ice	5.57	5.57	87.92
Omni 3"x12'	C	From Leg	3.00	0.0000	149.00	No Ice	3.60	3.60	50.00
			0.00			1/2" Ice	4.83	4.83	76.06
			0.00			1" Ice	6.08	6.08	109.92
(3) Panel Antenna 5'x12"x6" w/mount pipe	A	From Leg	3.00	0.0000	143.00	No Ice	6.79	5.17	51.90
			0.00			1/2" Ice	7.27	6.05	107.68
			0.00			1" Ice	7.73	6.81	170.39
(3) Panel Antenna 5'x12"x6" w/mount pipe	B	From Leg	3.00	0.0000	143.00	No Ice	6.79	5.17	51.90
			0.00			1/2" Ice	7.27	6.05	107.68
			0.00			1" Ice	7.73	6.81	170.39
(3) Panel Antenna 5'x12"x6" w/mount pipe	C	From Leg	3.00	0.0000	143.00	No Ice	6.79	5.17	51.90
			0.00			1/2" Ice	7.27	6.05	107.68
			0.00			1" Ice	7.73	6.81	170.39
PiROD 12' T-Frame	A	From Leg	2.00	0.0000	143.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	B	From Leg	2.00	0.0000	143.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	C	From Leg	2.00	0.0000	143.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
******									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	3.00	0.0000	137.00	No Ice	6.37	5.78	129.90
			0.00			1/2" Ice	6.85	6.63	187.69
			0.00			1" Ice	7.30	7.35	252.28
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	3.00	0.0000	137.00	No Ice	6.37	5.78	129.90
			0.00			1/2" Ice	6.85	6.63	187.69
			0.00			1" Ice	7.30	7.35	252.28
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	3.00	0.0000	137.00	No Ice	6.37	5.78	129.90
			0.00			1/2" Ice	6.85	6.63	187.69
			0.00			1" Ice	7.30	7.35	252.28
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	3.00	0.0000	137.00	No Ice	6.37	5.78	129.90
			0.00			1/2" Ice	6.85	6.63	187.69
			0.00			1" Ice	7.30	7.35	252.28
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	3.00	0.0000	137.00	No Ice	6.37	5.78	129.90
			0.00			1/2" Ice	6.85	6.63	187.69
			0.00			1" Ice	7.30	7.35	252.28
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	3.00	0.0000	137.00	No Ice	6.37	5.78	129.90
			0.00			1/2" Ice	6.85	6.63	187.69
			0.00			1" Ice	7.30	7.35	252.28
RFS ATMAA1412D-1A20	A	From Leg	3.00	0.0000	137.00	No Ice	1.00	0.41	13.00
			0.00			1/2" Ice	1.13	0.50	20.62
			0.00			1" Ice	1.26	0.59	30.11
RFS ATMAA1412D-1A20	B	From Leg	3.00	0.0000	137.00	No Ice	1.00	0.41	13.00
			0.00			1/2" Ice	1.13	0.50	20.62
			0.00			1" Ice	1.26	0.59	30.11
RFS ATMAA1412D-1A20	C	From Leg	3.00	0.0000	137.00	No Ice	1.00	0.41	13.00
			0.00			1/2" Ice	1.13	0.50	20.62

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	1.26	0.59	30.11
PiROD 12' T-Frame	A	From Leg	2.00	0.0000	137.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	B	From Leg	2.00	0.0000	137.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	C	From Leg	2.00	0.0000	137.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
Panel Antenna 2'X2'	B	From Leg	3.00	0.0000	138.00	No Ice	4.80	0.72	20.00
			0.00			1/2" Ice	5.07	0.87	45.02
			0.00			1" Ice	5.35	1.03	73.54
10' Dipole	A	From Leg	3.00	0.0000	142.00	No Ice	3.47	3.47	25.00
			0.00			1/2" Ice	4.97	4.97	53.13
			0.00			1" Ice	5.57	5.57	87.92
******									
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.00	0.0000	110.00	No Ice	12.51	7.41	102.95
			0.00			1/2" Ice	13.11	8.60	193.58
			2.00			1" Ice	13.67	9.50	292.74
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.00	0.0000	110.00	No Ice	12.51	7.41	102.95
			0.00			1/2" Ice	13.11	8.60	193.58
			2.00			1" Ice	13.67	9.50	292.74
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.00	0.0000	110.00	No Ice	12.51	7.41	102.95
			0.00			1/2" Ice	13.11	8.60	193.58
			2.00			1" Ice	13.67	9.50	292.74
(2) RRH-800	A	From Leg	4.00	0.0000	110.00	No Ice	2.13	2.76	64.00
			0.00			1/2" Ice	2.32	2.96	91.74
			0.00			1" Ice	2.51	3.18	122.88
(2) RRH-800	B	From Leg	4.00	0.0000	110.00	No Ice	2.13	2.76	64.00
			0.00			1/2" Ice	2.32	2.96	91.74
			0.00			1" Ice	2.51	3.18	122.88
(2) RRH-800	C	From Leg	4.00	0.0000	110.00	No Ice	2.13	2.76	64.00
			0.00			1/2" Ice	2.32	2.96	91.74
			0.00			1" Ice	2.51	3.18	122.88
RRH-1900	A	From Leg	4.00	0.0000	110.00	No Ice	2.32	3.14	60.00
			0.00			1/2" Ice	2.53	3.36	88.32
			0.00			1" Ice	2.74	3.60	120.15
RRH-1900	B	From Leg	4.00	0.0000	110.00	No Ice	2.32	3.14	60.00
			0.00			1/2" Ice	2.53	3.36	88.32
			0.00			1" Ice	2.74	3.60	120.15
RRH-1900	C	From Leg	4.00	0.0000	110.00	No Ice	2.32	3.14	60.00
			0.00			1/2" Ice	2.53	3.36	88.32
			0.00			1" Ice	2.74	3.60	120.15
PiROD 13' Platform w/handrail	A	None		0.0000	110.00	No Ice	31.30	31.30	1822.00
						1/2" Ice	40.20	40.20	2452.00
						1" Ice	49.10	49.10	3082.00
Omni 3"x12'	C	From Leg	3.00	6.0000	116.00	No Ice	3.60	3.60	50.00
			0.00			1/2" Ice	4.83	4.83	76.06
			0.00			1" Ice	6.08	6.08	109.92
******									
RRUS-32 B30 (AT&T - Existing)	A	From Leg	2.00	0.0000	130.00	No Ice	2.74	1.67	60.00
			0.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
RRUS-32 B30	B	From Leg	2.00	0.0000	130.00	No Ice	2.74	1.67	60.00
			0.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
RRUS-32 B30	C	From Leg	2.00	0.0000	130.00	No Ice	2.74	1.67	60.00
			0.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
4478 B14	A	From Leg	2.00	0.0000	130.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4478 B14	B	From Leg	2.00	0.0000	130.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4478 B14	C	From Leg	2.00	0.0000	130.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4426 B66	A	From Leg	2.00	0.0000	130.00	No Ice	1.64	0.73	49.00
			0.00			1/2" Ice	1.80	0.85	61.88
			0.00			1" Ice	1.97	0.98	77.16
4426 B66	B	From Leg	2.00	0.0000	130.00	No Ice	1.64	0.73	49.00
			0.00			1/2" Ice	1.80	0.85	61.88
			0.00			1" Ice	1.97	0.98	77.16
4426 B66	C	From Leg	2.00	0.0000	130.00	No Ice	1.64	0.73	49.00
			0.00			1/2" Ice	1.80	0.85	61.88
			0.00			1" Ice	1.97	0.98	77.16
DC6-48-60-18-8F	A	From Leg	2.00	0.0000	130.00	No Ice	0.79	0.79	20.00
			0.00			1/2" Ice	1.27	1.27	35.12
			0.00			1" Ice	1.45	1.45	52.57
DC6-48-60-18-8F	C	From Leg	2.00	0.0000	130.00	No Ice	0.79	0.79	20.00
			0.00			1/2" Ice	1.27	1.27	35.12
			0.00			1" Ice	1.45	1.45	52.57
******									
QD6616-7 w/mount pipe (AT&T - Proposed)	A	From Leg	4.00	0.0000	130.00	No Ice	13.82	8.46	139.55
			0.00			1/2" Ice	14.43	9.66	242.01
			0.00			1" Ice	15.00	10.55	353.26
QD6616-7 w/mount pipe	B	From Leg	4.00	0.0000	130.00	No Ice	13.82	8.46	139.55
			0.00			1/2" Ice	14.43	9.66	242.01
			0.00			1" Ice	15.00	10.55	353.26
QD6616-7 w/mount pipe	C	From Leg	4.00	0.0000	130.00	No Ice	13.82	8.46	139.55
			0.00			1/2" Ice	14.43	9.66	242.01
			0.00			1" Ice	15.00	10.55	353.26
DMP65R-BU6DA w/mount pipe	A	From Leg	4.00	0.0000	130.00	No Ice	12.96	7.28	104.95
			0.00			1/2" Ice	13.57	8.46	197.40
			0.00			1" Ice	14.14	9.35	298.38
DMP65R-BU6DA w/mount pipe	B	From Leg	4.00	0.0000	130.00	No Ice	12.96	7.28	104.95
			0.00			1/2" Ice	13.57	8.46	197.40
			0.00			1" Ice	14.14	9.35	298.38
DMP65R-BU6DA w/mount pipe	C	From Leg	4.00	0.0000	130.00	No Ice	12.96	7.28	104.95
			0.00			1/2" Ice	13.57	8.46	197.40
			0.00			1" Ice	14.14	9.35	298.38
AIR 6419 N77G w/mount pipe	A	From Leg	4.00	0.0000	130.00	No Ice	4.48	2.88	54.60
			0.00			1/2" Ice	4.83	3.34	94.47
			0.00			1" Ice	5.19	3.81	139.34
AIR 6419 N77G w/mount pipe	B	From Leg	4.00	0.0000	130.00	No Ice	4.48	2.88	54.60
			0.00			1/2" Ice	4.83	3.34	94.47
			0.00			1" Ice	5.19	3.81	139.34
AIR 6419 N77G w/mount pipe	C	From Leg	4.00	0.0000	130.00	No Ice	4.48	2.88	54.60
			0.00			1/2" Ice	4.83	3.34	94.47
			0.00			1" Ice	5.19	3.81	139.34
AIR 6449 N77D w/mount pipe	A	From Leg	4.00	0.0000	130.00	No Ice	4.35	3.01	54.60
			0.00			1/2" Ice	4.70	3.47	94.89

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	5.06	3.94	140.17
AIR 6449 N77D w/mount pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	4.35 4.70 5.06	3.01 3.47 3.94	54.60 94.89 140.17
AIR 6449 N77D w/mount pipe	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	4.35 4.70 5.06	3.01 3.47 3.94	54.60 94.89 140.17
4415 B25	A	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
4415 B25	B	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
4415 B25	C	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
4449 B5/B12	A	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.55 1.71 1.88	73.00 92.52 114.92
4449 B5/B12	B	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.55 1.71 1.88	73.00 92.52 114.92
4449 B5/B12	C	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.55 1.71 1.88	73.00 92.52 114.92
DC9-48-60-24-8C-EV	C	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.81 1.30 1.48	0.81 1.30 1.48	33.00 48.38 66.11
VFA14-H10-2120	A	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	20.00 28.00 36.00	15.00 23.00 31.00	950.00 1400.00 1850.00
VFA14-H10-2120	B	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	20.00 28.00 36.00	15.00 23.00 31.00	950.00 1400.00 1850.00
VFA14-H10-2120	C	From Leg	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	20.00 28.00 36.00	15.00 23.00 31.00	950.00 1400.00 1850.00
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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice

Comb. No.	Description
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	33	78359.77	-13.80	-8232.52
	Max. H_x	20	51724.91	37867.31	85.25
	Max. H_z	3	38793.68	85.25	37011.13
	Max. M_x	2	4007623.65	85.25	37011.12
	Max. M_z	8	4098208.23	-37867.31	-85.25
	Max. Torsion	4	755.06	-18480.95	32009.95
	Min. Vert	5	38793.68	-18480.95	32009.95
	Min. H_x	8	51724.91	-37867.31	-85.25
	Min. H_z	14	51724.91	-85.25	-37011.14
	Min. M_x	14	-4013179.82	-85.25	-37011.14
	Min. M_z	20	-4099081.88	37867.31	85.25
	Min. Torsion	16	-755.05	18480.95	-32009.95

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	43104.09	0.00	0.00	2228.47	340.54	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	51724.91	-85.25	-37011.12	-4007623.65	12725.75	-714.96
0.9 Dead+1.0 Wind 0 deg - No Ice	38793.68	-85.25	-37011.13	-3967035.68	12467.88	-711.98
1.2 Dead+1.0 Wind 30 deg - No Ice	51724.91	18480.95	-32009.95	-3464205.05	-2001243.96	-755.06
0.9 Dead+1.0 Wind 30 deg - No Ice	38793.68	18480.95	-32009.95	-3429226.60	-1980744.80	-752.57
1.2 Dead+1.0 Wind 60 deg - No Ice	51724.91	32095.20	-18431.73	-1991760.26	-3478834.17	-592.77
0.9 Dead+1.0 Wind 60 deg - No Ice	38793.68	32095.20	-18431.73	-1971956.60	-3443104.38	-591.55
1.2 Dead+1.0 Wind 90 deg - No Ice	51724.91	37867.31	85.25	15092.75	-4098208.23	-272.28
0.9 Dead+1.0 Wind 90 deg - No Ice	38793.68	37867.30	85.25	14223.96	-4056219.66	-272.58
1.2 Dead+1.0 Wind 120 deg - No Ice	51724.91	32180.45	18579.39	2018601.94	-3491035.77	119.95
0.9 Dead+1.0 Wind 120 deg - No Ice	38793.68	32180.45	18579.39	1997103.25	-3455170.39	118.26
1.2 Dead+1.0 Wind 150 deg - No Ice	51724.91	18628.61	32095.20	3482000.17	-2022477.05	480.20
0.9 Dead+1.0 Wind 150 deg - No Ice	38793.68	18628.61	32095.20	3445437.57	-2001735.82	477.48
1.2 Dead+1.0 Wind 180 deg - No Ice	51724.91	85.25	37011.14	4013179.82	-11859.20	712.73
0.9 Dead+1.0 Wind 180 deg - No Ice	38793.68	85.25	37011.13	3971165.05	-11830.63	709.75
1.2 Dead+1.0 Wind 210 deg - No Ice	51724.91	-18480.95	32009.95	3469788.12	2002098.86	755.05
0.9 Dead+1.0 Wind 210 deg - No Ice	38793.68	-18480.95	32009.95	3433364.04	1981373.79	752.62
1.2 Dead+1.0 Wind 240 deg - No Ice	51724.91	-32095.20	18431.73	1997358.84	3479692.80	595.00
0.9 Dead+1.0 Wind 240 deg - No Ice	38793.68	-32095.20	18431.73	1976105.14	3443736.11	593.68
1.2 Dead+1.0 Wind 270 deg - No Ice	51724.91	-37867.31	-85.25	-9490.15	4099081.88	274.68
0.9 Dead+1.0 Wind 270 deg - No Ice	38793.68	-37867.30	-85.25	-10072.60	4056862.19	274.89
1.2 Dead+1.0 Wind 300 deg - No Ice	51724.91	-32180.45	-18579.39	-2013010.19	3491921.26	-119.91
0.9 Dead+1.0 Wind 300 deg - No Ice	38793.68	-32180.45	-18579.39	-1992959.74	3455821.36	-118.18
1.2 Dead+1.0 Wind 330 deg - No Ice	51724.91	-18628.61	-32095.20	-3476423.94	2023358.82	-482.45
0.9 Dead+1.0 Wind 330 deg - No Ice	38793.68	-18628.61	-32095.20	-3441305.17	2002384.03	-479.74
1.2 Dead+1.0 Ice+1.0 Temp	78359.77	-0.00	0.00	6790.32	791.92	0.03

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	78359.77	-13.80	-8232.52	-947518.48	2894.77	-223.01
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	78359.77	4112.25	-7122.62	-818606.77	-475833.12	-227.02
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	78359.77	7136.42	-4104.28	-468474.47	-826842.00	-170.19
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	78359.77	8248.45	13.80	9052.53	-956072.77	-67.76
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	78359.77	7150.22	4128.18	486021.07	-828917.85	52.81
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	78359.77	4136.15	7136.42	834629.05	-479431.01	159.24
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	78359.77	13.80	8232.52	961461.69	-1262.53	223.04
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	78359.77	-4112.25	7122.62	832551.91	477463.78	227.11
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	78359.77	-7136.42	4104.28	482421.90	828473.43	170.33
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	78359.77	-8248.45	-13.80	4895.25	957706.53	67.91
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	78359.77	-7150.22	-4128.18	-472075.00	830553.23	-52.72
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	78359.77	-4136.15	-7136.42	-820685.27	481065.63	-159.21
Dead+Wind 0 deg - Service	43104.09	-16.50	-7184.54	-772903.08	2728.91	-131.21
Dead+Wind 30 deg - Service	43104.09	3587.51	-6213.75	-667860.39	-386564.49	-155.61
Dead+Wind 60 deg - Service	43104.09	6230.25	-3577.98	-383243.60	-672180.51	-138.31
Dead+Wind 90 deg - Service	43104.09	7350.27	16.50	4683.76	-791907.44	-83.97
Dead+Wind 120 deg - Service	43104.09	6246.75	3606.56	391976.68	-674545.13	-7.15
Dead+Wind 150 deg - Service	43104.09	3616.09	6230.25	674860.94	-390661.12	71.58
Dead+Wind 180 deg - Service	43104.09	16.50	7184.54	777538.27	-2002.37	131.16
Dead+Wind 210 deg - Service	43104.09	-3587.51	6213.75	672495.94	387290.61	155.63
Dead+Wind 240 deg - Service	43104.09	-6230.25	3577.98	387879.68	672906.74	138.39
Dead+Wind 270 deg - Service	43104.09	-7350.27	-16.50	-47.51	792634.17	84.05
Dead+Wind 300 deg - Service	43104.09	-6246.75	-3606.56	-387340.78	675272.29	7.17
Dead+Wind 330 deg - Service	43104.09	-3616.09	-6230.25	-670225.57	391388.17	-71.63

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	lb	lb	lb	lb	lb	lb	
1	0.00	-43104.09	0.00	0.00	43104.09	0.00	0.000%
2	-85.25	-51724.91	-37011.12	85.25	51724.91	37011.12	0.000%
3	-85.25	-38793.68	-37011.12	85.25	38793.68	37011.13	0.000%
4	18480.95	-51724.91	-32009.95	-18480.95	51724.91	32009.95	0.000%
5	18480.95	-38793.68	-32009.95	-18480.95	38793.68	32009.95	0.000%
6	32095.20	-51724.91	-18431.73	-32095.20	51724.91	18431.73	0.000%
7	32095.20	-38793.68	-18431.73	-32095.20	38793.68	18431.73	0.000%
8	37867.30	-51724.91	85.25	-37867.31	51724.91	-85.25	0.000%
9	37867.30	-38793.68	85.25	-37867.30	38793.68	-85.25	0.000%
10	32180.45	-51724.91	18579.39	-32180.45	51724.91	-18579.39	0.000%
11	32180.45	-38793.68	18579.39	-32180.45	38793.68	-18579.39	0.000%
12	18628.61	-51724.91	32095.20	-18628.61	51724.91	-32095.20	0.000%
13	18628.61	-38793.68	32095.20	-18628.61	38793.68	-32095.20	0.000%
14	85.25	-51724.91	37011.12	-85.25	51724.91	-37011.14	0.000%
15	85.25	-38793.68	37011.12	-85.25	38793.68	-37011.13	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
16	-18480.95	-51724.91	32009.95	18480.95	51724.91	-32009.95	0.000%
17	-18480.95	-38793.68	32009.95	18480.95	38793.68	-32009.95	0.000%
18	-32095.20	-51724.91	18431.73	32095.20	51724.91	-18431.73	0.000%
19	-32095.20	-38793.68	18431.73	32095.20	38793.68	-18431.73	0.000%
20	-37867.30	-51724.91	-85.25	37867.31	51724.91	85.25	0.000%
21	-37867.30	-38793.68	-85.25	37867.30	38793.68	85.25	0.000%
22	-32180.45	-51724.91	-18579.39	32180.45	51724.91	18579.39	0.000%
23	-32180.45	-38793.68	-18579.39	32180.45	38793.68	18579.39	0.000%
24	-18628.61	-51724.91	-32095.20	18628.61	51724.91	32095.20	0.000%
25	-18628.61	-38793.68	-32095.20	18628.61	38793.68	32095.20	0.000%
26	0.00	-78359.77	0.00	0.00	78359.77	-0.00	0.000%
27	-13.80	-78359.77	-8232.46	13.80	78359.77	8232.52	0.000%
28	4112.25	-78359.77	-7122.62	-4112.25	78359.77	7122.62	0.000%
29	7136.42	-78359.77	-4104.28	-7136.42	78359.77	4104.28	0.000%
30	8248.39	-78359.77	13.80	-8248.45	78359.77	-13.80	0.000%
31	7150.22	-78359.77	4128.18	-7150.22	78359.77	-4128.18	0.000%
32	4136.15	-78359.77	7136.42	-4136.15	78359.77	-7136.42	0.000%
33	13.80	-78359.77	8232.46	-13.80	78359.77	-8232.52	0.000%
34	-4112.25	-78359.77	7122.62	4112.25	78359.77	-7122.62	0.000%
35	-7136.42	-78359.77	4104.28	7136.42	78359.77	-4104.28	0.000%
36	-8248.39	-78359.77	-13.80	8248.45	78359.77	13.80	0.000%
37	-7150.22	-78359.77	-4128.18	7150.22	78359.77	4128.18	0.000%
38	-4136.15	-78359.77	-7136.42	4136.15	78359.77	7136.42	0.000%
39	-16.50	-43104.09	-7184.54	16.50	43104.09	7184.54	0.000%
40	3587.51	-43104.09	-6213.75	-3587.51	43104.09	6213.75	0.000%
41	6230.25	-43104.09	-3577.98	-6230.25	43104.09	3577.98	0.000%
42	7350.26	-43104.09	16.50	-7350.27	43104.09	-16.50	0.000%
43	6246.75	-43104.09	3606.56	-6246.75	43104.09	-3606.56	0.000%
44	3616.09	-43104.09	6230.25	-3616.09	43104.09	-6230.25	0.000%
45	16.50	-43104.09	7184.54	-16.50	43104.09	-7184.54	0.000%
46	-3587.51	-43104.09	6213.75	3587.51	43104.09	-6213.75	0.000%
47	-6230.25	-43104.09	3577.98	6230.25	43104.09	-3577.98	0.000%
48	-7350.26	-43104.09	-16.50	7350.27	43104.09	16.50	0.000%
49	-6246.75	-43104.09	-3606.56	6246.75	43104.09	3606.56	0.000%
50	-3616.09	-43104.09	-6230.25	3616.09	43104.09	6230.25	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	145 - 90.83	20.0157	48	1.2133	0.0013
L2	96 - 70	8.5790	48	0.8985	0.0005
L3	70 - 42.83	4.3617	48	0.6216	0.0002
L4	49 - 0	2.1193	48	0.3967	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	Omni 3"x12'	48	20.0157	1.2133	0.0013	48154
148.00	Lightning Rod	48	20.0157	1.2133	0.0013	48154

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.00	10' Dipole	48	20.0157	1.2133	0.0013	48154
143.00	(3) Panel Antenna 5'x12"x6" w/mount pipe	48	19.5091	1.2033	0.0013	48154
142.00	10' Dipole	48	19.2559	1.1983	0.0013	48154
138.00	Panel Antenna 2'X2'	48	18.2451	1.1780	0.0012	34395
137.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	48	17.9931	1.1729	0.0012	30096
130.00	RRUS-32 B30	48	16.2434	1.1361	0.0010	16051
116.00	Omni 3"x12'	48	12.8710	1.0535	0.0007	8302
110.00	NNVV-65B-R4 w/ Mount Pipe	48	11.5045	1.0126	0.0006	6878

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual / Allowable Ratio Bolt Tension lb	Actual / Allowable Ratio Concrete Stress ksi	Actual / Allowable Ratio Plate Stress ksi	Actual / Allowable Ratio Stiffener Stress ksi	Controlling Condition	Critical Ratio
2.7500	16	2.2500	165539.00 243576.14 0.68	2.689 3.060 0.88	30.968 45.000 0.69	37.629 45.000 0.84	Conc fc	0.88 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	145 - 90.83 (1)	TP33.48x23.61x0.281	54.17	0.00	0.0	29.1868	-17931.10	1707430.00	0.011
L2	90.83 - 70 (2)	TP36.69x31.976x0.375	26.00	0.00	0.0	43.8504	-24487.70	2565250.00	0.010
L3	70 - 42.83 (3)	TP41.64x36.69x0.45	27.17	0.00	0.0	58.0555	-30647.90	3396250.00	0.009
L4	42.83 - 0 (4)	TP48.69x39.6159x0.6	49.00	0.00	0.0	92.9099	-51693.00	5435230.00	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	145 - 90.83 (1)	TP33.48x23.61x0.281	908658.33	1247616.67	0.728	0.00	1247616.67	0.000
L2	90.83 - 70 (2)	TP36.69x31.976x0.375	1674216.67	2259716.67	0.741	0.00	2259716.67	0.000
L3	70 - 42.83 (3)	TP41.64x36.69x0.45	2348950.00	3394783.33	0.692	0.00	3394783.33	0.000
L4	42.83 - 0 (4)	TP48.69x39.6159x0.6	4099091.67	6679333.33	0.614	0.00	6679333.33	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	145 - 90.83 (1)	TP33.48x23.61x0.281	27829.70	512228.00	0.054	276.30	1453408.33	0.000
L2	90.83 - 70 (2)	TP36.69x31.976x0.375	31011.80	769574.00	0.040	275.55	2458308.33	0.000
L3	70 - 42.83 (3)	TP41.64x36.69x0.45	33286.80	1018870.00	0.033	275.07	3590833.33	0.000
L4	42.83 - 0 (4)	TP48.69x39.6159x0.6	37910.90	1630570.00	0.023	274.67	6897533.33	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	145 - 90.83 (1)	0.011	0.728	0.000	0.054	0.000	0.742 ✔	1.000	4.8.2 ✔
L2	90.83 - 70 (2)	0.010	0.741	0.000	0.040	0.000	0.752 ✔	1.000	4.8.2 ✔
L3	70 - 42.83 (3)	0.009	0.692	0.000	0.033	0.000	0.702 ✔	1.000	4.8.2 ✔
L4	42.83 - 0 (4)	0.010	0.614	0.000	0.023	0.000	0.624 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	145 - 90.83	Pole	TP33.48x23.61x0.281	1	-17931.10	1707430.00	74.2	Pass
L2	90.83 - 70	Pole	TP36.69x31.976x0.375	2	-24487.70	2565250.00	75.2	Pass
L3	70 - 42.83	Pole	TP41.64x36.69x0.45	3	-30647.90	3396250.00	70.2	Pass
L4	42.83 - 0	Pole	TP48.69x39.6159x0.6	4	-51693.00	5435230.00	62.4	Pass
							Summary	
						Pole (L2)	75.2	Pass
						Base Plate	87.9	Pass
						RATING =	**87.9**	**Pass**

HUDSON
Design Group LLC

ADDITIONAL CALCULATIONS

Monopole Pier

Date: 5/16/2022

BU:	
Site Name:	CT5022
App Number:	
Work Order:	

Monopole Drilled Pier

Input

Criteria

TIA Revision:	H
ACI 318 Revision:	2015
Seismic Category:	B

Forces

Compression	52	kips
Shear	38	kips
Moment	4099	k-ft
Swelling Force	0	kips

Foundation Dimensions

Pier Diameter:	6.5	ft
Ext. above grade:	1	ft
Depth below grade:	24	ft

Material Properties

Number of Rebar:	34	
Rebar Size:	11	
Tie Size	4	
Rebar tensile strength:	60	ksi
Concrete Strength:	3000	psi
Ultimate Concrete Strain	0.003	in/in
Clear Cover to Ties:	4	in

Soil Profile: Profile 1

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	4	0	4	105	0	0	0	0		0
2	20	4	24	105		30	0.25	0.25	9	

Analysis Results

Soil Lateral Capacity

Depth to Zero Shear:	5.79	ft
Max Moment, Mu:	4370.13	k-ft
Soil Safety Factor:	1.57	
Safety Factor Req'd:	1.33	
RATING:	84.7%	

Soil Axial Capacity

Skin Friction (k):	76.58	kips
End Bearing (k):	223.99	kips
Comp. Capacity (k), ϕCn:	300.56	kips
Comp. (k), Cu:	52.00	kips
RATING:	17.3%	

Concrete/Steel Check

Mu (from soil analysis)	4370.13	k-ft
ϕMn	7166.15	k-ft
RATING:	61.0%	

rho provided	1.11	
rho required	0.33	OK

Rebar Spacing	4.84	
Spacing required	22.56	OK

Dev. Length required	17.88	
Dev. Length provided	61.78	OK

Overall Foundation Rating: 84.7%

EXHIBIT 4

December 10, 2021
February 25, 2022 (Rev.1)
March 30, 2022 (Rev.2)

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

RE:		
	Site Number:	CT5022
	FA Number:	10108711
	PACE Number:	MRCTB051440
	PT Number:	2051A0Z7QG
	Site Name:	FAIRFIELD
	Site Address:	100 Reef Road Fairfield, CT 06824

To Whom It May Concern:

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

- (3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) 4426 B66 RRH's (14.9"x13.2"x5.8" – Wt. = 49 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (2) DC6-48-60-18-8F Surge Arrestors (31.4"x10.2" Ø – Wt. = 33 lbs. /each)
- **(3) QD6616-7 Antennas (72.0"x22.0"x9.6" – Wt. = 130 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) AIR6419 Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)**
- **(3) 4415 B25 RRH's (16.5"x13.5"x6.3" – Wt. = 50 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(1) DC9-48-60-24-8C-EV Surge Arrestor (31.4"x10.2" Ø – Wt. = 29 lbs. /each)**

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1 P/N VFA14-H10-2120 dated December 14, 2017, P/N MM01 dated May 10, 2010, and P/N LWRM dated August 24, 2012, were used to perform this analysis. HDG conducted a ground audit of the existing AT&T antenna mount on November 23, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 135 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.43 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.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.215 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.065.
- The mounts have been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mounts have been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mounts are to be secured to the existing monopole with ring mounts and threaded rods. HDG considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the (3) Proposed SitePro1 VFA14-H10-2120 mounts, (6) Proposed SitePro1 MM01 standoffs, and (2) Proposed SitePro1 LWRM collar mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	95	LC83	64%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N VFA14-H10-2120, dated December 14, 2017
- Fabrication drawings prepared by SitePro1 P/N MM01, dated May 10, 2010
- Fabrication drawings prepared by SitePro1 LWRM, dated August 24, 2012

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 mounts 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.

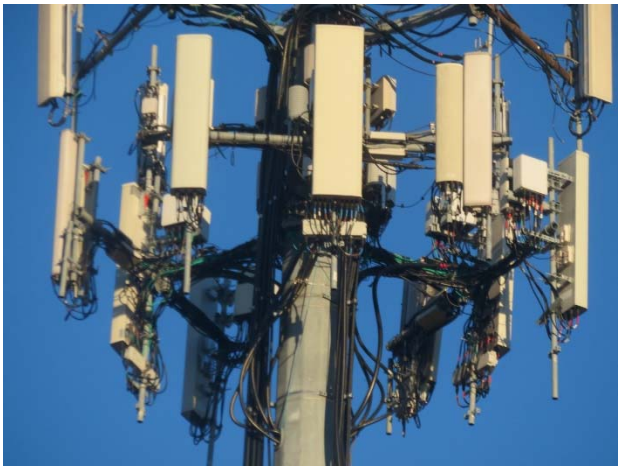
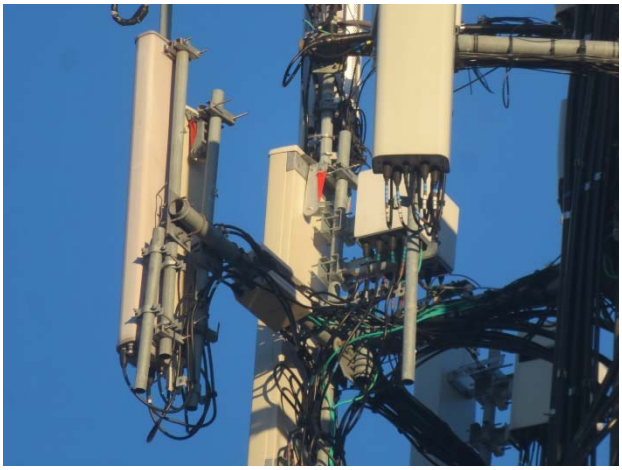
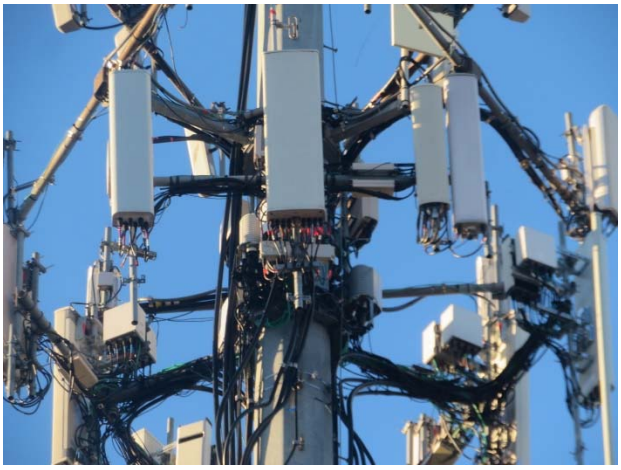
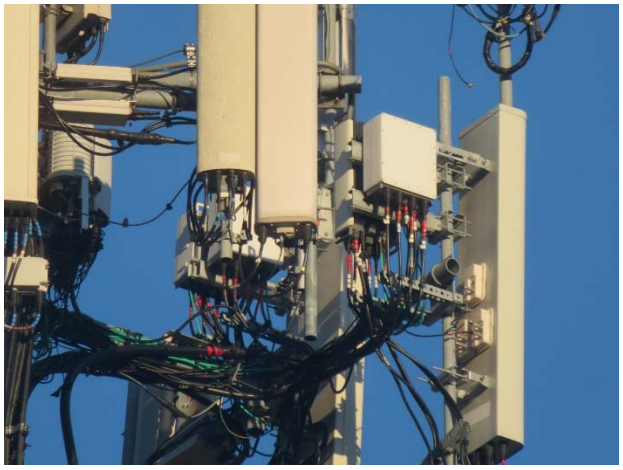
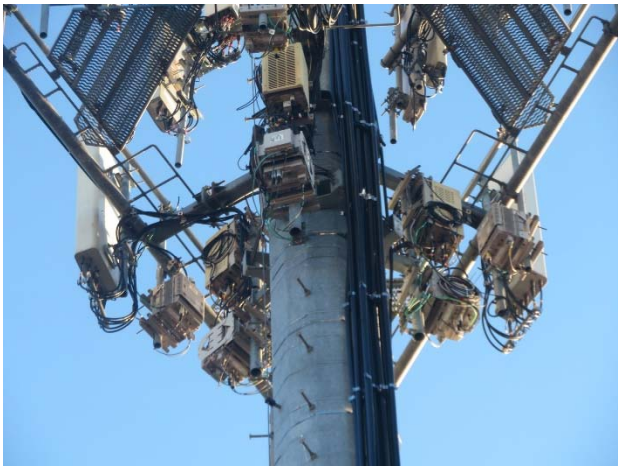
Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

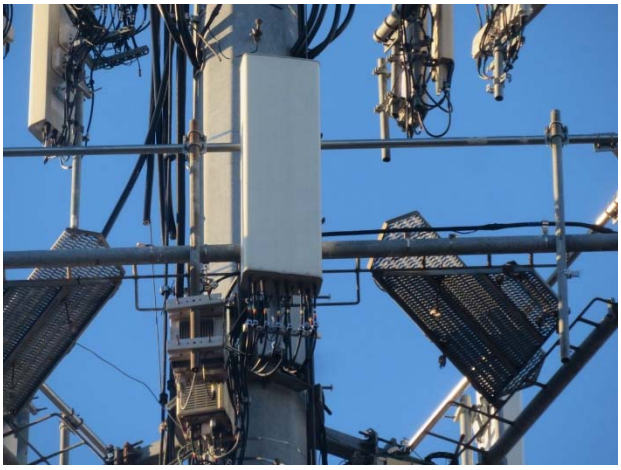
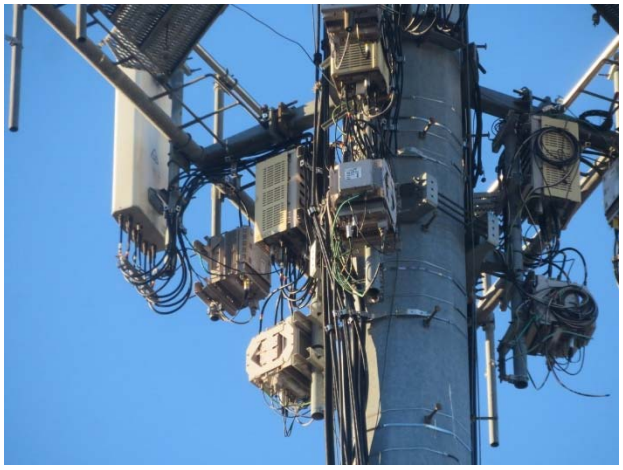
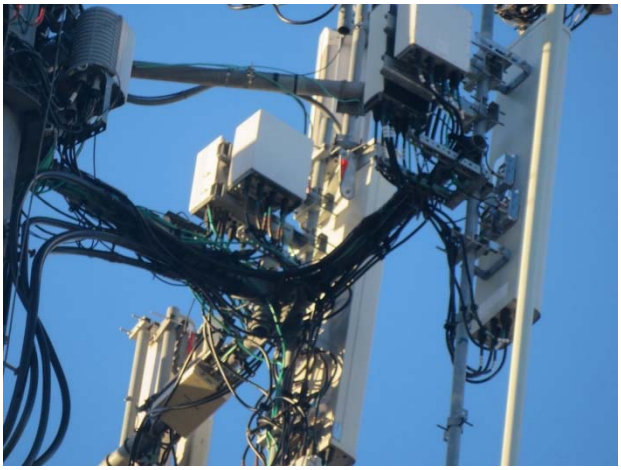
*Note: Existing mounts to be removed and replaced.


FIELD PHOTOS (CONT.):

*Note: Existing mounts to be removed and replaced.




HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

z=	131.75	(ft)
z_g=	1200	(ft)
α=	7	
K_z=	**1.065**	

Kzmin ≤ Kz ≤ 2.01

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}= 1

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

Category= **1**

K_h=	1	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	131.75	
z_s=	3	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	1.00	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.00	in
Importance Factor = I=	1.25	(from Table 2-3)
K_{iz} =	1.15	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.43 in

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

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

h=	150	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

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

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

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	1.065	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**47.21**	K_e=	1.00	(from 2.6.8)
$q_{z\ (ice)}$=	**6.48**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.33**	V_{max}=	135	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-9

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

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

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

Ice Thickness = 1.43 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)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	3.27	1.23	641	103	32
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.93	1.20	196	35	10
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	191	34	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	600	97	30
4415 B25 RRH	16.5	13.5	6.3	1.55	1.22	1.20	88	17	4
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	59	13	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	2.57	1.20	34	8	2
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	66	14	3
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	79	17	4
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	73	14	4
DC9-48-60-24-8C-EV Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	73	14	4
Plate 11-1/4x5/8	0.6	12.0		0.05	0.05	2.00	5		
Plate 3-1/2x5/8	0.6	12.0		0.05	0.05	2.00	5		
3/4" RoundBar	0.8	12.0		0.06	0.06	1.20	4		
5/8" RoundBar	0.6	12.0		0.05	0.05	1.20	3		
2" Pipe	2.4	12.0		0.20	0.20	1.20	11		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	14		
3" Pipe	3.5	12.0		0.29	0.29	1.20	17		
HSS 4x4	4.0	12.0		0.33	0.33	1.25	20		

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.43	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)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	641	321	561
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	196	95	171
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	191	129	176
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	600	265	516
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	88	41	76
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	59	95	68
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	34	77	45
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	66	93	73
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	79	129	91

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.9	24.9	12.5	12.93	6.48	3.01	6.01	1.22	1.36	102	57	91
AIR6419 Antenna	33.9	19.0	10.2	4.46	2.39	1.79	3.33	1.20	1.24	35	19	31
AIR6449 Antenna	33.5	18.8	13.5	4.36	3.13	1.78	2.49	1.20	1.20	34	24	32
DMP65R-BU6DA Antenna	74.1	23.6	10.6	12.12	5.44	3.14	7.01	1.23	1.40	96	49	85
4415 B25 RRH	19.4	16.4	9.2	2.20	1.23	1.18	2.11	1.20	1.20	17	10	15
4478 B14 RRH (Side)	21.0	11.2	16.3	1.63	2.37	1.88	1.29	1.20	1.20	13	18	14
4426 B66 RRH (Side)	17.8	8.7	16.1	1.07	1.98	2.05	1.11	1.20	1.20	8	15	10
4449 B5/B12 RRH (Side)	20.8	12.3	16.1	1.77	2.32	1.69	1.29	1.20	1.20	14	18	15
RRUS-32 B30 RRH (Side)	30.1	9.9	15.0	2.06	3.13	3.05	2.01	1.22	1.20	16	24	18

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	28
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	10	5	8
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	25
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	4	2	4
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	2
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.43	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	641	321	401
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	196	95	120
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	191	129	145
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	600	265	349
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	88	41	53
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	59	95	86
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	34	77	67
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	66	93	86
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	79	129	117

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.9	24.9	12.5	12.93	6.48	3.01	6.01	1.22	1.36	102	57	68
AIR6419 Antenna	33.9	19.0	10.2	4.46	2.39	1.79	3.33	1.20	1.24	35	19	23
AIR6449 Antenna	33.5	18.8	13.5	4.36	3.13	1.78	2.49	1.20	1.20	34	24	27
DMP65R-BU6DA Antenna	74.1	23.6	10.6	12.12	5.44	3.14	7.01	1.23	1.40	96	49	61
4415 B25 RRH	19.4	16.4	9.2	2.20	1.23	1.18	2.11	1.20	1.20	17	10	11
4478 B14 RRH (Side)	21.0	11.2	16.3	1.63	2.37	1.88	1.29	1.20	1.20	13	18	17
4426 B66 RRH (Side)	17.8	8.7	16.1	1.07	1.98	2.05	1.11	1.20	1.20	8	15	14
4449 B5/B12 RRH (Side)	20.8	12.3	16.1	1.77	2.32	1.69	1.29	1.20	1.20	14	18	17
RRUS-32 B30 RRH (Side)	30.1	9.9	15.0	2.06	3.13	3.05	2.01	1.22	1.20	16	24	22

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	20
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	7
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	17
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	4	2	3
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	4
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.43	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)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	641	321	321
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	196	95	95
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	191	129	129
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	600	265	265
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	88	41	41
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	59	95	95
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	34	77	77
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	66	93	93
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	79	129	129
WIND LOADS WITH ICE:												
QD6616-7 Antenna	74.9	24.9	12.5	12.93	6.48	3.01	6.01	1.22	1.36	102	57	57
AIR6419 Antenna	33.9	19.0	10.2	4.46	2.39	1.79	3.33	1.20	1.24	35	19	19
AIR6449 Antenna	33.5	18.8	13.5	4.36	3.13	1.78	2.49	1.20	1.20	34	24	24
DMP65R-BU6DA Antenna	74.1	23.6	10.6	12.12	5.44	3.14	7.01	1.23	1.40	96	49	49
4415 B25 RRH	19.4	16.4	9.2	2.20	1.23	1.18	2.11	1.20	1.20	17	10	10
4478 B14 RRH (Side)	21.0	11.2	16.3	1.63	2.37	1.88	1.29	1.20	1.20	13	18	18
4426 B66 RRH (Side)	17.8	8.7	16.1	1.07	1.98	2.05	1.11	1.20	1.20	8	15	15
4449 B5/B12 RRH (Side)	20.8	12.3	16.1	1.77	2.32	1.69	1.29	1.20	1.20	14	18	18
RRUS-32 B30 RRH (Side)	30.1	9.9	15.0	2.06	3.13	3.05	2.01	1.22	1.20	16	24	24
WIND LOADS AT 30 MPH:												
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	16
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	10	5	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	6
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	13
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	4	2	2
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	5
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.43	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)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	641	321	401
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	196	95	120
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	191	129	145
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	600	265	349
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	88	41	53
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	59	95	86
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	34	77	67
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	66	93	86
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	79	129	117

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.9	24.9	12.5	12.93	6.48	3.01	6.01	1.22	1.36	102	57	68
AIR6419 Antenna	33.9	19.0	10.2	4.46	2.39	1.79	3.33	1.20	1.24	35	19	23
AIR6449 Antenna	33.5	18.8	13.5	4.36	3.13	1.78	2.49	1.20	1.20	34	24	27
DMP65R-BU6DA Antenna	74.1	23.6	10.6	12.12	5.44	3.14	7.01	1.23	1.40	96	49	61
4415 B25 RRH	19.4	16.4	9.2	2.20	1.23	1.18	2.11	1.20	1.20	17	10	11
4478 B14 RRH (Side)	21.0	11.2	16.3	1.63	2.37	1.88	1.29	1.20	1.20	13	18	17
4426 B66 RRH (Side)	17.8	8.7	16.1	1.07	1.98	2.05	1.11	1.20	1.20	8	15	14
4449 B5/B12 RRH (Side)	20.8	12.3	16.1	1.77	2.32	1.69	1.29	1.20	1.20	14	18	17
RRUS-32 B30 RRH (Side)	30.1	9.9	15.0	2.06	3.13	3.05	2.01	1.22	1.20	16	24	22

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	20
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	7
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	17
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	4	2	3
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	4
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.43	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)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	641	321	561
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	196	95	171
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	191	129	176
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	600	265	516
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	88	41	76
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	59	95	68
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	34	77	45
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	66	93	73
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	79	129	91

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.9	24.9	12.5	12.93	6.48	3.01	6.01	1.22	1.36	102	57	91
AIR6419 Antenna	33.9	19.0	10.2	4.46	2.39	1.79	3.33	1.20	1.24	35	19	31
AIR6449 Antenna	33.5	18.8	13.5	4.36	3.13	1.78	2.49	1.20	1.20	34	24	32
DMP65R-BU6DA Antenna	74.1	23.6	10.6	12.12	5.44	3.14	7.01	1.23	1.40	96	49	85
4415 B25 RRH	19.4	16.4	9.2	2.20	1.23	1.18	2.11	1.20	1.20	17	10	15
4478 B14 RRH (Side)	21.0	11.2	16.3	1.63	2.37	1.88	1.29	1.20	1.20	13	18	14
4426 B66 RRH (Side)	17.8	8.7	16.1	1.07	1.98	2.05	1.11	1.20	1.20	8	15	10
4449 B5/B12 RRH (Side)	20.8	12.3	16.1	1.77	2.32	1.69	1.29	1.20	1.20	14	18	15
RRUS-32 B30 RRH (Side)	30.1	9.9	15.0	2.06	3.13	3.05	2.01	1.22	1.20	16	24	18

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	28
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	10	5	8
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	25
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	4	2	4
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	2
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.43 in.
Density of ice: 56 pcf

QD6616-7 Antenna
Weight of ice based on total radial SF area:
Height (in): 72.0
Width (in): 22.0
Depth (in): 9.6
Total weight of ice on object: 267 lbs
Weight of object: 130.0 lbs
Combined weight of ice and object: 397 lbs

AIR6419 Antenna
Weight of ice based on total radial SF area:
Height (in): 31.0
Width (in): 16.1
Depth (in): 7.3
Total weight of ice on object: 86 lbs
Weight of object: 66.0 lbs
Combined weight of ice and object: 152 lbs

AIR6449 Antenna
Weight of ice based on total radial SF area:
Height (in): 30.6
Width (in): 15.9
Depth (in): 10.6
Total weight of ice on object: 92 lbs
Weight of object: 82.0 lbs
Combined weight of ice and object: 174 lbs

DMP65R-BU6DA Antenna
Weight of ice based on total radial SF area:
Height (in): 71.2
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 244 lbs
Weight of object: 80.0 lbs
Combined weight of ice and object: 324 lbs

4415 B25 RRH
Weight of ice based on total radial SF area:
Height (in): 16.5
Width (in): 13.5
Depth (in): 6.3
Total weight of ice on object: 39 lbs
Weight of object: 50.0 lbs
Combined weight of ice and object: 89 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: 45 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 105 lbs

4426 B66 RRH
Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 5.8
Total weight of ice on object: 34 lbs
Weight of object: 49.0 lbs
Combined weight of ice and object: 83 lbs

4449 B5/B12 RRH
Weight of ice based on total radial SF area:
Height (in): 17.9
Width (in): 13.2
Depth (in): 9.4
Total weight of ice on object: 46 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 119 lbs

RRUS-32 B30 RRH
Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 61 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 121 lbs

DC9-48-60-24-8C-EV Surge Arrestor
Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 53 lbs
Weight of object: 29 lbs
Combined weight of ice and object: 82 lbs

DC6-48-60-18-8F Surge Arrestor
Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 53 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 86 lbs

3/4" Round Bar
Per foot weight of ice:
diameter (in): 0.75
Per foot weight of ice on object: 4 plf

5/8" Round Bar
Per foot weight of ice:
diameter (in): 0.63
Per foot weight of ice on object: 4 plf

PL 11-1/4x5/8
Weight of ice based on total radial SF area:
Height (in): 11.25
Width (in): 0.63
Per foot weight of ice on object: 22 plf

2" pipe
Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 7 plf

PL 3-1/2x5/8
Weight of ice based on total radial SF area:
Height (in): 3.5
Width (in): 0.63
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: 8 plf

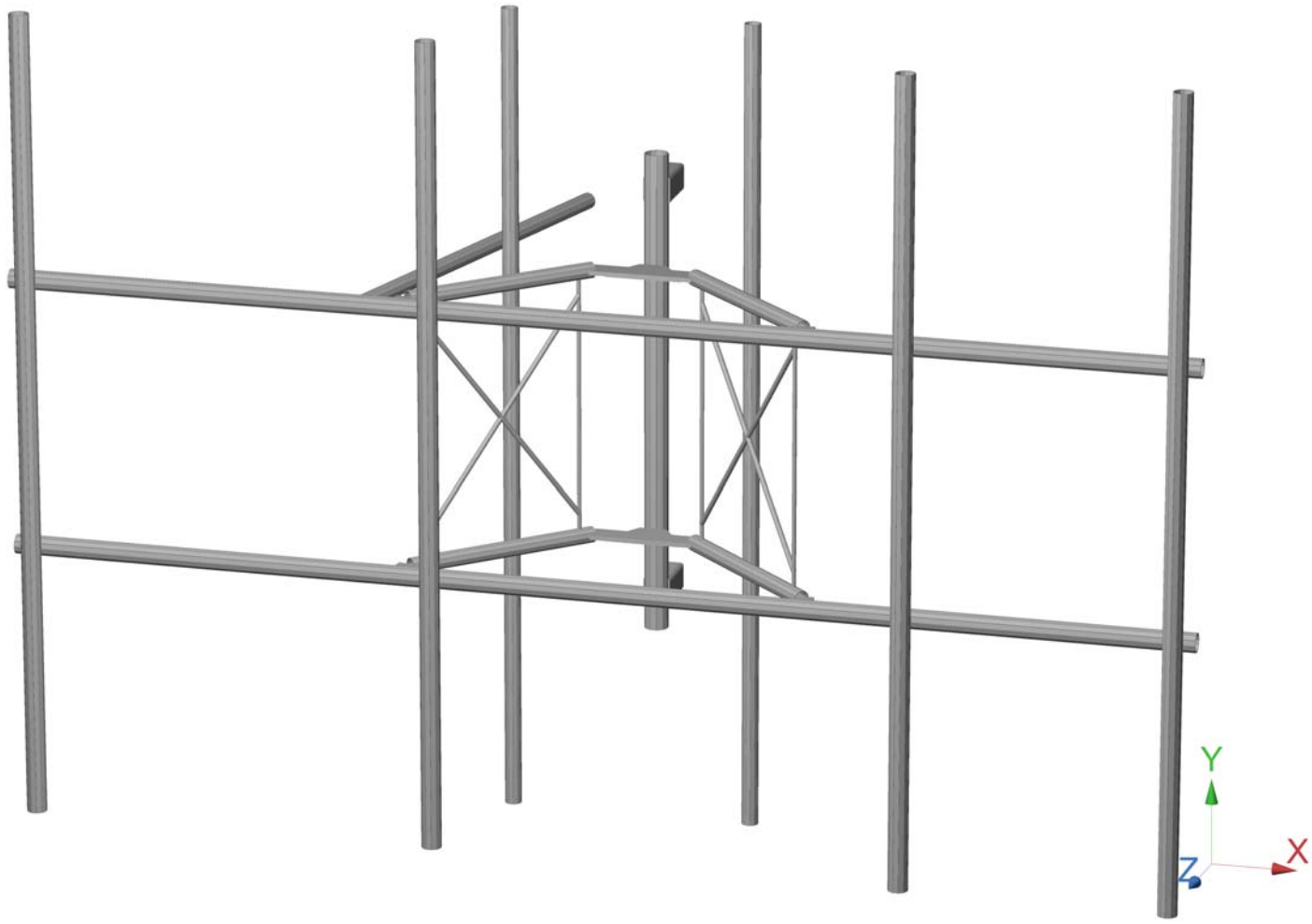
HSS 4x4
Weight of ice based on total radial SF area:
Height (in): 4
Width (in): 4
Per foot weight of ice on object: 12 plf

3" Pipe
Per foot weight of ice:
diameter (in): 3.5
Per foot weight of ice on object: 9 plf

HUDSON
Design Group LLC

Mount Calculations
(Proposed Conditions)

Current Date: 3/30/2022 1:23 PM
Units system: English



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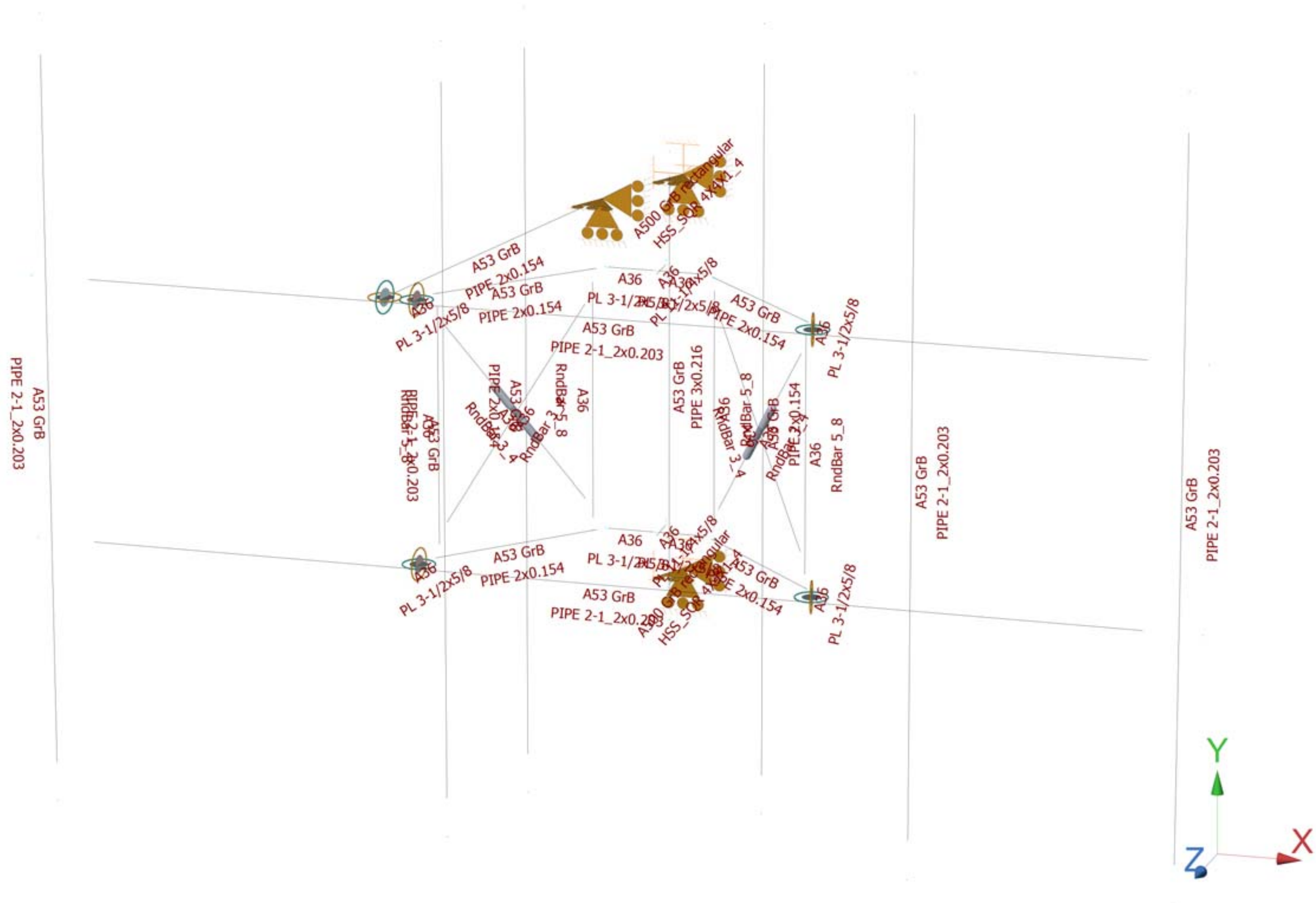
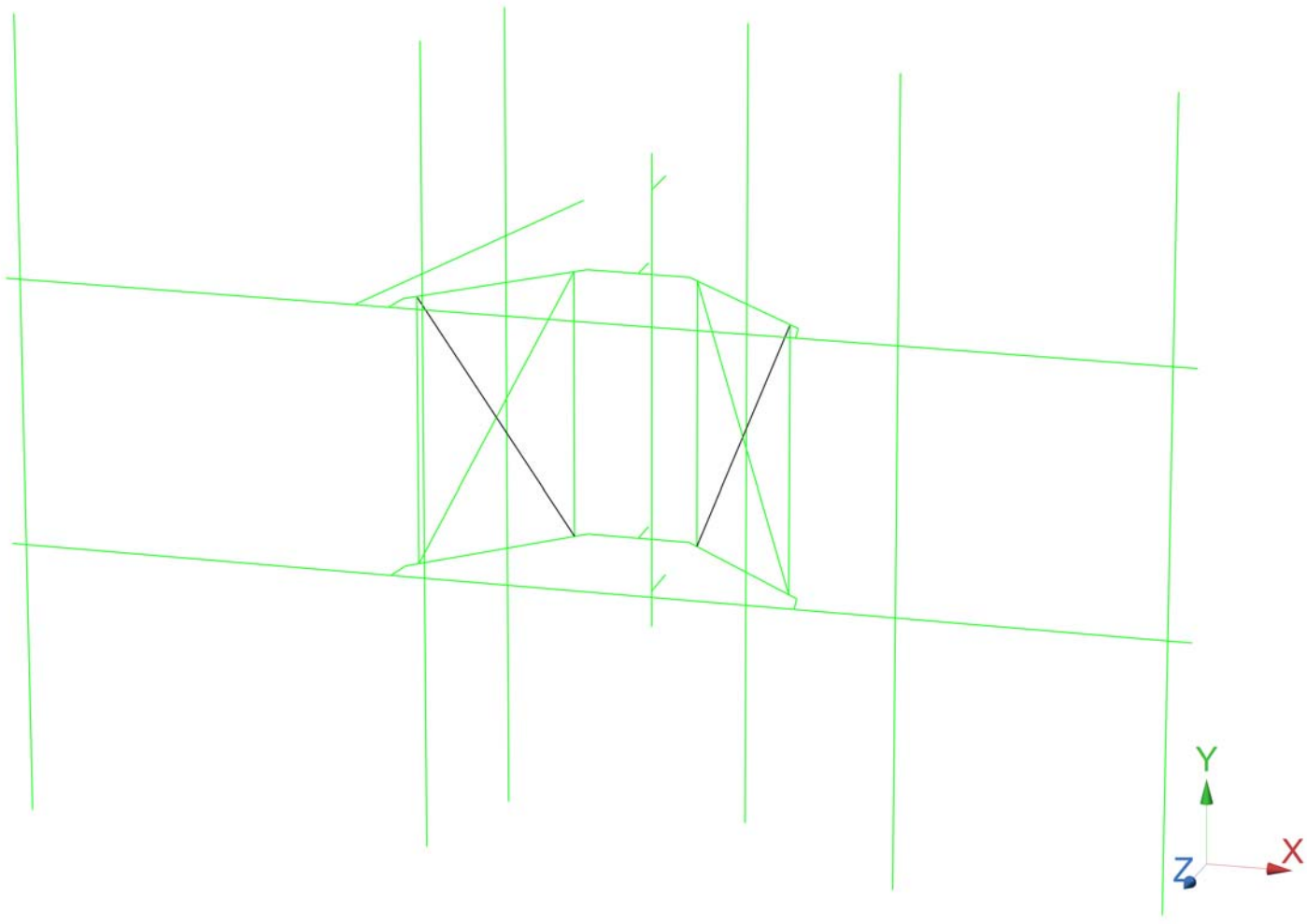
Units system: English

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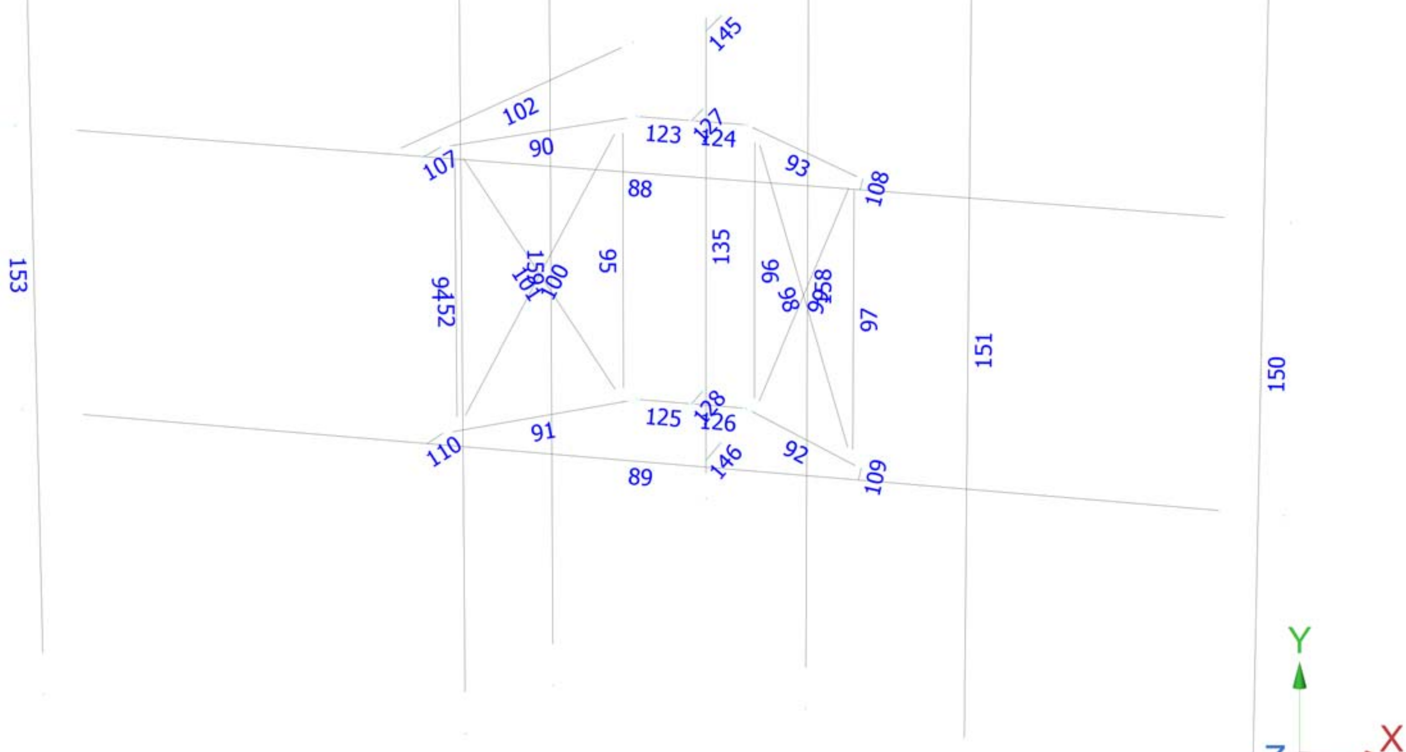
X
Z

Current Date: 3/30/2022 1:24 PM
Units system: English



RAM® Elements
CONNECT Edition

Current Date: 3/30/2022 1:25 PM
Units system: English

Load data

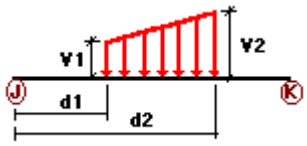
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

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

Distributed force on members



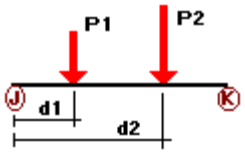
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	88	z	-0.014	0.00	0.00	No	0.00	No
	89	z	-0.014	0.00	0.00	No	0.00	No
	90	z	-0.011	0.00	0.00	No	0.00	No
	91	z	-0.011	0.00	0.00	No	0.00	No
	92	z	-0.011	0.00	0.00	No	0.00	No
	93	z	-0.011	0.00	0.00	No	0.00	No
	94	z	-0.003	0.00	0.00	No	0.00	No
	95	z	-0.003	0.00	0.00	No	0.00	No
	96	z	-0.003	0.00	0.00	No	0.00	No
	97	z	-0.003	0.00	0.00	No	0.00	No
	98	z	-0.004	0.00	0.00	No	0.00	No
	99	z	-0.004	0.00	0.00	No	0.00	No
	100	z	-0.004	0.00	0.00	No	0.00	No
	101	z	-0.004	0.00	0.00	No	0.00	No
	102	z	-0.011	0.00	0.00	No	0.00	No
	107	z	-0.005	0.00	0.00	No	0.00	No
	108	z	-0.005	0.00	0.00	No	0.00	No
	109	z	-0.005	0.00	0.00	No	0.00	No
	110	z	-0.005	0.00	0.00	No	0.00	No
	123	z	-0.005	0.00	0.00	No	0.00	No
	124	z	-0.005	0.00	0.00	No	0.00	No
	125	z	-0.005	0.00	0.00	No	0.00	No
	126	z	-0.005	0.00	0.00	No	0.00	No
	127	z	-0.005	0.00	0.00	No	0.00	No
	128	z	-0.005	0.00	0.00	No	0.00	No
	135	z	-0.017	0.00	0.00	No	0.00	No
	145	z	-0.02	0.00	0.00	No	0.00	No
	146	z	-0.02	0.00	0.00	No	0.00	No
	150	z	-0.014	0.00	0.00	No	0.00	No
	151	z	-0.014	-0.014	0.00	No	2.00	No
		z	-0.014	-0.014	8.00	No	10.00	No
	152	z	-0.014	-0.014	0.00	No	1.75	No
		z	-0.014	-0.014	8.25	No	10.00	No
	153	z	-0.014	-0.014	0.00	No	2.00	No
		z	-0.014	-0.014	8.00	No	10.00	No
	158	z	-0.011	0.00	0.00	No	0.00	No
	159	z	-0.011	0.00	0.00	No	0.00	No
W30	88	z	-0.014	0.00	0.00	No	0.00	No
	89	z	-0.014	0.00	0.00	No	0.00	No
	90	z	-0.011	0.00	0.00	No	0.00	No
	91	z	-0.011	0.00	0.00	No	0.00	No
	92	z	-0.011	0.00	0.00	No	0.00	No
	93	z	-0.011	0.00	0.00	No	0.00	No
	94	z	-0.003	0.00	0.00	No	0.00	No
	95	z	-0.003	0.00	0.00	No	0.00	No
	96	z	-0.003	0.00	0.00	No	0.00	No
	97	z	-0.003	0.00	0.00	No	0.00	No
	98	z	-0.004	0.00	0.00	No	0.00	No
	99	z	-0.004	0.00	0.00	No	0.00	No
	100	z	-0.004	0.00	0.00	No	0.00	No
	101	z	-0.004	0.00	0.00	No	0.00	No
	102	z	-0.011	0.00	0.00	No	0.00	No
	107	z	-0.005	0.00	0.00	No	0.00	No
	108	z	-0.005	0.00	0.00	No	0.00	No
	109	z	-0.005	0.00	0.00	No	0.00	No
	110	z	-0.005	0.00	0.00	No	0.00	No
	123	z	-0.005	0.00	0.00	No	0.00	No
	124	z	-0.005	0.00	0.00	No	0.00	No
	125	z	-0.005	0.00	0.00	No	0.00	No
	126	z	-0.005	0.00	0.00	No	0.00	No

	127	z	-0.005	0.00	0.00	No	0.00	No
	128	z	-0.005	0.00	0.00	No	0.00	No
	135	z	-0.017	0.00	0.00	No	0.00	No
	145	z	-0.02	0.00	0.00	No	0.00	No
	146	z	-0.02	0.00	0.00	No	0.00	No
	150	z	-0.014	0.00	0.00	No	0.00	No
	151	z	-0.014	0.00	0.00	No	0.00	No
	152	z	-0.014	0.00	0.00	No	0.00	No
	153	z	-0.014	0.00	0.00	No	0.00	No
	158	z	-0.011	0.00	0.00	No	0.00	No
	159	z	-0.011	0.00	0.00	No	0.00	No
W60	88	x	-0.014	0.00	0.00	No	0.00	No
	89	x	-0.014	0.00	0.00	No	0.00	No
	90	x	-0.011	0.00	0.00	No	0.00	No
	91	x	-0.011	0.00	0.00	No	0.00	No
	92	x	-0.011	0.00	0.00	No	0.00	No
	93	x	-0.011	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
	96	x	-0.003	0.00	0.00	No	0.00	No
	97	x	-0.003	0.00	0.00	No	0.00	No
	98	x	-0.004	0.00	0.00	No	0.00	No
	99	x	-0.004	0.00	0.00	No	0.00	No
	100	x	-0.004	0.00	0.00	No	0.00	No
	101	x	-0.004	0.00	0.00	No	0.00	No
	102	x	-0.011	0.00	0.00	No	0.00	No
	107	x	-0.005	0.00	0.00	No	0.00	No
	108	x	-0.005	0.00	0.00	No	0.00	No
	109	x	-0.005	0.00	0.00	No	0.00	No
	110	x	-0.005	0.00	0.00	No	0.00	No
	123	x	-0.005	0.00	0.00	No	0.00	No
	124	x	-0.005	0.00	0.00	No	0.00	No
	125	x	-0.005	0.00	0.00	No	0.00	No
	126	x	-0.005	0.00	0.00	No	0.00	No
	127	x	-0.005	0.00	0.00	No	0.00	No
	128	x	-0.005	0.00	0.00	No	0.00	No
	135	x	-0.017	0.00	0.00	No	0.00	No
	145	x	-0.02	0.00	0.00	No	0.00	No
	146	x	-0.02	0.00	0.00	No	0.00	No
	150	x	-0.014	0.00	0.00	No	0.00	No
	151	x	-0.014	0.00	0.00	No	0.00	No
	152	x	-0.014	0.00	0.00	No	0.00	No
	153	x	-0.014	0.00	0.00	No	0.00	No
	158	x	-0.011	0.00	0.00	No	0.00	No
	159	x	-0.011	0.00	0.00	No	0.00	No
W90	90	x	-0.011	0.00	0.00	No	0.00	No
	91	x	-0.011	0.00	0.00	No	0.00	No
	92	x	-0.011	0.00	0.00	No	0.00	No
	93	x	-0.011	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
	96	x	-0.003	0.00	0.00	No	0.00	No
	97	x	-0.003	0.00	0.00	No	0.00	No
	98	x	-0.004	0.00	0.00	No	0.00	No
	99	x	-0.004	0.00	0.00	No	0.00	No
	100	x	-0.004	0.00	0.00	No	0.00	No
	101	x	-0.004	0.00	0.00	No	0.00	No
	102	x	-0.011	0.00	0.00	No	0.00	No
	107	x	-0.005	0.00	0.00	No	0.00	No
	108	x	-0.005	0.00	0.00	No	0.00	No

	109	x	-0.005	0.00	0.00	No	0.00	No
	110	x	-0.005	0.00	0.00	No	0.00	No
	123	x	-0.005	0.00	0.00	No	0.00	No
	124	x	-0.005	0.00	0.00	No	0.00	No
	125	x	-0.005	0.00	0.00	No	0.00	No
	126	x	-0.005	0.00	0.00	No	0.00	No
	127	x	-0.005	0.00	0.00	No	0.00	No
	128	x	-0.005	0.00	0.00	No	0.00	No
	135	x	-0.017	0.00	0.00	No	0.00	No
	145	x	-0.02	0.00	0.00	No	0.00	No
	146	x	-0.02	0.00	0.00	No	0.00	No
	150	x	-0.014	0.00	0.00	No	0.00	No
	151	x	-0.014	0.00	0.00	No	0.00	No
	152	x	-0.014	0.00	0.00	No	0.00	No
	153	x	-0.014	0.00	0.00	No	0.00	No
	158	x	-0.011	0.00	0.00	No	0.00	No
	159	x	-0.011	0.00	0.00	No	0.00	No
W120	88	x	-0.014	0.00	0.00	No	0.00	No
	89	x	-0.014	0.00	0.00	No	0.00	No
	90	x	-0.011	0.00	0.00	No	0.00	No
	91	x	-0.011	0.00	0.00	No	0.00	No
	92	x	-0.011	0.00	0.00	No	0.00	No
	93	x	-0.011	0.00	0.00	No	0.00	No
	94	x	-0.003	0.00	0.00	No	0.00	No
	95	x	-0.003	0.00	0.00	No	0.00	No
	96	x	-0.003	0.00	0.00	No	0.00	No
	97	x	-0.003	0.00	0.00	No	0.00	No
	98	x	-0.004	0.00	0.00	No	0.00	No
	99	x	-0.004	0.00	0.00	No	0.00	No
	100	x	-0.004	0.00	0.00	No	0.00	No
	101	x	-0.004	0.00	0.00	No	0.00	No
	102	x	-0.011	0.00	0.00	No	0.00	No
	107	x	-0.005	0.00	0.00	No	0.00	No
	108	x	-0.005	0.00	0.00	No	0.00	No
	109	x	-0.005	0.00	0.00	No	0.00	No
	110	x	-0.005	0.00	0.00	No	0.00	No
	123	x	-0.005	0.00	0.00	No	0.00	No
	124	x	-0.005	0.00	0.00	No	0.00	No
	125	x	-0.005	0.00	0.00	No	0.00	No
	126	x	-0.005	0.00	0.00	No	0.00	No
	127	x	-0.005	0.00	0.00	No	0.00	No
	128	x	-0.005	0.00	0.00	No	0.00	No
	135	x	-0.017	0.00	0.00	No	0.00	No
	145	x	-0.02	0.00	0.00	No	0.00	No
	146	x	-0.02	0.00	0.00	No	0.00	No
	150	x	-0.014	0.00	0.00	No	0.00	No
	151	x	-0.014	0.00	0.00	No	0.00	No
	152	x	-0.014	0.00	0.00	No	0.00	No
	153	x	-0.014	0.00	0.00	No	0.00	No
	158	x	-0.011	0.00	0.00	No	0.00	No
	159	x	-0.011	0.00	0.00	No	0.00	No
W150	88	z	0.014	0.00	0.00	No	0.00	No
	89	z	0.014	0.00	0.00	No	0.00	No
	90	z	0.011	0.00	0.00	No	0.00	No
	91	z	0.011	0.00	0.00	No	0.00	No
	92	z	0.011	0.00	0.00	No	0.00	No
	93	z	0.011	0.00	0.00	No	0.00	No
	94	z	0.003	0.00	0.00	No	0.00	No
	95	z	0.003	0.00	0.00	No	0.00	No
	96	z	0.003	0.00	0.00	No	0.00	No

	97	z	0.003	0.00	0.00	No	0.00	No
	98	z	0.004	0.00	0.00	No	0.00	No
	99	z	0.004	0.00	0.00	No	0.00	No
	100	z	0.004	0.00	0.00	No	0.00	No
	101	z	0.004	0.00	0.00	No	0.00	No
	102	z	0.011	0.00	0.00	No	0.00	No
	107	z	0.005	0.00	0.00	No	0.00	No
	108	z	0.005	0.00	0.00	No	0.00	No
	109	z	0.005	0.00	0.00	No	0.00	No
	110	z	0.005	0.00	0.00	No	0.00	No
	123	z	0.005	0.00	0.00	No	0.00	No
	124	z	0.005	0.00	0.00	No	0.00	No
	125	z	0.005	0.00	0.00	No	0.00	No
	126	z	0.005	0.00	0.00	No	0.00	No
	127	z	0.005	0.00	0.00	No	0.00	No
	128	z	0.005	0.00	0.00	No	0.00	No
	135	z	0.017	0.00	0.00	No	0.00	No
	145	z	0.02	0.00	0.00	No	0.00	No
	146	z	0.02	0.00	0.00	No	0.00	No
	150	z	0.014	0.00	0.00	No	0.00	No
	151	z	0.014	0.00	0.00	No	0.00	No
	152	z	0.014	0.00	0.00	No	0.00	No
	153	z	0.014	0.00	0.00	No	0.00	No
	158	z	0.011	0.00	0.00	No	0.00	No
	159	z	0.011	0.00	0.00	No	0.00	No
Di	88	y	-0.008	0.00	0.00	No	0.00	No
	89	y	-0.008	0.00	0.00	No	0.00	No
	90	y	-0.007	0.00	0.00	No	0.00	No
	91	y	-0.007	0.00	0.00	No	0.00	No
	92	y	-0.007	0.00	0.00	No	0.00	No
	93	y	-0.007	0.00	0.00	No	0.00	No
	94	y	-0.004	0.00	0.00	No	0.00	No
	95	y	-0.004	0.00	0.00	No	0.00	No
	96	y	-0.004	0.00	0.00	No	0.00	No
	97	y	-0.004	0.00	0.00	No	0.00	No
	98	y	-0.004	0.00	0.00	No	0.00	No
	99	y	-0.004	0.00	0.00	No	0.00	No
	100	y	-0.004	0.00	0.00	No	0.00	No
	101	y	-0.004	0.00	0.00	No	0.00	No
	102	y	-0.007	0.00	0.00	No	0.00	No
	107	y	-0.009	0.00	0.00	No	0.00	No
	108	y	-0.009	0.00	0.00	No	0.00	No
	109	y	-0.009	0.00	0.00	No	0.00	No
	110	y	-0.009	0.00	0.00	No	0.00	No
	123	y	-0.009	0.00	0.00	No	0.00	No
	124	y	-0.009	0.00	0.00	No	0.00	No
	125	y	-0.009	0.00	0.00	No	0.00	No
	126	y	-0.009	0.00	0.00	No	0.00	No
	127	y	-0.022	0.00	0.00	No	0.00	No
	128	y	-0.022	0.00	0.00	No	0.00	No
	135	y	-0.009	0.00	0.00	No	0.00	No
	145	y	-0.012	0.00	0.00	No	0.00	No
	146	y	-0.012	0.00	0.00	No	0.00	No
	150	y	-0.008	0.00	0.00	No	0.00	No
	151	y	-0.008	0.00	0.00	No	0.00	No
	152	y	-0.008	0.00	0.00	No	0.00	No
	153	y	-0.008	0.00	0.00	No	0.00	No
	158	y	-0.007	0.00	0.00	No	0.00	No
	159	y	-0.007	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	151	y	-0.065	2.50	No
		y	-0.065	7.50	No
	152	y	-0.033	2.25	No
		y	-0.033	4.00	No
		y	-0.041	6.00	No
		y	-0.041	7.75	No
	153	y	-0.04	2.50	No
		y	-0.04	7.50	No
	158	y	-0.05	2.50	No
		y	-0.06	5.00	No
		y	-0.049	5.00	No
	159	y	-0.073	2.50	No
		y	-0.06	2.50	No
		y	-0.033	9.00	No
Wo	151	z	-0.321	2.50	No
		z	-0.321	7.50	No
	152	z	-0.099	2.25	No
		z	-0.099	4.00	No
		z	-0.096	6.00	No
		z	-0.096	7.75	No
	153	z	-0.30	2.50	No
		z	-0.30	7.50	No
	158	z	-0.088	2.50	No
		z	-0.059	5.00	No
	159	z	-0.079	2.50	No
		z	-0.073	9.00	No
W30	151	3	-0.281	2.50	No
		3	-0.281	7.50	No
	152	3	-0.086	2.25	No
		3	-0.086	4.00	No
		3	-0.088	6.00	No
		3	-0.088	7.75	No
	153	3	-0.259	2.50	No
		3	-0.259	7.50	No
	158	3	-0.076	2.50	No
		3	-0.068	5.00	No
	159	3	-0.091	2.50	No
		3	-0.073	9.00	No
W60	151	3	-0.201	2.50	No
		3	-0.201	7.50	No
	152	3	-0.061	2.25	No
		3	-0.061	4.00	No
		3	-0.073	6.00	No
		3	-0.073	7.75	No
	153	3	-0.175	2.50	No
		3	-0.175	7.50	No
	158	3	-0.053	2.50	No
		3	-0.086	5.00	No
	159	3	-0.117	2.50	No
		3	-0.073	9.00	No
W90	151	x	-0.161	2.50	No
		x	-0.161	7.50	No

	152	x	-0.048	2.25	No
		x	-0.048	4.00	No
		x	-0.065	6.00	No
		x	-0.065	7.75	No
	153	x	-0.133	2.50	No
		x	-0.133	7.50	No
	158	x	-0.041	2.50	No
		x	-0.095	5.00	No
	159	x	-0.129	2.50	No
		x	-0.071	9.00	No
W120	151	2	-0.201	2.50	No
		2	-0.201	7.50	No
	152	2	-0.061	2.25	No
		2	-0.061	4.00	No
		2	-0.073	6.00	No
		2	-0.073	7.75	No
	153	2	-0.175	2.50	No
		2	-0.175	7.50	No
	158	2	-0.053	2.50	No
		2	-0.086	5.00	No
	159	2	-0.117	2.50	No
		2	-0.073	9.00	No
W150	151	2	-0.281	2.50	No
		2	-0.281	7.50	No
	152	2	-0.086	2.25	No
		2	-0.086	4.00	No
		2	-0.088	6.00	No
		2	-0.088	7.75	No
	153	2	-0.259	2.50	No
		2	-0.259	7.50	No
	158	2	-0.076	2.50	No
		2	-0.068	5.00	No
	159	2	-0.091	2.50	No
		2	-0.073	9.00	No
Di	151	y	-0.134	2.50	No
		y	-0.134	7.50	No
	152	y	-0.044	2.25	No
		y	-0.044	4.00	No
		y	-0.046	6.00	No
		y	-0.046	7.75	No
	153	y	-0.122	2.50	No
		y	-0.122	7.50	No
	158	y	-0.039	2.50	No
		y	-0.045	5.00	No
		y	-0.034	5.00	No
	159	y	-0.046	2.50	No
		y	-0.061	2.50	No
		y	-0.053	9.00	No
WI0	151	z	-0.052	2.50	No
		z	-0.052	7.50	No
	152	z	-0.018	2.25	No
		z	-0.018	4.00	No
		z	-0.017	6.00	No
		z	-0.017	7.75	No
	153	z	-0.049	2.50	No
		z	-0.049	7.50	No
	158	z	-0.017	2.50	No
		z	-0.013	5.00	No
	159	z	-0.017	2.50	No
		z	-0.014	9.00	No

WI30	151	3	-0.046	2.50	No
		3	-0.046	7.50	No
	152	3	-0.016	2.25	No
		3	-0.016	4.00	No
		3	-0.016	6.00	No
		3	-0.016	7.75	No
	153	3	-0.043	2.50	No
		3	-0.043	7.50	No
	158	3	-0.015	2.50	No
		3	-0.014	5.00	No
	159	3	-0.018	2.50	No
		3	-0.014	9.00	No
WI60	151	3	-0.035	2.50	No
		3	-0.035	7.50	No
	152	3	-0.012	2.25	No
		3	-0.012	4.00	No
		3	-0.014	6.00	No
		3	-0.014	7.75	No
	153	3	-0.031	2.50	No
		3	-0.031	7.50	No
	158	3	-0.011	2.50	No
		3	-0.017	5.00	No
	159	3	-0.022	2.50	No
		3	-0.014	9.00	No
WI90	151	x	-0.029	2.50	No
		x	-0.029	7.50	No
	152	x	-0.01	2.25	No
		x	-0.01	4.00	No
		x	-0.013	6.00	No
		x	-0.013	7.75	No
	153	x	-0.025	2.50	No
		x	-0.025	7.50	No
	158	x	-0.01	2.50	No
		x	-0.018	5.00	No
	159	x	-0.024	2.50	No
		x	-0.014	9.00	No
WI120	151	2	-0.035	2.50	No
		2	-0.035	7.50	No
	152	2	-0.012	2.25	No
		2	-0.012	4.00	No
		2	-0.014	6.00	No
		2	-0.014	7.75	No
	153	2	-0.031	2.50	No
		2	-0.031	7.50	No
	158	2	-0.011	2.50	No
		2	-0.017	5.00	No
	159	2	-0.022	2.50	No
		2	-0.014	9.00	No
WI150	151	2	-0.046	2.50	No
		2	-0.046	7.50	No
	152	2	-0.016	2.25	No
		2	-0.016	4.00	No
		2	-0.016	6.00	No
		2	-0.016	7.75	No
	153	2	-0.043	2.50	No
		2	-0.043	7.50	No
	158	2	-0.015	2.50	No
		2	-0.014	5.00	No
	159	2	-0.018	2.50	No
		2	-0.014	9.00	No

WL0	151	z	-0.016	2.50	No
		z	-0.016	7.50	No
	152	z	-0.005	2.25	No
		z	-0.005	4.00	No
		z	-0.005	6.00	No
		z	-0.005	7.75	No
	153	z	-0.015	2.50	No
		z	-0.015	7.50	No
	158	z	-0.004	2.50	No
		z	-0.003	5.00	No
	159	z	-0.004	2.50	No
		z	-0.004	9.00	No
WL30	151	3	-0.014	2.50	No
		3	-0.014	7.50	No
	152	3	-0.005	2.25	No
		3	-0.005	4.00	No
		3	-0.005	6.00	No
		3	-0.005	7.75	No
	153	3	-0.013	2.50	No
		3	-0.013	7.50	No
	158	3	-0.004	2.50	No
		3	-0.003	5.00	No
	159	3	-0.005	2.50	No
		3	-0.004	9.00	No
WL60	151	3	-0.01	2.50	No
		3	-0.01	7.50	No
	152	3	-0.003	2.25	No
		3	-0.003	4.00	No
		3	-0.004	6.00	No
		3	-0.004	7.75	No
	153	3	-0.009	2.50	No
		3	-0.009	7.50	No
	158	3	-0.003	2.50	No
		3	-0.004	5.00	No
	159	3	-0.006	2.50	No
		3	-0.004	9.00	No
WL90	151	x	-0.008	2.50	No
		x	-0.008	7.50	No
	152	x	-0.003	2.25	No
		x	-0.003	4.00	No
		x	-0.004	6.00	No
		x	-0.004	7.75	No
	153	x	-0.007	2.50	No
		x	-0.007	7.50	No
	158	x	-0.002	2.50	No
		x	-0.005	5.00	No
	159	x	-0.006	2.50	No
		x	-0.004	9.00	No
WL120	151	2	-0.01	2.50	No
		2	-0.01	7.50	No
	152	2	-0.003	2.25	No
		2	-0.003	4.00	No
		2	-0.004	6.00	No
		2	-0.004	7.75	No
	153	2	-0.009	2.50	No
		2	-0.009	7.50	No
	158	2	-0.003	2.50	No
		2	-0.004	5.00	No
	159	2	-0.006	2.50	No
		2	-0.004	9.00	No

WL150	151	2	-0.014	2.50	No
		2	-0.014	7.50	No
	152	2	-0.005	2.25	No
		2	-0.005	4.00	No
		2	-0.005	6.00	No
		2	-0.005	7.75	No
	153	2	-0.013	2.50	No
		2	-0.013	7.50	No
	158	2	-0.004	2.50	No
		2	-0.003	5.00	No
	159	2	-0.005	2.50	No
		2	-0.004	9.00	No
LL1	88	y	-0.25	50.00	Yes
LL2	88	y	-0.25	100.00	Yes
LL3	88	y	-0.25	0.00	Yes
LLa1	150	y	-0.50	50.00	Yes
LLa2	151	y	-0.50	50.00	Yes
LLa3	152	y	-0.50	50.00	Yes
LLa4	153	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

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

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

RAM® Elements
CONNECT Edition

Current Date: 3/30/2022 1:25 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

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

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

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**145**	LC10 at 100.00%	**0.13**	**OK**	
		146	LC9 at 100.00%	0.11	OK	
	PIPE 2-1_2x0.203	**88**	LC7 at 30.47%	**0.51**	**OK**	
		89	LC1 at 32.14%	0.50	OK	
		150	LC46 at 33.33%	0.23	OK	
		151	LC47 at 33.33%	0.28	OK	
		152	LC3 at 33.33%	0.17	OK	
		153	LC77 at 33.33%	0.39	OK	
	PIPE 2x0.154	**90**	LC81 at 93.75%	**0.36**	**OK**	
		91	LC87 at 93.75%	0.33	OK	
		92	LC41 at 93.75%	0.32	OK	
		93	LC46 at 93.75%	0.32	OK	
		102	LC15 at 0.00%	0.11	OK	
		158	LC51 at 33.33%	0.14	OK	
		159	LC7 at 66.67%	0.18	OK	
	PIPE 3x0.216	**135**	LC6 at 8.75%	**0.34**	**OK**	
	PL 11-1/4x5/8	**127**	LC30 at 100.00%	**0.53**	**OK**	
		128	LC32 at 100.00%	0.41	OK	
	PL 3-1/2x5/8	**107**	LC77 at 100.00%	0.36	OK	
		108	LC41 at 100.00%	0.34	OK	
		109	LC41 at 100.00%	0.39	OK	
		110	LC83 at 100.00%	0.43	OK	
		123	LC77 at 100.00%	**0.54**	**OK**	
		124	LC41 at 0.00%	0.50	OK	

	125	LC87 at 100.00%	0.53	OK
	126	LC41 at 0.00%	0.49	OK
RndBar 3_4	**98**	LC47 at 100.00%	0.18	OK
	99	LC41 at 0.00%	0.21	With warnings
	100	LC86 at 0.00%	0.21	OK
	101	LC83 at 100.00%	**0.22**	**With warnings**
RndBar 5_8	**94**	LC84 at 87.50%	0.58	OK
	95	LC83 at 87.50%	**0.64**	**OK**
	96	LC41 at 87.50%	0.59	OK
	97	LC41 at 87.50%	0.54	OK

RAM® Elements
CONNECT Edition

Current Date: 3/30/2022 1:26 PM
Units system: English

Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
142	0.00	0.00	0.1833	0
143	-0.6362	0.00	0.6617	0
144	0.00	-3.3333	0.1833	0
145	-0.6362	-3.3333	0.6617	0
146	0.6362	-3.3333	0.6617	0
147	0.6362	0.00	0.6617	0
158	-7.25	0.00	2.8133	0
159	7.25	0.00	2.8133	0
160	-7.25	-3.3333	2.8133	0
161	7.25	-3.3333	2.8133	0
162	-2.4126	0.00	2.4208	0
163	-2.4126	-3.3333	2.4208	0
164	2.4126	-3.3333	2.4208	0
165	2.4126	0.00	2.4208	0
166	-2.2835	0.00	2.2929	0
167	-2.2835	-3.3333	2.2929	0
168	-0.7653	0.00	0.7895	0
169	-0.7653	-3.3333	0.7895	0
170	0.7653	0.00	0.7895	0
171	0.7653	-3.3333	0.7895	0
172	2.2835	0.00	2.2929	0
173	2.2835	-3.3333	2.2929	0
174	-2.8958	0.00	2.8133	0

175	-1.50	0.00	-2.3167	0
184	-2.4792	0.00	2.8133	0
185	2.4792	0.00	2.8133	0
186	2.4792	-3.3333	2.8133	0
187	-2.4792	-3.3333	2.8133	0
208	0.00	0.00	0.6617	0
209	0.00	-3.3333	0.6617	0
222	0.00	1.3333	0.0375	0
223	0.00	-4.6667	0.0375	0
248	0.00	0.875	0.0375	0
249	0.00	-4.2083	0.0375	0
250	0.00	0.875	-0.6292	0
251	0.00	-4.2083	-0.6292	0
258	7.00	3.3333	3.0133	0
259	7.00	-6.6667	3.0133	0
260	3.75	3.3333	3.0133	0
261	3.75	-6.6667	3.0133	0
262	-2.00	3.3333	3.0133	0
263	-2.00	-6.6667	3.0133	0
264	-7.00	3.3333	3.0133	0
265	-7.00	-6.6667	3.0133	0
276	1.4875	3.3333	1.2232	0
277	1.4875	-6.6667	1.2232	0
278	-1.4875	3.3333	1.2232	0
279	-1.4875	-6.6667	1.2232	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
175	1	1	1	0	0	0
250	1	1	1	1	1	1
251	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
88	158	159		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	160	161		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	162	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	163	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	164	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	165	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	166	167		RndBar 5_8	A36	0.00	0.00	0.00
95	168	169		RndBar 5_8	A36	0.00	0.00	0.00
96	170	171		RndBar 5_8	A36	0.00	0.00	0.00
97	172	173		RndBar 5_8	A36	0.00	0.00	0.00
98	170	173		RndBar 3_4	A36	0.00	0.00	0.00
99	171	172		RndBar 3_4	A36	0.00	0.00	0.00
100	167	168		RndBar 3_4	A36	0.00	0.00	0.00
101	166	169		RndBar 3_4	A36	0.00	0.00	0.00

102	174	175	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
107	162	184	PL 3-1/2x5/8	A36	0.00	0.00	0.00
108	165	185	PL 3-1/2x5/8	A36	0.00	0.00	0.00
109	164	186	PL 3-1/2x5/8	A36	0.00	0.00	0.00
110	163	187	PL 3-1/2x5/8	A36	0.00	0.00	0.00
123	143	208	PL 3-1/2x5/8	A36	0.00	0.00	0.00
124	208	147	PL 3-1/2x5/8	A36	0.00	0.00	0.00
125	145	209	PL 3-1/2x5/8	A36	0.00	0.00	0.00
126	209	146	PL 3-1/2x5/8	A36	0.00	0.00	0.00
127	208	142	PL 11-1/4x5/8	A36	11.25	4.00	0.00
128	209	144	PL 11-1/4x5/8	A36	11.25	4.00	0.00
135	222	223	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
145	248	250	HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
146	249	251	HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
150	258	259	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
151	260	261	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
152	262	263	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
153	264	265	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
158	276	277	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
159	278	279	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

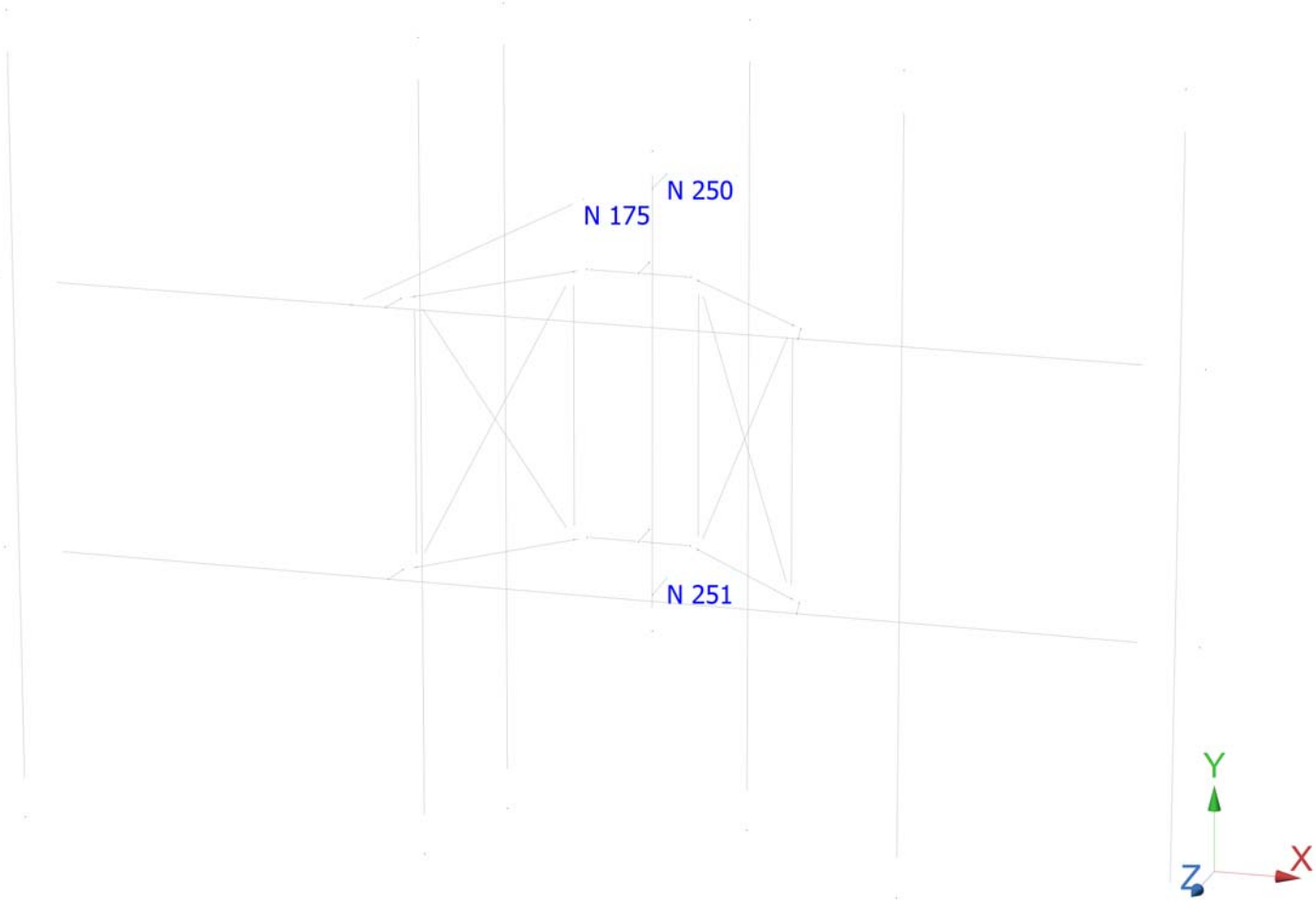
Member	Rotation [Deg]	Axes23	NX	NY	NZ
94	0.00	2	0.00	0.00	1.00
95	0.00	2	0.00	0.00	1.00
96	0.00	2	0.00	0.00	1.00
97	0.00	2	0.00	0.00	1.00
107	90.00	0	0.00	0.00	0.00
108	90.00	0	0.00	0.00	0.00
109	90.00	0	0.00	0.00	0.00
110	90.00	0	0.00	0.00	0.00
123	90.00	0	0.00	0.00	0.00
124	90.00	0	0.00	0.00	0.00
125	90.00	0	0.00	0.00	0.00
126	90.00	0	0.00	0.00	0.00
127	90.00	0	0.00	0.00	0.00
128	90.00	0	0.00	0.00	0.00
135	315.00	0	0.00	0.00	0.00
151	315.00	0	0.00	0.00	0.00
152	315.00	0	0.00	0.00	0.00
153	315.00	0	0.00	0.00	0.00
158	315.00	0	0.00	0.00	0.00
159	315.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
98	0.00	-3.50	0.00	0.00	3.50	0.00
99	0.00	3.50	0.00	0.00	-3.50	0.00
100	0.00	3.50	0.00	0.00	-3.50	0.00
101	0.00	-3.50	0.00	0.00	3.50	0.00
127	0.00	-0.625	0.00	0.00	-0.625	0.00
128	0.00	-0.625	0.00	0.00	-0.625	0.00

Hinges

	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
99	0	0	0	0	0	0	0	0	0	0	Tension only
101	0	0	0	0	0	0	0	0	0	0	Tension only
102	1	1	0	0	0	0	0	0	0	0	Full
107	1	1	0	0	0	0	0	0	0	0	Full
108	1	1	0	0	0	0	0	0	0	0	Full
109	1	1	0	0	0	0	0	0	0	0	Full
110	1	1	0	0	0	0	0	0	0	0	Full


N 250
N 175
N 251
Y
X
Z

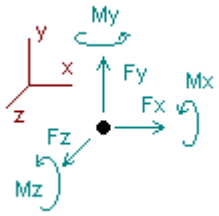
RAM® Elements
CONNECT Edition

Current Date: 3/30/2022 1:27 PM
Units system: English

Analysis result

Envelope for nodal reactions

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



Direction of positive forces and moments

Envelope of nodal reactions for :

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

LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2
LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2
LC64=1.2D+WL0+1.6LLa3
LC65=1.2D+WL30+1.6LLa3
LC66=1.2D+WL60+1.6LLa3
LC67=1.2D+WL90+1.6LLa3
LC68=1.2D+WL120+1.6LLa3
LC69=1.2D+WL150+1.6LLa3
LC70=1.2D-WL0+1.6LLa3
LC71=1.2D-WL30+1.6LLa3
LC72=1.2D-WL60+1.6LLa3
LC73=1.2D-WL90+1.6LLa3
LC74=1.2D-WL120+1.6LLa3
LC75=1.2D-WL150+1.6LLa3
LC76=1.2D+WL0+1.6LLa4
LC77=1.2D+WL30+1.6LLa4
LC78=1.2D+WL60+1.6LLa4
LC79=1.2D+WL90+1.6LLa4
LC80=1.2D+WL120+1.6LLa4
LC81=1.2D+WL150+1.6LLa4
LC82=1.2D-WL0+1.6LLa4
LC83=1.2D-WL30+1.6LLa4
LC84=1.2D-WL60+1.6LLa4
LC85=1.2D-WL90+1.6LLa4
LC86=1.2D-WL120+1.6LLa4
LC87=1.2D-WL150+1.6LLa4

		Forces						Moments					
Node		**Fx** [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
175	Max	0.603	LC9	0.030	LC32	2.297	LC15	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.599	LC15	0.006	LC15	-2.325	LC9	0.00000	LC1	0.00000	LC1	0.00000	LC1
250	Max	1.733	LC4	1.949	LC6	1.364	LC24	0.38328	LC16	1.49246	LC4	1.00355	LC4
	Min	-1.589	LC22	-0.550	LC24	-2.721	LC6	-0.78967	LC10	-1.35923	LC22	-0.95454	LC22
251	Max	1.222	LC41	1.932	LC12	2.232	LC1	0.23164	LC14	1.28334	LC16	0.76152	LC10
	Min	-1.392	LC83	-0.561	LC18	-0.858	LC19	-0.61547	LC8	-1.37531	LC10	-0.71128	LC16

HUDSON
Design Group LLC

Connection Check

Date: 3/30/2022
Project Name: FAIRFIELD
Project No.: CT5022
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A325 5/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 13806 lbs.

Allowable Shear Load =

F_{Vall} = 8283 lbs.

TENSILE FORCES

Reaction **F =** 2721 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1733 lbs. (See Bentley Output)
Reactions in Y direction: 1949 lbs. (See Bentley Output)

Resultant: 2608 lbs.

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

Tension Design Load /Bolts =

f_t = 907.00 lbs. < 13806 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 869.35 lbs. < 8283 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.066	+	0.105	=	0.171	<	1.0	**Therefore, OK !**

EXHIBIT 5

Radio Frequency Exposure Analysis Report

April 6, 2022

Centerline on behalf of AT&T
Centerline Communications Project Number: 566497

AT&T Site Name: FAIRFIELD
Site Number: CT5022
FA#: 10108711
USID: 4522

Site Address: 100 REEF ROAD, FAIRFIELD, CT 06824

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	2.14371 µW/cm^2
Cumulative General Population % MPE (Ground Level):	0.28539999999999999%

750 West Center Street | Suite 301 | West Bridgewater | MA | 02379

April 6, 2022

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

RF Exposure Analysis for Site: **FAIRFIELD**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed AT&T facility at **100 REEF ROAD, FAIRFIELD, CT 06824** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

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

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/ controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Additional details can be found in FCC OET 65.

Calculation Methodology

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

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

Data & Results

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

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

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

Maximum Calculated Cumulative Power Density (Location: approximately 10' West of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (μW/cm²)	General Population MPE Limit (μW/cm²)	General Population % MPE
AT&T A 1	QUINTEL QD6616-7 V1	700	11.99	130.00	4.00	40.00	2532.21	0.00051	466.67	0.00011
AT&T A 1	QUINTEL QD6616-7 V1	700	11.99	130.00	2.00	40.00	1266.11	0.00026	466.67	0.00006
AT&T A 1	QUINTEL QD6616-7 V1	1900	15.14	130.00	4.00	40.00	5223.12	0.00001	1000.00	0.00000
AT&T A 1	QUINTEL QD6616-7 V1	2100	15.50	130.00	4.00	60.00	8512.97	0.00009	1000.00	0.00001
AT&T A 2	ERICSSON AIR6449	3700	23.55	128.20	1.00	108.40	24548.74	0.00711	1000.00	0.00071
AT&T A 3	ERICSSON AIR6419	3450	22.85	131.75	1.00	0.00	0.00	0.00000	1000.00	0.00000
AT&T A 4	CCI DMP65R-BU6D	700	11.35	130.00	4.00	40.00	2183.33	0.00036	466.67	0.00008
AT&T A 4	CCI DMP65R-BU6D	850	11.35	130.00	4.00	40.00	2183.33	0.00012	566.67	0.00002
AT&T A 4	CCI DMP65R-BU6D	2300	15.55	130.00	4.00	25.00	3589.22	0.00002	1000.00	0.00000
AT&T B 5	QUINTEL QD6616-7 V1	700	11.97	130.00	4.00	40.00	2519.01	0.00018	466.67	0.00004
AT&T B 5	QUINTEL QD6616-7 V1	700	11.97	130.00	2.00	40.00	1259.51	0.00009	466.67	0.00002
AT&T B 5	QUINTEL QD6616-7 V1	1900	15.11	130.00	4.00	40.00	5184.30	0.00008	1000.00	0.00001
AT&T B 5	QUINTEL QD6616-7 V1	2100	15.33	130.00	4.00	60.00	8186.56	0.00065	1000.00	0.00007
AT&T B 6	ERICSSON AIR6449	3700	23.55	128.20	1.00	108.40	24548.74	0.00644	1000.00	0.00064
AT&T B 7	ERICSSON AIR6419	3450	22.85	131.75	1.00	0.00	0.00	0.00000	1000.00	0.00000
AT&T B 8	CCI DMP65R-BU6D	700	11.75	130.00	4.00	40.00	2393.98	0.00012	466.67	0.00003
AT&T B 8	CCI DMP65R-BU6D	850	11.45	130.00	4.00	40.00	2234.19	0.00017	566.67	0.00003
AT&T B 8	CCI DMP65R-BU6D	2300	14.95	130.00	4.00	25.00	3126.08	0.00003	1000.00	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	700	11.75	130.00	4.00	40.00	2395.41	0.09791	466.67	0.02098
AT&T C 9	QUINTEL QD6616-7 V1	700	11.75	130.00	2.00	40.00	1197.71	0.04898	466.67	0.01050
AT&T C 9	QUINTEL QD6616-7 V1	1900	15.14	130.00	4.00	40.00	5223.12	0.10034	1000.00	0.01003
AT&T C 9	QUINTEL QD6616-7 V1	2100	15.50	130.00	4.00	60.00	8512.97	0.16142	1000.00	0.01614
AT&T C 10	ERICSSON AIR6449	3700	23.55	128.20	1.00	108.40	24548.74	0.87881	1000.00	0.08788
AT&T C 11	ERICSSON AIR6419	3450	22.85	131.75	1.00	0.00	0.00	0.00000	1000.00	0.00000
AT&T C 12	CCI DMP65R-BU6D	700	11.35	130.00	4.00	40.00	2183.33	0.10472	466.67	0.02244
AT&T C 12	CCI DMP65R-BU6D	850	11.35	130.00	4.00	40.00	2183.33	0.09189	566.67	0.01622
AT&T C 12	CCI DMP65R-BU6D	2300	14.15	130.00	4.00	25.00	2600.16	0.07001	1000.00	0.00700
Unknown A 13	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.00000	566.67	0.00000
Unknown A 14	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.00000	566.67	0.00000
Unknown A 15	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.00000	566.67	0.00000
Unknown B 16	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.00007	566.67	0.00001
Unknown B 17	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.00007	566.67	0.00001
Unknown B 18	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.00007	566.67	0.00001
Unknown C 19	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.02720	566.67	0.00480
Unknown C 20	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.02720	566.67	0.00480

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (µW/cm²)	General Population MPE Limit (µW/cm²)	General Population % MPE
Unknown C 21	GENERIC PANEL 6FT	850	12.62	150.00	1.00	60.00	1096.86	0.02720	566.67	0.00480
Sprint A 22	GENERIC PANEL 6FT	862	12.62	140.00	2.00	40.00	1462.48	0.00032	574.67	0.00006
Sprint A 22	GENERIC PANEL 6FT	1900	15.84	140.00	2.00	60.00	4604.49	0.00070	1000.00	0.00007
Sprint A 23	GENERIC PANEL 6FT	2500	14.49	140.00	1.00	34.70	975.73	0.00019	1000.00	0.00002
Sprint B 24	GENERIC PANEL 6FT	862	12.62	140.00	2.00	40.00	1462.48	0.00001	574.67	0.00000
Sprint B 24	GENERIC PANEL 6FT	1900	15.84	140.00	2.00	60.00	4604.49	0.00006	1000.00	0.00001
Sprint B 25	GENERIC PANEL 6FT	2500	14.49	140.00	1.00	34.70	975.73	0.00001	1000.00	0.00000
Sprint C 26	GENERIC PANEL 6FT	862	12.62	140.00	2.00	40.00	1462.48	0.02314	574.67	0.00403
Sprint C 26	GENERIC PANEL 6FT	1900	15.84	140.00	2.00	60.00	4604.49	0.03676	1000.00	0.00368
Sprint C 27	GENERIC PANEL 6FT	2500	14.49	140.00	1.00	34.70	975.73	0.01130	1000.00	0.00113
T-Mobile A 28	GENERIC PANEL 6FT	1900	15.84	110.00	2.00	60.00	4604.49	0.00003	1000.00	0.00000
T-Mobile A 28	GENERIC PANEL 6FT	2100	16.39	110.00	2.00	60.00	5226.14	0.00004	1000.00	0.00000
T-Mobile A 28	GENERIC PANEL 6FT	600	12.33	110.00	2.00	60.00	2052.02	0.00047	400.00	0.00012
T-Mobile A 28	GENERIC PANEL 6FT	700	12.33	110.00	2.00	60.00	2052.02	0.00047	466.67	0.00010
T-Mobile B 29	GENERIC PANEL 6FT	1900	15.84	110.00	2.00	60.00	4604.49	0.00014	1000.00	0.00001
T-Mobile B 29	GENERIC PANEL 6FT	2100	16.39	110.00	2.00	60.00	5226.14	0.00009	1000.00	0.00001
T-Mobile B 29	GENERIC PANEL 6FT	600	12.33	110.00	2.00	60.00	2052.02	0.00018	400.00	0.00005
T-Mobile B 29	GENERIC PANEL 6FT	700	12.33	110.00	2.00	60.00	2052.02	0.00018	466.67	0.00004
T-Mobile C 30	GENERIC PANEL 6FT	1900	15.84	110.00	2.00	60.00	4604.49	0.10454	1000.00	0.01045
T-Mobile C 30	GENERIC PANEL 6FT	2100	16.39	110.00	2.00	60.00	5226.14	0.10951	1000.00	0.01095
T-Mobile C 30	GENERIC PANEL 6FT	600	12.33	110.00	2.00	60.00	2052.02	0.10174	400.00	0.02543
T-Mobile C 30	GENERIC PANEL 6FT	700	12.33	110.00	2.00	60.00	2052.02	0.10174	466.67	0.02180
							Cumulative Power Density:	**2.14371 µW/cm²**	**Cumulative % MPE:**	**0.28540%**

Summary

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

Katrina Styx
RF EME Technical Writer
Centerline Communications, LLC

EXHIBIT 6

Town of Fairfield
Building Department

725 Old Post Road · Fairfield, CT 06824 · 203.256.3036

PERM# 23003 **TYPE** BUI **MAP/LOT/EX** 122 670

HSE#/STREET/UNIT/UN 0100 REEF ROAD 0000

OWNER

NAME: TOWN OF FFLD/POLICE DEPARTMENT

ADDRESS: 725 OLD POST ROAD

FAIRFIELD CT 06430

PHONE: 000 2563000

CONTRACTOR

NAME: NEXTEL

ADDRESS: 575 CORPORATE DR SUITE 402

PHONE: 201 5290013

LICENSE#: 00000000 0

DESCRIPTION 10 X 30 EQUIP SHELTER & 150 FT ANTENNA*****CO # 10921 ISSUED 9/29/94*****

DATE **ENTERED** 25May1994 **ISSUED** 25May1994 **EXPIRED** 21Nov1994

COST $80,000.00 **RECEIPT** 00000 **FEE** $0.00 **PEN** $0.00

BPERM# 00000 **CTYPE** ADD **OCCUP** COMM

EXHIBIT 7

Proof of Delivery

Dear Customer,

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

Tracking Number

1Z9Y45030332266319

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

04/15/2022

Delivered On

05/25/2022 12:00 P.M.

Delivered To

3200 HORIZON DR
150
KING OF PRUSSIA, PA, 19406, US

Received By

TABLE

Left At

Inside Delivery

Reference Number(s)

CT5022-CSC_CROWN CASTLE, LLC

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

Sincerely,

UPS

Tracking results provided by UPS: 05/26/2022 12:33 P.M. EST

Proof of Delivery

Dear Customer,

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

Tracking Number

1Z9Y45030330956489

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

04/15/2022

Delivered On

05/24/2022 12:34 P.M.

Delivered To

725 OLD POST RD
FAIRFIELD, CT, 06824, US

Received By

LOBBY

Left At

Front Desk

Reference Number(s)

CT5022- CSC_FIRST SELECTWOMAN

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

Sincerely,

UPS

Tracking results provided by UPS: 05/26/2022 12:35 P.M. EST

Proof of Delivery

Dear Customer,

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

Tracking Number

1Z9Y45030334400099

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

04/15/2022

Delivered On

05/24/2022 12:34 P.M.

Delivered To

725 OLD POST RD
FAIRFIELD, CT, 06824, US

Received By

LOBBY

Left At

Front Desk

Reference Number(s)

CT5022- CSC_PLANNING DIRECTOR

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

Sincerely,

UPS

Tracking results provided by UPS: 05/26/2022 12:37 P.M. EST

Proof of Delivery

Dear Customer,

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

Tracking Number

1Z9Y45030334536701

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

04/15/2022

Delivered On

05/24/2022 12:34 P.M.

Delivered To

725 OLD POST RD
FAIRFIELD, CT, 06824, US

Received By

LOBBY

Left At

Front Desk

Reference Number(s)

CT5022-CSC_ZEO

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

Sincerely,

UPS

Tracking results provided by UPS: 05/26/2022 12:39 P.M. EST