Greg Milano
SAI Group, LLC
12 Industrial Way
Salem, NH 03079
860-707-9001
gmilano@saigrp.com

November 8, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) CT1274
123 Pine Orchard Road, Branford 06405
N 41.274444
W -72.793611

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 112-foot level of the existing 123-foot Monopole at 123 Pine Orchard Road, Branford, CT. The tower is owned by American Tower and the property is owned by Malavasi Investments LLC. AT&T now intends to remove three (3) Powerwave antennas and replace them with three (3) CCI DMP65R-BU6DA antennas. AT&T also intends to remove three (3) Ericsson RRUS-11 remote radio units and install three (3) Ericsson 4449 B5/B12 RRUS and three (3) Ericsson B14 4478 RRUS also at the 112-foot level of the tower.

This facility was approved by the Connecticut Siting Council in Docket # 386 on February 25, 2010. This approval included conditions that the tower be constructed as a Monopole not to exceed 125 feet above ground level and to utilize flush-mounts or T-Arm mounts. Since no modifications to the overall facility height or existing T-Arm mount style are proposed, this modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to James B. Cosgrove, First Selectman of the Town of Branford, and the Branford Town Planner as well as the property owner and the tower owner.

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

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

6. The existing structure and its foundation can support the proposed loading.

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

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

Sincerely,

Greg Milano

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12 Industrial Way
Salem, NH 03079
860-707-9001
gmilano@saigrp.com

Attachments

cc: James B. Cosgrove - as elected official
Harry Smith – Town Planner
Malavasi Investments LLC – as property owner
American Tower - as tower owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							7.96%
AT&T GSM	1	159	112	0.0051	880	0.5867	0.09%
AT&T UMTS	1	350	112	0.0112	880	0.5867	0.19%
AT&T UMTS	1	715	112	0.0229	1900	1.0000	0.23%
AT&T LTE	1	1476	112	0.0472	734	0.4893	0.97%
AT&T LTE	2	2421	112	0.1550	1900	1.0000	1.55%
Site Total							10.99%

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

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

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							7.96%
AT&T LTE	1	159	112	0.0051	880	0.5867	0.09%
AT&T UMTS	1	350	112	0.0112	880	0.5867	0.19%
AT&T UMTS	1	715	112	0.0229	1900	1.0000	0.23%
AT&T LTE	1	1476	112	0.0472	734	0.4893	0.97%
AT&T LTE	2	2421	112	0.1550	1900	1.0000	1.57%
AT&T 5G	1	1000	112	0.0320	850	0.5667	0.56%
Site Total							11.57%

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

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

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
- NEW AT&T ANTENNAS: DMP65R-BU6DA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B5/B12 4449 (700/850) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T DC/FIBER SURGE ARRESTOR: DC6-48-60-18-8C (TOTAL OF 1) WITH (2) DC POWER & (1) FIBER RUN.
- INSTALL MOUNT MODIFICATIONS PER MA.
- EXISTING AT&T ANTENNAS: SBNHH-1D65A RELOCATED TO POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-32 B2 (PCS) RELOCATED TO POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- PROPOSE NEW NETSURE 7100 WITH BATTERIES
- SWAP BB WITH (2) 6630
- ADD IDLE
- ADD (1) DC-12
- ADD (1) FIBER MANAGEMENT BOX

ITEMS TO REMOVED:
- (3) ANTENNAS, (3) RRU'S, (3) TMA'S, & (6) GRADE LEVEL GSM DIPLEXERS.

ITEMS TO REMAIN:
- (6) ANTENNAS, (3) RRU'S, (3) TMA'S, (12) COAX CABLES, (1) SURGE ARRESTOR, (2) DC POWER, & (1) FIBER.

SITE ADDRESS:	123 PINE ORCHARD ROAD BRANFORD, CT 06405
LATITUDE:	41.274444° N, 41° 16' 27.99" N
LONGITUDE:	72.793611° W, 72° 47' 36.99" W
TYPE OF SITE:	MONOPOLE/ EQUIPMENT SHELTER
STRUCTURE HEIGHT:	123'-0"±
RAD CENTER:	112'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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A-2	ANTENNA LAYOUTS & ELEVATION	1
A-3	DETAILS	1
SN-1	STRUCTURAL NOTES	1
S-1	MOUNT MODIFICATION DESIGN	1
G-1	GROUNDING DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1

ATC SITE NAME: PINE ORCHARD BRANFORD
ATC SITE #: 283419

SITE NUMBER: CT1274

SITE NAME: BRANFORD PINE ORCHARD ROAD

FA CODE: 10133874

PACE ID: MRCTB040602, MRCTB040459, & MRCTB040509

PROJECT: LTE 3C_4C 2020 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

ENTERPRISE DR, TURN LEFT ONTO CAPITAL BLVD, USE THE LEFT 2 LANES TO TURN LEFT ONTO STATE HWY 411, TURN LEFT TO MERGE ONTO I-91 S, MERGE ONTO I-91 S, USE THE LEFT LANE TO MERGE ONTO I-95 N TOWARD NEW LONDON, TAKE EXIT 54 FOR CEDAR ST TOWARD BRANFORD, TURN RIGHT ONTO CEDAR ST, TURN LEFT ONTO MAIN ST, TURN RIGHT ONTO S MAIN ST, PASS BY CAPITAL ONE BANK (ON THE RIGHT), TURN RIGHT ONTO MONTOWESE ST, TURN LEFT ONTO PINE ORCHARD RD, TURN RIGHT TO STAY ON PINE ORCHARD RD, DESTINATION WILL BE ON THE RIGHT.

GENERAL NOTES

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

72 HOURS

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

UNDERGROUND SERVICE ALERT

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

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at&t
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: SF

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

AT&T

TITLE SHEET
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1274	T-1	1

GROUNDING NOTES

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ABBREVIATIONS

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1274
SITE NAME: BRANFORD PINE ORCHARD ROAD
ATC SITE # ID: 283419

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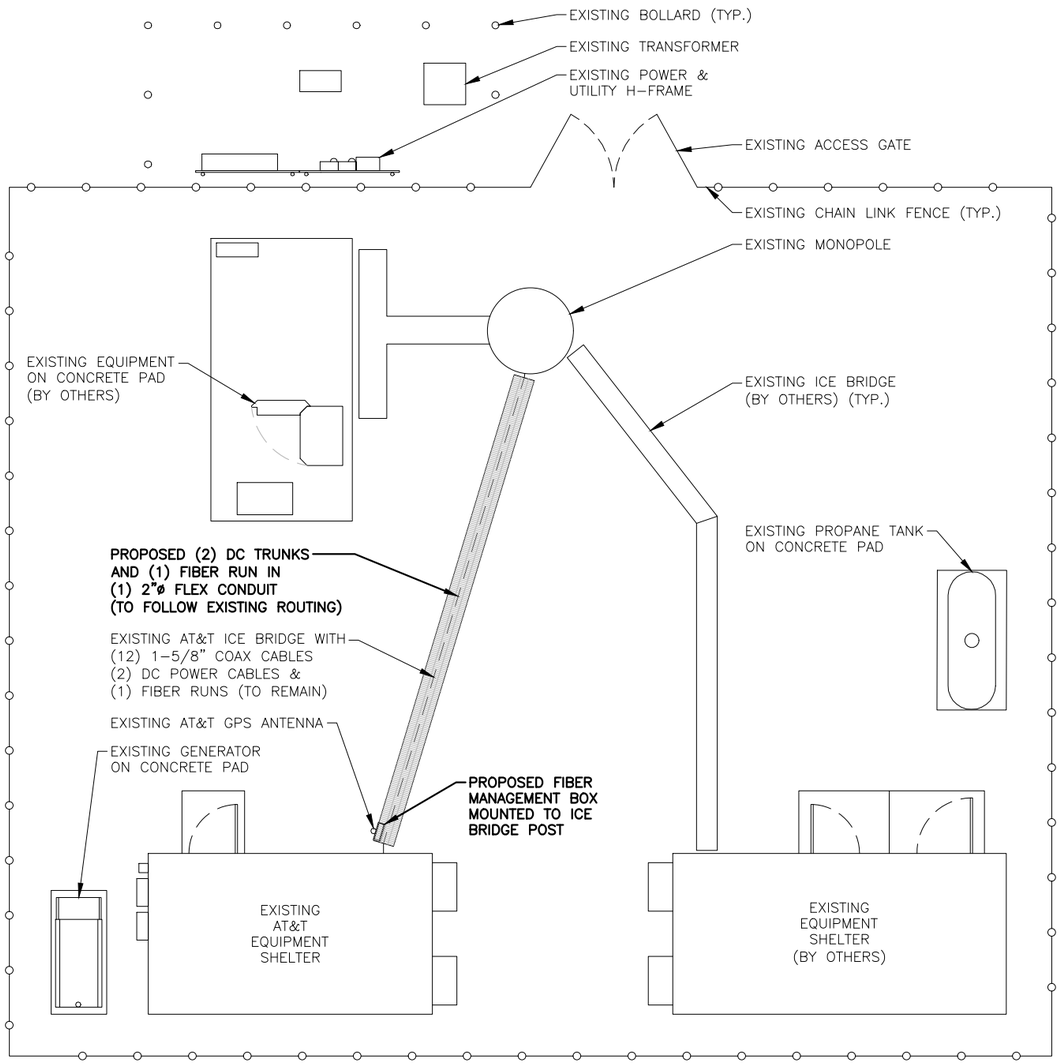
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: SF

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

AT&T

GENERAL NOTES
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1274	GN-1	1



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

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

13°26' TRUE NORTH MAGNETIC NORTH

NOTE:

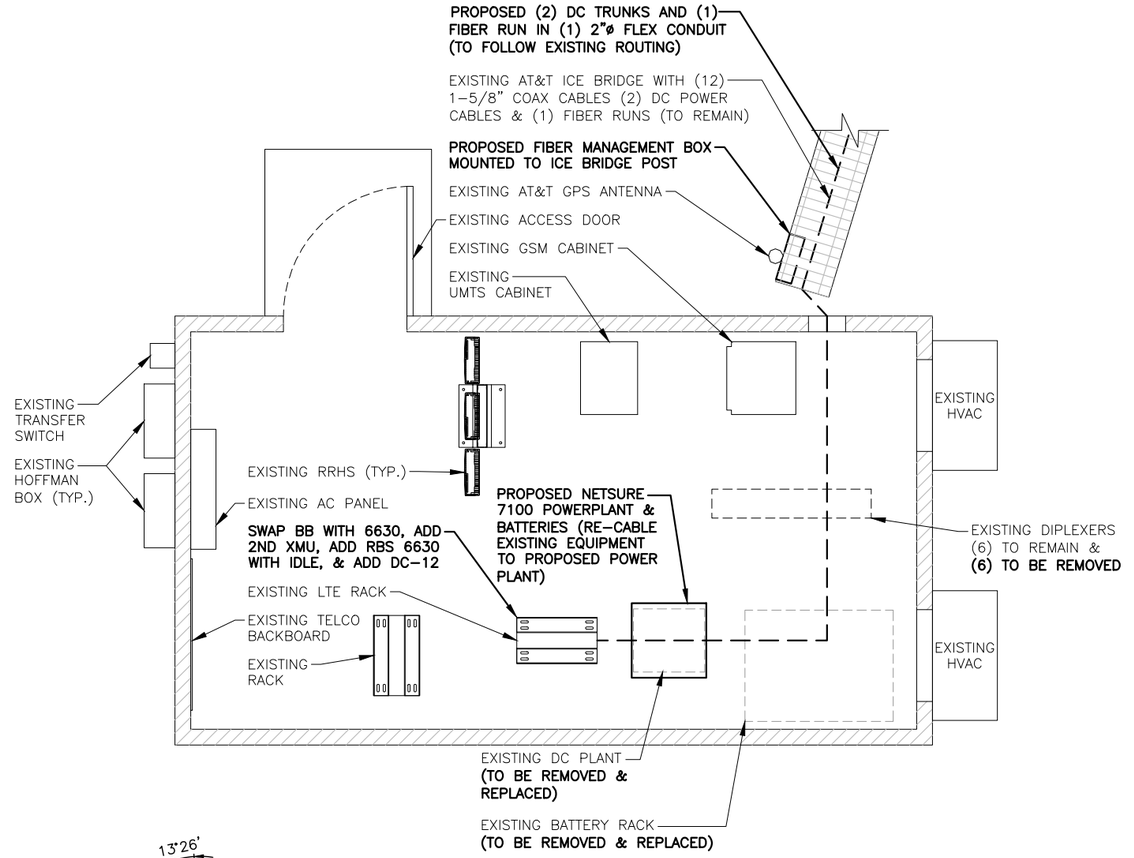
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: HUDSON DESIGN GROUP, LLC.
DATED: OCTOBER 15, 2019 (REV. 1)



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"

13°26' TRUE NORTH MAGNETIC NORTH

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

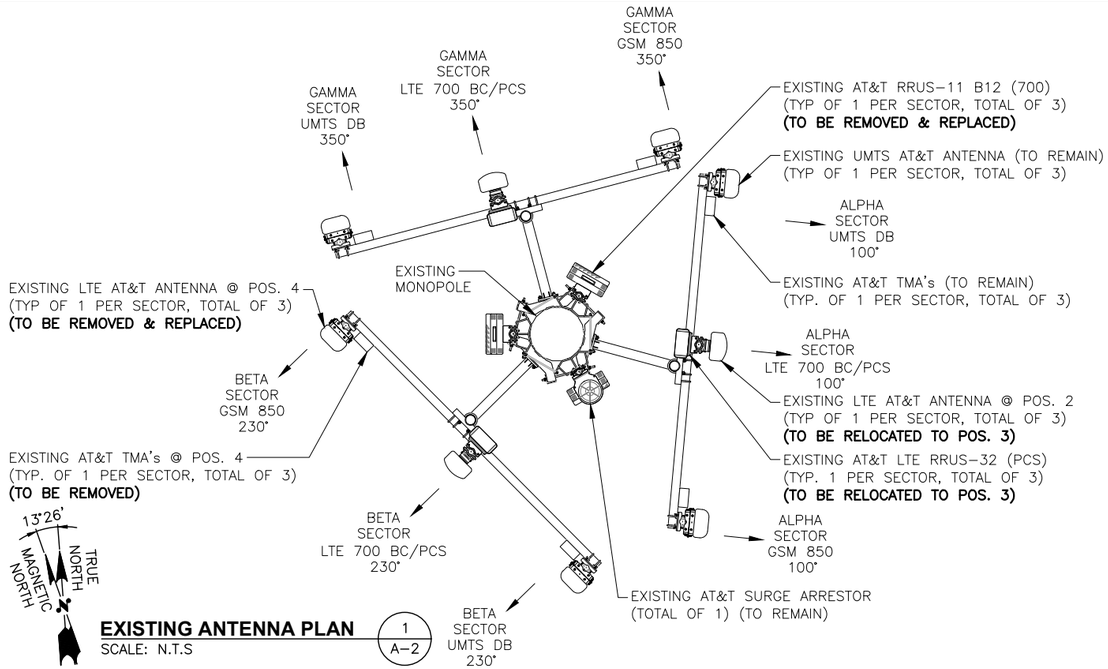
STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

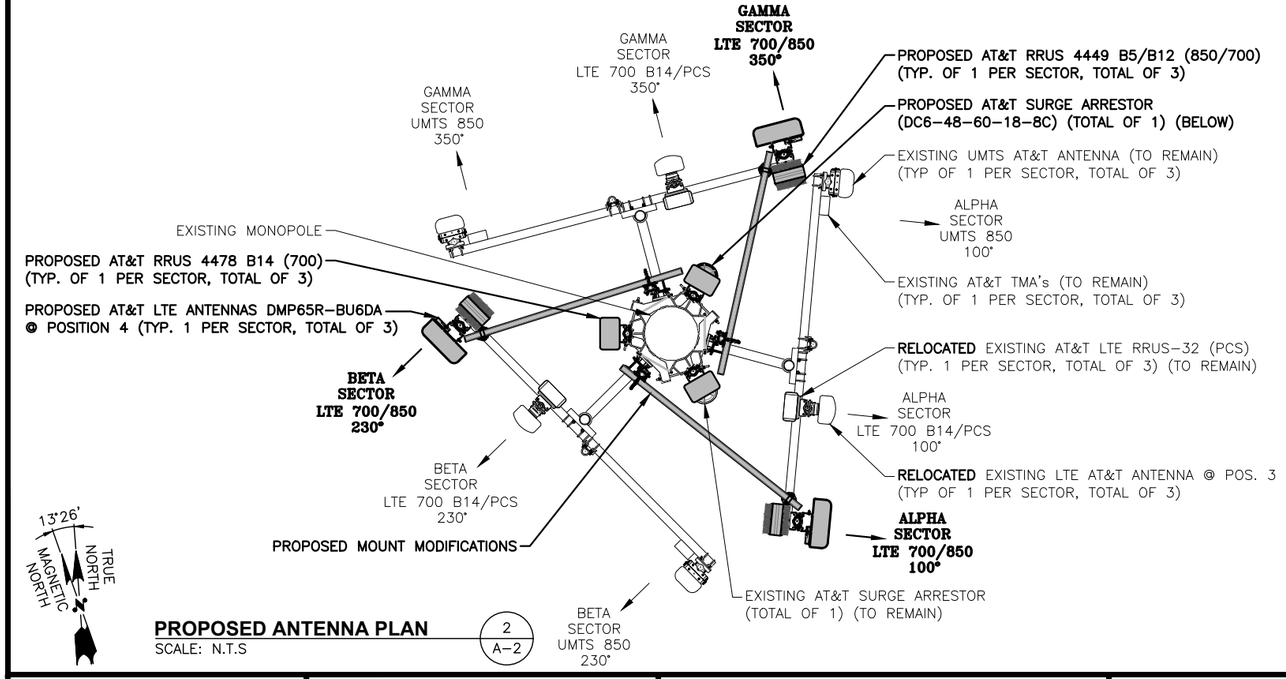
AT&T

COMPOUND & EQUIPMENT PLANS
LTE 3C_4C 2020 UPGRADE

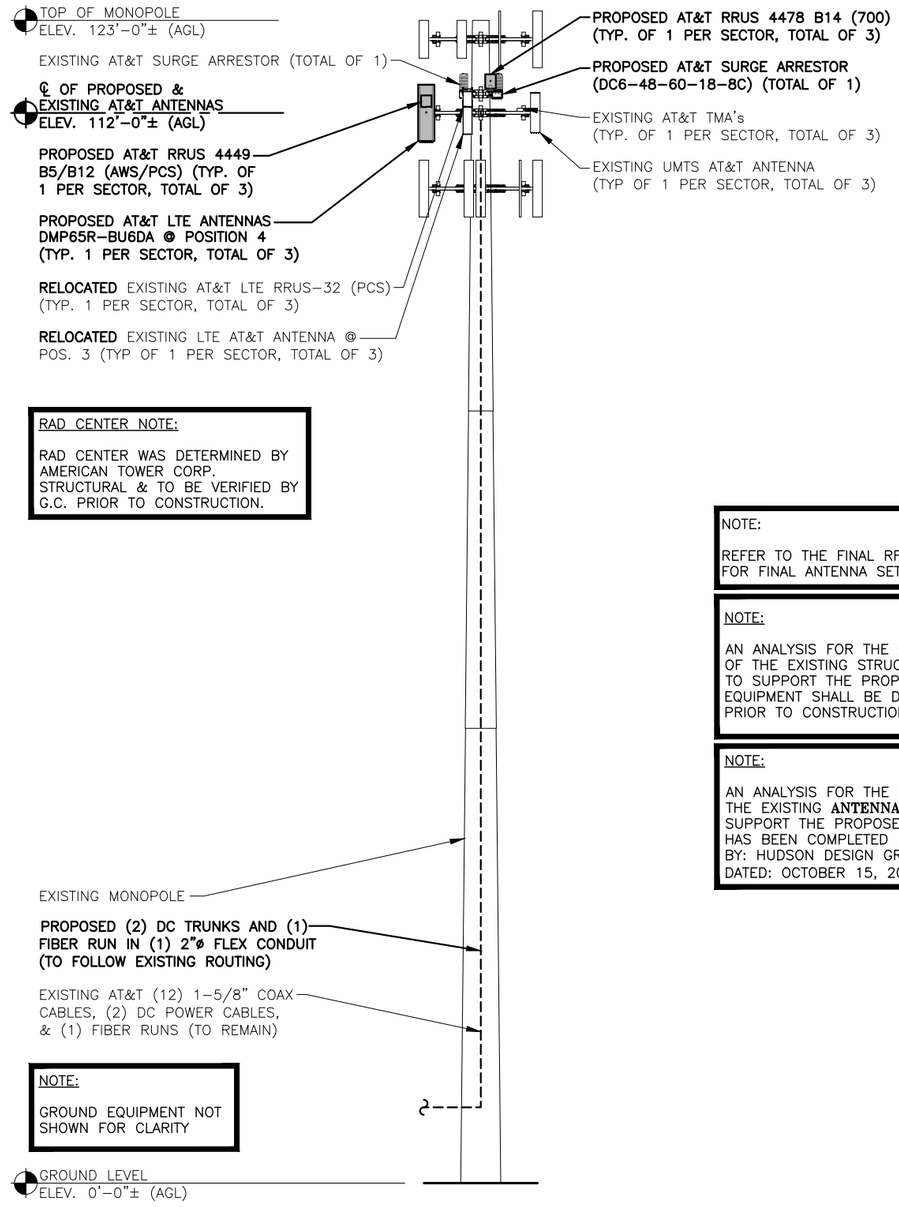
SITE NUMBER	DRAWING NUMBER	REV
CT1274	A-1	1



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



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



RAD CENTER NOTE:

RAD CENTER WAS DETERMINED BY AMERICAN TOWER CORP. STRUCTURAL & TO BE VERIFIED BY G.C. PRIOR TO CONSTRUCTION.

NOTE:

GROUND EQUIPMENT NOT SHOWN FOR CLARITY

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

0 4'-0" 8'-0" 16'-0" 24'-0"

NOTE:

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

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: HUDSON DESIGN GROUP, LLC.
DATED: OCTOBER 15, 2019 (REV. 1)

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1274
SITE NAME: BRANFORD PINE ORCHARD ROAD
ATC SITE # ID: 283419

123 PINE ORCHARD ROAD
BRANFORD, CT 06405
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/05/19	ISSUED FOR CONSTRUCTION	SF/GA	AT	DPH
A	08/27/19	ISSUED FOR REVIEW	SF	AT	DPH

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

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

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ANTENNA LAYOUTS & ELEVATION
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1274	A-2	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	P90-15-XLH-RR	72x12x7.3	112'-0"±	100°	(1)(E) TT19-08BP111-001	–	–	(2)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
A2	–	–	–	–	–	–	–	–	–	(2)1-5/8 COAX (CAPPED)	
A3	**RELOCATED**	LTE 700 B14/PCS	SBNHH-1D65A	55x11.9x7.1	112'-0"±	100°	–	**4478 B14** RRUS-32 B2	**18.1"x13.4x8.3"** –	–	
A4	**PROPOSED**	**LTE 700/850**	**DMP65R-BU6DA**	**71.2x20.7x7.7**	**112'-0"±**	**100°**	–	**4449 B5/B12**	**14.9"x13.2"x10.4"**	–	
B1	EXISTING	UMTS 850	P90-15-XLH-RR	72x12x7.3	112'-0"±	230°	(1)(E) TT19-08BP111-001	–	–	(2)1-5/8 COAX	–
B2	–	–	–	–	–	–	–	–	–	(2)1-5/8 COAX (CAPPED)	
B3	**RELOCATED**	LTE 700 B14/PCS	SBNHH-1D65A	55x11.9x7.1	112'-0"±	230°	–	**4478 B14** RRUS-32 B2	**18.1"x13.4x8.3"** –	–	
B4	**PROPOSED**	**LTE 700/850**	**DMP65R-BU6DA**	**71.2x20.7x7.7**	**112'-0"±**	**230°**	–	**4449 B5/B12**	**14.9"x13.2"x10.4"**	–	
C1	EXISTING	UMTS 850	P90-15-XLH-RR	72x12x7.3	112'-0"±	350°	(1)(E) TT19-08BP111-001	–	–	(2)1-5/8 COAX	(P) (1) RAYCAP DC6-48-60-18-8C
C2	–	–	–	–	–	–	–	–	–	(2)1-5/8 COAX (CAPPED)	
C3	**RELOCATED**	LTE 700 B14/PCS	SBNHH-1D65A	55x11.9x7.1	112'-0"±	350°	–	**4478 B14** RRUS-32 B2	**18.1"x13.4x8.3"** –	–	
C4	**PROPOSED**	**LTE 700/850**	**DMP65R-BU6DA**	**71.2x20.7x7.7**	**112'-0"±**	**350°**	–	**4449 B5/B12**	**14.9"x13.2"x10.4"**	–	

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

NOTE:
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NOTE:
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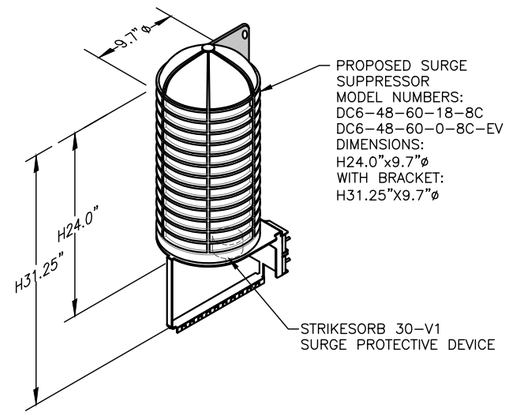


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (2 / A-3)
SCALE: N.T.S

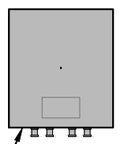
NETSURE 7100 POWER PLANT (6 / A-3)
SCALE: N.T.S

RRU CHART

QUANTITY	MODEL	SIZE (LxWxD)
3(P)	4449 (850/700)	14.9"x13.2"x10.4"
3(P)	4478 B14 (700)	18.1"x13.4"x8.3"
3(E)	RRUS-32 (PCS)	27.2"x12.1"x7.0"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

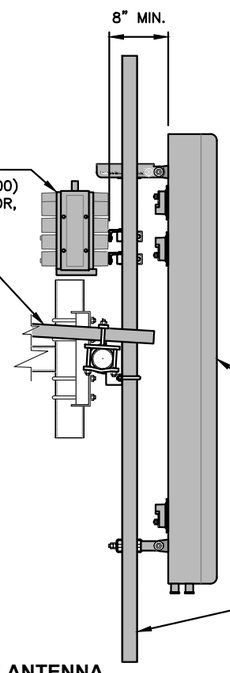
NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



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

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (3 / A-3)
SCALE: N.T.S



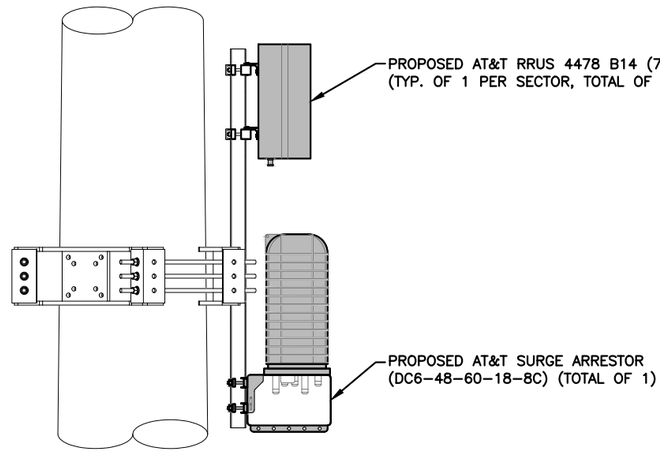
RAD CENTER NOTE:
RAD CENTER WAS DETERMINED BY AMERICAN TOWER CORP. STRUCTURAL & TO BE VERIFIED BY G.C. PRIOR TO CONSTRUCTION.

℄ OF PROPOSED/EXISTING AT&T ANTENNAS
ELEV. = 112'-0"± A.G.L

PROPOSED AT&T LTE ANTENNAS DMP65R-BU6DA ⊙ POSITION 4 (TYP. 1 PER SECTOR, TOTAL OF 3)

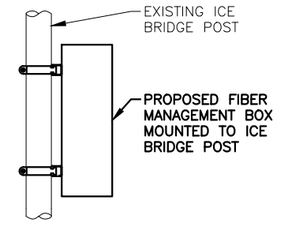
PROPOSED LTE ANTENNA MOUNTING DETAIL (4 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"



PROPOSED SURGE ARRESTOR & RRU MOUNTING DETAIL (5 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"



PROPOSED FIBER MANAGEMENT BOX MOUNTING DETAIL (7 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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

AT&T

DETAILS
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1274	A-3	1

STRUCTURAL NOTES:

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

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

NOTES:

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

NOTES:

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

SPECIAL INSPECTION CHECKLIST

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

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

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AT&T

STRUCTURAL NOTES
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1274	SN-1	1

NOTE:

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NOTE:

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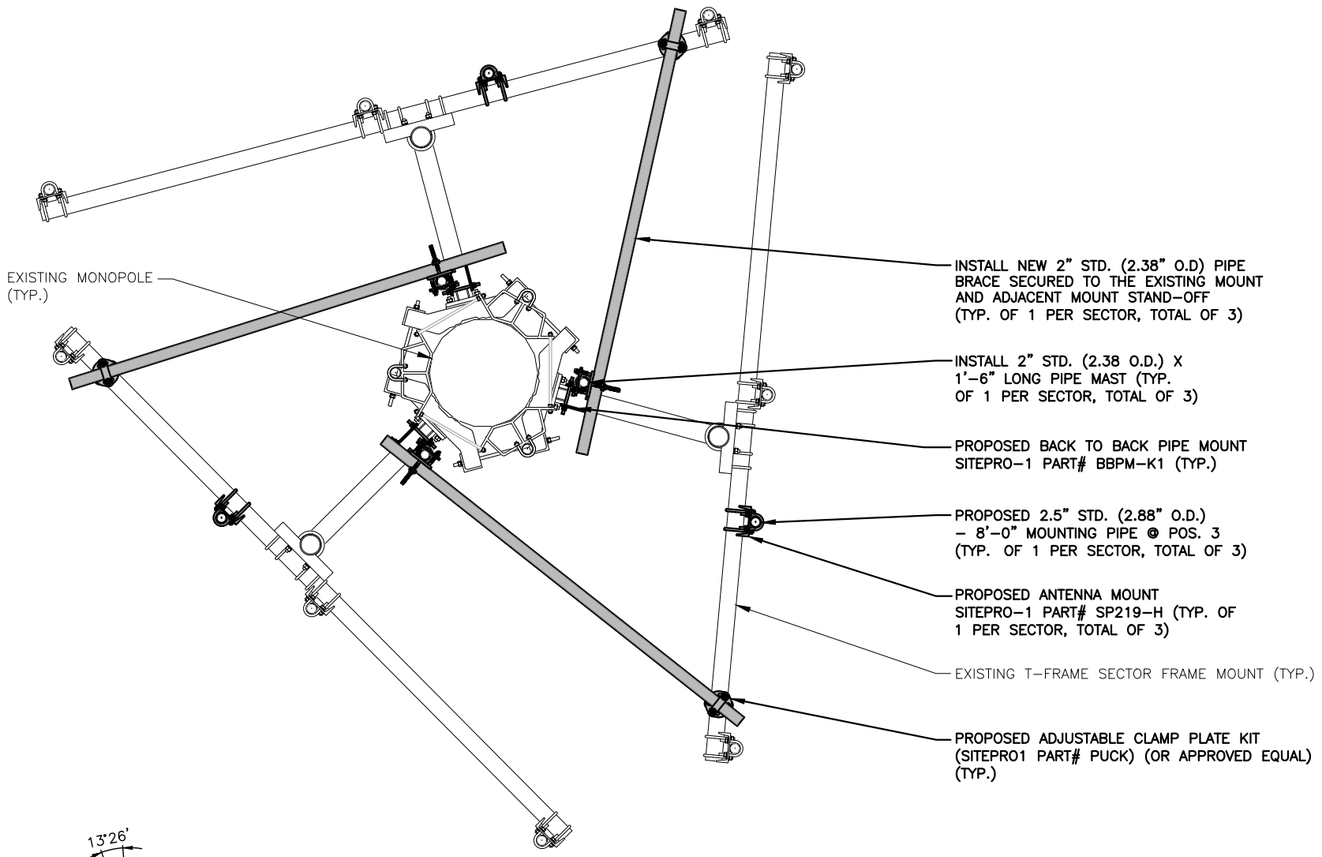
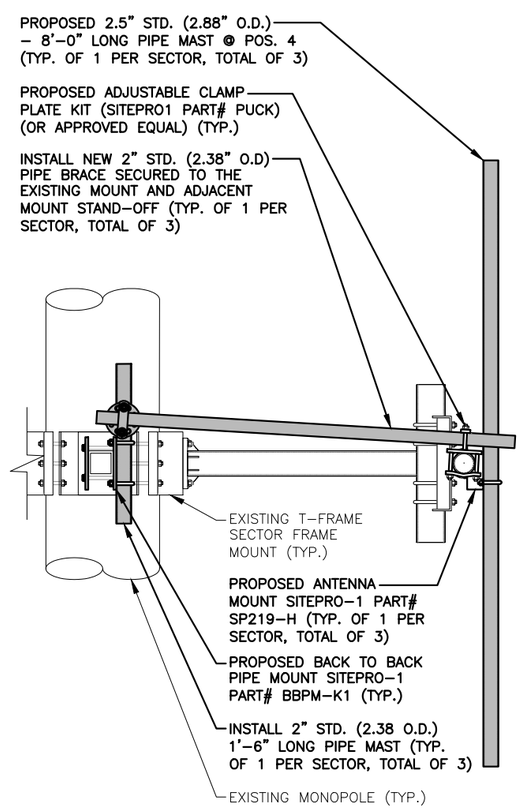


PROPOSED MOUNT MODIFICATIONS PLAN (1 / S-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

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



PROPOSED MOUNT MODIFICATIONS DETAIL (2 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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MOUNT MODIFICATION DESIGN
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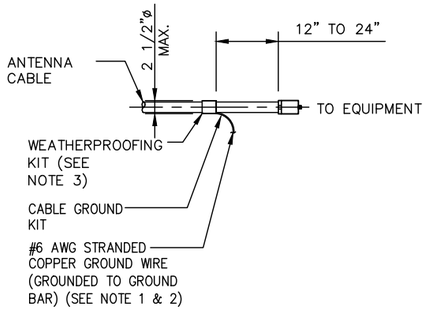
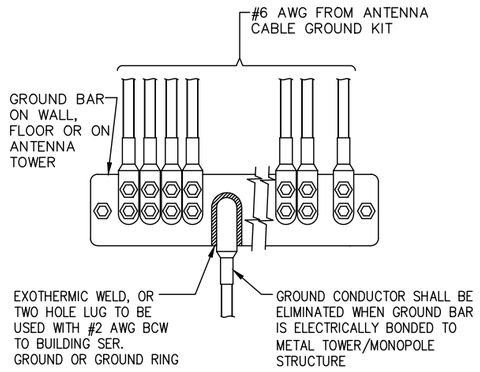


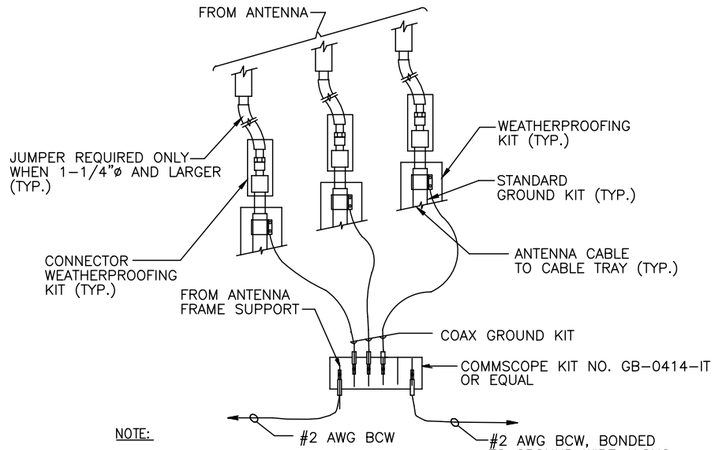
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE (1 / G-1)
SCALE: N.T.S



INSTALLATION OF GROUND WIRE TO GROUND BAR (2 / G-1)
SCALE: N.T.S



NOTE:

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

INSTALLATION OF GROUND WIRE TO GROUNDING BAR TOWER (3 / G-1)
SCALE: N.T.S

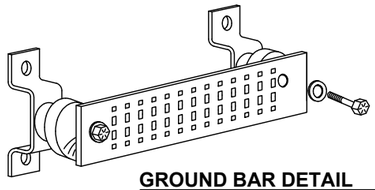
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

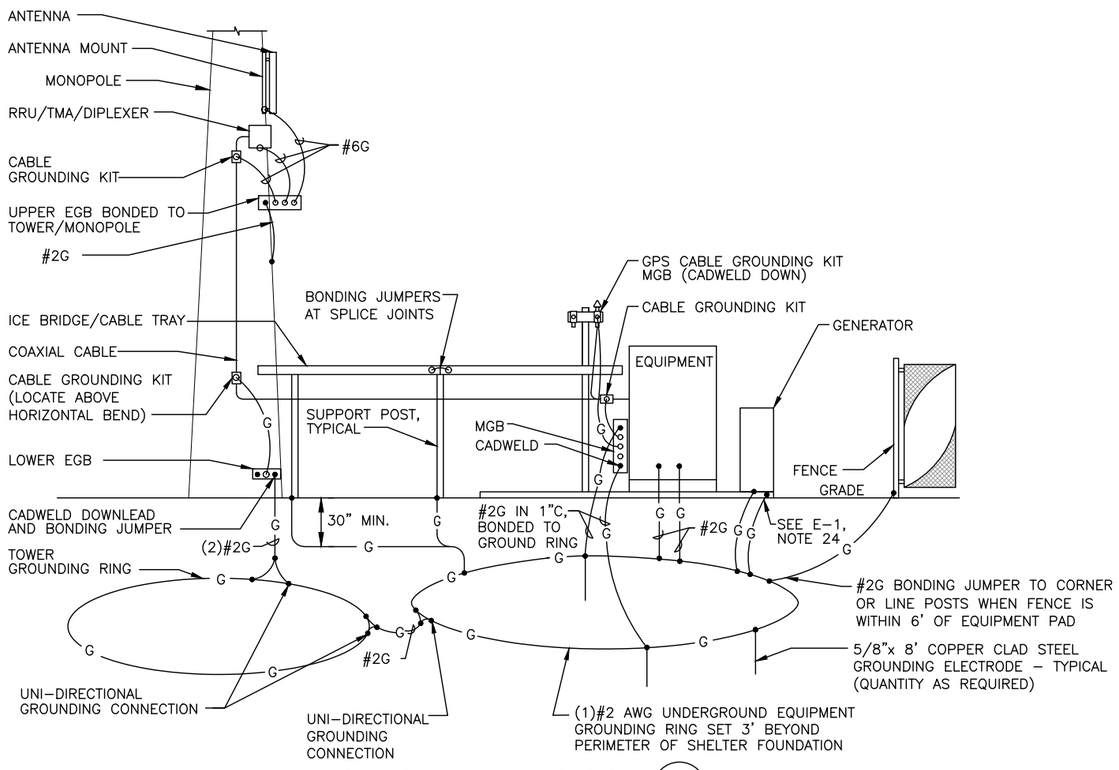
CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
−48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

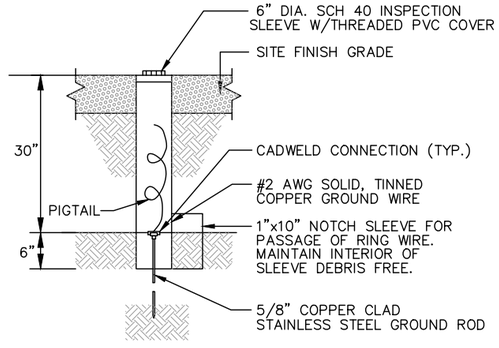
INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



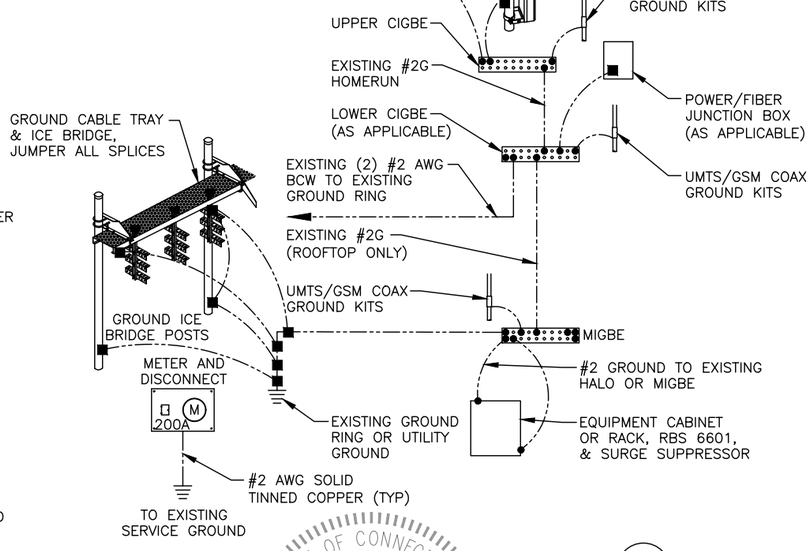
GROUND BAR DETAIL (4 / G-1)
SCALE: N.T.S



GROUNDING ONE-LINE DIAGRAM (5 / G-1)
SCALE: N.T.S



GROUND ROD TEST WELL DETAIL (6 / G-1)
SCALE: N.T.S



GROUNDING RISER DIAGRAM (7 / G-1)
SCALE: N.T.S

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

12 INDUSTRIAL WAY
SALEM, NH 03079

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

SITE NUMBER: CT1274
SITE NAME: BRANFORD PINE ORCHARD ROAD
ATC SITE # ID: 283419

123 PINE ORCHARD ROAD
BRANFORD, CT 06405
NEW HAVEN COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/05/19	ISSUED FOR CONSTRUCTION	SF/GA	AT	DPH
A	08/27/19	ISSUED FOR REVIEW	SF	AT	DPH

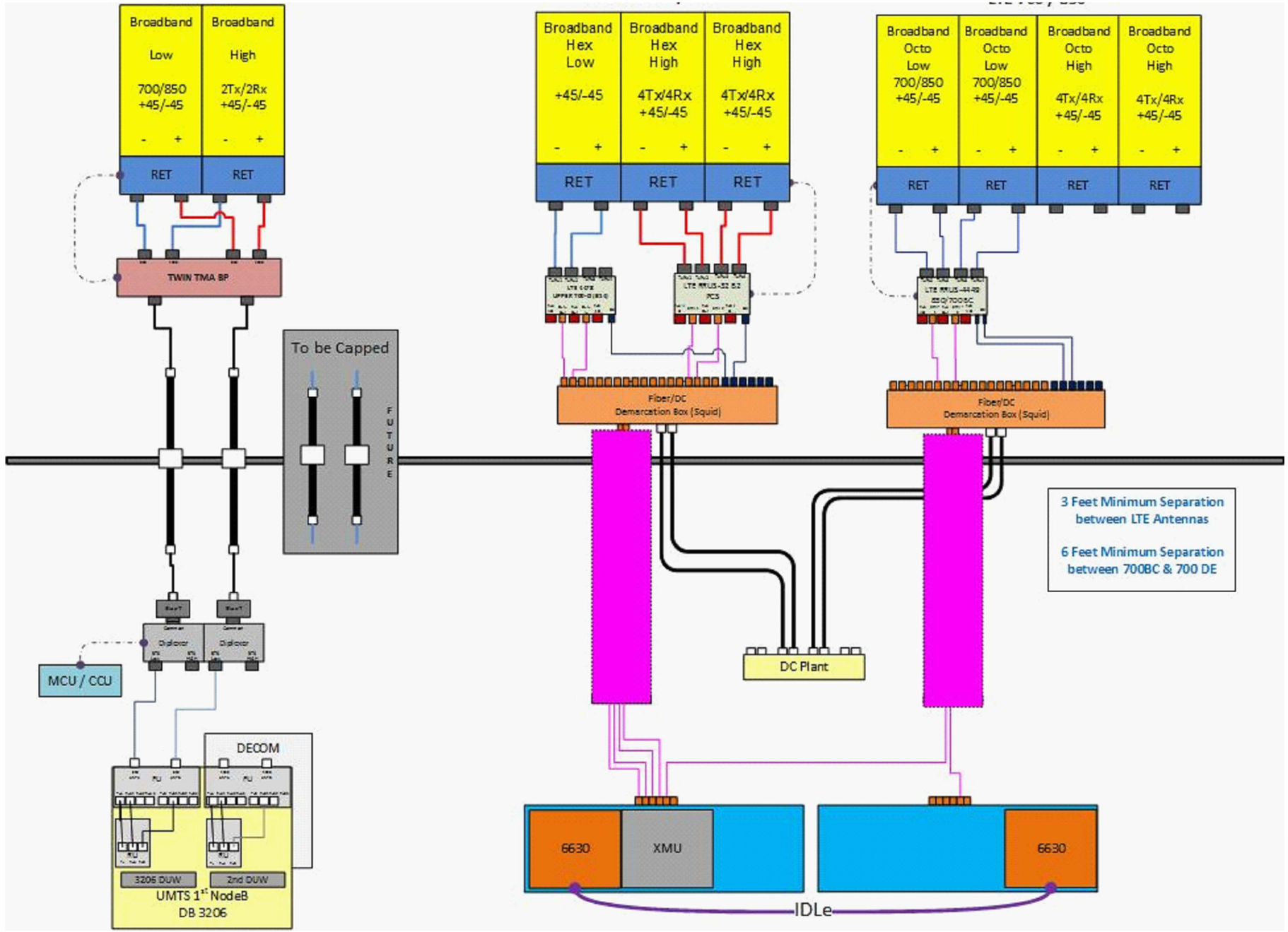
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: SF

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

AT&T

GROUNDING DETAILS
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1274	G-1	1



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

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

NOTE:

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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SITE NUMBER: CT1274
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ATC SITE # ID: 283419

123 PINE ORCHARD ROAD
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1	11/05/19	ISSUED FOR CONSTRUCTION	SF/GA	AT	DPH
A	08/27/19	ISSUED FOR REVIEW	SF	AT	DPH

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

AT&T

RF PLUMBING DIAGRAM
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1274	RF–1	1

September 25, 2019

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT1274 (LTE 3C/4C)
	FA Number:	10133874
	PACE Number:	MRCTB040459
	PT Number:	2101A0PQWB
	Site Name:	BRANFORD PINE ORCHARD RD
	Site Address:	123 Pine Orchard Road Branford, CT 06405

To Whom It May Concern:

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

- (3) P90-15-XLH-RR Antennas (72.0"x11.0"x7.0"– Wt. = 49 lbs. /each)
- (3) SBNHH-1D65A Antennas (55.6"x11.9"x7.1" - Wt. = 34 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) TT19-08BP111-001 TMA's (9.9"x6.7"x5.4" - Wt. = 16 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7"– Wt. = 80 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each) (Tower Mount)**
- **(3) B5/B12 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on September 17, 2019.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 128 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 1.13 in was used for this analysis.
- HDG considers this site to be exposure category D; tower is located on flat, unobstructed, shorelines.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- AT&T policy forbids walking on or suspending below T-arm mounts. This Analysis does not include live load conditions for this mount.
- The existing mount is secured to the existing monopole with a ring mount. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Install new 2" std. (2.38" O.D.) pipe brace secured to existing mount and tower (typ. of 1 per sector, total of 3).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 3C/4C) Mount Rating	2	LC1	109%	**FAIL**
Modified (LTE 3C/4C) Mount Rating	2	LC7	72%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473

p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

		z=	112 (ft)
		z_g=	700 (ft)
K_z=	**1.461**	α=	11.5

$Kzmin \le Kz \le 2.01$

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}=	**#DIV/0!**	K_h=	#DIV/0!
		K_c=	1.1 (from Table 2-4)
(If Category 1 then K_{zt} =1.0)		K_t=	0 (from Table 2-5)
		f=	0 (from Table 2-5)
Category=	1	z=	112
		z_s=	40 (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=**	**1.0 (from Table 2-3)**
		K_{iz} =	**1.13 (from Sec. 2.6.10)**

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

t_{iz} = **1.13 in**

Date: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW 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=	125	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=	1.461	(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=	58.15	K_e=	1.00	(from 2.6.8)
$q_{z\,(ice)}$=	8.87	K_d=	0.95	(from Table 2-2)
$q_{z\,(30)}$=	3.19	V_{max}=	128	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: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW 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 = 1.13 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)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	6.55	1.38	441	84	24
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	4.67	1.30	346	65	19
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	739	129	41
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	159	31	9
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	136.00	5.70	13	25	1
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	95	20	5
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	0.00	1.20	0	3	0
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	1.83	1.20	26	7	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	66	14	4
2" Pipe	2.4	12.0		0.20	0.20	1.20	14	5	1
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	17	5	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	20	6	1
4" Pipe	4.5	12.0		0.38	0.38	1.20	26	7	1
HSS 4x4	4.0	12.0		0.33	0.33	1.25	24	7	1

Date: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)

Ice Thickness =	1.13	in.

Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	408
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	317
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	636
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	144
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	86	97	88
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	90
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	48	75	55
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	27
WIND LOADS WITH ICE:												
P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	76
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	59
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	112
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	29
RRUS-32 B2 RRH (Shielded)	29.5	7.2	9.3	1.47	1.89	4.10	3.18	1.27	1.23	17	21	18
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	19
B5/B12 4449 RRH (Shielded)	17.2	7.7	12.7	0.92	1.51	2.22	1.36	1.20	1.20	10	16	11
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	7
WIND LOADS AT 30 MPH:												
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	22
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	17
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	35
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	8
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	5	5	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	5
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	3	4	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	341
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	257
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	430
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	113
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	122	97	103
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	80
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	71	75	74
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	31

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	66
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	50
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	80
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	23
RRUS-32 B2 RRH (Shielded)	29.5	10.8	9.3	2.20	1.89	2.74	3.18	1.21	1.23	24	21	21
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	17
B5/B12 4449 RRH (Shielded)	17.2	11.6	12.7	1.38	1.51	1.48	1.36	1.20	1.20	15	16	16
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	8

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	19
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	14
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	24
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	6
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	7	5	6
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	4	4	4
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	307
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	228
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	327
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	97
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	1.32	136.00	3.89	5.70	1.26	13	97	97
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	75
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	1.08	0.00	1.43	1.20	1.20	0	75	75
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	32

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	61
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	46
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	64
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	21
RRUS-32 B2 RRH (Shielded)	29.5	2.5	9.3	0.50	1.89	11.98	3.18	1.57	1.23	7	21	21
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	16
B5/B12 4449 RRH (Shielded)	17.2	2.3	12.7	0.27	1.51	7.59	1.36	1.42	1.20	3	16	16
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	8

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	17
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	13
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	18
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	5
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	1.32	136.00	3.89	5.70	1.26	1	5	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	1.08	0.00	1.43	1.20	1.20	0	4	4
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	341
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	257
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	430
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	113
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	122	97	103
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	80
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	71	75	74
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	31

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	66
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	50
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	80
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	23
RRUS-32 B2 RRH (Shielded)	29.5	10.8	9.3	2.20	1.89	2.74	3.18	1.21	1.23	24	21	21
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	17
B5/B12 4449 RRH (Shielded)	17.2	11.6	12.7	1.38	1.51	1.48	1.36	1.20	1.20	15	16	16
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	8

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	19
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	14
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	24
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	6
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	7	5	6
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	4	4	4
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	408
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	317
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	636
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	144
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	86	97	88
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	90
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	48	75	55
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	27

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	76
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	59
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	112
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	29
RRUS-32 B2 RRH (Shielded)	29.5	7.2	9.3	1.47	1.89	4.10	3.18	1.27	1.23	17	21	18
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	19
B5/B12 4449 RRH (Shielded)	17.2	7.7	12.7	0.92	1.51	2.22	1.36	1.20	1.20	10	16	11
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	7

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	22
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	17
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	35
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	8
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	5	5	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	5
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	3	4	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
Project Name: BRANFORD PINE ORCHARD RD
Project No.: CT1274
Designed By: LBW **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.13 in.
Density of ice: 56 pcf

P90-15-XLH-RR Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	11.0	
Depth (in):	7.0	
Total weight of ice on object:		117 lbs
Weight of object:	49.0 lbs	
Combined weight of ice and object:		166 lbs

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:

Height (in):	55.6	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		96 lbs
Weight of object:	34.0 lbs	
Combined weight of ice and object:		130 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:		190 lbs
Weight of object:	80.0 lbs	
Combined weight of ice and object:		270 lbs

RRUS-32 B2 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:		47 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		107 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.4	
Total weight of ice on object:		31 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		104 lbs

TT19-08BP111-001 TMA

Weight of ice based on total radial SF area:

Height (in):	9.9	
Width (in):	5.4	
Depth (in):	6.7	
Total weight of ice on object:		11 lbs
Weight of object:	16.0 lbs	
Combined weight of ice and object:		27 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		30 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		63 lbs

2" pipe

Per foot weight of ice:

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

2-1/2" pipe

Per foot weight of ice:

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

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		6 plf

4" Pipe

Per foot weight of ice:

diameter (in):	4.5	
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:		9 plf

HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)

Bentley

Current Date: 9/25/2019 12:17 PM
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Bentley

Current Date: 9/25/2019 12:17 PM
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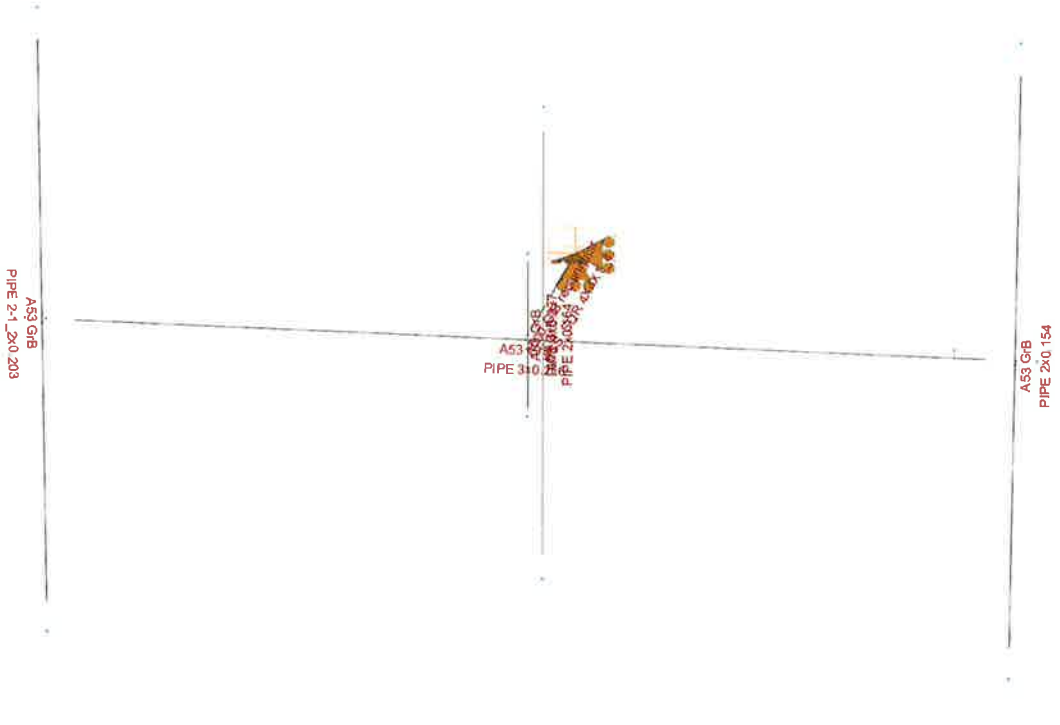

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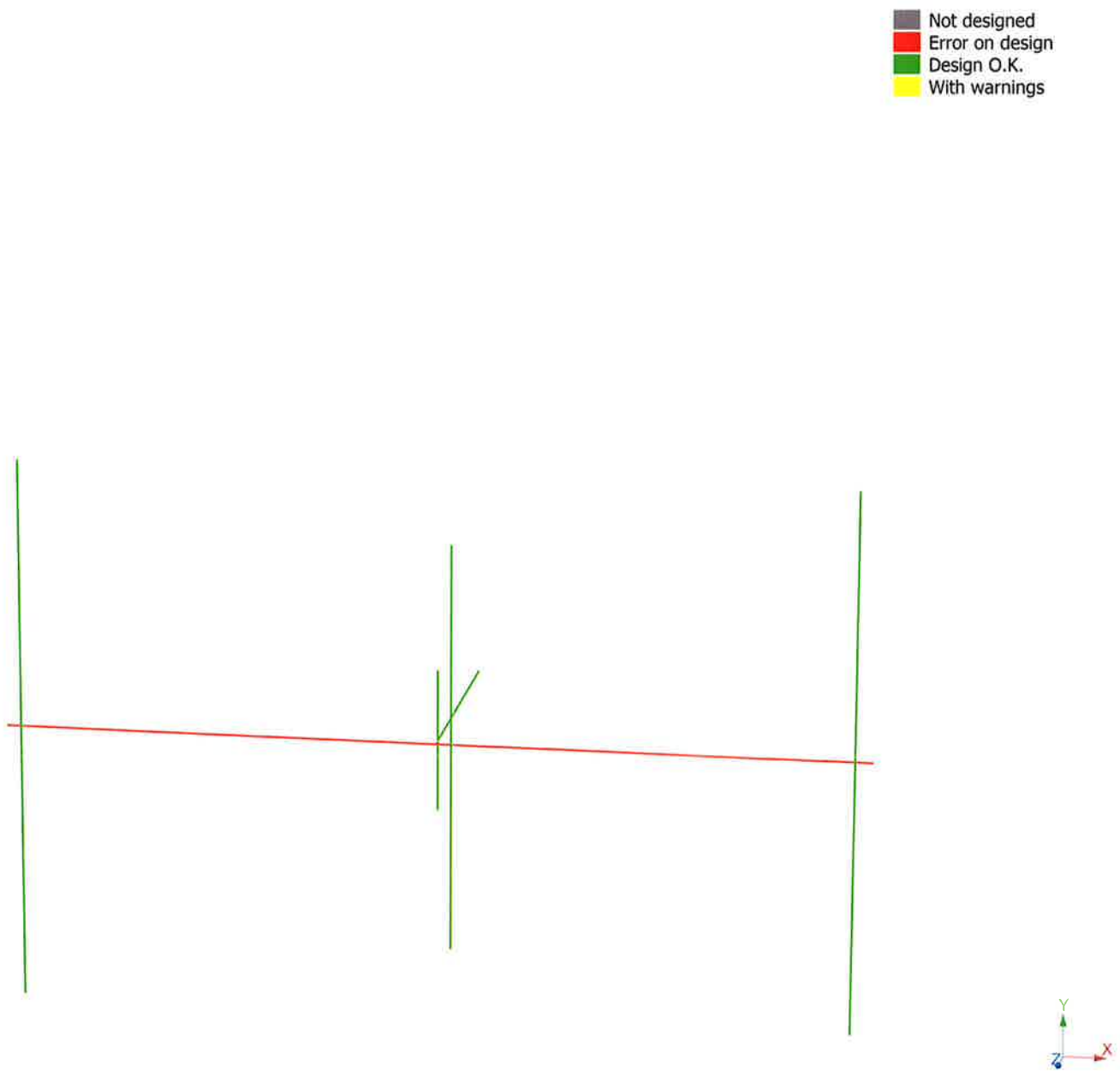

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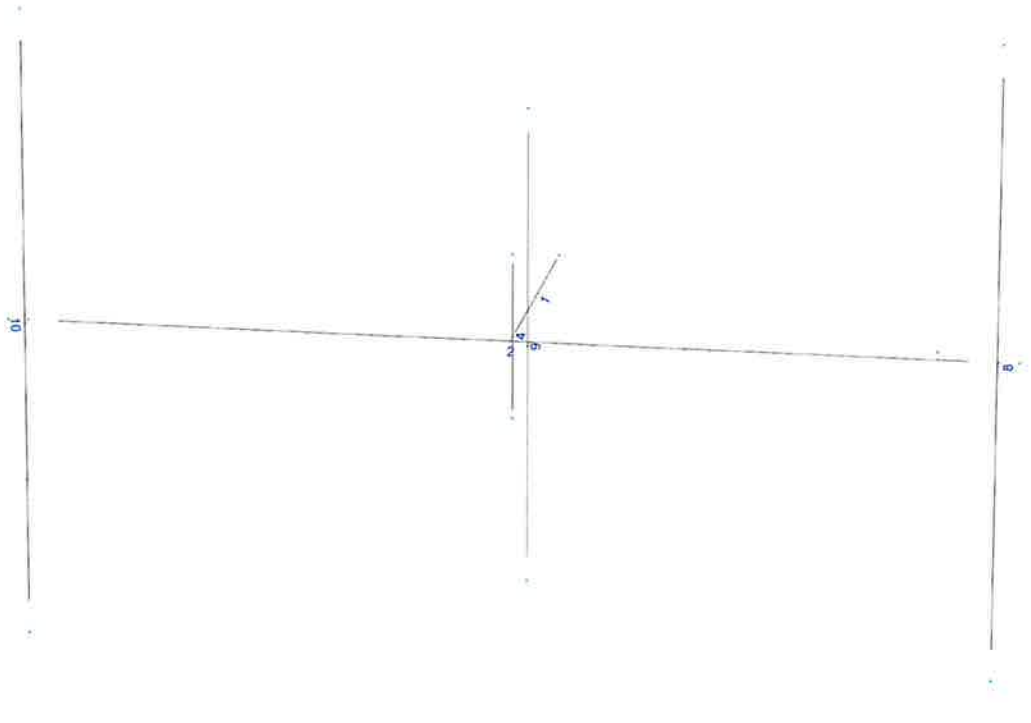

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Load data

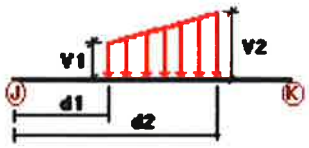
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

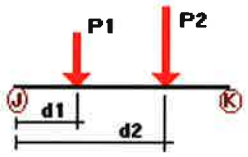
Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	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	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.024	0.00	0.00	No	0.00	No
	2	z	-0.02	0.00	0.00	No	0.00	No
	4	z	-0.026	0.00	0.00	No	0.00	No
W30	1	z	-0.024	0.00	0.00	No	0.00	No
	2	z	-0.02	0.00	0.00	No	0.00	No
	4	z	-0.026	0.00	0.00	No	0.00	No
W60	1	x	-0.024	0.00	0.00	No	0.00	No
	2	x	-0.02	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
W90	1	x	-0.024	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
W120	1	x	-0.024	0.00	0.00	No	0.00	No
	2	x	-0.02	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
W150	1	z	0.024	0.00	0.00	No	0.00	No
	2	z	0.02	0.00	0.00	No	0.00	No
	4	z	0.026	0.00	0.00	No	0.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.006	0.00	0.00	No	0.00	No
	4	y	-0.008	0.00	0.00	No	0.00	No
	8	y	-0.005	0.00	0.00	No	0.00	No
	9	y	-0.005	0.00	0.00	No	0.00	No
	10	y	-0.006	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	8	y	-0.025	0.50	No
		y	-0.025	5.50	No
	9	y	-0.017	1.00	No
		y	-0.017	4.50	No
		y	-0.06	2.00	No
	10	y	-0.04	0.50	No
		y	-0.04	5.50	No
		y	-0.073	2.00	No
Wo	8	z	-0.221	0.50	No
		z	-0.221	5.50	No
	9	z	-0.174	1.00	No
		z	-0.174	4.50	No
		z	-0.013	2.00	No

	10	z	-0.37	0.50	No
		z	-0.37	5.50	No
W30	8	3	-0.204	0.50	No
		3	-0.204	5.50	No
	9	3	-0.159	1.00	No
		3	-0.159	4.50	No
		3	-0.088	2.00	No
	10	3	-0.318	0.50	No
		3	-0.318	5.50	No
		3	-0.055	2.00	No
W60	8	3	-0.171	0.50	No
		3	-0.171	5.50	No
	9	3	-0.129	1.00	No
		3	-0.129	4.50	No
		3	-0.103	2.00	No
	10	3	-0.215	0.50	No
		3	-0.215	5.50	No
		3	-0.074	2.00	No
W90	8	x	-0.154	0.50	No
		x	-0.154	5.50	No
	9	x	-0.114	1.00	No
		x	-0.114	4.50	No
		x	-0.097	2.00	No
	10	x	-0.164	0.50	No
		x	-0.164	5.50	No
		x	-0.075	2.00	No
W120	8	2	-0.171	0.50	No
		2	-0.171	5.50	No
	9	2	-0.129	1.00	No
		2	-0.129	4.50	No
		2	-0.103	2.00	No
	10	2	-0.215	0.50	No
		2	-0.215	5.50	No
		2	-0.074	2.00	No
W150	8	2	-0.204	0.50	No
		2	-0.204	5.50	No
	9	2	-0.159	1.00	No
		2	-0.159	4.50	No
		2	-0.088	2.00	No
	10	2	-0.318	0.50	No
		2	-0.318	5.50	No
		2	-0.055	2.00	No
Di	8	y	-0.059	0.50	No
		y	-0.059	5.50	No
	9	y	-0.048	1.00	No
		y	-0.048	4.50	No
		y	-0.047	2.00	No
	10	y	-0.095	0.50	No
		y	-0.095	5.50	No
		y	-0.031	2.00	No
WI0	8	z	-0.042	0.50	No
		z	-0.042	5.50	No
	9	z	-0.033	1.00	No
		z	-0.033	4.50	No
		z	-0.025	2.00	No
	10	z	-0.065	0.50	No
		z	-0.065	5.50	No
		z	-0.003	2.00	No
WI30	8	3	-0.039	0.50	No
		3	-0.039	5.50	No

	9	3	-0.03	1.00	No
		3	-0.03	4.50	No
		3	-0.018	2.00	No
	10	3	-0.056	0.50	No
		3	-0.056	5.50	No
		3	-0.011	2.00	No
WI60	8	3	-0.033	0.50	No
		3	-0.033	5.50	No
	9	3	-0.026	1.00	No
		3	-0.026	4.50	No
		3	-0.021	2.00	No
	10	3	-0.04	0.50	No
		3	-0.04	5.50	No
		3	-0.016	2.00	No
WI90	8	x	-0.031	0.50	No
		x	-0.031	5.50	No
	9	x	-0.023	1.00	No
		x	-0.023	4.50	No
		x	-0.021	2.00	No
	10	x	-0.032	0.50	No
		x	-0.032	5.50	No
		x	-0.016	2.00	No
WI120	8	2	-0.033	0.50	No
		2	-0.033	5.50	No
	9	2	-0.026	1.00	No
		2	-0.026	4.50	No
		2	-0.021	2.00	No
	10	2	-0.04	0.50	No
		2	-0.04	5.50	No
		2	-0.016	2.00	No
WI150	8	2	-0.039	0.50	No
		2	-0.039	5.50	No
	9	2	-0.03	1.00	No
		2	-0.03	4.50	No
		2	-0.018	2.00	No
	10	2	-0.056	0.50	No
		2	-0.056	5.50	No
		2	-0.011	2.00	No
WL0	8	z	-0.013	0.50	No
		z	-0.013	5.50	No
	9	z	-0.01	1.00	No
		z	-0.01	4.50	No
		z	-0.001	2.00	No
	10	z	-0.021	0.50	No
		z	-0.021	5.50	No
WL30	8	3	-0.012	0.50	No
		3	-0.012	5.50	No
	9	3	-0.009	1.00	No
		3	-0.009	4.50	No
		3	-0.005	2.00	No
	10	3	-0.018	0.50	No
		3	-0.018	5.50	No
		3	-0.003	2.00	No
WL60	8	3	-0.01	0.50	No
		3	-0.01	5.50	No
	9	3	-0.008	1.00	No
		3	-0.008	4.50	No
		3	-0.006	2.00	No
	10	3	-0.012	0.50	No
		3	-0.012	5.50	No

		3	-0.004	2.00	No
WL90	8	x	-0.009	0.50	No
		x	-0.009	5.50	No
	9	x	-0.007	1.00	No
		x	-0.007	4.50	No
		x	-0.005	2.00	No
	10	x	-0.009	0.50	No
		x	-0.009	5.50	No
		x	-0.004	2.00	No
WL120	8	2	-0.01	0.50	No
		2	-0.01	5.50	No
	9	2	-0.008	1.00	No
		2	-0.008	4.50	No
		2	-0.006	2.00	No
	10	2	-0.012	0.50	No
		2	-0.012	5.50	No
		2	-0.004	2.00	No
WL150	8	2	-0.012	0.50	No
		2	-0.012	5.50	No
	9	2	-0.009	1.00	No
		2	-0.009	4.50	No
		2	-0.005	2.00	No
	10	2	-0.018	0.50	No
		2	-0.018	5.50	No
		2	-0.003	2.00	No

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	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00

LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00

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

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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
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+WL0+1.5LLa1
LC42=1.2D+WL30+1.5LLa1
LC43=1.2D+WL60+1.5LLa1
LC44=1.2D+WL90+1.5LLa1
LC45=1.2D+WL120+1.5LLa1
LC46=1.2D+WL150+1.5LLa1
LC47=1.2D-WL0+1.5LLa1
LC48=1.2D-WL30+1.5LLa1
LC49=1.2D-WL60+1.5LLa1
LC50=1.2D-WL90+1.5LLa1
LC51=1.2D-WL120+1.5LLa1
LC52=1.2D-WL150+1.5LLa1
LC53=1.2D+WL0+1.5LLa2

LC54=1.2D+WL30+1.5LLa2
LC55=1.2D+WL60+1.5LLa2
LC56=1.2D+WL90+1.5LLa2
LC57=1.2D+WL120+1.5LLa2
LC58=1.2D+WL150+1.5LLa2
LC59=1.2D-WL0+1.5LLa2
LC60=1.2D-WL30+1.5LLa2
LC61=1.2D-WL60+1.5LLa2
LC62=1.2D-WL90+1.5LLa2
LC63=1.2D-WL120+1.5LLa2
LC64=1.2D-WL150+1.5LLa2
LC65=1.2D+WL0+1.5LLa3
LC66=1.2D+WL30+1.5LLa3
LC67=1.2D+WL60+1.5LLa3
LC68=1.2D+WL90+1.5LLa3
LC69=1.2D+WL120+1.5LLa3
LC70=1.2D+WL150+1.5LLa3
LC71=1.2D-WL0+1.5LLa3
LC72=1.2D-WL30+1.5LLa3
LC73=1.2D-WL60+1.5LLa3
LC74=1.2D-WL90+1.5LLa3
LC75=1.2D-WL120+1.5LLa3
LC76=1.2D-WL150+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**1**	LC9 at 0.00%	**0.57**	**OK**	
	PIPE 2-1_2x0.203	**10**	LC1 at 46.88%	**0.48**	**OK**	
	PIPE 2x0.154	**8**	LC1 at 46.88%	**0.54**	**OK**	
		9	LC10 at 46.88%	0.26	OK	
	PIPE 3x0.216	**2**	LC1 at 48.96%	**1.09**	**N.G.**	
	PIPE 4x0.237	**4**	LC1 at 50.00%	**0.00**	**OK**	

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Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
3	6.25	0.00	3.95	0
4	-6.25	0.00	3.95	0
6	0.00	1.042	3.75	0
7	0.00	-1.042	3.75	0
14	6.00	-4.00	4.15	0
15	0.25	-3.00	4.15	0
16	-6.00	-4.00	4.15	0
17	6.00	4.00	4.15	0
18	0.25	3.00	4.15	0
19	-6.00	4.00	4.15	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1

Members

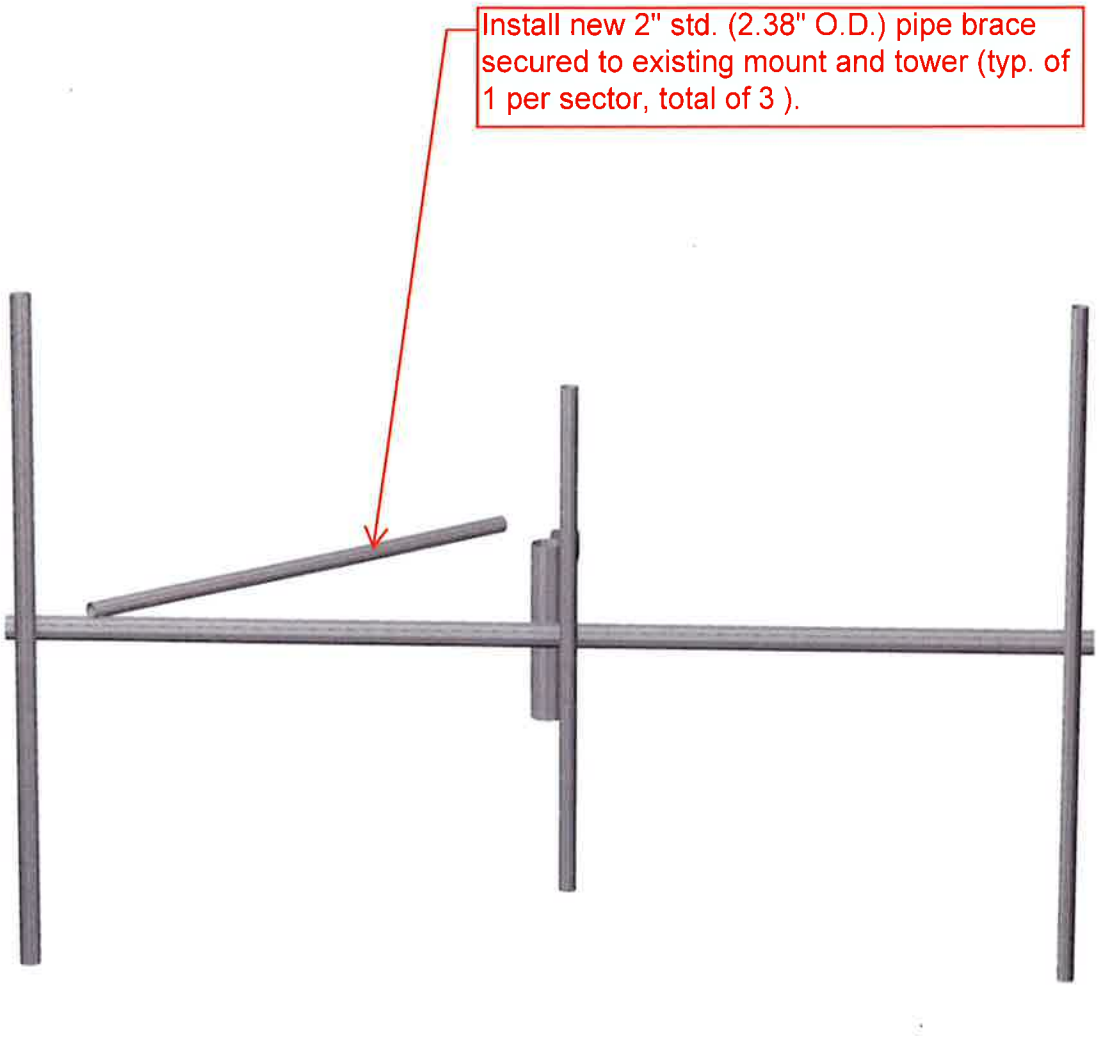
Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	1	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	4	3		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
4	6	7		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
8	17	14		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
9	18	15		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	19	16		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
8	315.00	0	0.00	0.00	0.00
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00

HUDSON
Design Group LLC

Mount Calculations
(Modified Conditions)


Install new 2" std. (2.38" O.D.) pipe brace secured to existing mount and tower (typ. of 1 per sector, total of 3).
Y
Z
X

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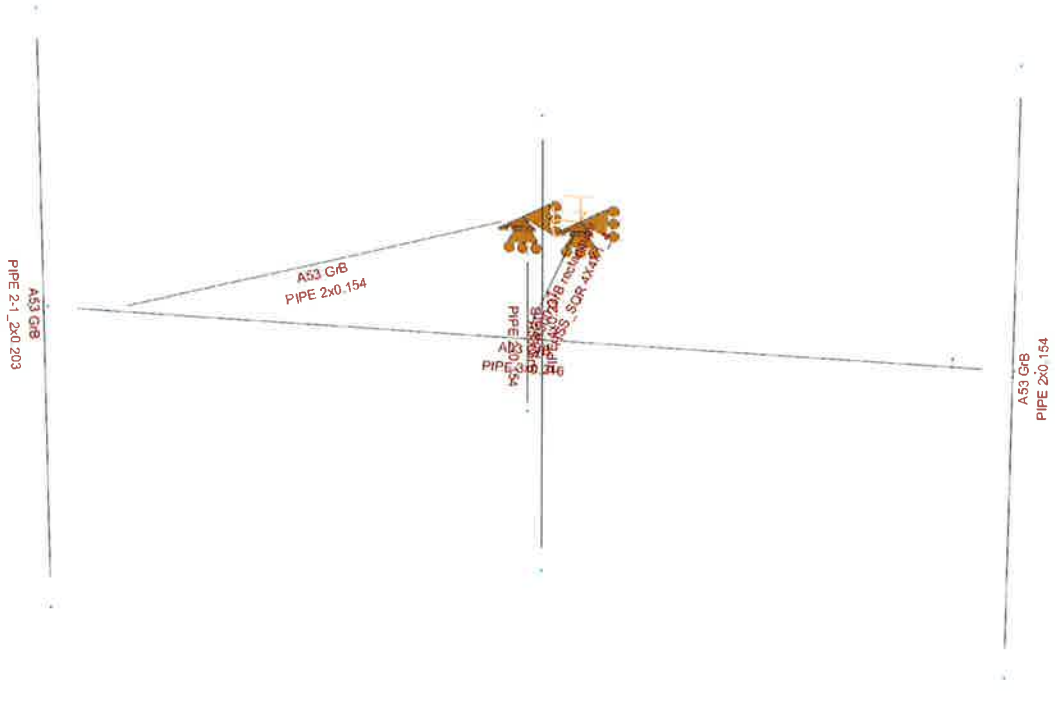

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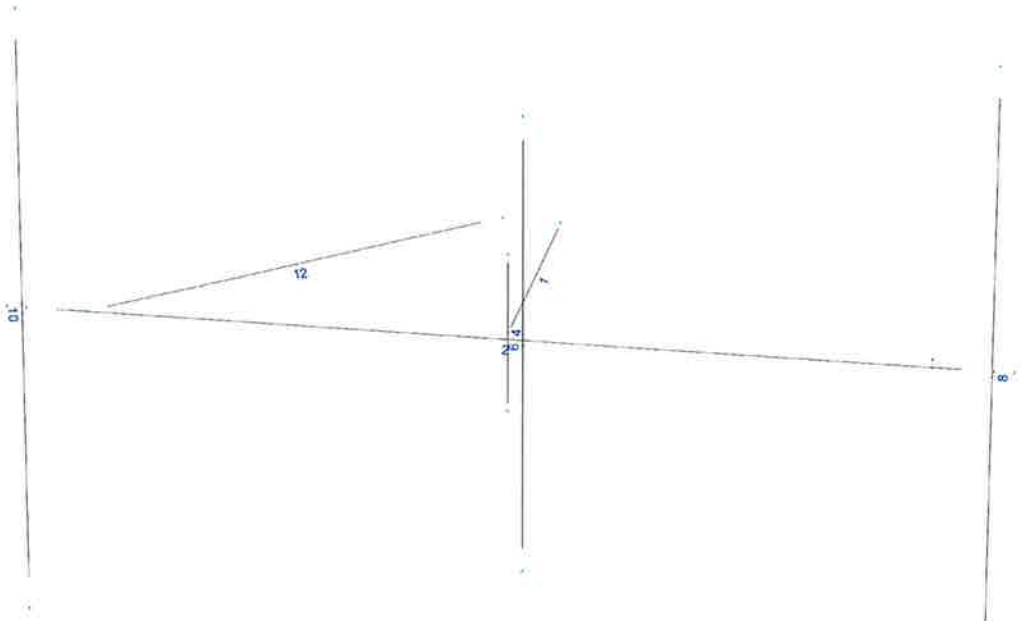
12
7
10'
8'
Y
X
Z

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Units system: English
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Load data

GLOSSARY

Comb : Indicates if load condition is a load combination

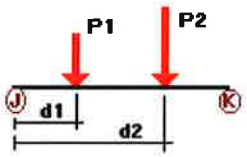
Load Conditions

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	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL

Distributed force on members

Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.024	0.00	0.00	No	0.00	No
	2	z	-0.02	0.00	0.00	No	0.00	No
	4	z	-0.026	0.00	0.00	No	0.00	No
W30	1	z	-0.024	0.00	0.00	No	0.00	No
	2	z	-0.02	0.00	0.00	No	0.00	No
	4	z	-0.026	0.00	0.00	No	0.00	No
W60	1	x	-0.024	0.00	0.00	No	0.00	No
	2	x	-0.02	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
W90	1	x	-0.024	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
W120	1	x	-0.024	0.00	0.00	No	0.00	No
	2	x	-0.02	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
W150	1	z	0.024	0.00	0.00	No	0.00	No
	2	z	0.02	0.00	0.00	No	0.00	No
	4	z	0.026	0.00	0.00	No	0.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.006	0.00	0.00	No	0.00	No
	4	y	-0.008	0.00	0.00	No	0.00	No
	8	y	-0.005	0.00	0.00	No	0.00	No
	9	y	-0.005	0.00	0.00	No	0.00	No
	10	y	-0.006	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	8	y	-0.025	0.50	No
		y	-0.025	5.50	No
	9	y	-0.017	1.00	No
		y	-0.017	4.50	No
		y	-0.06	2.00	No
	10	y	-0.04	0.50	No
		y	-0.04	5.50	No
		y	-0.073	2.00	No
Wo	8	z	-0.221	0.50	No
		z	-0.221	5.50	No
	9	z	-0.174	1.00	No
		z	-0.174	4.50	No
		z	-0.013	2.00	No

	10	z	-0.37	0.50	No
		z	-0.37	5.50	No
W30	8	3	-0.204	0.50	No
		3	-0.204	5.50	No
	9	3	-0.159	1.00	No
		3	-0.159	4.50	No
		3	-0.088	2.00	No
	10	3	-0.318	0.50	No
		3	-0.318	5.50	No
		3	-0.055	2.00	No
W60	8	3	-0.171	0.50	No
		3	-0.171	5.50	No
	9	3	-0.129	1.00	No
		3	-0.129	4.50	No
		3	-0.103	2.00	No
	10	3	-0.215	0.50	No
		3	-0.215	5.50	No
		3	-0.074	2.00	No
W90	8	x	-0.154	0.50	No
		x	-0.154	5.50	No
	9	x	-0.114	1.00	No
		x	-0.114	4.50	No
		x	-0.097	2.00	No
	10	x	-0.164	0.50	No
		x	-0.164	5.50	No
		x	-0.075	2.00	No
W120	8	2	-0.171	0.50	No
		2	-0.171	5.50	No
	9	2	-0.129	1.00	No
		2	-0.129	4.50	No
		2	-0.103	2.00	No
	10	2	-0.215	0.50	No
		2	-0.215	5.50	No
		2	-0.074	2.00	No
W150	8	2	-0.204	0.50	No
		2	-0.204	5.50	No
	9	2	-0.159	1.00	No
		2	-0.159	4.50	No
		2	-0.088	2.00	No
	10	2	-0.318	0.50	No
		2	-0.318	5.50	No
		2	-0.055	2.00	No
Di	8	y	-0.059	0.50	No
		y	-0.059	5.50	No
	9	y	-0.048	1.00	No
		y	-0.048	4.50	No
		y	-0.047	2.00	No
	10	y	-0.095	0.50	No
		y	-0.095	5.50	No
		y	-0.031	2.00	No
WI0	8	z	-0.042	0.50	No
		z	-0.042	5.50	No
	9	z	-0.033	1.00	No
		z	-0.033	4.50	No
		z	-0.025	2.00	No
	10	z	-0.065	0.50	No
		z	-0.065	5.50	No
		z	-0.003	2.00	No
WI30	8	3	-0.039	0.50	No
		3	-0.039	5.50	No

	9	3	-0.03	1.00	No
		3	-0.03	4.50	No
		3	-0.018	2.00	No
	10	3	-0.056	0.50	No
		3	-0.056	5.50	No
		3	-0.011	2.00	No
WI60	8	3	-0.033	0.50	No
		3	-0.033	5.50	No
	9	3	-0.026	1.00	No
		3	-0.026	4.50	No
		3	-0.021	2.00	No
	10	3	-0.04	0.50	No
		3	-0.04	5.50	No
		3	-0.016	2.00	No
WI90	8	x	-0.031	0.50	No
		x	-0.031	5.50	No
	9	x	-0.023	1.00	No
		x	-0.023	4.50	No
		x	-0.021	2.00	No
	10	x	-0.032	0.50	No
		x	-0.032	5.50	No
		x	-0.016	2.00	No
WI120	8	2	-0.033	0.50	No
		2	-0.033	5.50	No
	9	2	-0.026	1.00	No
		2	-0.026	4.50	No
		2	-0.021	2.00	No
	10	2	-0.04	0.50	No
		2	-0.04	5.50	No
		2	-0.016	2.00	No
WI150	8	2	-0.039	0.50	No
		2	-0.039	5.50	No
	9	2	-0.03	1.00	No
		2	-0.03	4.50	No
		2	-0.018	2.00	No
	10	2	-0.056	0.50	No
		2	-0.056	5.50	No
		2	-0.011	2.00	No
WL0	8	z	-0.013	0.50	No
		z	-0.013	5.50	No
	9	z	-0.01	1.00	No
		z	-0.01	4.50	No
		z	-0.001	2.00	No
	10	z	-0.021	0.50	No
		z	-0.021	5.50	No
WL30	8	3	-0.012	0.50	No
		3	-0.012	5.50	No
	9	3	-0.009	1.00	No
		3	-0.009	4.50	No
		3	-0.005	2.00	No
	10	3	-0.018	0.50	No
		3	-0.018	5.50	No
		3	-0.003	2.00	No
WL60	8	3	-0.01	0.50	No
		3	-0.01	5.50	No
	9	3	-0.008	1.00	No
		3	-0.008	4.50	No
		3	-0.006	2.00	No
	10	3	-0.012	0.50	No
		3	-0.012	5.50	No

		3	-0.004	2.00	No
WL90	8	x	-0.009	0.50	No
		x	-0.009	5.50	No
	9	x	-0.007	1.00	No
		x	-0.007	4.50	No
		x	-0.005	2.00	No
	10	x	-0.009	0.50	No
		x	-0.009	5.50	No
		x	-0.004	2.00	No
WL120	8	2	-0.01	0.50	No
		2	-0.01	5.50	No
	9	2	-0.008	1.00	No
		2	-0.008	4.50	No
		2	-0.006	2.00	No
	10	2	-0.012	0.50	No
		2	-0.012	5.50	No
		2	-0.004	2.00	No
WL150	8	2	-0.012	0.50	No
		2	-0.012	5.50	No
	9	2	-0.009	1.00	No
		2	-0.009	4.50	No
		2	-0.005	2.00	No
	10	2	-0.018	0.50	No
		2	-0.018	5.50	No
		2	-0.003	2.00	No

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	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00

LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00

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

Bentley

Current Date: 9/25/2019 12:18 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1274\LTE 3C-4C\CT1274 (LTE 3C-4C)(MODS).retx\

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
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+WL0+1.5LLa1
LC42=1.2D+WL30+1.5LLa1
LC43=1.2D+WL60+1.5LLa1
LC44=1.2D+WL90+1.5LLa1
LC45=1.2D+WL120+1.5LLa1
LC46=1.2D+WL150+1.5LLa1
LC47=1.2D-WL0+1.5LLa1
LC48=1.2D-WL30+1.5LLa1
LC49=1.2D-WL60+1.5LLa1
LC50=1.2D-WL90+1.5LLa1
LC51=1.2D-WL120+1.5LLa1
LC52=1.2D-WL150+1.5LLa1
LC53=1.2D+WL0+1.5LLa2

LC54=1.2D+WL30+1.5LLa2
LC55=1.2D+WL60+1.5LLa2
LC56=1.2D+WL90+1.5LLa2
LC57=1.2D+WL120+1.5LLa2
LC58=1.2D+WL150+1.5LLa2
LC59=1.2D-WL0+1.5LLa2
LC60=1.2D-WL30+1.5LLa2
LC61=1.2D-WL60+1.5LLa2
LC62=1.2D-WL90+1.5LLa2
LC63=1.2D-WL120+1.5LLa2
LC64=1.2D-WL150+1.5LLa2
LC65=1.2D+WL0+1.5LLa3
LC66=1.2D+WL30+1.5LLa3
LC67=1.2D+WL60+1.5LLa3
LC68=1.2D+WL90+1.5LLa3
LC69=1.2D+WL120+1.5LLa3
LC70=1.2D+WL150+1.5LLa3
LC71=1.2D-WL0+1.5LLa3
LC72=1.2D-WL30+1.5LLa3
LC73=1.2D-WL60+1.5LLa3
LC74=1.2D-WL90+1.5LLa3
LC75=1.2D-WL120+1.5LLa3
LC76=1.2D-WL150+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**1**	LC9 at 0.00%	**0.55**	**OK**	
	PIPE 2-1_2x0.203	**10**	LC1 at 46.88%	**0.48**	**OK**	
	PIPE 2x0.154	**8**	LC1 at 46.88%	**0.54**	**OK**	
		9	LC10 at 46.88%	0.26	OK	
		12	LC7 at 0.00%	0.40	OK	
	PIPE 3x0.216	**2**	LC1 at 50.00%	**0.72**	**OK**	
	PIPE 4x0.237	**4**	LC1 at 50.00%	**0.00**	**OK**	

Bentley

Current Date: 9/25/2019 12:18 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1274\LTE 3C-4C\CT1274 (LTE 3C-4C)(MODS).retx\

Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
3	6.25	0.00	3.95	0
4	-6.25	0.00	3.95	0
6	0.00	1.042	3.75	0
7	0.00	-1.042	3.75	0
14	6.00	-4.00	4.15	0
15	0.25	-3.00	4.15	0
16	-6.00	-4.00	4.15	0
17	6.00	4.00	4.15	0
18	0.25	3.00	4.15	0
19	-6.00	4.00	4.15	0
22	-5.25	0.00	3.95	0
23	-0.75	0.00	-0.05	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1
23	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	1	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	4	3		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
4	6	7		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
8	17	14		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
9	18	15		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	19	16		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
12	22	23		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
8	315.00	0	0.00	0.00	0.00
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00

Rigid end offsets

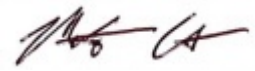
Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
12	0.00	2.50	0.00	0.00	2.50	0.00

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**123 ft Monopole**
ATC Site Name	:	**PINE ORCHARD BRANFORD CT, CT**
ATC Asset Number	:	**283419**
Engineering Number	:	**OAA753193_C3_01**
Proposed Carrier	:	**AT&T MOBILITY**
Carrier Site Name	:	**BRANFORD PINE ORCHARD RD**
Carrier Site Number	:	**CT1274**
Site Location	:	**123 Pine Orchard Road** **Branford, CT 06405-3939** **41.274900,-72.793100**
County	:	**New Haven**
Date	:	**October 11, 2019**
Max Usage	:	**61%**
Result	:	**Pass**

Prepared By:
Mitchell Chen
Structural Engineer



Reviewed By:

COA: PEC.0001553

AMERICAN TOWER®
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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 123 ft monopole to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	Sabre Job #11-05276, dated June 2, 2010
Foundation Drawing	Sabre Job #11-05276, dated June 2, 2010
Geotechnical Report	Terracon Project #J2105131, dated April 2, 2010
Mount Analysis	SAI Communications Site #CT1274 (LTE 3C/4C), dated September 25, 2019

Analysis

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

Basic Wind Speed:	101 mph (3-Second Gust, V_{asd}) / 130 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
122.0	3	Ericsson AIR 21, 1.3M, B4A B2P	Platform with Handrails	(4) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	T-MOBILE
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
120.0	3	Ericsson KRY 112 144/1			
	3	Ericsson Radio 4449 B12,B71			
	3	RFS APXVAARR24_43-U-NA20			
112.0	1	Raycap DC6-48-60-18-8F	T-Arm	(1) 0.40" (10.3mm) Fiber (2) 0.45" (11.5mm) Fiber (2) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax (1) 2" conduit	AT&T MOBILITY
	6	Powerwave Allgon TT19-08BP111-001			
	3	Ericsson RRUS 32 B2			
	3	Powerwave Allgon P90-15-XLH-RR			
	3	Commscope SBNHH-1D65A			
102.0	3	Alcatel-Lucent RRH2x60 700	T-Arm	(2) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	VERIZON WIRELESS
	3	Alcatel-Lucent B66 RRH4x45			
	2	Raycap RC2DC-3315-PF-48			
	6	Andrew SBNHH-1D65B			
	2	Swedcom SC-E 6016 REV2			
	4	Antel LPA-80063/6CF			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
112.0	3	Powerwave Allgon P90-15-XLH-RR	-	-	AT&T MOBILITY
	3	Ericsson RRUS 11 (Band 12)			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
112.0	3	Ericsson RRUS 4449 B5, B12	T-Arm with Modification	(1) 0.40" (10.3mm) Fiber (2) 0.78" (19.7mm) 8 AWG 6 (1) 2" conduit	AT&T MOBILITY
	3	Ericsson RRUS 4478 B14			
	1	Raycap DC6-48-60-18-8C			
	3	CCI DMP65R-BU6DA			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	46%	Pass
Shaft	61%	Pass
Base Plate	40%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,210.8	4,334.6	2,211.4	51%
Shear (Kips)	36.1	48.7	24.5	50%
* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1				

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
112.0	Ericsson RRUS 4449 B5, B12	AT&T MOBILITY	0.761	0.779
	Ericsson RRUS 4478 B14			
	Raycap DC6-48-60-18-8C			
	CCI DMP65R-BU6DA			

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

AMERICAN TOWER®
CORPORATION

Standard Conditions

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

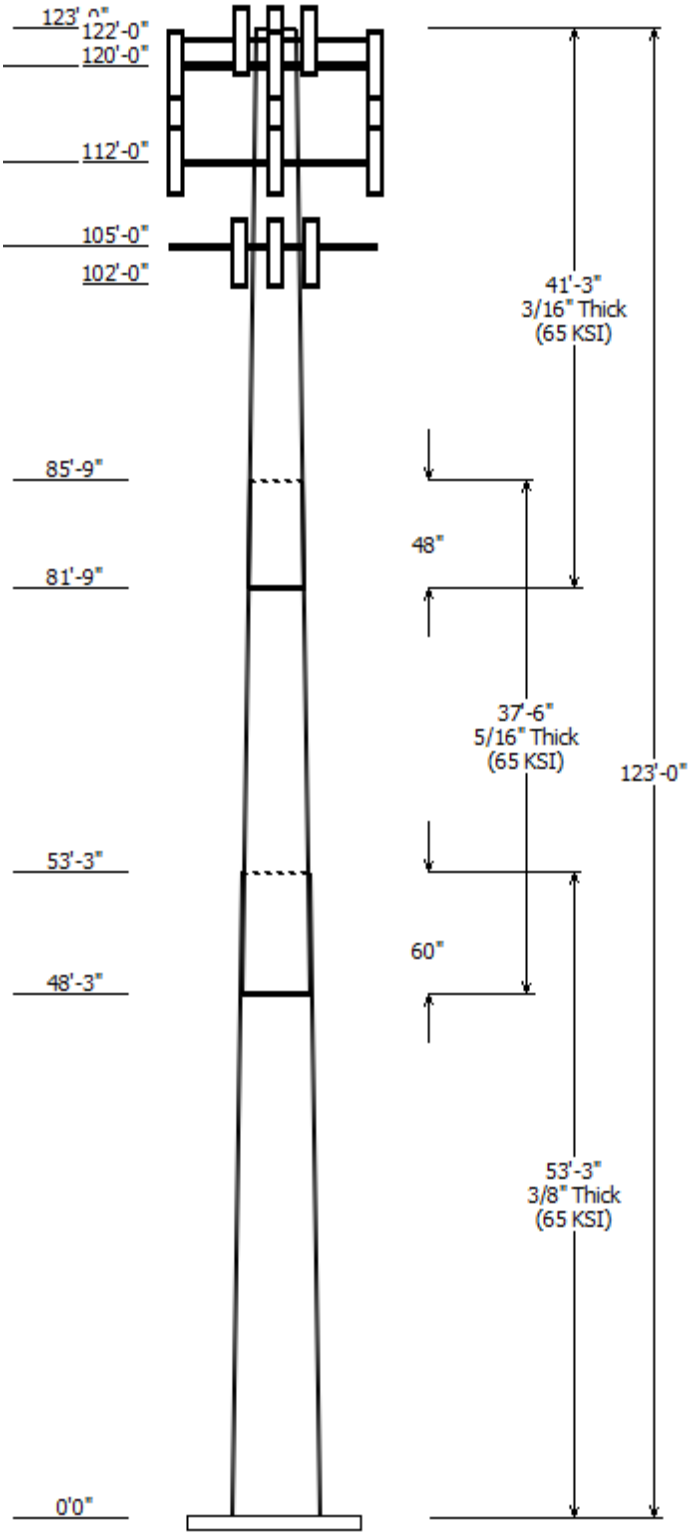
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

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

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

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



Job Information

Client :	AT&T MOBILITY
Pole :	283419
Code:	ANSI/TIA-222-G
Location :	PINE ORCHARD BRANFORD CT, CT
Description :	
Struct Class :	II
Shape :	18 Sides
Exposure :	C
Height :	123.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.250000 (in/ft)

Sections Properties

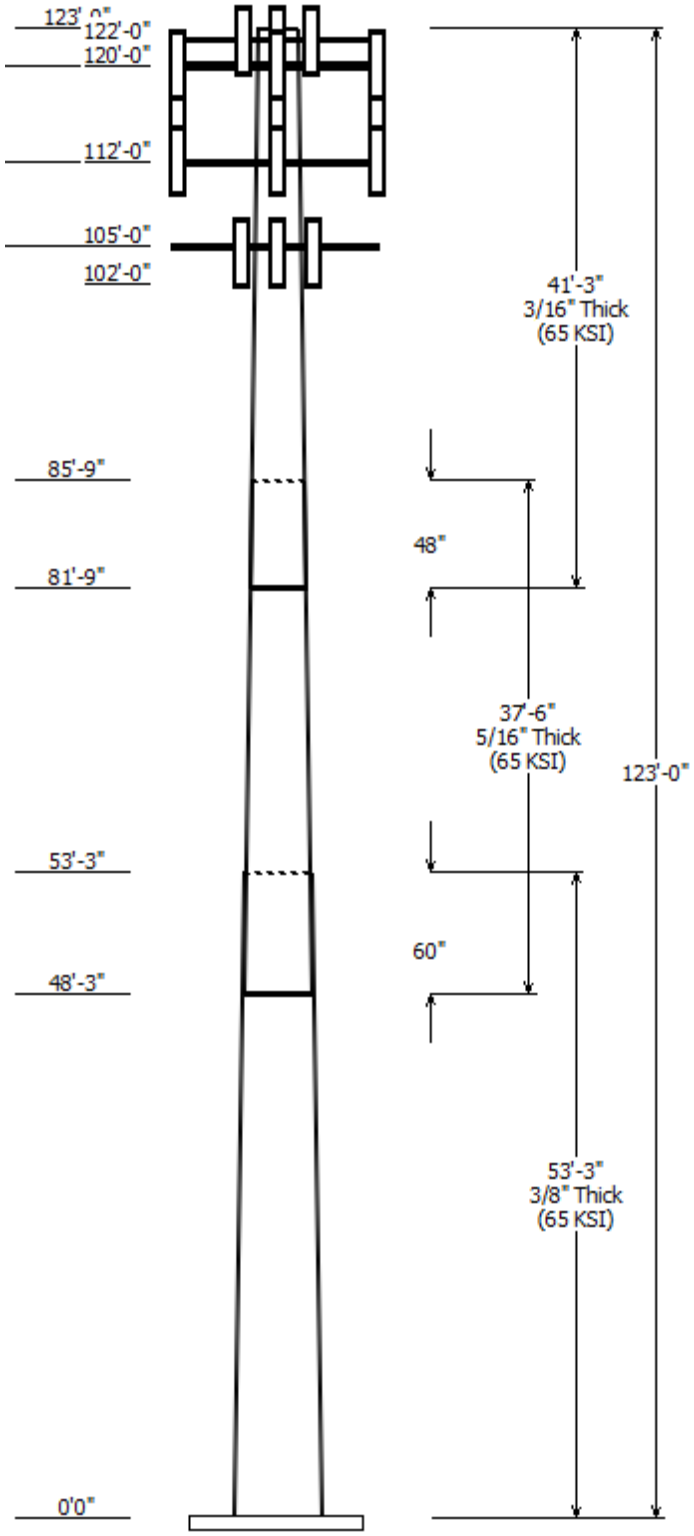
Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	53.250	37.43	50.75	0.375		0.000	18 Sides	65
2	37.500	29.93	39.31	0.313	Slip Joint	60.000	18 Sides	65
3	41.250	21.00	31.31	0.188	Slip Joint	48.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
122.000	122.000	3	Ericsson AIR 21, 1.3M, B4A B2P
122.000	122.000	3	Ericsson AIR 21, 1.3 M, B2A B4
120.000	120.000	1	Generic Round Platform with
120.000	120.000	3	RFS APXVAARR24_43-U-NA20
120.000	120.000	3	Ericsson Radio 4449 B12,B71
120.000	120.000	3	Ericsson KRY 112 144/1
112.000	112.000	3	Round T-Arm
112.000	112.000	3	CCI DMP65R-BU6DA
112.000	114.000	3	Powerwave Allgon P90-15-
112.000	114.000	3	Commscope SBNHH-1D65A
112.000	114.000	3	Ericsson RRUS 32 B2
112.000	112.000	1	Raycap DC6-48-60-18-8C
112.000	112.000	3	Ericsson RRUS 4478 B14
112.000	112.000	3	Ericsson RRUS 4449 B5, B12
112.000	114.000	1	Raycap DC6-48-60-18-8F
112.000	114.000	6	Powerwave Allgon TT19-
105.000	105.000	3	Round T-Arm
102.000	103.000	4	Antel LPA-80063/6CF
102.000	103.000	6	Andrew SBNHH-1D65B
102.000	103.000	2	Swedcom SC-E 6016 REV2
102.000	103.000	2	Raycap RC2DC-3315-PF-48
102.000	103.000	3	Alcatel-Lucent B66 RRH4x45
102.000	103.000	3	Alcatel-Lucent RRH2x60 700

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	102.0	1 5/8" (1.63"-	No
0.000	102.0	1 5/8" Coax	No
0.000	112.0	0.40" (10.3mm)	No
0.000	112.0	0.40" (10.3mm)	No
0.000	112.0	0.45" (11.5mm)	No
0.000	112.0	0.78" (19.7mm) 8	No
0.000	112.0	0.78" (19.7mm) 8	No
0.000	112.0	1 5/8" Coax	No
0.000	112.0	2" conduit	No
0.000	112.0	2" conduit	No
0.000	120.0	1 5/8" (1.63"-	No
0.000	122.0	1 5/8" (1.63"-	No
0.000	122.0	1 5/8" Coax	No



Load Cases

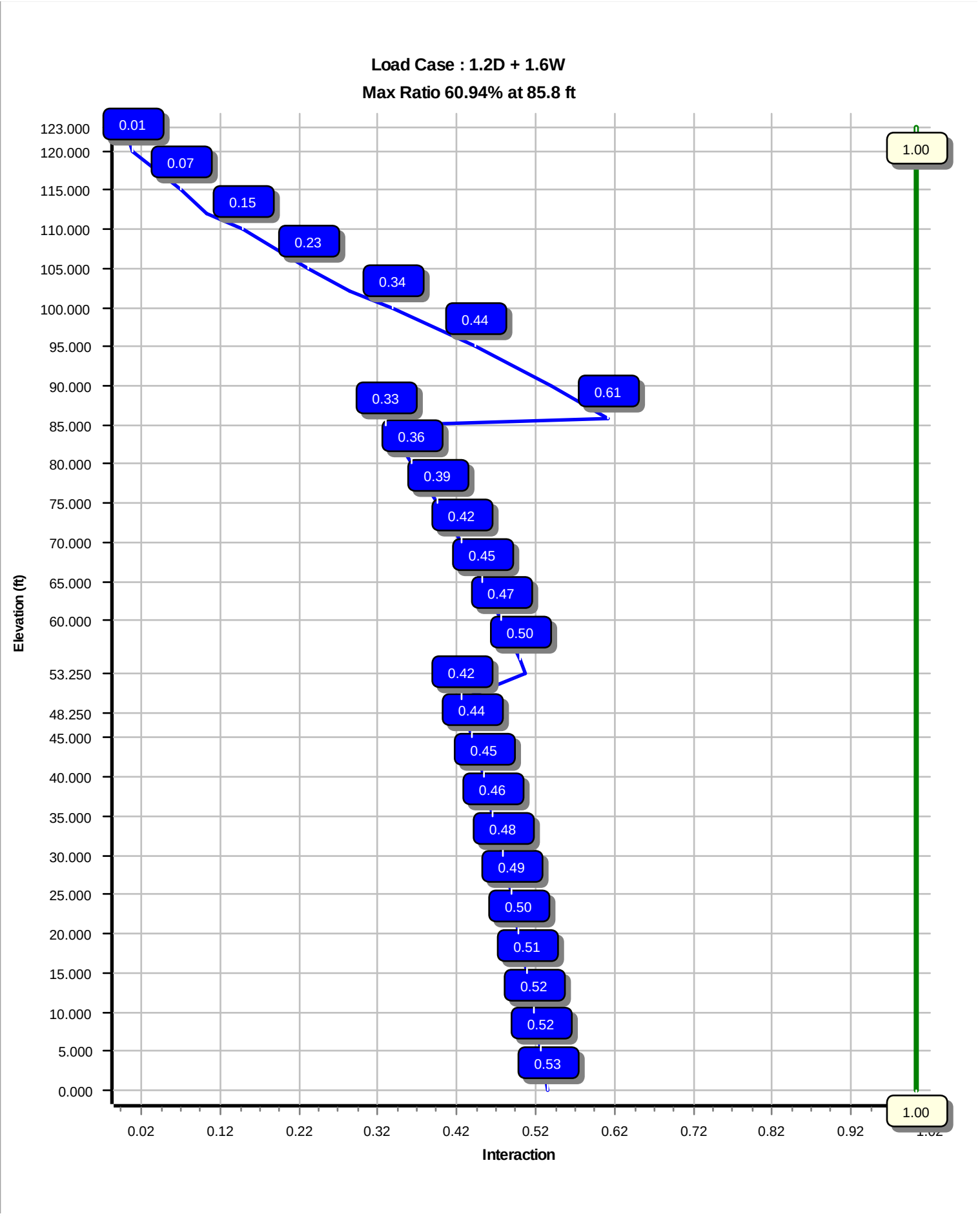
1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2211.35	24.50	33.66
0.9D + 1.6W	2195.32	24.48	25.24
1.2D + 1.0Di + 1.0Wi	557.54	6.35	50.29
(1.2 + 0.2Sds) * DL + E ELFM	104.94	1.06	33.25
(1.2 + 0.2Sds) * DL + E EMAM	163.82	1.61	33.25
(0.9 - 0.2Sds) * DL + E ELFM	104.02	1.06	23.14
(0.9 - 0.2Sds) * DL + E EMAM	162.29	1.61	23.14
1.0D + 1.0W	434.51	4.83	28.08

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.6W
Max Ratio 60.94% at 85.8 ft
Elevation (ft)
123.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
53.250
48.250
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.01
0.07
0.15
0.23
0.34
0.44
0.61
0.33
0.36
0.39
0.42
0.45
0.47
0.50
0.42
0.44
0.45
0.46
0.48
0.49
0.50
0.51
0.52
0.52
0.53
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 283419 Code: ANSI/TIA-222-G

Site Name: PINE ORCHARD BRANFORD CT, CT Engineering Number:OAA753193_C3_01 10/15/2019 2:39:21 PM

Customer: AT&T MOBILITY

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	123
Code :	ANSI/TIA-222-G	Base Diameter (in) :	50.75
Shape :	18 Sides	Top Diameter (in) :	21.00
Pole Type :	Taper	Taper (in/ft) :	0.250
Pole Manfacturer :	Sabre	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	101 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.72				
T_L (sec):	6	p:	1	C_s:	0.038
S_s:	0.180	S_1:	0.061	C_s Max:	0.038
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.192	S_{d1}:	0.098		

Load Cases

1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.250	0.3750	65		0.00	9,429	50.75	0.00	59.96	19223.0	22.10	135.33	37.43	53.25	44.11	7655.6	15.84	99.83	0.250000
2-18	37.500	0.3125	65	Slip	60.00	4,343	39.31	48.25	38.68	7433.4	20.42	125.80	29.93	85.75	29.38	3258.1	15.13	95.80	0.250000
3-18	41.250	0.1875	65	Slip	48.00	2,169	31.31	81.75	18.52	2267.1	27.68	167.00	21.00	123.00	12.39	677.8	17.99	112.00	0.250000
				Shaft Weight		15,940													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
122.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.75	0.000	83.00	6.050	0.71	226.13	8.171	0.71
122.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.75	0.000	81.50	6.090	0.70	224.11	8.212	0.70
120.00	Ericsson KRY 112 144/1	3	0.75	0.000	11.00	0.350	0.50	21.52	0.746	0.50
120.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	128.75	2.466	0.50
120.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	511.80	23.866	0.63
120.00	Generic Round Platform with	1	1.00	0.000	2,500.00	27.200	1.00	4,083.90	51.104	1.00
112.00	Powerwave Allgon TT19-	6	0.80	2.000	16.00	0.550	0.50	35.64	1.044	0.50
112.00	Raycap DC6-48-60-18-8F	1	0.80	2.000	20.00	1.260	1.00	71.20	1.900	1.00
112.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.970	0.50	133.67	2.877	0.50
112.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.40	2.020	0.67	119.07	2.937	0.67
112.00	Raycap DC6-48-60-18-8C	1	0.80	0.000	16.00	2.030	1.00	72.61	2.768	1.00
112.00	Ericsson RRUS 32 B2	3	0.80	2.000	53.00	2.740	0.67	124.52	3.876	0.67
112.00	Commscope SBNHH-1D65A	3	0.80	2.000	33.50	5.880	0.69	165.11	7.947	0.69
112.00	Powerwave Allgon P90-15-XLH-	3	0.80	2.000	53.00	8.130	0.67	213.15	10.839	0.67
112.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	453.21	17.716	0.67
112.00	CCI DMP65R-BU6DA	3	0.80	0.000	79.40	12.710	0.63	329.87	15.422	0.63
105.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	451.80	17.660	0.67
102.00	Alcatel-Lucent RRH2x60 700	3	0.80	1.000	56.70	2.150	0.67	122.25	3.115	0.67
102.00	Alcatel-Lucent B66 RRH4x45	3	0.80	1.000	67.00	2.580	0.67	135.25	3.665	0.67
102.00	Raycap RC2DC-3315-PF-48	2	0.80	1.000	32.00	3.780	0.77	137.58	5.053	0.77
102.00	Swedcom SC-E 6016 REV2	2	0.80	1.000	25.00	7.630	0.83	225.29	9.049	0.83
102.00	Andrew SBNHH-1D65B	6	0.80	1.000	50.70	8.170	0.69	219.71	10.895	0.69
102.00	Antel LPA-80063/6CF	4	0.80	1.000	27.00	9.590	0.76	302.32	10.897	0.76
Totals	Num Loadings:23	68			7,209.40			17,775.50		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	122.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	122.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	120.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	112.00	1	0.40" (10.3mm) Fiber	0.40	0.09	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	112.00	1	0.40" (10.3mm) Fiber	0.40	0.09	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	112.00	2	0.45" (11.5mm) Fiber	0.45	0.08	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	112.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	112.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	112.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	112.00	1	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	112.00	1	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	102.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS

0.00	102.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	50.750	59.957	19,223.0	22.10	135.33	75.4	746.0	0.0	0.0
5.00		0.3750	49.500	58.469	17,827.2	21.51	132.00	76.1	709.3	0.0	1,007.4
10.00		0.3750	48.250	56.981	16,500.7	20.92	128.67	76.8	673.6	0.0	982.1
15.00		0.3750	47.000	55.493	15,241.7	20.34	125.33	77.5	638.7	0.0	956.8
20.00		0.3750	45.750	54.006	14,048.4	19.75	122.00	78.2	604.8	0.0	931.5
25.00		0.3750	44.500	52.518	12,919.0	19.16	118.67	78.9	571.8	0.0	906.2
30.00		0.3750	43.250	51.030	11,851.9	18.57	115.33	79.6	539.7	0.0	880.9
35.00		0.3750	42.000	49.542	10,845.2	17.99	112.00	80.2	508.6	0.0	855.6
40.00		0.3750	40.750	48.055	9,897.2	17.40	108.67	80.9	478.4	0.0	830.3
45.00		0.3750	39.500	46.567	9,006.1	16.81	105.33	81.6	449.1	0.0	804.9
48.25	Bot - Section 2	0.3750	38.688	45.600	8,456.6	16.43	103.17	82.1	430.5	0.0	509.6
50.00		0.3750	38.250	45.079	8,170.2	16.22	102.00	82.3	420.7	0.0	499.0
53.25	Top - Section 1	0.3125	38.063	37.442	6,741.3	19.71	121.80	78.2	348.8	0.0	911.7
55.00		0.3125	37.625	37.008	6,509.6	19.47	120.40	78.5	340.8	0.0	221.7
60.00		0.3125	36.375	35.768	5,877.1	18.76	116.40	79.3	318.2	0.0	619.1
65.00		0.3125	35.125	34.528	5,286.9	18.06	112.40	80.2	296.5	0.0	598.0
70.00		0.3125	33.875	33.289	4,737.6	17.35	108.40	81.0	275.5	0.0	576.9
75.00		0.3125	32.625	32.049	4,227.7	16.65	104.40	81.8	255.2	0.0	555.8
80.00		0.3125	31.375	30.809	3,755.8	15.94	100.40	82.6	235.8	0.0	534.7
81.75	Bot - Section 3	0.3125	30.938	30.375	3,599.3	15.69	99.00	82.6	229.1	0.0	182.2
85.00		0.3125	30.125	29.569	3,320.4	15.23	96.40	82.6	217.1	0.0	533.6
85.75	Top - Section 2	0.1875	30.313	17.927	2,055.5	26.74	161.67	69.9	133.6	0.0	121.1
90.00		0.1875	29.250	17.295	1,845.6	25.74	156.00	71.1	124.3	0.0	254.7
95.00		0.1875	28.000	16.551	1,617.6	24.57	149.33	72.5	113.8	0.0	287.9
100.0		0.1875	26.750	15.807	1,409.1	23.39	142.67	73.9	103.8	0.0	275.3
102.0		0.1875	26.250	15.510	1,331.0	22.92	140.00	74.4	99.9	0.0	106.6
105.0		0.1875	25.500	15.064	1,219.4	22.22	136.00	75.3	94.2	0.0	156.1
110.0		0.1875	24.250	14.320	1,047.5	21.04	129.33	76.7	85.1	0.0	250.0
112.0		0.1875	23.750	14.022	983.6	20.57	126.67	77.2	81.6	0.0	96.4
115.0		0.1875	23.000	13.576	892.6	19.87	122.67	78.0	76.4	0.0	140.9
120.0		0.1875	21.750	12.832	753.8	18.69	116.00	79.4	68.3	0.0	224.6
122.0		0.1875	21.250	12.534	702.5	18.22	113.33	80.0	65.1	0.0	86.3
123.0		0.1875	21.000	12.386	677.8	17.99	112.00	80.2	63.6	0.0	42.4
											15,940.4

Load Case: 1.2D + 1.6W — 101 mph with No Ice — 22 Iterations

Gust Response Factor :1.10 — Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		255.8	0.0					0.0	0.0	255.8	0.0	0.0	0.0
5.00		505.2	1,208.9					0.0	265.6	505.2	1,474.5	0.0	0.0
10.00		492.5	1,178.6					0.0	265.6	492.5	1,444.1	0.0	0.0
15.00		487.2	1,148.2					0.0	265.6	487.2	1,413.7	0.0	0.0
20.00		494.6	1,117.8					0.0	265.6	494.6	1,383.4	0.0	0.0
25.00		504.5	1,087.4					0.0	265.6	504.5	1,353.0	0.0	0.0
30.00		509.7	1,057.1					0.0	265.6	509.7	1,322.6	0.0	0.0
35.00		511.4	1,026.7					0.0	265.6	511.4	1,292.2	0.0	0.0
40.00		510.4	996.3					0.0	265.6	510.4	1,261.9	0.0	0.0
45.00		419.1	965.9					0.0	265.6	419.1	1,231.5	0.0	0.0
48.25	Bot - Section 2	254.0	611.6					0.0	172.6	254.0	784.2	0.0	0.0
50.00		254.8	598.9					0.0	92.9	254.8	691.8	0.0	0.0
53.25	Top - Section 1	253.8	1,094.1					0.0	172.6	253.8	1,266.7	0.0	0.0
55.00		338.7	266.0					0.0	92.9	338.7	358.9	0.0	0.0
60.00		496.3	742.9					0.0	265.6	496.3	1,008.5	0.0	0.0
65.00		487.4	717.6					0.0	265.6	487.4	983.2	0.0	0.0
70.00		477.5	692.3					0.0	265.6	477.5	957.9	0.0	0.0
75.00		466.6	667.0					0.0	265.6	466.6	932.5	0.0	0.0
80.00		309.7	641.7					0.0	265.6	309.7	907.2	0.0	0.0
81.75	Bot - Section 3	226.2	218.6					0.0	92.9	226.2	311.6	0.0	0.0
85.00		180.4	640.4					0.0	172.6	180.4	813.0	0.0	0.0
85.75	Top - Section 2	220.7	145.3					0.0	39.8	220.7	185.2	0.0	0.0
90.00		401.2	305.6					0.0	225.7	401.2	531.4	0.0	0.0
95.00		420.9	345.5					0.0	265.6	420.9	611.1	0.0	0.0
100.00		287.6	330.3					0.0	265.6	287.6	595.9	0.0	0.0
102.00	Appurtenance(s)	199.5	127.9	4,046.9	0.0	4,046.9	1,076.8	0.0	106.2	4,246.4	1,310.9	0.0	0.0
105.00	Appurtenance(s)	310.7	187.3	816.4	0.0	0.0	900.0	0.0	112.3	1,127.2	1,199.6	0.0	0.0
110.00		266.5	300.0					0.0	187.2	266.5	487.2	0.0	0.0
112.00	Appurtenance(s)	184.0	115.7	4,003.1	0.0	3,356.6	2,315.9	0.0	74.9	4,187.1	2,506.5	0.0	0.0
115.00		285.3	169.0					0.0	40.9	285.3	209.9	0.0	0.0
120.00	Appurtenance(s)	243.9	269.6	3,338.0	0.0	0.0	3,766.4	0.0	68.2	3,581.9	4,104.2	0.0	0.0
122.00	Appurtenance(s)	101.5	103.6	1,109.6	0.0	0.0	592.2	0.0	15.7	1,211.2	711.5	0.0	0.0
123.00		33.5	50.9					0.0	0.0	33.5	50.9	0.0	0.0
								Totals:		24,705.2	33,696.3	0.00	0.00

Load Case: 1.2D + 1.6W 101 mph with No Ice 22 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.66	-24.50	0.00	-2,211.35	0.00	2,211.35	4,069.07	2,034.53	8,426.11	4,219.32	0.00	0.00	0.533
5.00	-32.12	-24.08	0.00	-2,088.87	0.00	2,088.87	4,004.48	2,002.24	8,085.07	4,048.54	0.09	-0.16	0.524
10.00	-30.61	-23.67	0.00	-1,968.47	0.00	1,968.47	3,938.03	1,969.02	7,747.07	3,879.29	0.34	-0.32	0.515
15.00	-29.13	-23.26	0.00	-1,850.13	0.00	1,850.13	3,869.74	1,934.87	7,412.41	3,711.71	0.76	-0.49	0.506
20.00	-27.69	-22.83	0.00	-1,733.85	0.00	1,733.85	3,799.59	1,899.80	7,081.37	3,545.95	1.36	-0.65	0.496
25.00	-26.27	-22.39	0.00	-1,619.71	0.00	1,619.71	3,727.59	1,863.80	6,754.24	3,382.14	2.14	-0.82	0.486
30.00	-24.89	-21.93	0.00	-1,507.78	0.00	1,507.78	3,653.75	1,826.87	6,431.30	3,220.43	3.09	-0.99	0.475
35.00	-23.55	-21.47	0.00	-1,398.13	0.00	1,398.13	3,578.04	1,789.02	6,112.84	3,060.96	4.23	-1.17	0.463
40.00	-22.23	-21.00	0.00	-1,290.80	0.00	1,290.80	3,500.49	1,750.25	5,799.16	2,903.89	5.55	-1.35	0.451
45.00	-20.96	-20.60	0.00	-1,185.81	0.00	1,185.81	3,421.09	1,710.55	5,490.53	2,749.35	7.05	-1.52	0.438
48.25	-20.15	-20.36	0.00	-1,118.85	0.00	1,118.85	3,368.49	1,684.24	5,292.78	2,650.32	8.13	-1.64	0.428
50.00	-19.43	-20.11	0.00	-1,083.23	0.00	1,083.23	3,339.84	1,669.92	5,187.25	2,597.48	8.75	-1.71	0.423
53.25	-18.14	-19.85	0.00	-1,017.85	0.00	1,017.85	2,635.64	1,317.82	4,086.59	2,046.33	9.95	-1.83	0.505
55.00	-17.75	-19.54	0.00	-983.11	0.00	983.11	2,614.77	1,307.38	4,006.85	2,006.40	10.63	-1.89	0.497
60.00	-16.69	-19.07	0.00	-885.40	0.00	885.40	2,553.87	1,276.94	3,781.34	1,893.48	12.72	-2.09	0.474
65.00	-15.66	-18.60	0.00	-790.04	0.00	790.04	2,491.13	1,245.56	3,559.50	1,782.39	15.03	-2.30	0.450
70.00	-14.66	-18.14	0.00	-697.03	0.00	697.03	2,426.53	1,213.27	3,341.60	1,673.28	17.54	-2.50	0.423
75.00	-13.69	-17.67	0.00	-606.35	0.00	606.35	2,360.09	1,180.04	3,127.93	1,566.29	20.26	-2.69	0.393
80.00	-12.76	-17.35	0.00	-517.99	0.00	517.99	2,288.96	1,144.48	2,915.17	1,459.75	23.18	-2.88	0.361
81.75	-12.43	-17.13	0.00	-487.63	0.00	487.63	2,256.72	1,128.36	2,833.23	1,418.72	24.25	-2.95	0.349
85.00	-11.61	-16.92	0.00	-431.97	0.00	431.97	2,196.84	1,098.42	2,684.15	1,344.07	26.30	-3.07	0.327
85.75	-11.41	-16.71	0.00	-419.28	0.00	419.28	1,128.57	564.28	1,399.26	700.67	26.79	-3.09	0.609
90.00	-10.85	-16.31	0.00	-348.28	0.00	348.28	1,107.06	553.53	1,323.88	662.92	29.61	-3.24	0.536
95.00	-10.20	-15.90	0.00	-266.73	0.00	266.73	1,080.04	540.02	1,235.66	618.75	33.13	-3.47	0.441
100.00	-9.59	-15.59	0.00	-187.25	0.00	187.25	1,051.16	525.58	1,148.21	574.96	36.88	-3.67	0.336
102.00	-8.54	-11.28	0.00	-152.02	0.00	152.02	1,039.10	519.55	1,113.52	557.59	38.43	-3.74	0.281
105.00	-7.40	-10.09	0.00	-118.17	0.00	118.17	1,020.44	510.22	1,061.83	531.71	40.81	-3.83	0.230
110.00	-6.92	-9.80	0.00	-67.72	0.00	67.72	987.87	493.93	976.80	489.13	44.88	-3.94	0.146
112.00	-4.71	-5.45	0.00	-44.76	0.00	44.76	974.32	487.16	943.23	472.32	46.54	-3.97	0.100
115.00	-4.52	-5.16	0.00	-28.41	0.00	28.41	953.44	476.72	893.41	447.37	49.04	-4.00	0.068
120.00	-0.67	-1.30	0.00	-2.63	0.00	2.63	917.17	458.58	811.94	406.57	53.25	-4.03	0.007
122.00	-0.05	-0.04	0.00	-0.04	0.00	0.04	902.14	451.07	779.96	390.56	54.93	-4.03	0.000
123.00	0.00	-0.03	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	55.78	-4.03	0.000

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 21 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.60

Wind Importance Factor 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		255.8	0.0					0.0	0.0	255.8	0.0	0.0	0.0
5.00		505.2	906.7					0.0	199.2	505.2	1,105.9	0.0	0.0
10.00		492.5	883.9					0.0	199.2	492.5	1,083.1	0.0	0.0
15.00		487.2	861.1					0.0	199.2	487.2	1,060.3	0.0	0.0
20.00		494.6	838.4					0.0	199.2	494.6	1,037.5	0.0	0.0
25.00		504.5	815.6					0.0	199.2	504.5	1,014.7	0.0	0.0
30.00		509.7	792.8					0.0	199.2	509.7	992.0	0.0	0.0
35.00		511.4	770.0					0.0	199.2	511.4	969.2	0.0	0.0
40.00		510.4	747.2					0.0	199.2	510.4	946.4	0.0	0.0
45.00		419.1	724.4					0.0	199.2	419.1	923.6	0.0	0.0
48.25	Bot - Section 2	254.0	458.7					0.0	129.5	254.0	588.1	0.0	0.0
50.00		254.8	449.1					0.0	69.7	254.8	518.8	0.0	0.0
53.25	Top - Section 1	253.8	820.5					0.0	129.5	253.8	950.0	0.0	0.0
55.00		338.7	199.5					0.0	69.7	338.7	269.2	0.0	0.0
60.00		496.3	557.2					0.0	199.2	496.3	756.4	0.0	0.0
65.00		487.4	538.2					0.0	199.2	487.4	737.4	0.0	0.0
70.00		477.5	519.2					0.0	199.2	477.5	718.4	0.0	0.0
75.00		466.6	500.2					0.0	199.2	466.6	699.4	0.0	0.0
80.00		309.7	481.3					0.0	199.2	309.7	680.4	0.0	0.0
81.75	Bot - Section 3	226.2	164.0					0.0	69.7	226.2	233.7	0.0	0.0
85.00		180.4	480.3					0.0	129.5	180.4	609.7	0.0	0.0
85.75	Top - Section 2	220.7	109.0					0.0	29.9	220.7	138.9	0.0	0.0
90.00		401.2	229.2					0.0	169.3	401.2	398.5	0.0	0.0
95.00		420.9	259.1					0.0	199.2	420.9	458.3	0.0	0.0
100.00		287.6	247.7					0.0	199.2	287.6	446.9	0.0	0.0
102.00	Appurtenance(s)	199.5	95.9	4,046.9	0.0	4,046.9	807.6	0.0	79.7	4,246.4	983.1	0.0	0.0
105.00	Appurtenance(s)	310.7	140.4	816.4	0.0	0.0	675.0	0.0	84.2	1,127.2	899.7	0.0	0.0
110.00		266.5	225.0					0.0	140.4	266.5	365.4	0.0	0.0
112.00	Appurtenance(s)	184.0	86.8	4,003.1	0.0	3,356.6	1,736.9	0.0	56.2	4,187.1	1,879.9	0.0	0.0
115.00		285.3	126.8					0.0	30.7	285.3	157.4	0.0	0.0
120.00	Appurtenance(s)	243.9	202.2	3,338.0	0.0	0.0	2,824.8	0.0	51.1	3,581.9	3,078.1	0.0	0.0
122.00	Appurtenance(s)	101.5	77.7	1,109.6	0.0	0.0	444.1	0.0	11.8	1,211.2	533.6	0.0	0.0
123.00		33.5	38.2					0.0	0.0	33.5	38.2	0.0	0.0
								Totals:		24,705.2	25,272.2	0.00	0.00

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 21 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.24	-24.48	0.00	-2,195.32	0.00	2,195.32	4,069.07	2,034.53	8,426.11	4,219.32	0.00	0.00	0.527
5.00	-24.07	-24.04	0.00	-2,072.91	0.00	2,072.91	4,004.48	2,002.24	8,085.07	4,048.54	0.09	-0.16	0.518
10.00	-22.92	-23.61	0.00	-1,952.69	0.00	1,952.69	3,938.03	1,969.02	7,747.07	3,879.29	0.34	-0.32	0.509
15.00	-21.79	-23.18	0.00	-1,834.63	0.00	1,834.63	3,869.74	1,934.87	7,412.41	3,711.71	0.76	-0.48	0.500
20.00	-20.70	-22.74	0.00	-1,718.73	0.00	1,718.73	3,799.59	1,899.80	7,081.37	3,545.95	1.35	-0.65	0.490
25.00	-19.62	-22.28	0.00	-1,605.05	0.00	1,605.05	3,727.59	1,863.80	6,754.24	3,382.14	2.12	-0.82	0.480
30.00	-18.57	-21.81	0.00	-1,493.67	0.00	1,493.67	3,653.75	1,826.87	6,431.30	3,220.43	3.07	-0.99	0.469
35.00	-17.55	-21.33	0.00	-1,384.64	0.00	1,384.64	3,578.04	1,789.02	6,112.84	3,060.96	4.19	-1.16	0.457
40.00	-16.55	-20.85	0.00	-1,277.99	0.00	1,277.99	3,500.49	1,750.25	5,799.16	2,903.89	5.50	-1.33	0.445
45.00	-15.58	-20.45	0.00	-1,173.74	0.00	1,173.74	3,421.09	1,710.55	5,490.53	2,749.35	6.99	-1.51	0.432
48.25	-14.97	-20.20	0.00	-1,107.28	0.00	1,107.28	3,368.49	1,684.24	5,292.78	2,650.32	8.06	-1.63	0.422
50.00	-14.43	-19.96	0.00	-1,071.93	0.00	1,071.93	3,339.84	1,669.92	5,187.25	2,597.48	8.67	-1.69	0.417
53.25	-13.46	-19.69	0.00	-1,007.07	0.00	1,007.07	2,635.64	1,317.82	4,086.59	2,046.33	9.87	-1.81	0.497
55.00	-13.15	-19.38	0.00	-972.61	0.00	972.61	2,614.77	1,307.38	4,006.85	2,006.40	10.54	-1.87	0.490
60.00	-12.35	-18.90	0.00	-875.72	0.00	875.72	2,553.87	1,276.94	3,781.34	1,893.48	12.61	-2.08	0.468
65.00	-11.56	-18.42	0.00	-781.23	0.00	781.23	2,491.13	1,245.56	3,559.50	1,782.39	14.89	-2.28	0.443
70.00	-10.81	-17.95	0.00	-689.10	0.00	689.10	2,426.53	1,213.27	3,341.60	1,673.28	17.38	-2.47	0.416
75.00	-10.07	-17.49	0.00	-599.33	0.00	599.33	2,360.09	1,180.04	3,127.93	1,566.29	20.08	-2.67	0.387
80.00	-9.37	-17.17	0.00	-511.88	0.00	511.88	2,288.96	1,144.48	2,915.17	1,459.75	22.97	-2.85	0.355
81.75	-9.12	-16.95	0.00	-481.83	0.00	481.83	2,256.72	1,128.36	2,833.23	1,418.72	24.03	-2.92	0.344
85.00	-8.50	-16.74	0.00	-426.76	0.00	426.76	2,196.84	1,098.42	2,684.15	1,344.07	26.06	-3.04	0.322
85.75	-8.35	-16.53	0.00	-414.20	0.00	414.20	1,128.57	564.28	1,399.26	700.67	26.54	-3.06	0.599
90.00	-7.92	-16.13	0.00	-343.95	0.00	343.95	1,107.06	553.53	1,323.88	662.92	29.33	-3.20	0.527
95.00	-7.42	-15.72	0.00	-263.28	0.00	263.28	1,080.04	540.02	1,235.66	618.75	32.82	-3.44	0.433
100.00	-6.96	-15.42	0.00	-184.71	0.00	184.71	1,051.16	525.58	1,148.21	574.96	36.53	-3.64	0.329
102.00	-6.24	-11.12	0.00	-149.83	0.00	149.83	1,039.10	519.55	1,113.52	557.59	38.07	-3.70	0.275
105.00	-5.40	-9.95	0.00	-116.46	0.00	116.46	1,020.44	510.22	1,061.83	531.71	40.42	-3.79	0.225
110.00	-5.04	-9.67	0.00	-66.71	0.00	66.71	987.87	493.93	976.80	489.13	44.45	-3.90	0.142
112.00	-3.45	-5.36	0.00	-44.02	0.00	44.02	974.32	487.16	943.23	472.32	46.09	-3.93	0.097
115.00	-3.31	-5.07	0.00	-27.94	0.00	27.94	953.44	476.72	893.41	447.37	48.57	-3.96	0.066
120.00	-0.48	-1.28	0.00	-2.60	0.00	2.60	917.17	458.58	811.94	406.57	52.72	-3.98	0.007
122.00	-0.04	-0.04	0.00	-0.04	0.00	0.04	902.14	451.07	779.96	390.56	54.39	-3.98	0.000
123.00	0.00	-0.03	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	55.23	-3.98	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 21 Iterations

Gust Response Factor :1.10 | Ice Dead Load Factor :1.00 | Wind Importance Factor :1.00
Dead Load Factor :1.20 | Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		75.6	0.0					0.0	0.0	75.6	0.0	0.0	0.0
5.00		149.8	1,576.7					0.0	265.6	149.8	1,842.3	0.0	0.0
10.00		146.8	1,580.0					0.0	265.6	146.8	1,845.5	0.0	0.0
15.00		145.8	1,560.5					0.0	265.6	145.8	1,826.1	0.0	0.0
20.00		148.5	1,533.7					0.0	265.6	148.5	1,799.2	0.0	0.0
25.00		151.9	1,502.9					0.0	265.6	151.9	1,768.4	0.0	0.0
30.00		153.9	1,469.6					0.0	265.6	153.9	1,735.2	0.0	0.0
35.00		154.8	1,434.7					0.0	265.6	154.8	1,700.3	0.0	0.0
40.00		155.0	1,398.5					0.0	265.6	155.0	1,664.1	0.0	0.0
45.00		127.6	1,361.3					0.0	265.6	127.6	1,626.9	0.0	0.0
48.25	Bot - Section 2	77.4	865.9					0.0	172.6	77.4	1,038.5	0.0	0.0
50.00		77.8	737.2					0.0	92.9	77.8	830.1	0.0	0.0
53.25	Top - Section 1	77.6	1,347.1					0.0	172.6	77.6	1,519.7	0.0	0.0
55.00		103.8	401.4					0.0	92.9	103.8	494.4	0.0	0.0
60.00		152.4	1,119.9					0.0	265.6	152.4	1,385.4	0.0	0.0
65.00		150.2	1,085.3					0.0	265.6	150.2	1,350.9	0.0	0.0
70.00		147.7	1,050.4					0.0	265.6	147.7	1,315.9	0.0	0.0
75.00		144.9	1,015.0					0.0	265.6	144.9	1,280.6	0.0	0.0
80.00		96.5	979.4					0.0	265.6	96.5	1,244.9	0.0	0.0
81.75	Bot - Section 3	70.6	335.7					0.0	92.9	70.6	428.7	0.0	0.0
85.00		56.4	855.7					0.0	172.6	56.4	1,028.3	0.0	0.0
85.75	Top - Section 2	69.2	194.9					0.0	39.8	69.2	234.7	0.0	0.0
90.00		126.2	577.7					0.0	225.7	126.2	803.5	0.0	0.0
95.00		133.0	654.4					0.0	265.6	133.0	919.9	0.0	0.0
100.00		91.2	627.8					0.0	265.6	91.2	893.4	0.0	0.0
102.00	Appurtenance(s)	63.6	245.2	781.3	0.0	781.3	3,719.4	0.0	106.2	844.9	4,070.8	0.0	0.0
105.00	Appurtenance(s)	99.4	359.0	227.7	0.0	0.0	1,355.4	0.0	112.3	327.1	1,826.7	0.0	0.0
110.00		85.5	574.1					0.0	187.2	85.5	761.3	0.0	0.0
112.00	Appurtenance(s)	59.4	223.6	879.2	0.0	710.9	4,481.6	0.0	74.9	938.6	4,780.1	0.0	0.0
115.00		92.6	326.5					0.0	40.9	92.6	367.4	0.0	0.0
120.00	Appurtenance(s)	79.4	519.6	778.8	0.0	0.0	5,802.7	0.0	68.2	858.3	6,390.4	0.0	0.0
122.00	Appurtenance(s)	33.2	201.8	229.4	0.0	0.0	1,198.1	0.0	15.7	262.6	1,415.5	0.0	0.0
123.00		11.0	99.5					0.0	0.0	11.0	99.5	0.0	0.0
								Totals:		6,405.15	50,288.6	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 21 Iterations

Gust Response Factor :1.10 | Ice Dead Load Factor :1.00 | Wind Importance Factor :1.00
Dead Load Factor :1.20 | Ice Importance Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-50.29	-6.35	0.00	-557.54	0.00	557.54	4,069.07	2,034.53	8,426.11	4,219.32	0.00	0.00	0.145
5.00	-48.44	-6.23	0.00	-525.81	0.00	525.81	4,004.48	2,002.24	8,085.07	4,048.54	0.02	-0.04	0.142
10.00	-46.59	-6.12	0.00	-494.65	0.00	494.65	3,938.03	1,969.02	7,747.07	3,879.29	0.09	-0.08	0.139
15.00	-44.76	-6.00	0.00	-464.08	0.00	464.08	3,869.74	1,934.87	7,412.41	3,711.71	0.19	-0.12	0.137
20.00	-42.96	-5.88	0.00	-434.08	0.00	434.08	3,799.59	1,899.80	7,081.37	3,545.95	0.34	-0.16	0.134
25.00	-41.18	-5.75	0.00	-404.69	0.00	404.69	3,727.59	1,863.80	6,754.24	3,382.14	0.54	-0.21	0.131
30.00	-39.45	-5.62	0.00	-375.94	0.00	375.94	3,653.75	1,826.87	6,431.30	3,220.43	0.78	-0.25	0.128
35.00	-37.74	-5.49	0.00	-347.84	0.00	347.84	3,578.04	1,789.02	6,112.84	3,060.96	1.06	-0.29	0.124
40.00	-36.07	-5.35	0.00	-320.41	0.00	320.41	3,500.49	1,750.25	5,799.16	2,903.89	1.39	-0.34	0.121
45.00	-34.45	-5.23	0.00	-293.67	0.00	293.67	3,421.09	1,710.55	5,490.53	2,749.35	1.77	-0.38	0.117
48.25	-33.41	-5.16	0.00	-276.66	0.00	276.66	3,368.49	1,684.24	5,292.78	2,650.32	2.04	-0.41	0.114
50.00	-32.57	-5.09	0.00	-267.63	0.00	267.63	3,339.84	1,669.92	5,187.25	2,597.48	2.19	-0.43	0.113
53.25	-31.05	-5.01	0.00	-251.08	0.00	251.08	2,635.64	1,317.82	4,086.59	2,046.33	2.49	-0.46	0.134
55.00	-30.56	-4.92	0.00	-242.31	0.00	242.31	2,614.77	1,307.38	4,006.85	2,006.40	2.66	-0.47	0.132
60.00	-29.17	-4.79	0.00	-217.69	0.00	217.69	2,553.87	1,276.94	3,781.34	1,893.48	3.18	-0.52	0.126
65.00	-27.81	-4.65	0.00	-193.76	0.00	193.76	2,491.13	1,245.56	3,559.50	1,782.39	3.76	-0.57	0.120
70.00	-26.50	-4.51	0.00	-170.54	0.00	170.54	2,426.53	1,213.27	3,341.60	1,673.28	4.38	-0.62	0.113
75.00	-25.21	-4.37	0.00	-148.00	0.00	148.00	2,360.09	1,180.04	3,127.93	1,566.29	5.06	-0.67	0.105
80.00	-23.97	-4.27	0.00	-126.16	0.00	126.16	2,288.96	1,144.48	2,915.17	1,459.75	5.78	-0.71	0.097
81.75	-23.54	-4.20	0.00	-118.69	0.00	118.69	2,256.72	1,128.36	2,833.23	1,418.72	6.05	-0.73	0.094
85.00	-22.51	-4.14	0.00	-105.03	0.00	105.03	2,196.84	1,098.42	2,684.15	1,344.07	6.56	-0.76	0.088
85.75	-22.27	-4.08	0.00	-101.92	0.00	101.92	1,128.57	564.28	1,399.26	700.67	6.68	-0.77	0.165
90.00	-21.47	-3.96	0.00	-84.60	0.00	84.60	1,107.06	553.53	1,323.88	662.92	7.38	-0.80	0.147
95.00	-20.55	-3.83	0.00	-64.82	0.00	64.82	1,080.04	540.02	1,235.66	618.75	8.25	-0.86	0.124
100.00	-19.65	-3.74	0.00	-45.67	0.00	45.67	1,051.16	525.58	1,148.21	574.96	9.17	-0.91	0.098
102.00	-15.60	-2.83	0.00	-37.42	0.00	37.42	1,039.10	519.55	1,113.52	557.59	9.56	-0.92	0.082
105.00	-13.77	-2.48	0.00	-28.93	0.00	28.93	1,020.44	510.22	1,061.83	531.71	10.14	-0.95	0.068
110.00	-13.01	-2.38	0.00	-16.53	0.00	16.53	987.87	493.93	976.80	489.13	11.15	-0.97	0.047
112.00	-8.25	-1.37	0.00	-11.05	0.00	11.05	974.32	487.16	943.23	472.32	11.56	-0.98	0.032
115.00	-7.88	-1.27	0.00	-6.95	0.00	6.95	953.44	476.72	893.41	447.37	12.18	-0.99	0.024
120.00	-1.51	-0.30	0.00	-0.61	0.00	0.61	917.17	458.58	811.94	406.57	13.22	-0.99	0.003
122.00	-0.10	-0.01	0.00	-0.01	0.00	0.01	902.14	451.07	779.96	390.56	13.63	-0.99	0.000
123.00	0.00	-0.01	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	13.84	-0.99	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 20 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		50.5	0.0					0.0	0.0	50.5	0.0	0.0	0.0
5.00		99.7	1,007.4					0.0	221.3	99.7	1,228.7	0.0	0.0
10.00		97.2	982.1					0.0	221.3	97.2	1,203.4	0.0	0.0
15.00		96.1	956.8					0.0	221.3	96.1	1,178.1	0.0	0.0
20.00		97.6	931.5					0.0	221.3	97.6	1,152.8	0.0	0.0
25.00		99.6	906.2					0.0	221.3	99.6	1,127.5	0.0	0.0
30.00		100.6	880.9					0.0	221.3	100.6	1,102.2	0.0	0.0
35.00		100.9	855.6					0.0	221.3	100.9	1,076.9	0.0	0.0
40.00		100.7	830.3					0.0	221.3	100.7	1,051.6	0.0	0.0
45.00		82.7	804.9					0.0	221.3	82.7	1,026.2	0.0	0.0
48.25	Bot - Section 2	50.1	509.6					0.0	143.8	50.1	653.5	0.0	0.0
50.00		50.3	499.0					0.0	77.5	50.3	576.5	0.0	0.0
53.25	Top - Section 1	50.1	911.7					0.0	143.8	50.1	1,055.6	0.0	0.0
55.00		66.8	221.7					0.0	77.5	66.8	299.1	0.0	0.0
60.00		97.9	619.1					0.0	221.3	97.9	840.4	0.0	0.0
65.00		96.2	598.0					0.0	221.3	96.2	819.3	0.0	0.0
70.00		94.2	576.9					0.0	221.3	94.2	798.2	0.0	0.0
75.00		92.1	555.8					0.0	221.3	92.1	777.1	0.0	0.0
80.00		61.1	534.7					0.0	221.3	61.1	756.0	0.0	0.0
81.75	Bot - Section 3	44.6	182.2					0.0	77.5	44.6	259.6	0.0	0.0
85.00		35.6	533.6					0.0	143.8	35.6	677.5	0.0	0.0
85.75	Top - Section 2	43.6	121.1					0.0	33.2	43.6	154.3	0.0	0.0
90.00		79.2	254.7					0.0	188.1	79.2	442.8	0.0	0.0
95.00		83.1	287.9					0.0	221.3	83.1	509.2	0.0	0.0
100.00		56.8	275.3					0.0	221.3	56.8	496.6	0.0	0.0
102.00	Appurtenance(s)	39.4	106.6	798.6	0.0	798.6	897.3	0.0	88.5	838.0	1,092.4	0.0	0.0
105.00	Appurtenance(s)	61.3	156.1	161.1	0.0	0.0	750.0	0.0	93.6	222.4	999.7	0.0	0.0
110.00		52.6	250.0					0.0	156.0	52.6	406.0	0.0	0.0
112.00	Appurtenance(s)	36.3	96.4	790.0	0.0	662.4	1,929.9	0.0	62.4	826.3	2,088.7	0.0	0.0
115.00		56.3	140.9					0.0	34.1	56.3	174.9	0.0	0.0
120.00	Appurtenance(s)	48.1	224.6	658.7	0.0	0.0	3,138.7	0.0	56.8	706.9	3,420.1	0.0	0.0
122.00	Appurtenance(s)	20.0	86.3	219.0	0.0	0.0	493.5	0.0	13.1	239.0	592.9	0.0	0.0
123.00		6.6	42.4					0.0	0.0	6.6	42.4	0.0	0.0
								Totals:		4,875.55	28,080.2	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 20 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-28.08	-4.83	0.00	-434.51	0.00	434.51	4,069.07	2,034.53	8,426.11	4,219.32	0.00	0.00	0.110
5.00	-26.85	-4.75	0.00	-410.35	0.00	410.35	4,004.48	2,002.24	8,085.07	4,048.54	0.02	-0.03	0.108
10.00	-25.64	-4.66	0.00	-386.61	0.00	386.61	3,938.03	1,969.02	7,747.07	3,879.29	0.07	-0.06	0.106
15.00	-24.46	-4.58	0.00	-363.30	0.00	363.30	3,869.74	1,934.87	7,412.41	3,711.71	0.15	-0.10	0.104
20.00	-23.31	-4.49	0.00	-340.41	0.00	340.41	3,799.59	1,899.80	7,081.37	3,545.95	0.27	-0.13	0.102
25.00	-22.18	-4.40	0.00	-317.94	0.00	317.94	3,727.59	1,863.80	6,754.24	3,382.14	0.42	-0.16	0.100
30.00	-21.07	-4.31	0.00	-295.93	0.00	295.93	3,653.75	1,826.87	6,431.30	3,220.43	0.61	-0.20	0.098
35.00	-19.99	-4.22	0.00	-274.37	0.00	274.37	3,578.04	1,789.02	6,112.84	3,060.96	0.83	-0.23	0.095
40.00	-18.94	-4.12	0.00	-253.28	0.00	253.28	3,500.49	1,750.25	5,799.16	2,903.89	1.09	-0.26	0.093
45.00	-17.91	-4.05	0.00	-232.65	0.00	232.65	3,421.09	1,710.55	5,490.53	2,749.35	1.39	-0.30	0.090
48.25	-17.26	-4.00	0.00	-219.50	0.00	219.50	3,368.49	1,684.24	5,292.78	2,650.32	1.60	-0.32	0.088
50.00	-16.68	-3.95	0.00	-212.51	0.00	212.51	3,339.84	1,669.92	5,187.25	2,597.48	1.72	-0.34	0.087
53.25	-15.62	-3.90	0.00	-199.67	0.00	199.67	2,635.64	1,317.82	4,086.59	2,046.33	1.95	-0.36	0.104
55.00	-15.32	-3.84	0.00	-192.85	0.00	192.85	2,614.77	1,307.38	4,006.85	2,006.40	2.09	-0.37	0.102
60.00	-14.48	-3.74	0.00	-173.67	0.00	173.67	2,553.87	1,276.94	3,781.34	1,893.48	2.50	-0.41	0.097
65.00	-13.66	-3.65	0.00	-154.95	0.00	154.95	2,491.13	1,245.56	3,559.50	1,782.39	2.95	-0.45	0.092
70.00	-12.86	-3.56	0.00	-136.70	0.00	136.70	2,426.53	1,213.27	3,341.60	1,673.28	3.44	-0.49	0.087
75.00	-12.08	-3.47	0.00	-118.91	0.00	118.91	2,360.09	1,180.04	3,127.93	1,566.29	3.98	-0.53	0.081
80.00	-11.32	-3.40	0.00	-101.58	0.00	101.58	2,288.96	1,144.48	2,915.17	1,459.75	4.55	-0.57	0.075
81.75	-11.06	-3.36	0.00	-95.62	0.00	95.62	2,256.72	1,128.36	2,833.23	1,418.72	4.76	-0.58	0.072
85.00	-10.39	-3.32	0.00	-84.70	0.00	84.70	2,196.84	1,098.42	2,684.15	1,344.07	5.16	-0.60	0.068
85.75	-10.23	-3.28	0.00	-82.21	0.00	82.21	1,128.57	564.28	1,399.26	700.67	5.26	-0.61	0.126
90.00	-9.79	-3.20	0.00	-68.28	0.00	68.28	1,107.06	553.53	1,323.88	662.92	5.81	-0.64	0.112
95.00	-9.28	-3.12	0.00	-52.28	0.00	52.28	1,080.04	540.02	1,235.66	618.75	6.50	-0.68	0.093
100.00	-8.78	-3.06	0.00	-36.69	0.00	36.69	1,051.16	525.58	1,148.21	574.96	7.24	-0.72	0.072
102.00	-7.70	-2.21	0.00	-29.77	0.00	29.77	1,039.10	519.55	1,113.52	557.59	7.55	-0.73	0.061
105.00	-6.70	-1.98	0.00	-23.14	0.00	23.14	1,020.44	510.22	1,061.83	531.71	8.01	-0.75	0.050
110.00	-6.29	-1.92	0.00	-13.26	0.00	13.26	987.87	493.93	976.80	489.13	8.81	-0.77	0.033
112.00	-4.22	-1.07	0.00	-8.75	0.00	8.75	974.32	487.16	943.23	472.32	9.14	-0.78	0.023
115.00	-4.04	-1.01	0.00	-5.56	0.00	5.56	953.44	476.72	893.41	447.37	9.63	-0.78	0.017
120.00	-0.63	-0.25	0.00	-0.52	0.00	0.52	917.17	458.58	811.94	406.57	10.45	-0.79	0.002
122.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	902.14	451.07	779.96	390.56	10.79	-0.79	0.000
123.00	0.00	-0.01	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	10.95	-0.79	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.04	
Upper Limit C_s	0.04	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.72	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	1.61	
Total Unfactored Dead Load:	28.08	k
Seismic Base Shear (E):	1.06	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
32	122.50	42	98	0.003	4	53
31	121.00	99	225	0.008	8	123
30	117.50	281	607	0.022	23	349
29	113.50	175	357	0.013	13	217
28	111.00	159	313	0.011	12	197
27	107.50	406	759	0.027	29	503
26	103.50	250	439	0.016	17	309
25	101.00	195	330	0.012	12	242
24	97.50	497	793	0.028	30	615
23	92.50	509	747	0.027	28	631
22	87.88	443	598	0.021	23	548
21	85.38	154	199	0.007	8	191
20	83.38	677	841	0.030	32	839
19	80.88	260	307	0.011	12	322
18	77.50	756	835	0.030	31	936
17	72.50	777	770	0.027	29	962
16	67.50	798	705	0.025	27	989
15	62.50	819	640	0.023	24	1,015
14	57.50	840	574	0.020	22	1,041
13	54.13	299	185	0.007	7	370
12	51.63	1,056	606	0.022	23	1,307
11	49.13	576	305	0.011	12	714
10	46.63	653	318	0.011	12	809

9	42.50	1,026	430	0.015	16	1,271
8	37.50	1,052	361	0.013	14	1,302
7	32.50	1,077	293	0.010	11	1,334
6	27.50	1,102	229	0.008	9	1,365
5	22.50	1,127	170	0.006	6	1,396
4	17.50	1,153	116	0.004	4	1,428
3	12.50	1,178	69	0.002	3	1,459
2	7.50	1,203	31	0.001	1	1,490
1	2.50	1,229	5	0.000	0	1,522
Ericsson AIR 21, 1.3	122.00	249	571	0.020	22	308
Ericsson AIR 21, 1.3	122.00	244	560	0.020	21	303
Ericsson KRY 112 144	120.00	33	74	0.003	3	41
Ericsson Radio 4449	120.00	222	496	0.018	19	275
RFS APXVAARR24_43-U-	120.00	384	856	0.030	32	475
Generic Round Platfo	120.00	2,500	5,580	0.198	211	3,096
Powerwave Allgon TT1	112.00	96	192	0.007	7	119
Raycap DC6-48-60-18-	112.00	20	40	0.001	2	25
Ericsson RRUS 4449 B	112.00	213	425	0.015	16	264
Ericsson RRUS 4478 B	112.00	178	356	0.013	13	221
Raycap DC6-48-60-18-	112.00	16	32	0.001	1	20
Ericsson RRUS 32 B2	112.00	159	318	0.011	12	197
Commscope SBNHH-1D65	112.00	101	201	0.007	8	124
Powerwave Allgon P90	112.00	159	318	0.011	12	197
Round T-Arm	112.00	750	1,498	0.053	57	929
CCI DMP65R-BU6DA	112.00	238	476	0.017	18	295
Round T-Arm	105.00	750	1,350	0.048	51	929
Alcatel-Lucent RRH2x	102.00	170	292	0.010	11	211
Alcatel-Lucent B66 R	102.00	201	345	0.012	13	249
Raycap RC2DC-3315-PF	102.00	64	110	0.004	4	79
Swedcom SC-E 6016 RE	102.00	50	86	0.003	3	62
Andrew SBNHH-1D65B	102.00	304	523	0.019	20	377
Antel LPA-80063/6CF	102.00	108	186	0.007	7	134
		28,080	28,140	1.000	1,062	34,775

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
32	122.50	42	98	0.003	4	37
31	121.00	99	225	0.008	8	86
30	117.50	281	607	0.022	23	242
29	113.50	175	357	0.013	13	151
28	111.00	159	313	0.011	12	137
27	107.50	406	759	0.027	29	350
26	103.50	250	439	0.016	17	215
25	101.00	195	330	0.012	12	168
24	97.50	497	793	0.028	30	428
23	92.50	509	747	0.027	28	439
22	87.88	443	598	0.021	23	382
21	85.38	154	199	0.007	8	133
20	83.38	677	841	0.030	32	584
19	80.88	260	307	0.011	12	224
18	77.50	756	835	0.030	31	651
17	72.50	777	770	0.027	29	670
16	67.50	798	705	0.025	27	688
15	62.50	819	640	0.023	24	706
14	57.50	840	574	0.020	22	724
13	54.13	299	185	0.007	7	258
12	51.63	1,056	606	0.022	23	909
11	49.13	576	305	0.011	12	497

10	46.63	653	318	0.011	12	563
9	42.50	1,026	430	0.015	16	884
8	37.50	1,052	361	0.013	14	906
7	32.50	1,077	293	0.010	11	928
6	27.50	1,102	229	0.008	9	950
5	22.50	1,127	170	0.006	6	971
4	17.50	1,153	116	0.004	4	993
3	12.50	1,178	69	0.002	3	1,015
2	7.50	1,203	31	0.001	1	1,037
1	2.50	1,229	5	0.000	0	1,059
Ericsson AIR 21, 1.3	122.00	249	571	0.020	22	215
Ericsson AIR 21, 1.3	122.00	244	560	0.020	21	211
Ericsson KRY 112 144	120.00	33	74	0.003	3	28
Ericsson Radio 4449	120.00	222	496	0.018	19	191
RFS APXVAARR24_43-U-	120.00	384	856	0.030	32	331
Generic Round Platfo	120.00	2,500	5,580	0.198	211	2,154
Powerwave Allgon TT1	112.00	96	192	0.007	7	83
Raycap DC6-48-60-18-	112.00	20	40	0.001	2	17
Ericsson RRUS 4449 B	112.00	213	425	0.015	16	184
Ericsson RRUS 4478 B	112.00	178	356	0.013	13	154
Raycap DC6-48-60-18-	112.00	16	32	0.001	1	14
Ericsson RRUS 32 B2	112.00	159	318	0.011	12	137
Commscope SBNHH-1D65	112.00	101	201	0.007	8	87
Powerwave Allgon P90	112.00	159	318	0.011	12	137
Round T-Arm	112.00	750	1,498	0.053	57	646
CCI DMP65R-BU6DA	112.00	238	476	0.017	18	205
Round T-Arm	105.00	750	1,350	0.048	51	646
Alcatel-Lucent RRH2x	102.00	170	292	0.010	11	147
Alcatel-Lucent B66 R	102.00	201	345	0.012	13	173
Raycap RC2DC-3315-PF	102.00	64	110	0.004	4	55
Swedcom SC-E 6016 RE	102.00	50	86	0.003	3	43
Andrew SBNHH-1D65B	102.00	304	523	0.019	20	262
Antel LPA-80063/6CF	102.00	108	186	0.007	7	93
		28,080	28,140	1.000	1,062	24,194

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.25	-1.06	0.00	-104.94	0.00	104.94	4,069.07	2,034.53	8,426.11	4,219.32	0.00	0.00	0.033
5.00	-31.76	-1.07	0.00	-99.62	0.00	99.62	4,004.48	2,002.24	8,085.07	4,048.54	0.00	-0.01	0.033
10.00	-30.30	-1.07	0.00	-94.30	0.00	94.30	3,938.03	1,969.02	7,747.07	3,879.29	0.02	-0.02	0.032
15.00	-28.88	-1.07	0.00	-88.96	0.00	88.96	3,869.74	1,934.87	7,412.41	3,711.71	0.04	-0.02	0.031
20.00	-27.48	-1.06	0.00	-83.63	0.00	83.63	3,799.59	1,899.80	7,081.37	3,545.95	0.07	-0.03	0.031
25.00	-26.11	-1.06	0.00	-78.32	0.00	78.32	3,727.59	1,863.80	6,754.24	3,382.14	0.10	-0.04	0.030
30.00	-24.78	-1.05	0.00	-73.03	0.00	73.03	3,653.75	1,826.87	6,431.30	3,220.43	0.15	-0.05	0.029
35.00	-23.48	-1.04	0.00	-67.79	0.00	67.79	3,578.04	1,789.02	6,112.84	3,060.96	0.20	-0.06	0.029
40.00	-22.21	-1.02	0.00	-62.60	0.00	62.60	3,500.49	1,750.25	5,799.16	2,903.89	0.27	-0.06	0.028
45.00	-21.40	-1.01	0.00	-57.48	0.00	57.48	3,421.09	1,710.55	5,490.53	2,749.35	0.34	-0.07	0.027
48.25	-20.68	-1.00	0.00	-54.19	0.00	54.19	3,368.49	1,684.24	5,292.78	2,650.32	0.39	-0.08	0.027
50.00	-19.38	-0.98	0.00	-52.44	0.00	52.44	3,339.84	1,669.92	5,187.25	2,597.48	0.42	-0.08	0.026
53.25	-19.01	-0.97	0.00	-49.26	0.00	49.26	2,635.64	1,317.82	4,086.59	2,046.33	0.48	-0.09	0.031
55.00	-17.96	-0.95	0.00	-47.55	0.00	47.55	2,614.77	1,307.38	4,006.85	2,006.40	0.51	-0.09	0.031
60.00	-16.95	-0.93	0.00	-42.80	0.00	42.80	2,553.87	1,276.94	3,781.34	1,893.48	0.61	-0.10	0.029
65.00	-15.96	-0.90	0.00	-38.15	0.00	38.15	2,491.13	1,245.56	3,559.50	1,782.39	0.72	-0.11	0.028
70.00	-15.00	-0.87	0.00	-33.64	0.00	33.64	2,426.53	1,213.27	3,341.60	1,673.28	0.84	-0.12	0.026
75.00	-14.06	-0.84	0.00	-29.26	0.00	29.26	2,360.09	1,180.04	3,127.93	1,566.29	0.98	-0.13	0.025
80.00	-13.74	-0.83	0.00	-25.05	0.00	25.05	2,288.96	1,144.48	2,915.17	1,459.75	1.12	-0.14	0.023
81.75	-12.90	-0.80	0.00	-23.59	0.00	23.59	2,256.72	1,128.36	2,833.23	1,418.72	1.17	-0.14	0.022
85.00	-12.71	-0.79	0.00	-20.99	0.00	20.99	2,196.84	1,098.42	2,684.15	1,344.07	1.27	-0.15	0.021
85.75	-12.16	-0.77	0.00	-20.40	0.00	20.40	1,128.57	564.28	1,399.26	700.67	1.29	-0.15	0.040
90.00	-11.53	-0.74	0.00	-17.13	0.00	17.13	1,107.06	553.53	1,323.88	662.92	1.43	-0.16	0.036
95.00	-10.92	-0.71	0.00	-13.42	0.00	13.42	1,080.04	540.02	1,235.66	618.75	1.60	-0.17	0.032
100.00	-10.68	-0.70	0.00	-9.86	0.00	9.86	1,051.16	525.58	1,148.21	574.96	1.78	-0.18	0.027
102.00	-9.26	-0.62	0.00	-8.46	0.00	8.46	1,039.10	519.55	1,113.52	557.59	1.86	-0.18	0.024
105.00	-7.82	-0.54	0.00	-6.59	0.00	6.59	1,020.44	510.22	1,061.83	531.71	1.97	-0.19	0.020
110.00	-7.63	-0.53	0.00	-3.90	0.00	3.90	987.87	493.93	976.80	489.13	2.17	-0.19	0.016
112.00	-5.02	-0.36	0.00	-2.85	0.00	2.85	974.32	487.16	943.23	472.32	2.25	-0.19	0.011
115.00	-4.67	-0.34	0.00	-1.77	0.00	1.77	953.44	476.72	893.41	447.37	2.37	-0.20	0.009
120.00	-0.66	-0.05	0.00	-0.10	0.00	0.10	917.17	458.58	811.94	406.57	2.58	-0.20	0.001
122.00	0.00	0.00	0.00	0.00	0.00	0.00	902.14	451.07	779.96	390.56	2.67	-0.20	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	2.71	-0.20	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-23.14	-1.06	0.00	-104.02	0.00	104.02	4,069.07	2,034.53	8,426.11	4,219.32	0.00	0.00	0.030
5.00	-22.10	-1.06	0.00	-98.71	0.00	98.71	4,004.48	2,002.24	8,085.07	4,048.54	0.00	-0.01	0.030
10.00	-21.08	-1.06	0.00	-93.40	0.00	93.40	3,938.03	1,969.02	7,747.07	3,879.29	0.02	-0.02	0.029
15.00	-20.09	-1.06	0.00	-88.08	0.00	88.08	3,869.74	1,934.87	7,412.41	3,711.71	0.04	-0.02	0.029
20.00	-19.12	-1.06	0.00	-82.77	0.00	82.77	3,799.59	1,899.80	7,081.37	3,545.95	0.06	-0.03	0.028
25.00	-18.17	-1.05	0.00	-77.48	0.00	77.48	3,727.59	1,863.80	6,754.24	3,382.14	0.10	-0.04	0.028
30.00	-17.24	-1.04	0.00	-72.22	0.00	72.22	3,653.75	1,826.87	6,431.30	3,220.43	0.15	-0.05	0.027
35.00	-16.33	-1.03	0.00	-67.01	0.00	67.01	3,578.04	1,789.02	6,112.84	3,060.96	0.20	-0.06	0.026
40.00	-15.45	-1.01	0.00	-61.87	0.00	61.87	3,500.49	1,750.25	5,799.16	2,903.89	0.26	-0.06	0.026
45.00	-14.89	-1.00	0.00	-56.79	0.00	56.79	3,421.09	1,710.55	5,490.53	2,749.35	0.34	-0.07	0.025
48.25	-14.39	-0.99	0.00	-53.53	0.00	53.53	3,368.49	1,684.24	5,292.78	2,650.32	0.39	-0.08	0.024
50.00	-13.48	-0.97	0.00	-51.79	0.00	51.79	3,339.84	1,669.92	5,187.25	2,597.48	0.42	-0.08	0.024
53.25	-13.22	-0.96	0.00	-48.64	0.00	48.64	2,635.64	1,317.82	4,086.59	2,046.33	0.47	-0.09	0.029
55.00	-12.50	-0.94	0.00	-46.95	0.00	46.95	2,614.77	1,307.38	4,006.85	2,006.40	0.51	-0.09	0.028
60.00	-11.79	-0.92	0.00	-42.24	0.00	42.24	2,553.87	1,276.94	3,781.34	1,893.48	0.61	-0.10	0.027
65.00	-11.10	-0.89	0.00	-37.65	0.00	37.65	2,491.13	1,245.56	3,559.50	1,782.39	0.72	-0.11	0.026
70.00	-10.43	-0.86	0.00	-33.18	0.00	33.18	2,426.53	1,213.27	3,341.60	1,673.28	0.84	-0.12	0.024
75.00	-9.78	-0.83	0.00	-28.86	0.00	28.86	2,360.09	1,180.04	3,127.93	1,566.29	0.97	-0.13	0.023
80.00	-9.56	-0.82	0.00	-24.69	0.00	24.69	2,288.96	1,144.48	2,915.17	1,459.75	1.11	-0.14	0.021
81.75	-8.98	-0.79	0.00	-23.26	0.00	23.26	2,256.72	1,128.36	2,833.23	1,418.72	1.16	-0.14	0.020
85.00	-8.84	-0.78	0.00	-20.69	0.00	20.69	2,196.84	1,098.42	2,684.15	1,344.07	1.25	-0.15	0.019
85.75	-8.46	-0.76	0.00	-20.10	0.00	20.10	1,128.57	564.28	1,399.26	700.67	1.28	-0.15	0.036
90.00	-8.02	-0.73	0.00	-16.88	0.00	16.88	1,107.06	553.53	1,323.88	662.92	1.41	-0.15	0.033
95.00	-7.59	-0.70	0.00	-13.22	0.00	13.22	1,080.04	540.02	1,235.66	618.75	1.58	-0.17	0.028
100.00	-7.43	-0.69	0.00	-9.71	0.00	9.71	1,051.16	525.58	1,148.21	574.96	1.76	-0.18	0.024
102.00	-6.44	-0.61	0.00	-8.33	0.00	8.33	1,039.10	519.55	1,113.52	557.59	1.83	-0.18	0.021
105.00	-5.44	-0.53	0.00	-6.49	0.00	6.49	1,020.44	510.22	1,061.83	531.71	1.95	-0.18	0.018
110.00	-5.31	-0.52	0.00	-3.84	0.00	3.84	987.87	493.93	976.80	489.13	2.15	-0.19	0.013
112.00	-3.49	-0.35	0.00	-2.81	0.00	2.81	974.32	487.16	943.23	472.32	2.23	-0.19	0.010
115.00	-3.25	-0.33	0.00	-1.75	0.00	1.75	953.44	476.72	893.41	447.37	2.35	-0.19	0.007
120.00	-0.46	-0.05	0.00	-0.10	0.00	0.10	917.17	458.58	811.94	406.57	2.55	-0.20	0.001
122.00	0.00	0.00	0.00	0.00	0.00	0.00	902.14	451.07	779.96	390.56	2.63	-0.20	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	2.68	-0.20	0.000

Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.72
Redundancy Factor (p):	1.00

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
32	122.50	42	1.875	1.900	1.111	0.362	10	53
31	121.00	99	1.829	1.674	1.028	0.333	22	123
30	117.50	281	1.725	1.218	0.853	0.271	51	349
29	113.50	175	1.609	0.808	0.683	0.207	24	217
28	111.00	159	1.539	0.602	0.591	0.172	18	197
27	107.50	406	1.444	0.372	0.478	0.127	34	503
26	103.50	250	1.338	0.177	0.371	0.083	14	309
25	101.00	195	1.274	0.087	0.314	0.060	8	242
24	97.50	497	1.188	-0.007	0.246	0.032	11	615
23	92.50	509	1.069	-0.086	0.168	0.003	1	631
22	87.88	443	0.965	-0.117	0.115	-0.014	-4	548
21	85.38	154	0.911	-0.122	0.091	-0.019	-2	191
20	83.38	677	0.868	-0.121	0.076	-0.021	-10	839
19	80.88	260	0.817	-0.115	0.059	-0.022	-4	322
18	77.50	756	0.750	-0.101	0.041	-0.019	-10	936
17	72.50	777	0.657	-0.073	0.022	-0.009	-5	962
16	67.50	798	0.569	-0.042	0.011	0.005	3	989
15	62.50	819	0.488	-0.012	0.007	0.019	11	1,015
14	57.50	840	0.413	0.014	0.006	0.031	18	1,041
13	54.13	299	0.366	0.028	0.008	0.038	7	370
12	51.63	1,056	0.333	0.037	0.010	0.041	29	1,307
11	49.13	576	0.301	0.045	0.012	0.043	17	714
10	46.63	653	0.272	0.051	0.015	0.045	20	809
9	42.50	1,026	0.226	0.059	0.020	0.046	32	1,271
8	37.50	1,052	0.176	0.066	0.026	0.046	32	1,302
7	32.50	1,077	0.132	0.069	0.033	0.045	32	1,334
6	27.50	1,102	0.094	0.071	0.038	0.043	32	1,365
5	22.50	1,127	0.063	0.072	0.041	0.041	31	1,396
4	17.50	1,153	0.038	0.070	0.041	0.039	30	1,428
3	12.50	1,178	0.020	0.064	0.038	0.036	28	1,459
2	7.50	1,203	0.007	0.050	0.028	0.028	23	1,490
1	2.50	1,229	0.001	0.022	0.012	0.013	11	1,522
Ericsson AIR 21, 1.3	122.00	249	1.859	1.822	1.083	0.352	58	308
Ericsson AIR 21, 1.3	122.00	244	1.859	1.822	1.083	0.352	57	303

Ericsson KRY 112 144	120.00	33	1.799	1.534	0.975	0.315	7	41
Ericsson Radio 4449	120.00	222	1.799	1.534	0.975	0.315	47	275
RFS APXVAARR24_43-U-	120.00	384	1.799	1.534	0.975	0.315	81	475
Generic Round Platfo	120.00	2,500	1.799	1.534	0.975	0.315	525	3,096
Powerwave Allgon TT1	112.00	96	1.567	0.680	0.626	0.186	12	119
Raycap DC6-48-60-18-	112.00	20	1.567	0.680	0.626	0.186	2	25
Ericsson RRUS 4449 B	112.00	213	1.567	0.680	0.626	0.186	26	264
Ericsson RRUS 4478 B	112.00	178	1.567	0.680	0.626	0.186	22	221
Raycap DC6-48-60-18-	112.00	16	1.567	0.680	0.626	0.186	2	20
Ericsson RRUS 32 B2	112.00	159	1.567	0.680	0.626	0.186	20	197
Commscope SBNHH-	112.00	101	1.567	0.680	0.626	0.186	12	124
Powerwave Allgon P90	112.00	159	1.567	0.680	0.626	0.186	20	197
Round T-Arm	112.00	750	1.567	0.680	0.626	0.186	93	929
CCI DMP65R-BU6DA	112.00	238	1.567	0.680	0.626	0.186	29	295
Round T-Arm	105.00	750	1.377	0.242	0.409	0.099	49	929
Alcatel-Lucent RRH2x	102.00	170	1.300	0.120	0.336	0.069	8	211
Alcatel-Lucent B66 R	102.00	201	1.300	0.120	0.336	0.069	9	249
Raycap RC2DC-3315-PF	102.00	64	1.300	0.120	0.336	0.069	3	79
Swedcom SC-E 6016 RE	102.00	50	1.300	0.120	0.336	0.069	2	62
Andrew SBNHH-1D65B	102.00	304	1.300	0.120	0.336	0.069	14	377
Antel LPA-80063/6CF	102.00	108	1.300	0.120	0.336	0.069	5	134
		28,080	59.117	24.305	21.346	6.440	1,617	34,775

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
32	122.50	42	1.875	1.900	1.111	0.362	10	37
31	121.00	99	1.829	1.674	1.028	0.333	22	86
30	117.50	281	1.725	1.218	0.853	0.271	51	242
29	113.50	175	1.609	0.808	0.683	0.207	24	151
28	111.00	159	1.539	0.602	0.591	0.172	18	137
27	107.50	406	1.444	0.372	0.478	0.127	34	350
26	103.50	250	1.338	0.177	0.371	0.083	14	215
25	101.00	195	1.274	0.087	0.314	0.060	8	168
24	97.50	497	1.188	-0.007	0.246	0.032	11	428
23	92.50	509	1.069	-0.086	0.168	0.003	1	439
22	87.88	443	0.965	-0.117	0.115	-0.014	-4	382
21	85.38	154	0.911	-0.122	0.091	-0.019	-2	133
20	83.38	677	0.868	-0.121	0.076	-0.021	-10	584
19	80.88	260	0.817	-0.115	0.059	-0.022	-4	224
18	77.50	756	0.750	-0.101	0.041	-0.019	-10	651
17	72.50	777	0.657	-0.073	0.022	-0.009	-5	670
16	67.50	798	0.569	-0.042	0.011	0.005	3	688
15	62.50	819	0.488	-0.012	0.007	0.019	11	706
14	57.50	840	0.413	0.014	0.006	0.031	18	724
13	54.13	299	0.366	0.028	0.008	0.038	7	258
12	51.63	1,056	0.333	0.037	0.010	0.041	29	909
11	49.13	576	0.301	0.045	0.012	0.043	17	497
10	46.63	653	0.272	0.051	0.015	0.045	20	563
9	42.50	1,026	0.226	0.059	0.020	0.046	32	884
8	37.50	1,052	0.176	0.066	0.026	0.046	32	906
7	32.50	1,077	0.132	0.069	0.033	0.045	32	928
6	27.50	1,102	0.094	0.071	0.038	0.043	32	950
5	22.50	1,127	0.063	0.072	0.041	0.041	31	971
4	17.50	1,153	0.038	0.070	0.041	0.039	30	993
3	12.50	1,178	0.020	0.064	0.038	0.036	28	1,015
2	7.50	1,203	0.007	0.050	0.028	0.028	23	1,037
1	2.50	1,229	0.001	0.022	0.012	0.013	11	1,059

Ericsson AIR 21, 1.3	122.00	249	1.859	1.822	1.083	0.352	58	215
Ericsson AIR 21, 1.3	122.00	244	1.859	1.822	1.083	0.352	57	211
Ericsson KRY 112 144	120.00	33	1.799	1.534	0.975	0.315	7	28
Ericsson Radio 4449	120.00	222	1.799	1.534	0.975	0.315	47	191
RFS APXVAARR24_43-U-	120.00	384	1.799	1.534	0.975	0.315	81	331
Generic Round Platfo	120.00	2,500	1.799	1.534	0.975	0.315	525	2,154
Powerwave Allgon TT1	112.00	96	1.567	0.680	0.626	0.186	12	83
Raycap DC6-48-60-18-	112.00	20	1.567	0.680	0.626	0.186	2	17
Ericsson RRUS 4449 B	112.00	213	1.567	0.680	0.626	0.186	26	184
Ericsson RRUS 4478 B	112.00	178	1.567	0.680	0.626	0.186	22	154
Raycap DC6-48-60-18-	112.00	16	1.567	0.680	0.626	0.186	2	14
Ericsson RRUS 32 B2	112.00	159	1.567	0.680	0.626	0.186	20	137
Commscope SBNHH-	112.00	101	1.567	0.680	0.626	0.186	12	87
Powerwave Allgon P90	112.00	159	1.567	0.680	0.626	0.186	20	137
Round T-Arm	112.00	750	1.567	0.680	0.626	0.186	93	646
CCI DMP65R-BU6DA	112.00	238	1.567	0.680	0.626	0.186	29	205
Round T-Arm	105.00	750	1.377	0.242	0.409	0.099	49	646
Alcatel-Lucent RRH2x	102.00	170	1.300	0.120	0.336	0.069	8	147
Alcatel-Lucent B66 R	102.00	201	1.300	0.120	0.336	0.069	9	173
Raycap RC2DC-3315-PF	102.00	64	1.300	0.120	0.336	0.069	3	55
Swedcom SC-E 6016 RE	102.00	50	1.300	0.120	0.336	0.069	2	43
Andrew SBNHH-1D65B	102.00	304	1.300	0.120	0.336	0.069	14	262
Antel LPA-80063/6CF	102.00	108	1.300	0.120	0.336	0.069	5	93
		28,080	59.117	24.305	21.346	6.440	1,617	24,194

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.25	-1.61	0.00	-163.82	0.00	163.82	4,069.07	2,034.53	8,426.11	4,219.32	0.00	0.00	0.047
5.00	-31.76	-1.59	0.00	-155.78	0.00	155.78	4,004.48	2,002.24	8,085.07	4,048.54	0.01	-0.01	0.046
10.00	-30.30	-1.57	0.00	-147.81	0.00	147.81	3,938.03	1,969.02	7,747.07	3,879.29	0.03	-0.02	0.046
15.00	-28.87	-1.55	0.00	-139.95	0.00	139.95	3,869.74	1,934.87	7,412.41	3,711.71	0.06	-0.04	0.045
20.00	-27.48	-1.52	0.00	-132.22	0.00	132.22	3,799.59	1,899.80	7,081.37	3,545.95	0.10	-0.05	0.045
25.00	-26.11	-1.49	0.00	-124.61	0.00	124.61	3,727.59	1,863.80	6,754.24	3,382.14	0.16	-0.06	0.044
30.00	-24.78	-1.47	0.00	-117.14	0.00	117.14	3,653.75	1,826.87	6,431.30	3,220.43	0.23	-0.08	0.043
35.00	-23.48	-1.44	0.00	-109.81	0.00	109.81	3,578.04	1,789.02	6,112.84	3,060.96	0.32	-0.09	0.042
40.00	-22.21	-1.41	0.00	-102.62	0.00	102.62	3,500.49	1,750.25	5,799.16	2,903.89	0.42	-0.10	0.042
45.00	-21.40	-1.39	0.00	-95.58	0.00	95.58	3,421.09	1,710.55	5,490.53	2,749.35	0.53	-0.12	0.041
48.25	-20.68	-1.38	0.00	-91.05	0.00	91.05	3,368.49	1,684.24	5,292.78	2,650.32	0.62	-0.13	0.040
50.00	-19.37	-1.35	0.00	-88.64	0.00	88.64	3,339.84	1,669.92	5,187.25	2,597.48	0.67	-0.13	0.040
53.25	-19.00	-1.34	0.00	-84.26	0.00	84.26	2,635.64	1,317.82	4,086.59	2,046.33	0.76	-0.14	0.048
55.00	-17.96	-1.33	0.00	-81.91	0.00	81.91	2,614.77	1,307.38	4,006.85	2,006.40	0.81	-0.15	0.048
60.00	-16.95	-1.32	0.00	-75.29	0.00	75.29	2,553.87	1,276.94	3,781.34	1,893.48	0.97	-0.16	0.046
65.00	-15.96	-1.32	0.00	-68.70	0.00	68.70	2,491.13	1,245.56	3,559.50	1,782.39	1.16	-0.18	0.045
70.00	-15.00	-1.32	0.00	-62.12	0.00	62.12	2,426.53	1,213.27	3,341.60	1,673.28	1.36	-0.20	0.043
75.00	-14.06	-1.33	0.00	-55.51	0.00	55.51	2,360.09	1,180.04	3,127.93	1,566.29	1.57	-0.22	0.041
80.00	-13.74	-1.34	0.00	-48.84	0.00	48.84	2,288.96	1,144.48	2,915.17	1,459.75	1.81	-0.23	0.039
81.75	-12.90	-1.35	0.00	-46.50	0.00	46.50	2,256.72	1,128.36	2,833.23	1,418.72	1.90	-0.24	0.038
85.00	-12.71	-1.35	0.00	-42.12	0.00	42.12	2,196.84	1,098.42	2,684.15	1,344.07	2.07	-0.25	0.037
85.75	-12.16	-1.35	0.00	-41.11	0.00	41.11	1,128.57	564.28	1,399.26	700.67	2.11	-0.26	0.069
90.00	-11.53	-1.35	0.00	-35.36	0.00	35.36	1,107.06	553.53	1,323.88	662.92	2.34	-0.27	0.064
95.00	-10.91	-1.34	0.00	-28.60	0.00	28.60	1,080.04	540.02	1,235.66	618.75	2.64	-0.29	0.056
100.00	-10.67	-1.34	0.00	-21.88	0.00	21.88	1,051.16	525.58	1,148.21	574.96	2.96	-0.32	0.048
102.00	-9.25	-1.28	0.00	-19.20	0.00	19.20	1,039.10	519.55	1,113.52	557.59	3.09	-0.32	0.043
105.00	-7.82	-1.19	0.00	-15.37	0.00	15.37	1,020.44	510.22	1,061.83	531.71	3.30	-0.34	0.037
110.00	-7.62	-1.17	0.00	-9.45	0.00	9.45	987.87	493.93	976.80	489.13	3.66	-0.35	0.027
112.00	-5.02	-0.89	0.00	-7.11	0.00	7.11	974.32	487.16	943.23	472.32	3.81	-0.35	0.020
115.00	-4.67	-0.84	0.00	-4.44	0.00	4.44	953.44	476.72	893.41	447.37	4.03	-0.36	0.015
120.00	-0.66	-0.13	0.00	-0.26	0.00	0.26	917.17	458.58	811.94	406.57	4.41	-0.36	0.001
122.00	0.00	0.00	0.00	0.00	0.00	0.00	902.14	451.07	779.96	390.56	4.56	-0.36	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	4.64	-0.36	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-23.14	-1.61	0.00	-162.29	0.00	162.29	4,069.07	2,034.53	8,426.11	4,219.32	0.00	0.00	0.044
5.00	-22.10	-1.59	0.00	-154.25	0.00	154.25	4,004.48	2,002.24	8,085.07	4,048.54	0.01	-0.01	0.044
10.00	-21.08	-1.57	0.00	-146.30	0.00	146.30	3,938.03	1,969.02	7,747.07	3,879.29	0.03	-0.02	0.043
15.00	-20.09	-1.54	0.00	-138.47	0.00	138.47	3,869.74	1,934.87	7,412.41	3,711.71	0.06	-0.04	0.042
20.00	-19.12	-1.51	0.00	-130.77	0.00	130.77	3,799.59	1,899.80	7,081.37	3,545.95	0.10	-0.05	0.042
25.00	-18.17	-1.48	0.00	-123.20	0.00	123.20	3,727.59	1,863.80	6,754.24	3,382.14	0.16	-0.06	0.041
30.00	-17.24	-1.46	0.00	-115.78	0.00	115.78	3,653.75	1,826.87	6,431.30	3,220.43	0.23	-0.07	0.041
35.00	-16.33	-1.43	0.00	-108.51	0.00	108.51	3,578.04	1,789.02	6,112.84	3,060.96	0.32	-0.09	0.040
40.00	-15.45	-1.40	0.00	-101.38	0.00	101.38	3,500.49	1,750.25	5,799.16	2,903.89	0.41	-0.10	0.039
45.00	-14.89	-1.38	0.00	-94.40	0.00	94.40	3,421.09	1,710.55	5,490.53	2,749.35	0.53	-0.12	0.039
48.25	-14.39	-1.36	0.00	-89.92	0.00	89.92	3,368.49	1,684.24	5,292.78	2,650.32	0.61	-0.13	0.038
50.00	-13.48	-1.33	0.00	-87.54	0.00	87.54	3,339.84	1,669.92	5,187.25	2,597.48	0.66	-0.13	0.038
53.25	-13.22	-1.33	0.00	-83.20	0.00	83.20	2,635.64	1,317.82	4,086.59	2,046.33	0.75	-0.14	0.046
55.00	-12.50	-1.31	0.00	-80.88	0.00	80.88	2,614.77	1,307.38	4,006.85	2,006.40	0.80	-0.15	0.045
60.00	-11.79	-1.30	0.00	-74.33	0.00	74.33	2,553.87	1,276.94	3,781.34	1,893.48	0.96	-0.16	0.044
65.00	-11.10	-1.30	0.00	-67.83	0.00	67.83	2,491.13	1,245.56	3,559.50	1,782.39	1.14	-0.18	0.043
70.00	-10.43	-1.31	0.00	-61.33	0.00	61.33	2,426.53	1,213.27	3,341.60	1,673.28	1.34	-0.20	0.041
75.00	-9.78	-1.32	0.00	-54.80	0.00	54.80	2,360.09	1,180.04	3,127.93	1,566.29	1.56	-0.21	0.039
80.00	-9.56	-1.32	0.00	-48.22	0.00	48.22	2,288.96	1,144.48	2,915.17	1,459.75	1.79	-0.23	0.037
81.75	-8.97	-1.33	0.00	-45.91	0.00	45.91	2,256.72	1,128.36	2,833.23	1,418.72	1.88	-0.24	0.036
85.00	-8.84	-1.33	0.00	-41.59	0.00	41.59	2,196.84	1,098.42	2,684.15	1,344.07	2.04	-0.25	0.035
85.75	-8.46	-1.34	0.00	-40.59	0.00	40.59	1,128.57	564.28	1,399.26	700.67	2.08	-0.25	0.065
90.00	-8.02	-1.34	0.00	-34.91	0.00	34.91	1,107.06	553.53	1,323.88	662.92	2.31	-0.27	0.060
95.00	-7.59	-1.33	0.00	-28.24	0.00	28.24	1,080.04	540.02	1,235.66	618.75	2.61	-0.29	0.053
100.00	-7.42	-1.32	0.00	-21.61	0.00	21.61	1,051.16	525.58	1,148.21	574.96	2.92	-0.31	0.045
102.00	-6.43	-1.26	0.00	-18.97	0.00	18.97	1,039.10	519.55	1,113.52	557.59	3.05	-0.32	0.040
105.00	-5.44	-1.17	0.00	-15.19	0.00	15.19	1,020.44	510.22	1,061.83	531.71	3.26	-0.33	0.034
110.00	-5.30	-1.15	0.00	-9.34	0.00	9.34	987.87	493.93	976.80	489.13	3.62	-0.35	0.024
112.00	-3.49	-0.88	0.00	-7.03	0.00	7.03	974.32	487.16	943.23	472.32	3.76	-0.35	0.018
115.00	-3.25	-0.83	0.00	-4.39	0.00	4.39	953.44	476.72	893.41	447.37	3.98	-0.36	0.013
120.00	-0.46	-0.13	0.00	-0.26	0.00	0.26	917.17	458.58	811.94	406.57	4.36	-0.36	0.001
122.00	0.00	0.00	0.00	0.00	0.00	0.00	902.14	451.07	779.96	390.56	4.51	-0.36	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	4.58	-0.36	0.000

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	24.50	0.00	33.66	0.00	0.00	2211.35	85.75	0.61
0.9D + 1.6W	24.48	0.00	25.24	0.00	0.00	2195.32	85.75	0.60
1.2D + 1.0Di + 1.0Wi	6.35	0.00	50.29	0.00	0.00	557.54	85.75	0.17
(1.2 + 0.2Sds) * DL + E ELFM	1.06	0.00	33.25	0.00	0.00	104.94	85.75	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.61	0.00	33.25	0.00	0.00	163.82	85.75	0.07
(0.9 - 0.2Sds) * DL + E ELFM	1.06	0.00	23.14	0.00	0.00	104.02	85.75	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.61	0.00	23.14	0.00	0.00	162.29	85.75	0.07
1.0D + 1.0W	4.83	0.00	28.08	0.00	0.00	434.51	85.75	0.13

Base Plate & Anchor Rod Analysis

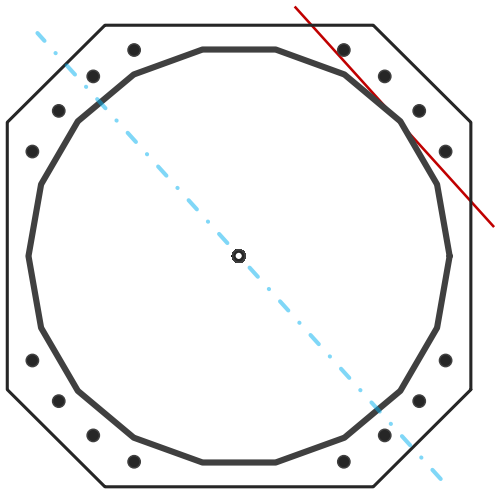
Pole Dimensions		
Number of Sides	18	-
Diameter	50.75	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2211.4	k-ft
Axial, Pu	33.7	k
Shear, Vu	24.5	k
Neutral Axis	312	°

Report Capacities		
Component	Capacity	Result
Base Plate	40%	Pass
Anchor Rods	46%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	57	in
Thickness	2 3/4	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	12	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1011.0	k
Bending Stress, ϕMn	2519.2	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	57	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset		°
Applied Force, Pu	118.3	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	24.5	2211.4	1.00
Anchor Rod Forces	24.5	2211.4	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	59.0458	3.2803	0.1543		18732.41
Bolt	3.9761	3.2477	0.8393	4.5	21116.92
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	57	in
Thickness, t	2.75	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	25.951	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	57	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	118.3	k
Applied Shear, Vu	0.1	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.455	OK
Interaction Capacity	0.456	OK

External Base Plate		
Chord Length AA	29.610	in
Additional AA	0.000	in
Section Modulus, Z	55.982	in^3
Applied Moment, Mu	1011.0	k-ft
Bending Capacity, ϕMn	2519.2	k-ft
Capacity, Mu/ϕMn	0.401	OK
Chord Length AB	28.823	in
Additional AB	0.000	in
Section Modulus, Z	54.494	in^3
Applied Moment, Mu	829.9	k-ft
Bending Capacity, ϕMn	2452.2	k-ft
Capacity, Mu/ϕMn	0.338	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Town of Branford
Property Listing Report

Parcel ID F08/000/006/00049

Account 003607

Property Information

Owner	MALAVASI INVESTMENTS LLC
Address	123 PINE ORCHARD RD
Mailing Address	35 STONY CREEK RD BRANFORD , CT 06405
Land Use	- COMM WHS MDL96
Land Class	C

Census Tract	
Neighborhood	0070
Zoning	R3
Acreage	3.76
Utilities	Public Water,Public Sewer
Lot Setting/ Desc	/ Level

Photo

PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	145900	102100
Outbuildings	19600	13710
Improvements	173400	121310
Extras	7900	5500
Land	341800	239300
Total	515200	360610
Previous		

Construction Details

Year Built	1941
Stories	1
Building Style	Service Shop
Building Use	Ind/Comm
Building Condition	03
Total Rooms	
Bedrooms	
Full Bathrooms	0
Half Bathrooms	0
Bath Style	
Kitchen Style	
Roof Style	Gable/Hip
Roof Cover	Metal/Tin

EXTERIOR WALLS:	
Primary	Pre-finsh Metl
Secondary	
INTERIOR WALLS:	
Primary	Plywood Panel
Secondary	
FLOORS:	
Primary	Carpet
Secondary	
HEATING/AC:	
Heating Type	Forced Air-Duc
Heating Fuel	Electric
AC Type	Central

BUILDING AREA:	
Effective Building Area	
Gross Building Area	10752
Total Living Area	5376

SALES HISTORY:	
Sale Date	2/13/2003
Sale Price	537500
Book/ Page	0802/0624

Town of Branford, Connecticut - Assessment Parcel Map

Parcel: F08-000-006-00049 Address: 123 PINE ORCHARD RD

Approximate Scale: 1 inch : 200 feet

Grand List Date October 2018

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

DOCKET NO. 386 – T-Mobile Northeast LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and management of a telecommunications facility located at 123 Pine Orchard Road, Branford, Connecticut.	}	Connecticut Siting Council February 25, 2010

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and management of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to T-Mobile Northeast LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 123 Pine Orchard Road, Branford, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile Northeast LLC and New Cingular Wireless PCS LLC and other entities, both public and private, but such tower shall not exceed a height of 125 feet above ground level. Panel antennas shall be installed in a flush-mount configuration or utilizing t-arm mounts and such panel antennas shall not exceed a height of 125 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Branford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
    c) correspondence indicating results of discussions with the property owner at 119 Pine Orchard Road regarding continued use of the existing driveway entrance. If an agreement cannot be reached and the driveway is expanded as proposed, a 12-foot spruce tree shall be planted in the front yard of 121 Pine Orchard Road.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Branford public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

8. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

9. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Branford. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the New Haven Register.

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

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
T-Mobile Northeast LLC	Julie D. Kohler, Esq. Monte E. Frank, Esq. Jesse A. Langer, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604

Intervenor	**Its Representative**
New Cingular Wireless PCS, LLC	Christopher B. Fisher, Esq. Daniel M. Laub, Esq. Cuddy & Feder LLP 445 Hamilton Avenue, 14th Floor White Plains, NY 10601

KAYLA GAGNON
6034210470
SAI COMMUNICATIONS
12 INDUSTRIAL WAY
SALEM NH 03079

1 LBS

1 OF 1

SHIP TO:

HONORABLE JAMES COSGROVE
6034210470
CC: HARRY SMITH
1019 MAIN STREET
BRANFORD CT 06405

CT 065 2-01

UPS GROUND

TRACKING #: 1Z 9V0 F66 03 9479 0050

BILLING: P/P

Reference No.1: CT-103-19003 CSC Mailing

XOL 19.10.10 NV45 20.0A 10/2019

KAYLA GAGNON
6034210470
SAI COMMUNICATIONS
12 INDUSTRIAL WAY
SALEM NH 03079

1 LBS

1 OF 1

SHIP TO:
MALAVASI INVESTMENTS, LLC
6034210470
MALAVASI INVESTMENTS, LLC
123 PINE ORCHARD ROAD
BRANFORD CT 06405

CT 065 2-01

UPS GROUND
TRACKING #: 1Z 9V0 F66 03 9357 5839

BILLING: P/P

Reference No.1: CT-103-19003 CSC Mailing

XOL 19.10.10 NV45 20.0A 10/2019