



Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

June 30, 2015

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

RE: AT&T LTE Amendment - Crown Site BU: 806354
AT&T Site ID: CTL02127
Located at: 21 Berkshire Road, Newtown, CT 06482

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of AT&T. AT&T is making modifications to certain existing sites in its Connecticut system in order to implement their 2.5GHz LTE technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies (“R.C.S.A.”), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mrs. E. Patricia Llodra, First Selectman for the Town of Newtown, and Carmine V. Renzulli, Property Owner.

AT&T plans to modify the existing wireless communications facility owned by Crown Castle and located at **21 Berkshire Road, Newtown, CT 06482**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to AT&T’s operations at the site (Exhibit-3).

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes (“C.G.S.”) § 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in the R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T’s additional antennas will be located at the same elevation on the existing tower.
2. There will be no proposed modifications to the ground and no extension of boundaries.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

Melanie A. Bachman

June 30, 2015

Page 2

4. A Structural Modification Report confirming that the tower and foundation can support AT&T's proposed modifications is included as Exhibit-2.
5. The operation of the additional antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for AT&T's modified facility is included as Exhibit-3.

For the foregoing reasons, AT&T respectfully submits the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Rebecca Nardi.

Sincerely,



Jeff Barbadora

Real Estate Specialist

Enclosures

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes

Tab 2: Exhibit-2: Structural Modification Report

Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: Mrs. E. Patricia Llodra, First Selectman
Newtown Municipal Center
3 Primrose Street
Newtown, CT 06470

Carmine V. Renzulli
505 Westport Ave, Lot 31
Norwalk, CT 06851

PROJECT INFORMATION

SCOPE OF WORK:

- AT&T ANTENNAS: REMOVE (1) ANTENNA PER SECTOR FOR A TOTAL OF (3) REMOVED ANTENNAS, REPLACE WITH (1) ANTENNA PER SECTOR FOR A TOTAL OF (3) NEW ANTENNAS, RELOCATED (1) ANTENNA PER SECTOR FOR A TOTAL OF (3) RELOCATED ANTENNAS
- AT&T RRU's: (1) NEW RRU PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRU's; (1) EXISTING RRU PER SECTOR TO REMAIN AND BE RELOCATED, FOR A TOTAL OF (3) EXISTING RRU's.

SITE ADDRESS: 21 BERSHIRE ROAD
NEWTOWN, CT 06482

LATITUDE: 41.4125750 41° 24' 45.27"N
LONGITUDE: -73.2701100 73° 16' 12.396"W

USID: 4515

TOWER OWNER: CROWN CASTLE
1220 AUGUSTA DRIVE, SUITE 600
HOUSTON, TX 77057

TYPE OF SITE: MONOPOLE/OUTDOOR EQUIPMENT

RAD CENTER: 177'-0"±

CURRENT USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

PROPOSED USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY



at&t
MOBILITY

FA CODE: 10035032
SITE NUMBER: CT2127
SITE NAME: NEWTOWN EAST

PROJECT TEAM

CLIENT REPRESENTATIVE

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD
BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:

COMPANY: VERTICAL DEVELOPMENT, LLC
ADDRESS: 20 COMMERCIAL STREET
BRANFORD, CT 06405
CONTACT: DAVID BASS
PHONE: 203-826-5857
EMAIL: dbass@verticaldevelopmentllc.com

ZONING:

COMPANY: VERTICAL DEVELOPMENT, LLC
ADDRESS: 20 COMMERCIAL STREET
BRANFORD, CT 06405
CONTACT: DAVID BASS
PHONE: 203-826-5857
EMAIL: dbass@verticaldevelopmentllc.com

ENGINEERING:

COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 4 SECOND AVENUE
SUITE 204
DENVER, NJ 07834
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:

COMPANY: AT&T MOBILITY – NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD
SUITE 550 13 & 14
FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508-596-7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD
BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484-683-1750
EMAIL: gdorman@empiretelecomm.com

DRAWING INDEX

		REV.
T-1	TITLE SHEET	0
GN-1	GROUNDING & GENERAL NOTES	0
A-1	ROOF PLAN	0
A-2	EQUIPMENT LAYOUT	0
A-3	ANTENNA LAYOUTS & ELEVATION	0
A-4	DETAILS	0
G-1	GROUNDING DETAILS	0

VICINITY MAP

1. DEPART 550 COCHITUATE RD, TOWN OF FRAMINGHAM, MA 01701 ON SR-30 [COCHITUATE RD] (WEST). 2. BEAR LEFT (SOUTH) ONTO SR-126 [CONCORD ST], TURN LEFT (SOUTH) ONTO CONCORD ST. 3. TURN RIGHT (WEST) ONTO SR-9 [WORCESTER RD], MERGE ONTO SR-30 [SR-9]. 4. KEEP STRAIGHT ONTO SR-9 [WORCESTER RD], TURN RIGHT ONTO RAMP. 5. KEEP LEFT TO STAY ON RAMP *TOLL ROAD*, MERGE ONTO I-90 [MASS PIKE]. 6. AT EXIT 9, TAKE RAMP (RIGHT) ONTO I-84, ENTERING CONNECTICUT. 7. AT EXIT 57, TAKE RAMP (LEFT) ONTO SR-15, ROAD NAME CHANGES TO US-5 [SR-15]. 8. AT EXIT 86, TAKE RAMP (RIGHT) ONTO I-91. 9. AT EXIT 18, TAKE RAMP (RIGHT) ONTO I-691. 10. AT EXIT 1, TAKE RAMP (LEFT) ONTO I-84 AT EXIT 11, TURN RIGHT ONTO RAMP. 11. TURN RIGHT (NORTH-EAST) ONTO MILE HILL RD, TURN LEFT (NORTH-WEST) ONTO SR-34 [BERKSHIRE RD]. 12. TURN RIGHT (NORTH) ONTO LOCAL ROAD(S).



GENERAL NOTES

- 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.
- 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.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		



CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

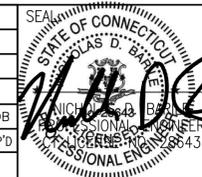


SITE NUMBER: CT2127
SITE NAME: NEWTON EAST
21 BERKSHIRE ROAD
NEWTOWN, CT 06482
FAIRFIELD COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
0	04/27/15	ISSUED AS FINAL	KCD	NDB	NDB

SCALE: AS SHOWN DESIGNED BY: CJT DRAWN BY: GR



AT&T		
DRAWING TITLE: TITLE SHEET		
JOB NUMBER	DRAWING NUMBER	REV
14207-EMP	T-1	0

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) 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. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER 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 AND TRAY SHALL BE GROUNDED AND 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. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').
14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE 1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – EMPIRE TELECOM
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T MOBILITY
 OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. INFORMATION SHOWN ON THIS SET OF DRAWINGS TAKEN FROM PLANS PREPARED BY CHA FOR AT&T DATED (04/20/11). CONTRACTOR TO NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. 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.
4. 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.
5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
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. ROUTING OF TRENCHING SHALL BE APPROVED BY 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 OFF 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 HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING 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). 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 SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY 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 MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. 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.
 - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
 - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
 - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS
21. 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, THIRTEENTH EDITION
 - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
 - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
 - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
 - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
 - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
 - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS
22. 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.
23. INFORMATION SHOWN ON THIS SET OF DRAWINGS TAKEN FROM PLANS PREPARED BY HUDSON DESIGN GROUP FOR AT&T DATED 3/30/11. CONTRACTOR TO NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO COMMENCEMENT OF CONSTRUCTION.



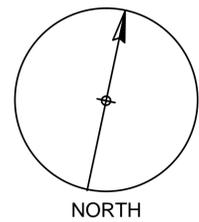
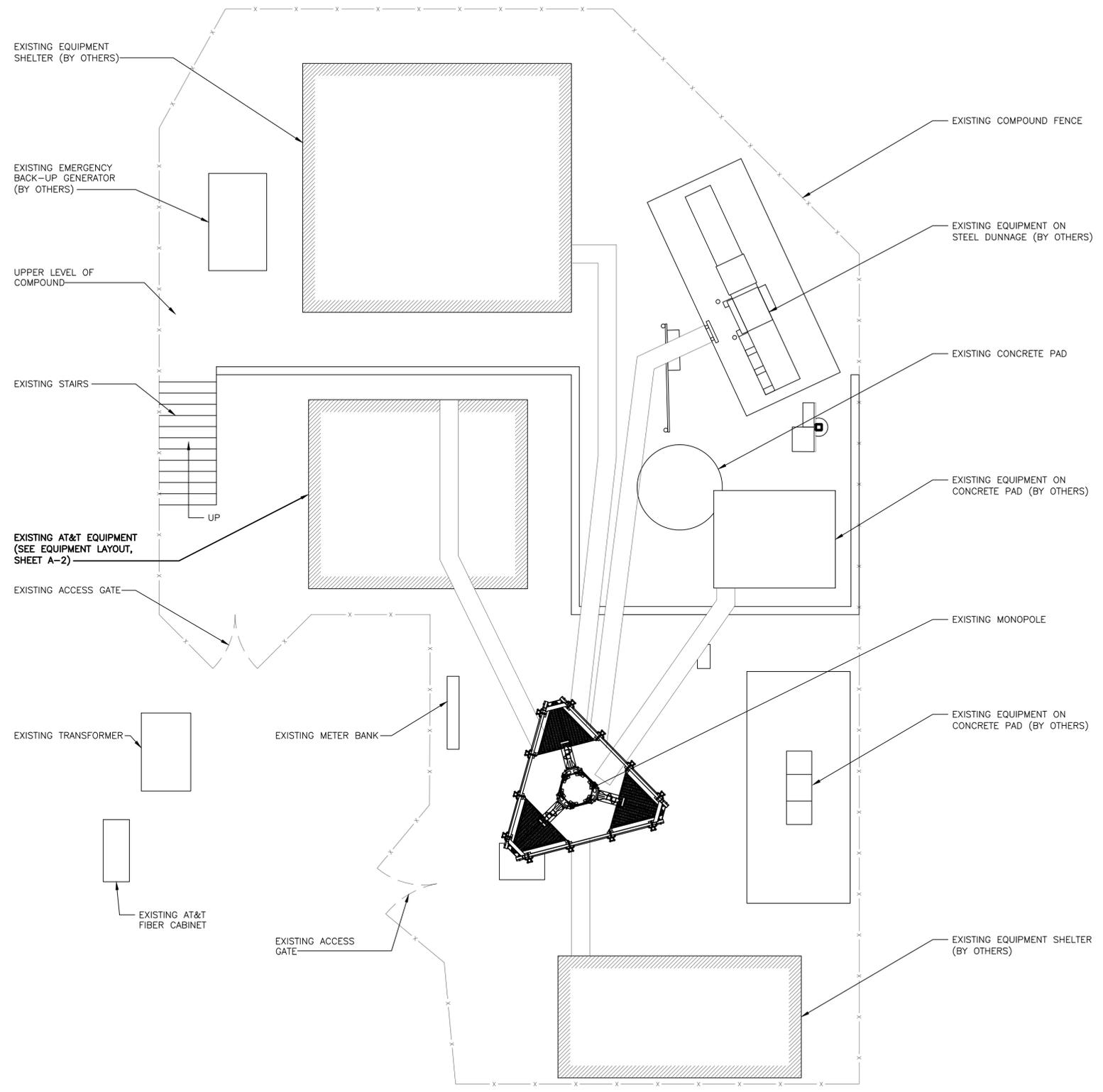
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SITE NAME: NEWTON EAST
 21 BERKSHIRE ROAD
 NEWTOWN, CT 06482
 FAIRFIELD COUNTY



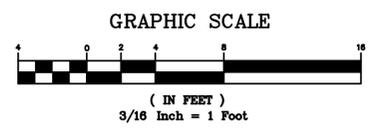
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NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: CJT	DRAWN BY: GR		



AT&T		
DRAWING TITLE: GROUNDING NOTES & GENERAL NOTES		
JOB NUMBER 14207-EMP	DRAWING NUMBER GN-1	REV 0



ROOF PLAN
SCALE: 3/16" = 1'-0"



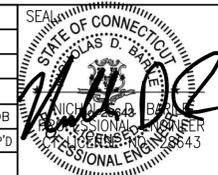
COM-EX
Consultants
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FAX: 862.209.4301

EMPIRE
telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

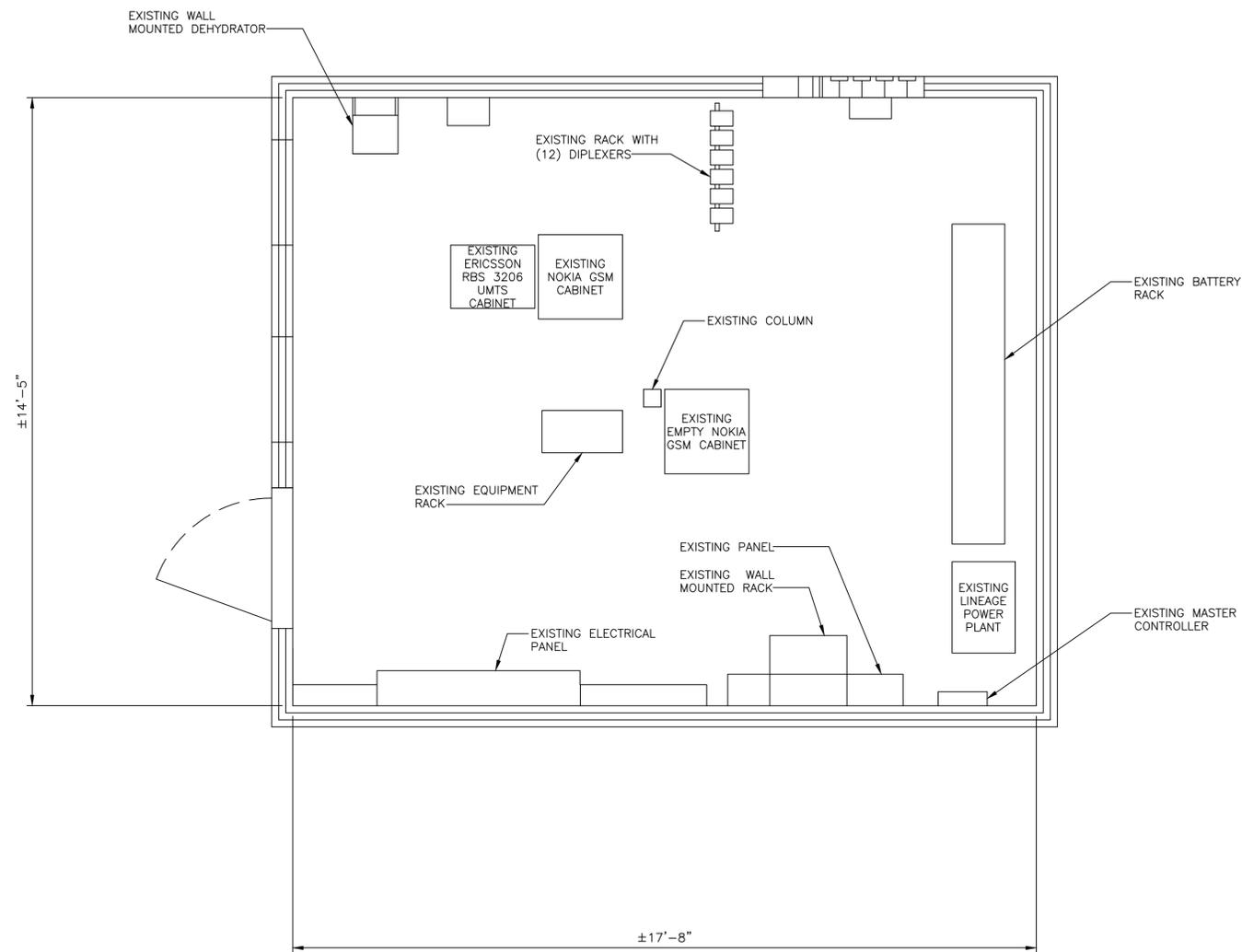
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 **at&t**
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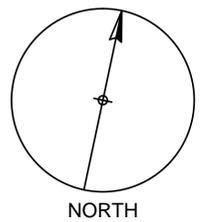
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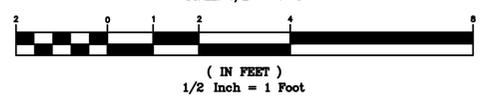
AT&T		
DRAWING TITLE: COMPOUND LAYOUT		
JOB NUMBER 14207-EMP	DRAWING NUMBER A-1	REV 0



NOTE:
NO GROUND EQUIPMENT CHANGES
ARE PROPOSED UNDER THIS SCOPE
OF WORK. EXISTING GROUND
EQUIPMENT CONFIGURATION TO
REMAIN.



EXISTING EQUIPMENT LAYOUT
SCALE: 1/2" = 1'-0"



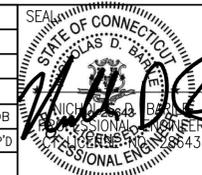
COM-EX
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EMPIRE
telecom
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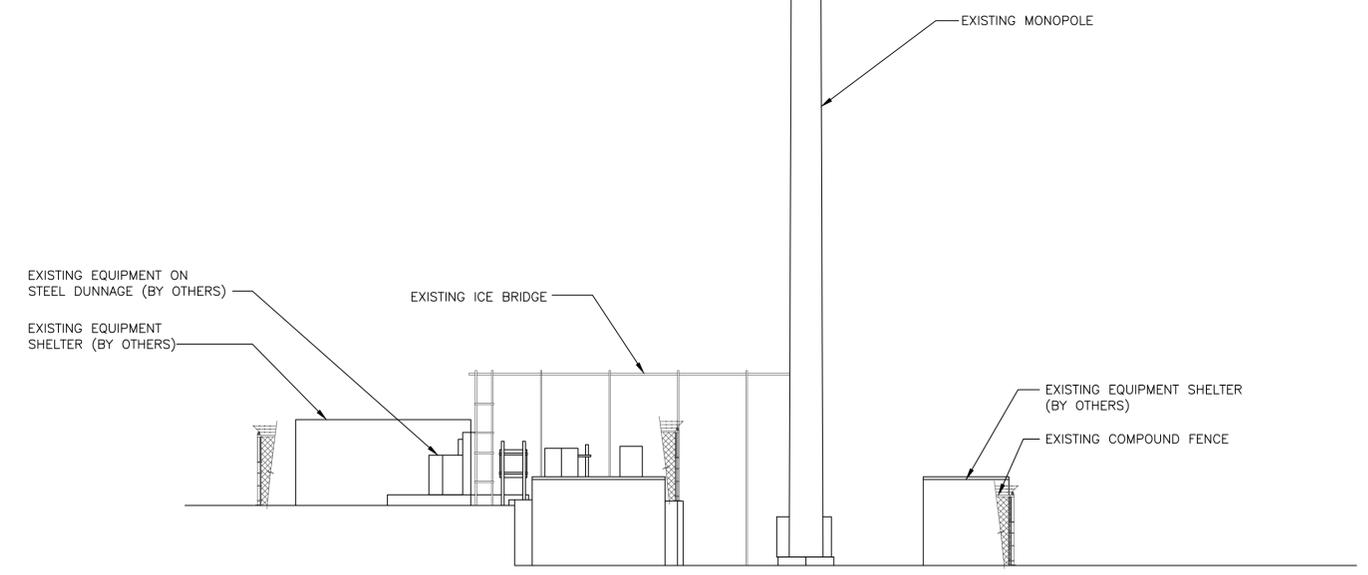
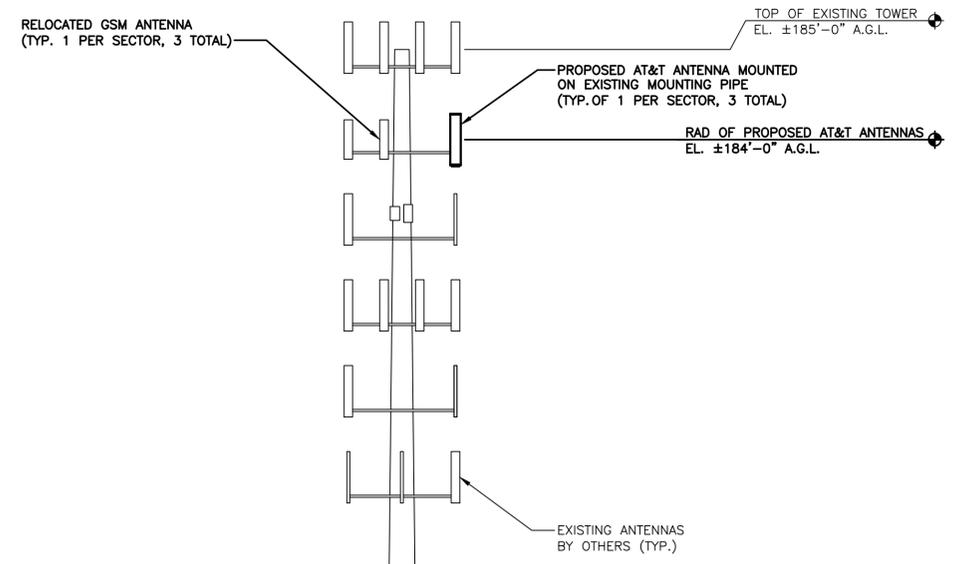
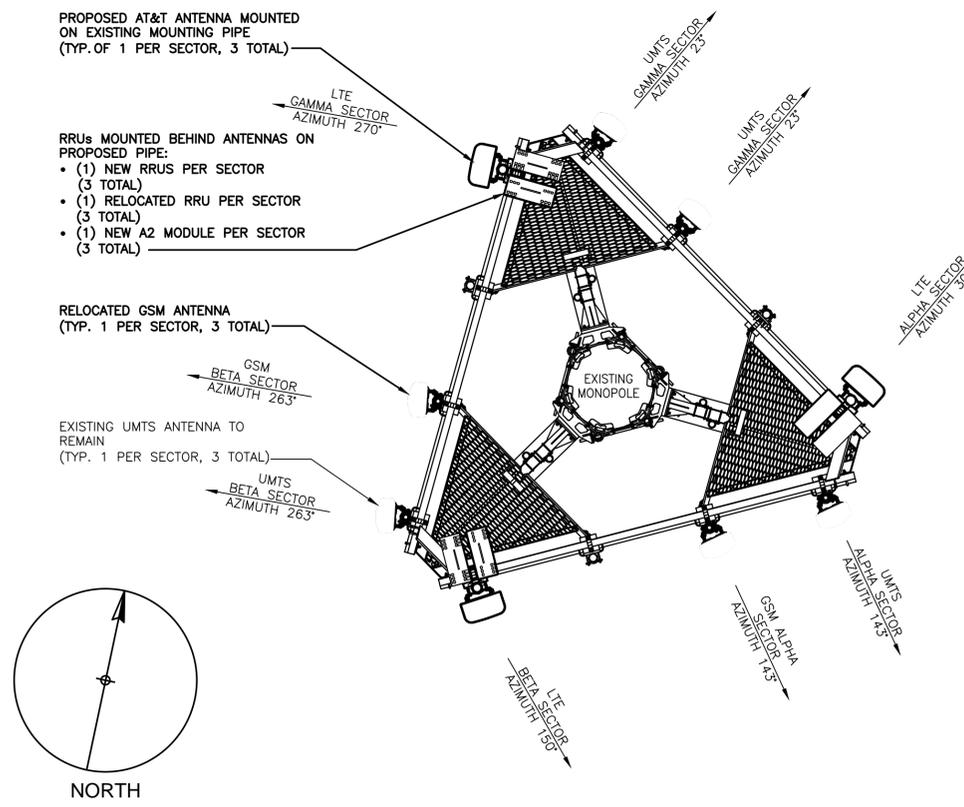
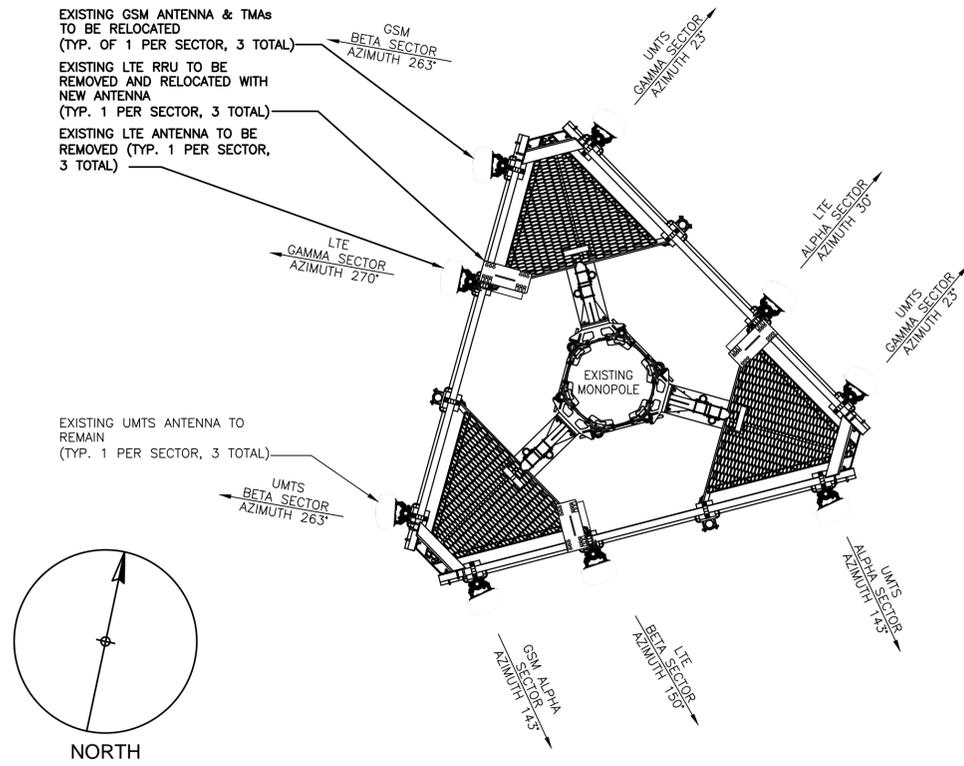
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 **at&t**
MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

0	04/27/15	ISSUED AS FINAL	KCD	NDB	NDB
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: CJT	DRAWN BY: GR		



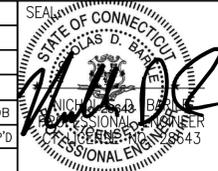
AT&T		
DRAWING TITLE: EQUIPMENT LAYOUT		
JOB NUMBER 14207-EMP	DRAWING NUMBER A-2	REV 0



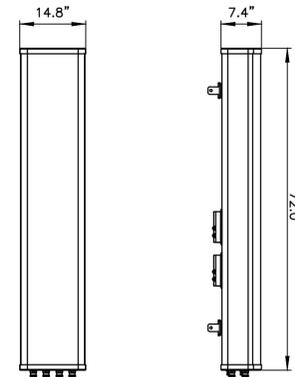
BUILDING ELEVATION
SCALE: NTS

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

0	04/27/15	ISSUED AS FINAL	KCD	NDB	NDB
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: CJT	DRAWN BY: GR		



AT&T		
DRAWING TITLE: ANTENNA LAYOUTS & ELEVATION		
JOB NUMBER 14207-EMP	DRAWING NUMBER A-3	REV 0



FRONT VIEW

SIDE VIEW

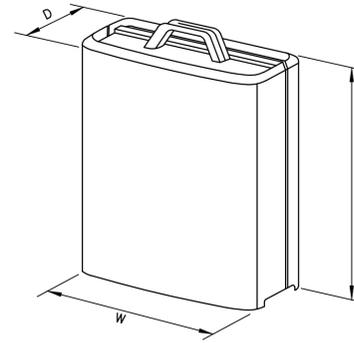


BOTTOM VIEW

MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H6
WEIGHT	73.0 LBS

ANTENNA DETAIL

SCALE: N.T.S.

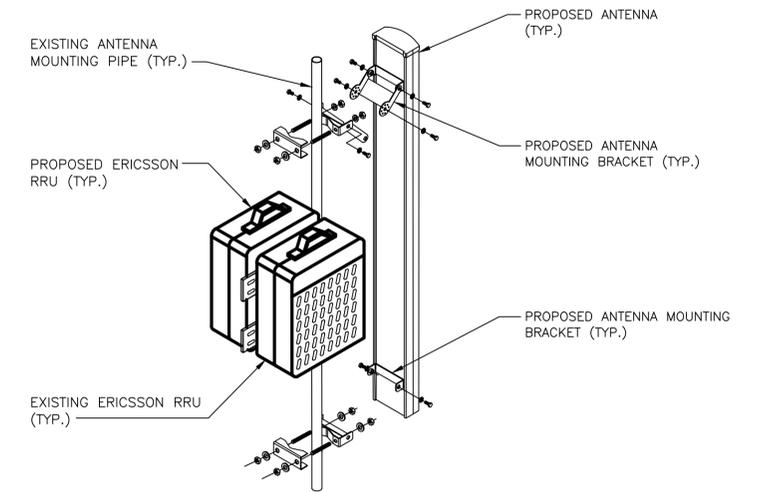


MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

*DENOTES EXISTING.

RRUS DETAIL

SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00.850.06	55"x11"x5"
	A2	-	-	-
	A3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	A4	POWERWAVE	7770.00.850.06	55"x11"x5"
BETA	B1	POWERWAVE	7770.00.850.06	55"x11"x5"
	B2	-	-	-
	B3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	B4	POWERWAVE	7770.00.850.06	55"x11"x5"
GAMMA	G1	POWERWAVE	7770.00.850.06	55"x11"x5"
	G2	-	-	-
	G3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	G4	POWERWAVE	7770.00.850.06	55"x11"x5"

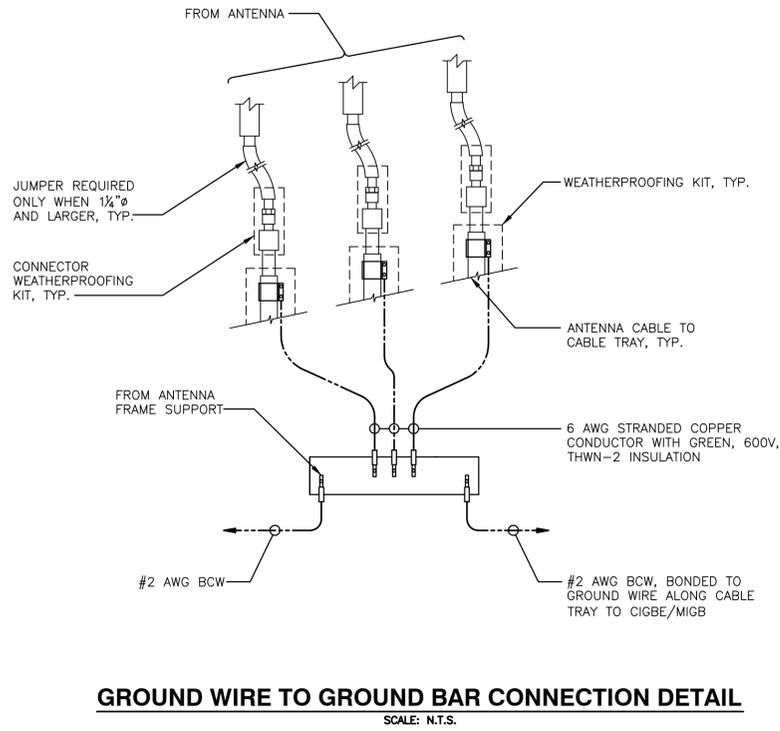
FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00.850.06	55"x11"x5"
	A2	POWERWAVE	7770.00.850.06	55"x11"x5"
	A3	-	-	-
	A4	CCI	OPA-65-LCUU-H6	72"x14.8"x7.4"
BETA	B1	POWERWAVE	7770.00.850.06	55"x11"x5"
	B2	POWERWAVE	7770.00.850.06	55"x11"x5"
	B3	-	-	-
	B4	CCI	OPA-65-LCUU-H6	72"x14.8"x7.4"
GAMMA	G1	POWERWAVE	7770.00.850.06	55"x11"x5"
	G2	POWERWAVE	7770.00.850.06	55"x11"x5"
	G3	-	-	-
	G4	CCI	OPA-65-LCUU-H6	72"x14.8"x7.4"

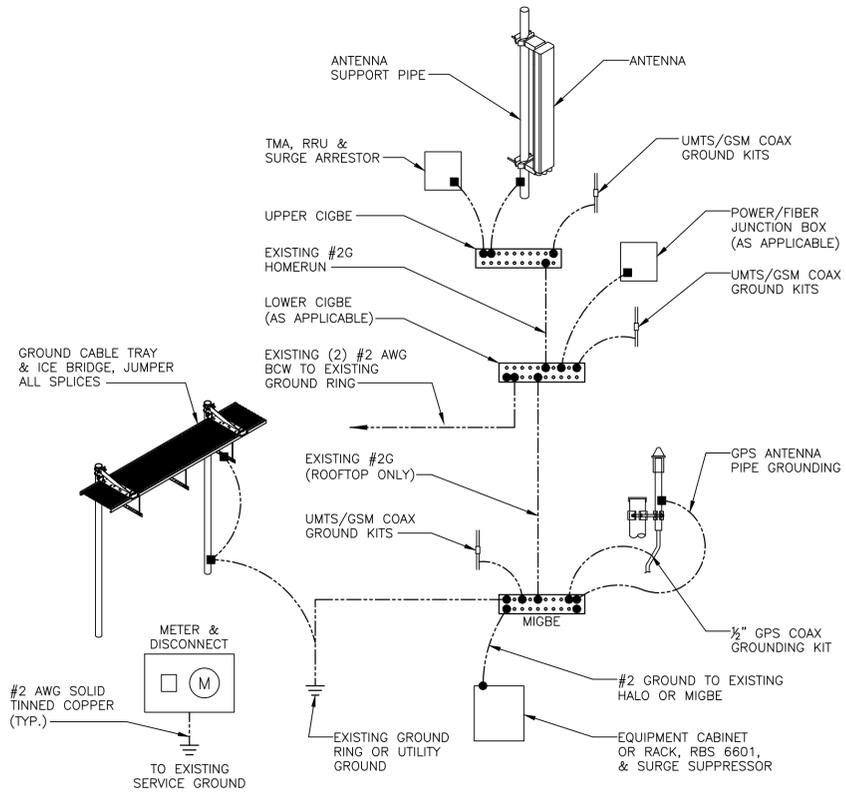
PROPOSED RRH SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
BETA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
GAMMA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		

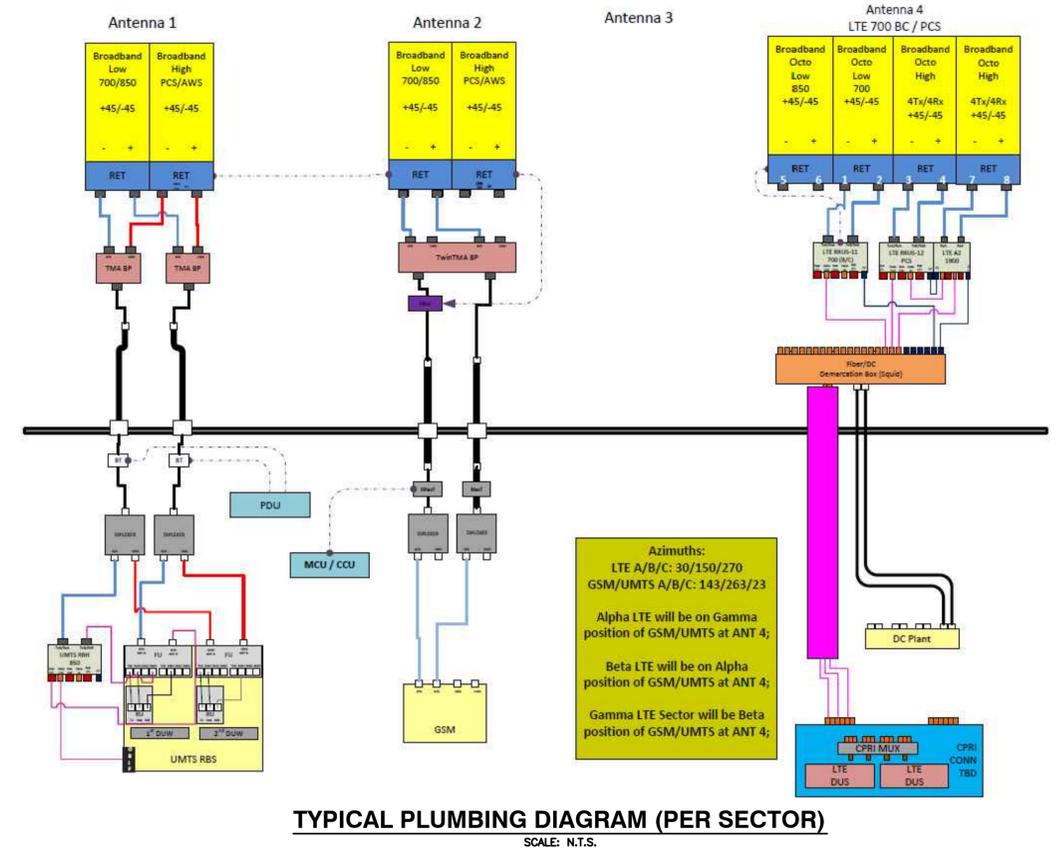
PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.



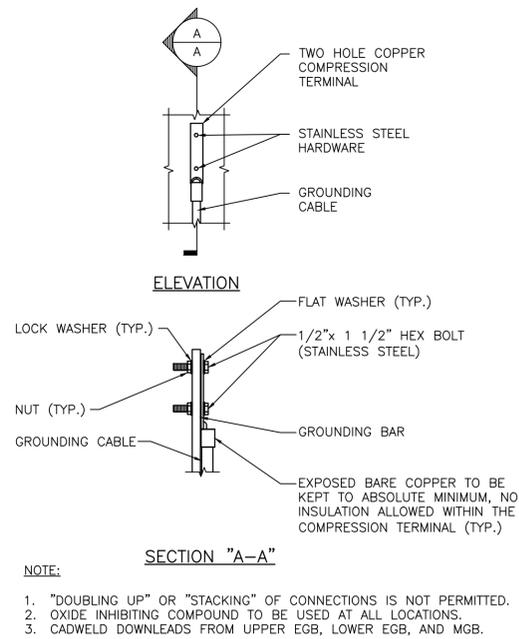
GROUND WIRE TO GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



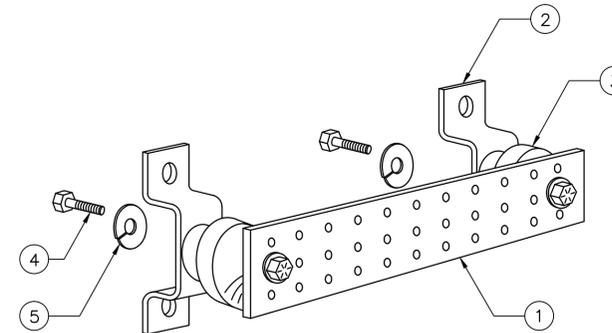
GROUNDING RISER DIAGRAM
SCALE: N.T.S.



TYPICAL PLUMBING DIAGRAM (PER SECTOR)
SCALE: N.T.S.



TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x 1/4")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	5/8"-11x1" H.H.C.S.
5	4	5/8" LOCK WASHER

GROUND BAR DETAIL
SCALE: N.T.S.

- NOTES:
- EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION
- SECTION "P" - SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
 - GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
 - TELCO GROUND BAR
 - COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
 - +24V POWER SUPPLY RETURN BAR (#2)
 - 48V POWER SUPPLY RETURN BAR (#2)
 - RECTIFIER FRAMES
- SECTION "A" - SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
 - EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
 - METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
 - BUILDING STEEL (IF AVAILABLE) (#2)



Date: **April 13, 2015**

Holly Haas
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Destek Engineering, LLC
1281 Kennestone Circle, Suite 100
Marietta, GA 30066
(770) 693 0835

Subject: Structural Analysis Report

Carrier Designation:	AT&T Mobility Co-Locate	
	Carrier Site Number:	CTL02127
	Carrier Site Name:	E. Newtown
Crown Castle Designation:	Crown Castle BU Number:	806354
	Crown Castle Site Name:	BRG 123 943084
	Crown Castle JDE Job Number:	330011
	Crown Castle Work Order Number:	1040606
	Crown Castle Application Number:	288540 Rev. 1

Engineering Firm Designation: Destek Engineering, LLC Project Number: 1502197

Site Data: 21 BERKSHIRE ROAD NEWTOWN, NEWTOWN, Fairfield County, CT
Latitude 41° 24' 45.53", Longitude -73° 16' 12.34"
185 Foot - Monopole Tower

Dear Holly Haas,

Destek Engineering, LLC is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural ‘Statement of Work’ and the terms of Crown Castle Purchase Order Number 774864, in accordance with application 288540, revision 1.

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

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 Connecticut State Building Code based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at Destek Engineering, LLC appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Chiyu Zhang, EIT

Respectfully submitted by:

Ahmet Colakoglu, PE
President



TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Antenna and Cable Information

Table 2 - Existing and Reserved Antenna and Cable Information

Table 3 - Design Antenna and Cable Information

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Table 6 – Tower Components vs. Capacity

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 185 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in August of 1999. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 38 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
175.0	177.0	3	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	-	-	-
		3	ericsson	RRUS12/RRUS A2			
		12	powerwave technologies	7020.00			

Notes:

- 1) Proposed equipment

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
185.0	188.0	3	alcatel lucent	RRH2X40-AWS	13	1-5/8	1
	187.0	3	antel	BXA-171063-12BF w/ Mount Pipe			
		3	antel	BXA-171063-12CF-EDIN-X w/ Mount Pipe			
		3	antel	BXA-70063-6CF-2 w/ Mount Pipe			
		6	decibel	DB846F65ZAXY w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		6	rfs celwave	FD9R6004/2C-3L			
	185.0	1	tower mounts	Platform Mount [LP 601-1]			
		1	tower mounts	Side Arm Mount [SO 103-3]			
182.0	188.0	1	decibel	ASP-601	1	1/2	1
	182.0	1	tower mounts	Side Arm Mount [SO 102-3]			
175.0	177.0	3	ericsson	RRUS-11	2 1 12	5/8 3/8 1-5/8	1
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP2140X			
		3	powerwave technologies	P65-16-XLH-RR w/ Mount Pipe			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
	175.0	1	raycap	DC6-48-60-18-8F			1
		3	cci antennas	DTMABP7819VG12A			
		1	tower mounts	Platform Mount [LP 303-1]			
167.0	167.0	3	alcatel lucent	1900MHz RRH (65MHz)	-	-	1
		3	alcatel lucent	800MHZ RRH			
		1	tower mounts	Side Arm Mount [SO 102-3]			
165.0	165.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	3	1-1/4	1
		9	rfs celwave	ACU-A20-N			
		3	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 601-1]			
155.0	158.0	12	decibel	DB844H90 w/ Mount Pipe	12	1-1/4	2
	155.0	1	tower mounts	Platform Mount [LP 713-1]			
145.0	148.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	13	1-5/8	1
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
	145.0	1	tower mounts	Platform Mount [LP 601-1]			
135.0	137.0	3	kathrein	800 10504 w/ Mount Pipe	6	1-5/8	1
		3	kathrein	860 10025			
	135.0	1	tower mounts	T-Arm Mount [TA 602-3]			
100.0	100.0	-	-	-	2	1/2	1
40.0	40.0	-	-	-	1	1/2	1

Notes:

- 1) Existing equipment
- 2) Equipment to be Removed

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
185	185	12	swedcom	ALP 9212	-	-
175	175	12	swedcom	ALP11011	-	-
165	165	9	decibel	DB980	-	-
155	155	12	swedcom	AKO9011	-	-
145	145	6	ems wireless	RR65-18	-	-
		1	scala	OGB9-900		
110	110	1	generic	GPS	-	-
50	50	1	generic	GPS	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti dated 02/14/1999	2297011	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEl, Proj. No. 4743 dated 7/22/1999	822037	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEl, Proj. No. GS51352 Dated 7/22/1999	822035	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	VSI, Proj. No 2009-004-030 Dated 6/12/2009	2381114	CCISITES

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	185 - 149.622	Pole	TP36.0404x29x0.25	1	-7.9	1435.3	45.6	Pass
L2	149.622 - 114.221	Pole	TP42.4605x34.5443x0.3125	2	-16.6	2114.7	76.9	Pass
L3	114.221 - 76.8021	Pole	TP49.157x40.6978x0.375	3	-26.0	2938.0	88.8	Pass
L4	76.8021 - 38.3802	Pole	TP55.9285x47.1064x0.4375	4	-38.6	3900.1	90.6	Pass
L5	38.3802 - 0	Pole	TP62.5x53.5869x0.5	5	-57.8	5115.2	89.0	Pass
							Summary	
						Pole (L4)	90.6	Pass
						Rating =	90.6	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	79.2	Pass
1	Base Plate	0	82.4	Pass
1	Base Foundation	0	84.9	Pass
1	Base Foundation Soil Interaction	0	91.7	Pass
Structure Rating (max from all components) =				91.7%

Notes:

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

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) DB846F65ZAXY w/ Mount Pipe	185	(4) 7020.00	175
(2) DB846F65ZAXY w/ Mount Pipe	185	(4) 7020.00	175
(2) DB846F65ZAXY w/ Mount Pipe	185	Platform Mount [LP 303-1]	175
BXA-171063-12BF w/ Mount Pipe	185	1900MHz RRH (65MHz)	167
BXA-171063-12BF w/ Mount Pipe	185	1900MHz RRH (65MHz)	167
BXA-171063-12BF w/ Mount Pipe	185	1900MHz RRH (65MHz)	167
BXA-70063-6CF-2 w/ Mount Pipe	185	800MHZ RRH	167
BXA-70063-6CF-2 w/ Mount Pipe	185	800MHZ RRH	167
BXA-70063-6CF-2 w/ Mount Pipe	185	800MHZ RRH	167
BXA-171063-12CF-EDIN-X w/ Mount Pipe	185	Side Arm Mount [SO 102-3]	167
BXA-171063-12CF-EDIN-X w/ Mount Pipe	185	APXVSP18-C-A20 w/ Mount Pipe	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe	185	APXVSP18-C-A20 w/ Mount Pipe	165
BXA-171063-12CF-EDIN-X w/ Mount Pipe	185	APXVSP18-C-A20 w/ Mount Pipe	165
RRH2X40-AWS	185	(3) ACU-A20-N	165
RRH2X40-AWS	185	(3) ACU-A20-N	165
RRH2X40-AWS	185	(3) ACU-A20-N	165
(2) FD9R6004/2C-3L	185	800 EXTERNAL NOTCH FILTER	165
(2) FD9R6004/2C-3L	185	800 EXTERNAL NOTCH FILTER	165
(2) FD9R6004/2C-3L	185	800 EXTERNAL NOTCH FILTER	165
DB-T1-6Z-8AB-0Z	185	Platform Mount [LP 601-1]	165
Platform Mount [LP 601-1]	185	Platform Mount [LP 601-1]	165
Side Arm Mount [SO 103-3]	185	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	145
ASP-601	182	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	145
Side Arm Mount [SO 102-3]	182	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	145
(2) 7770.00 w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) 7770.00 w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) 7770.00 w/ Mount Pipe	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) LGP2140X	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) LGP2140X	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
(2) LGP2140X	175	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	145
RRUS-11	175	KRY 112 144/1	145
RRUS-11	175	KRY 112 144/1	145
RRUS-11	175	KRY 112 144/1	145
DTMABP7819VG12A	175	Platform Mount [LP 601-1]	145
DTMABP7819VG12A	175	800 10504 w/ Mount Pipe	135
DTMABP7819VG12A	175	800 10504 w/ Mount Pipe	135
DC6-48-60-18-8F	175	800 10504 w/ Mount Pipe	135
OPA-65R-LCUU-H6 w/ Mount Pipe	175	860 10025	135
OPA-65R-LCUU-H6 w/ Mount Pipe	175	860 10025	135
OPA-65R-LCUU-H6 w/ Mount Pipe	175	860 10025	135
RRUS12/RRUS A2	175	(2) 6' x 2" Mount Pipe	135
RRUS12/RRUS A2	175	(2) 6' x 2" Mount Pipe	135
RRUS12/RRUS A2	175	(2) 6' x 2" Mount Pipe	135
(4) 7020.00	175	T-Arm Mount [TA 602-3]	135

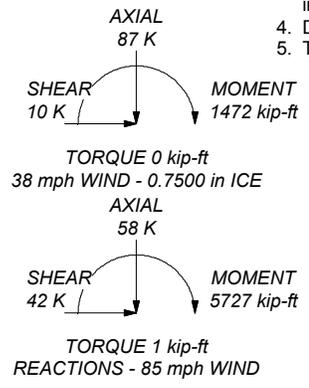
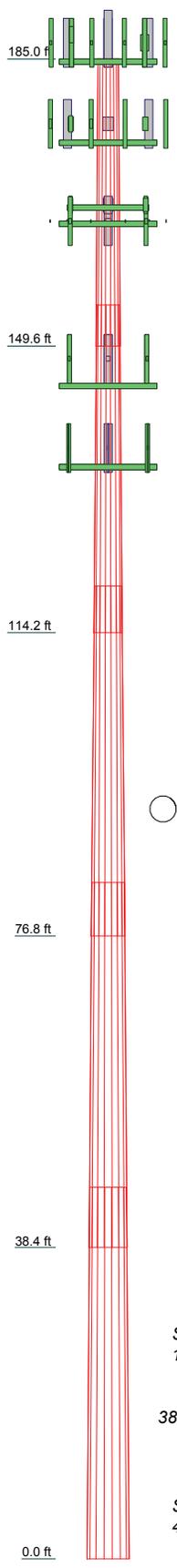
MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 90.6%

Section	1	2	3	4	5
Length (ft)	35.38	40.41	43.23	45.07	45.87
Number of Sides	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.4375	0.5000
Socket Length (ft)	5.01	5.81	6.65	7.49	8.33
Top Dia (in)	29.0000	34.5443	40.6978	47.1064	53.5869
Bot Dia (in)	36.0404	42.4605	49.1570	55.9285	62.5000
Grade			A572-65		
Weight (K)	3.1	5.2	7.8	10.9	14.3



Destek Engineering, LLC
 1281 Kennestone Circle, Suite 100
 Marietta, GA 30066
 Phone: (770) 693-0835
 FAX:

Job: **806354 - BRG 123 943084**
 Project: **1502197**
 Client: CROWN CASTLE
 Code: TIA/EIA-222-F
 Path:
 Drawn by: Ahmet Colakoglu
 Date: 04/13/15
 App'd:
 Scale: NTS
 Dwg No. E-1

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

- 1) Tower is located in Fairfield County, Connecticut.
- 2) Basic wind speed of 85 mph.
- 3) Nominal ice thickness of 0.7500 in.
- 4) Ice thickness is considered to increase with height.
- 5) Ice density of 56 pcf.
- 6) A wind speed of 38 mph is used in combination with ice.
- 7) Temperature drop of 50 °F.
- 8) Deflections calculated using a wind speed of 50 mph.
- 9) A non-linear (P-delta) analysis was used.
- 10) Pressures are calculated at each section.
- 11) Stress ratio used in pole design is 1.333.
- 12) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys ✓ Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Use TIA-222-G Tension Splice Capacity Exemption	Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feedline Torque Include Angle Block Shear Check <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	185.00-149.62	35.38	5.01	18	29.0000	36.0404	0.2500	1.0000	A572-65 (65 ksi)
L2	149.62-114.22	40.41	5.81	18	34.5443	42.4605	0.3125	1.2500	A572-65 (65 ksi)
L3	114.22-76.80	43.23	6.65	18	40.6978	49.1570	0.3750	1.5000	A572-65 (65 ksi)
L4	76.80-38.38	45.07	7.49	18	47.1064	55.9285	0.4375	1.7500	A572-65 (65 ksi)
L5	38.38-0.00	45.87		18	53.5869	62.5000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	29.4474	22.8131	2382.3081	10.2063	14.7320	161.7098	4767.7509	11.4087	4.6640	18.656
	36.5964	28.3997	4596.0425	12.7056	18.3085	251.0329	9198.1326	14.2025	5.9031	23.612
L2	36.0729	33.9537	5026.7194	12.1523	17.5485	286.4469	10060.053	16.9801	5.5298	17.695
	43.1155	41.8055	9382.6455	14.9625	21.5699	434.9872	18777.637	20.9067	6.9230	22.154
L3	42.4796	47.9942	9858.8581	14.3146	20.6745	476.8616	19730.688	24.0016	6.5028	17.341
	49.9153	58.0628	17456.390	17.3176	24.9718	699.0454	34935.750	29.0369	7.9916	21.311
L4	49.1541	64.8057	17832.256	16.5675	23.9301	745.1819	35687.976	32.4090	7.5207	17.19
	56.7913	77.0562	29977.132	19.6993	28.4117	1055.0990	59993.709	38.5354	9.0734	20.739
L5	55.8918	84.2489	29996.898	18.8458	27.2221	1101.9301	60033.268	42.1325	8.5513	17.103
	63.4642	98.3940	47784.764	22.0100	31.7500	1505.0319	95632.404	49.2063	10.1200	20.24

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
L1 185.00- 149.62				1	1	1		
L2 149.62- 114.22				1	1	1		
L3 114.22- 76.80				1	1	1		
L4 76.80- 38.38				1	1	1		
L5 38.38-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
A LDF4P-50A(1/2")	A	No	Inside Pole	182.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
HJ7-50A(1-5/8")	A	No	Inside Pole	185.00 - 0.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
						2" Ice	0.00	1.04
						4" Ice	0.00	1.04
HJ7-50A(1-5/8")	A	No	CaAa (Out Of Face)	185.00 - 0.00	1	No Ice	0.20	1.04
						1/2" Ice	0.30	2.55
						1" Ice	0.40	4.68
						2" Ice	0.60	10.76
						4" Ice	1.00	30.26
CR 50 1873PE(1-5/8")	A	No	CaAa (Out Of Face)	175.00 - 0.00	1	No Ice	0.20	0.83
						1/2" Ice	0.30	2.34
						1" Ice	0.40	4.47
						2" Ice	0.60	10.55
						4" Ice	1.00	30.05
CR 50 1873PE(1-5/8")	A	No	CaAa (Out Of Face)	175.00 - 0.00	11	No Ice	0.00	0.83
						1/2" Ice	0.00	2.34
						1" Ice	0.00	4.47
						2" Ice	0.00	10.55
						4" Ice	0.00	30.05

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}		Weight
FB-L98B-002-75000(3/8")	A	No	CaAa (Out Of Face)	175.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.60
						1" Ice	0.00	1.76
						2" Ice	0.00	5.91
						4" Ice	0.00	21.53
WR-VG82ST-BRDA(5/8")	A	No	CaAa (Out Of Face)	175.00 - 0.00	2	No Ice	0.00	0.31
						1/2" Ice	0.00	1.01
						1" Ice	0.00	2.32
						2" Ice	0.00	6.77
						4" Ice	0.00	23.01
B HB114-1-0813U4-M5J(1 1/4")	B	No	Inside Pole	165.00 - 0.00	4	No Ice	0.00	1.20
						1/2" Ice	0.00	1.20
						1" Ice	0.00	1.20
						2" Ice	0.00	1.20
						4" Ice	0.00	1.20
LDF7-50A(1-5/8")	B	No	Inside Pole	145.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
AVA7-50(1-5/8)	B	No	CaAa (Out Of Face)	145.00 - 0.00	7	No Ice	0.00	0.70
						1/2" Ice	0.00	2.23
						1" Ice	0.00	4.38
						2" Ice	0.00	10.50
						4" Ice	0.00	30.07
CR 50 1873(1-5/8")	B	No	Inside Pole	135.00 - 0.00	6	No Ice	0.00	0.83
						1/2" Ice	0.00	0.83
						1" Ice	0.00	0.83
						2" Ice	0.00	0.83
						4" Ice	0.00	0.83
C ***GPS*** LDF4P-50A(1/2")	B	No	Inside Pole	40.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
LDF4P-50A(1/2")	C	No	Inside Pole	100.00 - 0.00	2	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15

Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	185.00-149.62	A	0.000	0.000	0.000	12.030	0.8
		B	0.000	0.000	0.000	0.000	0.1
		C	0.000	0.000	0.000	0.000	0.0
L2	149.62-114.22	A	0.000	0.000	0.000	14.019	0.9
		B	0.000	0.000	0.000	0.000	0.6
		C	0.000	0.000	0.000	0.000	0.0
L3	114.22-76.80	A	0.000	0.000	0.000	14.818	0.9
		B	0.000	0.000	0.000	0.000	0.7
		C	0.000	0.000	0.000	0.000	0.0
L4	76.80-38.38	A	0.000	0.000	0.000	15.215	0.9
		B	0.000	0.000	0.000	0.000	0.8
		C	0.000	0.000	0.000	0.000	0.0
L5	38.38-0.00	A	0.000	0.000	0.000	15.199	0.9
		B	0.000	0.000	0.000	0.000	0.8
		C	0.000	0.000	0.000	0.000	0.0

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section <i>n</i>	Tower Elevation <i>ft</i>	Face or Leg	Ice Thickness <i>in</i>	A_R <i>ft²</i>	A_F <i>ft²</i>	C_{AA} In Face <i>ft²</i>	C_{AA} Out Face <i>ft²</i>	Weight <i>K</i>
L1	185.00-149.62	A	0.911	0.000	0.000	0.000	23.099	2.0
		B		0.000	0.000	0.000	0.000	0.1
		C		0.000	0.000	0.000	0.000	0.0
L2	149.62-114.22	A	0.885	0.000	0.000	0.000	26.919	2.5
		B		0.000	0.000	0.000	0.000	1.3
		C		0.000	0.000	0.000	0.000	0.0
L3	114.22-76.80	A	0.852	0.000	0.000	0.000	28.071	2.6
		B		0.000	0.000	0.000	0.000	1.6
		C		0.000	0.000	0.000	0.000	0.0
L4	76.80-38.38	A	0.802	0.000	0.000	0.000	28.306	2.6
		B		0.000	0.000	0.000	0.000	1.6
		C		0.000	0.000	0.000	0.000	0.0
L5	38.38-0.00	A	0.750	0.000	0.000	0.000	27.508	2.5
		B		0.000	0.000	0.000	0.000	1.5
		C		0.000	0.000	0.000	0.000	0.0

Feed Line Center of Pressure

Section	Elevation <i>ft</i>	CP_x <i>in</i>	CP_z <i>in</i>	CP_x Ice <i>in</i>	CP_z Ice <i>in</i>
L1	185.00-149.62	0.0000	-0.4590	0.0000	-0.7648
L2	149.62-114.22	0.0000	-0.5295	0.0000	-0.8906
L3	114.22-76.80	0.0000	-0.5378	0.0000	-0.9098
L4	76.80-38.38	0.0000	-0.5444	0.0000	-0.9193
L5	38.38-0.00	0.0000	-0.5496	0.0000	-0.9160

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert <i>ft</i> <i>ft</i> <i>ft</i>	Azimuth Adjustmen <i>t</i> <i>°</i>	Placement <i>ft</i>	C_{AA} Front <i>ft²</i>	C_{AA} Side <i>ft²</i>	Weight <i>K</i>	
185' Verizon Wireless									
(2) DB846F65ZAXY w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.27	7.82	0.0
						1/2" Ice	7.88	9.01	0.1
						Ice	8.48	9.91	0.2
						1" Ice	9.72	11.81	0.4
						2" Ice	12.33	15.98	0.9
(2) DB846F65ZAXY w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.27	7.82	0.0
						1/2" Ice	7.88	9.01	0.1
						Ice	8.48	9.91	0.2
						1" Ice	9.72	11.81	0.4
						2" Ice	12.33	15.98	0.9
(2) DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.27	7.82	0.0
						1/2" Ice	7.88	9.01	0.1
						Ice	8.48	9.91	0.2
						1" Ice	9.72	11.81	0.4
						2" Ice	12.33	15.98	0.9
BXA-171063-12BF w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						Ice	6.04	7.26	0.1

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CA _A _{Front} ft ²	CA _A _{Side} ft ²	Weight K	
						1" Ice	7.09	9.05	0.3
						2" Ice	9.36	12.82	0.7
						4" Ice			
BXA-171063-12BF w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						1" Ice	6.04	7.26	0.1
						2" Ice	7.09	9.05	0.3
						4" Ice	9.36	12.82	0.7
BXA-171063-12BF w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	4.97	5.23	0.0
						1/2" Ice	5.52	6.39	0.1
						1" Ice	6.04	7.26	0.1
						2" Ice	7.09	9.05	0.3
						4" Ice	9.36	12.82	0.7
BXA-70063-6CF-2 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1
						1" Ice	9.22	7.82	0.2
						2" Ice	10.46	9.60	0.3
						4" Ice	13.07	13.37	0.8
BXA-70063-6CF-2 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1
						1" Ice	9.22	7.82	0.2
						2" Ice	10.46	9.60	0.3
						4" Ice	13.07	13.37	0.8
BXA-70063-6CF-2 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	7.97	5.80	0.0
						1/2" Ice	8.61	6.95	0.1
						1" Ice	9.22	7.82	0.2
						2" Ice	10.46	9.60	0.3
						4" Ice	13.07	13.37	0.8
BXA-171063-12CF-EDIN-X w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	5.03	5.29	0.0
						1/2" Ice	5.58	6.46	0.1
						1" Ice	6.10	7.35	0.1
						2" Ice	7.17	9.15	0.3
						4" Ice	9.44	12.95	0.7
BXA-171063-12CF-EDIN-X w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	5.03	5.29	0.0
						1/2" Ice	5.58	6.46	0.1
						1" Ice	6.10	7.35	0.1
						2" Ice	7.17	9.15	0.3
						4" Ice	9.44	12.95	0.7
BXA-171063-12CF-EDIN-X w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice	5.03	5.29	0.0
						1/2" Ice	5.58	6.46	0.1
						1" Ice	6.10	7.35	0.1
						2" Ice	7.17	9.15	0.3
						4" Ice	9.44	12.95	0.7
RRH2X40-AWS	A	From Leg	4.00 0.00 3.00	0.0000	185.00	No Ice	2.52	1.59	0.0
						1/2" Ice	2.75	1.80	0.1
						1" Ice	2.99	2.01	0.1
						2" Ice	3.50	2.46	0.1
						4" Ice	4.61	3.48	0.3
RRH2X40-AWS	B	From Leg	4.00 0.00 3.00	0.0000	185.00	No Ice	2.52	1.59	0.0
						1/2" Ice	2.75	1.80	0.1
						1" Ice	2.99	2.01	0.1
						2" Ice	3.50	2.46	0.1
						4" Ice	4.61	3.48	0.3
RRH2X40-AWS	C	From Leg	4.00 0.00	0.0000	185.00	No Ice	2.52	1.59	0.0
						1/2" Ice	2.75	1.80	0.1

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight
			Horz Lateral	Vert			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	K
				3.00			1/2" Ice 2.99	2.01	0.1
							Ice 3.50	2.46	0.1
							1" Ice 4.61	3.48	0.3
							2" Ice		
							4" Ice		
(2) FD9R6004/2C-3L	A	From Leg	4.00		0.0000	185.00	No Ice 0.37	0.08	0.0
			0.00				1/2" Ice 0.45	0.14	0.0
			2.00				Ice 0.54	0.20	0.0
							1" Ice 0.75	0.34	0.0
							2" Ice 1.28	0.74	0.1
							4" Ice		
(2) FD9R6004/2C-3L	B	From Leg	4.00		0.0000	185.00	No Ice 0.37	0.08	0.0
			0.00				1/2" Ice 0.45	0.14	0.0
			2.00				Ice 0.54	0.20	0.0
							1" Ice 0.75	0.34	0.0
							2" Ice 1.28	0.74	0.1
							4" Ice		
(2) FD9R6004/2C-3L	C	From Leg	4.00		0.0000	185.00	No Ice 0.37	0.08	0.0
			0.00				1/2" Ice 0.45	0.14	0.0
			2.00				Ice 0.54	0.20	0.0
							1" Ice 0.75	0.34	0.0
							2" Ice 1.28	0.74	0.1
							4" Ice		
DB-T1-6Z-8AB-0Z	B	From Leg	4.00		0.0000	185.00	No Ice 5.60	2.33	0.0
			0.00				1/2" Ice 5.92	2.56	0.1
			2.00				Ice 6.24	2.79	0.1
							1" Ice 6.91	3.28	0.2
							2" Ice 8.37	4.37	0.5
							4" Ice		
Platform Mount [LP 601-1]	C	None			0.0000	185.00	No Ice 28.47	28.47	1.1
							1/2" Ice 33.59	33.59	1.5
							Ice 38.71	38.71	1.9
							1" Ice 48.95	48.95	2.7
							2" Ice 69.43	69.43	4.3
							4" Ice		
Side Arm Mount [SO 103-3]	C	None			0.0000	185.00	No Ice 9.50	9.50	0.2
							1/2" Ice 11.80	11.80	0.3
							Ice 14.10	14.10	0.4
							1" Ice 18.70	18.70	0.6
							2" Ice 27.90	27.90	1.0
							4" Ice		
182' NEWTOWN ASP-601	A	From Leg	1.00		0.0000	182.00	No Ice 2.34	2.34	0.0
			0.00				1/2" Ice 4.21	4.21	0.0
			6.00				Ice 6.08	6.08	0.0
							1" Ice 9.83	9.83	0.1
							2" Ice 17.32	17.32	0.1
							4" Ice		
Side Arm Mount [SO 102-3]	A	None			0.0000	182.00	No Ice 3.00	3.00	0.1
							1/2" Ice 3.48	3.48	0.1
							Ice 3.96	3.96	0.1
							1" Ice 4.92	4.92	0.2
							2" Ice 6.84	6.84	0.3
							4" Ice		
175' AT&T Mobility (2) 7770.00 w/ Mount Pipe	A	From Leg	4.00		0.0000	175.00	No Ice 6.12	4.25	0.1
			0.00				1/2" Ice 6.63	5.01	0.1
			2.00				Ice 7.13	5.71	0.2
							1" Ice 8.16	7.16	0.3
							2" Ice 10.36	10.41	0.7
							4" Ice		
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00		0.0000	175.00	No Ice 6.12	4.25	0.1
			0.00				1/2" Ice 6.63	5.01	0.1
			2.00				Ice 7.13	5.71	0.2
							1" Ice 8.16	7.16	0.3

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft ²	ft ²	K
							2" Ice	10.36	10.41	0.7
							4" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	175.00		No Ice	6.12	4.25	0.1
			0.00				1/2"	6.63	5.01	0.1
			2.00				Ice	7.13	5.71	0.2
							1" Ice	8.16	7.16	0.3
							2" Ice	10.36	10.41	0.7
							4" Ice			
(2) LGP2140X	A	From Leg	4.00	0.0000	175.00		No Ice	1.26	0.38	0.0
			0.00				1/2"	1.42	0.49	0.0
			2.00				Ice	1.58	0.62	0.0
							1" Ice	1.94	0.89	0.1
							2" Ice	2.75	1.54	0.1
							4" Ice			
(2) LGP2140X	B	From Leg	4.00	0.0000	175.00		No Ice	1.26	0.38	0.0
			0.00				1/2"	1.42	0.49	0.0
			2.00				Ice	1.58	0.62	0.0
							1" Ice	1.94	0.89	0.1
							2" Ice	2.75	1.54	0.1
							4" Ice			
(2) LGP2140X	C	From Leg	4.00	0.0000	175.00		No Ice	1.26	0.38	0.0
			0.00				1/2"	1.42	0.49	0.0
			2.00				Ice	1.58	0.62	0.0
							1" Ice	1.94	0.89	0.1
							2" Ice	2.75	1.54	0.1
							4" Ice			
RRUS-11	A	From Leg	4.00	0.0000	175.00		No Ice	3.25	1.37	0.0
			0.00				1/2"	3.49	1.55	0.1
			2.00				Ice	3.74	1.74	0.1
							1" Ice	4.27	2.14	0.1
							2" Ice	5.43	3.04	0.3
							4" Ice			
RRUS-11	B	From Leg	4.00	0.0000	175.00		No Ice	3.25	1.37	0.0
			0.00				1/2"	3.49	1.55	0.1
			2.00				Ice	3.74	1.74	0.1
							1" Ice	4.27	2.14	0.1
							2" Ice	5.43	3.04	0.3
							4" Ice			
RRUS-11	C	From Leg	4.00	0.0000	175.00		No Ice	3.25	1.37	0.0
			0.00				1/2"	3.49	1.55	0.1
			2.00				Ice	3.74	1.74	0.1
							1" Ice	4.27	2.14	0.1
							2" Ice	5.43	3.04	0.3
							4" Ice			
DTMABP7819VG12A	A	From Leg	4.00	0.0000	175.00		No Ice	1.14	0.39	0.0
			0.00				1/2"	1.28	0.49	0.0
			0.00				Ice	1.44	0.59	0.0
							1" Ice	1.77	0.83	0.1
							2" Ice	2.54	1.41	0.1
							4" Ice			
DTMABP7819VG12A	B	From Leg	4.00	0.0000	175.00		No Ice	1.14	0.39	0.0
			0.00				1/2"	1.28	0.49	0.0
			0.00				Ice	1.44	0.59	0.0
							1" Ice	1.77	0.83	0.1
							2" Ice	2.54	1.41	0.1
							4" Ice			
DTMABP7819VG12A	C	From Leg	4.00	0.0000	175.00		No Ice	1.14	0.39	0.0
			0.00				1/2"	1.28	0.49	0.0
			0.00				Ice	1.44	0.59	0.0
							1" Ice	1.77	0.83	0.1
							2" Ice	2.54	1.41	0.1
							4" Ice			
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	175.00		No Ice	2.57	2.57	0.0
			0.00				1/2"	2.80	2.80	0.0
			2.00				Ice	3.04	3.04	0.1

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K	
						1" Ice	3.54	3.54	0.1
						2" Ice	4.66	4.66	0.3
						4" Ice			
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	10.60	7.18	0.1
						1/2" Ice	11.27	8.36	0.2
						1" Ice	11.91	9.26	0.3
						2" Ice	13.21	11.09	0.5
						4" Ice	15.93	15.15	1.0
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	10.60	7.18	0.1
						1/2" Ice	11.27	8.36	0.2
						1" Ice	11.91	9.26	0.3
						2" Ice	13.21	11.09	0.5
						4" Ice	15.93	15.15	1.0
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	10.60	7.18	0.1
						1/2" Ice	11.27	8.36	0.2
						1" Ice	11.91	9.26	0.3
						2" Ice	13.21	11.09	0.5
						4" Ice	15.93	15.15	1.0
RRUS12/RRUS A2	A	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	3.67	2.14	0.1
						1/2" Ice	3.92	2.35	0.1
						1" Ice	4.19	2.56	0.1
						2" Ice	4.74	3.02	0.2
						4" Ice	5.96	4.03	0.4
RRUS12/RRUS A2	B	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	3.67	2.14	0.1
						1/2" Ice	3.92	2.35	0.1
						1" Ice	4.19	2.56	0.1
						2" Ice	4.74	3.02	0.2
						4" Ice	5.96	4.03	0.4
RRUS12/RRUS A2	C	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	3.67	2.14	0.1
						1/2" Ice	3.92	2.35	0.1
						1" Ice	4.19	2.56	0.1
						2" Ice	4.74	3.02	0.2
						4" Ice	5.96	4.03	0.4
(4) 7020.00	A	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	0.12	0.20	0.0
						1/2" Ice	0.17	0.28	0.0
						1" Ice	0.23	0.36	0.0
						2" Ice	0.38	0.56	0.0
						4" Ice	0.78	1.05	0.1
(4) 7020.00	B	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	0.12	0.20	0.0
						1/2" Ice	0.17	0.28	0.0
						1" Ice	0.23	0.36	0.0
						2" Ice	0.38	0.56	0.0
						4" Ice	0.78	1.05	0.1
(4) 7020.00	C	From Leg	4.00 0.00 2.00	0.0000	175.00	No Ice	0.12	0.20	0.0
						1/2" Ice	0.17	0.28	0.0
						1" Ice	0.23	0.36	0.0
						2" Ice	0.38	0.56	0.0
						4" Ice	0.78	1.05	0.1
Platform Mount [LP 303-1]	C	None		0.0000	175.00	No Ice	14.66	14.66	1.3
						1/2" Ice	18.87	18.87	1.5
						1" Ice	23.08	23.08	1.7
						2" Ice	31.50	31.50	2.2
						4" Ice	48.34	48.34	3.1
167' SPRINT PCS* 1900MHz RRH (65MHz)	A	From Leg	4.00	0.0000	167.00	No Ice	2.71	2.61	0.1

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral					
			Vert			ft ²	ft ²	K	
			ft		°				
			ft						
			ft						
			0.00			1/2"	2.95	2.84	0.1
			0.00			Ice	3.20	3.09	0.1
						1" Ice	3.72	3.61	0.2
						2" Ice	4.86	4.74	0.3
						4" Ice			
1900MHz RRH (65MHz)	B	From Leg	4.00	0.0000	167.00	No Ice	2.71	2.61	0.1
			0.00			1/2"	2.95	2.84	0.1
			0.00			Ice	3.20	3.09	0.1
						1" Ice	3.72	3.61	0.2
						2" Ice	4.86	4.74	0.3
						4" Ice			
1900MHz RRH (65MHz)	C	From Leg	4.00	0.0000	167.00	No Ice	2.71	2.61	0.1
			0.00			1/2"	2.95	2.84	0.1
			0.00			Ice	3.20	3.09	0.1
						1" Ice	3.72	3.61	0.2
						2" Ice	4.86	4.74	0.3
						4" Ice			
800MHZ RRH	A	From Leg	4.00	0.0000	167.00	No Ice	2.49	2.07	0.1
			0.00			1/2"	2.71	2.27	0.1
			0.00			Ice	2.93	2.48	0.1
						1" Ice	3.41	2.93	0.2
						2" Ice	4.46	3.93	0.3
						4" Ice			
800MHZ RRH	B	From Leg	4.00	0.0000	167.00	No Ice	2.49	2.07	0.1
			0.00			1/2"	2.71	2.27	0.1
			0.00			Ice	2.93	2.48	0.1
						1" Ice	3.41	2.93	0.2
						2" Ice	4.46	3.93	0.3
						4" Ice			
800MHZ RRH	C	From Leg	4.00	0.0000	167.00	No Ice	2.49	2.07	0.1
			0.00			1/2"	2.71	2.27	0.1
			0.00			Ice	2.93	2.48	0.1
						1" Ice	3.41	2.93	0.2
						2" Ice	4.46	3.93	0.3
						4" Ice			
Side Arm Mount [SO 102-3]	C	None		0.0000	167.00	No Ice	3.00	3.00	0.1
						1/2"	3.48	3.48	0.1
						Ice	3.96	3.96	0.1
						1" Ice	4.92	4.92	0.2
						2" Ice	6.84	6.84	0.3
						4" Ice			
165' Sprint PCS									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	165.00	No Ice	8.50	6.95	0.1
			0.00			1/2"	9.15	8.13	0.2
			0.00			Ice	9.77	9.02	0.2
						1" Ice	11.03	10.84	0.4
						2" Ice	13.68	14.85	0.9
						4" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	165.00	No Ice	8.50	6.95	0.1
			0.00			1/2"	9.15	8.13	0.2
			0.00			Ice	9.77	9.02	0.2
						1" Ice	11.03	10.84	0.4
						2" Ice	13.68	14.85	0.9
						4" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	165.00	No Ice	8.50	6.95	0.1
			0.00			1/2"	9.15	8.13	0.2
			0.00			Ice	9.77	9.02	0.2
						1" Ice	11.03	10.84	0.4
						2" Ice	13.68	14.85	0.9
						4" Ice			
(3) ACU-A20-N	A	From Leg	4.00	0.0000	165.00	No Ice	0.08	0.14	0.0
			0.00			1/2"	0.12	0.19	0.0
			0.00			Ice	0.17	0.25	0.0
						1" Ice	0.30	0.40	0.0
						2" Ice	0.67	0.80	0.0

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft ²	ft ²	K	
(3) ACU-A20-N	B	From Leg	4.00	0.00	0.00	0.0000	165.00	4" Ice			
								No Ice	0.08	0.14	0.0
								1/2" Ice	0.12	0.19	0.0
								1" Ice	0.17	0.25	0.0
								2" Ice	0.30	0.40	0.0
(3) ACU-A20-N	C	From Leg	4.00	0.00	0.00	0.0000	165.00	4" Ice			
								No Ice	0.08	0.14	0.0
								1/2" Ice	0.12	0.19	0.0
								1" Ice	0.17	0.25	0.0
								2" Ice	0.30	0.40	0.0
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00	0.00	0.00	0.0000	165.00	4" Ice			
								No Ice	0.77	0.37	0.0
								1/2" Ice	0.89	0.46	0.0
								1" Ice	1.02	0.56	0.0
								2" Ice	1.30	0.79	0.0
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00	0.00	0.00	0.0000	165.00	4" Ice			
								No Ice	0.77	0.37	0.0
								1/2" Ice	0.89	0.46	0.0
								1" Ice	1.02	0.56	0.0
								2" Ice	1.30	0.79	0.0
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00	0.00	0.00	0.0000	165.00	4" Ice			
								No Ice	0.77	0.37	0.0
								1/2" Ice	0.89	0.46	0.0
								1" Ice	1.02	0.56	0.0
								2" Ice	1.30	0.79	0.0
Platform Mount [LP 601-1]	C	None			0.0000	165.00	4" Ice				
							No Ice	28.47	28.47	1.1	
							1/2" Ice	33.59	33.59	1.5	
							1" Ice	38.71	38.71	1.9	
							2" Ice	48.95	48.95	2.7	
155 Sprint PCS ***145' T-Mobile*** ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.00	3.00	0.0000	145.00	4" Ice			
								No Ice	6.83	5.64	0.1
								1/2" Ice	7.35	6.48	0.2
								1" Ice	7.86	7.26	0.2
								2" Ice	8.93	8.86	0.4
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00	0.00	3.00	0.0000	145.00	4" Ice			
								No Ice	6.83	5.64	0.1
								1/2" Ice	7.35	6.48	0.2
								1" Ice	7.86	7.26	0.2
								2" Ice	8.93	8.86	0.4
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00	0.00	3.00	0.0000	145.00	4" Ice			
								No Ice	6.83	5.64	0.1
								1/2" Ice	7.35	6.48	0.2
								1" Ice	7.86	7.26	0.2
								2" Ice	8.93	8.86	0.4
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00	0.00	3.00	0.0000	145.00	4" Ice			
								No Ice	6.81	5.63	0.1
								1/2" Ice	7.33	6.47	0.2
								1" Ice	7.85	7.24	0.2
								2" Ice	8.91	8.85	0.4
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00	0.00		0.0000	145.00	4" Ice			
								No Ice	6.81	5.63	0.1
								1/2" Ice	7.33	6.47	0.2
								1" Ice	7.85	7.24	0.2
								2" Ice	8.91	8.85	0.4

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight
			Horz Lateral	Vert			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	K
				3.00			1/2" Ice 7.85	7.24	0.2
							1" Ice 8.91	8.85	0.4
							2" Ice 11.16	12.27	0.8
							4" Ice		
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00		0.0000	145.00	No Ice 6.81	5.63	0.1
			0.00				1/2" Ice 7.33	6.47	0.2
			3.00				1" Ice 7.85	7.24	0.2
							2" Ice 8.91	8.85	0.4
							4" Ice 11.16	12.27	0.8
KRY 112 144/1	A	From Leg	4.00		0.0000	145.00	No Ice 0.41	0.20	0.0
			0.00				1/2" Ice 0.50	0.27	0.0
			3.00				1" Ice 0.59	0.35	0.0
							2" Ice 0.81	0.53	0.0
							4" Ice 1.36	1.00	0.1
KRY 112 144/1	B	From Leg	4.00		0.0000	145.00	No Ice 0.41	0.20	0.0
			0.00				1/2" Ice 0.50	0.27	0.0
			3.00				1" Ice 0.59	0.35	0.0
							2" Ice 0.81	0.53	0.0
							4" Ice 1.36	1.00	0.1
KRY 112 144/1	C	From Leg	4.00		0.0000	145.00	No Ice 0.41	0.20	0.0
			0.00				1/2" Ice 0.50	0.27	0.0
			3.00				1" Ice 0.59	0.35	0.0
							2" Ice 0.81	0.53	0.0
							4" Ice 1.36	1.00	0.1
Platform Mount [LP 601-1]	C	None			0.0000	145.00	No Ice 28.47	28.47	1.1
							1/2" Ice 33.59	33.59	1.5
							1" Ice 38.71	38.71	1.9
							2" Ice 48.95	48.95	2.7
							4" Ice 69.43	69.43	4.3
135' METRO PCS									
800 10504 w/ Mount Pipe	A	From Leg	4.00		0.0000	135.00	No Ice 3.59	3.18	0.0
			0.00				1/2" Ice 4.01	3.91	0.1
			2.00				1" Ice 4.42	4.58	0.1
							2" Ice 5.34	5.98	0.2
							4" Ice 7.38	8.98	0.5
800 10504 w/ Mount Pipe	B	From Leg	4.00		0.0000	135.00	No Ice 3.59	3.18	0.0
			0.00				1/2" Ice 4.01	3.91	0.1
			2.00				1" Ice 4.42	4.58	0.1
							2" Ice 5.34	5.98	0.2
							4" Ice 7.38	8.98	0.5
800 10504 w/ Mount Pipe	C	From Leg	4.00		0.0000	135.00	No Ice 3.59	3.18	0.0
			0.00				1/2" Ice 4.01	3.91	0.1
			2.00				1" Ice 4.42	4.58	0.1
							2" Ice 5.34	5.98	0.2
							4" Ice 7.38	8.98	0.5
860 10025	A	From Leg	4.00		0.0000	135.00	No Ice 0.16	0.13	0.0
			0.00				1/2" Ice 0.22	0.19	0.0
			2.00				1" Ice 0.29	0.26	0.0
							2" Ice 0.47	0.43	0.0
							4" Ice 0.92	0.87	0.0
860 10025	B	From Leg	4.00		0.0000	135.00	No Ice 0.16	0.13	0.0
			0.00				1/2" Ice 0.22	0.19	0.0
			2.00				1" Ice 0.29	0.26	0.0
							2" Ice 0.47	0.43	0.0
							4" Ice 0.92	0.87	0.0

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
860 10025	C	From Leg	4.00	0.0000	135.00	4" Ice	0.16	0.13	0.0	
			0.00			No Ice	0.22	0.19	0.0	
			2.00			1/2" Ice	0.29	0.26	0.0	
						1" Ice	0.47	0.43	0.0	
						2" Ice	0.92	0.87	0.0	
(2) 6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	135.00	4" Ice	1.43	1.43	0.0	
			0.00			No Ice	1.92	1.92	0.0	
			2.00			Ice	2.29	2.29	0.0	
						1" Ice	3.06	3.06	0.1	
						2" Ice	4.70	4.70	0.2	
(2) 6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	135.00	4" Ice	1.43	1.43	0.0	
			0.00			No Ice	1.92	1.92	0.0	
			2.00			Ice	2.29	2.29	0.0	
						1" Ice	3.06	3.06	0.1	
						2" Ice	4.70	4.70	0.2	
(2) 6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	135.00	4" Ice	1.43	1.43	0.0	
			0.00			No Ice	1.92	1.92	0.0	
			2.00			Ice	2.29	2.29	0.0	
						1" Ice	3.06	3.06	0.1	
						2" Ice	4.70	4.70	0.2	
T-Arm Mount [TA 602-3]	C	None		0.0000	135.00	4" Ice	11.59	11.59	0.8	
						No Ice	15.44	15.44	1.0	
						1/2" Ice	19.29	19.29	1.2	
						1" Ice	26.99	26.99	1.6	
						2" Ice	42.39	42.39	2.5	

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp

Comb. No.	Description
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	185 - 149.622	Pole	Max Tension	14	0.0	0.0	-0.0
			Max. Compression	14	-18.4	-0.3	1.6
			Max. Mx	5	-7.9	-461.6	-2.1
			Max. My	2	-7.9	2.3	459.0
			Max. Vy	5	20.4	-461.6	-2.1
			Max. Vx	2	-20.3	2.3	459.0
			Max. Torque	3			-0.6
L2	149.622 - 114.221	Pole	Max Tension	1	0.0	0.0	0.0
			Max. Compression	14	-33.3	-1.4	4.4
			Max. Mx	5	-16.6	-1355.1	-4.2
			Max. My	2	-16.6	4.7	1349.8
			Max. Vy	5	29.5	-1355.1	-4.2
			Max. Vx	2	-29.4	4.7	1349.8
			Max. Torque	5			-0.3
L3	114.221 - 76.8021	Pole	Max Tension	1	0.0	0.0	0.0
			Max. Compression	14	-46.8	-3.0	7.6
			Max. Mx	5	-26.1	-2517.4	-6.4
			Max. My	2	-26.1	7.2	2509.2
			Max. Vy	5	33.9	-2517.4	-6.4
			Max. Vx	2	-33.8	7.2	2509.2
			Max. Torque	24			-0.2
L4	76.8021 - 38.3802	Pole	Max Tension	1	0.0	0.0	0.0
			Max. Compression	14	-63.4	-4.9	11.1
			Max. Mx	5	-38.6	-3873.7	-8.5
			Max. My	2	-38.6	9.7	3862.7
			Max. Vy	5	38.1	-3873.7	-8.5
			Max. Vx	2	-38.0	9.7	3862.7
			Max. Torque	11			-0.3
L5	38.3802 - 0	Pole	Max Tension	1	0.0	0.0	0.0
			Max. Compression	14	-87.4	-7.3	15.5
			Max. Mx	5	-57.8	-5719.2	-10.8
			Max. My	2	-57.8	12.7	5704.8
			Max. Vy	5	42.2	-5719.2	-10.8
			Max. Vx	2	-42.1	12.7	5704.8
			Max. Torque	11			-0.5

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	87.4	0.0	-0.0
	Max. H _x	11	57.9	42.2	0.1
	Max. H _z	2	57.9	0.1	42.1
	Max. M _x	2	5704.8	0.1	42.1
	Max. M _z	5	5719.2	-42.2	-0.1
	Max. Torsion	5	0.5	-42.2	-0.1
	Min. Vert	5	57.9	-42.2	-0.1
	Min. H _x	5	57.9	-42.2	-0.1
	Min. H _z	8	57.9	-0.1	-42.1
	Min. M _x	8	-5698.3	-0.1	-42.1
	Min. M _z	11	-5716.3	42.2	0.1
	Min. Torsion	11	-0.5	42.2	0.1

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	57.9	0.0	-0.0	-3.2	-1.4	0.0
Dead+Wind 0 deg - No Ice	57.9	-0.1	-42.1	-5704.8	12.7	-0.0
Dead+Wind 30 deg - No Ice	57.9	21.0	-36.4	-4934.5	-2848.5	-0.3
Dead+Wind 60 deg - No Ice	57.9	36.5	-21.0	-2842.2	-4946.7	-0.5
Dead+Wind 90 deg - No Ice	57.9	42.2	0.1	10.8	-5719.2	-0.5
Dead+Wind 120 deg - No Ice	57.9	36.6	21.1	2860.0	-4960.8	-0.4
Dead+Wind 150 deg - No Ice	57.9	21.2	36.5	4942.0	-2872.9	-0.2
Dead+Wind 180 deg - No Ice	57.9	0.1	42.1	5698.3	-15.5	0.0
Dead+Wind 210 deg - No Ice	57.9	-21.0	36.4	4928.0	2845.6	0.3
Dead+Wind 240 deg - No Ice	57.9	-36.5	21.0	2835.6	4943.9	0.5
Dead+Wind 270 deg - No Ice	57.9	-42.2	-0.1	-17.4	5716.3	0.5
Dead+Wind 300 deg - No Ice	57.9	-36.6	-21.1	-2866.5	4957.9	0.4
Dead+Wind 330 deg - No Ice	57.9	-21.2	-36.5	-4948.5	2870.0	0.2
Dead+Ice+Temp	87.4	-0.0	0.0	-15.5	-7.3	0.0
Dead+Wind 0 deg+Ice+Temp	87.4	-0.0	-10.3	-1472.4	-4.4	0.0
Dead+Wind 30 deg+Ice+Temp	87.4	5.1	-8.9	-1275.7	-734.8	-0.2
Dead+Wind 60 deg+Ice+Temp	87.4	8.9	-5.1	-741.5	-1270.4	-0.3
Dead+Wind 90 deg+Ice+Temp	87.4	10.3	0.0	-12.8	-1467.5	-0.3
Dead+Wind 120 deg+Ice+Temp	87.4	8.9	5.1	715.0	-1273.4	-0.3
Dead+Wind 150 deg+Ice+Temp	87.4	5.2	8.9	1247.0	-740.1	-0.2
Dead+Wind 180 deg+Ice+Temp	87.4	0.0	10.3	1440.6	-10.5	-0.0
Dead+Wind 210 deg+Ice+Temp	87.4	-5.1	8.9	1244.0	719.9	0.2
Dead+Wind 240 deg+Ice+Temp	87.4	-8.9	5.1	709.7	1255.5	0.3
Dead+Wind 270 deg+Ice+Temp	87.4	-10.3	-0.0	-18.9	1452.6	0.3
Dead+Wind 300 deg+Ice+Temp	87.4	-8.9	-5.1	-746.8	1258.5	0.3
Dead+Wind 330 deg+Ice+Temp	87.4	-5.2	-8.9	-1278.8	725.2	0.2
Dead+Wind 0 deg - Service	57.9	-0.0	-14.6	-1979.0	3.5	-0.0
Dead+Wind 30 deg - Service	57.9	7.3	-12.6	-1712.0	-988.0	-0.1
Dead+Wind 60 deg - Service	57.9	12.6	-7.3	-987.0	-1715.0	-0.2
Dead+Wind 90 deg - Service	57.9	14.6	0.0	1.6	-1982.8	-0.2
Dead+Wind 120 deg - Service	57.9	12.7	7.3	988.9	-1719.9	-0.2
Dead+Wind 150 deg - Service	57.9	7.3	12.6	1710.3	-996.4	-0.1

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 180 deg - Service	57.9	0.0	14.6	1972.4	-6.3	0.0
Dead+Wind 210 deg - Service	57.9	-7.3	12.6	1705.4	985.1	0.1
Dead+Wind 240 deg - Service	57.9	-12.6	7.3	980.4	1712.2	0.2
Dead+Wind 270 deg - Service	57.9	-14.6	-0.0	-8.2	1979.9	0.2
Dead+Wind 300 deg - Service	57.9	-12.7	-7.3	-995.4	1717.1	0.2
Dead+Wind 330 deg - Service	57.9	-7.3	-12.6	-1716.9	993.6	0.1

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.0	-57.9	0.0	-0.0	57.9	0.0	0.000%
2	-0.1	-57.9	-42.1	0.1	57.9	42.1	0.006%
3	21.0	-57.9	-36.4	-21.0	57.9	36.4	0.000%
4	36.5	-57.9	-21.0	-36.5	57.9	21.0	0.000%
5	42.2	-57.9	0.1	-42.2	57.9	-0.1	0.006%
6	36.6	-57.9	21.1	-36.6	57.9	-21.1	0.000%
7	21.2	-57.9	36.5	-21.2	57.9	-36.5	0.000%
8	0.1	-57.9	42.1	-0.1	57.9	-42.1	0.006%
9	-21.0	-57.9	36.4	21.0	57.9	-36.4	0.000%
10	-36.5	-57.9	21.0	36.5	57.9	-21.0	0.000%
11	-42.2	-57.9	-0.1	42.2	57.9	0.1	0.006%
12	-36.6	-57.9	-21.1	36.6	57.9	21.1	0.000%
13	-21.2	-57.9	-36.5	21.2	57.9	36.5	0.000%
14	0.0	-87.4	0.0	0.0	87.4	-0.0	0.001%
15	-0.0	-87.4	-10.3	0.0	87.4	10.3	0.000%
16	5.1	-87.4	-8.9	-5.1	87.4	8.9	0.000%
17	8.9	-87.4	-5.1	-8.9	87.4	5.1	0.000%
18	10.3	-87.4	0.0	-10.3	87.4	-0.0	0.000%
19	8.9	-87.4	5.1	-8.9	87.4	-5.1	0.000%
20	5.2	-87.4	8.9	-5.2	87.4	-8.9	0.000%
21	0.0	-87.4	10.3	-0.0	87.4	-10.3	0.000%
22	-5.1	-87.4	8.9	5.1	87.4	-8.9	0.000%
23	-8.9	-87.4	5.1	8.9	87.4	-5.1	0.000%
24	-10.3	-87.4	-0.0	10.3	87.4	0.0	0.000%
25	-8.9	-87.4	-5.1	8.9	87.4	5.1	0.000%
26	-5.2	-87.4	-8.9	5.2	87.4	8.9	0.000%
27	-0.0	-57.9	-14.6	0.0	57.9	14.6	0.003%
28	7.3	-57.9	-12.6	-7.3	57.9	12.6	0.001%
29	12.6	-57.9	-7.3	-12.6	57.9	7.3	0.001%
30	14.6	-57.9	0.0	-14.6	57.9	-0.0	0.003%
31	12.7	-57.9	7.3	-12.7	57.9	-7.3	0.001%
32	7.3	-57.9	12.6	-7.3	57.9	-12.6	0.001%
33	0.0	-57.9	14.6	-0.0	57.9	-14.6	0.003%
34	-7.3	-57.9	12.6	7.3	57.9	-12.6	0.001%
35	-12.6	-57.9	7.3	12.6	57.9	-7.3	0.001%
36	-14.6	-57.9	-0.0	14.6	57.9	0.0	0.003%
37	-12.7	-57.9	-7.3	12.7	57.9	7.3	0.001%
38	-7.3	-57.9	-12.6	7.3	57.9	12.6	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	14	0.00007049	0.00009473
3	Yes	19	0.00000001	0.00007207
4	Yes	19	0.00000001	0.00007222
5	Yes	14	0.00007046	0.00009289
6	Yes	19	0.00000001	0.00007311
7	Yes	19	0.00000001	0.00007307
8	Yes	14	0.00007050	0.00009509
9	Yes	19	0.00000001	0.00007189
10	Yes	19	0.00000001	0.00007190
11	Yes	14	0.00007046	0.00009937
12	Yes	19	0.00000001	0.00007327
13	Yes	19	0.00000001	0.00007315
14	Yes	9	0.00000001	0.00002333
15	Yes	16	0.00000001	0.00007789
16	Yes	16	0.00000001	0.00010646
17	Yes	16	0.00000001	0.00010694
18	Yes	16	0.00000001	0.00007763
19	Yes	16	0.00000001	0.00010441
20	Yes	16	0.00000001	0.00010486
21	Yes	16	0.00000001	0.00007614
22	Yes	16	0.00000001	0.00010278
23	Yes	16	0.00000001	0.00010252
24	Yes	16	0.00000001	0.00007693
25	Yes	16	0.00000001	0.00010671
26	Yes	16	0.00000001	0.00010605
27	Yes	14	0.00007508	0.00004242
28	Yes	15	0.00000001	0.00012430
29	Yes	15	0.00000001	0.00012492
30	Yes	14	0.00007508	0.00004251
31	Yes	15	0.00000001	0.00012603
32	Yes	15	0.00000001	0.00012595
33	Yes	14	0.00007508	0.00004228
34	Yes	15	0.00000001	0.00012325
35	Yes	15	0.00000001	0.00012316
36	Yes	14	0.00007508	0.00004258
37	Yes	15	0.00000001	0.00012688
38	Yes	15	0.00000001	0.00012642

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P/P _a
L1	185 - 149.622 (1)	TP36.0404x29x0.25	35.38	0.00	0.0	39.00	27.6093	-7.9	1076.8	0.007
L2	149.622 - 114.221 (2)	TP42.4605x34.5443x0.312 5	40.41	0.00	0.0	39.00	40.6771	-16.6	1586.4	0.010
L3	114.221 - 76.8021 (3)	TP49.157x40.6978x0.375	43.23	0.00	0.0	39.00	56.5148	-26.0	2204.1	0.012
L4	76.8021 - 38.3802 (4)	TP55.9285x47.1064x0.437 5	45.07	0.00	0.0	39.00	75.0196	-38.6	2925.8	0.013
L5	38.3802 - 0 (5)	TP62.5x53.5869x0.5	45.87	0.00	0.0	39.00	98.3940	-57.8	3837.4	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	185 - 149.622 (1)	TP36.0404x29x0.25	462.9	-23.42	39.00	0.600	0.0	0.00	39.00	0.000
L2	149.622 - 114.221 (2)	TP42.4605x34.5443x0.3125	1358.0	-39.58	39.00	1.015	0.0	0.00	39.00	0.000
L3	114.221 - 76.8021 (3)	TP49.157x40.6978x0.375	2521.8	-45.70	39.00	1.172	0.0	0.00	39.00	0.000
L4	76.8021 - 38.3802 (4)	TP55.9285x47.1064x0.4375	3879.6	-46.56	39.00	1.194	0.0	0.00	39.00	0.000
L5	38.3802 - 0 (5)	TP62.5x53.5869x0.5	5726.9	-45.66	39.00	1.171	0.0	0.00	39.00	0.000

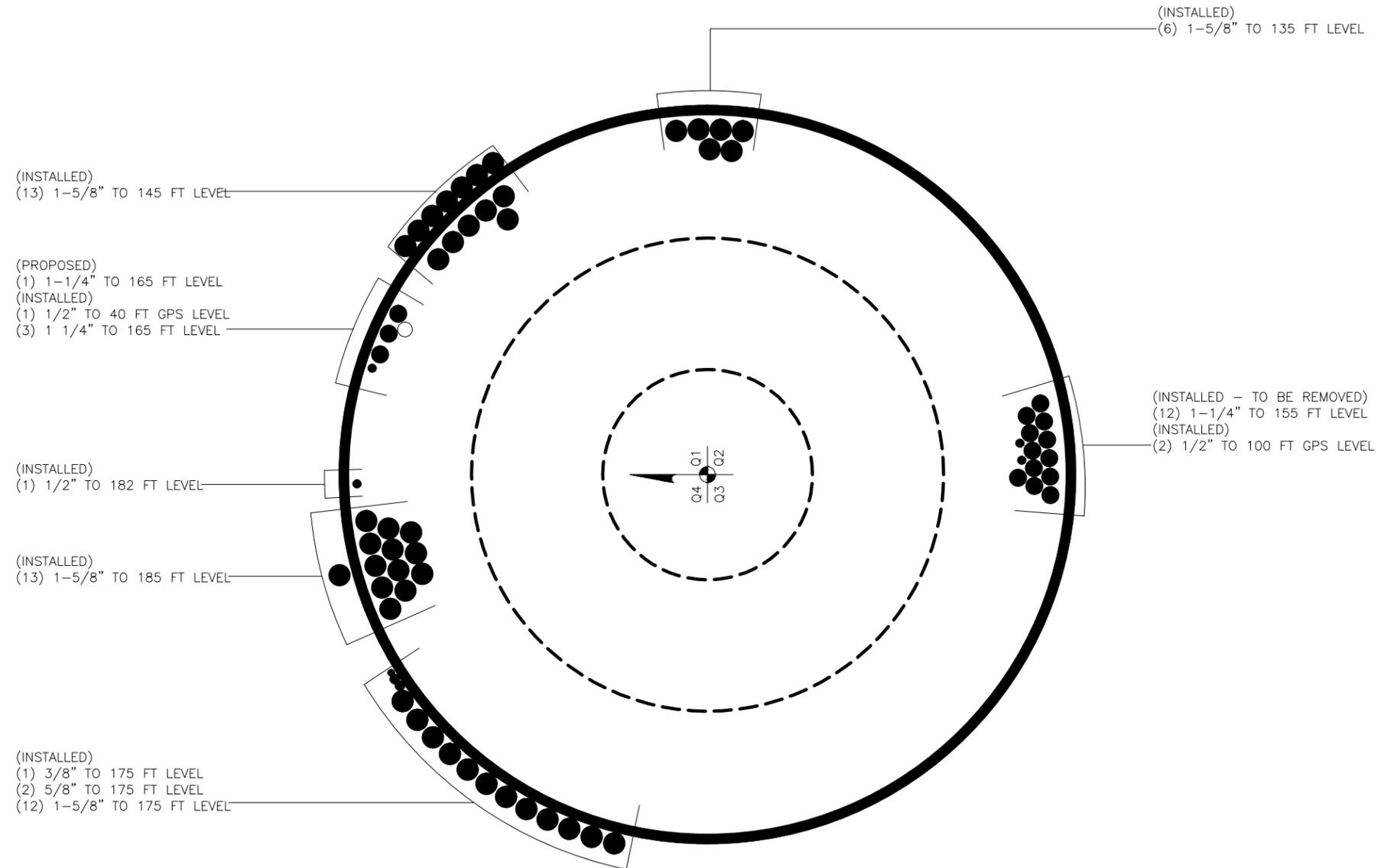
Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio P	Ratio f_{bx}	Ratio f_{by}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
			P_a	F_{bx}	F_{by}			
L1	185 - 149.622 (1)	TP36.0404x29x0.25	0.007	0.600	0.000	0.608	1.333	H1-3 ✓
L2	149.622 - 114.221 (2)	TP42.4605x34.5443x0.3125	0.010	1.015	0.000	1.025	1.333	H1-3 ✓
L3	114.221 - 76.8021 (3)	TP49.157x40.6978x0.375	0.012	1.172	0.000	1.184	1.333	H1-3 ✓
L4	76.8021 - 38.3802 (4)	TP55.9285x47.1064x0.4375	0.013	1.194	0.000	1.207	1.333	H1-3 ✓
L5	38.3802 - 0 (5)	TP62.5x53.5869x0.5	0.015	1.171	0.000	1.186	1.333	H1-3 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF \cdot P_{allow}$ K	% Capacity	Pass Fail
L1	185 - 149.622	Pole	TP36.0404x29x0.25	1	-7.9	1435.3	45.6	Pass
L2	149.622 - 114.221	Pole	TP42.4605x34.5443x0.3125	2	-16.6	2114.7	76.9	Pass
L3	114.221 - 76.8021	Pole	TP49.157x40.6978x0.375	3	-26.0	2938.0	88.8	Pass
L4	76.8021 - 38.3802	Pole	TP55.9285x47.1064x0.4375	4	-38.6	3900.1	90.6	Pass
L5	38.3802 - 0	Pole	TP62.5x53.5869x0.5	5	-57.8	5115.2	89.0	Pass
Summary								
Pole (L4)							90.6	Pass
RATING =							90.6	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#: 806354
Site Name: BRG123 943084
App #: 288540 Rev. 1
Pole Manufacturer: Other

Reactions		
Moment:	5727	ft-kips
Axial:	58	kips
Shear:	42	kips

Anchor Rod Data

Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	73	in

If No stiffeners, Criteria: **AISC ASD** <-Only Applicable to Unstiffened Cases

Anchor Rod Results

Maximum Rod Tension:	154.5 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	79.2% Pass

Stiffened
Service, ASD
Fty*ASIF

Plate Data

Diam:	79	in
Thick:	2.5	in
Grade:	60	ksi
Single-Rod B-eff:	8.27	in

Base Plate Results

Base Plate Stress:	28.8 ksi	Flexural Check
Allowable Plate Stress:	60.0 ksi	
Base Plate Stress Ratio:	48.0% Pass	

Stiffened
Service, ASD
0.75*Fy*ASIF
Y.L. Length:
N/A, Roark

Stiffener Data (Welding at both sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.5	in
Fillet V. Weld:	0.375	in
Width:	7	in
Height:	15	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	50	ksi
Weld str.:	70	ksi

Stiffener Results

Horizontal Weld :	82.4% Pass
Vertical Weld:	57.0% Pass
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	28.3% Pass
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	59.1% Pass
Plate Comp. (AISC Bracket):	77.0% Pass

Pole Results

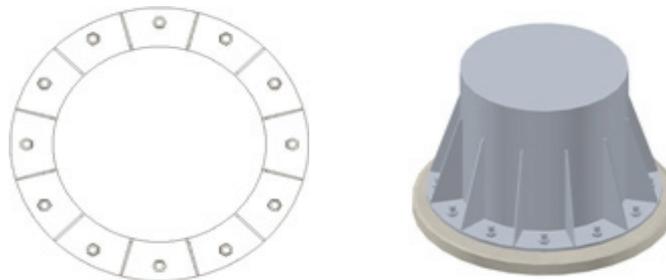
Pole Punching Shear Check:	14.3% Pass
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Pole Data

Diam:	62.5	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor

ASIF:	1.333
-------	-------



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Monopole Pier and Pad Foundation

BU # : 806354

Site Name: BRG 123 943084

App. Number: 288540 Rev. 1

TIA-222 Revision: F

Design Reactions		
Shear, S:	42	kips
Moment, M:	5727	ft-kips
Tower Height, H:	185	ft
Tower Weight, Wt:	58	kips
Base Diameter, BD:	5.21	ft

Foundation Dimensions		
Depth, D:	6	ft
Pad Width, W:	28	ft
Neglected Depth, N:	7	ft
Thickness, T:	3.00	ft
Pier Diameter, Pd:	8.00	ft
Ext. Above Grade, E:	1.00	ft
BP Dist. Above Pier:	3	in.
Clear Cover, Cc:	3.0	in

Soil Properties		
Soil Unit Weight, γ:	0.128	kcf
Ult. Bearing Capacity, Bc:	12.0	ksf
Angle of Friction, Φ:	34	deg
Cohesion, Co:	0.000	ksf
Passive Pressure, Pp:	0.000	ksf
Base Friction, μ:	0.30	

Material Properties		
Rebar Yield Strength, Fy:	60000	psi
Concrete Strength, F'c:	4000	psi
Concrete Unit Weight, δc:	0.150	kcf
Seismic Zone, z:	1	

Rebar Properties		
Pier Rebar Size, Sp:	9	
Pier Rebar Quantity, mp:	48	37
Pad Rebar Size, Spad:	9	
Pad Rebar Quantity, mpad:	45	18
Pier Tie Size, St:	4	3
Tie Quantity, mt:	5	5

Design Checks			
	Capacity/ Availability	Demand/ Limits	Check
<i>Req'd Pier Diam.(ft)</i>	8	7.208	OK
<i>Overturning (ft-kips)</i>	6248.71	5727.00	91.7%
<i>Shear Capacity (kips)</i>	115.25	42.00	36.4%
<i>Bearing (ksf)</i>	9.00	3.93	43.7%
<i>Pad Shear - 1-way (kips)</i>	1033.92	632.79	61.2%
<i>Pad Shear - 2-way (kips)</i>	2483.22	144.01	5.8%
<i>Pad Moment Capacity (k-ft)</i>	6328.99	2779.06	43.9%
<i>Pier Moment Capacity (k-ft)</i>	6943.48	5895.00	84.9%

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL
TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT2127

Newtown East
21 Berkshire Road
Newtown, CT 06482

July 14, 2015

EBI Project Number: 6215003969

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	31.56 %

July 14, 2015

AT&T Mobility – New England
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Emissions Analysis for Site: **CT2127 – Newtown East**

EBI Consulting was directed to analyze the proposed AT&T facility located at **21 Berkshire Road, Newtown, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 MHz and 800 MHz Bands are $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz PCS band is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **21 Berkshire Road, Newtown, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 4 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 4 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 60 Watts

- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Powerwave 7770** for 850 MHz and 1900 MHz (PCS) channels and the **CCI OPA-65R-LCUU-H6** for 700 MHz and 1900 MHz (PCS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Powerwave 7770** has a maximum gain of **11.4 dBd** for 850 MHz and **13.4 dBd** for 1900 MHz at its main lobe. The **CCI OPA-65R-LCUU-H6** has a maximum gain of **11.7 dBd** for 700 MHz and **14.9 dBd** for 1900 MHz at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **184 feet** above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	13.4 / 11.4 dBd	Gain:	13.4 / 11.4 dBd	Gain:	13.4 / 11.4 dBd
Height (AGL):	184 feet	Height (AGL):	184 feet	Height (AGL):	184 feet
Frequency Bands	1900 MHz(PCS) / 850 MHz	Frequency Bands	1900 MHz(PCS) / 850 MHz	Frequency Bands	1900 MHz(PCS) / 850 MHz
Channel Count	8	Channel Count	8	# PCS Channels:	8
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	4,281.78	ERP (W):	4,281.78	ERP (W):	4,281.78
Antenna A1 MPE%	0.63	Antenna B1 MPE%	0.63	Antenna C1 MPE%	0.63
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 dBd	Gain:	11.4 dBd	Gain:	11.4 dBd
Height (AGL):	184 feet	Height (AGL):	184 feet	Height (AGL):	184 feet
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	1,656.46	ERP (W):	1,656.46	ERP (W):	1,656.46
Antenna A2 MPE%	0.33	Antenna B2 MPE%	0.33	Antenna C2 MPE%	0.33
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6
Gain:	11.7 / 14.9 dBd	Gain:	11.7 / 14.9 dBd	Gain:	11.7 / 14.9 dBd
Height (AGL):	184 feet	Height (AGL):	184 feet	Height (AGL):	184 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	240	Total TX Power:	240	Total TX Power:	240
ERP (W):	5,483.28	ERP (W):	5,483.28	ERP (W):	5,483.28
Antenna A3 MPE%	0.85	Antenna B3 MPE%	0.85	Antenna C3 MPE%	0.85

Site Composite MPE%	
Carrier	MPE%
AT&T	5.44%
MetroPCS	2.63 %
Verizon Wireless	15.47 %
Sprint	5.49 %
Nextel	2.37 %
T-Mobile	0.16 %
Site Total MPE %:	31.56 %

AT&T Sector 1 Total:	1.81 %
AT&T Sector 2 Total:	1.81 %
AT&T Sector 3 Total:	1.81 %
Site Total:	31.56%

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	1.81%
Sector 2:	1.81 %
Sector 3 :	1.81 %
AT&T Total:	5.44 %
Site Total:	31.56%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **31.56 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



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