

CEP-2023-02

City of Forest Park, GEORGIA 30297
CONDITIONAL USE PERMIT
TELECOMMUNICATION TOWERS AND ANTENNAS

Land Owner: GEORGIA POWER CO	Contractor: ANSCO & ASSOCIATES LLC
Address: 241 RALPH MCGILL BLVD NE	Address: 5250 TRIANGLE PKWY STE 175
City/State/Zip: ATLANTA GA 30308	City/State/Zip: NORCROSS GA 30092
Telephone:	Telephone: 404.508.5700

"Section 8-10-9 Zoning requirements for location of telecommunication towers, antennas, and monopole towers.

"No conditional use permit to construct a tower or monopole or to locate an antenna on an existing building, structure, tower, or monopole shall be issued unless the location has been zoned industrial under the zoning laws of the city."

Site Zoning Classification: _____

Site Zoning Approval: APPROVED NOT APPROVED

Address / Tax ID No.: 66 BARNETT ROAD / 13052C A001
Structure Type: Antenna _____ Tower _____ Monopole _____ SELF SUPPORT TOWER
Existing: _____ **Proposed:** _____

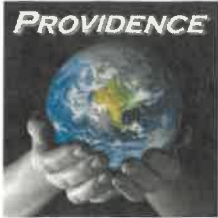
Complies with CFPCO Section 8-10-4 Contents of Applications for Conditional Use Permits General Information required for all applicants. Yes No

Plans / Specifications Reviewed By Building Inspector:
 Approved Not Approved

"Section 8-10-10 Location of antenna on an existing building, structure, or telecommunication facility.

"A conditional use permit may be issued to erect, repair, construct, relocate or maintain an antenna on an existing building, structure, tower or monopole within the city provided:

1. The existing building, structure, tower or monopole is fifty (50) feet in height or greater;
Complies: Yes No
2. If an antenna is installed on an existing building or structure other than a tower, such antenna adds no more than twenty (20) feet to the height of the existing building or structure;
Complies: Yes No
3. No advertising is permitted on the antenna or telecommunication facility;
Complies: Yes No
4. If an antenna is installed on a structure or building other than a tower, the antenna and supporting electrical and mechanical equipment must be of a neutral color that is identical to, or closely compatible with, the color of the supporting structure or building so as to make the antenna and related equipment as visually unobtrusive as possible;
Complies: Yes No Not Applicable
5. If an antenna is installed on an existing tower of any height, such antenna adds no more than twenty (20) feet to the height of said existing tower;
Complies: Yes No
6. The antenna is not artificially lighted unless required by the FAA, FCC, or other state or federal agency of competent jurisdiction for safety purposes. Where required the building inspector shall review available lighting alternatives and approve the design which would cause the least disturbance to the surrounding views.



PROVIDENCE
REAL ESTATE CONSULTING, INC.
Integrity ♦ Commitment ♦ Quality

Scope of Work

January 13, 2023

Site#: GA3146 – 66 Barnett Rd, Forest Park, GA 30297

FA#: 10022477

RE: Scope of Work

Explanation: AT&T is proposing to remove (6) ANTENNAS (6) TMAs (3) RRUs (3) A2 MODULES and (1) CABLE and install (9) ANTENNAS (3) RRUs (3) CABLEs and (1) DC9 on an existing SELF SUPPORT TOWER

The cost of construction will be \$30,000.

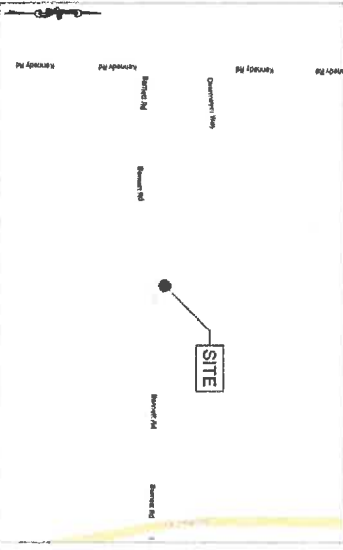
The contractor will be AnSCO & Associates.

There is no new electrical.

Thank you

Amanda Street
Zoning and Permitting Agent
678)985-2474
Amanda.street@providenceconsulting.net

PARCEL NUMBER: 13052C A001



DEPARTMENT	NAME/SIGNATURE	DATE
LAND OWNER/TOWER OWNER		
SITE ACQUISITION		
ZONING/PERMITTING		
FAE MANAGER		
CONSTRUCTION MANAGER		
RF ENGINEER		



AT&T

AT&T SITE NAME
FARM FARMER'S MARKET
AT&T SITE NUMBER

GA3146
FA LOCATION CODE
10022477

SITE ADDRESS
66 BARNETT ROAD
FOREST PARK, GA 30297

LTE C-BAND/5G NR/BBU ADD



CAUTION
 THE LOCATION OF UTILITIES IS NOT GUARANTEED. CALL 811 TO LOCATE UTILITIES BEFORE ANY CONSTRUCTION. FOR EMERGENCIES CALL: 911

REDS NOTES
 THESE CONSTRUCTION DRAWINGS ARE BASED ON THE DATA SHEET (PDS) GA3146_PDS_06.11.22. CONTRACTOR SHALL CONFER WITH AT&T THAT THIS IS THE LATEST PDS PRIOR TO CONSTRUCTION.

PROJECT SUMMARY
 AT&T IS PROPOSING TO REMOVE (6) ANTENNAS, (6) TOWERS, (3) RAYS, (3) MONITORS AND (1) CABLE AND (2) DCS ON AN EXISTING SELF SUPPORT TOWER WITHIN AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

PERMITS:
 300 NORTH POINT PARKWAY
 ALPHARETTA, GA 30005
 TEL: (770) 330-4576

TOWER OWNER:
 FOREST PARK (BARNETT ROAD)
 SITE NUMBER: 87043
 SITE ADDRESS:
 66 BARNETT ROAD
 TEL: (877) 486-9377

RECENTLY OWNED:
 144 DEPT. BMT 1070
 241 RALPH MOORE BLVD NE
 ATLANTA, GA 30308

CONTACTS:

SHEET #	DESCRIPTION	REV
1-1	COVER SHEET	0
1-2	GENERAL NOTES	0
1-3	SITE SURVEY	0
1-4	OVERALL SITE PLAN	0
C-1	PROPOSED EQUIPMENT PLAN	0
C-2	TOWER ELEVATION	0
C-3	ANTENNA ORIENTATION & ANTENNA & EQUIPMENT SCHEDULE	0
C-4	EQUIPMENT DETAILS	0
C-5	RF REQUIREMENTS	0
C-6	PLUMBING DIAGRAM	0
C-7	RAYTRACE DIAGRAM	0
E-1	ABBREVIATIONS, ELECTRICAL, GROUNDING NOTES, & WELD DETAILS	0
E-2	TYPICAL ANTENNA SCHEDULE AND GROUNDING DIAGRAM	0
S-1	MOUNT ADDITION	0
	SHEET INDEX	0

PROJECT DATA:
 SITE NAME: FARM FARMER'S MARKET
 SITE NUMBER: GA3146
 FA LOCATION CODE: 10022477
 SITE ADDRESS: 66 BARNETT ROAD
 FOREST PARK, GA 30297
 COUNTY: CLAYTON COUNTY

DATE:
 01/12/23

LATITUDE:
 33° 36' 56.30" NORTH

LONGITUDE:
 84° 23' 53.97" WEST

EXISTING TOWER TYPE:
 SELF SUPPORT TOWER

EXISTING TOWER HEIGHT:
 180 FT. (AB)

ANTENNA ROAD CENTER:
 170 FT. (AB)

DESIGN DATA:
 ULTIMATE WIND SPEED: NOT APPLICABLE
 BASIC WIND SPEED: 108 MPH (3 SECOND GUST)
 EXPOSURE CATEGORY: B
 RISK CATEGORY: B

ALL CONSTRUCTION SPECIFIED ON DOCUMENTS SUBMITTED FOR BUILDING PERMIT SHALL COMPLY WITH THE REQUIREMENTS OF THE LOCAL JURISDICTION.

CONSTRUCTION CODES

1) INTERNATIONAL BUILDING CODE: 2018 EDITION WITH 2020 & 2022 GEORGIA AMENDMENTS

2) INTERNATIONAL FIRE CODE: 2018 EDITION

3) INTERNATIONAL MECHANICAL CODE: 2018 EDITION WITH 2020 GEORGIA AMENDMENTS

4) NFPA NATIONAL ELECTRIC CODE: 2020 EDITION WITH 2021 GEORGIA AMENDMENTS

5) NATIONAL FIRE ALARM CODE: 2018 EDITION WITH 2020 & 2022 GEORGIA AMENDMENTS

6) GEORGIA EROSION AND SEDIMENTATION ACT OF 1975, THIRD EDITION, 1992

7) STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES (TIA-222-B)

PROJECT DATA

FORESITE
 Providence Group, LLC
 1770 Lake Forest Drive
 Marietta, GA 30067
 (770) 575-2114

PROJECT MANAGER:
PROVIDENCE
 4440 Just Road, Lawrenceville, GA 30046
 (770) 962-2114



PROJECT:
FARM FARMER'S MARKET
GA3146

LOCATION:
 66 BARNETT ROAD
 FOREST PARK, GA 30297

DEVELOPER:

ISSUED FOR: PERMIT/CONSTRUCTION
PROJECT MANAGER: BTV
DATE: 01/12/23
SHEET NUMBER: T-1
COVER SHEET
1-1
JOB FILE NUMBER: 485.021

CWP-2023-02

GENERAL NOTES

1. ALL REFERENCES TO OWNER HEREIN SHALL BE CONSIDERED TO MEAN AFT OR ITS DESIGNATED REPRESENTATIVE.
2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSUMES SOLE RESPONSIBILITY FOR VERIFYING LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES (INCLUDING TEST PITS BY HAND IF NECESSARY) IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTRACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS, OR IF LOCATION IS UNUSUALLY CLOSE TO EXISTING UTILITIES, CALL 811.
3. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
4. ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
5. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE EXISTING CONDITIONS AND TO REQUEST TO THE OWNER FOR LOCATION AND/OR FIELD ADJUSTMENTS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WATERWAYS TEMPORARY BRACING, GUYS OR TENDONS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
6. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND THE TESTING AGENCY PRIOR TO BEGINNING ANY MATERIALS OR WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL DISCREPANCIES OR CONSTRUCTION WORK ON THIS PROJECT. THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL DISCREPANCIES OR CONSTRUCTION WORK ON THIS PROJECT. THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL DISCREPANCIES OR CONSTRUCTION WORK ON THIS PROJECT. THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER.
7. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY. FREE FROM FLAWS AND DEFECTS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCAL, STATE, AND FEDERAL SPECIFICATIONS. ALL MATERIALS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND THE TESTING AGENCY PRIOR TO BEGINNING ANY MATERIALS OR WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL DISCREPANCIES OR CONSTRUCTION WORK ON THIS PROJECT. THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT THIS PROJECT AND RELATED WORK COMPLETES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
9. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCAL, STATE, AND FEDERAL SPECIFICATIONS.
10. ALL PROPOSED CELLULAR EQUIPMENT AND PERMITS SHALL BE FURNISHED BY OWNER FOR INSTALLATION BY THE CONTRACTOR. UNLESS SPECIFICALLY NOTED OTHERWISE HEREIN.
11. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITIES, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE PRESENT LEASING AGENT FOR APPROVAL.
12. REBAR/CAULK BUILDING INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

1. CONTRACTOR SHALL CONTACT A SURFACE UTILITY LOCATOR FOR LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. LOCATION OF EXISTING SEWER, WATER LINES, GAS LINES, COUNTS OR OTHER STRUCTURES AHEADS, UNDERGROUND, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. CONTRACTOR ASSUMES SOLE RESPONSIBILITY FOR VERIFYING LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES (INCLUDING TEST PITS BY HAND IF NECESSARY) IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTRACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS, OR IF LOCATION IS UNUSUALLY CLOSE TO EXISTING UTILITIES, CALL 811.
2. CONTRACTOR SHALL COORDINATE ALL UTILITY CONNECTIONS WITH APPROPRIATE UTILITY OWNERS AND CONSTRUCTION MANAGERS.
3. DAMAGE BY THE CONTRACTOR TO UTILITIES OR PROPERTY OF ANY OTHER PARTY SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR ANY AT NO ADDITIONAL COST TO THE CLIENT. FOR GASSEED AREAS SEE AT AND WHICH SHALL BE ACCEPTABLE.
4. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER THE REQUIREMENTS FOR AND LIMITS OF OVERHEAD AND/OR UNDERGROUND ELECTRICAL SERVICE.
5. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF NEW TELEPHONE SERVICE WITH THE TELEPHONE UTILITY AND THE OWNER'S REQUIREMENTS.
6. ALL UNDERGROUND UTILITIES SHALL BE INSTALLED AND TESTED SATISFACTORILY PRIOR TO COMMENCING ANY PAVING OPERATIONS. WHERE SUCH UTILITIES ARE WITHIN THE LIMITS OF PAVEMENT.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR ANY AT NO ADDITIONAL COST TO THE CLIENT. FOR GASSEED AREAS SEE AT AND WHICH SHALL BE ACCEPTABLE.
2. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A36. ALL STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A500 GRADE B. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
3. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS) D-1.01/14:2010. STRUCTURAL WELDING CODE - STEEL WELD ELECTRODES SHALL BE E70XX.
4. ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
5. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST AISC SPECIFICATIONS.
6. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATIONS.
7. HOT-DIP GALVANIZED ITEMS SPECIFIED TO BE ZINC-COATED, AFTER FABRICATION WHERE PRACTICAL. GALVANIZING: ASTM A 123, ASTM A 153/A 153M OR ASTM A 653/A 653M, 90.45 APPLICABLE.
8. REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A 780 OR BY APPLICATION OF SIKO OR THICK PASTE MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING. CLEAN AREAS TO BE REPAIRED, AND REPAIR SHALL BE FROM WELDS, WELD SURFACES TO WHICH SIKO OR REPAIR PASTE IS APPLIED. REPAIR SHALL BE FROM WELDS, WELD SURFACES TO WHICH SIKO OR REPAIR PASTE IS APPLIED. REPAIR SHALL BE FROM WELDS, WELD SURFACES TO WHICH SIKO OR REPAIR PASTE IS APPLIED. REPAIR SHALL BE FROM WELDS, WELD SURFACES TO WHICH SIKO OR REPAIR PASTE IS APPLIED.
9. CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S INSTRUCTIONS/SPECIFICATIONS IF NO INFORMATION IS CONTAINED IN THESE PLANS OR IF THE MANUFACTURER'S SPECIFICATIONS ARE STRIKER.
10. ALL THROUGH STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLY SHALL BE STAINLESS STEEL. ALL THROUGH STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8" DIA. BEARING TYPE CONNECTIONS WITH THREADS EXCLUDED FROM THE PLATE. ALL EXPOSED FASTENERS, NUTS, AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. ALL ANCHORS INTO CONCRETE SHALL BE STAINLESS STEEL.

REBAR

1. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNMENTAL AGENCIES.
2. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
3. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND THE AC 318-08 BUILDING REQUIREMENTS FOR STRUCTURAL CONCRETE.
4. THE CONTRACTOR SHALL NOTIFY THE APPLICABLE PROFESSIONAL ENGINEER AT LEAST 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.

INSTALLATION

1. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY NORTH AND NOTIFY CONSULTANT OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.
2. THOROUGHLY REMOVE ALL PAINT AND CLEAN ALL DRIFT FROM SURFACES REQUIRING GROUND CONNECTIONS.
3. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS TO BE A MIN. OF 8° RADIUS.
4. FOR GROUNDING TO BUILDING FRAME AND HATCH PLATE GROUND BARS, USE A TWO-BOLT HOLE NEPA DRILLED CONNECTOR SUCH AS TAB 32007 OR APPROVED EQUAL.
5. FOR ALL EXTERNAL GROUND CONNECTIONS, CLAMPS AND CABLES, APPLY A LIBERAL PROTECTIVE COATING OR AN ANTI-OXIDE COMPOUND SUCH AS "NO-CORDE A" BY DEARBORN CHEMICAL COMPANY.
6. THE CONTRACTOR SHALL REMOVE (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SATISFACTORY FOR SURGRADE IN ITS PRESENT STATE. IF THE MATERIAL, AFTER REMOVAL, REMAINS UNSATISFACTORY THEN THE CONTRACTOR SHALL UNDERGO THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL AT HIS EXPENSE. ALL SURGRADES SHALL BE PROTECTED WITH A FULLY LOADED TAMPED SALT DOME UNDERLAYER TO PREVENT ANY SOFT MATERIAL FROM BEING REPOSED OR REPLACED.
7. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PILES, AND OTHER STRUCTURES WHICH ARE NEAR THE CONSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURES IN OPERABLE CONDITION.
8. ALL DIMENSIONS SHALL BE VERIFIED WITH THE PLANS (LATEST EDITION) PRIOR TO COMMENCING CONSTRUCTION. NOTIFY THE OWNER IMMEDIATELY IF DISCREPANCIES ARE DISCOVERED. THE CONTRACTOR SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.

CABLES/COAX

1. ALL COAXIAL CABLE WILL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE AT DISTANCES NOT TO EXCEED 3" FROM THE CABLE MANUFACTURER'S SPECIFICATIONS UNLESS OTHERWISE SPECIFIED IN THE COAXIAL CABLE ROUTING DETAILS OF THE SUPPLIED STRUCTURAL REPORT.
2. THE COAXIAL ANTENNA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PERFORMING AND SUPPLYING THREE (3) TYPICAL SWEEP TESTS (ANTENNA RETURN LOSS TEST). THIS TEST SHALL BE PERFORMED PRIOR TO FINAL ACCEPTANCE OF THE SITE.

CONCRETE

1. ANTENNA CABLE LENGTHS HAVE BEEN DETERMINED BASED ON THESE PLANS. CABLE LENGTHS LISTED ARE APPROXIMATED AND ARE NOT INTENDED TO BE USED FOR FABRICATION. DUE TO FIELD CONDITIONS, ACTUAL CABLE LENGTHS VARY. CONTRACTOR MUST FIELD VERIFY ANTENNA CABLE LENGTHS PRIOR TO ORDER.
1. ALL CAST IN PLACE CONCRETE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF AC 318-08 AND AC 308-08. AND SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI (20.7 MPa). CONCRETE SHALL BE PLACED IN 3" MAXIMUM LAYER THICKNESS. CONCRETE SHALL BE PLACED IN 3" MAXIMUM LAYER THICKNESS. CONCRETE SHALL BE PLACED IN 3" MAXIMUM LAYER THICKNESS. CONCRETE SHALL BE PLACED IN 3" MAXIMUM LAYER THICKNESS.
2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60. REINFORCING STEEL SHALL BE FIELD VERIFIED PRIOR TO ORDER. REINFORCING SHALL CONFORM TO ASTM A615.

FORESITE
 Foresite Group, LLC
 4177 North Highway 100
 3702 Domino Ct.
 Nashville, Tennessee 37214
 Phone: 615.833.1300
 Fax: 615.833.1304

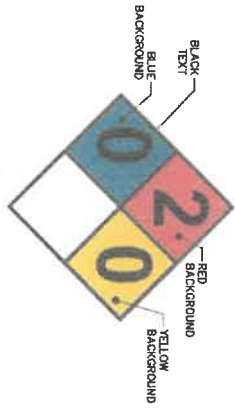
PROVIDENCE
 RYAN FOSTER CONSULTANTS INC
 4442 Tuck Road, Logansville, GA 30053
 (878) 982-2474

REGISTERED PROFESSIONAL ENGINEER
 GEORGIA
 RYAN FOSTER
 01/12/2012

FARM FARMER'S MARKET
 GA3146
 DEVELOPER: AT&T
 4410 DOWNEY AVE
 RIVERSIDE PARK, CA 92507

REVISIONS: _____ DATE: _____
 ISSUED FOR: PERMIT/CONSTRUCTION
 PROJECT MANAGER: JIC
 DRAWING BY: JIC
 DATE: 07/12/23
 TITLE: GENERAL NOTES
 SHEET NUMBER: T-2
 JOB/FILE NUMBER: 485.021

AT&T ABOVE GROUND FUEL STORAGE SYSTEMS SIGNS AND LABELING REQUIREMENTS



1 HAZARDOUS MATERIAL
NOT TO SCALE

REFERENCES:
NFPA 704
NFPA 302A
NFPA 302B
NFPA 302C
NFPA 302D
NFPA 302E
NFPA 302F
NFPA 302G
NFPA 302H
NFPA 302I
NFPA 302J
NFPA 302K
NFPA 302L
NFPA 302M
NFPA 302N
NFPA 302O
NFPA 302P
NFPA 302Q
NFPA 302R
NFPA 302S
NFPA 302T
NFPA 302U
NFPA 302V
NFPA 302W
NFPA 302X
NFPA 302Y
NFPA 302Z

INSTALLATION LOCATION: FUEL STORAGE TANK / GENERATOR
QUANTITY: 1

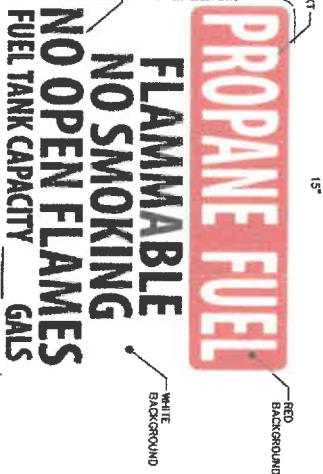
4 COMBUSTIBLE SIGN
NOT TO SCALE

WHITE /RED BACKGROUND, WHITE/BLACK LETTERING
INSTALLATION LOCATION: DIESEL GENERATOR
QUANTITY: 1



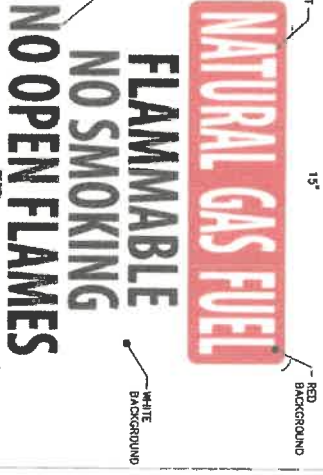
5 COMBUSTIBLE SIGN
NOT TO SCALE

WHITE /RED BACKGROUND, WHITE/BLACK LETTERING
INSTALLATION LOCATION: PROPANE GENERATOR
QUANTITY: 1



6 COMBUSTIBLE SIGN
NOT TO SCALE

WHITE /RED BACKGROUND, WHITE/BLACK LETTERING
INSTALLATION LOCATION: NATURAL GAS GENERATOR
QUANTITY: 1



2 EMERGENCY SIGN
NOT TO SCALE

YELLOW BACKGROUND, BLACK LETTERING MOUNTING LOCATION: GATE & BASE OF TOWER
QUANTITY: 1



3 E911 ADDRESS SIGN
NOT TO SCALE

THE NUMBERS SHALL NOT BE LESS THAN FOUR INCHES IN HEIGHT AND SHALL BE DARK BLUE AND CLEARLY VISIBLE. IN THE EVENT OF AN EMERGENCY, THE NUMBERS SHALL BE PROMINENTLY PLACED IMMEDIATELY AND PLAINLY IDENTIFIED FROM THE STREET WHEN GATE IS OPENED.

- SIGNAGE NOTES:**
- SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL & PAINTED WITH LONG LASTING UV RESISTANT COATING.
 - SIGNS (EXCEPT WHERE NOTED OTHERWISE) SHALL BE MOUNTED TO THE TOWERS, GATE & FENCE USING A MINIMUM OF 9 GAUGE ALUMINUM WIRE. HOG RINGS (FENCED OR BRACKETED), WIRE RINGS (FENCED OR BRACKETED), WIRE MESH (FENCED OR BRACKETED), WIRE MESH METAL AS THE STRUCTURE TO AVOID GALVANIC CORROSION.
 - ADDITIONAL E911 ADDRESS & FOG REGISTRATION SIGNS SHALL BE MOUNTED AT ACCESS POINTS EACH AS WELL AS ON THE COMPOUND GATE ITSELF. SIGNS TO BE PLACED AS NEEDED WITH DIRECTIONAL ARROWS & ACCESS ROAD NUMBERS.
 - AT&T SITE & EMERGENCY CONTACT SIGNS SHALL BE MOUNTED AT EACH CORNER OF THE PERIMETER SET IN RESISTANT CORNER METAL. REMAINING SET IN RESISTANT CORNER METAL SHALL BE UTILIZED AT EACH CORNER ON THE BACKSIDE TO AID PLACEMENT UNTIL THE ADHESIVE SET.
 - SIGNS NEED NOT BE PLACED IF ACCURATE AND APPROPRIATE SIGNAGE ALREADY EXISTS.
 - REFER TO C&E MOBILITY AREA SUPPLEMENT DATED 05/21/2014 FOR ADDITIONAL DETAILS.

FORESITE

ForeSite Group, LLC
2100 Westwood Blvd
Suite 100
Berkeley, CA 94704
Phone: (916) 835-1900
Fax: (916) 835-1901
www.foresitegroup.com

PROJECT MANAGER:

PROVIDENCE
REAL ESTATE CONSULTING, INC.
11000 Highway 7, Commerce, CA 95001
(925) 945-5219



PROJECT:
FARM FARMER'S MARKET
GA3146

DEVELOPER:
AT&T

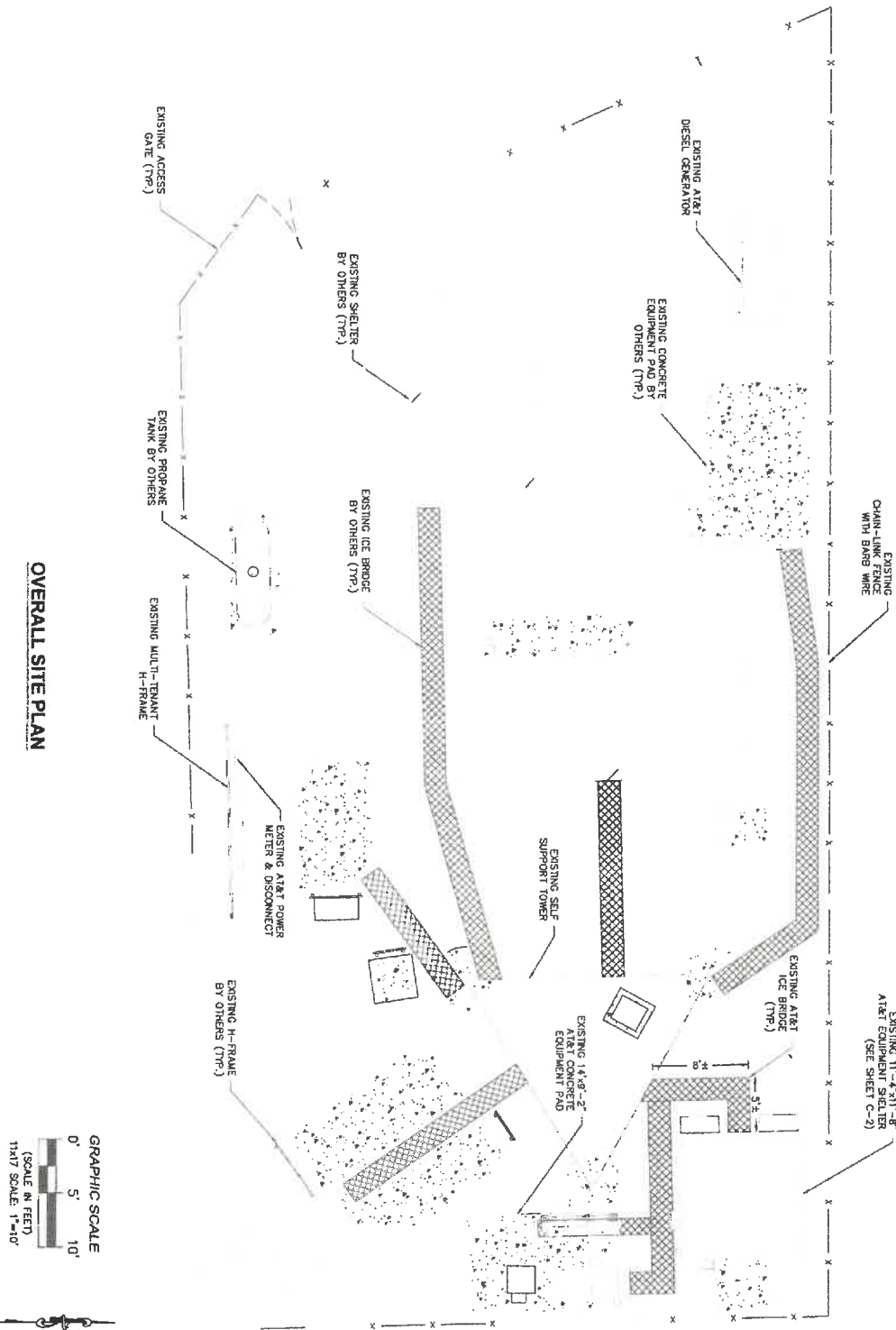
ISSUED FOR: PERMIT/CONSTRUCTION
PROJECT MANAGER: JLV
DRAWING BY: JIC
DATE: 01/12/23
TITLE:

REVISIONS:

NO.	DATE	DESCRIPTION

SITE SIGNAGE
SHEET NUMBER: T-4
JOB/R/E NUMBER: 485.021

NOTE:
 EXISTING SITE PLAN IS BASED ON/OBTAINED FROM EXISTING AS-BUILT CONSTRUCTION DOCUMENTS BY SUTTELL WIRELESS SERVICES DATED 06/12/2020 (PROVIDED BY CLIENT). CONTRACTOR TO VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.



OVERALL SITE PLAN



ISSUED FOR:	PERMIT/CONSTRUCTION
PROJECT MANAGER:	BLV
DRAWING BY:	JIC
DATE:	01/12/23
TITLE:	

OVERALL SITE PLAN	C-1
SHEET NUMBER:	
JOB/FILE NUMBER:	485.021

PROJECT:
 FARM FARMER'S MARKET
 GA3146

DEVELOPER:
 LOGGED IN: [unreadable]
 ROBERT PARK, CA 90897

AT&T

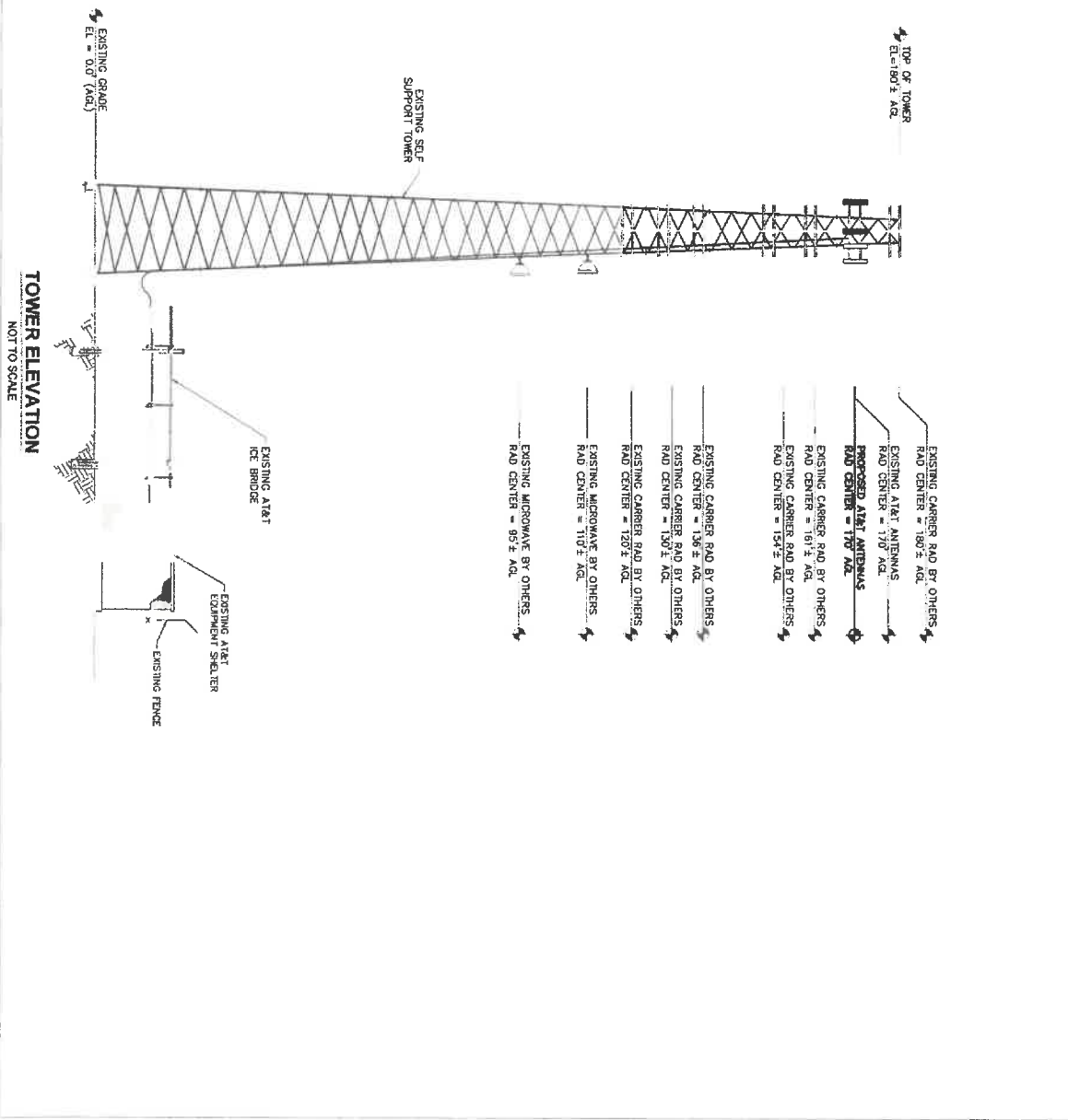
REGISTERED PROFESSIONAL ENGINEER
 GEORGIA
 MEMBER NO. 11728
 STATE NO. 11728

PROVIDENCE
 REAL ESTATE CONSULTING, INC.
 Integrity • Commitment • Quality
 4440 Ford Road, Loganville, GA 30052
 (770) 862-8779

FORESITE
 Foresite Group, LLC
 3140 Duland Ct.
 Atlanta, Georgia, GA 30309
 (404) 270-8661

TOWER NOTES:

1. THE EXISTING TOWER FOUNDATION, ANTENNA MOUNTS, AND ANTENNAS WERE DESIGNED BY OTHERS.
2. THE TOWER ELEVATION SHOWN IS FOR REFERENCE ONLY.
3. ADDITIONAL EXISTING ANTENNAS AND MOUNTS NOT SHOWN FOR CLARITY. SEE NOTE #4.
4. CONTRACTOR TO REFER TO STRUCTURAL ANALYSIS COMPLETED BY TOWER ENGINEERING PROFESSIONALS, DATED 12/19/2022 FOR REFERENCE. CONTRACTOR TO VERIFY THAT ANY MODIFICATIONS TO ROUTING AND ANY OTHER TOWER MODIFICATIONS THAT COULD AFFECT THE OVERALL TOWER STRUCTURAL STABILITY, INCLUDING THE PROVISIONS OF THE STRUCTURAL ANALYSIS PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO REFER TO AND COMPLY WITH MOUNT STRUCTURAL ANALYSIS COMPLETED BY FORESITE GROUP, LLC, DATED 09/01/2022 PRIOR TO INSTALLATION OF EQUIPMENT ON TOWER.
6. CONTRACTOR TO FIELD VERIFY ANTENNA MOUNT CONFIGURATION AND PRIOR TO INSTALLATION OF ANTENNAS, MOUNTS AND MOUNTING HARDWARE ON SITE. CONTRACTOR TO DESIGN REQUIREMENTS TO SUPPORT PROPOSED ANTENNAS. ALL ANTENNAS AND MOUNTS SHALL BE INSTALLED IN ACCORDANCE WITH THE ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES AND BASIC WIND SPEED AS LISTED ON SHEET 1-1.
7. AZIMUTHS TAKEN FROM AT&T RF SITE DESIGN DATA, TOWER HEIGHTS AND ANTENNA HEIGHTS TAKEN FROM RECEIPT TOWER STRUCTURAL ANALYSIS REPORT AND AT&T REGULATORY COMPLIANCE.
8. CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS AND IDENTIFYING ANY EXISTING CONFLICTS (INCLUDING BUT NOT LIMITED TO EXISTING COAXIAL CABLES, SAFETY CLIMBS, ETD, AND DETERMINING TEMPORARY BRACING OR EQUIPMENT. THE CONTRACTOR SHALL RESTORE ALL RELOCATED ITEMS TO PREVIOUS CONDITIONS.
9. EQUIPMENT MOUNTS INCLUDE COAX CABLES WITH AN TOWER TOP FACE. DO NOT PINCH TRAP OR KINK THE SAFETY CLIMB CABLE. IT IS A&T'S RESPONSIBILITY TO INSTALL A CABLE GUIDE OVER THE CLIMB TO KEEP SAFETY CABLE FROM RUBBING ON MOUNT.
10. ALL OF THE RANGERS NEED TO BE INSTALLED ON THE AT&T MOUNT NOT ON THE TOWER LEG OR THE LIGHT EXTENSION.
11. ALL TRASH AND EXTRA MATERIALS NEED TO BE POURED UP AND REMOVED FROM THE SITE UPON COMPLETION. DO NOT THROW TRASH IN THE WOODS.



FORESITE

ForeSite Group, LLC
3210 Duxford Ct.
Raleigh, North Carolina, GA 27602
www.fsinc.com
919.234.1999
11/27/2014 194

PROVIDENCE

RFLZ ESTATE CONSULTING INC
Attn: Project + Compliance + Quality
4446 Tuck Road, Logansville, GA 30672
(770) 565-5979

AT&T

DEVELOPER:
AT&T

FARM FARMER'S MARKET

PROJECT:
FARM FARMER'S MARKET
GA3146

ISSUED FOR: PERMIT/CONSTRUCTION

PROJECT MANAGER: BLV

DRAWING BY: JC

DATE: 01/12/23

REVISIONS:

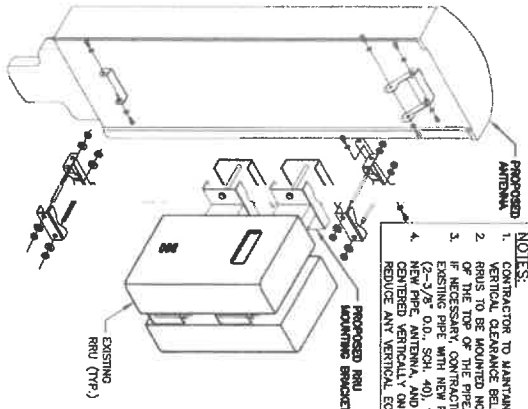
NO.	DATE	DESCRIPTION

TOWER ELEVATION

SHEET NUMBER: C-3

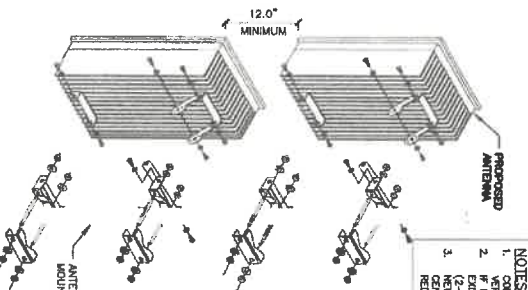
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SEAL:



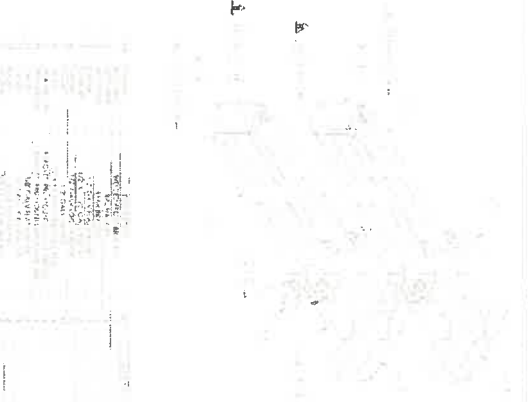
- NOTES:**
1. CONTRACTOR TO MAINTAIN A MINIMUM OF 18" VERTICAL CLEARANCE BELOW EACH RRU.
 2. RRUS TO BE MOUNTED NO HIGHER THAN 24" OF THE TOP OF THE PIPE.
 3. IF NECESSARY, CONTRACTOR TO REPLACE EXISTING ANTENNA WITH A NEW PIPE ANTENNA, AND EQUIPMENT TO BE CENTERED VERTICALLY ON THE MOUNT TO REMOVE ANY VERTICAL ECCENTRICITY.

ANTENNA AND RRU MOUNTING DETAILS

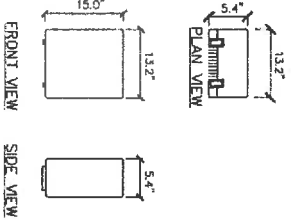


- NOTES:**
1. CONTRACTOR TO MAINTAIN A MINIMUM OF 12" VERTICAL CLEARANCE BETWEEN ANTENNAS.
 2. IF NECESSARY, CONTRACTOR TO REPLACE EXISTING ANTENNA WITH A NEW PIPE ANTENNA, AND EQUIPMENT TO BE CENTERED VERTICALLY ON THE MOUNT TO REMOVE ANY VERTICAL ECCENTRICITY.

ANTENNA AND RRU MOUNTING DETAILS

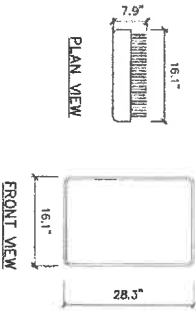


RRU MOUNT DETAIL



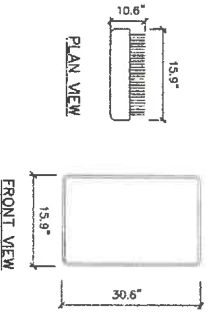
MANUFACTURER: ERICSSON
MODEL #: RRU 4A15 B25
DIMENSIONS (WxDxH): 13.2"x5.4"x4.8 lbs

RRUS 4A15 B25 SPECS



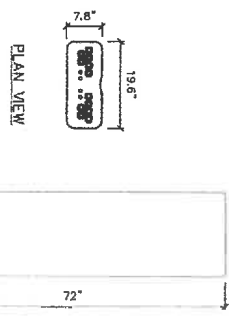
MANUFACTURER: ERICSSON
MODEL #: AIR6419 B77G
DIMENSIONS (WxDxH): 16.1"x7.9"x28.3"
WEIGHT: 66.1 lbs

ANTENNA SPECS



MANUFACTURER: ERICSSON
MODEL #: AIR6448 B77D
DIMENSIONS (WxDxH): 15.9"x10.6"x30.6"
WEIGHT: 83.6 lbs

ANTENNA SPECS



MANUFACTURER: COMUSCOPE
MODEL #: NNH4-888-8BH4
DIMENSIONS (WxDxH): 19.6"x7.8"x72"
WEIGHT: 83.3 lbs

ANTENNA SPECS

PROJECT:
FARM FARMER'S MARKET GA3146

DEVELOPER:
AT&T

ISSUED FOR: PERMIT/CONSTRUCTION

PROJECT MANAGER: J.C.

DRAWING BY: B.Y.

DATE: 01/12/23

TITLE: EQUIPMENT DETAILS

REVISIONS:

NO.	DATE	DESCRIPTION

SEAL:

PROJECT MANAGER:
PROVIDENCE

NEAL ESTATE CONSULTING, INC.
 Integrity • Commitment • Quality

4440 Truck Road, Loganville, GA 30052
 (770) 955-9474

FORESITE

ForeSite Corp., LLC
 3740 Darden Ct.
 Redwood City, CA 94061

w | www.foresite.com
 o | 770.844.1199
 f | 770.844.1144

SHEET NUMBER: C-3.2

JOB/TITLE NUMBER: 485 021

RF REQUIREMENTS FOR 700 B14 FIRSTNET, 700 B12, 700D B29 ANTENNA SEPARATION

- Horizontal separation (side to side of antenna): $\geq 3'$
- Vertical separation (between the tips of the antennas): $\geq 3'$
- Inter-sector separation: $> 3'$ between the center of the antenna backplanes.

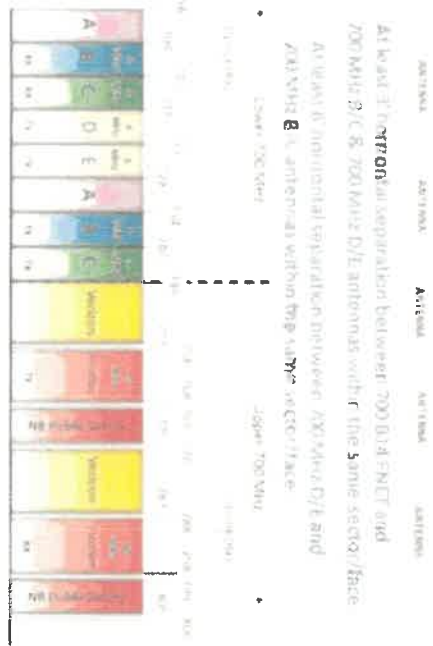
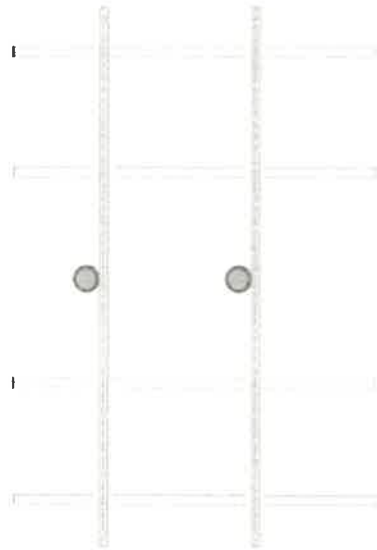
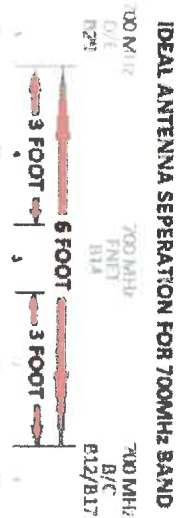


- Please note additional horizontal separation may be required if B14 antennas azimuth are different from others or antennas are severely angled with respect to the mount.
- Typical 3' horizontal separation can tolerate skew angle up to 6°.

- NOTES:**
1. MAINTAIN AT LEAST 3' HORIZONTAL SEPARATION BETWEEN 700 B14 FNET AND 700 MHz B/C & 700 MHz D/E ANTENNAS WITHIN THE SAME SECTOR/FACE.
 2. MAINTAIN AT LEAST 6' HORIZONTAL SEPARATION BETWEEN 700 MHz D/E AND 700 MHz B/C ANTENNAS WITHIN THE SAME SECTOR/FACE.
 3. PLEASE NOTE ADDITIONAL HORIZONTAL SEPARATION MAY BE REQUIRED IF B14 AZIMUTHS ARE DIFFERENT FROM OTHERS OR IF ANTENNAS ARE SEVERELY ANGLED WITH RESPECT TO THE MOUNT. TYP. 3' HORIZONTAL SEPARATION CAN TOLERATE SKEW ANGLE UP TO 6 DEGREES.
 4. MAINTAIN INTER-SECTOR SEPARATION $> 3'$ BETWEEN THE CENTER OF THE ANTENNA BACKPLANES.
 5. CONTRACTOR SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS.
 6. CONTRACTOR TO CONFORM TO THE LATEST AT&T ANTENNA COLLOCATION GUIDELINES. AT&T DOCUMENT INT-002-290-105.



RF REQUIREMENTS



FORESITE

ForeSite Group, LLC
2700 W. 15th Street
Suite 100
Tomball, Texas, TX 77375
(281) 355-5179

PROJECT MANAGER:

PROVIDENCE
REGAL ESTATE CONSULTING INC
Integrity • Commitment • Quality
4489 Tuck Road, Logansport, GA 30057
(706) 885-5179

SEAL:



PROJECT:

FARM FARMER'S MARKET
G3146
440000 ANTENNA
PROJECT FARMER, GA 30087

DEVELOPER:



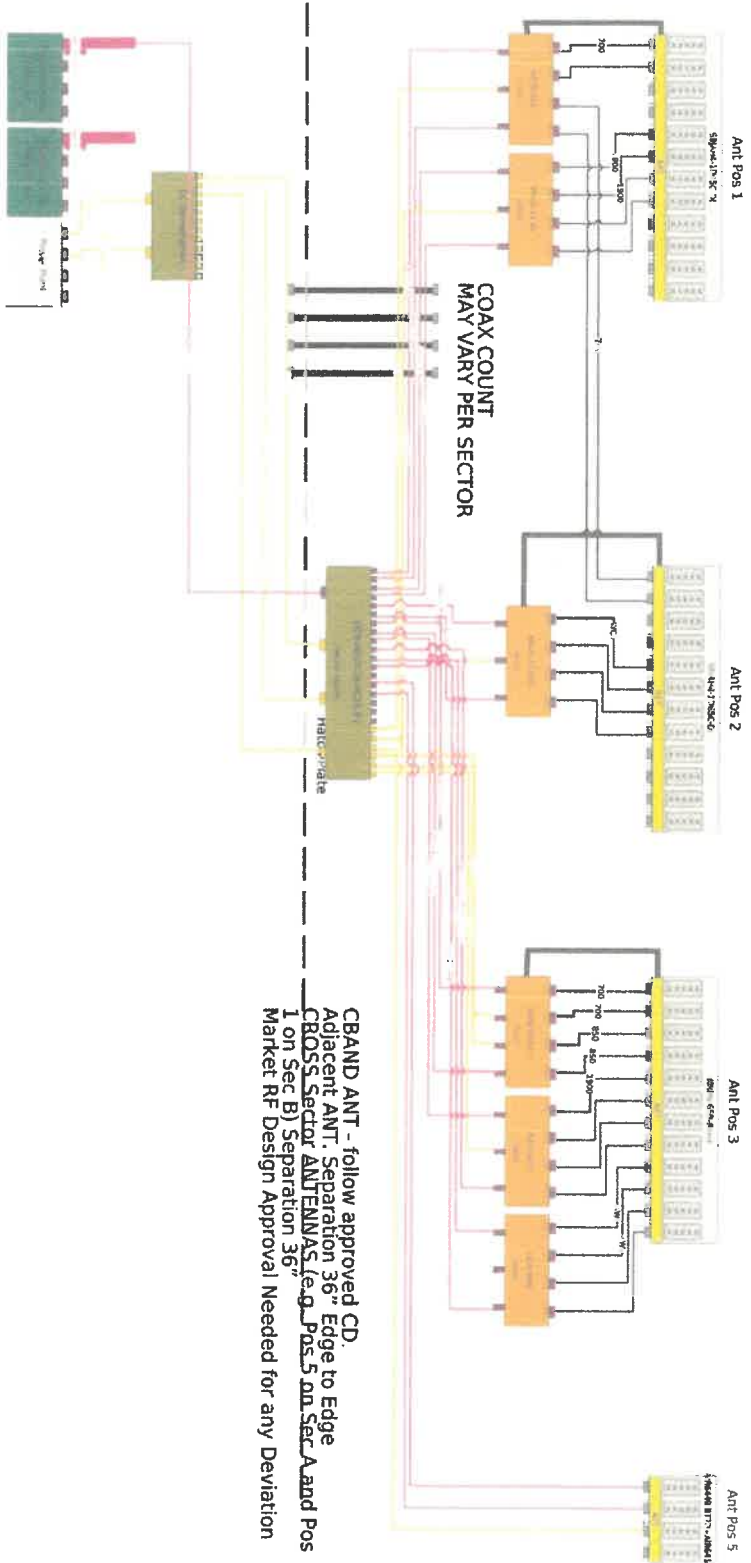
REVISIONS:

NO.	DESCRIPTION	DATE

ISSUED FOR: PERMIT/CONSTRUCTION
PROJECT MANAGER: ELV
DRAWING BY: JC
DATE: 01/12/23
TITLE: RF REQUIREMENTS

SHEET NUMBER: C-4
JOB/FILE NUMBER: 485 021

- NOTES:**
1. PLUMBING DIAGRAM IS TYPICAL FOR ALL SECTORS
 2. VERIFY CONFIGURATION AT PRE-CONSTRUCTION MEETING WITH TURNING VENDOR. RFOS ALWAYS TAKES PRECEDENCE BUT CONFIRM WITH TURNING VENDOR AND END USER PRIOR TO INSTALLATION IF DISCREPANCY EXISTS



CBAND ANT - follow approved CD.
 Adjacent ANT. Separation 36" Edge to Edge
 CROSS Sector ANTENNAS (e.g. Pos.5 on Sec A and Pos
 1 on Sec B) Separation 36"
 Market RF Design Approval Needed for any Deviation

PLUMBING DIAGRAM

FORESITE

Proven Group LLC
 3780 Davenport Ct.
 Suite 100
 Redwood City, CA 94063
 Tel: 650-967-1100
 Fax: 650-967-1101
 11700 S.M. 194

PROJECT NUMBER:

PROVIDENCE
 REAL ESTATE CONSULTANT, INC.
 Integrity • Commitment • Quality
 4440 Tuck Road, Laguna Hills, CA 92653
 (714) 945-5474

SEAL:



PROJECT:

FARM FARMER'S MARKET
 GA3146

DESIGNED BY: [Name]
 PROJECT MANAGER: [Name]
 CHECKED BY: [Name]
 DRAWING BY: [Name]
 DATE: 01/12/23

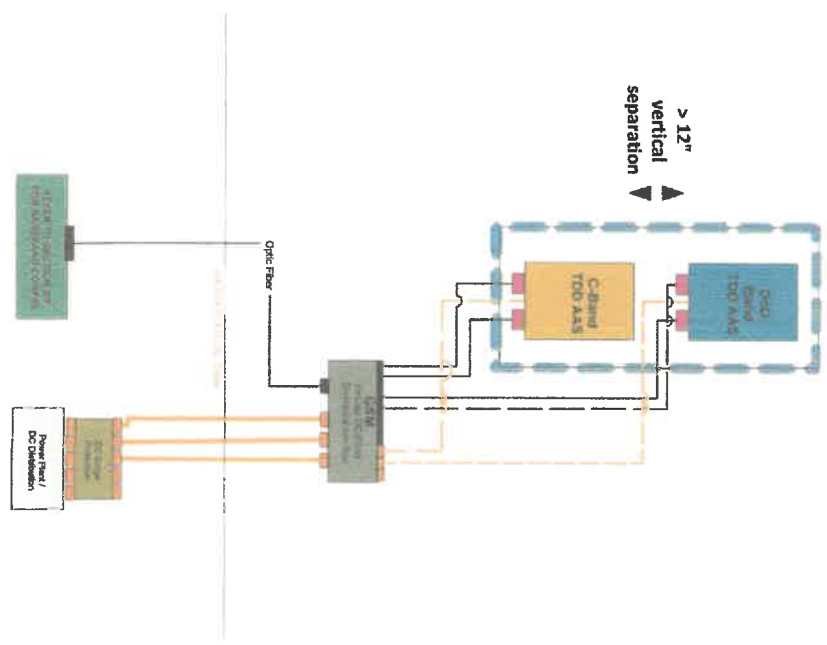


REVISIONS

NO.	DATE	DESCRIPTION

PLUMBING DIAGRAM
 SHEET NUMBER: C-5
 JOB/FILE NUMBER: 485.021

- NOTES:**
1. PLUMBING DIAGRAM IS TYPICAL FOR ALL SECTIONS
 2. VERIFY CONFIGURATION AT PRE-CONSTRUCTION MEETING WITH TURNING VENDOR. REFS ALWAYS TAKES PRECEDENCE BUT CONFIRM WITH TURNING VENDOR AND END USER PRIOR TO INSTALLATION IF DISCREPANCY EXISTS



C-BAND/DOD PLUMBING DIAGRAM

FORESITE

ForeSite Corp, LLC
 2700 Dulles Rd
 Suite 100
 Herndon, VA 20185

PROJECT MANAGER:

PROVIDENCE

REGAL ESTATE CONSTRUCTION, INC
 Integrity • Commitment • Quality

4440 Tuck Road, Loganville, GA 30082
 (770) 955-5478

SEAL:



PROJECT:

FARM FARMER'S MARKET
GA3146

48 LINDSEY BLVD
 FARMER MARKET, GA 30097

DEVELOPER:



REVISIONS

NO.	DATE	DESCRIPTION

ISSUED FOR: PERMIT/CONSTRUCTION
 PROJECT MANAGER: ELV
 DRAWING BY: JLC
 DATE: 01/12/23
 TITLE:

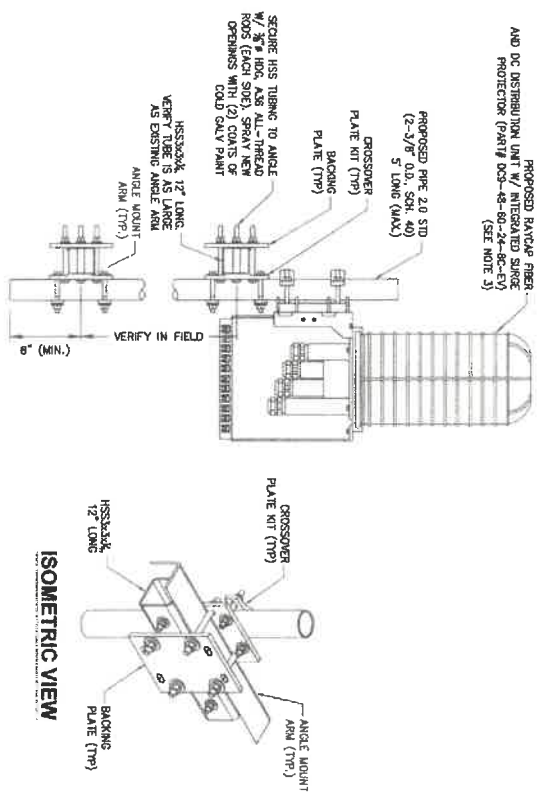
C-BAND/DOD PLUMBING DIAGRAM

SHEET NUMBER: C-5.1

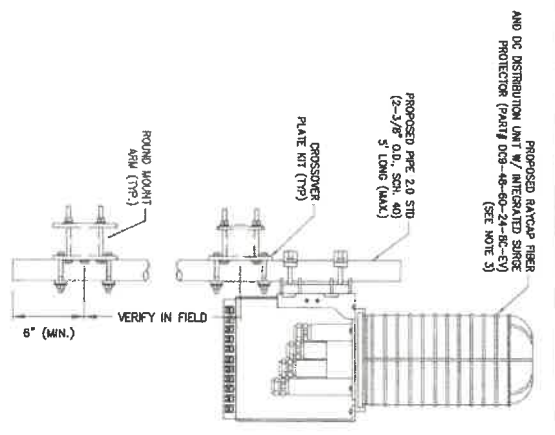
JOB/FILE NUMBER: 485.021

- NOTES:**
1. UNIT SHALL BE MOUNTED AS PER MANUFACTURER'S RECOMMENDATIONS.
 2. CONTRACTOR SHALL TIGHTEN ALL BOLTS TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
 3. CONTRACTOR SHALL INSTALL RAYCAP DISTRIBUTION UNIT WITHIN 15 FEET FROM ALL RW/S.
 4. CONTRACTOR SHALL ATTACH RAYCAP PIPE IN (2) PLACES.
 5. CROSSOVER PLATE TO BE SITE PRO P/N: SC27-U OR EQUIVALENT. ASSEMBLY HARDWARE INCLUDED.
 6. BACKING PLATE TO BE SITE PRO P/N: SC27-U OR EQUIVALENT. ASSEMBLY HARDWARE INCLUDED.

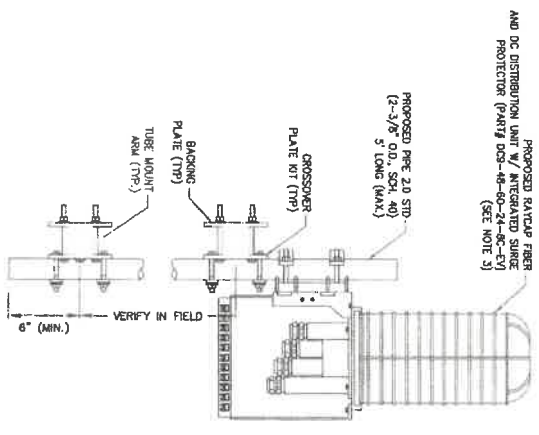
RAYCAP MOUNTING DETAIL (TO ANGLE MEMBERS)



RAYCAP MOUNTING DETAIL (TO ROUND MEMBERS)



RAYCAP MOUNTING DETAIL (TO TUBE MEMBERS)



FORESITE

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 3200 Woodloch
 Suite 100
 Providence, CA 90029

W. James Ruppert
 +1 708.683.1399
 +1 708.683.1944

PROVIDENCE

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 Integrity • Commitment • Quality

4460 Tuck Road, Laguna Hills, CA 90032
 (714) 962-5474

REGISTERED

PROFESSIONAL ENGINEER

GEORGIA

11/2/12

FARM FARMER'S MARKET

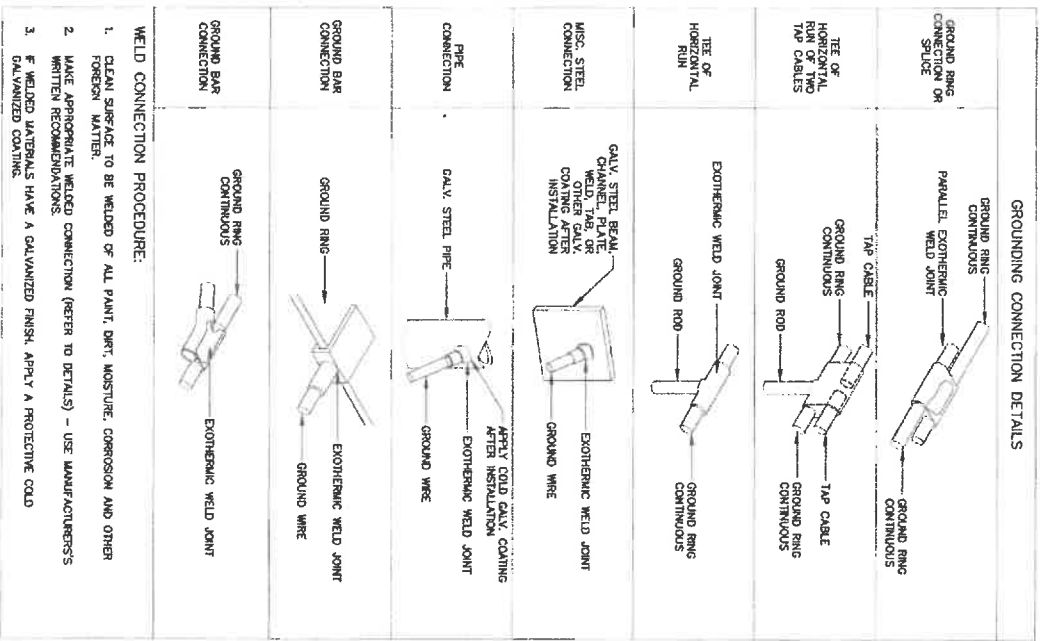
GA3146

44 LOCATED AT: 10022477 - FARM FARMER'S MARKET

DEVELOPER: AT&T

REVISIONS	DATE

ISSUED FOR: PERMIT/CONSTRUCTION
 PROJECT MANAGER: BLV
 DRAWING BY: JC
 DATE: 01/12/23
 TITLE: RAYCAP MOUNTING DETAILS
 SHEET NUMBER: C-6
 JOB/FILE NUMBER: 485.021



- WELD CONNECTION PROCEDURE:**
1. CLEAN SURFACE TO BE WELDED OF ALL PAINT, DIRT, MOISTURE, CORROSION AND OTHER FOREIGN MATTER.
 2. MAKE APPROPRIATE WELDED CONNECTION (REFER TO DETAILS) - USE MANUFACTURER'S WRITTEN RECOMMENDATIONS.
 3. IF WELDED MATERIALS HAVE A GALVANIZED FINISH, APPLY A PROTECTIVE COAT.

GROUNDING NOTES:

1. ALL GROUNDING SHALL COMPLY WITH NFPA 70 (NEC) AND NFPA 770, "LIGHTNING PROTECTION CODE".
2. ALL GROUNDING CONNECTIONS SHALL BE MADE USING AN EXOTHERMIC WELD, UNLESS NOTED OTHERWISE. CLEAN ALL SURFACES PRIOR TO CONNECTION. SPRAY EXOTHERMICALLY WELDED CONNECTIONS WITH ANTI-OXIDATION PAINT.
3. ALL GROUNDING DEVICES SHALL BE UL APPROVED OR LISTED FOR THEIR INTENDED USE.
4. ROUTE ALL GROUND CONDUCTORS ALONG THE SHORTEST ROUTE AND AVOID SHARP BENDS. THE BEND RADIUS SHALL NOT BE LESS THAN 12".
5. PRIOR TO INSTALLING LUGS ON GROUND CONDUCTORS OR BOLTING GROUND LUGS, APPLY THROUS & BETTS KOPR-SHIELD OR EQUIVALENT.
6. SHUT BOLTS SHALL NOT BE USED.
7. ENSURE THAT NO CONTINUOUS METAL RING SURROUNDS A GROUNDING CONDUCTOR. USE PVC SUPPORT CLAMPS. ENSURE ANY GROUNDING CONDUCTORS RUN THROUGH METAL CONDUIT IS BONDED TO THE CONDUIT AT BOTH ENDS.
8. CONTRACTOR SHALL BOND THE TEROLO CABINET GROUND BAR TO THE GROUND RING USING 2 AWG BARE SOLDER THINNED COPPER CONDUCTORS WITH 2-HOLE COMPRESSION LUGS ABOVE GRADE AND EXOTHERMIC WELDS BELOW GRADE.
9. ALL GROUNDING/BONDING CONDUCTORS RUN FROM ABOVE GRADE FROM 1 FOOT ABOVE GRADE AND SEALED WITH A SILICONE SEALANT.
10. GROUND SYSTEMS SHALL BE TESTED AND SHALL HAVE A RESISTANCE OF 5 OHMS OR LESS. IF RESISTANCE VALUE IS EXCEEDED, NOTIFY TOWER OWNER/CARRIER FOR FURTHER INSTRUCTIONS. SUBMIT A COPY OF THE TEST REPORT TO TOWER.
11. ANY METAL OBJECT WITHIN 8 FEET OF THE TOWER OR EQUIPMENT GROUND RING SHALL BE BONDED DIRECTLY TO THE RING.
12. ALL ABOVE GRADE GROUND CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD EARTH AND ONLY WHERE NECESSARY, HORIZONTAL.
13. ALL CONDUCTORS SHALL BE ROUTED SUCH THAT THERE ARE NO INCLUSIVE ANGLES OF LESS THAN 90 DEGREES.
14. ALL GROUNDING COMPONENTS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
15. ANY METAL CONDUIT MOUNTED ON THE TOWER SHALL BE BONDED TO THE TOWER AT EACH END.
16. WHEN BONDING TO EQUIPMENT GROUND PAINT TO BARE STEEL AND PROTECT WITH A COATING OF NO-COX.
17. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC UNLESS NOTED OTHERWISE. USE R35 FOR ELBOWS AND RISERS.

ELECTRICAL NOTES:

1. ALL WORK SHALL CONFORM TO APPLICABLE STATE AND LOCAL CODES AND THE NATIONAL ELECTRICAL CODE (NEC), LATEST EDITION. ALL COMPONENTS SHALL BE UL LISTED.
2. CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND ENSURE ALL ELECTRICAL EQUIPMENT MEETS OR EXCEEDS AVAILABLE FAULT CURRENT.
3. CONTRACTOR SHALL PROVIDE ALL TEMPORARY POWER ON JOB SITE INCLUDING SERVICE POLE, ENTRY CONDUCTORS, METERS AND DISCONNECT AS REQUIRED. IF TEMPORARY POWER IS NOT AVAILABLE FROM THE POWER COMPANY, CONTRACTOR SHALL PROVIDE A 10KW (MIN.) PORTABLE GENERATOR TO SUPPLY DEMAND.
4. CONTRACTOR SHALL COORDINATE WITH LOCAL POWER COMPANY FOR METER AND GROUNDING REQUIREMENTS.
5. CONTRACTOR TO PROVIDE AND INSTALL METER CAN, DISCONNECT SWITCH, RACK, FEEDERS AND CONDUIT.
6. SHOW LOCATION (INCLUDING DIMENSIONS) OF ALL CAPPED UNDERGROUND CONDUITS ON FINAL AS-BUILT DRAWINGS.
7. COORDINATE EXACT LOCATION OF UNDERGROUND CONDUITS WITH THE PROJECT MANAGER.
8. CONTRACTOR SHALL COORDINATE WITH THE LOCAL ELECTRICAL AUTHORITY HAVING JURISDICTION AND OTHER TRADES TO DETERMINE TRENCHES) OF RACEWAYS REQUIRED FOR INSTALLATION.
9. ALL COMPONENTS TO BE SPECIFIED OR EQUIVALENT AS APPROVED BY THE PROJECT MANAGER.
10. COORDINATE CONDUIT STUB-UP LOCATIONS WITH THE PROJECT MANAGER.
11. ALL WIRING SHALL BE COPPER. ALUMINUM WIRE IS NOT PERMITTED.
12. CONTRACTOR SHALL COORDINATE DROP POLE SET WITH LOCAL UTILITY COMPANY (IF REQUIRED).
13. CONTRACTOR SHALL FILL TRENCH EXCAVATIONS PER LOCAL, STATE AND NATIONAL CODES.

ABBREVIATIONS, ELECTRICAL, GROUNDING NOTES AND DETAILS

ABBREVIATIONS

AWG	AMERICAN WIRE GAUGE
BAR	BARE COPPER WIRE
BTS	BARE TRANSMISSION SYSTEM
COBE	COALY ISOLATED GROUND BAR DETENTION
DA	DIAMETER
DWG	DRAWING
ENT	ELECTRICAL METALLIC TUBING
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
I	INTERNAL BEAM INTERLOCK
IGR	INTERNAL GROUND RING (SHLD)
IMR	MASTER ISOLATED GROUND BAR
PCS	POWER PROTECTION SYSTEM
PCS	POWER PROTECTION CABINET
RWD	RIGID GALVANIZED STEEL
RWT	ROCKWELL
SS	STAINLESS STEEL
TYP.	TYPICAL
ATH	AUTHORITY HAVING JURISDICTION

FORESITE

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 141 Santa Barbara
 3250 Redwood
 94045
 916.720.844.129
 916.720.844.194
 916.720.844.194

PROJECT MANAGER:
PROVIDENCE
 REAL ESTATE CONSULTING INC
 4449 First Road, Livermore, CA 94550
 (925) 985-2474



FARM FARMER'S MARKET
CAS3146
 LOCATED AT 4410 FARMER'S MARKET PARK, ST. JOHNS
 DEVELOPER: AT&T

REVISIONS

DATE	
REVISIONS	
ISSUED FOR:	FARM/CONSTRUCTION
PROJECT MANAGER:	ALC
DRAWING BY:	JVC
DATE:	01/12/23

ABBREVIATIONS, ELECTRICAL, GROUNDING NOTES, & WELD DETAILS

SHEET NUMBER: E-1
 JOB/TITLE NUMBER: 485.021



Expectation to indicate cutting with with connection to the antenna pole in position of approximately 12" above the bottom face horizontal face back to tower leg

MOUNT MODIFICATION
FOR REFERENCE ONLY

FORESITE

Foresite Group, LLC
2700 Peachtree
Suite 100
Peachtree Corners, GA 30091

PROJECT MANAGER:

PROVIDENCE
REGAL ENTERPRISE CONSULTING, INC.
Integrity • Commitment • Quality

4440 Zuck Road, Lawrenceville, GA 30042
9709 985-9474

SEAL:



PROJECT:

**FARM FARMER'S
MARKET
GA3146**

LOCATED AT:
66 DUNNITT ROAD
FARMER'S MARKET, GA 30097

DEVELOPER:



REVISIONS

DATE

ISSUED FOR: PERMIT/CONSTRUCTION
PROJECT MANAGER: BLV
DRAWING BY: JLC
DATE: 01/12/23
TITLE:

MOUNT MODIFICATION

SHEET NUMBER: S-1
JOB/TITLE NUMBER: 485.021

Date: December 19, 2022



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation:

AT&T Mobility Co-Locate

Site Number: GA3146
Site Name: Farm Farmers Market
FA Number: 10022477

Crown Castle Designation:

BU Number: 870443
Site Name: Forest Park (Barnett Rd.)
JDE Job Number: 730571
Work Order Number: 2164023
Order Number: 632284 Rev. 0

Engineering Firm Designation:

TEP Project Number: 74941.796889

Site Data:

66 Barnett Road, Forest Park, Clayton County, GA 30297
Latitude 33° 36' 56.08", Longitude -84° 23' 15.15"
180 Foot - Self-Supporting Tower

Tower Engineering Professionals is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration

Sufficient Capacity

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 108 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Gautam Sopal, E. I. / CLT

Respectfully submitted by:

Adam M. Amortnont, P.E., S.E.



Electronic Copy

TABLE OF CONTENTS

1) INTRODUCTION

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3.2) Assumptions

4) ANALYSIS RESULTS

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Table 5 - Tower Component Stresses 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 180-ft self-supporting tower designed by Rohn.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Wind Speed: 108 mph
Exposure Category: B
Topographic Factor: 1.0
Ice Thickness: 1.5 in
Wind Speed with Ice: 30 mph
Service Wind Speed: 60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
168.0	172.0	3	Ericsson	AIR 6419 B77G	11 2 7 6	1-5/8 1 7/8 3/8
	170.0	3	Commscope	NNH4-65B-R6H4 w/ Mount Pipe		
		6	Commscope	SBJAH4-1D65C-DL w/ Mount Pipe		
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 4415 B25		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14		
		8	Raycap	DC2-48-60-0-9E		
		1	Raycap	DC9-48-60-24-8C-EV ENCLOSURE ONLY		
		3	Raycap	DC6-48-60-18-8F		
		1	Raycap	DC6-48-60-18-8C ENCLOSURE ONLY		
		168.0	3	Ericsson		
	3	Commscope	SFG2C Sector Mount			

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
178.0	180.0	9	RFS Celwave	APL868013-42T0 w/ Mount Pipe	8	1-5/8
	178.0	1	Tower Mounts	Sector Mount [SM 509-3]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
162.0	163.0	3	Motorola	DAP25003500	9	1/2
	162.0	1	Tower Mounts	Side Arm Mount [SO 203-3]		
	161.0	3	Andrew	VHLP2-18		
		3	Kathrein	840 10077 w/ Mount Pipe		
		3	Harris	ODU300ep		
152.0	154.0	3	RFS Celwave	APXVERR18-C w/ Mount Pipe	3	1-5/8 7/8
		3	Ericsson	AIR 6468 B41 w/ Mount Pipe		
		6	Ericsson	800MHZ SMR FILTER		
		3	Ericsson	RRUS 31 B25		
		3	Ericsson	RRUS-11 800MHZ		
	9	RFS Celwave	ACU-A20-N			
152.0	1	Tower Mounts	Sector Mount [SM 1303-3]			
146.0	147.0	1	Trango Broadband	M900S-AP w/ Mount Pipe	4	1/4
	146.0	2	Trango Broadband	ATLAS5010-INT w/ Mount Pipe		
		2	Tower Mounts	Pipe Mount [PM 601-1]		
	145.0	1	Gabriel Electronics	QFD2-52-N		
136.0	140.0	3	Commscope	FFHH-65C-R3 w/ Mount Pipe	9	1-5/8
		3	Ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	Radio 4480_TMOV2		
	136.0	3	Site Pro 1	VFA12-HD-S Sector Mount		
126.0	126.0	3	Cellmax Technologies	CMA-UBTULBULBHH/6516/16/21/21 w/ Mount Pipe	1	1-1/2
		3	Fujitsu	TA08025-B604		
		3	Fujitsu	TA08025-B605		
		1	Raycap	RDIDC-9181-PF-48		
		1	Tower Mounts	Commscope MTC3975083 (3)		
120.0	120.0	9	Andrew	844G90VTA-SX	9	7/8
		1	Tower Mounts	Sector Mount [SM 307-3]		
110.0	112.0	1	Radiowaves	HP3-11	5	1/2
		1	Harris	ODU300ep		
	111.0	2	Andrew	VHLP2-11		
		2	Harris	ODU300ep		
	110.0	1	Andrew	VHLP2-11		
		1	Harris	ODU300ep		
		1	Dragonwave	HORIZON QUANTUM		
2	Tower Mounts	Side Arm Mount [SO 201-1]				
95.0	95.0	1	Radiowaves	HPLP1-23	4	1/2
		1	Gabriel Electronics	HE3-107		
		2	Ceragon	FIBEAIR 1500P		
		2	Tower Mounts	Pipe Mount [PM 601-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	1408399	CCISites
Tower Foundation Drawings	1330573	CCISites
Tower Manufacturer Drawings	1408404	CCISites

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 Standard.

3.2) Assumptions

- 1) The tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ΦP_{allow} (k)	% Capacity	Pass / Fail
T1	180 - 160	Leg	ROHN 2.5 STD	2	-15.35	66.74	23.0	Pass
T2	160 - 140	Leg	ROHN 3 STD	38	-39.65	86.63	45.8	Pass
T3	140 - 120	Leg	ROHN 3 EH	68	-67.21	99.05	67.9	Pass
T4	120 - 100	Leg	ROHN 4 EH	89	-97.71	167.90	58.2	Pass
T5	100 - 80	Leg	ROHN 5 STD	110	-127.41	177.85	71.6	Pass
T6	80 - 60	Leg	ROHN 5 EH	131	-152.91	211.29	72.4	Pass
T7	60 - 40	Leg	ROHN 6 EHS	146	-179.54	256.27	70.1	Pass
T8	40 - 20	Leg	ROHN 6 X-STR	161	-205.41	318.93	64.4	Pass
T9	20 - 0	Leg	ROHN 6 EH	176	-230.19	318.94	72.2	Pass
T1	180 - 160	Diagonal	L1 3/4x1 3/4x3/16	9	-2.73	11.56	23.6	Pass
T2	160 - 140	Diagonal	L2x2x3/16	45	-3.24	10.22	31.7	Pass
T3	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	72	-4.89	16.11	30.3	Pass
T4	120 - 100	Diagonal	L2 1/2x2 1/2x1/4	96	-5.54	12.42	44.6	Pass
T5	100 - 80	Diagonal	L3x3x1/4	117	-6.18	17.08	36.2	Pass
T6	80 - 60	Diagonal	L3 1/2x3 1/2x1/4	138	-6.74	18.92	35.6	Pass
T7	60 - 40	Diagonal	L3 1/2x3 1/2x1/4	153	-7.30	16.05	45.5	Pass
T8	40 - 20	Diagonal	L4x4x1/4	168	-7.68	20.47	37.5	Pass
T9	20 - 0	Diagonal	L4x4x1/4	183	-8.36	17.52	47.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ϕP_{allow} (k)	% Capacity	Pass / Fail
T1	180 - 160	Top Girt	L2x2x1/8	4	-0.15	4.20	3.6	Pass
T2	160 - 140	Top Girt	L2x2x1/8	40	-0.69	4.22	16.3	Pass
							Summary	
							Leg (T6)	72.4 Pass
							Diagonal (T9)	47.7 Pass
							Top Girt (T2)	16.3 Pass
							Bolt Checks	51.8 Pass
							RATING =	72.4 Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	40.2	Pass
1,2	Base Foundation Structural	-	9.1	Pass
1,2	Base Foundation Soil Interaction	-	49.8	Pass

Structure Rating (Max from all components) =	72.4%
---	--------------

Notes:

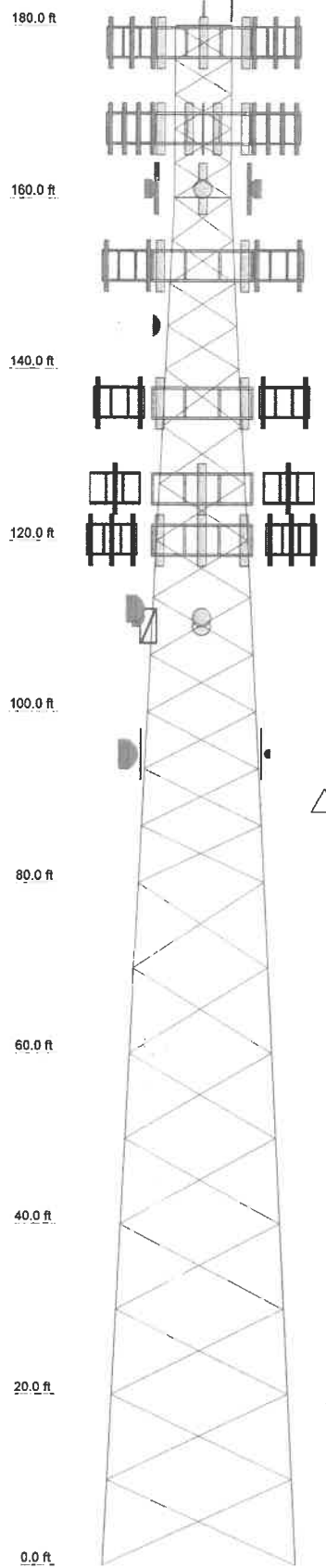
- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H Section 15.5.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9
Legs	ROHN 2.5 STD	ROHN 3 STD	ROHN 3 EH	ROHN 4 EH	ROHN 5 STD	ROHN 5 EH	ROHN 6 EHS	ROHN 6 X-STR	ROHN 6 EH
Leg Grade					A572-50				
Diagonals	L1 3/4x1 3/4x3/16	L2x3/16	L2 1/2x2 1/2x1/4	L2 1/2x2 1/2x1/4	L3x3x1/4	L3 1/2x3 1/2x1/4	L3 1/2x3 1/2x1/4	L4x4x1/4	L4x4x1/4
Diagonal Grade			A36				A572-50		
Top Girts	L2x2x1/8					N.A.			
Face Width (ft)	6.64583	6.6875	6.6875	10.7604	12.8333	14.7708	16.8542	18.8542	20.8646
# Panels @ (ft)		4 @ 5		9 @ 6.66667			8 @ 10		
Weight (K)									



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

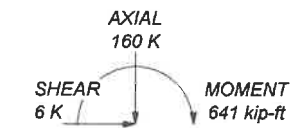
1. Tower is located in Clayton County, Georgia.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 108 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 30 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0'
8. TOWER RATING: 72.4%

ALL REACTIONS ARE FACTORED

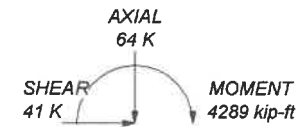
MAX. CORNER REACTIONS AT BASE:

DOWN: 236 K
SHEAR: 26 K

UPLIFT: -192 K
SHEAR: 22 K



TORQUE 4 kip-ft
30 mph WIND - 1.5000 in ICE



TORQUE 27 kip-ft
REACTIONS - 108 mph WIND

 Tower Engineering Professionals	Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350		Job: Forest Park (Barnett Rd.) (BU 87044) Project: TEP No. 74941.796889	
	Client: Crown Castle Code: TIA-222-H Path: C:\Users\jfisher\Desktop\Temp\Forest870443_2164023_LC7.eri	Drawn by: jfisher Date: 12/19/22	App'd: Scale:	Dwg No.

tnxTower Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job Forest Park (Barnett Rd.) (BU 870443)	Page 1 of 29
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	Client Crown Castle	Designed by jfisher

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180' above the ground line.

The base of the tower is set at an elevation of 0' above the ground line.

The face width of the tower is 6'7-3/4" at the top and 22'10-3/8" at the base.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Clayton County, Georgia.

Tower base elevation above sea level: 979'.

Basic wind speed of 108 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0'.

Nominal ice thickness of 1.5000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 30 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.

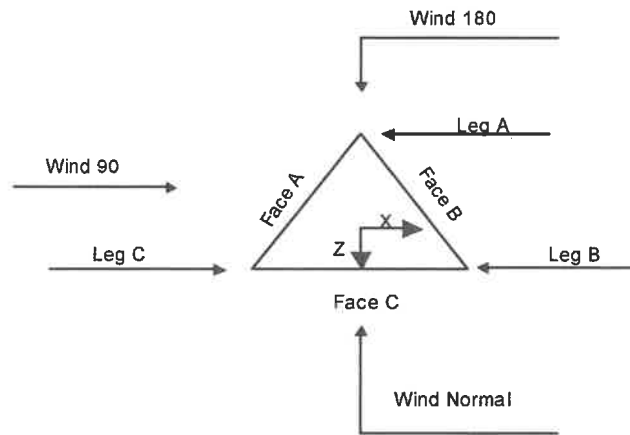
Maximum demand-capacity ratio is: 1.05.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque √ Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known |
|--|---|---|

tnxTower Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job Forest Park (Barnett Rd.) (BU 870443)	Page 2 of 29
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	Client Crown Castle	Designed by jfisher



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	180'-160'			6'7-13/16"	1	20'
T2	160'-140'			6'8-9/32"	1	20'
T3	140'-120'			8'8-9/32"	1	20'
T4	120'-100'			10'9-1/8"	1	20'
T5	100'-80'			12'9-31/32"	1	20'
T6	80'-60'			14'9-1/4"	1	20'
T7	60'-40'			16'10-3/16"	1	20'
T8	40'-20'			18'10-3/16"	1	20'
T9	20'-0'			20'10-5/16"	1	20'

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	180'-160'	4'	X Brace	No	No	0.0000	0.0000
T2	160'-140'	5'	X Brace	No	No	0.0000	0.0000
T3	140'-120'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T4	120'-100'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T5	100'-80'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T6	80'-60'	10'	X Brace	No	No	0.0000	0.0000

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Tower Section	Tower Elevation <i>ft</i>	Diagonal Spacing <i>ft</i>	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset <i>in</i>	Bottom Girt Offset <i>in</i>
T7	60'-40'	10'	X Brace	No	No	0.0000	0.0000
T8	40'-20'	10'	X Brace	No	No	0.0000	0.0000
T9	20'-0'	10'	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180'-160'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 160'-140'	Pipe	ROHN 3 STD	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 140'-120'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 120'-100'	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 100'-80'	Pipe	ROHN 5 STD	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T6 80'-60'	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T7 60'-40'	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T8 40'-20'	Pipe	ROHN 6 X-STR	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A572-50 (50 ksi)
T9 20'-0'	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180'-160'	Equal Angle	L2x2x1/8	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
T2 160'-140'	Equal Angle	L2x2x1/8	A36 (36 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Gusset Area (per face) <i>ft²</i>	Gusset Thickness <i>in</i>	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals <i>in</i>	Double Angle Stitch Bolt Spacing Horizontal <i>in</i>	Double Angle Stitch Bolt Spacing Redundants <i>in</i>
T1 180'-160'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

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Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
T2 160'-140'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 140'-120'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 120'-100'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 100'-80'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 80'-60'	0.00	0.3750	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 60'-40'	0.00	0.3750	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 40'-20'	0.00	0.3750	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 20'-0'	0.00	0.3750	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹							
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
				X Y	X Y	X Y	X Y	X Y	X Y	X Y	
T1 180'-160'	Yes	Yes	1	1	1	1	1	1	1	1	1
T2 160'-140'	Yes	Yes	1	1	1	1	1	1	1	1	1
T3 140'-120'	Yes	Yes	1	1	1	1	1	1	1	1	1
T4 120'-100'	Yes	Yes	1	1	1	1	1	1	1	1	1
T5 100'-80'	Yes	Yes	1	1	1	1	1	1	1	1	1
T6 80'-60'	Yes	Yes	1	1	1	1	1	1	0.5	1	1
T7 60'-40'	Yes	Yes	1	1	1	1	1	1	0.5	1	1
T8 40'-20'	Yes	Yes	1	1	1	1	1	1	0.5	1	1
T9 20'-0'	Yes	Yes	1	1	1	1	1	1	0.5	1	1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry (cont'd)

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Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180'-160'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160'-140'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140'-120'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120'-100'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100'-80'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80'-60'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60'-40'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40'-20'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20'-0'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180'-160'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160'-140'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140'-120'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120'-100'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100'-80'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80'-60'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60'-40'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0500	0.75	0.0000	0.75
T8 40'-20'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20'-0'	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180'-160'	Flange	0.7500	4	0.6250	1	0.6250	1	0.7500	0	0.6250	0	0.6250	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325X		A325N	
T2 160'-140'	Flange	0.8750	4	0.6250	1	0.6250	1	0.7500	0	0.6250	0	0.6250	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325X		A325N	
T3 140'-120'	Flange	0.8750	4	0.6250	1	0.6250	0	0.7500	0	0.6250	0	0.6250	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325X		A325N	
T4 120'-100'	Flange	1.0000	4	0.6250	1	0.6250	0	0.7500	0	0.6250	0	0.6250	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325X		A325N	
T5 100'-80'	Flange	1.0000	4	0.6250	1	0.6250	0	0.7500	0	0.6250	0	0.6250	0	0.6250	1
		A325X		A325X		A325X		A325X		A325N		A325X		A325N	
T6 80'-60'	Flange	1.0000	6	0.7500	1	0.6250	0	0.7500	0	0.6250	0	0.6250	0	0.6250	1
		A325X		A325X		A325X		A325X		A325N		A325X		A325N	
T7 60'-40'	Flange	1.0000	6	0.7500	1	0.6250	0	0.7500	0	0.6250	0	0.6250	0	0.6250	1
		A325X		A325X		A325X		A325X		A325N		A325X		A325N	
T8 40'-20'	Flange	1.0000	6	0.7500	1	0.6250	0	0.7500	0	0.6250	0	0.6250	0	0.6250	1
		A325X		A325X		A325X		A325X		A325N		A325X		A325N	

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Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T9 20'-0"	Flange	1.0000 A354-BC	0	0.7500 A325X	1	0.6250 A325X	0	0.7500 A325X	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	1

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	# Row	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
*** A-Face ***													
1/2" dia. coax LDF5-50A(7/8)	A	No	No	Ar (CaAa)	95' - 0'	-3.0000	-0.48	4	2	0.5000	0.5000		0.15
1/2" dia. coax LDF7-50A(1-5/8)	A	No	No	Ar (CaAa)	120' - 58"	0.0000	-0.4	9	9	0.5000	1.0900		0.33
1/2" dia. coax LDF7-50A(1-5/8)	A	No	No	Ar (CaAa)	162' - 0'	0.0000	0.1	9	4	0.5000	0.5000		0.15
SFX 500(1/2) Feedline Ladder (Af)	A	No	No	Ar (CaAa)	178' - 0'	0.0000	0	8	8	0.5000	1.9800		0.82
Feedline Ladder (Af)	A	No	No	Af (CaAa)	125' - 0'	0.0000	-0.4	1	1	0.5000	3.0000		8.40
Step Pegs (5/8" SR) 7-in. w/30" step	A	No	No	Af (CaAa)	180' - 0'	0.0000	0	1	1	0.5000	3.0000		8.40
Safety Line 3/8	A	No	No	Ar (CaAa)	180' - 0'	0.0000	0.5	1	1	0.3500	0.3500		0.49
*** B-Face ***													
CAT5E(1/4) LDF7-50A(1-5/8)	B	No	No	Ar (CaAa)	146' - 0'	0.0000	-0.4	4	4	0.2600	0.2600		0.04
LDF7-50A(1-5/8)	B	No	No	Ar (CaAa)	136' - 0'	0.0000	-0.3	9	6	0.5000	1.9800		0.82
LDF7-50A(1-5/8)	B	No	No	Ar (CaAa)	168' - 0'	0.0000	0.05	9	5	0.5000	1.9800		0.82
LDF7-50A(1-5/8)	B	No	No	Ar (CaAa)	168' - 0'	0.0000	0	2	2	0.5000	1.9800		0.82
WR-VG86ST-BRDA(7/8)	B	No	No	Ar (CaAa)	168' - 0'	0.0000	0.02	3	1	0.5000	0.8800		0.68
WR-VG86ST-BRDA(7/8)	B	No	No	Ar (CaAa)	168' - 0'	0.0000	-0.02	2	1	0.5000	0.8800		0.68
WR-VG86ST-BRDA(7/8)	B	No	No	Ar (CaAa)	168' - 0'	0.0000	-0.03	2	2	0.5000	0.8800		0.68
FB-L98B-002-100000(3/8)	B	No	No	Ar (CaAa)	168' - 0'	1.2500	-0.032	2	1	0.3937	0.3937		0.06
WR-CAT5E1 0P(1) 860	B	No	No	Ar (CaAa)	168' - 0'	3.0000	0	2	2	0.5000	1.0110		0.41
10033(3/8)	B	No	No	Ar (CaAa)	168' - 0'	2.3500	-0.02	1	1	0.3150	0.3150		0.00
FB-L98B-002-100000(3/8)	B	No	No	Ar (CaAa)	168' - 0'	0.0000	-0.0249	3	1	0.3937	0.3937		0.06
Feedline Ladder (Af)	B	No	No	Af (CaAa)	146' - 0'	0.0000	-0.35	1	1	0.5000	3.0000		8.40
Feedline Ladder (Af)	B	No	No	Af (CaAa)	168' - 0'	0.0000	0	1	1	0.5000	3.0000		8.40

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Step Pegs (5/8" SR) 7-in. w/30" step *** C-Face	B	No	No	Ar (CaAa)	80' - 0'	0.0000	0.5	1	1	0.3500	0.3500		0.49
942-98888-1F XXX(1-5/8)	C	No	No	Ar (CaAa)	152' - 0'	0.0000	0.04	1	1	0.5000	1.7000		2.33
HB078-1-08U 3-M3J(7/8)	C	No	No	Ar (CaAa)	152' - 0'	0.0000	0.07	3	3	0.5000	1.0900		0.78
CU12PSM9P6 XXX(1-1/2)	C	No	No	Ar (CaAa)	126' - 0'	0.0000	0.44	1	1	0.5000	1.6000		2.35
Feedline Ladder (Af)	C	No	No	Af (CaAa)	152' - 0'	0.0000	0.05	1	1	0.5000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	129' - 0'	0.0000	0.45	1	1	0.5000	3.0000		8.40
Step Pegs (5/8" SR) 7-in. w/30" step ***	C	No	No	Ar (CaAa)	80' - 0'	0.0000	0.5	1	1	0.3500	0.3500		0.49

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA ft ² /ft	Weight plf

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	CAAA In Face ft ²	CAAA Out Face ft ²	Weight K
T1	180'-160'	A	0.000	0.000	40.862	0.000	0.30
		B	0.000	0.000	29.796	0.000	0.19
		C	0.000	0.000	0.000	0.000	0.00
T2	160'-140'	A	0.000	0.000	52.130	0.000	0.34
		B	0.000	0.000	78.115	0.000	0.52
		C	0.000	0.000	11.964	0.000	0.16
T3	140'-120'	A	0.000	0.000	54.630	0.000	0.38
		B	0.000	0.000	115.083	0.000	0.76
		C	0.000	0.000	25.400	0.000	0.35
T4	120'-100'	A	0.000	0.000	84.000	0.000	0.57
		B	0.000	0.000	122.211	0.000	0.78
		C	0.000	0.000	33.140	0.000	0.48
T5	100'-80'	A	0.000	0.000	89.250	0.000	0.58
		B	0.000	0.000	122.211	0.000	0.78
		C	0.000	0.000	33.140	0.000	0.48
T6	80'-60'	A	0.000	0.000	90.250	0.000	0.59
		B	0.000	0.000	122.911	0.000	0.79
		C	0.000	0.000	33.840	0.000	0.49

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T7	60'-40'	A	0.000	0.000	72.592	0.000	0.53
		B	0.000	0.000	122.911	0.000	0.79
		C	0.000	0.000	33.840	0.000	0.49
T8	40'-20'	A	0.000	0.000	70.630	0.000	0.53
		B	0.000	0.000	122.911	0.000	0.79
		C	0.000	0.000	33.840	0.000	0.49
T9	20'-0'	A	0.000	0.000	70.630	0.000	0.53
		B	0.000	0.000	122.911	0.000	0.79
		C	0.000	0.000	33.840	0.000	0.49

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T1	180'-160'	A	1.502	0.000	0.000	83.116	0.000	1.24
		B		0.000	0.000	73.728	0.000	1.01
		C		0.000	0.000	0.000	0.000	0.00
T2	160'-140'	A	1.483	0.000	0.000	107.543	0.000	1.52
		B		0.000	0.000	192.245	0.000	2.64
		C		0.000	0.000	27.605	0.000	0.46
T3	140'-120'	A	1.462	0.000	0.000	110.978	0.000	1.59
		B		0.000	0.000	249.564	0.000	3.51
		C		0.000	0.000	55.544	0.000	0.96
T4	120'-100'	A	1.438	0.000	0.000	174.645	0.000	2.40
		B		0.000	0.000	257.011	0.000	3.60
		C		0.000	0.000	70.043	0.000	1.26
T5	100'-80'	A	1.410	0.000	0.000	194.512	0.000	2.54
		B		0.000	0.000	254.701	0.000	3.53
		C		0.000	0.000	69.392	0.000	1.24
T6	80'-60'	A	1.375	0.000	0.000	196.625	0.000	2.52
		B		0.000	0.000	258.071	0.000	3.52
		C		0.000	0.000	74.793	0.000	1.28
T7	60'-40'	A	1.329	0.000	0.000	156.410	0.000	2.04
		B		0.000	0.000	254.215	0.000	3.41
		C		0.000	0.000	73.575	0.000	1.24
T8	40'-20'	A	1.263	0.000	0.000	149.364	0.000	1.91
		B		0.000	0.000	248.608	0.000	3.25
		C		0.000	0.000	71.803	0.000	1.19
T9	20'-0'	A	1.132	0.000	0.000	143.767	0.000	1.75
		B		0.000	0.000	237.495	0.000	2.95
		C		0.000	0.000	68.288	0.000	1.10

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	180'-160'	-0.2415	-5.8191	1.4005	-7.9202
T2	160'-140'	2.8053	-7.2228	5.0850	-9.1327
T3	140'-120'	2.2032	-11.7358	4.2602	-12.7031
T4	120'-100'	-2.9989	-9.7075	-1.1165	-10.5981
T5	100'-80'	-4.0203	-10.0716	-2.6902	-11.1812
T6	80'-60'	-4.8692	-11.0632	-3.4759	-11.1865

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Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
T7	60'-40'	-2.5060	-14.8139	-1.2474	-14.9696
T8	40'-20'	-2.2781	-15.6554	-1.0710	-16.2725
T9	20'-0'	-2.4392	-16.6857	-1.2004	-17.4704

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	4	1/2" dia. coax	160.00 - 162.00	0.6000	0.6000
T1	5	LDF7-50A(1-5/8)	160.00 - 178.00	0.6000	0.6000
T1	8	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T1	9	Step Pegs (5/8" SR) 7-in. w/30" step	160.00 - 180.00	0.6000	0.6000
T1	10	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T1	14	LDF7-50A(1-5/8)	160.00 - 168.00	0.6000	0.6000
T1	15	LDF7-50A(1-5/8)	160.00 - 168.00	0.6000	0.6000
T1	16	WR-VG86ST-BRDA(7/8)	160.00 - 168.00	0.6000	0.6000
T1	17	WR-VG86ST-BRDA(7/8)	160.00 - 168.00	0.6000	0.6000
T1	18	WR-VG86ST-BRDA(7/8)	160.00 - 168.00	0.6000	0.6000
T1	19	FB-L98B-002-100000(3/8)	160.00 - 168.00	0.6000	0.6000
T1	20	WR-CAT5E10P(1)	160.00 - 168.00	0.6000	0.6000
T1	21	860 10033(3/8)	160.00 - 168.00	0.6000	0.6000
T1	22	FB-L98B-002-100000(3/8)	160.00 - 168.00	0.6000	0.6000
T1	24	Feedline Ladder (Af)	160.00 - 168.00	0.6000	0.6000
T2	4	1/2" dia. coax	140.00 - 160.00	0.6000	0.6000
T2	5	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T2	8	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T2	9	Step Pegs (5/8" SR) 7-in. w/30" step	140.00 - 160.00	0.6000	0.6000
T2	10	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T2	12	CAT5E(1/4)	140.00 - 146.00	0.6000	0.6000
T2	14	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T2	15	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T2	16	WR-VG86ST-BRDA(7/8)	140.00 -	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T2	17	WR-VG86ST-BRDA(7/8)	160.00 140.00 -	0.6000	0.6000
T2	18	WR-VG86ST-BRDA(7/8)	160.00 140.00 -	0.6000	0.6000
T2	19	FB-L98B-002-100000(3/8)	160.00 140.00 -	0.6000	0.6000
T2	20	WR-CAT5E10P(1)	160.00 140.00 -	0.6000	0.6000
T2	21	860 10033(3/8)	160.00 140.00 -	0.6000	0.6000
T2	22	FB-L98B-002-100000(3/8)	160.00 140.00 -	0.6000	0.6000
T2	23	Feedline Ladder (Af)	160.00 140.00 -	0.6000	0.6000
T2	24	Feedline Ladder (Af)	146.00 140.00 -	0.6000	0.6000
T2	27	942-98888-1FXXX(1-5/8)	160.00 140.00 -	0.6000	0.6000
T2	28	HB078-1-08U3-M3J(7/8)	152.00 140.00 -	0.6000	0.6000
T2	30	Feedline Ladder (Af)	152.00 140.00 -	0.6000	0.6000
T3	4	1/2" dia. coax	120.00 - 140.00	0.6000	0.6000
T3	5	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T3	7	Feedline Ladder (Af)	120.00 - 125.00	0.6000	0.6000
T3	8	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T3	9	Step Pegs (5/8" SR) 7-in. w/30" step	120.00 - 140.00	0.6000	0.6000
T3	10	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T3	12	CAT5E(1/4)	120.00 - 140.00	0.6000	0.6000
T3	13	LDF7-50A(1-5/8)	120.00 - 136.00	0.6000	0.6000
T3	14	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T3	15	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T3	16	WR-VG86ST-BRDA(7/8)	120.00 - 140.00	0.6000	0.6000
T3	17	WR-VG86ST-BRDA(7/8)	120.00 - 140.00	0.6000	0.6000
T3	18	WR-VG86ST-BRDA(7/8)	120.00 - 140.00	0.6000	0.6000
T3	19	FB-L98B-002-100000(3/8)	120.00 - 140.00	0.6000	0.6000
T3	20	WR-CAT5E10P(1)	120.00 - 140.00	0.6000	0.6000
T3	21	860 10033(3/8)	120.00 - 140.00	0.6000	0.6000
T3	22	FB-L98B-002-100000(3/8)	120.00 - 140.00	0.6000	0.6000
T3	23	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T3	24	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T3	27	942-98888-1FXXX(1-5/8)	120.00 -	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T3	28	HB078-1-08U3-M3J(7/8)	140.00 120.00 -	0.6000	0.6000
T3	29	CU12PSM9P6XXX(1-1/2)	140.00 120.00 -	0.6000	0.6000
T3	30	Feedline Ladder (Af)	126.00 120.00 -	0.6000	0.6000
T3	31	Feedline Ladder (Af)	140.00 120.00 -	0.6000	0.6000
T4	3	LDF5-50A(7/8)	129.00 100.00 -	0.6000	0.6000
T4	4	1/2" dia. coax	120.00 100.00 -	0.6000	0.6000
T4	5	LDF7-50A(1-5/8)	120.00 100.00 -	0.6000	0.6000
T4	6	SFX 500(1/2)	110.00 100.00 -	0.6000	0.6000
T4	7	Feedline Ladder (Af)	120.00 100.00 -	0.6000	0.6000
T4	8	Feedline Ladder (Af)	120.00 100.00 -	0.6000	0.6000
T4	9	Step Pegs (5/8" SR) 7-in. w/30" step	120.00 100.00 -	0.6000	0.6000
T4	10	Safety Line 3/8	120.00 100.00 -	0.6000	0.6000
T4	12	CAT5E(1/4)	120.00 100.00 -	0.6000	0.6000
T4	13	LDF7-50A(1-5/8)	120.00 100.00 -	0.6000	0.6000
T4	14	LDF7-50A(1-5/8)	120.00 100.00 -	0.6000	0.6000
T4	15	LDF7-50A(1-5/8)	120.00 100.00 -	0.6000	0.6000
T4	16	WR-VG86ST-BRDA(7/8)	120.00 100.00 -	0.6000	0.6000
T4	17	WR-VG86ST-BRDA(7/8)	120.00 100.00 -	0.6000	0.6000
T4	18	WR-VG86ST-BRDA(7/8)	120.00 100.00 -	0.6000	0.6000
T4	19	FB-L98B-002-100000(3/8)	120.00 100.00 -	0.6000	0.6000
T4	20	WR-CAT5E10P(1)	120.00 100.00 -	0.6000	0.6000
T4	21	860 10033(3/8)	120.00 100.00 -	0.6000	0.6000
T4	22	FB-L98B-002-100000(3/8)	120.00 100.00 -	0.6000	0.6000
T4	23	Feedline Ladder (Af)	120.00 100.00 -	0.6000	0.6000
T4	24	Feedline Ladder (Af)	120.00 100.00 -	0.6000	0.6000
T4	27	942-98888-1FXXX(1-5/8)	120.00 100.00 -	0.6000	0.6000
T4	28	HB078-1-08U3-M3J(7/8)	120.00 100.00 -	0.6000	0.6000
T4	29	CU12PSM9P6XXX(1-1/2)	120.00 100.00 -	0.6000	0.6000
T4	30	Feedline Ladder (Af)	120.00 100.00 -	0.6000	0.6000
T4	31	Feedline Ladder (Af)	120.00 100.00 -	0.6000	0.6000
T5	2	1/2" dia. coax	80.00 - 95.00	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T5	3	LDF5-50A(7/8)	80.00 - 100.00	0.6000	0.6000
T5	4	1/2" dia. coax	80.00 - 100.00	0.6000	0.6000
T5	5	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T5	6	SFX 500(1/2)	80.00 - 100.00	0.6000	0.6000
T5	7	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T5	8	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T5	9	Step Pegs (5/8" SR) 7-in. w/30" step	80.00 - 100.00	0.6000	0.6000
T5	10	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T5	12	CAT5E(1/4)	80.00 - 100.00	0.6000	0.6000
T5	13	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T5	14	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T5	15	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T5	16	WR-VG86ST-BRDA(7/8)	80.00 - 100.00	0.6000	0.6000
T5	17	WR-VG86ST-BRDA(7/8)	80.00 - 100.00	0.6000	0.6000
T5	18	WR-VG86ST-BRDA(7/8)	80.00 - 100.00	0.6000	0.6000
T5	19	FB-L98B-002-100000(3/8)	80.00 - 100.00	0.6000	0.6000
T5	20	WR-CAT5E10P(1)	80.00 - 100.00	0.6000	0.6000
T5	21	860 10033(3/8)	80.00 - 100.00	0.6000	0.6000
T5	22	FB-L98B-002-100000(3/8)	80.00 - 100.00	0.6000	0.6000
T5	23	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T5	24	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T5	27	942-98888-1FXXX(1-5/8)	80.00 - 100.00	0.6000	0.6000
T5	28	HB078-1-08U3-M3J(7/8)	80.00 - 100.00	0.6000	0.6000
T5	29	CU12PSM9P6XXX(1-1/2)	80.00 - 100.00	0.6000	0.6000
T5	30	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T5	31	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	2	1/2" dia. coax	60.00 - 80.00	0.6000	0.6000
T6	3	LDF5-50A(7/8)	60.00 - 80.00	0.6000	0.6000
T6	4	1/2" dia. coax	60.00 - 80.00	0.6000	0.6000
T6	5	LDF7-50A(1-5/8)	60.00 - 80.00	0.6000	0.6000
T6	6	SFX 500(1/2)	60.00 - 80.00	0.6000	0.6000
T6	7	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	8	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	9	Step Pegs (5/8" SR) 7-in. w/30" step	60.00 - 80.00	0.6000	0.6000
T6	10	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T6	12	CAT5E(1/4)	60.00 - 80.00	0.6000	0.6000
T6	13	LDF7-50A(1-5/8)	60.00 - 80.00	0.6000	0.6000
T6	14	LDF7-50A(1-5/8)	60.00 - 80.00	0.6000	0.6000
T6	15	LDF7-50A(1-5/8)	60.00 - 80.00	0.6000	0.6000
T6	16	WR-VG86ST-BRDA(7/8)	60.00 - 80.00	0.6000	0.6000
T6	17	WR-VG86ST-BRDA(7/8)	60.00 - 80.00	0.6000	0.6000
T6	18	WR-VG86ST-BRDA(7/8)	60.00 - 80.00	0.6000	0.6000
T6	19	FB-L98B-002-100000(3/8)	60.00 - 80.00	0.6000	0.6000
T6	20	WR-CAT5E10P(1)	60.00 - 80.00	0.6000	0.6000
T6	21	860 10033(3/8)	60.00 - 80.00	0.6000	0.6000
T6	22	FB-L98B-002-100000(3/8)	60.00 - 80.00	0.6000	0.6000
T6	23	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	24	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	25	Step Pegs (5/8" SR) 7-in. w/30" step	60.00 - 80.00	0.6000	0.6000
T6	27	942-98888-1FXXX(1-5/8)	60.00 - 80.00	0.6000	0.6000
T6	28	HB078-1-08U3-M3J(7/8)	60.00 - 80.00	0.6000	0.6000
T6	29	CU12PSM9P6XXX(1-1/2)	60.00 - 80.00	0.6000	0.6000
T6	30	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	31	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	32	Step Pegs (5/8" SR) 7-in. w/30" step	60.00 - 80.00	0.6000	0.6000
T7	2	1/2" dia. coax	40.00 - 60.00	0.6000	0.6000
T7	3	LDF5-50A(7/8)	58.00 - 60.00	0.6000	0.6000
T7	4	1/2" dia. coax	40.00 - 60.00	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T7	5	LDF7-50A(1-5/8)	40.00 - 60.00	0.6000	0.6000
T7	6	SFX 500(1/2)	40.00 - 60.00	0.6000	0.6000
T7	7	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	8	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	9	Step Pegs (5/8" SR) 7-in. w/30" step	40.00 - 60.00	0.6000	0.6000
T7	10	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T7	12	CAT5E(1/4)	40.00 - 60.00	0.6000	0.6000
T7	13	LDF7-50A(1-5/8)	40.00 - 60.00	0.6000	0.6000
T7	14	LDF7-50A(1-5/8)	40.00 - 60.00	0.6000	0.6000
T7	15	LDF7-50A(1-5/8)	40.00 - 60.00	0.6000	0.6000
T7	16	WR-VG86ST-BRDA(7/8)	40.00 - 60.00	0.6000	0.6000
T7	17	WR-VG86ST-BRDA(7/8)	40.00 - 60.00	0.6000	0.6000
T7	18	WR-VG86ST-BRDA(7/8)	40.00 - 60.00	0.6000	0.6000
T7	19	FB-L98B-002-100000(3/8)	40.00 - 60.00	0.6000	0.6000
T7	20	WR-CAT5E10P(1)	40.00 - 60.00	0.6000	0.6000
T7	21	860 10033(3/8)	40.00 - 60.00	0.6000	0.6000
T7	22	FB-L98B-002-100000(3/8)	40.00 - 60.00	0.6000	0.6000
T7	23	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	24	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	25	Step Pegs (5/8" SR) 7-in. w/30" step	40.00 - 60.00	0.6000	0.6000
T7	27	942-98888-1FXXX(1-5/8)	40.00 - 60.00	0.6000	0.6000
T7	28	HB078-1-08U3-M3J(7/8)	40.00 - 60.00	0.6000	0.6000
T7	29	CU12PSM9P6XXX(1-1/2)	40.00 - 60.00	0.6000	0.6000
T7	30	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	31	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	32	Step Pegs (5/8" SR) 7-in. w/30" step	40.00 - 60.00	0.6000	0.6000
T8	2	1/2" dia. coax	20.00 - 40.00	0.6000	0.6000
T8	4	1/2" dia. coax	20.00 - 40.00	0.6000	0.6000
T8	5	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T8	6	SFX 500(1/2)	20.00 - 40.00	0.6000	0.6000
T8	7	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	8	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	9	Step Pegs (5/8" SR) 7-in. w/30" step	20.00 - 40.00	0.6000	0.6000
T8	10	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T8	12	CAT5E(1/4)	20.00 - 40.00	0.6000	0.6000
T8	13	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T8	14	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T8	15	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T8	16	WR-VG86ST-BRDA(7/8)	20.00 - 40.00	0.6000	0.6000
T8	17	WR-VG86ST-BRDA(7/8)	20.00 - 40.00	0.6000	0.6000
T8	18	WR-VG86ST-BRDA(7/8)	20.00 - 40.00	0.6000	0.6000
T8	19	FB-L98B-002-100000(3/8)	20.00 - 40.00	0.6000	0.6000
T8	20	WR-CAT5E10P(1)	20.00 - 40.00	0.6000	0.6000
T8	21	860 10033(3/8)	20.00 - 40.00	0.6000	0.6000
T8	22	FB-L98B-002-100000(3/8)	20.00 - 40.00	0.6000	0.6000
T8	23	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	24	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	25	Step Pegs (5/8" SR) 7-in. w/30" step	20.00 - 40.00	0.6000	0.6000
T8	27	942-98888-1FXXX(1-5/8)	20.00 - 40.00	0.6000	0.6000
T8	28	HB078-1-08U3-M3J(7/8)	20.00 - 40.00	0.6000	0.6000
T8	29	CU12PSM9P6XXX(1-1/2)	20.00 - 40.00	0.6000	0.6000
T8	30	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	31	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	32	Step Pegs (5/8" SR) 7-in. w/30" step	20.00 - 40.00	0.6000	0.6000
T9	2	1/2" dia. coax	0.00 - 20.00	0.6000	0.6000
T9	4	1/2" dia. coax	0.00 - 20.00	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T9	5	LDF7-50A(1-5/8)	0.00 - 20.00	0.6000	0.6000
T9	6	SFX 500(1/2)	0.00 - 20.00	0.6000	0.6000
T9	7	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	8	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	9	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 20.00	0.6000	0.6000
T9	10	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T9	12	CAT5E(1/4)	0.00 - 20.00	0.6000	0.6000
T9	13	LDF7-50A(1-5/8)	0.00 - 20.00	0.6000	0.6000
T9	14	LDF7-50A(1-5/8)	0.00 - 20.00	0.6000	0.6000
T9	15	LDF7-50A(1-5/8)	0.00 - 20.00	0.6000	0.6000
T9	16	WR-VG86ST-BRDA(7/8)	0.00 - 20.00	0.6000	0.6000
T9	17	WR-VG86ST-BRDA(7/8)	0.00 - 20.00	0.6000	0.6000
T9	18	WR-VG86ST-BRDA(7/8)	0.00 - 20.00	0.6000	0.6000
T9	19	FB-L98B-002-100000(3/8)	0.00 - 20.00	0.6000	0.6000
T9	20	WR-CAT5E10P(1)	0.00 - 20.00	0.6000	0.6000
T9	21	860 10033(3/8)	0.00 - 20.00	0.6000	0.6000
T9	22	FB-L98B-002-100000(3/8)	0.00 - 20.00	0.6000	0.6000
T9	23	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	24	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	25	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 20.00	0.6000	0.6000
T9	27	942-98888-1FXXX(1-5/8)	0.00 - 20.00	0.6000	0.6000
T9	28	HB078-1-08U3-M3J(7/8)	0.00 - 20.00	0.6000	0.6000
T9	29	CU12PSM9P6XXX(1-1/2)	0.00 - 20.00	0.6000	0.6000
T9	30	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	31	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	32	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horiz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
5/8-in x 5-ft L-Rod	B	From Leg	0.00	0.0000	180'	No Ice	0.31	0.31	0.01
			0'			1/2" Ice	0.83	0.83	0.01
			2'6"			1" Ice	1.32	1.32	0.02
						2" Ice	1.96	1.96	0.04
2.4" Dia x 3-ft Mount Pipe	A	From Leg	0.00	0.0000	180'	No Ice	0.58	0.58	0.01
			0'			1/2" Ice	0.77	0.77	0.02
			1'6"			1" Ice	0.97	0.97	0.02
						2" Ice	1.39	1.39	0.05
*** 178' ***									
(3) APL868013-42T0 w/ Mount Pipe	A	From Leg	4.00	0.0000	178'	No Ice	2.63	4.13	0.03
			0'			1/2" Ice	3.07	4.60	0.06
			2'			1" Ice	3.53	5.09	0.11
						2" Ice	4.49	6.11	0.21
(3) APL868013-42T0 w/ Mount Pipe	B	From Leg	4.00	0.0000	178'	No Ice	2.63	4.13	0.03
			0'			1/2" Ice	3.07	4.60	0.06
			2'			1" Ice	3.53	5.09	0.11
						2" Ice	4.49	6.11	0.21

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral					
			Vert		°	ft	ft ²	ft ²	K
			ft	ft					
(3) APL868013-42T0 w/ Mount Pipe	C	From Leg	4.00	0.0000	178'	2" Ice	4.49	6.11	0.21
			0'			No Ice	2.63	4.13	0.03
			2'			1/2" Ice	3.07	4.60	0.06
						1" Ice	3.53	5.09	0.11
(3) 2.4" Dia x 6-ft Pipe	A	From Leg	4.00	0.0000	178'	2" Ice	4.49	6.11	0.21
			0'			No Ice	1.43	1.43	0.02
			0'			1/2" Ice	1.93	1.93	0.03
						1" Ice	2.30	2.30	0.05
(3) 2.4" Dia x 6-ft Pipe	B	From Leg	4.00	0.0000	178'	2" Ice	3.06	3.06	0.09
			0'			No Ice	1.43	1.43	0.02
			0'			1/2" Ice	1.93	1.93	0.03
						1" Ice	2.30	2.30	0.05
(3) 2.4" Dia x 6-ft Pipe	C	From Leg	4.00	0.0000	178'	2" Ice	3.06	3.06	0.09
			0'			No Ice	1.43	1.43	0.02
			0'			1/2" Ice	1.93	1.93	0.03
						1" Ice	2.30	2.30	0.05
Sector Mount [SM 509-3]	C	None		0.0000	178'	2" Ice	3.06	3.06	0.09
						No Ice	34.70	34.70	1.81
						1/2" Ice	48.68	48.68	2.50
						1" Ice	62.47	62.47	3.42
*** 168' ***						2" Ice	89.65	89.65	5.89
(2) SBJAH4-1D65C-DL w/ Mount Pipe	A	From Leg	4.00	0.0000	168'	No Ice	6.60	5.11	0.10
			0'			1/2" Ice	7.14	5.63	0.20
			2'			1" Ice	7.69	6.17	0.30
						2" Ice	8.83	7.27	0.56
(2) SBJAH4-1D65C-DL w/ Mount Pipe	B	From Leg	4.00	0.0000	168'	No Ice	6.60	5.11	0.10
			0'			1/2" Ice	7.14	5.63	0.20
			2'			1" Ice	7.69	6.17	0.30
						2" Ice	8.83	7.27	0.56
(2) SBJAH4-1D65C-DL w/ Mount Pipe	C	From Leg	4.00	0.0000	168'	No Ice	6.60	5.11	0.10
			0'			1/2" Ice	7.14	5.63	0.20
			2'			1" Ice	7.69	6.17	0.30
						2" Ice	8.83	7.27	0.56
AIR 6419 B77G	A	From Leg	4.00	0.0000	168'	No Ice	4.64	1.87	0.07
			0'			1/2" Ice	5.11	2.23	0.09
			4'			1" Ice	5.59	2.62	0.12
						2" Ice	6.62	3.45	0.19
AIR 6419 B77G	B	From Leg	4.00	0.0000	168'	No Ice	4.64	1.87	0.07
			0'			1/2" Ice	5.11	2.23	0.09
			4'			1" Ice	5.59	2.62	0.12
						2" Ice	6.62	3.45	0.19
AIR 6419 B77G	C	From Leg	4.00	0.0000	168'	No Ice	4.64	1.87	0.07
			0'			1/2" Ice	5.11	2.23	0.09
			4'			1" Ice	5.59	2.62	0.12
						2" Ice	6.62	3.45	0.19
AIR 6449 B77D	A	From Leg	4.00	0.0000	168'	No Ice	3.64	1.72	0.08
			0'			1/2" Ice	4.00	2.02	0.11
			0'			1" Ice	4.37	2.33	0.14
						2" Ice	5.16	2.99	0.22
AIR 6449 B77D	B	From Leg	4.00	0.0000	168'	No Ice	3.64	1.72	0.08
			0'			1/2" Ice	4.00	2.02	0.11
			0'			1" Ice	4.37	2.33	0.14
						2" Ice	5.16	2.99	0.22
AIR 6449 B77D	C	From Leg	4.00	0.0000	168'	No Ice	3.64	1.72	0.08
			0'			1/2" Ice	4.00	2.02	0.11
			0'			1" Ice	4.37	2.33	0.14
						2" Ice	5.16	2.99	0.22

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	Client Crown Castle	Designed by jfisher

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight
			Horz	Vert			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	K
NNH4-65B-R6H4 w/ Mount Pipe	A	From Leg	4.00	0.0000	168'	2" Ice	5.16	2.99	0.22
			0'			No Ice	7.55	4.23	0.12
			2'			1/2" Ice	8.04	4.67	0.20
						1" Ice	8.53	5.12	0.30
NNH4-65B-R6H4 w/ Mount Pipe	B	From Leg	4.00	0.0000	168'	2" Ice	9.56	6.05	0.53
			0'			No Ice	7.55	4.23	0.12
			2'			1/2" Ice	8.04	4.67	0.20
						1" Ice	8.53	5.12	0.30
NNH4-65B-R6H4 w/ Mount Pipe	C	From Leg	4.00	0.0000	168'	2" Ice	9.56	6.05	0.53
			0'			No Ice	7.55	4.23	0.12
			2'			1/2" Ice	8.04	4.67	0.20
						1" Ice	8.53	5.12	0.30
(4) DC2-48-60-0-9E	A	From Leg	4.00	0.0000	168'	2" Ice	9.56	6.05	0.53
			0'			No Ice	0.99	0.60	0.02
			2'			1/2" Ice	1.12	0.71	0.03
						1" Ice	1.25	0.82	0.04
(2) DC2-48-60-0-9E	B	From Leg	4.00	0.0000	168'	2" Ice	1.54	1.06	0.07
			0'			No Ice	0.99	0.60	0.02
			2'			1/2" Ice	1.12	0.71	0.03
						1" Ice	1.25	0.82	0.04
(2) DC2-48-60-0-9E	C	From Leg	4.00	0.0000	168'	2" Ice	1.54	1.06	0.07
			0'			No Ice	0.99	0.60	0.02
			2'			1/2" Ice	1.12	0.71	0.03
						1" Ice	1.25	0.82	0.04
RRUS 4449 B5/B12	A	From Leg	4.00	0.0000	168'	2" Ice	1.54	1.06	0.07
			0'			No Ice	1.97	1.41	0.07
			2'			1/2" Ice	2.14	1.56	0.09
						1" Ice	2.33	1.73	0.11
(2) RRUS 4449 B5/B12	B	From Leg	4.00	0.0000	168'	2" Ice	2.72	2.07	0.16
			0'			No Ice	1.97	1.41	0.07
			2'			1/2" Ice	2.14	1.56	0.09
						1" Ice	2.33	1.73	0.11
RRUS 4478 B14	A	From Leg	4.00	0.0000	168'	2" Ice	2.72	2.07	0.16
			0'			No Ice	1.84	1.06	0.06
			2'			1/2" Ice	2.01	1.20	0.08
						1" Ice	2.19	1.34	0.09
RRUS 4478 B14	B	From Leg	4.00	0.0000	168'	2" Ice	2.57	1.66	0.14
			0'			No Ice	1.84	1.06	0.06
			2'			1/2" Ice	2.01	1.20	0.08
						1" Ice	2.19	1.34	0.09
RRUS 4478 B14	C	From Leg	4.00	0.0000	168'	2" Ice	2.57	1.66	0.14
			0'			No Ice	1.84	1.06	0.06
			2'			1/2" Ice	2.01	1.20	0.08
						1" Ice	2.19	1.34	0.09
RRUS 32 B2	A	From Leg	4.00	0.0000	168'	2" Ice	2.57	1.66	0.14
			0'			No Ice	2.73	1.67	0.05
			2'			1/2" Ice	2.95	1.86	0.07
						1" Ice	3.18	2.05	0.10
RRUS 32 B2	B	From Leg	4.00	0.0000	168'	2" Ice	3.66	2.46	0.16
			0'			No Ice	2.73	1.67	0.05
			2'			1/2" Ice	2.95	1.86	0.07
						1" Ice	3.18	2.05	0.10
RRUS 32 B2	C	From Leg	4.00	0.0000	168'	2" Ice	3.66	2.46	0.16
			0'			No Ice	2.73	1.67	0.05
			2'			1/2" Ice	2.95	1.86	0.07
						1" Ice	3.18	2.05	0.10
					2" Ice	3.66	2.46	0.16	

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _A Front	C _{AA} _A Side	Weight
			Horz	Lateral					
DC9-48-60-24-8C-EV ENCLOSURE ONLY	A	From Leg	4.00	0.0000	168'	No Ice	2.69	2.11	0.03
			0'			1/2" Ice	2.91	2.30	0.05
			2'			1" Ice	3.13	2.50	0.08
						2" Ice	3.60	2.94	0.15
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	168'	No Ice	0.85	0.85	0.02
			0'			1/2" Ice	1.36	1.36	0.04
			2'			1" Ice	1.53	1.53	0.05
						2" Ice	1.91	1.91	0.10
DC6-48-60-18-8F	B	From Leg	4.00	0.0000	168'	No Ice	0.85	0.85	0.02
			0'			1/2" Ice	1.36	1.36	0.04
			2'			1" Ice	1.53	1.53	0.05
						2" Ice	1.91	1.91	0.10
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	168'	No Ice	0.85	0.85	0.02
			0'			1/2" Ice	1.36	1.36	0.04
			2'			1" Ice	1.53	1.53	0.05
						2" Ice	1.91	1.91	0.10
RRUS 32	A	From Leg	4.00	0.0000	168'	No Ice	2.86	1.78	0.06
			0'			1/2" Ice	3.08	1.97	0.08
			2'			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 32	B	From Leg	4.00	0.0000	168'	No Ice	2.86	1.78	0.06
			0'			1/2" Ice	3.08	1.97	0.08
			2'			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 32	C	From Leg	4.00	0.0000	168'	No Ice	2.86	1.78	0.06
			0'			1/2" Ice	3.08	1.97	0.08
			2'			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 4426 B66	A	From Leg	4.00	0.0000	168'	No Ice	1.64	0.73	0.05
			0'			1/2" Ice	1.80	0.84	0.06
			2'			1" Ice	1.97	0.97	0.08
						2" Ice	2.33	1.24	0.11
RRUS 4426 B66	B	From Leg	4.00	0.0000	168'	No Ice	1.64	0.73	0.05
			0'			1/2" Ice	1.80	0.84	0.06
			2'			1" Ice	1.97	0.97	0.08
						2" Ice	2.33	1.24	0.11
RRUS 4426 B66	C	From Leg	4.00	0.0000	168'	No Ice	1.64	0.73	0.05
			0'			1/2" Ice	1.80	0.84	0.06
			2'			1" Ice	1.97	0.97	0.08
						2" Ice	2.33	1.24	0.11
RRUS 4415 B25	A	From Leg	4.00	0.0000	168'	No Ice	1.64	0.68	0.04
			0'			1/2" Ice	1.80	0.79	0.06
			2'			1" Ice	1.97	0.91	0.07
						2" Ice	2.33	1.18	0.11
RRUS 4415 B25	B	From Leg	4.00	0.0000	168'	No Ice	1.64	0.68	0.04
			0'			1/2" Ice	1.80	0.79	0.06
			2'			1" Ice	1.97	0.91	0.07
						2" Ice	2.33	1.18	0.11
RRUS 4415 B25	C	From Leg	4.00	0.0000	168'	No Ice	1.64	0.68	0.04
			0'			1/2" Ice	1.80	0.79	0.06
			2'			1" Ice	1.97	0.91	0.07
						2" Ice	2.33	1.18	0.11
DC6-48-60-18-8C ENCLOSURE ONLY	B	From Leg	4.00	0.0000	168'	No Ice	1.06	0.96	0.02
			0'			1/2" Ice	1.22	1.10	0.04
			2'			1" Ice	1.37	1.25	0.06
						2" Ice	1.71	1.57	0.12
(2) 2.4" Dia. x 10.5' Mount	A	From Leg	4.00	0.0000	168'	No Ice	2.49	2.49	0.04

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _A Front	C _{AA} _A Side	Weight
			Horz	Lateral					
			Vert		°	ft	ft ²	ft ²	K
Pipe			0'			1/2" Ice	3.58	3.58	0.07
			0'			1" Ice	4.69	4.69	0.10
						2" Ice	6.39	6.39	0.17
(2) 2.4" Dia. x 10.5' Mount Pipe	B	From Leg	4.00		0.0000	168'	No Ice	2.49	0.04
			0'				1/2" Ice	3.58	0.07
			0'				1" Ice	4.69	0.10
							2" Ice	6.39	0.17
(2) 2.4" Dia. x 10.5' Mount Pipe	C	From Leg	4.00		0.0000	168'	No Ice	2.49	0.04
			0'				1/2" Ice	3.58	0.07
			0'				1" Ice	4.69	0.10
							2" Ice	6.39	0.17
Pipe Mount [PM 601-3]	C	None			0.0000	168'	No Ice	3.17	0.20
							1/2" Ice	3.79	0.23
							1" Ice	4.42	0.28
							2" Ice	5.76	0.40
Commscope SFG2C Sector Mount (3)	C	None			0.0000	168'	No Ice	30.43	1.69
							1/2" Ice	43.02	2.30
							1" Ice	55.43	3.10
							2" Ice	79.89	5.27
*** 162' ***									
840 10077 w/ Mount Pipe	A	From Leg	2.50		0.0000	162'	No Ice	2.09	0.03
			0'				1/2" Ice	2.45	0.05
			-1'				1" Ice	2.83	0.08
							2" Ice	3.63	0.16
840 10077 w/ Mount Pipe	B	From Leg	2.50		0.0000	162'	No Ice	2.09	0.03
			0'				1/2" Ice	2.45	0.05
			-1'				1" Ice	2.83	0.08
							2" Ice	3.63	0.16
840 10077 w/ Mount Pipe	C	From Leg	2.50		0.0000	162'	No Ice	2.09	0.03
			0'				1/2" Ice	2.45	0.05
			-1'				1" Ice	2.83	0.08
							2" Ice	3.63	0.16
DAP25003500	A	From Leg	2.50		0.0000	162'	No Ice	1.72	0.04
			0'				1/2" Ice	1.92	0.05
			-1'				1" Ice	2.11	0.07
							2" Ice	2.53	0.13
DAP25003500	B	From Leg	2.50		0.0000	162'	No Ice	1.72	0.04
			0'				1/2" Ice	1.92	0.05
			-1'				1" Ice	2.11	0.07
							2" Ice	2.53	0.13
DAP25003500	C	From Leg	2.50		0.0000	162'	No Ice	1.72	0.04
			0'				1/2" Ice	1.92	0.05
			-1'				1" Ice	2.11	0.07
							2" Ice	2.53	0.13
ODU300ep	A	From Leg	2.50		0.0000	162'	No Ice	1.06	0.02
			0'				1/2" Ice	1.19	0.03
			-1'				1" Ice	1.33	0.04
							2" Ice	1.63	0.07
ODU300ep	B	From Leg	2.50		0.0000	162'	No Ice	1.06	0.02
			0'				1/2" Ice	1.19	0.03
			-1'				1" Ice	1.33	0.04
							2" Ice	1.63	0.07
ODU300ep	C	From Leg	2.50		0.0000	162'	No Ice	1.06	0.02
			0'				1/2" Ice	1.19	0.03
			-1'				1" Ice	1.33	0.04
							2" Ice	1.63	0.07
2.4" Dia x 6-ft Pipe	A	From Leg	2.50		0.0000	162'	No Ice	1.43	0.02

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	Client	Crown Castle	Designed by	jfisher

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						Vert
			ft	ft	°	ft	ft ²	ft ²	K	
2.4" Dia x 6-ft Pipe	B	From Leg	2.50	0.0000	162'	1/2" Ice	1.93	1.93	0.03	
						1" Ice	2.30	2.30	0.05	
						2" Ice	3.06	3.06	0.09	
						No Ice	1.43	1.43	0.02	
						0'	1/2" Ice	1.93	1.93	0.03
2.4" Dia x 6-ft Pipe	C	From Leg	2.50	0.0000	162'	1" Ice	2.30	2.30	0.05	
						2" Ice	3.06	3.06	0.09	
						No Ice	1.43	1.43	0.02	
						0'	1/2" Ice	1.93	1.93	0.03
						0'	1" Ice	2.30	2.30	0.05
Side Arm Mount [SO 203-3]	C	None	0.0000	162'	2" Ice	3.06	3.06	0.09		
					No Ice	6.68	6.68	0.38		
					1/2" Ice	8.05	8.05	0.46		
					1" Ice	9.55	9.55	0.57		
					2" Ice	12.80	12.80	0.87		
*** 152' ***										
APXVERR18-C w/ Mount Pipe	A	From Leg	4.00	0.0000	152'	No Ice	4.60	4.01	0.08	
						0'	1/2" Ice	5.05	4.45	0.15
						2'	1" Ice	5.50	4.89	0.22
						2" Ice	6.44	5.82	0.40	
						0'	No Ice	4.60	4.01	0.08
APXVERR18-C w/ Mount Pipe	B	From Leg	4.00	0.0000	152'	1/2" Ice	5.05	4.45	0.15	
						1" Ice	5.50	4.89	0.22	
						2" Ice	6.44	5.82	0.40	
						0'	No Ice	4.60	4.01	0.08
						2'	1/2" Ice	5.05	4.45	0.15
APXVERR18-C w/ Mount Pipe	C	From Leg	4.00	0.0000	152'	1" Ice	5.50	4.89	0.22	
						2" Ice	6.44	5.82	0.40	
						0'	No Ice	4.60	4.01	0.08
						2'	1/2" Ice	5.05	4.45	0.15
						2"	1" Ice	5.50	4.89	0.22
AIR 6468 B41 w/ Mount Pipe	A	From Leg	4.00	0.0000	152'	2" Ice	6.44	5.82	0.40	
						No Ice	6.96	3.33	0.15	
						0'	1/2" Ice	7.48	3.75	0.20
						2'	1" Ice	8.02	4.19	0.25
						2"	2" Ice	9.14	5.12	0.39
AIR 6468 B41 w/ Mount Pipe	B	From Leg	4.00	0.0000	152'	No Ice	6.96	3.33	0.15	
						0'	1/2" Ice	7.48	3.75	0.20
						2'	1" Ice	8.02	4.19	0.25
						2"	2" Ice	9.14	5.12	0.39
						0'	No Ice	6.96	3.33	0.15
AIR 6468 B41 w/ Mount Pipe	C	From Leg	4.00	0.0000	152'	1/2" Ice	7.48	3.75	0.20	
						1" Ice	8.02	4.19	0.25	
						2" Ice	9.14	5.12	0.39	
						0'	No Ice	6.96	3.33	0.15
						2'	1/2" Ice	7.48	3.75	0.20
(2) 800MHZ SMR FILTER	A	From Leg	4.00	0.0000	152'	2" Ice	9.14	5.12	0.39	
						No Ice	0.65	0.22	0.01	
						0'	1/2" Ice	0.75	0.29	0.01
						2'	1" Ice	0.86	0.36	0.02
						2"	2" Ice	1.10	0.54	0.04
(2) 800MHZ SMR FILTER	B	From Leg	4.00	0.0000	152'	No Ice	0.65	0.22	0.01	
						0'	1/2" Ice	0.75	0.29	0.01
						2'	1" Ice	0.86	0.36	0.02
						2"	2" Ice	1.10	0.54	0.04
						0'	No Ice	0.65	0.22	0.01
(2) 800MHZ SMR FILTER	C	From Leg	4.00	0.0000	152'	1/2" Ice	0.75	0.29	0.01	
						1" Ice	0.86	0.36	0.02	
						2" Ice	1.10	0.54	0.04	
						0'	No Ice	0.65	0.22	0.01
						2'	1/2" Ice	0.75	0.29	0.01
RRUS 31 B25	A	From Leg	4.00	0.0000	152'	2" Ice	1.10	0.54	0.04	
						No Ice	1.62	1.28	0.06	
						0'	1/2" Ice	1.78	1.43	0.07
						2'	1" Ice	1.95	1.58	0.09
						2"	2" Ice	2.31	1.91	0.14
RRUS 31 B25	B	From Leg	4.00	0.0000	152'	No Ice	1.62	1.28	0.06	

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A		Weight
			Horz	Lateral			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	K
RRUS 31 B25	C	From Leg	0'			1/2" Ice	1.78	1.43	0.07
			2'			1" Ice	1.95	1.58	0.09
						2" Ice	2.31	1.91	0.14
			4.00	0.0000	152'	No Ice	1.62	1.28	0.06
			0'			1/2" Ice	1.78	1.43	0.07
RRUS-11 800MHZ	A	From Leg	2'			1" Ice	1.95	1.58	0.09
						2" Ice	2.31	1.91	0.14
			4.00	0.0000	152'	No Ice	2.52	1.30	0.05
			0'			1/2" Ice	2.72	1.45	0.08
			2'			1" Ice	2.92	1.61	0.10
RRUS-11 800MHZ	B	From Leg	2'			2" Ice	3.35	1.94	0.16
			4.00	0.0000	152'	No Ice	2.52	1.30	0.05
			0'			1/2" Ice	2.72	1.45	0.08
			2'			1" Ice	2.92	1.61	0.10
						2" Ice	3.35	1.94	0.16
RRUS-11 800MHZ	C	From Leg	4.00	0.0000	152'	No Ice	2.52	1.30	0.05
			0'			1/2" Ice	2.72	1.45	0.08
			2'			1" Ice	2.92	1.61	0.10
						2" Ice	3.35	1.94	0.16
			(3) ACU-A20-N	A	From Leg	4.00	0.0000	152'	No Ice
(3) ACU-A20-N	A	From Leg	0'			1/2" Ice	0.10	0.16	0.00
			2'			1" Ice	0.15	0.21	0.00
						2" Ice	0.26	0.34	0.01
(3) ACU-A20-N	B	From Leg	4.00	0.0000	152'	No Ice	0.07	0.12	0.00
			0'			1/2" Ice	0.10	0.16	0.00
			2'			1" Ice	0.15	0.21	0.00
(3) ACU-A20-N	C	From Leg	2'			2" Ice	0.26	0.34	0.01
			4.00	0.0000	152'	No Ice	0.07	0.12	0.00
			0'			1/2" Ice	0.10	0.16	0.00
2.4" Dia x 8-ft Mount Pipe	A	From Leg	2'			1" Ice	0.15	0.21	0.00
			0'			2" Ice	0.26	0.34	0.01
			4.00	0.0000	152'	No Ice	1.90	1.90	0.03
2.4" Dia x 8-ft Mount Pipe	B	From Leg	0'			1/2" Ice	2.73	2.73	0.04
			0'			1" Ice	3.40	3.40	0.06
			4.00	0.0000	152'	2" Ice	4.40	4.40	0.12
2.4" Dia x 8-ft Mount Pipe	C	From Leg	4.00	0.0000	152'	No Ice	1.90	1.90	0.03
			0'			1/2" Ice	2.73	2.73	0.04
			0'			1" Ice	3.40	3.40	0.06
Sector Mount [SM 1303-3]	C	None			0.0000	2" Ice	4.40	4.40	0.12
					152'	No Ice	38.78	38.78	1.10
						1/2" Ice	46.78	46.78	1.76
						1" Ice	54.73	54.73	2.57
*** 146' ***						2" Ice	70.62	70.62	4.60
M900S-AP w/ Mount Pipe	A	From Leg	1.00	0.0000	146'	No Ice	1.01	0.66	0.01
			0'			1/2" Ice	1.19	0.88	0.02
			1'			1" Ice	1.38	1.11	0.04
ATLAS5010-INT w/ Mount Pipe	A	From Leg				2" Ice	1.81	1.63	0.07
			1.00	0.0000	146'	No Ice	1.98	0.96	0.02
			0'			1/2" Ice	2.21	1.21	0.04
ATLAS5010-INT w/ Mount	C	From Leg	0'			1" Ice	2.45	1.47	0.06
			0'			2" Ice	2.97	2.05	0.11
			1.00	0.0000	146'	No Ice	1.98	0.96	0.02

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
Pipe				0'					0.04
				0'					0.06
Pipe Mount [PM 601-1]	A	From Leg	0.50		0.0000	146'	1/2" Ice	1.21	0.11
				0'			1" Ice	1.47	0.07
				0'			2" Ice	2.05	0.08
				0'			No Ice	1.32	0.09
				0'			1/2" Ice	1.58	0.13
				0'			1" Ice	1.84	0.07
				0'			2" Ice	2.40	0.08
Pipe Mount [PM 601-1]	C	From Leg	0.50		0.0000	146'	No Ice	1.32	0.09
				0'			1/2" Ice	1.58	0.13
				0'			1" Ice	1.84	0.07
				0'			2" Ice	2.40	0.08
*** 136' ***									
FFHH-65C-R3_T-MOBILE w/ Mount Pipe	A	From Leg	4.00		0.0000	136'	No Ice	12.97	0.16
				0'			1/2" Ice	13.62	0.30
				4'			1" Ice	14.27	0.45
				4'			2" Ice	15.62	0.79
FFHH-65C-R3_T-MOBILE w/ Mount Pipe	B	From Leg	4.00		0.0000	136'	No Ice	12.97	0.16
				0'			1/2" Ice	13.62	0.30
				4'			1" Ice	14.27	0.45
				4'			2" Ice	15.62	0.79
FFHH-65C-R3_T-MOBILE w/ Mount Pipe	C	From Leg	4.00		0.0000	136'	No Ice	12.97	0.16
				0'			1/2" Ice	13.62	0.30
				4'			1" Ice	14.27	0.45
				4'			2" Ice	15.62	0.79
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00		0.0000	136'	No Ice	5.19	0.13
				0'			1/2" Ice	5.59	0.17
				4'			1" Ice	6.02	0.23
				4'			2" Ice	6.90	0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00		0.0000	136'	No Ice	5.19	0.13
				0'			1/2" Ice	5.59	0.17
				4'			1" Ice	6.02	0.23
				4'			2" Ice	6.90	0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00		0.0000	136'	No Ice	5.19	0.13
				0'			1/2" Ice	5.59	0.17
				4'			1" Ice	6.02	0.23
				4'			2" Ice	6.90	0.35
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00		0.0000	136'	No Ice	2.14	0.11
				0'			1/2" Ice	2.32	0.13
				4'			1" Ice	2.51	0.16
				4'			2" Ice	2.91	0.22
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00		0.0000	136'	No Ice	2.14	0.11
				0'			1/2" Ice	2.32	0.13
				4'			1" Ice	2.51	0.16
				4'			2" Ice	2.91	0.22
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00		0.0000	136'	No Ice	2.14	0.11
				0'			1/2" Ice	2.32	0.13
				4'			1" Ice	2.51	0.16
				4'			2" Ice	2.91	0.22
Radio 4480_TMOV2	A	From Leg	4.00		0.0000	136'	No Ice	2.88	0.08
				0'			1/2" Ice	3.09	0.10
				4'			1" Ice	3.31	0.13
				4'			2" Ice	3.78	0.19
Radio 4480_TMOV2	B	From Leg	4.00		0.0000	136'	No Ice	2.88	0.08
				0'			1/2" Ice	3.09	0.10
				4'			1" Ice	3.31	0.13
				4'			2" Ice	3.78	0.19
Radio 4480_TMOV2	C	From Leg	4.00		0.0000	136'	No Ice	2.88	0.08

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			Vert	°	ft	ft ²	ft ²	K	
			ft						
			0'			1/2" Ice	3.09	1.56	0.10
			4'			1" Ice	3.31	1.73	0.13
						2" Ice	3.78	2.09	0.19
(2) 2.4" Dia. x 10-ft Mount Pipe	A	From Leg	4.00	0.0000	136'	No Ice	2.38	2.38	0.04
			0'			1/2" Ice	3.40	3.40	0.05
			0'			1" Ice	4.45	4.45	0.08
						2" Ice	5.91	5.91	0.15
(2) 2.4" Dia. x 10-ft Mount Pipe	B	From Leg	4.00	0.0000	136'	No Ice	2.38	2.38	0.04
			0'			1/2" Ice	3.40	3.40	0.05
			0'			1" Ice	4.45	4.45	0.08
						2" Ice	5.91	5.91	0.15
(2) 2.4" Dia. x 10-ft Mount Pipe	C	From Leg	4.00	0.0000	136'	No Ice	2.38	2.38	0.04
			0'			1/2" Ice	3.40	3.40	0.05
			0'			1" Ice	4.45	4.45	0.08
						2" Ice	5.91	5.91	0.15
Site Pro 1 VFA12-HD-S	A	From Leg	2.00	0.0000	136'	No Ice	12.50	7.00	0.58
			0'			1/2" Ice	18.50	11.30	0.69
			0'			1" Ice	24.60	15.30	0.85
						2" Ice	36.50	24.20	1.01
Site Pro 1 VFA12-HD-S	B	From Leg	2.00	0.0000	136'	No Ice	12.50	7.00	0.58
			0'			1/2" Ice	18.50	11.30	0.69
			0'			1" Ice	24.60	15.30	0.85
						2" Ice	36.50	24.20	1.01
Site Pro 1 VFA12-HD-S	C	From Leg	2.00	0.0000	136'	No Ice	12.50	7.00	0.58
			0'			1/2" Ice	18.50	11.30	0.69
			0'			1" Ice	24.60	15.30	0.85
						2" Ice	36.50	24.20	1.01

*** 126' ***									
CMA-UBTULBULBHH/651 6/16/21/21 w/ Mount Pipe	A	From Leg	4.00	0.0000	126'	No Ice	17.53	6.20	0.14
			0'			1/2" Ice	18.43	6.95	0.25
			0'			1" Ice	19.35	7.71	0.36
						2" Ice	21.25	9.30	0.63
CMA-UBTULBULBHH/651 6/16/21/21 w/ Mount Pipe	B	From Leg	4.00	0.0000	126'	No Ice	17.53	6.20	0.14
			0'			1/2" Ice	18.43	6.95	0.25
			0'			1" Ice	19.35	7.71	0.36
						2" Ice	21.25	9.30	0.63
CMA-UBTULBULBHH/651 6/16/21/21 w/ Mount Pipe	C	From Leg	4.00	0.0000	126'	No Ice	17.53	6.20	0.14
			0'			1/2" Ice	18.43	6.95	0.25
			0'			1" Ice	19.35	7.71	0.36
						2" Ice	21.25	9.30	0.63
TA08025-B604	A	From Leg	4.00	0.0000	126'	No Ice	1.96	0.98	0.06
			0'			1/2" Ice	2.14	1.11	0.08
			0'			1" Ice	2.32	1.25	0.10
						2" Ice	2.71	1.55	0.15
TA08025-B604	B	From Leg	4.00	0.0000	126'	No Ice	1.96	0.98	0.06
			0'			1/2" Ice	2.14	1.11	0.08
			0'			1" Ice	2.32	1.25	0.10
						2" Ice	2.71	1.55	0.15
TA08025-B604	C	From Leg	4.00	0.0000	126'	No Ice	1.96	0.98	0.06
			0'			1/2" Ice	2.14	1.11	0.08
			0'			1" Ice	2.32	1.25	0.10
						2" Ice	2.71	1.55	0.15
TA08025-B605	A	From Leg	4.00	0.0000	126'	No Ice	1.96	1.13	0.08
			0'			1/2" Ice	2.14	1.27	0.09
			0'			1" Ice	2.32	1.41	0.11
						2" Ice	2.71	1.72	0.16

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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
TA08025-B605	B	From Leg	4.00 0' 0'	0.0000	126'	No Ice 1.96 1/2" Ice 2.14 1" Ice 2.32 2" Ice 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0' 0'	0.0000	126'	No Ice 1.96 1/2" Ice 2.14 1" Ice 2.32 2" Ice 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
RDIDC-9181-PF-48	A	From Leg	4.00 0' 0'	0.0000	126'	No Ice 2.01 1/2" Ice 2.19 1" Ice 2.37 2" Ice 2.76	1.17 1.31 1.46 1.78	0.02 0.04 0.06 0.11
(2) 2.4" Dia x 8-ft Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	126'	No Ice 1.90 1/2" Ice 2.73 1" Ice 3.40 2" Ice 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 2.4" Dia x 8-ft Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	126'	No Ice 1.90 1/2" Ice 2.73 1" Ice 3.40 2" Ice 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 2.4" Dia x 8-ft Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	126'	No Ice 1.90 1/2" Ice 2.73 1" Ice 3.40 2" Ice 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Commscope MTC3975083 (3)	C	None		0.0000	126'	No Ice 23.85 1/2" Ice 34.12 1" Ice 44.39 2" Ice 64.93	23.85 34.12 44.39 64.93	1.26 1.80 2.35 3.43
*** 120' *** (3) 844G90VTA-SX	A	From Leg	3.00 0' 0'	0.0000	120'	No Ice 3.06 1/2" Ice 3.37 1" Ice 3.67 2" Ice 4.30	3.61 3.92 4.23 4.88	0.01 0.04 0.07 0.14
(3) 844G90VTA-SX	B	From Leg	3.00 0' 0'	0.0000	120'	No Ice 3.06 1/2" Ice 3.37 1" Ice 3.67 2" Ice 4.30	3.61 3.92 4.23 4.88	0.01 0.04 0.07 0.14
(3) 844G90VTA-SX	C	From Leg	3.00 0' 0'	0.0000	120'	No Ice 3.06 1/2" Ice 3.37 1" Ice 3.67 2" Ice 4.30	3.61 3.92 4.23 4.88	0.01 0.04 0.07 0.14
Sector Mount [SM 307-3]	C	None		0.0000	120'	No Ice 26.18 1/2" Ice 35.72 1" Ice 45.16 2" Ice 63.92	26.18 35.72 45.16 63.92	1.62 2.11 2.76 4.52
*** 110' *** ODU300ep	A	From Leg	1.00 0' 1'	0.0000	110'	No Ice 1.06 1/2" Ice 1.19 1" Ice 1.33 2" Ice 1.63	0.65 0.75 0.87 1.11	0.02 0.03 0.04 0.07
ODU300ep	A	From Leg	1.00 0' 0'	0.0000	110'	No Ice 1.06 1/2" Ice 1.19 1" Ice 1.33 2" Ice 1.63	0.65 0.75 0.87 1.11	0.02 0.03 0.04 0.07
HORIZON QUANTUM	A	From Leg	1.00 0' 0'	0.0000	110'	No Ice 0.51 1/2" Ice 0.60 1" Ice 0.70	0.23 0.30 0.38	0.01 0.01 0.02

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz	Lateral			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	K	
ODU300ep	C	From Leg	1.00		0.0000	110'	2" Ice	0.91	0.55	0.03
			0'				No Ice	1.06	0.65	0.02
			1'				1/2" Ice	1.19	0.75	0.03
							1" Ice	1.33	0.87	0.04
ODU300ep	C	From Leg	1.00		0.0000	110'	2" Ice	1.63	1.11	0.07
			0'				No Ice	1.06	0.65	0.02
			2'				1/2" Ice	1.19	0.75	0.03
							1" Ice	1.33	0.87	0.04
Side Arm Mount [SO 201-1]	A	From Leg	0.50		0.0000	110'	2" Ice	1.63	1.11	0.07
			0'				No Ice	1.78	2.61	0.10
			0'				1/2" Ice	2.24	3.15	0.12
							1" Ice	2.75	3.73	0.14
Side Arm Mount [SO 201-1]	C	From Leg	0.50		0.0000	110'	2" Ice	3.89	4.99	0.22
			0'				No Ice	1.78	2.61	0.10
			0'				1/2" Ice	2.24	3.15	0.12
							1" Ice	2.75	3.73	0.14
*** 95' ***						2" Ice	3.89	4.99	0.22	
FIBEAIR 1500P	B	From Leg	1.00		0.0000	95'	No Ice	0.83	0.75	0.02
			0'				1/2" Ice	0.95	0.86	0.03
			0'				1" Ice	1.07	0.98	0.04
							2" Ice	1.34	1.23	0.07
FIBEAIR 1500P	C	From Leg	1.00		0.0000	95'	No Ice	0.83	0.75	0.02
			0'				1/2" Ice	0.95	0.86	0.03
			0'				1" Ice	1.07	0.98	0.04
							2" Ice	1.34	1.23	0.07
1.9" x 6' Stabilizer	C	From Leg	0.50		0.0000	95'	No Ice	1.14	1.14	0.02
			0'				1/2" Ice	1.76	1.76	0.03
			0'				1" Ice	2.14	2.14	0.04
							2" Ice	2.90	2.90	0.08
Pipe Mount [PM 601-1]	B	From Leg	0.50		0.0000	95'	No Ice	1.32	1.32	0.07
			0'				1/2" Ice	1.58	1.58	0.08
			0'				1" Ice	1.84	1.84	0.09
							2" Ice	2.40	2.40	0.13
Pipe Mount [PM 601-1]	C	From Leg	0.50		0.0000	95'	No Ice	1.32	1.32	0.07
			0'				1/2" Ice	1.58	1.58	0.08
			0'				1" Ice	1.84	1.84	0.09
							2" Ice	2.40	2.40	0.13

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz	Lateral							
			ft	ft	°	°	ft	ft	ft ²	K		
*** 162' ***												
VHLP2-18	A	Paraboloid w/Shroud (HP)	From Leg	2.50		-75.0000		162'	2.17	No Ice	3.72	0.03
				0'						1/2" Ice	4.01	0.05
				-1'						1" Ice	4.30	0.07
										2" Ice	4.88	0.10

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				ft	°	°	ft	ft	ft ²	K	
VHLP2-18	B	Paraboloid w/Shroud (HP)	From Leg	2.50 0' -1'	-75.0000		162'	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.03 0.05 0.07 0.10
VHLP2-18	C	Paraboloid w/Shroud (HP)	From Leg	2.50 0' -1'	-75.0000		162'	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.03 0.05 0.07 0.10
*** 146' *** QFD2-52-N	C	Paraboloid w/o Radome	From Leg	1.00 0' -1'	81.0000		146'	2.42	No Ice 1/2" Ice 1" Ice 2" Ice	4.59 4.91 5.23 5.87	0.04 0.06 0.09 0.14
*** *** 110' *** VHLP2-11	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0' 1'	45.0000		110'	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.03 0.05 0.07 0.10
VHLP2-11	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0' 0'	69.0000		110'	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.03 0.05 0.07 0.10
VHLP2-11	C	Paraboloid w/Shroud (HP)	From Leg	1.00 0' 1'	45.0000		110'	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.03 0.05 0.07 0.10
HP3-11	C	Paraboloid w/Shroud (HP)	From Leg	1.00 0' 2'	45.0000		110'	3.17	No Ice 1/2" Ice 1" Ice 2" Ice	7.88 8.30 8.72 9.56	0.05 0.09 0.14 0.22
*** 95' *** HPLP1-23	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0' 0'	14.0000		95'	1.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.79 0.92 1.06 1.33	0.02 0.02 0.03 0.04
HE3-107	C	Paraboloid w/Shroud (HP)	From Leg	1.00 0' 0'	90.0000		95'	3.46	No Ice 1/2" Ice 1" Ice 2" Ice	9.39 9.85 10.31 11.23	0.07 0.13 0.19 0.25

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	180	Leg	A325X	0.7500	4	2.25	30.10	0.075	1.05	Bolt Tension
		Diagonal	A325X	0.6250	1	2.66	6.83	0.389	1.05	Member Block Shear
		Top Girt	A325X	0.6250	1	0.15	4.55	0.032	1.05	Member Block Shear
T2	160	Leg	A325X	0.8750	4	7.34	41.56	0.177	1.05	Bolt Tension
		Diagonal	A325X	0.6250	1	3.37	7.83	0.431	1.05	Member Bearing
		Top Girt	A325X	0.6250	1	0.69	4.55	0.151	1.05	Member Block Shear

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T3	140	Leg	A325X	0.8750	4	12.80	41.56	0.308	1.05	Bolt Tension
		Diagonal	A325X	0.6250	1	4.74	10.44	0.454	1.05	Member Bearing
T4	120	Leg	A325X	1.0000	4	19.12	54.52	0.351	1.05	Bolt Tension
		Diagonal	A325X	0.6250	1	5.55	10.44	0.532	1.05	Member Bearing
T5	100	Leg	A325X	1.0000	4	25.56	54.52	0.469	1.05	Bolt Tension
		Diagonal	A325X	0.6250	1	6.15	11.70	0.526	1.05	Member Bearing
T6	80	Leg	A325X	1.0000	6	20.67	54.52	0.379	1.05	Bolt Tension
		Diagonal	A325X	0.7500	1	6.70	14.14	0.474	1.05	Member Bearing
T7	60	Leg	A325X	1.0000	6	24.41	54.52	0.448	1.05	Bolt Tension
		Diagonal	A325X	0.7500	1	7.08	14.14	0.501	1.05	Member Bearing
T8	40	Leg	A325X	1.0000	6	27.93	54.52	0.512	1.05	Bolt Tension
		Diagonal	A325X	0.7500	1	7.29	14.14	0.516	1.05	Member Bearing
T9	20	Diagonal	A325X	0.7500	1	7.70	14.14	0.544	1.05	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	180 - 160	ROHN 2.5 STD	20'	4'	50.7	1.7040	-15.35	63.56	0.241 ¹
					K=1.00				
T2	160 - 140	ROHN 3 STD	20'3/8"	5'1/8"	51.7	2.2285	-39.65	82.51	0.481 ¹
					K=1.00				
T3	140 - 120	ROHN 3 EH	20'15/32"	6'8-5/32"	70.5	3.0159	-67.21	94.34	0.712 ¹
			"	"	K=1.00				
T4	120 - 100	ROHN 4 EH	20'15/32"	6'8-5/32"	54.3	4.4074	-97.71	159.91	0.611 ¹
			"	"	K=1.00				
T5	100 - 80	ROHN 5 STD	20'3/8"	6'8-5/32"	42.7	4.2999	-127.41	169.38	0.752 ¹
					K=1.00				
T6	80 - 60	ROHN 5 EH	20'15/32"	10'1/4"	65.4	6.1120	-152.91	201.23	0.760 ¹
			"	"	K=1.00				
T7	60 - 40	ROHN 6 EHS	20'3/8"	10'1/4"	54.0	6.7133	-179.54	244.06	0.736 ¹
					K=1.00				
T8	40 - 20	ROHN 6 X-STR	20'3/8"	10'1/4"	54.8	8.4049	-205.41	303.75	0.676 ¹
					K=1.00				
T9	20 - 0	ROHN 6 EH	20'3/8"	10'1/4"	54.8	8.4049	-230.19	303.75	0.758 ¹
					K=1.00				

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 160	L1 3/4x1 3/4x3/16	7'9-15/3 2"	3'7-11/1 6"	127.1 K=1.00	0.6211	-2.73	11.01	0.248 ¹
T2	160 - 140	L2x2x3/16	9'9-23/3 2"	4'9-1/8"	145.0 K=1.00	0.7150	-3.24	9.74	0.332 ¹
T3	140 - 120	L2 1/2x2 1/2x1/4	12'4-7/1 6"	6'1-3/16'	149.0 K=1.00	1.1900	-4.89	15.34	0.318 ¹
T4	120 - 100	L2 1/2x2 1/2x1/4	14'1-29/ 32"	6'11-9/3 2"	169.7 K=1.00	1.1900	-5.54	11.83	0.469 ¹
T5	100 - 80	L3x3x1/4	15'10-29/ 32"	7'9-1/8"	159.2 K=1.00	1.4400	-6.18	16.27	0.380 ¹
T6	80 - 60	L3 1/2x3 1/2x1/4	19'1-13/ 16"	9'5-3/4"	163.8 K=1.00	1.6900	-6.74	18.02	0.374 ¹
T7	60 - 40	L3 1/2x3 1/2x1/4	20'10-13/ 16"	10'3-15/ 32"	177.9 K=1.00	1.6900	-7.30	15.29	0.477 ¹
T8	40 - 20	L4x4x1/4	22'8-9/3 2"	11'2-5/3 2"	168.8 K=1.00	1.9400	-7.68	19.50	0.394 ¹
T9	20 - 0	L4x4x1/4	24'6" 2"	12'1-3/3 2"	182.4 K=1.00	1.9400	-8.36	16.68	0.501 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 160	L2x2x1/8	6'7-13/1 6"	6'2-1/32'	186.1 K=1.00	0.4844	-0.15	4.00	0.038 ¹
T2	160 - 140	L2x2x1/8	6'8-9/32' '	6'1-29/3 2"	185.8 K=1.00	0.4844	-0.69	4.01	0.171 ¹

¹ P_u / φP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 160	ROHN 2.5 STD	20'	4'	50.7	1.7040	9.00	76.68	0.117 ¹
T2	160 - 140	ROHN 3 STD	20'3/8"	5'1/8"	51.7	2.2285	29.36	100.28	0.293 ¹
T3	140 - 120	ROHN 3 EH	20'15/32"	6'8-5/32'	70.5	3.0159	51.19	135.72	0.377 ¹
T4	120 - 100	ROHN 4 EH	20'15/32"	6'8-5/32'	54.3	4.4074	76.47	198.34	0.386 ¹
T5	100 - 80	ROHN 5 STD	20'3/8"	6'8-5/32'	42.7	4.2999	102.24	193.49	0.528 ¹
T6	80 - 60	ROHN 5 EH	20'15/32"	10'1/4"	65.4	6.1120	124.00	275.04	0.451 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T7	60 - 40	ROHN 6 EHS	20'3/8"	10'1/4"	54.0	6.7133	146.44	302.10	0.485 ¹
T8	40 - 20	ROHN 6 X-STR	20'3/8"	10'1/4"	54.8	8.4049	167.59	378.22	0.443 ¹
T9	20 - 0	ROHN 6 EH	20'3/8"	10'1/4"	54.8	8.4049	187.45	378.22	0.496 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	180 - 160	L1 3/4x1 3/4x3/16	7'9-15/32"	3'7-11/16"	84.0	0.3604	2.66	15.68	0.170 ¹
T2	160 - 140	L2x2x3/16	9'4-9/16"	4'6-19/32"	90.8	0.4308	3.37	18.74	0.180 ¹
T3	140 - 120	L2 1/2x2 1/2x1/4	12'4-7/16"	6'1-3/16"	97.0	0.7519	4.74	32.71	0.145 ¹
T4	120 - 100	L2 1/2x2 1/2x1/4	14'1-29/32"	6'11-9/32"	110.2	0.7519	5.55	32.71	0.170 ¹
T5	100 - 80	L3x3x1/4	15'10-29/32"	7'9-1/8"	102.1	0.9394	6.15	45.79	0.134 ¹
T6	80 - 60	L3 1/2x3 1/2x1/4	19'1-13/16"	9'5-3/4"	105.8	1.1034	6.70	53.79	0.125 ¹
T7	60 - 40	L3 1/2x3 1/2x1/4	20'10-13/16"	10'3-15/32"	114.7	1.1034	7.08	53.79	0.132 ¹
T8	40 - 20	L4x4x1/4	22'8-9/32"	11'2-5/32"	108.6	1.2909	7.29	62.93	0.116 ¹
T9	20 - 0	L4x4x1/4	24'6"	12'1-3/32"	117.3	1.2909	7.70	62.93	0.122 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	180 - 160	L2x2x1/8	6'7-13/16"	6'2-1/32"	122.8	0.2930	0.15	12.74	0.011 ¹
T2	160 - 140	L2x2x1/8	6'8-9/32"	6'1-29/32"	122.6	0.2930	0.69	12.74	0.054 ¹

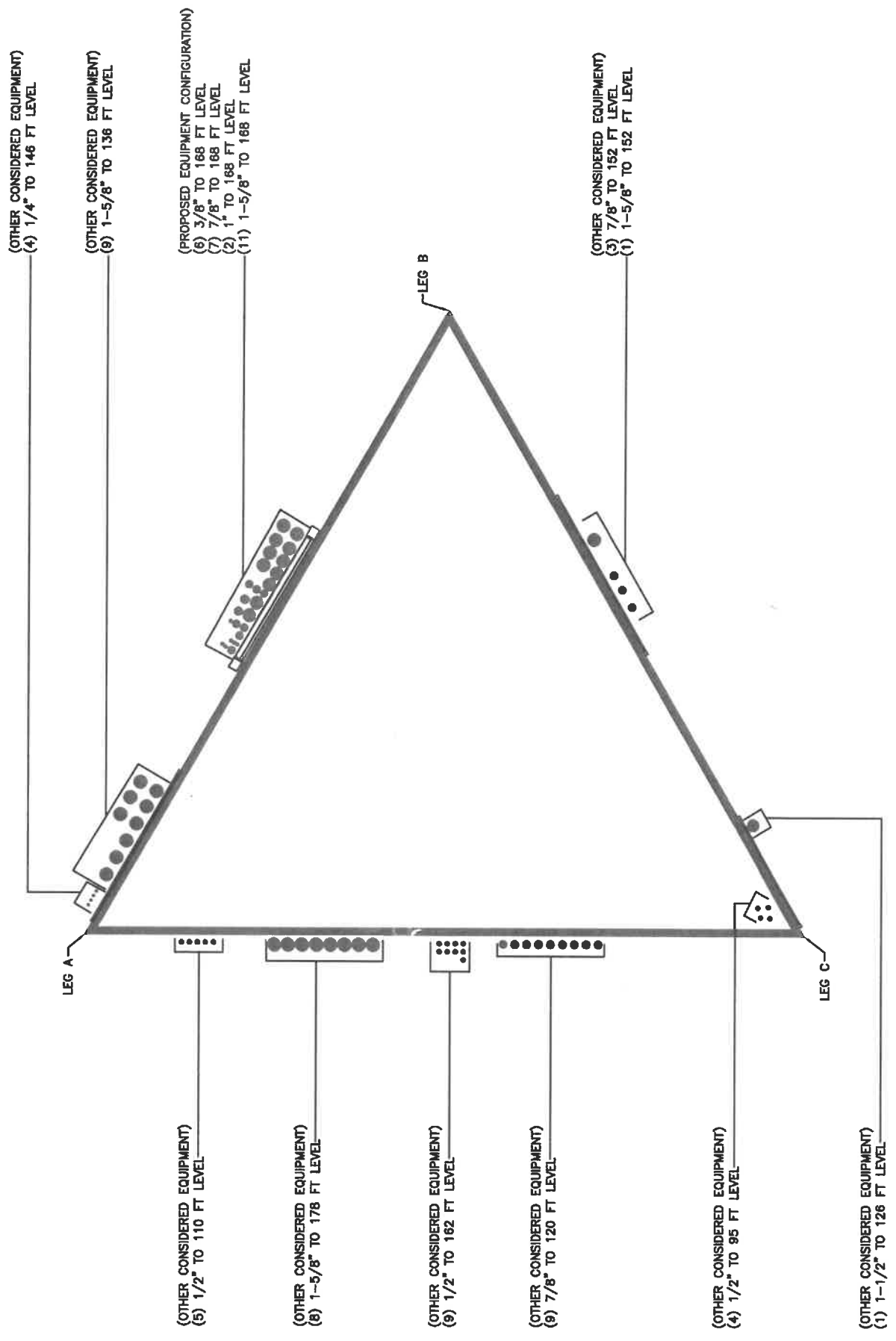
¹ P_u / φP_n controls

Section Capacity Table

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\frac{P}{allow}$ K	% Capacity	Pass Fail	
T1	180 - 160	Leg	ROHN 2.5 STD	2	-15.35	66.74	23.0	Pass	
T2	160 - 140	Leg	ROHN 3 STD	38	-39.65	86.63	45.8	Pass	
T3	140 - 120	Leg	ROHN 3 EH	68	-67.21	99.05	67.9	Pass	
T4	120 - 100	Leg	ROHN 4 EH	89	-97.71	167.90	58.2	Pass	
T5	100 - 80	Leg	ROHN 5 STD	110	-127.41	177.85	71.6	Pass	
T6	80 - 60	Leg	ROHN 5 EH	131	-152.91	211.29	72.4	Pass	
T7	60 - 40	Leg	ROHN 6 EHS	146	-179.54	256.27	70.1	Pass	
T8	40 - 20	Leg	ROHN 6 X-STR	161	-205.41	318.93	64.4	Pass	
T9	20 - 0	Leg	ROHN 6 EH	176	-230.19	318.94	72.2	Pass	
T1	180 - 160	Diagonal	L1 3/4x1 3/4x3/16	9	-2.73	11.56	23.6	Pass	
T2	160 - 140	Diagonal	L2x2x3/16	45	-3.24	10.22	31.7	Pass	
T3	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	72	-4.89	15.11	30.3	Pass	
T4	120 - 100	Diagonal	L2 1/2x2 1/2x1/4	96	-5.54	12.42	44.6	Pass	
T5	100 - 80	Diagonal	L3x3x1/4	117	-6.18	17.08	36.2	Pass	
T6	80 - 60	Diagonal	L3 1/2x3 1/2x1/4	138	-6.74	18.92	35.6	Pass	
T7	60 - 40	Diagonal	L3 1/2x3 1/2x1/4	153	-7.30	16.05	45.5	Pass	
T8	40 - 20	Diagonal	L4x4x1/4	168	-7.68	20.47	37.5	Pass	
T9	20 - 0	Diagonal	L4x4x1/4	183	-8.36	17.52	47.7	Pass	
T1	180 - 160	Top Girt	L2x2x1/8	4	-0.15	4.20	3.6	Pass	
T2	160 - 140	Top Girt	L2x2x1/8	40	-0.69	4.22	16.3	Pass	
							Summary		
							Leg (T6)	72.4	Pass
							Diagonal (T9)	47.7	Pass
							Top Girt (T2)	16.3	Pass
							Bolt Checks	51.8	Pass
							RATING =	72.4	Pass

APPENDIX B
BASE LEVEL DRAWING



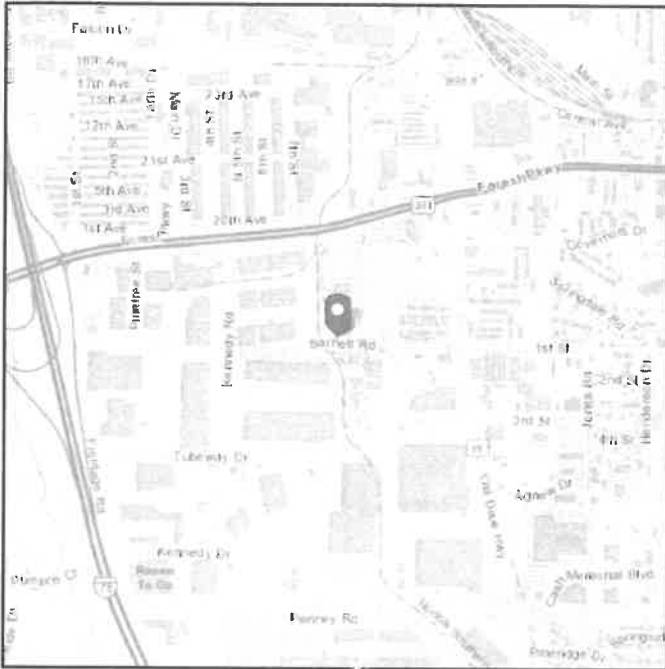
APPENDIX C
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Latitude: 33.615578
Longitude: -84.387542
Elevation: 979.42 ft (NAVD 88)



Wind

Results:

Wind Speed	108 Vmph
10-year MRI	73 Vmph
25-year MRI	79 Vmph
50-year MRI	85 Vmph
100-year MRI	91 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1-CC.2-4, and Section 26.5.2

Date Accessed: Thu Dec 15 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

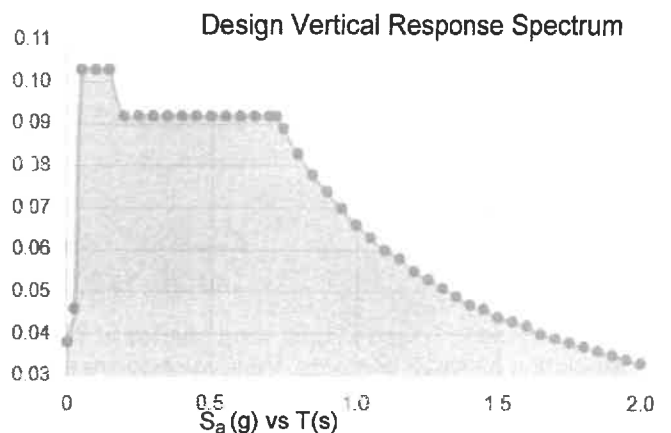
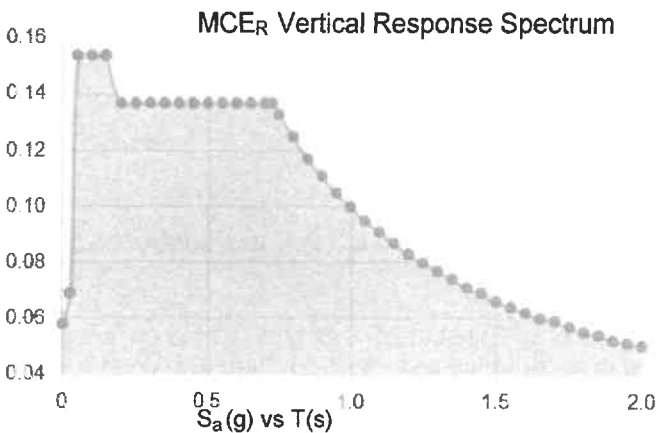
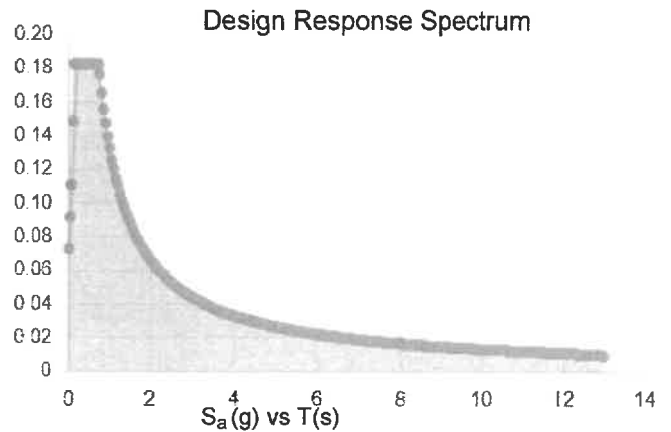
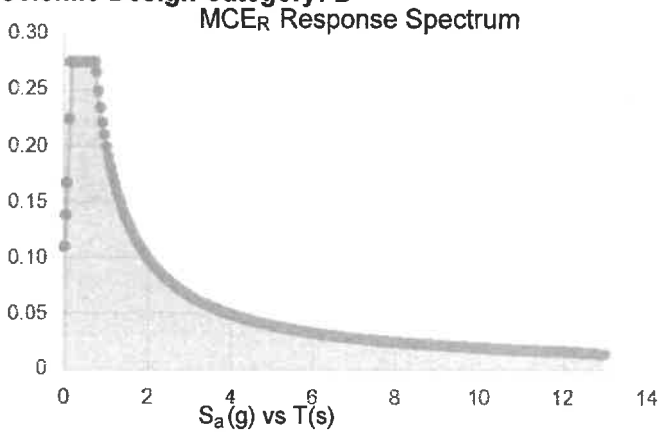
Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class:

Results:

S_s :	0.172	S_{D1} :	0.133
S_1 :	0.083	T_L :	12
F_a :	1.6	PGA :	0.085
F_v :	2.4	PGA _M :	0.136
S_{MS} :	0.275	F_{PGA} :	1.6
S_{M1} :	0.199	I_e :	1
S_{DS} :	0.183	C_v :	0.7

Seismic Design Category: B



Data Accessed: Thu Dec 15 2022

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.50 in.
Concurrent Temperature: 15 F
Gust Speed 30 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Thu Dec 15 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

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Self Support Anchor Rod Capacity



Site Info	
BU #	870443
Site Name	Forest Park (Barnett F
Order #	632284 Rev. 0

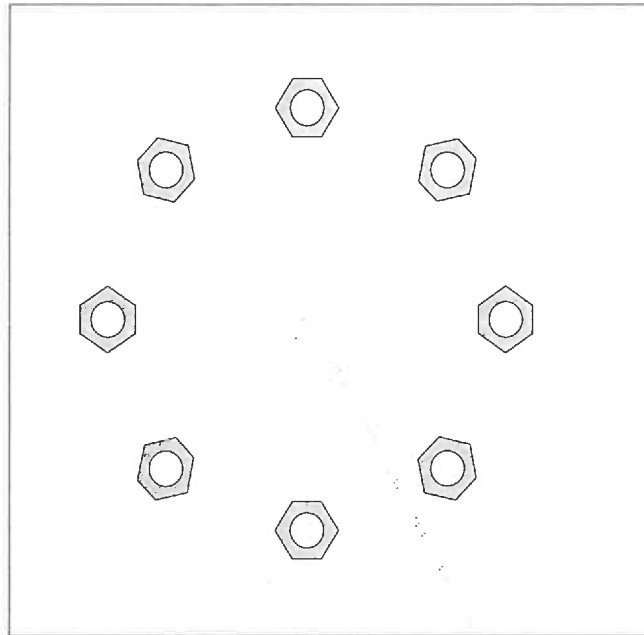
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	2

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	236.00	192.00
Shear Force (kips)	26.00	22.00

*TIA-222-H Section 15.5 Applied

Considered Eccentricity	
	r
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

*Anchor Rod Eccentricity Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data	
(8) 1" ϕ bolts (A354-BC N; $F_y=109$ ksi, $F_u=125$ ksi)	
l_{ar} (in):	2

Anchor Rod Summary		(units of kips, kip-in)		
P_u	= 24	ϕP_n	= 56.81	Stress Rating
V_u	= 2.75	ϕV_n	= 36.82	40.2%
M_u	= n/a	ϕM_n	= n/a	Pass

Drilled Pier Foundation

BU #: 870443
 Site Name: Forest Park (Barnett Rd.)
 Order Number: 632284 Rev. 0
 TIA-222 Revision: H
 Tower Type: Self Support

Report File:



Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" type="checkbox"/> <input type="checkbox"/>
	N/A <input type="checkbox"/>
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	<input type="checkbox"/>
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

Go to Soil Calculations

Applied Loads		Uplift
Moment (kip-ft)	Comp.	19.40
Axial Force (kips)	236	46.72
Shear Force (kips)	26	292.81
	22	2.7%

Material Properties		REINFORCING OVERLAP Override (ksf)
Concrete Strength, Fc:	3 ksi	
Rebar Strength, Fy:	60 ksi	
Tie Yield Strength, Fyt:	60 ksi	

Pier Design Data		Uplift
Depth	38 ft	239.60
Ext. Above Grade	0.5 ft	-
Pier Section 1		
From 0.5' above grade to 38' below grade		
Pier Diameter	6 ft	127.88
Rebar Quantity	24	367.48
Rebar Size	9	192.00
Rebar Cage Diameter	63 in	49.8%
Tie Size	4	
Tie Spacing	12 in	

Rebar & Pier Options		Uplift
Embedded Pole Inputs		
Belled Pier Inputs		
Reinforced Concrete Flexure		
Critical Depth (ft from TOC)	19.19	18.83
Critical Moment (kip-ft)	345.99	292.41
Critical Moment Capacity	3739.93	3044.73
Rating*	8.8%	9.1%
Reinforced Concrete Shear		
Critical Depth (ft from TOC)	29.95	27.97
Critical Shear (kip)	37.22	24.76
Critical Shear Capacity	629.30	373.27
Rating*	5.6%	6.3%

Structural Foundation Rating*	9.1%
Soil Interaction Rating*	49.8%

*Rating per TIA-222-H Section 15.5

Groundwater Depth	26	Soil Profile	
		# of Layers	4

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	Y _{soil} (pcf)	Y _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3	3	105	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3	8	5	105	150	0.3	20	0.324	0.324	0.00	0.48			Silty
3	8	26	18	110	150	0	30	0.000	0.000	0.00	0.48			Cohesionless
4	26	38	12	47.6	87.6	0	30	0.000	0.000	0.00	0.48	335.9938		Cohesionless



STATE OF GEORGIA
BRAD RAFFENSPERGER, Secretary of State
Georgia Construction Industry Licensing Board
LICENSE NO. UC301242
Anso & Associates,L.L.C

George S Summers
5250 Triangle Parkway
Norcross GA 30092

Utility Contractor

EXP DATE - 04/30/2023 Status: Active
Issue Date: 02/14/2003

A pocket-sized license card is below. Above is an enlarged copy of your pocket card.

Please make note of the expiration date on your license. It is your responsibility to renew your license before it expires. Please notify the Board if you have a change of address.

Wall certificates suitable for framing are available at cost, see board fee schedule. To order a wall certificate, please order from the web site – www.sos.ga.gov/plb.

Please refer to Board Rules for any continuing education requirements your profession may require.

Georgia State Board of Professional Licensing
237 Coliseum Drive
Macon GA 31217
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2022 BUSINESS OCCUPATIONAL TAX CERTIFICATE

Power and Communication Line and Related Structures Cons
(NOT TRANSFERABLE)

Business ID
14712
License Number
2022-6971
Date Issued
03/29/2022
Date Expires
03/31/2023

CITY OF PEACHTREE CORNERS
310 TECHNOLOGY PKWY
PEACHTREE CORNERS, GA 30092

FOR OPERATION IN THE CITY OF PEACHTREE CORNERS, GEORGIA SUBJECT TO ZONING RESTRICTIONS AND ALL OTHER CODES AND RESOLUTIONS OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PEACHTREE CORNERS, GEORGIA. THIS LICENSE IS A MERE PRIVILEGE SUBJECT TO BE SUSPENDED OR REVOKED, AND IS SUBJECT TO ANY FURTHER ORDINANCES WHICH MAY BE ENACTED

Valid for Business Shown Below Only:

BUSINESS NAME / ADDRESS:

ANSCO & ASSOCIATES, LLC
5250 TRIANGLE PKWY STE 175
PEACHTREE CORNERS GA 30092

CORPORATE / MAILING ADDRESS:

ANSCO & ASSOCIATES, LLC
5250 TRIANGLE PKWY, STE 175
PEACHTREE CORNERS, GA 30092

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