Cherundolo Consulting

1280 Route 46 West, Suite 9, Parsippany NJ, 07054

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

Re: Notice of Exempt Modification Application
751 Higgins Rd, Cheshire CT

Latitude: N41.48744
Longitude: W72.9293

Dear Ms. Bachman:

Sprint currently maintains 6 existing panel antennas at the 225' centerline level of the existing 250 ft Self Support Tower. Sprint proposes to remove all 6 existing panel antennas and replace them with 6 new panel antennas and add 9 remote radio unit at the 225' centerline on the tower as well add 4 hybrid cable. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to Rob Oris, Jr., Town of Cheshire Council Chairman, William S. Voelker, AICP, Town Planner, and AT&T, the tower and property owner.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration as well as the latest CSC decision.

Existing Facility

CSC Summary Statement – CT03XC044 – 751 Higgins Rd, Cheshire CT 06410

The Communications Tower facility is located at 751 Higgins Rd, Cheshire, Ct and is owned by AT&T, the Site coordinates are: N41.4874 W72.9293.

The existing facility consists of a 250' Self Support Tower. Sprint currently operates wireless communications equipment inside the building at the facility and has 6 antenna mounted on at centerline of 225 feet.

Statutory Considerations

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

1. The height of the overall structure will be unaffected.

2. The proposed changes will not require an extension of the property boundaries.

3. The proposed additions will not increase the noise level at the existing facility by

six decibels or more, or to levels that exceed state and/or local criteria

4. The changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.

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

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

For the foregoing reasons, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully submitted,

Ryan G Bailey
Charles Cherundolo Consulting
856-625-1596
ryan@mackenzierealtyconsulting.com

Additional Recipients:
Rob Oris, Jr., Town Council Chairman, Town of Cheshire
William S. Voelker, AICP, Town Planner, Town of Cheshire
AT&T Corporation, Tower & Property Owner

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	CHESHIRE
SITE CASCADE:	CT03XC044
SITE ADDRESS:	751 HIGGINS ROAD CHESHIRE, CT 06410
SITE TYPE:	SELF SUPPORT TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

PROPERTY OWNER:
AT&T
1950 CENTURY BLVD.
ATLANTA, GA 30312

LATITUDE (NAD83):
41° 29' 14.89" N
41.48746944° N

LONGITUDE (NAD83):
72° 55' 45.62" W
-72.92933888° W

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

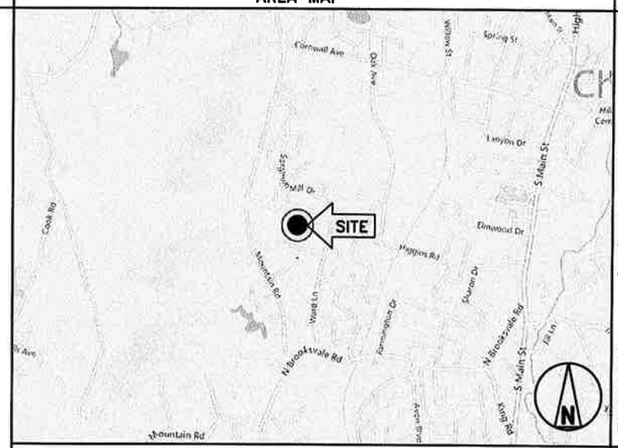
ZONING DISTRICT:
TBD

POWER COMPANY:
CONNECTICUT LIGHT & POWER COMPANY
(860) 947-2000

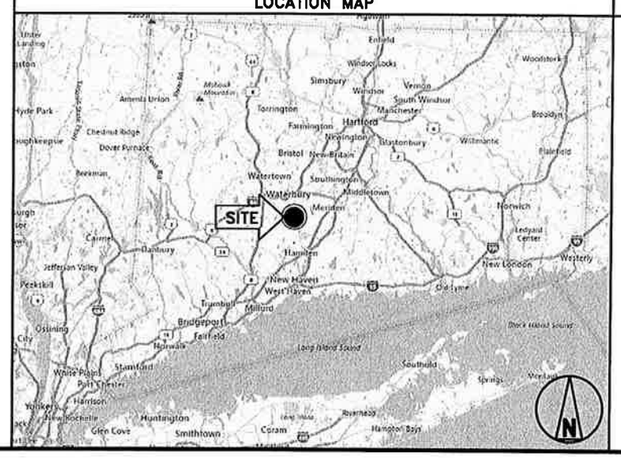
AAV PROVIDER:
SOUTHER NEW ENGLAND TELEPHONE COMPANY
(203) 771-5200

SPRINT CM:
TBD

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT IN EXISTING N.V. MMBS CABINET
- INSTALL (3) 2.5 PANEL ANTENNAS
- INSTALL (3) DUALBAND (800/1900) PANEL ANTENNAS
- INSTALL (6) RRU'S TO TOWER,RRU-800
- INSTALL (3) RRU'S TO TOWER,RRU-2.5
- INSTALL (30) JUMPER CABLES
- INSTALL (4) HYBRID CABLES
- RELOCATE (3) EXISTING RRU-1900 ON GROUND TO TOWER

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (2012 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

811 Know what's below. Call before you dig. www.call811.com

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION & CABLE PLAN	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	COLOR CODING & NOTES	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	CIVIL DETAILS	0
A-7	PLUMBING DIAGRAM	0
E-1	ELECTRICAL & GROUNDING PLAN	0
E-2	ELECTRICAL & GROUNDING DETAILS	0

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24708
LICENSED PROFESSIONAL ENGINEER
JUN 13 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME: CHESHIRE

SITE CASCADE: CT03XC044

SITE ADDRESS: 751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION: TITLE SHEET & PROJECT DATA

SHEET NUMBER: T-1

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
7. AMERICAN CONCRETE INSTITUTE (ACI)
8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.

B. COMPANY: SPRINT CORPORATION

C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.

D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.

E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.

C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.

4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
CON. 13 2018
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME:

CHESHIRE

SITE CASCADE:

CT03XC044

SITE ADDRESS:

751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY, IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN

D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

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the solutions are endless

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790

JOB NUMBER 525-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
JUN 13 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME:

CHESHIRE

SITE CASCADE:

CT03XC044

SITE ADDRESS:

751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. 1SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING –TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

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Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
JUN 13 2018
No. 24405
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME:

CHESHIRE

SITE CASCADE:

CT03XC044

SITE ADDRESS:

751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

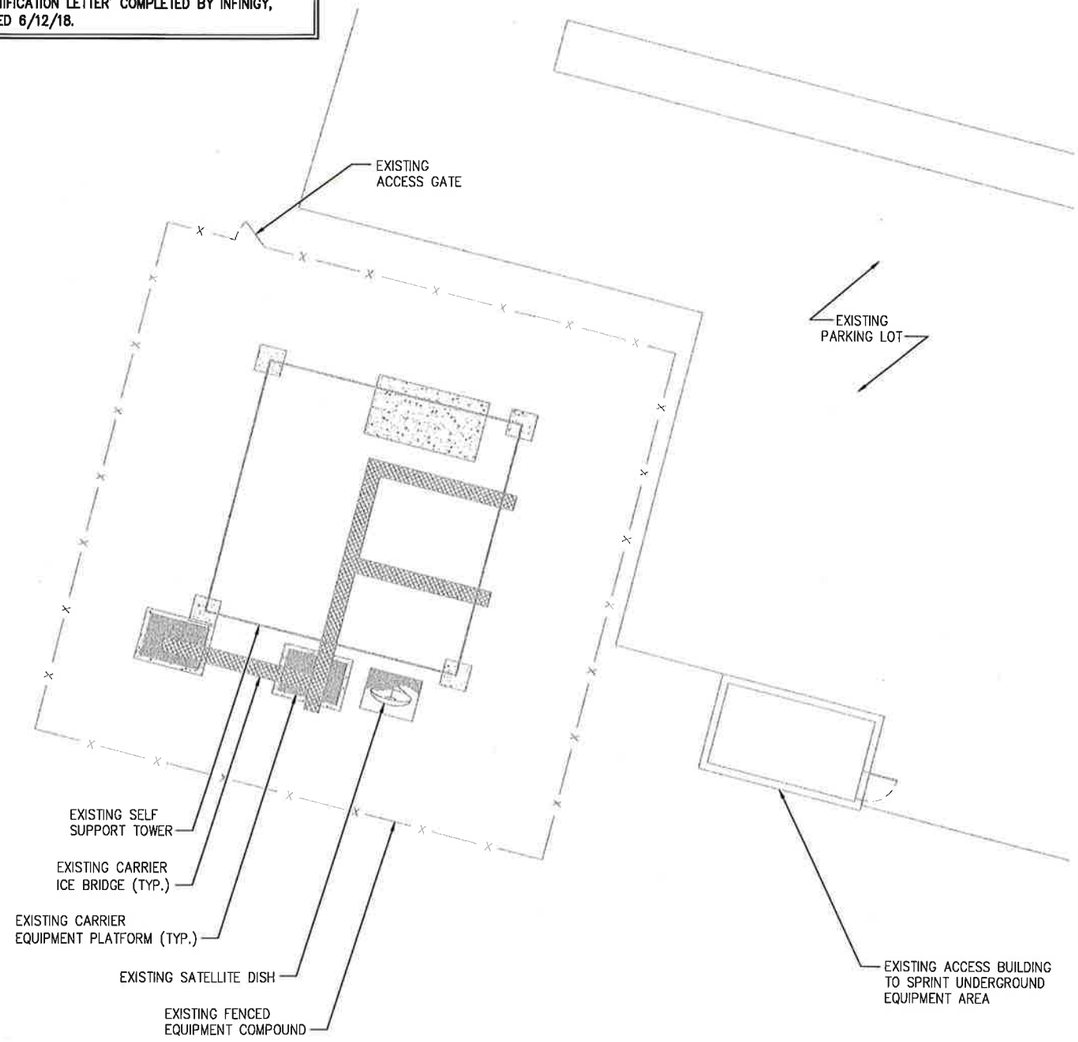
SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3

NOTE:
- INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING STRUCTURE MOUNT FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.
- FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE 'MOUNT CERTIFICATION LETTER' COMPLETED BY INFINIGY, DATED 6/12/18.

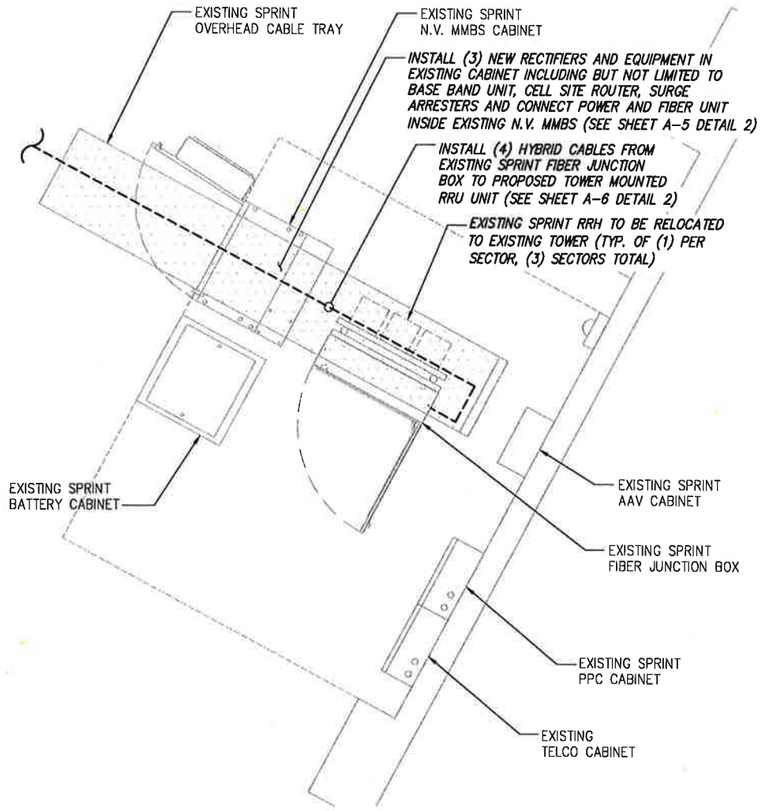
INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.



N

GRAPHIC SCALE:
1' 6" 0 6" 1'
SCALE (11x17): 1" = 1'-0"
SCALE (22x34): 1" = 0'-6"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



N

GRAPHIC SCALE:
1' 6" 0 6" 1'
SCALE (11x17): 1" = 1'-0"
SCALE (22x34): 1" = 0'-6"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:
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Cherundolo Consulting

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
JUN 13 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	05/13/18	BMM	0

SITE NAME:
CHESHIRE

SITE CASCADE:
CT03XC044

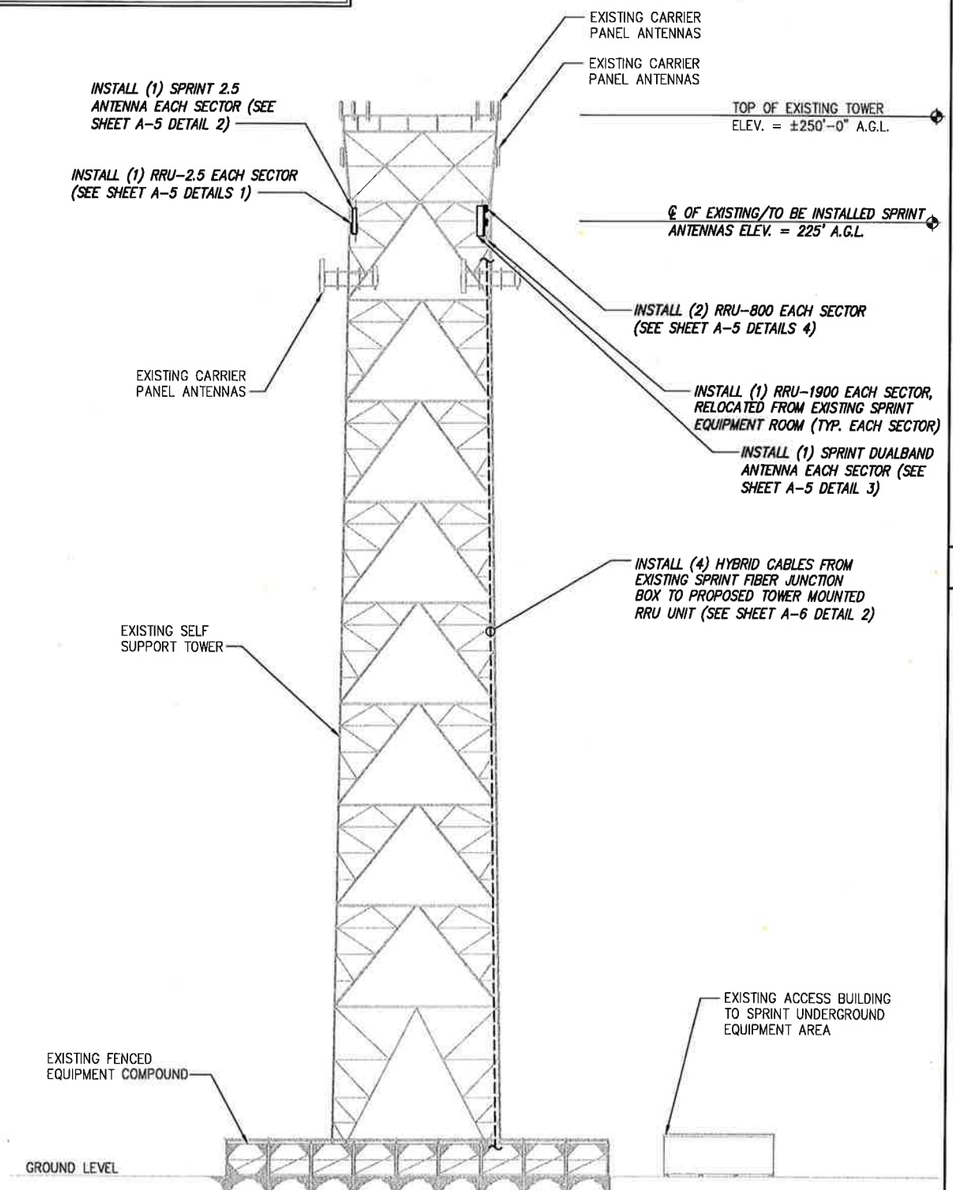
SITE ADDRESS:
751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

NOTE:
- INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING STRUCTURE MOUNT FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.
- FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE 'MOUNT CERTIFICATION LETTER' COMPLETED BY INFINIGY, DATED 6/12/18.

NOTE:
SEE DETAIL 2 ON A-3 FOR ANTENNA LAYOUT



TOWER ELEVATION | NO SCALE | 1

DETAIL NOT USED | NO SCALE | 2

SITE LOADING CHART

SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	APXVTM14-ALU-I20	RFS	30°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1	VERIFY IN FIELD	±225' AGL
	PROPOSED	NNVV-65B-R4	ANDREW	30°	1	–	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	---	---	---	---	–	---	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
BETA	PROPOSED	APXVTM14-ALU-I20	RFS	110°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1		±225' AGL
	PROPOSED	NNVV-65B-R4	RFS	110°	1	–	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
		---	---	---	–		(1) 1900 MHz 4X45 RRH	EXISTING COAX		
GAMMA	PROPOSED	APXVTM14-ALU-I20	RFS	210°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1		±225' AGL
	PROPOSED	NNVV-65B-R4	RFS	210°	1	–	(1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
		---	---	---	–		(1) 1900 MHz 4X45 RRH	EXISTING COAX		

PROJECT SCOPE:

REMOVE: (6) PANEL ANTENNAS INSTALL: (6) PANEL ANTENNAS AND (9) RRH'S RELOCATE: (3) EXISTING RRH'S

ANTENNA SCHEDULE | NO SCALE | 3

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DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

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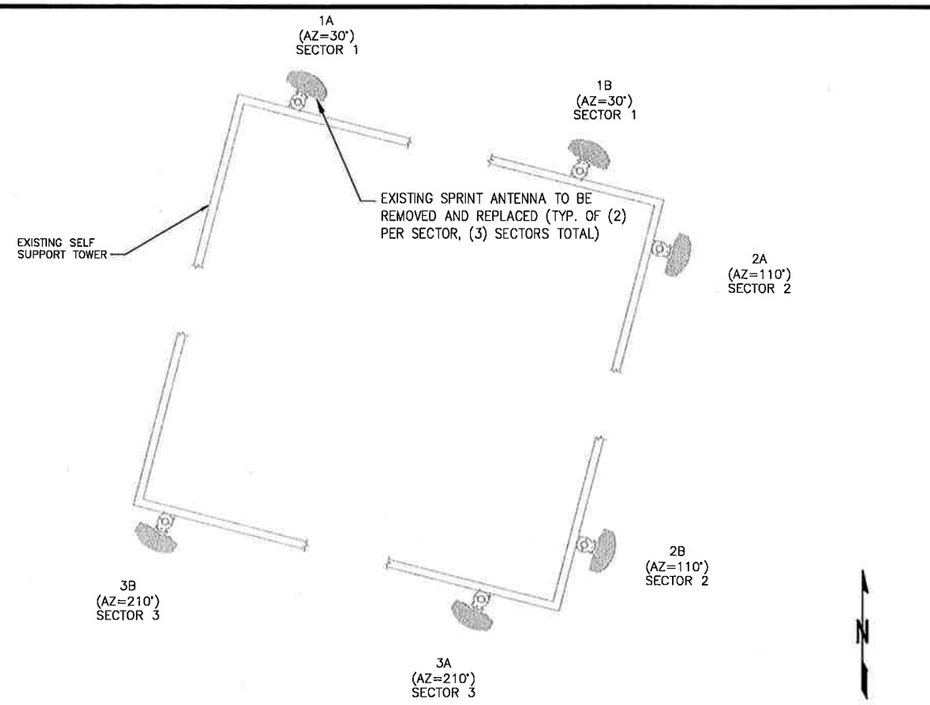
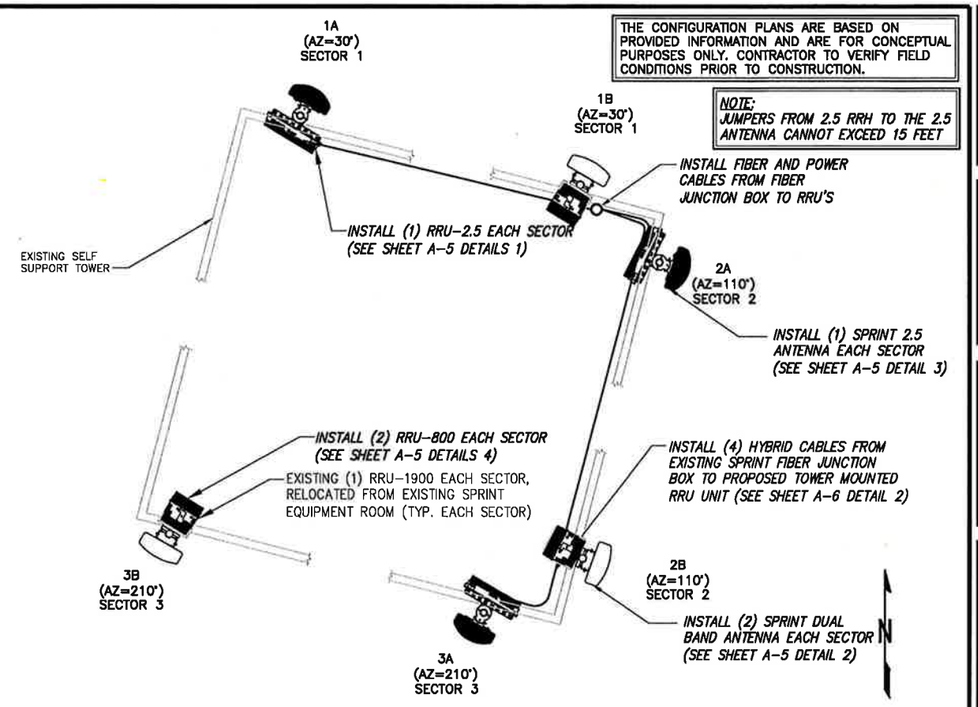
SITE ADDRESS:
751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:
BUILDING ELEVATION & CABLE PLAN

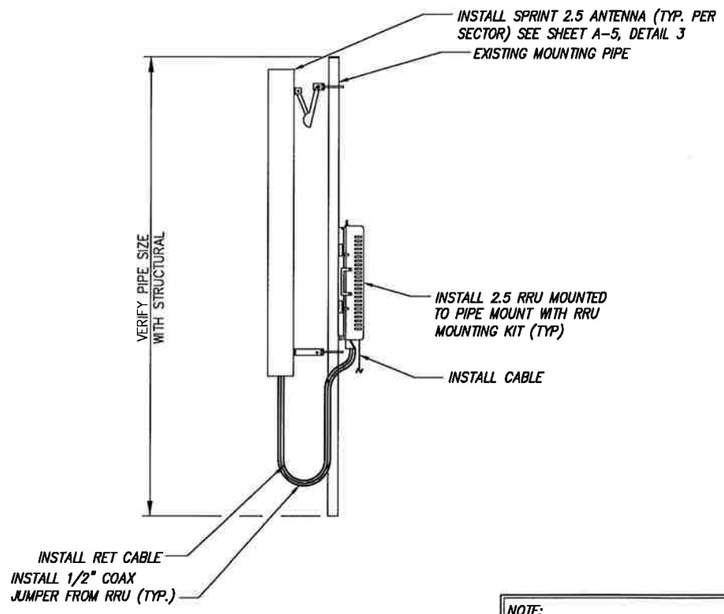
SHEET NUMBER:
A-2



EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

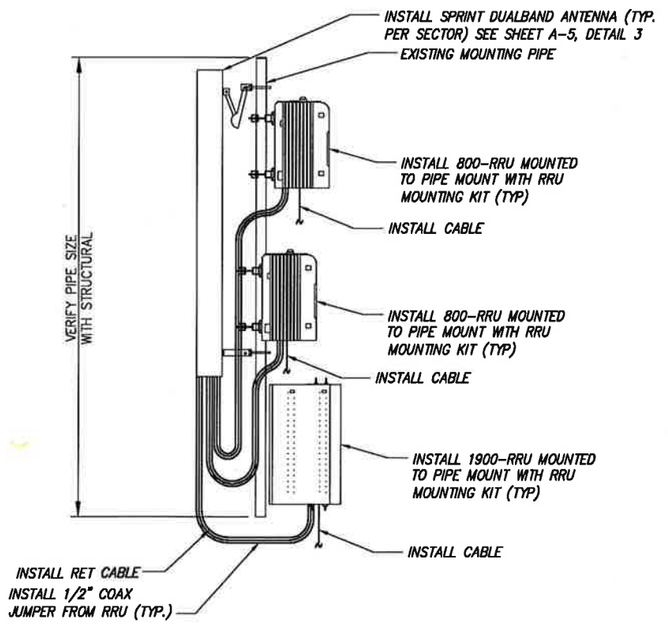


FINAL ANTENNA LAYOUT | NO SCALE | 2



NOTE:
SPARE DC CABLES ARE COILED UP ON NV RRHS AT SPRINT ARRAY. THESE ARE TO BE USED TO POWER UP THE 2.5 RRHS AND TIED INTO EXISTING DC BREAKERS INSIDE THE FIBER JUNCTION BOX LOCATED AT EQUIPMENT.

2.5 ANTENNA AND RRU MOUNTING DETAIL | NO SCALE | 3



NOTES:

1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRU.
3. DO NO EXCEED BEND RADIUS.

NOTE:
CONTRACTOR TO POSITION RRU ON MOUNT BEHIND ANTENNA SUCH THAT THE RRU DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

NOTE:
THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRU MOUNTING DETAILS

TYPICAL ANTENNA & RRU MOUNTING DETAILS | NO SCALE | 4

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24218
LICENSED PROFESSIONAL ENGINEER
JUN 13 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME:
CHESHIRE

SITE CASCADE:
CT03XC044

SITE ADDRESS:
751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:
ANTENNA LAYOUT
& MOUNTING DETAILS

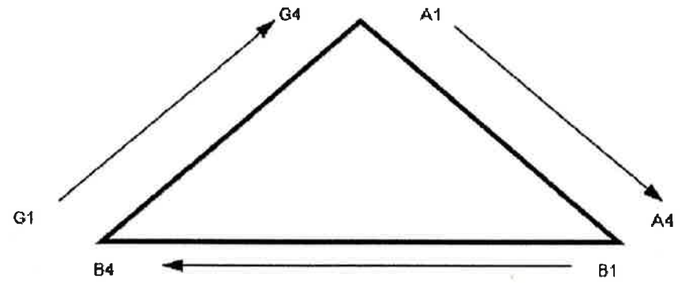
SHEET NUMBER:
A-3

NV CABLES			
BAND	INDICATOR	PORT	COLOR
800-1	YEL GRN	NV-1	GRN
1900-1	YEL RED	NV-2	BLU
1900-2	YEL BRN	NV-3	BRN
1900-3	YEL BLU	NV-4	WHT
1900-4	YEL SLT	NV-5	RED
800-2	YEL ORG	NV-6	SLT
SPARE	YEL WHT	NV-7	PPL
2500	YEL PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band		
2500 Radio 1		COLOR
YEL	WHT	GRN
YEL	WHT	BLU
YEL	WHT	BRN
YEL	WHT	WHT
YEL	WHT	RED
YEL	WHT	SLT
YEL	WHT	PPL
YEL	WHT	ORG

Figure 1: Antenna Orientation



NOTES:

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.

2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAK-OUT CYLINDER. THERE SHALL BE A 1" SPACE BETWEEN EACH RING FOR THE CABLE IDENTIFIER, AND NO SPACES BETWEEN THE FREQUENCY BANDS.

3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.

4. THE 2" COLORED TAPE(S) SHALL EACH BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.

5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE NEXT COLOR IN THE SEQUENCE FOR ADDITIONAL CABLES IN EACH SECTOR.

6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.

7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.

8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

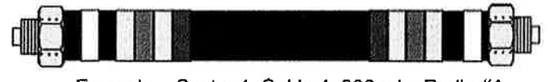
Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2		No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2			No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2			
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

Example – Sector 2, Cable 2, 800mhz Radio #1

Example – Sector 3, Cable 1, 1900mhz Radio #1



Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

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SITE CASCADE:
CT03XC044

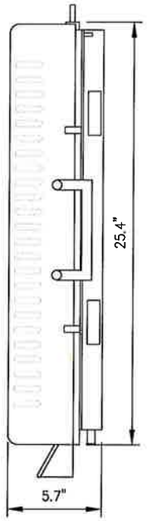
SITE ADDRESS:
751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:
COLOR CODING AND NOTES

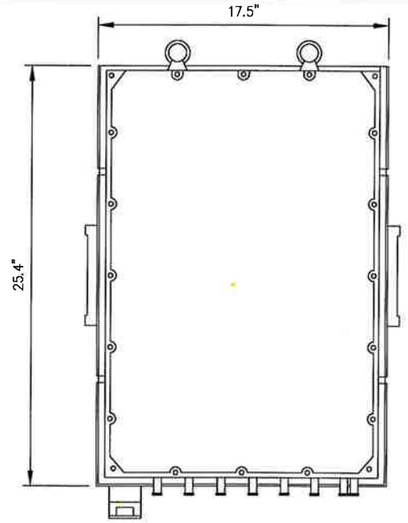
SHEET NUMBER:
A-4

RRU: ALCATEL LUCENT TD-RRH8X20

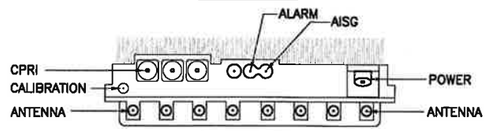
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

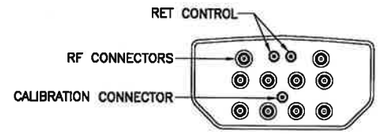
NOTES

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.

2.5 RRU'S	NO SCALE	1

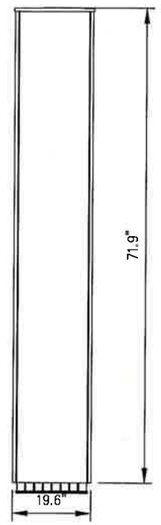
ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mm):	71.9"x19.6"x7.8" (1826x498x198mm)
WEIGHT:	77.4 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE
	(8) 4.1/9.5 DIN FEMALE



PLAN VIEW

SIDE VIEW

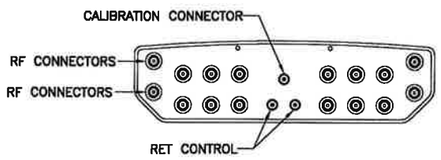


FRONT VIEW

DUAL BAND ANTENNA	NO SCALE	2

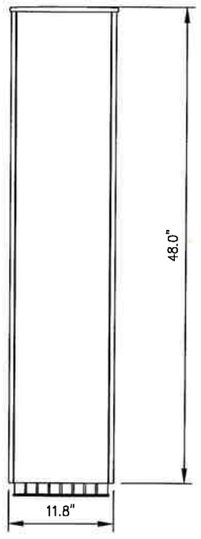
ANTENNA RFS APXVTM14-ALU-120

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mm):	48.0"x11.8"x7.9" (1219x300x201mm)
WEIGHT:	43.0 lbs
CONNECTORS:	(8) 7/16" DIN FEMALE
	(8) MINI DIN FEMALE
	(1) N TYPE(CAL PORT, FEMALE)



PLAN VIEW

SIDE VIEW



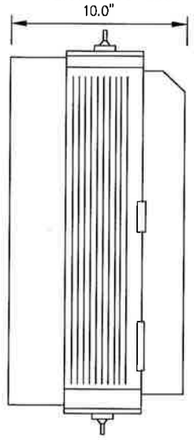
FRONT VIEW

TRIBAND ANTENNA	NO SCALE	3

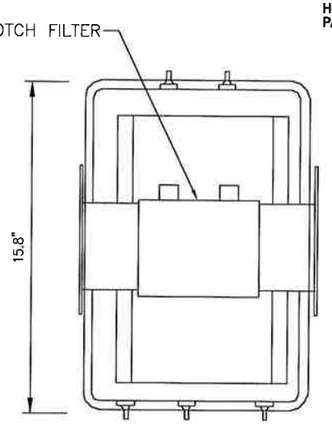
RRU: ALCATEL LUCENT RRH 800 MHz 2x50W

COLOR: LIGHT GREY
WEIGHT: 53 LBS.

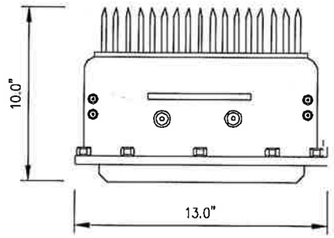
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.



SIDE VIEW

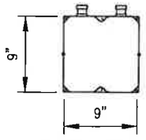


FRONT VIEW

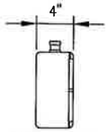


PLAN VIEW

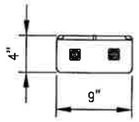
850 MHZ NOTCH FILTERS
WEIGHT = 11 LBS.



FRONT VIEW



SIDE VIEW



PLAN VIEW

800 RRU'S	NO SCALE	4

PLANS PREPARED FOR:

Sprint
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Overland Park, Kansas 66251

PLANS PREPARED BY:

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JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

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JOHN S. STEVENS
JUN 13 2018
No. 24018
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

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ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME:

CHESHIRE

SITE CASCADE:

CT03XC044

SITE ADDRESS:

751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-5

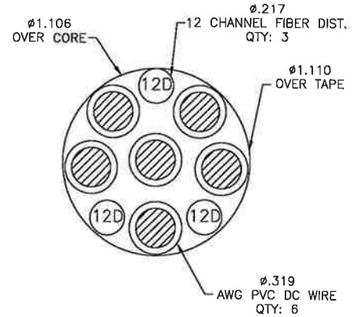
RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	**Hybrid cable** MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

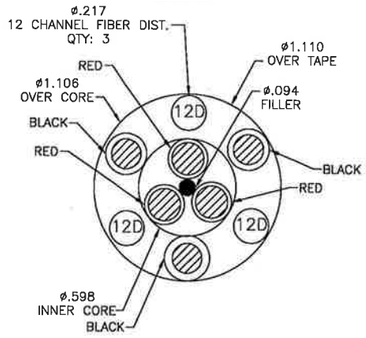
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

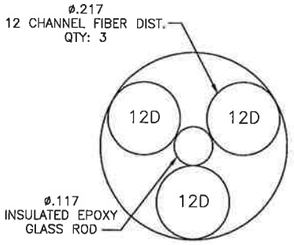
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

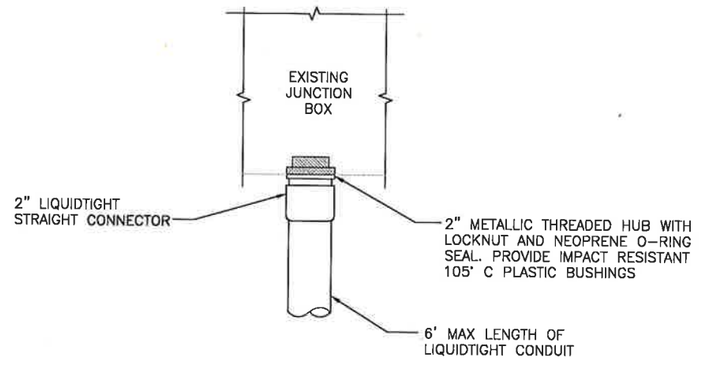


8 & 6 AWG



FIBER ONLY

2.5 CABLE CROSS SECTION DATA — NO SCALE — 1



FIBER JUNCTION BOX PENETRATION — NO SCALE — 2

DETAIL NOT USED — NO SCALE — 3

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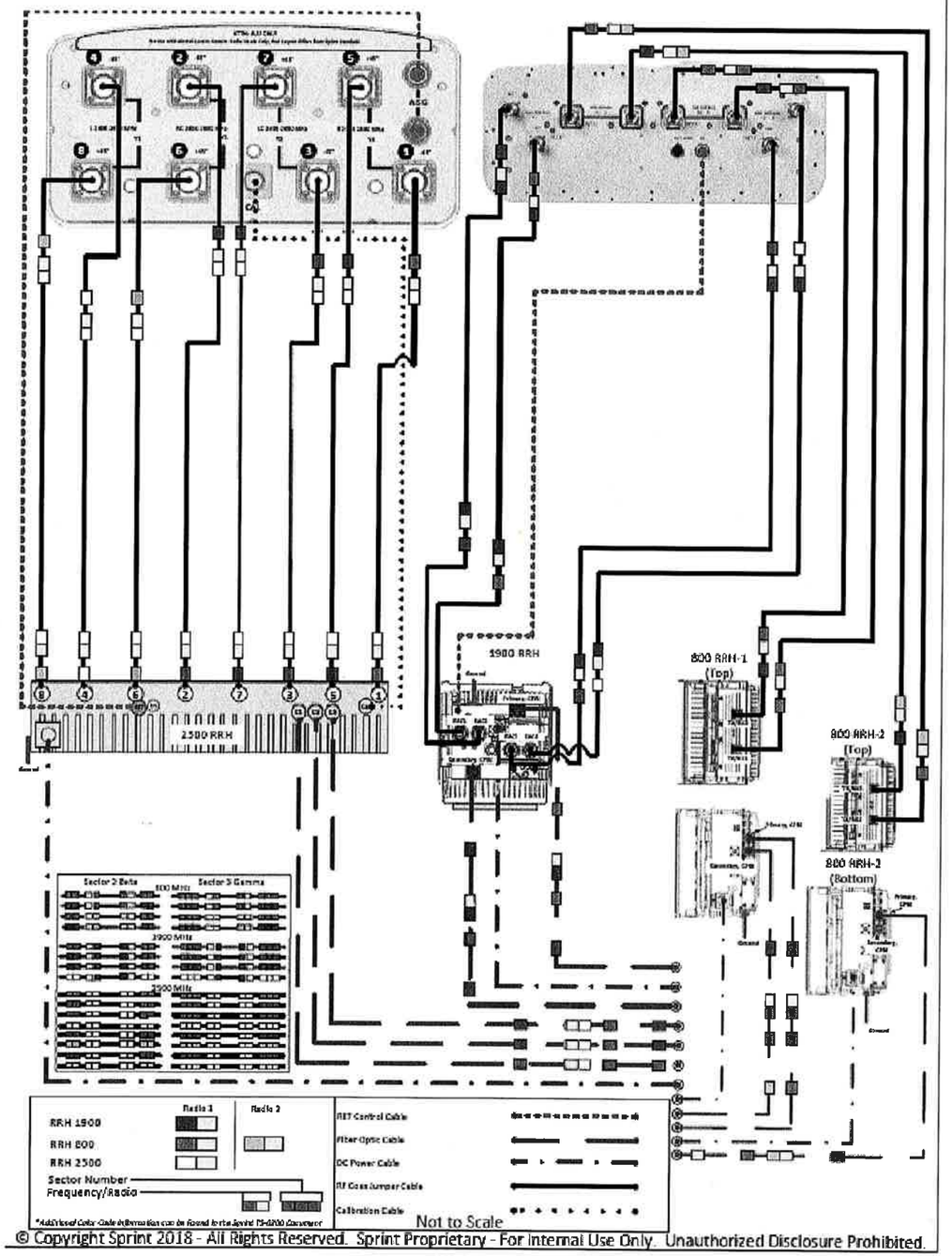
CIVIL DETAILS

SHEET NUMBER:

A-6

ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



PLUMBING DIAGRAM | NO SCALE | 1

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JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
JUN 13 2018

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME:
CHESHIRE

SITE CASCADE:
CT03XC044

SITE ADDRESS:
751 HIGGINS ROAD
CHESHIRE, CT 06410

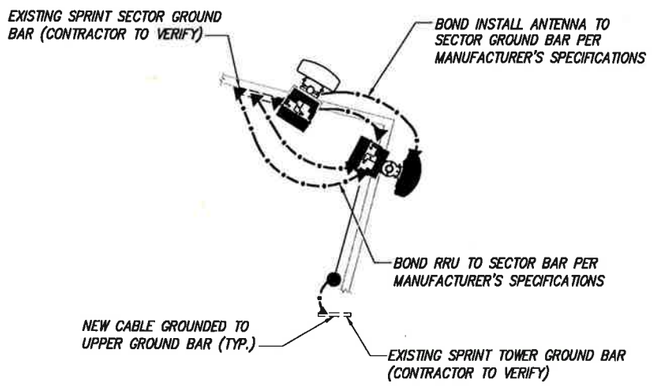
SHEET DESCRIPTION:
PLUMBING DIAGRAM

SHEET NUMBER:
A-7

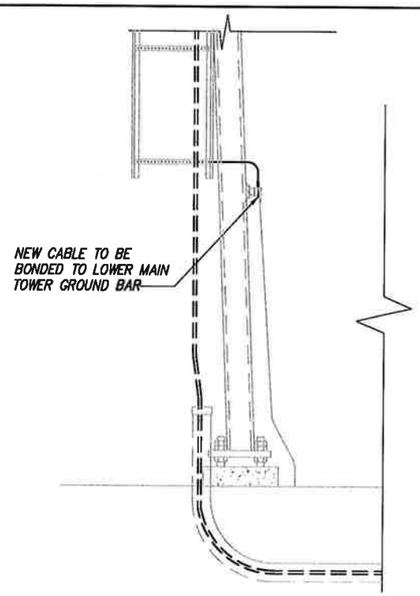
PLAN NOT USED | NO SCALE | 1

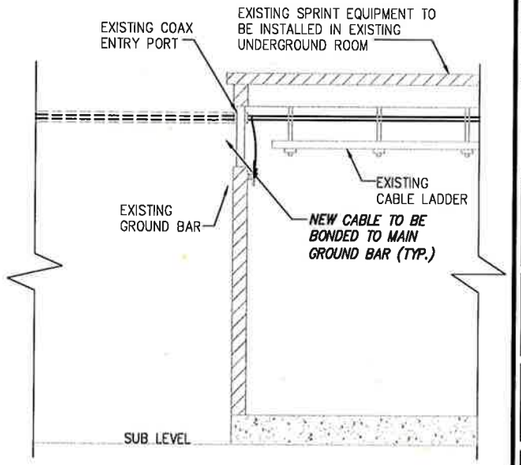
LEGEND:

----- G -----	EXISTING GROUND RING
■	CADWELD CONNECTION (EXOTHERMIC WELD)
▲	MECHANICAL CONNECTION
⊗	GROUND ROD
●	CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2





TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION) | NO SCALE | 3

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790

JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24703
LICENSED PROFESSIONAL ENGINEER
JUN 13 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME:

CHESHIRE

SITE CASCADE:

CT03XC044

SITE ADDRESS:

751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

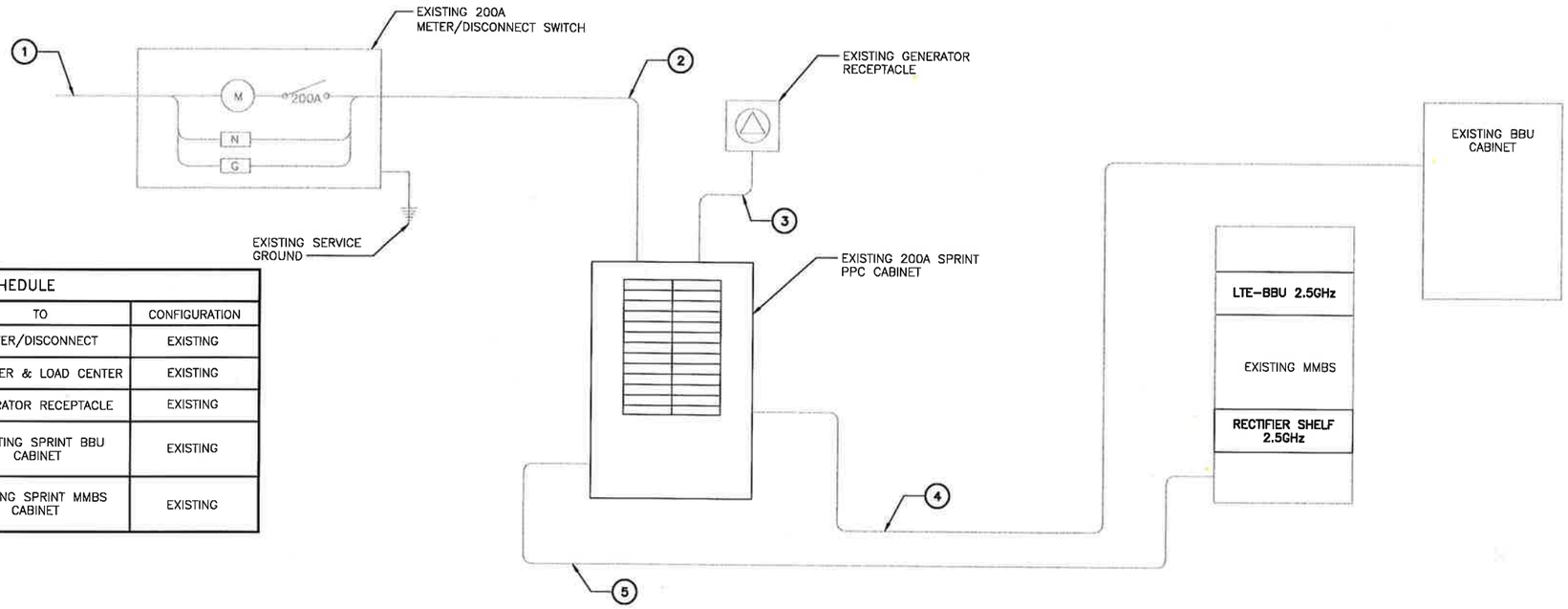
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

NOTES

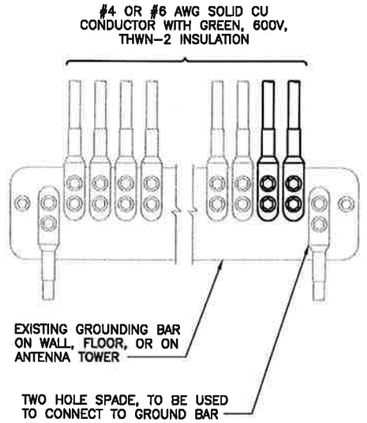
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE

NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

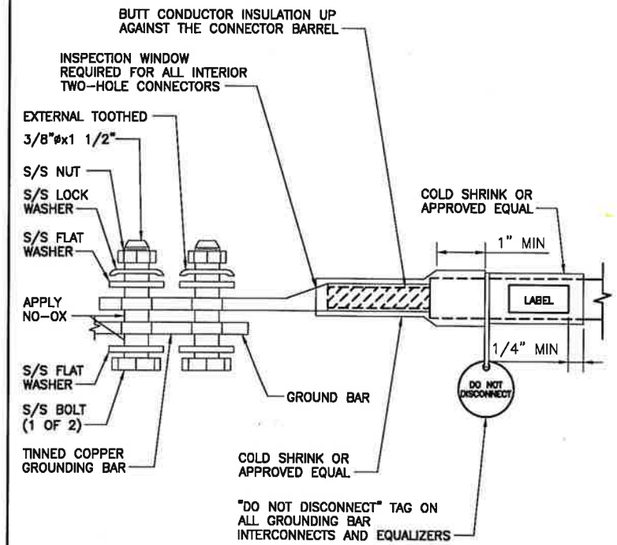
ELECTRICAL ONE–LINE DIAGRAM | NO SCALE | 1



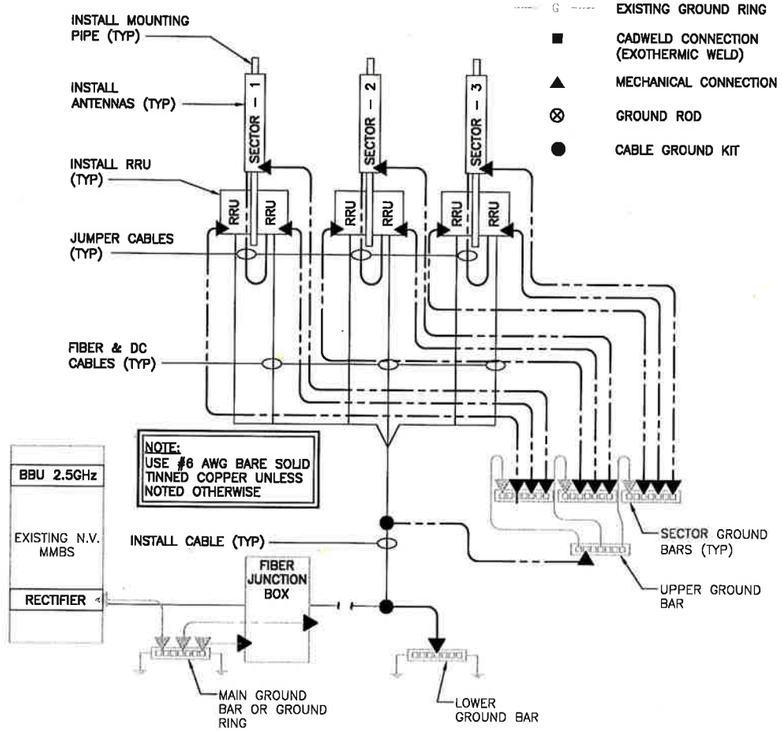
NOTES

1. APPLY NO–OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR | NO SCALE | 2



TWO HOLE LUG | NO SCALE | 3



LEGEND:

- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT

GROUNDING RISER DIAGRAM | NO SCALE | 4

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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JOB NUMBER 526–102

Cherundolo Consulting

ENGINEERING LICENSE:

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JUN 13 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	06/13/18	BMM	0

SITE NAME:

CHESHIRE

SITE CASCADE:

CT03XC044

SITE ADDRESS:

751 HIGGINS ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

INFINIGY

FROM ZERO TO INFINIGY

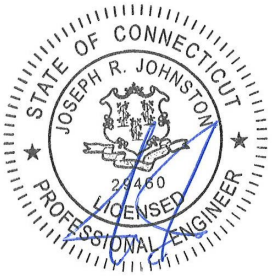
the solutions are endless

Structural Analysis Report

January 14, 2019

Site Name	Cheshire, CT
Infinigy Job Number	1108-B0003-B
Client	Sprint
Proposed Carrier	Sprint
Site Location	751 Higgins Road, Cheshire, CT 06410 41º 29' 14.9" N NAD83 72º 55' 45.5" W NAD83
Structure Type	237' Self-Supporting Tower
Structural Usage Ratio	**75.4%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and anchor rods are therefore deemed adequate to support the existing and proposed loading as listed in this report.



01-21-19

Nathaniel R. Ober, E.I.T.
Northeast Structural Region Lead

Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 237' Self-Supporting tower. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnxTower version 8.0.5.0 tower analysis software.

Supporting Documentation

Proposed Loading	Infinigy PLLC, Construction Drawings, dated 'June 13, 2018'
Tower Mapping	Infinigy Job No. 185050E
Site Photos	Infinigy PLLC, dated 'December 12, 2018'

Analysis Code Requirements

Wind Speed	125 mph (Ultimate) / 97 mph (3-Second Gust)
Wind Speed w/ ice	50 mph
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2015 IBC / 2018 Connecticut State Building Code
Structure Class	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft
Seismic Design Values	S_s=0.187 g, S_1=0.063 g
Soil Type	D - Stiff Soil (Assumed)

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and anchor rods are therefore deemed adequate to support the existing and proposed loading as listed in this report. Due to a lack of information the foundation was not analyzed at this study.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Nathaniel R Ober E.I.T.
Northeast Structural Region Lead | Infinigy
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(O) (518) 690-0790 | (M) (303) 704-0322
nober@infinigy.com | www.infinigy.com

Existing Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
252.0	3	CCI HPA-65R-BUU-H8	Platform	(18) 1-5/8” (3) 1-1/2” (7) 1” (3) 7/8” (3) 3/8”	-
	1	Andrew SBNH-1D6565C			
	6	Commscope SBNH-1D65B			
	3	Amphenol LPA-80063/6CF-EDIN			
	2	Amphenol LPA-80080/6CF-EDIN			
	2	KMW AM-X-CD-16-65-00T-RET			
	3	11”x10 1/2”x3 5/8” TMA			
	4	Box			
	3	Ericsson RRUS 32			
	3	Ericsson RRUS 11 B12			
	3	Alcatel Lucent B4 RRH2X60-4R			
	3	Raycap RHSDC-3315-PF-48			
228.0	6	Decibel DB980H65-M	Pipe Mount	(6) 1 5/8”	Sprint
213.0	2	Ericsson Air 21 B2A B4P	T-Frame	(4) 1-5/8” (2) 1 1/4”	-
	2	Ericsson Air 21 B4A B12P-B5P			
	2	6’ Panel Antenna			
	1	26”x26”x2” Panel Antenna			
	4	Ericsson RRUS 11 B12			
188.0	2	6' Omni	Sidearm	(1) 11/16”	-
175.0	1	6' Omni	Sidearm	(1) 11/16”	-
86.0	1	8' Yagi	Sidearm	(1) 11/16”	-
84.0	2	4' Yagi	Sidearm	(1) 11/16”	-
82.0	1	4' Yagi	Sidearm	(1) 11/16”	-
80.0	1	4' Yagi	Sidearm	(1) 11/16”	-
37.0	1	15”x16”x13 1/2” Box	-	(1) 2 1/4” Conduit (1) 1 1/4” Conduit (6) 1” Conduit	-
	1	22 1/2”x14 1/2”x4” Box	-		
	1	19”x14”x13” Box	-		
	1	Vicon V8300H Camera	-		
	1	20” Omni	Pipe Mount		
	1	GPS	Pipe Mount		
35.0	1	GPS	Pipe Mount	(1) 1/2”	-

To Be Removed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
228.0	6	Decibel DB980H65-M	-	(6) 1 5/8”	Sprint

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
225.0	3	Celwave APXVTM14-ALU-120	-	(4) 1” Hybrid Cable	Sprint
	3	Commscope NNVV-65B-R4			
	3	Alcatel Lucent TD-RRH8X25			
	6	Alcatel Lucent 800MHZ 2x50W RRH			
	3	Alcatel Lucent 1900 MHz 4x45 RRH			

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
252.0	3	CCI HPA-65R-BUU-H8	Platform	(18) 1-5/8” (3) 1-1/2” (7) 1” (3) 7/8” (3) 3/8”	-
	1	Andrew SBNH-1D6565C			
	6	Commscope SBNH-1D65B			
	3	Amphenol LPA-80063/6CF-EDIN			
	3	Amphenol LPA-80080/6CF-EDIN			
	2	KMW AM-X-CD-16-65-00T-RET			
	3	11”x10 1/2”x3 5/8” TMA			
	4	Box			
	3	Ericsson RRUS 32			
	3	Ericsson RRUS 11 B12			
	3	Alcatel Lucent B4 RRH2X60-4R			
	3	Raycap RHSDC-3315-PF-48			
225.0	3	Celwave APXVTM14-ALU-120	Pipe Mount	(4) 1” Hybrid Cable	Sprint
	3	Commscope NNVV-65B-R4			
	3	Alcatel Lucent TD-RRH8X25			
	6	Alcatel Lucent 800MHZ 2x50W RRH			
	3	Alcatel Lucent 1900 MHz 4x45 RRH			
213.0	2	Ericsson Air 21 B2A B4P	T-Frame	(4) 1-5/8” (2) 1 1/4”	-
	2	Ericsson Air 21 B4A B12P-B5P			
	2	6’ Panel Antenna			
	1	26”x26”x2” Panel Antenna			
	4	Ericsson RRUS 11 B12			
188.0	2	6' Omni	Sidearm	(1) 11/16”	-
175.0	1	6' Omni	Sidearm	(1) 11/16”	-
86.0	1	8' Yagi	Sidearm	(1) 11/16”	-
84.0	2	4' Yagi	Sidearm	(1) 11/16”	-
82.0	1	4' Yagi	Sidearm	(1) 11/16”	-
80.0	1	4' Yagi	Sidearm	(1) 11/16”	-
37.0	1	15”x16”x13 1/2” Box	-	(1) 2 1/4” Conduit (1) 1 1/4” Conduit (6) 1” Conduit	-
	1	22 1/2”x14 1/2”x4” Box	-		
	1	19”x14”x13” Box	-		
	1	Vicon V8300H Camera	-		
	1	20” Omni	Pipe Mount		
	1	GPS	Pipe Mount		
35.0	1	GPS	Pipe Mount	(1) 1/2”	-

Structure Usages

Leg (T6)	75.4	Pass
Diagonal (T6)	60.6	Pass
Horizontal (T8)	52.8	Pass
Top Girt (T1)	17.5	Pass
Redund Horz 1 Bracing (T9)	24.0	Pass
Redund Horz 2 Bracing (T6)	61.9	Pass
Redund Horz 3 Bracing (T6)	16.2	Pass
Redund Diag 1 Bracing (T9)	42.3	Pass
Redund Diag 2 Bracing (T9)	31.8	Pass
Redund Diag 3 Bracing (T6)	12.2	Pass
Redund Hip 1 Bracing (T9)	0.9	Pass
Redund Hip 2 Bracing (T9)	0.8	Pass
Redund Hip Diagonal 1 Bracing (T9)	2.0	Pass
Redund Hip Diagonal 2 Bracing (T9)	3.2	Pass
Inner Bracing (T1)	3.1	Pass
Bolt Checks	75.4	Pass
RATING =	**75.4**	**Pass**

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (^{o})	Sway (^{o})
228.0	1.749	0.006	0.047

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.
*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.
*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or cable mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

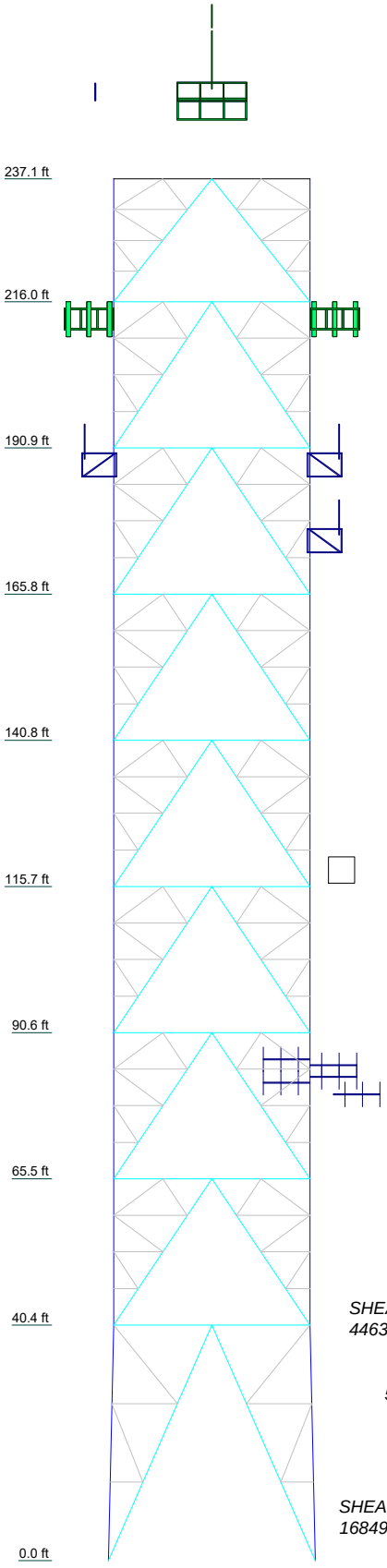
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 75.4%

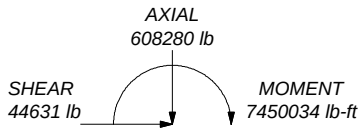
Section	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	W12x87	W10x77	W10x60	W10x49	W8x40	W8x35		W6x25	
Leg Grade				A36					
Diagonals	2L4x4x1/2x3/8	2L3x4x1/2x3/8	2L3x4x7/16x3/8	2L3x4x3/8x3/8			2L2 1/2x3x1/2x3/8	2L2 1/2x3x3/8x3/8	
Diagonal Grade				A36					
Top Girts				N.A.					2C10x15.3
Horizontals	2L4x3x7/16x3/8			2L3x2 1/2x3/8x3/8			2L2 1/2x3x1/4x3/8		N.A.
Red. Horizontals				L3x3x3/16					
Red. Diagonals	2L2 1/2x2 1/2x3/16x3/8			L3x3x3/16					
Red. Hips	2L2 1/2x2 1/2x1/4x3/8			N.A.					
Inner Bracing	2C4x7.25			2L3x2 1/2x5/16x3/8					
Face Width (ft) 35.5					7 @ 25.0833				33.67
# Panels @ (ft)	1 @ 40.4169								1 @ 21.0833
Weight (lb) 162022.0	34437.1	20685.8	18255.6	16527.0	15605.2	15152.9	14142.3	12633.9	14682.1



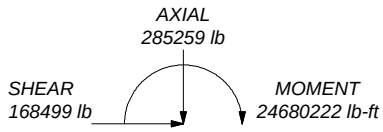
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 562868 lb
SHEAR: 53079 lb

UPLIFT: -436804 lb
SHEAR: 48332 lb



TORQUE 77508 lb-ft
50 mph WIND - 0.7500 in ICE



TORQUE 240535 lb-ft
REACTIONS - 97 mph WIND

Infingy Engineering PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Phone: 518-690-0790
FAX: 518-690-0793

Job: **1108-B0003-B**		
Project: **Cheshire, CT**		
Client: Sprint	Drawn by: nober	App'd:
Code: TIA-222-G	Date: 01/21/19	Scale: NTS
Path: L:\Structural Engineering\...SA FOR REVIEW\PE Review\ Northeast PE Review\Dmitriy (01-15-19)\CT03XC044\tnx (5)\tnx\CT03XC044.eri		Dwg No. E-1

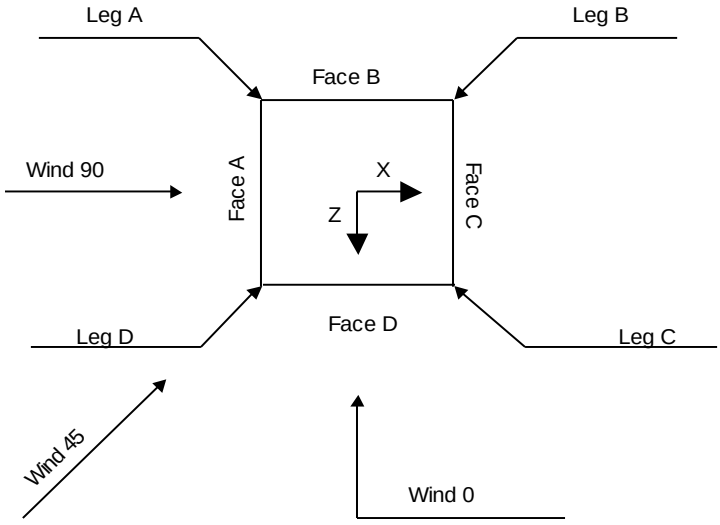
Tower Input Data

The main tower is a 4x free standing tower with an overall height of 237.08 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 33.67 ft at the top and 35.50 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Square Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	237.08-216.00			33.67	1	21.08
T2	216.00-190.92			33.67	1	25.08
T3	190.92-165.83			33.67	1	25.08
T4	165.83-140.75			33.67	1	25.08
T5	140.75-115.67			33.67	1	25.08
T6	115.67-90.58			33.67	1	25.08
T7	90.58-65.50			33.67	1	25.08
T8	65.50-40.42			33.67	1	25.08
T9	40.42-0.00			33.67	1	40.42

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	237.08-216.00	21.08	K3A Down	No	Yes	0.0000	0.0000
T2	216.00-190.92	25.08	K3A Down	No	Yes	0.0000	0.0000
T3	190.92-165.83	25.08	K3A Down	No	Yes	0.0000	0.0000
T4	165.83-140.75	25.08	K3A Down	No	Yes	0.0000	0.0000
T5	140.75-115.67	25.08	K3A Down	No	Yes	0.0000	0.0000
T6	115.67-90.58	25.08	K3A Down	No	Yes	0.0000	0.0000
T7	90.58-65.50	25.08	K3A Down	No	Yes	0.0000	0.0000
T8	65.50-40.42	25.08	K3A Down	No	Yes	0.0000	0.0000
T9	40.42-0.00	40.42	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 237.08-216.00	Wide Flange	W6x25	A36 (36 ksi)	Double Angle	2L2 1/2x3x3/8x3/8	A36 (36 ksi)
T2 216.00-190.92	Wide Flange	W6x25	A36 (36 ksi)	Double Angle	2L2 1/2x3x3/8x3/8	A36 (36 ksi)
T3 190.92-165.83	Wide Flange	W6x25	A36 (36 ksi)	Double Angle	2L2 1/2x3x1/2x3/8	A36 (36 ksi)
T4 165.83-140.75	Wide Flange	W8x35	A36 (36 ksi)	Double Angle	2L2 1/2x3x1/2x3/8	A36 (36 ksi)
T5 140.75-115.67	Wide Flange	W8x40	A36 (36 ksi)	Double Angle	2L3x4x3/8x3/8	A36 (36 ksi)
T6 115.67-90.58	Wide Flange	W10x49	A36 (36 ksi)	Double Angle	2L3x4x3/8x3/8	A36 (36 ksi)
T7 90.58-65.50	Wide Flange	W10x60	A36 (36 ksi)	Double Angle	2L3x4x7/16x3/8	A36 (36 ksi)
T8 65.50-40.42	Wide Flange	W10x77	A36 (36 ksi)	Double Angle	2L3x4x1/2x3/8	A36 (36 ksi)
T9 40.42-0.00	Wide Flange	W12x87	A36 (36 ksi)	Double Angle	2L4x4x1/2x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 237.08-216.00	None	Single Angle		A36 (36 ksi)	Double Channel	2C10x15.3	A36 (36 ksi)
T2 216.00-190.92	None	Single Angle		A36 (36 ksi)	Double Angle	2L2 1/2x3x1/4x3/8	A36 (36 ksi)
T3 190.92-165.83	None	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x3/8x3/8	A36 (36 ksi)
T4 165.83-140.75	None	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x3/8x3/8	A36 (36 ksi)
T5 140.75-115.67	None	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x3/8x3/8	A36 (36 ksi)
T6 115.67-90.58	None	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x3/8x3/8	A36 (36 ksi)
T7 90.58-65.50	None	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x3/8x3/8	A36 (36 ksi)
T8 65.50-40.42	None	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x3/8x3/8	A36 (36 ksi)
T9 40.42-0.00	None	Single Angle		A36 (36 ksi)	Double Angle	2L4x3x7/16x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 237.08-216.00	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x5/16x3/8	A36 (36 ksi)
T2 216.00-190.92	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x5/16x3/8	A36 (36 ksi)
T3 190.92-165.83	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x5/16x3/8	A36 (36 ksi)
T4 165.83-140.75	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x5/16x3/8	A36 (36 ksi)
T5 140.75-115.67	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x5/16x3/8	A36 (36 ksi)
T6 115.67-90.58	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x5/16x3/8	A36 (36 ksi)
T7 90.58-65.50	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x5/16x3/8	A36 (36 ksi)
T8 65.50-40.42	Single Angle		A36 (36 ksi)	Double Angle	2L3x2 1/2x5/16x3/8	A36 (36 ksi)
T9 40.42-0.00	Single Angle		A36 (36 ksi)	Double Channel	2C4x7.25	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T1 237.08-216.00	A36 (36 ksi)	Horizontal (1)	Arbitrary Shape	L3x3x3/16	1
		Horizontal (2)		L2 1/2x2 1/2x3/16	
		Horizontal (3)		2L2 1/2x2 1/2x3/8x3/8	
		Diagonal (1)	Arbitrary Shape	L3x3x3/16	1
		Diagonal (2)		2L3x3x3/16x3/8	
		Diagonal (3)		2L2 1/2x2 1/2x3/16x3/8	
T2 216.00-190.92	A36 (36 ksi)	Horizontal (1)	Arbitrary Shape	L3x3x3/16	1
		Horizontal (2)		L2 1/2x2 1/2x3/16	
		Horizontal (3)		2L2 1/2x2 1/2x3/8x3/8	
		Diagonal (1)	Arbitrary Shape	L3x3x3/16	1
		Diagonal (2)		2L3x3x3/16x3/8	
		Diagonal (3)		2L2 1/2x2 1/2x3/16x3/8	
T3 190.92-165.83	A36 (36 ksi)	Horizontal (1)	Arbitrary Shape	L3x3x3/16	1
		Horizontal (2)		L2 1/2x2 1/2x3/16	
		Horizontal (3)		2L2 1/2x2 1/2x3/8x3/8	
		Diagonal (1)	Arbitrary Shape	L3x3x3/16	1
		Diagonal (2)		2L3x3x3/16x3/8	
		Diagonal (3)		2L2 1/2x2 1/2x3/16x3/8	
T4 165.83-140.75	A36 (36 ksi)	Horizontal (1)	Arbitrary Shape	L3x3x3/16	1
		Horizontal (2)		L2 1/2x2 1/2x3/16	
		Horizontal (3)		2L2 1/2x2 1/2x3/8x3/8	
		Diagonal (1)	Arbitrary Shape	L3x3x3/16	1
		Diagonal (2)		2L3x3x3/16x3/8	
		Diagonal (3)		2L2 1/2x2 1/2x3/16x3/8	
T5 140.75-115.67	A36 (36 ksi)	Horizontal (1)	Arbitrary Shape	L3x3x3/16	1
		Horizontal (2)		L2 1/2x2 1/2x3/16	
		Horizontal (3)		2L2 1/2x2 1/2x3/8x3/8	
		Diagonal (1)	Arbitrary Shape	L3x3x3/16	1
		Diagonal (2)		2L3x3x3/16x3/8	
		Diagonal (3)		2L2 1/2x2 1/2x3/16x3/8	

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T6	A36	Horizontal (1)	Arbitrary Shape	L3x3x3/16	1
115.67-90.58	(36 ksi)	Horizontal (2)		L2 1/2x2 1/2x3/16	
		Horizontal (3)		2L2 1/2x2 1/2x3/8x3/8	
		Diagonal (1)	Arbitrary Shape	L3x3x3/16	1
		Diagonal (2)		2L3x3x3/16x3/8	
		Diagonal (3)		2L2 1/2x2 1/2x3/16x3/8	
T7	A36	Horizontal (1)	Arbitrary Shape	L3x3x3/16	0.65
90.58-65.50	(36 ksi)	Horizontal (2)		L2 1/2x2 1/2x3/16	
		Horizontal (3)		2L2 1/2x2 1/2x3/8x3/8	
		Diagonal (1)	Arbitrary Shape	L3x3x3/16	0.7
		Diagonal (2)		2L3x3x3/16x3/8	
		Diagonal (3)		2L2 1/2x2 1/2x3/16x3/8	
T8	A36	Horizontal (1)	Arbitrary Shape	L3x3x3/16	0.65
65.50-40.42	(36 ksi)	Horizontal (2)		L2 1/2x2 1/2x3/16	
		Horizontal (3)		2L2 1/2x2 1/2x3/8x3/8	
		Diagonal (1)	Arbitrary Shape	L3x3x3/16	0.7
		Diagonal (2)		2L3x3x3/16x3/8	
		Diagonal (3)		2L2 1/2x2 1/2x3/16x3/8	
T9 40.42-0.00	A36	Horizontal (1)	Arbitrary Shape	L3x3x3/16	0.65
	(36 ksi)	Horizontal (2)		2L2 1/2x2 1/2x1/4x3/8	
		Diagonal (1)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	0.7
		Diagonal (2)		2L2 1/2x2 1/2x1/4x3/8	
		Hip (1)	Double Angle	2L2 1/2x2 1/2x1/4x3/8	0.65
		Hip (2)		2L3x3x3/16x3/8	
		Hip Diagonal (1)	Double Angle	2L3x3x3/16x3/8	0.7
		Hip Diagonal (2)		2L3x3x3/16x3/8	0.7

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1	9.17	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
237.08-216.00			(36 ksi)						
T2	9.17	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
216.00-190.92			(36 ksi)						
T3	9.17	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
190.92-165.83			(36 ksi)						
T4	9.17	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
165.83-140.75			(36 ksi)						
T5	9.17	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
140.75-115.67			(36 ksi)						
T6	9.17	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
115.67-90.58			(36 ksi)						
T7 90.58-65.50	9.17	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
			(36 ksi)						
T8 65.50-40.42	9.17	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
			(36 ksi)						
T9 40.42-0.00	34.36	0.3750	A36	1	1	1	24.0000	24.0000	24.0000
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	No	No	1	1	1	1	1	1	1	1
237.08-216.00				1	0.333	1	1	0.25	1	0.5
T2	No	No	1	1	1	1	1	1	1	1
216.00-190.92				1	0.333	1	1	0.25	1	0.5
T3	No	No	1	1	1	1	1	1	1	1
190.92-165.83				1	0.333	1	1	0.25	1	0.5
T4	No	No	1	1	1	1	1	1	1	1
165.83-140.75				1	0.333	1	1	0.25	1	0.5
T5	No	No	1	1	1	1	1	1	1	1
140.75-115.67				1	0.333	1	1	0.25	1	0.5
T6	No	No	1	1	1	1	1	1	1	1
115.67-90.58				1	0.333	1	1	0.25	1	0.5
T7	No	No	1	1	1	1	1	1	1	1
90.58-65.50				1	0.333	1	1	0.25	1	0.5
T8	No	No	1	1	1	1	1	1	1	1
65.50-40.42				1	0.333	1	1	0.25	1	0.5
T9 40.42-0.00	No	No	1	1	0.5	1	1	0.5	1	1
				1	1	1	1	0.25	1	0.5

[1]*Note: 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)*

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	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
237.08-216.00														
T2	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
216.00-190.92														
T3	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
190.92-165.83														
T4	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
165.83-140.75														
T5	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
140.75-115.67														
T6	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
115.67-90.58														
T7 90.58-65.50	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 65.50-40.42	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 40.42-0.00	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 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 237.08-216.00	Sleeve DS	0.7500 A325N	12	0.7500 A325N	4	0.7500 A325N	0	0.7500 A325N	0	0.7500 A325N	0	0.7500 A325N	4	0.7500 A307	0
T2 216.00-190.92	Sleeve DS	0.7500 A325N	12	0.7500 A325N	4	0.7500 A325N	0	0.7500 A325N	0	0.7500 A325N	0	0.7500 A325N	4	0.7500 A307	0
T3 190.92-165.83	Sleeve DS	0.7500 A325N	16	0.7500 A325N	5	0.7500 A325N	0	0.7500 A325N	0	0.7500 A325N	0	0.7500 A325N	4	0.7500 A307	0
T4 165.83-140.75	Sleeve DS	1.0000 A325N	12	0.7500 A325N	5	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	4	0.7500 A307	0
T5 140.75-115.67	Sleeve DS	1.0000 A325N	16	0.7500 A325N	4	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	4	0.7500 A307	0
T6 115.67-90.58	Sleeve DS	1.0000 A325N	16	0.7500 A325N	4	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	4	0.7500 A307	0
T7 90.58-65.50	Sleeve DS	1.0000 A325N	20	0.7500 A325N	5	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	4	0.7500 A307	0
T8 65.50-40.42	Sleeve DS	1.0000 A325N	20	0.7500 A325N	5	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	4	0.7500 A307	0
T9 40.42-0.00	Sleeve DS	1.0000 A325N	28	0.7500 A325N	8	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	4	0.7500 A307	0

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)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Heavy Climbing Rail	C	No	No	Af (CaAa)	216.00 - 0.00	-15.0000	0.4	1	1	3.0000	3.0000		3.50
Heavy Climbing Rail	D	No	No	Af (CaAa)	216.00 - 0.00	-15.0000	-0.4	1	1	3.0000	3.0000		3.50
Heavy Climbing Ladder ***	D	No	No	Af (CaAa)	237.08 - 216.00	-30.0000	0	1	1	6.0000	6.0000		7.00
W/G Ladder 6	B	No	No	Af (CaAa)	165.00 - 10.00	0.5000	-0.49	1	1	1.6130	1.6130		1.33
W/G Ladder 1	B	No	No	Af (CaAa)	213.00 - 19.00	0.5000	0.48	1	1	1.5300	1.5300		0.57
LDF6-50A (1-1/4 FOAM)	B	No	No	Ar (CaAa)	213.00 - 6.00	1.0000	0.45	2	2	1.5500	1.5500		0.66
LDF7-50A (1-5/8 FOAM) **	B	No	No	Ar (CaAa)	213.00 - 35.00	1.0000	0.48	4	4	1.0000	1.9800		0.82
W/G Ladder 2	C	No	No	Af (CaAa)	205.00 - 6.00	0.5000	-0.47	1	1	0.3250	0.3250		1.89
1" Rigid Conduit	C	No	No	Ar (CaAa)	19.00 - 0.00	1.0000	-0.47	5	5	1.0000	1.0000		1.20
LDF4-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	19.00 - 0.00	1.0000	-0.45	1	1	0.5000	0.6300		0.15
1" Rigid Conduit	C	No	No	Ar (CaAa)	37.00 - 0.00	1.0000	-0.4	6	6	1.0000	1.0000		1.20
2 1/4" Rigid Conduit	C	No	No	Ar (CaAa)	37.00 - 3.00	1.0000	-0.35	1	1	2.2500	2.2500		1.50
1 1/4" Rigid	C	No	No	Ar (CaAa)	37.00 - 6.00	1.0000	0.45	1	1	1.2500	1.2500		0.70

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
Conduit **													
Feedline Ladder (3" Rails) (Af)	D	No	No	Af (CaAa)	237.00 - 3.00	1.0000	0.1	1	1	5.0000	5.0000		6.14
LDF7-50A (1-5/8 FOAM)	D	No	No	Ar (CaAa)	228.00 - 0.00	2.0000	0.1	24	8	1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	D	No	No	Ar (CaAa)	237.08 - 228.00	2.0000	0.1	18	8	1.0000	1.9800		0.82
MLC Hybrid 6Power/12Fiber (1.5" Cable)	D	No	No	Ar (CaAa)	237.08 - 0.00	7.0000	0.07	3	3	1.0000	1.5000		0.50
LDF5-50A (7/8 FOAM)	D	No	No	Ar (CaAa)	237.08 - 0.00	8.0000	0.08	3	3	1.0000	1.0900		0.33
1" Coax	D	No	No	Ar (CaAa)	237.08 - 0.00	8.0000	0.1	7	7	1.0000	1.0000		0.30
HW154 00603 (11/16)	D	No	No	Ar (CaAa)	80.00 - 0.00	6.0000	0.14	7	3	1.0000	0.6900		0.39
HW154 00603 (11/16)	D	No	No	Ar (CaAa)	82.00 - 80.00	6.0000	0.14	6	3	1.0000	0.6900		0.39
HW154 00603 (11/16)	D	No	No	Ar (CaAa)	84.00 - 82.00	6.0000	0.14	5	3	1.0000	0.6900		0.39
HW154 00603 (11/16)	D	No	No	Ar (CaAa)	86.00 - 84.00	6.0000	0.14	3	3	1.0000	0.6900		0.39
HW154 00603 (11/16)	D	No	No	Ar (CaAa)	175.00 - 86.00	6.0000	0.14	2	2	1.0000	0.6900		0.39
HW154 00603 (11/16)	D	No	No	Ar (CaAa)	188.00 - 175.00	6.0000	0.14	1	1	1.0000	0.6900		0.39
LDF2-50A (3/8 FOAM)	D	No	No	Ar (CaAa)	237.08 - 0.00	6.0000	0.13	3	3	0.5000	0.4400		0.08
LDF4-50A (1/2 FOAM)	D	No	No	Ar (CaAa)	35.00 - 0.00	6.0000	0.12	1	1	0.5000	0.6300		0.15
2" Rigid Conduit	D	No	No	Ar (CaAa)	237.08 - 0.00	8.0000	0.14	1	1	2.0000	2.0000		2.80
W/G Ladder 5 **	D	No	No	Af (CaAa)	216.00 - 10.00	0.5000	0.45	1	1	1.5500	1.5500		1.28
Climbing Ladder (Af)	C	No	No	Af (CaAa)	25.00 - 0.00	24.0000	-0.4	1	1	1.8000	1.8000		7.90

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	237.08-216.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	166.120	0.000	807.62
T2	216.00-190.92	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	27.715	0.000	114.28
		C	0.000	0.000	13.304	0.000	114.41
		D	0.000	0.000	204.496	0.000	958.93
T3	190.92-165.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	31.480	0.000	129.81
		C	0.000	0.000	13.900	0.000	135.20

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		D	0.000	0.000	206.658	0.000	971.03
T4	165.83-140.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	37.999	0.000	162.08
		C	0.000	0.000	13.900	0.000	135.20
		D	0.000	0.000	207.957	0.000	978.30
T5	140.75-115.67	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	38.223	0.000	163.19
		C	0.000	0.000	13.900	0.000	135.20
		D	0.000	0.000	207.957	0.000	978.30
T6	115.67-90.58	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	38.223	0.000	163.19
		C	0.000	0.000	13.900	0.000	135.20
		D	0.000	0.000	207.957	0.000	978.30
T7	90.58-65.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	38.223	0.000	163.19
		C	0.000	0.000	13.900	0.000	135.20
		D	0.000	0.000	214.064	0.000	1012.46
T8	65.50-40.42	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	38.223	0.000	163.19
		C	0.000	0.000	13.900	0.000	135.20
		D	0.000	0.000	216.611	0.000	1026.71
T9	40.42-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	26.413	0.000	116.00
		C	0.000	0.000	73.995	0.000	859.96
		D	0.000	0.000	346.149	0.000	1628.37

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_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	237.08-216.00	A	1.819	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	263.003	0.000	4800.83
T2	216.00-190.92	A	1.799	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	81.099	0.000	1082.67
		C		0.000	0.000	27.398	0.000	469.95
		D		0.000	0.000	314.883	0.000	5898.88
T3	190.92-165.83	A	1.776	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	91.605	0.000	1212.72
		C		0.000	0.000	31.717	0.000	549.94
		D		0.000	0.000	327.302	0.000	5992.33
T4	165.83-140.75	A	1.749	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	106.026	0.000	1448.07
		C		0.000	0.000	31.449	0.000	540.25
		D		0.000	0.000	334.417	0.000	5983.55
T5	140.75-115.67	A	1.718	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	105.713	0.000	1428.69
		C		0.000	0.000	31.138	0.000	529.14
		D		0.000	0.000	332.238	0.000	5898.65
T6	115.67-90.58	A	1.681	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	104.724	0.000	1395.42
		C		0.000	0.000	30.767	0.000	516.07
		D		0.000	0.000	329.638	0.000	5798.05
T7	90.58-65.50	A	1.635	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	103.490	0.000	1354.39
		C		0.000	0.000	30.303	0.000	500.02

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		D		0.000	0.000	334.243	0.000	5867.69
T8	65.50-40.42	A	1.573	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	101.830	0.000	1300.10
		C		0.000	0.000	29.679	0.000	478.93
		D		0.000	0.000	332.935	0.000	5776.40
T9	40.42-0.00	A	1.428	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	73.593	0.000	864.13
		C		0.000	0.000	190.938	0.000	2860.48
		D		0.000	0.000	523.532	0.000	8675.51

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	237.08-216.00	-6.4734	18.4184	-8.9821	31.6406
T2	216.00-190.92	2.2132	20.8883	7.8423	29.9160
T3	190.92-165.83	3.1869	20.3739	9.4811	29.2225
T4	165.83-140.75	1.6232	17.5958	6.1825	25.3711
T5	140.75-115.67	1.5497	17.1717	5.9962	24.8715
T6	115.67-90.58	1.4873	16.3896	5.8200	24.1173
T7	90.58-65.50	1.0378	18.0913	5.5186	25.1552
T8	65.50-40.42	0.8482	18.8141	5.3614	25.4763
T9	40.42-0.00	0.6185	15.1603	7.3737	18.6626

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	3	Heavy Climbing Ladder	216.00 - 237.08	0.6000	0.6000
T1	17	Feedline Ladder (3" Rails) (Af)	216.00 - 237.00	0.6000	0.6000
T1	18	LDF7-50A (1-5/8 FOAM)	216.00 - 228.00	0.6000	0.6000
T1	19	LDF7-50A (1-5/8 FOAM)	228.00 - 237.08	0.6000	0.6000
T1	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	216.00 - 237.08	0.6000	0.6000
T1	21	LDF5-50A (7/8 FOAM)	216.00 - 237.08	0.6000	0.6000
T1	22	1" Coax	216.00 - 237.08	0.6000	0.6000
T1	29	LDF2-50A (3/8 FOAM)	216.00 - 237.08	0.6000	0.6000
T1	31	2" Rigid Conduit	216.00 - 237.08	0.6000	0.6000
T2	1	Heavy Climbing Rail	190.92 - 216.00	0.6000	0.6000
T2	2	Heavy Climbing Rail	190.92 - 216.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T2	6	W/G Ladder 1	190.92 - 213.00	0.6000	0.6000
T2	7	LDF6-50A (1-1/4 FOAM)	190.92 - 213.00	0.6000	0.6000
T2	8	LDF7-50A (1-5/8 FOAM)	190.92 - 213.00	0.6000	0.6000
T2	10	W/G Ladder 2	190.92 - 205.00	0.6000	0.6000
T2	17	Feedline Ladder (3" Rails) (Af)	190.92 - 216.00	0.6000	0.6000
T2	18	LDF7-50A (1-5/8 FOAM)	190.92 - 216.00	0.6000	0.6000
T2	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	190.92 - 216.00	0.6000	0.6000
T2	21	LDF5-50A (7/8 FOAM)	190.92 - 216.00	0.6000	0.6000
T2	22	1" Coax	190.92 - 216.00	0.6000	0.6000
T2	29	LDF2-50A (3/8 FOAM)	190.92 - 216.00	0.6000	0.6000
T2	31	2" Rigid Conduit	190.92 - 216.00	0.6000	0.6000
T2	32	W/G Ladder 5	190.92 - 216.00	0.6000	0.6000
T3	1	Heavy Climbing Rail	165.83 - 190.92	0.6000	0.6000
T3	2	Heavy Climbing Rail	165.83 - 190.92	0.6000	0.6000
T3	6	W/G Ladder 1	165.83 - 190.92	0.6000	0.6000
T3	7	LDF6-50A (1-1/4 FOAM)	165.83 - 190.92	0.6000	0.6000
T3	8	LDF7-50A (1-5/8 FOAM)	165.83 - 190.92	0.6000	0.6000
T3	10	W/G Ladder 2	165.83 - 190.92	0.6000	0.6000
T3	17	Feedline Ladder (3" Rails) (Af)	165.83 - 190.92	0.6000	0.6000
T3	18	LDF7-50A (1-5/8 FOAM)	165.83 - 190.92	0.6000	0.6000
T3	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	165.83 - 190.92	0.6000	0.6000
T3	21	LDF5-50A (7/8 FOAM)	165.83 - 190.92	0.6000	0.6000
T3	22	1" Coax	165.83 - 190.92	0.6000	0.6000
T3	27	HW154 00603 (11/16)	165.83 - 175.00	0.6000	0.6000
T3	28	HW154 00603 (11/16)	175.00 - 188.00	0.6000	0.6000
T3	29	LDF2-50A (3/8 FOAM)	165.83 - 190.92	0.6000	0.6000
T3	31	2" Rigid Conduit	165.83 - 190.92	0.6000	0.6000
T3	32	W/G Ladder 5	165.83 - 190.92	0.6000	0.6000
T4	1	Heavy Climbing Rail	140.75 - 165.83	0.6000	0.6000
T4	2	Heavy Climbing Rail	140.75 - 165.83	0.6000	0.6000
T4	5	W/G Ladder 6	140.75 - 165.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	6	W/G Ladder 1	140.75 - 165.83	0.6000	0.6000
T4	7	LDF6-50A (1-1/4 FOAM)	140.75 - 165.83	0.6000	0.6000
T4	8	LDF7-50A (1-5/8 FOAM)	140.75 - 165.83	0.6000	0.6000
T4	10	W/G Ladder 2	140.75 - 165.83	0.6000	0.6000
T4	17	Feedline Ladder (3" Rails) (Af)	140.75 - 165.83	0.6000	0.6000
T4	18	LDF7-50A (1-5/8 FOAM)	140.75 - 165.83	0.6000	0.6000
T4	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	140.75 - 165.83	0.6000	0.6000
T4	21	LDF5-50A (7/8 FOAM)	140.75 - 165.83	0.6000	0.6000
T4	22	1" Coax	140.75 - 165.83	0.6000	0.6000
T4	27	HW154 00603 (11/16)	140.75 - 165.83	0.6000	0.6000
T4	29	LDF2-50A (3/8 FOAM)	140.75 - 165.83	0.6000	0.6000
T4	31	2" Rigid Conduit	140.75 - 165.83	0.6000	0.6000
T4	32	W/G Ladder 5	140.75 - 165.83	0.6000	0.6000
T5	1	Heavy Climbing Rail	115.67 - 140.75	0.6000	0.6000
T5	2	Heavy Climbing Rail	115.67 - 140.75	0.6000	0.6000
T5	5	W/G Ladder 6	115.67 - 140.75	0.6000	0.6000
T5	6	W/G Ladder 1	115.67 - 140.75	0.6000	0.6000
T5	7	LDF6-50A (1-1/4 FOAM)	115.67 - 140.75	0.6000	0.6000
T5	8	LDF7-50A (1-5/8 FOAM)	115.67 - 140.75	0.6000	0.6000
T5	10	W/G Ladder 2	115.67 - 140.75	0.6000	0.6000
T5	17	Feedline Ladder (3" Rails) (Af)	115.67 - 140.75	0.6000	0.6000
T5	18	LDF7-50A (1-5/8 FOAM)	115.67 - 140.75	0.6000	0.6000
T5	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	115.67 - 140.75	0.6000	0.6000
T5	21	LDF5-50A (7/8 FOAM)	115.67 - 140.75	0.6000	0.6000
T5	22	1" Coax	115.67 - 140.75	0.6000	0.6000
T5	27	HW154 00603 (11/16)	115.67 - 140.75	0.6000	0.6000
T5	29	LDF2-50A (3/8 FOAM)	115.67 - 140.75	0.6000	0.6000
T5	31	2" Rigid Conduit	115.67 - 140.75	0.6000	0.6000
T5	32	W/G Ladder 5	115.67 - 140.75	0.6000	0.6000
T6	1	Heavy Climbing Rail	90.58 - 115.67	0.6000	0.6000
T6	2	Heavy Climbing Rail	90.58 - 115.67	0.6000	0.6000
T6	5	W/G Ladder 6	90.58 - 115.67	0.6000	0.6000
T6	6	W/G Ladder 1	90.58 - 115.67	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	7	LDF6-50A (1-1/4 FOAM)	90.58 - 115.67	0.6000	0.6000
T6	8	LDF7-50A (1-5/8 FOAM)	90.58 - 115.67	0.6000	0.6000
T6	10	W/G Ladder 2	90.58 - 115.67	0.6000	0.6000
T6	17	Feedline Ladder (3" Rails) (Af)	90.58 - 115.67	0.6000	0.6000
T6	18	LDF7-50A (1-5/8 FOAM)	90.58 - 115.67	0.6000	0.6000
T6	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	90.58 - 115.67	0.6000	0.6000
T6	21	LDF5-50A (7/8 FOAM)	90.58 - 115.67	0.6000	0.6000
T6	22	1" Coax	90.58 - 115.67	0.6000	0.6000
T6	27	HW154 00603 (11/16)	90.58 - 115.67	0.6000	0.6000
T6	29	LDF2-50A (3/8 FOAM)	90.58 - 115.67	0.6000	0.6000
T6	31	2" Rigid Conduit	90.58 - 115.67	0.6000	0.6000
T6	32	W/G Ladder 5	90.58 - 115.67	0.6000	0.6000
T7	1	Heavy Climbing Rail	65.50 - 90.58	0.6000	0.6000
T7	2	Heavy Climbing Rail	65.50 - 90.58	0.6000	0.6000
T7	5	W/G Ladder 6	65.50 - 90.58	0.6000	0.6000
T7	6	W/G Ladder 1	65.50 - 90.58	0.6000	0.6000
T7	7	LDF6-50A (1-1/4 FOAM)	65.50 - 90.58	0.6000	0.6000
T7	8	LDF7-50A (1-5/8 FOAM)	65.50 - 90.58	0.6000	0.6000
T7	10	W/G Ladder 2	65.50 - 90.58	0.6000	0.6000
T7	17	Feedline Ladder (3" Rails) (Af)	65.50 - 90.58	0.6000	0.6000
T7	18	LDF7-50A (1-5/8 FOAM)	65.50 - 90.58	0.6000	0.6000
T7	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	65.50 - 90.58	0.6000	0.6000
T7	21	LDF5-50A (7/8 FOAM)	65.50 - 90.58	0.6000	0.6000
T7	22	1" Coax	65.50 - 90.58	0.6000	0.6000
T7	23	HW154 00603 (11/16)	65.50 - 80.00	0.6000	0.6000
T7	24	HW154 00603 (11/16)	80.00 - 82.00	0.6000	0.6000
T7	25	HW154 00603 (11/16)	82.00 - 84.00	0.6000	0.6000
T7	26	HW154 00603 (11/16)	84.00 - 86.00	0.6000	0.6000
T7	27	HW154 00603 (11/16)	86.00 - 90.58	0.6000	0.6000
T7	29	LDF2-50A (3/8 FOAM)	65.50 - 90.58	0.6000	0.6000
T7	31	2" Rigid Conduit	65.50 - 90.58	0.6000	0.6000
T7	32	W/G Ladder 5	65.50 - 90.58	0.6000	0.6000
T8	1	Heavy Climbing Rail	40.42 - 65.50	0.6000	0.6000
T8	2	Heavy Climbing Rail	40.42 - 65.50	0.6000	0.6000
T8	5	W/G Ladder 6	40.42 - 65.50	0.6000	0.6000
T8	6	W/G Ladder 1	40.42 - 65.50	0.6000	0.6000
T8	7	LDF6-50A (1-1/4 FOAM)	40.42 - 65.50	0.6000	0.6000
T8	8	LDF7-50A (1-5/8 FOAM)	40.42 - 65.50	0.6000	0.6000
T8	10	W/G Ladder 2	40.42 - 65.50	0.6000	0.6000
T8	17	Feedline Ladder (3" Rails) (Af)	40.42 - 65.50	0.6000	0.6000
T8	18	LDF7-50A (1-5/8 FOAM)	40.42 - 65.50	0.6000	0.6000
T8	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	40.42 - 65.50	0.6000	0.6000
T8	21	LDF5-50A (7/8 FOAM)	40.42 - 65.50	0.6000	0.6000
T8	22	1" Coax	40.42 - 65.50	0.6000	0.6000
T8	23	HW154 00603 (11/16)	40.42 - 65.50	0.6000	0.6000
T8	29	LDF2-50A (3/8 FOAM)	40.42 - 65.50	0.6000	0.6000
T8	31	2" Rigid Conduit	40.42 - 65.50	0.6000	0.6000
T8	32	W/G Ladder 5	40.42 - 65.50	0.6000	0.6000
T9	1	Heavy Climbing Rail	0.00 - 40.42	0.6000	0.6000
T9	2	Heavy Climbing Rail	0.00 - 40.42	0.6000	0.6000
T9	5	W/G Ladder 6	10.00 - 40.42	0.6000	0.6000
T9	6	W/G Ladder 1	19.00 - 40.42	0.6000	0.6000
T9	7	LDF6-50A (1-1/4 FOAM)	6.00 - 40.42	0.6000	0.6000
T9	8	LDF7-50A (1-5/8 FOAM)	35.00 - 40.42	0.6000	0.6000
T9	10	W/G Ladder 2	6.00 - 40.42	0.6000	0.6000
T9	11	1" Rigid Conduit	0.00 - 19.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	12	LDF4-50A (1/2 FOAM)	0.00 - 19.00	0.6000	0.6000
T9	13	1" Rigid Conduit	0.00 - 37.00	0.6000	0.6000
T9	14	2 1/4" Rigid Conduit	3.00 - 37.00	0.6000	0.6000
T9	15	1 1/4" Rigid Conduit	6.00 - 37.00	0.6000	0.6000
T9	17	Feedline Ladder (3" Rails) (Af)	3.00 - 40.42	0.6000	0.6000
T9	18	LDF7-50A (1-5/8 FOAM)	0.00 - 40.42	0.6000	0.6000
T9	20	MLC Hybrid 6Power/12Fiber (1.5" Cable)	0.00 - 40.42	0.6000	0.6000
T9	21	LDF5-50A (7/8 FOAM)	0.00 - 40.42	0.6000	0.6000
T9	22	1" Coax	0.00 - 40.42	0.6000	0.6000
T9	23	HW154 00603 (11/16)	0.00 - 40.42	0.6000	0.6000
T9	29	LDF2-50A (3/8 FOAM)	0.00 - 40.42	0.6000	0.6000
T9	30	LDF4-50A (1/2 FOAM)	0.00 - 35.00	0.6000	0.6000
T9	31	2" Rigid Conduit	0.00 - 40.42	0.6000	0.6000
T9	32	W/G Ladder 5	10.00 - 40.42	0.6000	0.6000
T9	34	Climbing Ladder (Af)	0.00 - 25.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral (ft)	Offsets: Vert (ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (lb)
Beacon on 15' Extension	C	From Centroid-Leg	0.00	5.50	0.0000	252.00	No Ice	15.00	15.00	500.00
			0.00				1/2" Ice	20.00	20.00	650.00
							1" Ice	25.00	25.00	800.00
Lightning Rod 5/8x4'	C	From Centroid-Leg	0.00	13.00	0.0000	252.00	No Ice	0.25	0.25	6.00
			0.00				1/2" Ice	0.66	0.66	8.00
							1" Ice	0.97	0.97	10.00
**										
41.5' Top Square Platform	D	None			0.0000	249.00	No Ice	382.00	382.00	27555.00
							1/2" Ice	465.00	462.00	37198.00
							1" Ice	548.00	542.00	46841.00
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Centroid-Face	20.00	3.00	0.0000	249.00	No Ice	13.05	9.42	97.20
			0.00				1/2" Ice	13.66	10.82	192.07
							1" Ice	14.27	12.07	296.65
SBNH-1D6565C w/ Mount Pipe	A	From Centroid-Face	20.00	3.00	0.0000	249.00	No Ice	11.45	9.60	95.30
			0.00				1/2" Ice	12.06	11.02	182.27
							1" Ice	12.69	12.29	278.99
LPA-80063/6CF-EDIN w/ Mount Pipe	A	From Centroid-Face	20.00	3.00	0.0000	249.00	No Ice	10.23	10.50	56.20
			0.00				1/2" Ice	10.91	11.79	152.21
							1" Ice	11.56	12.93	256.95
(2) SBNHH-1D65B w/ Mount Pipe	A	From Centroid-Face	20.00	3.00	0.0000	249.00	No Ice	8.62	7.30	69.80
			0.00				1/2" Ice	9.28	8.58	141.34
							1" Ice	9.91	9.72	221.09
B4 RRH2X60-4R BTS	A	From Centroid-Face	20.00	3.00	0.0000	249.00	No Ice	3.36	2.00	55.00
			0.00				1/2" Ice	3.61	2.24	78.16
							1" Ice	3.88	2.48	104.95
RRUS 32 BTS	A	From Centroid-Face	20.00	3.00	0.0000	249.00	No Ice	2.86	1.78	55.12
			0.00				1/2" Ice	3.08	1.97	77.39
							1" Ice	3.32	2.17	102.93

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
RRUS 11 B12 BTS	A	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	50.70 71.57 95.49
11"x10 1/2"x3 5/8" TMA	A	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.22	0.34 0.42 0.51	15.00 22.12 31.05
LPA-80080/6CF-EDIN w/ Mount Pipe	A	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	4.58 5.13 5.65	10.29 11.48 12.37	46.55 113.30 187.93
Box	A	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	0.83 0.95 1.07	0.50 0.59 0.69	20.00 28.00 37.89
RHSDC-3315-PF-48	A	From Centroid-Face	10.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	3.36 3.60 3.84	2.19 2.39 2.61	32.00 60.54 92.61
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Centroid-Face	20.00 -2.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	13.05 13.66 14.27	9.42 10.82 12.07	97.20 192.07 296.65
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Centroid-Face	20.00 -15.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	8.50 9.16 9.79	6.54 7.82 8.94	77.70 145.29 220.98
LPA-80063/6CF-EDIN w/ Mount Pipe	B	From Centroid-Face	20.00 -18.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	10.23 10.91 11.56	10.50 11.79 12.93	56.20 152.21 256.95
(2) SBNHH-1D65B w/ Mount Pipe	B	From Centroid-Face	20.00 18.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	8.62 9.28 9.91	7.30 8.58 9.72	69.80 141.34 221.09
B4 RRH2X60-4R BTS	B	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	3.36 3.61 3.88	2.00 2.24 2.48	55.00 78.16 104.95
RRUS 32 BTS	B	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	55.12 77.39 102.93
RRUS 11 B12 BTS	B	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	50.70 71.57 95.49
11"x10 1/2"x3 5/8" TMA	B	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.22	0.34 0.42 0.51	15.00 22.12 31.05
Box	B	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	0.83 0.95 1.07	0.50 0.59 0.69	20.00 28.00 37.89
RHSDC-3315-PF-48	B	From Centroid-Face	10.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	3.36 3.60 3.84	2.19 2.39 2.61	32.00 60.54 92.61
4.5' Side Arm Mount	C	From Centroid-Face	20.00 10.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	1.22 1.85 2.48	6.30 8.61 10.92	158.70 196.52 234.34
4.5' Side Arm Mount	C	From Centroid-Face	20.00 -18.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	1.22 1.85 2.48	6.30 8.61 10.92	158.70 196.52 234.34
LPA-80063/6CF-EDIN w/ Mount Pipe	C	From Centroid-Face	20.00 -18.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	10.23 10.91 11.56	10.50 11.79 12.93	56.20 152.21 256.95
SBNHH-1D65B w/ Mount Pipe	C	From Centroid-Face	20.00 10.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	8.62 9.28 9.91	7.30 8.58 9.72	69.80 141.34 221.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
B4 RRH2X60-4R BTS	C	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	3.36 3.61 3.88	2.00 2.24 2.48	55.00 78.16 104.95
4.5' Side Arm Mount	D	From Centroid-Face	20.00 10.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	1.22 1.85 2.48	6.30 8.61 10.92	158.70 196.52 234.34
4.5' Side Arm Mount	D	From Centroid-Face	20.00 -18.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	1.22 1.85 2.48	6.30 8.61 10.92	158.70 196.52 234.34
LPA-80063/6CF-EDIN w/ Mount Pipe	D	From Centroid-Face	20.00 -18.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	10.23 10.91 11.56	10.50 11.79 12.93	56.20 152.21 256.95
SBNHH-1D65B w/ Mount Pipe	D	From Centroid-Face	20.00 10.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	8.62 9.28 9.91	7.30 8.58 9.72	69.80 141.34 221.09
AM-X-CD-16-65-00T-RET w/ Mount Pipe	D	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	8.50 9.16 9.79	6.54 7.82 8.94	77.70 145.29 220.98
LPA-80080/6CF-EDIN w/ Mount Pipe	D	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	4.58 5.13 5.65	10.29 11.48 12.37	46.55 113.30 187.93
RRUS 32 BTS	D	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	55.12 77.39 102.93
RRUS 11 B12 BTS	D	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	50.70 71.57 95.49
11"x10 1/2"x3 5/8" TMA	D	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.22	0.34 0.42 0.51	15.00 22.12 31.05
(2) Box	D	From Centroid-Face	20.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	0.83 0.95 1.07	0.50 0.59 0.69	20.00 28.00 37.89
RHSDC-3315-PF-48	D	From Centroid-Face	10.00 0.00 3.00	0.0000	249.00	No Ice 1/2" Ice 1" Ice	3.36 3.60 3.84	2.19 2.39 2.61	32.00 60.54 92.61
**									
Outside Platform Support Bracing	C	None		0.0000	243.00	No Ice 1/2" Ice 1" Ice	84.50 114.10 143.70	84.50 114.10 143.70	5825.00 7864.00 9903.00
Inside Platform Support Bracing	C	None		0.0000	243.00	No Ice 1/2" Ice 1" Ice	79.71 107.61 135.51	79.71 107.61 135.51	4248.00 5735.00 7222.00
**									
Access Platform	C	None		0.0000	239.00	No Ice 1/2" Ice 1" Ice	99.50 134.30 169.10	99.50 134.30 169.10	12772.00 17242.00 21712.00
**									
10'x2.5" Pipe Mount	B	From Face	0.50 -15.00 0.00	0.0000	228.00	No Ice 1/2" Ice 1" Ice	2.88 3.91 4.96	2.88 3.91 4.96	57.90 78.90 106.45
**									
20' x 2 1/2" Pipe Mount (Sprint)	B	From Face	0.50 15.00 0.00	0.0000	228.00	No Ice 1/2" Ice 1" Ice	5.75 7.78 9.83	5.75 7.78 9.83	115.80 157.42 211.69
20' x 2 1/2" Pipe Mount (Sprint)	B	From Face	0.50 15.00	0.0000	228.00	No Ice 1/2" Ice	5.75 7.78	5.75 7.78	115.80 157.42

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert (ft / ft / ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (lb)
			0.00			1" Ice	9.83	9.83	211.69
20' x 2 1/2" Pipe Mount (Sprint)	C	From Face	0.50 -15.00	0.0000	228.00	No Ice 1/2" Ice	5.75 7.78	5.75 7.78	115.80 157.42
			0.00			1" Ice	9.83	9.83	211.69
20' x 2 1/2" Pipe Mount (Sprint)	C	From Face	0.50 15.00	0.0000	228.00	No Ice 1/2" Ice	5.75 7.78	5.75 7.78	115.80 157.42
			0.00			1" Ice	9.83	9.83	211.69
20' x 2 1/2" Pipe Mount (Sprint)	D	From Face	0.50 -15.00	0.0000	228.00	No Ice 1/2" Ice	5.75 7.78	5.75 7.78	115.80 157.42
			0.00			1" Ice	9.83	9.83	211.69
20' x 2 1/2" Pipe Mount (Sprint)	D	From Face	0.50 15.00	0.0000	228.00	No Ice 1/2" Ice	5.75 7.78	5.75 7.78	115.80 157.42
			0.00			1" Ice	9.83	9.83	211.69
NNVV-65B-R4 w/ Mount Pipe (Sprint)	B	From Face	0.50 -15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	12.75 13.45 14.12	7.65 8.94 10.07	106.60 199.84 301.80
APXVTM14-ALU-I20 (Sprint)	B	From Face	0.50 15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	6.34 6.72 7.10	3.61 3.97 4.33	56.22 95.75 140.34
NNVV-65B-R4 w/ Mount Pipe (Sprint)	C	From Face	0.50 -15.00 -3.00	-15.0000	228.00	No Ice 1/2" Ice 1" Ice	12.75 13.45 14.12	7.65 8.94 10.07	106.60 199.84 301.80
APXVTM14-ALU-I20 (Sprint)	C	From Face	0.50 15.00 -3.00	-15.0000	228.00	No Ice 1/2" Ice 1" Ice	6.34 6.72 7.10	3.61 3.97 4.33	56.22 95.75 140.34
NNVV-65B-R4 w/ Mount Pipe (Sprint)	D	From Face	0.50 -15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	12.75 13.45 14.12	7.65 8.94 10.07	106.60 199.84 301.80
APXVTM14-ALU-I20 (Sprint)	D	From Face	0.50 15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	6.34 6.72 7.10	3.61 3.97 4.33	56.22 95.75 140.34
1900 MHz 4X45 RRH (Sprint)	B	From Face	0.50 -15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	60.00 83.13 109.50
TD-RRH8X20-25 BTS (25.4"x17.5"x5.7"x66) (Sprint)	B	From Face	0.50 -15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	66.00 89.94 117.22
(2) 800MHZ 2x50W RRH (Sprint)	B	From Face	0.50 15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	53.00 74.19 98.39
1900 MHz 4X45 RRH (Sprint)	C	From Face	0.50 -15.00 -3.00	-15.0000	228.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	60.00 83.13 109.50
TD-RRH8X20-25 BTS (25.4"x17.5"x5.7"x66) (Sprint)	C	From Face	0.50 -15.00 -3.00	-15.0000	228.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	66.00 89.94 117.22
(2) 800MHZ 2x50W RRH (Sprint)	C	From Face	0.50 15.00 -3.00	-15.0000	228.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	53.00 74.19 98.39
1900 MHz 4X45 RRH (Sprint)	D	From Face	0.50 -15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	60.00 83.13 109.50
TD-RRH8X20-25 BTS (25.4"x17.5"x5.7"x66) (Sprint)	D	From Face	0.50 -15.00 -3.00	-5.0000	228.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	66.00 89.94 117.22
(2) 800MHZ 2x50W RRH (Sprint)	D	From Face	0.50 15.00	-5.0000	228.00	No Ice 1/2" Ice	2.13 2.32	1.77 1.95	53.00 74.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			-3.00			1" Ice	2.51	2.13	98.39
**									
10'x4" Pipe Mount	B	From Leg	0.50	0.0000	213.00	No Ice	3.58	3.58	109.00
			0.00			1/2" Ice	5.24	5.24	140.31
			0.00			1" Ice	5.85	5.85	178.35
10'x4" Pipe Mount	C	From Leg	0.50	0.0000	213.00	No Ice	3.58	3.58	109.00
			0.00			1/2" Ice	5.24	5.24	140.31
			0.00			1" Ice	5.85	5.85	178.35
15.5' T-Frame	B	From Leg	1.00	10.0000	213.00	No Ice	25.00	0.50	307.00
			0.00			1/2" Ice	32.00	1.00	415.00
			0.00			1" Ice	39.00	1.50	523.00
15.5' T-Frame	C	From Leg	1.00	10.0000	213.00	No Ice	25.00	0.50	307.00
			0.00			1/2" Ice	32.00	1.00	415.00
			0.00			1" Ice	39.00	1.50	523.00
(2) 8'x2" Antenna Mount Pipe	B	From Leg	1.00	0.0000	213.00	No Ice	1.90	1.90	26.00
			0.00			1/2" Ice	2.73	2.73	40.34
			0.00			1" Ice	3.40	3.40	59.96
(2) 8'x2" Antenna Mount Pipe	C	From Leg	1.00	0.0000	213.00	No Ice	1.90	1.90	26.00
			0.00			1/2" Ice	2.73	2.73	40.34
			0.00			1" Ice	3.40	3.40	59.96
AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	1.00	10.0000	213.00	No Ice	6.65	5.96	117.05
			0.00			1/2" Ice	7.26	7.04	177.37
			0.00			1" Ice	7.78	7.83	244.68
AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	1.00	10.0000	213.00	No Ice	6.65	5.96	117.05
			0.00			1/2" Ice	7.26	7.04	177.37
			0.00			1" Ice	7.78	7.83	244.68
Air 21 B4A B12P-B5P w/ Mount Pipe	B	From Leg	1.00	10.0000	213.00	No Ice	11.54	10.80	155.20
			0.00			1/2" Ice	12.16	12.23	248.24
			0.00			1" Ice	12.79	13.51	351.12
Air 21 B4A B12P-B5P w/ Mount Pipe	C	From Leg	1.00	10.0000	213.00	No Ice	11.54	10.80	155.20
			0.00			1/2" Ice	12.16	12.23	248.24
			0.00			1" Ice	12.79	13.51	351.12
72"x14"x3" Panel w/ Mount Pipe	B	From Leg	1.00	10.0000	213.00	No Ice	9.46	4.61	55.55
			0.00			1/2" Ice	10.03	5.77	117.99
			0.00			1" Ice	10.57	6.64	188.27
72"x14"x3" Panel w/ Mount Pipe	C	From Leg	1.00	10.0000	213.00	No Ice	9.46	4.61	55.55
			0.00			1/2" Ice	10.03	5.77	117.99
			0.00			1" Ice	10.57	6.64	188.27
26"x26"x2" Panel	C	From Leg	1.00	10.0000	213.00	No Ice	5.63	0.58	25.00
			0.00			1/2" Ice	5.93	0.74	52.06
			-3.00			1" Ice	6.23	0.91	82.81
(2) RRUS 11 B12 BTS	B	From Leg	1.00	10.0000	213.00	No Ice	2.83	1.18	50.70
			0.00			1/2" Ice	3.04	1.33	71.57
			0.00			1" Ice	3.26	1.48	95.49
(2) RRUS 11 B12 BTS	C	From Leg	1.00	10.0000	213.00	No Ice	2.83	1.18	50.70
			0.00			1/2" Ice	3.04	1.33	71.57
			0.00			1" Ice	3.26	1.48	95.49
**									
5' Side Arm Mount	B	Stand-Off Left	2.50	0.0000	188.00	No Ice	0.98	2.60	48.00
			0.00			1/2" Ice	1.70	4.50	70.36
			0.00			1" Ice	2.42	6.40	92.72
6' Omni	B	Stand-Off Left	5.00	0.0000	188.00	No Ice	0.82	0.82	10.00
			0.00			1/2" Ice	1.44	1.44	17.02
			4.00			1" Ice	1.96	1.96	27.99
5' Side Arm Mount	B	Stand-Off Right	2.50	0.0000	188.00	No Ice	0.98	2.60	48.00
			0.00			1/2" Ice	1.70	4.50	70.36
			0.00			1" Ice	2.42	6.40	92.72

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
6' Omni	B	Stand-Off	5.00	0.0000	188.00	No Ice	0.82	0.82	10.00
		Right	0.00			1/2" Ice	1.44	1.44	17.02
			4.00			1" Ice	1.96	1.96	27.99
6' x 2" Antenna Mount Pipe	B	Stand-Off	5.00	0.0000	188.00	No Ice	1.43	1.43	23.00
		Left	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
6' x 2" Antenna Mount Pipe	B	Stand-Off	5.00	0.0000	188.00	No Ice	1.43	1.43	23.00
		Right	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
**									
5' Side Arm Mount	B	Stand-Off	2.50	0.0000	175.00	No Ice	0.98	2.60	48.00
		Right	0.00			1/2" Ice	1.70	4.50	70.36
			0.00			1" Ice	2.42	6.40	92.72
6' Omni	B	Stand-Off	5.00	0.0000	175.00	No Ice	0.82	0.82	10.00
		Right	0.00			1/2" Ice	1.44	1.44	17.02
			4.00			1" Ice	1.96	1.96	27.99
6' x 2" Antenna Mount Pipe	B	Stand-Off	5.00	0.0000	175.00	No Ice	1.43	1.43	23.00
		Left	0.00			1/2" Ice	1.92	1.92	33.83
			0.00			1" Ice	2.29	2.29	48.71
**									
4' Side Arm Mount	C	Stand-Off	2.00	0.0000	86.00	No Ice	0.98	2.18	42.00
		Right	0.00			1/2" Ice	1.70	3.80	62.37
			0.00			1" Ice	2.42	5.42	82.75
8' Yagi	C	Stand-Off	4.00	0.0000	86.00	No Ice	1.93	2.92	84.00
		Right	0.00			1/2" Ice	4.28	3.99	118.00
			0.00			1" Ice	6.63	5.06	152.00
4' Side Arm Mount	C	Stand-Off	2.00	0.0000	84.00	No Ice	0.98	2.18	42.00
		Left	0.00			1/2" Ice	1.70	3.80	62.37
			0.00			1" Ice	2.42	5.42	82.75
4' Yagi	C	Stand-Off	4.00	0.0000	84.00	No Ice	0.30	1.00	10.00
		Left	0.00			1/2" Ice	1.50	3.50	18.00
			1.00			1" Ice	2.70	6.00	26.00
4' Yagi	C	Stand-Off	4.00	0.0000	84.00	No Ice	0.30	1.00	10.00
		Left	0.00			1/2" Ice	1.50	3.50	18.00
			-1.00			1" Ice	2.70	6.00	26.00
4' Side Arm Mount	C	Stand-Off	2.00	0.0000	82.00	No Ice	0.98	2.18	42.00
		Right	0.00			1/2" Ice	1.70	3.80	62.37
			0.00			1" Ice	2.42	5.42	82.75
4' Yagi	C	Stand-Off	4.00	0.0000	82.00	No Ice	0.30	1.00	10.00
		Right	0.00			1/2" Ice	1.50	3.50	18.00
			0.00			1" Ice	2.70	6.00	26.00
4' Side Arm Mount	B	Stand-Off	2.00	0.0000	80.00	No Ice	0.98	2.18	42.00
		Right	0.00			1/2" Ice	1.70	3.80	62.37
			0.00			1" Ice	2.42	5.42	82.75
4' Yagi	B	Stand-Off	4.00	0.0000	80.00	No Ice	0.30	1.00	10.00
		Right	0.00			1/2" Ice	1.50	3.50	18.00
			0.00			1" Ice	2.70	6.00	26.00
**									
Vicon V8300H (Security Camera)	B	From Leg	1.00	0.0000	37.00	No Ice	1.00	1.00	45.00
			0.00			1/2" Ice	2.00	2.00	65.00
			0.00			1" Ice	3.00	3.00	85.00
22 1/2"x14 1/2"x4" Box	C	From Centroid-Face	15.00	0.0000	37.00	No Ice	2.72	0.84	50.00
			0.00			1/2" Ice	2.93	0.98	66.73
			0.00			1" Ice	3.14	1.14	86.31
15"x16"x13 1/2" Box	C	From Centroid-Face	15.00	0.0000	37.00	No Ice	2.00	1.80	40.00
			0.00			1/2" Ice	2.18	1.97	62.81
			0.00			1" Ice	2.36	2.14	88.71

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
19"x14"x13" Box	C	From Centroid-Face	15.00 0.00 0.00	0.0000	37.00	No Ice 1/2" Ice 1" Ice	2.22 2.40 2.60	2.06 2.24 2.43	40.00 64.05 91.27
(2) RBC-MU2 TMA	C	From Centroid-Face	15.00 0.00 0.00	0.0000	37.00	No Ice 1/2" Ice 1" Ice	2.27 2.46 2.65	1.43 1.59 1.76	73.00 92.66 115.24
20" x 1" Omni	B	From Centroid-Face	19.00 0.00 1.00	0.0000	37.00	No Ice 1/2" Ice 1" Ice	0.25 0.38 0.51	0.25 0.38 0.51	10.00 12.60 16.73
GPS	B	From Centroid-Face	19.00 0.00 0.00	0.0000	37.00	No Ice 1/2" Ice 1" Ice	0.13 0.21 0.28	0.13 0.21 0.28	0.87 3.85 7.85
GPS	D	From Centroid-Face	19.00 0.00 0.00	0.0000	35.00	No Ice 1/2" Ice 1" Ice	0.13 0.21 0.28	0.13 0.21 0.28	0.87 3.85 7.85
**									
Full Face Walking Platform	B	From Face	0.00 0.00 1.50	0.0000	140.00	No Ice 1/2" Ice 1" Ice	133.60 186.80 240.00	42.50 57.60 72.70	1930.00 2960.00 3990.00
Full Face Walking Platform	C	From Face	0.00 0.00 1.50	0.0000	140.00	No Ice 1/2" Ice 1" Ice	133.60 186.80 240.00	42.50 57.60 72.70	1930.00 2960.00 3990.00
Corner Rest Platform	C	From Centroid-Leg	10.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	4.20 5.80 7.40	4.20 5.80 7.40	180.00 250.00 320.00
Corner Rest Platform	C	From Centroid-Leg	10.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	4.20 5.80 7.40	4.20 5.80 7.40	180.00 250.00 320.00
Corner Rest Platform	C	From Centroid-Leg	10.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	4.20 5.80 7.40	4.20 5.80 7.40	180.00 250.00 320.00
Rest Platform	D	From Centroid-Face	15.00 0.00 1.50	0.0000	216.00	No Ice 1/2" Ice 1" Ice	14.70 20.60 26.50	11.00 15.20 19.40	300.00 455.00 610.00
Full Face Walking Platform 1/3	B	From Face	0.00 0.00 1.50	0.0000	40.00	No Ice 1/2" Ice 1" Ice	44.50 62.30 80.10	14.20 19.20 24.20	643.00 987.00 1331.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 45 deg - No Ice
5	0.9 Dead+1.6 Wind 45 deg - No Ice
6	1.2 Dead+1.6 Wind 90 deg - No Ice
7	0.9 Dead+1.6 Wind 90 deg - No Ice
8	1.2 Dead+1.6 Wind 135 deg - No Ice
9	0.9 Dead+1.6 Wind 135 deg - No Ice

Comb. No.	Description
10	1.2 Dead+1.6 Wind 180 deg - No Ice
11	0.9 Dead+1.6 Wind 180 deg - No Ice
12	1.2 Dead+1.6 Wind 225 deg - No Ice
13	0.9 Dead+1.6 Wind 225 deg - No Ice
14	1.2 Dead+1.6 Wind 270 deg - No Ice
15	0.9 Dead+1.6 Wind 270 deg - No Ice
16	1.2 Dead+1.6 Wind 315 deg - No Ice
17	0.9 Dead+1.6 Wind 315 deg - No Ice
18	1.2 Dead+1.0 Ice+1.0 Temp
19	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
20	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
21	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
22	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
23	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
24	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
25	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
26	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 45 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 135 deg - Service
31	Dead+Wind 180 deg - Service
32	Dead+Wind 225 deg - Service
33	Dead+Wind 270 deg - Service
34	Dead+Wind 315 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	237.083 - 216	1.842	30	0.0466	0.0066
T2	216 - 190.917	1.622	30	0.0463	0.0065
T3	190.917 - 165.833	1.347	30	0.0447	0.0061
T4	165.833 - 140.75	1.091	30	0.0412	0.0056
T5	140.75 - 115.667	0.848	30	0.0370	0.0050
T6	115.667 - 90.5835	0.622	30	0.0315	0.0044
T7	90.5835 - 65.5002	0.422	30	0.0251	0.0036
T8	65.5002 - 40.4169	0.257	30	0.0182	0.0027
T9	40.4169 - 0	0.130	34	0.0113	0.0019

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
252.00	Beacon on 15' Extension	30	1.842	0.0466	0.0066	914361
249.00	41.5' Top Square Platform	30	1.842	0.0466	0.0066	914361
243.00	Outside Platform Support Bracing	30	1.842	0.0466	0.0066	914361
239.00	Access Platform	30	1.842	0.0466	0.0066	914361
228.00	10'x2.5" Pipe Mount	30	1.749	0.0465	0.0066	503324
216.00	Rest Platform	30	1.622	0.0463	0.0065	241600
213.00	10'x4" Pipe Mount	30	1.590	0.0462	0.0065	282758
190.00	Corner Rest Platform	30	1.337	0.0446	0.0061	233255
188.00	5' Side Arm Mount	30	1.316	0.0444	0.0060	238873

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.00	5' Side Arm Mount	30	1.182	0.0426	0.0058	438390
140.00	Full Face Walking Platform	30	0.841	0.0368	0.0050	415072
90.00	Corner Rest Platform	30	0.417	0.0250	0.0035	189080
86.00	4' Side Arm Mount	30	0.389	0.0239	0.0034	193109
84.00	4' Side Arm Mount	30	0.375	0.0233	0.0033	196781
82.00	4' Side Arm Mount	30	0.361	0.0228	0.0033	200598
80.00	4' Side Arm Mount	30	0.348	0.0222	0.0032	204566
40.00	Full Face Walking Platform 1/3	34	0.128	0.0112	0.0019	157774
37.00	Vicon V8300H (Security Camera)	34	0.116	0.0104	0.0018	166418
35.00	GPS	34	0.109	0.0098	0.0017	175729

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	237.083 - 216	7.550	8	0.1880	0.0274
T2	216 - 190.917	6.659	8	0.1867	0.0272
T3	190.917 - 165.833	5.539	8	0.1808	0.0254
T4	165.833 - 140.75	4.495	8	0.1672	0.0235
T5	140.75 - 115.667	3.503	8	0.1505	0.0210
T6	115.667 - 90.5835	2.577	8	0.1282	0.0181
T7	90.5835 - 65.5002	1.751	8	0.1025	0.0148
T8	65.5002 - 40.4169	1.072	8	0.0744	0.0114
T9	40.4169 - 0	0.542	16	0.0463	0.0079

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
252.00	Beacon on 15' Extension	8	7.550	0.1880	0.0274	226280
249.00	41.5' Top Square Platform	8	7.550	0.1880	0.0274	226280
243.00	Outside Platform Support Bracing	8	7.550	0.1880	0.0274	226280
239.00	Access Platform	8	7.550	0.1880	0.0274	226280
228.00	10'x2.5" Pipe Mount	8	7.172	0.1876	0.0274	124558
216.00	Rest Platform	8	6.659	0.1867	0.0272	59955
213.00	10'x4" Pipe Mount	8	6.527	0.1863	0.0270	70815
190.00	Corner Rest Platform	8	5.499	0.1804	0.0253	58200
188.00	5' Side Arm Mount	8	5.413	0.1795	0.0251	59618
175.00	5' Side Arm Mount	8	4.868	0.1727	0.0242	111932
140.00	Full Face Walking Platform	8	3.474	0.1499	0.0210	106073
90.00	Corner Rest Platform	8	1.733	0.1019	0.0147	46455
86.00	4' Side Arm Mount	8	1.615	0.0975	0.0142	47385
84.00	4' Side Arm Mount	8	1.558	0.0953	0.0139	48254
82.00	4' Side Arm Mount	8	1.502	0.0930	0.0136	49156
80.00	4' Side Arm Mount	8	1.446	0.0908	0.0133	50093
40.00	Full Face Walking Platform 1/3	16	0.535	0.0458	0.0078	39129
37.00	Vicon V8300H (Security Camera)	16	0.484	0.0425	0.0074	41286
35.00	GPS	16	0.452	0.0402	0.0070	43596

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	237.083	Leg	A325N	0.7500	12	7008.87	24963.20	0.281	1	Bearing
		Diagonal	A325N	0.7500	4	3748.06	31320.00	0.120	1	Gusset Bearing
T2	216	Leg	A325N	0.7500	12	10169.10	24963.20	0.407	1	Bearing
		Diagonal	A325N	0.7500	4	5772.49	28220.60	0.205	1	Gusset Bearing
		Horizontal	A325N	0.7500	4	3213.50	19439.10	0.165	1	Member Block Shear
T3	190.917	Leg	A325N	0.7500	16	9954.99	25404.00	0.392	1	Bearing
		Diagonal	A325N	0.7500	5	6541.22	31320.00	0.209	1	Gusset Bearing
		Horizontal	A325N	0.7500	4	4195.05	28220.60	0.149	1	Gusset Bearing
T4	165.833	Leg	A325N	1.0000	12	18839.70	32274.10	0.584	1	Bearing
		Diagonal	A325N	0.7500	5	7906.42	31320.00	0.252	1	Gusset Bearing
		Horizontal	A325N	0.7500	4	5026.48	28220.60	0.178	1	Gusset Bearing
T5	140.75	Leg	A325N	1.0000	16	20102.00	38132.10	0.527	1	Bearing
		Diagonal	A325N	0.7500	4	11308.60	28220.60	0.401	1	Gusset Bearing
		Horizontal	A325N	0.7500	4	6213.32	28220.60	0.220	1	Gusset Bearing
T6	115.667	Leg	A325N	1.0000	16	27163.40	36013.60	0.754	1	Bearing
		Diagonal	A325N	0.7500	4	12851.40	28220.60	0.455	1	Gusset Bearing
		Horizontal	A325N	0.7500	4	7046.38	28220.60	0.250	1	Gusset Bearing
T7	90.5835	Leg	A325N	1.0000	20	28193.70	44944.20	0.627	1	Bearing
		Diagonal	A325N	0.7500	5	12550.60	31320.00	0.401	1	Gusset Bearing
		Horizontal	A325N	0.7500	4	7857.63	28220.60	0.278	1	Gusset Bearing
T8	65.5002	Leg	A325N	1.0000	20	35436.80	56715.30	0.625	1	Bearing
		Diagonal	A325N	0.7500	5	13927.00	31320.00	0.445	1	Gusset Bearing
		Horizontal	A325N	0.7500	4	8534.90	28220.60	0.302	1	Gusset Bearing
T9	40.4169	Leg	A325N	1.0000	28	31613.70	55750.20	0.567	1	Bearing
		Diagonal	A325N	0.7500	8	10936.70	31320.00	0.349	1	Gusset Bearing
		Horizontal	A325N	0.7500	4	7801.79	28220.60	0.276	1	Gusset Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	W6x25	21.08	5.27	41.6 K=1.00	7.3400	-42053.20	217096.00	0.194 [1]
T2	216 - 190.917	W6x25	25.08	6.27	49.5 K=1.00	7.3400	-61014.50	209029.00	0.292 [1]
T3	190.917 - 165.833	W6x25	25.08	6.27	49.5 K=1.00	7.3400	-80322.10	209029.00	0.384 [1]
T4	165.833 - 140.75	W8x35	25.08	6.27	37.1 K=1.00	10.3000	-115369.00	310432.00	0.372 [1]
T5	140.75 - 115.667	W8x40	25.08	6.27	36.9 K=1.00	11.7000	-164707.00	352876.00	0.467 [1]
T6	115.667 - 90.5835	W10x49	25.08	6.27	29.6 K=1.00	14.4000	-223361.00	445493.00	0.501 [1]
T7	90.5835 -	W10x60	25.08	6.27	29.3	17.6000	-289996.00	545075.00	0.532 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	65.5002 - 40.4169	W10x77	25.08	6.27	K=1.00 28.9	22.6000	-364552.00	700651.00	0.520 [1]
T9	40.4169 - 0	W12x87	40.44	13.48	K=1.00 52.7	25.6000	-446442.00	716667.00	0.623 [1]
					K=1.00				

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2L2 1/2x3x3/8x3/8	26.98	6.75	110.0 K=1.00	3.8400	-14992.20	65821.40	0.228 [1]
T2	216 - 190.917	2L2 1/2x3x3/8x3/8	30.21	7.55	123.1 K=1.00	3.8400	-25228.80	56004.10	0.450 [1]
T3	190.917 - 165.833	2L2 1/2x3x1/2x3/8	30.21	7.55	125.6 K=1.00	5.0000	-32706.10	70627.40	0.463 [1]
T4	165.833 - 140.75	2L2 1/2x3x1/2x3/8	30.21	7.55	125.6 K=1.00	5.0000	-39532.10	70627.40	0.560 [1]
T5	140.75 - 115.667	2L3x4x3/8x3/8	30.21	7.55	103.1 K=1.00	4.9688	-49088.90	92007.50	0.534 [1]
T6	115.667 - 90.5835	2L3x4x3/8x3/8	30.21	7.55	103.1 K=1.00	4.9688	-55721.60	92007.50	0.606 [1]
T7	90.5835 - 65.5002	2L3x4x7/16x3/8	30.21	7.55	104.0 K=1.00	5.7422	-62753.10	105240.00	0.596 [1]
T8	65.5002 - 40.4169	2L3x4x1/2x3/8	30.21	7.55	104.9 K=1.00	6.5000	-69634.80	118007.00	0.590 [1]
T9	40.4169 - 0	2L4x4x1/2x3/8	44.15	14.72	101.3 K=1.00	7.5000	-83579.30	141622.00	0.590 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	216 - 190.917	2L2 1/2x3x1/4x3/8	33.67	8.42	134.1 K=1.00	2.6300	-12646.00	33018.50	0.383 [1]
T3	190.917 - 165.833	2L3x2 1/2x3/8x3/8	33.67	8.42	108.8 K=1.00	3.8400	-16681.30	66680.80	0.250 [1]
T4	165.833 - 140.75	2L3x2 1/2x3/8x3/8	33.67	8.42	108.8 K=1.00	3.8400	-20161.70	66680.80	0.302 [1]
T5	140.75 - 115.667	2L3x2 1/2x3/8x3/8	33.67	8.42	108.8 K=1.00	3.8400	-25158.80	66680.80	0.377 [1]
T6	115.667 - 90.5835	2L3x2 1/2x3/8x3/8	33.67	8.42	108.8 K=1.00	3.8400	-28613.60	66680.80	0.429 [1]
T7	90.5835 - 65.5002	2L3x2 1/2x3/8x3/8	33.67	8.42	108.8 K=1.00	3.8400	-32119.60	66680.80	0.482 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	65.5002 - 40.4169	2L3x2 1/2x3/8x3/8	33.67	8.42	108.8 K=1.00	3.8400	-35205.10	66680.80	0.528 [1]
T9	40.4169 - 0	2L4x3x7/16x3/8	33.67	16.39	78.4 K=0.50	5.7422	-34078.90	134617.00	0.253 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2C10x15.3 KL/R > 200 (C) - 8	33.67	16.57	208.5 K=1.00	8.9800	-8164.54	46684.80	0.175 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	L3x3x3/16	4.21	3.94	79.4 K=1.00	1.0900	-630.80	25344.20	0.025 [1]
T2	216 - 190.917	L3x3x3/16	4.21	3.94	79.4 K=1.00	1.0900	-915.22	25344.20	0.036 [1]
T3	190.917 - 165.833	L3x3x3/16	4.21	3.94	79.4 K=1.00	1.0900	-1204.83	25344.20	0.048 [1]
T4	165.833 - 140.75	L3x3x3/16	4.21	3.87	77.9 K=1.00	1.0900	-1730.54	25652.50	0.067 [1]
T5	140.75 - 115.667	L3x3x3/16	4.21	3.87	77.8 K=1.00	1.0900	-2470.60	25675.40	0.096 [1]
T6	115.667 - 90.5835	L3x3x3/16	4.21	3.79	76.4 K=1.00	1.0900	-3350.42	25979.70	0.129 [1]
T7	90.5835 - 65.5002	L3x3x3/16	4.21	3.78	49.5 K=0.65	1.0900	-4349.94	31040.80	0.140 [1]
T8	65.5002 - 40.4169	L3x3x3/16	4.21	3.77	49.3 K=0.65	1.0900	-5468.27	31074.30	0.176 [1]
T9	40.4169 - 0	L3x3x3/16	5.61	5.09	66.6 K=0.65	1.0900	-6698.34	27959.80	0.240 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	L2 1/2x2 1/2x3/16	8.42	8.15	197.6 K=1.00	0.9020	-751.84	5217.97	0.144 [1]
T2	216 - 190.917	L2 1/2x2 1/2x3/16	8.42	8.15	197.6 K=1.00	0.9020	-915.22	5217.97	0.175 [1]
T3	190.917 - 165.833	L2 1/2x2 1/2x3/16	8.42	8.15	197.6 K=1.00	0.9020	-1204.83	5217.97	0.231 [1]
T4	165.833 - 140.75	L2 1/2x2 1/2x3/16	8.42	8.08	195.9 K=1.00	0.9020	-1730.54	5312.04	0.326 [1]
T5	140.75 - 115.667	L2 1/2x2 1/2x3/16	8.42	8.07	195.7 K=1.00	0.9020	-2470.60	5319.17	0.464 [1]
T6	115.667 - 90.5835	L2 1/2x2 1/2x3/16	8.42	8.00	194.0 K=1.00	0.9020	-3350.42	5415.44	0.619 [1]
T7	90.5835 - 65.5002	L2 1/2x2 1/2x3/16	8.42	7.99	125.9 K=0.65	0.9020	-4349.94	12681.90	0.343 [1]
T8	65.5002 - 40.4169	L2 1/2x2 1/2x3/16	8.42	7.98	125.7 K=0.65	0.9020	-5468.27	12723.80	0.430 [1]
T9	40.4169 - 0	2L2 1/2x2 1/2x1/4x3/8	11.22	10.70	108.5 K=0.65	2.3800	-6698.34	41472.10	0.162 [1]

[1] $P_u / \phi P_n$ controls

Redundant Horizontal (3) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2L2 1/2x2 1/2x3/8x3/8	12.63	12.36	197.0 K=1.00	3.4700	-630.80	20203.70	0.031 [1]
T2	216 - 190.917	2L2 1/2x2 1/2x3/8x3/8	12.63	12.36	197.0 K=1.00	3.4700	-915.22	20203.70	0.045 [1]
T3	190.917 - 165.833	2L2 1/2x2 1/2x3/8x3/8	12.63	12.36	197.0 K=1.00	3.4700	-1204.83	20203.70	0.060 [1]
T4	165.833 - 140.75	2L2 1/2x2 1/2x3/8x3/8	12.63	12.29	195.8 K=1.00	3.4700	-1730.54	20442.80	0.085 [1]
T5	140.75 - 115.667	2L2 1/2x2 1/2x3/8x3/8	12.63	12.28	195.7 K=1.00	3.4700	-2470.60	20460.80	0.121 [1]
T6	115.667 - 90.5835	2L2 1/2x2 1/2x3/8x3/8	12.63	12.21	194.6 K=1.00	3.4700	-3350.42	20703.10	0.162 [1]
T7	90.5835 - 65.5002	2L2 1/2x2 1/2x3/8x3/8	12.63	12.20	126.4 K=0.65	3.4700	-4349.94	48496.80	0.090 [1]
T8	65.5002 - 40.4169	2L2 1/2x2 1/2x3/8x3/8	12.63	12.18	126.2 K=0.65	3.4700	-5468.27	48602.60	0.113 [1]

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	L3x3x3/16	6.75	6.32	127.2	1.0900	-668.19	15062.10	0.044 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	216 - 190.917	L3x3x3/16	7.55	7.08	K=1.00 142.5	1.0900	-915.96	12134.20	0.075 [1]
T3	190.917 - 165.833	L3x3x3/16	7.55	7.08	K=1.00 142.5	1.0900	-1453.76	12134.20	0.120 [1]
T4	165.833 - 140.75	L3x3x3/16	7.55	6.95	K=1.00 139.8	1.0900	-2163.83	12593.10	0.172 [1]
T5	140.75 - 115.667	L3x3x3/16	7.55	6.94	K=1.00 139.6	1.0900	-2753.31	12628.40	0.218 [1]
T6	115.667 - 90.5835	L3x3x3/16	7.55	6.81	K=1.00 137.0	1.0900	-3793.76	13113.00	0.289 [1]
T7	90.5835 - 65.5002	L3x3x3/16	7.55	6.79	K=1.00 95.7	1.0900	-4605.04	21812.30	0.211 [1]
T8	65.5002 - 40.4169	L3x3x3/16	7.55	6.76	K=0.70 95.3	1.0900	-5385.76	21900.30	0.246 [1]
T9	40.4169 - 0	2L2 1/2x2 1/2x3/16x3/8	14.48	13.06	K=0.70 141.0	1.8000	-8643.77	20450.20	0.423 [1]
					K=0.70				

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2L3x3x3/16x3/8	9.93	9.62	122.9 K=1.00	2.1800	-575.41	31885.70	0.018 [1]
T2	216 - 190.917	2L3x3x3/16x3/8	10.50	10.17	129.9 K=1.00	2.1800	-570.63	29052.20	0.020 [1]
T3	190.917 - 165.833	2L3x3x3/16x3/8	10.50	10.17	129.9 K=1.00	2.1800	-751.21	29052.20	0.026 [1]
T4	165.833 - 140.75	2L3x3x3/16x3/8	10.50	10.07	128.8 K=1.00	2.1800	-1078.98	29512.90	0.037 [1]
T5	140.75 - 115.667	2L3x3x3/16x3/8	10.50	10.07	128.7 K=1.00	2.1800	-1540.41	29547.40	0.052 [1]
T6	115.667 - 90.5835	2L3x3x3/16x3/8	10.50	9.98	127.5 K=1.00	2.1800	-2088.97	30008.70	0.070 [1]
T7	90.5835 - 65.5002	2L3x3x3/16x3/8	10.50	9.97	89.1 K=0.70	2.1800	-2712.17	46483.30	0.058 [1]
T8	65.5002 - 40.4169	2L3x3x3/16x3/8	10.50	9.95	89.0 K=0.70	2.1800	-3409.45	46560.40	0.073 [1]
T9	40.4169 - 0	2L2 1/2x2 1/2x1/4x3/8	17.34	16.64	181.8 K=0.70	2.3800	-5175.57	16269.60	0.318 [1]

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (3) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2L2 1/2x2 1/2x3/16x3/8	9.93	9.62	148.3 K=1.00	1.8000	-1348.15	18486.00	0.073 [1]
T2	216 - 190.917	2L2 1/2x2 1/2x3/16x3/8	10.50	10.17	156.8 K=1.00	1.8000	-764.77	16549.50	0.046 [1]
T3	190.917 - 165.833	2L2 1/2x2 1/2x3/16x3/8	10.50	10.17	156.8 K=1.00	1.8000	-751.21	16549.50	0.045 [1]
T4	165.833 - 140.75	2L2 1/2x2 1/2x3/16x3/8	10.50	10.07	155.4 K=1.00	1.8000	-1078.98	16847.80	0.064 [1]
T5	140.75 - 115.667	2L2 1/2x2 1/2x3/16x3/8	10.50	10.07	155.3 K=1.00	1.8000	-1540.41	16870.40	0.091 [1]
T6	115.667 - 90.5835	2L2 1/2x2 1/2x3/16x3/8	10.50	9.98	153.9 K=1.00	1.8000	-2088.97	17175.80	0.122 [1]
T7	90.5835 - 65.5002	2L2 1/2x2 1/2x3/16x3/8	10.50	9.97	107.6 K=0.70	1.8000	-2712.17	31713.60	0.086 [1]
T8	65.5002 - 40.4169	2L2 1/2x2 1/2x3/16x3/8	10.50	9.95	107.4 K=0.70	1.8000	-3409.45	31790.20	0.107 [1]

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	40.4169 - 0	2L2 1/2x2 1/2x1/4x3/8	7.94	7.94	80.5 K=0.65	2.3800	-500.25	54824.80	0.009 [1]

[1] P_u / ϕP_n controls

Redundant Hip (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	40.4169 - 0	2L3x3x3/16x3/8	15.87	15.87	131.8 K=0.65	2.1800	-156.70	28187.90	0.006 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	40.4169 - 0	2L3x3x3/16x3/8	18.51	18.51	165.6 K=0.70	2.1800	-356.82	17964.90	0.020 [1]

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (2) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T9	40.4169 - 0	2L3x3x3/16x3/8	24.38	24.38	218.1 K=0.70	2.1800	-334.07	10352.00	0.032 [1]

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	237.083 - 216	2L3x2 1/2x5/16x3/8	33.67	33.67	431.3 K=1.00	3.2422	-121.58	3937.14	0.031 [1]
T2	216 - 190.917	KL/R > 250 (C) - 13 2L3x2 1/2x5/16x3/8	23.81	23.81	305.0 K=1.00	3.2422	-15.94	7874.28	0.002 [1]
T3	190.917 - 165.833	KL/R > 250 (C) - 156 2L3x2 1/2x5/16x3/8	23.81	23.81	305.0 K=1.00	3.2422	-7.89	7874.28	0.001 [1]
T4	165.833 - 140.75	KL/R > 250 (C) - 235 2L3x2 1/2x5/16x3/8	23.81	23.81	305.0 K=1.00	3.2422	-8.33	7874.28	0.001 [1]
T5	140.75 - 115.667	KL/R > 250 (C) - 316 2L3x2 1/2x5/16x3/8	23.81	23.81	305.0 K=1.00	3.2422	-13.39	7874.28	0.002 [1]
T6	115.667 - 90.5835	KL/R > 250 (C) - 397 2L3x2 1/2x5/16x3/8	23.81	23.81	305.0 K=1.00	3.2422	-26.37	7874.28	0.003 [1]
T7	90.5835 - 65.5002	KL/R > 250 (C) - 478 2L3x2 1/2x5/16x3/8	23.81	23.81	305.0 K=1.00	3.2422	-52.40	7874.28	0.007 [1]
T8	65.5002 - 40.4169	KL/R > 250 (C) - 559 2L3x2 1/2x5/16x3/8	23.81	23.81	305.0 K=1.00	3.2422	-77.30	7874.28	0.010 [1]
T9	40.4169 - 0	KL/R > 250 (C) - 640 2C4x7.25	23.81	23.81	222.0 K=0.50	4.2600	-253.76	19523.50	0.013 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	216 - 190.917	W6x25	25.08	6.27	49.5	7.3400	4321.91	237816.00	0.018 [1]
T3	190.917 - 165.833	W6x25	25.08	6.27	49.5	7.3400	28569.50	237816.00	0.120 [1]
T4	165.833 - 140.75	W8x35	25.08	6.27	37.1	10.3000	60453.30	333720.00	0.181 [1]
T5	140.75 - 115.667	W8x40	25.08	6.27	36.9	11.7000	99787.00	379080.00	0.263 [1]
T6	115.667 - 90.5835	W10x49	25.08	6.27	29.6	14.4000	148739.00	466560.00	0.319 [1]
T7	90.5835 - 65.5002	W10x60	25.08	6.27	29.3	17.6000	205681.00	570240.00	0.361 [1]
T8	65.5002 - 40.4169	W10x77	25.08	6.27	28.9	22.6000	269784.00	732240.00	0.368 [1]
T9	40.4169 - 0	W12x87	40.44	13.48	52.7	25.6000	336843.00	829440.00	0.406 [1]

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2L2 1/2x3x3/8x3/8	26.98	6.75	216.8	2.3878	12513.60	103870.00	0.120 [1]
T2	216 - 190.917	2L2 1/2x3x3/8x3/8	30.21	7.55	242.7	2.3878	23154.90	103870.00	0.223 [1]
T3	190.917 - 165.833	2L2 1/2x3x1/2x3/8	30.21	7.55	238.2	3.0938	29912.40	134578.00	0.222 [1]
T4	165.833 - 140.75	2L2 1/2x3x1/2x3/8	30.21	7.55	237.2	3.0938	36254.30	134578.00	0.269 [1]
T5	140.75 - 115.667	2L3x4x3/8x3/8	30.21	7.55	183.3	3.2344	45234.30	140695.00	0.322 [1]
T6	115.667 - 90.5835	2L3x4x3/8x3/8	30.21	7.55	182.5	3.2344	51405.60	140695.00	0.365 [1]
T7	90.5835 - 65.5002	2L3x4x7/16x3/8	30.21	7.55	181.3	3.7324	57591.30	162360.00	0.355 [1]
T8	65.5002 - 40.4169	2L3x4x1/2x3/8	30.21	7.55	180.1	4.2188	63612.00	183516.00	0.347 [1]
T9	40.4169 - 0	2L4x4x1/2x3/8	44.15	13.42	144.8	4.9688	82686.70	216141.00	0.383 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	216 - 190.917	2L2 1/2x3x1/4x3/8	33.67	8.42	137.1	1.6444	13412.40	71530.30	0.188 [1]
T3	190.917 - 165.833	2L3x2 1/2x3/8x3/8	33.67	8.42	171.4	2.3878	16934.10	103870.00	0.163 [1]
T4	165.833 - 140.75	2L3x2 1/2x3/8x3/8	33.67	8.42	171.4	2.3878	20539.10	103870.00	0.198 [1]
T5	140.75 - 115.667	2L3x2 1/2x3/8x3/8	33.67	8.42	170.7	2.3878	25545.70	103870.00	0.246 [1]
T6	115.667 - 90.5835	2L3x2 1/2x3/8x3/8	33.67	8.42	170.6	2.3878	28963.10	103870.00	0.279 [1]
T7	90.5835 - 65.5002	2L3x2 1/2x3/8x3/8	33.67	8.42	169.9	2.3878	32338.60	103870.00	0.311 [1]
T8	65.5002 - 40.4169	2L3x2 1/2x3/8x3/8	33.67	8.42	169.8	2.3878	35523.00	103870.00	0.342 [1]
T9	40.4169 - 0	2L4x3x7/16x3/8	33.67	16.39	156.8	3.7324	31207.20	162360.00	0.192 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2C10x15.3	33.67	16.57	208.5	8.9800	7581.66	290952.00	0.026 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	L3x3x3/16	4.21	3.94	79.4	1.0900	1027.31	35316.00	0.029 [1]
T2	216 - 190.917	L3x3x3/16	4.21	3.94	79.4	1.0900	1198.68	35316.00	0.034 [1]
T3	190.917 - 165.833	L3x3x3/16	4.21	3.94	79.4	1.0900	1817.47	35316.00	0.051 [1]
T4	165.833 - 140.75	L3x3x3/16	4.21	3.87	77.9	1.0900	2614.21	35316.00	0.074 [1]
T5	140.75 - 115.667	L3x3x3/16	4.21	3.87	77.8	1.0900	3273.64	35316.00	0.093 [1]
T6	115.667 - 90.5835	L3x3x3/16	4.21	3.79	76.4	1.0900	4320.67	35316.00	0.122 [1]
T7	90.5835 - 65.5002	L3x3x3/16	4.21	3.78	76.2	1.0900	5264.11	35316.00	0.149 [1]
T8	65.5002 - 40.4169	L3x3x3/16	4.21	3.77	75.8	1.0900	6173.24	35316.00	0.175 [1]
T9	40.4169 - 0	L3x3x3/16	5.61	5.09	102.5	1.0900	6698.34	35316.00	0.190 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (2) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	237.083 - 216	L2 1/2x2 1/2x3/16	8.42	8.15	197.6	0.9020	810.66	29224.80	0.028 [1]
T2	216 - 190.917	L2 1/2x2 1/2x3/16	8.42	8.15	197.6	0.9020	915.22	29224.80	0.031 [1]
T3	190.917 - 165.833	L2 1/2x2 1/2x3/16	8.42	8.15	197.6	0.9020	1204.83	29224.80	0.041 [1]
T4	165.833 - 140.75	L2 1/2x2 1/2x3/16	8.42	8.08	195.9	0.9020	1730.54	29224.80	0.059 [1]
T5	140.75 - 115.667	L2 1/2x2 1/2x3/16	8.42	8.07	195.7	0.9020	2470.60	29224.80	0.085 [1]
T6	115.667 - 90.5835	L2 1/2x2 1/2x3/16	8.42	8.00	194.0	0.9020	3350.42	29224.80	0.115 [1]
T7	90.5835 - 65.5002	L2 1/2x2 1/2x3/16	8.42	7.99	193.7	0.9020	4349.94	29224.80	0.149 [1]
T8	65.5002 - 40.4169	L2 1/2x2 1/2x3/16	8.42	7.98	193.4	0.9020	5468.27	29224.80	0.187 [1]
T9	40.4169 - 0	2L2 1/2x2 1/2x1/4x3/8	11.22	10.70	167.0	2.3800	6698.34	77112.00	0.087 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (3) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	237.083 - 216	2L2 1/2x2 1/2x3/8x3/8	12.63	12.36	197.0	3.4700	1045.69	112428.00	0.009 [1]
T2	216 - 190.917	2L2 1/2x2 1/2x3/8x3/8	12.63	12.36	197.0	3.4700	915.22	112428.00	0.008 [1]
T3	190.917 - 165.833	2L2 1/2x2 1/2x3/8x3/8	12.63	12.36	197.0	3.4700	1204.83	112428.00	0.011 [1]
T4	165.833 - 140.75	2L2 1/2x2 1/2x3/8x3/8	12.63	12.29	195.8	3.4700	1730.54	112428.00	0.015 [1]
T5	140.75 - 115.667	2L2 1/2x2 1/2x3/8x3/8	12.63	12.28	195.7	3.4700	2470.60	112428.00	0.022 [1]
T6	115.667 - 90.5835	2L2 1/2x2 1/2x3/8x3/8	12.63	12.21	194.6	3.4700	3350.42	112428.00	0.030 [1]
T7	90.5835 - 65.5002	2L2 1/2x2 1/2x3/8x3/8	12.63	12.20	194.4	3.4700	4349.94	112428.00	0.039 [1]
T8	65.5002 - 40.4169	2L2 1/2x2 1/2x3/8x3/8	12.63	12.18	194.2	3.4700	5468.27	112428.00	0.049 [1]

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	237.083 - 216	L3x3x3/16	6.75	6.32	127.2	1.0900	505.46	35316.00	0.014 [1]
T2	216 - 190.917	L3x3x3/16	7.55	7.08	142.5	1.0900	821.14	35316.00	0.023 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T3	190.917 - 165.833	L3x3x3/16	7.55	7.08	142.5	1.0900	1080.99	35316.00	0.031 [1]
T4	165.833 - 140.75	L3x3x3/16	7.55	6.95	139.8	1.0900	1552.66	35316.00	0.044 [1]
T5	140.75 - 115.667	L3x3x3/16	7.55	6.94	139.6	1.0900	2216.65	35316.00	0.063 [1]
T6	115.667 - 90.5835	L3x3x3/16	7.55	6.81	137.0	1.0900	3006.03	35316.00	0.085 [1]
T7	90.5835 - 65.5002	L3x3x3/16	7.55	6.79	136.7	1.0900	3902.82	35316.00	0.111 [1]
T8	65.5002 - 40.4169	L3x3x3/16	7.55	6.76	136.1	1.0900	4906.20	35316.00	0.139 [1]
T9	40.4169 - 0	2L2 1/2x2 1/2x3/16x3/8	14.48	13.06	201.4	1.8000	8643.77	58320.00	0.148 [1]

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2L3x3x3/16x3/8	9.93	9.62	122.9	2.1800	713.13	70632.00	0.010 [1]
T2	216 - 190.917	2L3x3x3/16x3/8	10.50	10.17	129.9	2.1800	570.63	70632.00	0.008 [1]
T3	190.917 - 165.833	2L3x3x3/16x3/8	10.50	10.17	129.9	2.1800	751.21	70632.00	0.011 [1]
T4	165.833 - 140.75	2L3x3x3/16x3/8	10.50	10.07	128.8	2.1800	1078.98	70632.00	0.015 [1]
T5	140.75 - 115.667	2L3x3x3/16x3/8	10.50	10.07	128.7	2.1800	1540.41	70632.00	0.022 [1]
T6	115.667 - 90.5835	2L3x3x3/16x3/8	10.50	9.98	127.5	2.1800	2088.97	70632.00	0.030 [1]
T7	90.5835 - 65.5002	2L3x3x3/16x3/8	10.50	9.97	127.4	2.1800	2712.17	70632.00	0.038 [1]
T8	65.5002 - 40.4169	2L3x3x3/16x3/8	10.50	9.95	127.1	2.1800	3409.45	70632.00	0.048 [1]
T9	40.4169 - 0	2L2 1/2x2 1/2x1/4x3/8	17.34	16.64	259.7	2.3800	5175.57	77112.00	0.067 [1]

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (3) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2L2 1/2x2 1/2x3/16x3/8	6.75	6.43	99.2	1.8000	420.65	58320.00	0.007 [1]
T2	216 - 190.917	2L2 1/2x2 1/2x3/16x3/8	10.50	10.17	156.8	1.8000	570.63	58320.00	0.010 [1]
T3	190.917 - 165.833	2L2 1/2x2 1/2x3/16x3/8	10.50	10.17	156.8	1.8000	751.21	58320.00	0.013 [1]
T4	165.833 - 140.75	2L2 1/2x2 1/2x3/16x3/8	10.50	10.07	155.4	1.8000	1078.98	58320.00	0.019 [1]
T5	140.75 -	2L2 1/2x2 1/2x3/16x3/8	10.50	10.07	155.3	1.8000	1540.41	58320.00	0.026 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T6	115.667 - 90.5835	2L2 1/2x2 1/2x3/16x3/8	10.50	9.98	153.9	1.8000	2088.97	58320.00	0.036 [1]
T7	90.5835 - 65.5002	2L2 1/2x2 1/2x3/16x3/8	10.50	9.97	153.7	1.8000	2712.17	58320.00	0.047 [1]
T8	65.5002 - 40.4169	2L2 1/2x2 1/2x3/16x3/8	10.50	9.95	153.4	1.8000	3409.45	58320.00	0.058 [1]

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	40.4169 - 0	2L2 1/2x2 1/2x1/4x3/8	7.94	7.94	123.8	2.3800	103.85	77112.00	0.001 [1]

[1] P_u / ϕP_n controls

Redundant Hip (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	40.4169 - 0	2L3x3x3/16x3/8	15.87	15.87	202.8	2.1800	73.89	70632.00	0.001 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	40.4169 - 0	2L3x3x3/16x3/8	18.51	18.51	236.5	2.1800	751.50	70632.00	0.011 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	40.4169 - 0	2L3x3x3/16x3/8	24.38	24.38	311.6	2.1800	256.61	70632.00	0.004 [1]

[1] $P_u / \phi P_n$ controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	237.083 - 216	2L3x2 1/2x5/16x3/8	23.81	23.81	305.0	3.2422	173.20	105047.00	0.002 [1]
T2	216 - 190.917	2L3x2 1/2x5/16x3/8	23.81	23.81	305.0	3.2422	8.99	105047.00	0.000 [1]
T3	190.917 - 165.833	2L3x2 1/2x5/16x3/8	23.81	23.81	305.0	3.2422	14.07	105047.00	0.000 [1]
T4	165.833 - 140.75	2L3x2 1/2x5/16x3/8	23.81	23.81	305.0	3.2422	12.50	105047.00	0.000 [1]
T5	140.75 - 115.667	2L3x2 1/2x5/16x3/8	23.81	23.81	305.0	3.2422	20.04	105047.00	0.000 [1]
T6	115.667 - 90.5835	2L3x2 1/2x5/16x3/8	23.81	23.81	305.0	3.2422	31.57	105047.00	0.000 [1]
T7	90.5835 - 65.5002	2L3x2 1/2x5/16x3/8	23.81	23.81	305.0	3.2422	56.77	105047.00	0.001 [1]
T8	65.5002 - 40.4169	2L3x2 1/2x5/16x3/8	23.81	23.81	305.0	3.2422	83.22	105047.00	0.001 [1]
T9	40.4169 - 0	2C4x7.25	23.81	23.81	444.0	4.2600	333.35	138024.00	0.002 [1]

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	237.083 - 216	Leg	W6x25	2	-42053.20	217096.00	19.4 28.1 (b)	Pass
T2	216 - 190.917	Leg	W6x25	83	-61014.50	209029.00	29.2 40.7 (b)	Pass
T3	190.917 - 165.833	Leg	W6x25	164	-80322.10	209029.00	38.4 39.2 (b)	Pass
T4	165.833 - 140.75	Leg	W8x35	245	-115369.00	310432.00	37.2 58.4 (b)	Pass
T5	140.75 - 115.667	Leg	W8x40	326	-164707.00	352876.00	46.7 52.7 (b)	Pass
T6	115.667 - 90.5835	Leg	W10x49	407	-223361.00	445493.00	50.1 75.4 (b)	Pass
T7	90.5835 - 65.5002	Leg	W10x60	488	-289996.00	545075.00	53.2 62.7 (b)	Pass
T8	65.5002 - 40.4169	Leg	W10x77	569	-364552.00	700651.00	52.0 62.5 (b)	Pass
T9	40.4169 - 0	Leg	W12x87	650	-446442.00	716667.00	62.3	Pass
T1	237.083 - 216	Diagonal	2L2 1/2x3x3/8x3/8	22	-14992.20	65821.40	22.8	Pass
T2	216 - 190.917	Diagonal	2L2 1/2x3x3/8x3/8	104	-25228.80	56004.10	45.0	Pass
T3	190.917 -	Diagonal	2L2 1/2x3x1/2x3/8	185	-32706.10	70627.40	46.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
	165.833							
T4	165.833 - 140.75	Diagonal	2L2 1/2x3x1/2x3/8	266	-39532.10	70627.40	56.0	Pass
T5	140.75 - 115.667	Diagonal	2L3x4x3/8x3/8	347	-49088.90	92007.50	53.4	Pass
T6	115.667 - 90.5835	Diagonal	2L3x4x3/8x3/8	428	-55721.60	92007.50	60.6	Pass
T7	90.5835 - 65.5002	Diagonal	2L3x4x7/16x3/8	509	-62753.10	105240.00	59.6	Pass
T8	65.5002 - 40.4169	Diagonal	2L3x4x1/2x3/8	590	-69634.80	118007.00	59.0	Pass
T9	40.4169 - 0	Diagonal	2L4x4x1/2x3/8	670	-83579.30	141622.00	59.0	Pass
T2	216 - 190.917	Horizontal	2L2 1/2x3x1/4x3/8	103	-12646.00	33018.50	38.3	Pass
T3	190.917 - 165.833	Horizontal	2L3x2 1/2x3/8x3/8	184	-16681.30	66680.80	25.0	Pass
T4	165.833 - 140.75	Horizontal	2L3x2 1/2x3/8x3/8	265	-20161.70	66680.80	30.2	Pass
T5	140.75 - 115.667	Horizontal	2L3x2 1/2x3/8x3/8	346	-25158.80	66680.80	37.7	Pass
T6	115.667 - 90.5835	Horizontal	2L3x2 1/2x3/8x3/8	427	-28613.60	66680.80	42.9	Pass
T7	90.5835 - 65.5002	Horizontal	2L3x2 1/2x3/8x3/8	508	-32119.60	66680.80	48.2	Pass
T8	65.5002 - 40.4169	Horizontal	2L3x2 1/2x3/8x3/8	589	-35205.10	66680.80	52.8	Pass
T9	40.4169 - 0	Horizontal	2L4x3x7/16x3/8	664	-34078.90	134617.00	25.3 27.6 (b)	Pass
T1	237.083 - 216	Top Girt	2C10x15.3	8	-8164.54	46684.80	17.5	Pass
T1	237.083 - 216	Redund Horz 1 Bracing	L3x3x3/16	31	1027.31	35316.00	2.9	Pass
T2	216 - 190.917	Redund Horz 1 Bracing	L3x3x3/16	105	-915.22	25344.20	3.6	Pass
T3	190.917 - 165.833	Redund Horz 1 Bracing	L3x3x3/16	177	1817.47	35316.00	5.1	Pass
T4	165.833 - 140.75	Redund Horz 1 Bracing	L3x3x3/16	258	2614.21	35316.00	7.4	Pass
T5	140.75 - 115.667	Redund Horz 1 Bracing	L3x3x3/16	339	-2470.60	25675.40	9.6	Pass
T6	115.667 - 90.5835	Redund Horz 1 Bracing	L3x3x3/16	429	-3350.42	25979.70	12.9	Pass
T7	90.5835 - 65.5002	Redund Horz 1 Bracing	L3x3x3/16	510	5264.11	35316.00	14.9	Pass
T8	65.5002 - 40.4169	Redund Horz 1 Bracing	L3x3x3/16	582	-5468.27	31074.30	17.6	Pass
T9	40.4169 - 0	Redund Horz 1 Bracing	L3x3x3/16	666	-6698.34	27959.80	24.0	Pass
T1	237.083 - 216	Redund Horz 2 Bracing	L2 1/2x2 1/2x3/16	32	-751.84	5217.97	14.4	Pass
T2	216 - 190.917	Redund Horz 2 Bracing	L2 1/2x2 1/2x3/16	106	-915.22	5217.97	17.5	Pass
T3	190.917 - 165.833	Redund Horz 2 Bracing	L2 1/2x2 1/2x3/16	178	-1204.83	5217.97	23.1	Pass
T4	165.833 - 140.75	Redund Horz 2 Bracing	L2 1/2x2 1/2x3/16	259	-1730.54	5312.04	32.6	Pass
T5	140.75 - 115.667	Redund Horz 2 Bracing	L2 1/2x2 1/2x3/16	349	-2470.60	5319.17	46.4	Pass
T6	115.667 - 90.5835	Redund Horz 2 Bracing	L2 1/2x2 1/2x3/16	430	-3350.42	5415.44	61.9	Pass
T7	90.5835 - 65.5002	Redund Horz 2 Bracing	L2 1/2x2 1/2x3/16	502	-4349.94	12681.90	34.3	Pass
T8	65.5002 - 40.4169	Redund Horz 2 Bracing	L2 1/2x2 1/2x3/16	592	-5468.27	12723.80	43.0	Pass
T9	40.4169 - 0	Redund Horz 2 Bracing	2L2 1/2x2 1/2x1/4x3/8	667	-6698.34	41472.10	16.2	Pass
T1	237.083 - 216	Redund Horz 3	2L2 1/2x2 1/2x3/8x3/8	26	-630.80	20203.70	3.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T2	216 - 190.917	Bracing Redund Horz 3 Bracing	2L2 1/2x2 1/2x3/8x3/8	99	-915.22	20203.70	4.5	Pass
T3	190.917 - 165.833	Redund Horz 3 Bracing	2L2 1/2x2 1/2x3/8x3/8	180	-1204.83	20203.70	6.0	Pass
T4	165.833 - 140.75	Redund Horz 3 Bracing	2L2 1/2x2 1/2x3/8x3/8	261	-1730.54	20442.80	8.5	Pass
T5	140.75 - 115.667	Redund Horz 3 Bracing	2L2 1/2x2 1/2x3/8x3/8	342	-2470.60	20460.80	12.1	Pass
T6	115.667 - 90.5835	Redund Horz 3 Bracing	2L2 1/2x2 1/2x3/8x3/8	432	-3350.42	20703.10	16.2	Pass
T7	90.5835 - 65.5002	Redund Horz 3 Bracing	2L2 1/2x2 1/2x3/8x3/8	504	-4349.94	48496.80	9.0	Pass
T8	65.5002 - 40.4169	Redund Horz 3 Bracing	2L2 1/2x2 1/2x3/8x3/8	585	-5468.27	48602.60	11.3	Pass
T1	237.083 - 216	Redund Diag 1 Bracing	L3x3x3/16	33	-668.19	15062.10	4.4	Pass
T2	216 - 190.917	Redund Diag 1 Bracing	L3x3x3/16	98	-915.96	12134.20	7.5	Pass
T3	190.917 - 165.833	Redund Diag 1 Bracing	L3x3x3/16	179	-1453.76	12134.20	12.0	Pass
T4	165.833 - 140.75	Redund Diag 1 Bracing	L3x3x3/16	260	-2163.83	12593.10	17.2	Pass
T5	140.75 - 115.667	Redund Diag 1 Bracing	L3x3x3/16	341	-2753.31	12628.40	21.8	Pass
T6	115.667 - 90.5835	Redund Diag 1 Bracing	L3x3x3/16	422	-3793.76	13113.00	28.9	Pass
T7	90.5835 - 65.5002	Redund Diag 1 Bracing	L3x3x3/16	503	-4605.04	21812.30	21.1	Pass
T8	65.5002 - 40.4169	Redund Diag 1 Bracing	L3x3x3/16	593	-5385.76	21900.30	24.6	Pass
T9	40.4169 - 0	Redund Diag 1 Bracing	2L2 1/2x2 1/2x3/16x3/8	668	-8643.77	20450.20	42.3	Pass
T1	237.083 - 216	Redund Diag 2 Bracing	2L3x3x3/16x3/8	35	-575.41	31885.70	1.8	Pass
T2	216 - 190.917	Redund Diag 2 Bracing	2L3x3x3/16x3/8	109	-570.63	29052.20	2.0	Pass
T3	190.917 - 165.833	Redund Diag 2 Bracing	2L3x3x3/16x3/8	181	-751.21	29052.20	2.6	Pass
T4	165.833 - 140.75	Redund Diag 2 Bracing	2L3x3x3/16x3/8	262	-1078.98	29512.90	3.7	Pass
T5	140.75 - 115.667	Redund Diag 2 Bracing	2L3x3x3/16x3/8	343	-1540.41	29547.40	5.2	Pass
T6	115.667 - 90.5835	Redund Diag 2 Bracing	2L3x3x3/16x3/8	424	-2088.97	30008.70	7.0	Pass
T7	90.5835 - 65.5002	Redund Diag 2 Bracing	2L3x3x3/16x3/8	505	-2712.17	46483.30	5.8	Pass
T8	65.5002 - 40.4169	Redund Diag 2 Bracing	2L3x3x3/16x3/8	586	-3409.45	46560.40	7.3	Pass
T9	40.4169 - 0	Redund Diag 2 Bracing	2L2 1/2x2 1/2x1/4x3/8	663	-5175.57	16269.60	31.8	Pass
T1	237.083 - 216	Redund Diag 3 Bracing	2L2 1/2x2 1/2x3/16x3/8	20	-1348.15	18486.00	7.3	Pass
T2	216 - 190.917	Redund Diag 3 Bracing	2L2 1/2x2 1/2x3/16x3/8	118	-764.77	16549.50	4.6	Pass
T3	190.917 - 165.833	Redund Diag 3 Bracing	2L2 1/2x2 1/2x3/16x3/8	191	-751.21	16549.50	4.5	Pass
T4	165.833 - 140.75	Redund Diag 3 Bracing	2L2 1/2x2 1/2x3/16x3/8	263	-1078.98	16847.80	6.4	Pass
T5	140.75 - 115.667	Redund Diag 3 Bracing	2L2 1/2x2 1/2x3/16x3/8	344	-1540.41	16870.40	9.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T6	115.667 - 90.5835	Redund Diag 3 Bracing	2L2 1/2x2 1/2x3/16x3/8	425	-2088.97	17175.80	12.2	Pass
T7	90.5835 - 65.5002	Redund Diag 3 Bracing	2L2 1/2x2 1/2x3/16x3/8	515	-2712.17	31713.60	8.6	Pass
T8	65.5002 - 40.4169	Redund Diag 3 Bracing	2L2 1/2x2 1/2x3/16x3/8	587	-3409.45	31790.20	10.7	Pass
T9	40.4169 - 0	Redund Hip 1 Bracing	2L2 1/2x2 1/2x1/4x3/8	675	-500.25	54824.80	0.9	Pass
T9	40.4169 - 0	Redund Hip 2 Bracing	2L3x3x3/16x3/8	706	-145.17	28187.90	0.8	Pass
T9	40.4169 - 0	Redund Hip Diagonal 1 Bracing	2L3x3x3/16x3/8	677	-356.82	17964.90	2.0	Pass
T9	40.4169 - 0	Redund Hip Diagonal 2 Bracing	2L3x3x3/16x3/8	678	-334.07	10352.00	3.2	Pass
T1	237.083 - 216	Inner Bracing	2L3x2 1/2x5/16x3/8	13	-121.58	3937.14	3.1	Pass
T2	216 - 190.917	Inner Bracing	2L3x2 1/2x5/16x3/8	158	-0.62	3937.14	1.7	Pass
T3	190.917 - 165.833	Inner Bracing	2L3x2 1/2x5/16x3/8	239	-0.53	3937.14	1.7	Pass
T4	165.833 - 140.75	Inner Bracing	2L3x2 1/2x5/16x3/8	320	-0.48	3937.14	1.7	Pass
T5	140.75 - 115.667	Inner Bracing	2L3x2 1/2x5/16x3/8	401	-0.48	3937.14	1.7	Pass
T6	115.667 - 90.5835	Inner Bracing	2L3x2 1/2x5/16x3/8	482	-0.40	3937.14	1.7	Pass
T7	90.5835 - 65.5002	Inner Bracing	2L3x2 1/2x5/16x3/8	563	-0.30	3937.14	1.6	Pass
T8	65.5002 - 40.4169	Inner Bracing	2L3x2 1/2x5/16x3/8	644	-1.76	3937.14	1.6	Pass
T9	40.4169 - 0	Inner Bracing	2C4x7.25	717	-13.52	9761.73	2.9	Pass
							Summary	
							Leg (T6)	75.4 Pass
							Diagonal (T6)	60.6 Pass
							Horizontal (T8)	52.8 Pass
							Top Girt (T1)	17.5 Pass
							Redund Horz 1 Bracing (T9)	24.0 Pass
							Redund Horz 2 Bracing (T6)	61.9 Pass
							Redund Horz 3 Bracing (T6)	16.2 Pass
							Redund Diag 1 Bracing (T9)	42.3 Pass
							Redund Diag 2 Bracing (T9)	31.8 Pass
							Redund Diag 3 Bracing (T6)	12.2 Pass
							Redund Hip 1 Bracing (T9)	0.9 Pass
							Redund Hip 2 Bracing (T9)	0.8 Pass
							Redund Hip Diagonal 1	2.0 Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						Bracing (T9) Redund Hip Diagonal 2	3.2	Pass
						Bracing (T9) Inner	3.1	Pass
						Bracing (T1) Bolt Checks	75.4	Pass
						RATING =	**75.4**	**Pass**

Project Information

Site Name	Cheshire, CT

Tower Information

Tower Type	Self Support
TIA-222 Rev	G

Applied Loads

	Comp.	Uplift
Axial (k)	561.12	435.44
Shear (k)	53.48	47.87

Anchor Rod Data

Quantity:	12	
Diameter (in):	2.25	
Material Grade:	A36	Fy=36 ksi Fu=58 ksi
Grout Considered:	No	Grout Considered
l_{ar} (in):	0	Bending Interaction Not Considered
Eta Factor, η:	0.7	
Thread Type:	N-Included	
Configuration:	Symmetrical	

Anchor Rod Results

Axial, Pu_t (kips)	36.29	
Shear, Vu (kips)	3.99	
Moment, Mu (kip-in)	-	
Axial Cap., φPn_t (kips)	150.80	
Shear Cap., ϕVn (kips)	-	
Moment Cap., ϕMn (kip-in)	-	
Stress Rating	27.8%	**Pass**

Analysis Date: 01/14/2019

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REDUNDANT MEMBER END CONNECTION CALCULATIONS

Customer: Sprint
Site Name: 1108-B0003-B
Job Number: Cheshire, CT
Tower Model: 237' AT&T Self-Supporting Tower
Date: 01/14/2019

Redundant Horizontals (1)

Section No.	Elevation (ft)	Size	Bolt Grade	Bolt Size in	Number Of Bolts	Connection Tensile Load lb	Connection Compressive Load lb	Connection Tensile Capacity lb	Connection Compressive Capacity lb	Bolt Shear Capacity lb	Member % Capacity
T1	237.1-216	L3x3x3/16	A325N	0.75	2	1040.9	1040.9	17637.9	31320.0	35784.7	5.9%
T2	216-190.9	L3x3x3/16	A325N	0.75	2	1289.2	1289.2	17637.9	31320.0	35784.7	7.3%
T3	190.9-165.8	L3x3x3/16	A325N	0.75	2	1864.4	1864.4	17637.9	31320.0	35784.7	10.6%
T4	165.8-140.8	L3x3x3/16	A325N	0.75	2	2637.3	2637.3	17637.9	31320.0	35784.7	15.0%
T5	140.8-115.7	L3x3x3/16	A325N	0.75	2	2560.7	-2560.7	17637.9	31320.0	35784.7	14.5%
T6	115.7-90.6	L3x3x3/16	A325N	0.75	2	3733.4	-3733.4	17637.9	31320.0	35784.7	21.2%
T7	90.6-65.5	L3x3x3/16	A325N	0.75	2	4678.2	-4678.2	17637.9	31320.0	35784.7	26.5%
T8	65.5-40.4	L3x3x3/16	A325N	0.75	2	5455.8	-5455.8	17637.9	31320.0	35784.7	30.9%
T9	40.4-0	L3x3x3/16	A325N	0.75	2	6699.6	-6699.6	17637.9	31320.0	35784.7	38.0%

Redundant Horizontals (2)

Section No.	Elevation (ft)	Size	Bolt Grade	Bolt Size in	Number Of Bolts	Connection Tensile Load lb	Connection Compressive Load lb	Connection Tensile Capacity lb	Connection Compressive Capacity lb	Bolt Shear Capacity lb	Member % Capacity
T1	237.1-216	L2 1/2x2 1/2x3/16	A325N	0.75	2	1050.8	-1050.8	16618.4	31320.0	35784.7	6.3%
T2	216-190.9	L2 1/2x2 1/2x3/16	A325N	0.75	2	915.3	-915.3	16618.4	31320.0	35784.7	5.5%
T3	190.9-165.8	L2 1/2x2 1/2x3/16	A325N	0.75	2	1202.8	-1202.8	16618.4	31320.0	35784.7	7.2%
T4	165.8-140.8	L2 1/2x2 1/2x3/16	A325N	0.75	2	1734.8	-1734.8	16618.4	31320.0	35784.7	10.4%
T5	140.8-115.7	L2 1/2x2 1/2x3/16	A325N	0.75	2	2471.9	-2471.9	16618.4	31320.0	35784.7	14.9%
T6	115.7-90.6	L2 1/2x2 1/2x3/16	A325N	0.75	2	3345.4	-3345.4	16618.4	31320.0	35784.7	20.1%
T7	90.6-65.5	L2 1/2x2 1/2x3/16	A325N	0.75	2	4342.4	-4342.4	16618.4	31320.0	35784.7	26.1%
T8	65.5-40.4	L2 1/2x2 1/2x3/16	A325N	0.75	2	5455.8	-5455.8	16618.4	31320.0	35784.7	32.8%
T9	40.4-0	2L2 1/2x2 1/2x1/4x3/8	A325N	0.75	2	6699.6	-6699.6	44315.6	83520.0	71569.4	15.1%

Redundant Horizontals (3)

Section No.	Elevation (ft)	Size	Bolt Grade	Bolt Size in	Number Of Bolts	Connection Tensile Load lb	Connection Compressive Load lb	Connection Tensile Capacity lb	Connection Compressive Capacity lb	Bolt Shear Capacity lb	Member % Capacity
T1	237.1-216	2L2 1/2x2 1/2x3/8x3/8	A325N	0.75	2	924.5	-924.5	66473.4	125280.0	71569.4	1.4%
T2	216-190.9	2L2 1/2x2 1/2x3/8x3/8	A325N	0.75	2	933.2	-933.2	66473.4	125280.0	71569.4	1.4%
T3	190.9-165.8	2L2 1/2x2 1/2x3/8x3/8	A325N	0.75	2	1202.8	-1202.8	66473.4	125280.0	71569.4	1.8%
T4	165.8-140.8	2L2 1/2x2 1/2x3/8x3/8	A325N	0.75	2	1734.8	-1734.8	66473.4	125280.0	71569.4	2.6%
T5	140.8-115.7	2L2 1/2x2 1/2x3/8x3/8	A325N	0.75	2	2471.9	-2471.9	66473.4	125280.0	71569.4	3.7%
T6	115.7-90.6	2L2 1/2x2 1/2x3/8x3/8	A325N	0.75	2	3345.4	-3345.4	66473.4	125280.0	71569.4	5.0%
T7	90.6-65.5	2L2 1/2x2 1/2x3/8x3/8	A325N	0.75	2	4342.4	-4342.4	66473.4	125280.0	71569.4	6.5%
T8	65.5-40.4	2L2 1/2x2 1/2x3/8x3/8	A325N	0.75	2	5455.8	-5455.8	66473.4	125280.0	71569.4	8.2%

Redundant Diagonals (1)

Section No.	Elevation (ft)	Size	Bolt Grade	Bolt Size in	Number Of Bolts	Connection Tensile Load lb	Connection Compressive Load lb	Connection Tensile Capacity lb	Connection Compressive Capacity lb	Bolt Shear Capacity lb	Member % Capacity
T1	237.1-216	L3x3x3/16	A325N	0.75	2	678.8	-678.8	17637.9	31320.0	35784.7	3.8%
T2	216-190.9	L3x3x3/16	A325N	0.75	2	1002.6	-1002.6	17637.9	31320.0	35784.7	5.7%
T3	190.9-165.8	L3x3x3/16	A325N	0.75	2	1502.3	-1502.3	17637.9	31320.0	35784.7	8.5%
T4	165.8-140.8	L3x3x3/16	A325N	0.75	2	2193.9	-2193.9	17637.9	31320.0	35784.7	12.4%
T5	140.8-115.7	L3x3x3/16	A325N	0.75	2	2793.8	-2793.8	17637.9	31320.0	35784.7	15.8%
T6	115.7-90.6	L3x3x3/16	A325N	0.75	2	3906.9	-3906.9	17637.9	31320.0	35784.7	22.2%
T7	90.6-65.5	L3x3x3/16	A325N	0.75	2	4714.7	-4714.7	17637.9	31320.0	35784.7	26.7%
T8	65.5-40.4	L3x3x3/16	A325N	0.75	2	5419.2	-5419.2	17637.9	31320.0	35784.7	30.7%
T9	40.4-0	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	8645.4	-8645.4	33236.7	62640.0	71569.4	26.0%

Redundant Diagonals (2)

Section No.	Elevation (ft)	Size	Bolt Grade	Bolt Size in	Number Of Bolts	Connection Tensile Load lb	Connection Compressive Load lb	Connection Tensile Capacity lb	Connection Compressive Capacity lb	Bolt Shear Capacity lb	Member % Capacity
T1	237.1-216	2L3x3x3/16x3/8	A325N	0.75	2	774.8	-774.8	35275.8	62640.0	71569.4	2.2%
T2	216-190.9	2L3x3x3/16x3/8	A325N	0.75	2	570.7	-570.7	35275.8	62640.0	71569.4	1.6%
T3	190.9-165.8	2L3x3x3/16x3/8	A325N	0.75	2	749.9	-749.9	35275.8	62640.0	71569.4	2.1%
T4	165.8-140.8	2L3x3x3/16x3/8	A325N	0.75	2	1081.6	-1081.6	35275.8	62640.0	71569.4	3.1%
T5	140.8-115.7	2L3x3x3/16x3/8	A325N	0.75	2	1541.2	-1541.2	35275.8	62640.0	71569.4	4.4%
T6	115.7-90.6	2L3x3x3/16x3/8	A325N	0.75	2	2085.8	-2085.8	35275.8	62640.0	71569.4	5.9%
T7	90.6-65.5	2L3x3x3/16x3/8	A325N	0.75	2	2707.5	-2707.5	35275.8	62640.0	71569.4	7.7%
T8	65.5-40.4	2L3x3x3/16x3/8	A325N	0.75	2	3401.7	-3401.7	35275.8	62640.0	71569.4	9.6%
T9	40.4-0	2L2 1/2x2 1/2x1/4x3/8	A325N	0.75	2	5176.5	-5176.5	44315.6	83520.0	71569.4	11.7%

Redundant Diagonals (3)

Section No.	Elevation (ft)	Size	Bolt Grade	Bolt Size in	Number Of Bolts	Connection Tensile Load lb	Connection Compressive Load lb	Connection Tensile Capacity lb	Connection Compressive Capacity lb	Bolt Shear Capacity lb	Member % Capacity
T1	237.1-216	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	1353.3	-1353.3	33236.7	62640.0	71569.4	4.1%
T2	216-190.9	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	765.4	-765.4	33236.7	62640.0	71569.4	2.3%
T3	190.9-165.8	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	749.9	-749.9	33236.7	62640.0	71569.4	2.3%
T4	165.8-140.8	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	1081.6	-1081.6	33236.7	62640.0	71569.4	3.3%
T5	140.8-115.7	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	1541.2	-1541.2	33236.7	62640.0	71569.4	4.6%
T6	115.7-90.6	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	2085.8	-2085.8	33236.7	62640.0	71569.4	6.3%
T7	90.6-65.5	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	2707.5	-2707.5	33236.7	62640.0	71569.4	8.1%
T8	65.5-40.4	2L2 1/2x2 1/2x3/16x3/8	A325N	0.75	2	3401.7	-3401.7	33236.7	62640.0	71569.4	10.2%

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

SPRINT Existing Facility

Site ID: CT03XC044

Cheshire
751 Higgins Road
Cheshire, CT 06410

January 30, 2019

EBI Project Number: 6219000253

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	4.23 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
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January 30, 2019

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT03XC044 – Cheshire**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **751 Higgins Road, Cheshire, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **751 Higgins Road, Cheshire, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed panel antennas are **225 feet** above ground level (AGL) for **Sector A**, **225 feet** above ground level (AGL) for **Sector B** and **225 feet** above ground level (AGL) for Sector C.

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**225 feet**	Height (AGL):	**225 feet**	Height (AGL):	**225 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**0.68 %**	Antenna B1 MPE%	**0.68 %**	Antenna C1 MPE%	**0.68 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**225 feet**	Height (AGL):	**225 feet**	Height (AGL):	**225 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**0.47 %**	Antenna B2 MPE%	**0.47 %**	Antenna C2 MPE%	**0.47 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**1.15 %**
AT&T	1.37 %
T-Mobile / Voicestream	0.92 %
Nextel	0.13 %
Verizon Wireless	0.66 %
Site Total MPE %:	**4.23 %**

SPRINT Sector A Total:	1.15 %
SPRINT Sector B Total:	1.15 %
SPRINT Sector C Total:	1.15 %
Site Total:	4.23 %

SPRINT _ Frequency Band / Technology (Per Sector)	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density ($\mu W/cm^2$)**	**Frequency (MHz)**	**Allowable MPE ($\mu W/cm^2$)**	**Calculated % MPE**
Sprint 850 MHz CDMA	1	376.73	225	0.28	850 MHz	567	0.05%
Sprint 850 MHz LTE	2	941.82	225	1.41	850 MHz	567	0.25%
Sprint 1900 MHz (PCS) CDMA	5	511.82	225	1.92	1900 MHz (PCS)	1000	0.19%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	225	1.92	1900 MHz (PCS)	1000	0.19%
Sprint 2500 MHz (BRS) LTE	8	778.09	225	4.67	2500 MHz (BRS)	1000	0.47%
						Total:	**1.15%**

Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	1.15 %
Sector B:	1.15 %
Sector C:	1.15 %
SPRINT Maximum MPE % (per sector):	1.15 %
Site Total:	4.23 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **4.23 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

February 14, 2013

David Weisman
Vertical Development LLC
7 Sycamore Way, Unit 1
Branford, CT 06405

RE: **EM-SPRINT-NEXTEL-025-130118** – Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 751 Higgins Road, Cheshire, Connecticut.

Dear Mr. Weisman:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- The proposed coax shall be installed in accordance with the recommendation made in the Structural Analysis Report prepared by GPD Group dated November 6, 2012 and stamped by David Granger; and
- Within 45 days following completion of the antenna installation, Sprint shall provide documentation certified by a professional engineer that its installation complied with the recommendation of the structural analysis.
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated January 15, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower

site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts MAB

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Timothy Slocum, Council Chairman, Town of Cheshire
Michael A. Milone, Town Manager, Town of Cheshire
William S. Voelker, AICP, Town Planner, Town of Cheshire
Christopher B. Fisher, Esq., Cuddy & Feder LLP o/b/o AT&T

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2013

Town of Cheshire

The bedding plant capital of Connecticut

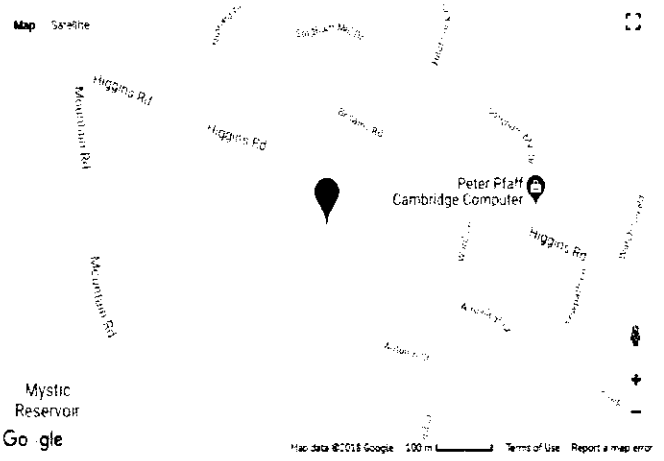
Information on the Property Record for the Municipality of Cheshire was last updated on 6/16, 2018

Property Summary Information

Parcel Data And Values | Building | Outbuildings | Google Map

Google Map

Unique Id:	00712600
Location:	751 HIGGINS RD
MBL:	69 53
Primary Use:	Light Industrial
Zone:	R-40
Acres:	19.80
Appraised Value:	$2,954,222
Assessed Value:	$2,067,960



The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2013.

Town of Cheshire

The bedding plant capital of Connecticut

Information on the Property Records for the Municipality of Cheshire was last updated on 6/16/2018.

Parcel Information

Location:	751 HIGGINS RD	Property Use:	Industrial	Primary Use:	Light Industrial
Unique ID:	00712600	Map Block Lot:	69 53	Acres:	19.80
Zone:	R-40	Volume / Page:	0148/0566	Developers Map / Lot:	285128
Census:	3434				

Value Information

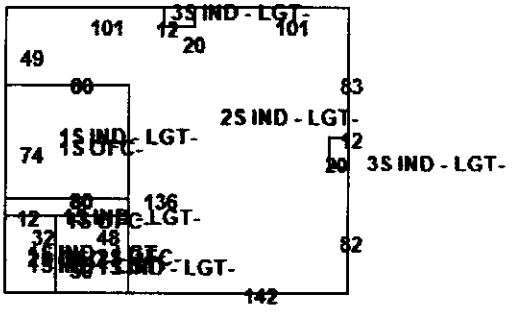
	Appraised Value	Assessed Value
Land	434,893	304,430
Buildings	2,489,370	1,742,560
Detached Outbuildings	29,959	20,970
Total	2,954,222	2,067,960

Owner's Information

Owner's Data

AMER TEL & TEL CO
AT&T PROPERTY TAX UNIT
P O BOX 7207
BEDMINSTER, NJ 07921

Building 1



Category:	Industrial	Use:	Light Industrial	Stories:	2.00
Above Grade:	88,238	Below Grade:	0	Below Grade Finish:	0
Construction:	Average	Year Built:	1968	Heating:	
Fuel:		Cooling Percent:	100%	Siding:	Pre-Cast Concrete/B. V. Solid
Roof Material:	Asphalt	Beds/Units:	0		

Special Features

Attached Components

ORIGIN ID:SKKA (917) 841-0247
PAUL SAGRISTANO
CHARLES CHERUNDOLO CONSULTING
4 DAVIS ROAD WEST
SUITE 5
OLD LYME, CT 06371
UNITED STATES US

SHIP DATE: 06FEB19
ACTWGT: 1.00 LB
CAD: 111040781/INET4100

BILL SENDER

TO **MS. MELANIE BACHMAN, EXEC. DIR.**
CT SITING COUNCIL
TEN FRANKLIN SQUARE

NEW BRITAIN CT 06051
(860) 827-2935 REF: CT03XC044 CSC SUBMISSION
INV:
PO: DEPT:

565J2/0E3D/23AD

FedEx Express

MON - 11 FEB 4:30P
EXPRESS SAVER

TRK# 0201 **7744 0308 2766**

DSR
06051
CT-US **BDL**

00 BDLA

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ORIGIN ID:LKKA (856) 625-1596
RYAN BAILEY
CHARLES CHERUNDOLO CONSULTING
3 PROSPECT PL
B
MADISON, NJ 07940
UNITED STATES US

SHIP DATE: 06FEB19
ACTWGT: 1.00 LB
CAD: 111040781/INET4100

BILL SENDER

TO **WILLIAM VOELKER**
TOWN OF CHESHIRE
84 SOUTH MAIN ST

CHESHIRE CT 06410
(203) 271-6670 REF: CT03XCO44 CSC FILING
INV:
PO: DEPT:

565J2/0E3D/23AD

FedEx Express

TRK# 0201 **7744 0311 5967**

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EXPRESS SAVER

K7 HVNA

06410
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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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RYAN BAILEY
CHARLES CHERUNDOLO CONSULTING
3 PROSPECT PL
B
MADISON, NJ 07940
UNITED STATES US

SHIP DATE: 06FEB19
ACTWGT: 1.00 LB
CAD: 111047781/INET4100

BILL SENDER

TO **ROB ORIS**
TOWN OF CHESHIRE
84 SOUTH MAIN ST

CHESHIRE CT 06410
(203) 271-6670 REF: CT03XC044 CSC FILING
INV:
PO: DEPT:

565J2/0E3D/23AD

FedEx Express

TRK# 0201 **7744 0312 4089**

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EXPRESS SAVER

K7 HVNA

06410
BDL
CT-US

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RYAN BAILEY
CHARLES CHERUNDOLO CONSULTING
3 PROSPECT PL
B
MADISON, NJ 07940
UNITED STATES US

SHIP DATE: 06FEB19
ACTWGT: 1.00 LB
CAD: 111040781/INET4100

BILL SENDER

TO **JEREMY COYLE**
AT&T
225 WEST RANDOLPH ST
ANTENNA SOLUTIONS GROUP
CHICAGO IL 60606
(708) 369-3825 REF: CTD3XO044 CSC FLING
INV:
PO: DEPT:

565J2/0E3D/23AD

FedEx Express

MON - 11 FEB 4:30P
EXPRESS SAVER

TRK# 0201 7744 0315 0189

SH CHIA

60606
ORD
IL-US

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