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
164 Country Rd, Rear, Wolcott, CT

Latitude: N41.5782
Longitude: W72.9566

Dear Ms. Bachman:

Sprint currently maintains 3 existing panel antennas and 3 remote radio units at the 200'9" centerline level of the existing lattice tower. Sprint proposes to add 3 panel antennas and 6 remote radio unit at the 200'9" centerline on the tower. Sprint further proposes to add 1 hybrid cable and 30 Antenna to RRH jumper cables. 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.

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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 Mayor Thomas G. Dunn of the Town of Wolcott as well as David Kalinowski, Zoning Inspector for the Town of Wolcott and Insite Towers, owner of the tower.

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, tax sheet and tax map.

Existing Facility

CSC Summary Statement – CT60XC956 – 164 County Rd, Wolcott CT 06088

The Communications Tower facility is located at 164 Country Rd, Wolcott CT and is owned by Insite Tower, the Site coordinates are: N41.5762 W72.9566.

The existing facility consists of a 350' Lattice Tower. Sprint currently operates wireless communications equipment on a platform on a concrete slab at the facility and has 3 antennas and 3 RRU's mounted on at centerline of 200'9" 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:
Mayor Thomas G. Dunn for the Town of Wolcott– Via FedEx
David Kalinowski, Zoning Officer for the Town of Wolcott - Via FedEx
Insite Towers, owner of the tower – Via FedEx

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	COX COMMUNICATIONS TOWER
SITE CASCADE:	CT60XC956
SITE ADDRESS:	164 COUNTY ROAD REAR WOLCOTT, CT 06716
SITE TYPE:	GUYED TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
COXCOM, INC. COX ENTERPRISES
1400 LAKE HEARN DR, NE
ATLANTA, GA 30319

LATITUDE (NAD83):
41° 34' 34.3992" N
41.576222°

LONGITUDE (NAD83):
72° 57' 24.1092" W
-72.956697°

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
TOWN OF WOLCOTT

ZONING DISTRICT:
TBD

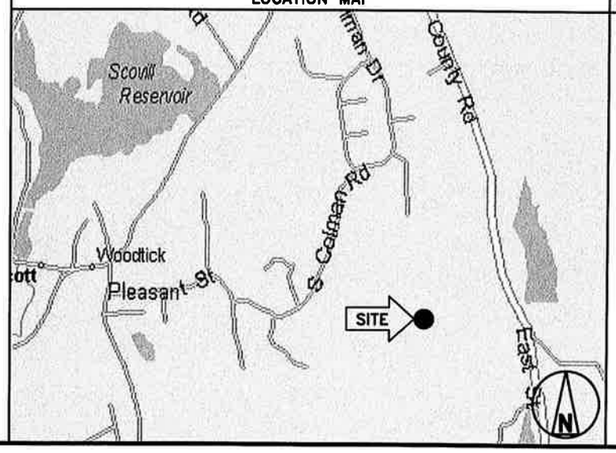
POWER COMPANY:
CL&P
(203) 597-4246

AAV PROVIDER:
AT&T
(800) 246-2020

SPRINT CM:
JESSE ROSENTHAL
(862) 226-9768

AREA MAP

LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL (1) 9927 EQUIPMENT CABINET IN EXISTING LEASE SPACE
- INSTALL (3) PANEL ANTENNAS
- INSTALL (6) RRU'S TO TOWER
- INSTALL (30) JUMPER CABLES
- INSTALL (1) HYBRID CABLE
- INSTALL (8) BATTERIES IN EXISTING BBU CABINET

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	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	COLOR CODING AND 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. 24703
LICENSED PROFESSIONAL ENGINEER
NOV 10 2017

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	11/10/17	ASW	0

SITE NAME:
COX COMMUNICATIONS TOWER

SITE CASCADE:
CT60XC956

SITE ADDRESS:
164 COUNTY ROAD REAR
WOLCOTT, CT 06716

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
LICENSED PROFESSIONAL ENGINEER
NOV 14 2017

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	11/10/17	ASW	0

SITE NAME:

COX COMMUNICATIONS TOWER

SITE CASCADE:

CT60XC956

SITE ADDRESS:

164 COUNTY ROAD REAR
WOLCOTT, CT 06716

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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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 · LICENSED PROFESSIONAL ENGINEER · 11/10/17

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	11/10/17	ASW	0

SITE NAME:

COX COMMUNICATIONS TOWER

SITE CASCADE:

CT60XC956

SITE ADDRESS:

164 COUNTY ROAD REAR
WOLCOTT, CT 06716

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
No. 24705
LICENSED PROFESSIONAL ENGINEER
NOV 0 2017

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	11/10/17	ASW	0

SITE NAME:

COX COMMUNICATIONS TOWER

SITE CASCADE:

CT60XC956

SITE ADDRESS:

164 COUNTY ROAD REAR
WOLCOTT, CT 06716

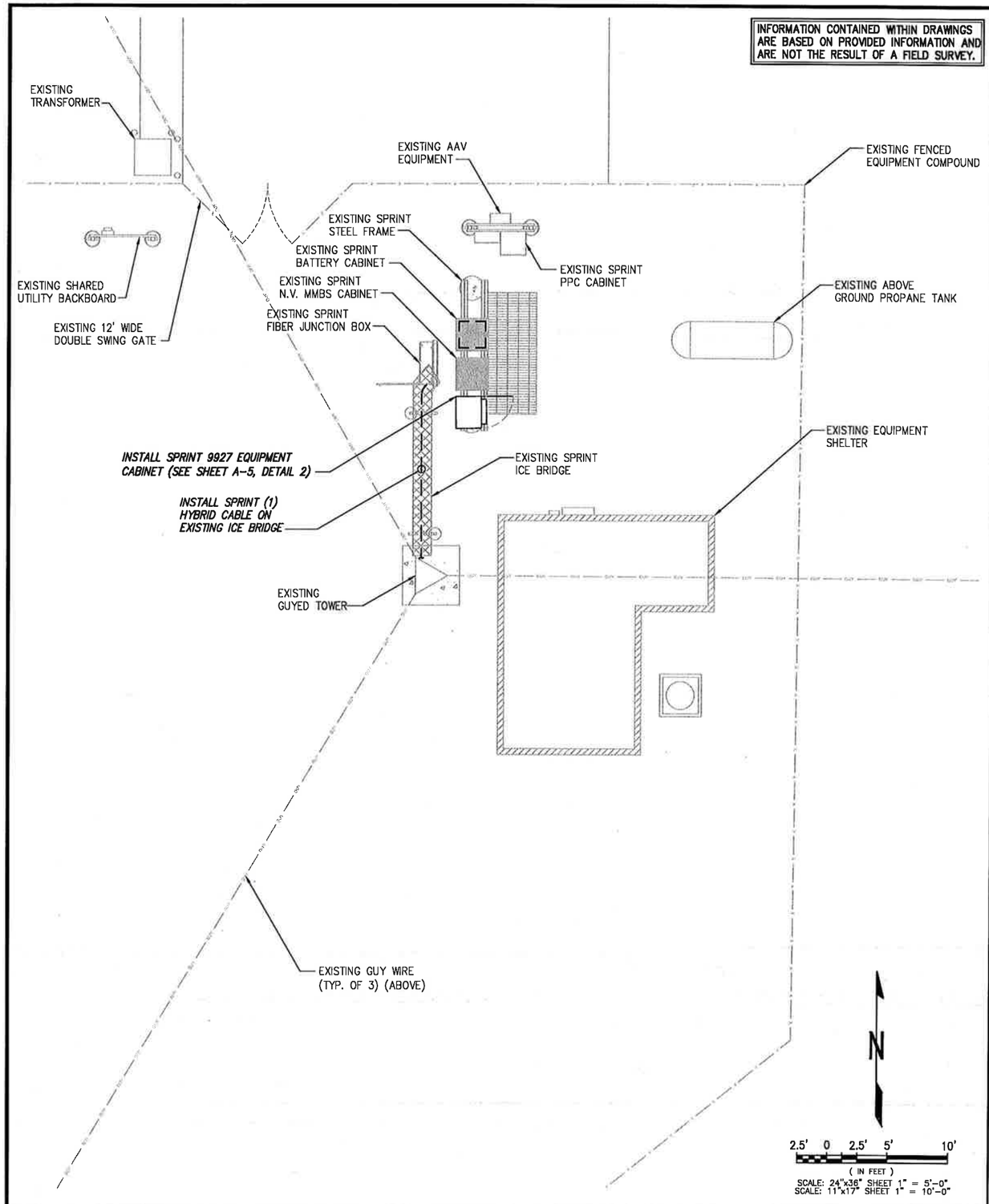
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

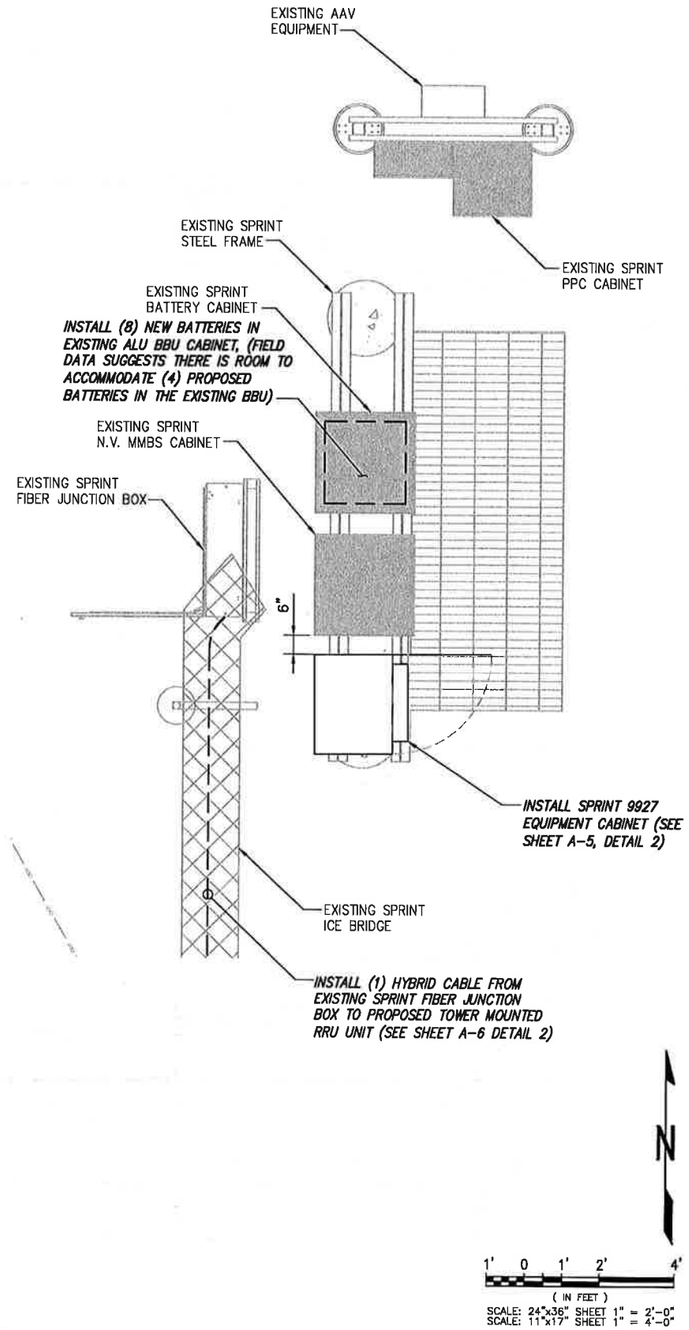
SP-3

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



OVERALL SITE PLAN

SCALE: AS NOTED | 1



SPRINT EQUIPMENT PLAN

SCALE: AS NOTED | 2

PLANS PREPARED FOR:

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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LICENSED PROFESSIONAL ENGINEER
NOV. 10 2017

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	11/10/17	ASW	0

SITE NAME:

COX COMMUNICATIONS TOWER

SITE CASCADE:

CT60XC956

SITE ADDRESS:

164 COUNTY ROAD REAR
WOLCOTT, CT 06716

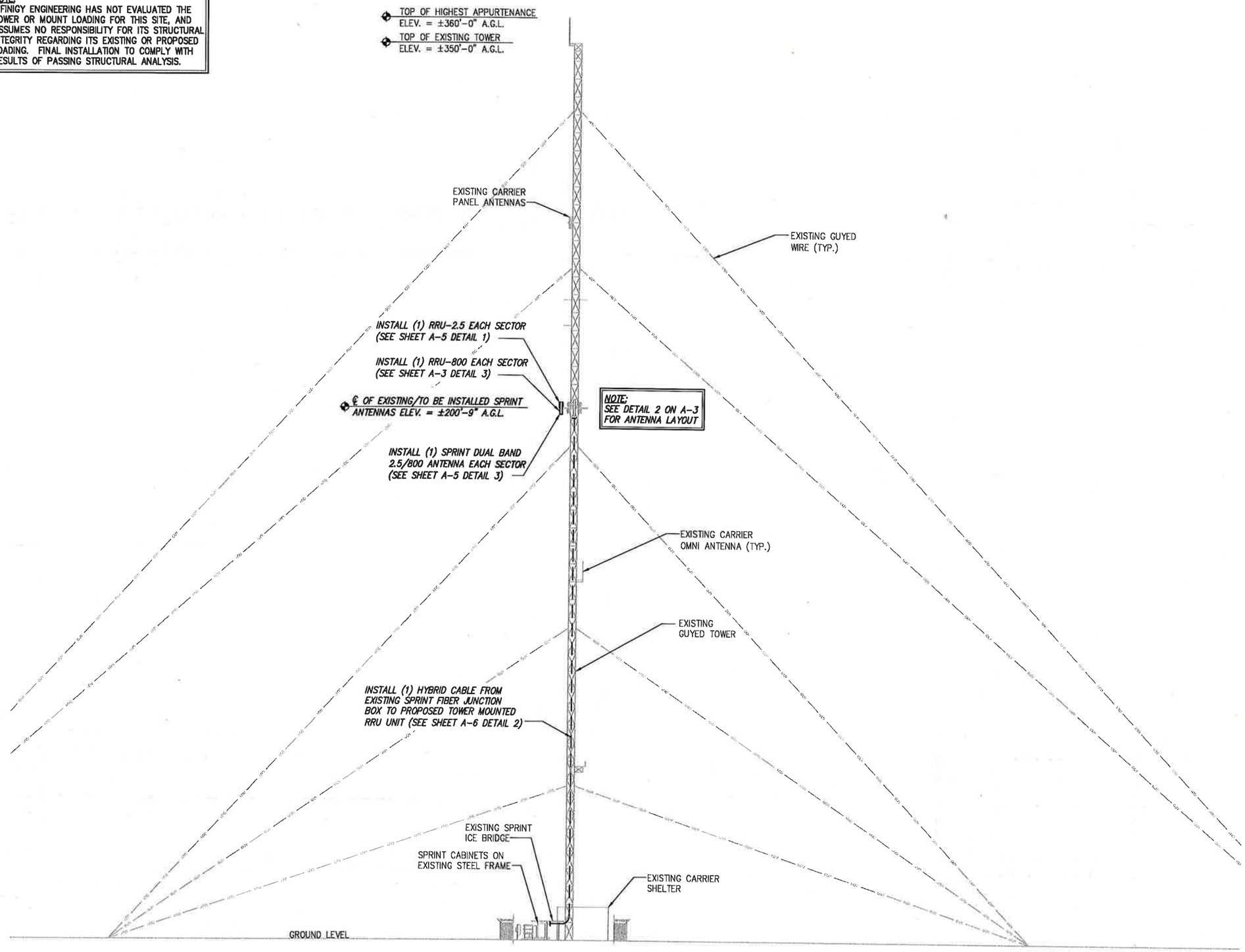
SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

NOTE:
INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER OR MOUNT LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSIS.



TOWER ELEVATION | NO SCALE | 1

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Sprint

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COX COMMUNICATIONS TOWER

SITE CASCADE:

CT60XC956

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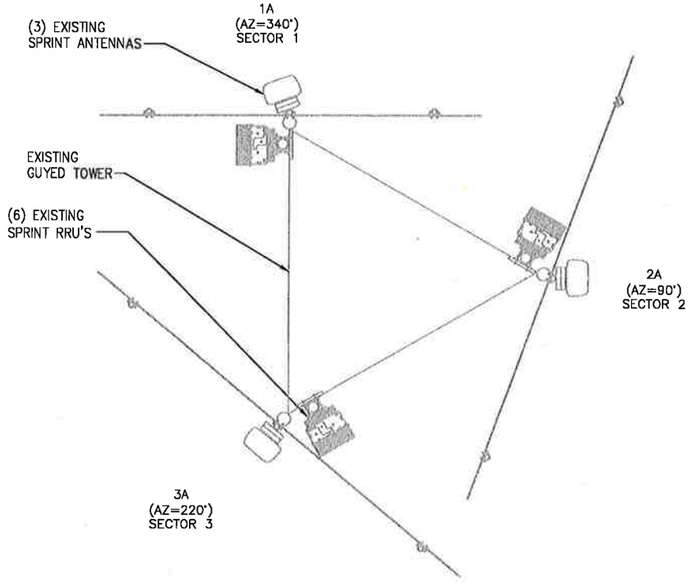
WOLCOTT, CT 06716

SHEET DESCRIPTION:

TOWER ELEVATION

SHEET NUMBER:

A-2

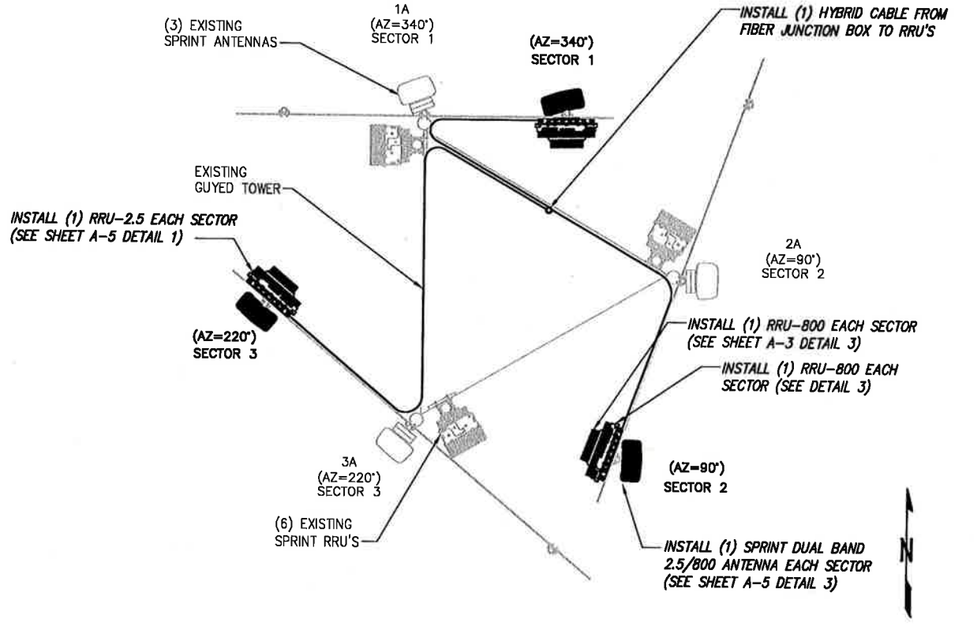


0° = TRUE NORTH

EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

NOTE:
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

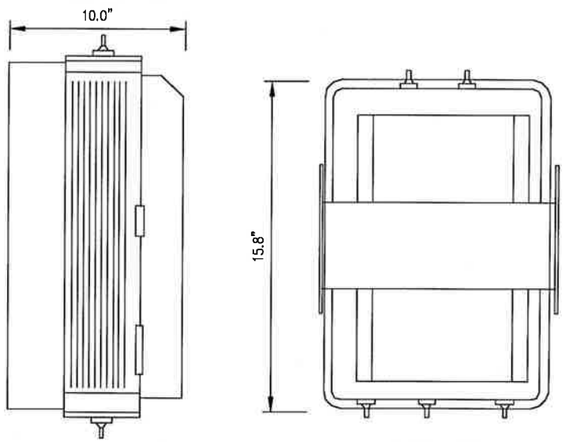
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.



0° = TRUE NORTH

FINAL ANTENNA LAYOUT | NO SCALE | 2

RRU: ALCATEL LUCENT RRH 800 MHz 2x50W
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

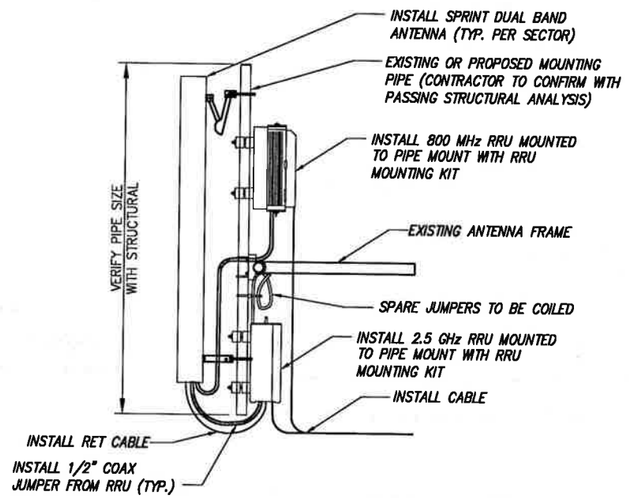


SIDE VIEW | FRONT VIEW | PLAN VIEW

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.

800 RRU DETAIL | NO SCALE | 3



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:
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.

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:

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. STEWART
NOV 27 2017
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	11/10/17	ASW	0

SITE NAME:

COX COMMUNICATIONS TOWER

SITE CASCADE:

CT60XC956

SITE ADDRESS:

164 COUNTY ROAD REAR
WOLCOTT, CT 06716

SHEET DESCRIPTION:

ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

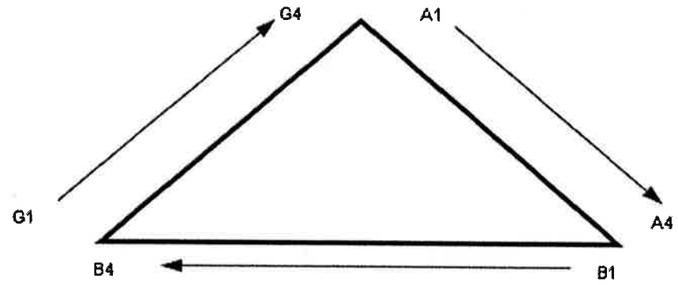
A-3

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



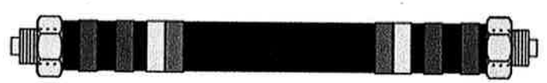
NOTES:

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	Blue	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	Blue	Blue	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	Blue	Blue	Blue
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

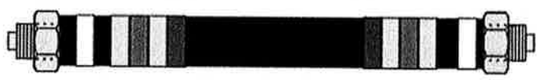
NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

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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NOV 10 2017

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SITE CASCADE:
CT60XC956

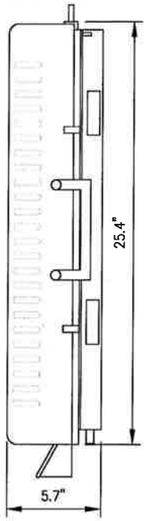
SITE ADDRESS:
164 COUNTY ROAD REAR
WOLCOTT, CT 06716

SHEET DESCRIPTION:
COLOR CODING AND NOTES

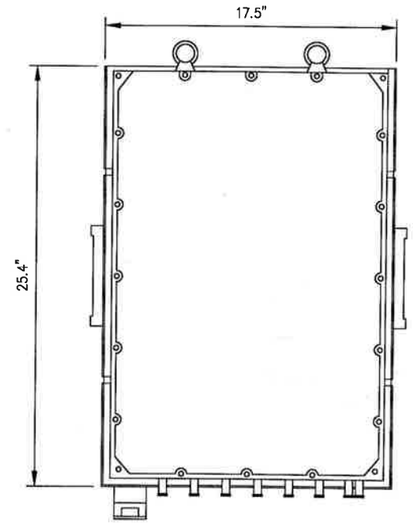
SHEET NUMBER:
A-4

RRU: ALCATEL LUCENT TD-RRH8X20

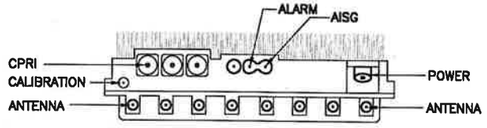
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

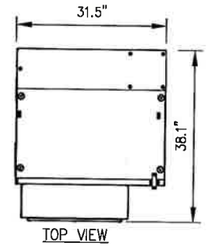
NOTES

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.

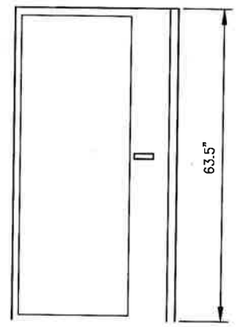
2.5 RRU'S | NO SCALE | 1

ALU MODEL 9927

DIMENSIONS, HxWxD: 65.5"x38.1"x31.5"



TOP VIEW

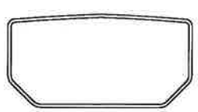


DESIGN CRITERIA:	
2009 INTERNATIONAL BUILDING CODE W/ STATE MODIFICATION	
WIND SPEED (ASCE-7-05)	90 MPH
EXPOSURE B	
IMPORTANCE FACTOR	1.0
SEISMIC SITE CLASS	D
Ss=0.152 S1=0.050	
SEISMIC IMPORTANCE FACTOR	1.0
SEISMIC DESIGN CATEGORY	B
9927 MM BTS CABINET WEIGHT:	594 LBS.
MATERIAL SPECIFICATIONS	
C-, M-, AND ANGLE SHAPES:	ASTM A36
HIGH-STRENGTH BOLTS:	ASTM A325SC OR (A325N)
STRUCTURAL WF SHAPES:	ASTM A572-GR50
TUBE STEEL & PIPE COLUMNS:	ASTM A500, GRADE B
WELDING ELECTRODES:	E70XX
W - SHAPES:	ASTM A992, GRADE 50
U-BOLTS:	ASTM A36

BTS CABINET DETAIL | NO SCALE | 2

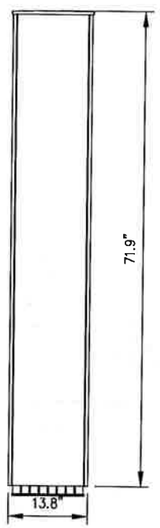
ANTENNA COMMSCOPE DT465B-2XR

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	71.9"x13.8"x8.2" (1825x350x209mm)
WEIGHT:	58 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE
	(8) 4.1/9.5 DIN FEMALE



PLAN VIEW

SIDE VIEW



FRONT VIEW

DUAL BAND 2.5/800 ANTENNA | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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

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Albany, NY 12205
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JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:
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JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
NOV 10 2017

DRAWING NOTICE:

REVISIONS:

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SITE NAME:
COX COMMUNICATIONS TOWER

SITE CASCADE:
CT60XC956

SITE ADDRESS:
164 COUNTY ROAD REAR
WOLCOTT, CT 06716

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

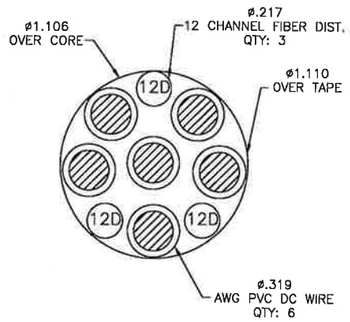
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

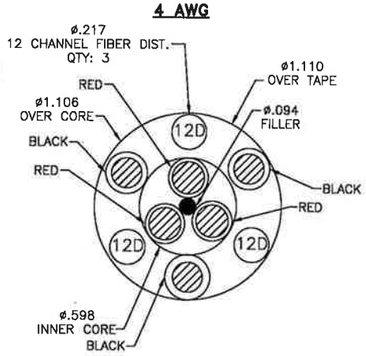
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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: HBF05B-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF05B-08U1M3-10F1	10 ft
	MN: HBF05B-08U1M3-15F1	15 ft
	MN: HBF05B-08U1M3-20F1	20 ft
	MN: HBF05B-08U1M3-25F1	25 ft
	MN: HBF05B-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF05B-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF05B-13U1M3-10F1	10 ft
	MN: HBF05B-13U1M3-15F1	15 ft *
	MN: HBF05B-13U1M3-20F1	20 ft
	MN: HBF05B-13U1M3-25F1	25 ft
	MN: HBF05B-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF07B-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF07B-21U1M3-10F1	10 ft
	MN: HBF07B-21U1M3-15F1	15 ft
	MN: HBF07B-21U1M3-20F1	20 ft
	MN: HBF07B-21U1M3-25F1	25 ft
	MN: HBF07B-21U1M3-30F1	30 ft

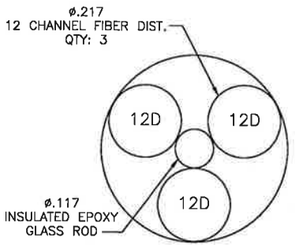
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

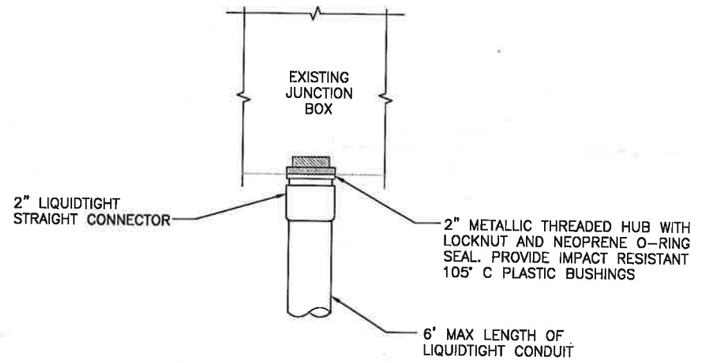


8 & 6 AWG



FIBER ONLY

2.5 CABLE CROSS SECTION DATA | NO SCALE | 1



FIBER JUNCTION BOX PENETRATION | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

PLANS PREPARED FOR:
Sprint
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Overland Park, Kansas 66251

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JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:
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JOHN S. STEVENS
NOV 10 2017
No. 24705
LICENSED
PROFESSIONAL ENGINEER

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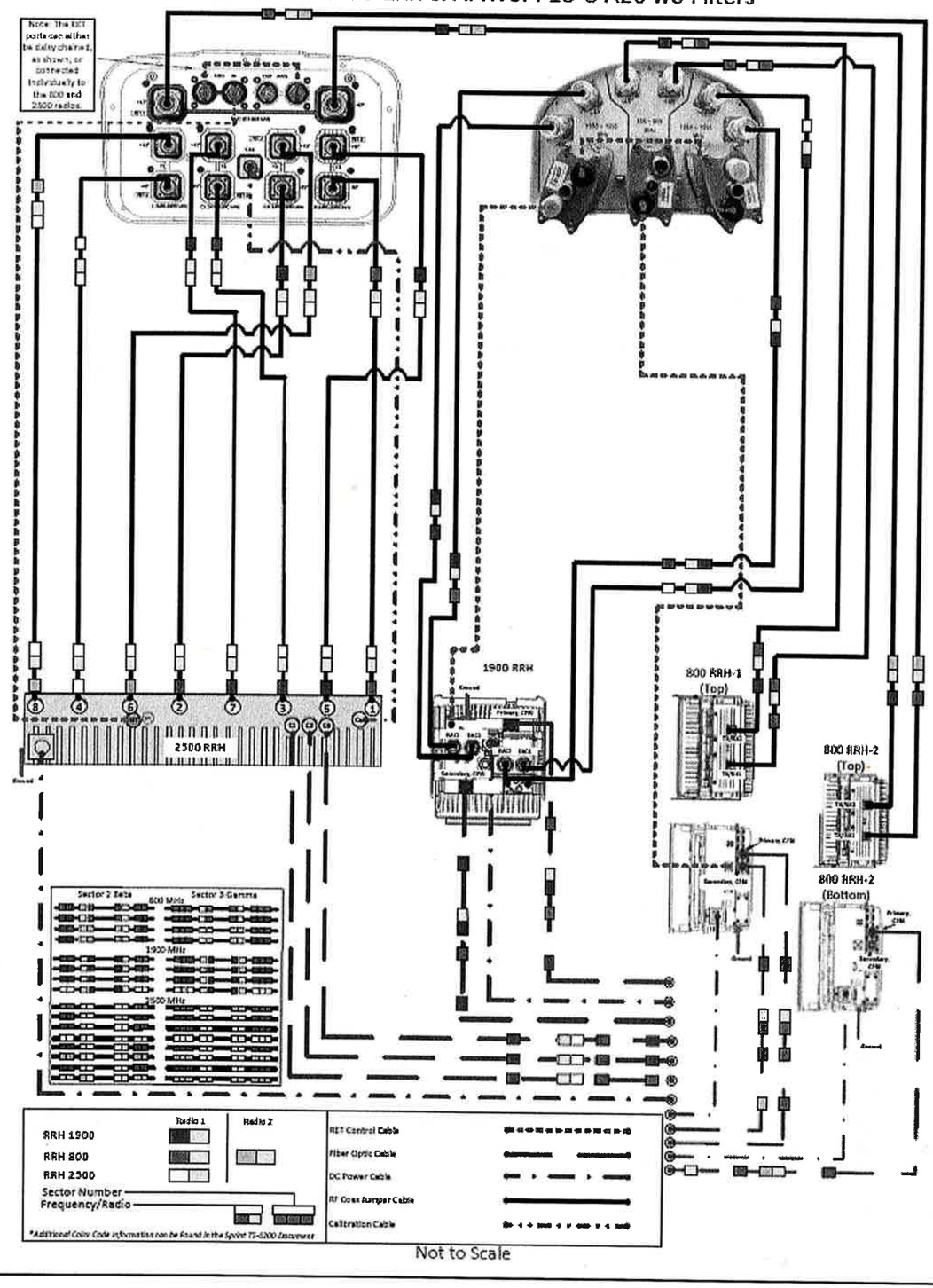
WOLCOTT, CT 06716

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-6

ALU 211 DT465B-2XR & APXVSPP18-C-A20 wo Filters



Not to Scale

PLUMBING DIAGRAM | NO SCALE | 1

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

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JOB NUMBER 528-102

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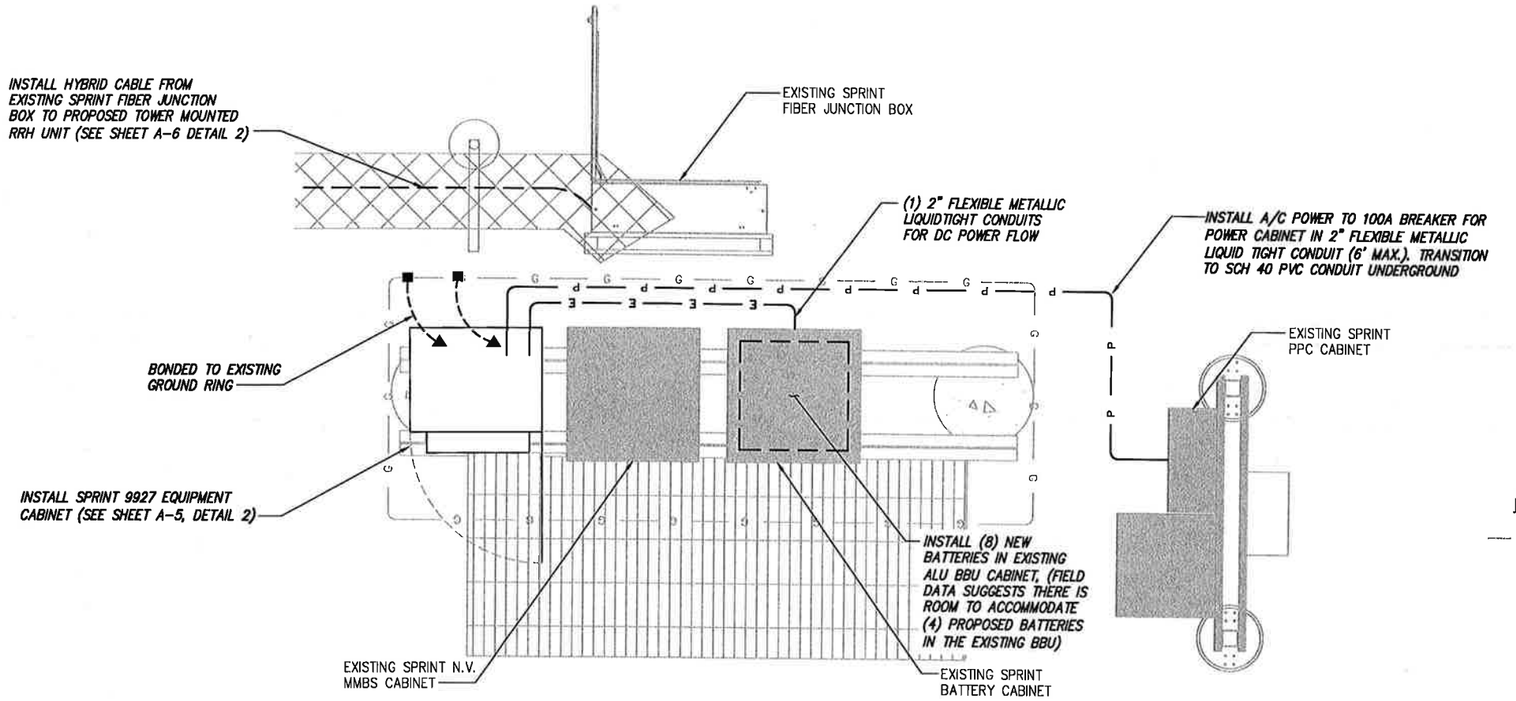
SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-7

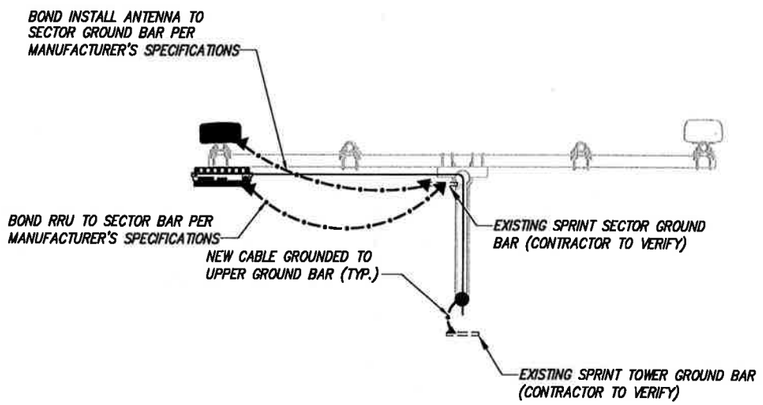


NOTE:
CONTRACTOR IS TO ENSURE THE INSTALLATION INSTRUCTIONS FOR EACH CABINET ARE FOLLOWED AND THAT THE MANUFACTURER'S REQUIREMENTS ARE MET.

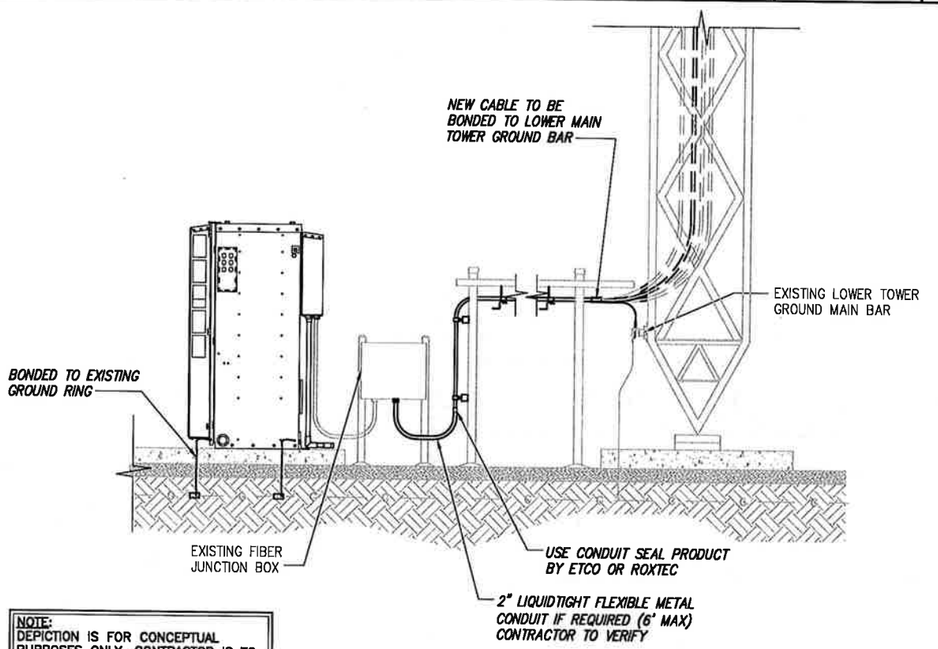
LEGEND:

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

ELECTRICAL AND GROUNDING PLAN | NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



NOTE:
DEPICTION IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO FIELD VERIFY PRIOR TO CONSTRUCTION

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

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Sprint
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Overland Park, Kansas 66251

PLANS PREPARED BY:

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NOV 15 2017
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WOLCOTT, CT 06716

SHEET DESCRIPTION:

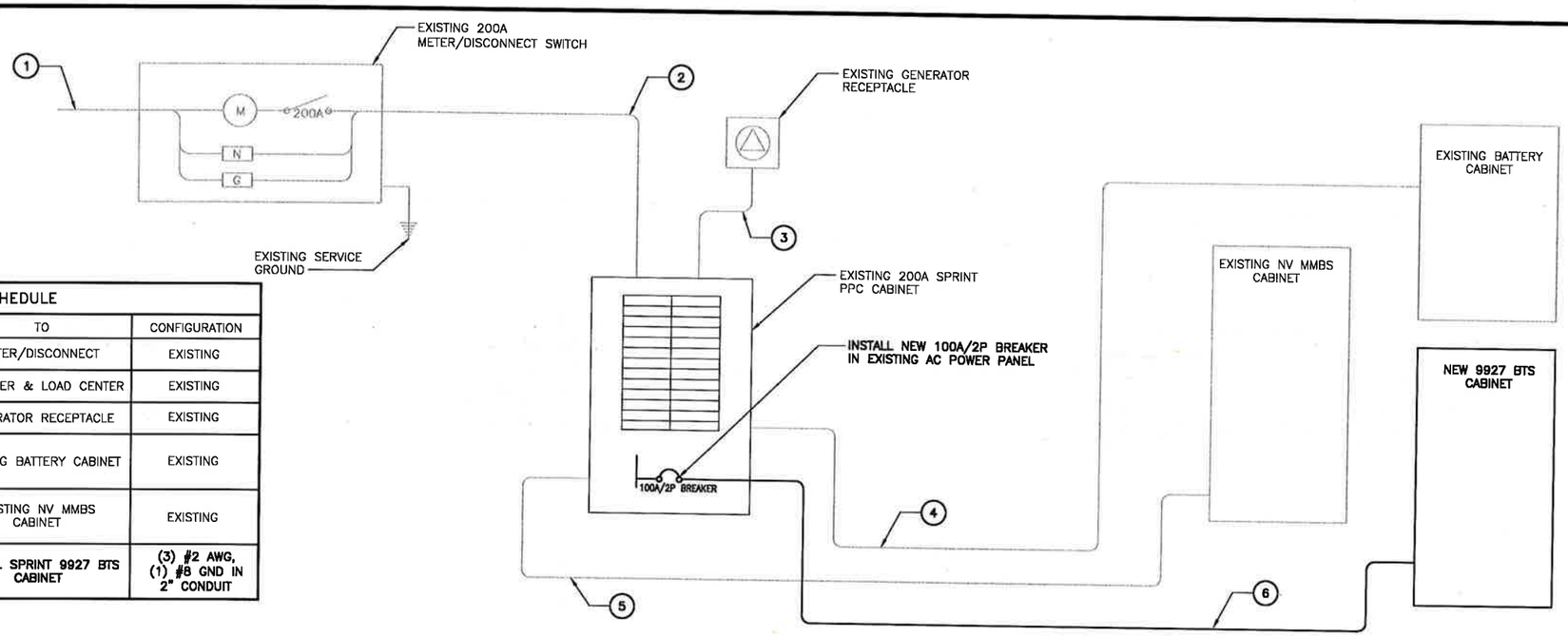
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

NOTES

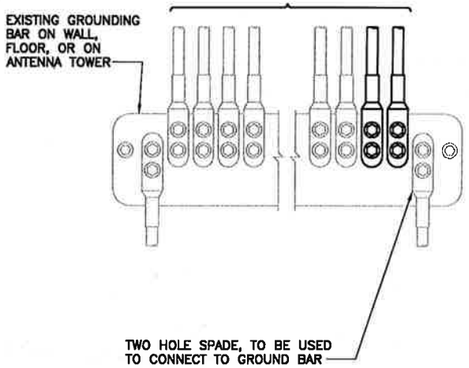
GC SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



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 BATTERY CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING NV MMBS CABINET	EXISTING
6	**TRANSFER & LOAD CENTER**	**INSTALL SPRINT 9927 BTS CABINET**	**(3) #2 AWG, (1) #8 GND IN 2" CONDUIT**

ELECTRICAL ONE-LINE DIAGRAM

NO SCALE | 1

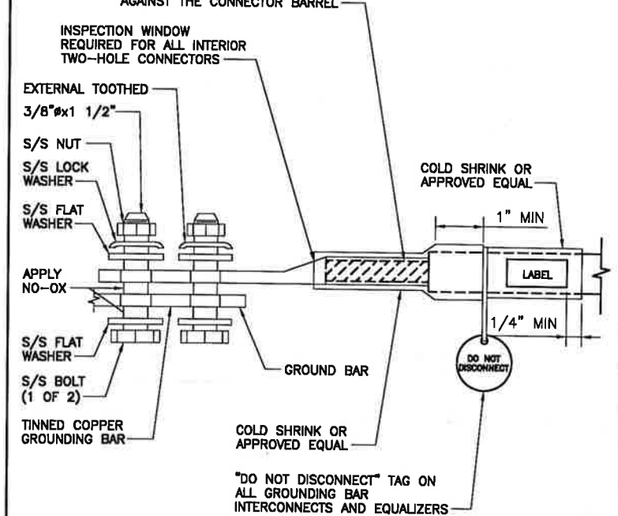


NOTES

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.

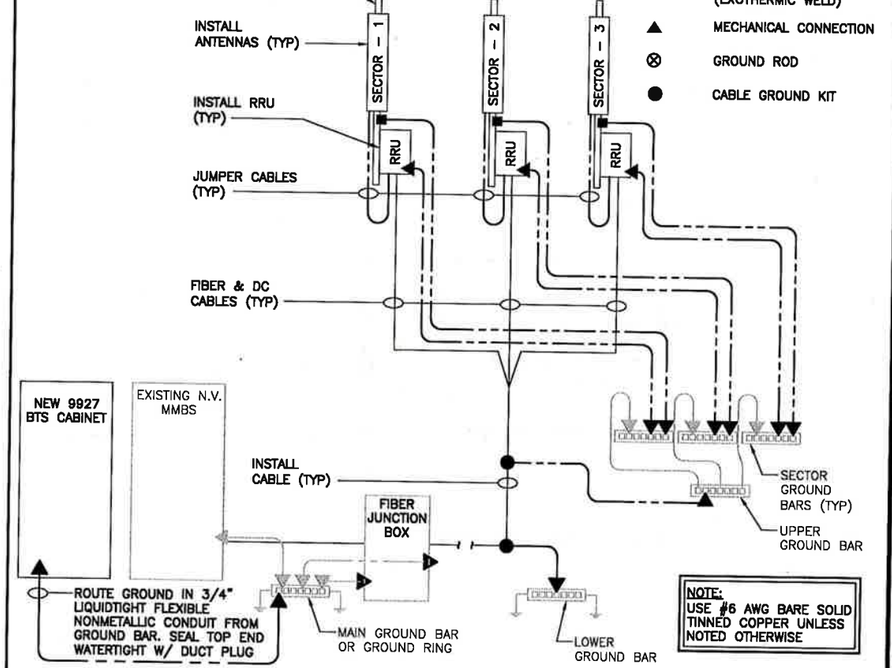
INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE | 2



TWO HOLE LUG

NO SCALE | 3



NO SCALE | 4

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. 24709
LICENSED PROFESSIONAL ENGINEER
NOV 10 2017

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	11/10/17	ASW	0

SITE NAME:

COX COMMUNICATIONS TOWER

SITE CASCADE:

CT60XC956

SITE ADDRESS:

164 COUNTY ROAD REAR
WOLCOTT, CT 06716

SHEET DESCRIPTION:

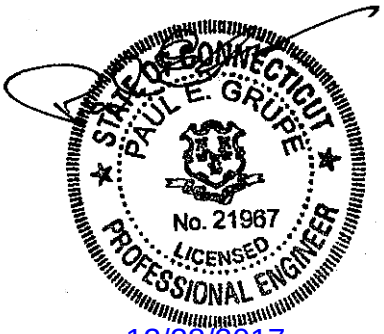
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

Structural Analysis Report

Structure	**:** 347 foot Guyed Tower
Insite Site Name	**:** Wolcott
Insite Site Number	**:** CT900
Proposed Carrier	**:** Sprint
Carrier Site Name	**:** Cox Communications Tower
Carrier Site Number	**:** CT60XC956
Site Location	**:** 164 County Road Rear Wolcott, CT 6716 41.5762, -72.9561
Date	**:** December 28, 2017
Max Member Stress Level	**: 100**%
Result	**: ACCEPTABLE**



12/28/2017

Prepared by:
Bennett & Pless, Inc.
B&P Job No.: 17004.013

Experience Structural Expertise

47 Perimeter Center East Suite 500 | Atlanta, GA 30346 | TEL 678 990 8700
Atlanta | Boca Raton |Chattanooga | North Sioux City|www.bennett-pless.com

Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the final loads by Sprint after all existing Cox equipment has been removed. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Structural Components, LLC Post Mod SA Job No. 140257 dated May 6, 2014 Tectonic Modification Dwgs Project No. 2850.CT956 dated July 25, 2006
Foundation Information	Tectonic Modification Dwgs Project No. 2850.CT956 dated July 25, 2006
Geotechnical Information	Geotechnical information was not available at the time of analysis.
Existing Equipment Information	Structural Components, LLC Post Mod SA Job No. 140257 dated May 6, 2014
Tower Reinforcement Information	Tower has been previously reinforced. Tectonic Modification Dwgs Project No. 2850.CT956 dated July 25, 2006

Final Proposed Equipment Loading for Cox

The following final loading to be removed was obtained from an email from Insite dated 12/19/17:

Antenna/Equipment					Coax	
Mount	RAD	Qty.	Antenna	Type	Qty.	Size/Type
345.0	345.0	1	10’ Dipole	Dipole	1	7/8” Coax
287.0	287.0	1	16’ Dipole	Dipole	1	7/8” Coax
170.0	170.0	1	20’ Omni	Omni	1	7/8” Coax
20.0	20.0	1	Weather Station	Other	1	1/4” Coax
15.0	15.0	1	Beacon	Beacon	1	7/8” Coax

Note: All Equipment shown is to be removed.

Design Criteria

The tower was analyzed using tnxTower (Version 7.0.8.5) tower analysis software using the following design criteria.

State/County	Connecticut / Haven
State Building Code	2012 IBC
TIA/EIA Standard Code	TIA-222-G
Basic Wind Speed	121 MPH (V_{ult})/94 MPH (V_{asd})
Basic Wind Speed w/ Ice	50 MPH/ 0.75” Ice
Steel Grade	50 ksi legs, 36 ksi all others, A325X bolts
Exposure Category	C
Topographic Category (height)	1 (0.0 ft)
Importance Factor	1.0

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is structurally capable of supporting the proposed equipment loads without modification.** The existing tower base and the anchor foundations have also been evaluated. The tower base and the anchor foundation reactions resulting from the proposed installation are less than the modification design reactions and as such the existing tower base and the anchor foundations are considered to be structurally capable of supporting the proposed equipment loads.

Assumptions

The below assumptions are true, complete and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%.
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower and foundation described above **does have sufficient capacity** to support the proposed loading based on the governing Building Code. The existing tower base and anchor foundations also have sufficient capacity.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance, please call us anytime at 678-990-8700.

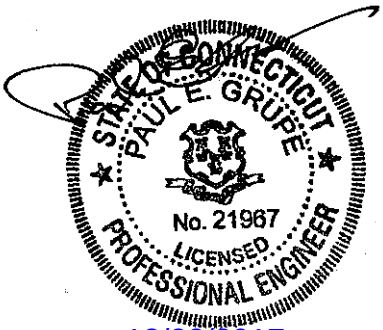
Sincerely,

Analysis by:

Josh Turner, EIT
Project Manager

Reviewed by:

Paul Grupe, P.E.
Vice President



12/28/2017

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Bennett & Pless Inc., or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Bennett & Pless Inc. and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222 requested.

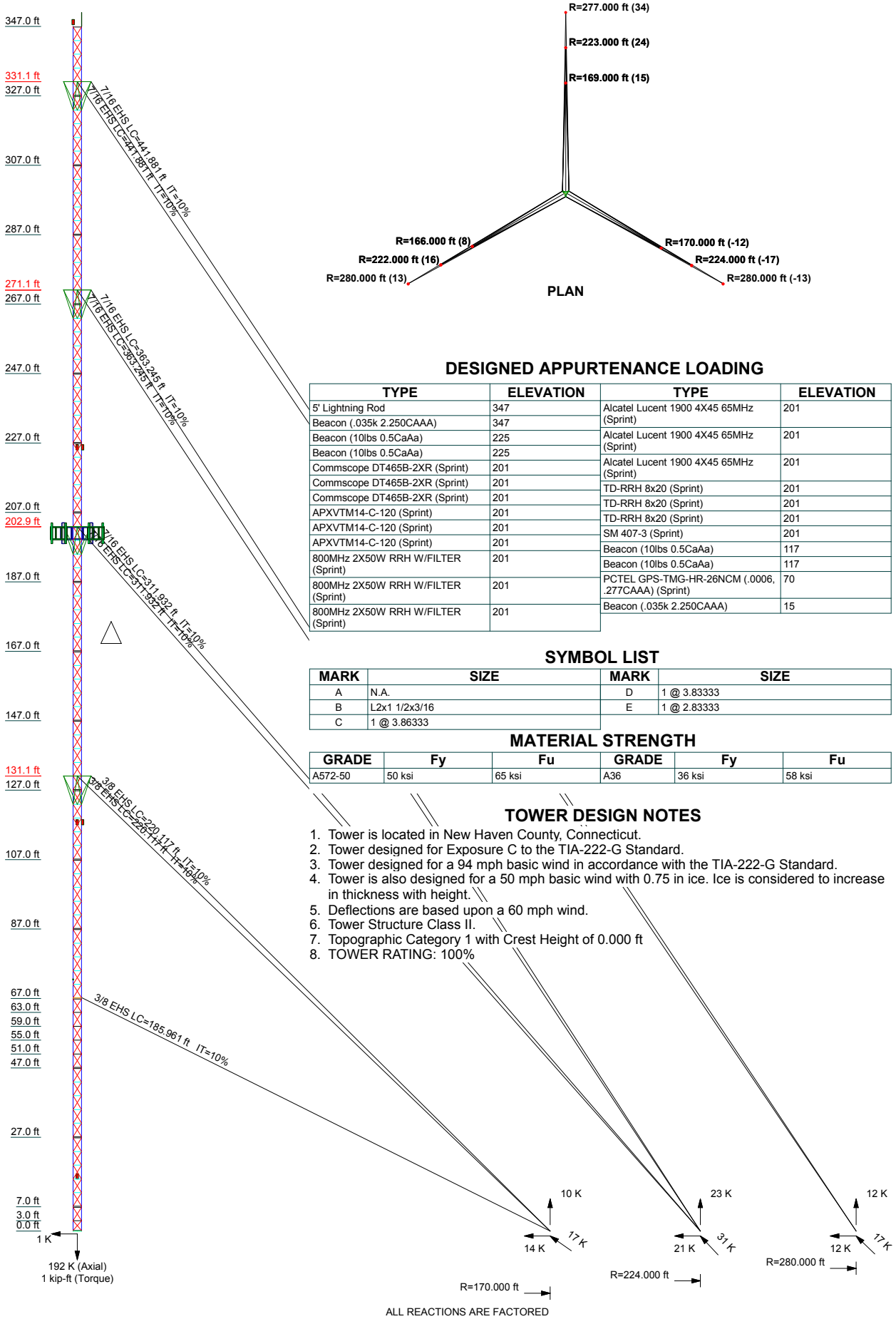
All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Bennett & Pless Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

Bennett & Pless Inc. makes no warranties, expressed or implied, in connection with this report, and disclaims any liability arising from the ability of the existing structure to support the design loads for which it was originally designed. Bennett & Pless Inc. will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Bennett & Pless Inc. pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1:
Calculations

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23
Legs	P2.5 STD																						
Leg Grade	A572-50																						
Diagonals	SR 7/8	SR 5/8							SR 3/4														
Diagonal Grade	A36																						
Top Girts	L2x2x1/4	L2x1 1/2x3/16							L2x1 1/2x1/4														
Bottom Girts	L2x2x1/4	L2x1 1/2x3/16							L2x1 1/2x1/4						N.A.					L2x1 1/2x3/16		B	A
Horizontals	L2x2x1/4	L2x1 1/2x3/16							L2x1 1/2x1/4						N.A.					L2x1 1/2x3/16		N.A.	
Top Guy Pull-Offs							N.A.							3x3/8						N.A.			
Face Width (ft)							3																
# Panels @ (ft)							70 @ 3.93333									C	3 @ 3.98			10 @ 3.93333		E	D
Weight (K)	1.4	0.6	0.6	1.4	0.6	0.6	0.6	1.1	0.7	0.6	1.1	0.6	0.6	0.7	0.1	0.2	0.2	0.2	0.2	0.9	0.9	0.2	14.3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5' Lightning Rod	347	Alcatel Lucent 1900 4X45 65MHz (Sprint)	201
Beacon (.035k 2.250CAAA)	347	Alcatel Lucent 1900 4X45 65MHz (Sprint)	201
Beacon (10lbs 0.5CaAa)	225	Alcatel Lucent 1900 4X45 65MHz (Sprint)	201
Beacon (10lbs 0.5CaAa)	225	TD-RRH 8x20 (Sprint)	201
Commscope DT465B-2XR (Sprint)	201	TD-RRH 8x20 (Sprint)	201
Commscope DT465B-2XR (Sprint)	201	TD-RRH 8x20 (Sprint)	201
Commscope DT465B-2XR (Sprint)	201	SM 407-3 (Sprint)	201
APXVTM14-C-120 (Sprint)	201	Beacon (10lbs 0.5CaAa)	117
APXVTM14-C-120 (Sprint)	201	Beacon (10lbs 0.5CaAa)	117
APXVTM14-C-120 (Sprint)	201	PCTEL GPS-TMG-HR-26NCM (.0006, .277CAAA) (Sprint)	70
800MHz 2X50W RRH W/FILTER (Sprint)	201	Beacon (.035k 2.250CAAA)	15
800MHz 2X50W RRH W/FILTER (Sprint)	201		
800MHz 2X50W RRH W/FILTER (Sprint)	201		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	N.A.	D	1 @ 3.83333
B	L2x1 1/2x3/16	E	1 @ 2.83333
C	1 @ 3.86333		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 94 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 0.000 ft
8. TOWER RATING: 100%

Bennett & Pless
47 Perimeter Center East Suite 500
Atlanta, GA 30346
Experience Structural Expertise
Phone: (678) 990-8700
FAX: (678) 990-8701

Job: ***CT900 Wolcott***			
Project: ***Guyed Tower Structural Analysis***			
Client: Insite	Drawn by: Josh Turner	App'd:	
Code: TIA-222-G	Date: 12/27/17	Scale: NTS	
Path: C:\Users\jturner\Downloads\CT900 Wolcott_SA_121217_Sprint.eri		Dwg No. E-1	

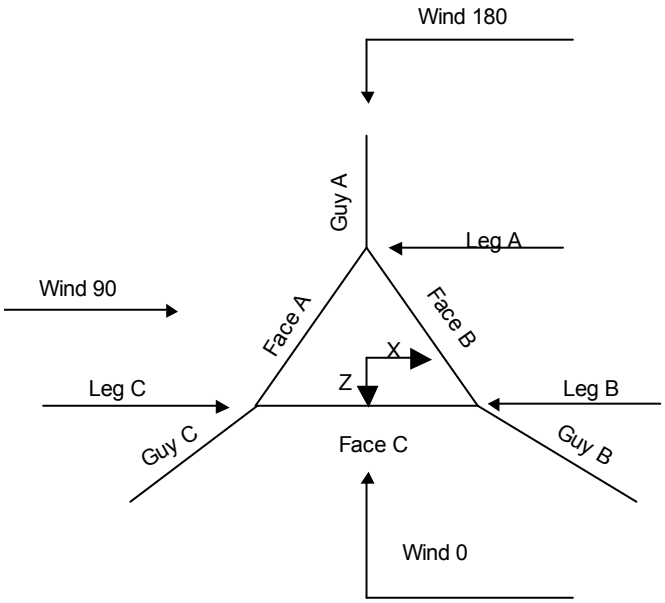
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 347.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 3.000 ft at the top and 3.000 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

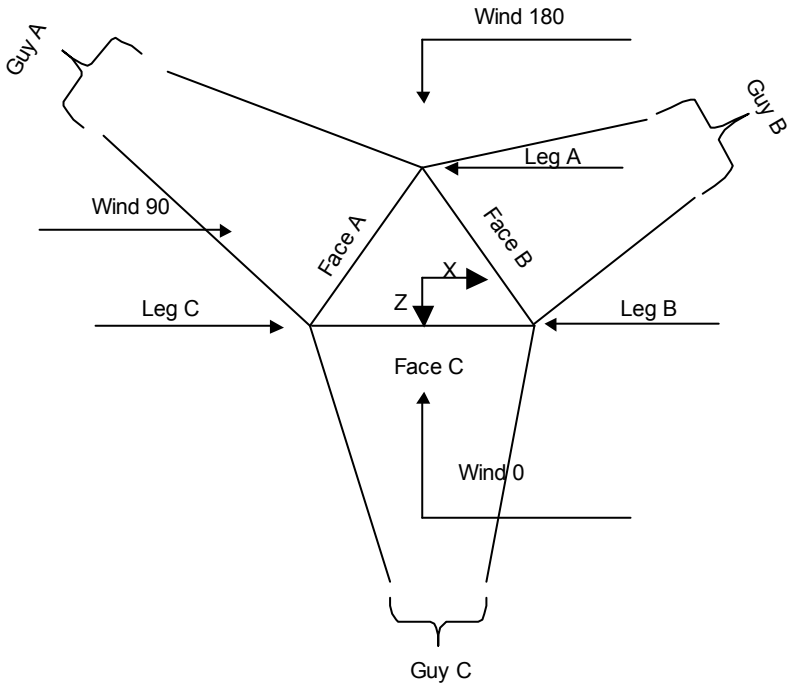
Tower is located in New Haven County, Connecticut.
Basic wind speed of 94 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
Tension only take-up is 0.0313 in.
Pressures are calculated at each section.
Safety factor used in guy design is 1.
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				



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	347.000-327.000			3.000	1	20.000
T2	327.000-307.000			3.000	1	20.000
T3	307.000-287.000			3.000	1	20.000
T4	287.000-267.000			3.000	1	20.000
T5	267.000-247.000			3.000	1	20.000
T6	247.000-227.000			3.000	1	20.000
T7	227.000-207.000			3.000	1	20.000
T8	207.000-187.000			3.000	1	20.000
T9	187.000-167.000			3.000	1	20.000
T10	167.000-147.000			3.000	1	20.000
T11	147.000-127.000			3.000	1	20.000
T12	127.000-107.000			3.000	1	20.000
T13	107.000-87.000			3.000	1	20.000
T14	87.000-67.000			3.000	1	20.000
T15	67.000-62.970			3.000	1	4.030
T16	62.970-58.990			3.000	1	3.980

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T17	58.990-55.010			3.000	1	3.980
T18	55.010-51.030			3.000	1	3.980
T19	51.030-47.000			3.000	1	4.030
T20	47.000-27.000			3.000	1	20.000
T21	27.000-7.000			3.000	1	20.000
T22	7.000-3.000			3.000	1	4.000
T23	3.000-0.000			3.000	1	3.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	347.000-327.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T2	327.000-307.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T3	307.000-287.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T4	287.000-267.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T5	267.000-247.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T6	247.000-227.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T7	227.000-207.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T8	207.000-187.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T9	187.000-167.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T10	167.000-147.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T11	147.000-127.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T12	127.000-107.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T13	107.000-87.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T14	87.000-67.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T15	67.000-62.970	3.863	TX Brace	No	Yes	2.0000	0.0000
T16	62.970-58.990	3.980	TX Brace	No	Yes	0.0000	0.0000
T17	58.990-55.010	3.980	TX Brace	No	Yes	0.0000	0.0000
T18	55.010-51.030	3.980	TX Brace	No	Yes	0.0000	0.0000
T19	51.030-47.000	3.863	TX Brace	No	Yes	0.0000	2.0000
T20	47.000-27.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T21	27.000-7.000	3.933	TX Brace	No	Yes	2.0000	2.0000
T22	7.000-3.000	3.833	TX Brace	No	Yes	2.0000	0.0000
T23	3.000-0.000	2.833	TX Brace	No	Yes	0.0000	2.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 347.000-327.000	Pipe	P2.5 STD	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T2 327.000-307.000	Pipe	P2.5 STD	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 307.000-287.000	Pipe	P2.5 STD	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 287.000-267.000	Pipe	P2.5 STD	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T5	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
267.000-247.000			(50 ksi)			(36 ksi)
T6	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
247.000-227.000			(50 ksi)			(36 ksi)
T7	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
227.000-207.000			(50 ksi)			(36 ksi)
T8	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
207.000-187.000			(50 ksi)			(36 ksi)
T9	Pipe	P2.5 STD	A572-50	Solid Round	3/4	A36
187.000-167.000			(50 ksi)			(36 ksi)
T10	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
167.000-147.000			(50 ksi)			(36 ksi)
T11	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
147.000-127.000			(50 ksi)			(36 ksi)
T12	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
127.000-107.000			(50 ksi)			(36 ksi)
T13	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
107.000-87.000			(50 ksi)			(36 ksi)
T14	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
87.000-67.000			(50 ksi)			(36 ksi)
T15	Pipe	P2.5 STD	A572-50	Solid Round	5/8	A36
67.000-62.970			(50 ksi)			(36 ksi)
T16	Arbitrary Shape	P2.5 STD w/ SP HSS 3.5x.3	A572-50	Solid Round	5/8	A36
62.970-58.990			(50 ksi)			(36 ksi)
T17	Arbitrary Shape	P2.5 STD w/ SP HSS 3.5x.3	A572-50	Solid Round	5/8	A36
58.990-55.010			(50 ksi)			(36 ksi)
T18	Arbitrary Shape	P2.5 STD w/ SP HSS 3.5x.3	A572-50	Solid Round	5/8	A36
55.010-51.030			(50 ksi)			(36 ksi)
T19	Arbitrary Shape	P2.5 STD w/ SP HSS 3.5x.3	A572-50	Solid Round	5/8	A36
51.030-47.000			(50 ksi)			(36 ksi)
T20	Arbitrary Shape	P2.5 STD w/ SP HSS 3.5x.3	A572-50	Solid Round	5/8	A36
47.000-27.000			(50 ksi)			(36 ksi)
T21 27.000-7.000	Arbitrary Shape	P2.5 STD w/ SP HSS 3.5x.3	A572-50	Solid Round	5/8	A36
			(50 ksi)			(36 ksi)
T22 7.000-3.000	Arbitrary Shape	P2.5 STD w/ SP HSS 3.5x.3	A572-50	Solid Round	5/8	A36
			(50 ksi)			(36 ksi)
T23 3.000-0.000	Arbitrary Shape	P2.5 STD w/ SP HSS 3.5x.3	A572-50	Solid Round	5/8	A36
			(50 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1	Single Angle	L2x2x1/4	A36	Single Angle	L2x2x1/4	A36
347.000-327.000			(36 ksi)			(36 ksi)
T2	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
327.000-307.000			(36 ksi)			(36 ksi)
T3	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
307.000-287.000			(36 ksi)			(36 ksi)
T4	Single Angle	L2x2x1/4	A36	Single Angle	L2x2x1/4	A36
287.000-267.000			(36 ksi)			(36 ksi)
T5	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
267.000-247.000			(36 ksi)			(36 ksi)
T6	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
247.000-227.000			(36 ksi)			(36 ksi)
T7	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
227.000-207.000			(36 ksi)			(36 ksi)
T8	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
207.000-187.000			(36 ksi)			(36 ksi)
T9	Single Angle	L2x1 1/2x1/4	A36	Single Angle	L2x1 1/2x1/4	A36
187.000-167.000			(36 ksi)			(36 ksi)
T10	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
167.000-147.000			(36 ksi)			(36 ksi)
T11	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
147.000-127.000			(36 ksi)			(36 ksi)
T12	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
127.000-107.000			(36 ksi)			(36 ksi)
T13	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
107.000-87.000			(36 ksi)			(36 ksi)
T14	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
87.000-67.000			(36 ksi)			(36 ksi)
T15	Single Angle	L2x1 1/2x3/16	A36	Single Angle		A36
67.000-62.970			(36 ksi)			(36 ksi)
T16	Single Angle	L2x1 1/2x3/16	A36	Single Angle		A36
62.970-58.990			(36 ksi)			(36 ksi)
T17	Single Angle	L2x1 1/2x3/16	A36	Single Angle		A36
58.990-55.010			(36 ksi)			(36 ksi)
T18	Single Angle	L2x1 1/2x3/16	A36	Single Angle		A36
55.010-51.030			(36 ksi)			(36 ksi)
T19	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
51.030-47.000			(36 ksi)			(36 ksi)
T20	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
47.000-27.000			(36 ksi)			(36 ksi)
T21 27.000-7.000	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
			(36 ksi)			(36 ksi)
T22 7.000-3.000	Single Angle	L2x1 1/2x3/16	A36	Single Angle		A36
			(36 ksi)			(36 ksi)
T23 3.000-0.000	Single Angle	L2x1 1/2x3/16	A36	Single Angle	L2x1 1/2x3/16	A36
			(36 ksi)			(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	None	Flat Bar		A36	Single Angle	L2x2x1/4	A36
347.000-327.000				(36 ksi)			(36 ksi)
T2	None	Flat Bar		A36	Single Angle	L2x1 1/2x3/16	A36
327.000-307.000				(36 ksi)			(36 ksi)
T3	None	Flat Bar		A36	Single Angle	L2x1 1/2x3/16	A36
307.000-287.000				(36 ksi)			(36 ksi)
T4	None	Flat Bar		A36	Single Angle	L2x2x1/4	A36
287.000-267.000				(36 ksi)			(36 ksi)
T5	None	Flat Bar		A36	Single Angle	L2x1 1/2x3/16	A36
267.000-247.000				(36 ksi)			(36 ksi)
T6	None	Flat Bar		A36	Single Angle	L2x1 1/2x3/16	A36
247.000-227.000				(36 ksi)			(36 ksi)
T7	None	Flat Bar		A36	Single Angle	L2x1 1/2x3/16	A36
227.000-207.000				(36 ksi)			(36 ksi)
T8	None	Flat Bar		A36	Single Angle	L2x1 1/2x3/16	A36
207.000-187.000				(36 ksi)			(36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T9 187.000-167.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x1/4	A36 (36 ksi)
T10 167.000-147.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T11 147.000-127.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T12 127.000-107.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T13 107.000-87.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T14 87.000-67.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T15 67.000-62.970	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T16 62.970-58.990	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T17 58.990-55.010	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T18 55.010-51.030	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T19 51.030-47.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T20 47.000-27.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T21 27.000-7.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T22 7.000-3.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T23 3.000-0.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)

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 347.000-327.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 327.000-307.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 307.000-287.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 287.000-267.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 267.000-247.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 247.000-227.0	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	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
00									
T7 227.000-207.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 207.000-187.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 187.000-167.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 167.000-147.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 147.000-127.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 127.000-107.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 107.000-87.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T14 87.000-67.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T15 67.000-62.970	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T16 62.970-58.990	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T17 58.990-55.010	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T18 55.010-51.030	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T19 51.030-47.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T20 47.000-27.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T21 27.000-7.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T22 7.000-3.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T23 3.000-0.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

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 347.000-327.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
00 T2	Yes	Yes	1	1	1	1	1	1	1	1

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
327.000-307.000				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
307.000-287.000				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
287.000-267.000				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
267.000-247.000				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
247.000-227.000				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
227.000-207.000				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
207.000-187.000				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
187.000-167.000				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
167.000-147.000				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
147.000-127.000				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
127.000-107.000				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
107.000-87.000				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1
87.000-67.000				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
67.000-62.970				1	1	1	1	1	1	1
T16	Yes	Yes	1	1	1	1	1	1	1	1
62.970-58.990				1	1	1	1	1	1	1
T17	Yes	Yes	1	1	1	1	1	1	1	1
58.990-55.010				1	1	1	1	1	1	1
T18	Yes	Yes	1	1	1	1	1	1	1	1
55.010-51.030				1	1	1	1	1	1	1
T19	Yes	Yes	1	1	1	1	1	1	1	1
51.030-47.000				1	1	1	1	1	1	1
T20	Yes	Yes	1	1	1	1	1	1	1	1
47.000-27.000				1	1	1	1	1	1	1
T21	Yes	Yes	1	1	1	1	1	1	1	1
27.000-7.000				1	1	1	1	1	1	1
T22	Yes	Yes	1	1	1	1	1	1	1	1
7.000-3.000				1	1	1	1	1	1	1
T23	Yes	Yes	1	1	1	1	1	1	1	1
3.000-0.000				1	1	1	1	1	1	1

[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 347.000-327.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 327.000-307.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 307.000-287.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 287.000-267.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 267.000-247.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 247.000-227.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 227.000-207.000	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 207.000-187.000	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 187.000-167.000	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
T10 167.000-147.000	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
T11 147.000-127.000	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
T12 127.000-107.000	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
T13 107.000-87.000	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
T14 87.000-67.000	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
T15 67.000-62.970	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
T16 62.970-58.990	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
T17 58.990-55.010	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
T18 55.010-51.030	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	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
T19 51.030-47.000	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
T20 47.000-27.000	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
T21 27.000-7.000	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
T22 7.000-3.000	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
T23 3.000-0.000	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 347.000-327.000	Flange	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 327.000-307.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 307.000-287.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 287.000-267.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 267.000-247.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 247.000-227.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 227.000-207.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 207.000-187.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 187.000-167.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 167.000-147.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 147.000-127.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

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.
T12 127.000-107.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 107.000-87.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 87.000-67.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 67.000-62.970	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 62.970-58.990	Flange	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T17 58.990-55.010	Flange	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T18 55.010-51.030	Flange	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T19 51.030-47.000	Flange	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T20 47.000-27.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T21 27.000-7.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T22 7.000-3.000	Flange	0.6250 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T23 3.000-0.000	Flange	0.6250 A325X	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
331.1	EHS	A	7/16	2.080	10%	21000.000	0.399	404.000	277.000	0.0000	34.000	100%
		B	7/16	2.080	10%	21000.000	0.399	441.539	280.000	0.0000	-13.000	100%
		C	7/16	2.080	10%	21000.000	0.399	421.624	280.000	0.0000	13.000	100%
271.1	EHS	A	7/16	2.080	10%	21000.000	0.399	330.736	223.000	0.0000	24.000	100%
		B	7/16	2.080	10%	21000.000	0.399	362.952	224.000	0.0000	-17.000	100%
		C	7/16	2.080	10%	21000.000	0.399	336.093	222.000	0.0000	16.000	100%
202.9	EHS	A	7/16	2.080	10%	21000.000	0.399	283.515	223.000	0.0000	24.000	100%
		B	7/16	2.080	10%	21000.000	0.399	311.682	224.000	0.0000	-17.000	100%
		C	7/16	2.080	10%	21000.000	0.399	287.860	222.000	0.0000	16.000	100%
131.1	EHS	A	3/8	1.540	10%	21000.000	0.273	202.597	169.000	0.0000	15.000	100%
		B	3/8	1.540	10%	21000.000	0.273	219.918	170.000	0.0000	-12.000	100%
		C	3/8	1.540	10%	21000.000	0.273	204.281	166.000	0.0000	8.000	100%
67.1667	EHS	A	3/8	1.540	10%	21000.000	0.273	175.057	169.000	0.0000	15.000	100%
		B	3/8	1.540	10%	21000.000	0.273	185.794	170.000	0.0000	-12.000	100%
		C	3/8	1.540	10%	21000.000	0.273	174.442	166.000	0.0000	8.000	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
331.1	Torque Arm	9.760	56.1600	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x5/16
271.1	Torque Arm	9.760	56.1600	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x5/16
202.9	Torque Arm	9.760	56.1600	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x5/16
131.1	Torque Arm	9.760	56.1600	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x5/16
67.1667	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
331.100	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Single Angle	
271.100	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Single Angle	
202.900	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Single Angle	
131.100	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Single Angle	
67.167	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	3x3/8

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
331.1	0.161	0.176	0.168		15.238 6.7 sec/pulse	18.122 7.4 sec/pulse	16.564 7.0 sec/pulse	
271.1	0.132	0.145	0.134		10.259 5.5 sec/pulse	12.308 6.1 sec/pulse	10.586 5.6 sec/pulse	
202.9	0.113	0.124	0.115		7.587 4.8 sec/pulse	9.135 5.2 sec/pulse	7.816 4.8 sec/pulse	
131.1	0.055	0.060	0.056		3.605 3.3 sec/pulse	4.237 3.6 sec/pulse	3.663 3.3 sec/pulse	
67.1667	0.048	0.051	0.048		2.706 2.8 sec/pulse	3.041 3.0 sec/pulse	2.686 2.8 sec/pulse	

Guy Data *(cont'd)*

	Torque Arm	Pull Off	Diagonal

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K_x	K_y	K_x	K_y	K_x	K_y
331.1	No	No	1	1	1	1	1	1
271.1	No	No	1	1	1	1	1	1
202.9	No	No	1	1	1	1	1	1
131.1	No	No	1	1	1	1	1	1
67.1667	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
331.1	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
271.1	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
202.9	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
131.1	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
67.1667	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
331.1	A	182.550	0.028	0.008	1.7798
	B	159.050	0.027	0.008	1.7555
	C	172.050	0.027	0.008	1.7693
271.1	A	147.550	0.026	0.007	1.7423
	B	127.050	0.026	0.007	1.7165
	C	143.550	0.026	0.007	1.7376
202.9	A	113.450	0.025	0.007	1.6972
	B	92.950	0.024	0.007	1.6637
	C	109.450	0.025	0.007	1.6911
131.1	A	73.050	0.023	0.006	1.6241
	B	59.550	0.022	0.006	1.5912
	C	69.550	0.023	0.006	1.6161
67.1667	A	41.083	0.020	0.006	1.5332
	B	27.583	0.019	0.005	1.4733
	C	37.583	0.020	0.006	1.5196

Guy-Tensioning Information

Temperature At Time Of Tensioning						
0 F	20 F	40 F	60 F	80 F	100 F	120 F

Guy Elevation ft		H ft	V ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft
331.1	A	274.23	297.10	2.445	13.01	2.320	13.70	2.198	14.44	2.080	15.24	1.965	16.10	1.855	17.03	1.750	18.03
	B	277.23	344.10	2.390	15.83	2.284	16.54	2.181	17.31	2.080	18.12	1.982	18.99	1.887	19.92	1.795	20.90
	C	277.23	318.10	2.420	14.29	2.304	14.99	2.191	15.75	2.080	16.56	1.973	17.44	1.869	18.38	1.770	19.37
271.1	A	220.24	247.10	2.453	8.73	2.326	9.19	2.202	9.70	2.080	10.26	1.961	10.87	1.845	11.53	1.734	12.26
	B	221.24	288.10	2.391	10.74	2.286	11.23	2.182	11.75	2.080	12.31	1.980	12.91	1.883	13.56	1.788	14.27
	C	219.24	255.10	2.438	9.06	2.316	9.53	2.197	10.03	2.080	10.59	1.966	11.19	1.854	11.84	1.747	12.56
202.9	A	220.24	178.90	2.590	6.11	2.416	6.55	2.246	7.03	2.080	7.59	1.920	8.21	1.766	8.91	1.620	9.70
	B	221.24	219.90	2.504	7.61	2.360	8.07	2.218	8.57	2.080	9.13	1.945	9.75	1.815	10.44	1.690	11.19
	C	219.24	186.90	2.570	6.34	2.403	6.78	2.240	7.27	2.080	7.82	1.925	8.43	1.777	9.13	1.632	9.92
131.1	A	166.25	116.10	1.954	2.85	1.815	3.06	1.676	3.31	1.540	3.60	1.406	3.94	1.276	4.34	1.150	4.81
	B	167.25	143.10	1.895	3.45	1.775	3.68	1.657	3.94	1.540	4.24	1.425	4.58	1.312	4.96	1.203	5.41
	C	163.26	123.10	1.934	2.92	1.801	3.14	1.670	3.38	1.540	3.66	1.413	3.99	1.288	4.37	1.168	4.82
67.1667	A	167.27	52.17	2.104	1.98	1.913	2.18	1.725	2.42	1.540	2.71	1.360	3.06	1.186	3.51	1.024	4.06
	B	168.27	79.17	2.046	2.29	1.875	2.50	1.706	2.75	1.540	3.04	1.378	3.40	1.221	3.83	1.072	4.36
	C	164.27	59.17	2.089	1.98	1.903	2.17	1.720	2.41	1.540	2.69	1.364	3.03	1.195	3.46	1.035	3.99

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
7/8" Coax	B	No	Ar (CaAa)	347.000 - 6.000	0.0000	-0.25	1	1	0.8750 1.1000	1.1000		0.000
1 1/4" Hybriflex (Sprint)	B	No	Ar (CaAa)	210.000 - 6.000	0.0000	0.25	3	3	0.7500 1.5500	1.5500		0.001
1 1/4" Hybriflex (Sprint)	B	No	Ar (CaAa)	210.000 - 6.000	0.5000	0.25	3	3	0.7500 1.5500	1.5500		0.001
1/2" Coax (Sprint)	B	No	Ar (CaAa)	70.000 - 6.000	0.0000	0.15	1	1	0.5800	0.5800		0.000
GRY Coax *Reserve*												
BBE Coax *Reserve*												

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 K
T1	347.000-327.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	2.200	0.000	0.002
		C	0.000	0.000	0.000	0.000	0.000
T2	327.000-307.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	2.200	0.000	0.002
		C	0.000	0.000	0.000	0.000	0.000
T3	307.000-287.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	2.200	0.000	0.002
		C	0.000	0.000	0.000	0.000	0.000
T4	287.000-267.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	2.200	0.000	0.002
		C	0.000	0.000	0.000	0.000	0.000
T5	267.000-247.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	2.200	0.000	0.002

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 K
		C	0.000	0.000	0.000	0.000	0.000
T6	247.000-227.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	2.200	0.000	0.002
		C	0.000	0.000	0.000	0.000	0.000
T7	227.000-207.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.990	0.000	0.014
		C	0.000	0.000	0.000	0.000	0.000
T8	207.000-187.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	20.800	0.000	0.081
		C	0.000	0.000	0.000	0.000	0.000
T9	187.000-167.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	20.800	0.000	0.081
		C	0.000	0.000	0.000	0.000	0.000
T10	167.000-147.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	20.800	0.000	0.081
		C	0.000	0.000	0.000	0.000	0.000
T11	147.000-127.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	20.800	0.000	0.081
		C	0.000	0.000	0.000	0.000	0.000
T12	127.000-107.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	20.800	0.000	0.081
		C	0.000	0.000	0.000	0.000	0.000
T13	107.000-87.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	20.800	0.000	0.081
		C	0.000	0.000	0.000	0.000	0.000
T14	87.000-67.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	20.974	0.000	0.082
		C	0.000	0.000	0.000	0.000	0.000
T15	67.000-62.970	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.425	0.000	0.017
		C	0.000	0.000	0.000	0.000	0.000
T16	62.970-58.990	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.370	0.000	0.017
		C	0.000	0.000	0.000	0.000	0.000
T17	58.990-55.010	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.370	0.000	0.017
		C	0.000	0.000	0.000	0.000	0.000
T18	55.010-51.030	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.370	0.000	0.017
		C	0.000	0.000	0.000	0.000	0.000
T19	51.030-47.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.425	0.000	0.017
		C	0.000	0.000	0.000	0.000	0.000
T20	47.000-27.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	21.960	0.000	0.086
		C	0.000	0.000	0.000	0.000	0.000
T21	27.000-7.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	21.960	0.000	0.086
		C	0.000	0.000	0.000	0.000	0.000
T22	7.000-3.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.098	0.000	0.004
		C	0.000	0.000	0.000	0.000	0.000
T23	3.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000

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 K
T1	347.000-327.000	A	1.892	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	9.769	0.000	0.140
		C		0.000	0.000	0.000	0.000	0.000
T2	327.000-307.000	A	1.881	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	9.723	0.000	0.139
		C		0.000	0.000	0.000	0.000	0.000
T3	307.000-287.000	A	1.869	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	9.674	0.000	0.138
		C		0.000	0.000	0.000	0.000	0.000
T4	287.000-267.000	A	1.856	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	9.622	0.000	0.136
		C		0.000	0.000	0.000	0.000	0.000
T5	267.000-247.000	A	1.842	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	9.567	0.000	0.134
		C		0.000	0.000	0.000	0.000	0.000
T6	247.000-227.000	A	1.827	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	9.508	0.000	0.133
		C		0.000	0.000	0.000	0.000	0.000
T7	227.000-207.000	A	1.811	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	17.735	0.000	0.234
		C		0.000	0.000	0.000	0.000	0.000
T8	207.000-187.000	A	1.793	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	64.418	0.000	0.810
		C		0.000	0.000	0.000	0.000	0.000
T9	187.000-167.000	A	1.774	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	64.084	0.000	0.800
		C		0.000	0.000	0.000	0.000	0.000
T10	167.000-147.000	A	1.753	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	63.713	0.000	0.790
		C		0.000	0.000	0.000	0.000	0.000
T11	147.000-127.000	A	1.729	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	63.298	0.000	0.778
		C		0.000	0.000	0.000	0.000	0.000
T12	127.000-107.000	A	1.702	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	62.825	0.000	0.764
		C		0.000	0.000	0.000	0.000	0.000
T13	107.000-87.000	A	1.671	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	62.272	0.000	0.749
		C		0.000	0.000	0.000	0.000	0.000
T14	87.000-67.000	A	1.633	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	62.760	0.000	0.744
		C		0.000	0.000	0.000	0.000	0.000
T15	67.000-62.970	A	1.605	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	13.845	0.000	0.163
		C		0.000	0.000	0.000	0.000	0.000
T16	62.970-58.990	A	1.595	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	13.629	0.000	0.160
		C		0.000	0.000	0.000	0.000	0.000
T17	58.990-55.010	A	1.584	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	13.584	0.000	0.158
		C		0.000	0.000	0.000	0.000	0.000
T18	55.010-51.030	A	1.573	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	13.535	0.000	0.157
		C		0.000	0.000	0.000	0.000	0.000
T19	51.030-47.000	A	1.561	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	13.652	0.000	0.158
		C		0.000	0.000	0.000	0.000	0.000
T20	47.000-27.000	A	1.517	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	66.824	0.000	0.758
		C		0.000	0.000	0.000	0.000	0.000
T21	27.000-7.000	A	1.404	0.000	0.000	0.000	0.000	0.000

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 K
		B		0.000	0.000	64.395	0.000	0.696
		C		0.000	0.000	0.000	0.000	0.000
T22	7.000-3.000	A	1.242	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	3.047	0.000	0.031
		C		0.000	0.000	0.000	0.000	0.000
T23	3.000-0.000	A	1.101	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	347.000-327.000	0.2466	-0.6573	0.2220	-0.5918
T2	327.000-307.000	0.2563	-0.6834	0.2390	-0.6371
T3	307.000-287.000	0.2563	-0.6834	0.2409	-0.6423
T4	287.000-267.000	0.2466	-0.6573	0.2277	-0.6070
T5	267.000-247.000	0.2563	-0.6834	0.2452	-0.6535
T6	247.000-227.000	0.2563	-0.6834	0.2475	-0.6598
T7	227.000-207.000	1.1229	-0.5136	0.4948	-0.6046
T8	207.000-187.000	4.5437	0.1567	1.6188	-0.3275
T9	187.000-167.000	4.4815	0.1546	1.6041	-0.3205
T10	167.000-147.000	4.5437	0.1567	1.6724	-0.3296
T11	147.000-127.000	4.5437	0.1567	1.7044	-0.3306
T12	127.000-107.000	4.5437	0.1567	1.7412	-0.3316
T13	107.000-87.000	4.5437	0.1567	1.7847	-0.3324
T14	87.000-67.000	4.3914	0.1485	1.7596	-0.3110
T15	67.000-62.970	4.8196	0.1456	2.4063	-0.3701
T16	62.970-58.990	3.4536	0.1044	2.2998	-0.3514
T17	58.990-55.010	3.4600	0.1046	2.3300	-0.3536
T18	55.010-51.030	3.4600	0.1046	2.3408	-0.3526
T19	51.030-47.000	3.2236	0.0974	1.9172	-0.2865
T20	47.000-27.000	3.4094	0.1030	2.3154	-0.3360
T21	27.000-7.000	3.4094	0.1030	2.4273	-0.3242
T22	7.000-3.000	1.0762	0.0325	0.9075	-0.1056
T23	3.000-0.000	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	7/8" Coax	327.00 - 347.00	0.6000	0.3269
T2	1	7/8" Coax	307.00 - 327.00	0.6000	0.3426
T3	1	7/8" Coax	287.00 - 307.00	0.6000	0.3452
T4	1	7/8" Coax	267.00 - 287.00	0.6000	0.3345
T5	1	7/8" Coax	247.00 -	0.6000	0.3508

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			267.00		
T6	1	7/8" Coax	227.00 - 247.00	0.6000	0.3539
T7	1	7/8" Coax	207.00 - 227.00	0.6000	0.3573
T7	2	1 1/4" Hybriflex	207.00 - 210.00	0.6000	0.3573
T7	3	1 1/4" Hybriflex	207.00 - 210.00	0.6000	0.3573
T8	1	7/8" Coax	187.00 - 207.00	0.6000	0.3609
T8	2	1 1/4" Hybriflex	187.00 - 207.00	0.6000	0.3609
T8	3	1 1/4" Hybriflex	187.00 - 207.00	0.6000	0.3609
T9	1	7/8" Coax	167.00 - 187.00	0.6000	0.3582
T9	2	1 1/4" Hybriflex	167.00 - 187.00	0.6000	0.3582
T9	3	1 1/4" Hybriflex	167.00 - 187.00	0.6000	0.3582
T10	1	7/8" Coax	147.00 - 167.00	0.6000	0.3694
T10	2	1 1/4" Hybriflex	147.00 - 167.00	0.6000	0.3694
T10	3	1 1/4" Hybriflex	147.00 - 167.00	0.6000	0.3694
T11	1	7/8" Coax	127.00 - 147.00	0.6000	0.3744
T11	2	1 1/4" Hybriflex	127.00 - 147.00	0.6000	0.3744
T11	3	1 1/4" Hybriflex	127.00 - 147.00	0.6000	0.3744
T12	1	7/8" Coax	107.00 - 127.00	0.6000	0.3802
T12	2	1 1/4" Hybriflex	107.00 - 127.00	0.6000	0.3802
T12	3	1 1/4" Hybriflex	107.00 - 127.00	0.6000	0.3802
T13	1	7/8" Coax	87.00 - 107.00	0.6000	0.3869
T13	2	1 1/4" Hybriflex	87.00 - 107.00	0.6000	0.3869
T13	3	1 1/4" Hybriflex	87.00 - 107.00	0.6000	0.3869
T14	1	7/8" Coax	67.00 - 87.00	0.6000	0.3745
T14	2	1 1/4" Hybriflex	67.00 - 87.00	0.6000	0.3745
T14	3	1 1/4" Hybriflex	67.00 - 87.00	0.6000	0.3745
T14	9	1/2" Coax	67.00 - 70.00	0.6000	0.3745
T15	1	7/8" Coax	62.97 - 67.00	0.6000	0.4225
T15	2	1 1/4" Hybriflex	62.97 - 67.00	0.6000	0.4225
T15	3	1 1/4" Hybriflex	62.97 - 67.00	0.6000	0.4225
T15	9	1/2" Coax	62.97 - 67.00	0.6000	0.4225
T16	1	7/8" Coax	58.99 - 62.97	0.6000	0.4524
T16	2	1 1/4" Hybriflex	58.99 - 62.97	0.6000	0.4524
T16	3	1 1/4" Hybriflex	58.99 - 62.97	0.6000	0.4524
T16	9	1/2" Coax	58.99 - 62.97	0.6000	0.4524
T17	1	7/8" Coax	55.01 - 58.99	0.6000	0.4578
T17	2	1 1/4" Hybriflex	55.01 - 58.99	0.6000	0.4578
T17	3	1 1/4" Hybriflex	55.01 - 58.99	0.6000	0.4578
T17	9	1/2" Coax	55.01 - 58.99	0.6000	0.4578
T18	1	7/8" Coax	51.03 - 55.01	0.6000	0.4598
T18	2	1 1/4" Hybriflex	51.03 - 55.01	0.6000	0.4598
T18	3	1 1/4" Hybriflex	51.03 - 55.01	0.6000	0.4598
T18	9	1/2" Coax	51.03 - 55.01	0.6000	0.4598

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T19	1	7/8" Coax	47.00 - 51.03	0.6000	0.3889
T19	2	1 1/4" Hybriflex	47.00 - 51.03	0.6000	0.3889
T19	3	1 1/4" Hybriflex	47.00 - 51.03	0.6000	0.3889
T19	9	1/2" Coax	47.00 - 51.03	0.6000	0.3889
T20	1	7/8" Coax	27.00 - 47.00	0.6000	0.4563
T20	2	1 1/4" Hybriflex	27.00 - 47.00	0.6000	0.4563
T20	3	1 1/4" Hybriflex	27.00 - 47.00	0.6000	0.4563
T20	9	1/2" Coax	27.00 - 47.00	0.6000	0.4563
T21	1	7/8" Coax	7.00 - 27.00	0.6000	0.4768
T21	2	1 1/4" Hybriflex	7.00 - 27.00	0.6000	0.4768
T21	3	1 1/4" Hybriflex	7.00 - 27.00	0.6000	0.4768
T21	9	1/2" Coax	7.00 - 27.00	0.6000	0.4768
T22	1	7/8" Coax	6.00 - 7.00	0.6000	0.5232
T22	2	1 1/4" Hybriflex	6.00 - 7.00	0.6000	0.5232
T22	3	1 1/4" Hybriflex	6.00 - 7.00	0.6000	0.5232
T22	9	1/2" Coax	6.00 - 7.00	0.6000	0.5232

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
5' Lightning Rod	B	From Leg	0.000 0.000 2.000	0.0000	347.000	No Ice 1/2" Ice 1" Ice	0.500 1.017 1.426	0.500 1.017 1.426	0.015 0.020 0.028
Beacon (.035k 2.250CAAA)	C	From Leg	0.000 0.000 0.500	0.0000	347.000	No Ice 1/2" Ice 1" Ice	2.250 2.500 2.750	2.250 2.500 2.750	0.035 0.450 0.865
Beacon (10lbs 0.5CaAa)	A	From Leg	0.500 0.000 0.000	0.0000	225.000	No Ice 1/2" Ice 1" Ice	0.500 0.700 0.900	0.500 0.700 0.900	0.005 0.006 0.008
Beacon (10lbs 0.5CaAa)	B	From Leg	0.500 0.000 0.000	0.0000	225.000	No Ice 1/2" Ice 1" Ice	0.500 0.700 0.900	0.500 0.700 0.900	0.005 0.006 0.008
Beacon (10lbs 0.5CaAa)	A	From Leg	0.500 0.000 0.000	0.0000	117.000	No Ice 1/2" Ice 1" Ice	0.500 0.700 0.900	0.500 0.700 0.900	0.005 0.006 0.008
Beacon (10lbs 0.5CaAa)	B	From Leg	0.500 0.000 0.000	0.0000	117.000	No Ice 1/2" Ice 1" Ice	0.500 0.700 0.900	0.500 0.700 0.900	0.005 0.006 0.008
Beacon (.035k 2.250CAAA)	A	From Leg	0.000 0.000 0.000	0.0000	15.000	No Ice 1/2" Ice 1" Ice	2.250 2.500 2.750	2.250 2.500 2.750	0.035 0.450 0.865
***									
Commscope DT465B-2XR (Sprint)	A	From Leg	4.000 0.000 0.000	0.0000	201.000	No Ice 1/2" Ice 1" Ice	9.222 9.689 10.163	5.867 6.325 6.790	0.058 0.116 0.180
Commscope DT465B-2XR (Sprint)	B	From Leg	4.000 0.000 0.000	0.0000	201.000	No Ice 1/2" Ice 1" Ice	9.222 9.689 10.163	5.867 6.325 6.790	0.058 0.116 0.180
Commscope DT465B-2XR	C	From Leg	4.000	0.0000	201.000	No Ice	9.222	5.867	0.058

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 K
(Sprint)			0.000			1/2" Ice	9.689	6.325	0.116
			0.000			1" Ice	10.163	6.790	0.180
APXVTM14-C-120	A	From Leg	4.000	0.0000	201.000	No Ice	6.342	3.607	0.056
(Sprint)			0.000			1/2" Ice	6.716	3.967	0.096
			0.000			1" Ice	7.097	4.333	0.140
APXVTM14-C-120	B	From Leg	4.000	0.0000	201.000	No Ice	6.342	3.607	0.056
(Sprint)			0.000			1/2" Ice	6.716	3.967	0.096
			0.000			1" Ice	7.097	4.333	0.140
APXVTM14-C-120	C	From Leg	4.000	0.0000	201.000	No Ice	6.342	3.607	0.056
(Sprint)			0.000			1/2" Ice	6.716	3.967	0.096
			0.000			1" Ice	7.097	4.333	0.140
800MHz 2X50W RRH	A	From Leg	3.000	0.0000	201.000	No Ice	2.058	1.932	0.064
W/FILTER			0.000			1/2" Ice	2.240	2.109	0.086
(Sprint)			0.000			1" Ice	2.429	2.293	0.111
800MHz 2X50W RRH	B	From Leg	3.000	0.0000	201.000	No Ice	2.058	1.932	0.064
W/FILTER			0.000			1/2" Ice	2.240	2.109	0.086
(Sprint)			0.000			1" Ice	2.429	2.293	0.111
800MHz 2X50W RRH	C	From Leg	3.000	0.0000	201.000	No Ice	2.058	1.932	0.064
W/FILTER			0.000			1/2" Ice	2.240	2.109	0.086
(Sprint)			0.000			1" Ice	2.429	2.293	0.111
Alcatel Lucent 1900 4X45	A	From Leg	3.000	0.0000	201.000	No Ice	2.322	2.238	0.060
65MHz			0.000			1/2" Ice	2.527	2.441	0.083
(Sprint)			0.000			1" Ice	2.739	2.651	0.110
Alcatel Lucent 1900 4X45	B	From Leg	3.000	0.0000	201.000	No Ice	2.322	2.238	0.060
65MHz			0.000			1/2" Ice	2.527	2.441	0.083
(Sprint)			0.000			1" Ice	2.739	2.651	0.110
Alcatel Lucent 1900 4X45	C	From Leg	3.000	0.0000	201.000	No Ice	2.322	2.238	0.060
65MHz			0.000			1/2" Ice	2.527	2.441	0.083
(Sprint)			0.000			1" Ice	2.739	2.651	0.110
TD-RRH 8x20	A	From Leg	3.000	0.0000	201.000	No Ice	4.320	1.410	0.066
(Sprint)			0.000			1/2" Ice	4.600	1.610	0.091
			0.000			1" Ice	4.880	1.810	0.115
TD-RRH 8x20	B	From Leg	3.000	0.0000	201.000	No Ice	4.320	1.410	0.066
(Sprint)			0.000			1/2" Ice	4.600	1.610	0.091
			0.000			1" Ice	4.880	1.810	0.115
TD-RRH 8x20	C	From Leg	3.000	0.0000	201.000	No Ice	4.320	1.410	0.066
(Sprint)			0.000			1/2" Ice	4.600	1.610	0.091
			0.000			1" Ice	4.880	1.810	0.115
SM 407-3	C	From Leg	0.000	0.0000	201.000	No Ice	20.490	20.490	0.956
(Sprint)			0.000			1/2" Ice	30.390	30.390	1.376
			0.000			1" Ice	40.290	40.290	1.796
PCTEL	C	From Leg	0.000	0.0000	70.000	No Ice	0.237	0.139	0.001
GPS-TMG-HR-26NCM			0.000			1/2" Ice	0.304	0.189	0.004
(.0006, .277CAAA)			2.500			1" Ice	0.378	0.245	0.008
(Sprint)									

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	337.000	1.634	0.031	64.792	A	2.760	12.902	9.583	61.19	0.000	0.000
347.000-327.0					B	2.760	12.902		61.19	2.200	0.000
00					C	2.760	12.902		61.19	0.000	0.000
T2	317.000	1.614	0.031	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
327.000-307.0					B	2.760	11.954		65.13	2.200	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T3	297.000	1.592	0.031	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
307.000-287.0					B	2.760	11.954		65.13	2.200	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T4	277.000	1.568	0.030	64.792	A	2.760	12.902	9.583	61.19	0.000	0.000
287.000-267.0					B	2.760	12.902		61.19	2.200	0.000
00					C	2.760	12.902		61.19	0.000	0.000
T5	257.000	1.544	0.030	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
267.000-247.0					B	2.760	11.954		65.13	2.200	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T6	237.000	1.518	0.029	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
247.000-227.0					B	2.760	11.954		65.13	2.200	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T7	217.000	1.49	0.029	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
227.000-207.0					B	2.760	11.954		65.13	4.990	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T8	197.000	1.46	0.028	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
207.000-187.0					B	2.760	11.954		65.13	20.800	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T9	177.000	1.427	0.027	64.792	A	2.760	12.428	9.583	63.10	0.000	0.000
187.000-167.0					B	2.760	12.428		63.10	20.800	0.000
00					C	2.760	12.428		63.10	0.000	0.000
T10	157.000	1.392	0.027	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
167.000-147.0					B	2.760	11.954		65.13	20.800	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T11	137.000	1.352	0.026	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
147.000-127.0					B	2.760	11.954		65.13	20.800	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T12	117.000	1.308	0.025	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
127.000-107.0					B	2.760	11.954		65.13	20.800	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T13	97.000	1.258	0.024	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
107.000-87.00					B	2.760	11.954		65.13	20.800	0.000
0					C	2.760	11.954		65.13	0.000	0.000
T14	77.000	1.198	0.023	64.792	A	3.451	11.954	9.583	62.21	0.000	0.000
87.000-67.000					B	3.451	11.954		62.21	20.974	0.000
					C	3.451	11.954		62.21	0.000	0.000
T15	64.985	1.156	0.022	13.056	A	0.460	2.400	1.931	67.52	0.000	0.000
67.000-62.970					B	0.460	2.400		67.52	4.425	0.000
					C	0.460	2.400		67.52	0.000	0.000
T16	60.980	1.14	0.022	13.213	A	2.782	0.473	2.322	71.33	0.000	0.000
62.970-58.990					B	2.782	0.473		71.33	4.370	0.000
					C	2.782	0.473		71.33	0.000	0.000
T17	57.000	1.124	0.022	13.213	A	2.773	0.469	2.322	71.62	0.000	0.000
58.990-55.010					B	2.773	0.469		71.62	4.370	0.000
					C	2.773	0.469		71.62	0.000	0.000
T18	53.020	1.107	0.021	13.213	A	2.773	0.469	2.322	71.62	0.000	0.000
55.010-51.030					B	2.773	0.469		71.62	4.370	0.000
					C	2.773	0.469		71.62	0.000	0.000
T19	49.015	1.089	0.021	13.379	A	3.254	0.460	2.351	63.30	0.000	0.000
51.030-47.000					B	3.254	0.460		63.30	4.425	0.000
					C	3.254	0.460		63.30	0.000	0.000
T20	37.000	1.027	0.020	66.397	A	14.375	2.326	11.667	69.86	0.000	0.000
47.000-27.000					B	14.375	2.326		69.86	21.960	0.000
					C	14.375	2.326		69.86	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T21	17.000	0.872	0.017	66.397	A	14.375	2.326	11.667	69.86	0.000	0.000
27.000-7.000					B	14.375	2.326		69.86	21.960	0.000
					C	14.375	2.326		69.86	0.000	0.000
T22	5.000	0.85	0.016	13.279	A	2.785	0.458	2.333	71.96	0.000	0.000
7.000-3.000					B	2.785	0.458		71.96	1.098	0.000
					C	2.785	0.458		71.96	0.000	0.000
T23	1.500	0.85	0.016	9.960	A	2.653	0.388	1.750	57.55	0.000	0.000
3.000-0.000					B	2.653	0.388		57.55	0.000	0.000
					C	2.653	0.388		57.55	0.000	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	337.000	1.634	0.009	1.8924	71.100	A	2.760	45.098	22.199	46.39	0.000	0.000
347.000-327.000						B	2.760	45.098		46.39	9.769	0.000
						C	2.760	45.098		46.39	0.000	0.000
T2	317.000	1.614	0.009	1.8808	71.061	A	2.760	43.953	22.122	47.36	0.000	0.000
327.000-307.000						B	2.760	43.953		47.36	9.723	0.000
						C	2.760	43.953		47.36	0.000	0.000
T3	297.000	1.592	0.009	1.8686	71.020	A	2.760	43.745	22.041	47.39	0.000	0.000
307.000-287.000						B	2.760	43.745		47.39	9.674	0.000
						C	2.760	43.745		47.39	0.000	0.000
T4	277.000	1.568	0.009	1.8556	70.977	A	2.760	44.473	21.954	46.48	0.000	0.000
287.000-267.000						B	2.760	44.473		46.48	9.622	0.000
						C	2.760	44.473		46.48	0.000	0.000
T5	257.000	1.544	0.008	1.8418	70.931	A	2.760	43.289	21.862	47.47	0.000	0.000
267.000-247.000						B	2.760	43.289		47.47	9.567	0.000
						C	2.760	43.289		47.47	0.000	0.000
T6	237.000	1.518	0.008	1.8269	70.881	A	2.760	43.036	21.763	47.52	0.000	0.000
247.000-227.000						B	2.760	43.036		47.52	9.508	0.000
						C	2.760	43.036		47.52	0.000	0.000
T7	217.000	1.49	0.008	1.8109	70.828	A	2.760	42.763	21.656	47.57	0.000	0.000
227.000-207.000						B	2.760	42.763		47.57	17.735	0.000
						C	2.760	42.763		47.57	0.000	0.000
T8	197.000	1.46	0.008	1.7934	70.770	A	2.760	42.466	21.540	47.63	0.000	0.000
207.000-187.000						B	2.760	42.466		47.63	64.418	0.000
						C	2.760	42.466		47.63	0.000	0.000
T9	177.000	1.427	0.008	1.7743	70.706	A	2.760	42.616	21.412	47.19	0.000	0.000
187.000-167.000						B	2.760	42.616		47.19	64.084	0.000
						C	2.760	42.616		47.19	0.000	0.000
T10	157.000	1.392	0.008	1.7532	70.636	A	2.760	41.782	21.271	47.76	0.000	0.000
167.000-147.000						B	2.760	41.782		47.76	63.713	0.000
						C	2.760	41.782		47.76	0.000	0.000
T11	137.000	1.352	0.007	1.7295	70.557	A	2.760	41.378	21.113	47.83	0.000	0.000
147.000-127.000						B	2.760	41.378		47.83	63.298	0.000
						C	2.760	41.378		47.83	0.000	0.000
T12	117.000	1.308	0.007	1.7024	70.466	A	2.760	40.917	20.933	47.92	0.000	0.000
127.000-107.000						B	2.760	40.917		47.92	62.825	0.000
						C	2.760	40.917		47.92	0.000	0.000
T13	97.000	1.258	0.007	1.6708	70.361	A	2.760	40.379	20.722	48.03	0.000	0.000
107.000-87.000						B	2.760	40.379		48.03	62.272	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						C	2.760	40.379		48.03	0.000	0.000
T14	77.000	1.198	0.007	1.6326	70.234	A	3.451	40.482	20.468	46.59	0.000	0.000
87.000-67.000						B	3.451	40.482		46.59	62.760	0.000
						C	3.451	40.482		46.59	0.000	0.000
T15	64.985	1.156	0.006	1.6052	14.134	A	0.460	7.703	4.087	50.07	0.000	0.000
67.000-62.970						B	0.460	7.703		50.07	13.845	0.000
						C	0.460	7.703		50.07	0.000	0.000
T16	60.980	1.14	0.006	1.5950	14.271	A	4.192	3.622	3.732	47.76	0.000	0.000
62.970-58.990						B	4.192	3.622		47.76	13.629	0.000
						C	4.192	3.622		47.76	0.000	0.000
T17	57.000	1.124	0.006	1.5843	14.264	A	4.174	3.560	3.723	48.14	0.000	0.000
58.990-55.010						B	4.174	3.560		48.14	13.584	0.000
						C	4.174	3.560		48.14	0.000	0.000
T18	53.020	1.107	0.006	1.5728	14.256	A	4.164	3.538	3.713	48.21	0.000	0.000
55.010-51.030						B	4.164	3.538		48.21	13.535	0.000
						C	4.164	3.538		48.21	0.000	0.000
T19	49.015	1.089	0.006	1.5605	14.427	A	4.651	4.166	3.748	42.51	0.000	0.000
51.030-47.000						B	4.651	4.166		42.51	13.652	0.000
						C	4.651	4.166		42.51	0.000	0.000
T20	37.000	1.027	0.006	1.5173	71.455	A	21.118	17.728	18.410	47.39	0.000	0.000
47.000-27.000						B	21.118	17.728		47.39	66.824	0.000
						C	21.118	17.728		47.39	0.000	0.000
T21	17.000	0.872	0.005	1.4037	71.076	A	20.614	16.576	17.905	48.15	0.000	0.000
27.000-7.000						B	20.614	16.576		48.15	64.395	0.000
						C	20.614	16.576		48.15	0.000	0.000
T22 7.000-3.000	5.000	0.85	0.005	1.2420	14.107	A	3.889	2.838	3.437	51.10	0.000	0.000
						B	3.889	2.838		51.10	3.047	0.000
						C	3.889	2.838		51.10	0.000	0.000
T23 3.000-0.000	1.500	0.85	0.005	1.1012	10.510	A	3.387	2.750	2.484	40.48	0.000	0.000
						B	3.387	2.750		40.48	0.000	0.000
						C	3.387	2.750		40.48	0.000	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	337.000	1.634	0.013	64.792	A	2.760	12.902	9.583	61.19	0.000	0.000
347.000-327.0					B	2.760	12.902		61.19	2.200	0.000
00					C	2.760	12.902		61.19	0.000	0.000
T2	317.000	1.614	0.013	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
327.000-307.0					B	2.760	11.954		65.13	2.200	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T3	297.000	1.592	0.012	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
307.000-287.0					B	2.760	11.954		65.13	2.200	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T4	277.000	1.568	0.012	64.792	A	2.760	12.902	9.583	61.19	0.000	0.000
287.000-267.0					B	2.760	12.902		61.19	2.200	0.000
00					C	2.760	12.902		61.19	0.000	0.000
T5	257.000	1.544	0.012	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
267.000-247.0					B	2.760	11.954		65.13	2.200	0.000
00					C	2.760	11.954		65.13	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T6	237.000	1.518	0.012	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
247.000-227.0					B	2.760	11.954		65.13	2.200	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T7	217.000	1.49	0.012	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
227.000-207.0					B	2.760	11.954		65.13	4.990	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T8	197.000	1.46	0.011	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
207.000-187.0					B	2.760	11.954		65.13	20.800	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T9	177.000	1.427	0.011	64.792	A	2.760	12.428	9.583	63.10	0.000	0.000
187.000-167.0					B	2.760	12.428		63.10	20.800	0.000
00					C	2.760	12.428		63.10	0.000	0.000
T10	157.000	1.392	0.011	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
167.000-147.0					B	2.760	11.954		65.13	20.800	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T11	137.000	1.352	0.011	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
147.000-127.0					B	2.760	11.954		65.13	20.800	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T12	117.000	1.308	0.010	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
127.000-107.0					B	2.760	11.954		65.13	20.800	0.000
00					C	2.760	11.954		65.13	0.000	0.000
T13	97.000	1.258	0.010	64.792	A	2.760	11.954	9.583	65.13	0.000	0.000
107.000-87.00					B	2.760	11.954		65.13	20.800	0.000
0					C	2.760	11.954		65.13	0.000	0.000
T14	77.000	1.198	0.009	64.792	A	3.451	11.954	9.583	62.21	0.000	0.000
87.000-67.000					B	3.451	11.954		62.21	20.974	0.000
					C	3.451	11.954		62.21	0.000	0.000
T15	64.985	1.156	0.009	13.056	A	0.460	2.400	1.931	67.52	0.000	0.000
67.000-62.970					B	0.460	2.400		67.52	4.425	0.000
					C	0.460	2.400		67.52	0.000	0.000
T16	60.980	1.14	0.009	13.213	A	2.782	0.473	2.322	71.33	0.000	0.000
62.970-58.990					B	2.782	0.473		71.33	4.370	0.000
					C	2.782	0.473		71.33	0.000	0.000
T17	57.000	1.124	0.009	13.213	A	2.773	0.469	2.322	71.62	0.000	0.000
58.990-55.010					B	2.773	0.469		71.62	4.370	0.000
					C	2.773	0.469		71.62	0.000	0.000
T18	53.020	1.107	0.009	13.213	A	2.773	0.469	2.322	71.62	0.000	0.000
55.010-51.030					B	2.773	0.469		71.62	4.370	0.000
					C	2.773	0.469		71.62	0.000	0.000
T19	49.015	1.089	0.009	13.379	A	3.254	0.460	2.351	63.30	0.000	0.000
51.030-47.000					B	3.254	0.460		63.30	4.425	0.000
					C	3.254	0.460		63.30	0.000	0.000
T20	37.000	1.027	0.008	66.397	A	14.375	2.326	11.667	69.86	0.000	0.000
47.000-27.000					B	14.375	2.326		69.86	21.960	0.000
					C	14.375	2.326		69.86	0.000	0.000
T21	17.000	0.872	0.007	66.397	A	14.375	2.326	11.667	69.86	0.000	0.000
27.000-7.000					B	14.375	2.326		69.86	21.960	0.000
					C	14.375	2.326		69.86	0.000	0.000
T22	5.000	0.85	0.007	13.279	A	2.785	0.458	2.333	71.96	0.000	0.000
7.000-3.000					B	2.785	0.458		71.96	1.098	0.000
					C	2.785	0.458		71.96	0.000	0.000
T23	1.500	0.85	0.007	9.960	A	2.653	0.388	1.750	57.55	0.000	0.000
3.000-0.000					B	2.653	0.388		57.55	0.000	0.000
					C	2.653	0.388		57.55	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T1	0.002	0.824	A	0.242	2.463	0.031	1	1	10.283	0.712	0.036	C
347.000-327.0		TA 0.531	B	0.242	2.463		1	1	10.283			
00			C	0.242	2.463		1	1	10.283			
T2	0.002	0.617	A	0.227	2.508	0.031	1	1	9.691	0.676	0.034	C
327.000-307.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T3	0.002	0.617	A	0.227	2.508	0.031	1	1	9.691	0.667	0.033	C
307.000-287.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T4	0.002	0.824	A	0.242	2.463	0.030	1	1	10.283	0.683	0.034	C
287.000-267.0		TA 0.531	B	0.242	2.463		1	1	10.283			
00			C	0.242	2.463		1	1	10.283			
T5	0.002	0.617	A	0.227	2.508	0.030	1	1	9.691	0.647	0.032	C
267.000-247.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T6	0.002	0.617	A	0.227	2.508	0.029	1	1	9.691	0.636	0.032	C
247.000-227.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T7	0.014	0.617	A	0.227	2.508	0.029	1	1	9.691	0.665	0.033	C
227.000-207.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T8	0.081	0.617	A	0.227	2.508	0.028	1	1	9.691	0.878	0.044	C
207.000-187.0		TA 0.520	B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T9	0.081	0.720	A	0.234	2.485	0.027	1	1	9.986	0.870	0.043	C
187.000-167.0			B	0.234	2.485		1	1	9.986			
00			C	0.234	2.485		1	1	9.986			
T10	0.081	0.617	A	0.227	2.508	0.027	1	1	9.691	0.837	0.042	C
167.000-147.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T11	0.081	0.617	A	0.227	2.508	0.026	1	1	9.691	0.813	0.041	C
147.000-127.0		TA 0.531	B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T12	0.081	0.617	A	0.227	2.508	0.025	1	1	9.691	0.786	0.039	C
127.000-107.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T13	0.081	0.617	A	0.227	2.508	0.024	1	1	9.691	0.756	0.038	C
107.000-87.00			B	0.227	2.508		1	1	9.691			
0			C	0.227	2.508		1	1	9.691			
T14	0.082	0.651	A	0.238	2.475	0.023	1	1	10.409	0.751	0.038	C
87.000-67.000			B	0.238	2.475		1	1	10.409			
			C	0.238	2.475		1	1	10.409			
T15	0.017	0.120	A	0.219	2.534	0.022	1	1	1.847	0.139	0.034	C
67.000-62.970			B	0.219	2.534		1	1	1.847			
			C	0.219	2.534		1	1	1.847			
T16	0.017	0.177	A	0.246	2.449	0.022	1	1	3.058	0.188	0.047	C
62.970-58.990			B	0.246	2.449		1	1	3.058			
			C	0.246	2.449		1	1	3.058			
T17	0.017	0.177	A	0.245	2.452	0.022	1	1	3.047	0.185	0.047	C
58.990-55.010			B	0.245	2.452		1	1	3.047			
			C	0.245	2.452		1	1	3.047			
T18	0.017	0.177	A	0.245	2.452	0.021	1	1	3.047	0.183	0.046	C
55.010-51.030			B	0.245	2.452		1	1	3.047			
			C	0.245	2.452		1	1	3.047			
T19	0.017	0.197	A	0.278	2.357	0.021	1	1	3.526	0.195	0.048	C
51.030-47.000			B	0.278	2.357		1	1	3.526			
			C	0.278	2.357		1	1	3.526			
T20	0.086	0.904	A	0.252	2.433	0.020	1	1	15.737	0.863	0.043	C
47.000-27.000			B	0.252	2.433		1	1	15.737			
			C	0.252	2.433		1	1	15.737			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T21	0.086	0.904	A	0.252	2.433	0.017	1	1	15.737	0.733	0.037	C
27.000-7.000			B	0.252	2.433		1	1	15.737			
			C	0.252	2.433		1	1	15.737			
T22	0.004	0.177	A	0.244	2.455	0.016	1	1	3.052	0.113	0.028	C
7.000-3.000			B	0.244	2.455		1	1	3.052			
			C	0.244	2.455		1	1	3.052			
T23	0.000	0.159	A	0.305	2.282	0.016	1	1	2.886	0.091	0.030	C
3.000-0.000			B	0.305	2.282		1	1	2.886			
			C	0.305	2.282		1	1	2.886			
Sum Weight:	0.858	14.292								13.065		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T1	0.002	0.824	A	0.242	2.463	0.031	0.8	1	9.731	0.675	0.034	C
347.000-327.0		TA 0.531	B	0.242	2.463		0.8	1	9.731			
00			C	0.242	2.463		0.8	1	9.731			
T2	0.002	0.617	A	0.227	2.508	0.031	0.8	1	9.139	0.639	0.032	C
327.000-307.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T3	0.002	0.617	A	0.227	2.508	0.031	0.8	1	9.139	0.631	0.032	C
307.000-287.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T4	0.002	0.824	A	0.242	2.463	0.030	0.8	1	9.731	0.648	0.032	C
287.000-267.0		TA 0.531	B	0.242	2.463		0.8	1	9.731			
00			C	0.242	2.463		0.8	1	9.731			
T5	0.002	0.617	A	0.227	2.508	0.030	0.8	1	9.139	0.612	0.031	C
267.000-247.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T6	0.002	0.617	A	0.227	2.508	0.029	0.8	1	9.139	0.601	0.030	C
247.000-227.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T7	0.014	0.617	A	0.227	2.508	0.029	0.8	1	9.139	0.631	0.032	C
227.000-207.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T8	0.081	0.617	A	0.227	2.508	0.028	0.8	1	9.139	0.845	0.042	C
207.000-187.0		TA 0.520	B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T9	0.081	0.720	A	0.234	2.485	0.027	0.8	1	9.433	0.838	0.042	C
187.000-167.0			B	0.234	2.485		0.8	1	9.433			
00			C	0.234	2.485		0.8	1	9.433			
T10	0.081	0.617	A	0.227	2.508	0.027	0.8	1	9.139	0.805	0.040	C
167.000-147.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T11	0.081	0.617	A	0.227	2.508	0.026	0.8	1	9.139	0.782	0.039	C
147.000-127.0		TA 0.531	B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T12	0.081	0.617	A	0.227	2.508	0.025	0.8	1	9.139	0.757	0.038	C
127.000-107.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T13	0.081	0.617	A	0.227	2.508	0.024	0.8	1	9.139	0.728	0.036	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
107.000-87.00			B	0.227	2.508		0.8	1	9.139			
0			C	0.227	2.508		0.8	1	9.139			
T14	0.082	0.651	A	0.238	2.475	0.023	0.8	1	9.719	0.717	0.036	C
87.000-67.000			B	0.238	2.475		0.8	1	9.719			
			C	0.238	2.475		0.8	1	9.719			
T15	0.017	0.120	A	0.219	2.534	0.022	0.8	1	1.755	0.134	0.033	C
67.000-62.970			B	0.219	2.534		0.8	1	1.755			
			C	0.219	2.534		0.8	1	1.755			
T16	0.017	0.177	A	0.246	2.449	0.022	0.8	1	2.502	0.163	0.041	C
62.970-58.990			B	0.246	2.449		0.8	1	2.502			
			C	0.246	2.449		0.8	1	2.502			
T17	0.017	0.177	A	0.245	2.452	0.022	0.8	1	2.492	0.160	0.040	C
58.990-55.010			B	0.245	2.452		0.8	1	2.492			
			C	0.245	2.452		0.8	1	2.492			
T18	0.017	0.177	A	0.245	2.452	0.021	0.8	1	2.492	0.158	0.040	C
55.010-51.030			B	0.245	2.452		0.8	1	2.492			
			C	0.245	2.452		0.8	1	2.492			
T19	0.017	0.197	A	0.278	2.357	0.021	0.8	1	2.875	0.168	0.042	C
51.030-47.000			B	0.278	2.357		0.8	1	2.875			
			C	0.278	2.357		0.8	1	2.875			
T20	0.086	0.904	A	0.252	2.433	0.020	0.8	1	12.862	0.746	0.037	C
47.000-27.000			B	0.252	2.433		0.8	1	12.862			
			C	0.252	2.433		0.8	1	12.862			
T21	0.086	0.904	A	0.252	2.433	0.017	0.8	1	12.862	0.633	0.032	C
27.000-7.000			B	0.252	2.433		0.8	1	12.862			
			C	0.252	2.433		0.8	1	12.862			
T22	0.004	0.177	A	0.244	2.455	0.016	0.8	1	2.495	0.094	0.024	C
7.000-3.000			B	0.244	2.455		0.8	1	2.495			
			C	0.244	2.455		0.8	1	2.495			
T23	0.000	0.159	A	0.305	2.282	0.016	0.8	1	2.355	0.075	0.025	C
3.000-0.000			B	0.305	2.282		0.8	1	2.355			
			C	0.305	2.282		0.8	1	2.355			
Sum Weight:	0.858	14.292								12.240		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T1	0.002	0.824	A	0.242	2.463	0.031	0.85	1	9.869	0.684	0.034	C
347.000-327.0		TA 0.531	B	0.242	2.463		0.85	1	9.869			
00			C	0.242	2.463		0.85	1	9.869			
T2	0.002	0.617	A	0.227	2.508	0.031	0.85	1	9.277	0.648	0.032	C
327.000-307.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T3	0.002	0.617	A	0.227	2.508	0.031	0.85	1	9.277	0.640	0.032	C
307.000-287.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T4	0.002	0.824	A	0.242	2.463	0.030	0.85	1	9.869	0.657	0.033	C
287.000-267.0		TA 0.531	B	0.242	2.463		0.85	1	9.869			
00			C	0.242	2.463		0.85	1	9.869			
T5	0.002	0.617	A	0.227	2.508	0.030	0.85	1	9.277	0.620	0.031	C
267.000-247.0			B	0.227	2.508		0.85	1	9.277			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
00			C	0.227	2.508		0.85	1	9.277			
T6	0.002	0.617	A	0.227	2.508	0.029	0.85	1	9.277	0.610	0.030	C
247.000-227.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T7	0.014	0.617	A	0.227	2.508	0.029	0.85	1	9.277	0.639	0.032	C
227.000-207.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T8	0.081	0.617	A	0.227	2.508	0.028	0.85	1	9.277	0.853	0.043	C
207.000-187.0		TA 0.520	B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T9	0.081	0.720	A	0.234	2.485	0.027	0.85	1	9.571	0.846	0.042	C
187.000-167.0			B	0.234	2.485		0.85	1	9.571			
00			C	0.234	2.485		0.85	1	9.571			
T10	0.081	0.617	A	0.227	2.508	0.027	0.85	1	9.277	0.813	0.041	C
167.000-147.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T11	0.081	0.617	A	0.227	2.508	0.026	0.85	1	9.277	0.790	0.040	C
147.000-127.0		TA 0.531	B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T12	0.081	0.617	A	0.227	2.508	0.025	0.85	1	9.277	0.764	0.038	C
127.000-107.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T13	0.081	0.617	A	0.227	2.508	0.024	0.85	1	9.277	0.735	0.037	C
107.000-87.00			B	0.227	2.508		0.85	1	9.277			
0			C	0.227	2.508		0.85	1	9.277			
T14	0.082	0.651	A	0.238	2.475	0.023	0.85	1	9.891	0.726	0.036	C
87.000-67.000			B	0.238	2.475		0.85	1	9.891			
			C	0.238	2.475		0.85	1	9.891			
T15	0.017	0.120	A	0.219	2.534	0.022	0.85	1	1.778	0.135	0.034	C
67.000-62.970			B	0.219	2.534		0.85	1	1.778			
			C	0.219	2.534		0.85	1	1.778			
T16	0.017	0.177	A	0.246	2.449	0.022	0.85	1	2.641	0.169	0.043	C
62.970-58.990			B	0.246	2.449		0.85	1	2.641			
			C	0.246	2.449		0.85	1	2.641			
T17	0.017	0.177	A	0.245	2.452	0.022	0.85	1	2.631	0.167	0.042	C
58.990-55.010			B	0.245	2.452		0.85	1	2.631			
			C	0.245	2.452		0.85	1	2.631			
T18	0.017	0.177	A	0.245	2.452	0.021	0.85	1	2.631	0.164	0.041	C
55.010-51.030			B	0.245	2.452		0.85	1	2.631			
			C	0.245	2.452		0.85	1	2.631			
T19	0.017	0.197	A	0.278	2.357	0.021	0.85	1	3.038	0.175	0.043	C
51.030-47.000			B	0.278	2.357		0.85	1	3.038			
			C	0.278	2.357		0.85	1	3.038			
T20	0.086	0.904	A	0.252	2.433	0.020	0.85	1	13.580	0.775	0.039	C
47.000-27.000			B	0.252	2.433		0.85	1	13.580			
			C	0.252	2.433		0.85	1	13.580			
T21	0.086	0.904	A	0.252	2.433	0.017	0.85	1	13.580	0.658	0.033	C
27.000-7.000			B	0.252	2.433		0.85	1	13.580			
			C	0.252	2.433		0.85	1	13.580			
T22	0.004	0.177	A	0.244	2.455	0.016	0.85	1	2.634	0.099	0.025	C
7.000-3.000			B	0.244	2.455		0.85	1	2.634			
			C	0.244	2.455		0.85	1	2.634			
T23	0.000	0.159	A	0.305	2.282	0.016	0.85	1	2.488	0.079	0.026	C
3.000-0.000			B	0.305	2.282		0.85	1	2.488			
			C	0.305	2.282		0.85	1	2.488			
Sum Weight:	0.858	14.292								12.447		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.140	3.024	A	0.673	1.777	0.009	1	1	38.488	0.541	0.027	C
347.000-327.0		TA 1.773	B	0.673	1.777		1	1	38.488			
00			C	0.673	1.777		1	1	38.488			
T2	0.139	2.671	A	0.657	1.78	0.009	1	1	37.107	0.518	0.026	C
327.000-307.0			B	0.657	1.78		1	1	37.107			
00			C	0.657	1.78		1	1	37.107			
T3	0.138	2.650	A	0.655	1.78	0.009	1	1	36.868	0.508	0.025	C
307.000-287.0			B	0.655	1.78		1	1	36.868			
00			C	0.655	1.78		1	1	36.868			
T4	0.136	2.960	A	0.665	1.778	0.009	1	1	37.758	0.510	0.026	C
287.000-267.0		TA 1.742	B	0.665	1.778		1	1	37.758			
00			C	0.665	1.778		1	1	37.758			
T5	0.134	2.605	A	0.649	1.782	0.008	1	1	36.348	0.486	0.024	C
267.000-247.0			B	0.649	1.782		1	1	36.348			
00			C	0.649	1.782		1	1	36.348			
T6	0.133	2.580	A	0.646	1.783	0.008	1	1	36.062	0.475	0.024	C
247.000-227.0			B	0.646	1.783		1	1	36.062			
00			C	0.646	1.783		1	1	36.062			
T7	0.234	2.554	A	0.643	1.784	0.008	1	1	35.755	0.483	0.024	C
227.000-207.0			B	0.643	1.784		1	1	35.755			
00			C	0.643	1.784		1	1	35.755			
T8	0.810	2.525	A	0.639	1.785	0.008	1	1	35.422	0.584	0.029	C
207.000-187.0		TA 1.657	B	0.639	1.785		1	1	35.422			
00			C	0.639	1.785		1	1	35.422			
T9	0.800	2.637	A	0.642	1.784	0.008	1	1	35.613	0.571	0.029	C
187.000-167.0			B	0.642	1.784		1	1	35.613			
00			C	0.642	1.784		1	1	35.613			
T10	0.790	2.460	A	0.631	1.788	0.008	1	1	34.661	0.550	0.028	C
167.000-147.0			B	0.631	1.788		1	1	34.661			
00			C	0.631	1.788		1	1	34.661			
T11	0.778	2.422	A	0.626	1.79	0.007	1	1	34.217	0.531	0.027	C
147.000-127.0		TA 1.636	B	0.626	1.79		1	1	34.217			
00			C	0.626	1.79		1	1	34.217			
T12	0.764	2.379	A	0.62	1.793	0.007	1	1	33.714	0.510	0.026	C
127.000-107.0			B	0.62	1.793		1	1	33.714			
00			C	0.62	1.793		1	1	33.714			
T13	0.749	2.329	A	0.613	1.796	0.007	1	1	33.131	0.486	0.024	C
107.000-87.00			B	0.613	1.796		1	1	33.131			
0			C	0.613	1.796		1	1	33.131			
T14	0.744	2.388	A	0.626	1.79	0.007	1	1	34.224	0.470	0.023	C
87.000-67.000			B	0.626	1.79		1	1	34.224			
			C	0.626	1.79		1	1	34.224			
T15	0.163	0.427	A	0.578	1.82	0.006	1	1	6.081	0.090	0.022	C
67.000-62.970			B	0.578	1.82		1	1	6.081			
			C	0.578	1.82		1	1	6.081			
T16	0.160	0.378	A	0.548	1.846	0.006	1	1	6.771	0.098	0.025	C
62.970-58.990			B	0.548	1.846		1	1	6.771			
			C	0.548	1.846		1	1	6.771			
T17	0.158	0.376	A	0.542	1.851	0.006	1	1	6.697	0.097	0.024	C
58.990-55.010			B	0.542	1.851		1	1	6.697			
			C	0.542	1.851		1	1	6.697			
T18	0.157	0.373	A	0.54	1.853	0.006	1	1	6.667	0.095	0.024	C
55.010-51.030			B	0.54	1.853		1	1	6.667			
			C	0.54	1.853		1	1	6.667			
T19	0.158	0.458	A	0.611	1.798	0.006	1	1	7.779	0.097	0.024	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
51.030-47.000			B	0.611	1.798		1	1	7.779			
			C	0.611	1.798		1	1	7.779			
T20	0.758	1.895	A	0.544	1.85	0.006	1	1	33.697	0.441	0.022	C
47.000-27.000			B	0.544	1.85		1	1	33.697			
			C	0.544	1.85		1	1	33.697			
T21	0.696	1.782	A	0.523	1.872	0.005	1	1	32.181	0.366	0.018	C
27.000-7.000			B	0.523	1.872		1	1	32.181			
			C	0.523	1.872		1	1	32.181			
T22	0.031	0.310	A	0.477	1.932	0.005	1	1	5.798	0.050	0.013	C
7.000-3.000			B	0.477	1.932		1	1	5.798			
			C	0.477	1.932		1	1	5.798			
T23	0.000	0.304	A	0.584	1.815	0.005	1	1	5.404	0.039	0.013	C
3.000-0.000			B	0.584	1.815		1	1	5.404			
			C	0.584	1.815		1	1	5.404			
Sum Weight:	8.767	49.295								8.596		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.140	3.024	A	0.673	1.777	0.009	0.8	1	37.936	0.534	0.027	C
347.000-327.0		TA 1.773	B	0.673	1.777		0.8	1	37.936			
00			C	0.673	1.777		0.8	1	37.936			
T2	0.139	2.671	A	0.657	1.78	0.009	0.8	1	36.554	0.510	0.026	C
327.000-307.0			B	0.657	1.78		0.8	1	36.554			
00			C	0.657	1.78		0.8	1	36.554			
T3	0.138	2.650	A	0.655	1.78	0.009	0.8	1	36.316	0.500	0.025	C
307.000-287.0			B	0.655	1.78		0.8	1	36.316			
00			C	0.655	1.78		0.8	1	36.316			
T4	0.136	2.960	A	0.665	1.778	0.009	0.8	1	37.206	0.503	0.025	C
287.000-267.0		TA 1.742	B	0.665	1.778		0.8	1	37.206			
00			C	0.665	1.778		0.8	1	37.206			
T5	0.134	2.605	A	0.649	1.782	0.008	0.8	1	35.796	0.479	0.024	C
267.000-247.0			B	0.649	1.782		0.8	1	35.796			
00			C	0.649	1.782		0.8	1	35.796			
T6	0.133	2.580	A	0.646	1.783	0.008	0.8	1	35.510	0.468	0.023	C
247.000-227.0			B	0.646	1.783		0.8	1	35.510			
00			C	0.646	1.783		0.8	1	35.510			
T7	0.234	2.554	A	0.643	1.784	0.008	0.8	1	35.203	0.476	0.024	C
227.000-207.0			B	0.643	1.784		0.8	1	35.203			
00			C	0.643	1.784		0.8	1	35.203			
T8	0.810	2.525	A	0.639	1.785	0.008	0.8	1	34.870	0.577	0.029	C
207.000-187.0		TA 1.657	B	0.639	1.785		0.8	1	34.870			
00			C	0.639	1.785		0.8	1	34.870			
T9	0.800	2.637	A	0.642	1.784	0.008	0.8	1	35.061	0.564	0.028	C
187.000-167.0			B	0.642	1.784		0.8	1	35.061			
00			C	0.642	1.784		0.8	1	35.061			
T10	0.790	2.460	A	0.631	1.788	0.008	0.8	1	34.109	0.544	0.027	C
167.000-147.0			B	0.631	1.788		0.8	1	34.109			
00			C	0.631	1.788		0.8	1	34.109			
T11	0.778	2.422	A	0.626	1.79	0.007	0.8	1	33.665	0.525	0.026	C
147.000-127.0		TA 1.636	B	0.626	1.79		0.8	1	33.665			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
00			C	0.626	1.79		0.8	1	33.665			
T12	0.764	2.379	A	0.62	1.793	0.007	0.8	1	33.162	0.504	0.025	C
127.000-107.0			B	0.62	1.793		0.8	1	33.162			
00			C	0.62	1.793		0.8	1	33.162			
T13	0.749	2.329	A	0.613	1.796	0.007	0.8	1	32.579	0.480	0.024	C
107.000-87.00			B	0.613	1.796		0.8	1	32.579			
0			C	0.613	1.796		0.8	1	32.579			
T14	0.744	2.388	A	0.626	1.79	0.007	0.8	1	33.534	0.463	0.023	C
87.000-67.000			B	0.626	1.79		0.8	1	33.534			
			C	0.626	1.79		0.8	1	33.534			
T15	0.163	0.427	A	0.578	1.82	0.006	0.8	1	5.989	0.090	0.022	C
67.000-62.970			B	0.578	1.82		0.8	1	5.989			
			C	0.578	1.82		0.8	1	5.989			
T16	0.160	0.378	A	0.548	1.846	0.006	0.8	1	5.932	0.090	0.023	C
62.970-58.990			B	0.548	1.846		0.8	1	5.932			
			C	0.548	1.846		0.8	1	5.932			
T17	0.158	0.376	A	0.542	1.851	0.006	0.8	1	5.862	0.089	0.022	C
58.990-55.010			B	0.542	1.851		0.8	1	5.862			
			C	0.542	1.851		0.8	1	5.862			
T18	0.157	0.373	A	0.54	1.853	0.006	0.8	1	5.834	0.087	0.022	C
55.010-51.030			B	0.54	1.853		0.8	1	5.834			
			C	0.54	1.853		0.8	1	5.834			
T19	0.158	0.458	A	0.611	1.798	0.006	0.8	1	6.849	0.089	0.022	C
51.030-47.000			B	0.611	1.798		0.8	1	6.849			
			C	0.611	1.798		0.8	1	6.849			
T20	0.758	1.895	A	0.544	1.85	0.006	0.8	1	29.473	0.404	0.020	C
47.000-27.000			B	0.544	1.85		0.8	1	29.473			
			C	0.544	1.85		0.8	1	29.473			
T21	0.696	1.782	A	0.523	1.872	0.005	0.8	1	28.058	0.335	0.017	C
27.000-7.000			B	0.523	1.872		0.8	1	28.058			
			C	0.523	1.872		0.8	1	28.058			
T22	0.031	0.310	A	0.477	1.932	0.005	0.8	1	5.020	0.044	0.011	C
7.000-3.000			B	0.477	1.932		0.8	1	5.020			
			C	0.477	1.932		0.8	1	5.020			
T23	0.000	0.304	A	0.584	1.815	0.005	0.8	1	4.727	0.034	0.011	C
3.000-0.000			B	0.584	1.815		0.8	1	4.727			
			C	0.584	1.815		0.8	1	4.727			
Sum Weight:	8.767	49.295								8.390		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T1	0.140	3.024	A	0.673	1.777	0.009	0.85	1	38.074	0.535	0.027	C
347.000-327.0		TA 1.773	B	0.673	1.777		0.85	1	38.074			
00			C	0.673	1.777		0.85	1	38.074			
T2	0.139	2.671	A	0.657	1.78	0.009	0.85	1	36.692	0.512	0.026	C
327.000-307.0			B	0.657	1.78		0.85	1	36.692			
00			C	0.657	1.78		0.85	1	36.692			
T3	0.138	2.650	A	0.655	1.78	0.009	0.85	1	36.454	0.502	0.025	C
307.000-287.0			B	0.655	1.78		0.85	1	36.454			
00			C	0.655	1.78		0.85	1	36.454			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T4	0.136	2.960	A	0.665	1.778	0.009	0.85	1	37.344	0.505	0.025	C
287.000-267.0		TA 1.742	B	0.665	1.778		0.85	1	37.344			
00			C	0.665	1.778		0.85	1	37.344			
T5	0.134	2.605	A	0.649	1.782	0.008	0.85	1	35.934	0.481	0.024	C
267.000-247.0			B	0.649	1.782		0.85	1	35.934			
00			C	0.649	1.782		0.85	1	35.934			
T6	0.133	2.580	A	0.646	1.783	0.008	0.85	1	35.648	0.470	0.023	C
247.000-227.0			B	0.646	1.783		0.85	1	35.648			
00			C	0.646	1.783		0.85	1	35.648			
T7	0.234	2.554	A	0.643	1.784	0.008	0.85	1	35.341	0.478	0.024	C
227.000-207.0			B	0.643	1.784		0.85	1	35.341			
00			C	0.643	1.784		0.85	1	35.341			
T8	0.810	2.525	A	0.639	1.785	0.008	0.85	1	35.008	0.579	0.029	C
207.000-187.0		TA 1.657	B	0.639	1.785		0.85	1	35.008			
00			C	0.639	1.785		0.85	1	35.008			
T9	0.800	2.637	A	0.642	1.784	0.008	0.85	1	35.199	0.566	0.028	C
187.000-167.0			B	0.642	1.784		0.85	1	35.199			
00			C	0.642	1.784		0.85	1	35.199			
T10	0.790	2.460	A	0.631	1.788	0.008	0.85	1	34.247	0.546	0.027	C
167.000-147.0			B	0.631	1.788		0.85	1	34.247			
00			C	0.631	1.788		0.85	1	34.247			
T11	0.778	2.422	A	0.626	1.79	0.007	0.85	1	33.803	0.527	0.026	C
147.000-127.0		TA 1.636	B	0.626	1.79		0.85	1	33.803			
00			C	0.626	1.79		0.85	1	33.803			
T12	0.764	2.379	A	0.62	1.793	0.007	0.85	1	33.300	0.506	0.025	C
127.000-107.0			B	0.62	1.793		0.85	1	33.300			
00			C	0.62	1.793		0.85	1	33.300			
T13	0.749	2.329	A	0.613	1.796	0.007	0.85	1	32.717	0.482	0.024	C
107.000-87.00			B	0.613	1.796		0.85	1	32.717			
0			C	0.613	1.796		0.85	1	32.717			
T14	0.744	2.388	A	0.626	1.79	0.007	0.85	1	33.706	0.464	0.023	C
87.000-67.000			B	0.626	1.79		0.85	1	33.706			
			C	0.626	1.79		0.85	1	33.706			
T15	0.163	0.427	A	0.578	1.82	0.006	0.85	1	6.012	0.090	0.022	C
67.000-62.970			B	0.578	1.82		0.85	1	6.012			
			C	0.578	1.82		0.85	1	6.012			
T16	0.160	0.378	A	0.548	1.846	0.006	0.85	1	6.142	0.092	0.023	C
62.970-58.990			B	0.548	1.846		0.85	1	6.142			
			C	0.548	1.846		0.85	1	6.142			
T17	0.158	0.376	A	0.542	1.851	0.006	0.85	1	6.071	0.091	0.023	C
58.990-55.010			B	0.542	1.851		0.85	1	6.071			
			C	0.542	1.851		0.85	1	6.071			
T18	0.157	0.373	A	0.54	1.853	0.006	0.85	1	6.042	0.089	0.022	C
55.010-51.030			B	0.54	1.853		0.85	1	6.042			
			C	0.54	1.853		0.85	1	6.042			
T19	0.158	0.458	A	0.611	1.798	0.006	0.85	1	7.081	0.091	0.023	C
51.030-47.000			B	0.611	1.798		0.85	1	7.081			
			C	0.611	1.798		0.85	1	7.081			
T20	0.758	1.895	A	0.544	1.85	0.006	0.85	1	30.529	0.413	0.021	C
47.000-27.000			B	0.544	1.85		0.85	1	30.529			
			C	0.544	1.85		0.85	1	30.529			
T21	0.696	1.782	A	0.523	1.872	0.005	0.85	1	29.089	0.343	0.017	C
27.000-7.000			B	0.523	1.872		0.85	1	29.089			
			C	0.523	1.872		0.85	1	29.089			
T22	0.031	0.310	A	0.477	1.932	0.005	0.85	1	5.215	0.046	0.011	C
7.000-3.000			B	0.477	1.932		0.85	1	5.215			
			C	0.477	1.932		0.85	1	5.215			
T23	0.000	0.304	A	0.584	1.815	0.005	0.85	1	4.896	0.035	0.012	C
3.000-0.000			B	0.584	1.815		0.85	1	4.896			
			C	0.584	1.815		0.85	1	4.896			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
Sum Weight:	8.767	49.295								8.442		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T1	0.002	0.824	A	0.242	2.463	0.013	1	1	10.283	0.290	0.014	C
347.000-327.0		TA 0.531	B	0.242	2.463		1	1	10.283			
00			C	0.242	2.463		1	1	10.283			
T2	0.002	0.617	A	0.227	2.508	0.013	1	1	9.691	0.275	0.014	C
327.000-307.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T3	0.002	0.617	A	0.227	2.508	0.012	1	1	9.691	0.272	0.014	C
307.000-287.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T4	0.002	0.824	A	0.242	2.463	0.012	1	1	10.283	0.278	0.014	C
287.000-267.0		TA 0.531	B	0.242	2.463		1	1	10.283			
00			C	0.242	2.463		1	1	10.283			
T5	0.002	0.617	A	0.227	2.508	0.012	1	1	9.691	0.263	0.013	C
267.000-247.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T6	0.002	0.617	A	0.227	2.508	0.012	1	1	9.691	0.259	0.013	C
247.000-227.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T7	0.014	0.617	A	0.227	2.508	0.012	1	1	9.691	0.271	0.014	C
227.000-207.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T8	0.081	0.617	A	0.227	2.508	0.011	1	1	9.691	0.358	0.018	C
207.000-187.0		TA 0.520	B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T9	0.081	0.720	A	0.234	2.485	0.011	1	1	9.986	0.354	0.018	C
187.000-167.0			B	0.234	2.485		1	1	9.986			
00			C	0.234	2.485		1	1	9.986			
T10	0.081	0.617	A	0.227	2.508	0.011	1	1	9.691	0.341	0.017	C
167.000-147.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T11	0.081	0.617	A	0.227	2.508	0.011	1	1	9.691	0.331	0.017	C
147.000-127.0		TA 0.531	B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T12	0.081	0.617	A	0.227	2.508	0.010	1	1	9.691	0.320	0.016	C
127.000-107.0			B	0.227	2.508		1	1	9.691			
00			C	0.227	2.508		1	1	9.691			
T13	0.081	0.617	A	0.227	2.508	0.010	1	1	9.691	0.308	0.015	C
107.000-87.00			B	0.227	2.508		1	1	9.691			
0			C	0.227	2.508		1	1	9.691			
T14	0.082	0.651	A	0.238	2.475	0.009	1	1	10.409	0.306	0.015	C
87.000-67.000			B	0.238	2.475		1	1	10.409			
			C	0.238	2.475		1	1	10.409			
T15	0.017	0.120	A	0.219	2.534	0.009	1	1	1.847	0.056	0.014	C
67.000-62.970			B	0.219	2.534		1	1	1.847			
			C	0.219	2.534		1	1	1.847			
T16	0.017	0.177	A	0.246	2.449	0.009	1	1	3.058	0.077	0.019	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
62.970-58.990			B	0.246	2.449		1	1	3.058			
			C	0.246	2.449		1	1	3.058			
T17	0.017	0.177	A	0.245	2.452	0.009	1	1	3.047	0.076	0.019	C
58.990-55.010			B	0.245	2.452		1	1	3.047			
			C	0.245	2.452		1	1	3.047			
T18	0.017	0.177	A	0.245	2.452	0.009	1	1	3.047	0.074	0.019	C
55.010-51.030			B	0.245	2.452		1	1	3.047			
			C	0.245	2.452		1	1	3.047			
T19	0.017	0.197	A	0.278	2.357	0.009	1	1	3.526	0.080	0.020	C
51.030-47.000			B	0.278	2.357		1	1	3.526			
			C	0.278	2.357		1	1	3.526			
T20	0.086	0.904	A	0.252	2.433	0.008	1	1	15.737	0.352	0.018	C
47.000-27.000			B	0.252	2.433		1	1	15.737			
			C	0.252	2.433		1	1	15.737			
T21	0.086	0.904	A	0.252	2.433	0.007	1	1	15.737	0.299	0.015	C
27.000-7.000			B	0.252	2.433		1	1	15.737			
			C	0.252	2.433		1	1	15.737			
T22	0.004	0.177	A	0.244	2.455	0.007	1	1	3.052	0.046	0.012	C
7.000-3.000			B	0.244	2.455		1	1	3.052			
			C	0.244	2.455		1	1	3.052			
T23	0.000	0.159	A	0.305	2.282	0.007	1	1	2.886	0.037	0.012	C
3.000-0.000			B	0.305	2.282		1	1	2.886			
			C	0.305	2.282		1	1	2.886			
Sum Weight:	0.858	14.292								5.323		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T1	0.002	0.824	A	0.242	2.463	0.013	0.8	1	9.731	0.275	0.014	C
347.000-327.0		TA 0.531	B	0.242	2.463		0.8	1	9.731			
00			C	0.242	2.463		0.8	1	9.731			
T2	0.002	0.617	A	0.227	2.508	0.013	0.8	1	9.139	0.260	0.013	C
327.000-307.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T3	0.002	0.617	A	0.227	2.508	0.012	0.8	1	9.139	0.257	0.013	C
307.000-287.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T4	0.002	0.824	A	0.242	2.463	0.012	0.8	1	9.731	0.264	0.013	C
287.000-267.0		TA 0.531	B	0.242	2.463		0.8	1	9.731			
00			C	0.242	2.463		0.8	1	9.731			
T5	0.002	0.617	A	0.227	2.508	0.012	0.8	1	9.139	0.249	0.012	C
267.000-247.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T6	0.002	0.617	A	0.227	2.508	0.012	0.8	1	9.139	0.245	0.012	C
247.000-227.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T7	0.014	0.617	A	0.227	2.508	0.012	0.8	1	9.139	0.257	0.013	C
227.000-207.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T8	0.081	0.617	A	0.227	2.508	0.011	0.8	1	9.139	0.344	0.017	C
207.000-187.0		TA 0.520	B	0.227	2.508		0.8	1	9.139			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
00			C	0.227	2.508		0.8	1	9.139			
T9	0.081	0.720	A	0.234	2.485	0.011	0.8	1	9.433	0.341	0.017	C
187.000-167.0			B	0.234	2.485		0.8	1	9.433			
00			C	0.234	2.485		0.8	1	9.433			
T10	0.081	0.617	A	0.227	2.508	0.011	0.8	1	9.139	0.328	0.016	C
167.000-147.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T11	0.081	0.617	A	0.227	2.508	0.011	0.8	1	9.139	0.319	0.016	C
147.000-127.0		TA 0.531	B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T12	0.081	0.617	A	0.227	2.508	0.010	0.8	1	9.139	0.308	0.015	C
127.000-107.0			B	0.227	2.508		0.8	1	9.139			
00			C	0.227	2.508		0.8	1	9.139			
T13	0.081	0.617	A	0.227	2.508	0.010	0.8	1	9.139	0.296	0.015	C
107.000-87.00			B	0.227	2.508		0.8	1	9.139			
0			C	0.227	2.508		0.8	1	9.139			
T14	0.082	0.651	A	0.238	2.475	0.009	0.8	1	9.719	0.292	0.015	C
87.000-67.000			B	0.238	2.475		0.8	1	9.719			
			C	0.238	2.475		0.8	1	9.719			
T15	0.017	0.120	A	0.219	2.534	0.009	0.8	1	1.755	0.055	0.014	C
67.000-62.970			B	0.219	2.534		0.8	1	1.755			
			C	0.219	2.534		0.8	1	1.755			
T16	0.017	0.177	A	0.246	2.449	0.009	0.8	1	2.502	0.066	0.017	C
62.970-58.990			B	0.246	2.449		0.8	1	2.502			
			C	0.246	2.449		0.8	1	2.502			
T17	0.017	0.177	A	0.245	2.452	0.009	0.8	1	2.492	0.065	0.016	C
58.990-55.010			B	0.245	2.452		0.8	1	2.492			
			C	0.245	2.452		0.8	1	2.492			
T18	0.017	0.177	A	0.245	2.452	0.009	0.8	1	2.492	0.064	0.016	C
55.010-51.030			B	0.245	2.452		0.8	1	2.492			
			C	0.245	2.452		0.8	1	2.492			
T19	0.017	0.197	A	0.278	2.357	0.009	0.8	1	2.875	0.068	0.017	C
51.030-47.000			B	0.278	2.357		0.8	1	2.875			
			C	0.278	2.357		0.8	1	2.875			
T20	0.086	0.904	A	0.252	2.433	0.008	0.8	1	12.862	0.304	0.015	C
47.000-27.000			B	0.252	2.433		0.8	1	12.862			
			C	0.252	2.433		0.8	1	12.862			
T21	0.086	0.904	A	0.252	2.433	0.007	0.8	1	12.862	0.258	0.013	C
27.000-7.000			B	0.252	2.433		0.8	1	12.862			
			C	0.252	2.433		0.8	1	12.862			
T22	0.004	0.177	A	0.244	2.455	0.007	0.8	1	2.495	0.038	0.010	C
7.000-3.000			B	0.244	2.455		0.8	1	2.495			
			C	0.244	2.455		0.8	1	2.495			
T23	0.000	0.159	A	0.305	2.282	0.007	0.8	1	2.355	0.030	0.010	C
3.000-0.000			B	0.305	2.282		0.8	1	2.355			
			C	0.305	2.282		0.8	1	2.355			
Sum Weight:	0.858	14.292								4.987		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T1	0.002	0.824	A	0.242	2.463	0.013	0.85	1	9.869	0.279	0.014	C
347.000-327.0		TA 0.531	B	0.242	2.463		0.85	1	9.869			
00			C	0.242	2.463		0.85	1	9.869			
T2	0.002	0.617	A	0.227	2.508	0.013	0.85	1	9.277	0.264	0.013	C
327.000-307.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T3	0.002	0.617	A	0.227	2.508	0.012	0.85	1	9.277	0.261	0.013	C
307.000-287.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T4	0.002	0.824	A	0.242	2.463	0.012	0.85	1	9.869	0.268	0.013	C
287.000-267.0		TA 0.531	B	0.242	2.463		0.85	1	9.869			
00			C	0.242	2.463		0.85	1	9.869			
T5	0.002	0.617	A	0.227	2.508	0.012	0.85	1	9.277	0.253	0.013	C
267.000-247.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T6	0.002	0.617	A	0.227	2.508	0.012	0.85	1	9.277	0.248	0.012	C
247.000-227.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T7	0.014	0.617	A	0.227	2.508	0.012	0.85	1	9.277	0.260	0.013	C
227.000-207.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T8	0.081	0.617	A	0.227	2.508	0.011	0.85	1	9.277	0.347	0.017	C
207.000-187.0		TA 0.520	B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T9	0.081	0.720	A	0.234	2.485	0.011	0.85	1	9.571	0.345	0.017	C
187.000-167.0			B	0.234	2.485		0.85	1	9.571			
00			C	0.234	2.485		0.85	1	9.571			
T10	0.081	0.617	A	0.227	2.508	0.011	0.85	1	9.277	0.331	0.017	C
167.000-147.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T11	0.081	0.617	A	0.227	2.508	0.011	0.85	1	9.277	0.322	0.016	C
147.000-127.0		TA 0.531	B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T12	0.081	0.617	A	0.227	2.508	0.010	0.85	1	9.277	0.311	0.016	C
127.000-107.0			B	0.227	2.508		0.85	1	9.277			
00			C	0.227	2.508		0.85	1	9.277			
T13	0.081	0.617	A	0.227	2.508	0.010	0.85	1	9.277	0.299	0.015	C
107.000-87.00			B	0.227	2.508		0.85	1	9.277			
0			C	0.227	2.508		0.85	1	9.277			
T14	0.082	0.651	A	0.238	2.475	0.009	0.85	1	9.891	0.296	0.015	C
87.000-67.000			B	0.238	2.475		0.85	1	9.891			
			C	0.238	2.475		0.85	1	9.891			
T15	0.017	0.120	A	0.219	2.534	0.009	0.85	1	1.778	0.055	0.014	C
67.000-62.970			B	0.219	2.534		0.85	1	1.778			
			C	0.219	2.534		0.85	1	1.778			
T16	0.017	0.177	A	0.246	2.449	0.009	0.85	1	2.641	0.069	0.017	C
62.970-58.990			B	0.246	2.449		0.85	1	2.641			
			C	0.246	2.449		0.85	1	2.641			
T17	0.017	0.177	A	0.245	2.452	0.009	0.85	1	2.631	0.068	0.017	C
58.990-55.010			B	0.245	2.452		0.85	1	2.631			
			C	0.245	2.452		0.85	1	2.631			
T18	0.017	0.177	A	0.245	2.452	0.009	0.85	1	2.631	0.067	0.017	C
55.010-51.030			B	0.245	2.452		0.85	1	2.631			
			C	0.245	2.452		0.85	1	2.631			
T19	0.017	0.197	A	0.278	2.357	0.009	0.85	1	3.038	0.071	0.018	C
51.030-47.000			B	0.278	2.357		0.85	1	3.038			
			C	0.278	2.357		0.85	1	3.038			
T20	0.086	0.904	A	0.252	2.433	0.008	0.85	1	13.580	0.316	0.016	C
47.000-27.000			B	0.252	2.433		0.85	1	13.580			
			C	0.252	2.433		0.85	1	13.580			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T21	0.086	0.904	A	0.252	2.433	0.007	0.85	1	13.580	0.268	0.013	C
27.000-7.000			B	0.252	2.433		0.85	1	13.580			
			C	0.252	2.433		0.85	1	13.580			
T22	0.004	0.177	A	0.244	2.455	0.007	0.85	1	2.634	0.040	0.010	C
7.000-3.000			B	0.244	2.455		0.85	1	2.634			
			C	0.244	2.455		0.85	1	2.634			
T23	0.000	0.159	A	0.305	2.282	0.007	0.85	1	2.488	0.032	0.011	C
3.000-0.000			B	0.305	2.282		0.85	1	2.488			
			C	0.305	2.282		0.85	1	2.488			
Sum Weight:	0.858	14.292								5.071		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	6.940			
Bracing Weight	7.352			
Total Member Self-Weight	14.292			
Guy Weight	3.026			
Total Weight	20.150			
Wind 0 deg - No Ice		0.001	-18.302	2.253
Wind 30 deg - No Ice		8.843	-15.314	1.961
Wind 60 deg - No Ice		15.137	-8.739	1.261
Wind 90 deg - No Ice		17.684	-0.001	0.259
Wind 120 deg - No Ice		15.850	9.150	-0.907
Wind 150 deg - No Ice		8.841	15.314	-1.702
Wind 180 deg - No Ice		-0.001	17.477	-2.069
Wind 210 deg - No Ice		-8.843	15.314	-1.961
Wind 240 deg - No Ice		-15.851	9.152	-1.346
Wind 270 deg - No Ice		-17.684	0.001	-0.259
Wind 300 deg - No Ice		-15.136	-8.738	0.809
Wind 330 deg - No Ice		-8.841	-15.314	1.702
Member Ice	35.003			
Guy Ice	35.980			
Total Weight Ice	105.426			
Wind 0 deg - Ice		0.000	-11.057	0.293
Wind 30 deg - Ice		5.451	-9.441	0.243
Wind 60 deg - Ice		9.397	-5.425	0.147
Wind 90 deg - Ice		10.902	-0.000	0.015
Wind 120 deg - Ice		9.576	5.528	-0.138
Wind 150 deg - Ice		5.451	9.441	-0.229
Wind 180 deg - Ice		-0.000	10.850	-0.266
Wind 210 deg - Ice		-5.451	9.441	-0.243
Wind 240 deg - Ice		-9.576	5.529	-0.155
Wind 270 deg - Ice		-10.902	0.000	-0.015
Wind 300 deg - Ice		-9.397	-5.425	0.119
Wind 330 deg - Ice		-5.451	-9.441	0.229
Total Weight	20.150			
Wind 0 deg - Service		0.000	-7.457	0.918
Wind 30 deg - Service		3.603	-6.239	0.799
Wind 60 deg - Service		6.167	-3.561	0.514
Wind 90 deg - Service		7.205	-0.000	0.106

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Wind 120 deg - Service		6.458	3.728	-0.370
Wind 150 deg - Service		3.602	6.239	-0.694
Wind 180 deg - Service		-0.000	7.120	-0.843
Wind 210 deg - Service		-3.603	6.239	-0.799
Wind 240 deg - Service		-6.458	3.729	-0.548
Wind 270 deg - Service		-7.205	0.000	-0.106
Wind 300 deg - Service		-6.167	-3.560	0.329
Wind 330 deg - Service		-3.602	-6.239	0.694

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy C @ 280 ft Elev 13 ft Azimuth 240 deg	Max. Vert	10	-2.217	-1.352	0.781
	Max. H_x	10	-2.217	-1.352	0.781
	Max. H_z	16	-10.217	-9.762	6.135
	Min. Vert	17	-10.596	-10.309	5.959
	Min. H_x	17	-10.596	-10.309	5.959
	Min. H_z	10	-2.217	-1.352	0.781
Guy B @ 280 ft Elev -13 ft Azimuth 120 deg	Max. Vert	6	-2.641	1.488	0.859
	Max. H_x	25	-11.557	10.352	5.979
	Max. H_z	26	-11.157	9.792	6.168
	Min. Vert	25	-11.557	10.352	5.979
	Min. H_x	6	-2.641	1.488	0.859
	Min. H_z	6	-2.641	1.488	0.859
Guy A @ 277 ft Elev 34 ft Azimuth 0 deg	Max. Vert	2	-1.933	0.001	-1.444
	Max. H_x	24	-7.650	1.040	-8.924
	Max. H_z	2	-1.933	0.001	-1.444
	Min. Vert	21	-10.029	0.005	-11.936
	Min. H_x	18	-7.654	-1.031	-8.928
	Min. H_z	21	-10.029	0.005	-11.936
Guy C @ 222 ft Elev 16 ft Azimuth 240 deg	Max. Vert	10	-1.884	-1.157	0.670
	Max. H_x	10	-1.884	-1.157	0.670
	Max. H_z	16	-17.393	-18.311	11.253
	Min. Vert	4	-20.259	-18.630	10.751
	Min. H_x	17	-18.198	-19.335	11.178
	Min. H_z	10	-1.884	-1.157	0.670
Guy B @ 224 ft Elev -17 ft Azimuth 120 deg	Max. Vert	6	-2.757	1.550	0.895
	Max. H_x	25	-20.902	19.363	11.183
	Max. H_z	26	-20.049	18.339	11.308
	Min. Vert	12	-22.552	18.259	10.541
	Min. H_x	6	-2.757	1.550	0.895
	Min. H_z	6	-2.757	1.550	0.895
Guy A @ 223 ft Elev 24 ft Azimuth 0 deg	Max. Vert	2	-1.682	0.001	-1.230
	Max. H_x	24	-12.312	1.468	-15.931
	Max. H_z	2	-1.682	0.001	-1.230
	Min. Vert	8	-19.476	-0.004	-21.552
	Min. H_x	18	-12.384	-1.450	-16.010
	Min. H_z	21	-17.304	0.009	-22.236
Guy C @ 166 ft Elev 8 ft Azimuth 240 deg	Max. Vert	10	-0.199	-0.221	0.128
	Max. H_x	10	-0.199	-0.221	0.128
	Max. H_z	3	-8.172	-11.803	6.989
	Min. Vert	5	-8.272	-12.080	6.798
	Min. H_x	5	-8.272	-12.080	6.798
	Min. H_z	10	-0.199	-0.221	0.128
Guy B @ 170 ft Elev -12 ft	Max. Vert	6	-0.330	0.282	0.163

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Azimuth 120 deg					
	Max. H_x	11	-9.675	12.082	6.786
	Max. H_z	13	-9.669	11.912	7.074
	Min. Vert	11	-9.675	12.082	6.786
	Min. H_x	6	-0.330	0.282	0.163
	Min. H_z	6	-0.330	0.282	0.163
Guy A @ 169 ft Elev 15 ft Azimuth 0 deg	Max. Vert	2	-0.146	0.000	-0.231
	Max. H_x	24	-4.363	0.562	-9.956
	Max. H_z	2	-0.146	0.000	-0.231
	Min. Vert	7	-7.538	-0.154	-13.808
	Min. H_x	18	-4.399	-0.557	-10.018
	Min. H_z	7	-7.538	-0.154	-13.808
Mast	Max. Vert	15	191.786	-0.030	-0.273
	Max. H_x	11	91.149	1.044	0.101
	Max. H_z	2	92.595	-0.034	1.177
	Max. M_x	1	0.000	0.005	-0.002
	Max. M_z	1	0.000	0.005	-0.002
	Max. Torsion	8	1.282	0.022	-1.238
	Min. Vert	1	53.855	0.005	-0.002
	Min. H_x	5	89.479	-1.130	0.106
	Min. H_z	8	86.503	0.022	-1.238
	Min. M_x	1	0.000	0.005	-0.002
	Min. M_z	1	0.000	0.005	-0.002
	Min. Torsion	2	-1.413	-0.034	1.177

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	53.855	-0.005	0.002	0.000	0.000	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	92.595	0.034	-1.177	0.000	0.000	1.413
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	89.852	0.682	-0.900	0.000	0.000	1.227
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	87.262	1.028	-0.610	0.000	0.000	0.644
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	89.479	1.130	-0.106	0.000	0.000	-0.086
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	90.854	1.084	0.651	0.000	0.000	-0.679
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	88.879	0.470	1.076	0.000	0.000	-1.019
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	86.503	-0.022	1.238	0.000	0.000	-1.282
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	89.040	-0.461	1.084	0.000	0.000	-1.221
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	92.076	-1.021	0.654	0.000	0.000	-0.720
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	91.149	-1.044	-0.101	0.000	0.000	0.064
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	88.631	-0.986	-0.549	0.000	0.000	0.677
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	91.360	-0.623	-0.830	0.000	0.000	1.063

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Ice+1.0 Temp+Guy	183.921	0.016	0.134	0.000	0.000	0.004
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	191.786	0.030	0.273	0.000	0.000	0.323
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	190.329	-0.006	0.211	0.000	0.000	0.358
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	188.958	-0.019	0.186	0.000	0.000	0.068
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	188.151	-0.021	0.151	0.000	0.000	-0.190
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	187.943	-0.023	0.115	0.000	0.000	-0.206
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	187.655	0.009	0.091	0.000	0.000	-0.161
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	188.027	0.017	0.077	0.000	0.000	-0.273
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	189.043	0.047	0.081	0.000	0.000	-0.334
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	190.402	0.115	0.090	0.000	0.000	-0.110
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	190.416	0.102	0.162	0.000	0.000	0.184
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	190.587	0.101	0.199	0.000	0.000	0.190
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	191.209	0.076	0.237	0.000	0.000	0.185
Dead+Wind 0 deg - Service+Guy	55.885	-0.002	-0.455	0.000	0.000	0.341
Dead+Wind 30 deg - Service+Guy	56.125	0.188	-0.342	0.000	0.000	0.289
Dead+Wind 60 deg - Service+Guy	56.368	0.314	-0.184	0.000	0.000	0.151
Dead+Wind 90 deg - Service+Guy	55.992	0.387	0.007	0.000	0.000	-0.021
Dead+Wind 120 deg - Service+Guy	55.643	0.387	0.231	0.000	0.000	-0.172
Dead+Wind 150 deg - Service+Guy	55.942	0.194	0.343	0.000	0.000	-0.258
Dead+Wind 180 deg - Service+Guy	56.266	-0.006	0.375	0.000	0.000	-0.307
Dead+Wind 210 deg - Service+Guy	55.981	-0.205	0.344	0.000	0.000	-0.288
Dead+Wind 240 deg - Service+Guy	55.710	-0.398	0.234	0.000	0.000	-0.166
Dead+Wind 270 deg - Service+Guy	55.981	-0.394	0.011	0.000	0.000	0.022
Dead+Wind 300 deg - Service+Guy	56.329	-0.318	-0.180	0.000	0.000	0.157
Dead+Wind 330 deg - Service+Guy	56.076	-0.192	-0.341	0.000	0.000	0.258

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-20.149	0.000	-0.001	20.149	-0.001	0.007%
2	-0.051	-24.118	-37.142	0.051	24.117	37.131	0.025%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
3	18.061	-23.617	-31.254	-18.063	23.617	31.247	0.016%
4	31.102	-23.107	-17.865	-31.105	23.107	17.860	0.013%
5	36.279	-23.479	0.025	-36.273	23.479	-0.019	0.019%
6	32.291	-23.870	18.611	-32.280	23.869	-18.604	0.028%
7	18.142	-23.436	31.343	-18.135	23.436	-31.341	0.018%
8	0.051	-23.030	35.822	-0.055	23.030	-35.823	0.008%
9	-18.061	-23.531	31.254	18.056	23.531	-31.253	0.012%
10	-32.245	-24.040	18.524	32.237	24.040	-18.520	0.019%
11	-36.279	-23.669	-0.025	36.275	23.668	0.030	0.014%
12	-31.148	-23.278	-17.951	31.159	23.278	17.939	0.037%
13	-18.142	-23.712	-31.343	18.144	23.711	31.336	0.018%
14	0.000	-108.845	0.000	-0.003	108.845	-0.005	0.005%
15	-0.098	-109.691	-23.554	0.099	109.691	23.543	0.010%
16	11.673	-108.906	-20.165	-11.674	108.906	20.156	0.009%
17	20.364	-108.110	-11.587	-20.371	108.109	11.569	0.017%
18	23.641	-108.718	0.054	-23.637	108.718	-0.050	0.005%
19	20.640	-109.349	11.859	-20.634	109.349	-11.856	0.006%
20	11.833	-108.657	20.335	-11.829	108.656	-20.333	0.004%
21	0.098	-107.998	23.347	-0.097	107.998	-23.347	0.001%
22	-11.673	-108.784	20.165	11.652	108.783	-20.155	0.021%
23	-20.543	-109.580	11.690	20.514	109.579	-11.668	0.032%
24	-23.641	-108.972	-0.054	23.634	108.972	0.060	0.008%
25	-20.461	-108.340	-11.756	20.460	108.340	11.752	0.004%
26	-11.833	-109.033	-20.335	11.836	109.033	20.323	0.010%
27	-0.013	-20.288	-9.458	0.013	20.288	9.455	0.012%
28	4.599	-20.160	-7.958	-4.599	20.160	7.956	0.010%
29	7.920	-20.030	-4.549	-7.919	20.030	4.547	0.009%
30	9.238	-20.125	0.006	-9.237	20.125	-0.007	0.007%
31	8.223	-20.224	4.739	-8.220	20.224	-4.738	0.014%
32	4.620	-20.114	7.981	-4.619	20.114	-7.980	0.006%
33	0.013	-20.010	9.122	-0.014	20.010	-9.120	0.007%
34	-4.599	-20.138	7.958	4.598	20.138	-7.957	0.008%
35	-8.211	-20.268	4.717	8.209	20.268	-4.716	0.009%
36	-9.238	-20.173	-0.006	9.237	20.173	0.006	0.006%
37	-7.932	-20.074	-4.571	7.930	20.074	4.570	0.008%
38	-4.620	-20.184	-7.981	4.619	20.184	7.980	0.006%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	12	0.00000001	0.00005280
2	Yes	23	0.00013864	0.00007544
3	Yes	23	0.00012831	0.00005918
4	Yes	18	0.00013043	0.00004151
5	Yes	21	0.00011296	0.00005125
6	Yes	21	0.00012661	0.00006743
7	Yes	21	0.00011879	0.00005067
8	Yes	17	0.00014912	0.00004944
9	Yes	23	0.00010656	0.00004831
10	Yes	23	0.00011036	0.00006215
11	Yes	23	0.00009228	0.00005005
12	Yes	16	0.00011587	0.00004214
13	Yes	23	0.00011548	0.00006044
14	Yes	15	0.00015000	0.00008348
15	Yes	24	0.00010981	0.00003863

16	Yes	22	0.00013110	0.00003902
17	Yes	16	0.00015000	0.00008499
18	Yes	22	0.00010474	0.00003108
19	Yes	23	0.00000001	0.00003600
20	Yes	22	0.00011498	0.00003017
21	Yes	19	0.00000001	0.00002057
22	Yes	18	0.00015000	0.00008565
23	Yes	19	0.00015000	0.00012174
24	Yes	21	0.00011399	0.00003475
25	Yes	19	0.00009349	0.00002893
26	Yes	22	0.00011379	0.00004332
27	Yes	12	0.00000001	0.00004208
28	Yes	12	0.00000001	0.00004828
29	Yes	12	0.00000001	0.00004938
30	Yes	12	0.00000001	0.00004226
31	Yes	11	0.00000001	0.00006114
32	Yes	12	0.00000001	0.00003646
33	Yes	12	0.00000001	0.00004294
34	Yes	12	0.00000001	0.00004272
35	Yes	12	0.00000001	0.00003573
36	Yes	13	0.00000001	0.00003283
37	Yes	13	0.00000001	0.00004660
38	Yes	13	0.00000001	0.00003239

Maximum Tower Deflections - Service Wind

Section No.	*Elevation* ft	*Horz. Deflection* in	*Gov. Load Comb.*	*Tilt* °	*Twist* °
T1	347 - 327	2.420	37	0.0865	0.0291
T2	327 - 307	2.606	37	0.0911	0.0296
T3	307 - 287	2.763	37	0.0679	0.0288
T4	287 - 267	2.802	37	0.0469	0.0281
T5	267 - 247	2.827	37	0.0558	0.0279
T6	247 - 227	2.870	37	0.0376	0.0287
T7	227 - 207	2.794	37	0.0289	0.0300
T8	207 - 187	2.646	37	0.0298	0.0302
T9	187 - 167	2.556	37	0.0311	0.0385
T10	167 - 147	2.351	37	0.0659	0.0476
T11	147 - 127	2.021	37	0.0794	0.0492
T12	127 - 107	1.740	37	0.0412	0.0431
T13	107 - 87	1.611	37	0.0352	0.0589
T14	87 - 67	1.431	37	0.0524	0.0709
T15	67 - 62.97	1.182	37	0.0586	0.0713
T16	62.97 - 58.99	1.135	37	0.0590	0.0701
T17	58.99 - 55.01	1.089	37	0.0603	0.0686
T18	55.01 - 51.03	1.043	27	0.0625	0.0666
T19	51.03 - 47	0.997	27	0.0655	0.0643
T20	47 - 27	0.947	27	0.0692	0.0613
T21	27 - 7	0.620	27	0.0927	0.0406
T22	7 - 3	0.173	27	0.1132	0.0105
T23	3 - 0	0.074	27	0.1147	0.0034

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
347.000	5' Lightning Rod	37	2.420	0.0865	0.0291	284994
331.100	Guy	37	2.568	0.0921	0.0296	89728
271.100	Guy	37	2.818	0.0548	0.0278	62320
225.000	Beacon (10lbs 0.5CaAa)	37	2.779	0.0306	0.0299	50021
202.900	Guy	37	2.625	0.0282	0.0313	48437
201.000	Commscope DT465B-2XR	37	2.617	0.0276	0.0319	71018
131.100	Guy	37	1.784	0.0487	0.0430	23605
117.000	Beacon (10lbs 0.5CaAa)	37	1.668	0.0326	0.0489	74799
70.000	PCTEL GPS-TMG-HR-26NCM (.0006, .277CAAA)	37	1.218	0.0584	0.0719	75033
67.167	Guy	37	1.184	0.0586	0.0713	82224
15.000	Beacon (.035k 2.250CAAA)	27	0.363	0.1074	0.0248	52356

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	347 - 327	15.938	12	0.4120	0.2267
T2	327 - 307	16.191	12	0.4247	0.2287
T3	307 - 287	16.334	12	0.3559	0.2234
T4	287 - 267	16.644	11	0.3049	0.2174
T5	267 - 247	16.984	10	0.3141	0.2152
T6	247 - 227	17.724	2	0.2657	0.2113
T7	227 - 207	17.828	2	0.2097	0.2073
T8	207 - 187	17.457	2	0.2066	0.1989
T9	187 - 167	17.146	2	0.2089	0.2281
T10	167 - 147	16.222	2	0.3452	0.2620
T11	147 - 127	14.633	2	0.4208	0.2648
T12	127 - 107	13.121	2	0.2869	0.2376
T13	107 - 87	12.141	2	0.2782	0.2859
T14	87 - 67	10.796	2	0.3860	0.3173
T15	67 - 62.97	8.940	2	0.4710	0.3074
T16	62.97 - 58.99	8.553	2	0.4841	0.3013
T17	58.99 - 55.01	8.157	2	0.4962	0.2938
T18	55.01 - 51.03	7.748	2	0.5124	0.2846
T19	51.03 - 47	7.321	2	0.5321	0.2737
T20	47 - 27	6.869	2	0.5549	0.2602
T21	27 - 7	4.283	2	0.6828	0.1709
T22	7 - 3	1.163	2	0.7729	0.0440
T23	3 - 0	0.498	2	0.7795	0.0142

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
347.000	5' Lightning Rod	12	15.938	0.4120	0.2267	13935
331.100	Guy	12	16.139	0.4296	0.2289	4384
271.100	Guy	11	16.873	0.3138	0.2158	12234
225.000	Beacon (10lbs 0.5CaAa)	2	17.801	0.2138	0.2061	9251
202.900	Guy	2	17.398	0.2003	0.2019	11166

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
201.000	Commscope DT465B-2XR	2	17.374	0.1977	0.2040	15573
131.100	Guy	2	13.383	0.3136	0.2384	5772
117.000	Beacon (10lbs 0.5CaAa)	2	12.611	0.2604	0.2566	16863
70.000	PCTEL GPS-TMG-HR-26NCM (.0006, .277CAAA)	2	9.228	0.4606	0.3112	9828
67.167	Guy	2	8.956	0.4704	0.3076	15080
15.000	Beacon (.035k 2.250CAAA)	2	2.461	0.7473	0.1038	12041

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T2	327	Leg	A325X	0.6250	3	0.359	20.709	0.017 ✔	1	Bolt Tension
T3	307	Leg	A325X	0.6250	3	2.491	20.709	0.120 ✔	1	Bolt Tension
T4	287	Leg	A325X	0.6250	3	2.211	20.709	0.107 ✔	1	Bolt Tension
T5	267	Leg	A325X	0.6250	3	2.110	20.709	0.102 ✔	1	Bolt Tension
T6	247	Leg	A325X	0.6250	3	4.159	20.709	0.201 ✔	1	Bolt Tension
T7	227	Leg	A325X	0.6250	3	3.905	20.709	0.189 ✔	1	Bolt Tension
T8	207	Leg	A325X	0.6250	3	3.932	20.709	0.190 ✔	1	Bolt Tension
T9	187	Leg	A325X	0.6250	3	5.480	20.709	0.265 ✔	1	Bolt Tension
T10	167	Leg	A325X	0.6250	3	5.584	20.709	0.270 ✔	1	Bolt Tension
T11	147	Leg	A325X	0.6250	3	5.505	20.709	0.266 ✔	1	Bolt Tension
T12	127	Leg	A325X	0.6250	3	6.039	20.709	0.292 ✔	1	Bolt Tension
T13	107	Leg	A325X	0.6250	3	6.653	20.709	0.321 ✔	1	Bolt Tension
T14	87	Leg	A325X	0.6250	3	6.931	20.709	0.335 ✔	1	Bolt Tension
T15	67	Leg	A325X	0.6250	3	7.066	20.709	0.341 ✔	1	Bolt Tension
T20	47	Leg	A325X	0.6250	3	7.529	20.709	0.364 ✔	1	Bolt Tension
T21	27	Leg	A325X	0.6250	3	7.645	20.709	0.369 ✔	1	Bolt Tension
T22	7	Leg	A325X	0.6250	3	7.294	20.709	0.352 ✔	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	331.100 (A) (919)	7/16 EHS	2.080	20.800	9.342	12.480	1.000	1.336 ✔
	331.100 (A) (920)	7/16 EHS	2.080	20.800	9.337	12.480	1.000	1.337 ✔
	331.100 (B)	7/16 EHS	2.080	20.800	10.059	12.480	1.000	1.241 ✔

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
	(913)							
	331.100 (B) (914)	7/16 EHS	2.080	20.800	10.063	12.480	1.000	1.240 ✔
	331.100 (C) (907)	7/16 EHS	2.080	20.800	9.606	12.480	1.000	1.299 ✔
	331.100 (C) (908)	7/16 EHS	2.080	20.800	9.607	12.480	1.000	1.299 ✔
T4	271.100 (A) (937)	7/16 EHS	2.080	20.800	8.336	12.480	1.000	1.497 ✔
	271.100 (A) (938)	7/16 EHS	2.080	20.800	8.337	12.480	1.000	1.497 ✔
	271.100 (B) (931)	7/16 EHS	2.080	20.800	9.100	12.480	1.000	1.372 ✔
	271.100 (B) (932)	7/16 EHS	2.080	20.800	9.097	12.480	1.000	1.372 ✔
	271.100 (C) (925)	7/16 EHS	2.080	20.800	8.521	12.480	1.000	1.465 ✔
	271.100 (C) (926)	7/16 EHS	2.080	20.800	8.523	12.480	1.000	1.464 ✔
T8	202.900 (A) (955)	7/16 EHS	2.080	20.800	7.886	12.480	1.000	1.583 ✔
	202.900 (A) (956)	7/16 EHS	2.080	20.800	7.892	12.480	1.000	1.581 ✔
	202.900 (B) (949)	7/16 EHS	2.080	20.800	8.671	12.480	1.000	1.439 ✔
	202.900 (B) (950)	7/16 EHS	2.080	20.800	8.660	12.480	1.000	1.441 ✔
	202.900 (C) (943)	7/16 EHS	2.080	20.800	8.083	12.480	1.000	1.544 ✔
	202.900 (C) (944)	7/16 EHS	2.080	20.800	8.087	12.480	1.000	1.543 ✔
T11	131.100 (A) (973)	3/8 EHS	1.540	15.400	5.531	9.240	1.000	1.671 ✔
	131.100 (A) (974)	3/8 EHS	1.540	15.400	5.407	9.240	1.000	1.709 ✔
	131.100 (B) (967)	3/8 EHS	1.540	15.400	5.917	9.240	1.000	1.562 ✔
	131.100 (B) (968)	3/8 EHS	1.540	15.400	5.939	9.240	1.000	1.556 ✔
	131.100 (C) (961)	3/8 EHS	1.540	15.400	5.614	9.240	1.000	1.646 ✔
	131.100 (C) (962)	3/8 EHS	1.540	15.400	5.614	9.240	1.000	1.646 ✔
T14	67.167 (A) (984)	3/8 EHS	1.540	15.400	5.112	9.240	1.000	1.808 ✔
	67.167 (B) (983)	3/8 EHS	1.540	15.400	5.522	9.240	1.000	1.673 ✔
	67.167 (C) (979)	3/8 EHS	1.540	15.400	5.310	9.240	1.000	1.740 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	347 - 327	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-14.032	63.956	0.219 [1] ✓
T2	327 - 307	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-26.696	63.956	0.417 [1] ✓
T3	307 - 287	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-26.632	63.956	0.416 [1] ✓
T4	287 - 267	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-27.510	63.956	0.430 [1] ✓
T5	267 - 247	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-39.693	63.956	0.621 [1] ✓
T6	247 - 227	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-39.709	63.956	0.621 [1] ✓
T7	227 - 207	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-37.050	63.956	0.579 [1] ✓
T8	207 - 187	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-49.448	63.956	0.773 [1] ✓
T9	187 - 167	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-50.724	63.956	0.793 [1] ✓
T10	167 - 147	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-50.545	63.956	0.790 [1] ✓
T11	147 - 127	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-56.487	63.956	0.883 [1] ✓
T12	127 - 107	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-59.785	63.956	0.935 [1] ✓
T13	107 - 87	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-62.469	63.956	0.977 [1] ✓
T14	87 - 67	P2.5 STD	20.000	3.933	49.8 K=1.00	1.7040	-62.580	63.956	0.978 [1] ✓
T15	67 - 62.97	P2.5 STD	4.030	3.863	48.9 K=1.00	1.7040	-64.377	64.367	**1.000** [1] ✗
T16	62.97 - 58.99	4.8.1 (1.00 CR) - 716 P2.5 STD w/ SP HSS 3.5x.3	3.980	3.980	52.4 K=1.00	3.1100	-67.078	114.522	0.586 [1] ✓
T17	58.99 - 55.01	P2.5 STD w/ SP HSS 3.5x.3	3.980	3.980	52.4 K=1.00	3.1100	-67.802	114.522	0.592 [1] ✓
T18	55.01 - 51.03	P2.5 STD w/ SP HSS 3.5x.3	3.980	3.980	52.4 K=1.00	3.1100	-68.671	114.522	0.600 [1] ✓
T19	51.03 - 47	P2.5 STD w/ SP HSS 3.5x.3	4.030	3.863	50.8 K=1.00	3.1100	-69.734	115.856	0.602 [1] ✓
T20	47 - 27	P2.5 STD w/ SP HSS 3.5x.3	20.000	3.933	51.8 K=1.00	3.1100	-70.990	115.058	0.617 [1] ✓
T21	27 - 7	P2.5 STD w/ SP HSS 3.5x.3	20.000	3.933	51.8 K=1.00	3.1100	-70.756	115.058	0.615 [1] ✓
T22	7 - 3	P2.5 STD w/ SP HSS 3.5x.3	4.000	3.833	50.4 K=1.00	3.1100	-67.198	116.195	0.578 [1] ✓
T23	3 - 0	P2.5 STD w/ SP HSS 3.5x.3	3.000	2.833	37.3 K=1.00	3.1100	-68.672	126.427	0.543 [1] ✓

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	347 - 327	L2x2x1/4	3.000	2.760	102.4 K=1.21	0.9380	-10.581	17.506	0.604 [1] ✔
T2	327 - 307	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-5.178	10.466	0.495 [1] ✔
T3	307 - 287	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-4.663	10.466	0.446 [1] ✔
T4	287 - 267	L2x2x1/4	3.000	2.760	102.4 K=1.21	0.9380	-10.469	17.506	0.598 [1] ✔
T5	267 - 247	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-4.468	10.466	0.427 [1] ✔
T6	247 - 227	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-3.968	10.466	0.379 [1] ✔
T7	227 - 207	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-3.742	10.466	0.358 [1] ✔
T8	207 - 187	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-8.434	10.466	0.806 [1] ✔
T9	187 - 167	L2x1 1/2x1/4	3.000	2.760	111.8 K=1.08	0.8125	-4.600	13.629	0.337 [1] ✔
T10	167 - 147	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-3.186	10.466	0.304 [1] ✔
T11	147 - 127	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-8.498	10.466	0.812 [1] ✔
T12	127 - 107	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-3.311	10.466	0.316 [1] ✔
T13	107 - 87	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.677	10.466	0.256 [1] ✔
T14	87 - 67	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.594	10.466	0.248 [1] ✔
T20	47 - 27	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-4.074	10.585	0.385 [1] ✔
T21	27 - 7	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-4.009	10.585	0.379 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	347 - 327	L2x2x1/4	3.000	2.760	102.4 K=1.21	0.9380	-4.293	17.506	0.245 [1] ✔
T2	327 - 307	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.603	10.466	0.249 [1] ✔
T3	307 - 287	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.440	10.466	0.233 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	287 - 267	L2x2x1/4	3.000	2.760	102.4 K=1.21	0.9380	-3.812	17.506	0.218 [1]
T5	267 - 247	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.286	10.466	0.218 [1]
T6	247 - 227	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.029	10.466	0.194 [1]
T7	227 - 207	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.011	10.466	0.192 [1]
T8	207 - 187	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.881	10.466	0.180 [1]
T9	187 - 167	L2x1 1/2x1/4	3.000	2.760	111.8 K=1.08	0.8125	-2.263	13.629	0.166 [1]
T10	167 - 147	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.769	10.466	0.169 [1]
T11	147 - 127	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.518	10.466	0.145 [1]
T12	127 - 107	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.729	10.466	0.165 [1]
T13	107 - 87	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.305	10.466	0.125 [*1]
T14	87 - 67	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.386	10.466	0.132 [1]
T15	67 - 62.97	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.064	10.466	0.102 [*1]
T16	62.97 - 58.99	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-3.075	10.466	0.294 [1]
T17	58.99 - 55.01	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-3.728	10.585	0.352 [1]
T18	55.01 - 51.03	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-3.774	10.585	0.357 [1]
T19	51.03 - 47	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-3.996	10.585	0.377 [1]
T20	47 - 27	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-2.018	10.585	0.191 [1]
T21	27 - 7	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-2.117	10.585	0.200 [1]
T22	7 - 3	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-2.145	10.585	0.203 [1]
T23	3 - 0	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-5.069	10.585	0.479 [1]

[*] DL controls
[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

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

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	347 - 327	L2x2x1/4	3.000	2.760	102.4 K=1.21	0.9380	-4.612	17.506	0.263 [1]
T2	327 - 307	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.390	10.466	0.228 [1]
T3	307 - 287	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.279	10.466	0.218 [1]
T4	287 - 267	L2x2x1/4	3.000	2.760	102.4 K=1.21	0.9380	-3.851	17.506	0.220 [1]
T5	267 - 247	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-2.046	10.466	0.195 [1]
T6	247 - 227	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.909	10.466	0.182 [1]
T7	227 - 207	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.941	10.466	0.185 [1]
T8	207 - 187	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.801	10.466	0.172 [1]
T9	187 - 167	L2x1 1/2x1/4	3.000	2.760	111.8 K=1.08	0.8125	-2.197	13.629	0.161 [1]
T10	167 - 147	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.568	10.466	0.150 [1]
T11	147 - 127	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.457	10.466	0.139 [1]
T12	127 - 107	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.387	10.466	0.133 [1]
T13	107 - 87	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-1.328	10.466	0.127 [1]
T14	87 - 67	L2x1 1/2x3/16	3.000	2.760	111.4 K=1.08	0.6211	-0.405	10.466	0.039 [1]
T19	51.03 - 47	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-2.186	10.585	0.207 [1]
T20	47 - 27	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-2.052	10.585	0.194 [1]
T21	27 - 7	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-1.817	10.585	0.172 [1]
T23	3 - 0	L2x1 1/2x3/16	3.000	2.708	110.5 K=1.09	0.6211	-0.414	10.585	0.039 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T14	87 - 67	3x3/8	3.000	2.760	306.0 K=1.00	1.1250	-0.734	2.714	0.270 [1]
		KL/R > 200 (C) - 980							

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	287 - 267 (927)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-0.213	34.278	0.006 [1] ✓
T4	287 - 267 (928)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-0.225	34.278	0.007 [1] ✓
T4	287 - 267 (934)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-0.025	34.278	0.001 [1] ✓
T4	287 - 267 (940)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-0.053	34.278	0.002 [1] ✓
T8	207 - 187 (945)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-1.632	34.278	0.048 [1] ✓
T8	207 - 187 (946)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-1.747	34.278	0.051 [1] ✓
T8	207 - 187 (951)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-1.157	34.278	0.034 [1] ✓
T8	207 - 187 (952)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-1.461	34.278	0.043 [1] ✓
T8	207 - 187 (957)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-1.060	34.278	0.031 [1] ✓
T8	207 - 187 (958)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-1.482	34.278	0.043 [1] ✓
T11	147 - 127 (963)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-2.527	34.278	0.074 [1] ✓
T11	147 - 127 (964)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-2.628	34.278	0.077 [1] ✓
T11	147 - 127 (969)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-2.408	34.278	0.070 [1] ✓
T11	147 - 127 (970)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-2.482	34.278	0.072 [1] ✓
T11	147 - 127 (975)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-2.397	34.278	0.070 [1] ✓
T11	147 - 127 (976)	L3x3x5/16	4.999	4.879	99.4 K=1.00	1.7800	-2.587	34.278	0.075 [1] ✓

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	347 - 327 (911)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-9.498	11.026	0.861 [1] ✓
T1	347 - 327 (912)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-8.977	11.026	0.814 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	347 - 327 (917)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-9.846	11.026	0.893 [1] ✔
T1	347 - 327 (918)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-9.629	11.026	0.873 [1] ✔
T1	347 - 327 (923)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-9.925	11.026	0.900 [1] ✔
T1	347 - 327 (924)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-9.186	11.026	0.833 [1] ✔
T4	287 - 267 (929)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-8.186	11.026	0.742 [1] ✔
T4	287 - 267 (930)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-8.090	11.026	0.734 [1] ✔
T4	287 - 267 (935)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-9.040	11.026	0.820 [1] ✔
T4	287 - 267 (936)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-8.332	11.026	0.756 [1] ✔
T4	287 - 267 (941)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-8.945	11.026	0.811 [1] ✔
T4	287 - 267 (942)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-8.145	11.026	0.739 [1] ✔
T8	207 - 187 (947)	L3x3x5/16	9.321	9.097	185.3 K=1.00	1.7800	-7.531	11.706	0.643 [1] ✔
T8	207 - 187 (948)	L3x3x5/16	9.321	9.097	185.3 K=1.00	1.7800	-7.262	11.706	0.620 [1] ✔
T8	207 - 187 (953)	L3x3x5/16	9.321	9.097	185.3 K=1.00	1.7800	-8.529	11.706	0.729 [1] ✔
T8	207 - 187 (954)	L3x3x5/16	9.321	9.097	185.3 K=1.00	1.7800	-7.849	11.706	0.671 [1] ✔
T8	207 - 187 (959)	L3x3x5/16	9.321	9.097	185.3 K=1.00	1.7800	-8.724	11.706	0.745 [1] ✔
T8	207 - 187 (960)	L3x3x5/16	9.321	9.097	185.3 K=1.00	1.7800	-7.765	11.706	0.663 [1] ✔
T11	147 - 127 (965)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-5.253	11.026	0.476 [1] ✔
T11	147 - 127 (966)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-4.827	11.026	0.438 [1] ✔
T11	147 - 127 (971)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-5.551	11.026	0.503 [1] ✔
T11	147 - 127 (972)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-5.251	11.026	0.476 [1] ✔
T11	147 - 127 (977)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-5.698	11.026	0.517 [1] ✔
T11	147 - 127 (978)	L3x3x5/16	9.604	9.374	191.0 K=1.00	1.7800	-4.968	11.026	0.451 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg 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	K	K	
T1	347 - 327	P2.5 STD	20.000	0.167	2.1	1.7040	0.516	76.682	0.007 [1] ✔
T2	327 - 307	P2.5 STD	20.000	0.167	2.1	1.7040	3.099	76.682	0.040 [1] ✔
T3	307 - 287	P2.5 STD	20.000	0.167	2.1	1.7040	3.097	76.682	0.040 [1] ✔

[1] P_u / ϕP_n controls

Diagonal 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	K	K	
T1	347 - 327	7/8	4.947	4.552	249.7	0.6013	8.582	19.483	0.440 [1] ✔
T2	327 - 307	5/8	4.947	4.552	349.6	0.3068	4.886	9.940	0.492 [1] ✔
T3	307 - 287	5/8	4.947	4.552	349.6	0.3068	4.320	9.940	0.435 [1] ✔
T4	287 - 267	7/8	4.947	4.552	249.7	0.6013	8.031	19.483	0.412 [1] ✔
T5	267 - 247	5/8	4.947	4.552	349.6	0.3068	4.732	9.940	0.476 [1] ✔
T6	247 - 227	5/8	4.947	4.552	349.6	0.3068	3.668	9.940	0.369 [1] ✔
T7	227 - 207	5/8	4.947	4.552	349.6	0.3068	4.167	9.940	0.419 [1] ✔
T8	207 - 187	5/8	4.947	4.552	349.6	0.3068	5.248	9.940	0.528 [1] ✔
T9	187 - 167	3/4	4.947	4.552	291.3	0.4418	4.181	14.314	0.292 [1] ✔
T10	167 - 147	5/8	4.947	4.552	349.6	0.3068	3.611	9.940	0.363 [1] ✔
T11	147 - 127	5/8	4.947	4.552	349.6	0.3068	4.527	9.940	0.455 [1] ✔
T12	127 - 107	5/8	4.947	4.552	349.6	0.3068	3.928	9.940	0.395 [1] ✔
T13	107 - 87	5/8	4.947	4.552	349.6	0.3068	2.645	9.940	0.266 [1] ✔
T14	87 - 67	5/8	4.947	4.552	349.6	0.3068	2.772	9.940	0.279 [1] ✔
T15	67 - 62.97	5/8	4.891	4.501	345.7	0.3068	3.202	9.940	0.322 [1] ✔
T16	62.97 - 58.99	5/8	4.984	4.543	348.9	0.3068	4.132	9.940	0.416 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T17	58.99 - 55.01	5/8	4.984	4.499	345.6	0.3068	3.963	9.940	0.399 [1] ✔
T18	55.01 - 51.03	5/8	4.984	4.499	345.6	0.3068	3.824	9.940	0.385 [1] ✔
T19	51.03 - 47	5/8	4.891	4.416	339.1	0.3068	3.991	9.940	0.402 [1] ✔
T20	47 - 27	5/8	4.947	4.466	343.0	0.3068	3.823	9.940	0.385 [1] ✔
T21	27 - 7	5/8	4.947	4.466	343.0	0.3068	4.513	9.940	0.454 [1] ✔
T22	7 - 3	5/8	4.868	4.394	337.5	0.3068	4.549	9.940	0.458 [1] ✔
T23	3 - 0	5/8	4.126	3.725	286.1	0.3068	5.571	9.940	0.560 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	347 - 327	L2x2x1/4	3.000	2.760	54.4	0.9380	0.243	30.391	0.008 [1] ✔
T2	327 - 307	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.462	20.123	0.023 [1] ✔
T3	307 - 287	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.461	20.123	0.023 [1] ✔
T4	287 - 267	L2x2x1/4	3.000	2.760	54.4	0.9380	0.476	30.391	0.016 [1] ✔
T5	267 - 247	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.687	20.123	0.034 [1] ✔
T6	247 - 227	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.688	20.123	0.034 [1] ✔
T7	227 - 207	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.642	20.123	0.032 [1] ✔
T8	207 - 187	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	3.379	20.123	0.168 [1] ✔
T9	187 - 167	L2x1 1/2x1/4	3.000	2.760	76.7	0.8125	0.879	26.325	0.033 [1] ✔
T10	167 - 147	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.875	20.123	0.044 [1] ✔
T11	147 - 127	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	4.178	20.123	0.208 [1] ✔
T12	127 - 107	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	1.036	20.123	0.051 [1] ✔
T13	107 - 87	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	1.082	20.123	0.054 [1] ✔
T14	87 - 67	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	1.084	20.123	0.054 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T20	47 - 27	L2x1 1/2x3/16	3.000	2.708	73.9	0.6211	1.230	20.123	0.061 [1]
T21	27 - 7	L2x1 1/2x3/16	3.000	2.708	73.9	0.6211	1.226	20.123	0.061 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	167 - 147	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.026	20.123	0.001 [1]
T11	147 - 127	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.051	20.123	0.003 [1]
T12	127 - 107	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.075	20.123	0.004 [1]
T13	107 - 87	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.028	20.123	0.001 [1]
T14	87 - 67	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.035	20.123	0.002 [1]
T15	67 - 62.97	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.153	20.123	0.008 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	167 - 147	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.065	20.123	0.003 [1]
T11	147 - 127	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.017	20.123	0.001 [1]
T12	127 - 107	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.054	20.123	0.003 [1]
T13	107 - 87	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.006	20.123	0.000 [1]
T14	87 - 67	L2x1 1/2x3/16	3.000	2.760	75.4	0.6211	0.919	20.123	0.046 [1]
T23	3 - 0	L2x1 1/2x3/16	3.000	2.708	73.9	0.6211	0.382	20.123	0.019 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T14	87 - 67	3x3/8	3.000	2.760	306.0	1.1250	1.665	36.450	0.046 [1] ✔

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	347 - 327 (909)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.577	57.672	0.131 [1] ✔
T1	347 - 327 (910)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.297	57.672	0.127 [1] ✔
T1	347 - 327 (915)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.601	57.672	0.132 [1] ✔
T1	347 - 327 (916)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.579	57.672	0.131 [1] ✔
T1	347 - 327 (921)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.694	57.672	0.133 [1] ✔
T1	347 - 327 (922)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.404	57.672	0.128 [1] ✔
T4	287 - 267 (927)	L3x3x5/16	4.999	4.879	63.5	1.7800	6.923	57.672	0.120 [1] ✔
T4	287 - 267 (928)	L3x3x5/16	4.999	4.879	63.5	1.7800	6.931	57.672	0.120 [1] ✔
T4	287 - 267 (933)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.188	57.672	0.125 [1] ✔
T4	287 - 267 (934)	L3x3x5/16	4.999	4.879	63.5	1.7800	6.941	57.672	0.120 [1] ✔
T4	287 - 267 (939)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.148	57.672	0.124 [1] ✔
T4	287 - 267 (940)	L3x3x5/16	4.999	4.879	63.5	1.7800	6.909	57.672	0.120 [1] ✔
T8	207 - 187 (945)	L3x3x5/16	4.999	4.879	63.5	1.7800	8.274	57.672	0.143 [1] ✔
T8	207 - 187 (946)	L3x3x5/16	4.999	4.879	63.5	1.7800	8.219	57.672	0.143 [1] ✔
T8	207 - 187 (951)	L3x3x5/16	4.999	4.879	63.5	1.7800	8.454	57.672	0.147 [1] ✔
T8	207 - 187 (952)	L3x3x5/16	4.999	4.879	63.5	1.7800	8.306	57.672	0.144 [1] ✔
T8	207 - 187 (957)	L3x3x5/16	4.999	4.879	63.5	1.7800	8.330	57.672	0.144 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	207 - 187 (958)	L3x3x5/16	4.999	4.879	63.5	1.7800	8.136	57.672	0.141 [1]
T11	147 - 127 (963)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.004	57.672	0.121 [1]
T11	147 - 127 (964)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.012	57.672	0.122 [1]
T11	147 - 127 (969)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.195	57.672	0.125 [1]
T11	147 - 127 (970)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.304	57.672	0.127 [1]
T11	147 - 127 (975)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.202	57.672	0.125 [1]
T11	147 - 127 (976)	L3x3x5/16	4.999	4.879	63.5	1.7800	7.304	57.672	0.127 [1]

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	207 - 187 (947)	L3x3x5/16	9.321	9.097	118.4	1.7800	1.267	57.672	0.022 [1]
T8	207 - 187 (948)	L3x3x5/16	9.321	9.097	118.4	1.7800	1.263	57.672	0.022 [1]
T8	207 - 187 (953)	L3x3x5/16	9.321	9.097	118.4	1.7800	1.002	57.672	0.017 [1]
T8	207 - 187 (954)	L3x3x5/16	9.321	9.097	118.4	1.7800	1.261	57.672	0.022 [1]
T8	207 - 187 (959)	L3x3x5/16	9.321	9.097	118.4	1.7800	1.215	57.672	0.021 [1]
T8	207 - 187 (960)	L3x3x5/16	9.321	9.097	118.4	1.7800	1.477	57.672	0.026 [1]
T11	147 - 127 (965)	L3x3x5/16	9.604	9.374	122.0	1.7800	0.106	57.672	0.002 [1]
T11	147 - 127 (966)	L3x3x5/16	9.604	9.374	122.0	1.7800	0.019	57.672	0.000 [1]
T11	147 - 127 (972)	L3x3x5/16	9.604	9.374	122.0	1.7800	0.053	57.672	0.001 [1]
T11	147 - 127 (977)	L3x3x5/16	9.604	9.374	122.0	1.7800	0.155	57.672	0.003 [1]
T11	147 - 127 (978)	L3x3x5/16	9.604	9.374	122.0	1.7800	0.203	57.672	0.004 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	347 - 327	Leg	P2.5 STD	1	-14.032	63.956	21.9	Pass
T2	327 - 307	Leg	P2.5 STD	53	-26.696	63.956	41.7	Pass
T3	307 - 287	Leg	P2.5 STD	104	-26.632	63.956	41.6	Pass
T4	287 - 267	Leg	P2.5 STD	156	-27.510	63.956	43.0	Pass
T5	267 - 247	Leg	P2.5 STD	206	-39.693	63.956	62.1	Pass
T6	247 - 227	Leg	P2.5 STD	257	-39.709	63.956	62.1	Pass
T7	227 - 207	Leg	P2.5 STD	308	-37.050	63.956	57.9	Pass
T8	207 - 187	Leg	P2.5 STD	359	-49.448	63.956	77.3	Pass
T9	187 - 167	Leg	P2.5 STD	410	-50.724	63.956	79.3	Pass
T10	167 - 147	Leg	P2.5 STD	460	-50.545	63.956	79.0	Pass
T11	147 - 127	Leg	P2.5 STD	513	-56.487	63.956	88.3	Pass
T12	127 - 107	Leg	P2.5 STD	562	-59.785	63.956	93.5	Pass
T13	107 - 87	Leg	P2.5 STD	614	-62.469	63.956	97.7	Pass
T14	87 - 67	Leg	P2.5 STD	665	-62.580	63.956	97.8	Pass
T15	67 - 62.97	Leg	P2.5 STD	716	-64.377	64.367	100.0	Fail
T16	62.97 - 58.99	Leg	P2.5 STD w/ SP HSS 3.5x.3	728	-67.078	114.522	58.6	Pass
T17	58.99 - 55.01	Leg	P2.5 STD w/ SP HSS 3.5x.3	740	-67.802	114.522	59.2	Pass
T18	55.01 - 51.03	Leg	P2.5 STD w/ SP HSS 3.5x.3	752	-68.671	114.522	60.0	Pass
T19	51.03 - 47	Leg	P2.5 STD w/ SP HSS 3.5x.3	764	-69.734	115.856	60.2	Pass
T20	47 - 27	Leg	P2.5 STD w/ SP HSS 3.5x.3	779	-70.990	115.058	61.7	Pass
T21	27 - 7	Leg	P2.5 STD w/ SP HSS 3.5x.3	830	-70.756	115.058	61.5	Pass
T22	7 - 3	Leg	P2.5 STD w/ SP HSS 3.5x.3	881	-67.198	116.195	57.8	Pass
T23	3 - 0	Leg	P2.5 STD w/ SP HSS 3.5x.3	893	-68.672	126.427	54.3	Pass
T1	347 - 327	Diagonal	7/8	13	8.582	19.483	44.0	Pass
T2	327 - 307	Diagonal	5/8	100	4.886	9.940	49.2	Pass
T3	307 - 287	Diagonal	5/8	117	4.320	9.940	43.5	Pass
T4	287 - 267	Diagonal	7/8	167	8.031	19.483	41.2	Pass
T5	267 - 247	Diagonal	5/8	250	4.732	9.940	47.6	Pass
T6	247 - 227	Diagonal	5/8	270	3.668	9.940	36.9	Pass
T7	227 - 207	Diagonal	5/8	321	4.167	9.940	41.9	Pass
T8	207 - 187	Diagonal	5/8	394	5.248	9.940	52.8	Pass
T9	187 - 167	Diagonal	3/4	423	4.181	14.314	29.2	Pass
T10	167 - 147	Diagonal	5/8	470	3.611	9.940	36.3	Pass
T11	147 - 127	Diagonal	5/8	523	4.527	9.940	45.5	Pass
T12	127 - 107	Diagonal	5/8	610	3.928	9.940	39.5	Pass
T13	107 - 87	Diagonal	5/8	661	2.645	9.940	26.6	Pass
T14	87 - 67	Diagonal	5/8	675	2.772	9.940	27.9	Pass
T15	67 - 62.97	Diagonal	5/8	726	3.202	9.940	32.2	Pass
T16	62.97 - 58.99	Diagonal	5/8	737	4.132	9.940	41.6	Pass
T17	58.99 - 55.01	Diagonal	5/8	750	3.963	9.940	39.9	Pass
T18	55.01 - 51.03	Diagonal	5/8	761	3.824	9.940	38.5	Pass
T19	51.03 - 47	Diagonal	5/8	776	3.991	9.940	40.2	Pass
T20	47 - 27	Diagonal	5/8	789	3.823	9.940	38.5	Pass
T21	27 - 7	Diagonal	5/8	840	4.513	9.940	45.4	Pass
T22	7 - 3	Diagonal	5/8	888	4.549	9.940	45.8	Pass
T23	3 - 0	Diagonal	5/8	903	5.571	9.940	56.0	Pass
T1	347 - 327	Horizontal	L2x2x1/4	16	-10.581	17.506	60.4	Pass
T2	327 - 307	Horizontal	L2x1 1/2x3/16	96	-5.178	10.466	49.5	Pass
T3	307 - 287	Horizontal	L2x1 1/2x3/16	147	-4.663	10.466	44.6	Pass
T4	287 - 267	Horizontal	L2x2x1/4	171	-10.469	17.506	59.8	Pass
T5	267 - 247	Horizontal	L2x1 1/2x3/16	249	-4.468	10.466	42.7	Pass
T6	247 - 227	Horizontal	L2x1 1/2x3/16	300	-3.968	10.466	37.9	Pass
T7	227 - 207	Horizontal	L2x1 1/2x3/16	351	-3.742	10.466	35.8	Pass
T8	207 - 187	Horizontal	L2x1 1/2x3/16	402	-8.434	10.466	80.6	Pass
T9	187 - 167	Horizontal	L2x1 1/2x1/4	453	-4.600	13.629	33.7	Pass
T10	167 - 147	Horizontal	L2x1 1/2x3/16	503	-3.186	10.466	30.4	Pass
T11	147 - 127	Horizontal	L2x1 1/2x3/16	526	-8.498	10.466	81.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T12	127 - 107	Horizontal	L2x1 1/2x3/16	606	-3.311	10.466	31.6	Pass
T13	107 - 87	Horizontal	L2x1 1/2x3/16	628	-2.677	10.466	25.6	Pass
T14	87 - 67	Horizontal	L2x1 1/2x3/16	706	-2.594	10.466	24.8	Pass
T20	47 - 27	Horizontal	L2x1 1/2x3/16	793	-4.074	10.585	38.5	Pass
T21	27 - 7	Horizontal	L2x1 1/2x3/16	871	-4.009	10.585	37.9	Pass
T1	347 - 327	Top Girt	L2x2x1/4	5	-4.293	17.506	24.5	Pass
T2	327 - 307	Top Girt	L2x1 1/2x3/16	55	-2.603	10.466	24.9	Pass
T3	307 - 287	Top Girt	L2x1 1/2x3/16	108	-2.440	10.466	23.3	Pass
T4	287 - 267	Top Girt	L2x2x1/4	159	-3.812	17.506	21.8	Pass
T5	267 - 247	Top Girt	L2x1 1/2x3/16	208	-2.286	10.466	21.8	Pass
T6	247 - 227	Top Girt	L2x1 1/2x3/16	261	-2.029	10.466	19.4	Pass
T7	227 - 207	Top Girt	L2x1 1/2x3/16	312	-2.011	10.466	19.2	Pass
T8	207 - 187	Top Girt	L2x1 1/2x3/16	363	-1.881	10.466	18.0	Pass
T9	187 - 167	Top Girt	L2x1 1/2x1/4	414	-2.263	13.629	16.6	Pass
T10	167 - 147	Top Girt	L2x1 1/2x3/16	465	-1.769	10.466	16.9	Pass
T11	147 - 127	Top Girt	L2x1 1/2x3/16	515	-1.518	10.466	14.5	Pass
T12	127 - 107	Top Girt	L2x1 1/2x3/16	566	-1.729	10.466	16.5	Pass
T13	107 - 87	Top Girt	L2x1 1/2x3/16	618	-1.305	10.466	12.5	Pass
T14	87 - 67	Top Girt	L2x1 1/2x3/16	667	-1.386	10.466	13.2	Pass
T15	67 - 62.97	Top Girt	L2x1 1/2x3/16	720	-1.064	10.466	10.2	Pass
T16	62.97 - 58.99	Top Girt	L2x1 1/2x3/16	730	-3.075	10.466	29.4	Pass
T17	58.99 - 55.01	Top Girt	L2x1 1/2x3/16	742	-3.728	10.585	35.2	Pass
T18	55.01 - 51.03	Top Girt	L2x1 1/2x3/16	754	-3.774	10.585	35.7	Pass
T19	51.03 - 47	Top Girt	L2x1 1/2x3/16	766	-3.996	10.585	37.7	Pass
T20	47 - 27	Top Girt	L2x1 1/2x3/16	781	-2.018	10.585	19.1	Pass
T21	27 - 7	Top Girt	L2x1 1/2x3/16	832	-2.117	10.585	20.0	Pass
T22	7 - 3	Top Girt	L2x1 1/2x3/16	883	-2.145	10.585	20.3	Pass
T23	3 - 0	Top Girt	L2x1 1/2x3/16	895	-5.069	10.585	47.9	Pass
T1	347 - 327	Bottom Girt	L2x2x1/4	9	-4.612	17.506	26.3	Pass
T2	327 - 307	Bottom Girt	L2x1 1/2x3/16	60	-2.390	10.466	22.8	Pass
T3	307 - 287	Bottom Girt	L2x1 1/2x3/16	111	-2.279	10.466	21.8	Pass
T4	287 - 267	Bottom Girt	L2x2x1/4	162	-3.851	17.506	22.0	Pass
T5	267 - 247	Bottom Girt	L2x1 1/2x3/16	213	-2.046	10.466	19.5	Pass
T6	247 - 227	Bottom Girt	L2x1 1/2x3/16	264	-1.909	10.466	18.2	Pass
T7	227 - 207	Bottom Girt	L2x1 1/2x3/16	315	-1.941	10.466	18.5	Pass
T8	207 - 187	Bottom Girt	L2x1 1/2x3/16	366	-1.801	10.466	17.2	Pass
T9	187 - 167	Bottom Girt	L2x1 1/2x1/4	416	-2.197	13.629	16.1	Pass
T10	167 - 147	Bottom Girt	L2x1 1/2x3/16	468	-1.568	10.466	15.0	Pass
T11	147 - 127	Bottom Girt	L2x1 1/2x3/16	518	-1.457	10.466	13.9	Pass
T12	127 - 107	Bottom Girt	L2x1 1/2x3/16	568	-1.387	10.466	13.3	Pass
T13	107 - 87	Bottom Girt	L2x1 1/2x3/16	619	-1.328	10.466	12.7	Pass
T14	87 - 67	Bottom Girt	L2x1 1/2x3/16	670	0.919	20.123	4.6	Pass
T19	51.03 - 47	Bottom Girt	L2x1 1/2x3/16	769	-2.186	10.585	20.7	Pass
T20	47 - 27	Bottom Girt	L2x1 1/2x3/16	784	-2.052	10.585	19.4	Pass
T21	27 - 7	Bottom Girt	L2x1 1/2x3/16	836	-1.817	10.585	17.2	Pass
T23	3 - 0	Bottom Girt	L2x1 1/2x3/16	899	-0.414	10.585	3.9	Pass
T1	347 - 327	Guy A@331.1	7/16	919	9.342	12.480	74.9	Pass
T4	287 - 267	Guy A@271.1	7/16	938	8.337	12.480	66.8	Pass
T8	207 - 187	Guy A@202.9	7/16	956	7.892	12.480	63.2	Pass
T11	147 - 127	Guy A@131.1	3/8	973	5.531	9.240	59.9	Pass
T14	87 - 67	Guy A@67.1667	3/8	984	5.112	9.240	55.3	Pass
T1	347 - 327	Guy B@331.1	7/16	914	10.063	12.480	80.6	Pass
T4	287 - 267	Guy B@271.1	7/16	931	9.100	12.480	72.9	Pass
T8	207 - 187	Guy B@202.9	7/16	949	8.671	12.480	69.5	Pass
T11	147 - 127	Guy B@131.1	3/8	968	5.939	9.240	64.3	Pass
T14	87 - 67	Guy B@67.1667	3/8	983	5.522	9.240	59.8	Pass
T1	347 - 327	Guy C@331.1	7/16	908	9.607	12.480	77.0	Pass
T4	287 - 267	Guy C@271.1	7/16	926	8.523	12.480	68.3	Pass
T8	207 - 187	Guy C@202.9	7/16	944	8.087	12.480	64.8	Pass
T11	147 - 127	Guy C@131.1	3/8	961	5.614	9.240	60.8	Pass
T14	87 - 67	Guy C@67.1667	3/8	979	5.310	9.240	57.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T14	87 - 67	Top Guy Pull-Off@67.1667	3x3/8	980	-0.734	2.714	27.0	Pass
T1	347 - 327	Torque Arm Top@331.1	L3x3x5/16	921	7.694	57.672	13.3	Pass
T4	287 - 267	Torque Arm Top@271.1	L3x3x5/16	933	7.188	57.672	12.5	Pass
T8	207 - 187	Torque Arm Top@202.9	L3x3x5/16	951	8.454	57.672	14.7	Pass
T11	147 - 127	Torque Arm Top@131.1	L3x3x5/16	970	7.304	57.672	12.7	Pass
T1	347 - 327	Torque Arm Bottom@331.1	L3x3x5/16	923	-9.925	11.026	90.0	Pass
T4	287 - 267	Torque Arm Bottom@271.1	L3x3x5/16	935	-9.040	11.026	82.0	Pass
T8	207 - 187	Torque Arm Bottom@202.9	L3x3x5/16	959	-8.724	11.706	74.5	Pass
T11	147 - 127	Torque Arm Bottom@131.1	L3x3x5/16	977	-5.698	11.026	51.7	Pass

Summary

Leg (T15)	100.0	Fail ✗
Diagonal (T23)	56.0	Pass
Horizontal (T11)	81.2	Pass
Top Girt (T23)	47.9	Pass
Bottom Girt (T1)	26.3	Pass
Guy A (T1)	74.9	Pass
Guy B (T1)	80.6	Pass
Guy C (T1)	77.0	Pass
Top Guy Pull-Off (T14)	27.0	Pass
Torque Arm Top (T8)	14.7	Pass
Torque Arm Bottom (T1)	90.0	Pass
Bolt Checks	36.9	Pass
RATING =	**100.0**	**Fail ✗**

Attachment 2:
Insite Email

Josh Turner

From: Mikala Charron <mikala.charron@insitewireless.com>
Sent: Tuesday, December 19, 2017 4:23 PM
To: Josh Turner
Subject: RE: STRUCTURAL REQUEST: CT900 Wolcott - Sprint

Cox is the only other entity on the tower. Their equipment is at 345', 287', 170' 20' and 15'.

Thanks,
Mikala

Mikala Charron (Mann) | **Collocation Coordinator**
InSite Wireless Group LLC | office: 401-921-3371 | mobile: 401-486-3946
Mikala.charron@insitewireless.com | www.insitewireless.com
InSite News: http://www.insitewireless.com/news.html
PLEASE NOTE NEW EMAIL ADDRESS

From: Josh Turner [mailto:jturner@bennett-pless.com]
Sent: Tuesday, December 19, 2017 4:22 PM
To: Mikala Charron <mikala.charron@insitewireless.com>
Subject: RE: STRUCTURAL REQUEST: CT900 Wolcott - Sprint

Do you have the latest Cox colo app so we know what we're removing? Or is Cox the only other entity on the tower?

Thanks

Josh Turner | Project Manager
Bennett & Pless
Direct: 470-375-0290 Cell: 404-217-4853
Email: jturner@bennett-pless.com

HAPPY HOLIDAYS!! Please note our holiday hours
Friday 12/22: 8am – 12pm | Monday 12/25 – Monday 1/1: Closed | Office Re-opens 1/2

From: Mikala Charron [mailto:mikala.charron@insitewireless.com]
Sent: Tuesday, December 19, 2017 4:13 PM
To: Josh Turner <jturner@bennett-pless.com>
Subject: RE: STRUCTURAL REQUEST: CT900 Wolcott - Sprint

Josh,
A quick question (hopefully), will removing the Cox equipment on this tower, bring the tower to 100%?

In October, we received an email from Verizon stating that the CT Siting Council won't accept any structurals for approval/permitting that are over 100%.

Thanks,
Mikala

Mikala Charron (Mann) | **Collocation Coordinator**

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT60XC956

Cox Communications Tower
164 County Road Rear
Wolcott, CT 06716

January 9, 2018

EBI Project Number: 6218000049

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	1.54 %

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

EBI Consulting
environmental | engineering | due diligence

January 9, 2018

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

Emissions Analysis for Site: **CT60XC956 – Cox Communications Tower**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **164 County Road Rear, Wolcott, 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 **164 County Road Rear, Wolcott, 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, 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 20 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 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 **RFS APXVSPP18-C-A20 and the Commscope DT465B-2XR** 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, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **201 feet** above ground level (AGL) for **Sector A**, **201 feet** above ground level (AGL) for **Sector B** and **201 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:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 13.4 / 15.9 dBd	Gain:	13.4 / 13.4 / 15.9 dBd	Gain:	13.4 / 13.4 / 15.9 dBd
Height (AGL):	**201 feet**	Height (AGL):	**201 feet**	Height (AGL):	**201 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):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**0.81 %**	Antenna B1 MPE%	**0.81 %**	Antenna C1 MPE%	**0.81 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	**201 feet**	Height (AGL):	**201 feet**	Height (AGL):	**201 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):	5,118.23	ERP (W):	5,118.23	ERP (W):	5,118.23
Antenna A2 MPE%	**0.48 %**	Antenna B2 MPE%	**0.48 %**	Antenna C2 MPE%	**0.48 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**1.29 %**
Cox Communications	0.07 %
Clearwire	0.05 %
T-Mobile	0.13 %
Site Total MPE %:	**1.54 %**

SPRINT Sector A Total:	1.29 %
SPRINT Sector B Total:	1.29 %
SPRINT Sector C Total:	1.29 %
Site Total:	1.54 %

SPRINT _ Frequency Band / Technology (All Sectors)	# 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	437.55	201	0.41	850 MHz	567	0.08%
Sprint 850 MHz LTE	2	437.55	201	0.83	850 MHz	567	0.15%
Sprint 1900 MHz (PCS) CDMA	5	622.47	201	2.94	1900 MHz (PCS)	1000	0.29%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	201	2.94	1900 MHz (PCS)	1000	0.29%
Sprint 2500 MHz (BRS) LTE	8	639.78	201	4.84	2500 MHz (BRS)	1000	0.48%
						Total:	**1.29%**

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:

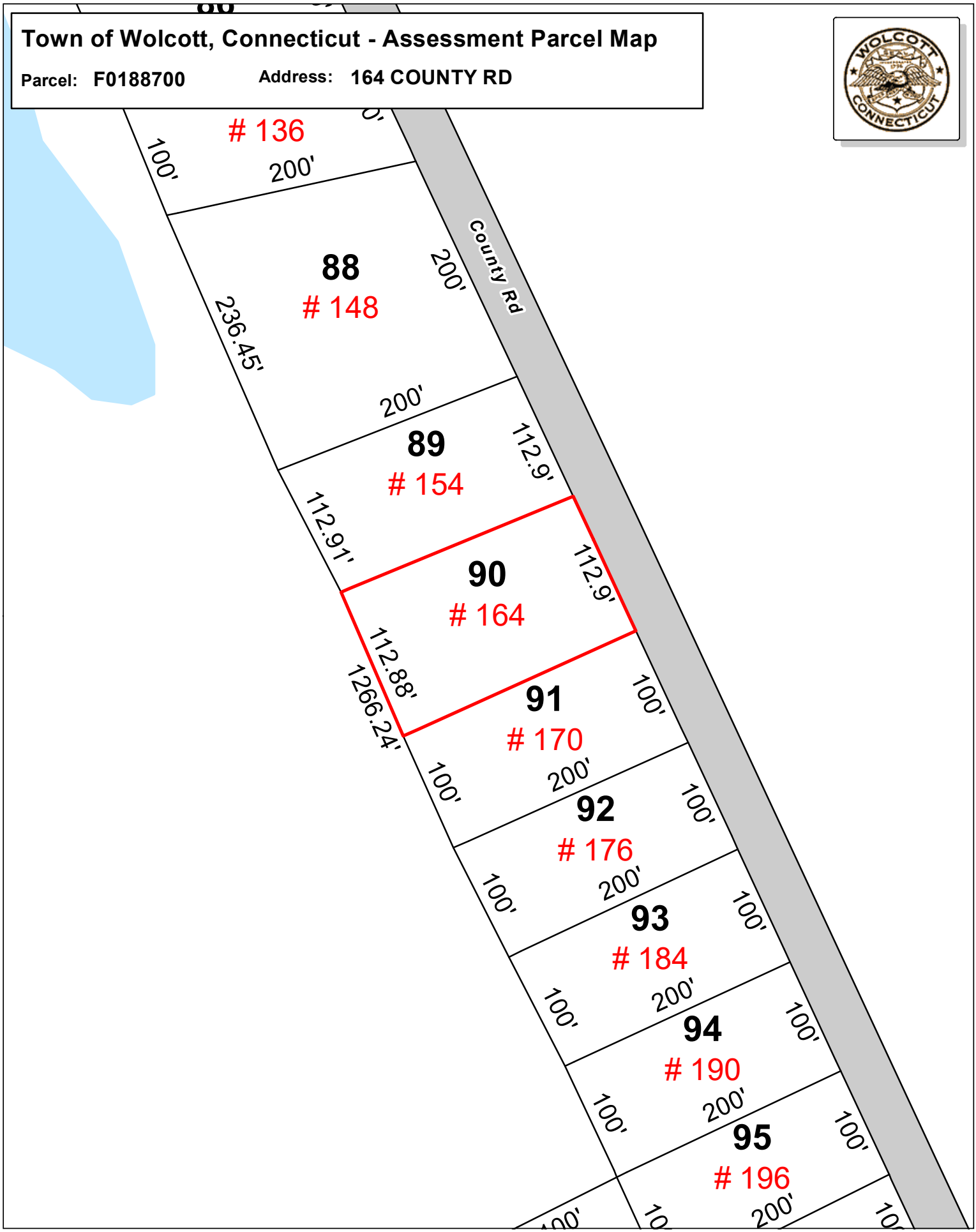
SPRINT Sector	Power Density Value (%)
Sector A:	1.29 %
Sector B:	1.29 %
Sector C:	1.29 %
SPRINT Maximum Total (per sector):	1.29 %
Site Total:	1.54 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **1.54 %** 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.

Town of Wolcott, Connecticut - Assessment Parcel Map

Parcel: F0188700 **Address:** 164 COUNTY RD



Map Produced Feb 2018

Approximate Scale: 1 inch = 100 feet

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

July 18, 2014

Paul F. Sagristano
Vertical Development LLC
20 Commercial Street
Branford, CT 06405

RE: **EM-SPRINT-166-140627** – Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 164 County Road, Wolcott, Connecticut.

Dear Mr. Sagristano:

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:

- Any deviation from the proposed modification as specified in this notice and supporting materials with the 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;
- Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by Sprint shall be removed within 60 days of the date the antenna ceased to function.
- 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 June 27, 2014. 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 by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and Environmental Protection pursuant to Connecticut 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,

Melanie A. Bachman
Acting Executive Director

MAB/RDM/cm

c: The Honorable Thomas G. Dunn, Mayor, Town of Wolcott
David Kalinowski, Zoning Enforcement Officer, Town of Wolcott
Mark Proul