AIROSMITH DEVELOPMENT
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April 3rd, 2019

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

RE: Notice of Exempt Modification – Antenna Modification for wireless facility located at 80 Shuttle Meadow Road, Southington, CT 06489 - CT52XC108 (lat. 41.638600 N, long. -72.841100 W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (120-foot level) on an existing (150-foot monopole tower) at the above-referenced address. The property is owned by Enfield School District and the tower is owned by American Tower Corporation.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace three (3) antennas with six (6) new antennas and add nine (9) RRHs onto the tower. All the proposed work is contained within the existing fenced area. Please refer to the attached drawings for site plans prepared by Infinigy Engineering.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to MICHAEL LUDWICK, MAYOR and LAURIE WHITTEN, DIRECTOR OF DEVELOPMENT SERVICES for the TOWN OF ENFIELD. A copy of this letter is also being sent to AMERICAN TOWER CORPOATION the owner of the tower, and The ENFIELD SCHOOL DISTRICT who owns the property.

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

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The antennas work is a like-for-like replacement of existing facility components and additional components to increase capacity and employ updated technologies.

32 Clinton Street, Saratoga Springs, NY 12866
Office 518-306-1733 – Fax 518-306-1711
www.airosmithdevelopment.com

3. The proposed modifications will include the addition of ground base equipment as depicted on the attached drawings; however, the proposed equipment will not require an extension of the site boundaries.

4. The proposed modifications will not increase noise levels at the facility by six decibels or more.

5. The additional ground based equipment will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard.

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

If you have any questions or require any additional information regarding this request, please do not hesitate to give me a call at (518) 796-9165 or email me to rperry@airosmithdevelopment.com

Kind Regards,

Raymond A Perry

Ray Perry
Airosmith Development Inc.
32 Clinton Street
Saratoga Springs, NY 12866
518-796-9165 cell
518-306-1711 fax
rperry@airosmithdevelopment.com

Attachment

CC: MARK SCIOTA (Town Manager, Southington, CT)
KEITH HAYDEN P.E. (Director of Public Works, Southington, CT)
JUSTINE PAUL (Property & Tower Owner – Southern New England Telephone Co. C/O American Tower Corporation)

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Total Postage and Fees	$6.85

0867 17

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Total Postage and Fees	$6.85

0867 17

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04/03/2019
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Sent To: Mark Sciota
Street and Apt. No., or PO Box No.: 175 Main St
City, State, ZIP+4®: Southington, CT 06489

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	STTN - SOUTHINGTON
SITE CASCADE:	CT52XC108
SITE ADDRESS:	80 SHUTTLE MEADOW ROAD SOUTHINGTON, CT 06489
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN, MA 01801

LATITUDE (NAD83):
41° 38' 18.9" N
41.63858333

LONGITUDE (NAD83):
72° 50' 28.0" W
-72.8411

COUNTY:
HARTFORD

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

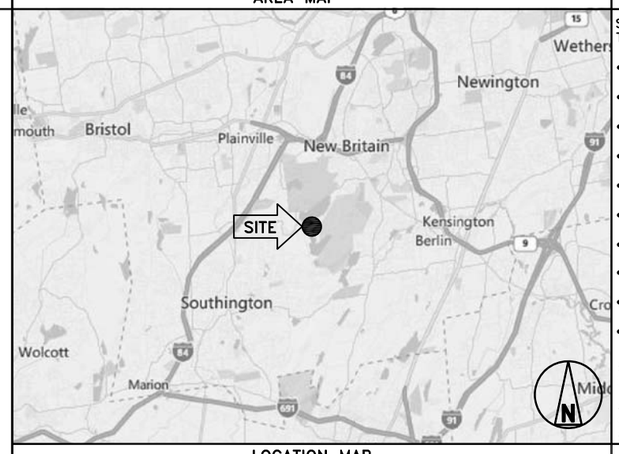
ZONING DISTRICT:
TBD

POWER COMPANY:
CL&P
PHONE: (800) 286-2000

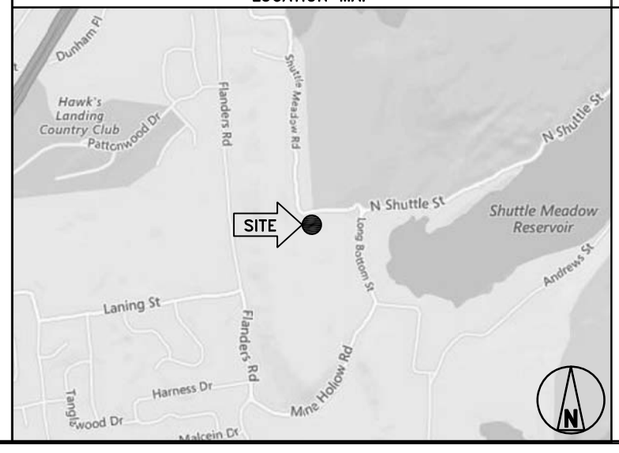
AAV PROVIDER:
AT&T
PHONE: (800) 288-2020

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
TERRI BURKHOLDER
(315) 719-2928
TBURKHOLDER@AIROSMITHDEVELOPMENT.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (3) PANEL ANTENNAS AND RRH'S
- INSTALL (6) PANEL ANTENNAS
- INSTALL (3) 1900 MHz RRH'S BEHIND ANTENNAS
- INSTALL (6) 800 MHz RRH'S BEHIND ANTENNAS
- INSTALL (3) 2.5 GHz RRH'S BEHIND ANTENNAS
- INSTALL (48) JUMPER CABLES
- INSTALL (4) HYBRID CABLES
- REMOVE EXISTING CLEARWIRE GROUND EQUIPMENT
- INSTALL (2) EQUIPMENT CABINETS WITHIN EXISTING LEASE AREA
- INSTALL 7'x7' CONCRETE EQUIPMENT PAD

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 (2015 IBC)
2. TIA-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
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SP-2	SPRINT SPECIFICATIONS	0
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A-2	TOWER ELEVATION	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	EQUIPMENT & MOUNTING DETAILS	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	EQUIPMENT DETAILS	0
A-7	CIVIL DETAILS	0
A-8	PLUMBING DIAGRAM	0
E-1	ONE LINE & NOTES	0
E-2	ELECTRICAL & GROUNDING DETAILS	0
E-3	ELECTRICAL & GROUNDING DETAILS	0

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:

INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:
JOHN S. STEVENS
STATE OF CONNECTICUT
24705
LICENSED PROFESSIONAL ENGINEER
03/13/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/22/19	MAP	0

SITE NAME:
STTN - SOUTHINGTON

SITE NUMBER:
CT52XC108

SITE ADDRESS:
80 SHUTTLE MEADOW ROAD
SOUTHINGTON, CT 06489

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

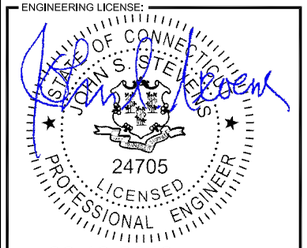
PLANS PREPARED BY:

INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:



03/13/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/22/19	MAP	0

SITE NAME:

STTN - SOUTHINGTON

SITE NUMBER:

CT52XC108

SITE ADDRESS:

80 SHUTTLE MEADOW ROAD
SOUTHINGTON, CT 06489

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

PLANS PREPARED BY:

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ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER

03/13/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/22/19	MAP	0

SITE NAME:

STTN - SOUTHINGTON

SITE NUMBER:

CT52XC108

SITE ADDRESS:

80 SHUTTLE MEADOW ROAD
SOUTHINGTON, CT 06489

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

PLANS PREPARED BY:

INFINIGY

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ENGINEERING LICENSE:

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24705
LICENSED PROFESSIONAL ENGINEER
03/13/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/22/19	MAP	0

SITE NAME:

STTN - SOUTHINGTON

SITE NUMBER:

CT52XC108

SITE ADDRESS:

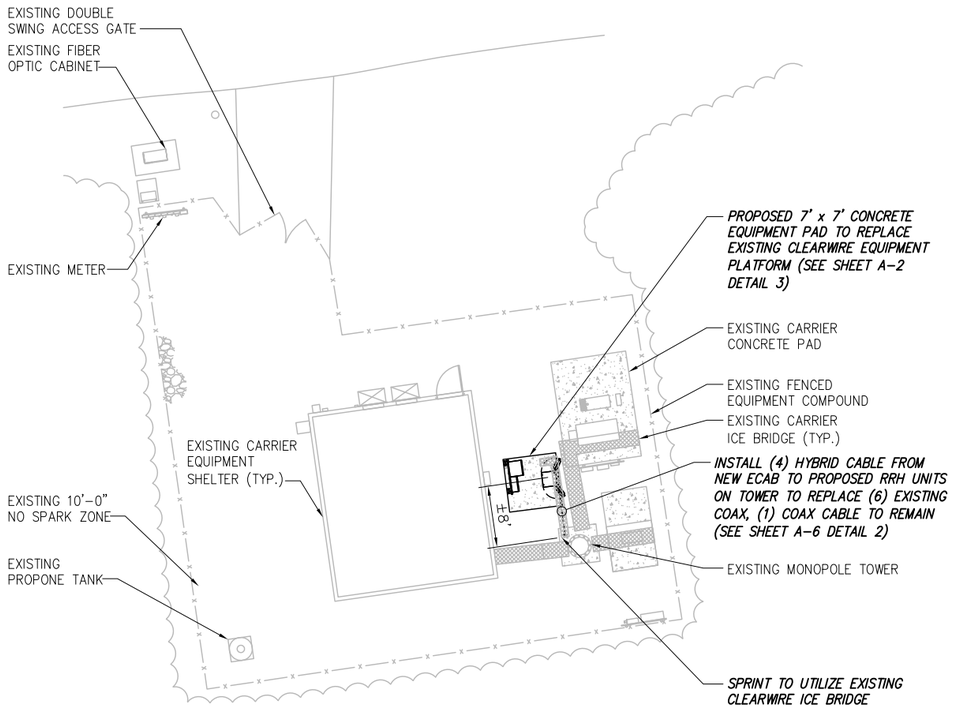
80 SHUTTLE MEADOW ROAD
SOUTHINGTON, CT 06489

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3

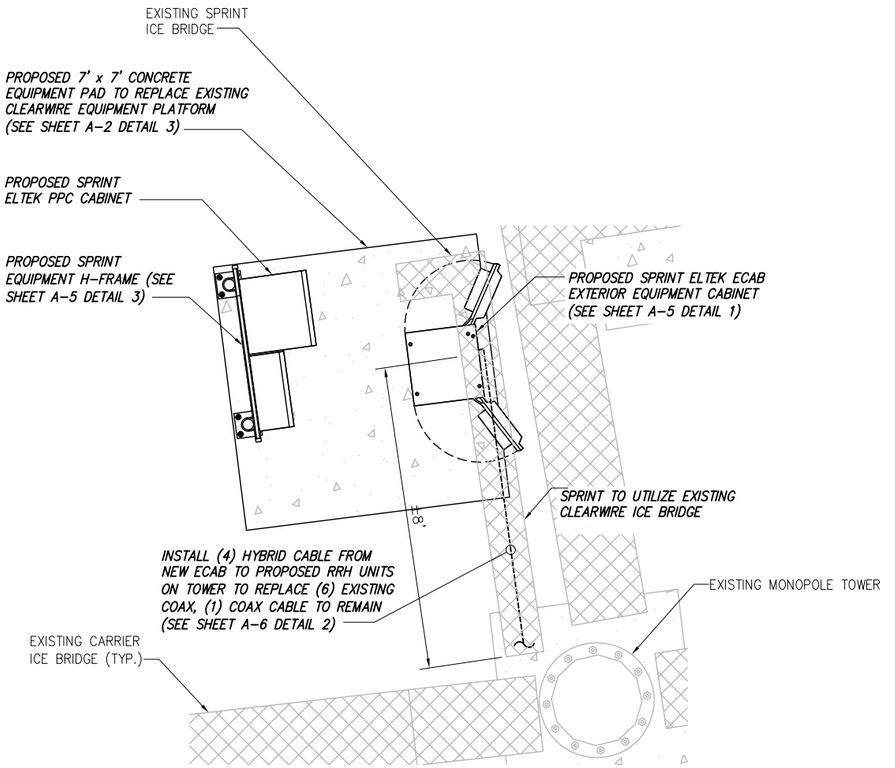


INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

N

GRAPHIC SCALE:
20' 10' 0 10' 20'
SCALE (11x17): 1" = 20'-0"
SCALE (22x34): 1" = 10'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



N

GRAPHIC SCALE:
4' 2' 0 2' 4'
SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

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ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
03/13/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/22/19	MAP	0

SITE NAME:

STTN - SOUTHINGTON

SITE NUMBER:

CT52XC108

SITE ADDRESS:

80 SHUTTLE MEADOW ROAD
SOUTHINGTON, CT 06489

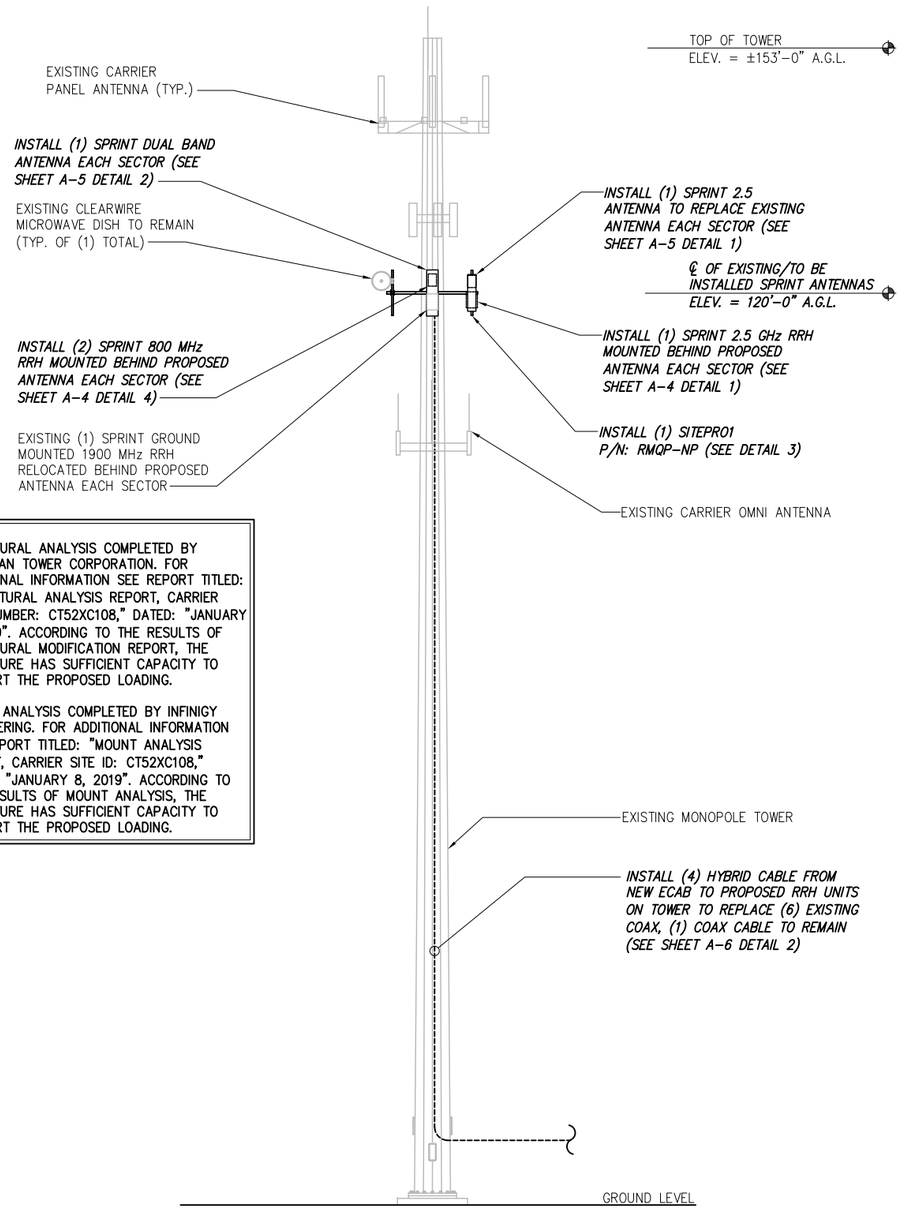
SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

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



NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT52XC108," DATED: "JANUARY 4, 2019". ACCORDING TO THE RESULTS OF STRUCTURAL MODIFICATION REPORT, THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- MOUNT ANALYSIS COMPLETED BY INFINIGY ENGINEERING. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "MOUNT ANALYSIS REPORT, CARRIER SITE ID: CT52XC108," DATED: "JANUARY 8, 2019". ACCORDING TO THE RESULTS OF MOUNT ANALYSIS, THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.

TOWER ELEVATION | NO SCALE | 1

SITE LOADING CHART

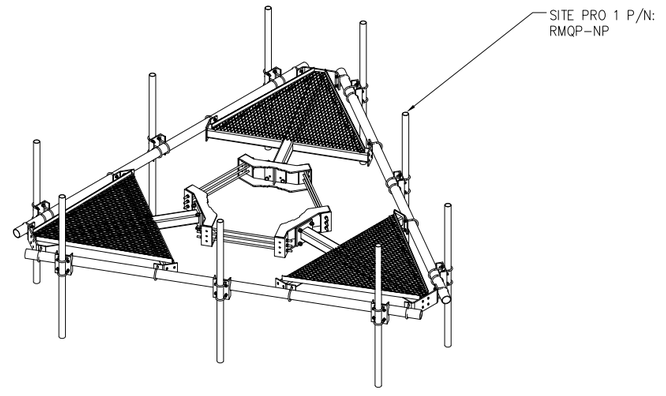
SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	APXVTM14-ALU-120	RFS	0°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1	±153'*	±120' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	0°	1	–	(1) FZHN FLEXI RRH 8TR 2600 9*20W	SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	30°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
BETA	PROPOSED	APXVTM14-ALU-120	RFS	120°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1		±120' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	120°	1	–	(1) FZHN FLEXI RRH 8TR 2600 9*20W	SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	150°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
GAMMA	PROPOSED	APXVTM14-ALU-120	RFS	240°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1		±120' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	240°	1	–	(1) FZHN FLEXI RRH 8TR 2600 9*20W	SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	270°	1	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		

PROJECT SCOPE:

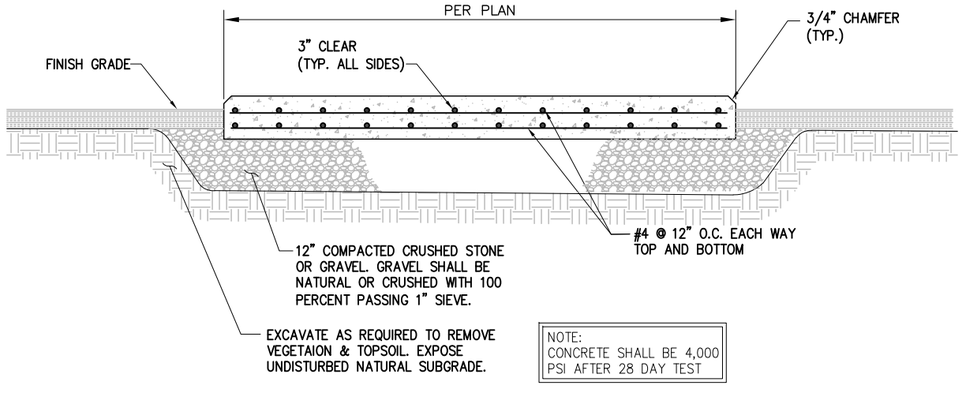
REMOVE: (3) PANEL ANTENNAS INSTALL: (6) PANEL ANTENNAS AND (9) RRH'S RELOCATE: (3) EXISTING RRH'S

* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

SITE LOADING CHART | NO SCALE | 2



ANTENNA MOUNT DETAIL | NO SCALE | 3



EQUIPMENT CABINET FOUNDATION | NO SCALE | 4

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

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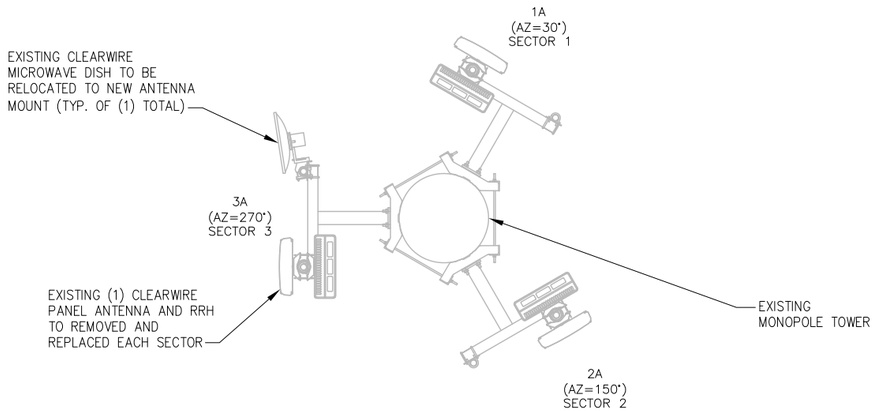
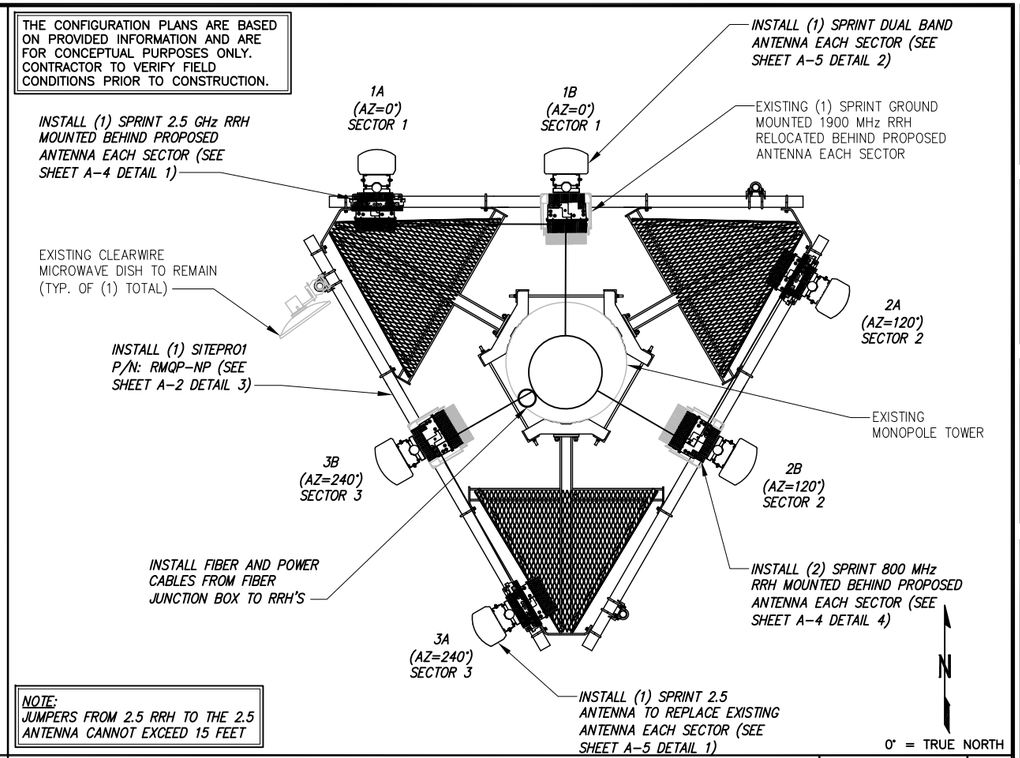
SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



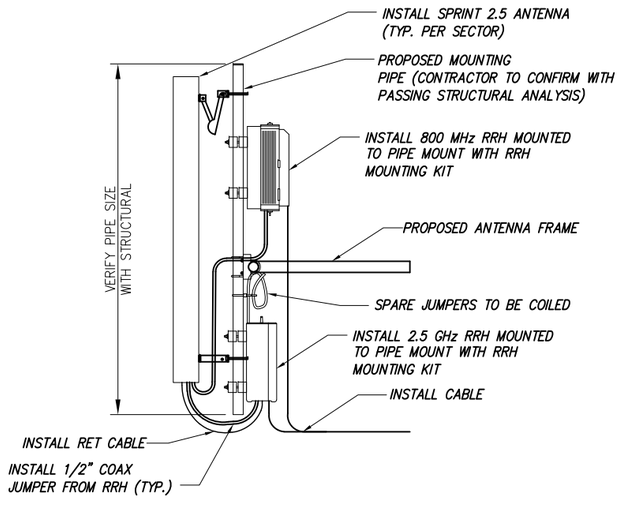
EXISTING ANTENNA LAYOUT | NO SCALE | 1

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



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

FINAL ANTENNA & RRH LAYOUT | NO SCALE | 2



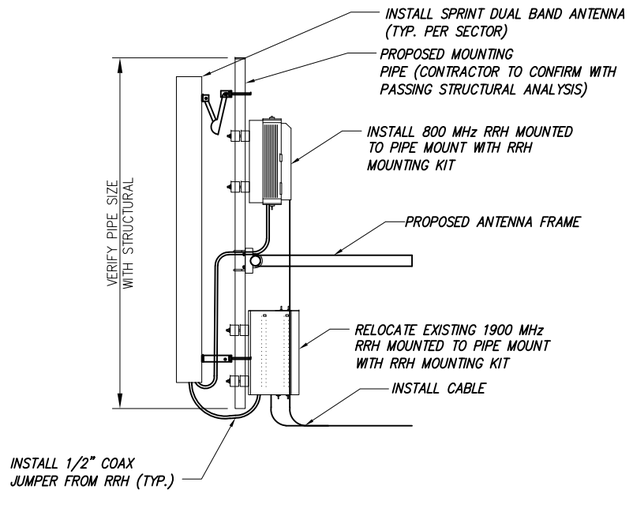
NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

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

NOTES:

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

TYPICAL 2.5 ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 3



NOTE:
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3. DO NO EXCEED BEND RADIUS.

TYPICAL DUAL BAND ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 4

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Sprint

PLANS PREPARED BY:

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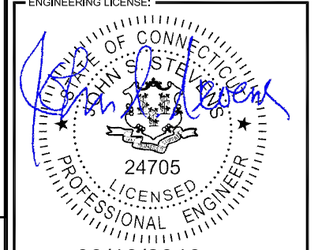
ENGINEERING LICENSE:



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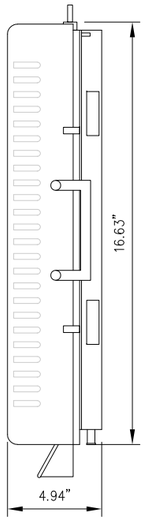
SHEET DESCRIPTION:

ANTENNA LAYOUT
& MOUNTING DETAILS

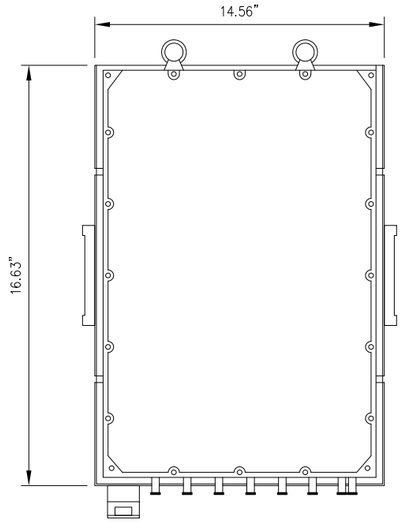
SHEET NUMBER:

A-3

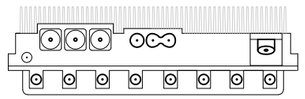
RRH: NOKIA FLEXI RRH 8TR 2600
COLOR: LIGHT GREY
WEIGHT: 44 LBS.



SIDE VIEW

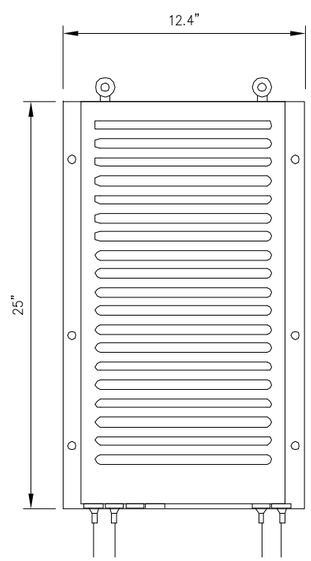


FRONT VIEW

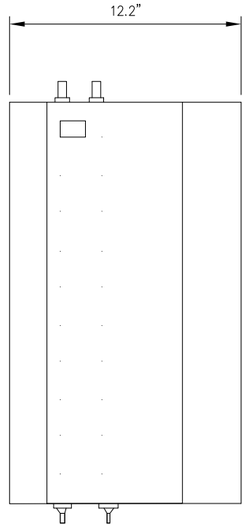


2.5 GHz RRH'S | NO SCALE | 1

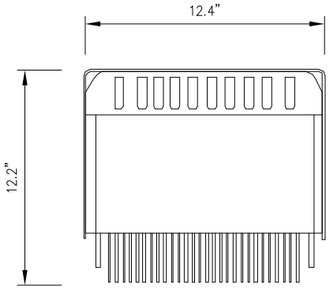
RRH: ALCATEL LUCENT 1900 MHz
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW



TOP VIEW

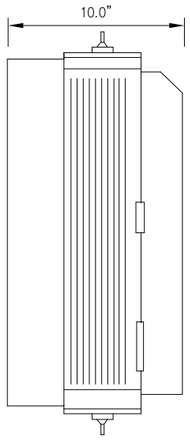
1900 MHz RRH | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

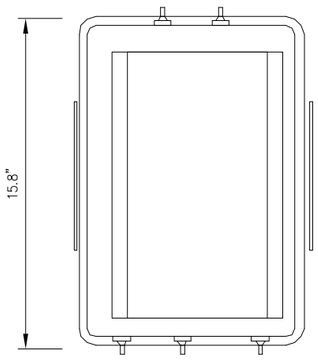
RRH: ALCATEL LUCENT RRH 800 MHz 2x50W
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

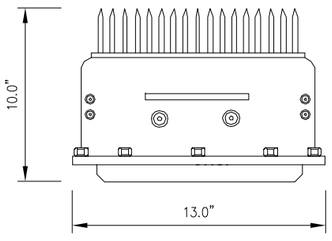
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW



PLAN VIEW

800 MHz RRH | NO SCALE | 4

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
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JOB NUMBER 526-104

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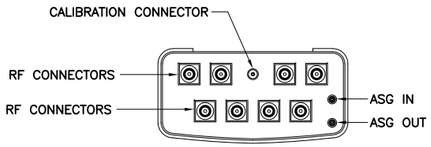
EQUIPMENT & MOUNTING DETAILS

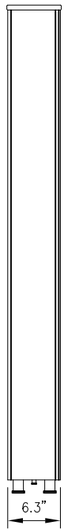
SHEET NUMBER:
A-4

ANTENNA RFS APXVTM14-ALU-I20

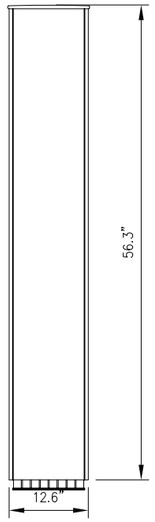
RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	56.3"x12.6"x6.3" (1549x439x300mm)
WEIGHT:	56.2 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF – CALIBRATION CONNECTOR



PLAN VIEW



SIDE VIEW

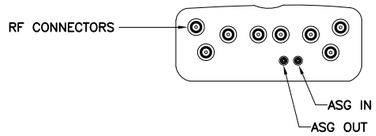


FRONT VIEW

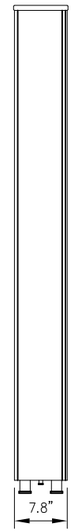
2.5 ANTENNA DETAIL	NO SCALE	1

ANTENNA COMMSCOPE NNVV-65B-R4

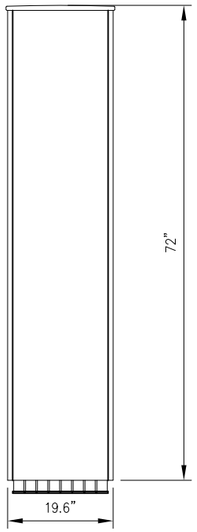
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	72"x19.6"x7.8" (1829x498x198mm)
WEIGHT:	77.4 lbs
CONNECTORS:	(8) PIN DIN FEMALE (8) 8 PIN DIN MALE



PLAN VIEW



SIDE VIEW



FRONT VIEW

DUAL BAND ANTENNA DETAIL	NO SCALE	2

DETAIL NOT USED	NO SCALE	3

DETAIL NOT USED	NO SCALE	4

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Sprint

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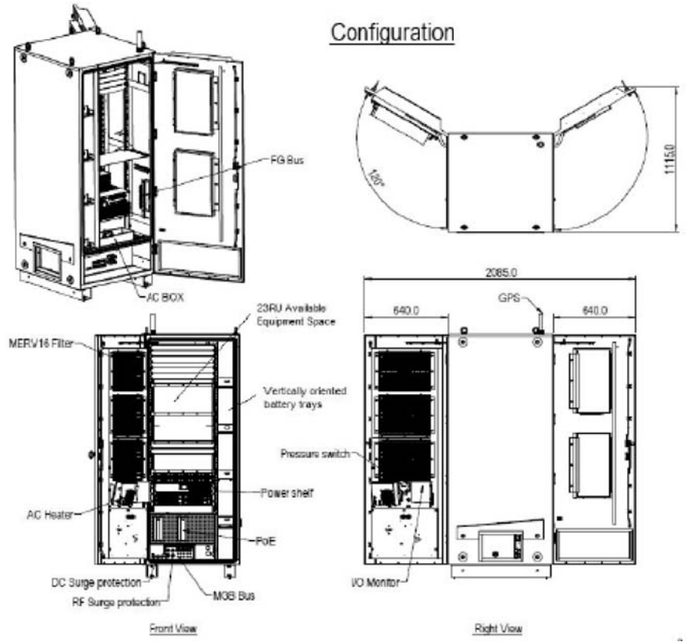
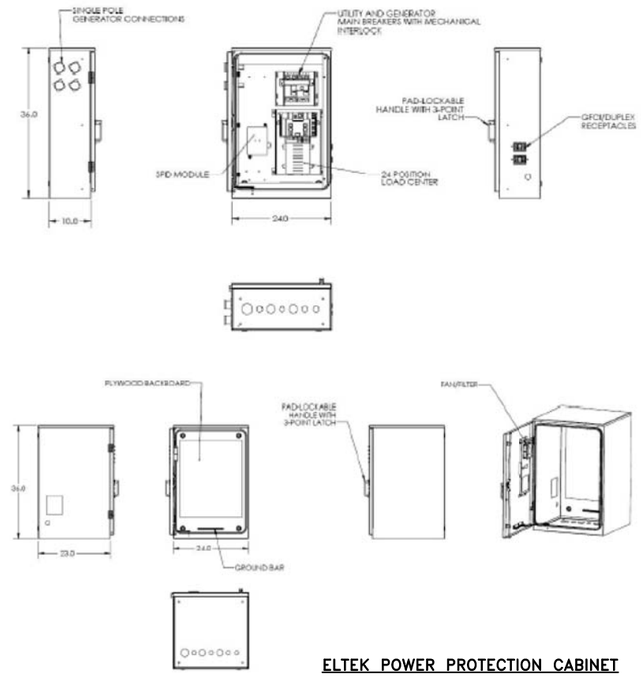
A-5



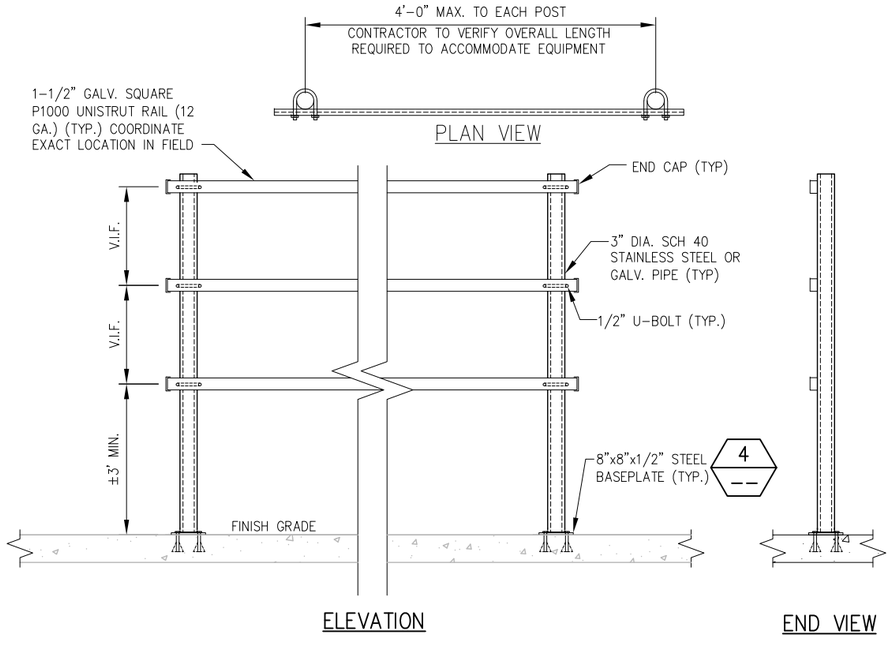
ELTEK ECAB EXTERIOR CABINET
P/N: ESOA220-SCA02

EQUIPMENT CABINET DETAIL	NO SCALE	1

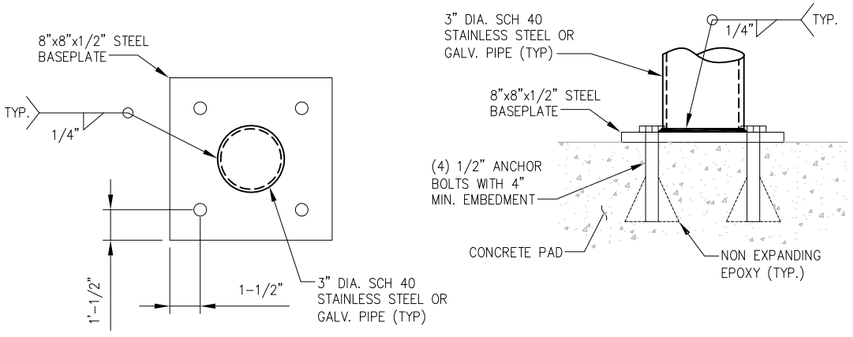


ELTEK POWER PROTECTION CABINET
P/N: 5811122212

EQUIPMENT CABINET DETAIL	NO SCALE	2



H-FRAME DETAIL	NO SCALE	3



SUPPORT POST MOUNTING DETAIL	NO SCALE	4

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A-6

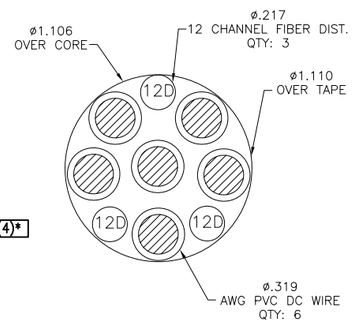
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

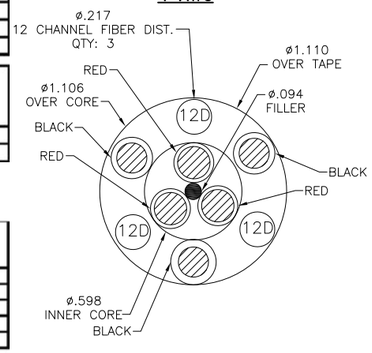
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

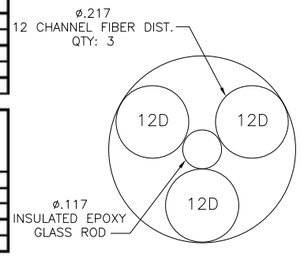
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG



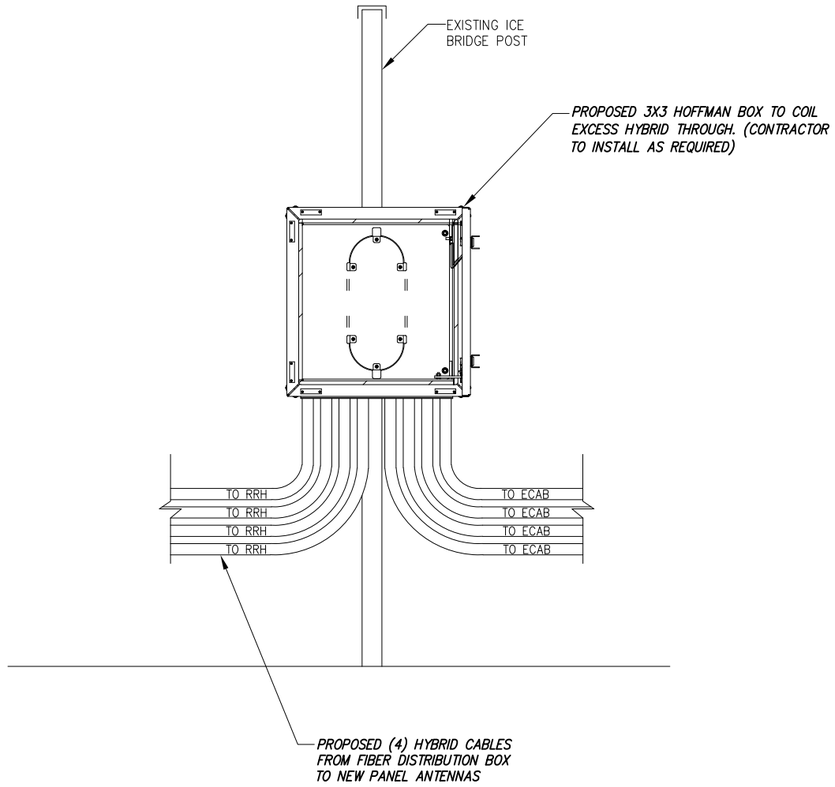
8 & 6 AWG



FIBER ONLY

* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

800/1900/2500 CABLE CROSS SECTION DATA | NO SCALE | 1



OPTIONAL HYBIRD SLACK BOX | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
03/13/2019

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/22/19	MAP	0

SITE NAME:
STTN - SOUTHINGTON

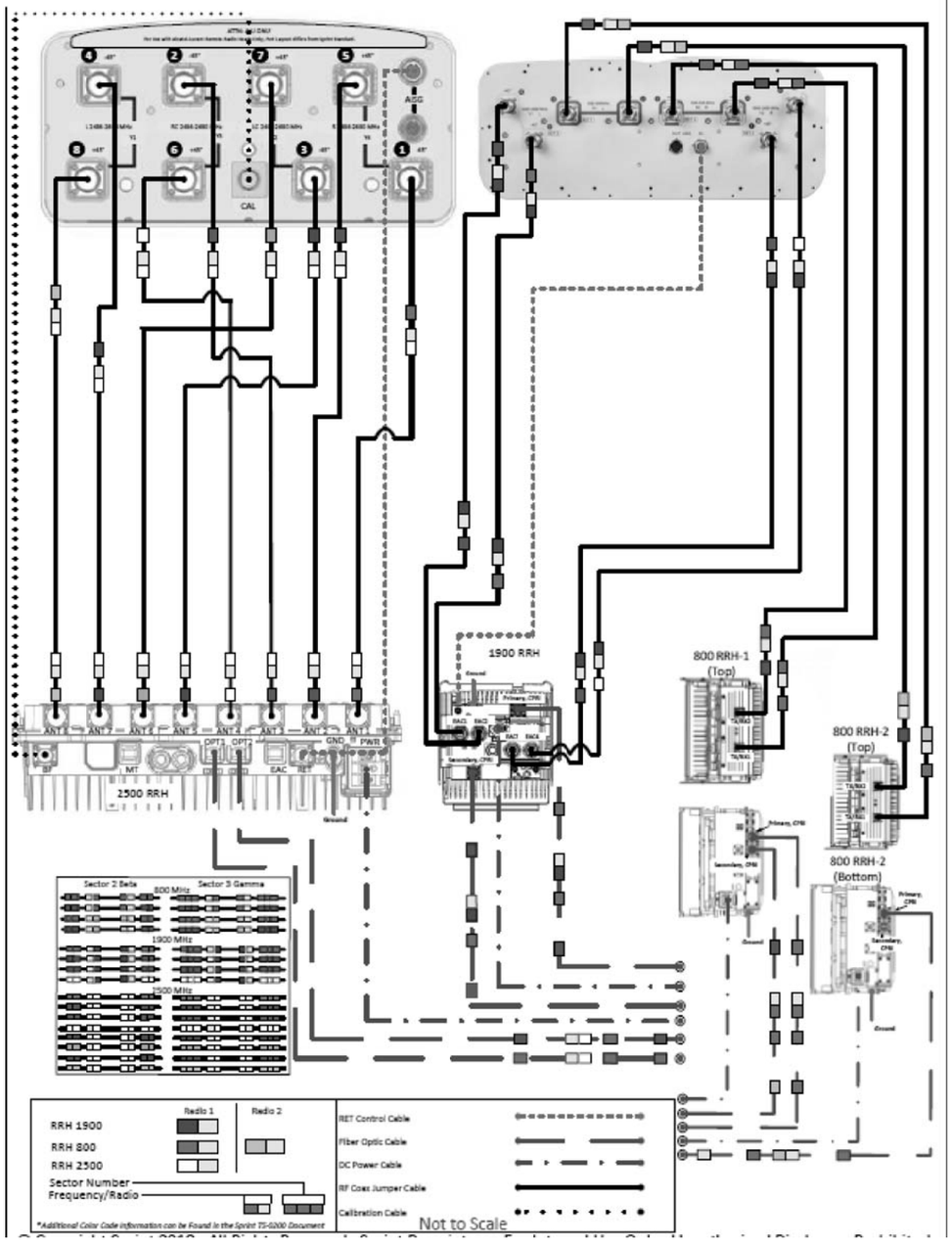
SITE NUMBER:
CT52XC108

SITE ADDRESS:
80 SHUTTLE MEADOW ROAD
SOUTHINGTON, CT 06489

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-7

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



PLUMBING DIAGRAM | NO SCALE | 1

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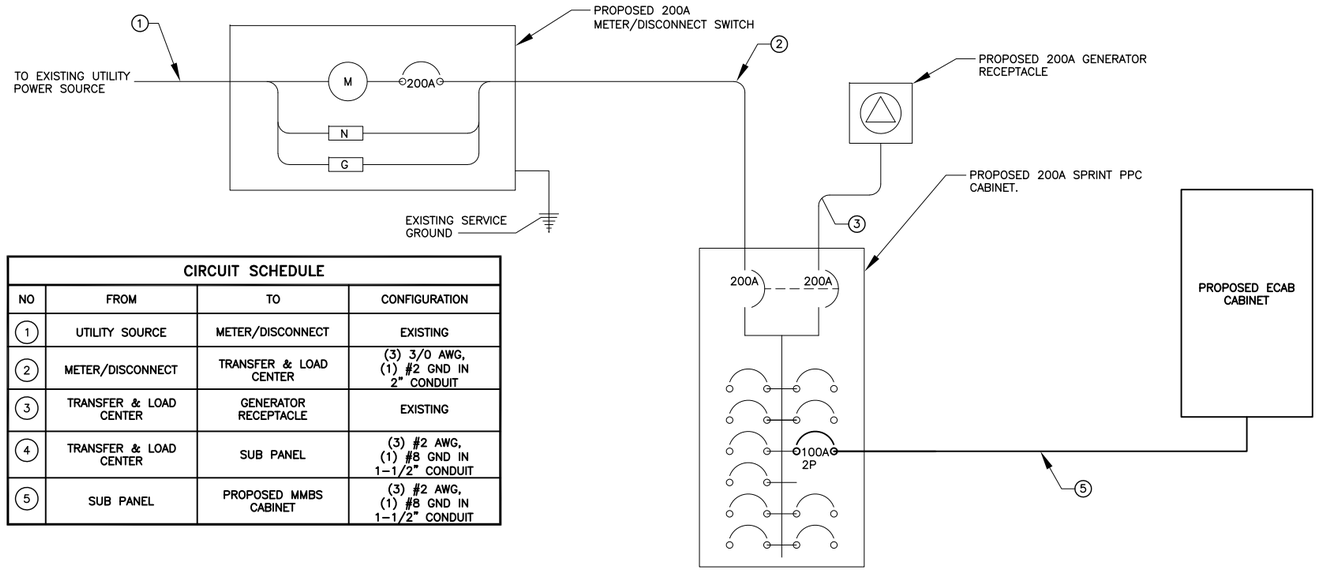
SOUTHINGTON, CT 06489

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-8



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	(3) 3/0 AWG, (1) #2 GND IN 2" CONDUIT
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	SUB PANEL	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT
5	SUB PANEL	PROPOSED MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT

ONE LINE DIAGRAM | NO SCALE | 1

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED. CONDUITS EXPOSED ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL. ALL UNDERGROUND CONDUIT SHALL TRANSITION FROM PVC TO RIGID ABOVE GRADE. PROVIDE 36" SEPARATION BETWEEN UNDERGROUND POWER AND TELEPHONE CONDUITS. SUPPLY UTILITY MARKING TAPE BURIED 12" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
3. ALL CONDUCTORS SHALL BE COPPER WITH THHN/THWN INSULATION. CONTROL CONDUCTORS SHALL BE STRANDED, POWER & LIGHTING CONDUCTORS SHALL BE SOLID FOR #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL DRAWINGS ARE IN PART DIAGRAMMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONFLICTS ARISE, CONTACT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
6. ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF CAPS NOT DUCT TAPE.
7. PROVIDE 200 LB TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
8. PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC UTILITY REQUIREMENTS.

ELECTRICAL NOTES | NO SCALE | 2

GENERAL GROUNDING NOTES:

1. TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:
   – #2/0 BARE TINNED SOLID COPPER CONDUCTOR: CADWELD TO RODS OR GROUND RING
   – LUGS AND BUS BAR (UNLESS NOTED OTHERWISE): SANDED CLEAN, COATED WITH OXIDE INHIBITOR AND BOLTED FOR MAXIMUM SURFACE CONTACT. ALL LUGS SHALL BE COPPER (NO ALUMINUM SHALL BE PERMITTED). PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
2. ALL GROUNDING CABLE IN CONCRETE OR THROUGH WALLS SHALL BE IN 3/4" PVC CONDUIT. SEAL AROUND CONDUIT THROUGH WALLS. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS.
3. OWNER'S REPRESENTATIVE WILL INSPECT CADWELDS AND CONDUCT MEGGER TEST PRIOR TO BURIAL. MAXIMUM 5 OHMS RESISTANCE IS REQUIRED.
4. DO NOT INSTALL GROUND RING OUTSIDE OF LEASED AREA.
5. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS SHALL BE A MINIMUM 8" RADIUS AND NO GREATER THAN 90 DEGREES.
6. ALL CADWELDS TO BURIED GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE TEE TYPE.
7. BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS. DO NOT EXOTHERMICALLY WELD TO CONDUITS.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
9. THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'–0" (MAX. 15'–0").
10. BOND CIGBE TO EXTERNAL GROUND RING WITH 2 RUNS OF #2 BARE, TINNED, SOLID COPPER CONDUCTOR IN PVC. CONNECT BAR END WITH 2 HOLE LUG, AND "CADWELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
11. THE PREFERRED LOCATION FOR COAX GROUNDING IS AT THE BASE OF THE TOWER PRIOR TO THE COAX BEND. BONDING IS SHOWN ON THE ICE BRIDGE DUE TO DIFFICULTY WITH WELDING OR ATTACHING TO TOWER LEGS. CONTRACTOR SHALL ADVISE CONSTRUCTION MANAGER PRIOR TO PLACING CIGBE ON ICE BRIDGE IF MOUNTING TO TOWER LEG IS POSSIBLE.
12. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250–30.

GROUNDING NOTES | NO SCALE | 3

PLANS PREPARED FOR:
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ENGINEERING LICENSE:
STATE OF CONNECTICUT JOHN S. STEVENS 24705 LICENSED PROFESSIONAL ENGINEER
03/13/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/22/19	MAP	0

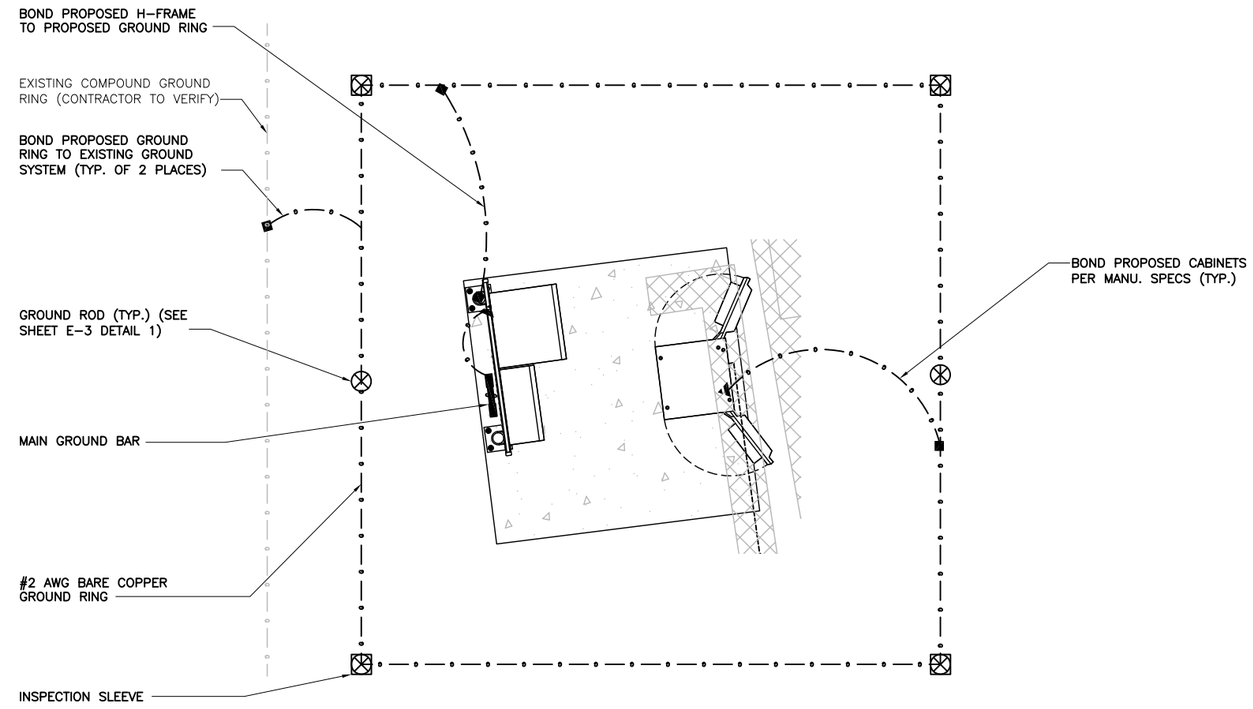
SITE NAME:
STTN - SOUTHINGTON

SITE NUMBER:
CT52XC108

SITE ADDRESS:
80 SHUTTLE MEADOW ROAD
SOUTHINGTON, CT 06489

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1



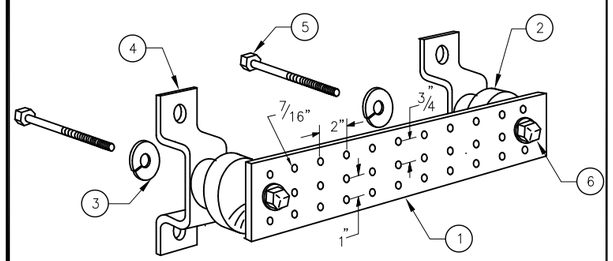
LEGEND:

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

GROUNDING PLAN

NO SCALE | 1

NOTE:
1. COPPER GROUND BAR 1/4"x4"x24" 2-HOLE CONTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. SIMILAR INSTALLATION FOR TOP AND BOTTOM TOWER GROUND BARS AND FOR COAX ENTRY PORT GROUND BARS.

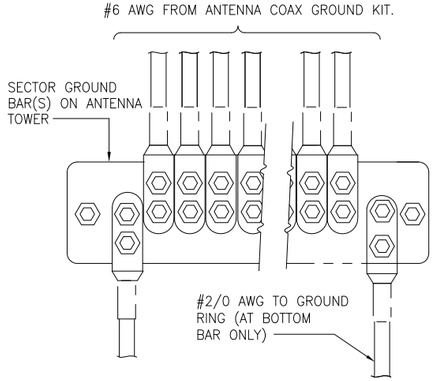


LEGEND

1 – TINNED COPPER GROUND BAR, 1/4"x 4"x 24"
2 – INSULATORS (NO INSULATORS ON TOWER)
3 – 5/8" LOCK WASHERS
4 – MOUNTING BRACKET (MOUNT HORIZONTAL ON VERTICAL CABLE LADDER)
5 – 5/8-11 X 1" H.H.C.S.BOLTS
6 – "LOCTITE" THREAD LOCK (RED) ON ALL REMOVABLE BOLTS

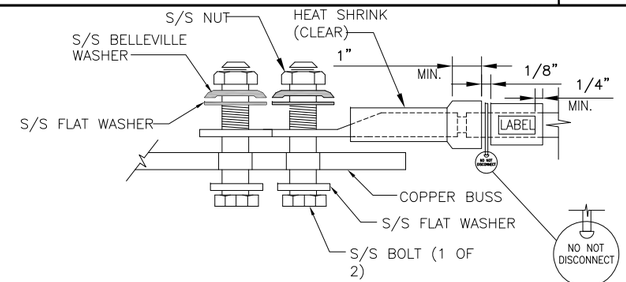
TINNED GROUND BAR DETAIL

NO SCALE | 2



ANTENNA GROUND WIRE INSTALLATION

NO SCALE | 3

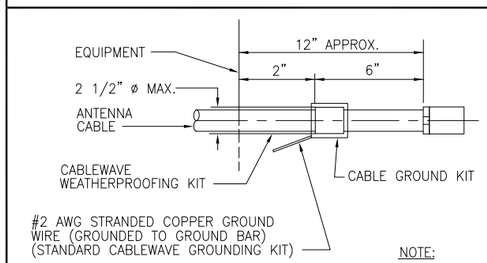


NOTE:
ALL MECHANICAL EXTERNAL TERMINATION SURFACES SHALL BE TREATED WITH T&B KOPR-SHIELD CP8 ANTI-OXIDATION COMPOUND.

"DO NOT DISCONNECT" TAG ON ALL GROUND BAR INTERCONNECTS

EQUIPMENT GROUND CONNECTION

NO SCALE | 4



NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

CABLE GROUND KIT CONNECTION

NO SCALE | 5

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LICENSED PROFESSIONAL ENGINEER
03/13/2019

DRAWING NOTICE:

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SITE NUMBER:
CT52XC108

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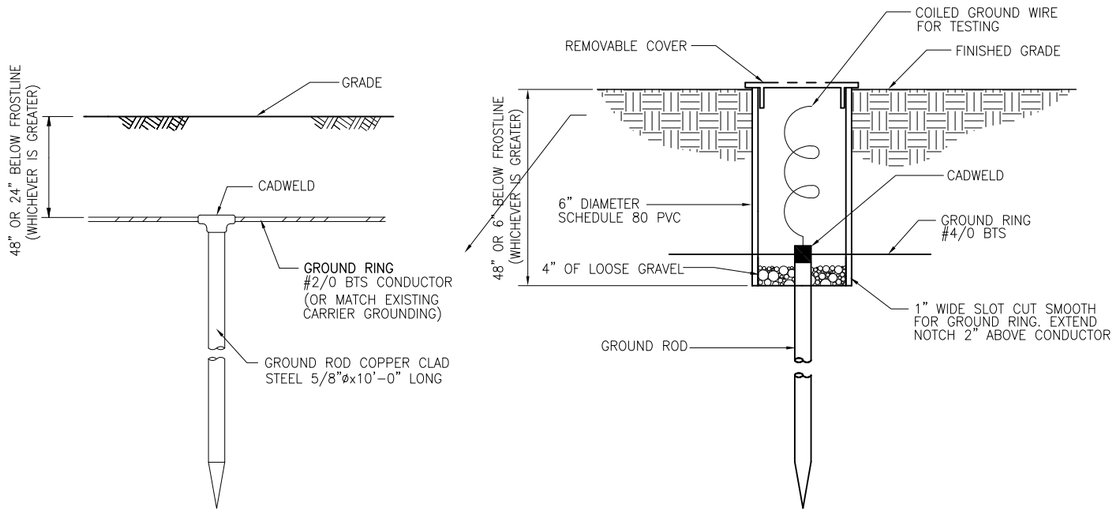
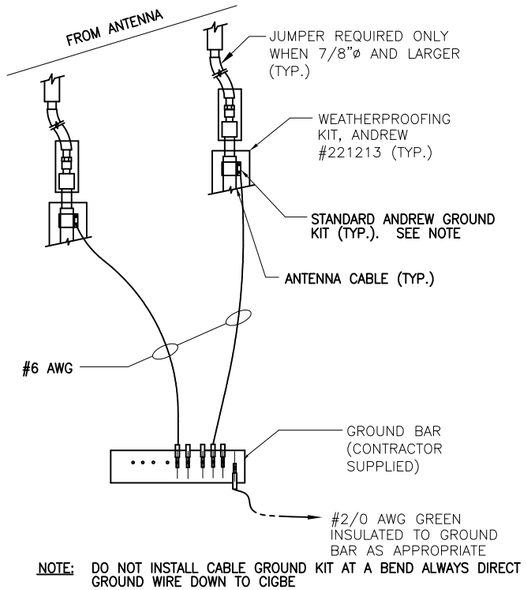
SOUTHINGTON, CT 06489

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-2



GROUND ROD & INSPECTION SLEEVE DETAIL | NO SCALE | 1

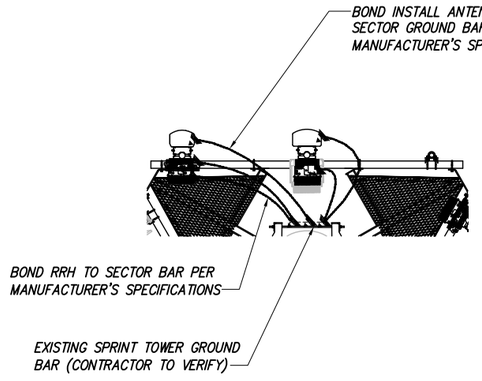


NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

CONNECTION OF GROUND WIRES TO GROUND BARS @ ANTENNAS | NO SCALE | 2

LEGEND:

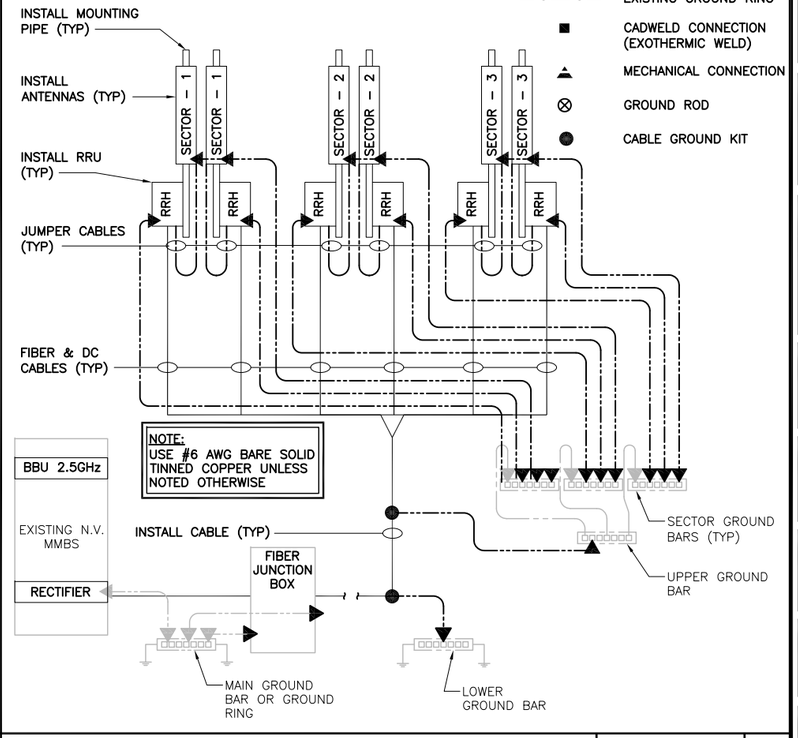
- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 3

LEGEND:

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



GROUNDING RISER DIAGRAM | NO SCALE | 4

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03/13/2019

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80 SHUTTLE MEADOW ROAD
SOUTHINGTON, CT 06489

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

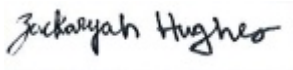
E-3

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Sttn - Southington, CT**
ATC Site Number	:	**302475**
Engineering Number	:	**OAA713367_C3_07**
Proposed Carrier	:	**Clearwire Corporation**
Carrier Site Name	:	**Sttn - Southington**
Carrier Site Number	:	**CT52XC108**
Site Location	:	**80 Shuttle Meadow Road** **Southington, CT 06489-1313** **41.638600,-72.841100**
County	:	**Hartford**
Date	:	**January 4, 2019**
Max Usage	:	**100%**
Result	:	**Pass**

Prepared By:
Zackaryah Hughes
Structural Engineer I



Reviewed By:

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by Clearwire Corporation.

Supporting Documents

Tower Drawings	SpectraSite Mapping Site #CT-0011, dated May 29, 2002 AT&T Technologies Project #AT-8935, dated April 13, 1984
Foundation Drawing	Girard & Co. Engineers Project #38922, dated May 18, 1983
Geotechnical Report	GeoTechnologies Project #1-02-0934-EA, dated July 12, 2002
Modifications	ATC Job #40480332, dated May 25, 2007 ATC Job #42608538, dated April 22, 2009

Analysis

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

Basic Wind Speed:	97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	153.0	6	CCI TPX-070821	Platform w/ Handrails	(3) 1 5/8" Coax (12) 7/8" Coax (6) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk (1) 3" conduit	AT&T Mobility
		2	Raycap DC6-48-60-18-8F (23.5" Height)			
		6	CCI DTMABP7819VG12A (w/ Bracket)			
		3	Ericsson RRUS-11 (50 lbs.)			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS-32 (77 lbs)			
		3	Powerwave 7770.00			
		2	KMW AM-X-CD-16-65-00T-RET			
		3	Quintel QS66512-3 (112 lbs.)			
		1	Andrew SBNH-1D6565C (60.8 lbs)			
	154.0	1	10' Omni			Other
134.0	134.0	3	Kathrein Smart Bias Tee	Site-Pro UWS6-NPs	(12) 1 5/8" Coax	Metro PCS
		3	RFS APXV18-206517S-C			
		3	Andrew LNX-6515DS-VTM			
120.0	120.0	1	DragonWave Horizon Compact	Flush	(1) 1/2" Coax	Clearwire
		1	DragonWave A-ANT-11G-2.5-C			
105.0	109.0	1	dB Systems 5100A	Side Arms	(6) 7/8" Coax	M/A Com Private Radio Systems
		4	dB Systems 5100A-D			
	104.0	1	VertexRSI 101V VPD			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
120.0	120.0	3	Argus LLPX310R	-	(6) 5/16" Coax	Clearwire
		3	NextNet BTS-2500			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
120.0	120.0	1	12" x 12" Junction Box	Flush	(4) 1 1/4" Hybriflex (2) 2" conduit	Clearwire
		6	Alcatel-Lucent RRH2x50-08			
		3	Nokia FZHN Flexi RRH 8TR 2600 9*20W			
		3	Alcatel-Lucent 1900MHz 4X45 RRH			
		3	RFS APXVTM14-ALU-I20			
		3	Commscope NNVV-65B-R4			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax outside the pole shaft. Stacking coax is not allowed.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	73%	Pass
Shaft	100%	Pass
Base Plate	53%	Pass
Flanges	78%	Pass
Reinforcement	73%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,279.2	84%
Axial (Kips)	35.1	49%
Shear (Kips)	24.0	33%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
120.0	12" x 12" Junction Box	Clearwire Corporation	1.689	1.908
	Alcatel-Lucent RRH2x50-08			
	Nokia FZHN Flexi RRH 8TR 2600 9*20W			
	Alcatel-Lucent 1900 MHz 4X45 RRH			
	RFS APXVTM14-ALU-I20			
	DragonWave A-ANT-11G-2.5-C			
	Commscope NNVV-65B-R4			

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

Standard Conditions

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

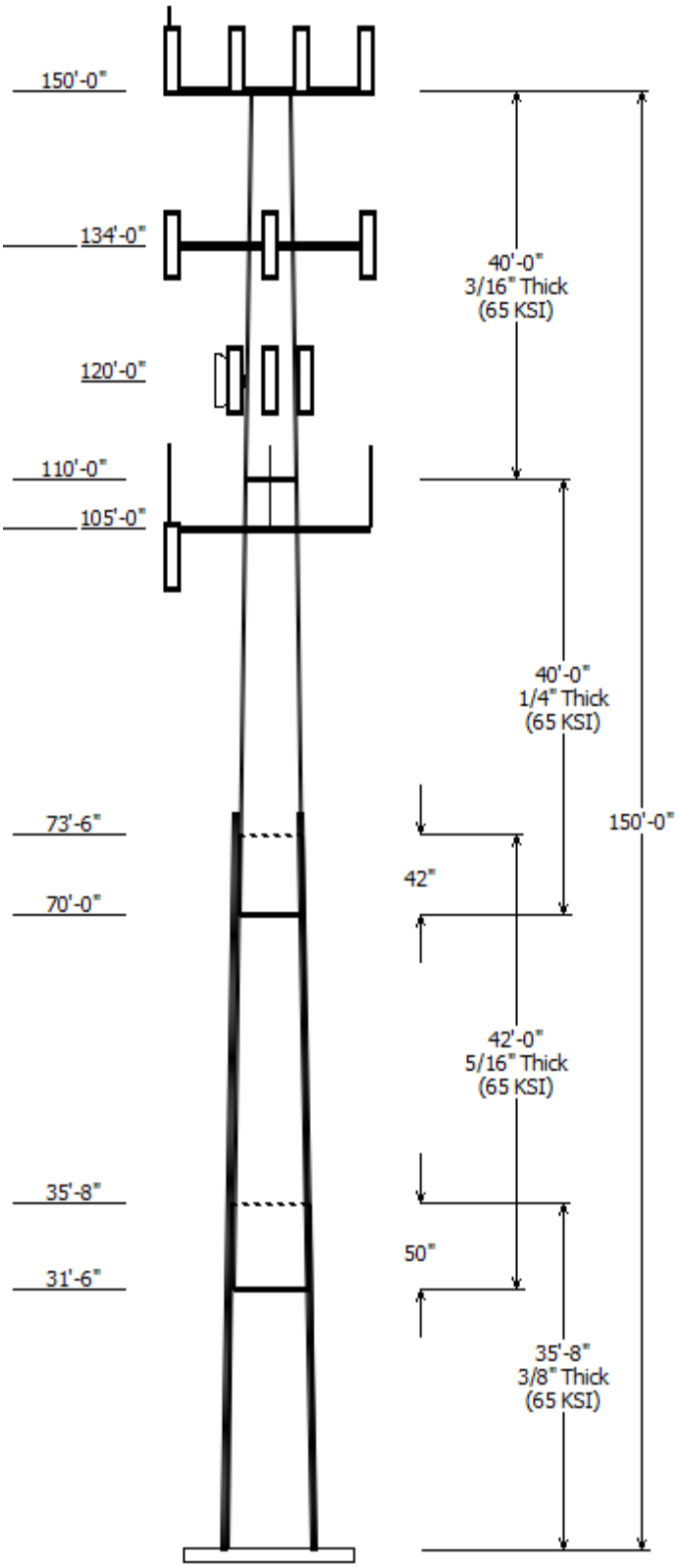
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

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

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

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



Job Information

Pole :	302475	Code:	ANSI/TIA-222-G
Location :	Sttn - Southington, CT		
Description :	150' ITT Meyer Type "B" Monopole		
Client :	CLEARWIRE CORPORATION	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.160833 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.667	31.26	37.00	0.375		0.000	12 Sides	65
2	42.000	25.80	32.55	0.313	Slip Joint	50.000	12 Sides	65
3	40.000	20.43	26.86	0.250	Slip Joint	42.000	12 Sides	65
4	40.000	14.00	20.43	0.188	Butt Joint	0.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	150.000	1	Round Platform w/ Handrails
150.000	153.000	1	Andrew SBNH-1D6565C (60.8
150.000	153.000	3	Quintel QS66512-3 (112 lbs.)
150.000	153.000	2	KMW AM-X-CD-16-65-00T-RET
150.000	153.000	3	Powerwave Allgon 7770.00
150.000	153.000	3	Ericsson RRUS-32 (77 lbs)
150.000	154.000	1	10' Omni
150.000	153.000	3	Ericsson RRUS 32 B2
150.000	153.000	3	Ericsson RRUS-11 (50 lbs.)
150.000	153.000	6	CCI DTMABP7819VG12A (w/
150.000	153.000	2	Raycap DC6-48-60-18-8F (23.5"
150.000	153.000	6	CCI TPX-070821
134.000	134.000	3	Andrew LNX-6515DS-VTM
134.000	134.000	3	RFS APXV18-206517S-C
134.000	134.000	3	Site-Pro UWS6-NP
134.000	134.000	3	Kathrein Smart Bias Tee
120.000	120.000	3	Nokia FZHN Flexi RRH 8TR 2600
120.000	120.000	1	DragonWave A-ANT-11G-2.5-C
120.000	120.000	3	Commscope NNVV-65B-R4
120.000	120.000	3	RFS APXVTM14-ALU-I20
120.000	120.000	3	Alcatel-Lucent 1900 MHz 4X45
120.000	120.000	6	Alcatel-Lucent RRH2x50-08
120.000	120.000	1	DragonWave Horizon Compact
120.000	120.000	1	12" x 12" Junction Box
105.000	105.000	3	Round Side Arm
105.000	109.000	4	dB Systems 5100A-D
105.000	104.000	1	VertexRSI 101V VPD
105.000	109.000	1	dB Systems 5100A

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	82.500	#20 Dywidag Bars	Yes
0.000	105.0	7/8" Coax	Yes
0.000	120.0	1 1/4" Hybriflex	Yes
0.000	120.0	1/2" Coax	Yes
0.000	120.0	2" conduit	Yes
0.000	134.0	1 5/8" Coax	Yes
0.000	134.0	1 5/8" Coax	Yes
0.000	150.0	0.39" (10mm)	No

0.000	150.0	0.78" (19.7mm) 8	No
0.000	150.0	0.78" (19.7mm) 8	No
0.000	150.0	1 5/8" Coax	No
0.000	150.0	3" conduit	No
0.000	150.0	7/8" Coax	No

Load Cases

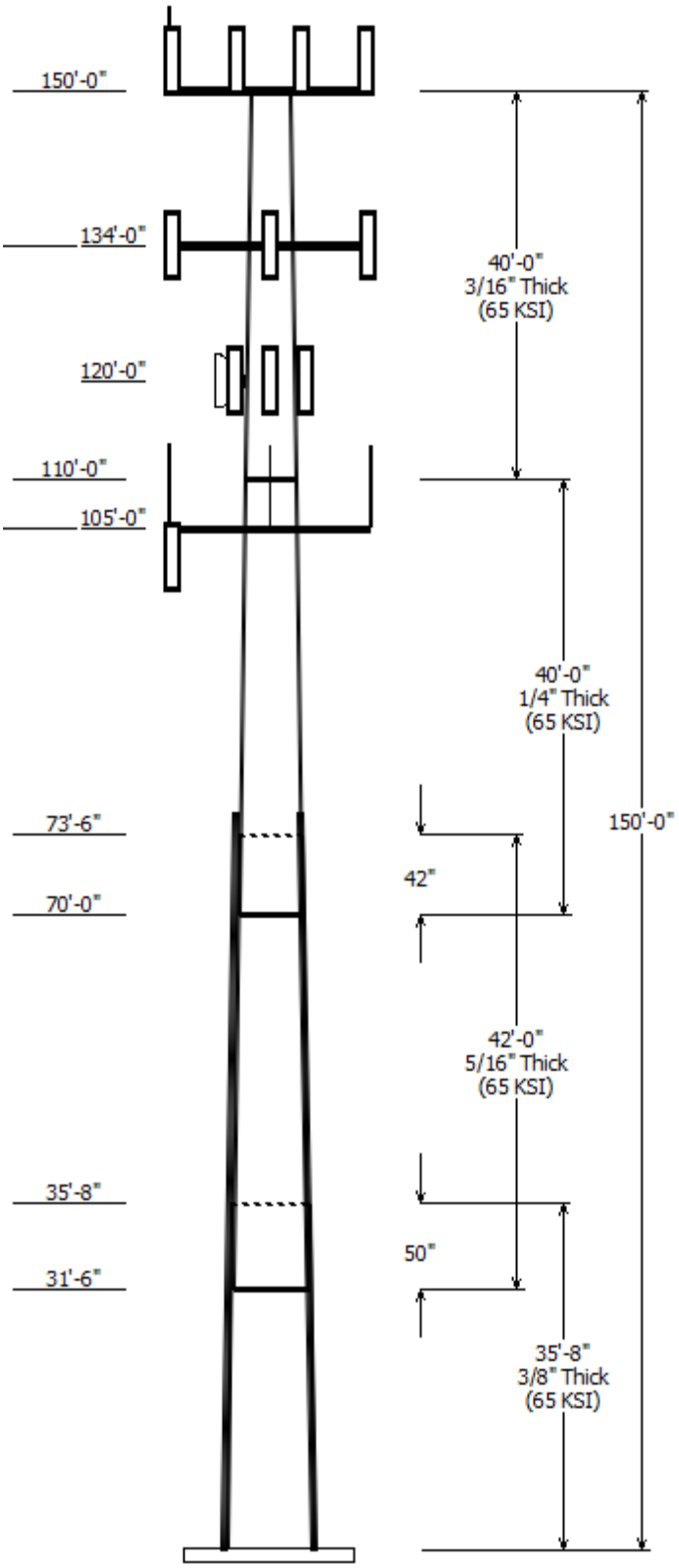
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

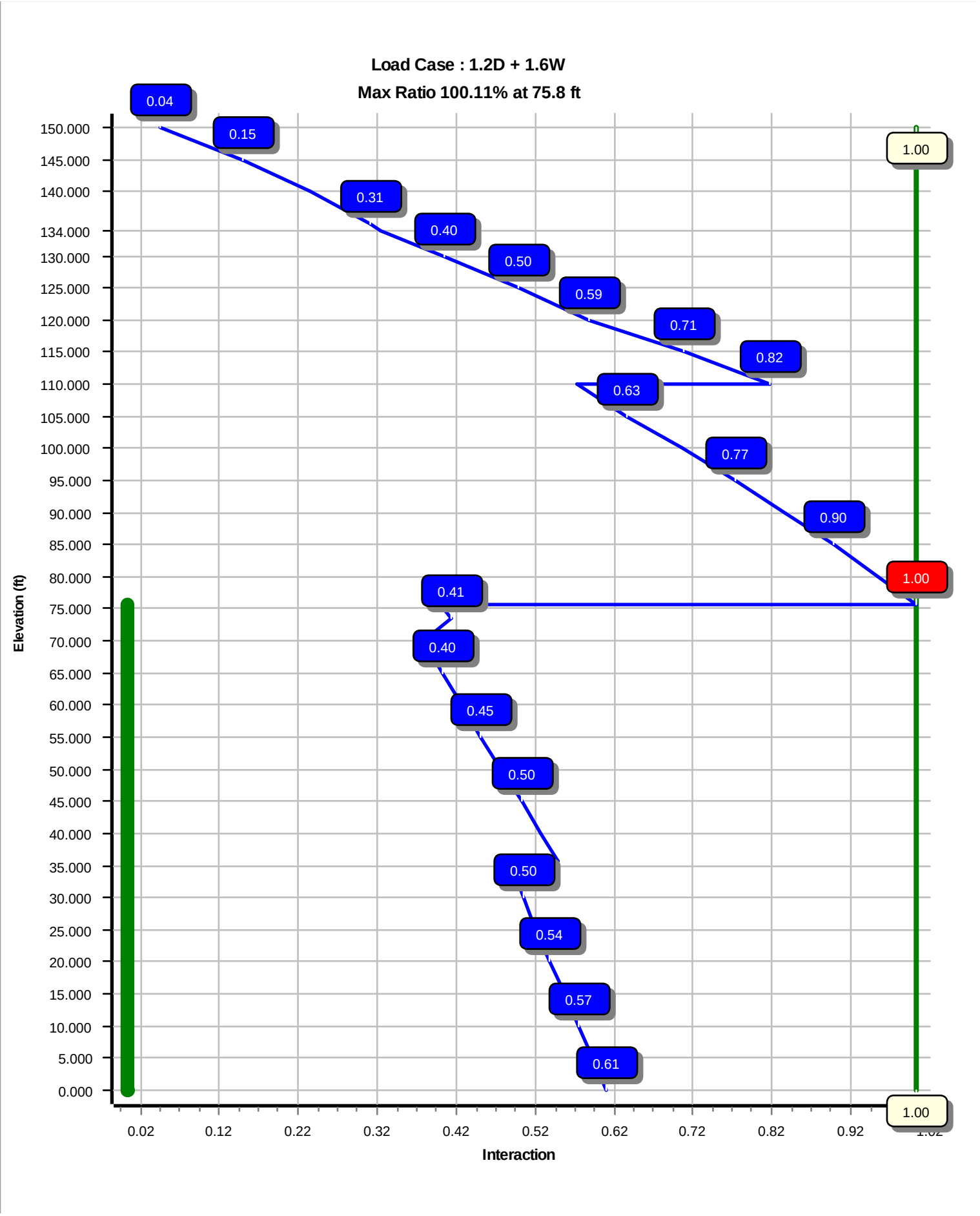
Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2279.16	23.98	35.08
0.9D + 1.6W	2245.15	23.96	26.30
1.2D + 1.0Di + 1.0Wi	650.15	5.96	73.90
(1.2 + 0.2Sds) * DL + E ELFM	110.91	0.88	34.70
(1.2 + 0.2Sds) * DL + E EMAM	176.62	1.48	34.70
(0.9 - 0.2Sds) * DL + E ELFM	108.65	0.88	24.10
(0.9 - 0.2Sds) * DL + E EMAM	172.62	1.48	24.10
1.0D + 1.0W	543.16	5.75	29.28

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	120.00	20.272	1.908




Load Case : 1.2D + 1.6W
Max Ratio 100.11% at 75.8 ft
0.04
0.15
0.31
0.40
0.50
0.59
0.71
0.82
0.63
0.77
0.90
1.00
0.41
0.40
0.45
0.50
0.50
0.54
0.57
0.61
1.00
1.00
150.000
145.000
140.000
134.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	302475	Code: ANSI/TIA-222-G	
Site Name:	Sttn - Southington, CT	Engineering Number:OAA713367_C3_07	1/4/2019 4:03:07 PM
Customer:	CLEARWIRE		

Analysis Parameters

Location :	HARTFORD County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	37.00
Shape :	12 Sides	Top Diameter (in) :	14.00
Pole Type :	Taper	Taper (in/ft) :	0.161
Pole Manfacturer :	ITT Meyer	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.80				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.184	S_1:	0.064	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.196	S_{d1}:	0.102		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	35.667	0.3750	65		0.00	4,947	37.00	0.00	44.22	7571.9	23.76	98.67	31.26	35.67	37.30	4542.2	19.66	83.37	0.160833
2-12	42.000	0.3125	65	Slip	50.00	4,152	32.55	31.50	32.45	4306.6	25.24	104.19	25.80	73.50	25.65	2127.5	19.45	82.57	0.160833
3-12	40.000	0.2500	65	Slip	42.00	2,564	26.86	70.00	21.43	1937.5	26.12	107.47	20.43	110.00	16.25	844.8	19.22	81.73	0.160833
4-12	40.000	0.1875	65	Butt	0.00	1,399	20.43	110.00	12.22	639.5	26.52	108.98	14.00	150.00	8.34	203.1	17.33	74.67	0.160833
				Shaft Weight		13,062													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
150.00	10' Omni	1	0.000	4.000	25.00	3.000	1.00
150.00	Andrew SBNH-1D6565C (60.8 lbs)	1	0.000	3.000	60.80	11.450	0.70
150.00	CCI DTMABP7819VG12A (w/	6	0.000	3.000	19.20	1.370	0.50
150.00	CCI TPX-070821	6	0.000	3.000	7.50	0.550	0.50
150.00	Ericsson RRUS 32 B2	3	0.000	3.000	53.00	2.740	0.50
150.00	Ericsson RRUS-11 (50 lbs.)	3	0.000	3.000	50.00	2.570	0.50
150.00	Ericsson RRUS-32 (77 lbs)	3	0.000	3.000	77.00	3.310	0.50
150.00	KMW AM-X-CD-16-65-00T-RET	2	0.000	3.000	48.50	8.020	0.67
150.00	Powerwave Allgon 7770.00	3	0.000	3.000	35.00	5.510	0.65
150.00	Quintel QS66512-3 (112 lbs.)	3	0.000	3.000	112.00	8.130	0.74
150.00	Raycap DC6-48-60-18-8F (23.5"	2	0.000	3.000	20.00	1.110	0.50
150.00	Round Platform w/ Handrails	1	0.000	0.000	2000.00	17.700	1.00
134.00	Andrew LNX-6515DS-VTM	3	0.000	0.000	51.30	11.430	0.70
134.00	Kathrein Smart Bias Tee	3	0.000	0.000	3.31	0.090	0.50
134.00	RFS APXV18-206517S-C	3	0.000	0.000	26.40	5.170	0.68
134.00	Site-Pro UWS6-NP	3	0.000	0.000	92.00	1.500	0.50
120.00	12" x 12" Junction Box	1	0.000	0.000	10.00	1.200	0.50
120.00	Alcatel-Lucent 1900 MHz 4X45 R	3	0.000	0.000	60.00	2.320	0.50
120.00	Alcatel-Lucent RRH2x50-08	6	0.000	0.000	52.90	1.700	0.50
120.00	Commscope NNVV-65B-R4	3	0.000	0.000	77.40	12.270	0.64
120.00	DragonWave A-ANT-11G-2.5-C	1	0.000	0.000	47.60	8.670	1.00
120.00	DragonWave Horizon Compact	1	0.000	0.000	10.60	0.840	0.50
120.00	Nokia FZHN Flexi RRH 8TR 2600	3	0.000	0.000	44.10	2.020	0.50
120.00	RFS APXVTM14-ALU-I20	3	0.000	0.000	56.20	6.340	0.66
105.00	dB Systems 5100A	1	0.000	4.000	21.00	2.070	1.00
105.00	dB Systems 5100A-D	4	0.000	4.000	38.00	3.110	1.00
105.00	Round Side Arm	3	0.000	0.000	150.00	5.200	0.67
105.00	VertexRSI 101V VPD	1	0.000	-1.000	4.00	2.540	1.00
Totals	Num Loadings:28	76			5608.73		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	150.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	150.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	150.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	150.00	3	1 5/8" Coax	1.98	0.82	N	0.00	N	Other
0.00	150.00	1	3" conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	150.00	12	7/8" Coax	1.09	0.33	N	0.00	N	AT&T Mobility
0.00	134.00	6	1 5/8" Coax	1.98	0.82	N	3.96	Y	Metro PCS

0.00	134.00	6	1 5/8" Coax	1.98	0.82	N	0.00	Y	Metro PCS
0.00	120.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	Y	Clearwire Corporation
0.00	120.00	1	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire Corporation
0.00	120.00	2	2" conduit	2.38	3.65	N	2.38	Y	Clearwire Corporation
0.00	105.00	6	7/8" Coax	1.09	0.33	N	0.00	Y	ITT Corporation
0.00	82.50	4	#20 Dywidag Bars	2.72	0.00	N	1.70	Y	-

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections			Connectors	Continuation?
						Description	Spacing (in)	Len (in)		
0.00	75.75	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.000	44.225	7,571.9	23.76	98.67	78.8	395.3	0.0	0.0	19.64	4,734	0.0
5.00		0.3750	36.196	43.254	7,084.0	23.18	96.52	79.4	378.1	0.0	744.2	19.64	4,563	334.0
10.00		0.3750	35.392	42.283	6,617.6	22.61	94.38	80.1	361.2	0.0	727.7	19.64	4,394	334.0
15.00		0.3750	34.588	41.312	6,172.0	22.03	92.23	80.7	344.7	0.0	711.1	19.64	4,229	334.0
20.00		0.3750	33.783	40.341	5,747.0	21.46	90.09	81.3	328.6	0.0	694.6	19.64	4,067	334.0
25.00		0.3750	32.979	39.370	5,341.9	20.89	87.94	81.9	312.9	0.0	678.1	19.64	3,908	334.0
30.00		0.3750	32.175	38.398	4,956.3	20.31	85.80	81.9	297.6	0.0	661.6	19.64	3,752	334.0
31.50	Bot - Section 2	0.3750	31.934	38.107	4,844.3	20.14	85.16	81.9	293.1	0.0	195.2	19.64	3,706	100.2
35.00		0.3750	31.371	37.427	4,589.7	19.74	83.66	81.9	282.6	0.0	832.9	19.64	3,718	233.8
35.67	Top - Section 1	0.3125	31.889	31.773	4,043.6	24.66	102.04	77.8	245.0	0.0	157.0	19.64	3,697	44.5
40.00		0.3125	31.192	31.072	3,781.7	24.07	99.81	78.5	234.2	0.0	463.3	19.64	3,566	289.5
45.00		0.3125	30.388	30.263	3,493.9	23.38	97.24	79.2	222.1	0.0	521.8	19.64	3,417	334.0
50.00		0.3125	29.583	29.454	3,221.0	22.69	94.67	80.0	210.3	0.0	508.0	19.64	3,271	334.0
55.00		0.3125	28.779	28.645	2,962.8	22.00	92.09	80.7	198.9	0.0	494.2	19.64	3,129	334.0
60.00		0.3125	27.975	27.835	2,718.7	21.31	89.52	81.5	187.7	0.0	480.5	19.64	2,990	334.0
65.00		0.3125	27.171	27.026	2,488.5	20.62	86.95	81.9	176.9	0.0	466.7	19.64	2,854	334.0
70.00	Bot - Section 3	0.3125	26.367	26.217	2,271.6	19.93	84.37	81.9	166.4	0.0	452.9	19.64	2,721	334.0
73.50	Top - Section 2	0.2500	26.304	20.973	1,817.2	25.51	105.22	76.9	133.5	0.0	561.3	19.64	2,711	233.8
75.00		0.2500	26.063	20.779	1,767.1	25.25	104.25	77.2	131.0	0.0	106.6	19.64	2,671	100.2
75.75	Reinf. Top	0.2500	25.942	20.682	1,742.5	25.12	103.77	77.3	129.8	0.0	52.9	19.64	2,652	50.1
80.00		0.2500	25.258	20.132	1,607.1	24.39	101.03	78.1	122.9	0.0	295.1			
85.00		0.2500	24.454	19.484	1,457.0	23.53	97.82	79.1	115.1	0.0	337.0			
90.00		0.2500	23.650	18.837	1,316.5	22.67	94.60	80.0	107.5	0.0	326.0			
95.00		0.2500	22.846	18.190	1,185.4	21.81	91.38	80.9	100.2	0.0	315.0			
100.0		0.2500	22.042	17.542	1,063.3	20.94	88.17	81.9	93.2	0.0	304.0			
105.0		0.2500	21.238	16.895	949.9	20.08	84.95	81.9	86.4	0.0	293.0			
110.0	Top - Section 3	0.2500	20.433	16.248	844.8	19.22	81.73	81.9	79.9	0.0	281.9			
110.0	Bot - Section 4	0.1875	20.433	12.223	639.5	26.52	108.98	75.8	60.5	0.0				
115.0		0.1875	19.629	11.738	566.3	25.37	104.69	77.0	55.7	0.0	203.8			
120.0		0.1875	18.825	11.252	498.9	24.22	100.40	78.3	51.2	0.0	195.6			
125.0		0.1875	18.021	10.767	437.1	23.07	96.11	79.5	46.9	0.0	187.3			
130.0		0.1875	17.217	10.281	380.6	21.92	91.82	80.8	42.7	0.0	179.1			
134.0		0.1875	16.573	9.893	339.0	21.00	88.39	81.8	39.5	0.0	137.3			
135.0		0.1875	16.413	9.796	329.2	20.77	87.53	81.9	38.7	0.0	33.5			
140.0		0.1875	15.608	9.310	282.6	19.63	83.24	81.9	35.0	0.0	162.5			
145.0		0.1875	14.804	8.825	240.7	18.48	78.96	81.9	31.4	0.0	154.3			
150.0		0.1875	14.000	8.339	203.1	17.33	74.67	81.9	28.0	0.0	146.0			
											13,062.0			5,060.1

Site Number: 302475 Code: ANSI/TIA-222-G

Site Name: Sttn - Southington, CT Engineering Number:OAA713367_C3_07 1/4/2019 4:03:07 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		266.0	0.0					0.0	0.0	266.0	0.0	0.0	0.0
5.00		526.2	893.0					112.9	646.4	639.2	1,539.4	0.0	0.0
10.00		514.6	873.2					112.9	646.4	627.5	1,519.6	0.0	0.0
15.00		502.9	853.4					112.9	646.4	615.8	1,499.7	0.0	0.0
20.00		491.2	833.5					112.9	646.4	604.1	1,479.9	0.0	0.0
25.00		479.5	813.7					112.9	646.4	592.4	1,460.1	0.0	0.0
30.00		307.3	793.9					112.9	646.4	420.2	1,440.3	0.0	0.0
31.50	Bot - Section 2	239.7	234.3					34.1	193.9	273.9	428.2	0.0	0.0
35.00		201.8	999.4					81.5	452.5	283.2	1,451.9	0.0	0.0
35.67	Top - Section 1	245.0	188.4					15.8	86.2	260.8	274.5	0.0	0.0
40.00		460.0	556.0					104.6	560.2	564.6	1,116.2	0.0	0.0
45.00		496.2	626.1					124.8	646.4	621.1	1,272.5	0.0	0.0
50.00		497.9	609.6					128.9	646.4	626.8	1,256.0	0.0	0.0
55.00		497.8	593.1					132.6	646.4	630.4	1,239.5	0.0	0.0
60.00		496.0	576.6					136.1	646.4	632.1	1,222.9	0.0	0.0
65.00		493.0	560.0					139.4	646.4	632.3	1,206.4	0.0	0.0
70.00	Bot - Section 3	419.2	543.5					142.5	646.4	561.7	1,189.9	0.0	0.0
73.50	Top - Section 2	247.7	673.6					101.5	452.5	349.2	1,126.1	0.0	0.0
75.00		111.0	127.9					43.9	193.9	154.9	321.8	0.0	0.0
75.75	Reinf. Top	244.8	63.5					22.1	97.0	266.9	160.4	0.0	0.0
80.00		449.4	354.1					126.1	208.7	575.5	562.9	0.0	0.0
85.00		479.0	404.4					134.9	245.6	614.0	650.0	0.0	0.0
90.00		470.9	391.2					121.0	245.6	591.9	636.8	0.0	0.0
95.00		462.0	378.0					122.9	245.6	584.9	623.6	0.0	0.0
100.00		452.3	364.8					124.8	245.6	577.1	610.3	0.0	0.0
105.00	Appurtenance(s)	441.9	351.5	973.5	0.0	1,805.5	752.4	126.6	245.6	1,542.0	1,349.5	0.0	0.0
110.00	Top - Section 3	430.9	338.3					128.1	233.7	559.0	572.0	0.0	0.0
115.00		419.2	244.6					129.2	233.7	548.5	478.3	0.0	0.0
120.00	Appurtenance(s)	407.0	234.7	1,918.6	0.0	0.0	1,318.4	130.4	233.7	2,455.9	1,786.8	0.0	0.0
125.00		394.2	224.8					81.4	165.0	475.6	389.8	0.0	0.0
130.00		344.0	214.9					81.9	165.0	425.9	379.9	0.0	0.0
134.00	Appurtenance(s)	180.9	164.8	1,269.0	0.0	0.0	622.8	65.8	132.0	1,515.7	919.6	0.0	0.0
135.00		180.7	40.2					0.0	21.2	180.7	61.4	0.0	0.0
140.00		293.9	195.0					0.0	106.0	293.9	301.0	0.0	0.0
145.00		281.5	185.1					0.0	106.0	281.5	291.1	0.0	0.0
150.00	Appurtenance(s)	137.6	175.2	3,184.5	0.0	7,323.9	4,036.8	0.0	106.0	3,322.1	4,318.0	0.0	0.0
								Totals:		24,167.0	35,136.2	0.00	0.00

Site Number: 302475 Code: ANSI/TIA-222-G

Site Name: Sttn - Southington, CT Engineering Number:OAA713367_C3_07 1/4/2019 4:03:12 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.08	-23.98	0.00	-2,279.16	0.00	2,279.16	3,136.53	1,568.27	4,731.25	2,336.59	0.00	0.00	0.608
5.00	-33.44	-23.49	0.00	-2,159.26	0.00	2,159.26	3,092.06	1,546.03	4,560.72	2,252.37	0.14	-0.26	0.591
10.00	-31.82	-22.99	0.00	-2,041.82	0.00	2,041.82	3,046.49	1,523.25	4,391.58	2,168.84	0.54	-0.51	0.573
15.00	-30.23	-22.50	0.00	-1,926.86	0.00	1,926.86	2,999.83	1,499.91	4,223.96	2,086.05	1.22	-0.77	0.555
20.00	-28.66	-22.00	0.00	-1,814.38	0.00	1,814.38	2,952.07	1,476.04	4,057.95	2,004.07	2.16	-1.03	0.537
25.00	-27.12	-21.50	0.00	-1,704.40	0.00	1,704.40	2,901.93	1,450.96	3,891.94	1,922.08	3.37	-1.28	0.519
30.00	-25.63	-21.11	0.00	-1,596.92	0.00	1,596.92	2,830.35	1,415.18	3,701.25	1,827.91	4.85	-1.53	0.503
31.50	-25.16	-20.88	0.00	-1,565.25	0.00	1,565.25	2,808.88	1,404.44	3,644.98	1,800.12	5.35	-1.61	0.499
35.00	-23.68	-20.60	0.00	-1,492.16	0.00	1,492.16	2,758.78	1,379.39	3,515.36	1,736.10	6.59	-1.79	0.481
35.67	-23.37	-20.38	0.00	-1,478.42	0.00	1,478.42	2,225.24	1,112.62	2,894.88	1,429.67	6.85	-1.82	0.547
40.00	-22.19	-19.87	0.00	-1,390.09	0.00	1,390.09	2,194.35	1,097.17	2,791.07	1,378.40	8.60	-2.04	0.526
45.00	-20.85	-19.30	0.00	-1,290.73	0.00	1,290.73	2,157.69	1,078.84	2,672.25	1,319.72	10.87	-2.30	0.501
50.00	-19.54	-18.71	0.00	-1,194.23	0.00	1,194.23	2,119.93	1,059.96	2,554.56	1,261.60	13.42	-2.55	0.475
55.00	-18.26	-18.10	0.00	-1,100.70	0.00	1,100.70	2,081.07	1,040.54	2,438.12	1,204.10	16.23	-2.80	0.450
60.00	-16.99	-17.48	0.00	-1,010.21	0.00	1,010.21	2,041.12	1,020.56	2,323.03	1,147.26	19.30	-3.05	0.425
65.00	-15.75	-16.84	0.00	-922.83	0.00	922.83	1,992.10	996.05	2,200.59	1,086.79	22.62	-3.29	0.400
70.00	-14.54	-16.26	0.00	-838.61	0.00	838.61	1,932.46	966.23	2,070.05	1,022.32	26.19	-3.53	0.378
73.50	-13.41	-15.87	0.00	-781.69	0.00	781.69	1,451.36	725.68	1,558.37	769.62	28.84	-3.69	0.413
75.00	-13.09	-15.71	0.00	-757.88	0.00	757.88	1,443.19	721.60	1,535.11	758.14	30.01	-3.76	0.403
75.75	-12.91	-15.46	0.00	-746.10	0.00	746.10	1,439.07	719.54	1,523.51	752.40	30.60	-3.79	0.398
75.75	-12.91	-15.46	0.00	-746.10	0.00	746.10	1,439.07	719.54	1,523.51	752.40	30.60	-3.79	1.001
80.00	-12.29	-14.93	0.00	-680.42	0.00	680.42	1,415.26	707.63	1,458.06	720.08	34.06	-3.99	0.954
85.00	-11.54	-14.38	0.00	-605.78	0.00	605.78	1,386.24	693.12	1,381.78	682.41	38.54	-4.56	0.896
90.00	-10.83	-13.84	0.00	-533.88	0.00	533.88	1,356.12	678.06	1,306.38	645.17	43.61	-5.11	0.836
95.00	-10.14	-13.29	0.00	-464.68	0.00	464.68	1,324.90	662.45	1,231.99	608.43	49.25	-5.65	0.772
100.00	-9.48	-12.74	0.00	-398.21	0.00	398.21	1,293.04	646.52	1,159.10	572.44	55.44	-6.17	0.703
105.00	-8.22	-11.13	0.00	-332.69	0.00	332.69	1,245.33	622.66	1,074.67	530.74	62.16	-6.66	0.634
110.00	-7.64	-10.56	0.00	-277.06	0.00	277.06	1,197.61	598.80	993.42	490.61	69.36	-7.12	0.571
110.00	-7.64	-10.56	0.00	-277.06	0.00	277.06	833.77	416.88	695.90	343.68	69.36	-7.12	0.816
115.00	-7.15	-10.01	0.00	-224.26	0.00	224.26	813.89	406.95	652.08	322.04	77.03	-7.54	0.706
120.00	-5.66	-7.39	0.00	-174.18	0.00	174.18	792.92	396.46	608.75	300.64	85.17	-8.04	0.587
125.00	-5.29	-6.90	0.00	-137.25	0.00	137.25	770.85	385.43	566.02	279.54	93.81	-8.48	0.498
130.00	-4.94	-6.45	0.00	-102.77	0.00	102.77	747.69	373.84	524.00	258.78	102.87	-8.88	0.404
134.00	-4.26	-4.82	0.00	-76.97	0.00	76.97	728.37	364.19	490.97	242.47	110.40	-9.14	0.323
135.00	-4.21	-4.64	0.00	-72.16	0.00	72.16	722.05	361.03	481.88	237.98	112.31	-9.21	0.309
140.00	-3.95	-4.32	0.00	-48.94	0.00	48.94	686.26	343.13	435.03	214.85	122.06	-9.47	0.234
145.00	-3.69	-4.00	0.00	-27.34	0.00	27.34	650.48	325.24	390.59	192.90	132.04	-9.66	0.148
150.00	0.00	-3.32	0.00	-7.32	0.00	7.32	614.69	307.34	348.53	172.13	142.17	-9.76	0.043

Site Number: 302475 Code: ANSI/TIA-222-G

Site Name: Sttn - Southington, CT Engineering Number:OAA713367_C3_07 1/4/2019 4:03:12 PM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		266.0	0.0					0.0	0.0	266.0	0.0	0.0	0.0
5.00		526.2	669.8					112.9	484.8	639.2	1,154.5	0.0	0.0
10.00		514.6	654.9					112.9	484.8	627.5	1,139.7	0.0	0.0
15.00		502.9	640.0					112.9	484.8	615.8	1,124.8	0.0	0.0
20.00		491.2	625.1					112.9	484.8	604.1	1,109.9	0.0	0.0
25.00		479.5	610.3					112.9	484.8	592.4	1,095.1	0.0	0.0
30.00		307.3	595.4					112.9	484.8	420.2	1,080.2	0.0	0.0
31.50	Bot - Section 2	239.7	175.7					34.1	145.4	273.9	321.2	0.0	0.0
35.00		201.8	749.6					81.5	339.3	283.2	1,088.9	0.0	0.0
35.67	Top - Section 1	245.0	141.3					15.8	64.6	260.8	205.9	0.0	0.0
40.00		460.0	417.0					104.6	420.1	564.6	837.2	0.0	0.0
45.00		496.2	469.6					124.8	484.8	621.1	954.4	0.0	0.0
50.00		497.9	457.2					128.9	484.8	626.8	942.0	0.0	0.0
55.00		497.8	444.8					132.6	484.8	630.4	929.6	0.0	0.0
60.00		496.0	432.4					136.1	484.8	632.1	917.2	0.0	0.0
65.00		493.0	420.0					139.4	484.8	632.3	904.8	0.0	0.0
70.00	Bot - Section 3	419.2	407.6					142.5	484.8	561.7	892.4	0.0	0.0
73.50	Top - Section 2	247.7	505.2					101.5	339.3	349.2	844.6	0.0	0.0
75.00		111.0	95.9					43.9	145.4	154.9	241.3	0.0	0.0
75.75	Reinf. Top	244.8	47.6					22.1	72.7	266.9	120.3	0.0	0.0
80.00		449.4	265.6					126.1	156.6	575.5	422.2	0.0	0.0
85.00		479.0	303.3					134.9	184.2	614.0	487.5	0.0	0.0
90.00		470.9	293.4					121.0	184.2	591.9	477.6	0.0	0.0
95.00		462.0	283.5					122.9	184.2	584.9	467.7	0.0	0.0
100.00		452.3	273.6					124.8	184.2	577.1	457.8	0.0	0.0
105.00	Appurtenance(s)	441.9	263.7	973.5	0.0	1,805.5	564.3	126.6	184.2	1,542.0	1,012.1	0.0	0.0
110.00	Top - Section 3	430.9	253.7					128.1	175.3	559.0	429.0	0.0	0.0
115.00		419.2	183.5					129.2	175.3	548.5	358.7	0.0	0.0
120.00	Appurtenance(s)	407.0	176.0	1,918.6	0.0	0.0	988.8	130.4	175.3	2,455.9	1,340.1	0.0	0.0
125.00		394.2	168.6					81.4	123.7	475.6	292.3	0.0	0.0
130.00		344.0	161.2					81.9	123.7	425.9	284.9	0.0	0.0
134.00	Appurtenance(s)	180.9	123.6	1,269.0	0.0	0.0	467.1	65.8	99.0	1,515.7	689.7	0.0	0.0
135.00		180.7	30.1					0.0	15.9	180.7	46.0	0.0	0.0
140.00		293.9	146.3					0.0	79.5	293.9	225.8	0.0	0.0
145.00		281.5	138.8					0.0	79.5	281.5	218.3	0.0	0.0
150.00	Appurtenance(s)	137.6	131.4	3,184.5	0.0	7,323.9	3,027.6	0.0	79.5	3,322.1	3,238.5	0.0	0.0
								Totals:		24,167.0	26,352.2	0.00	0.00

Site Number: 302475 Code: ANSI/TIA-222-G

Site Name: Sttn - Southington, CT Engineering Number:OAA713367_C3_07 1/4/2019 4:03:16 PM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-26.30	-23.96	0.00	-2,245.15	0.00	2,245.15	3,136.53	1,568.27	4,731.25	2,336.59	0.00	0.00	0.597
5.00	-25.04	-23.43	0.00	-2,125.35	0.00	2,125.35	3,092.06	1,546.03	4,560.72	2,252.37	0.14	-0.25	0.580
10.00	-23.81	-22.90	0.00	-2,008.21	0.00	2,008.21	3,046.49	1,523.25	4,391.58	2,168.84	0.54	-0.51	0.562
15.00	-22.59	-22.37	0.00	-1,893.72	0.00	1,893.72	2,999.83	1,499.91	4,223.96	2,086.05	1.20	-0.76	0.544
20.00	-21.39	-21.84	0.00	-1,781.87	0.00	1,781.87	2,952.07	1,476.04	4,057.95	2,004.07	2.13	-1.01	0.526
25.00	-20.22	-21.32	0.00	-1,672.65	0.00	1,672.65	2,901.93	1,450.96	3,891.94	1,922.08	3.32	-1.26	0.507
30.00	-19.09	-20.92	0.00	-1,566.07	0.00	1,566.07	2,830.35	1,415.18	3,701.25	1,827.91	4.77	-1.51	0.492
31.50	-18.73	-20.68	0.00	-1,534.68	0.00	1,534.68	2,808.88	1,404.44	3,644.98	1,800.12	5.26	-1.58	0.488
35.00	-17.61	-20.40	0.00	-1,462.29	0.00	1,462.29	2,758.78	1,379.39	3,515.36	1,736.10	6.48	-1.76	0.470
35.67	-17.37	-20.17	0.00	-1,448.69	0.00	1,448.69	2,225.24	1,112.62	2,894.88	1,429.67	6.73	-1.79	0.534
40.00	-16.48	-19.65	0.00	-1,361.29	0.00	1,361.29	2,194.35	1,097.17	2,791.07	1,378.40	8.46	-2.00	0.513
45.00	-15.46	-19.06	0.00	-1,263.06	0.00	1,263.06	2,157.69	1,078.84	2,672.25	1,319.72	10.69	-2.26	0.488
50.00	-14.47	-18.46	0.00	-1,167.77	0.00	1,167.77	2,119.93	1,059.96	2,554.56	1,261.60	13.19	-2.51	0.464
55.00	-13.49	-17.84	0.00	-1,075.50	0.00	1,075.50	2,081.07	1,040.54	2,438.12	1,204.10	15.94	-2.75	0.439
60.00	-12.53	-17.22	0.00	-986.30	0.00	986.30	2,041.12	1,020.56	2,323.03	1,147.26	18.95	-2.99	0.413
65.00	-11.60	-16.58	0.00	-900.22	0.00	900.22	1,992.10	996.05	2,200.59	1,086.79	22.21	-3.23	0.389
70.00	-10.69	-16.00	0.00	-817.31	0.00	817.31	1,932.46	966.23	2,070.05	1,022.32	25.71	-3.46	0.367
73.50	-9.84	-15.62	0.00	-761.30	0.00	761.30	1,451.36	725.68	1,558.37	769.62	28.31	-3.61	0.401
75.00	-9.59	-15.46	0.00	-737.86	0.00	737.86	1,443.19	721.60	1,535.11	758.14	29.45	-3.68	0.391
75.75	-9.46	-15.21	0.00	-726.27	0.00	726.27	1,439.07	719.54	1,523.51	752.40	30.03	-3.71	0.387
75.75	-9.46	-15.21	0.00	-726.27	0.00	726.27	1,439.07	719.54	1,523.51	752.40	30.03	-3.71	0.972
80.00	-8.98	-14.66	0.00	-661.64	0.00	661.64	1,415.26	707.63	1,458.06	720.08	33.43	-3.91	0.926
85.00	-8.40	-14.10	0.00	-588.32	0.00	588.32	1,386.24	693.12	1,381.78	682.41	37.81	-4.46	0.869
90.00	-7.85	-13.54	0.00	-517.84	0.00	517.84	1,356.12	678.06	1,306.38	645.17	42.76	-5.00	0.809
95.00	-7.32	-12.98	0.00	-450.14	0.00	450.14	1,324.90	662.45	1,231.99	608.43	48.28	-5.52	0.746
100.00	-6.82	-12.42	0.00	-385.24	0.00	385.24	1,293.04	646.52	1,159.10	572.44	54.32	-6.02	0.679
105.00	-5.90	-10.82	0.00	-321.34	0.00	321.34	1,245.33	622.66	1,074.67	530.74	60.87	-6.50	0.610
110.00	-5.46	-10.26	0.00	-267.22	0.00	267.22	1,197.61	598.80	993.42	490.61	67.90	-6.94	0.550
110.00	-5.46	-10.26	0.00	-267.22	0.00	267.22	833.77	416.88	695.90	343.68	67.90	-6.94	0.785
115.00	-5.10	-9.71	0.00	-215.93	0.00	215.93	813.89	406.95	652.08	322.04	75.37	-7.34	0.677
120.00	-4.04	-7.13	0.00	-167.38	0.00	167.38	792.92	396.46	608.75	300.64	83.30	-7.83	0.562
125.00	-3.77	-6.65	0.00	-131.72	0.00	131.72	770.85	385.43	566.02	279.54	91.70	-8.25	0.476
130.00	-3.51	-6.20	0.00	-98.50	0.00	98.50	747.69	373.84	524.00	258.78	100.52	-8.63	0.386
134.00	-3.05	-4.61	0.00	-73.69	0.00	73.69	728.37	364.19	490.97	242.47	107.84	-8.88	0.308
135.00	-3.02	-4.43	0.00	-69.09	0.00	69.09	722.05	361.03	481.88	237.98	109.70	-8.94	0.295
140.00	-2.83	-4.11	0.00	-46.94	0.00	46.94	686.26	343.13	435.03	214.85	119.16	-9.20	0.223
145.00	-2.65	-3.81	0.00	-26.36	0.00	26.36	650.48	325.24	390.59	192.90	128.86	-9.38	0.141
150.00	0.00	-3.32	0.00	-7.32	0.00	7.32	614.69	307.34	348.53	172.13	138.70	-9.48	0.043

Site Number: 302475 Code: ANSI/TIA-222-G

Site Name: Sttn - Southington, CT Engineering Number:OAA713367_C3_07 1/4/2019 4:03:17 PM

Customer: CLEARWIRE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 27 Iterations

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

Dead Load Factor :1.20 Ice Importance Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		48.0	0.0					0.0	0.0	48.0	0.0	0.0	0.0
5.00		95.4	1,270.5					40.5	1,109.1	135.9	2,379.6	0.0	0.0
10.00		94.1	1,287.4					43.0	1,171.0	137.1	2,458.4	0.0	0.0
15.00		92.5	1,280.9					44.3	1,203.2	136.8	2,484.1	0.0	0.0
20.00		90.8	1,266.6					45.2	1,225.8	136.0	2,492.4	0.0	0.0
25.00		89.0	1,248.4					45.9	1,243.3	134.9	2,491.7	0.0	0.0
30.00		57.2	1,227.6					46.4	1,257.8	103.6	2,485.4	0.0	0.0
31.50	Bot - Section 2	44.7	365.0					14.1	379.8	58.9	744.9	0.0	0.0
35.00		37.7	1,307.6					33.9	890.3	71.5	2,197.9	0.0	0.0
35.67	Top - Section 1	45.9	247.2					6.6	170.2	52.5	417.4	0.0	0.0
40.00		86.4	933.6					43.8	1,110.8	130.2	2,044.4	0.0	0.0
45.00		93.6	1,056.5					52.7	1,290.7	146.2	2,347.2	0.0	0.0
50.00		94.3	1,034.3					54.7	1,299.5	149.0	2,333.8	0.0	0.0
55.00		94.7	1,011.4					56.7	1,307.5	151.3	2,318.9	0.0	0.0
60.00		94.8	987.9					58.5	1,314.9	153.3	2,302.8	0.0	0.0
65.00		94.7	964.0					60.2	1,321.7	154.9	2,285.7	0.0	0.0
70.00	Bot - Section 3	80.8	939.6					61.8	1,328.1	142.6	2,267.7	0.0	0.0
73.50	Top - Section 2	47.8	952.1					44.2	933.2	92.0	1,885.3	0.0	0.0
75.00		21.5	246.6					19.2	400.8	40.6	647.5	0.0	0.0
75.75	Reinf. Top	47.5	122.7					9.6	200.6	57.1	323.3	0.0	0.0
80.00		87.5	682.7					55.2	798.5	142.7	1,481.2	0.0	0.0
85.00		93.7	781.9					56.8	877.1	150.5	1,659.0	0.0	0.0
90.00		92.7	759.6					48.2	814.1	140.9	1,573.7	0.0	0.0
95.00		91.5	737.1					49.2	818.0	140.6	1,555.1	0.0	0.0
100.00		90.2	714.3					50.1	821.9	140.2	1,536.2	0.0	0.0
105.00	Appurtenance(s)	88.7	691.3	305.5	0.0	449.0	1,807.5	50.9	825.5	445.1	3,324.3	0.0	0.0
110.00	Top - Section 3	87.1	668.2					51.8	726.0	138.9	1,394.1	0.0	0.0
115.00		85.5	564.3					52.6	728.8	138.0	1,293.1	0.0	0.0
120.00	Appurtenance(s)	83.7	544.1	426.4	0.0	0.0	4,798.3	53.4	731.5	563.5	6,073.9	0.0	0.0
125.00		81.8	523.7					29.8	458.9	111.6	982.6	0.0	0.0
130.00		72.0	503.2					30.2	460.2	102.3	963.4	0.0	0.0
134.00	Appurtenance(s)	39.4	388.6	316.0	0.0	0.0	1,267.0	24.5	369.1	379.9	2,024.8	0.0	0.0
135.00		46.1	95.8					0.0	21.2	46.1	117.0	0.0	0.0
140.00		75.6	461.7					0.0	106.0	75.6	567.7	0.0	0.0
145.00		73.4	440.8					0.0	106.0	73.4	546.8	0.0	0.0
150.00	Appurtenance(s)	36.1	419.8	904.4	0.0	1,905.0	11,376.4	0.0	106.0	940.5	11,902.2	0.0	0.0
								Totals:		5,962.24	73,903.4	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 27 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-73.90	-5.96	0.00	-650.15	0.00	650.15	3,136.53	1,568.27	4,731.25	2,336.59	0.00	0.00	0.188
5.00	-71.51	-5.92	0.00	-620.34	0.00	620.34	3,092.06	1,546.03	4,560.72	2,252.37	0.04	-0.07	0.183
10.00	-69.05	-5.86	0.00	-590.76	0.00	590.76	3,046.49	1,523.25	4,391.58	2,168.84	0.16	-0.15	0.179
15.00	-66.56	-5.81	0.00	-561.44	0.00	561.44	2,999.83	1,499.91	4,223.96	2,086.05	0.35	-0.22	0.175
20.00	-64.06	-5.74	0.00	-532.41	0.00	532.41	2,952.07	1,476.04	4,057.95	2,004.07	0.62	-0.30	0.170
25.00	-61.56	-5.67	0.00	-503.70	0.00	503.70	2,901.93	1,450.96	3,891.94	1,922.08	0.97	-0.37	0.166
30.00	-59.07	-5.60	0.00	-475.33	0.00	475.33	2,830.35	1,415.18	3,701.25	1,827.91	1.40	-0.45	0.162
31.50	-58.32	-5.58	0.00	-466.92	0.00	466.92	2,808.88	1,404.44	3,644.98	1,800.12	1.55	-0.47	0.161
35.00	-56.12	-5.52	0.00	-447.40	0.00	447.40	2,758.78	1,379.39	3,515.36	1,736.10	1.91	-0.52	0.156
35.67	-55.70	-5.50	0.00	-443.73	0.00	443.73	2,225.24	1,112.62	2,894.88	1,429.67	1.99	-0.53	0.178
40.00	-53.65	-5.41	0.00	-419.90	0.00	419.90	2,194.35	1,097.17	2,791.07	1,378.40	2.50	-0.60	0.172
45.00	-51.30	-5.31	0.00	-392.83	0.00	392.83	2,157.69	1,078.84	2,672.25	1,319.72	3.17	-0.68	0.165
50.00	-48.96	-5.20	0.00	-366.27	0.00	366.27	2,119.93	1,059.96	2,554.56	1,261.60	3.92	-0.75	0.158
55.00	-46.64	-5.08	0.00	-340.26	0.00	340.26	2,081.07	1,040.54	2,438.12	1,204.10	4.75	-0.83	0.151
60.00	-44.33	-4.95	0.00	-314.86	0.00	314.86	2,041.12	1,020.56	2,323.03	1,147.26	5.66	-0.91	0.143
65.00	-42.04	-4.81	0.00	-290.11	0.00	290.11	1,992.10	996.05	2,200.59	1,086.79	6.66	-0.98	0.137
70.00	-39.77	-4.67	0.00	-266.05	0.00	266.05	1,932.46	966.23	2,070.05	1,022.32	7.73	-1.06	0.130
73.50	-37.88	-4.57	0.00	-249.70	0.00	249.70	1,451.36	725.68	1,558.37	769.62	8.52	-1.11	0.144
75.00	-37.24	-4.53	0.00	-242.84	0.00	242.84	1,443.19	721.60	1,535.11	758.14	8.87	-1.13	0.141
75.75	-36.91	-4.49	0.00	-239.45	0.00	239.45	1,439.07	719.54	1,523.51	752.40	9.05	-1.14	0.139
75.75	-36.91	-4.49	0.00	-239.45	0.00	239.45	1,439.07	719.54	1,523.51	752.40	9.05	-1.14	0.344
80.00	-35.42	-4.39	0.00	-220.37	0.00	220.37	1,415.26	707.63	1,458.06	720.08	10.10	-1.21	0.331
85.00	-33.75	-4.31	0.00	-198.41	0.00	198.41	1,386.24	693.12	1,381.78	682.41	11.46	-1.39	0.315
90.00	-32.17	-4.23	0.00	-176.85	0.00	176.85	1,356.12	678.06	1,306.38	645.17	13.02	-1.57	0.298
95.00	-30.61	-4.14	0.00	-155.68	0.00	155.68	1,324.90	662.45	1,231.99	608.43	14.76	-1.75	0.279
100.00	-29.07	-4.04	0.00	-134.98	0.00	134.98	1,293.04	646.52	1,159.10	572.44	16.69	-1.93	0.258
105.00	-25.75	-3.55	0.00	-114.33	0.00	114.33	1,245.33	622.66	1,074.67	530.74	18.80	-2.10	0.236
110.00	-24.35	-3.42	0.00	-96.58	0.00	96.58	1,197.61	598.80	993.42	490.61	21.08	-2.25	0.217
110.00	-24.35	-3.42	0.00	-96.58	0.00	96.58	833.77	416.88	695.90	343.68	21.08	-2.25	0.310
115.00	-23.06	-3.30	0.00	-79.46	0.00	79.46	813.89	406.95	652.08	322.04	23.53	-2.40	0.275
120.00	-17.01	-2.52	0.00	-62.96	0.00	62.96	792.92	396.46	608.75	300.64	26.14	-2.58	0.231
125.00	-16.02	-2.41	0.00	-50.35	0.00	50.35	770.85	385.43	566.02	279.54	28.93	-2.74	0.201
130.00	-15.06	-2.29	0.00	-38.31	0.00	38.31	747.69	373.84	524.00	258.78	31.88	-2.89	0.168
134.00	-13.06	-1.82	0.00	-29.15	0.00	29.15	728.37	364.19	490.97	242.47	34.34	-2.99	0.138
135.00	-12.94	-1.78	0.00	-27.32	0.00	27.32	722.05	361.03	481.88	237.98	34.97	-3.01	0.133
140.00	-12.37	-1.70	0.00	-18.41	0.00	18.41	686.26	343.13	435.03	214.85	38.18	-3.11	0.104
145.00	-11.83	-1.60	0.00	-9.93	0.00	9.93	650.48	325.24	390.59	192.90	41.47	-3.18	0.070
150.00	0.00	-0.94	0.00	-1.91	0.00	1.91	614.69	307.34	348.53	172.13	44.83	-3.22	0.011

Load Case: 1.0D + 1.0W Serviceability 60 mph 26 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		63.9	0.0					0.0	0.0	63.9	0.0	0.0	0.0
5.00		126.3	744.2					27.1	538.6	153.4	1,282.8	0.0	0.0
10.00		123.5	727.7					27.1	538.6	150.6	1,266.3	0.0	0.0
15.00		120.7	711.1					27.1	538.6	147.8	1,249.8	0.0	0.0
20.00		117.9	694.6					27.1	538.6	145.0	1,233.3	0.0	0.0
25.00		115.1	678.1					27.1	538.6	142.2	1,216.7	0.0	0.0
30.00		73.8	661.6					27.1	538.6	100.9	1,200.2	0.0	0.0
31.50	Bot - Section 2	57.5	195.2					8.2	161.6	65.7	356.8	0.0	0.0
35.00		48.4	832.9					19.6	377.1	68.0	1,209.9	0.0	0.0
35.67	Top - Section 1	58.8	157.0					3.8	71.8	62.6	228.8	0.0	0.0
40.00		110.4	463.3					25.1	466.8	135.5	930.2	0.0	0.0
45.00		119.1	521.8					30.0	538.6	149.1	1,060.4	0.0	0.0
50.00		119.5	508.0					30.9	538.6	150.4	1,046.7	0.0	0.0
55.00		119.5	494.2					31.8	538.6	151.3	1,032.9	0.0	0.0
60.00		119.1	480.5					32.7	538.6	151.7	1,019.1	0.0	0.0
65.00		118.3	466.7					33.5	538.6	151.8	1,005.4	0.0	0.0
70.00	Bot - Section 3	100.6	452.9					34.2	538.6	134.8	991.6	0.0	0.0
73.50	Top - Section 2	59.5	561.3					24.4	377.1	83.8	938.4	0.0	0.0
75.00		26.6	106.6					10.5	161.6	37.2	268.1	0.0	0.0
75.75	Reinf. Top	58.8	52.9					5.3	80.8	64.1	133.7	0.0	0.0
80.00		107.9	295.1					30.3	174.0	138.1	469.1	0.0	0.0
85.00		115.0	337.0					32.4	204.7	147.4	541.7	0.0	0.0
90.00		113.0	326.0					29.0	204.7	142.1	530.6	0.0	0.0
95.00		110.9	315.0					29.5	204.7	140.4	519.6	0.0	0.0
100.00		108.6	304.0					30.0	204.7	138.5	508.6	0.0	0.0
105.00	Appurtenance(s)	106.1	293.0	233.7	0.0	433.4	627.0	30.4	204.7	370.1	1,124.6	0.0	0.0
110.00	Top - Section 3	103.4	281.9					30.8	194.8	134.2	476.7	0.0	0.0
115.00		100.6	203.8					31.2	194.7	131.8	398.6	0.0	0.0
120.00	Appurtenance(s)	97.7	195.6	460.5	0.0	0.0	1,098.7	31.6	194.8	589.8	1,489.0	0.0	0.0
125.00		94.6	187.3					20.0	137.5	114.6	324.8	0.0	0.0
130.00		82.6	179.1					20.2	137.5	102.8	316.6	0.0	0.0
134.00	Appurtenance(s)	43.4	137.3	304.6	0.0	0.0	519.0	16.3	110.0	364.3	766.3	0.0	0.0
135.00		43.4	33.5					0.0	17.7	43.4	51.2	0.0	0.0
140.00		70.5	162.5					0.0	88.3	70.5	250.8	0.0	0.0
145.00		67.6	154.3					0.0	88.3	67.6	242.6	0.0	0.0
150.00	Appurtenance(s)	33.0	146.0	764.3	0.0	1,757.9	3,364.0	0.0	88.3	797.4	3,598.3	0.0	0.0
								Totals:		5,802.67	29,280.2	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 26 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.28	-5.75	0.00	-543.16	0.00	543.16	3,136.53	1,568.27	4,731.25	2,336.59	0.00	0.00	0.150
5.00	-27.99	-5.63	0.00	-514.39	0.00	514.39	3,092.06	1,546.03	4,560.72	2,252.37	0.03	-0.06	0.145
10.00	-26.72	-5.51	0.00	-486.24	0.00	486.24	3,046.49	1,523.25	4,391.58	2,168.84	0.13	-0.12	0.141
15.00	-25.46	-5.38	0.00	-458.71	0.00	458.71	2,999.83	1,499.91	4,223.96	2,086.05	0.29	-0.18	0.136
20.00	-24.22	-5.26	0.00	-431.80	0.00	431.80	2,952.07	1,476.04	4,057.95	2,004.07	0.52	-0.24	0.132
25.00	-23.00	-5.13	0.00	-405.51	0.00	405.51	2,901.93	1,450.96	3,891.94	1,922.08	0.80	-0.30	0.127
30.00	-21.80	-5.04	0.00	-379.84	0.00	379.84	2,830.35	1,415.18	3,701.25	1,827.91	1.16	-0.37	0.123
31.50	-21.44	-4.98	0.00	-372.27	0.00	372.27	2,808.88	1,404.44	3,644.98	1,800.12	1.27	-0.38	0.122
35.00	-20.23	-4.92	0.00	-354.83	0.00	354.83	2,758.78	1,379.39	3,515.36	1,736.10	1.57	-0.43	0.118
35.67	-20.00	-4.86	0.00	-351.55	0.00	351.55	2,225.24	1,112.62	2,894.88	1,429.67	1.63	-0.43	0.134
40.00	-19.06	-4.74	0.00	-330.48	0.00	330.48	2,194.35	1,097.17	2,791.07	1,378.40	2.05	-0.49	0.129
45.00	-18.00	-4.60	0.00	-306.78	0.00	306.78	2,157.69	1,078.84	2,672.25	1,319.72	2.59	-0.55	0.123
50.00	-16.95	-4.46	0.00	-283.79	0.00	283.79	2,119.93	1,059.96	2,554.56	1,261.60	3.19	-0.61	0.116
55.00	-15.91	-4.31	0.00	-261.50	0.00	261.50	2,081.07	1,040.54	2,438.12	1,204.10	3.86	-0.67	0.110
60.00	-14.89	-4.16	0.00	-239.95	0.00	239.95	2,041.12	1,020.56	2,323.03	1,147.26	4.59	-0.73	0.104
65.00	-13.89	-4.01	0.00	-219.15	0.00	219.15	1,992.10	996.05	2,200.59	1,086.79	5.38	-0.78	0.098
70.00	-12.89	-3.87	0.00	-199.10	0.00	199.10	1,932.46	966.23	2,070.05	1,022.32	6.24	-0.84	0.092
73.50	-11.95	-3.78	0.00	-185.55	0.00	185.55	1,451.36	725.68	1,558.37	769.62	6.86	-0.88	0.101
75.00	-11.69	-3.74	0.00	-179.88	0.00	179.88	1,443.19	721.60	1,535.11	758.14	7.14	-0.89	0.099
75.75	-11.55	-3.68	0.00	-177.08	0.00	177.08	1,439.07	719.54	1,523.51	752.40	7.28	-0.90	0.097
75.75	-11.55	-3.68	0.00	-177.08	0.00	177.08	1,439.07	719.54	1,523.51	752.40	7.28	-0.90	0.243
80.00	-11.08	-3.55	0.00	-161.44	0.00	161.44	1,415.26	707.63	1,458.06	720.08	8.11	-0.95	0.232
85.00	-10.53	-3.42	0.00	-143.68	0.00	143.68	1,386.24	693.12	1,381.78	682.41	9.17	-1.08	0.218
90.00	-10.00	-3.29	0.00	-126.58	0.00	126.58	1,356.12	678.06	1,306.38	645.17	10.38	-1.22	0.204
95.00	-9.47	-3.16	0.00	-110.14	0.00	110.14	1,324.90	662.45	1,231.99	608.43	11.72	-1.34	0.188
100.00	-8.96	-3.03	0.00	-94.35	0.00	94.35	1,293.04	646.52	1,159.10	572.44	13.19	-1.47	0.172
105.00	-7.84	-2.64	0.00	-78.78	0.00	78.78	1,245.33	622.66	1,074.67	530.74	14.79	-1.58	0.155
110.00	-7.37	-2.51	0.00	-65.58	0.00	65.58	1,197.61	598.80	993.42	490.61	16.51	-1.69	0.140
110.00	-7.37	-2.51	0.00	-65.58	0.00	65.58	833.77	416.88	695.90	343.68	16.51	-1.69	0.200
115.00	-6.97	-2.38	0.00	-53.04	0.00	53.04	813.89	406.95	652.08	322.04	18.33	-1.79	0.173
120.00	-5.49	-1.75	0.00	-41.16	0.00	41.16	792.92	396.46	608.75	300.64	20.27	-1.91	0.144
125.00	-5.17	-1.63	0.00	-32.41	0.00	32.41	770.85	385.43	566.02	279.54	22.33	-2.01	0.123
130.00	-4.86	-1.53	0.00	-24.25	0.00	24.25	747.69	373.84	524.00	258.78	24.49	-2.11	0.100
134.00	-4.10	-1.14	0.00	-18.15	0.00	18.15	728.37	364.19	490.97	242.47	26.28	-2.17	0.080
135.00	-4.05	-1.09	0.00	-17.01	0.00	17.01	722.05	361.03	481.88	237.98	26.73	-2.18	0.077
140.00	-3.80	-1.02	0.00	-11.55	0.00	11.55	686.26	343.13	435.03	214.85	29.05	-2.25	0.059
145.00	-3.56	-0.94	0.00	-6.47	0.00	6.47	650.48	325.24	390.59	192.90	31.43	-2.29	0.039
150.00	0.00	-0.80	0.00	-1.76	0.00	1.76	614.69	307.34	348.53	172.13	33.84	-2.31	0.010

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.80	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	29.28	k
Seismic Base Shear (E):	0.88	k

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
35	147.50	234	5,098	0.024	21	290
34	142.50	243	4,926	0.023	21	301
33	137.50	251	4,742	0.023	20	311
32	134.50	51	925	0.004	4	63
31	132.00	247	4,309	0.020	18	306
30	127.50	317	5,146	0.024	21	392
29	122.50	325	4,874	0.023	20	403
28	117.50	390	5,389	0.026	23	484
27	112.50	399	5,045	0.024	21	494
26	107.50	477	5,509	0.026	23	591
25	102.50	498	5,228	0.025	22	617
24	97.50	509	4,835	0.023	20	630
23	92.50	520	4,446	0.021	19	644
22	87.50	531	4,063	0.019	17	658
21	82.50	542	3,687	0.018	15	671
20	77.88	469	2,845	0.014	12	581
19	75.38	134	760	0.004	3	166
18	74.25	268	1,478	0.007	6	332
17	71.75	938	4,831	0.023	20	1,163
16	67.50	992	4,518	0.021	19	1,229
15	62.50	1,005	3,927	0.019	16	1,246
14	57.50	1,019	3,369	0.016	14	1,263
13	52.50	1,033	2,847	0.014	12	1,280

12	47.50	1,047	2,362	0.011	10	1,297
11	42.50	1,060	1,915	0.009	8	1,314
10	37.83	930	1,331	0.006	6	1,153
9	35.33	229	286	0.001	1	284
8	33.25	1,210	1,338	0.006	6	1,499
7	30.75	357	337	0.002	1	442
6	27.50	1,200	908	0.004	4	1,487
5	22.50	1,217	616	0.003	3	1,508
4	17.50	1,233	378	0.002	2	1,528
3	12.50	1,250	195	0.001	1	1,549
2	7.50	1,266	71	0.000	0	1,569
1	2.50	1,283	8	0.000	0	1,590
CCI TPX-070821	150.00	45	1,013	0.005	4	56
Raycap DC6-48-60-18-	150.00	40	900	0.004	4	50
CCI DTMABP7819VG12A	150.00	115	2,592	0.012	11	143
Ericsson RRUS-11 (50	150.00	150	3,375	0.016	14	186
Ericsson RRUS 32 B2	150.00	159	3,577	0.017	15	197
10' Omni	150.00	25	563	0.003	2	31
Ericsson RRUS-32 (77	150.00	231	5,198	0.025	22	286
Powerwave Allgon 777	150.00	105	2,363	0.011	10	130
KMW AM-X-CD-16-65-00	150.00	97	2,183	0.010	9	120
Quintel QS66512-3 (1	150.00	336	7,560	0.036	32	416
Andrew SBNH-1D6565C	150.00	61	1,368	0.007	6	75
Round Platform w/ Ha	150.00	2,000	45,000	0.214	188	2,479
Kathrein Smart Bias	134.00	10	178	0.001	1	12
Site-Pro UWS6-NP	134.00	276	4,956	0.024	21	342
RFS APXV18-206517S-C	134.00	79	1,422	0.007	6	98
Andrew LNX-6515DS-VT	134.00	154	2,763	0.013	12	191
DragonWave Horizon C	120.00	11	153	0.001	1	13
12" x 12" Junction B	120.00	10	144	0.001	1	12
Alcatel-Lucent RRH2x	120.00	317	4,571	0.022	19	393
Nokia FZHN Flexi RRH	120.00	132	1,905	0.009	8	164
Alcatel-Lucent 1900	120.00	180	2,592	0.012	11	223
RFS APXVTM14-ALU-I20	120.00	169	2,428	0.012	10	209
DragonWave A-ANT-11G	120.00	48	685	0.003	3	59
Commscope NNVV-65B-R	120.00	232	3,344	0.016	14	288
dB Systems 5100A	105.00	21	232	0.001	1	26
VertexRSI 101V VPD	105.00	4	44	0.000	0	5
dB Systems 5100A-D	105.00	152	1,676	0.008	7	188
Round Side Arm	105.00	450	4,961	0.024	21	558
		29,280	210,285	1.000	878	36,286

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
35	147.50	234	5,098	0.024	21	202
34	142.50	243	4,926	0.023	21	209
33	137.50	251	4,742	0.023	20	216
32	134.50	51	925	0.004	4	44
31	132.00	247	4,309	0.020	18	213
30	127.50	317	5,146	0.024	21	272
29	122.50	325	4,874	0.023	20	280
28	117.50	390	5,389	0.026	23	336
27	112.50	399	5,045	0.024	21	343
26	107.50	477	5,509	0.026	23	410
25	102.50	498	5,228	0.025	22	428
24	97.50	509	4,835	0.023	20	438
23	92.50	520	4,446	0.021	19	447
22	87.50	531	4,063	0.019	17	457

21	82.50	542	3,687	0.018	15	466
20	77.88	469	2,845	0.014	12	404
19	75.38	134	760	0.004	3	115
18	74.25	268	1,478	0.007	6	231
17	71.75	938	4,831	0.023	20	808
16	67.50	992	4,518	0.021	19	854
15	62.50	1,005	3,927	0.019	16	865
14	57.50	1,019	3,369	0.016	14	877
13	52.50	1,033	2,847	0.014	12	889
12	47.50	1,047	2,362	0.011	10	901
11	42.50	1,060	1,915	0.009	8	913
10	37.83	930	1,331	0.006	6	801
9	35.33	229	286	0.001	1	197
8	33.25	1,210	1,338	0.006	6	1,041
7	30.75	357	337	0.002	1	307
6	27.50	1,200	908	0.004	4	1,033
5	22.50	1,217	616	0.003	3	1,047
4	17.50	1,233	378	0.002	2	1,062
3	12.50	1,250	195	0.001	1	1,076
2	7.50	1,266	71	0.000	0	1,090
1	2.50	1,283	8	0.000	0	1,104
CCI TPX-070821	150.00	45	1,013	0.005	4	39
Raycap DC6-48-60-18-	150.00	40	900	0.004	4	34
CCI DTMABP7819VG12A	150.00	115	2,592	0.012	11	99
Ericsson RRUS-11 (50	150.00	150	3,375	0.016	14	129
Ericsson RRUS 32 B2	150.00	159	3,577	0.017	15	137
10' Omni	150.00	25	563	0.003	2	22
Ericsson RRUS-32 (77	150.00	231	5,198	0.025	22	199
Powerwave Allgon 777	150.00	105	2,363	0.011	10	90
KMW AM-X-CD-16-65-00	150.00	97	2,183	0.010	9	83
Quintel QS66512-3 (1	150.00	336	7,560	0.036	32	289
Andrew SBNH-1D6565C	150.00	61	1,368	0.007	6	52
Round Platform w/ Ha	150.00	2,000	45,000	0.214	188	1,721
Kathrein Smart Bias	134.00	10	178	0.001	1	9
Site-Pro UWS6-NP	134.00	276	4,956	0.024	21	238
RFS APXV18-206517S-C	134.00	79	1,422	0.007	6	68
Andrew LNX-6515DS-VT	134.00	154	2,763	0.013	12	132
DragonWave Horizon C	120.00	11	153	0.001	1	9
12" x 12" Junction B	120.00	10	144	0.001	1	9
Alcatel-Lucent RRH2x	120.00	317	4,571	0.022	19	273
Nokia FZHN Flexi RRH	120.00	132	1,905	0.009	8	114
Alcatel-Lucent 1900	120.00	180	2,592	0.012	11	155
RFS APXVTM14-ALU-I20	120.00	169	2,428	0.012	10	145
DragonWave A-ANT-11G	120.00	48	685	0.003	3	41
Commscope NNVV-65B-R	120.00	232	3,344	0.016	14	200
dB Systems 5100A	105.00	21	232	0.001	1	18
VertexRSI 101V VPD	105.00	4	44	0.000	0	3
dB Systems 5100A-D	105.00	152	1,676	0.008	7	131
Round Side Arm	105.00	450	4,961	0.024	21	387
		29,280	210,285	1.000	878	25,203

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.70	-0.88	0.00	-110.91	0.00	110.91	3,136.53	1,568.27	4,731.25	2,336.59	0.00	0.00	0.037
5.00	-33.13	-0.89	0.00	-106.50	0.00	106.50	3,092.06	1,546.03	4,560.72	2,252.37	0.01	-0.01	0.036
10.00	-31.58	-0.89	0.00	-102.06	0.00	102.06	3,046.49	1,523.25	4,391.58	2,168.84	0.03	-0.03	0.035
15.00	-30.05	-0.90	0.00	-97.59	0.00	97.59	2,999.83	1,499.91	4,223.96	2,086.05	0.06	-0.04	0.035
20.00	-28.54	-0.90	0.00	-93.10	0.00	93.10	2,952.07	1,476.04	4,057.95	2,004.07	0.11	-0.05	0.034
25.00	-27.05	-0.90	0.00	-88.59	0.00	88.59	2,901.93	1,450.96	3,891.94	1,922.08	0.17	-0.06	0.033
30.00	-26.61	-0.90	0.00	-84.08	0.00	84.08	2,830.35	1,415.18	3,701.25	1,827.91	0.24	-0.08	0.032
31.50	-25.11	-0.90	0.00	-82.73	0.00	82.73	2,808.88	1,404.44	3,644.98	1,800.12	0.27	-0.08	0.032
35.00	-24.83	-0.90	0.00	-79.58	0.00	79.58	2,758.78	1,379.39	3,515.36	1,736.10	0.33	-0.09	0.031
35.67	-23.67	-0.90	0.00	-78.98	0.00	78.98	2,225.24	1,112.62	2,894.88	1,429.67	0.34	-0.09	0.035
40.00	-22.36	-0.89	0.00	-75.10	0.00	75.10	2,194.35	1,097.17	2,791.07	1,378.40	0.43	-0.10	0.034
45.00	-21.06	-0.88	0.00	-70.65	0.00	70.65	2,157.69	1,078.84	2,672.25	1,319.72	0.55	-0.12	0.033
50.00	-19.78	-0.87	0.00	-66.23	0.00	66.23	2,119.93	1,059.96	2,554.56	1,261.60	0.68	-0.13	0.032
55.00	-18.52	-0.86	0.00	-61.86	0.00	61.86	2,081.07	1,040.54	2,438.12	1,204.10	0.83	-0.15	0.030
60.00	-17.27	-0.85	0.00	-57.56	0.00	57.56	2,041.12	1,020.56	2,323.03	1,147.26	0.99	-0.16	0.029
65.00	-16.05	-0.83	0.00	-53.33	0.00	53.33	1,992.10	996.05	2,200.59	1,086.79	1.17	-0.17	0.028
70.00	-14.88	-0.81	0.00	-49.20	0.00	49.20	1,932.46	966.23	2,070.05	1,022.32	1.36	-0.19	0.026
73.50	-14.55	-0.80	0.00	-46.38	0.00	46.38	1,451.36	725.68	1,558.37	769.62	1.50	-0.20	0.029
75.00	-14.38	-0.80	0.00	-45.18	0.00	45.18	1,443.19	721.60	1,535.11	758.14	1.56	-0.20	0.029
75.75	-13.80	-0.78	0.00	-44.58	0.00	44.58	1,439.07	719.54	1,523.51	752.40	1.59	-0.20	0.028
75.75	-13.80	-0.78	0.00	-44.58	0.00	44.58	1,439.07	719.54	1,523.51	752.40	1.59	-0.20	0.069
80.00	-13.13	-0.77	0.00	-41.25	0.00	41.25	1,415.26	707.63	1,458.06	720.08	1.78	-0.22	0.067
85.00	-12.47	-0.76	0.00	-37.38	0.00	37.38	1,386.24	693.12	1,381.78	682.41	2.02	-0.25	0.064
90.00	-11.83	-0.75	0.00	-33.58	0.00	33.58	1,356.12	678.06	1,306.38	645.17	2.30	-0.29	0.061
95.00	-11.20	-0.73	0.00	-29.85	0.00	29.85	1,324.90	662.45	1,231.99	608.43	2.62	-0.32	0.058
100.00	-10.58	-0.71	0.00	-26.21	0.00	26.21	1,293.04	646.52	1,159.10	572.44	2.97	-0.35	0.054
105.00	-9.21	-0.65	0.00	-22.66	0.00	22.66	1,245.33	622.66	1,074.67	530.74	3.36	-0.39	0.050
110.00	-8.72	-0.63	0.00	-19.39	0.00	19.39	1,197.61	598.80	993.42	490.61	3.78	-0.42	0.047
110.00	-8.72	-0.63	0.00	-19.39	0.00	19.39	833.77	416.88	695.90	343.68	3.78	-0.42	0.067
115.00	-8.24	-0.61	0.00	-16.21	0.00	16.21	813.89	406.95	652.08	322.04	4.24	-0.45	0.060
120.00	-6.47	-0.52	0.00	-13.15	0.00	13.15	792.92	396.46	608.75	300.64	4.72	-0.48	0.052
125.00	-6.08	-0.49	0.00	-10.57	0.00	10.57	770.85	385.43	566.02	279.54	5.25	-0.52	0.046
130.00	-5.77	-0.48	0.00	-8.09	0.00	8.09	747.69	373.84	524.00	258.78	5.81	-0.55	0.039
134.00	-5.07	-0.43	0.00	-6.18	0.00	6.18	728.37	364.19	490.97	242.47	6.28	-0.57	0.032
135.00	-4.76	-0.41	0.00	-5.76	0.00	5.76	722.05	361.03	481.88	237.98	6.40	-0.57	0.031
140.00	-4.46	-0.38	0.00	-3.72	0.00	3.72	686.26	343.13	435.03	214.85	7.01	-0.60	0.024
145.00	-4.17	-0.36	0.00	-1.80	0.00	1.80	650.48	325.24	390.59	192.90	7.64	-0.61	0.016
150.00	0.00	-0.32	0.00	0.00	0.00	0.00	614.69	307.34	348.53	172.13	8.28	-0.61	0.000

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.10	-0.88	0.00	-108.65	0.00	108.65	3,136.53	1,568.27	4,731.25	2,336.59	0.00	0.00	0.034
5.00	-23.01	-0.88	0.00	-104.24	0.00	104.24	3,092.06	1,546.03	4,560.72	2,252.37	0.01	-0.01	0.033
10.00	-21.93	-0.89	0.00	-99.82	0.00	99.82	3,046.49	1,523.25	4,391.58	2,168.84	0.03	-0.02	0.033
15.00	-20.87	-0.89	0.00	-95.38	0.00	95.38	2,999.83	1,499.91	4,223.96	2,086.05	0.06	-0.04	0.032
20.00	-19.82	-0.89	0.00	-90.92	0.00	90.92	2,952.07	1,476.04	4,057.95	2,004.07	0.10	-0.05	0.031
25.00	-18.79	-0.89	0.00	-86.46	0.00	86.46	2,901.93	1,450.96	3,891.94	1,922.08	0.16	-0.06	0.030
30.00	-18.48	-0.89	0.00	-82.01	0.00	82.01	2,830.35	1,415.18	3,701.25	1,827.91	0.24	-0.08	0.030
31.50	-17.44	-0.89	0.00	-80.67	0.00	80.67	2,808.88	1,404.44	3,644.98	1,800.12	0.26	-0.08	0.029
35.00	-17.24	-0.89	0.00	-77.56	0.00	77.56	2,758.78	1,379.39	3,515.36	1,736.10	0.32	-0.09	0.029
35.67	-16.44	-0.88	0.00	-76.97	0.00	76.97	2,225.24	1,112.62	2,894.88	1,429.67	0.34	-0.09	0.033
40.00	-15.53	-0.88	0.00	-73.15	0.00	73.15	2,194.35	1,097.17	2,791.07	1,378.40	0.42	-0.10	0.032
45.00	-14.63	-0.87	0.00	-68.76	0.00	68.76	2,157.69	1,078.84	2,672.25	1,319.72	0.54	-0.12	0.030
50.00	-13.74	-0.86	0.00	-64.42	0.00	64.42	2,119.93	1,059.96	2,554.56	1,261.60	0.67	-0.13	0.029
55.00	-12.86	-0.84	0.00	-60.13	0.00	60.13	2,081.07	1,040.54	2,438.12	1,204.10	0.81	-0.14	0.028
60.00	-12.00	-0.83	0.00	-55.91	0.00	55.91	2,041.12	1,020.56	2,323.03	1,147.26	0.97	-0.16	0.027
65.00	-11.14	-0.81	0.00	-51.76	0.00	51.76	1,992.10	996.05	2,200.59	1,086.79	1.14	-0.17	0.025
70.00	-10.34	-0.79	0.00	-47.71	0.00	47.71	1,932.46	966.23	2,070.05	1,022.32	1.32	-0.18	0.024
73.50	-10.10	-0.78	0.00	-44.95	0.00	44.95	1,451.36	725.68	1,558.37	769.62	1.46	-0.19	0.027
75.00	-9.99	-0.78	0.00	-43.77	0.00	43.77	1,443.19	721.60	1,535.11	758.14	1.52	-0.20	0.027
75.75	-9.59	-0.77	0.00	-43.19	0.00	43.19	1,439.07	719.54	1,523.51	752.40	1.55	-0.20	0.026
75.75	-9.59	-0.77	0.00	-43.19	0.00	43.19	1,439.07	719.54	1,523.51	752.40	1.55	-0.20	0.064
80.00	-9.12	-0.76	0.00	-39.92	0.00	39.92	1,415.26	707.63	1,458.06	720.08	1.74	-0.21	0.062
85.00	-8.66	-0.74	0.00	-36.14	0.00	36.14	1,386.24	693.12	1,381.78	682.41	1.97	-0.24	0.059
90.00	-8.21	-0.73	0.00	-32.44	0.00	32.44	1,356.12	678.06	1,306.38	645.17	2.25	-0.28	0.056
95.00	-7.78	-0.71	0.00	-28.81	0.00	28.81	1,324.90	662.45	1,231.99	608.43	2.56	-0.31	0.053
100.00	-7.35	-0.69	0.00	-25.27	0.00	25.27	1,293.04	646.52	1,159.10	572.44	2.90	-0.34	0.050
105.00	-6.40	-0.63	0.00	-21.83	0.00	21.83	1,245.33	622.66	1,074.67	530.74	3.27	-0.37	0.046
110.00	-6.05	-0.61	0.00	-18.66	0.00	18.66	1,197.61	598.80	993.42	490.61	3.68	-0.40	0.043
110.00	-6.05	-0.61	0.00	-18.66	0.00	18.66	833.77	416.88	695.90	343.68	3.68	-0.40	0.062
115.00	-5.72	-0.59	0.00	-15.60	0.00	15.60	813.89	406.95	652.08	322.04	4.12	-0.43	0.055
120.00	-4.49	-0.50	0.00	-12.64	0.00	12.64	792.92	396.46	608.75	300.64	4.60	-0.47	0.048
125.00	-4.22	-0.48	0.00	-10.15	0.00	10.15	770.85	385.43	566.02	279.54	5.10	-0.50	0.042
130.00	-4.01	-0.46	0.00	-7.77	0.00	7.77	747.69	373.84	524.00	258.78	5.65	-0.53	0.035
134.00	-3.52	-0.41	0.00	-5.94	0.00	5.94	728.37	364.19	490.97	242.47	6.10	-0.55	0.029
135.00	-3.30	-0.39	0.00	-5.53	0.00	5.53	722.05	361.03	481.88	237.98	6.21	-0.56	0.028
140.00	-3.09	-0.37	0.00	-3.57	0.00	3.57	686.26	343.13	435.03	214.85	6.81	-0.58	0.021
145.00	-2.89	-0.35	0.00	-1.73	0.00	1.73	650.48	325.24	390.59	192.90	7.42	-0.59	0.013
150.00	0.00	-0.32	0.00	0.00	0.00	0.00	614.69	307.34	348.53	172.13	8.04	-0.59	0.000

Equivalent Modal Forces Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.80
Redundancy Factor (p):	1.00

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
35	147.50	234	1.828	1.667	1.025	0.330	52	290
34	142.50	243	1.706	1.144	0.823	0.255	41	301
33	137.50	251	1.588	0.742	0.654	0.189	32	311
32	134.50	51	1.520	0.550	0.566	0.153	5	63
31	132.00	247	1.464	0.415	0.501	0.125	21	306
30	127.50	317	1.366	0.222	0.397	0.080	17	392
29	122.50	325	1.261	0.069	0.302	0.038	8	403
28	117.50	390	1.160	-0.030	0.226	0.004	1	484
27	112.50	399	1.063	-0.088	0.165	-0.023	-6	494
26	107.50	477	0.971	-0.116	0.117	-0.041	-13	591
25	102.50	498	0.883	-0.121	0.081	-0.052	-17	617
24	97.50	509	0.799	-0.112	0.053	-0.056	-19	630
23	92.50	520	0.719	-0.092	0.034	-0.051	-18	644
22	87.50	531	0.643	-0.068	0.020	-0.039	-14	658
21	82.50	542	0.572	-0.043	0.012	-0.021	-7	671
20	77.88	469	0.509	-0.020	0.007	-0.002	-1	581
19	75.38	134	0.477	-0.008	0.006	0.008	1	166
18	74.25	268	0.463	-0.003	0.006	0.013	2	332
17	71.75	938	0.432	0.008	0.006	0.022	14	1,163
16	67.50	992	0.383	0.023	0.007	0.035	23	1,229
15	62.50	1,005	0.328	0.039	0.010	0.046	31	1,246
14	57.50	1,019	0.278	0.050	0.014	0.053	36	1,263
13	52.50	1,033	0.232	0.058	0.019	0.056	39	1,280
12	47.50	1,047	0.190	0.064	0.025	0.057	40	1,297
11	42.50	1,060	0.152	0.068	0.030	0.056	40	1,314
10	37.83	930	0.120	0.070	0.034	0.055	34	1,153
9	35.33	229	0.105	0.071	0.037	0.055	8	284
8	33.25	1,210	0.093	0.071	0.038	0.054	44	1,499
7	30.75	357	0.079	0.072	0.040	0.054	13	442
6	27.50	1,200	0.064	0.072	0.041	0.053	42	1,487
5	22.50	1,217	0.043	0.070	0.042	0.051	41	1,508
4	17.50	1,233	0.026	0.067	0.040	0.049	40	1,528
3	12.50	1,250	0.013	0.059	0.034	0.044	37	1,549
2	7.50	1,266	0.005	0.044	0.025	0.035	30	1,569

1	2.50	1,283	0.001	0.018	0.010	0.017	14	1,590
CCI TPX-070821	150.00	45	1.890	1.980	1.140	0.370	11	56
Raycap DC6-48-60-18-	150.00	40	1.890	1.980	1.140	0.370	10	50
CCI DTMABP7819VG12A	150.00	115	1.890	1.980	1.140	0.370	28	143
Ericsson RRUS-11 (50	150.00	150	1.890	1.980	1.140	0.370	37	186
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.370	39	197
10' Omni	150.00	25	1.890	1.980	1.140	0.370	6	31
Ericsson RRUS-32 (77	150.00	231	1.890	1.980	1.140	0.370	57	286
Powerwave Allgon 777	150.00	105	1.890	1.980	1.140	0.370	26	130
KMW AM-X-CD-16-65-00	150.00	97	1.890	1.980	1.140	0.370	24	120
Quintel QS66512-3 (1	150.00	336	1.890	1.980	1.140	0.370	83	416
Andrew SBNH-1D6565C	150.00	61	1.890	1.980	1.140	0.370	15	75
Round Platform w/ Ha	150.00	2,000	1.890	1.980	1.140	0.370	494	2,479
Kathrein Smart Bias	134.00	10	1.508	0.522	0.553	0.147	1	12
Site-Pro UWS6-NP	134.00	276	1.508	0.522	0.553	0.147	27	342
RFS APXV18-206517S-C	134.00	79	1.508	0.522	0.553	0.147	8	98
Andrew LNX-6515DS-VT	134.00	154	1.508	0.522	0.553	0.147	15	191
DragonWave Horizon C	120.00	11	1.210	0.014	0.262	0.020	0	13
12" x 12" Junction B	120.00	10	1.210	0.014	0.262	0.020	0	12
Alcatel-Lucent RRH2x	120.00	317	1.210	0.014	0.262	0.020	4	393
Nokia FZHN Flexi RRH	120.00	132	1.210	0.014	0.262	0.020	2	164
Alcatel-Lucent 1900	120.00	180	1.210	0.014	0.262	0.020	2	223
RFS APXVTM14-ALU-I20	120.00	169	1.210	0.014	0.262	0.020	2	209
DragonWave A-ANT-11G	120.00	48	1.210	0.014	0.262	0.020	1	59
Commscope NNVV-	120.00	232	1.210	0.014	0.262	0.020	3	288
dB Systems 5100A	105.00	21	0.926	-0.121	0.098	-0.048	-1	26
VertexRSI 101V VPD	105.00	4	0.926	-0.121	0.098	-0.048	0	5
dB Systems 5100A-D	105.00	152	0.926	-0.121	0.098	-0.048	-5	188
Round Side Arm	105.00	450	0.926	-0.121	0.098	-0.048	-14	558
		29,280	63.624	30.506	23.825	6.706	1,487	36,286

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
35	147.50	234	1.828	1.667	1.025	0.330	52	202
34	142.50	243	1.706	1.144	0.823	0.255	41	209
33	137.50	251	1.588	0.742	0.654	0.189	32	216
32	134.50	51	1.520	0.550	0.566	0.153	5	44
31	132.00	247	1.464	0.415	0.501	0.125	21	213
30	127.50	317	1.366	0.222	0.397	0.080	17	272
29	122.50	325	1.261	0.069	0.302	0.038	8	280
28	117.50	390	1.160	-0.030	0.226	0.004	1	336
27	112.50	399	1.063	-0.088	0.165	-0.023	-6	343
26	107.50	477	0.971	-0.116	0.117	-0.041	-13	410
25	102.50	498	0.883	-0.121	0.081	-0.052	-17	428
24	97.50	509	0.799	-0.112	0.053	-0.056	-19	438
23	92.50	520	0.719	-0.092	0.034	-0.051	-18	447
22	87.50	531	0.643	-0.068	0.020	-0.039	-14	457
21	82.50	542	0.572	-0.043	0.012	-0.021	-7	466
20	77.88	469	0.509	-0.020	0.007	-0.002	-1	404
19	75.38	134	0.477	-0.008	0.006	0.008	1	115
18	74.25	268	0.463	-0.003	0.006	0.013	2	231
17	71.75	938	0.432	0.008	0.006	0.022	14	808
16	67.50	992	0.383	0.023	0.007	0.035	23	854
15	62.50	1,005	0.328	0.039	0.010	0.046	31	865
14	57.50	1,019	0.278	0.050	0.014	0.053	36	877
13	52.50	1,033	0.232	0.058	0.019	0.056	39	889
12	47.50	1,047	0.190	0.064	0.025	0.057	40	901

11	42.50	1,060	0.152	0.068	0.030	0.056	40	913
10	37.83	930	0.120	0.070	0.034	0.055	34	801
9	35.33	229	0.105	0.071	0.037	0.055	8	197
8	33.25	1,210	0.093	0.071	0.038	0.054	44	1,041
7	30.75	357	0.079	0.072	0.040	0.054	13	307
6	27.50	1,200	0.064	0.072	0.041	0.053	42	1,033
5	22.50	1,217	0.043	0.070	0.042	0.051	41	1,047
4	17.50	1,233	0.026	0.067	0.040	0.049	40	1,062
3	12.50	1,250	0.013	0.059	0.034	0.044	37	1,076
2	7.50	1,266	0.005	0.044	0.025	0.035	30	1,090
1	2.50	1,283	0.001	0.018	0.010	0.017	14	1,104
CCI TPX-070821	150.00	45	1.890	1.980	1.140	0.370	11	39
Raycap DC6-48-60-18-	150.00	40	1.890	1.980	1.140	0.370	10	34
CCI DTMABP7819VG12A	150.00	115	1.890	1.980	1.140	0.370	28	99
Ericsson RRUS-11 (50	150.00	150	1.890	1.980	1.140	0.370	37	129
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.370	39	137
10' Omni	150.00	25	1.890	1.980	1.140	0.370	6	22
Ericsson RRUS-32 (77	150.00	231	1.890	1.980	1.140	0.370	57	199
Powerwave Allgon 777	150.00	105	1.890	1.980	1.140	0.370	26	90
KMW AM-X-CD-16-65-00	150.00	97	1.890	1.980	1.140	0.370	24	83
Quintel QS66512-3 (1	150.00	336	1.890	1.980	1.140	0.370	83	289
Andrew SBNH-1D6565C	150.00	61	1.890	1.980	1.140	0.370	15	52
Round Platform w/ Ha	150.00	2,000	1.890	1.980	1.140	0.370	494	1,721
Kathrein Smart Bias	134.00	10	1.508	0.522	0.553	0.147	1	9
Site-Pro UWS6-NP	134.00	276	1.508	0.522	0.553	0.147	27	238
RFS APXV18-206517S-C	134.00	79	1.508	0.522	0.553	0.147	8	68
Andrew LNX-6515DS-VT	134.00	154	1.508	0.522	0.553	0.147	15	132
DragonWave Horizon C	120.00	11	1.210	0.014	0.262	0.020	0	9
12" x 12" Junction B	120.00	10	1.210	0.014	0.262	0.020	0	9
Alcatel-Lucent RRH2x	120.00	317	1.210	0.014	0.262	0.020	4	273
Nokia FZHN Flexi RRH	120.00	132	1.210	0.014	0.262	0.020	2	114
Alcatel-Lucent 1900	120.00	180	1.210	0.014	0.262	0.020	2	155
RFS APXVTM14-ALU-I20	120.00	169	1.210	0.014	0.262	0.020	2	145
DragonWave A-ANT-11G	120.00	48	1.210	0.014	0.262	0.020	1	41
Commscope NNVV-	120.00	232	1.210	0.014	0.262	0.020	3	200
dB Systems 5100A	105.00	21	0.926	-0.121	0.098	-0.048	-1	18
VertexRSI 101V VPD	105.00	4	0.926	-0.121	0.098	-0.048	0	3
dB Systems 5100A-D	105.00	152	0.926	-0.121	0.098	-0.048	-5	131
Round Side Arm	105.00	450	0.926	-0.121	0.098	-0.048	-14	387
		29,280	63.624	30.506	23.825	6.706	1,487	25,203

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.70	-1.48	0.00	-176.62	0.00	176.62	3,136.53	1,568.27	4,731.25	2,336.59	0.00	0.00	0.054
5.00	-33.13	-1.46	0.00	-169.23	0.00	169.23	3,092.06	1,546.03	4,560.72	2,252.37	0.01	-0.02	0.053
10.00	-31.58	-1.43	0.00	-161.93	0.00	161.93	3,046.49	1,523.25	4,391.58	2,168.84	0.04	-0.04	0.052
15.00	-30.05	-1.40	0.00	-154.76	0.00	154.76	2,999.83	1,499.91	4,223.96	2,086.05	0.10	-0.06	0.051
20.00	-28.54	-1.37	0.00	-147.75	0.00	147.75	2,952.07	1,476.04	4,057.95	2,004.07	0.17	-0.08	0.050
25.00	-27.05	-1.34	0.00	-140.90	0.00	140.90	2,901.93	1,450.96	3,891.94	1,922.08	0.27	-0.10	0.049
30.00	-26.61	-1.33	0.00	-134.22	0.00	134.22	2,830.35	1,415.18	3,701.25	1,827.91	0.38	-0.12	0.048
31.50	-25.11	-1.29	0.00	-132.23	0.00	132.23	2,808.88	1,404.44	3,644.98	1,800.12	0.42	-0.13	0.048
35.00	-24.83	-1.28	0.00	-127.73	0.00	127.73	2,758.78	1,379.39	3,515.36	1,736.10	0.53	-0.15	0.047
35.67	-23.67	-1.25	0.00	-126.88	0.00	126.88	2,225.24	1,112.62	2,894.88	1,429.67	0.55	-0.15	0.053
40.00	-22.36	-1.21	0.00	-121.47	0.00	121.47	2,194.35	1,097.17	2,791.07	1,378.40	0.69	-0.17	0.052
45.00	-21.06	-1.18	0.00	-115.41	0.00	115.41	2,157.69	1,078.84	2,672.25	1,319.72	0.88	-0.19	0.050
50.00	-19.78	-1.14	0.00	-109.52	0.00	109.52	2,119.93	1,059.96	2,554.56	1,261.60	1.09	-0.21	0.049
55.00	-18.52	-1.11	0.00	-103.81	0.00	103.81	2,081.07	1,040.54	2,438.12	1,204.10	1.32	-0.24	0.047
60.00	-17.27	-1.08	0.00	-98.27	0.00	98.27	2,041.12	1,020.56	2,323.03	1,147.26	1.58	-0.26	0.046
65.00	-16.04	-1.06	0.00	-92.87	0.00	92.87	1,992.10	996.05	2,200.59	1,086.79	1.87	-0.28	0.044
70.00	-14.88	-1.04	0.00	-87.59	0.00	87.59	1,932.46	966.23	2,070.05	1,022.32	2.18	-0.31	0.043
73.50	-14.55	-1.04	0.00	-83.94	0.00	83.94	1,451.36	725.68	1,558.37	769.62	2.41	-0.32	0.049
75.00	-14.38	-1.04	0.00	-82.37	0.00	82.37	1,443.19	721.60	1,535.11	758.14	2.51	-0.33	0.048
75.75	-13.80	-1.04	0.00	-81.59	0.00	81.59	1,439.07	719.54	1,523.51	752.40	2.56	-0.34	0.048
75.75	-13.80	-1.04	0.00	-81.59	0.00	81.59	1,439.07	719.54	1,523.51	752.40	2.56	-0.34	0.118
80.00	-13.13	-1.06	0.00	-77.17	0.00	77.17	1,415.26	707.63	1,458.06	720.08	2.87	-0.36	0.116
85.00	-12.47	-1.08	0.00	-71.89	0.00	71.89	1,386.24	693.12	1,381.78	682.41	3.28	-0.42	0.114
90.00	-11.82	-1.11	0.00	-66.50	0.00	66.50	1,356.12	678.06	1,306.38	645.17	3.76	-0.49	0.112
95.00	-11.19	-1.13	0.00	-60.97	0.00	60.97	1,324.90	662.45	1,231.99	608.43	4.31	-0.56	0.109
100.00	-10.57	-1.16	0.00	-55.31	0.00	55.31	1,293.04	646.52	1,159.10	572.44	4.94	-0.63	0.105
105.00	-9.20	-1.18	0.00	-49.53	0.00	49.53	1,245.33	622.66	1,074.67	530.74	5.63	-0.70	0.101
110.00	-8.71	-1.19	0.00	-43.60	0.00	43.60	1,197.61	598.80	993.42	490.61	6.40	-0.77	0.096
110.00	-8.71	-1.19	0.00	-43.60	0.00	43.60	833.77	416.88	695.90	343.68	6.40	-0.77	0.137
115.00	-8.22	-1.20	0.00	-37.63	0.00	37.63	813.89	406.95	652.08	322.04	7.25	-0.84	0.127
120.00	-6.46	-1.16	0.00	-31.64	0.00	31.64	792.92	396.46	608.75	300.64	8.17	-0.93	0.113
125.00	-6.06	-1.14	0.00	-25.85	0.00	25.85	770.85	385.43	566.02	279.54	9.19	-1.01	0.100
130.00	-5.76	-1.12	0.00	-20.14	0.00	20.14	747.69	373.84	524.00	258.78	10.28	-1.08	0.086
134.00	-5.05	-1.06	0.00	-15.65	0.00	15.65	728.37	364.19	490.97	242.47	11.21	-1.14	0.071
135.00	-4.74	-1.02	0.00	-14.59	0.00	14.59	722.05	361.03	481.88	237.98	11.45	-1.15	0.068
140.00	-4.44	-0.98	0.00	-9.49	0.00	9.49	686.26	343.13	435.03	214.85	12.68	-1.20	0.051
145.00	-4.15	-0.92	0.00	-4.61	0.00	4.61	650.48	325.24	390.59	192.90	13.96	-1.24	0.030
150.00	0.00	-0.83	0.00	0.00	0.00	0.00	614.69	307.34	348.53	172.13	15.26	-1.25	0.000

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.10	-1.48	0.00	-172.62	0.00	172.62	3,136.53	1,568.27	4,731.25	2,336.59	0.00	0.00	0.051
5.00	-23.01	-1.45	0.00	-165.24	0.00	165.24	3,092.06	1,546.03	4,560.72	2,252.37	0.01	-0.02	0.050
10.00	-21.93	-1.42	0.00	-157.97	0.00	157.97	3,046.49	1,523.25	4,391.58	2,168.84	0.04	-0.04	0.049
15.00	-20.87	-1.39	0.00	-150.84	0.00	150.84	2,999.83	1,499.91	4,223.96	2,086.05	0.09	-0.06	0.048
20.00	-19.82	-1.36	0.00	-143.89	0.00	143.89	2,952.07	1,476.04	4,057.95	2,004.07	0.17	-0.08	0.047
25.00	-18.79	-1.32	0.00	-137.11	0.00	137.11	2,901.93	1,450.96	3,891.94	1,922.08	0.26	-0.10	0.046
30.00	-18.48	-1.31	0.00	-130.52	0.00	130.52	2,830.35	1,415.18	3,701.25	1,827.91	0.38	-0.12	0.045
31.50	-17.44	-1.27	0.00	-128.56	0.00	128.56	2,808.88	1,404.44	3,644.98	1,800.12	0.41	-0.13	0.045
35.00	-17.24	-1.26	0.00	-124.13	0.00	124.13	2,758.78	1,379.39	3,515.36	1,736.10	0.51	-0.14	0.044
35.67	-16.44	-1.23	0.00	-123.29	0.00	123.29	2,225.24	1,112.62	2,894.88	1,429.67	0.53	-0.14	0.050
40.00	-15.53	-1.19	0.00	-117.97	0.00	117.97	2,194.35	1,097.17	2,791.07	1,378.40	0.67	-0.16	0.048
45.00	-14.63	-1.15	0.00	-112.02	0.00	112.02	2,157.69	1,078.84	2,672.25	1,319.72	0.85	-0.18	0.047
50.00	-13.74	-1.12	0.00	-106.25	0.00	106.25	2,119.93	1,059.96	2,554.56	1,261.60	1.06	-0.21	0.046
55.00	-12.86	-1.08	0.00	-100.67	0.00	100.67	2,081.07	1,040.54	2,438.12	1,204.10	1.29	-0.23	0.044
60.00	-11.99	-1.05	0.00	-95.26	0.00	95.26	2,041.12	1,020.56	2,323.03	1,147.26	1.54	-0.25	0.043
65.00	-11.14	-1.03	0.00	-89.99	0.00	89.99	1,992.10	996.05	2,200.59	1,086.79	1.82	-0.28	0.042
70.00	-10.33	-1.02	0.00	-84.84	0.00	84.84	1,932.46	966.23	2,070.05	1,022.32	2.12	-0.30	0.041
73.50	-10.10	-1.01	0.00	-81.28	0.00	81.28	1,451.36	725.68	1,558.37	769.62	2.34	-0.32	0.046
75.00	-9.99	-1.01	0.00	-79.76	0.00	79.76	1,443.19	721.60	1,535.11	758.14	2.44	-0.32	0.045
75.75	-9.58	-1.01	0.00	-79.00	0.00	79.00	1,439.07	719.54	1,523.51	752.40	2.49	-0.33	0.045
75.75	-9.58	-1.01	0.00	-79.00	0.00	79.00	1,439.07	719.54	1,523.51	752.40	2.49	-0.33	0.112
80.00	-9.12	-1.03	0.00	-74.69	0.00	74.69	1,415.26	707.63	1,458.06	720.08	2.80	-0.35	0.110
85.00	-8.66	-1.05	0.00	-69.56	0.00	69.56	1,386.24	693.12	1,381.78	682.41	3.19	-0.41	0.108
90.00	-8.21	-1.07	0.00	-64.33	0.00	64.33	1,356.12	678.06	1,306.38	645.17	3.66	-0.48	0.106
95.00	-7.77	-1.09	0.00	-58.98	0.00	58.98	1,324.90	662.45	1,231.99	608.43	4.19	-0.54	0.103
100.00	-7.34	-1.12	0.00	-53.51	0.00	53.51	1,293.04	646.52	1,159.10	572.44	4.80	-0.61	0.099
105.00	-6.39	-1.15	0.00	-47.93	0.00	47.93	1,245.33	622.66	1,074.67	530.74	5.47	-0.68	0.095
110.00	-6.04	-1.15	0.00	-42.20	0.00	42.20	1,197.61	598.80	993.42	490.61	6.22	-0.75	0.091
110.00	-6.04	-1.15	0.00	-42.20	0.00	42.20	833.77	416.88	695.90	343.68	6.22	-0.75	0.130
115.00	-5.71	-1.16	0.00	-36.42	0.00	36.42	813.89	406.95	652.08	322.04	7.04	-0.81	0.120
120.00	-4.48	-1.12	0.00	-30.64	0.00	30.64	792.92	396.46	608.75	300.64	7.93	-0.90	0.108
125.00	-4.21	-1.11	0.00	-25.03	0.00	25.03	770.85	385.43	566.02	279.54	8.92	-0.98	0.095
130.00	-3.99	-1.09	0.00	-19.50	0.00	19.50	747.69	373.84	524.00	258.78	9.98	-1.05	0.081
134.00	-3.50	-1.02	0.00	-15.15	0.00	15.15	728.37	364.19	490.97	242.47	10.88	-1.10	0.067
135.00	-3.29	-0.99	0.00	-14.13	0.00	14.13	722.05	361.03	481.88	237.98	11.11	-1.11	0.064
140.00	-3.08	-0.95	0.00	-9.19	0.00	9.19	686.26	343.13	435.03	214.85	12.31	-1.16	0.047
145.00	-2.88	-0.89	0.00	-4.46	0.00	4.46	650.48	325.24	390.59	192.90	13.54	-1.20	0.028
150.00	0.00	-0.83	0.00	0.00	0.00	0.00	614.69	307.34	348.53	172.13	14.81	-1.21	0.000

Analysis Summary

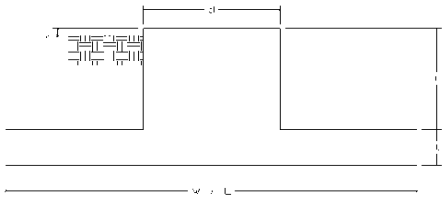
Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	23.98	0.00	35.08	0.00	0.00	2279.16	75.75	1.00
0.9D + 1.6W	23.96	0.00	26.30	0.00	0.00	2245.15	75.75	0.97
1.2D + 1.0Di + 1.0Wi	5.96	0.00	73.90	0.00	0.00	650.15	75.75	0.34
(1.2 + 0.2Sds) * DL + E ELFM	0.88	0.00	34.70	0.00	0.00	110.91	75.75	0.07
(1.2 + 0.2Sds) * DL + E EMAM	1.48	0.00	34.70	0.00	0.00	176.62	110.00	0.14
(0.9 - 0.2Sds) * DL + E ELFM	0.88	0.00	24.10	0.00	0.00	108.65	75.75	0.06
(0.9 - 0.2Sds) * DL + E EMAM	1.48	0.00	24.10	0.00	0.00	172.62	110.00	0.13
1.0D + 1.0W	5.75	0.00	29.28	0.00	0.00	543.16	75.75	0.24

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	75.7	(4) SOL-#20 All Thre	286.2	8.6	16.8	164.2	12.0	14	14	0.0	12.0	0	0	242.1	330.5	0.733

Site Name:	Sttn- Southington, CT
Site Number:	302475
Engineering Number:	OAA713367
Engineer:	Zackaryah.Hughes
Date:	01/04/19
Tower Type:	MP

Program Last Updated: *5/13/2014*



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:	Analysis				
Compression/Leg:	35.1	k	Concrete Strength (f'_c):	3000	psi
Uplift/Leg:	0.0	k	Pad Tension Steel Depth:	32.00	in
Total Shear:	24.0	k	ϕ_{Shear}:	0.75	
Moment:	2279.2	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	35.1	k	$\phi_{Compression:}$	0.65	
Depth to Base of Foundation (l + t - h):	8.00	ft	β:	0.85	
Diameter of Pier (d):	4.33	ft	Bottom Pad Rebar Size #:	10	
Height of Pier above Ground (h):	0.50		# of Bottom Pad Rebar:	36	
Width of Pad (W):	18.00	ft	Pad Bottom Steel Area:	45.72	in^2
Length of Pad (L):	18.00	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	3.00	ft	Top Pad Rebar Size #:	5	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	36	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	11.16	in^2
Tower Center from Mat Center:	0.00	ft	Pier Rebar Size #:	11	
Depth Below Ground Surface to Water Table:	9.00	ft	Pier Steel Area (Single Bar):	1.56	in^2
Unit Weight of Concrete:	150.0	pcf	# of Pier Rebar:	52	
Unit Weight of Soil Above Water Table:	115.0	pcf	Pier Steel F_y:	60000	psi
Unit Weight of Water:	62.4	pcf	Pier Cage Diameter:	44.0	in
Unit Weight of Soil Below Water Table:	52.6	pcf	Rebar Strain Limit:	0.008	
Friction Angle of Uplift:	0.0	Degrees	Steel Elastic Modulus:	29000	ksi
Ultimate Coefficient of Shear Friction:	0.35		Tie Rebar Size #:	4	
Ultimate Compressive Bearing Pressure:	12000.0	psf	Tie Steel Area (Single Bar):	0.20	in^2
Ultimate Passive Pressure on Pad Face:	0.0	psf	Tie Spacing:	12	in
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9		Tie Steel F_y:	60000	psi
ϕ_{Soil}:	0.75				

Overturning Moment Usage

Design OTM:	2483.2	k-ft
OTM Resistance:	2956.8	k-ft
Design OTM / OTM Resistance:	0.84	Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	4414	psf
Factored Nominal Bearing Pressure:	9000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.49	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

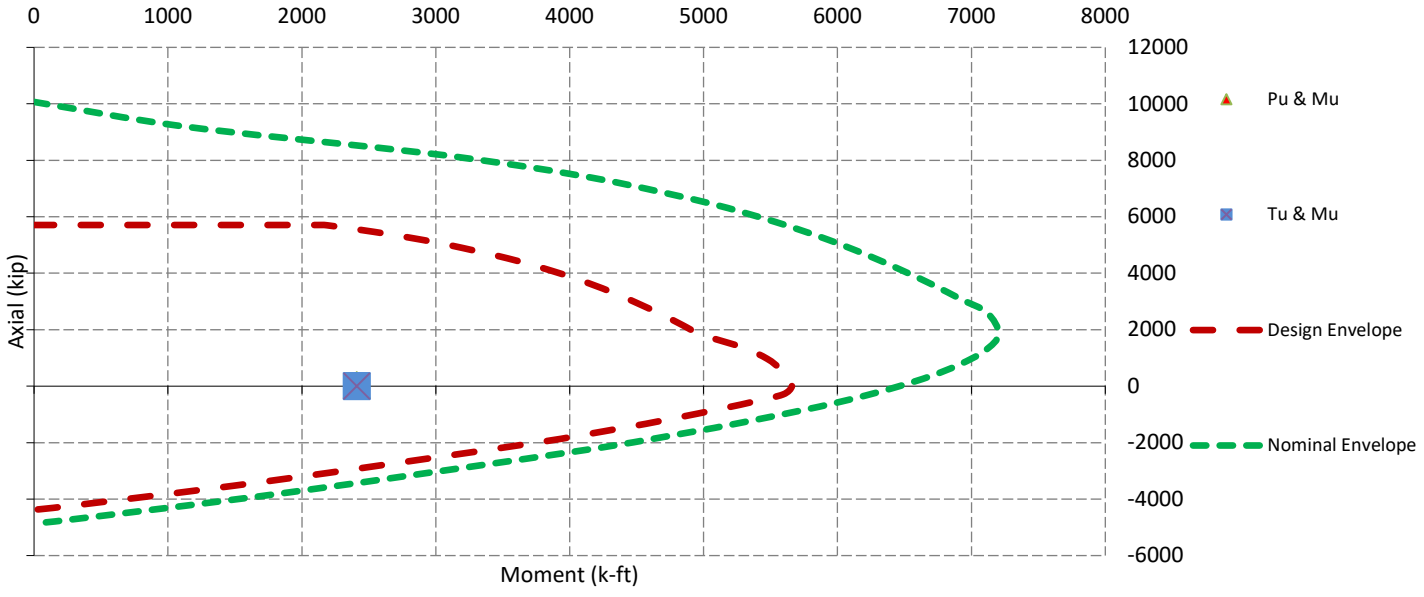
Sliding Factor of Safety

Total Factored Sliding Resistance:	95.8	k
Sliding Design / Sliding Resistance:	0.25	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	165.8	k
One Way Shear Capacity (ϕV_c):	498.2	k - ACI11.3.1.1
V_u / ϕV_c:	0.33	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Steel Pad Factored Moment (M_u):	987.1	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	6148.2	k-ft - ACI10.3
M_u / ϕM_n:	0.16	Result: OK
Load Direction Controling Flexural Capacity:	Parallel to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	660.7	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	1581.1	k-ft
M_u / ϕM_n:	0.42	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0066	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0016	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	6	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	6	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1386.9	k - ACI11.12.2.1
V_u / ϕV_c:	0.00	Result: OK
Factored Moment in Pier (M_u):	2411.2	k-ft
Pier Moment Capacity (ϕM_n):	7846.3	k-ft
M_u / ϕM_n:	0.31	Result: OK
Factored Shear in Pier (V_u):	24.0	k
Pier Shear Capacity (ϕV_n):	175.7	k
V_u / ϕV_c:	0.14	Result: OK
Pier Shear Reinforcement Ratio:	0.0009	No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k
Pier Tension Capacity (ϕT_n):	4380.5	k
T_u / ϕT_n:	0.00	Result: OK
Factored Compression in Pier (P_u):	35.1	k
Pier Compression Capacity (ϕP_n):	2704.2	k - ACI10.3.6.2
P_u / ϕP_n:	0.01	Result: OK
Pier Compression Reinforcement Ratio:	0.038	OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.31	Result: OK

Nominal and Design Moment Capacity and Factored Design Loads



Base Plate & Anchor Rod Analysis

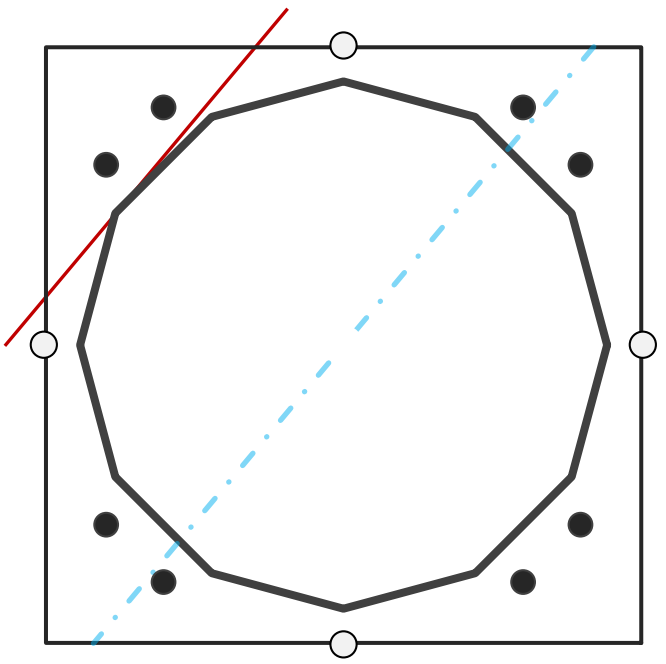
Pole Dimensions		
Number of Sides	12	-
Diameter	37.38	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2279.2	k-ft
Axial, Pu	35.1	k
Shear, Vu	24.0	k
Neutral Axis	50	°

Report Capacities		
Component	Capacity	Result
Base Plate	53%	Pass
Anchor Rods	73%	Pass
Dwyidag	48%	Pass

Base Plate		
Shape	Square	-
Width	44	in
Thickness	2 1/2	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1092.0	k
Bending Stress, ϕMn	2075.7	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	190.3	k
Anchor Rods, ϕPn	259.8	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	44.26	in
Orientation Offset	0	°
Applied Force, Pu	190.1	k
Dywidag Bar, ϕPn	392.7	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	24.0	1379.1	0.61
Anchor Rod Forces	24.0	1379.1	0.61
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	900.1	0.39
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	43.0934	3.5911	0.1692		7376.38
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		4814.56
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	44	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	23.219	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	24.600	in
Additional AA	0.000	in
Section Modulus, Z	38.438	in^3
Applied Moment, Mu	1092.0	k-ft
Bending Capacity, ϕMn	2075.7	k-ft
Capacity, Mu/ϕMn	0.526	OK
Chord Length AB	23.273	in
Additional AB	0.000	in
Section Modulus, Z	36.364	in^3
Applied Moment, Mu	842.4	k-ft
Bending Capacity, ϕMn	1963.7	k-ft
Capacity, Mu/ϕMn	0.429	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

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

Anchor Rods		
Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	190.3	k
Applied Shear, Vu	0.3	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.732	OK
Interaction Capacity	0.734	OK

Additional Bolt Group 1		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Compressive Capacity, ϕPn		
Interaction Capacity		

Additional Bolt Group 2		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Compressive Capacity, ϕPn		
Interaction Capacity		

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	44.255	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	190.1	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.484	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	0.0	k
Applied Horizontal Force, Vu	0.00	k

Vertical Weld		
Vert.-to-Stiffener a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, ϕPn	#DIV/0!	k
Vert.-to-Plate a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$		

Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	0.000	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, ϕPn	#DIV/0!	k
Horz.-to-Pole a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$		

Plate Tension		
Gross Cross Section	0.000	in^2
Net Cross Section	0.000	in^2
Tensile Capacity, ϕTn	0.0	k
Capacity, Tu/ϕTn		

Plate Compression		
Radius of Gyration	#DIV/0!	in^3
kl/r	#DIV/0!	-
4.71 $\sqrt{(E/Fy)}$	0.00	-
Buckling Stress(Fe)	0.0	-
Crit. Buckling Stress(Fcr)	0.0	ksi
Compressive Capacity, ϕPn	0.0	k
Capacity, Pu/ϕPn		

Base/Flange Plate			
	Plate Type	***Flange***	***@ 110.0 ft***
	Pole Diameter	20.43	in
	Pole Thickness	0.1875	in
	Plate Diameter	28	in
	Plate Thickness	1	in
	Plate Fy	36	ksi
	Weld Length	0.125	in
	ϕ_s Resistance	347.07	k-in
	Applied	83.60	k-in

Stiffeners			
	#	***12***	***Show***
	Thickness	0.75	in
	Length	3	in
	Height	6	in
	Chamfer	0.75	in
	Offset Angle	0	°
	Fy	50	ksi

Bolts			
	#	***12***	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
●	Diameter	1	in
	Hole Diameter	1.125	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	ϕ_s Resistance	54.52	k
	Applied	42.38	k

Reinforcement ●		
#	***0***	

Extra Bolts O		
#	***0***	

Code Rev. ***G***

Moment 277.1 k-ft

Axial 7.6 k

Date 1/4/2019

Engineer Zackaryah.Hughes

Site # 302475

Carrier CLEARWIRE CORPORATION

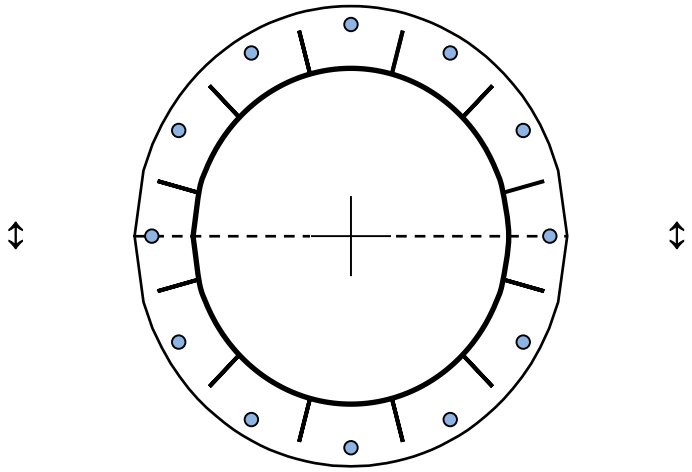


Plate Stress Ratio:

0.24 (Pass)

Bolt Stress Ratio:

0.78 (Pass)

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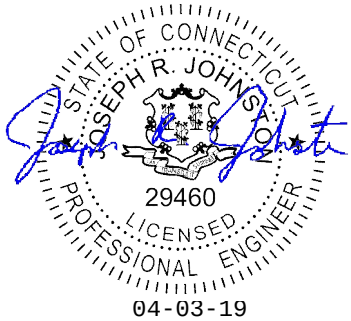
1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Mount Analysis Report

January 8, 2019

Site ID	CT52XC108
Site Name	STTN – Southington
Client	Airosmith
Carrier	Sprint
Infinigy Job Number	526-104
Site Location	80 Shuttle Meadow Road Southington, CT 06489 41° 38' 18.90" N NAD83 72° 50' 28.00" W NAD83
Mount Centerline EL.	120.0 ft
Mount Classification	Platform
Mount Usage	**56.4%**
Overall Result	**Contingent Pass**
Note	**Mount must be replaced with new SitePro1 RMQP-396 prior to installation of proposed appurtenances.**

Upon reviewing the results of this analysis, it is our opinion that the mount meets the specified TIA code requirements. The mounts and connections for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.



Kevin Berger Jr.

Contents

Introduction

Infinigy Engineering has been requested to perform a mount analysis on the existing Sprint mounts. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 17.0.2 analysis software.

Supporting Documentation

Colo App	Sprint Site ID #CT52XC108, dated December 6, 2018
Construction Drawing	Infinigy Engineering Job #526-104, dated December 20, 2018
Previous Analysis	Infinigy Engineering Job #526-104, dated January 19, 2018

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust, V_{ASD}) / 125 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust, V_{ASD}) w/ 0.75" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2015 IBC/ 2018 Connecticut State Building Code
Structure Class	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the mount meets the specified TIA code requirements. The mounts and connections for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.

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

Kevin Berger Jr.
1033 Watervliet Shaker Road
Albany NY 12205
(O) 518-690-0790 | Structural@Infinigy.com

Final Configuration Loading

Mount CL (ft)	Rad. HT(ft)	Vert. O/S(ft)	Horiz. O/S(ft)(1)	Qty	Appurtenance(2)	Carrier
120.0	120.0	0.0	6.3	3	Commscope NNVV-65B-R4	Sprint
			11.3	3	RFS APXVTM14-ALU-I20	
			11.3	6	Alcatel-Lucent 800 MHz 2x50 RRH	
			6.3	3	Alcatel-Lucent 1900 MHz 4x45	
			1.3	3	Nokia Flexi RRH 8TR 2600 9x20W	
			1.3	1	DragonWave A-ANT-11G-2.5-C	
			1.3	1	DragonWave Horizon Compact	

(1)Horizontal Offset is defined as the distance from the left most edge of the mount when viewed facing the tower.
(2)Radios are mounted behind antennas at respective locations see appended documents for vertical locations.

Structure Usages

Standoff	56.4%	Pass
Horizontal	37.4%	Pass
Mount Pipe	56.1%	Pass
Results	**56.4%**	**Pass**

Mount Connection Reactions

Reaction Data	Design Reactions	Analysis Reactions	Result
Max Tension (lbs)	12340.0	1855.1	15.0%
Max Shear (lbs)	7770.0	2444.7	31.5%
Unity Check	--	--	46.5%

***Assumed (2) 1/2" A307 Anchors. Contractor to field to verify anchor diameters prior to proper installation.**

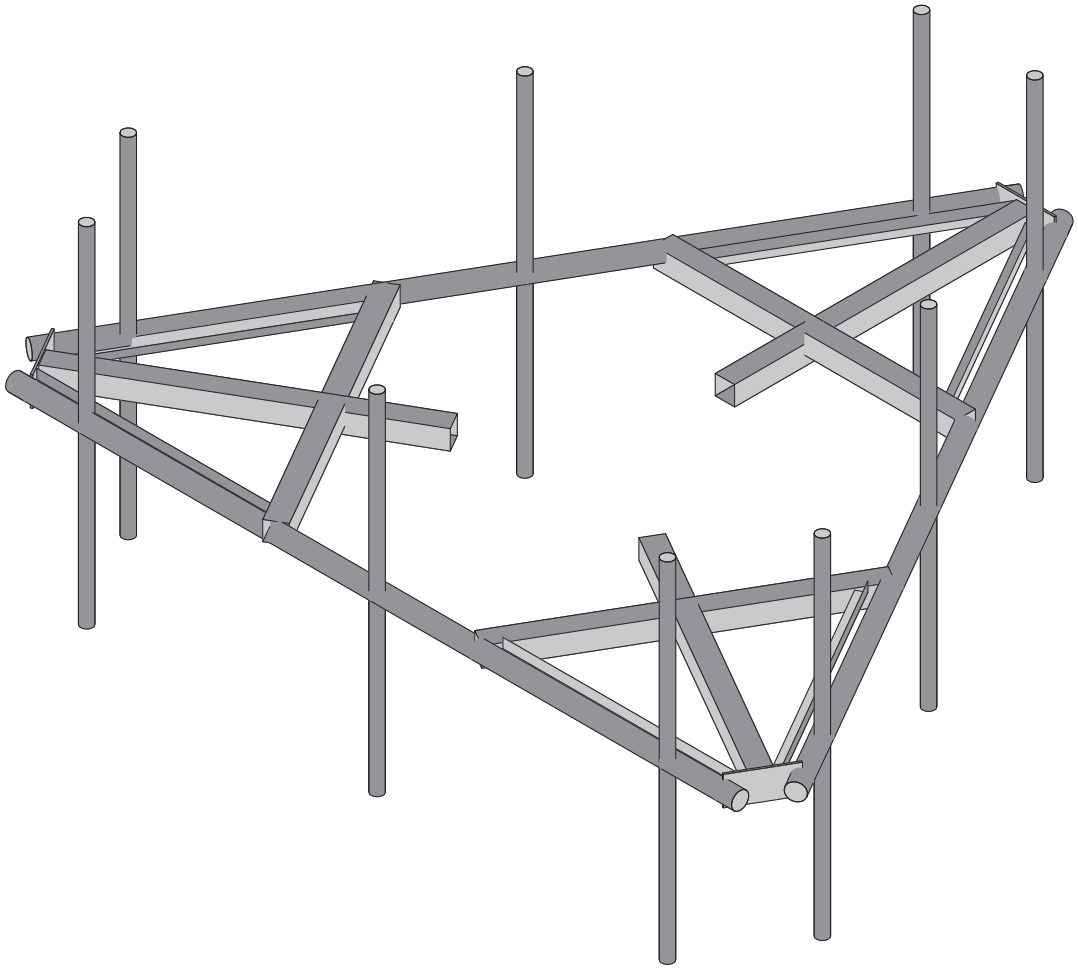
- Anchor reactions are acceptable when compared to manufacturer's listed capacities.

Assumptions and Limitations

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

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

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



Envelope Only Solution

Infinigy Engineering, PLLC.	CT52XC108	Final Configuration
KLB		Jan 8, 2019 at 12:15 PM
526-104		CT52XC108.r3d

Site Name:	CT52XC108
Client:	Airosmith
Carrier:	Sprint
Engineer:	KLB
Date:	1/8/2019

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INFINIGY WIND LOAD CALCULATOR 3.0.2

Site Information Inputs:

Adopted Building Code:	2015 IBC
Structure Load Standard:	TIA-222-G
Antenna Load Standard:	TIA-222-G
Structure Risk Category:	II
Structure Type:	Mount - Platform
Number of Sectors:	3
Structure Shape 1:	Round

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	97	mph (nominal 3-second gust)
Wind Centerline 1 (z_1):	120.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	C	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
30.09	1.00	**36.11**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
8.00	1.00	**22.37**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (nominal 3-second gust)
Base Ice Thickness:	0.75	in

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
Commscope NNVV-65B-R4	120.0	3	1.00	Flat	Flat	30.09	12.27	369.29	173.04	222.10	320.23
RFS APXVTM14-ALU-I20	120.0	3	1.00	Flat	Flat	30.09	6.34	190.87	108.56	129.14	170.29
Alcatel-Lucent 800 MHz 2x50 RRH	120.0	6	1.00	Flat	Flat	30.09	2.06	61.94	40.98	46.22	56.70
Alcatel-Lucent 1900 MHz 4x45 RRH	120.0	3	1.00	Flat	Flat	30.09	2.31	69.59	71.47	71.00	70.06
Nokia Flexi RRH 8TR 2600 9x20W	120.0	3	1.00	Flat	Flat	30.09	3.70	111.47	38.94	57.07	93.34
DragonWave A-ANT-11G-2.5-C	120.0	1	1.00	Round	Round	30.09	0.04	1.28	1.30	1.29	1.29
DragonWave Horizon Compact	120.0	1	1.00	Flat	Flat	30.09	0.36	10.96	10.96	10.96	10.96

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
2	M2	N3	N4			Corner Plate	Beam	None	A53 Gr.B	Typical
3	M3	N5	N8			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
4	M4	N9	N10			Corner Plate	Beam	None	A53 Gr.B	Typical
5	M5	N6	N11			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
6	M6	N12	N13			Corner Plate	Beam	None	A53 Gr.B	Typical
7	M7	N16	N15			3" STD Pipe	Beam	None	A53 Gr.B	Typical
8	M8	N19	N18			3" STD Pipe	Beam	None	A53 Gr.B	Typical
9	M9	N22	N21			3" STD Pipe	Beam	None	A53 Gr.B	Typical
10	M10	N26	N27			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
11	M11	N28	N29			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
12	M12	N30	N31			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
13	M13	N33	N34			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
14	M14	N32	N35		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
15	M15	N37	N38			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
16	M16	N36	N39		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
17	M17	N41	N42			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
18	M18	N40	N43		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
19	MP1	N100	N101			2" STD Pipe	Beam	None	A53 Gr.B	Typical
20	MP2	N102	N103			2" STD Pipe	Beam	None	A53 Gr.B	Typical
21	MP3	N104	N105			2" STD Pipe	Beam	None	A53 Gr.B	Typical
22	MP7	N112	N113			2" STD Pipe	Beam	None	A53 Gr.B	Typical
23	MP8	N114	N115			2" STD Pipe	Beam	None	A53 Gr.B	Typical
24	MP9	N116	N117			2" STD Pipe	Beam	None	A53 Gr.B	Typical
25	MP4	N106	N107			2" STD Pipe	Beam	None	A53 Gr.B	Typical
26	MP5	N108	N109			2" STD Pipe	Beam	None	A53 Gr.B	Typical
27	MP6	N110	N111			2" STD Pipe	Beam	None	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A36 Gr.36	L2x2x2	6	303.1	0
3	A53 Gr.B	6"x0.37" Plate	3	36	0
4	A53 Gr.B	HSS4x4x4	6	374.3	.4
5	A53 Gr.B	PIPE_2.0	9	648	.2
6	A53 Gr.B	PIPE_3.0	3	450	.3
7	Total HR Steel		27	1811.4	.9

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			23		3	
2	Wind Load AZI 000	WLZ					23		1	
3	Wind Load AZI 090	WLX					23		1	
4	Ice Weight	OL1					23	27	3	
5	Wind + Ice Load AZI ...	OL2					23		1	
6	Wind + Ice Load AZI ...	OL3					23		1	
7	Service Live 1	LL				6				
8	BLC 1 Transient Area...	None						60		
9	BLC 2 Transient Area...	None						26		
10	BLC 3 Transient Area...	None						22		
11	BLC 4 Transient Area...	None						60		
12	BLC 5 Transient Area...	None						26		
13	BLC 6 Transient Area...	None						22		

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.4D	Yes	Y		DL	1.4																		
2	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	1.6																
3	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	1.386	W...	.8														
4	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	.8	W...	1.386														
5	1.2D + 1.6..	Yes	Y		DL	1.2			W...	1.6														
6	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-.8	W...	1.386														
7	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-1.3...	W...	.8														
8	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-1.6																
9	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-1.3...	W...	-.8														
10	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	-.8	W...	-1.3...														
11	1.2D + 1.6..	Yes	Y		DL	1.2			W...	-1.6														
12	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	.8	W...	-1.3...														
13	1.2D + 1.6..	Yes	Y		DL	1.2	WLZ	1.386	W...	-.8														
14	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	1.6																
15	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	1.386	W...	.8														
16	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	.8	W...	1.386														
17	0.9D + 1.6..	Yes	Y		DL	.9			W...	1.6														
18	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-.8	W...	1.386														
19	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-1.3...	W...	.8														
20	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-1.6																
21	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-1.3...	W...	-.8														
22	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	-.8	W...	-1.3...														
23	0.9D + 1.6..	Yes	Y		DL	.9			W...	-1.6														
24	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	.8	W...	-1.3...														
25	0.9D + 1.6..	Yes	Y		DL	.9	WLZ	1.386	W...	-.8														
26	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1																
27	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	1														
28	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	.5												
29	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	.866												
30	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1			OL3	1												
31	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	.866												
32	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	.5												
33	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-1														
34	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	-.5												
35	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	-.866												
36	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1			OL3	-1												
37	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	-.866												
38	1.2D + 1.0..	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	-.5												
39	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.111														
40	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.096	W...	.056												
41	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.056	W...	.096												
42	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5			W...	.111												
43	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.056	W...	.096												
44	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.096	W...	.056												
45	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.111														
46	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.096	W...	-.056												
47	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	-.056	W...	-.096												
48	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5			W...	-.111												
49	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.056	W...	-.096												
50	1.2D + 1.5..	Yes	Y		DL	1.2	LL	1.5	WLZ	.096	W...	-.056												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N6	max	1786.516	5	2232.943	36	1396.146	14	6513.316	45	4251.319	11	330.048	17
2		min	-1786.516	23	671.29	17	-1396.146	8	1451.168	14	-4251.83	5	-571.498	11
3	N5	max	1727.58	4	2444.681	31	1855.097	14	-95.72	20	1571.214	7	5214.404	30
4		min	-1727.341	22	689.415	24	-1855.163	8	-3419.291	39	-1569.809	25	549.005	23
5	N1	max	1679.049	18	2158.897	37	1615.82	2	-739.164	16	1440.847	15	-890.511	23
6		min	-1679.475	12	567.946	18	-1615.752	20	-3234.47	47	-1442.517	9	-4800.072	42
7	Totals:	max	4781.07	5	6803.915	38	4867.057	14						
8		min	-4781.07	23	2066.248	19	-4867.057	8						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear ..	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M5	HSS4x4x4	.564	0	30	.116	0	z	11	101755....	106155	12311.25	12311.25	1	H1-1b
2	MP2	PIPE_2.0	.561	36	8	.046	36		20	20866.7...	32130	1871.625	1871.625	1....	H1-1b
3	M3	HSS4x4x4	.521	0	31	.130	0	z	13	101755....	106155	12311.25	12311.25	1	H1-1b
4	M16	L2x2x2	.512	50.52	4	.020	50.52	z	5	6508.508	15908.4	402.563	797.904	2....	H2-1
5	MP8	PIPE_2.0	.497	36	23	.042	36		23	20866.7...	32130	1871.625	1871.625	1....	H1-1b
6	MP5	PIPE_2.0	.496	36	17	.042	36		17	20866.7...	32130	1871.625	1871.625	1....	H1-1b
7	M1	HSS4x4x4	.477	0	29	.097	0	y	48	101755....	106155	12311.25	12311.25	1	H1-1b
8	M14	L2x2x2	.442	50.52	12	.017	50.52	z	12	6508.508	15908.4	402.563	798.667	2....	H2-1
9	M7	PIPE_3.0	.374	53.125	11	.191	54.6...		4	59302.8...	65205	5748.75	5748.75	1	H1-1b
10	M13	L2x2x2	.354	50.52	21	.011	50.52	y	28	6508.508	15908.4	402.563	788.455	2....	H2-1
11	M15	L2x2x2	.334	50.52	6	.016	50.52	y	6	6508.508	15908.4	402.563	813.39	2....	H2-1
12	MP1	PIPE_2.0	.325	36	8	.040	36		20	20866.7...	32130	1871.625	1871.625	1....	H1-1b
13	M4	6"x0.37" Pl...	.325	6	9	.488	8.125	y	12	32988.6...	69930	539.044	8741.25	1....	H1-1b
14	M18	L2x2x2	.313	50.52	8	.011	50.52	z	37	6508.508	15908.4	402.563	704.355	1....	H2-1
15	M9	PIPE_3.0	.311	53.125	7	.191	54.6...		12	59302.8...	65205	5748.75	5748.75	1	H1-1b
16	MP7	PIPE_2.0	.298	36	5	.037	36		5	20866.7...	32130	1871.625	1871.625	1....	H1-1b
17	MP4	PIPE_2.0	.298	36	5	.037	36		5	20866.7...	32130	1871.625	1871.625	1....	H1-1b
18	M17	L2x2x2	.279	50.52	10	.015	50.52	y	10	6508.508	15908.4	402.563	816.298	2....	H2-1
19	M2	6"x0.37" Pl...	.274	6	8	.312	3.875	y	10	32988.6...	69930	539.044	8741.25	1....	H1-1b
20	M10	HSS4x4x4	.210	31.26	11	.195	3.907	y	10	103885....	106155	12311.25	12311.25	1	H1-1b
21	M6	6"x0.37" Pl...	.194	6	3	.597	8.125	y	5	32988.6...	69930	539.044	8741.25	1....	H1-1b
22	M12	HSS4x4x4	.191	31.26	28	.193	3.907	y	6	103885....	106155	12311.25	12311.25	1	H1-1b
23	M8	PIPE_3.0	.187	95.313	44	.053	96.8...		2	59302.8...	65205	5748.75	5748.75	1	H1-1b
24	M11	HSS4x4x4	.173	31.26	27	.126	58.6...	z	5	103885....	106155	12311.25	12311.25	1	H1-1b
25	MP3	PIPE_2.0	.124	36	8	.022	36		20	20866.7...	32130	1871.625	1871.625	1....	H1-1b
26	MP9	PIPE_2.0	.108	36	11	.019	36		23	20866.7...	32130	1871.625	1871.625	1....	H1-1b
27	MP6	PIPE_2.0	.107	36	17	.019	36		17	20866.7...	32130	1871.625	1871.625	1....	H1-1b

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: CT52XC108

STTN - Southington
80 Shuttle Meadow Road
Southington, CT 06489

March 27, 2019

EBI Project Number: 6219000803

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.48 %

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

EBI Consulting
environmental | engineering | due diligence

March 27, 2019

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

Emissions Analysis for Site: **CT52XC108 – STTN - Southington**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **80 Shuttle Meadow Road, Southington, 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), 2500 MHz (BRS) and 11 GHz 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 **80 Shuttle Meadow Road, Southington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

2) 4 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.

3) 3 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 1 microwave channel (11 GHz) was considered for Sector C of the proposed installation. This channel has a transmit power of 1 Watt.

5) 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.

6) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

7) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands as well as the **Dragonwave A-ANT-11G-2.5-C** microwave dish for transmissions in the 11 GHz band. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

8) The antenna mounting height centerlines of the proposed panel antennas and microwave dish are **120 feet** above ground level (AGL) for **Sector A**, **120 feet** above ground level (AGL) for **Sector B** and **120 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**120 feet**	Height (AGL):	**120 feet**	Height (AGL):	**120 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	260 Watts	Total TX Power(W):	260 Watts	Total TX Power(W):	260 Watts
ERP (W):	7,001.88	ERP (W):	7,001.88	ERP (W):	7,001.88
Antenna A1 MPE%	**2.34%**	Antenna B1 MPE%	**2.34%**	Antenna C1 MPE%	**2.34%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**120 feet**	Height (AGL):	**120 feet**	Height (AGL):	**120 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	3	Channel Count	3	Channel Count	3
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	**1.29 %**	Antenna B2 MPE%	**1.29 %**	Antenna C2 MPE%	**1.29 %**

Microwave Backhaul Data

Antenna Type:	Gain (dBd)	Height (feet AGL):	Frequency Bands	Channel Count	Total TX Power(W)	ERP (W)	MPE %	Sector
Dragonwave A-ANT-11G-2.5-C	32.35 dBd	120	11 GHz	1	1	1,717.91	**0.05**	C

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Sector C	**3.68 %**
AT&T	2.79 %
T-Mobile	2.01 %
Site Total MPE %:	**8.48 %**

SPRINT Sector A Total:	3.63 %
SPRINT Sector B Total:	3.63 %
SPRINT Sector C Total:	3.68 %
Site Total:	8.48 %

SPRINT _ Frequency Band / Technology (Sector C)	# 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 LTE	2	941.82	120	5.21	850 MHz	567	0.92%
Sprint 1900 MHz (PCS) LTE	4	1,279.56	120	14.16	1900 MHz (PCS)	1000	1.42%
Sprint 2500 MHz (BRS) LTE	3	1,556.18	120	12.91	2500 MHz (BRS)	1000	1.29%
Sprint 11 GHz Microwave	1	1,717.91	120	0.48	11 GHz	1000	0.05%
						Total:	**3.68%**

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:	3.63 %
Sector B:	3.63 %
Sector C:	3.68 %
SPRINT Maximum MPE % (Sector C):	3.68 %
Site Total:	8.48 %
Site Compliance Status:	**COMPLIANT**

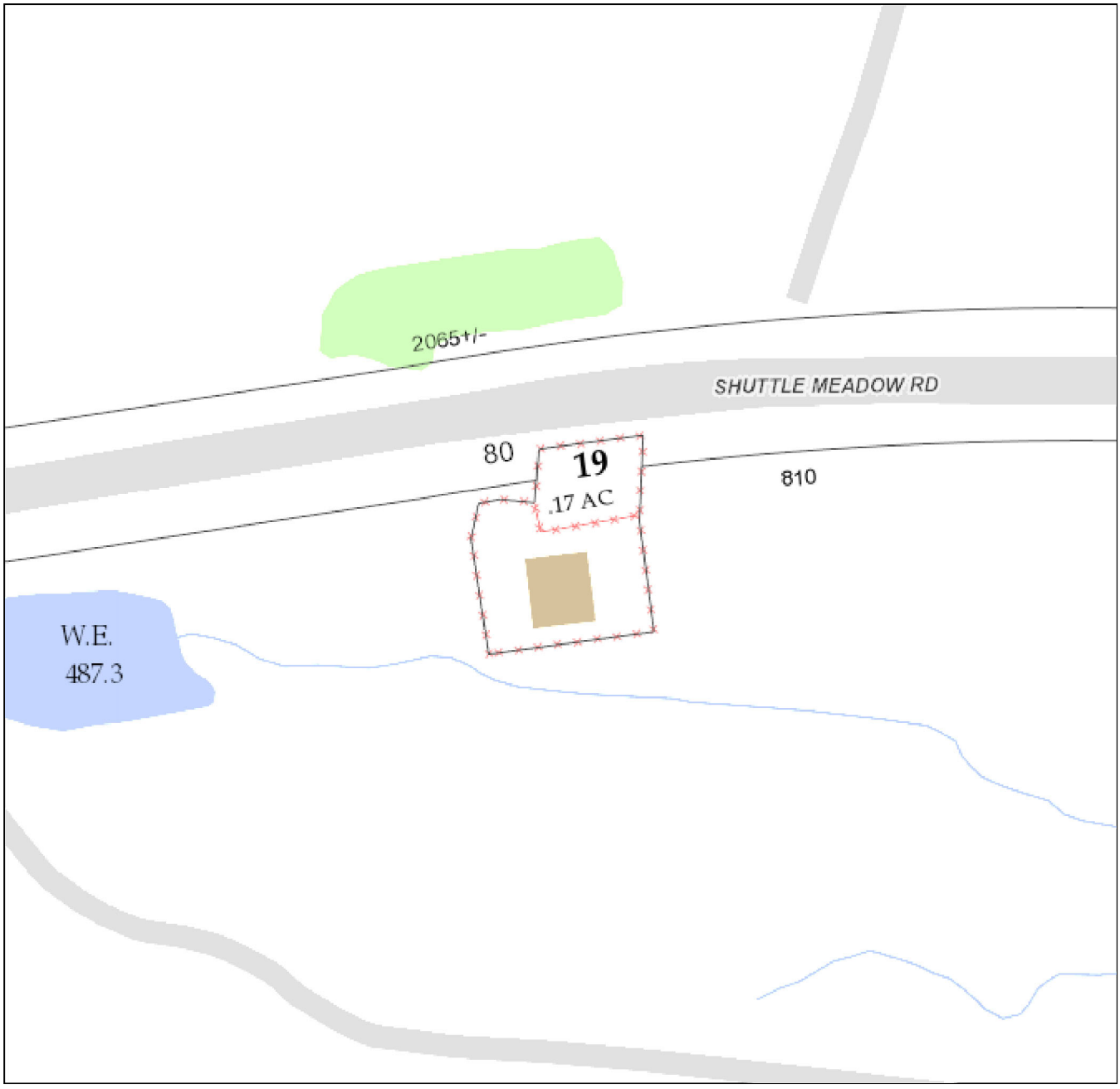
The anticipated composite MPE value for this site assuming all carriers present is **8.48 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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 Southington

Geographic Information System (GIS)

Date Printed: 3/13/2019



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Southington and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 60 feet

0 60 Feet

N W E S

Town of Southington, CT
Property Listing Report

GIS PIN 184019

Account 11918

Property Information

Property Location	80 SHUTTLE MEADOW RD
Owner	SOUTHERN NEW ENGLAND TELEPHONE CO
Co-Owner	SITE# 302475 - STTN SOUTHINGTON CT
Mailing Address	C/O AMERICAN TOWER LAND MNGMT WOBURN MA 01801
Land Use	433V Radio, Television Trans Ld
Land Class	I
Water Service	

Sewer Service	
Census Tract	4303
Neighborhood	090
Zoning Code	R-80
Acreage	0.17
Book / Page	331/ 320
Lot Setting/Desc	
Trash Day	

Photo

184 019 05/24/2015

Sketch

Primary Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Floors	
Total Rooms	

Bedrooms	0
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

Exterior Walls	
Interior Walls	
Heating Type	
Heating Fuel	
AC Type	
Gross Bldg Area	0
Total Living Area	0

Report Created On 3/13/2019

Town of Southington, CT
Property Listing Report

GIS PIN 184019

Account 11918

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings		0
Outbuildings	18560	12990
Improvements	18560	12990
Extras	0	0
Land	227860	159500
Total	246420	172490

Outbuilding and Extra Items

Type	Description
Fence - Chain	2600.00 L.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	0	0

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
SOUTHERN NEW ENGLAND TELEPHONE CO	331/ 320	1983-02-14	0

Report Created On 3/13/2019