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

August 10, 2017

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

RE: **Notice of Exempt Modification for Sprint 2.5 Rework Crown Site BU: 876320**
Sprint Site ID: CT03XC038
528 Wheelers Farm Road, Milford, CT 06460
Latitude: 41° 14′ 54.35″ / Longitude: -73° 4′ 44.67″

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 120-foot level of the existing 120-foot monopole at 528 Wheelers Farm Road in Milford, CT. The tower is owned by Crown Castle. The property is owned by Boys Village Youth and Family Services. Sprint intends to install three (3) antennas, three (3) RRHs, and one (1) hybrid cable.

A request for original zoning documents was sent to the City of Milford but has not been answered.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Benjamin G. Blake, Mayor, City of Milford, the Planning & Zoning Commission, as well as the property owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

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

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

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

Sincerely,

Jeffrey Barbadora
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-729-0053
Jeff.Barbadora@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: The Honorable Benjamin G. Blake, Mayor
110 River Street
Milford, CT 06460

Planning & Zoning
70 West River St
Milford, CT 06460

Boys Village Youth and Family Services
Attn: Roseanne Condon
528 Wheelers Farm Road
Milford, CT 06460

City of Milford, CT

Property Listing Report

Map Block Lot: 104 915 13 A

Account: 023047

Property Information

Property Location	528 WHEELERS FARMS RD
Owner	VILLAGE FOUNDATION INC THE
Co-Owner	C/O GLOBAL SIGNAL ACQUISITIONS II
Mailing Address	PMB 331 MCMURRAY PA 15317
Land Use	434V CELL TOWER MDL-00
Land Class	I
Zoning Code	
Census Tract	

Neighborhood	GG
Acreage	0
Utilities	All Public,Public Sewer
Lot Setting/Desc	,Suburban Level
Additional Info	

Photo

Sketch

Primary Construction Details

Year Built		Bedrooms		Exterior Walls	
Stories		Full Bathrooms		Interior Walls	
Building Style		Half Bathrooms		Heating Type	
Building Use		Bath Style		Heating Fuel	
Building Condition		Kitchen Style		AC Type	
Floors		Roof Style		Gross Bldg Area	
Total Rooms		Roof Cover		Total Living Area	

Report Created On 8/9/2017

City of Milford, CT

Property Listing Report | Map Block Lot: 104 915 13 A | Account: 023047

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings		
Extras	0	
Improvements		
Outbuildings	550000	385000
Land	0	0
Total	550000	385000

Outbuilding and Extra Items

Type	Description
CEL TWR SITE	1 UNITS

Sub Areas

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

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
VILLAGE FOUNDATION INC THE	00259/5630	5/15/1942	

Report Created On 8/9/2017

112

114

MUSKE

ERS FARMS ROAD

5A

5D

4

4A

2AA

2A

2B

RTE. 796

MILFORD PARKWAY CONNECTOR

WELLINGTON ROAD EXT.

EXIT

EXIT 54

2

901

902

CORPORATE CAMPUS II (PR)

WILBUR CROSS PARKWAY

WILBUR CROSS PARKWAY

EXIT 56A

13

915

RTE. 15 SOUTHBOUND

RTE. 15 NORTHBOUND

1

WILBUR CROSS PARKWAY

94

95

97

106

City of Milford Assessor Map

0 50 100 200 300 Feet

1 inch = 100 feet

This map was produced from the City of Milford Geographic Information System.
The City expressly disclaims any liability that may result from the use of this map.
This map is not a survey and is subject to any changes an actual land survey discloses.

Assessor information current to October 2012

Wetlands Data Source: 1989 Milford Inland Wetland and Watercourses Map

10/22/2014

104

Sprint

CROWN CASTLE

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	528 WHEELERS FARM ROAD
SITE CASCADE:	CT03XC038
SITE NUMBER:	876320
SITE ADDRESS:	528 WHEELERS FARM ROAD MILFORD, CT 06460
SITE TYPE:	MONOPOLE TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

LATITUDE (NAD83):
41° 14' 53.90" N
41.248306°

LONGITUDE (NAD83):
73° 04' 46.22" W
-73.079506°

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
CITY OF NEW HAVEN

ZONING DISTRICT:
TBD

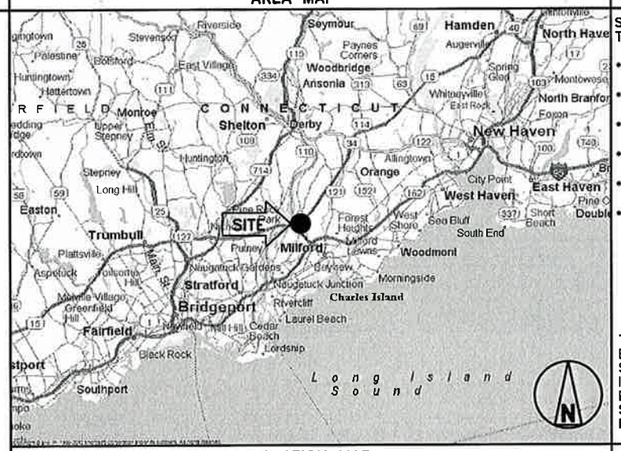
POWER COMPANY:
THE UNITED ILLUMINATING COMPANY
157 CHURCH STREET
NEW HAVEN, CT 06510
1-800-7-CALL-UI

POWER COMPANY:
TBD

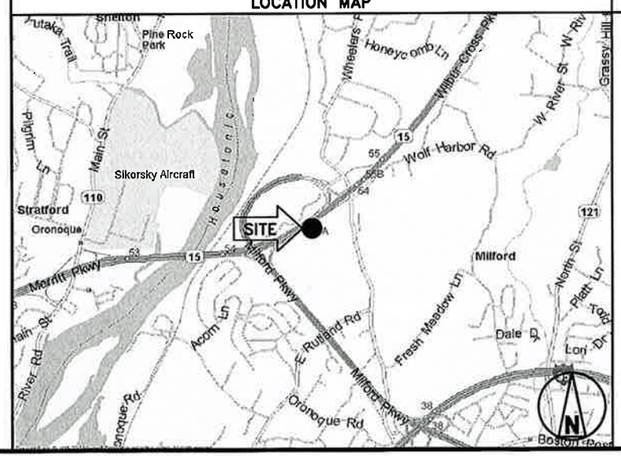
SPRINT CM:
GARY WOOD
GARY.WOOD@SPRINT.COM

CROWN CASTLE CM:
HARRY ATHAN
(518)380-0041
HTAMANAGEMENT@NYCAP.RR.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT IN EXISTING N.V. MMBS
- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) RRU'S TO TOWER
- INSTALL (27) JUMPER CABLES
- INSTALL (1) HYBRID CABLE
- INSTALL (8) BATTERIES IN EXISTING BBU CABINET

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

APPLICABLE CODES

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

1. INTERNATIONAL BUILDING CODE (2012 IBC)
2. TIA-EIA-222-F 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	B
SP-1	SPRINT SPECIFICATIONS	B
SP-2	SPRINT SPECIFICATIONS	B
SP-3	SPRINT SPECIFICATIONS	B
A-1	SITE PLAN	B
A-2	TOWER ELEVATION & CABLE PLAN	B
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	B
A-4	COLOR CODING & NOTES	B
A-5	EQUIPMENT & MOUNTING DETAILS	B
A-6	CIVIL DETAILS	B
A-7	PLUMBING DIAGRAM	B
E-1	ELECTRICAL & GROUNDING PLAN	B
E-2	ELECTRICAL & GROUNDING DETAILS	B

APPROVED
By Jeff Barbadora at 8:50 pm, Feb 21, 2014

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

PLANS PREPARED BY:
INFINIGY Design. Build. Deliver.
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 353-XXX

MLA PARTNER:
CROWN CASTLE

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	02/20/14	MAP	B
ISSUED FOR REVIEW	02/03/14	MJB	A

SITE NAME:
528 WHEELERS FARM ROAD

SITE CASCADE:
CT03XC038

SITE ADDRESS:
528 WHEELERS FARM ROAD
MILFORD, CT 06460

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.

TOWER OWNER NOTIFICATION
ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, CONTRACTOR WILL CONTACT THE CROWN CASTLE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED CALL 1-800-788-7011 TO NOTIFY THE CROWN CASTLE NOC WORK HAS BEGUN.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

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

PLANS PREPARED BY:
INFINIGY Design. Build. Deliver.
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 353-XXX

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	02/20/14	MAP	B
ISSUED FOR REVIEW	02/03/14	MJB	A

SITE NAME:
528 WHEELERS FARM ROAD

SITE CASCADE:
CT03XC038

SITE ADDRESS:
528 WHEELERS FARM ROAD
MILFORD, CT 06460

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)

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JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	02/20/14	MAP	B
ISSUED FOR REVIEW	02/03/14	MJB	A

SITE NAME:

528 WHEELERS FARM ROAD

SITE CASCADE:

CT03XC038

SITE ADDRESS:

528 WHEELERS FARM ROAD
MILFORD, CT 06460

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.

8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.

9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.

10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT

11. ALL AVAILABLE JURISDICTIONAL INFORMATION

12. PDF SCAN OF REDLINES PRODUCED IN FIELD

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

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

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

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

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.

2. STRUCTURAL BACKFILL COMPACTION REPORTS.

3. SITE RESISTANCE TO EARTH TEST.

4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION

5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.

6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.

2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;

3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.

4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;

6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.

7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.

8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.

9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

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

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

3.2 PROJECT CONFERENCE CALLS:

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

3.3 PROJECT TRACKING IN SMS:

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

3.4 ADDITIONAL REPORTING:

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

3.5 PROJECT PHOTOGRAPHS:

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

1. 1SHELTER AND TOWER OVERVIEW.

2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).

3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).

4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).

5. PHOTOS OF TOWER SECTION STACKING.

6. CONCRETE TESTING / SAMPLES.

7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.

8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.

9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.

10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.

11. COAX CABLE ENTRY INTO SHELTER.

12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.

14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.

15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.

16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.

17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.

18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.

19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.

21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

25. ALL BTS GROUND CONNECTIONS.

26. ALL GROUND TEST WELLS.

27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.

28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.

29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.

30. GPS ANTENNAS.

31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.

32. DOGHOUSE/CABLE EXIT FROM ROOF.

33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.

34. MASTER BUS BAR.

35. TELCO BOARD AND NIU.

36. ELECTRICAL DISTRIBUTION WALL.

37. CABLE ENTRY WITH SURGE SUPPRESSION.

38. ENTRANCE TO EQUIPMENT ROOM.

39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.

40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.

41. ANTENNA AND MAST GROUNDING.

42. LANDSCAPING – WHERE APPLICABLE.

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

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	02/20/14	MAP	B
ISSUED FOR REVIEW	02/03/14	MJB	A

SITE NAME:

528 WHEELERS FARM ROAD

SITE CASCADE:

CT03XC038

SITE ADDRESS:

528 WHEELERS FARM ROAD
MILFORD, CT 06460

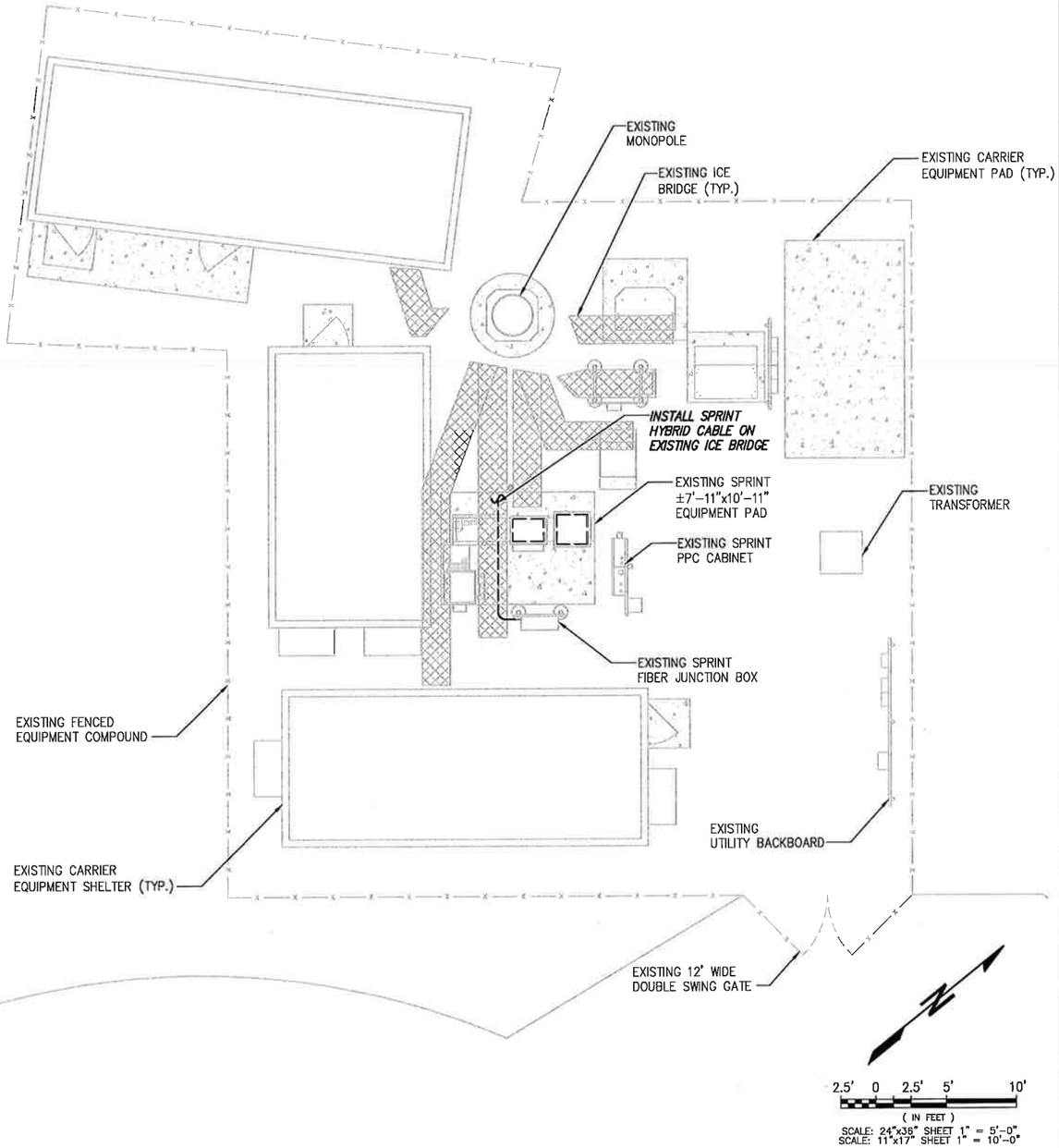
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

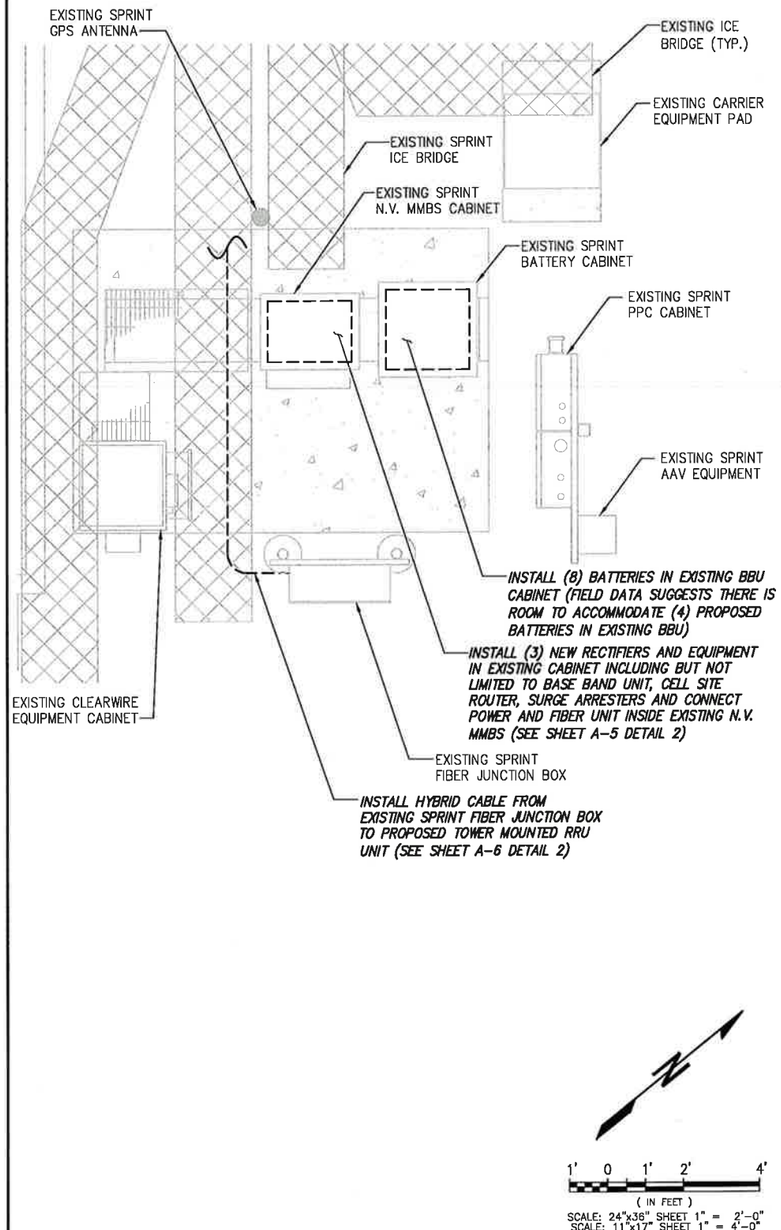
SHEET NUMBER:

SP-3

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



OVERALL SITE PLAN | SCALE: AS NOTED | 1



SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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Overland Park, Kansas 66251

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SITE CASCADE:

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SITE ADDRESS:

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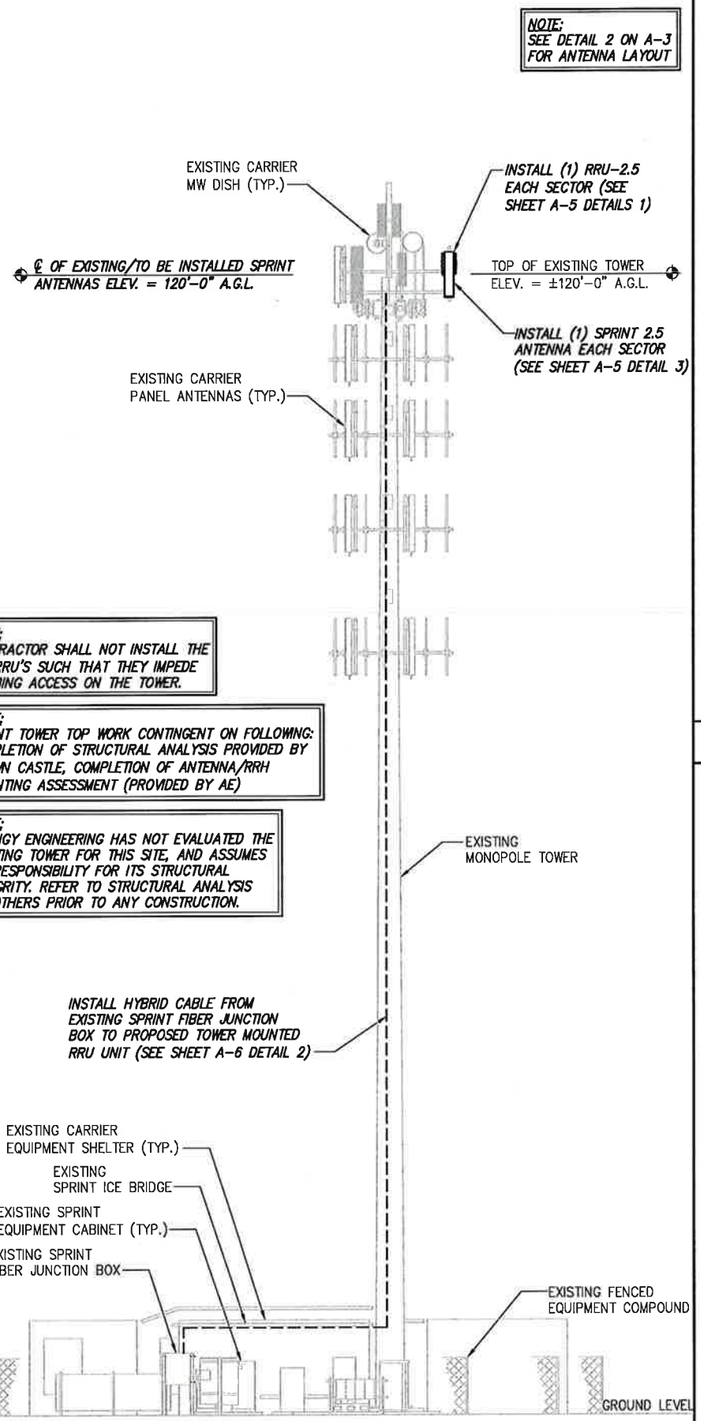
MILFORD, CT 06460

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1



TOWER ELEVATION | NO SCALE | 1

DETAIL NOT USED | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	02/20/14	MAP	B
ISSUED FOR REVIEW	02/03/14	MJB	A

SITE NAME:

528 WHEELERS FARM ROAD

SITE CASCADE:

CT03XC038

SITE ADDRESS:

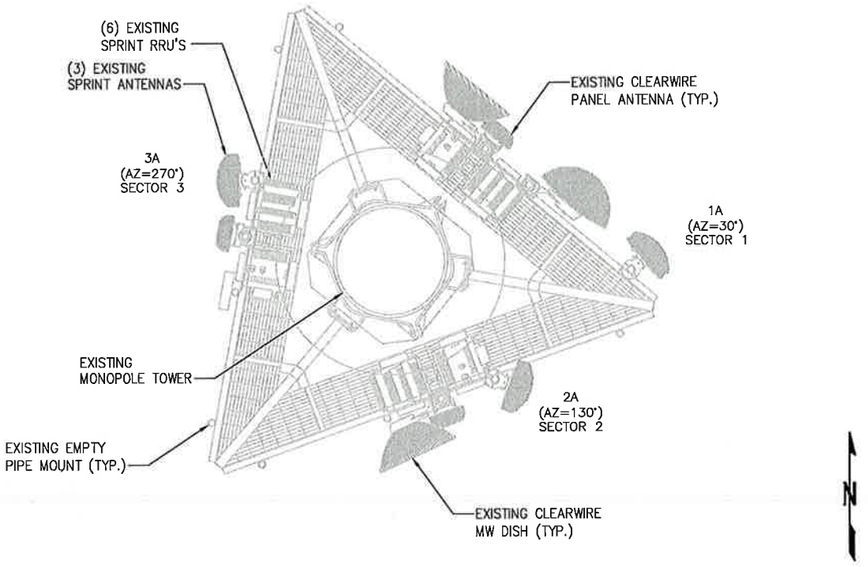
528 WHEELERS FARM ROAD
MILFORD, CT 06460

SHEET DESCRIPTION:

TOWER ELEVATION & CABLE PLAN

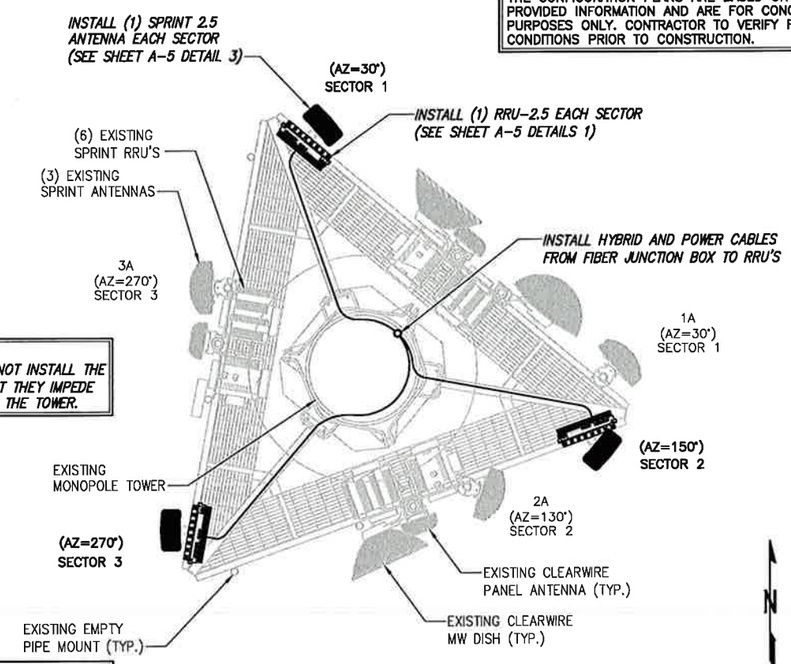
SHEET NUMBER:

A-2



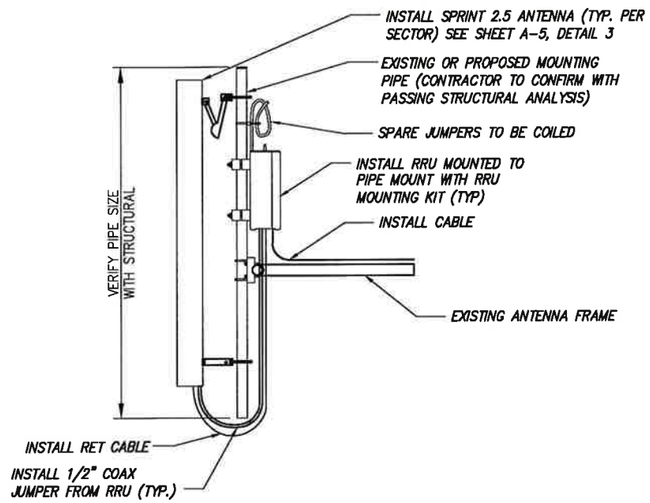
EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

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



FINAL ANTENNA LAYOUT | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3



NOTES:

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

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

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

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

TYPICAL ANTENNA & RRU MOUNTING DETAILS | NO SCALE | 4

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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SITE CASCADE:

CT03XC038

SITE ADDRESS:

528 WHEELERS FARM ROAD
MILFORD, CT 06460

SHEET DESCRIPTION:

ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

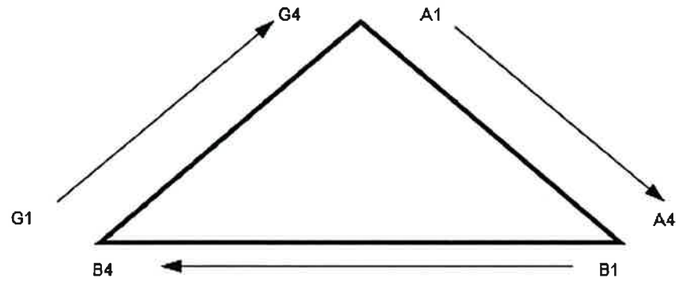
A-3

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

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

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

Figure 1: Antenna Orientation



NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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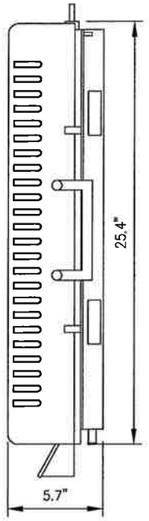
MILFORD, CT 06460

SHEET DESCRIPTION:
COLOR CODING AND NOTES

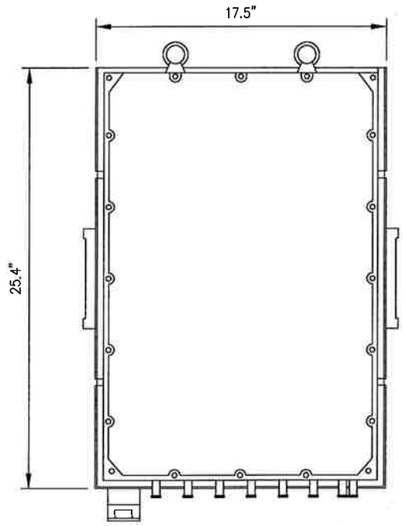
SHEET NUMBER:
A-4

RRU: ALCATEL LUCENT TD-RRH8X20

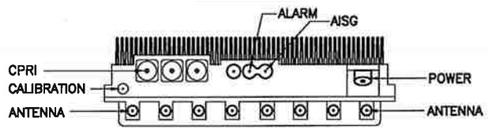
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW

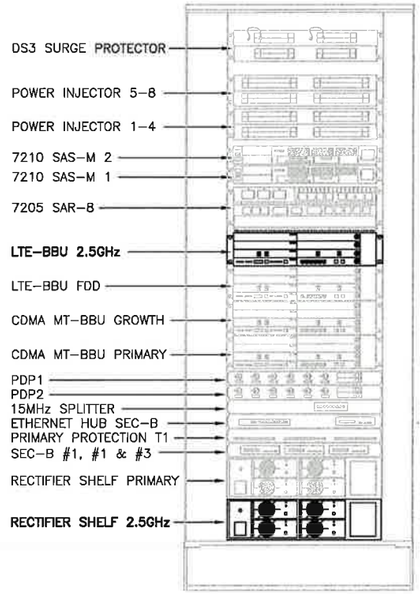


PLAN VIEW

NOTES

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

2.5 RRU'S | NO SCALE | 1

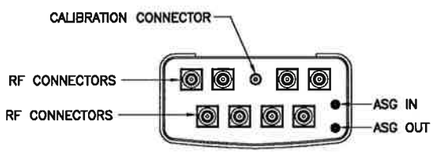


FRONT VIEW

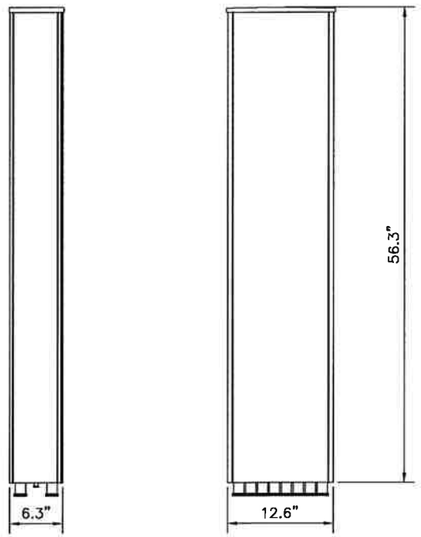
NEW EQUIPMENT IN EXISTING CABINET | NO SCALE | 2

ANTENNA: RFS APXVTM14-C-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD.in(mim):	56.3"x12.6"x6.3" (1430x320x160mm)
WEIGHT:	52.9 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF – CALIBRATION CONNECTOR



PLAN VIEW



2.5 ANTENNA | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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

PLANS PREPARED BY:
INFINIGY Design. Build. Deliver.
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 353-XXX

MLA PARTNER:
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SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

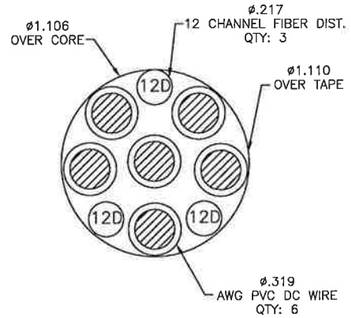
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

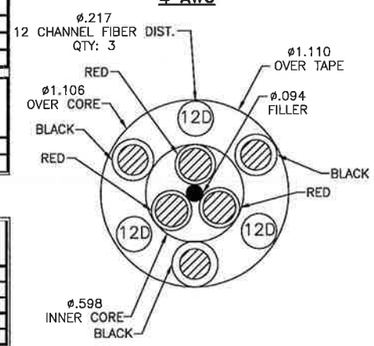
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

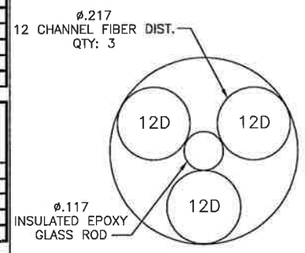
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG



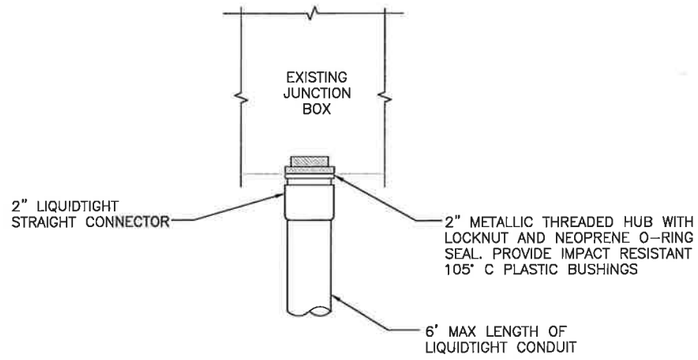
8 & 6 AWG



FIBER ONLY

2.5 CABLE CROSS SECTION DATA

NO SCALE | 1



FIBER JUNCTION BOX PENETRATION

NO SCALE | 2

DETAIL NOT USED

NO SCALE | 3

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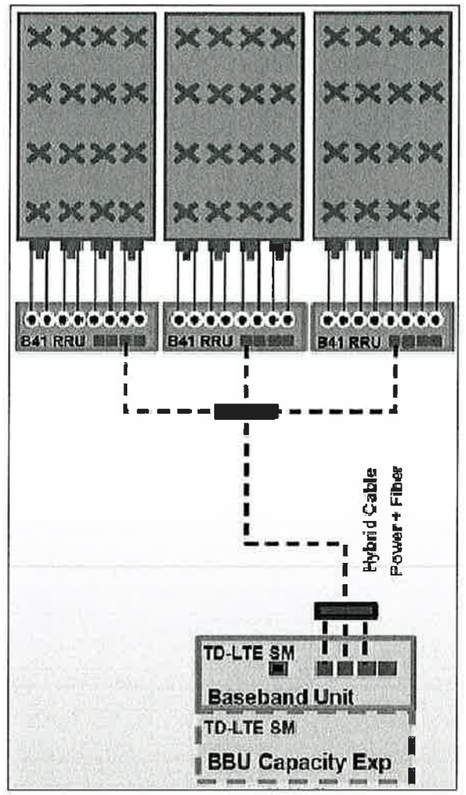
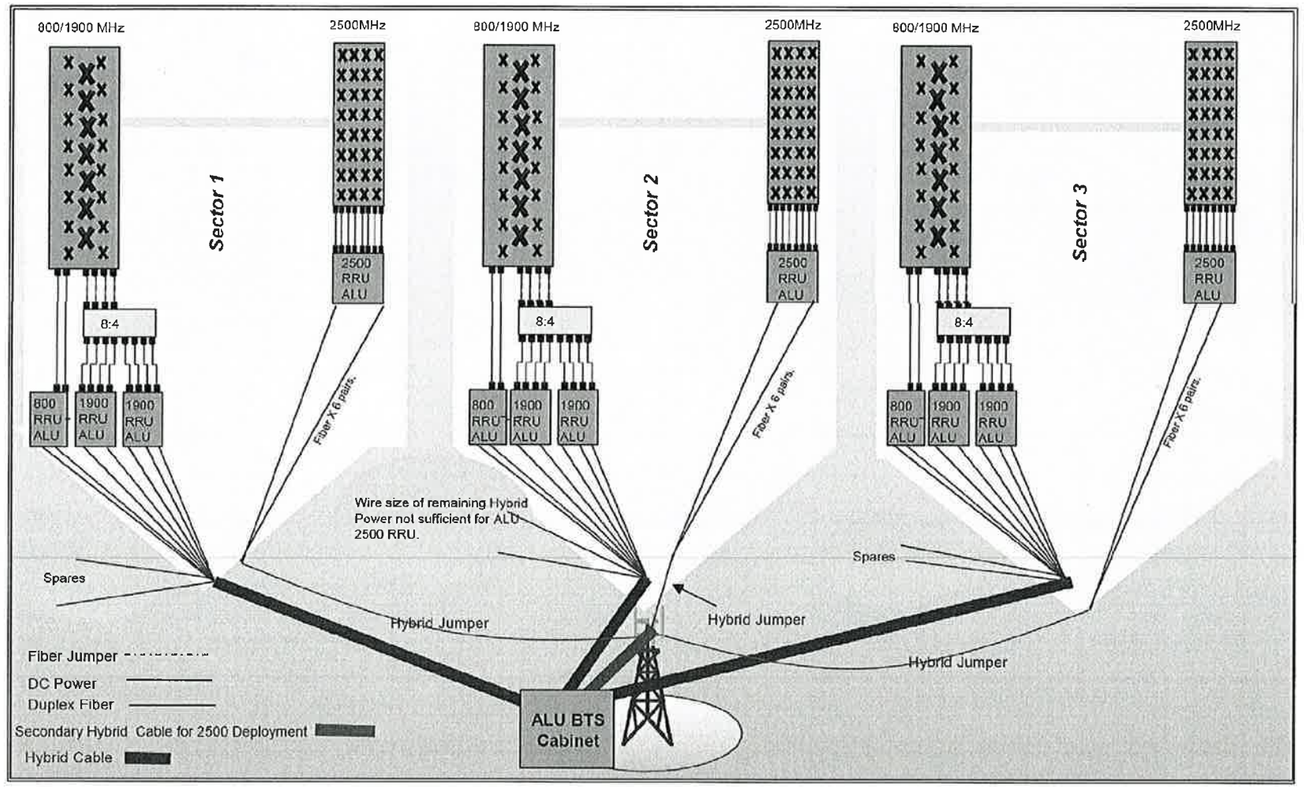
CIVIL DETAILS

SHEET NUMBER:

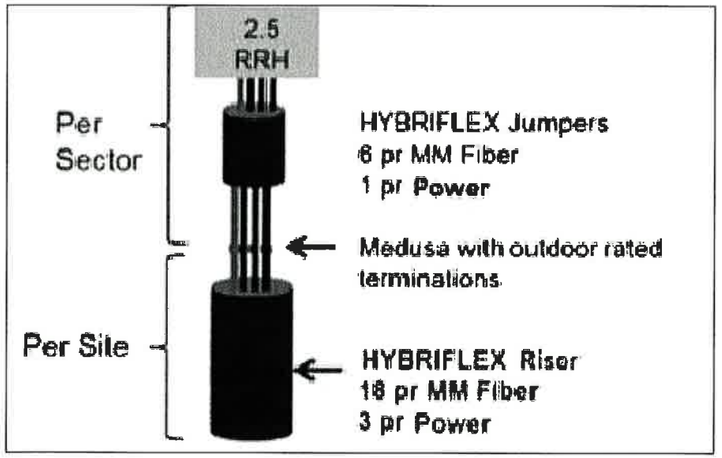
A-6



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1

PLUMBING DIAGRAM | NO SCALE | 1

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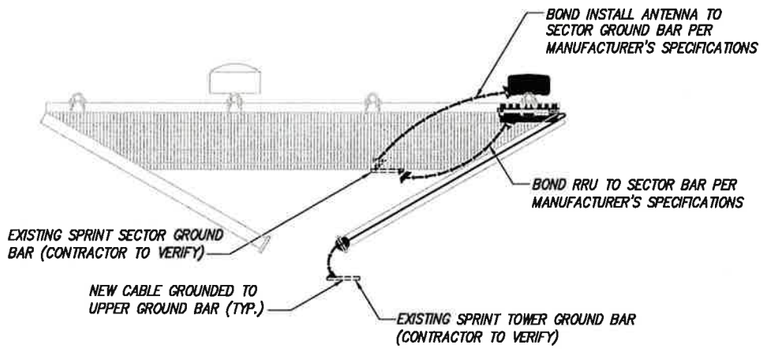
SHEET DESCRIPTION:
PLUMBING DIAGRAM

SHEET NUMBER:
A-7

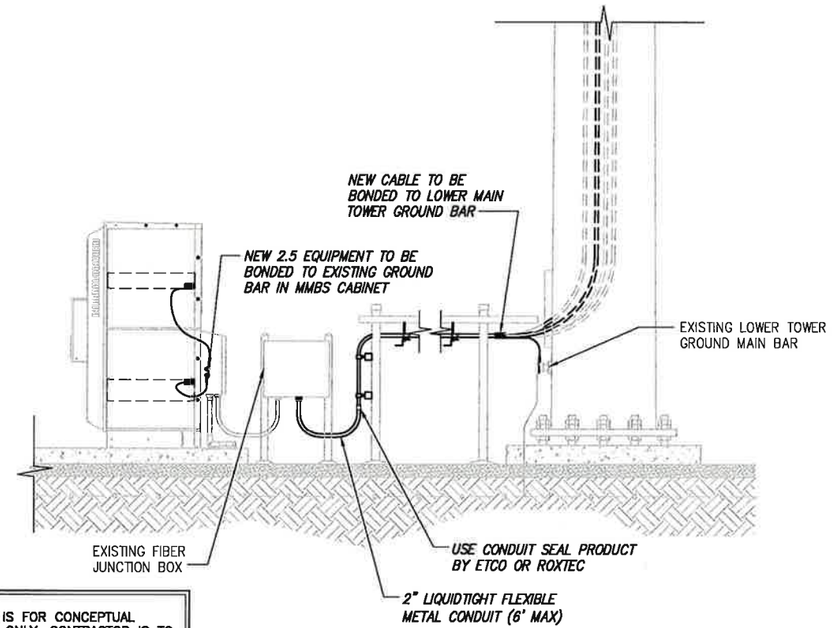
PLAN NOT USED | NO SCALE | 1

LEGEND:

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



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

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

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528 WHEELERS FARM ROAD
MILFORD, CT 06460

SHEET DESCRIPTION:

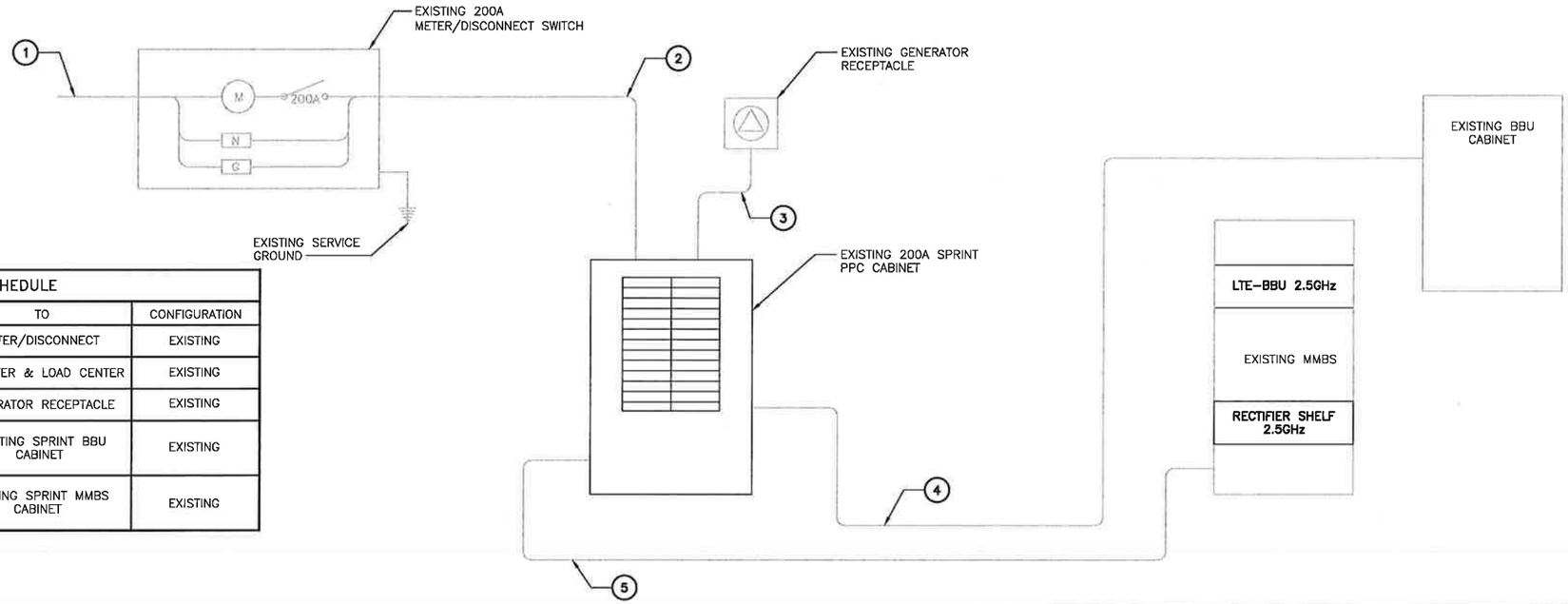
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

NOTES

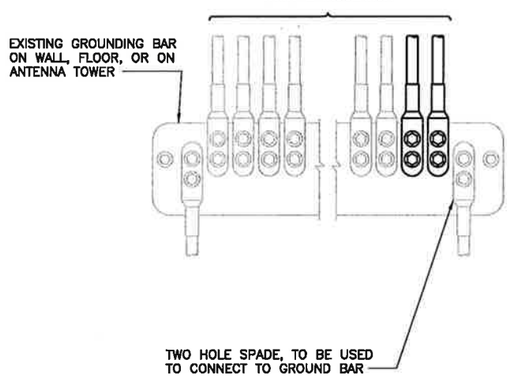
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE

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

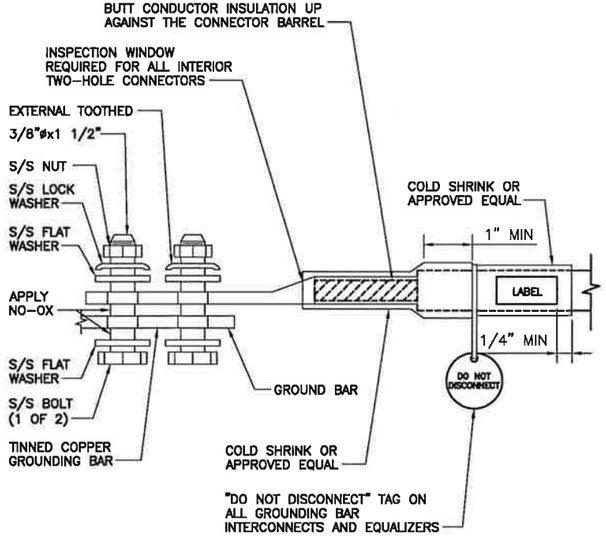
ELECTRICAL ONE–LINE DIAGRAM — NO SCALE — 1



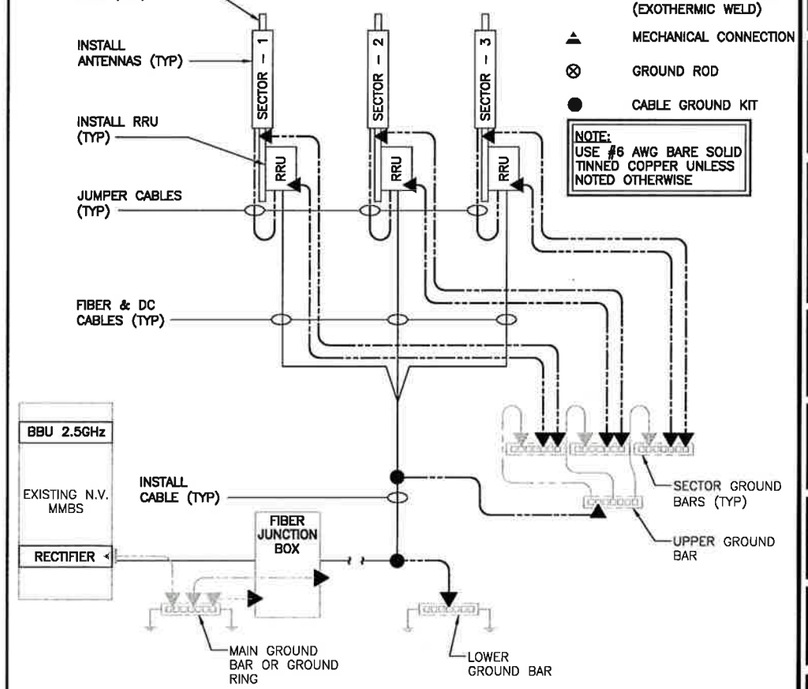
NOTES

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

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



TWO HOLE LUG — NO SCALE — 3



GROUNDING RISER DIAGRAM — NO SCALE — 4

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353–XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT · JOHN S. STEVENS · No. 24705 · LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	02/20/14	MAP	B
ISSUED FOR REVIEW	02/03/14	MJB	A

SITE NAME:

528 WHEELERS FARM ROAD

SITE CASCADE:

CT03XC038

SITE ADDRESS:

528 WHEELERS FARM ROAD
MILFORD, CT 06460

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

Date: **June 22, 2017**

Marianne Dunst
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6580

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
crown@tepgroup.net

Subject: Structural Analysis Report

Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT03XC038
	Carrier Site Name:	CT03XC038
Crown Castle Designation:	**Crown Castle BU Number:**	876320
	Crown Castle Site Name:	528 Wheelers Farm RD
	Crown Castle JDE Job Number:	443152
	Crown Castle Work Order Number:	1417455
	Crown Castle Application Number:	394482 Rev. 1
Engineering Firm Designation:	**TEP Project Number:**	25570.121960
Site Data:	**528 Wheelers Farm Road, Milford, New Haven County, CT 06460** **Latitude *41° 14' 54.35"*, Longitude *-73° 4' 44.67"*** **120 Foot - Monopole Tower**	

Dear Marianne Dunst,

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1046839, in accordance with application 394482, revision 1.

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

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code 2012 International Building Code) based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawing for the determined available structural capacity to be effective.

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

Structural analysis prepared by: Travis L. Infante, E.I. / TML

Respectfully submitted by:

William H. Martin, P.E., S.E.

6/22/17

STATE OF CONNECTICUT
WILLIAM H. MARTIN
0029484
LICENSED
PROFESSIONAL ENGINEER

Electronic Copy

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 120-ft monopole tower designed by Paul J. Ford and Co. in February of 1997. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F-1996 for the appurtenances listed in Table 3. The tower has been modified multiple times in the past to accommodate additional loading. Shaft reinforcement designed by Semaan Engineering in February of 2004 was considered ineffective. TEP visited the site in April of 2013 to perform a post modification inspection. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the ANSI/TIA-222-G-2-2009 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a nominal 3-second gust wind speed of 97 mph with no ice, 50 mph with 0.75 inch ice thickness, and 60 mph under service loads with the following design criteria:

Type of Analysis: **Rigorous Structural Analysis**
Classification of Structure: **Class II**
Exposure Category: **Exposure C**
Topographic Category: **Category 1**
Earthquake Category: **Not Considered**
Earthquake effects may be ignored per this standard for site locations where Ss does not exceed 1.0. (New Haven County Max Ss = 0.32).

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
122.0	121.0	3	RFS Celwave	APXVTM14-ALU-I20 w/ Mount Pipe	-	-	-
		3	Alcatel Lucent	TD-RRH8x20-25			
75.0	76.0	1	Trimble	ACUTIME 2000	1	1/2	1
	75.0	1	Tower Mounts	Side Arm Mount [SO 701-1]			

Notes:
1) See “Appendix B - Base Level Drawing” for assumed feed line configuration.

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
122.0	125.0	2	Andrew	VHLP2-11	4 6 1 3	1-1/4 5/16 1/8 7983A	1
	123.0	1	MTI Wireless Edge	MT-485025			
		1	Andrew	PX2F-52			
	122.0	3	Argus Technologies	LLPX310R w/ Mount Pipe			
		3	Samsung Telecommunications	FDD_R6_RRH			
		1	Tower Mounts	Miscellaneous [NA 507-1]			
		1	Tower Mounts	Platform Mount [LP 712-1]			
	121.0	3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		2	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz			
		1	Alcatel Lucent	800MHZ RRH			
	120.0	3	Alcatel Lucent	800 External Notch Filter			
		9	RFS Celwave	ACU-A20-N			
		1	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz			
		2	Alcatel Lucent	800MHZ RRH			
113.0	116.0	1	Trimble	ACUTIME 2000	8	1-5/8	1
	114.0	2	Andrew	DB846F65ZAXY w/ Mount Pipe			
		4	Antel	LPA-80063/4CF w/ Mount Pipe			
		3	Antel	BXA-171063/8CF w/ Mount Pipe			
		2	RFS Celwave	FD9R6004/2C-3L			
		2	RFS Celwave	DB-T1-6Z-8AB-0Z			
		2	Commscope	SBNHH-1D65B w/ Mount Pipe			
		4	Commscope	SBNHH-1D45B w/ Mount Pipe			
		3	Alcatel Lucent	RRH2x60-700			
		3	Alcatel Lucent	RRH2X60-1900			
		3	Alcatel Lucent	AWS-3 RRH4X45			
	113.0	4	RFS Celwave	FD9R6004/2C-3L			
		1	Tower Mounts	Platform Mount [LP 305-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
105.0	107.0	1	Ericsson	AIR 32 B2a/B66Aa w/ Mount Pipe	1	1-5/8	2
		2	Ericsson	AIR -32 B2A/B66AA w/ Mount Pipe			
		3	Ericsson	AIR 21 B2A B4P w/ Mount Pipe	7	1-5/8	1
		1	Ericsson	KRY 112 144/1			
		3	Commscope	LNX-6515DS-VTM w/ Mount Pipe			
		3	Ericsson	RRUS 11 B12			
	105.0	2	Ericsson	KRY 112 144/1			
		1	Tower Mounts	Platform Mount [LP 1201-1]			
97.0	97.0	3	Ericsson	TME-RRUS-32 B30	-	-	2
		3	Ericsson	RRUS 11	2 1	3/4 3/8	1
		2	Raycap	DC6-48-60-18-8F			
		3	Ericsson	WCS RRUS-32-B30			
		1	Tower Mounts	Side Arm Mount [SO 102-3]			
96.0	97.0	3	Quintel Technology	QS66512-2 w/ Mount Pipe	-	-	2
		1	Commscope	WCS-IMFQ-AMT			
		3	Powerwave Technologies	7770.00 w/ Mount Pipe	1 2 12	3/8 3/4 1-1/4	1
		3	CCI Antennas	OPA-65R-LCUU-H6 w/ Mount Pipe			
	96.0	6	Powerwave Technologies	LGP2140X			
		1	Tower Mounts	Platform Mount [LP 712-1]			
82.0	82.0	-	-	-	12	7/8	3

Notes:
1) Existing equipment
2) Reserved equipment
3) Abandoned equipment; considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
120.0	120.0	12	Decibel	DB980 H90	-	-
100.0	100.0	12	Decibel	DB980 H90	-	-
90.0	90.0	12	Decibel	DB980 H90	-	-
80.0	80.0	1	Generic	GPS	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Supplemental Geotechnical Report	FDH, Inc.	1613534	CCISites
Tower Foundation Drawings	Paul J. Ford and Co.	1614583	CCISites
Tower Manufacturer Drawings	Paul J. Ford and Co.	1614557	CCISites
Tower Reinforcement Drawings	Semaan Engineering Solutions	1613579	CCISites
Post Modification Inspection	Semaan Engineering Solutions	3350209	CCISites
Tower Reinforcement Drawings	B&T Engineering	2460630	CCISites
Post Modification Inspection	B&T Engineering	2460628	CCISites
Tower Reinforcement Drawings	B&T Engineering	3349207	CCISites
Post Modification Inspection	B&T Engineering	3349204	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	3338935	CCISites
Post Modification Inspection	Tower Engineering Professionals	3753892	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	4961357	CCISites
Post Modification Inspection	SGS, Inc.	5760332	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	5873963	CCISites
Post Modification Inspection	FDH Velocitel	6112300	CCISites

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

For analysis of monopole shaft reinforcements, the plates are modeled as linear appurtenances along the exterior of the pole. The loads calculated from tnxTower are then exported to a proprietary calculation sheet created by Tower Engineering Professionals, Inc. that analyzes each reinforcing element along each critical axis and presents percent capacities for each element and the pole shaft along each critical axis. The actual percent capacity of the tower structure including the reinforcing elements is reported in Table 5 - Section Capacity (Summary).

3.2) Assumptions

1) The tower and foundation were built in accordance with the manufacturer's specifications.
2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and "Appendix B – Base Level Drawing".
4) All tower components are in sufficient condition to carry their full design capacity.
5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not analyze antennas supporting mounts as part of this structural analysis report.
7) TEP assumed that the shaft reinforcement modifications by Semaan Engineering (Doc ID 1613579) are ineffective and therefore they were not considered in this analysis.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	ΦP_{allow} (K)	% Capacity	Pass / Fail
L1	120.00-78.00	Pole	TP30.49×22.00×0.2500	1	Note 1	Note 1	58.7	Pass
L2	81.75-39.75	Pole	TP37.71×29.23×0.3125	2	Note 1	Note 1	79.2	Pass
L3	44.50-0.00	Pole	TP45.12×36.13×0.3750	3	Note 1	Note 1	74.8	Pass
M1	8.00-0.00	Mod (Ex)	(TS) 1.25×8.00 (65ksi)	1	Note 1	Note 1	73.4	Pass
M2	25.50-0.50	Mod (Ex)	(Aero) MP304	2	Note 1	Note 1	90.7	Pass
M3	37.00-2.50	Mod (Ex)	PL 1" x 5"	3	Note 1	Note 1	100.0	Pass
M4	72.08-32.08	Mod (Ex)	PL 1" x 5"	4	Note 1	Note 1	91.8	Pass
M5	15.50-0.50	Mod (Ex)	(Aero) MP303	5	Note 1	Note 1	86.7	Pass
M6	45.50-25.50	Mod (Ex)	(Aero) MP303	6	Note 1	Note 1	93.6	Pass
M7	72.00-52.00	Mod (Ex)	CCI-SFP-045100	7	Note 1	Note 1	78.3	Pass
M8	74.79-50.54	Mod (Ex)	CCI-SFP-045100	8	Note 1	Note 1	80.5	Pass
M9	72.00-52.00	Mod (Ex)	CCI-AFP-045100	9	Note 1	Note 1	78.3	Pass
M10	92.00-67.00	Mod (Ex)	CCI-AFP-060100	10	Note 1	Note 1	57.2	Pass
M11	92.08-72.08	Mod (Ex)	CCI-AFP-045100	11	Note 1	Note 1	57.0	Pass
M12	57.50-42.50	Mod (Ex)	CCI-SFP-045100	12	Note 1	Note 1	92.1	Pass
M13	57.25-42.25	Mod (Ex)	CCI-SFP-045100	13	Note 1	Note 1	92.1	Pass
M14	100.75-73.00	Mod (Ex)	PL 1.25" x 4"	14	Note 1	Note 1	67.1	Pass
M15b	100.75-74.00	Mod (Ex)	PL 1.25" x 4"	15	Note 1	Note 1	61.1	Pass
M16b	80.00-68.25	Mod (Ex)	PL 1.25" x 4"	16	Note 1	Note 1	64.7	Pass
M17	78.25-68.25	Mod (Ex)	PL 1.25" x 4"	17	Note 1	Note 1	60.1	Pass
							Summary	
						Pole (L2)	79.2	Pass
						Mod (M3)	100.0	Pass
						RATING =	**100.0**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Original Anchor Rods	-	67.1	Pass
1	Reinforcing Anchor Rods	-	43.0	Pass
1	Base Plate	-	87.3	Pass
1	Base Foundation Soil Interaction	-	64.8	Pass
1	Base Foundation Structural	-	57.0	Pass

Structure Rating (max from all components) =	100.0%

Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

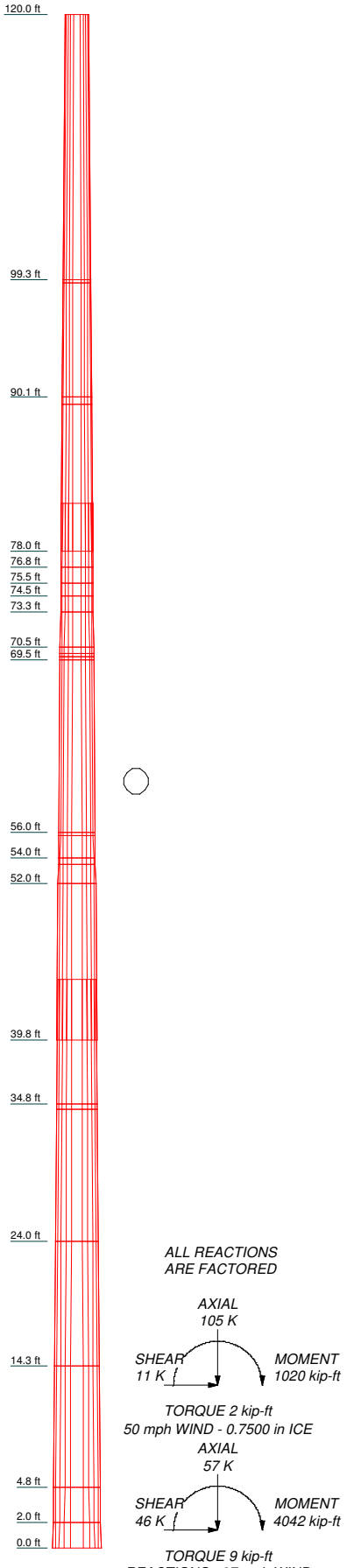
4.1) Recommendations

1) If the load differs from that described in Tables 1 and 2 of this report, "Appendix B – Base Level Drawing" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Length (ft)	20.750	0.250	8.920	0.580	11.500	5.000	2.500	2.500	2.210	2.790	2.500	2.500	2.500	13.500	2.500	2.500	2.500	1.460	12.290	9.750	0.417	10.333	9.750	9.500	2.750	2.000
Number of Sides	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Thickness (in)	0.2500	0.2867	0.3328	0.4936	0.6258	0.7683	0.7683	0.7683	0.7683	0.7683	0.7683	0.7683	0.7683	0.6731	0.7683	0.7683	0.7683	0.7683	0.5042	0.6267	0.7329	0.6111	0.6545	0.6985	0.7683	0.7683
Socket Length (ft)					3.750														4.750							
Top Dia (in)	22.0000	26.1925	26.2430	28.0453	28.1625	28.3233	28.3233	28.3233	28.3233	28.3233	28.3233	28.3233	28.3233	31.7031	31.8607	31.8607	31.8607	31.8607	35.2308	36.1290	36.0989	38.1831	40.2709	42.2409	44.1603	44.7159
Bot Dia (in)	26.1925	26.2430	28.0453	28.1625	30.4860	30.6382	30.6382	30.6382	30.6382	30.6382	30.6382	30.6382	30.6382	34.4307	34.6312	34.6312	34.6312	34.6312	37.7140	38.1290	38.1839	40.2709	42.2409	44.1603	44.7159	45.1200
Grade	MPRF-Fy=60ksi, Density=100%				MPRF-Fy=60ksi, Density=100%									MPRF-Fy=60ksi, Density=50%					MPRF-Fy=60ksi, Density=100%							
Weight (K)	1.4	0.0	0.7	0.0	0.9	0.5	0.1	0.1	0.1	0.3	0.0	0.1	0.1	1.5	0.0	0.2	0.2	0.2	1.5	1.5	0.1	1.6	1.6	1.7	0.5	0.4



ALL REACTIONS ARE FACTORED

AXIAL 105 K

SHEAR 11 K *MOMENT 1020 kip-ft*

TORQUE 2 kip-ft
50 mph WIND - 0.7500 in ICE

AXIAL 57 K

SHEAR 46 K *MOMENT 4042 kip-ft*

TORQUE 9 kip-ft
REACTIONS - 97 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20 w/ Mount Pipe	122	2.4" Dia x 6-ft Pipe	113
APXVSPP18-C-A20 w/ Mount Pipe	122	2.4" Dia x 6-ft Pipe	113
APXVSPP18-C-A20 w/ Mount Pipe	122	2.4" Dia x 6-ft Pipe	113
LLPX310R w/ Mount Pipe	122	Platform Mount [LP 305-1]	113
LLPX310R w/ Mount Pipe	122	(2) LPA-80063/4CF w/ Mount Pipe	113
LLPX310R w/ Mount Pipe	122	(2) DB846F65ZAXY w/ Mount Pipe	113
APXVTM14-ALU-I20 w/ Mount Pipe	122	(2) LPA-80063/4CF w/ Mount Pipe	113
APXVTM14-ALU-I20 w/ Mount Pipe	122	KRY 112 144/1	105
APXVTM14-ALU-I20 w/ Mount Pipe	122	KRY 112 144/1	105
MT-485025	122	KRY 112 144/1	105
800 EXTERNAL NOTCH FILTER	122	LNX-6515DS-VTM w/ Mount Pipe	105
800 EXTERNAL NOTCH FILTER	122	LNX-6515DS-VTM w/ Mount Pipe	105
800 EXTERNAL NOTCH FILTER	122	LNX-6515DS-VTM w/ Mount Pipe	105
(3) ACU-A20-N	122	RRUS 11 B12	105
(3) ACU-A20-N	122	RRUS 11 B12	105
(3) ACU-A20-N	122	RRUS 11 B12	105
PCS 1900MHz 4x45W-65MHz	122	AIR 32 B2a/B66Aa w/ Mount Pipe	105
PCS 1900MHz 4x45W-65MHz	122	AIR -32 B2A/B66AA w/ Mount Pipe	105
PCS 1900MHz 4x45W-65MHz	122	AIR -32 B2A/B66AA w/ Mount Pipe	105
800MHZ RRH	122	Platform Mount [LP 1201-1]	105
800MHZ RRH	122	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	105
800MHZ RRH	122	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	105
TD-RRH8x20-25	122	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	105
TD-RRH8x20-25	122	DC6-48-60-18-8F	97
TD-RRH8x20-25	122	DC6-48-60-18-8F	97
FDD_R6_RRH	122	WCS RRUS-32-B30	97
FDD_R6_RRH	122	(2) WCS RRUS-32-B30	97
FDD_R6_RRH	122	TME-RRUS-32 B30	97
2.4" Dia. x 5-ft Pipe	122	TME-RRUS-32 B30	97
(2) 2.4" Dia. x 5-ft Pipe	122	TME-RRUS-32 B30	97
2.4" Dia. x 5-ft Pipe	122	(2) 2.4" Dia. x 5-ft Pipe	97
Miscellaneous [NA 507-1]	122	(2) 2.4" Dia. x 5-ft Pipe	97
Platform Mount [LP 712-1]	122	(2) 2.4" Dia. x 5-ft Pipe	97
PX2F-52	122	Side Arm Mount [SO 102-3]	97
VHLP2-11	122	RRUS 11	97
VHLP2-11	122	RRUS 11	97
Pipe 6" x 10'	120	RRUS 11	97
ACUTIME 2000	113	OPA-65R-LCUU-H6 w/ Mount Pipe	96
BXA-171063/8CF w/ Mount Pipe	113	OPA-65R-LCUU-H6 w/ Mount Pipe	96
BXA-171063/8CF w/ Mount Pipe	113	OPA-65R-LCUU-H6 w/ Mount Pipe	96
BXA-171063/8CF w/ Mount Pipe	113	(2) LGP2140X	96
(2) FD9R6004/2C-3L	113	(2) LGP2140X	96
(4) FD9R6004/2C-3L	113	(2) LGP2140X	96
DB-T1-6Z-8AB-0Z	113	QS66512-2 w/ Mount Pipe	96
DB-T1-6Z-8AB-0Z	113	QS66512-2 w/ Mount Pipe	96
(2) SBNHH-1D65B w/ Mount Pipe	113	QS66512-2 w/ Mount Pipe	96
(2) SBNHH-1D45B w/ Mount Pipe	113	WCS-IMFQ-AMT	96
(2) SBNHH-1D45B w/ Mount Pipe	113	2.4" Dia x 6-ft Pipe	96
RRH2x60-700	113	2.4" Dia x 6-ft Pipe	96
RRH2x60-700	113	2.4" Dia x 6-ft Pipe	96
RRH2x60-700	113	Platform Mount [LP 712-1]	96
RRH2X60-1900	113	7770.00 w/ Mount Pipe	96
RRH2X60-1900	113	7770.00 w/ Mount Pipe	96
RRH2X60-1900	113	7770.00 w/ Mount Pipe	96
AWS-3 RRH4X45	113	Side Arm Mount [SO 701-1]	75
AWS-3 RRH4X45	113	ACUTIME 2000	75
AWS-3 RRH4X45	113		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
MPRF-Fy=60ksi, Density=100%	60 ksi	75 ksi	MPRF-Fy=60ksi, Density=50%	60 ksi	75 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft

Tower Engineering Professionals

Tower Engineering Professionals, Inc.
326 Tryon Road
Raleigh, NC 27603-5263
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: *528 Wheelers Farm Rd (BU 876320)*		
Project: *TEP No. 25570.121960*		
Client: Crown Castle	Drawn by: TLI	App'd:
Code: TIA-222-G	Date: 06/22/17	Scale: NTS
Path: C:\Users\tlinfante\Desktop\25570.121960 528 WHEELERS FARM RD\tnxTower\876320_LC7.eri		Dwg No. E-1

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	120.000-99.250	20.750	0.00	12	22.0000	26.1925	0.2500	1.0000	MPRF-Fy=60ksi, Density=100% (60 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	99.250-99.000	0.250	0.00	12	26.1925	26.2430	0.2867	1.1468	MPRF-Fy=60ksi, Density=100% (60 ksi)
L3	99.000-90.080	8.920	0.00	12	26.2430	28.0453	0.3328	1.3313	MPRF-Fy=60ksi, Density=100% (60 ksi)
L4	90.080-89.500	0.580	0.00	12	28.0453	28.1625	0.4936	1.9745	MPRF-Fy=60ksi, Density=100% (60 ksi)
L5	89.500-78.000	11.500	3.75	12	28.1625	30.4860	0.6258	2.5031	MPRF-Fy=60ksi, Density=50% (60 ksi)
L6	78.000-76.750	5.000	0.00	12	29.2280	30.2382	0.8283	3.3132	MPRF-Fy=60ksi, Density=50% (60 ksi)
L7	76.750-75.500	1.250	0.00	12	30.2382	30.4908	0.8950	3.5798	MPRF-Fy=60ksi, Density=50% (60 ksi)
L8	75.500-74.500	1.000	0.00	12	30.4908	30.6928	0.8340	3.3361	MPRF-Fy=60ksi, Density=50% (60 ksi)
L9	74.500-73.290	1.210	0.00	12	30.6928	30.9373	0.7527	3.0107	MPRF-Fy=60ksi, Density=50% (60 ksi)
L10	73.290-70.500	2.790	0.00	12	30.9373	31.5010	0.7887	3.1549	MPRF-Fy=60ksi, Density=50% (60 ksi)
L11	70.500-70.000	0.500	0.00	12	31.5010	31.6021	0.8107	3.2426	MPRF-Fy=60ksi, Density=50% (60 ksi)
L12	70.000-69.750	0.250	0.00	12	31.6021	31.6526	0.7489	2.9958	MPRF-Fy=60ksi, Density=50% (60 ksi)
L13	69.750-69.500	0.250	0.00	12	31.6526	31.7031	0.8325	3.3301	MPRF-Fy=60ksi, Density=50% (60 ksi)
L14	69.500-56.000	13.500	0.00	12	31.7031	34.4307	0.6731	2.6924	MPRF-Fy=60ksi, Density=50% (60 ksi)
L15	56.000-55.750	0.250	0.00	12	34.4307	34.4812	0.7559	3.0238	MPRF-Fy=60ksi, Density=50% (60 ksi)
L16	55.750-54.000	1.750	0.00	12	34.4812	34.8348	0.8084	3.2337	MPRF-Fy=60ksi, Density=50% (60 ksi)
L17	54.000-53.500	0.500	0.00	12	34.8348	34.9358	0.6646	2.6584	MPRF-Fy=60ksi, Density=50% (60 ksi)
L18	53.500-52.040	1.460	0.00	12	34.9358	35.2308	0.5754	2.3016	MPRF-Fy=60ksi, Density=100% (60 ksi)
L19	52.040-39.750	12.290	4.75	12	35.2308	37.7140	0.5042	2.0167	MPRF-Fy=60ksi, Density=100% (60 ksi)
L20	39.750-34.750	9.750	0.00	12	36.1290	38.0989	0.6267	2.5067	MPRF-Fy=60ksi,

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L21	34.750-34.333	0.417	0.00	12	38.0989	38.1831	0.7329	2.9314	Density=100% (60 ksi) MPRF-Fy=60ksi, Density=100% (60 ksi)
L22	34.333-24.000	10.333	0.00	12	38.1831	40.2709	0.6111	2.4443	MPRF-Fy=60ksi, Density=100% (60 ksi)
L23	24.000-14.250	9.750	0.00	12	40.2709	42.2409	0.6545	2.6180	MPRF-Fy=60ksi, Density=100% (60 ksi)
L24	14.250-4.750	9.500	0.00	12	42.2409	44.1603	0.6985	2.7938	MPRF-Fy=60ksi, Density=100% (60 ksi)
L25	4.750-2.000	2.750	0.00	12	44.1603	44.7159	0.7683	3.0733	MPRF-Fy=60ksi, Density=50% (60 ksi)
L26	2.000-0.000	2.000		12	44.7159	45.1200	0.6977	2.7906	MPRF-Fy=60ksi, Density=100% (60 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.7761	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	27.1165	20.8837	1793.9763	9.2874	13.5677	132.2240	3635.0824	10.2783	6.3496	25.398
L2	27.1165	23.9151	2048.5785	9.2743	13.5677	150.9893	4150.9755	11.7703	6.2512	21.805
	27.1688	23.9618	2060.5851	9.2924	13.5939	151.5819	4175.3040	11.7933	6.2648	21.852
L3	27.1688	27.7685	2379.4624	9.2758	13.5939	175.0393	4821.4358	13.6668	6.1411	18.451
	29.0346	29.7000	2911.3346	9.9211	14.5274	200.4024	5899.1532	14.6175	6.6241	19.902
L4	29.0346	43.7915	4242.9835	9.8635	14.5274	292.0667	8597.4349	21.5529	6.1932	12.547
	29.1559	43.9778	4297.3549	9.9054	14.5882	294.5785	8707.6061	21.6445	6.2247	12.61
L5	29.1559	55.4866	5370.2834	9.8581	14.5882	368.1264	10881.6502	27.3088	5.8704	9.381
	31.5614	60.1686	6847.6548	10.6900	15.7917	433.6223	13875.2051	29.6132	6.4932	10.376
L6	31.0435	75.7450	7797.7156	10.1671	15.1401	515.0371	15800.2859	37.2794	5.6133	6.777
	31.3049	78.4394	8659.8117	10.5288	15.6634	552.8690	17547.1263	38.6055	5.8840	7.104
L7	31.3049	84.5604	9293.3105	10.5049	15.6634	593.3135	18830.7667	41.6181	5.7054	6.375
	31.5664	85.2882	9535.3467	10.5953	15.7942	603.7233	19321.1976	41.9763	5.7730	6.451
L8	31.5664	79.6445	8941.0744	10.6171	15.7942	566.0974	18117.0408	39.1986	5.9364	7.118
	31.7756	80.1871	9125.0647	10.6895	15.8989	573.9434	18489.8549	39.4657	5.9905	7.183
L9	31.7756	72.5643	8302.6634	10.7186	15.8989	522.2164	16823.4471	35.7140	6.2085	8.248
	32.0287	73.1569	8507.7163	10.8061	16.0255	530.8851	17238.9397	36.0056	6.2740	8.336
L10	32.0287	76.5690	8883.2698	10.7932	16.0255	554.3198	17999.9129	37.6849	6.1774	7.832
	32.6123	78.0007	9390.9383	10.9950	16.3175	575.5120	19028.5869	38.3896	6.3285	8.024
L11	32.6123	80.1119	9631.3506	10.9872	16.3175	590.2454	19515.7276	39.4286	6.2697	7.734
	32.7169	80.3756	9726.7751	11.0233	16.3699	594.1878	19709.0833	39.5584	6.2968	7.767
L12	32.7169	74.4054	9040.4128	11.0454	16.3699	552.2594	18318.3274	36.6201	6.4622	8.628
	32.7692	74.5272	9084.8870	11.0635	16.3960	554.0906	18408.4440	36.6800	6.4757	8.646
L13	32.7692	82.6200	10017.0074	11.0336	16.3960	610.9410	20297.1727	40.6631	6.2517	7.509
	32.8214	82.7555	10066.3398	11.0517	16.4222	612.9716	20397.1335	40.7297	6.2653	7.526

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L14	32.8214	67.2536	8265.4179	11.1087	16.4222	503.3077	16747.9776	33.1002	6.6925	9.943
	35.6453	73.1655	10642.3097	12.0852	17.8351	596.7054	21564.2046	36.0098	7.4235	11.029
L15	35.6453	81.9693	11864.4305	12.0556	17.8351	665.2287	24040.5528	40.3428	7.2015	9.526
	35.6976	82.0923	11917.9004	12.0737	17.8613	667.2478	24148.8973	40.4033	7.2150	9.544
L16	35.6976	87.6559	12686.0300	12.0549	17.8613	710.2531	25705.3362	43.1416	7.0744	8.751
	36.0637	88.5764	13089.8720	12.1814	18.0444	725.4242	26523.6295	43.5946	7.1691	8.868
L17	36.0637	73.1259	10898.1377	12.2329	18.0444	603.9611	22082.5816	35.9903	7.5546	11.367
	36.1682	73.3421	10995.0846	12.2691	18.0968	607.5717	22279.0222	36.0967	7.5816	11.408
L18	36.1682	63.6634	9593.8525	12.3010	18.0968	530.1418	19439.7462	31.3332	7.8207	13.592
	36.4736	64.2099	9843.0743	12.4066	18.2496	539.3592	19944.7371	31.6022	7.8998	13.729
L19	36.4736	56.3773	8677.9330	12.4321	18.2496	475.5143	17583.8450	27.7472	8.0907	16.047
	39.0444	60.4086	10675.7930	13.3211	19.5359	546.4718	21632.0509	29.7313	8.7562	17.367
L20	38.3971	71.6411	11525.5537	12.7098	18.7148	615.8516	23353.8964	35.2596	8.0031	12.77
	39.4429	75.6163	13552.5556	13.4151	19.7352	686.7182	27461.1519	37.2161	8.5310	13.613
L21	39.4429	88.1762	15714.2117	13.3771	19.7352	796.2510	31841.2532	43.3977	8.2465	11.253
	39.5301	88.3749	15820.6638	13.4072	19.7789	799.8775	32056.9541	43.4954	8.2690	11.283
L22	39.5301	73.9297	13320.9242	13.4508	19.7789	673.4931	26991.8040	36.3859	8.5954	14.066
	41.6915	78.0378	15667.2509	14.1982	20.8603	751.0545	31746.0979	38.4078	9.1549	14.982
L23	41.6915	83.4921	16725.5960	14.1827	20.8603	801.7893	33890.5920	41.0923	9.0385	13.81
	43.7310	87.6438	19346.7770	14.8879	21.8808	884.1910	39201.8153	43.1356	9.5665	14.616
L24	43.7310	93.4308	20580.6597	14.8722	21.8808	940.5823	41701.9962	45.9838	9.4487	13.528
	45.7181	97.7477	23567.2268	15.5593	22.8750	1030.2600	47753.5909	48.1085	9.9631	14.264
L25	45.7181	107.3520	25799.6996	15.5343	22.8750	1127.8543	52277.1860	52.8354	9.7758	12.724
	46.2933	108.7266	26803.5199	15.7332	23.1628	1157.1775	54311.1982	53.5119	9.9248	12.917
L26	46.2933	98.8849	24455.7841	15.7585	23.1628	1055.8197	49554.0489	48.6681	10.1141	14.497
	46.7117	99.7927	25135.5023	15.9032	23.3722	1075.4463	50931.3422	49.1149	10.2224	14.653

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 120.000-99.250				1	1	1			
L2 99.250-99.000				1	1	0.873239			
L3 99.000-90.080				1	1	0.753372			
L4 90.080-89.500				1	1	0.510929			
L5 89.500-78.000				1	1	0.809321			
L6 78.000-76.750				1	1	0.767798			
L7 76.750-75.500				1	1	0.712101			
L8 75.500-74.500				1	1	0.762472			
L9 74.500-73.290				1	1	0.842469			
L10 73.290-70.500				1	1	0.804698			
L11 70.500-70.000				1	1	0.78345			
L12 70.000-69.750				1	1	0.846293			
L13 69.750-69.500				1	1	0.763376			
L14 69.500-56.000				1	1	0.93846			

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L15 56.000-55.750				1	1	0.83765			
L16 55.750-54.000				1	1	0.784365			
L17 54.000-53.500				1	1	0.950061			
L18 53.500-52.040				1	1	0.547214			
L19 52.040-39.750				1	1	0.623096			
L20 39.750-34.750				1	1	0.602405			
L21 34.750-34.333				1	1	0.516587			
L22 34.333-24.000				1	1	0.617321			
L23 24.000-14.250				1	1	0.576801			
L24 14.250-4.750				1	1	0.54089			
L25 4.750-2.000				1	1	0.984886			
L26 2.000-0.000				1	1	0.541419			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
2.25" Flexible Conduit	C	Surface Ar (CaAa)	120.000 - 0.000	2	2	0.000 0.000	2.2500		0.34
LDF7-50A(1-5/8) *	A	Surface Ar (CaAa)	113.000 - 0.000	8	4	-0.250 -0.250	1.9800		0.82
LDF7-50A(1-5/8) *	A	Surface Ar (CaAa)	105.000 - 0.000	8	8	0.500 0.500	1.9800		0.82
Safety Line 3/8	C	Surface Ar (CaAa)	120.000 - 0.000	1	1	0.000 0.000	0.3750		0.22
Step Pegs (5/8" SR) 7-in. w/30" step *	C	Surface Ar (CaAa)	120.000 - 0.000	1	1	0.000 0.000	0.3500		0.49
C6x10.5	A	Surface Ar (CaAa)	56.000 - 0.000	1	1	0.500 0.500	2.0300		10.50
C6x10.5	A	Surface Ar (CaAa)	56.000 - 0.000	1	1	-0.250 -0.250	2.0300		10.50
C6x10.5	B	Surface Ar (CaAa)	56.000 - 0.000	1	1	0.250 0.250	2.0300		10.50
C6x10.5	C	Surface Ar (CaAa)	56.000 - 0.000	1	1	0.000 0.000	2.0300		10.50
PL 1x4.5	A	Surface Ar (CaAa)	72.000 - 56.000	1	1	0.500 0.500	1.0000		15.34
PL 1x4.5	B	Surface Ar (CaAa)	74.790 - 56.000	1	1	0.250 0.250	1.0000		15.34

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
PL 1x4.5	C	Surface Ar (CaAa)	72.000 - 56.000	1	1	0.000 0.000	1.0000		15.34
PL 1x4.5	A	Surface Ar (CaAa)	72.000 - 56.000	1	1	-0.250 -0.250	1.0000		15.34
PL 1x6	A	Surface Ar (CaAa)	92.000 - 72.000	1	1	0.500 0.500	1.0000		20.45
PL 1x6	C	Surface Ar (CaAa)	92.000 - 72.000	1	1	0.000 0.000	1.0000		20.45
*									
PL 1x4.5	A	Surface Ar (CaAa)	92.080 - 72.080	1	1	-0.250 -0.250	1.0000		15.34
PL 1x4.5	B	Surface Ar (CaAa)	92.080 - 72.080	1	1	0.250 0.250	1.0000		15.34
PL 1.25x4	A	Surface Ar (CaAa)	100.750 - 92.080	1	1	-0.250 -0.250	1.2500		17.04
PL 1.25x4	B	Surface Ar (CaAa)	100.750 - 92.080	1	1	0.250 0.250	1.2500		17.04
PL 1.25x4	C	Surface Ar (CaAa)	100.750 - 92.000	1	1	0.000 0.000	1.2500		17.04
*									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
*								
1266A(1/8)	C	No	CaAa (Out Of Face)	120.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.01 0.41 1.41
7983A(ELLIPTICAL)	C	No	CaAa (Out Of Face)	120.000 - 0.000	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.08 0.74 2.01
9207(5/16)	C	No	Inside Pole	120.000 - 0.000	6	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.06 0.06 0.06
HB114-1-0813U4-M5J(1 -1/4)	C	No	Inside Pole	120.000 - 0.000	4	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	1.20 1.20 1.20
*								
*								
FB-L98B-034-XXX(3/8)	C	No	Inside Pole	97.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	97.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.58 0.58 0.58
*								
LDF6-50A(1 1/4")	C	No	Inside Pole	96.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.66 0.66 0.66
FB-L98B-034-XXX(3/8)	C	No	Inside Pole	96.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	96.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.58 0.58 0.58
2" Flexible Conduit	C	No	Inside Pole	96.000 - 0.000	2	No Ice	0.000	0.34

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1/2" Ice	0.000	0.34
						1" Ice	0.000	0.34
*								
LDF5-50A(7/8)	C	No	Inside Pole	82.000 - 0.000	12	No Ice	0.000	0.33
						1/2" Ice	0.000	0.33
						1" Ice	0.000	0.33
*								
LDF4-50A(1/2)	C	No	Inside Pole	75.000 - 0.000	1	No Ice	0.000	0.15
						1/2" Ice	0.000	0.15
						1" Ice	0.000	0.15
*								
Aero MP3-04	A	No	CaAa (Out Of Face)	25.500 - 0.000	1	No Ice	0.000	14.10
						1/2" Ice	0.000	15.30
						1" Ice	0.000	16.85
Aero MP3-04	B	No	CaAa (Out Of Face)	25.500 - 0.000	1	No Ice	0.000	14.10
						1/2" Ice	0.000	15.30
						1" Ice	0.000	16.85
Aero MP3-04	C	No	CaAa (Out Of Face)	25.500 - 0.000	1	No Ice	0.000	14.10
						1/2" Ice	0.000	15.30
						1" Ice	0.000	16.85
Aero MP3-04	B	No	CaAa (Out Of Face)	25.500 - 0.000	1	No Ice	0.000	14.10
						1/2" Ice	0.000	15.30
						1" Ice	0.000	16.85
*								
Crown 1x5	A	No	CaAa (Out Of Face)	37.000 - 2.500	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	B	No	CaAa (Out Of Face)	37.000 - 2.500	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	C	No	CaAa (Out Of Face)	37.000 - 2.500	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	C	No	CaAa (Out Of Face)	37.000 - 2.500	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
*								
Crown 1x5	A	No	CaAa (Out Of Face)	72.080 - 32.080	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	B	No	CaAa (Out Of Face)	72.080 - 32.080	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	C	No	CaAa (Out Of Face)	72.080 - 32.080	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	C	No	CaAa (Out Of Face)	72.080 - 32.080	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
*								
Aero MP3-03	A	No	CaAa (Out Of Face)	15.500 - 0.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	A	No	CaAa (Out Of Face)	45.500 - 25.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	B	No	CaAa (Out Of Face)	15.500 - 0.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	B	No	CaAa (Out Of Face)	45.500 - 25.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.000	12.57
Aero MP3-03	C	No	CaAa (Out Of Face)	15.500 - 0.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	C	No	CaAa (Out Of Face)	45.500 - 25.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	C	No	CaAa (Out Of Face)	15.500 - 0.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	C	No	CaAa (Out Of Face)	45.500 - 25.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
*								
*								
PL 1x4.5	A	No	CaAa (Out Of Face)	56.000 - 52.000	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	B	No	CaAa (Out Of Face)	56.000 - 50.540	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	C	No	CaAa (Out Of Face)	56.000 - 52.000	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	A	No	CaAa (Out Of Face)	56.000 - 52.000	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
*								
PL 1x6	A	No	CaAa (Out Of Face)	72.000 - 67.000	1	No Ice	0.000	20.45
						1/2" Ice	0.000	21.40
						1" Ice	0.000	22.70
PL 1x6	C	No	CaAa (Out Of Face)	72.000 - 67.000	1	No Ice	0.000	20.45
						1/2" Ice	0.000	21.40
						1" Ice	0.000	22.70
*								
PL 1x4.5	A	No	CaAa (Out Of Face)	57.250 - 42.250	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	B	No	CaAa (Out Of Face)	57.500 - 42.500	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	C	No	CaAa (Out Of Face)	57.500 - 42.500	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	C	No	CaAa (Out Of Face)	57.500 - 42.500	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
*								
*								
PL 1.25x4	C	No	CaAa (Out Of Face)	78.250 - 68.250	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	C	No	CaAa (Out Of Face)	80.000 - 68.250	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	B	No	CaAa (Out Of Face)	80.000 - 68.250	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	A	No	CaAa (Out Of Face)	80.000 - 68.250	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
PL 1.25x4	A	No	CaAa (Out Of Face)	92.080 - 73.000	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	B	No	CaAa (Out Of Face)	92.080 - 74.000	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	C	No	CaAa (Out Of Face)	92.000 - 74.000	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.000-99.250	A	0.000	0.000	20.186	0.000	0.15
		B	0.000	0.000	0.188	0.000	0.03
		C	0.000	0.000	11.029	0.000	0.17
L2	99.250-99.000	A	0.000	0.000	0.625	0.000	0.01
		B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.162	0.000	0.01
L3	99.000-90.080	A	0.000	0.000	22.451	0.000	0.34
		B	0.000	0.000	1.065	0.000	0.18
		C	0.000	0.000	5.728	0.000	0.32
L4	90.080-89.500	A	0.000	0.000	1.494	0.000	0.04
		B	0.000	0.000	0.058	0.000	0.02
		C	0.000	0.000	0.361	0.000	0.03
L5	89.500-78.000	A	0.000	0.000	29.624	0.000	0.79
		B	0.000	0.000	1.150	0.000	0.41
		C	0.000	0.000	7.159	0.000	0.69
L6	78.000-76.750	A	0.000	0.000	3.220	0.000	0.10
		B	0.000	0.000	0.125	0.000	0.06
		C	0.000	0.000	0.778	0.000	0.12
L7	76.750-75.500	A	0.000	0.000	3.220	0.000	0.10
		B	0.000	0.000	0.125	0.000	0.06
		C	0.000	0.000	0.778	0.000	0.12
L8	75.500-74.500	A	0.000	0.000	2.576	0.000	0.08
		B	0.000	0.000	0.129	0.000	0.05
		C	0.000	0.000	0.623	0.000	0.09
L9	74.500-73.290	A	0.000	0.000	3.117	0.000	0.10
		B	0.000	0.000	0.242	0.000	0.07
		C	0.000	0.000	0.753	0.000	0.10
L10	73.290-70.500	A	0.000	0.000	7.179	0.000	0.24
		B	0.000	0.000	0.400	0.000	0.14
		C	0.000	0.000	1.737	0.000	0.29
L11	70.500-70.000	A	0.000	0.000	1.288	0.000	0.05
		B	0.000	0.000	0.050	0.000	0.02
		C	0.000	0.000	0.311	0.000	0.06
L12	70.000-69.750	A	0.000	0.000	0.644	0.000	0.02
		B	0.000	0.000	0.025	0.000	0.01
		C	0.000	0.000	0.156	0.000	0.03
L13	69.750-69.500	A	0.000	0.000	0.644	0.000	0.02
		B	0.000	0.000	0.025	0.000	0.01
		C	0.000	0.000	0.156	0.000	0.03
L14	69.500-56.000	A	0.000	0.000	34.776	0.000	0.91
		B	0.000	0.000	1.350	0.000	0.48
		C	0.000	0.000	8.404	0.000	1.10

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L15	56.000-55.750	A	0.000	0.000	0.696	0.000	0.02
		B	0.000	0.000	0.051	0.000	0.01
		C	0.000	0.000	0.181	0.000	0.03
L16	55.750-54.000	A	0.000	0.000	4.869	0.000	0.17
		B	0.000	0.000	0.355	0.000	0.10
		C	0.000	0.000	1.270	0.000	0.20
L17	54.000-53.500	A	0.000	0.000	1.391	0.000	0.05
		B	0.000	0.000	0.102	0.000	0.03
		C	0.000	0.000	0.363	0.000	0.06
L18	53.500-52.040	A	0.000	0.000	4.062	0.000	0.14
		B	0.000	0.000	0.296	0.000	0.08
		C	0.000	0.000	1.059	0.000	0.16
L19	52.040-39.750	A	0.000	0.000	34.191	0.000	0.84
		B	0.000	0.000	2.495	0.000	0.56
		C	0.000	0.000	8.916	0.000	1.22
L20	39.750-34.750	A	0.000	0.000	13.910	0.000	0.34
		B	0.000	0.000	1.015	0.000	0.23
		C	0.000	0.000	3.627	0.000	0.51
L21	34.750-34.333	A	0.000	0.000	1.159	0.000	0.03
		B	0.000	0.000	0.085	0.000	0.02
		C	0.000	0.000	0.302	0.000	0.05
L22	34.333-24.000	A	0.000	0.000	28.747	0.000	0.68
		B	0.000	0.000	2.098	0.000	0.45
		C	0.000	0.000	7.497	0.000	0.96
L23	24.000-14.250	A	0.000	0.000	27.124	0.000	0.65
		B	0.000	0.000	1.979	0.000	0.56
		C	0.000	0.000	7.074	0.000	0.81
L24	14.250-4.750	A	0.000	0.000	26.429	0.000	0.71
		B	0.000	0.000	1.929	0.000	0.62
		C	0.000	0.000	6.892	0.000	0.95
L25	4.750-2.000	A	0.000	0.000	7.651	0.000	0.20
		B	0.000	0.000	0.558	0.000	0.17
		C	0.000	0.000	1.995	0.000	0.26
L26	2.000-0.000	A	0.000	0.000	5.564	0.000	0.11
		B	0.000	0.000	0.406	0.000	0.09
		C	0.000	0.000	1.451	0.000	0.12

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.000-99.250	A	1.691	0.000	0.000	33.912	0.000	0.60
		B		0.000	0.000	0.672	0.000	0.03
		C		0.000	0.000	36.656	0.000	0.98
L2	99.250-99.000	A	1.674	0.000	0.000	1.063	0.000	0.02
		B		0.000	0.000	0.111	0.000	0.01
		C		0.000	0.000	0.543	0.000	0.02
L3	99.000-90.080	A	1.666	0.000	0.000	38.702	0.000	0.84
		B		0.000	0.000	3.946	0.000	0.24
		C		0.000	0.000	19.285	0.000	0.72
L4	90.080-89.500	A	1.658	0.000	0.000	2.704	0.000	0.07
		B		0.000	0.000	0.250	0.000	0.02
		C		0.000	0.000	1.244	0.000	0.06
L5	89.500-78.000	A	1.646	0.000	0.000	53.494	0.000	1.52
		B		0.000	0.000	4.936	0.000	0.53
		C		0.000	0.000	24.545	0.000	1.24
L6	78.000-76.750	A	1.633	0.000	0.000	5.815	0.000	0.19

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.537	0.000	0.08
		C		0.000	0.000	2.668	0.000	0.19
L7	76.750-75.500	A	1.631	0.000	0.000	5.797	0.000	0.19
		B		0.000	0.000	0.533	0.000	0.08
		C		0.000	0.000	2.651	0.000	0.19
L8	75.500-74.500	A	1.628	0.000	0.000	4.636	0.000	0.15
		B		0.000	0.000	0.549	0.000	0.07
		C		0.000	0.000	2.119	0.000	0.15
L9	74.500-73.290	A	1.626	0.000	0.000	5.606	0.000	0.18
		B		0.000	0.000	1.029	0.000	0.09
		C		0.000	0.000	2.562	0.000	0.16
L10	73.290-70.500	A	1.621	0.000	0.000	12.882	0.000	0.45
		B		0.000	0.000	1.697	0.000	0.20
		C		0.000	0.000	5.896	0.000	0.51
L11	70.500-70.000	A	1.618	0.000	0.000	2.313	0.000	0.09
		B		0.000	0.000	0.212	0.000	0.04
		C		0.000	0.000	1.055	0.000	0.11
L12	70.000-69.750	A	1.617	0.000	0.000	1.156	0.000	0.05
		B		0.000	0.000	0.106	0.000	0.02
		C		0.000	0.000	0.527	0.000	0.06
L13	69.750-69.500	A	1.616	0.000	0.000	1.156	0.000	0.05
		B		0.000	0.000	0.106	0.000	0.02
		C		0.000	0.000	0.527	0.000	0.06
L14	69.500-56.000	A	1.599	0.000	0.000	62.227	0.000	1.98
		B		0.000	0.000	5.668	0.000	0.86
		C		0.000	0.000	28.275	0.000	2.28
L15	56.000-55.750	A	1.581	0.000	0.000	1.200	0.000	0.05
		B		0.000	0.000	0.130	0.000	0.02
		C		0.000	0.000	0.545	0.000	0.05
L16	55.750-54.000	A	1.578	0.000	0.000	8.394	0.000	0.33
		B		0.000	0.000	0.908	0.000	0.17
		C		0.000	0.000	3.814	0.000	0.37
L17	54.000-53.500	A	1.575	0.000	0.000	2.397	0.000	0.09
		B		0.000	0.000	0.259	0.000	0.05
		C		0.000	0.000	1.088	0.000	0.10
L18	53.500-52.040	A	1.572	0.000	0.000	6.995	0.000	0.28
		B		0.000	0.000	0.755	0.000	0.14
		C		0.000	0.000	3.174	0.000	0.31
L19	52.040-39.750	A	1.550	0.000	0.000	58.636	0.000	1.88
		B		0.000	0.000	6.305	0.000	0.99
		C		0.000	0.000	26.492	0.000	2.39
L20	39.750-34.750	A	1.518	0.000	0.000	23.855	0.000	0.81
		B		0.000	0.000	2.565	0.000	0.44
		C		0.000	0.000	10.778	0.000	1.08
L21	34.750-34.333	A	1.507	0.000	0.000	1.972	0.000	0.08
		B		0.000	0.000	0.210	0.000	0.05
		C		0.000	0.000	0.883	0.000	0.11
L22	34.333-24.000	A	1.481	0.000	0.000	48.662	0.000	1.56
		B		0.000	0.000	5.159	0.000	0.84
		C		0.000	0.000	21.671	0.000	1.98
L23	24.000-14.250	A	1.420	0.000	0.000	45.377	0.000	1.41
		B		0.000	0.000	4.748	0.000	0.91
		C		0.000	0.000	19.939	0.000	1.63
L24	14.250-4.750	A	1.324	0.000	0.000	43.391	0.000	1.45
		B		0.000	0.000	4.444	0.000	0.99
		C		0.000	0.000	18.651	0.000	1.77
L25	4.750-2.000	A	1.194	0.000	0.000	12.239	0.000	0.38
		B		0.000	0.000	1.215	0.000	0.26
		C		0.000	0.000	5.096	0.000	0.45
L26	2.000-0.000	A	1.057	0.000	0.000	8.655	0.000	0.20
		B		0.000	0.000	0.829	0.000	0.12

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	3.473	0.000	0.18

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	120.000-99.250	-0.5253	0.0614	-0.4722	0.4698
L2	99.250-99.000	-0.5397	-0.5983	-0.4644	-0.0839
L3	99.000-90.080	-0.5479	-0.6260	-0.4719	-0.1165
L4	90.080-89.500	-0.5547	-0.6974	-0.4707	-0.2241
L5	89.500-78.000	-0.5654	-0.7126	-0.4847	-0.2328
L6	78.000-76.750	-0.5721	-0.7221	-0.4934	-0.2371
L7	76.750-75.500	-0.5742	-0.7251	-0.4966	-0.2413
L8	75.500-74.500	-0.5540	-0.7242	-0.4541	-0.2406
L9	74.500-73.290	-0.5027	-0.7183	-0.3496	-0.2364
L10	73.290-70.500	-0.5466	-0.7302	-0.4351	-0.2443
L11	70.500-70.000	-0.5839	-0.7389	-0.5098	-0.2502
L12	70.000-69.750	-0.5846	-0.7398	-0.5107	-0.2508
L13	69.750-69.500	-0.5850	-0.7404	-0.5112	-0.2512
L14	69.500-56.000	-0.5959	-0.7559	-0.5265	-0.2620
L15	56.000-55.750	-0.5691	-0.7233	-0.5239	-0.2642
L16	55.750-54.000	-0.5706	-0.7254	-0.5260	-0.2659
L17	54.000-53.500	-0.5723	-0.7278	-0.5283	-0.2677
L18	53.500-52.040	-0.5737	-0.7299	-0.5304	-0.2693
L19	52.040-39.750	-0.5837	-0.7440	-0.5446	-0.2810
L20	39.750-34.750	-0.5916	-0.7550	-0.5555	-0.2868
L21	34.750-34.333	-0.5953	-0.7603	-0.5618	-0.2989
L22	34.333-24.000	-0.6026	-0.7706	-0.5726	-0.3103
L23	24.000-14.250	-0.6158	-0.7891	-0.5928	-0.3351
L24	14.250-4.750	-0.6277	-0.8060	-0.6124	-0.3694
L25	4.750-2.000	-0.6351	-0.8163	-0.6261	-0.4108
L26	2.000-0.000	-0.6379	-0.8203	-0.6334	-0.4527

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	5	2.25" Flexible Conduit	99.25 - 120.00	1.0000	1.0000
L1	10	LDF7-50A(1-5/8)	99.25 - 113.00	1.0000	1.0000
L1	14	LDF7-50A(1-5/8)	99.25 - 105.00	1.0000	1.0000
L1	29	Safety Line 3/8	99.25 - 120.00	1.0000	1.0000
L1	30	Step Pegs (5/8" SR) 7-in. w/30" step	99.25 - 120.00	1.0000	1.0000
L1	103	PL 1.25x4	99.25 - 100.75	1.0000	1.0000
L1	104	PL 1.25x4	99.25 - 100.75	1.0000	1.0000
L1	105	PL 1.25x4	99.25 - 100.75	1.0000	1.0000
L2	5	2.25" Flexible Conduit	99.00 - 99.25	1.0000	1.0000
L2	10	LDF7-50A(1-5/8)	99.00 - 99.25	1.0000	1.0000
L2	14	LDF7-50A(1-5/8)	99.00 - 99.25	1.0000	1.0000
L2	29	Safety Line 3/8	99.00 - 99.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	30	Step Pegs (5/8" SR) 7-in. w/30" step	99.00 - 99.25	1.0000	1.0000
L2	103	PL 1.25x4	99.00 - 99.25	1.0000	1.0000
L2	104	PL 1.25x4	99.00 - 99.25	1.0000	1.0000
L2	105	PL 1.25x4	99.00 - 99.25	1.0000	1.0000
L3	5	2.25" Flexible Conduit	90.08 - 99.00	1.0000	1.0000
L3	10	LDF7-50A(1-5/8)	90.08 - 99.00	1.0000	1.0000
L3	14	LDF7-50A(1-5/8)	90.08 - 99.00	1.0000	1.0000
L3	29	Safety Line 3/8	90.08 - 99.00	1.0000	1.0000
L3	30	Step Pegs (5/8" SR) 7-in. w/30" step	90.08 - 99.00	1.0000	1.0000
L3	77	PL 1x6	90.08 - 92.00	1.0000	1.0000
L3	78	PL 1x6	90.08 - 92.00	1.0000	1.0000
L3	80	PL 1x4.5	90.08 - 92.08	1.0000	1.0000
L3	81	PL 1x4.5	90.08 - 92.08	1.0000	1.0000
L3	103	PL 1.25x4	92.08 - 99.00	1.0000	1.0000
L3	104	PL 1.25x4	92.08 - 99.00	1.0000	1.0000
L3	105	PL 1.25x4	92.00 - 99.00	1.0000	1.0000
L4	5	2.25" Flexible Conduit	89.50 - 90.08	1.0000	1.0000
L4	10	LDF7-50A(1-5/8)	89.50 - 90.08	1.0000	1.0000
L4	14	LDF7-50A(1-5/8)	89.50 - 90.08	1.0000	1.0000
L4	29	Safety Line 3/8	89.50 - 90.08	1.0000	1.0000
L4	30	Step Pegs (5/8" SR) 7-in. w/30" step	89.50 - 90.08	1.0000	1.0000
L4	77	PL 1x6	89.50 - 90.08	1.0000	1.0000
L4	78	PL 1x6	89.50 - 90.08	1.0000	1.0000
L4	80	PL 1x4.5	89.50 - 90.08	1.0000	1.0000
L4	81	PL 1x4.5	89.50 - 90.08	1.0000	1.0000
L5	5	2.25" Flexible Conduit	78.00 - 89.50	1.0000	1.0000
L5	10	LDF7-50A(1-5/8)	78.00 - 89.50	1.0000	1.0000
L5	14	LDF7-50A(1-5/8)	78.00 - 89.50	1.0000	1.0000
L5	29	Safety Line 3/8	78.00 - 89.50	1.0000	1.0000
L5	30	Step Pegs (5/8" SR) 7-in. w/30" step	78.00 - 89.50	1.0000	1.0000
L5	77	PL 1x6	78.00 - 89.50	1.0000	1.0000
L5	78	PL 1x6	78.00 - 89.50	1.0000	1.0000
L5	80	PL 1x4.5	78.00 - 89.50	1.0000	1.0000
L5	81	PL 1x4.5	78.00 - 89.50	1.0000	1.0000
L7	5	2.25" Flexible Conduit	75.50 - 76.75	1.0000	1.0000
L7	10	LDF7-50A(1-5/8)	75.50 - 76.75	1.0000	1.0000
L7	14	LDF7-50A(1-5/8)	75.50 - 76.75	1.0000	1.0000
L7	29	Safety Line 3/8	75.50 - 76.75	1.0000	1.0000
L7	30	Step Pegs (5/8" SR) 7-in. w/30" step	75.50 - 76.75	1.0000	1.0000
L7	77	PL 1x6	75.50 - 76.75	1.0000	1.0000
L7	78	PL 1x6	75.50 - 76.75	1.0000	1.0000
L7	80	PL 1x4.5	75.50 - 76.75	1.0000	1.0000
L7	81	PL 1x4.5	75.50 - 76.75	1.0000	1.0000
L8	5	2.25" Flexible Conduit	74.50 - 75.50	1.0000	1.0000
L8	10	LDF7-50A(1-5/8)	74.50 - 75.50	1.0000	1.0000
L8	14	LDF7-50A(1-5/8)	74.50 - 75.50	1.0000	1.0000
L8	29	Safety Line 3/8	74.50 - 75.50	1.0000	1.0000
L8	30	Step Pegs (5/8" SR) 7-in. w/30" step	74.50 - 75.50	1.0000	1.0000
L8	69	PL 1x4.5	74.50 - 74.79	1.0000	1.0000
L8	77	PL 1x6	74.50 - 75.50	1.0000	1.0000
L8	78	PL 1x6	74.50 - 75.50	1.0000	1.0000
L8	80	PL 1x4.5	74.50 - 75.50	1.0000	1.0000
L8	81	PL 1x4.5	74.50 - 75.50	1.0000	1.0000
L9	5	2.25" Flexible Conduit	73.29 - 74.50	1.0000	1.0000
L9	10	LDF7-50A(1-5/8)	73.29 - 74.50	1.0000	1.0000
L9	14	LDF7-50A(1-5/8)	73.29 - 74.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L9	29	Safety Line 3/8	73.29 - 74.50	1.0000	1.0000
L9	30	Step Pegs (5/8" SR) 7-in. w/30" step	73.29 - 74.50	1.0000	1.0000
L9	69	PL 1x4.5	73.29 - 74.50	1.0000	1.0000
L9	77	PL 1x6	73.29 - 74.50	1.0000	1.0000
L9	78	PL 1x6	73.29 - 74.50	1.0000	1.0000
L9	80	PL 1x4.5	73.29 - 74.50	1.0000	1.0000
L9	81	PL 1x4.5	73.29 - 74.50	1.0000	1.0000
L10	5	2.25" Flexible Conduit	70.50 - 73.29	1.0000	1.0000
L10	10	LDF7-50A(1-5/8)	70.50 - 73.29	1.0000	1.0000
L10	14	LDF7-50A(1-5/8)	70.50 - 73.29	1.0000	1.0000
L10	29	Safety Line 3/8	70.50 - 73.29	1.0000	1.0000
L10	30	Step Pegs (5/8" SR) 7-in. w/30" step	70.50 - 73.29	1.0000	1.0000
L10	67	PL 1x4.5	70.50 - 72.00	1.0000	1.0000
L10	69	PL 1x4.5	70.50 - 73.29	1.0000	1.0000
L10	71	PL 1x4.5	70.50 - 72.00	1.0000	1.0000
L10	73	PL 1x4.5	70.50 - 72.00	1.0000	1.0000
L10	77	PL 1x6	72.00 - 73.29	1.0000	1.0000
L10	78	PL 1x6	72.00 - 73.29	1.0000	1.0000
L10	80	PL 1x4.5	72.08 - 73.29	1.0000	1.0000
L10	81	PL 1x4.5	72.08 - 73.29	1.0000	1.0000
L11	5	2.25" Flexible Conduit	70.00 - 70.50	1.0000	1.0000
L11	10	LDF7-50A(1-5/8)	70.00 - 70.50	1.0000	1.0000
L11	14	LDF7-50A(1-5/8)	70.00 - 70.50	1.0000	1.0000
L11	29	Safety Line 3/8	70.00 - 70.50	1.0000	1.0000
L11	30	Step Pegs (5/8" SR) 7-in. w/30" step	70.00 - 70.50	1.0000	1.0000
L11	67	PL 1x4.5	70.00 - 70.50	1.0000	1.0000
L11	69	PL 1x4.5	70.00 - 70.50	1.0000	1.0000
L11	71	PL 1x4.5	70.00 - 70.50	1.0000	1.0000
L11	73	PL 1x4.5	70.00 - 70.50	1.0000	1.0000
L12	5	2.25" Flexible Conduit	69.75 - 70.00	1.0000	1.0000
L12	10	LDF7-50A(1-5/8)	69.75 - 70.00	1.0000	1.0000
L12	14	LDF7-50A(1-5/8)	69.75 - 70.00	1.0000	1.0000
L12	29	Safety Line 3/8	69.75 - 70.00	1.0000	1.0000
L12	30	Step Pegs (5/8" SR) 7-in. w/30" step	69.75 - 70.00	1.0000	1.0000
L12	67	PL 1x4.5	69.75 - 70.00	1.0000	1.0000
L12	69	PL 1x4.5	69.75 - 70.00	1.0000	1.0000
L12	71	PL 1x4.5	69.75 - 70.00	1.0000	1.0000
L12	73	PL 1x4.5	69.75 - 70.00	1.0000	1.0000
L13	5	2.25" Flexible Conduit	69.50 - 69.75	1.0000	1.0000
L13	10	LDF7-50A(1-5/8)	69.50 - 69.75	1.0000	1.0000
L13	14	LDF7-50A(1-5/8)	69.50 - 69.75	1.0000	1.0000
L13	29	Safety Line 3/8	69.50 - 69.75	1.0000	1.0000
L13	30	Step Pegs (5/8" SR) 7-in. w/30" step	69.50 - 69.75	1.0000	1.0000
L13	67	PL 1x4.5	69.50 - 69.75	1.0000	1.0000
L13	69	PL 1x4.5	69.50 - 69.75	1.0000	1.0000
L13	71	PL 1x4.5	69.50 - 69.75	1.0000	1.0000
L13	73	PL 1x4.5	69.50 - 69.75	1.0000	1.0000
L14	5	2.25" Flexible Conduit	56.00 - 69.50	1.0000	1.0000
L14	10	LDF7-50A(1-5/8)	56.00 - 69.50	1.0000	1.0000
L14	14	LDF7-50A(1-5/8)	56.00 - 69.50	1.0000	1.0000
L14	29	Safety Line 3/8	56.00 - 69.50	1.0000	1.0000
L14	30	Step Pegs (5/8" SR) 7-in. w/30" step	56.00 - 69.50	1.0000	1.0000
L14	67	PL 1x4.5	56.00 - 69.50	1.0000	1.0000
L14	69	PL 1x4.5	56.00 - 69.50	1.0000	1.0000
L14	71	PL 1x4.5	56.00 - 69.50	1.0000	1.0000
L14	73	PL 1x4.5	56.00 - 69.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	5	2.25" Flexible Conduit	55.75 - 56.00	1.0000	1.0000
L15	10	LDF7-50A(1-5/8)	55.75 - 56.00	1.0000	1.0000
L15	14	LDF7-50A(1-5/8)	55.75 - 56.00	1.0000	1.0000
L15	29	Safety Line 3/8	55.75 - 56.00	1.0000	1.0000
L15	30	Step Pegs (5/8" SR) 7-in. w/30" step	55.75 - 56.00	1.0000	1.0000
L15	32	C6x10.5	55.75 - 56.00	1.0000	1.0000
L15	33	C6x10.5	55.75 - 56.00	1.0000	1.0000
L15	34	C6x10.5	55.75 - 56.00	1.0000	1.0000
L15	35	C6x10.5	55.75 - 56.00	1.0000	1.0000
L16	5	2.25" Flexible Conduit	54.00 - 55.75	1.0000	1.0000
L16	10	LDF7-50A(1-5/8)	54.00 - 55.75	1.0000	1.0000
L16	14	LDF7-50A(1-5/8)	54.00 - 55.75	1.0000	1.0000
L16	29	Safety Line 3/8	54.00 - 55.75	1.0000	1.0000
L16	30	Step Pegs (5/8" SR) 7-in. w/30" step	54.00 - 55.75	1.0000	1.0000
L16	32	C6x10.5	54.00 - 55.75	1.0000	1.0000
L16	33	C6x10.5	54.00 - 55.75	1.0000	1.0000
L16	34	C6x10.5	54.00 - 55.75	1.0000	1.0000
L16	35	C6x10.5	54.00 - 55.75	1.0000	1.0000
L17	5	2.25" Flexible Conduit	53.50 - 54.00	1.0000	1.0000
L17	10	LDF7-50A(1-5/8)	53.50 - 54.00	1.0000	1.0000
L17	14	LDF7-50A(1-5/8)	53.50 - 54.00	1.0000	1.0000
L17	29	Safety Line 3/8	53.50 - 54.00	1.0000	1.0000
L17	30	Step Pegs (5/8" SR) 7-in. w/30" step	53.50 - 54.00	1.0000	1.0000
L17	32	C6x10.5	53.50 - 54.00	1.0000	1.0000
L17	33	C6x10.5	53.50 - 54.00	1.0000	1.0000
L17	34	C6x10.5	53.50 - 54.00	1.0000	1.0000
L17	35	C6x10.5	53.50 - 54.00	1.0000	1.0000
L18	5	2.25" Flexible Conduit	52.04 - 53.50	1.0000	1.0000
L18	10	LDF7-50A(1-5/8)	52.04 - 53.50	1.0000	1.0000
L18	14	LDF7-50A(1-5/8)	52.04 - 53.50	1.0000	1.0000
L18	29	Safety Line 3/8	52.04 - 53.50	1.0000	1.0000
L18	30	Step Pegs (5/8" SR) 7-in. w/30" step	52.04 - 53.50	1.0000	1.0000
L18	32	C6x10.5	52.04 - 53.50	1.0000	1.0000
L18	33	C6x10.5	52.04 - 53.50	1.0000	1.0000
L18	34	C6x10.5	52.04 - 53.50	1.0000	1.0000
L18	35	C6x10.5	52.04 - 53.50	1.0000	1.0000
L19	5	2.25" Flexible Conduit	39.75 - 52.04	1.0000	1.0000
L19	10	LDF7-50A(1-5/8)	39.75 - 52.04	1.0000	1.0000
L19	14	LDF7-50A(1-5/8)	39.75 - 52.04	1.0000	1.0000
L19	29	Safety Line 3/8	39.75 - 52.04	1.0000	1.0000
L19	30	Step Pegs (5/8" SR) 7-in. w/30" step	39.75 - 52.04	1.0000	1.0000
L19	32	C6x10.5	39.75 - 52.04	1.0000	1.0000
L19	33	C6x10.5	39.75 - 52.04	1.0000	1.0000
L19	34	C6x10.5	39.75 - 52.04	1.0000	1.0000
L19	35	C6x10.5	39.75 - 52.04	1.0000	1.0000
L21	5	2.25" Flexible Conduit	34.33 - 34.75	1.0000	1.0000
L21	10	LDF7-50A(1-5/8)	34.33 - 34.75	1.0000	1.0000
L21	14	LDF7-50A(1-5/8)	34.33 - 34.75	1.0000	1.0000
L21	29	Safety Line 3/8	34.33 - 34.75	1.0000	1.0000
L21	30	Step Pegs (5/8" SR) 7-in. w/30" step	34.33 - 34.75	1.0000	1.0000
L21	32	C6x10.5	34.33 - 34.75	1.0000	1.0000
L21	33	C6x10.5	34.33 - 34.75	1.0000	1.0000
L21	34	C6x10.5	34.33 - 34.75	1.0000	1.0000
L21	35	C6x10.5	34.33 - 34.75	1.0000	1.0000
L22	5	2.25" Flexible Conduit	24.00 - 34.33	1.0000	1.0000
L22	10	LDF7-50A(1-5/8)	24.00 - 34.33	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	14	LDF7-50A(1-5/8)	24.00 - 34.33	1.0000	1.0000
L22	29	Safety Line 3/8	24.00 - 34.33	1.0000	1.0000
L22	30	Step Pegs (5/8" SR) 7-in. w/30" step	24.00 - 34.33	1.0000	1.0000
L22	32	C6x10.5	24.00 - 34.33	1.0000	1.0000
L22	33	C6x10.5	24.00 - 34.33	1.0000	1.0000
L22	34	C6x10.5	24.00 - 34.33	1.0000	1.0000
L22	35	C6x10.5	24.00 - 34.33	1.0000	1.0000
L23	5	2.25" Flexible Conduit	14.25 - 24.00	1.0000	1.0000
L23	10	LDF7-50A(1-5/8)	14.25 - 24.00	1.0000	1.0000
L23	14	LDF7-50A(1-5/8)	14.25 - 24.00	1.0000	1.0000
L23	29	Safety Line 3/8	14.25 - 24.00	1.0000	1.0000
L23	30	Step Pegs (5/8" SR) 7-in. w/30" step	14.25 - 24.00	1.0000	1.0000
L23	32	C6x10.5	14.25 - 24.00	1.0000	1.0000
L23	33	C6x10.5	14.25 - 24.00	1.0000	1.0000
L23	34	C6x10.5	14.25 - 24.00	1.0000	1.0000
L23	35	C6x10.5	14.25 - 24.00	1.0000	1.0000
L24	5	2.25" Flexible Conduit	4.75 - 14.25	1.0000	1.0000
L24	10	LDF7-50A(1-5/8)	4.75 - 14.25	1.0000	1.0000
L24	14	LDF7-50A(1-5/8)	4.75 - 14.25	1.0000	1.0000
L24	29	Safety Line 3/8	4.75 - 14.25	1.0000	1.0000
L24	30	Step Pegs (5/8" SR) 7-in. w/30" step	4.75 - 14.25	1.0000	1.0000
L24	32	C6x10.5	4.75 - 14.25	1.0000	1.0000
L24	33	C6x10.5	4.75 - 14.25	1.0000	1.0000
L24	34	C6x10.5	4.75 - 14.25	1.0000	1.0000
L24	35	C6x10.5	4.75 - 14.25	1.0000	1.0000
L25	5	2.25" Flexible Conduit	2.00 - 4.75	1.0000	1.0000
L25	10	LDF7-50A(1-5/8)	2.00 - 4.75	1.0000	1.0000
L25	14	LDF7-50A(1-5/8)	2.00 - 4.75	1.0000	1.0000
L25	29	Safety Line 3/8	2.00 - 4.75	1.0000	1.0000
L25	30	Step Pegs (5/8" SR) 7-in. w/30" step	2.00 - 4.75	1.0000	1.0000
L25	32	C6x10.5	2.00 - 4.75	1.0000	1.0000
L25	33	C6x10.5	2.00 - 4.75	1.0000	1.0000
L25	34	C6x10.5	2.00 - 4.75	1.0000	1.0000
L25	35	C6x10.5	2.00 - 4.75	1.0000	1.0000
L26	5	2.25" Flexible Conduit	0.00 - 2.00	1.0000	1.0000
L26	10	LDF7-50A(1-5/8)	0.00 - 2.00	1.0000	1.0000
L26	14	LDF7-50A(1-5/8)	0.00 - 2.00	1.0000	1.0000
L26	29	Safety Line 3/8	0.00 - 2.00	1.0000	1.0000
L26	30	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 2.00	1.0000	1.0000
L26	32	C6x10.5	0.00 - 2.00	1.0000	1.0000
L26	33	C6x10.5	0.00 - 2.00	1.0000	1.0000
L26	34	C6x10.5	0.00 - 2.00	1.0000	1.0000
L26	35	C6x10.5	0.00 - 2.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
Pipe 6" x 10'	C	From Leg	0.000	0.00	120.000	No Ice	3.376	3.376	0.19
			0.00			1/2" Ice	6.050	6.050	0.23
			5.00			1" Ice	6.665	6.665	0.28
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Leg	4.000	30.00	122.000	No Ice	8.262	6.946	0.08
			-2.00			1/2" Ice	8.822	8.127	0.15
			-1.00			1" Ice	9.346	9.021	0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Leg	4.000	10.00	122.000	No Ice	8.262	6.946	0.08
			-2.00			1/2" Ice	8.822	8.127	0.15
			-1.00			1" Ice	9.346	9.021	0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Leg	4.000	30.00	122.000	No Ice	8.262	6.946	0.08
			2.00			1/2" Ice	8.822	8.127	0.15
			-1.00			1" Ice	9.346	9.021	0.23
LLPX310R w/ Mount Pipe	A	From Centroid-Leg	4.000	30.00	122.000	No Ice	4.455	2.874	0.04
			0.00			1/2" Ice	4.787	3.398	0.08
			0.00			1" Ice	5.129	3.937	0.12
LLPX310R w/ Mount Pipe	B	From Centroid-Leg	4.000	30.00	122.000	No Ice	4.455	2.874	0.04
			0.00			1/2" Ice	4.787	3.398	0.08
			0.00			1" Ice	5.129	3.937	0.12
LLPX310R w/ Mount Pipe	C	From Centroid-Leg	4.000	30.00	122.000	No Ice	4.455	2.874	0.04
			0.00			1/2" Ice	4.787	3.398	0.08
			0.00			1" Ice	5.129	3.937	0.12
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Centroid-Leg	4.000	30.00	122.000	No Ice	6.580	4.959	0.08
			-6.00			1/2" Ice	7.031	5.754	0.13
			-1.00			1" Ice	7.473	6.472	0.19
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Centroid-Leg	4.000	10.00	122.000	No Ice	6.580	4.959	0.08
			-6.00			1/2" Ice	7.031	5.754	0.13
			-1.00			1" Ice	7.473	6.472	0.19
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Centroid-Leg	4.000	30.00	122.000	No Ice	6.580	4.959	0.08
			6.00			1/2" Ice	7.031	5.754	0.13
			-1.00			1" Ice	7.473	6.472	0.19
MT-485025	C	From Centroid-Leg	4.000	30.00	122.000	No Ice	2.075	0.236	0.01
			-6.00			1/2" Ice	2.269	0.333	0.01
			1.00			1" Ice	2.471	0.451	0.03
800 EXTERNAL NOTCH FILTER	A	From Centroid-Leg	4.000	30.00	122.000	No Ice	0.660	0.321	0.01
			-2.00			1/2" Ice	0.763	0.398	0.02
			-2.00			1" Ice	0.873	0.483	0.02
800 EXTERNAL NOTCH FILTER	B	From Centroid-Leg	4.000	10.00	122.000	No Ice	0.660	0.321	0.01
			-2.00			1/2" Ice	0.763	0.398	0.02
			-2.00			1" Ice	0.873	0.483	0.02
800 EXTERNAL NOTCH FILTER	C	From Centroid-Leg	4.000	30.00	122.000	No Ice	0.660	0.321	0.01
			-2.00			1/2" Ice	0.763	0.398	0.02
			-2.00			1" Ice	0.873	0.483	0.02
(3) ACU-A20-N	A	From Centroid-Leg	4.000	30.00	122.000	No Ice	0.067	0.117	0.00
			-2.00			1/2" Ice	0.104	0.162	0.00
			-2.00			1" Ice	0.148	0.215	0.00
(3) ACU-A20-N	B	From Centroid-Leg	4.000	10.00	122.000	No Ice	0.067	0.117	0.00
			-2.00			1/2" Ice	0.104	0.162	0.00
			-2.00			1" Ice	0.148	0.215	0.00
(3) ACU-A20-N	C	From Centroid-Leg	4.000	30.00	122.000	No Ice	0.067	0.117	0.00
			-2.00			1/2" Ice	0.104	0.162	0.00
			-2.00			1" Ice	0.148	0.215	0.00
PCS 1900MHz 4x45W-65MHz	A	From Centroid-Leg	4.000	30.00	122.000	No Ice	2.322	2.238	0.06
			-2.00			1/2" Ice	2.527	2.441	0.08
			-1.00			1" Ice	2.739	2.651	0.11
PCS 1900MHz	B	From	4.000	10.00	122.000	No Ice	2.322	2.238	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
4x45W-65MHz		Centroid-Leg	-2.00 / -2.00			1/2" Ice 1" Ice	2.527 2.739	2.441 2.651	0.08 0.11
PCS 1900MHz	C	From Centroid-Leg	4.000 / -2.00 / -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.06 0.08 0.11
4x45W-65MHz		Centroid-Leg	-2.00 / -2.00			1/2" Ice 1" Ice	2.527 2.739	2.441 2.651	0.08 0.11
800MHZ RRH	A	From Centroid-Leg	4.000 / -2.00 / -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.134 2.320 2.512	1.773 1.946 2.127	0.05 0.07 0.10
800MHZ RRH	B	From Centroid-Leg	4.000 / -2.00 / -1.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	2.134 2.320 2.512	1.773 1.946 2.127	0.05 0.07 0.10
800MHZ RRH	C	From Centroid-Leg	4.000 / -2.00 / -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.134 2.320 2.512	1.773 1.946 2.127	0.05 0.07 0.10
TD-RRH8x20-25	A	From Centroid-Leg	4.000 / 2.00 / -1.00	37.00	122.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.07 0.10 0.13
TD-RRH8x20-25	B	From Centroid-Leg	4.000 / 2.00 / -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.07 0.10 0.13
TD-RRH8x20-25	C	From Centroid-Leg	4.000 / 2.00 / -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.07 0.10 0.13
FDD_R6_RRH	A	From Centroid-Leg	4.000 / 0.00 / 0.00	25.00	122.000	No Ice 1/2" Ice 1" Ice	1.533 1.690 1.854	0.684 0.800 0.923	0.03 0.04 0.06
FDD_R6_RRH	B	From Centroid-Leg	4.000 / 0.00 / 0.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	1.533 1.690 1.854	0.684 0.800 0.923	0.03 0.04 0.06
FDD_R6_RRH	C	From Centroid-Leg	4.000 / 0.00 / 0.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	1.533 1.690 1.854	0.684 0.800 0.923	0.03 0.04 0.06
2.4" Dia. x 5-ft Pipe	A	From Centroid-Leg	4.000 / 6.00 / 0.00	0.00	122.000	No Ice 1/2" Ice 1" Ice	1.200 1.502 1.814	1.200 1.502 1.814	0.02 0.03 0.04
(2) 2.4" Dia. x 5-ft Pipe	B	From Centroid-Leg	4.000 / 4.00 / 0.00	0.00	122.000	No Ice 1/2" Ice 1" Ice	1.200 1.502 1.814	1.200 1.502 1.814	0.02 0.03 0.04
2.4" Dia. x 5-ft Pipe	C	From Centroid-Leg	4.000 / 6.00 / 0.00	0.00	122.000	No Ice 1/2" Ice 1" Ice	1.200 1.502 1.814	1.200 1.502 1.814	0.02 0.03 0.04
Miscellaneous [NA 507-1]	C	None		0.00	122.000	No Ice 1/2" Ice 1" Ice	4.800 6.700 8.600	4.800 6.700 8.600	0.25 0.29 0.34
Platform Mount [LP 712-1]	C	None		0.00	122.000	No Ice 1/2" Ice 1" Ice	24.530 29.940 35.350	24.530 29.940 35.350	1.34 1.65 1.96
**									
(2) DB846F65ZAXY w/ Mount Pipe	A	From Centroid-Leg	4.000 / 4.00 / 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	7.271 7.832 8.348	7.821 9.010 9.912	0.05 0.11 0.19
(2) LPA-80063/4CF w/ Mount Pipe	B	From Centroid-Leg	4.000 / 4.00 / 1.00	10.00	113.000	No Ice 1/2" Ice 1" Ice	6.396 6.799 7.210	6.614 7.250 7.898	0.04 0.10 0.18
(2) LPA-80063/4CF w/ Mount Pipe	C	From Centroid-Leg	4.000 / 0.00 / 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	6.396 6.799 7.210	6.614 7.250 7.898	0.04 0.10 0.18

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
ACUTIME 2000	A	From Centroid-Le g	4.000 -3.00 3.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	0.255 0.320 0.393	0.255 0.320 0.393	0.00 0.00 0.01
BXA-171063/8CF w/ Mount Pipe	A	From Centroid-Le g	4.000 0.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	3.140 3.515 3.892	3.510 4.130 4.757	0.03 0.06 0.10
BXA-171063/8CF w/ Mount Pipe	B	From Centroid-Le g	4.000 0.00 1.00	10.00	113.000	No Ice 1/2" Ice 1" Ice	3.140 3.515 3.892	3.510 4.130 4.757	0.03 0.06 0.10
BXA-171063/8CF w/ Mount Pipe	C	From Centroid-Le g	4.000 -3.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	3.140 3.515 3.892	3.510 4.130 4.757	0.03 0.06 0.10
(2) FD9R6004/2C-3L	B	From Centroid-Le g	4.000 4.00 1.00	10.00	113.000	No Ice 1/2" Ice 1" Ice	0.314 0.386 0.466	0.076 0.119 0.169	0.00 0.01 0.01
(4) FD9R6004/2C-3L	C	From Centroid-Le g	4.000 0.00 0.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	0.314 0.386 0.466	0.076 0.119 0.169	0.00 0.01 0.01
DB-T1-6Z-8AB-0Z	B	From Centroid-Le g	4.000 -3.00 1.00	-40.00	113.000	No Ice 1/2" Ice 1" Ice	4.800 5.070 5.348	2.000 2.193 2.393	0.04 0.08 0.12
DB-T1-6Z-8AB-0Z	B	From Centroid-Le g	4.000 0.00 1.00	10.00	113.000	No Ice 1/2" Ice 1" Ice	4.800 5.070 5.348	2.000 2.193 2.393	0.04 0.08 0.12
(2) SBNHH-1D65B w/ Mount Pipe	A	From Centroid-Le g	4.000 -4.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	8.289 8.849 9.374	7.004 8.185 9.081	0.08 0.14 0.22
(2) SBNHH-1D45B w/ Mount Pipe	B	From Centroid-Le g	4.000 -4.00 1.00	-40.00	113.000	No Ice 1/2" Ice 1" Ice	11.637 12.228 12.784	6.946 8.127 9.021	0.09 0.17 0.26
(2) SBNHH-1D45B w/ Mount Pipe	C	From Centroid-Le g	4.000 1.50 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	11.637 12.228 12.784	6.946 8.127 9.021	0.09 0.17 0.26
RRH2x60-700	A	From Centroid-Le g	4.000 0.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	3.500 3.761 4.029	1.816 2.052 2.289	0.06 0.08 0.11
RRH2x60-700	B	From Centroid-Le g	4.000 0.00 1.00	10.00	113.000	No Ice 1/2" Ice 1" Ice	3.500 3.761 4.029	1.816 2.052 2.289	0.06 0.08 0.11
RRH2x60-700	C	From Centroid-Le g	4.000 -3.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	3.500 3.761 4.029	1.816 2.052 2.289	0.06 0.08 0.11
RRH2X60-1900	A	From Centroid-Le g	4.000 -6.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	1.874 2.052 2.237	1.218 1.367 1.523	0.04 0.06 0.08
RRH2X60-1900	B	From Centroid-Le g	4.000 -6.00 1.00	-40.00	113.000	No Ice 1/2" Ice 1" Ice	1.874 2.052 2.237	1.218 1.367 1.523	0.04 0.06 0.08
RRH2X60-1900	C	From Centroid-Le g	4.000 0.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	1.874 2.052 2.237	1.218 1.367 1.523	0.04 0.06 0.08
AWS-3 RRH4X45	A	From Centroid-Le g	4.000 -3.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	3.112 3.345 3.595	3.624 3.878 4.139	0.08 0.11 0.15
AWS-3 RRH4X45	B	From Centroid-Le g	4.000 -3.00 1.00	-40.00	113.000	No Ice 1/2" Ice 1" Ice	3.112 3.345 3.595	3.624 3.878 4.139	0.08 0.11 0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
AWS-3 RRH4X45	C	From Centroid-Leg	4.000 3.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	3.112 3.345 3.595	3.624 3.878 4.139	0.08 0.11 0.15
2.4" Dia x 6-ft Pipe	A	From Centroid-Leg	4.000 -3.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
2.4" Dia x 6-ft Pipe	B	From Centroid-Leg	4.000 -3.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
2.4" Dia x 6-ft Pipe	C	From Centroid-Leg	4.000 -3.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
Platform Mount [LP 305-1]	C	None		0.00	113.000	No Ice 1/2" Ice 1" Ice	18.010 23.330 28.650	18.010 23.330 28.650	1.12 1.35 1.58
**									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Centroid-Leg	4.000 0.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Centroid-Leg	4.000 0.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Centroid-Leg	4.000 0.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.11 0.17 0.23
KRY 112 144/1	A	From Centroid-Leg	4.000 0.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	0.352 0.428 0.512	0.162 0.219 0.285	0.01 0.01 0.02
KRY 112 144/1	B	From Centroid-Leg	4.000 0.00 0.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	0.352 0.428 0.512	0.162 0.219 0.285	0.01 0.01 0.02
KRY 112 144/1	C	From Centroid-Leg	4.000 0.00 0.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	0.352 0.428 0.512	0.162 0.219 0.285	0.01 0.01 0.02
LNX-6515DS-VTM w/ Mount Pipe	A	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.08 0.17 0.27
LNX-6515DS-VTM w/ Mount Pipe	B	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.08 0.17 0.27
LNX-6515DS-VTM w/ Mount Pipe	C	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.08 0.17 0.27
RRUS 11 B12	A	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
RRUS 11 B12	A	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
RRUS 11 B12	B	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
AIR 32 B2a/B66Aa w/ Mount Pipe	A	From Centroid-Leg	4.000 -6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.747 7.202 7.648	6.070 6.867 7.583	0.15 0.21 0.28
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Centroid-Leg	4.000 -6.00	30.00	105.000	No Ice 1/2" Ice	6.747 7.202	6.070 6.867	0.15 0.21

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
		g	2.00			1" Ice	7.648	7.583	0.28
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Centroid-Le g	4.000 -6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.747 7.202 7.648	6.070 6.867 7.583	0.15 0.21 0.28
Platform Mount [LP 1201-1]	C	None		0.00	105.000	No Ice 1/2" Ice 1" Ice	23.100 26.800 30.500	23.100 26.800 30.500	2.10 2.50 2.90
**									
RRUS 11	A	From Leg	2.000 -2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
RRUS 11	B	From Leg	2.000 -2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
RRUS 11	C	From Leg	2.000 -2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
DC6-48-60-18-8F	A	From Leg	2.000 2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	0.917 1.458 1.643	0.917 1.458 1.643	0.02 0.04 0.06
DC6-48-60-18-8F	B	From Leg	2.000 2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	0.917 1.458 1.643	0.917 1.458 1.643	0.02 0.04 0.06
WCS RRUS-32-B30	A	From Leg	2.000 2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	3.314 3.558 3.809	2.424 2.638 2.860	0.08 0.10 0.14
(2) WCS RRUS-32-B30	C	From Leg	2.000 2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	3.314 3.558 3.809	2.424 2.638 2.860	0.08 0.10 0.14
TME-RRUS-32 B30	A	From Leg	2.000 2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	3.866 4.151 4.444	2.762 3.021 3.290	0.08 0.10 0.14
TME-RRUS-32 B30	B	From Leg	2.000 2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	3.866 4.151 4.444	2.762 3.021 3.290	0.08 0.10 0.14
TME-RRUS-32 B30	C	From Leg	2.000 2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	3.866 4.151 4.444	2.762 3.021 3.290	0.08 0.10 0.14
(2) 2.4" Dia. x 5-ft Pipe	A	From Leg	2.000 0.00 0.00	0.00	97.000	No Ice 1/2" Ice 1" Ice	1.200 1.502 1.814	1.200 1.502 1.814	0.02 0.03 0.04
(2) 2.4" Dia. x 5-ft Pipe	B	From Leg	2.000 0.00 0.00	0.00	97.000	No Ice 1/2" Ice 1" Ice	1.200 1.502 1.814	1.200 1.502 1.814	0.02 0.03 0.04
(2) 2.4" Dia. x 5-ft Pipe	C	From Leg	2.000 0.00 0.00	0.00	97.000	No Ice 1/2" Ice 1" Ice	1.200 1.502 1.814	1.200 1.502 1.814	0.02 0.03 0.04
Side Arm Mount [SO 102-3]	C	None		0.00	97.000	No Ice 1/2" Ice 1" Ice	3.000 3.480 3.960	3.000 3.480 3.960	0.08 0.11 0.14
**									
7770.00 w/ Mount Pipe	A	From Centroid-Le g	4.000 -6.00 1.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.06 0.10 0.16
7770.00 w/ Mount Pipe	B	From Centroid-Le g	4.000 -6.00 1.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.06 0.10 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
7770.00 w/ Mount Pipe	C	From Centroid-Leg	4.000 -6.00 1.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.06 0.10 0.16
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Centroid-Leg	4.000 -2.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	7.179 8.362 9.259	0.10 0.18 0.26
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Centroid-Leg	4.000 -2.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	7.179 8.362 9.259	0.10 0.18 0.26
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Centroid-Leg	4.000 -2.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	7.179 8.362 9.259	0.10 0.18 0.26
(2) LGP2140X	A	From Centroid-Leg	4.000 -6.00 0.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	1.080 1.214 1.355	0.358 0.454 0.556	0.01 0.02 0.03
(2) LGP2140X	B	From Centroid-Leg	4.000 -6.00 0.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	1.080 1.214 1.355	0.358 0.454 0.556	0.01 0.02 0.03
(2) LGP2140X	C	From Centroid-Leg	4.000 -6.00 0.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	1.080 1.214 1.355	0.358 0.454 0.556	0.01 0.02 0.03
QS66512-2 w/ Mount Pipe	A	From Centroid-Leg	4.000 6.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	8.371 8.931 9.457	8.463 9.657 10.548	0.14 0.21 0.30
QS66512-2 w/ Mount Pipe	B	From Centroid-Leg	4.000 6.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	8.371 8.931 9.457	8.463 9.657 10.548	0.14 0.21 0.30
QS66512-2 w/ Mount Pipe	C	From Centroid-Leg	4.000 6.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	8.371 8.931 9.457	8.463 9.657 10.548	0.14 0.21 0.30
WCS-IMFQ-AMT	C	From Centroid-Leg	4.000 -2.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	0.989 1.114 1.246	0.644 0.748 0.860	0.03 0.04 0.05
2.4" Dia x 6-ft Pipe	A	From Centroid-Leg	4.000 2.00 0.00	0.00	96.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
2.4" Dia x 6-ft Pipe	B	From Centroid-Leg	4.000 2.00 0.00	0.00	96.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
2.4" Dia x 6-ft Pipe	C	From Centroid-Leg	4.000 2.00 0.00	0.00	96.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
Platform Mount [LP 712-1]	C	None		0.00	96.000	No Ice 1/2" Ice 1" Ice	24.530 29.940 35.350	24.530 29.940 35.350	1.34 1.65 1.96
* ACUTIME 2000	A	From Leg	3.000 0.00 1.00	0.00	75.000	No Ice 1/2" Ice 1" Ice	0.255 0.320 0.393	0.255 0.320 0.393	0.00 0.00 0.01
Side Arm Mount [SO 701-1]	A	From Leg	1.500 0.00 0.00	0.00	75.000	No Ice 1/2" Ice 1" Ice	0.850 1.140 1.430	1.670 2.340 3.010	0.07 0.08 0.09

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
PX2F-52	A	Paraboloid w/Radome	From Leg	4.000 0.00 1.00	25.00		122.000	2.092	No Ice 1/2" Ice 1" Ice	3.440 3.720 3.990	0.02 0.04 0.06
VHLP2-11	A	Paraboloid w/Shroud (HP)	From Leg	4.000 0.00 3.00	37.00		122.000	2.000	No Ice 1/2" Ice 1" Ice	3.720 4.010 4.300	0.03 0.05 0.07
VHLP2-11	B	Paraboloid w/Shroud (HP)	From Leg	4.000 0.00 3.00	10.00		122.000	2.000	No Ice 1/2" Ice 1" Ice	3.720 4.010 4.300	0.03 0.05 0.07

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 99.25	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-30.57	1.06	6.29
			Max. Mx	20	-11.42	326.87	0.78
			Max. My	2	-11.62	1.27	307.14
			Max. Vy	20	-21.76	326.87	0.78
			Max. Vx	14	20.47	0.50	-303.91
			Max. Torque	18			-7.59
L2	99.25 - 99	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.65	1.08	6.29
			Max. Mx	20	-11.47	332.31	0.76
			Max. My	2	-11.67	1.28	312.24
			Max. Vy	20	-21.80	332.31	0.76
			Max. Vx	14	20.51	0.51	-309.04
			Max. Torque	18			-6.97
L3	99 - 90.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.01	2.60	6.64
			Max. Mx	20	-16.79	575.14	0.17
			Max. My	2	-17.01	1.99	541.94
			Max. Vy	20	-29.56	575.14	0.17
			Max. Vx	14	28.18	1.55	-539.09
			Max. Torque	18			-7.46
L4	90.08 - 89.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.27	2.63	6.65
			Max. Mx	20	-16.96	592.32	0.13
			Max. My	2	-17.19	2.00	558.28
			Max. Vy	20	-29.66	592.32	0.13
			Max. Vx	14	28.28	1.59	-555.46
			Max. Torque	18			-7.36
L5	89.5 - 78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.97	3.17	6.79
			Max. Mx	20	-19.26	828.17	-0.44
			Max. My	2	-19.49	2.18	781.66
			Max. Vy	20	-31.20	828.17	-0.44
			Max. Vx	14	29.49	2.12	-779.20
			Max. Torque	18			-7.36
L6	78 - 76.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.21	3.56	6.86
			Max. Mx	20	-21.30	986.90	-0.82
			Max. My	2	-21.55	2.33	930.91
			Max. Vy	20	-32.27	986.90	-0.82

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	30.33	2.49	-928.71
			Max. Torque	18			-7.35
L7	76.75 - 75.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.95	3.68	6.86
			Max. Mx	20	-21.80	1027.43	-0.92
			Max. My	2	-22.05	2.38	968.86
			Max. Vy	20	-32.52	1027.43	-0.92
			Max. Vx	14	30.54	2.61	-966.75
			Max. Torque	18			-7.35
L8	75.5 - 74.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.70	3.77	7.29
			Max. Mx	20	-22.28	1060.14	-0.81
			Max. My	2	-22.53	2.42	999.67
			Max. Vy	20	-32.83	1060.14	-0.81
			Max. Vx	14	30.76	2.69	-997.19
			Max. Torque	18			-7.59
L9	74.5 - 73.29	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.42	3.85	7.32
			Max. Mx	20	-22.76	1100.01	-0.89
			Max. My	2	-23.01	2.45	1036.96
			Max. Vy	20	-33.08	1100.01	-0.89
			Max. Vx	14	31.00	2.77	-1034.53
			Max. Torque	18			-7.59
L10	73.29 - 70.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.25	4.22	7.32
			Max. Mx	20	-23.93	1193.21	-1.12
			Max. My	2	-24.18	2.62	1123.90
			Max. Vy	20	-33.65	1193.21	-1.12
			Max. Vx	14	31.46	3.07	-1121.65
			Max. Torque	20			-7.62
L11	70.5 - 70	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.62	4.31	7.31
			Max. Mx	20	-24.17	1210.10	-1.17
			Max. My	2	-24.42	2.67	1139.61
			Max. Vy	20	-33.75	1210.10	-1.17
			Max. Vx	14	31.54	3.14	-1137.39
			Max. Torque	20			-7.63
L12	70 - 69.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.81	4.36	7.31
			Max. Mx	20	-24.29	1218.56	-1.19
			Max. My	2	-24.54	2.69	1147.49
			Max. Vy	20	-33.80	1218.56	-1.19
			Max. Vx	14	31.58	3.18	-1145.28
			Max. Torque	20			-7.63
L13	69.75 - 69.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.99	4.40	7.31
			Max. Mx	20	-24.41	1227.04	-1.21
			Max. My	2	-24.66	2.72	1155.37
			Max. Vy	20	-33.85	1227.04	-1.21
			Max. Vx	14	31.62	3.22	-1153.18
			Max. Torque	20			-7.64
L14	69.5 - 56	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.36	6.25	7.15
			Max. Mx	20	-29.42	1702.35	-2.41
			Max. My	2	-29.67	3.49	1595.41
			Max. Vy	20	-36.51	1702.35	-2.41
			Max. Vx	14	33.73	4.60	-1594.20
			Max. Torque	20			-7.88
L15	56 - 55.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.55	6.29	7.15
			Max. Mx	20	-29.55	1711.49	-2.43

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-29.80	3.51	1603.83
			Max. Vy	20	-36.55	1711.49	-2.43
			Max. Vx	14	33.78	4.63	-1602.63
			Max. Torque	20			-7.89
L16	55.75 - 54	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.88	6.56	7.15
			Max. Mx	20	-30.37	1775.89	-2.56
			Max. My	2	-30.61	3.63	1663.16
			Max. Vy	20	-36.94	1775.89	-2.56
			Max. Vx	14	34.15	4.84	-1662.04
			Max. Torque	20			-7.93
L17	54 - 53.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.26	6.64	7.15
			Max. Mx	20	-30.62	1794.40	-2.60
			Max. My	2	-30.86	3.67	1680.22
			Max. Vy	20	-37.03	1794.40	-2.60
			Max. Vx	14	34.24	4.90	-1679.13
			Max. Torque	20			-7.94
L18	53.5 - 52.04	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.38	6.87	7.16
			Max. Mx	20	-31.32	1848.77	-2.71
			Max. My	2	-31.55	3.77	1730.34
			Max. Vy	20	-37.35	1848.77	-2.71
			Max. Vx	14	34.55	5.07	-1729.32
			Max. Torque	20			-7.97
L19	52.04 - 39.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.59	8.09	6.89
			Max. Mx	20	-34.60	2136.09	-3.53
			Max. My	2	-34.80	4.32	1995.34
			Max. Vy	20	-38.78	2136.09	-3.53
			Max. Vx	14	35.95	5.96	-1995.12
			Max. Torque	20			-8.13
L20	39.75 - 34.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.93	9.78	6.49
			Max. Mx	20	-39.81	2524.67	-4.58
			Max. My	14	-39.97	7.14	-2355.43
			Max. Vy	20	-40.75	2524.67	-4.58
			Max. Vx	14	37.88	7.14	-2355.43
			Max. Torque	20			-8.34
L21	34.75 - 34.3333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.29	9.87	6.46
			Max. Mx	20	-40.03	2541.70	-4.63
			Max. My	14	-40.19	7.20	-2371.24
			Max. Vy	20	-40.82	2541.70	-4.63
			Max. Vx	14	37.94	7.20	-2371.24
			Max. Torque	20			-8.35
L22	34.3333 - 24	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.85	11.52	6.03
			Max. Mx	20	-44.86	2973.35	-5.74
			Max. My	14	-44.98	8.37	-2770.50
			Max. Vy	20	-42.64	2973.35	-5.74
			Max. Vx	14	39.32	8.37	-2770.50
			Max. Torque	20			-8.57
L23	24 - 14.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.91	12.51	5.62
			Max. Mx	20	-49.58	3396.66	-6.82
			Max. My	14	-49.66	9.10	-3159.67
			Max. Vy	20	-44.20	3396.66	-6.82
			Max. Vx	14	40.51	9.10	-3159.67
			Max. Torque	20			-8.77

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L24	14.25 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.28	13.68	5.10
			Max. Mx	20	-54.67	3823.58	-7.97
			Max. My	14	-54.70	9.96	-3549.87
			Max. Vy	20	-45.65	3823.58	-7.97
			Max. Vx	14	41.62	9.96	-3549.87
			Max. Torque	20			-8.97
L25	4.75 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-104.29	13.97	4.97
			Max. Mx	20	-56.11	3949.60	-8.29
			Max. My	14	-56.13	10.19	-3664.80
			Max. Vy	20	-45.98	3949.60	-8.29
			Max. Vx	14	41.96	10.19	-3664.80
			Max. Torque	20			-8.97
L26	2 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.41	14.05	4.95
			Max. Mx	20	-57.02	4041.74	-8.49
			Max. My	14	-57.02	10.30	-3748.92
			Max. Vy	20	-46.20	4041.74	-8.49
			Max. Vx	14	42.19	10.30	-3748.92
			Max. Torque	20			-8.97

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	105.41	10.82	-0.01
	Max. H_x	20	57.04	46.18	-0.09
	Max. H_z	2	57.04	0.01	42.10
	Max. M_x	2	3744.22	0.01	42.10
	Max. M_z	8	4018.73	-46.08	0.03
	Max. Torsion	8	8.73	-46.08	0.03
	Min. Vert	25	42.78	19.56	32.95
	Min. H_x	8	57.04	-46.08	0.03
	Min. H_z	14	57.04	0.05	-42.17
	Min. M_x	14	-3748.92	0.05	-42.17
	Min. M_z	20	-4041.74	46.18	-0.09
	Min. Torsion	20	-8.97	46.18	-0.09

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	47.53	0.00	0.00	-1.26	3.97	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	57.04	-0.01	-42.10	-3744.22	6.66	-3.23
0.9 Dead+1.6 Wind 0 deg - No Ice	42.78	-0.01	-42.10	-3713.34	5.39	-3.21
1.2 Dead+1.6 Wind 30 deg - No Ice	57.04	19.62	-32.99	-3050.73	-1823.47	-5.58
0.9 Dead+1.6 Wind 30 deg - No	42.78	19.62	-32.99	-3025.07	-1809.54	-5.55

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Ice						
1.2 Dead+1.6 Wind 60 deg - No Ice	57.04	33.97	-19.04	-1760.80	-3159.91	-7.11
0.9 Dead+1.6 Wind 60 deg - No Ice	42.78	33.97	-19.04	-1745.82	-3134.88	-7.08
1.2 Dead+1.6 Wind 90 deg - No Ice	57.04	46.08	-0.03	-5.06	-4018.73	-8.73
0.9 Dead+1.6 Wind 90 deg - No Ice	42.78	46.08	-0.03	-4.62	-3987.46	-8.71
1.2 Dead+1.6 Wind 120 deg - No Ice	57.04	33.90	18.97	1750.73	-3152.53	-4.67
0.9 Dead+1.6 Wind 120 deg - No Ice	42.78	33.90	18.97	1736.65	-3127.57	-4.66
1.2 Dead+1.6 Wind 150 deg - No Ice	57.04	19.51	32.99	3048.89	-1809.93	-0.87
0.9 Dead+1.6 Wind 150 deg - No Ice	42.78	19.51	32.99	3024.06	-1796.13	-0.88
1.2 Dead+1.6 Wind 180 deg - No Ice	57.04	-0.05	42.17	3748.92	10.30	3.39
0.9 Dead+1.6 Wind 180 deg - No Ice	42.78	-0.05	42.17	3718.82	9.00	3.37
1.2 Dead+1.6 Wind 210 deg - No Ice	57.04	-19.66	33.07	3058.41	1838.02	5.74
0.9 Dead+1.6 Wind 210 deg - No Ice	42.78	-19.66	33.07	3033.49	1821.54	5.72
1.2 Dead+1.6 Wind 240 deg - No Ice	57.04	-34.06	19.08	1763.03	3182.14	7.56
0.9 Dead+1.6 Wind 240 deg - No Ice	42.78	-34.06	19.08	1748.85	3154.48	7.53
1.2 Dead+1.6 Wind 270 deg - No Ice	57.04	-46.18	0.09	8.49	4041.74	8.97
0.9 Dead+1.6 Wind 270 deg - No Ice	42.78	-46.18	0.09	8.82	4007.84	8.95
1.2 Dead+1.6 Wind 300 deg - No Ice	57.04	-33.94	-18.98	-1754.64	3167.59	4.72
0.9 Dead+1.6 Wind 300 deg - No Ice	42.78	-33.94	-18.98	-1739.72	3140.07	4.71
1.2 Dead+1.6 Wind 330 deg - No Ice	57.04	-19.56	-32.95	-3047.59	1827.17	1.12
0.9 Dead+1.6 Wind 330 deg - No Ice	42.78	-19.56	-32.95	-3021.95	1810.78	1.13
1.2 Dead+1.0 Ice+1.0 Temp	105.41	-0.00	-0.00	-4.95	14.05	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	105.41	-0.01	-9.97	-938.61	15.48	-0.61
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	105.41	4.55	-7.73	-763.77	-433.66	-1.23
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	105.41	7.88	-4.46	-442.29	-762.00	-1.64
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	105.41	10.80	0.00	-4.84	-988.46	-1.82
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	105.41	7.87	4.46	432.37	-761.30	-1.17
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	105.41	4.53	7.74	755.00	-432.28	-0.33
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	105.41	-0.00	9.98	930.37	14.44	0.65
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	105.41	-4.55	7.75	756.18	463.06	1.26
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	105.41	-7.90	4.47	433.50	793.10	1.73
1.2 Dead+1.0 Wind 270	105.41	-10.82	0.01	-3.70	1019.73	1.88

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	105.41	-7.88	-4.46	-442.52	790.80	1.19
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	105.41	-4.55	-7.73	-763.99	462.26	0.38
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	47.53	-0.00	-9.01	-798.49	4.44	-0.59
Dead+Wind 30 deg - Service	47.53	4.20	-7.06	-650.70	-385.32	-1.20
Dead+Wind 60 deg - Service	47.53	7.27	-4.07	-376.00	-669.97	-1.53
Dead+Wind 90 deg - Service	47.53	9.86	-0.01	-2.06	-853.10	-1.48
Dead+Wind 120 deg - Service	47.53	7.25	4.06	371.89	-668.40	-1.00
Dead+Wind 150 deg - Service	47.53	4.17	7.06	648.35	-382.44	-0.19
Dead+Wind 180 deg - Service	47.53	-0.01	9.02	797.54	5.21	0.63
Dead+Wind 210 deg - Service	47.53	-4.21	7.08	650.38	394.47	1.23
Dead+Wind 240 deg - Service	47.53	-7.29	4.08	374.51	680.75	1.62
Dead+Wind 270 deg - Service	47.53	-9.88	0.02	0.82	864.05	1.53
Dead+Wind 300 deg - Service	47.53	-7.26	-4.06	-374.69	677.65	1.02
Dead+Wind 330 deg - Service	47.53	-4.19	-7.05	-650.03	392.15	0.24

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-47.53	0.00	0.00	47.53	0.00	0.000%
2	-0.01	-57.04	-42.10	0.01	57.04	42.10	0.000%
3	-0.01	-42.78	-42.10	0.01	42.78	42.10	0.000%
4	19.62	-57.04	-32.99	-19.62	57.04	32.99	0.000%
5	19.62	-42.78	-32.99	-19.62	42.78	32.99	0.000%
6	33.97	-57.04	-19.04	-33.97	57.04	19.04	0.000%
7	33.97	-42.78	-19.04	-33.97	42.78	19.04	0.000%
8	46.08	-57.04	-0.03	-46.08	57.04	0.03	0.000%
9	46.08	-42.78	-0.03	-46.08	42.78	0.03	0.000%
10	33.90	-57.04	18.97	-33.90	57.04	-18.97	0.000%
11	33.90	-42.78	18.97	-33.90	42.78	-18.97	0.000%
12	19.51	-57.04	32.99	-19.51	57.04	-32.99	0.000%
13	19.51	-42.78	32.99	-19.51	42.78	-32.99	0.000%
14	-0.05	-57.04	42.17	0.05	57.04	-42.17	0.000%
15	-0.05	-42.78	42.17	0.05	42.78	-42.17	0.000%
16	-19.66	-57.04	33.07	19.66	57.04	-33.07	0.000%
17	-19.66	-42.78	33.07	19.66	42.78	-33.07	0.000%
18	-34.06	-57.04	19.08	34.06	57.04	-19.08	0.000%
19	-34.06	-42.78	19.08	34.06	42.78	-19.08	0.000%
20	-46.18	-57.04	0.09	46.18	57.04	-0.09	0.000%
21	-46.18	-42.78	0.09	46.18	42.78	-0.09	0.000%
22	-33.94	-57.04	-18.98	33.94	57.04	18.98	0.000%
23	-33.94	-42.78	-18.98	33.94	42.78	18.98	0.000%
24	-19.56	-57.04	-32.95	19.56	57.04	32.95	0.000%
25	-19.56	-42.78	-32.95	19.56	42.78	32.95	0.000%
26	0.00	-105.41	0.00	0.00	105.41	0.00	0.000%
27	-0.01	-105.41	-9.97	0.01	105.41	9.97	0.000%
28	4.55	-105.41	-7.73	-4.55	105.41	7.73	0.000%
29	7.88	-105.41	-4.46	-7.88	105.41	4.46	0.000%
30	10.80	-105.41	0.00	-10.80	105.41	-0.00	0.000%
31	7.87	-105.41	4.46	-7.87	105.41	-4.46	0.000%
32	4.53	-105.41	7.74	-4.53	105.41	-7.74	0.000%
33	-0.00	-105.41	9.98	0.00	105.41	-9.98	0.000%
34	-4.55	-105.41	7.75	4.55	105.41	-7.75	0.000%
35	-7.90	-105.41	4.47	7.90	105.41	-4.47	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
36	-10.82	-105.41	0.01	10.82	105.41	-0.01	0.000%
37	-7.88	-105.41	-4.46	7.88	105.41	4.46	0.000%
38	-4.55	-105.41	-7.73	4.55	105.41	7.73	0.000%
39	-0.00	-47.53	-9.01	0.00	47.53	9.01	0.000%
40	4.20	-47.53	-7.06	-4.20	47.53	7.06	0.000%
41	7.27	-47.53	-4.07	-7.27	47.53	4.07	0.000%
42	9.86	-47.53	-0.01	-9.86	47.53	0.01	0.000%
43	7.25	-47.53	4.06	-7.25	47.53	-4.06	0.000%
44	4.17	-47.53	7.06	-4.17	47.53	-7.06	0.000%
45	-0.01	-47.53	9.02	0.01	47.53	-9.02	0.000%
46	-4.21	-47.53	7.08	4.21	47.53	-7.08	0.000%
47	-7.29	-47.53	4.08	7.29	47.53	-4.08	0.000%
48	-9.88	-47.53	0.02	9.88	47.53	-0.02	0.000%
49	-7.26	-47.53	-4.06	7.26	47.53	4.06	0.000%
50	-4.19	-47.53	-7.05	4.19	47.53	7.05	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00039475
3	Yes	5	0.00000001	0.00017800
4	Yes	6	0.00000001	0.00013862
5	Yes	6	0.00000001	0.00004427
6	Yes	6	0.00000001	0.00017133
7	Yes	6	0.00000001	0.00005552
8	Yes	5	0.00000001	0.00098075
9	Yes	5	0.00000001	0.00044037
10	Yes	6	0.00000001	0.00013803
11	Yes	6	0.00000001	0.00004399
12	Yes	6	0.00000001	0.00014979
13	Yes	6	0.00000001	0.00004834
14	Yes	5	0.00000001	0.00042314
15	Yes	5	0.00000001	0.00019106
16	Yes	6	0.00000001	0.00016565
17	Yes	6	0.00000001	0.00005367
18	Yes	6	0.00000001	0.00013554
19	Yes	6	0.00000001	0.00004290
20	Yes	5	0.00000001	0.00096908
21	Yes	5	0.00000001	0.00043475
22	Yes	6	0.00000001	0.00016398
23	Yes	6	0.00000001	0.00005289
24	Yes	6	0.00000001	0.00014708
25	Yes	6	0.00000001	0.00004713
26	Yes	4	0.00000001	0.00067871
27	Yes	6	0.00000001	0.00022498
28	Yes	6	0.00000001	0.00025047
29	Yes	6	0.00000001	0.00025757
30	Yes	6	0.00000001	0.00023526
31	Yes	6	0.00000001	0.00024515
32	Yes	6	0.00000001	0.00024455
33	Yes	6	0.00000001	0.00021867
34	Yes	6	0.00000001	0.00025575
35	Yes	6	0.00000001	0.00025453
36	Yes	6	0.00000001	0.00024341

37	Yes	6	0.00000001	0.00026464
38	Yes	6	0.00000001	0.00025896
39	Yes	4	0.00000001	0.00059545
40	Yes	5	0.00000001	0.00004962
41	Yes	5	0.00000001	0.00008230
42	Yes	5	0.00000001	0.00004560
43	Yes	5	0.00000001	0.00004662
44	Yes	5	0.00000001	0.00005375
45	Yes	4	0.00000001	0.00062189
46	Yes	5	0.00000001	0.00007387
47	Yes	5	0.00000001	0.00005220
48	Yes	5	0.00000001	0.00004732
49	Yes	5	0.00000001	0.00007231
50	Yes	5	0.00000001	0.00005170

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	120 - 99.25 (1)	TP26.1925x22x0.25	20.750	0.000	0.0	20.8837	-11.42	1355.01	0.008
L2	99.25 - 99 (2)	TP26.243x26.1925x0.2867	0.250	0.000	0.0	23.9618	-11.47	1628.71	0.007
L3	99 - 90.08 (3)	TP28.0453x26.243x0.3328	8.920	0.000	0.0	29.7000	-16.79	2020.79	0.008
L4	90.08 - 89.5 (4)	TP28.1625x28.0453x0.4936	0.580	0.000	0.0	43.9778	-16.96	2992.25	0.006
L5	89.5 - 78 (5)	TP30.486x28.1625x0.6258	11.500	0.000	0.0	58.6419	-19.26	3989.99	0.005
L6	78 - 76.75 (6)	TP30.2382x29.228x0.8283	5.000	0.000	0.0	78.4394	-21.30	5337.01	0.004
L7	76.75 - 75.5 (7)	TP30.4908x30.2382x0.895	1.250	0.000	0.0	85.2882	-21.80	5803.01	0.004
L8	75.5 - 74.5 (8)	TP30.6928x30.4908x0.834	1.000	0.000	0.0	80.1871	-22.28	5455.93	0.004
L9	74.5 - 73.29 (9)	TP30.9373x30.6928x0.7527	1.210	0.000	0.0	73.1569	-22.76	4977.59	0.005
L10	73.29 - 70.5 (10)	TP31.501x30.9373x0.7887	2.790	0.000	0.0	78.0007	-23.93	5307.17	0.005
L11	70.5 - 70 (11)	TP31.6021x31.501x0.8107	0.500	0.000	0.0	80.3756	-24.17	5468.75	0.004
L12	70 - 69.75 (12)	TP31.6526x31.6021x0.7489	0.250	0.000	0.0	74.5272	-24.29	5070.83	0.005
L13	69.75 - 69.5 (13)	TP31.7031x31.6526x0.8325	0.250	0.000	0.0	82.7555	-24.41	5630.68	0.004
L14	69.5 - 56 (14)	TP34.4307x31.7031x0.6731	13.500	0.000	0.0	73.1655	-29.42	4978.18	0.006
L15	56 - 55.75 (15)	TP34.4812x34.4307x0.7559	0.250	0.000	0.0	82.0923	-29.55	5585.56	0.005
L16	55.75 - 54 (16)	TP34.8348x34.4812x0.8084	1.750	0.000	0.0	88.5764	-30.37	6026.74	0.005
L17	54 - 53.5 (17)	TP34.9358x34.8348x0.6646	0.500	0.000	0.0	73.3421	-30.62	4990.19	0.006
L18	53.5 - 52.04 (18)	TP35.2308x34.9358x0.5754	1.460	0.000	0.0	64.2099	-31.32	4368.84	0.007
L19	52.04 - 39.75 (19)	TP37.714x35.2308x0.5042	12.290	0.000	0.0	58.8506	-34.60	4004.19	0.009
L20	39.75 - 34.75 (20)	TP38.0989x36.129x0.6267	9.750	0.000	0.0	75.6163	-39.81	5144.94	0.008
L21	34.75 - 34.3333 (21)	TP38.1831x38.0989x0.7329	0.417	0.000	0.0	88.3749	-40.03	6013.03	0.007
L22	34.3333 - 24 (22)	TP40.2709x38.1831x0.6111	10.333	0.000	0.0	78.0378	-44.86	5309.69	0.008
L23	24 - 14.25 (23)	TP42.2409x40.2709x0.6545	9.750	0.000	0.0	87.6438	-49.58	5963.28	0.008
L24	14.25 - 4.75 (24)	TP44.1603x42.2409x0.6985	9.500	0.000	0.0	97.7477	-54.67	6650.75	0.008
L25	4.75 - 2 (25)	TP44.7159x44.1603x0.7683	2.750	0.000	0.0	108.7270	-56.11	7397.76	0.008
L26	2 - 0 (26)	TP45.12x44.7159x0.6977	2.000	0.000	0.0	99.7927	-57.02	6789.89	0.008

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

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	120 - 99.25 (1)	TP26.1925x22x0.25	326.87	714.93	0.457	0.00	714.93	0.000
L2	99.25 - 99 (2)	TP26.243x26.1925x0.2867	332.31	858.60	0.387	0.00	858.60	0.000
L3	99 - 90.08 (3)	TP28.0453x26.243x0.3328	575.14	1136.28	0.506	0.00	1136.28	0.000
L4	90.08 - 89.5 (4)	TP28.1625x28.0453x0.4936	592.32	1670.26	0.355	0.00	1670.26	0.000
L5	89.5 - 78 (5)	TP30.486x28.1625x0.6258	828.17	2334.20	0.355	0.00	2334.20	0.000
L6	78 - 76.75 (6)	TP30.2382x29.228x0.8283	986.90	3134.77	0.315	0.00	3134.77	0.000
L7	76.75 - 75.5 (7)	TP30.4908x30.2382x0.895	1027.43	3423.11	0.300	0.00	3423.11	0.000
L8	75.5 - 74.5 (8)	TP30.6928x30.4908x0.834	1060.14	3254.26	0.326	0.00	3254.26	0.000
L9	74.5 - 73.29 (9)	TP30.9373x30.6928x0.7527	1100.02	3010.12	0.365	0.00	3010.12	0.000
L10	73.29 - 70.5 (10)	TP31.501x30.9373x0.7887	1193.21	3263.15	0.366	0.00	3263.15	0.000
L11	70.5 - 70 (11)	TP31.6021x31.501x0.8107	1210.10	3369.04	0.359	0.00	3369.04	0.000
L12	70 - 69.75 (12)	TP31.6526x31.6021x0.7489	1218.56	3141.69	0.388	0.00	3141.69	0.000
L13	69.75 - 69.5 (13)	TP31.7031x31.6526x0.8325	1227.03	3475.55	0.353	0.00	3475.55	0.000
L14	69.5 - 56 (14)	TP34.4307x31.7031x0.6731	1702.35	3383.32	0.503	0.00	3383.32	0.000
L15	56 - 55.75 (15)	TP34.4812x34.4307x0.7559	1711.49	3783.29	0.452	0.00	3783.29	0.000
L16	55.75 - 54 (16)	TP34.8348x34.4812x0.8084	1775.88	4113.16	0.432	0.00	4113.16	0.000
L17	54 - 53.5 (17)	TP34.9358x34.8348x0.6646	1794.41	3444.93	0.521	0.00	3444.93	0.000
L18	53.5 - 52.04 (18)	TP35.2308x34.9358x0.5754	1848.78	3058.17	0.605	0.00	3058.17	0.000
L19	52.04 - 39.75 (19)	TP37.714x35.2308x0.5042	2136.09	2939.68	0.727	0.00	2939.68	0.000
L20	39.75 - 34.75 (20)	TP38.0989x36.129x0.6267	2524.68	3893.69	0.648	0.00	3893.69	0.000
L21	34.75 - 34.3333 (21)	TP38.1831x38.0989x0.7329	2541.70	4535.31	0.560	0.00	4535.31	0.000
L22	34.3333 - 24 (22)	TP40.2709x38.1831x0.6111	2973.36	4258.48	0.698	0.00	4258.48	0.000
L23	24 - 14.25 (23)	TP42.2409x40.2709x0.6545	3396.67	5013.37	0.678	0.00	5013.37	0.000
L24	14.25 - 4.75 (24)	TP44.1603x42.2409x0.6985	3823.59	5841.57	0.655	0.00	5841.57	0.000
L25	4.75 - 2 (25)	TP44.7159x44.1603x0.7683	3949.61	6561.20	0.602	0.00	6561.20	0.000
L26	2 - 0 (26)	TP45.12x44.7159x0.6977	4041.75	6097.78	0.663	0.00	6097.78	0.000

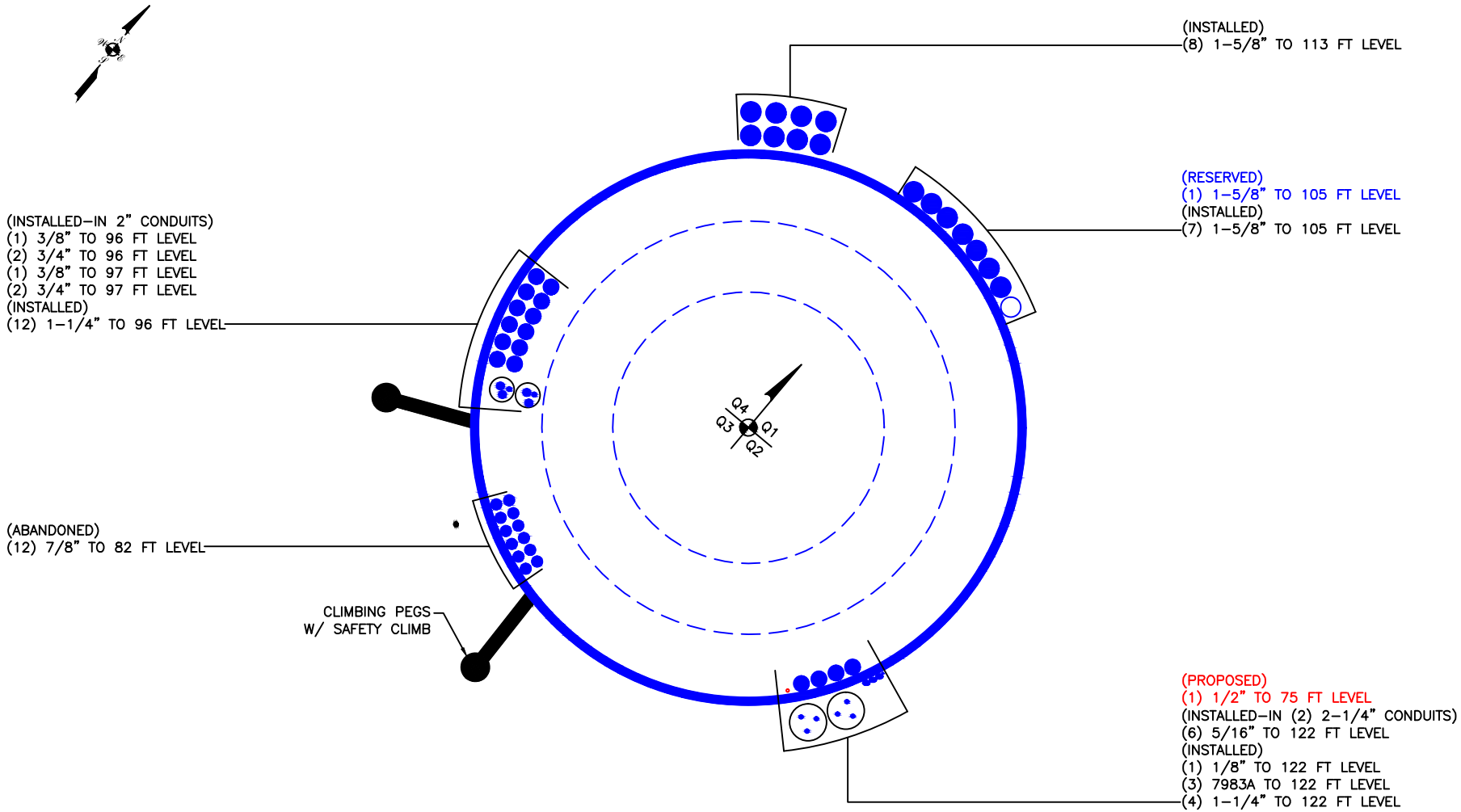
Pole Shear Design Data

Section No.	Elevation	Size	Actual V_u	ϕV_n	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u	ϕT_n	Ratio $\frac{T_u}{\phi T_n}$
	ft		K	K		kip-ft	kip-ft	
L1	120 - 99.25 (1)	TP26.1925x22x0.25	21.76	677.51	0.032	6.69	1449.66	0.005
L2	99.25 - 99 (2)	TP26.243x26.1925x0.2867	21.80	814.36	0.027	6.69	1740.97	0.004
L3	99 - 90.08 (3)	TP28.0453x26.243x0.3328	29.56	1010.40	0.029	7.01	2304.03	0.003
L4	90.08 - 89.5 (4)	TP28.1625x28.0453x0.4936	29.66	1496.12	0.020	7.02	3386.77	0.002
L5	89.5 - 78 (5)	TP30.486x28.1625x0.6258	31.20	1995.00	0.016	7.15	4733.03	0.002
L6	78 - 76.75 (6)	TP30.2382x29.228x0.8283	32.27	2668.51	0.012	7.24	6356.32	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L7	76.75 - 75.5 (7)	TP30.4908x30.2382x0.895	32.52	2901.51	0.011	7.27	6941.00	0.001
L8	75.5 - 74.5 (8)	TP30.6928x30.4908x0.834	32.83	2727.97	0.012	7.55	6598.62	0.001
L9	74.5 - 73.29 (9)	TP30.9373x30.6928x0.7527	33.08	2488.80	0.013	7.57	6103.58	0.001
L10	73.29 - 70.5 (10)	TP31.501x30.9373x0.7887	33.65	2653.58	0.013	7.62	6616.66	0.001
L11	70.5 - 70 (11)	TP31.6021x31.501x0.8107	33.75	2734.38	0.012	7.63	6831.37	0.001
L12	70 - 69.75 (12)	TP31.6526x31.6021x0.7489	33.80	2535.41	0.013	7.63	6370.37	0.001
L13	69.75 - 69.5 (13)	TP31.7031x31.6526x0.8325	33.85	2815.34	0.012	7.64	7047.32	0.001
L14	69.5 - 56 (14)	TP34.4307x31.7031x0.6731	36.51	2489.09	0.015	7.88	6860.32	0.001
L15	56 - 55.75 (15)	TP34.4812x34.4307x0.7559	36.55	2792.78	0.013	7.89	7671.34	0.001
L16	55.75 - 54 (16)	TP34.8348x34.4812x0.8084	36.94	3013.37	0.012	7.93	8340.17	0.001
L17	54 - 53.5 (17)	TP34.9358x34.8348x0.6646	37.03	2495.10	0.015	7.94	6985.25	0.001
L18	53.5 - 52.04 (18)	TP35.2308x34.9358x0.5754	37.35	2184.42	0.017	7.97	6201.01	0.001
L19	52.04 - 39.75 (19)	TP37.714x35.2308x0.5042	38.78	2002.10	0.019	8.13	5960.76	0.001
L20	39.75 - 34.75 (20)	TP38.0989x36.129x0.6267	40.75	2572.47	0.016	8.34	7895.19	0.001
L21	34.75 - 34.3333 (21)	TP38.1831x38.0989x0.7329	40.82	3006.51	0.014	8.35	9196.17	0.001
L22	34.3333 - 24 (22)	TP40.2709x38.1831x0.6111	42.64	2654.85	0.016	8.57	8634.83	0.001
L23	24 - 14.25 (23)	TP42.2409x40.2709x0.6545	44.20	2981.64	0.015	8.77	10165.50	0.001
L24	14.25 - 4.75 (24)	TP44.1603x42.2409x0.6985	45.65	3325.38	0.014	8.97	11844.92	0.001
L25	4.75 - 2 (25)	TP44.7159x44.1603x0.7683	45.98	3698.88	0.012	8.97	13304.08	0.001
L26	2 - 0 (26)	TP45.12x44.7159x0.6977	46.20	3394.95	0.014	8.97	12364.42	0.001

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876320 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Mod #	Modification Type	Termination Length (ft)	Bot. Elevation (ft)	Top Elevation (ft)	Termination Length (ft)	Modification Location (° or Flat/Point #)	Location (F/P)	Lateral Offset (in)
1	(TS) 1.25×8.00 (65ksi)	0.00	0.00	8.00	3.25	3 5 9 11	Flats	0.00
2	(Aero) MP304		0.50	25.50		3 5 9 11	Flats	0.00
3	PL 1" x 5"		2.50	37.00		2 6 8 12	Flats	-2.50
4	PL 1" x 5"		32.08	72.08	2.33	2 6 8 12	Flats	2.50
5	(Aero) MP303	-0.50	0.50	15.50		2 6 8 12	Flats	2.50
6	(Aero) MP303	-1.50	25.50	45.50		3 5 9 11	Flats	0.00
7	CCI-SFP-045100		52.00	72.00		11	Flats	-2.00
8	CCI-SFP-045100		50.54	74.79		3	Flats	0.00
9	CCI-AFP-045100		52.00	72.00		5 9	Flats	0.00
10	CCI-AFP-060100		67.00	92.00		1 10	Flats	0.00
11	CCI-AFP-045100	-2.08	72.08	92.08		5 9	Flats	0.00
12	CCI-SFP-045100		42.50	57.50		2 6 8	Flats	-3.00
13	CCI-SFP-045100		42.25	57.25		12	Flats	-3.00
14	PL 1.25" x 4"		73.00	100.75		2	Flats	0.00
15a	PL 1.25" x 4"		74.00	100.75		6	Flats	2.00
15b	PL 1.25" x 4"		74.00	100.75	1.75	12	Flats	-2.00
16a	PL 1.25" x 4"		68.25	80.00		4 7	Flats	0.00
16b	PL 1.25" x 4"	1.75	68.25	80.00		11	Flats	2.00
17	PL 1.25" x 4"		68.25	78.25		8	Flats	-3.00

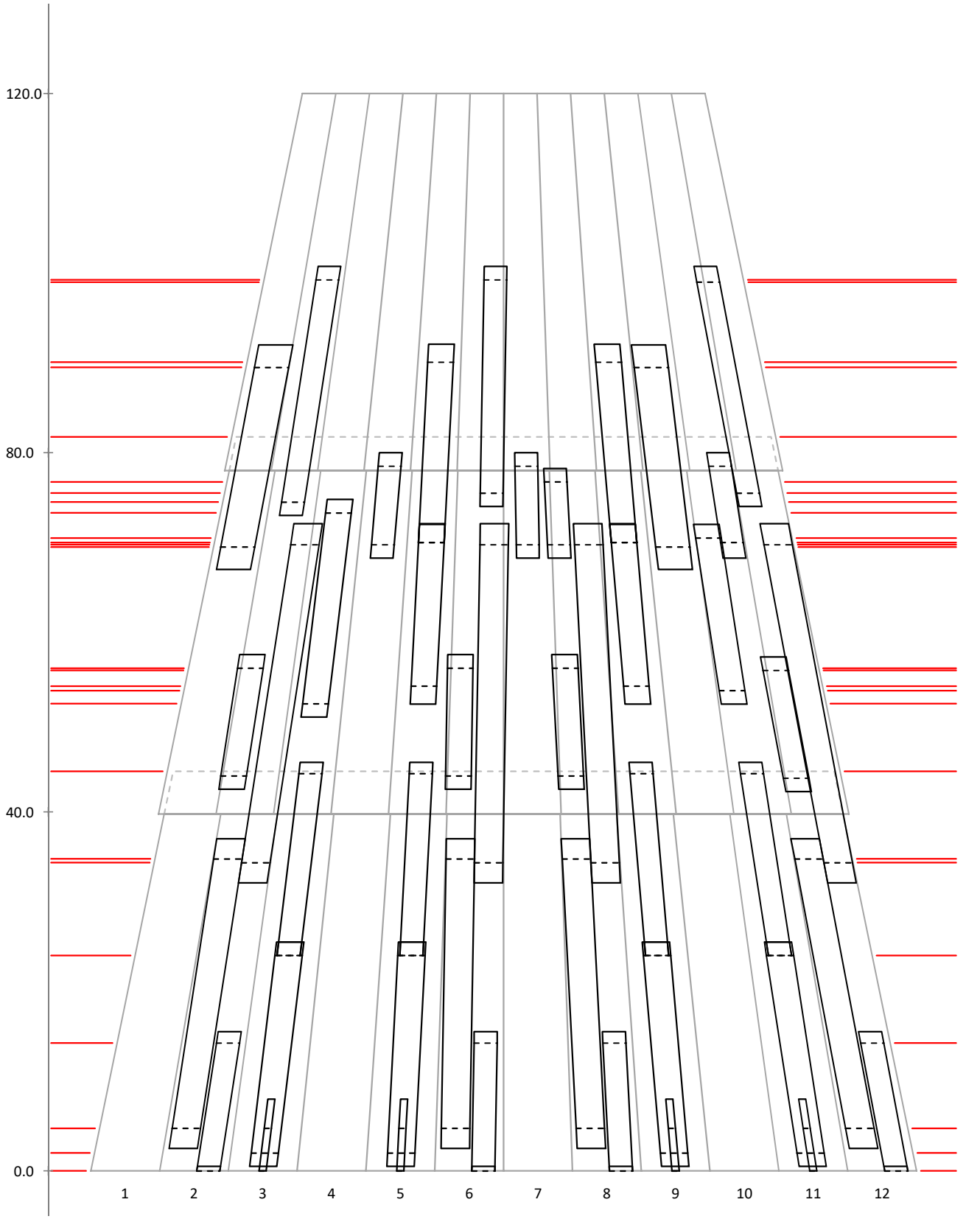
MODIFICATION PROPERTIES

#	Modification	Default Termination (ft)	Stitch (in)	k	Drill Hole (in)	Bolt/Weld Capacity (k)	A_G (in²)	F_Y (ksi)	F_U (ksi)
1	(TS) 1.25×8.00 (65ksi)	4.00	0.75	0.80	Weld	Weld	9.06	65.0	80.0
2	(Aero) MP304	1.50	18.00	0.80	1.2188	36.0	4.13	65.0	80.0
3	PL 1" x 5"	2.25	18.00	0.80	1.2500	36.0	5.00	65.0	80.0
5	(Aero) MP303	1.25	18.00	0.80	1.2188	36.0	2.92	65.0	80.0
7	CCI-SFP-045100	1.50	20.00	0.80	1.1875	36.0	4.50	65.0	80.0
9	CCI-AFP-045100	2.00	20.00	0.80	1.1875	36.0	4.50	65.0	80.0
10	CCI-AFP-060100	2.50	16.00	0.80	1.1875	36.0	6.00	65.0	80.0
14	PL 1.25" x 4"	1.50	27.00	0.80	1.3125	36.0	5.00	65.0	80.0

Section No.	Elevation (ft)	Type	Size	Critical Element	Pu (k)	φPn (k)	% Capacity	Pass/Fail
L1	120.00-78.00	Pole	TP30.49×22.00×0.2500	1	Note 1	Note 1	58.7	Pass
L2	81.75-39.75	Pole	TP37.71×29.23×0.3125	2	Note 1	Note 1	79.2	Pass
L3	44.50-0.00	Pole	TP45.12×36.13×0.3750	3	Note 1	Note 1	74.8	Pass
M1	8.00-0.00	Mod (Ex)	(TS) 1.25×8.00 (65ksi)	1	Note 1	Note 1	73.4	Pass
M2	25.50-0.50	Mod (Ex)	(Aero) MP304	2	Note 1	Note 1	90.7	Pass
M3	37.00-2.50	Mod (Ex)	PL 1" x 5"	3	Note 1	Note 1	100.0	Pass
M4	72.08-32.08	Mod (Ex)	PL 1" x 5"	4	Note 1	Note 1	91.8	Pass
M5	15.50-0.50	Mod (Ex)	(Aero) MP303	5	Note 1	Note 1	86.7	Pass
M6	45.50-25.50	Mod (Ex)	(Aero) MP303	6	Note 1	Note 1	93.6	Pass
M7	72.00-52.00	Mod (Ex)	CCI-SFP-045100	7	Note 1	Note 1	78.3	Pass
M8	74.79-50.54	Mod (Ex)	CCI-SFP-045100	8	Note 1	Note 1	80.5	Pass
M9	72.00-52.00	Mod (Ex)	CCI-AFP-045100	9	Note 1	Note 1	78.3	Pass
M10	92.00-67.00	Mod (Ex)	CCI-AFP-060100	10	Note 1	Note 1	57.2	Pass
M11	92.08-72.08	Mod (Ex)	CCI-AFP-045100	11	Note 1	Note 1	57.0	Pass
M12	57.50-42.50	Mod (Ex)	CCI-SFP-045100	12	Note 1	Note 1	92.1	Pass
M13	57.25-42.25	Mod (Ex)	CCI-SFP-045100	13	Note 1	Note 1	92.1	Pass
M14	100.75-73.00	Mod (Ex)	PL 1.25" x 4"	14	Note 1	Note 1	67.1	Pass
M15b	100.75-74.00	Mod (Ex)	PL 1.25" x 4"	15	Note 1	Note 1	61.1	Pass
M16b	80.00-68.25	Mod (Ex)	PL 1.25" x 4"	16	Note 1	Note 1	64.7	Pass
M17	78.25-68.25	Mod (Ex)	PL 1.25" x 4"	17	Note 1	Note 1	60.1	Pass

	Summary	
Pole (L2)	79.2	Pass
Mod (M3)	100.0	Pass
RATING =	**100.0**	**Pass**

Reinforcement Layout



Tower Engineering Professionals, Inc.
326 Tryon Road|Raleigh, NC 27603-3530|Office: (919) 661-6351|Fax: (919) 661-6350|www.tepgroup.net

Elevation: 0.00-ft

Loads	
Axial:	57.0 k
Moment:	4,041.7 k·ft
Shear:	46.2 k
Torsion:	9.0 k·ft

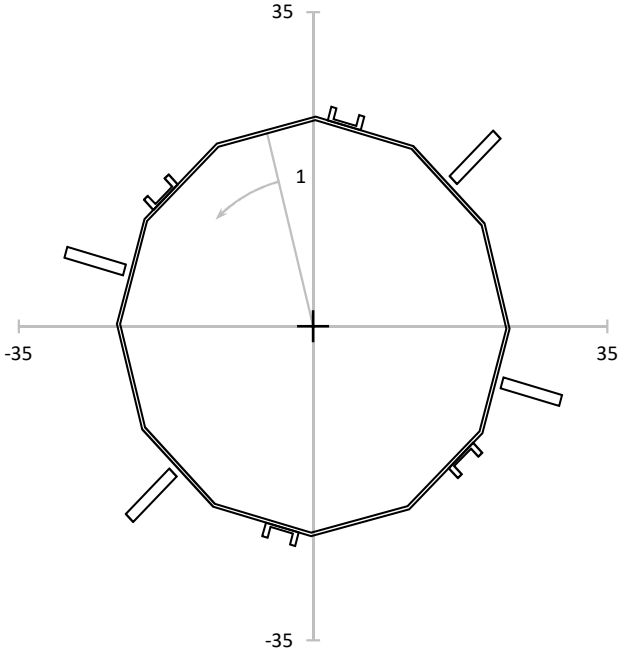
Pole Info	
OD:	45.12 in
t:	0.3750 in
Pole A_G:	54.03 in^2
Pole I_G:	13,807.2 in^4

Equivalent Loads to Pole	
Axial:	30.2 k
Moment:	2,205.8 k·ft
Shear:	24.5 k
Torsion:	9.0 k·ft

Controlling	
Angle:	**345.65°**
I_{CONT}:	25,607.6 in^4
A_G:	101.96 in^2

Shear Flow	
Controlling Mod:	5
q:	0.121 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	297.53 in
Stitch:	18.00 in
Capacity:	**6.0%**

Minimum	
Angle:	**178.10°**
I_{MIN}:	25,135.5 in^4
t_{EFF}:	0.6977 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
170.80	23.25	25299.4	0.559	44.577	0.453	0.090	61.256	61.256	30.628	61.256	**73.7%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
1	1	**41.25**	25.51	29892.3	0.559	41.383	0.453	58.485	58.485	29.250	**71.7%**
1	2	**138.85**	25.49	29204.7	0.559	42.333	0.453	58.485	58.485	29.250	**73.4%**
1	3	**221.25**	25.51	29892.3	0.559	41.383	0.453	58.485	58.485	29.250	**71.7%**
1	4	**318.85**	25.49	29204.7	0.559	42.333	0.453	58.485	58.485	29.250	**73.4%**
5	1	**20.90**	22.46	26663.1	0.559	40.861	0.453	53.615	49.540	29.250	**81.4%**
5	2	**165.65**	22.97	25607.6	0.559	43.498	0.453	53.615	49.540	29.250	**86.7%**
5	3	**200.90**	22.46	26663.1	0.559	40.861	0.453	53.615	49.540	29.250	**81.4%**
5	4	**345.65**	22.97	25607.6	0.559	43.498	0.453	53.615	49.540	29.250	**86.7%**

Elevation: 2.00-ft

Loads	
Axial:	56.2 k
Moment:	3,949.6 k·ft
Shear:	45.9 k
Torsion:	9.0 k·ft

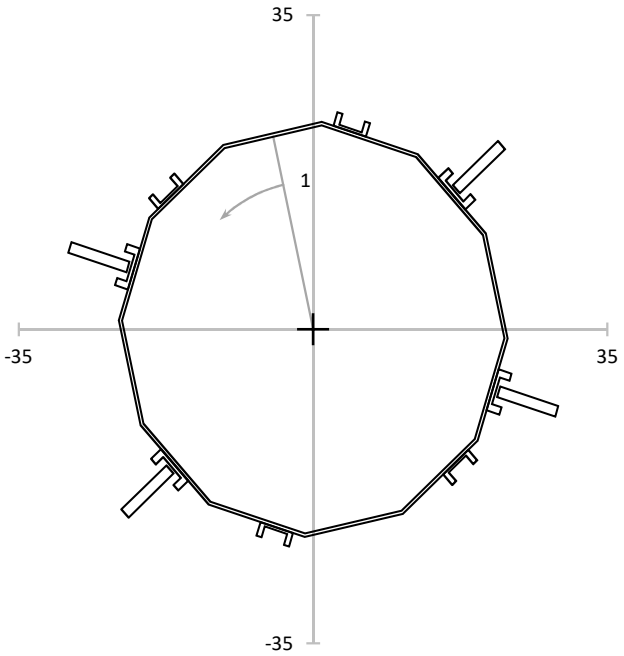
Pole Info	
OD:	44.72 in
t:	0.3750 in
Pole A_G:	53.54 in^2
Pole I_G:	13,436.5 in^4

Equivalent Loads to Pole	
Axial:	25.5 k
Moment:	1,965.8 k·ft
Shear:	20.8 k
Torsion:	9.0 k·ft

Controlling	
Angle:	**347.50°**
I_G:	27,341.5 in^4
A_G:	117.99 in^2

Shear Flow	
Controlling Mod:	2
q:	0.127 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	284.40 in
Stitch:	18.00 in
Capacity:	6.3%

Minimum	
Angle:	**178.65°**
I_{MIN}:	26,803.5 in^4
t_{EFF}:	0.7683 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
172.00	22.99	26996.7	0.476	40.361	0.389	0.092	61.507	61.507	30.754	61.507	**66.4%**

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
1	1	**36.65**	24.54	32241.3	0.476	36.079	0.389	58.485	58.485	29.250	**62.5%**
1	2	**143.20**	24.57	31635.0	0.476	36.812	0.389	58.485	58.485	29.250	**63.8%**
1	3	**216.65**	24.54	32241.3	0.476	36.079	0.389	58.485	58.485	29.250	**62.5%**
1	4	**323.20**	24.57	31635.0	0.476	36.812	0.389	58.485	58.485	29.250	**63.8%**
2	1	**36.65**	21.09	32241.3	0.476	30.998	0.389	53.494	49.881	29.250	**61.2%**
2	2	**143.20**	21.11	31635.0	0.476	31.628	0.389	53.494	49.881	29.250	**62.5%**
2	3	**216.65**	21.09	32241.3	0.476	30.998	0.389	53.494	49.881	29.250	**61.2%**
2	4	**323.20**	21.11	31635.0	0.476	31.628	0.389	53.494	49.881	29.250	**62.5%**
5	1	**18.40**	21.98	28440.7	0.476	36.623	0.389	53.615	49.540	29.250	**73.0%**
5	2	**167.50**	22.64	27341.5	0.476	39.241	0.389	53.615	49.540	29.250	**78.3%**
5	3	**198.40**	21.98	28440.7	0.476	36.623	0.389	53.615	49.540	29.250	**73.0%**
5	4	**347.50**	22.64	27341.5	0.476	39.241	0.389	53.615	49.540	29.250	**78.3%**

Elevation: 4.75-ft

Loads	
Axial:	54.7 k
Moment:	3,823.6 k·ft
Shear:	45.6 k
Torsion:	9.0 k·ft

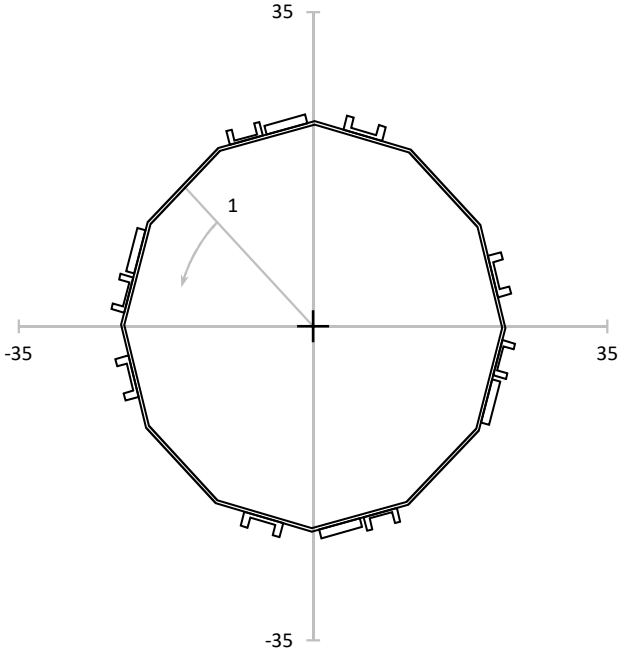
Pole Info	
OD:	44.16 in
t:	0.3750 in
Pole A_G:	52.87 in^2
Pole I_G:	12,937.7 in^4

Equivalent Loads to Pole	
Axial:	28.6 k
Moment:	2,091.4 k·ft
Shear:	23.9 k
Torsion:	9.0 k·ft

Controlling	
Angle:	**315.45°**
I_G:	25,713.8 in^4
A_G:	101.07 in^2

Shear Flow	
Controlling Mod:	3
q:	0.199 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	180.58 in
Stitch:	18.00 in
Capacity:	**10.0%**

Minimum	
Angle:	**86.45°**
I_{MIN}:	23,567.2 in^4
t_{EFF}:	0.6985 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
77.75	22.85	23653.2	0.541	44.322	0.451	0.094	61.853	61.853	30.926	61.853	**72.6%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
2	1	**65.90**	22.57	24031.0	0.541	43.093	0.451	53.494	49.881	29.250	**85.3%**
2	2	**112.95**	22.52	24317.9	0.541	42.488	0.451	53.494	49.881	29.250	**84.1%**
2	3	**245.90**	22.57	24031.0	0.541	43.093	0.451	53.494	49.881	29.250	**85.3%**
2	4	**292.95**	22.52	24317.9	0.541	42.488	0.451	53.494	49.881	29.250	**84.1%**
3	1	**31.40**	22.51	26097.7	0.541	39.579	0.451	46.178	44.250	29.250	**88.2%**
3	2	**135.45**	22.48	25713.8	0.541	40.120	0.451	46.178	44.250	29.250	**89.5%**
3	3	**211.40**	22.51	26097.7	0.541	39.579	0.451	46.178	44.250	29.250	**88.2%**
3	4	**315.45**	22.48	25713.8	0.541	40.120	0.451	46.178	44.250	29.250	**89.5%**
5	1	**44.75**	22.56	25233.8	0.541	41.020	0.451	53.615	49.540	29.250	**81.7%**
5	2	**149.80**	22.66	26577.3	0.541	39.122	0.451	53.615	49.540	29.250	**77.9%**
5	3	**224.75**	22.56	25233.8	0.541	41.020	0.451	53.615	49.540	29.250	**81.7%**
5	4	**329.80**	22.66	26577.3	0.541	39.122	0.451	53.615	49.540	29.250	**77.9%**

Elevation: 14.25-ft

Loads	
Axial:	49.6 k
Moment:	3,396.7 k·ft
Shear:	44.2 k
Torsion:	8.8 k·ft

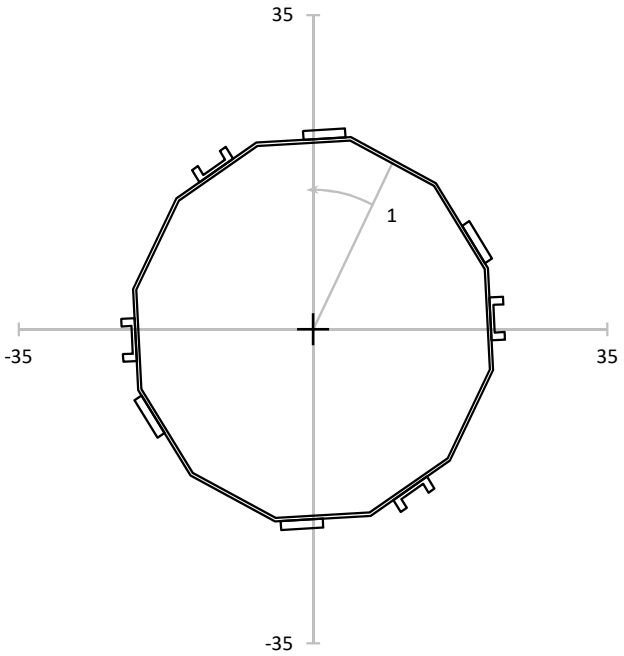
Pole Info	
OD:	42.24 in
t:	0.3750 in
Pole A_G:	50.55 in^2
Pole I_G:	11,309.8 in^4

Equivalent Loads to Pole	
Axial:	28.8 k
Moment:	1,980.1 k·ft
Shear:	25.7 k
Torsion:	8.8 k·ft

Controlling	
Angle:	**26.90°**
I_G:	19,768.8 in^4
A_G:	87.07 in^2

Shear Flow	
Controlling Mod:	3
q:	0.243 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	148.25 in
Stitch:	18.00 in
Capacity:	**12.1%**

Minimum	
Angle:	**241.70°**
I_{MIN}:	19,346.8 in^4
t_{EFF}:	0.6545 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
73.45	21.87	19400.4	0.569	45.954	0.508	0.101	63.047	63.047	31.524	63.047	**73.8%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
2	1	**60.20**	21.73	19347.7	0.569	45.780	0.508	53.494	49.881	29.250	**90.7%**
2	2	**116.55**	21.69	20212.4	0.569	43.742	0.508	53.494	49.881	29.250	**86.6%**
2	3	**240.20**	21.73	19347.7	0.569	45.780	0.508	53.494	49.881	29.250	**90.7%**
2	4	**296.55**	21.69	20212.4	0.569	43.742	0.508	53.494	49.881	29.250	**86.6%**
3	1	**26.90**	21.72	19768.8	0.569	44.791	0.508	46.178	44.250	29.250	**100.0%**
3	2	**142.25**	21.76	20607.0	0.569	43.041	0.508	46.178	44.250	29.250	**96.0%**
3	3	**206.90**	21.72	19768.8	0.569	44.791	0.508	46.178	44.250	29.250	**100.0%**
3	4	**322.25**	21.76	20607.0	0.569	43.041	0.508	46.178	44.250	29.250	**96.0%**

Elevation: 24.00-ft

Loads	
Axial:	44.9 k
Moment:	2,973.4 k·ft
Shear:	42.6 k
Torsion:	8.6 k·ft

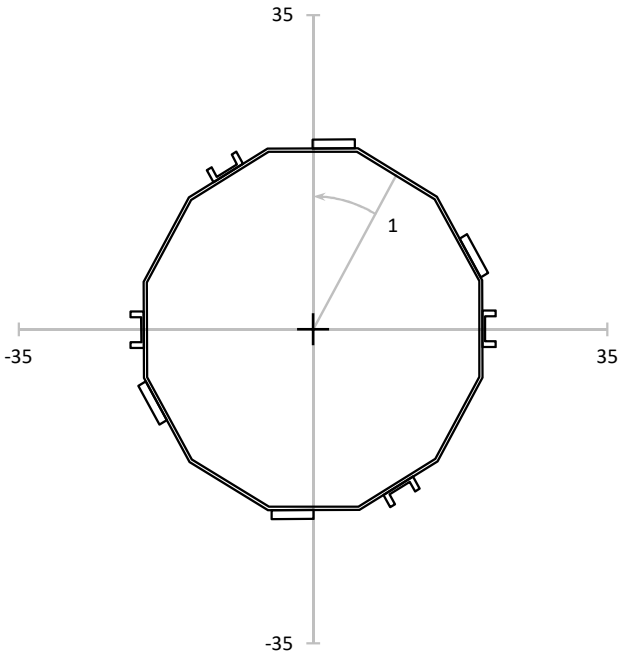
Pole Info	
OD:	40.27 in
t:	0.3750 in
Pole A_G:	48.17 in^2
Pole I_G:	9,787.2 in^4

Equivalent Loads to Pole	
Axial:	27.1 k
Moment:	1,857.4 k·ft
Shear:	25.7 k
Torsion:	8.6 k·ft

Controlling	
Angle:	**29.85°**
I_G:	16,630.7 in^4
A_G:	79.85 in^2

Shear Flow	
Controlling Mod:	3
q:	0.264 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	136.19 in
Stitch:	18.00 in
Capacity:	**13.2%**

Minimum	
Angle:	**74.20°**
I_{MIN}:	15,667.3 in^4
t_{EFF}:	0.6111 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
74.85	20.86	15667.5	0.562	47.506	0.533	0.108	64.273	64.273	32.136	64.273	**74.8%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
3	1	**29.85**	20.64	16630.7	0.562	44.286	0.533	46.178	44.250	29.250	**98.8%**
3	2	**137.90**	20.70	17250.7	0.562	42.817	0.533	46.178	44.250	29.250	**95.5%**
3	3	**209.85**	20.64	16630.7	0.562	44.286	0.533	46.178	44.250	29.250	**98.8%**
3	4	**317.90**	20.70	17250.7	0.562	42.817	0.533	46.178	44.250	29.250	**95.5%**
6	1	**62.80**	20.70	15744.4	0.562	46.912	0.533	53.615	49.540	29.250	**93.6%**
6	2	**113.30**	20.58	16450.6	0.562	44.645	0.533	53.615	49.540	29.250	**89.0%**
6	3	**242.80**	20.70	15744.4	0.562	46.912	0.533	53.615	49.540	29.250	**93.6%**
6	4	**293.30**	20.58	16450.6	0.562	44.645	0.533	53.615	49.540	29.250	**89.0%**

Elevation: 34.33-ft

Loads	
Axial:	40.0 k
Moment:	2,541.6 k·ft
Shear:	40.8 k
Torsion:	8.4 k·ft

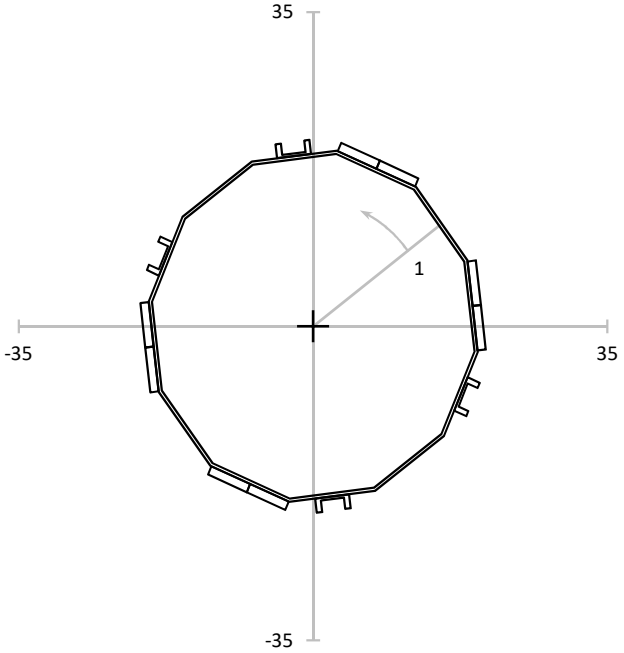
Pole Info	
OD:	38.18 in
t:	0.3750 in
Pole A_G:	45.65 in^2
Pole I_G:	8,329.7 in^4

Equivalent Loads to Pole	
Axial:	18.8 k
Moment:	1,327.1 k·ft
Shear:	19.1 k
Torsion:	8.4 k·ft

Controlling	
Angle:	**53.20°**
I_G:	17,708.5 in^4
A_G:	97.33 in^2

Shear Flow	
Controlling Mod:	4
q:	0.219 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	164.46 in
Stitch:	18.00 in
Capacity:	**10.9%**

Minimum	
Angle:	**90.00°**
I_{MIN}:	15,820.7 in^4
t_{EFF}:	0.7329 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
279.10	19.67	15952.3	0.411	37.614	0.419	0.117	65.572	65.572	32.786	65.572	**58.0%**

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
3	1	**37.65**	19.08	19118.8	0.411	30.444	0.419	46.178	44.250	29.250	**67.9%**
3	2	**126.80**	18.99	17708.5	0.411	32.710	0.419	46.178	44.250	29.250	**73.0%**
3	3	**217.65**	19.08	19118.8	0.411	30.444	0.419	46.178	44.250	29.250	**67.9%**
3	4	**306.80**	18.99	17708.5	0.411	32.710	0.419	46.178	44.250	29.250	**73.0%**
4	1	**53.20**	18.99	17708.5	0.411	32.710	0.419	46.178	44.250	29.250	**73.0%**
4	2	**142.35**	19.08	19118.8	0.411	30.444	0.419	46.178	44.250	29.250	**67.9%**
4	3	**233.20**	18.99	17708.5	0.411	32.710	0.419	46.178	44.250	29.250	**73.0%**
4	4	**322.35**	19.08	19118.8	0.411	30.444	0.419	46.178	44.250	29.250	**67.9%**
6	1	**71.15**	19.31	16369.9	0.411	35.977	0.419	53.615	49.540	29.250	**71.8%**
6	2	**108.85**	19.31	16369.9	0.411	35.977	0.419	53.615	49.540	29.250	**71.8%**
6	3	**251.15**	19.31	16369.9	0.411	35.977	0.419	53.615	49.540	29.250	**71.8%**
6	4	**288.85**	19.31	16369.9	0.411	35.977	0.419	53.615	49.540	29.250	**71.8%**

Elevation: 34.75-ft

Loads	
Axial:	39.8 k
Moment:	2,524.7 k·ft
Shear:	40.8 k
Torsion:	8.3 k·ft

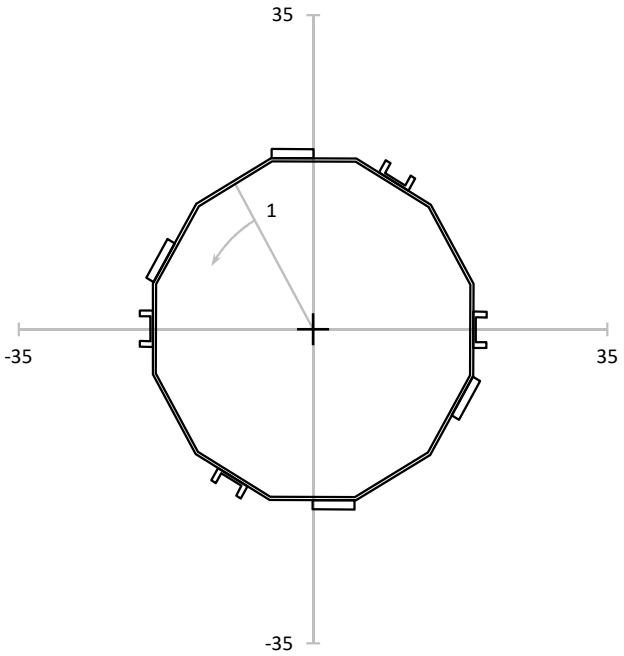
Pole Info	
OD:	38.10 in
t:	0.3750 in
Pole A_G:	45.55 in^2
Pole I_G:	8,274.2 in^4

Equivalent Loads to Pole	
Axial:	23.5 k
Moment:	1,541.3 k·ft
Shear:	24.0 k
Torsion:	8.3 k·ft

Controlling	
Angle:	**330.20°**
I_G:	14,404.8 in^4
A_G:	77.23 in^2

Shear Flow	
Controlling Mod:	4
q:	0.277 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	130.12 in
Stitch:	18.00 in
Capacity:	**13.8%**

Minimum	
Angle:	**106.55°**
I_{MIN}:	13,552.5 in^4
t_{EFF}:	0.6267 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
285.35	19.73	13553.3	0.515	44.114	0.528	0.118	65.624	65.624	32.812	65.624	**68.0%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	**42.70**	19.62	14994.4	0.515	39.644	0.528	46.178	44.250	29.250	**88.5%**
4	2	**150.20**	19.56	14404.8	0.515	41.135	0.528	46.178	44.250	29.250	**91.8%**
4	3	**222.70**	19.62	14994.4	0.515	39.644	0.528	46.178	44.250	29.250	**88.5%**
4	4	**330.20**	19.56	14404.8	0.515	41.135	0.528	46.178	44.250	29.250	**91.8%**
6	1	**67.00**	19.49	14278.2	0.515	41.361	0.528	53.615	49.540	29.250	**82.5%**
6	2	**117.25**	19.62	13614.1	0.515	43.654	0.528	53.615	49.540	29.250	**87.1%**
6	3	**247.00**	19.49	14278.2	0.515	41.361	0.528	53.615	49.540	29.250	**82.5%**
6	4	**297.25**	19.62	13614.1	0.515	43.654	0.528	53.615	49.540	29.250	**87.1%**

Elevation: 44.50-ft

Loads	
Axial:	34.6 k
Moment:	2,136.1 k·ft
Shear:	38.8 k
Torsion:	8.1 k·ft

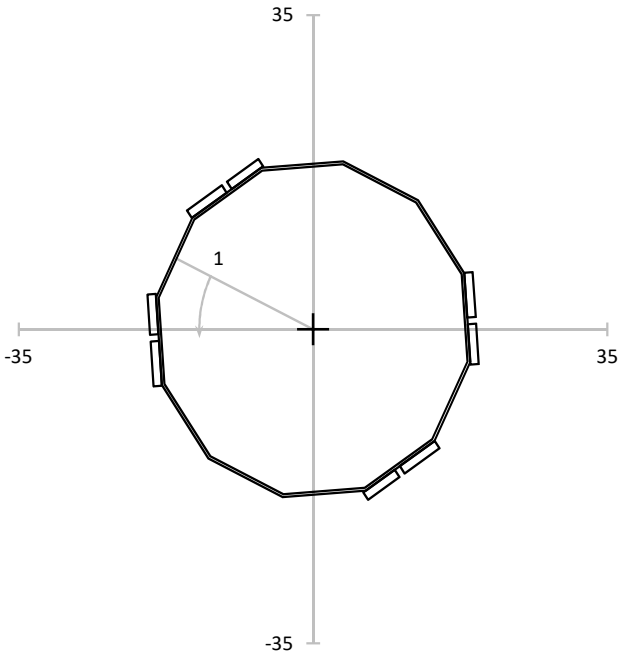
Pole Info	
OD:	36.75 in
t:	0.3125 in
Pole A_G:	36.67 in^2
Pole I_G:	6,215.7 in^4

Equivalent Loads to Pole	
Axial:	17.0 k
Moment:	1,334.1 k·ft
Shear:	19.0 k
Torsion:	8.1 k·ft

Controlling	
Angle:	**295.90°**
I_G:	11,158.6 in^4
A_G:	74.67 in^2

Shear Flow	
Controlling Mod:	13
q:	0.271 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	132.95 in
Stitch:	20.00 in
Capacity:	**15.0%**

Minimum	
Angle:	**89.65°**
I_{MIN}:	9,870.9 in^4
t_{EFF}:	0.5042 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
83.30	18.84	9952.1	0.463	48.524	0.519	0.147	61.887	61.887	30.944	61.887	**79.2%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	**62.85**	17.21	11213.2	0.463	39.352	0.519	46.178	44.250	29.250	**87.9%**
4	2	**130.30**	16.93	12666.3	0.463	34.261	0.519	46.178	44.250	29.250	**76.4%**
4	3	**242.85**	17.21	11213.2	0.463	39.352	0.519	46.178	44.250	29.250	**87.9%**
4	4	**310.30**	16.93	12666.3	0.463	34.261	0.519	46.178	44.250	29.250	**76.4%**
12	1	**48.10**	17.01	12773.9	0.463	34.136	0.519	43.686	43.333	29.250	**79.2%**
12	2	**115.90**	17.31	11158.6	0.463	39.772	0.519	43.686	43.333	29.250	**92.1%**
12	3	**228.10**	17.01	12773.9	0.463	34.136	0.519	43.686	43.333	29.250	**79.2%**
13	1	**295.90**	17.31	11158.6	0.463	39.772	0.519	43.686	43.333	29.250	**92.1%**

Elevation: 52.04-ft

Loads	
Axial:	31.4 k
Moment:	1,848.8 k·ft
Shear:	37.3 k
Torsion:	8.0 k·ft

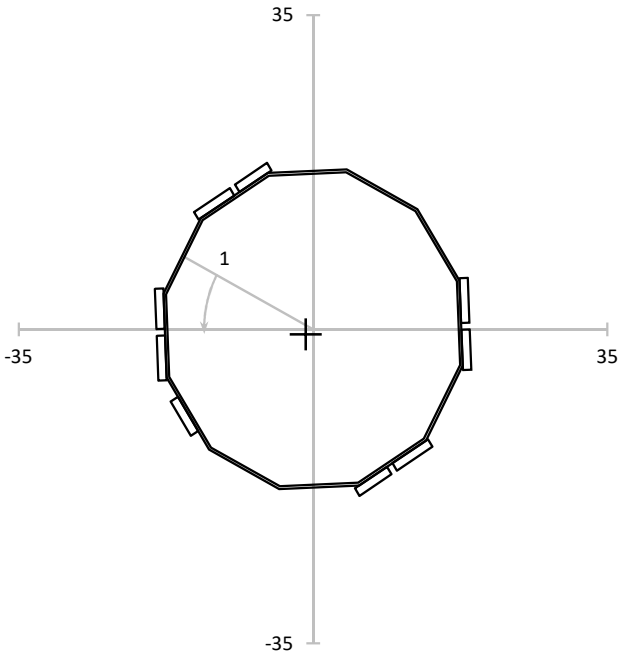
Pole Info	
OD:	35.23 in
t:	0.3125 in
Pole A_G:	35.14 in^2
Pole I_G:	5,468.3 in^4

Equivalent Loads to Pole	
Axial:	14.2 k
Moment:	1,027.1 k·ft
Shear:	16.9 k
Torsion:	8.0 k·ft

Controlling	
Angle:	**297.75°**
I_G:	10,600.7 in^4
A_G:	77.64 in^2

Shear Flow	
Controlling Mod:	13
q:	0.277 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	130.03 in
Stitch:	20.00 in
Capacity:	**15.4%**

Minimum	
Angle:	**95.95°**
I_{MIN}:	9,843.1 in^4
t_{EFF}:	0.5754 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
99.15	18.97	9860.4	0.404	42.679	0.481	0.158	63.025	63.025	31.512	63.025	**68.4%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	**60.45**	15.83	11689.6	0.404	30.050	0.481	46.178	44.250	29.250	**67.0%**
4	2	**137.10**	16.87	12219.1	0.404	30.622	0.481	46.178	44.250	29.250	**68.3%**
4	3	**242.65**	17.65	11493.5	0.404	34.070	0.481	46.178	44.250	29.250	**76.1%**
4	4	**310.75**	16.62	11630.8	0.404	31.711	0.481	46.178	44.250	29.250	**70.8%**
8	1	**77.55**	16.27	10387.9	0.404	34.750	0.481	43.686	43.333	29.250	**80.5%**
12	1	**38.20**	16.53	13762.2	0.404	26.643	0.481	43.686	43.333	29.250	**61.9%**
12	2	**122.15**	16.93	10913.5	0.404	34.412	0.481	43.686	43.333	29.250	**79.7%**
12	3	**224.70**	17.77	13175.3	0.404	29.929	0.481	43.686	43.333	29.250	**69.5%**
13	1	**297.75**	17.48	10600.7	0.404	36.586	0.481	43.686	43.333	29.250	**84.7%**

Elevation: 53.50-ft

Loads	
Axial:	30.6 k
Moment:	1,794.4 k·ft
Shear:	37.0 k
Torsion:	7.9 k·ft

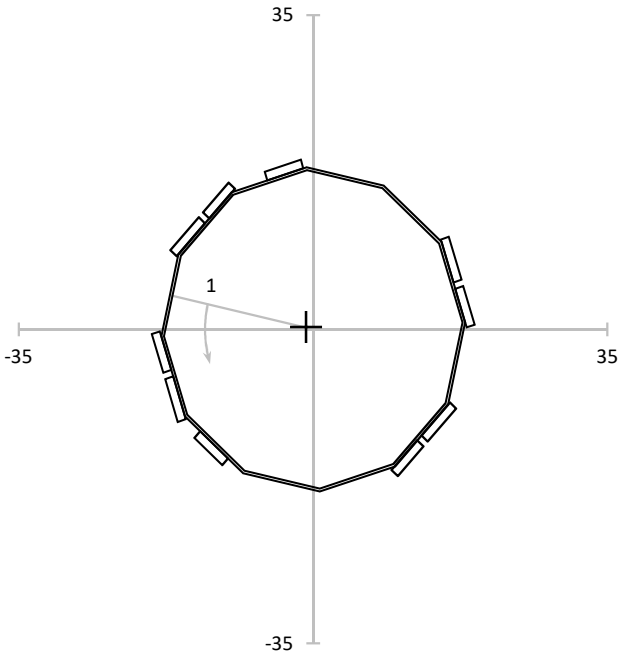
Pole Info	
OD:	34.94 in
t:	0.3125 in
Pole A_G:	34.84 in^2
Pole I_G:	5,330.9 in^4

Equivalent Loads to Pole	
Axial:	13.0 k
Moment:	865.2 k·ft
Shear:	15.8 k
Torsion:	7.9 k·ft

Controlling	
Angle:	**282.55°**
I_G:	11,168.9 in^4
A_G:	81.84 in^2

Shear Flow	
Controlling Mod:	7
q:	0.261 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	137.93 in
Stitch:	20.00 in
Capacity:	**14.5%**

Minimum	
Angle:	**90.80°**
I_{MIN}:	10,995.1 in^4
t_{EFF}:	0.6646 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
280.50	18.26	11114.2	0.374	35.373	0.453	0.160	63.245	63.245	31.622	63.245	**56.6%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	**57.25**	16.68	12269.2	0.374	29.277	0.453	46.178	44.250	29.250	**65.3%**
4	2	**142.00**	18.18	13533.0	0.374	28.931	0.453	46.178	44.250	29.250	**64.6%**
4	3	**233.90**	17.92	12499.1	0.374	30.875	0.453	46.178	44.250	29.250	**69.0%**
4	4	**319.80**	16.52	13375.3	0.374	26.602	0.453	46.178	44.250	29.250	**59.3%**
7	1	**282.55**	17.49	11168.9	0.374	33.726	0.453	43.686	43.333	29.250	**78.1%**
8	1	**74.05**	17.24	11341.1	0.374	32.729	0.453	43.686	43.333	29.250	**75.8%**
12	1	**38.20**	16.69	13629.0	0.374	26.367	0.453	43.686	43.333	29.250	**61.2%**
12	2	**124.65**	18.08	12292.2	0.374	31.663	0.453	43.686	43.333	29.250	**73.4%**
12	3	**215.10**	18.33	13843.5	0.374	28.510	0.453	43.686	43.333	29.250	**66.1%**
13	1	**301.85**	16.74	12107.4	0.374	29.772	0.453	43.686	43.333	29.250	**69.0%**

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Elevation: 54.00-ft

Loads	
Axial:	30.4 k
Moment:	1,775.9 k·ft
Shear:	36.9 k
Torsion:	7.9 k·ft

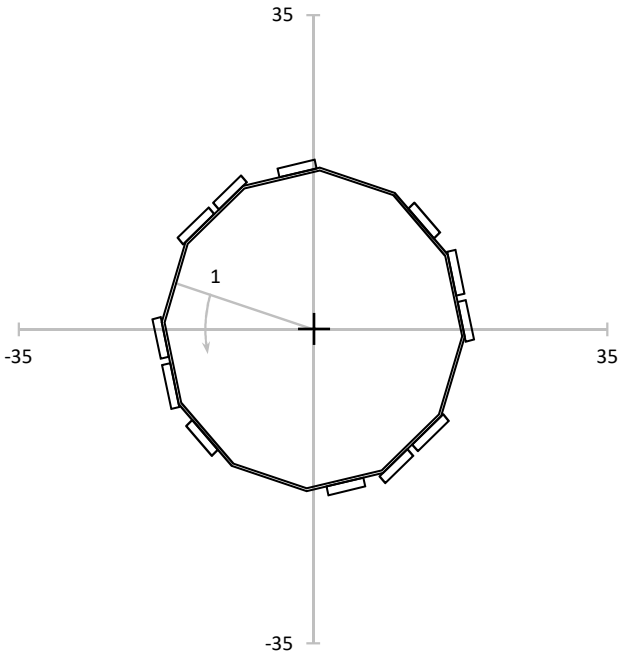
Pole Info	
OD:	34.83 in
t:	0.3125 in
Pole A_G:	34.74 in^2
Pole I_G:	5,284.4 in^4

Equivalent Loads to Pole	
Axial:	11.6 k
Moment:	712.7 k·ft
Shear:	14.1 k
Torsion:	7.9 k·ft

Controlling	
Angle:	**287.50°**
I_G:	13,311.9 in^4
A_G:	90.74 in^2

Shear Flow	
Controlling Mod:	7
q:	0.224 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	161.02 in
Stitch:	20.00 in
Capacity:	**12.4%**

Minimum	
Angle:	**91.10°**
I_{MIN}:	13,089.9 in^4
t_{EFF}:	0.8084 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
280.70	18.03	13167.5	0.335	29.174	0.407	0.160	63.320	63.320	31.660	63.320	**46.6%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	**48.80**	17.86	14347.1	0.335	26.530	0.407	46.178	44.250	29.250	**59.2%**
4	2	**148.15**	17.78	15047.1	0.335	25.182	0.407	46.178	44.250	29.250	**56.2%**
4	3	**228.90**	17.67	14342.2	0.335	26.251	0.407	46.178	44.250	29.250	**58.6%**
4	4	**328.75**	17.91	15073.5	0.335	25.316	0.407	46.178	44.250	29.250	**56.5%**
7	1	**287.50**	17.90	13311.9	0.335	28.662	0.407	43.686	43.333	29.250	**66.4%**
8	1	**68.20**	17.81	13509.7	0.335	28.097	0.407	43.686	43.333	29.250	**65.1%**
9	1	**111.85**	17.75	13439.3	0.335	28.147	0.407	43.686	43.333	29.250	**65.2%**
9	2	**248.45**	17.65	13501.1	0.335	27.852	0.407	43.686	43.333	29.250	**64.5%**
12	1	**29.15**	18.06	15252.7	0.335	25.232	0.407	43.686	43.333	29.250	**58.5%**
12	2	**129.40**	17.81	14158.1	0.335	26.809	0.407	43.686	43.333	29.250	**62.2%**
12	3	**209.00**	17.87	15258.7	0.335	24.955	0.407	43.686	43.333	29.250	**57.9%**
13	1	**309.95**	17.88	14184.1	0.335	26.859	0.407	43.686	43.333	29.250	**62.3%**

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Elevation: 55.75-ft

Loads	
Axial:	29.6 k
Moment:	1,711.5 k·ft
Shear:	36.6 k
Torsion:	7.9 k·ft

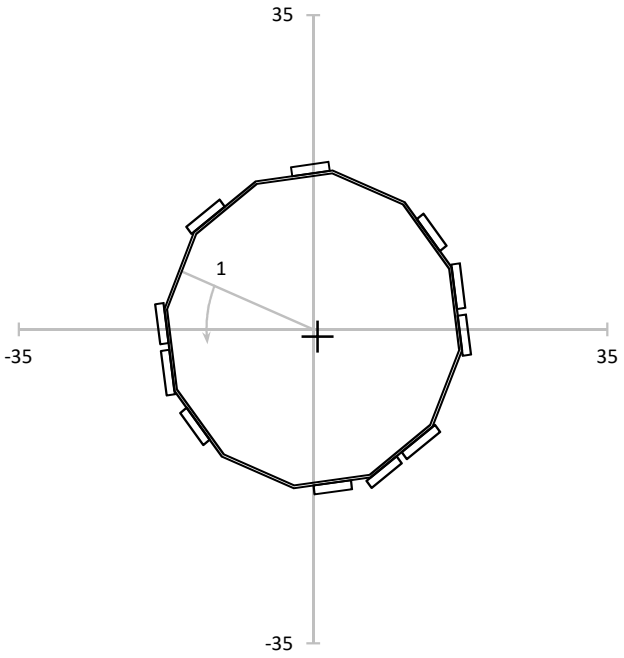
Pole Info	
OD:	34.48 in
t:	0.3125 in
Pole A_G:	34.38 in^2
Pole I_G:	5,123.6 in^4

Equivalent Loads to Pole	
Axial:	11.8 k
Moment:	739.1 k·ft
Shear:	14.6 k
Torsion:	7.9 k·ft

Controlling	
Angle:	**292.45°**
I_G:	11,945.9 in^4
A_G:	85.88 in^2

Shear Flow	
Controlling Mod:	7
q:	0.257 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	140.05 in
Stitch:	20.00 in
Capacity:	**14.3%**

Minimum	
Angle:	**106.80°**
I_{MIN}:	11,917.9 in^4
t_{EFF}:	0.7559 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
106.95	18.61	11917.9	0.344	32.077	0.426	0.163	63.584	63.584	31.792	63.584	**51.0%**

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	**44.65**	17.99	14185.8	0.344	26.048	0.426	46.178	44.250	29.250	**58.1%**
4	2	**146.45**	16.57	13098.4	0.344	25.978	0.426	46.178	44.250	29.250	**57.9%**
4	3	**232.25**	17.30	13843.2	0.344	25.666	0.426	46.178	44.250	29.250	**57.2%**
4	4	**325.20**	18.45	13036.5	0.344	29.072	0.426	46.178	44.250	29.250	**64.9%**
7	1	**292.45**	18.67	11945.9	0.344	32.096	0.426	43.686	43.333	29.250	**74.3%**
8	1	**69.00**	17.30	13008.0	0.344	27.319	0.426	43.686	43.333	29.250	**63.3%**
9	1	**114.75**	16.83	11973.2	0.344	28.862	0.426	43.686	43.333	29.250	**66.9%**
9	2	**254.75**	17.47	12735.2	0.344	28.174	0.426	43.686	43.333	29.250	**65.3%**
12	1	**18.65**	18.58	14815.4	0.344	25.761	0.426	43.686	43.333	29.250	**59.8%**
12	2	**130.35**	16.77	12380.5	0.344	27.818	0.426	43.686	43.333	29.250	**64.5%**
12	3	**206.90**	17.40	14729.4	0.344	24.257	0.426	43.686	43.333	29.250	**56.3%**

Elevation: 56.00-ft

Loads	
Axial:	29.4 k
Moment:	1,702.3 k·ft
Shear:	36.5 k
Torsion:	7.9 k·ft

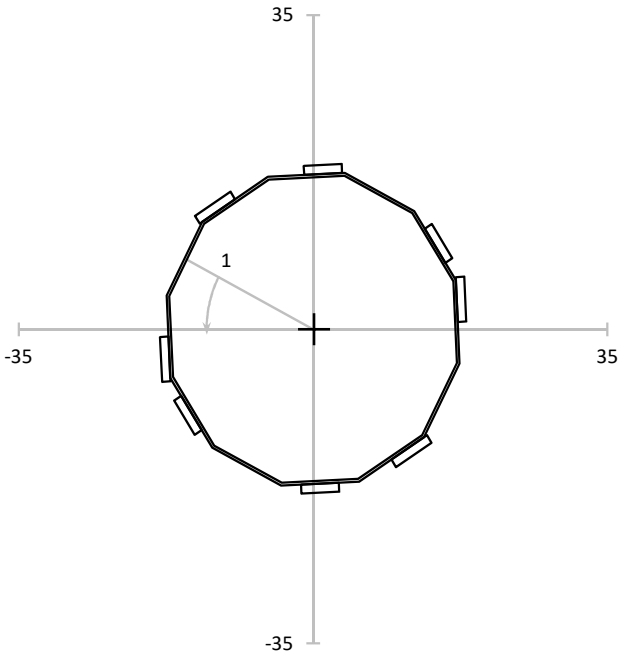
Pole Info	
OD:	34.43 in
t:	0.3125 in
Pole A_G:	34.33 in^2
Pole I_G:	5,101.0 in^4

Equivalent Loads to Pole	
Axial:	14.0 k
Moment:	816.0 k·ft
Shear:	17.3 k
Torsion:	7.9 k·ft

Controlling	
Angle:	**297.30°**
I_G:	10,746.8 in^4
A_G:	72.33 in^2

Shear Flow	
Controlling Mod:	4
q:	0.304 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	118.30 in
Stitch:	18.00 in
Capacity:	**15.2%**

Minimum	
Angle:	**135.60°**
I_{MIN}:	10,642.3 in^4
t_{EFF}:	0.6731 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
135.40	17.87	10642.3	0.407	34.297	0.505	0.163	63.622	63.622	31.811	63.622	**54.6%**

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	**36.30**	18.01	11674.7	0.407	31.507	0.505	46.178	44.250	29.250	**70.3%**
4	2	**154.30**	17.78	10751.4	0.407	33.788	0.505	46.178	44.250	29.250	**75.5%**
4	3	**216.45**	17.76	11675.6	0.407	31.074	0.505	46.178	44.250	29.250	**69.3%**
4	4	**334.85**	17.93	10757.6	0.407	34.056	0.505	46.178	44.250	29.250	**76.1%**
7	1	**297.30**	17.78	10746.8	0.407	33.805	0.505	43.686	43.333	29.250	**78.3%**
8	1	**62.75**	17.80	11610.1	0.407	31.319	0.505	43.686	43.333	29.250	**72.7%**
9	1	**122.15**	17.70	10699.6	0.407	33.790	0.505	43.686	43.333	29.250	**78.3%**
9	2	**243.20**	17.58	11605.4	0.407	30.951	0.505	43.686	43.333	29.250	**71.8%**

Loads	
Axial:	24.4 k
Moment:	1,227.0 k·ft
Shear:	33.8 k
Torsion:	7.6 k·ft

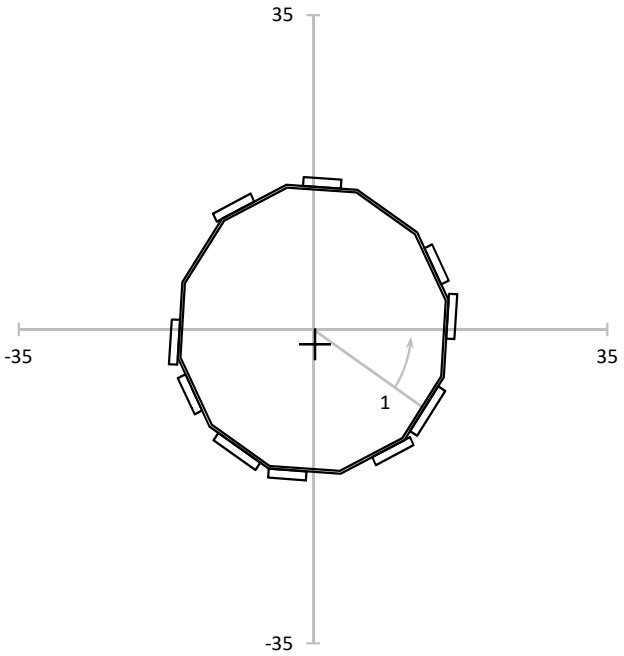
Pole Info	
OD:	31.70 in
t:	0.3125 in
Pole A_G:	31.59 in^2
Pole I_G:	3,972.7 in^4

Equivalent Loads to Pole	
Axial:	9.4 k
Moment:	489.0 k·ft
Shear:	13.1 k
Torsion:	7.6 k·ft

Controlling	
Angle:	**123.75°**
I_G:	10,115.7 in^4
A_G:	81.59 in^2

Shear Flow	
Controlling Mod:	9
q:	0.271 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	132.99 in
Stitch:	20.00 in
Capacity:	15.0%

Minimum	
Angle:	**135.40°**
I_{MIN}:	10,066.3 in^4
t_{EFF}:	0.8325 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
134.80	18.09	10066.5	0.299	26.467	0.415	0.187	65.658	65.658	32.829	65.658	**40.8%**

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	**44.25**	16.55	11273.5	0.299	21.614	0.415	46.178	44.250	29.250	**48.2%**
4	2	**152.45**	18.01	10170.0	0.299	26.071	0.415	46.178	44.250	29.250	**58.3%**
4	3	**209.70**	16.68	11185.4	0.299	21.953	0.415	46.178	44.250	29.250	**49.0%**
4	4	**337.00**	15.02	10229.8	0.299	21.625	0.415	46.178	44.250	29.250	**48.2%**
7	1	**295.35**	14.85	10208.5	0.299	21.418	0.415	43.686	43.333	29.250	**49.7%**
8	1	**70.10**	16.90	11063.3	0.299	22.498	0.415	43.686	43.333	29.250	**52.2%**
9	1	**123.75**	17.98	10115.7	0.299	26.168	0.415	43.686	43.333	29.250	**60.6%**
9	2	**236.60**	15.88	11228.5	0.299	20.827	0.415	43.686	43.333	29.250	**48.4%**
10	1	**358.25**	15.20	10624.6	0.299	21.064	0.415	48.528	47.500	29.250	**44.0%**
10	2	**272.25**	15.04	10631.5	0.299	20.828	0.415	48.528	47.500	29.250	**43.6%**

Elevation: 69.75-ft

Loads	
Axial:	24.3 k
Moment:	1,218.6 k·ft
Shear:	33.8 k
Torsion:	7.6 k·ft

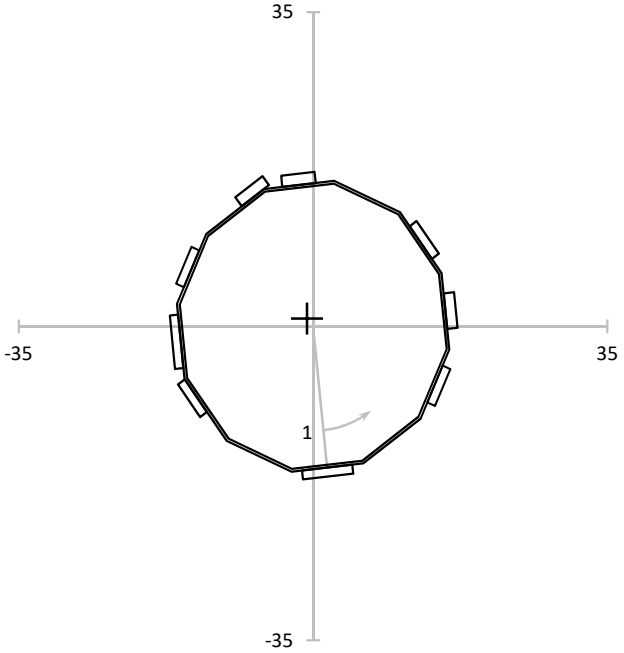
Pole Info	
OD:	31.65 in
t:	0.3125 in
Pole A_G:	31.54 in^2
Pole I_G:	3,953.6 in^4

Equivalent Loads to Pole	
Axial:	10.0 k
Moment:	533.7 k·ft
Shear:	13.9 k
Torsion:	7.6 k·ft

Controlling	
Angle:	**173.90°**
I_G:	9,134.4 in^4
A_G:	76.54 in^2

Shear Flow	
Controlling Mod:	17
q:	0.287 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	125.51 in
Stitch:	27.00 in
Capacity:	**21.5%**

Minimum	
Angle:	**164.50°**
I_{MIN}:	9,084.9 in^4
t_{EFF}:	0.7489 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
166.85	17.14	9088.0	0.317	27.586	0.442	0.187	65.696	65.696	32.848	65.696	**42.5%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
7	1	**307.25**	16.00	9762.8	0.317	23.966	0.442	43.686	43.333	29.250	**55.6%**
8	1	**51.20**	17.21	10646.7	0.317	23.632	0.442	43.686	43.333	29.250	**54.8%**
9	1	**126.50**	16.18	9786.3	0.317	24.174	0.442	43.686	43.333	29.250	**56.1%**
9	2	**235.85**	15.24	10747.0	0.317	20.738	0.442	43.686	43.333	29.250	**48.2%**
10	1	**357.15**	17.20	9173.8	0.317	27.415	0.442	48.528	47.500	29.250	**57.2%**
10	2	**281.45**	15.57	10555.6	0.317	21.564	0.442	48.528	47.500	29.250	**45.1%**
16a	1	**92.75**	17.02	10754.4	0.317	23.140	0.442	41.614	39.375	29.250	**58.0%**
16a	2	**173.90**	15.51	9134.4	0.317	24.821	0.442	41.614	39.375	29.250	**62.3%**
17	1	**189.95**	15.46	9427.0	0.317	23.984	0.442	41.614	39.375	29.250	**60.1%**

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Elevation: 70.00-ft

Loads	
Axial:	24.2 k
Moment:	1,210.1 k·ft
Shear:	33.7 k
Torsion:	7.6 k·ft

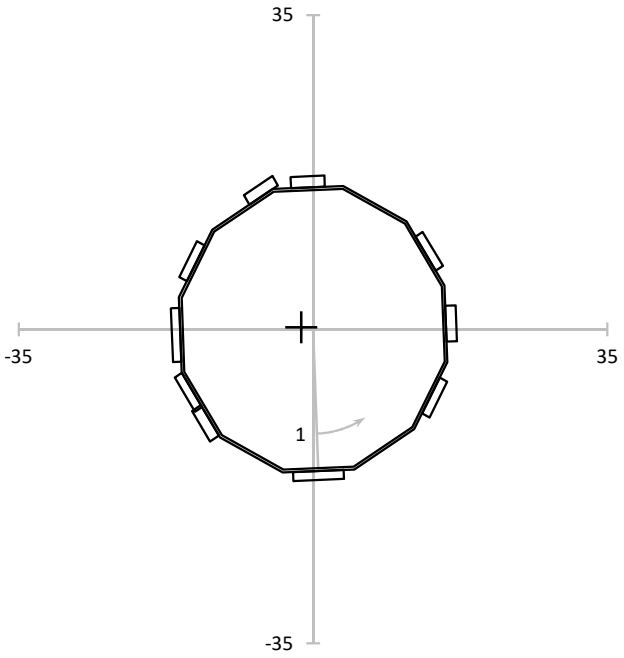
Pole Info	
OD:	31.60 in
t:	0.3125 in
Pole A_G:	31.49 in^2
Pole I_G:	3,934.5 in^4

Equivalent Loads to Pole	
Axial:	9.3 k
Moment:	486.9 k·ft
Shear:	13.0 k
Torsion:	7.6 k·ft

Controlling	
Angle:	**177.75°**
I_G:	9,757.6 in^4
A_G:	81.49 in^2

Shear Flow	
Controlling Mod:	17
q:	0.280 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	128.43 in
Stitch:	27.00 in
Capacity:	**21.0%**

Minimum	
Angle:	**5.25°**
I_{MIN}:	9,726.8 in^4
t_{EFF}:	0.8107 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
15.60	16.99	9784.6	0.297	25.222	0.414	0.188	65.734	65.734	32.867	65.734	**38.8%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
7	1	**303.65**	15.12	11119.1	0.297	19.740	0.414	43.686	43.333	29.250	**45.9%**
8	1	**52.00**	17.41	10680.4	0.297	23.667	0.414	43.686	43.333	29.250	**54.9%**
10	1	**4.95**	16.62	9726.8	0.297	24.809	0.414	48.528	47.500	29.250	**51.8%**
10	2	**269.05**	14.89	11504.3	0.297	18.796	0.414	48.528	47.500	29.250	**39.4%**
11	1	**124.90**	17.25	11085.8	0.297	22.589	0.414	43.686	43.333	29.250	**52.4%**
11	2	**228.55**	14.75	10572.1	0.297	20.265	0.414	43.686	43.333	29.250	**47.1%**
16a	1	**86.45**	17.81	11483.1	0.297	22.524	0.414	41.614	39.375	29.250	**56.5%**
16a	2	**177.75**	16.21	9757.6	0.297	24.125	0.414	41.614	39.375	29.250	**60.5%**
16b	1	**320.40**	15.40	10622.0	0.297	21.049	0.414	41.614	39.375	29.250	**52.7%**
17	1	**192.55**	16.01	9755.7	0.297	23.835	0.414	41.614	39.375	29.250	**59.8%**

Elevation: 70.50-ft

Loads	
Axial:	23.9 k
Moment:	1,193.2 k·ft
Shear:	33.6 k
Torsion:	7.6 k·ft

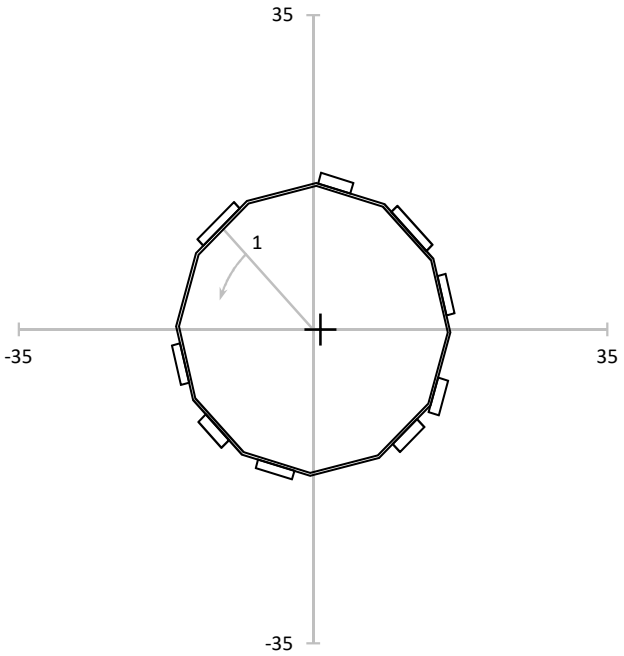
Pole Info	
OD:	31.50 in
t:	0.3125 in
Pole A_G:	31.38 in^2
Pole I_G:	3,896.5 in^4

Equivalent Loads to Pole	
Axial:	9.8 k
Moment:	496.8 k·ft
Shear:	13.7 k
Torsion:	7.6 k·ft

Controlling	
Angle:	**316.25°**
I_G:	9,703.4 in^4
A_G:	76.88 in^2

Shear Flow	
Controlling Mod:	18
q:	0.283 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	127.12 in
Stitch:	27.00 in
Capacity:	**21.2%**

Minimum	
Angle:	**166.90°**
I_{MIN}:	9,390.9 in^4
t_{EFF}:	0.7887 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
167.40	16.80	9391.0	0.311	25.621	0.438	0.189	65.809	65.809	32.905	65.809	**39.4%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
8	1	**54.45**	17.04	10419.3	0.311	23.415	0.438	43.686	43.333	29.250	**54.3%**
10	1	**359.05**	16.89	9444.4	0.311	25.599	0.438	48.528	47.500	29.250	**53.4%**
10	2	**276.55**	15.62	10458.2	0.311	21.388	0.438	48.528	47.500	29.250	**44.7%**
11	1	**123.90**	16.35	9950.4	0.311	23.528	0.438	43.686	43.333	29.250	**54.6%**
11	2	**236.70**	15.37	10451.3	0.311	21.053	0.438	43.686	43.333	29.250	**48.9%**
16a	1	**90.90**	16.96	10523.9	0.311	23.080	0.438	41.614	39.375	29.250	**57.8%**
16a	2	**175.60**	15.73	9418.6	0.311	23.911	0.438	41.614	39.375	29.250	**60.0%**
16b	1	**316.25**	16.33	9703.4	0.311	24.102	0.438	41.614	39.375	29.250	**60.4%**
17	1	**192.75**	15.76	9620.1	0.311	23.465	0.438	41.614	39.375	29.250	**58.8%**

Elevation: 73.29-ft

Loads	
Axial:	22.8 k
Moment:	1,100.0 k·ft
Shear:	33.1 k
Torsion:	7.6 k·ft

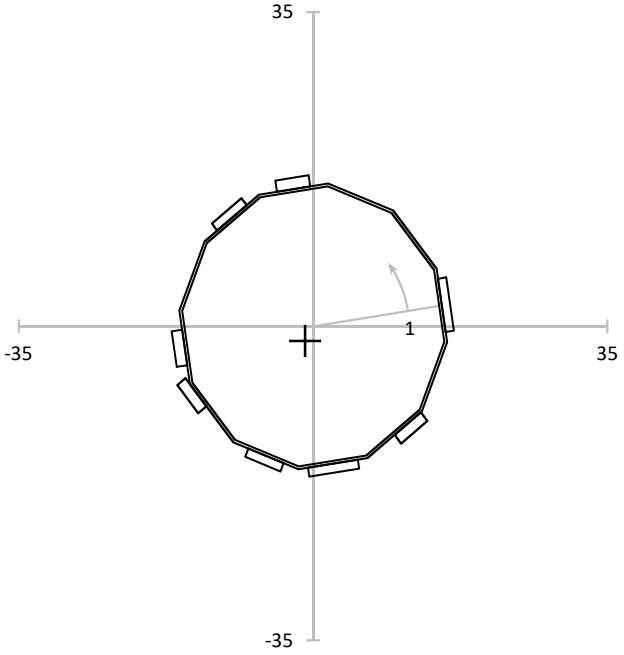
Pole Info	
OD:	30.94 in
t:	0.3125 in
Pole A_G:	30.82 in^2
Pole I_G:	3,689.0 in^4

Equivalent Loads to Pole	
Axial:	9.8 k
Moment:	480.1 k·ft
Shear:	14.2 k
Torsion:	7.6 k·ft

Controlling	
Angle:	**81.30°**
I_G:	8,987.6 in^4
A_G:	71.82 in^2

Shear Flow	
Controlling Mod:	17
q:	0.323 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	111.39 in
Stitch:	27.00 in
Capacity:	**24.2%**

Minimum	
Angle:	**29.85°**
I_{MIN}:	8,507.7 in^4
t_{EFF}:	0.7527 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
223.35	17.90	8550.5	0.317	27.639	0.461	0.195	66.230	66.230	33.115	66.230	**42.2%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	**8.50**	17.18	8611.7	0.317	26.337	0.461	48.528	47.500	29.250	**54.9%**
10	2	**270.45**	14.48	9103.2	0.317	21.002	0.461	48.528	47.500	29.250	**44.0%**
11	1	**112.75**	16.76	9280.3	0.317	23.842	0.461	43.686	43.333	29.250	**55.3%**
11	2	**236.95**	14.05	8670.5	0.317	21.390	0.461	43.686	43.333	29.250	**49.7%**
16a	1	**81.30**	17.56	8987.6	0.317	25.796	0.461	41.614	39.375	29.250	**64.7%**
16a	2	**178.85**	14.94	8715.8	0.317	22.626	0.461	41.614	39.375	29.250	**56.7%**
16b	1	**316.40**	15.83	9228.6	0.317	22.641	0.461	41.614	39.375	29.250	**56.7%**
17	1	**197.65**	14.78	8542.8	0.317	22.845	0.461	41.614	39.375	29.250	**57.2%**

Loads	
Axial:	22.3 k
Moment:	1,060.1 k·ft
Shear:	32.8 k
Torsion:	7.5 k·ft

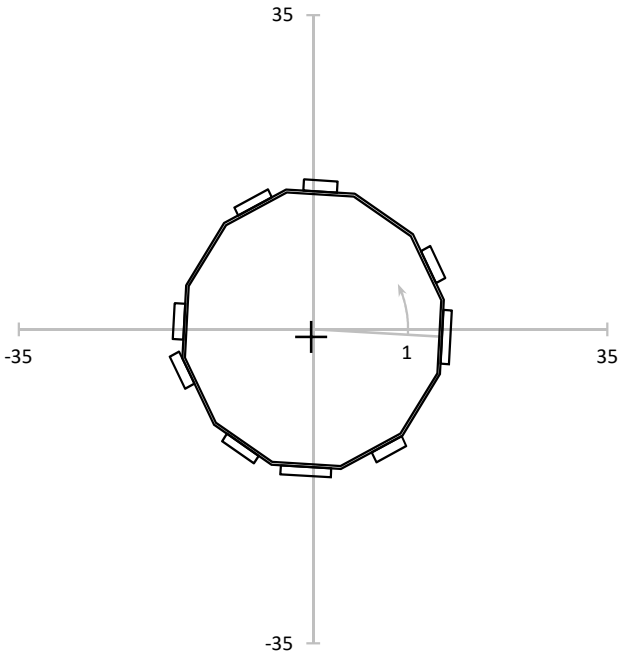
Pole Info	
OD:	30.69 in
t:	0.3125 in
Pole A_G:	30.57 in^2
Pole I_G:	3,601.4 in^4

Equivalent Loads to Pole	
Axial:	8.9 k
Moment:	415.4 k·ft
Shear:	13.1 k
Torsion:	7.5 k·ft

Controlling	
Angle:	**93.15°**
I_G:	9,315.8 in^4
A_G:	76.57 in^2

Shear Flow	
Controlling Mod:	17
q:	0.296 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	121.66 in
Stitch:	27.00 in
Capacity:	**22.2%**

Minimum	
Angle:	**304.70°**
I_{MIN}:	9,125.1 in^4
t_{EFF}:	0.8340 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
106.20	16.67	9195.1	0.291	23.068	0.429	0.197	66.413	66.413	33.206	66.413	**35.2%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	**359.15**	16.03	9586.7	0.291	21.269	0.429	48.528	47.500	29.250	**44.4%**
10	2	**274.50**	14.95	9301.3	0.291	20.446	0.429	48.528	47.500	29.250	**42.8%**
11	1	**118.80**	16.51	9132.4	0.291	22.997	0.429	43.686	43.333	29.250	**53.3%**
11	2	**242.40**	14.97	9671.4	0.291	19.696	0.429	43.686	43.333	29.250	**45.8%**
14	1	**31.85**	16.59	9820.5	0.291	21.487	0.429	41.614	39.375	29.250	**53.9%**
16a	1	**93.15**	16.80	9315.8	0.291	22.945	0.429	41.614	39.375	29.250	**57.6%**
16a	2	**172.70**	15.76	9510.3	0.291	21.079	0.429	41.614	39.375	29.250	**52.8%**
16b	1	**309.00**	15.54	9129.0	0.291	21.652	0.429	41.614	39.375	29.250	**54.3%**
17	1	**193.90**	15.78	9734.4	0.291	20.621	0.429	41.614	39.375	29.250	**51.7%**

Elevation: 75.50-ft

Loads	
Axial:	21.8 k
Moment:	1,027.4 k·ft
Shear:	32.5 k
Torsion:	7.3 k·ft

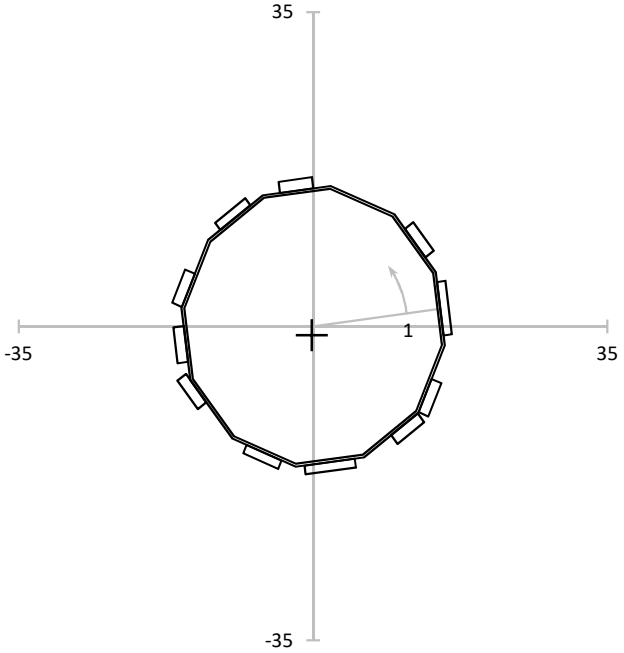
Pole Info	
OD:	30.49 in
t:	0.3125 in
Pole A_G:	30.37 in^2
Pole I_G:	3,530.0 in^4

Equivalent Loads to Pole	
Axial:	7.7 k
Moment:	379.9 k·ft
Shear:	11.4 k
Torsion:	7.3 k·ft

Controlling	
Angle:	**82.60°**
I_G:	9,683.3 in^4
A_G:	86.37 in^2

Shear Flow	
Controlling Mod:	17
q:	0.281 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	128.18 in
Stitch:	27.00 in
Capacity:	**21.1%**

Minimum	
Angle:	**247.35°**
I_{MIN}:	9,535.3 in^4
t_{EFF}:	0.8950 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
252.55	16.78	9553.0	0.253	21.663	0.376	0.192	66.563	66.563	33.282	66.563	**32.9%**

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	**14.05**	15.79	10905.8	0.253	17.848	0.376	48.528	47.500	29.250	**37.3%**
10	2	**264.15**	14.68	9713.9	0.253	18.627	0.376	48.528	47.500	29.250	**38.9%**
11	1	**106.10**	16.13	10371.7	0.253	19.174	0.376	43.686	43.333	29.250	**44.5%**
11	2	**241.65**	14.75	9556.2	0.253	19.036	0.376	43.686	43.333	29.250	**44.2%**
14	1	**41.85**	16.39	9930.1	0.253	20.349	0.376	41.614	39.375	29.250	**51.1%**
15a	1	**151.50**	16.12	11646.3	0.253	17.069	0.376	41.614	39.375	29.250	**42.7%**
15b	1	**320.35**	15.59	11486.4	0.253	16.732	0.376	41.614	39.375	29.250	**41.9%**
16a	1	**82.60**	16.73	9683.3	0.253	21.302	0.376	41.614	39.375	29.250	**53.5%**
16a	2	**185.45**	15.42	11194.4	0.253	16.983	0.376	41.614	39.375	29.250	**42.5%**
16b	1	**299.40**	15.15	10862.3	0.253	17.197	0.376	41.614	39.375	29.250	**43.1%**
17	1	**207.70**	15.28	10403.1	0.253	18.103	0.376	41.614	39.375	29.250	**45.4%**

Loads	
Axial:	21.3 k
Moment:	986.9 k·ft
Shear:	32.3 k
Torsion:	7.2 k·ft

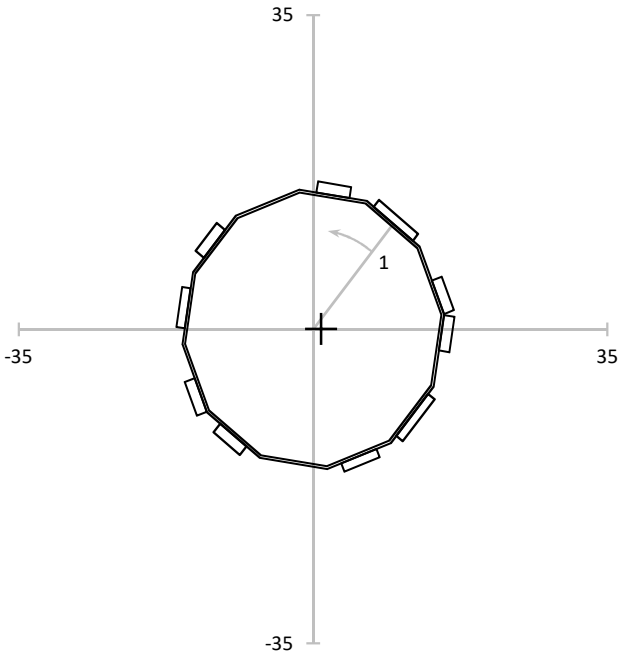
Pole Info	
OD:	30.24 in
t:	0.3125 in
Pole A_G:	30.11 in^2
Pole I_G:	3,442.1 in^4

Equivalent Loads to Pole	
Axial:	7.9 k
Moment:	393.6 k·ft
Shear:	12.0 k
Torsion:	7.2 k·ft

Controlling	
Angle:	**38.95°**
I_G:	8,746.6 in^4
A_G:	81.11 in^2

Shear Flow	
Controlling Mod:	14
q:	0.286 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	125.97 in
Stitch:	27.00 in
Capacity:	**21.4%**

Minimum	
Angle:	**50.40°**
I_{MIN}:	8,659.8 in^4
t_{EFF}:	0.8283 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
49.05	15.74	8661.0	0.263	21.517	0.398	0.195	66.752	66.752	33.376	66.752	**32.6%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	**15.15**	14.65	9395.1	0.263	18.468	0.398	48.528	47.500	29.250	**38.6%**
10	2	**256.65**	14.67	9092.9	0.263	19.105	0.398	48.528	47.500	29.250	**39.9%**
11	1	**110.10**	16.25	10308.1	0.263	18.672	0.398	43.686	43.333	29.250	**43.4%**
11	2	**234.55**	15.35	8671.5	0.263	20.962	0.398	43.686	43.333	29.250	**48.6%**
14	1	**38.95**	15.50	8746.6	0.263	20.986	0.398	41.614	39.375	29.250	**52.6%**
15a	1	**164.95**	16.51	10487.7	0.263	18.646	0.398	41.614	39.375	29.250	**46.7%**
15b	1	**325.50**	14.94	10852.3	0.263	16.307	0.398	41.614	39.375	29.250	**40.8%**
16a	1	**80.45**	16.10	9214.8	0.263	20.697	0.398	41.614	39.375	29.250	**51.9%**
16a	2	**190.40**	15.98	9572.1	0.263	19.768	0.398	41.614	39.375	29.250	**49.6%**
16b	1	**298.80**	14.79	10571.0	0.263	16.569	0.398	41.614	39.375	29.250	**41.4%**

Elevation: 81.75-ft

Loads	
Axial:	19.3 k
Moment:	828.2 k·ft
Shear:	31.2 k
Torsion:	7.2 k·ft

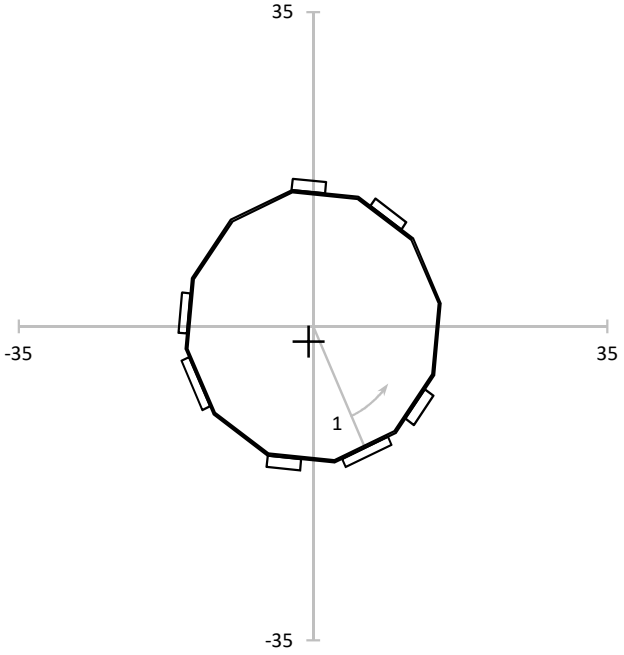
Pole Info	
OD:	29.73 in
t:	0.2500 in
Pole A_G:	23.73 in^2
Pole I_G:	2,632.0 in^4

Equivalent Loads to Pole	
Axial:	7.7 k
Moment:	347.0 k·ft
Shear:	12.4 k
Torsion:	7.2 k·ft

Controlling	
Angle:	**155.50°**
I_G:	7,404.0 in^4
A_G:	59.73 in^2

Shear Flow	
Controlling Mod:	15
q:	0.365 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	98.65 in
Stitch:	27.00 in
Capacity:	**27.4%**

Minimum	
Angle:	**65.25°**
I_{MIN}:	6,339.5 in^4
t_{EFF}:	0.6258 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	**y_{CONT} (in)**	**I (in^4)**	**σ_A (ksi)**	**σ_B (ksi)**	**σ_V (ksi)**	**σ_T (ksi)**	**ϕF_A (ksi)**	**ϕF_B (ksi)**	**ϕF_V (ksi)**	**ϕF_T (ksi)**	**Capacity**
256.90	16.24	6382.8	0.322	25.287	0.522	0.248	61.584	61.584	30.792	61.584	**41.6%**

MODIFICATION CAPACITIES											
Mod Number	**#**	**Angle (°)**	**$\bar{y}_{CONT}$ (in)**	**I (in^4)**	**σ_A (ksi)**	**σ_B (ksi)**	**σ_V (ksi)**	**ϕF_A (ksi)**	**ϕF_B (ksi)**	**ϕF_V (ksi)**	**Capacity**
10	1	**13.20**	13.92	7001.7	0.322	19.762	0.522	48.528	47.500	29.250	**41.4%**
10	2	**259.95**	14.20	6407.9	0.322	22.016	0.522	48.528	47.500	29.250	**46.1%**
11	1	**113.20**	16.87	6926.2	0.322	24.211	0.522	43.686	43.333	29.250	**56.2%**
11	2	**236.30**	15.09	6365.4	0.322	23.560	0.522	43.686	43.333	29.250	**54.7%**
14	1	**43.05**	14.92	6491.7	0.322	22.838	0.522	41.614	39.375	29.250	**57.2%**
15a	1	**155.50**	17.32	7404.0	0.322	23.250	0.522	41.614	39.375	29.250	**58.3%**
15b	1	**318.60**	13.79	7316.5	0.322	18.730	0.522	41.614	39.375	29.250	**46.8%**

Elevation: 89.50-ft

Loads	
Axial:	17.0 k
Moment:	592.3 k·ft
Shear:	29.7 k
Torsion:	7.0 k·ft

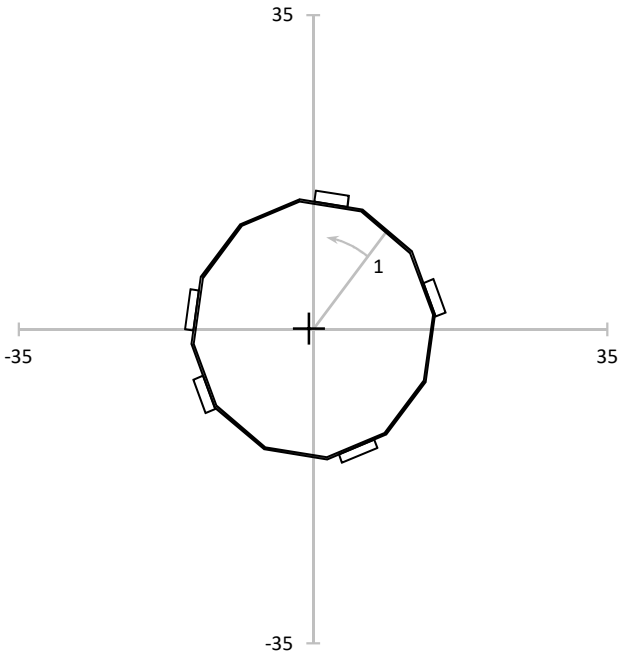
Pole Info	
OD:	28.16 in
t:	0.2500 in
Pole A_G:	22.47 in^2
Pole I_G:	2,234.5 in^4

Equivalent Loads to Pole	
Axial:	8.2 k
Moment:	306.3 k·ft
Shear:	14.3 k
Torsion:	7.0 k·ft

Controlling	
Angle:	**38.55°**
I_G:	4,486.9 in^4
A_G:	46.47 in^2

Shear Flow	
Controlling Mod:	14
q:	0.479 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	75.20 in
Stitch:	27.00 in
Capacity:	**35.9%**

Minimum	
Angle:	**243.10°**
I_{MIN}:	4,297.4 in^4
t_{EFF}:	0.4936 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
251.95	14.89	4323.4	0.365	24.473	0.638	0.271	63.045	63.045	31.523	63.045	**39.5%**

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
11	1	**107.15**	13.74	4828.6	0.365	20.226	0.638	43.686	43.333	29.250	**47.2%**
11	2	**242.15**	14.82	4297.7	0.365	24.512	0.638	43.686	43.333	29.250	**57.0%**
14	1	**38.55**	14.48	4486.9	0.365	22.943	0.638	41.614	39.375	29.250	**57.4%**
15a	1	**162.80**	14.41	5364.7	0.365	19.099	0.638	41.614	39.375	29.250	**47.6%**
15b	1	**314.40**	15.18	5283.1	0.365	20.424	0.638	41.614	39.375	29.250	**51.0%**

Loads	
Axial:	16.8 k
Moment:	575.1 k·ft
Shear:	29.6 k
Torsion:	7.0 k·ft

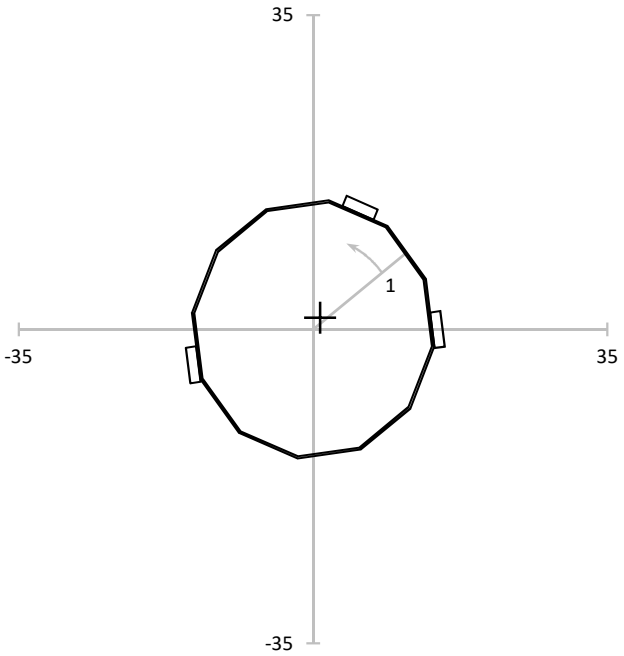
Pole Info	
OD:	28.05 in
t:	0.2500 in
Pole A_G:	22.38 in^2
Pole I_G:	2,206.5 in^4

Equivalent Loads to Pole	
Axial:	10.1 k
Moment:	444.7 k·ft
Shear:	17.7 k
Torsion:	7.0 k·ft

Controlling	
Angle:	**52.35°**
I_G:	3,154.6 in^4
A_G:	37.38 in^2

Shear Flow	
Controlling Mod:	14
q:	0.575 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	62.66 in
Stitch:	27.00 in
Capacity:	**43.1%**

Minimum	
Angle:	**74.00°**
I_{MIN}:	2,911.3 in^4
t_{EFF}:	0.3328 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
72.40	15.44	2912.8	0.449	36.577	0.791	0.273	63.155	63.155	31.577	63.155	**58.7%**

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
14	1	**52.35**	12.27	3154.6	0.449	26.834	0.791	41.614	39.375	29.250	**67.1%**
15a	1	**153.75**	15.80	4638.8	0.449	23.509	0.791	41.614	39.375	29.250	**58.6%**
15b	1	**291.25**	12.64	3564.4	0.449	24.472	0.791	41.614	39.375	29.250	**61.1%**

Tower Engineering Professionals, Inc.
326 Tryon Road|Raleigh, NC 27603-3530|Office: (919) 661-6351|Fax: (919) 661-6350|www.tepgroup.net

Elevation: 99.00-ft

Loads	
Axial:	11.5 k
Moment:	332.3 k·ft
Shear:	21.8 k
Torsion:	6.7 k·ft

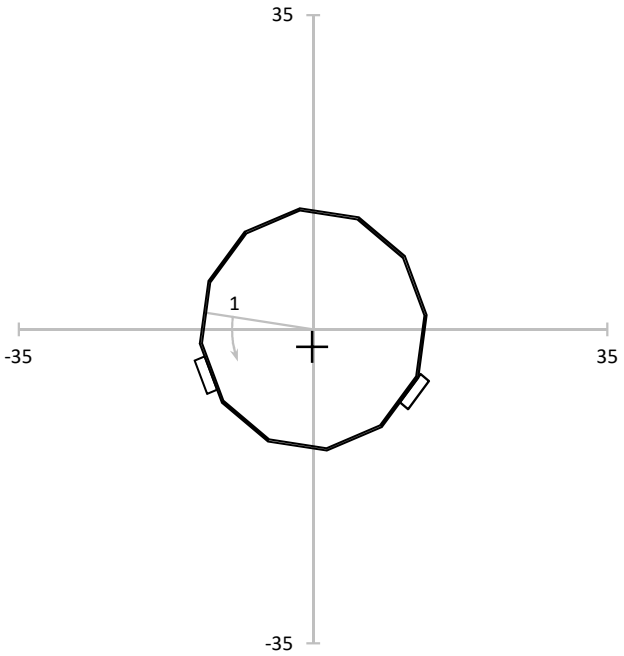
Pole Info	
OD:	26.24 in
t:	0.2500 in
Pole A_G:	20.92 in^2
Pole I_G:	1,804.5 in^4

Equivalent Loads to Pole	
Axial:	7.8 k
Moment:	290.0 k·ft
Shear:	14.8 k
Torsion:	6.7 k·ft

Controlling	
Angle:	**278.25°**
I_G:	2,068.1 in^4
A_G:	30.92 in^2

Shear Flow	
Controlling Mod:	15
q:	0.471 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	76.39 in
Stitch:	27.00 in
Capacity:	**35.3%**

Minimum	
Angle:	**93.85°**
I_{MIN}:	2,060.6 in^4
t_{EFF}:	0.2867 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	**y_{CONT} (in)**	**I (in^4)**	**σ_A (ksi)**	**σ_B (ksi)**	**σ_V (ksi)**	**σ_T (ksi)**	**ϕF_A (ksi)**	**ϕF_B (ksi)**	**ϕF_V (ksi)**	**ϕF_T (ksi)**	**Capacity**
278.25	15.45	2068.1	0.371	29.781	0.705	0.298	64.837	64.837	32.418	64.837	**46.6%**

MODIFICATION CAPACITIES											
Mod Number	**#**	**Angle (°)**	**$\bar{y}_{CONT}$ (in)**	**I (in^4)**	**σ_A (ksi)**	**σ_B (ksi)**	**σ_V (ksi)**	**ϕF_A (ksi)**	**ϕF_B (ksi)**	**ϕF_V (ksi)**	**Capacity**
14	1	**47.50**	11.79	2738.7	0.371	17.163	0.705	41.614	39.375	29.250	**42.7%**
15a	1	**140.75**	11.89	2750.4	0.371	17.242	0.705	41.614	39.375	29.250	**42.9%**

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Elevation: 99.25-ft

Loads	
Axial:	11.4 k
Moment:	326.9 k·ft
Shear:	21.8 k
Torsion:	6.7 k·ft

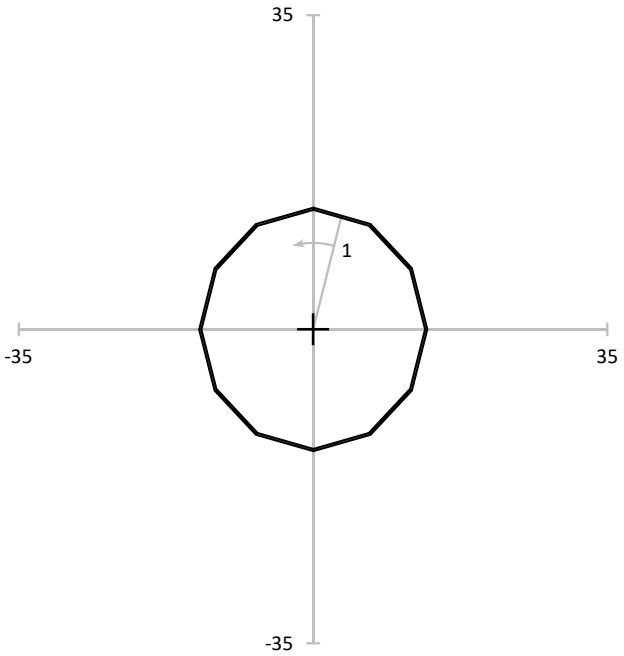
Equivalent Loads to Pole	
Axial:	11.4 k
Moment:	326.9 k·ft
Shear:	21.8 k
Torsion:	6.7 k·ft

Shear Flow N/A

Pole Info	
OD:	26.19 in
t:	0.2500 in
Pole A_G:	20.88 in^2
Pole I_G:	1,794.0 in^4

Controlling	
Angle:	**15.00°**
I_G:	1,794.0 in^4
A_G:	20.88 in^2

Minimum	
Angle:	**0.00°**
I_{MIN}:	1,794.0 in^4
t_{EFF}:	0.2500 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY											
Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
15.00	13.57	1794.0	0.547	29.665	1.042	0.300	64.884	64.884	32.442	64.884	**46.7%**

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity

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TOWER ENGINEERING PROFESSIONALS

Capacity: 67.1% PASS

528 Wheelers Farm Rd (BU 876320)
TEP #: 25570.121960
Analysis: TLI 6/22/2017
Check: TML 6/22/2017

Custom Anchor Rod Capacity Check_v1.0.1

Factored Tower Base Reactions

	LC1	LC2	
Moment:	4,042.0	1,020.0	kip-ft
Axial (Download):	57.0	105.0	kip
Shear:	46.0	11.0	kip
Axial (Uplift):			kip

Load Centroid

X:	0.00	in
Y:	0.00	in

Code Revision
(•) TIA-222-G
( ) TIA-222-F

Pole/Base Plate Geometry

Pole Shape:	12	
Pole OD:	45.120	in
Pole Thickness:	0.375	in
Plate Shape:	Square	
Plate Width:	57.00	in
Plate Thickness:	3.25	in
Clip:	6.00	in

Anchor Size	A_{NET} (in^2)	F_Y (ksi)	F_U (ksi)	Config.	T/C	Qty.	Bolt Circle (in)	Spacing (in)	l_{ar} (in)	Bolt One Angle (Round) or Locations (Custom) (°)
2-1/4"	3.248	75.0	100.0	Quad	T/C	16	58.000	6.00	1.000	
R71 150ksi 1-3/8"	1.580	100.0	150.0	Custom	T/C	8	58.000		1.000	8 82 98 172 188 262 278 352

Bolt Group	A_{NET} (in^2)	Y_{CONT} (in)	T_U (k)	C_U (k)	M_U (k-ft)	V_U (k)	ϕR_{NT} (k)	ϕR_{NM} (k-ft)	ϕR_{NV} (k)	Orientation (°)	Capacity (%)
1	**3.248**	**-28.996**	**161.77**	**166.55**	**0.27**	**3.95**	**259.81**	**7.88**	**134.19**	**140.0**	**67.1%**
2	1.580	-28.996	77.77	80.09	0.06	0.92	189.60	3.57	97.07	171.0	43.0%

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Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876320*
Site Name: *528 Wheelers Farm Rd*
App #: *394482 Rev. 1*

Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	3219.97	ft-kips
Factored Axial, Pu:	0	kips
Factored Shear, Vu:	0	kips

Anchor Rod Data		
Eta Factor, η	0.55	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	58	in
Anchor Spacing:	6	in

Anchor Rod Results
TIA G --> Max Rod (Cu+ Vu/η): 166.6 Kips

Plate Data		
W=Side:	57	in
Thick:	3.25	in
Grade:	50	ksi
Clip Distance:	6	in

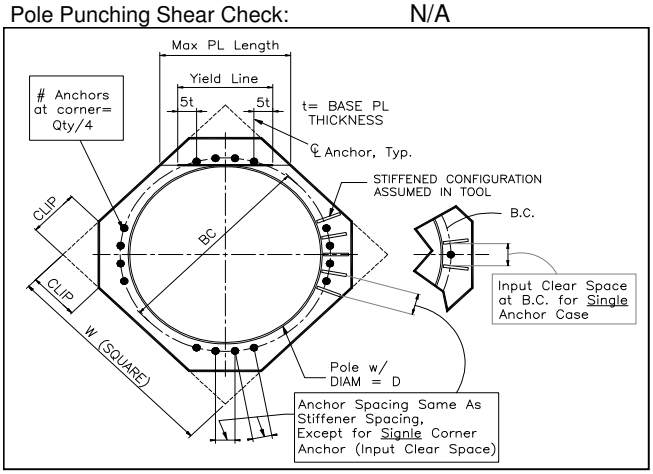
Base Plate Results Flexural Check
Base Plate Stress: 39.3 ksi
PL Design Bending Strength, Φ*Fy: 45.0 ksi
Base Plate Stress Ratio: 87.3% **Pass**

PL Ref. Data
Yield Line (in):
35.49
Max PL Length:
35.49

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

N/A - Unstiffened
Stiffener Results
Horizontal Weld : N/A
Vertical Weld: N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2: N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2: N/A
Plate Comp. (AISC Bracket): N/A
Pole Results
Pole Punching Shear Check: N/A

Pole Data		
Diam:	45.12	in
Thick:	0.375	in
Grade:	60	ksi
# of Sides:	12	"0" IF Round



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

		PASS	PASS			
	Results Summary:	LC1	LC2	528 Wheelers Farm Rd (BU 876320)		
	Soil Interaction:	64.8%	16.2%	TEP #:	25570.121960	
Drilled Caisson Tool - Input	Foundation Structural:	57.0%	14.1%	Analysis:	TLI	6/22/2017
				Check:	TML	6/22/2017

Code Revisions: TIA-222-G ACI 318-11

Tower Type: Monopole

	LC1	LC2	
Moment:	4,042.00	1,020.00	kip-ft
Axial (download):	57.00	105.00	kip
Shear:	46.00	11.00	kip
Axial (uplift):			kip

Shaft Information		
Diameter:	7.00	ft
Projection:	0.50	ft
Caisson Length:	19.50	ft
f'c:	3.000	ksi
Max εc:	0.003	in/in

Cage 1 Reinforcement

Tie Bar Size:	5	*(fy = 40.0 ksi)*
Clear Cover to Tie:	4.00	*in (Cage Ø = 73.34in)*
Tie Bar Spacing:	18.00	in
Vertical Bar Size:	11	
Vertical Bar Quantity:	32	*(ρ =0.901%)*
fy:	60.0	ksi
E:	29,000	ksi

Design Parameters								
Soil Layer	Soil Type	Depth (ft)		Eff. Unit Weight (pcf)	Cohesion (psf)	Friction Angle ϕ (°)	All. Skin Friction (psf)	
		from	to				Download	Uplift
1	Clay	0.00	2.00	100.0	0			
2	Clay	2.00	3.50	135.0	0			
3	Sand	3.50	7.00	135.0		42.0		
4	Sand	7.00	13.50	72.6		42.0		
5	Clay	13.50	22.00	77.6	8000			

Notes: 1) Neglect lateral soil strength to a depth of:

i) **1/2 Pier Ø = 7.00ft / 2 = 3.50ft**

ii) ~~Frost Depth = 40.0in / (12in/ft) = 3.33ft~~

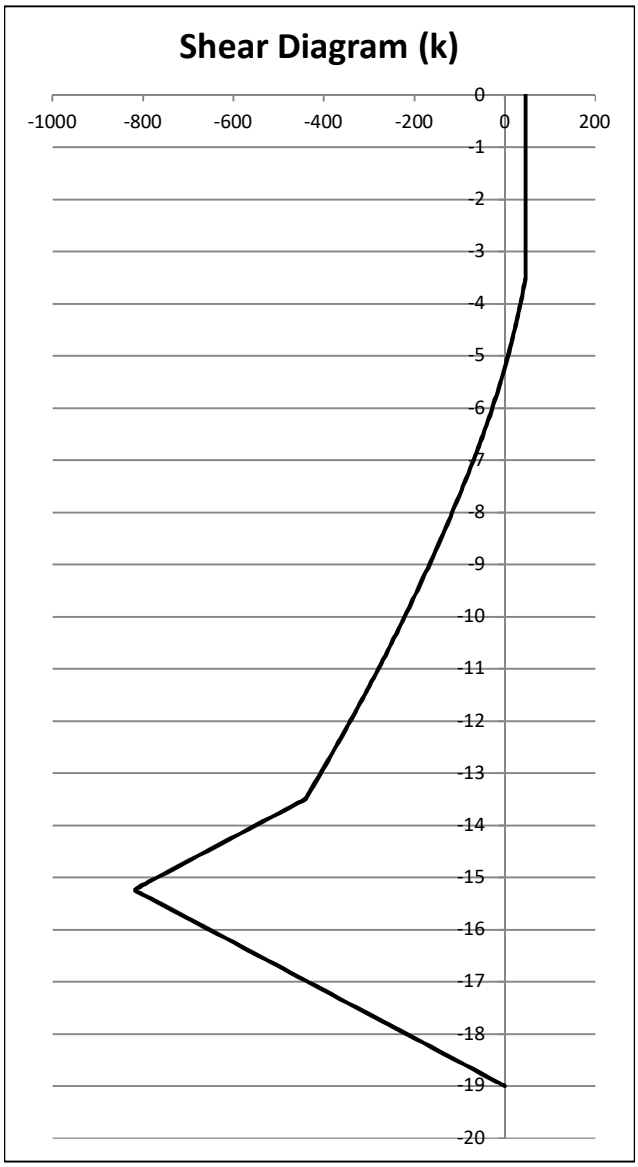
iii) ~~Geotech Recommendation = none~~

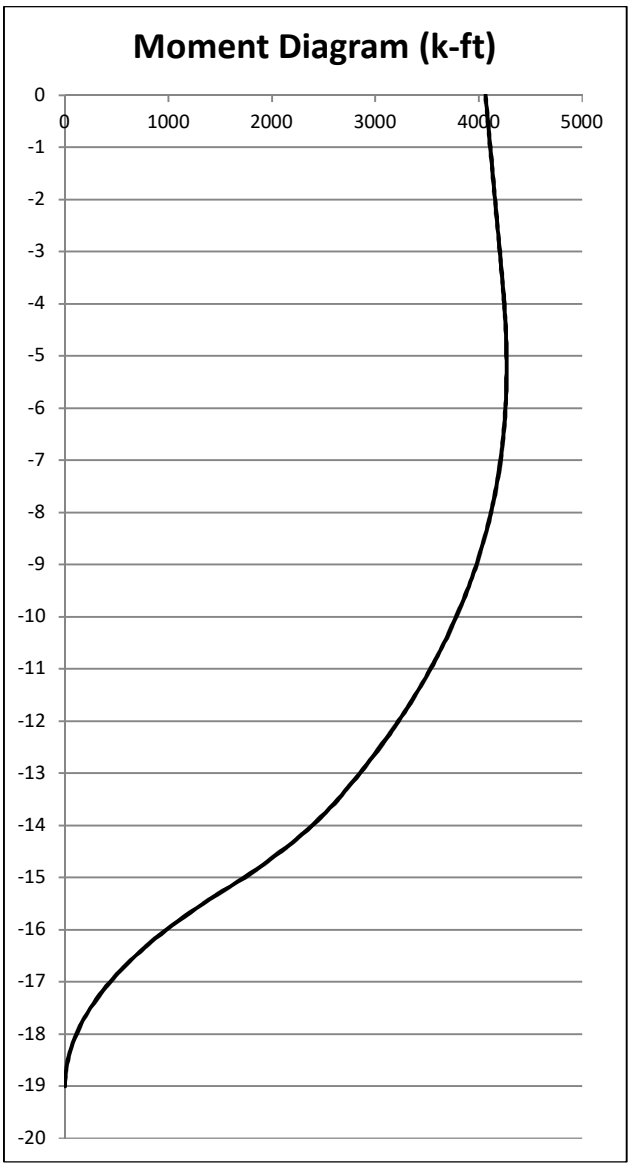
2) Groundwater = 7.00ft

TOWER ENGINEERING PROFESSIONALS

528 Wheelers Farm Rd (BU 876320)
TEP #: 25570.121960
Analysis: TLI 6/22/2017
Check: TML 6/22/2017

Soil Interaction: LC1



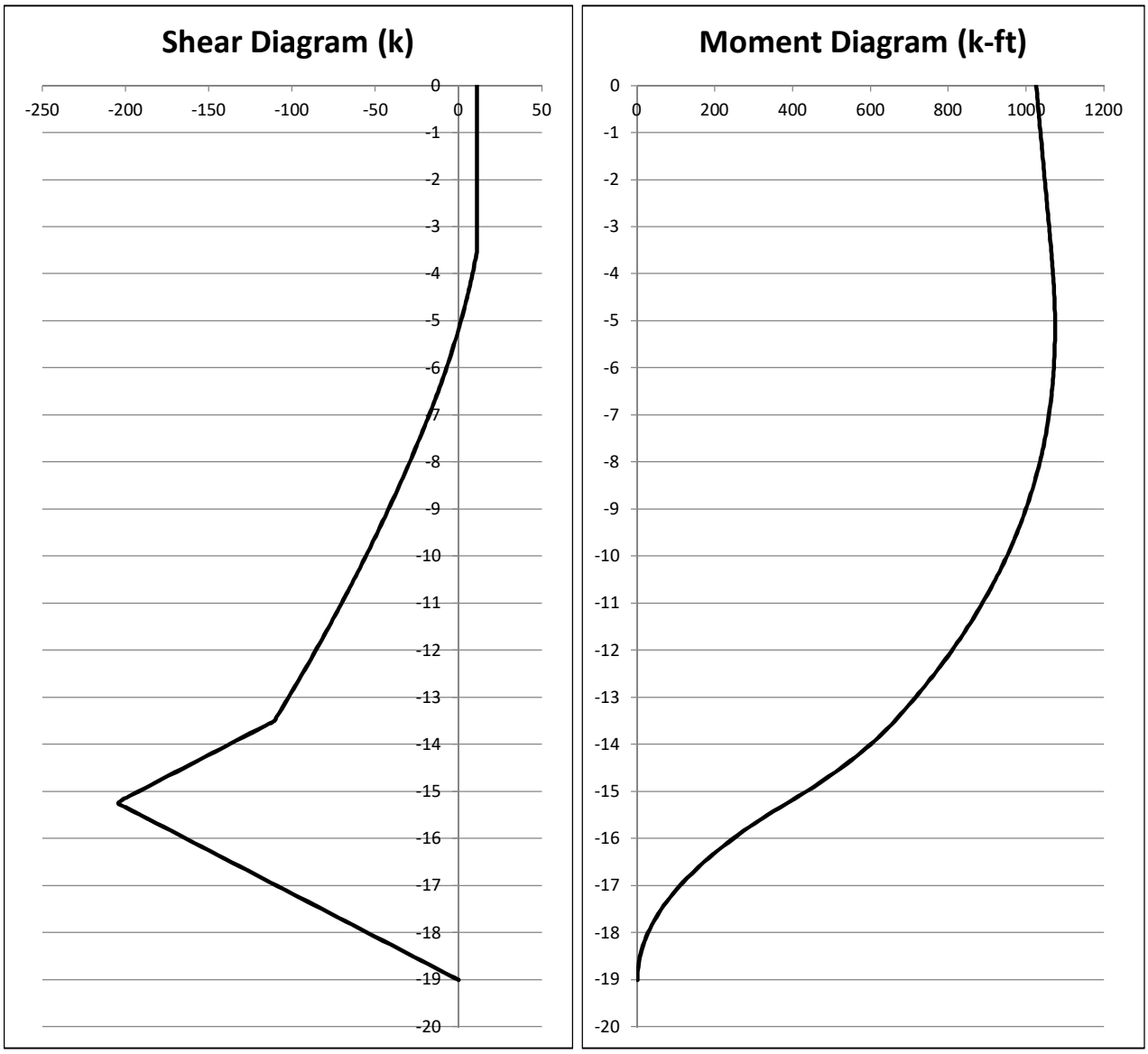


Max Unfactored Moment: **4268.6** **kip-ft**
@ **5.22** **ft below grade**
Additional Factor of Safety: **2.06**
Capacity = **64.8%** **PASS**

TOWER ENGINEERING PROFESSIONALS

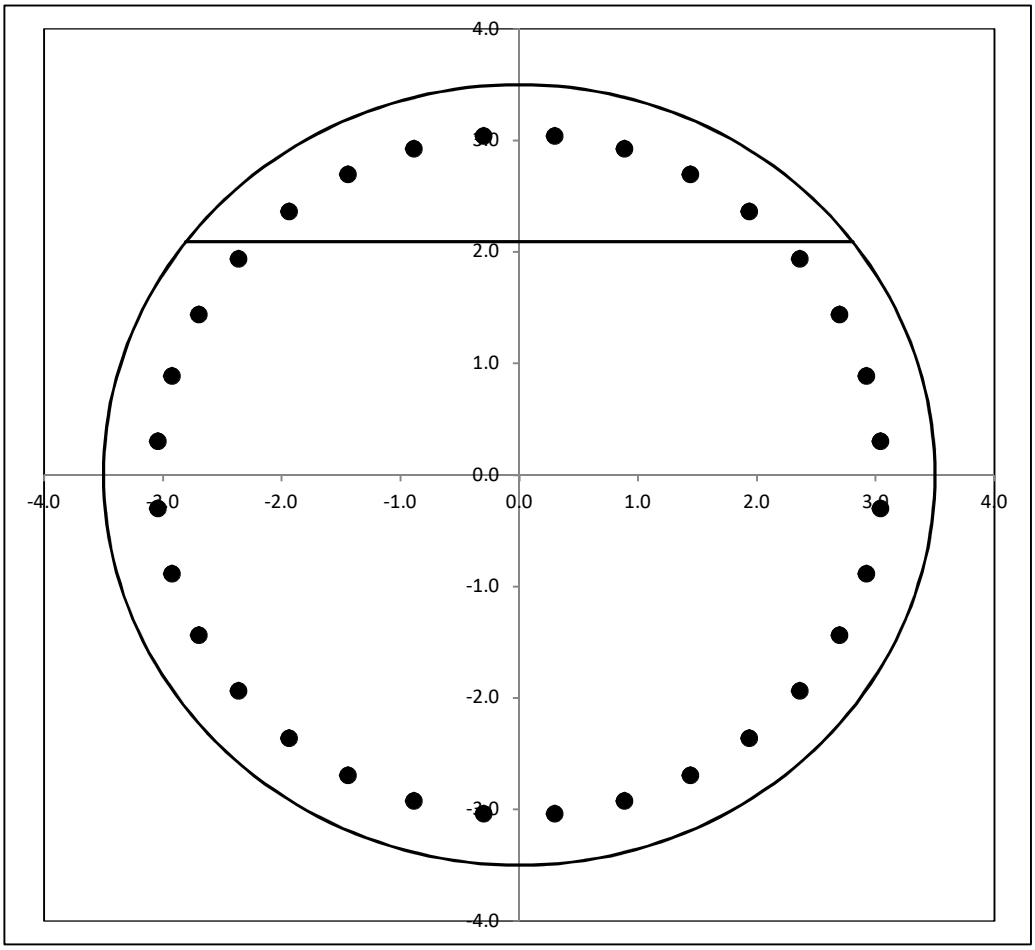
528 Wheelers Farm Rd (BU 876320)
TEP #: 25570.121960
Analysis: TLI 6/22/2017
Check: TML 6/22/2017

Soil Interaction: LC2



Max Unfactored Moment: **1073.8** **kip-ft**
@ **5.16** **ft below grade**
Additional Factor of Safety: **8.21**
Capacity = **16.2%** **PASS**

Reinforcement Capacity



		LC1	LC2	
	Vu =	819.7	205.5	kip
	Vc =	610.2	612.8	kip
fy,tie = 40.0	*Vs =	3991.4	3991.4	kip
	ϕVn =	2993.5	2993.5	kip
	Capacity =	27.4%	6.9%	
		PASS	PASS	

Shear Friction Reinforcement:
*No. vertical bars = 32
*Area of bars = 47.5

	LC1	LC2	
Mu =	4268.6	1073.8	kip-ft
ϕMn =	7490.3	7597.3	kip-ft
Capacity =	57.0%	14.1%	
	PASS	PASS	

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

SPRINT Existing Facility

Site ID: CT03XC038

528 Wheelers Farm Road
528 Wheelers Farm Road
Milford, CT 06460

July 28, 2017

EBI Project Number: 6217003226

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	16.53 %

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

EBI Consulting
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July 28, 2017

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

Emissions Analysis for Site: **CT03XC038 – 528 Wheelers Farm Road**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **528 Wheelers Farm Road, Milford, 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.

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **528 Wheelers Farm Road, Milford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

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

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

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

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

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

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20 and RFS APXVTM14-C-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **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.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 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	10	Channel Count	10	Channel Count	10
Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**2.36 %**	Antenna B1 MPE%	**2.36 %**	Antenna C1 MPE%	**2.36 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-C-I20	Make / Model:	RFS APXVTM14-C-I20	Make / Model:	RFS APXVTM14-C-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	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**1.72 %**	Antenna B2 MPE%	**1.72 %**	Antenna C2 MPE%	**1.72 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**4.08 %**
AT&T	2.29 %
XM Satellite Radio	0.20 %
Clearwire	0.15 %
T-Mobile	3.95 %
Metricom	0.67 %
Verizon Wireless	5.19 %
Site Total MPE %:	**16.53 %**

SPRINT Sector A Total:	4.08 %
SPRINT Sector B Total:	4.08 %
SPRINT Sector C Total:	4.08 %
Site Total:	16.53 %

SPRINT _ Max Values per Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	120	1.21	850 MHz	567	0.21%
Sprint 850 MHz LTE	2	437.55	120	2.42	850 MHz	567	0.43%
Sprint 1900 MHz (PCS) CDMA	5	622.47	120	8.61	1900 MHz (PCS)	1000	0.86%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	120	8.61	1900 MHz (PCS)	1000	0.86%
Sprint 2500 MHz (BRS) LTE	8	778.09	120	17.22	2500 MHz (BRS)	1000	1.72%
						Total:	**4.08%**

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:	4.08 %
Sector B:	4.08 %
Sector C:	4.08 %
SPRINT Maximum Total (per sector):	4.08 %
Site Total:	16.53 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **16.53 %** 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.