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

June 8, 2018

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

RE: **Notice of Exempt Modification for Sprint Crown Site BU: 876360**
Sprint Site ID: CT23XC411
389 Route 2, Preston, New LondonCounty, CT 06365
Latitude: 41° 29′ 25.25″/ **Longitude:** -71° 59′ 29.55″

Dear Ms. Bachman:

Sprint currently maintains (6) antennas at the 147-foot level of the existing 147-foot monopole at 389 Route 2, Preston, Connecticut 06365. The tower is owned by Crown Castle and the property is owned by The Town of Preston. Sprint intends to install (6) antennas in place of (6) antennas that will be removed, add (12) RRHs, add (4) lines, remove (6) coax, and swap the current antenna platform mount for a new mount with handrail kit.

The Connecticut Siting Council's Telecommunications Database provides the Council approved tower sharing at an existing telecommunications facility located at 389 Route 2, Preston, Connecticut pursuant to TS-VER-114-001117. This only speaks to tower sharing and not the approval of the original tower. A diligent search of available records was not fruitful for obtaining a copy of the original tower approval.

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 Robert Congdon, First Selectman for the Town of Preston, 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: Anne Marie Zsamba.

Sincerely,

Anne Marie Zsamba, Esq.
Real Estate Specialist
3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065
(518) 350-3639
annemarie.zsamba.contractor@crowncastle.com

Attachments:

Tab A: Exhibit-1: Compound Plan and Elevation Depicting the Planned Changes
Tab B: Exhibit-2: Structural Modification Report
Tab C: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: The Honorable Robert Congdon, First Selectman
Town of Preston
389 Route 2
Preston, CT 06365
(860) 887-5581 ext. 105

Town of Preston
Town Hall
389 Route 2
Preston, CT 06365
(860) 887-5581

Town of Preston
Property Listing Report

Parcel ID 24-0-2-389

Account 00173000

Property Information

Owner	PRESTON TOWN OF
Address	389 ROUTE 2
Mailing Address	389 ROUTE 2 PRESTON , CT 06365
Land Use	9035 - MUN TOWN MDL-96
Land Class	E

Census Tract	7001
Neighborhood	8000
Zoning	R-C
Acreage	25.86
Utilities	Well,Septic
Lot Setting/ Desc	Rural / Low

Photo

No Photo Available

PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	475000	332500
Outbuildings	12900	9100
Improvements	496700	347800
Extras	8800	6200
Land	448350	313800
Total	945050	661600
Previous		

Construction Details

Year Built	1974
Stories	1
Building Style	City/Town Hall
Building Use	Comm/Ind
Building Condition	Average
Total Rooms	
Bedrooms	
Full Bathrooms	3
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Gable/Hip
Roof Cover	Asph/F Gls/Cmp

EXTERIOR WALLS:	
Primary	Brick/Masonry
Secondary	
INTERIOR WALLS:	
Primary	Drywall/Sheet
Secondary	
FLOORS:	
Primary	Inlaid Sht Gds
Secondary	
HEATING/AC:	
Heating Type	Electr Basebrd
Heating Fuel	Electric
AC Type	None

BUILDING AREA:

Effective Building Area	
Gross Building Area	7056
Total Living Area	5292

SALES HISTORY:

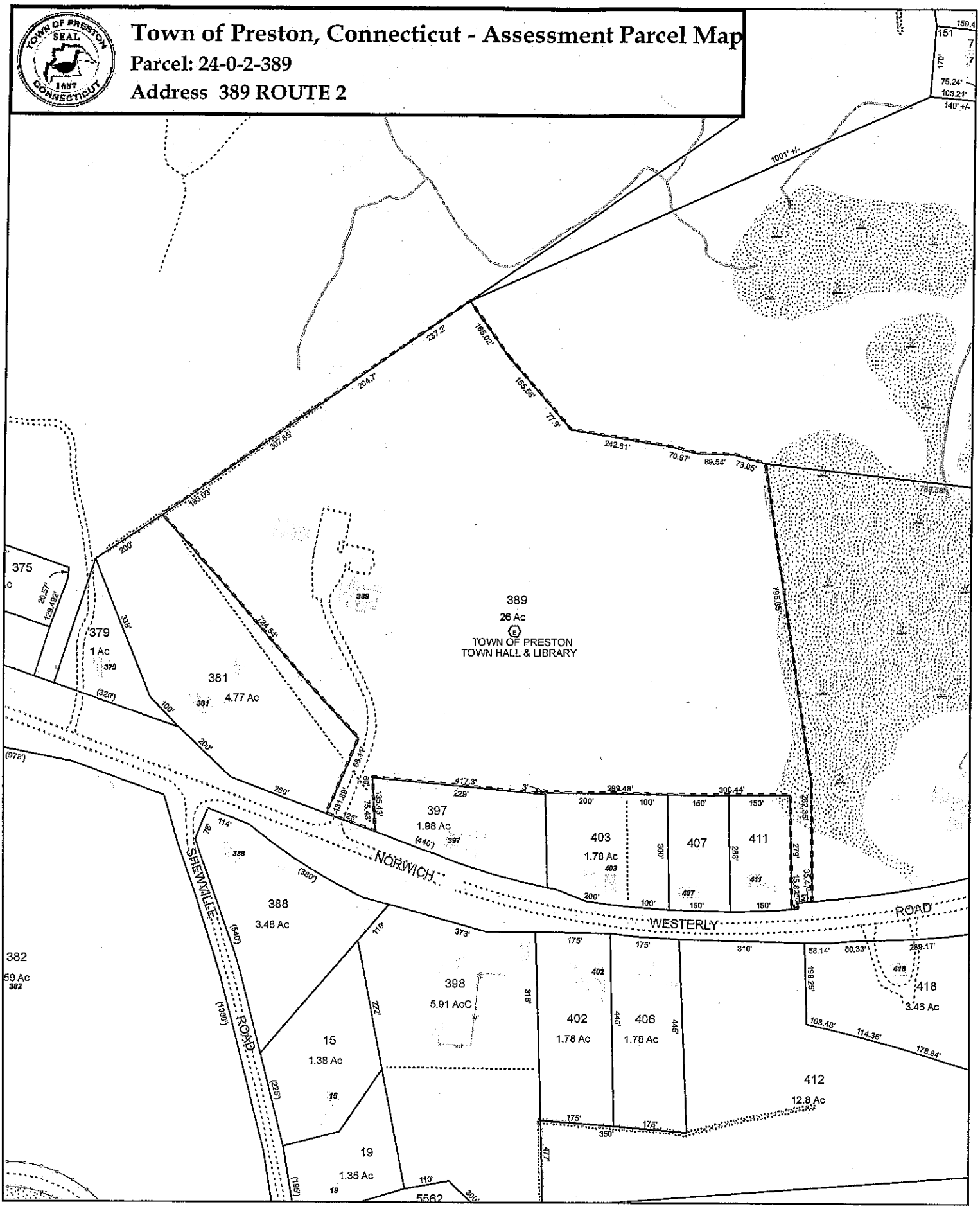
Sale Date	9/26/1973
Sale Price	17500
Book/ Page	56/ 174

Report Created On 6/6/2018

Town of Preston, Connecticut - Assessment Parcel Map

Parcel: 24-0-2-389

Address 389 ROUTE 2



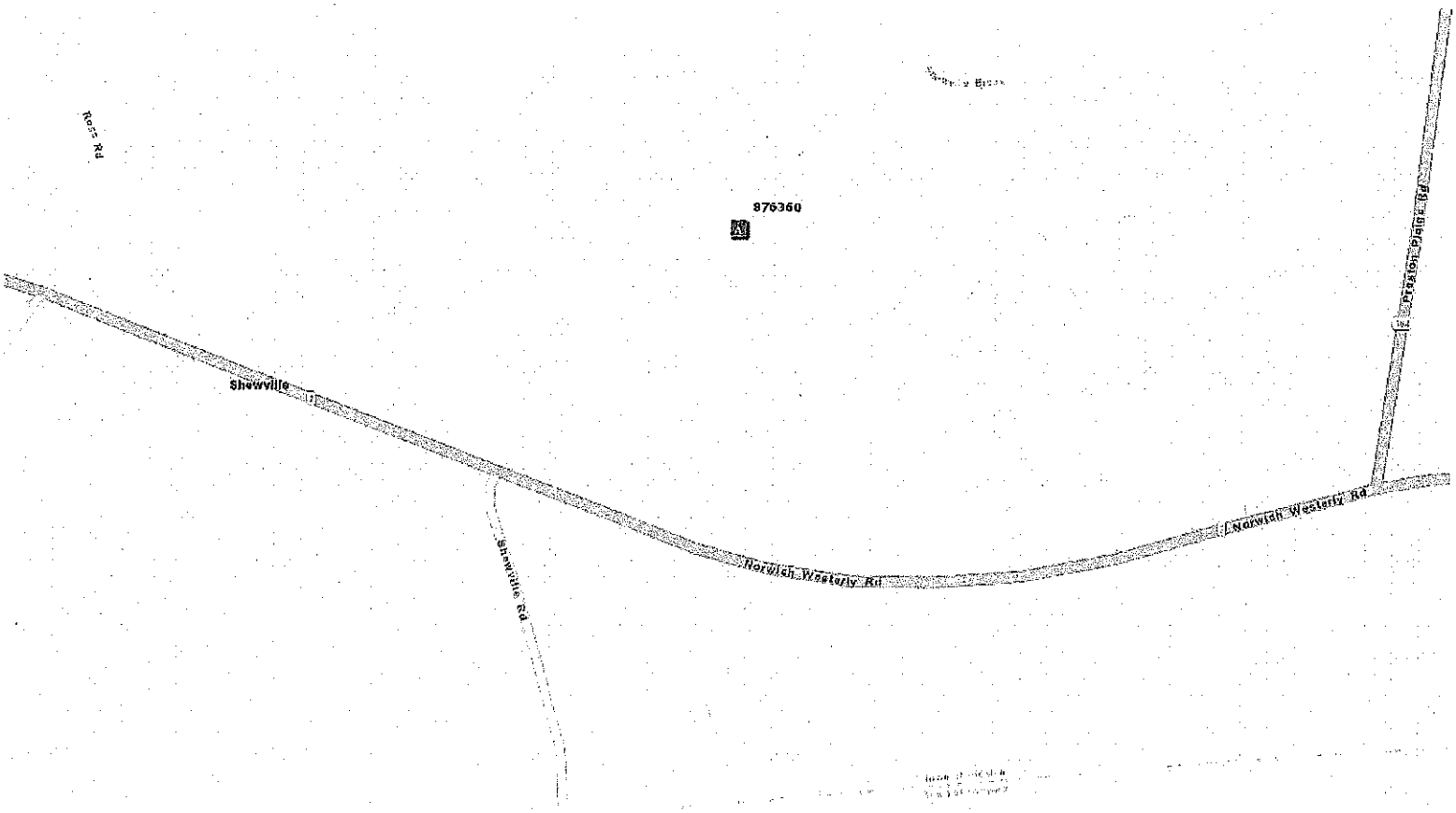
Approximate Scale: **1:3,600**

0 62.5125 250 375 500

Feet

Map Produced: November 2016

Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Preston and its mapping contractors assume no legal responsibility for the information contained herein.


Ross Rd
876360
Preston Plains Rd
Shewville
Norwich Westerly Rd
Norwich Westerly Rd
Shewville Rd

Sprint

CROWN CASTLE

PROJECT:	DO MACRO UPGRADE
SITE NAME:	PRESTON / TOWN HALL
SITE CASCADE:	CT23XC411
SITE NUMBER:	876360
SITE ADDRESS:	389 RT 2 PRESTON, CT 06365
SITE TYPE:	MONOPOLE
MARKET:	N. ENGLAND

SITE INFORMATION

PROPERTY OWNER:
CROWN ATLANTIC COMPANY, LLC
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
(704) 405-6555

LATITUDE (NAD83):
N 41° 29' 25.26"
41.490347

LONGITUDE (NAD83):
W 71° 59' 29.55"
-71.991542

COUNTY:
NEW LONDON

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

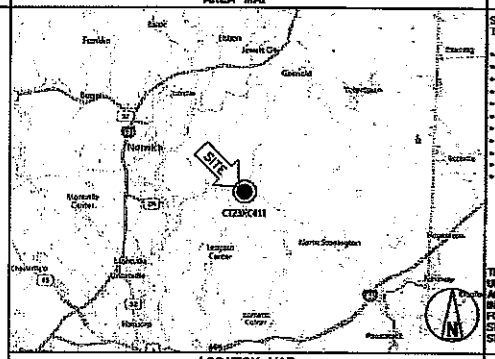
ZONING DISTRICT:
MUNICIPAL

POWER COMPANY:
NORTHEAST UTILITIES
800-286-2000

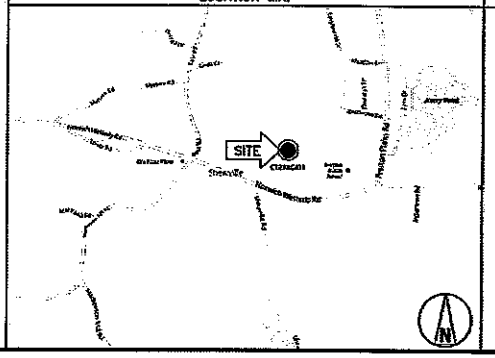
SPRINT CONSTRUCTION:
TBD

CROWN PM:
SCOTT WATROBSKI
(201) 236-9228

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. M8ES CABINET
- REMOVE (6) DECIBEL DB978H90T2E-M PANEL ANTENNAS
- INSTALL (3) RFS APXVSPP18-C-A20 PANEL ANTENNAS
- INSTALL (3) COMMSCOPE DT465B-2XR PANEL ANTENNAS
- INSTALL (3) ALU 4x45W-65MHz 1900 RRHs ON TOWER
- INSTALL (6) ALU 2x50-800 RRHs ON TOWER
- INSTALL (3) ALU TD-RRH8x20-2500 RRHs ON TOWER
- INSTALL (4) HYBRID CABLES
- REMOVE (6) COAX
- REMOVE EXISTING ANTENNA PLATFORM MOUNT
- INSTALL NEW ANTENNA PLATFORM MOUNT W/ HANDRAIL KIT

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 STRUCTURE AND MOUNT.

APPLICABLE CODES

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

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. LOCAL BUILDING CODE
7. 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	1
SP-1	SPRINT SPECIFICATIONS	1
SP-2	SPRINT SPECIFICATIONS	1
SP-3	SPRINT SPECIFICATIONS	1
A-1	SITE PLAN	1
A-2	TOWER ELEVATION & CABLE PLAN	1
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	1
A-4	EQUIPMENT & MOUNTING DETAILS	1
A-5	CIVIL DETAILS	1
A-6	PLUMBING DIAGRAM	1
E-1	ELECTRICAL & GROUNDING PLAN	1
E-2	ELECTRICAL & GROUNDING DETAILS	1

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

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER: 838-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
LICENSED PROFESSIONAL ENGINEER
JUNE 6, 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	06/06/18	RNF	1
ISSUED FOR CONSTRUCTION	05/30/18	RNF	0

SITE NAME:
PRESTON / TOWN HALL

SITE CASCADE:
CT23XC411

SITE ADDRESS:
389 RT 2
PRESTON, CT 06365

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, EI-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

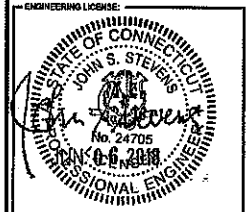
PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 528-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:



DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	06/06/16	RBF	1
ISSUED FOR CONSTRUCTION	05/10/16	RBF	0

SITE NAME:

PRESTON / TOWN HALL

SITE CASCADE:

CT23XC411

SITE ADDRESS:

389 RT 2
PRESTON, CT 06365

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 UPLOADED 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 CURRENT VERSION OF SPRINT'S TS-0200 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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Sprint
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Overland Park, Kansas 66251

PLANS PREPARED BY:

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MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	06/05/18	RHF	1
ISSUED FOR CONSTRUCTION	05/10/18	RHF	0

SITE NAME:

PRESTON / TOWN HALL

SITE GASCADE:

CT23XC411

SITE ADDRESS:

389 RT 2
PRESTON, CT 06365

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 COMPLEETED 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. ISHELTER 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.

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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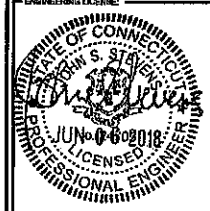
MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:



DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	06/08/18	RMF	1
ISSUED FOR CONSTRUCTION	05/10/18	RMF	0

SITE NAME:

PRESTON / TOWN HALL

SITE CASCADE:

CT23XC411

SITE ADDRESS:

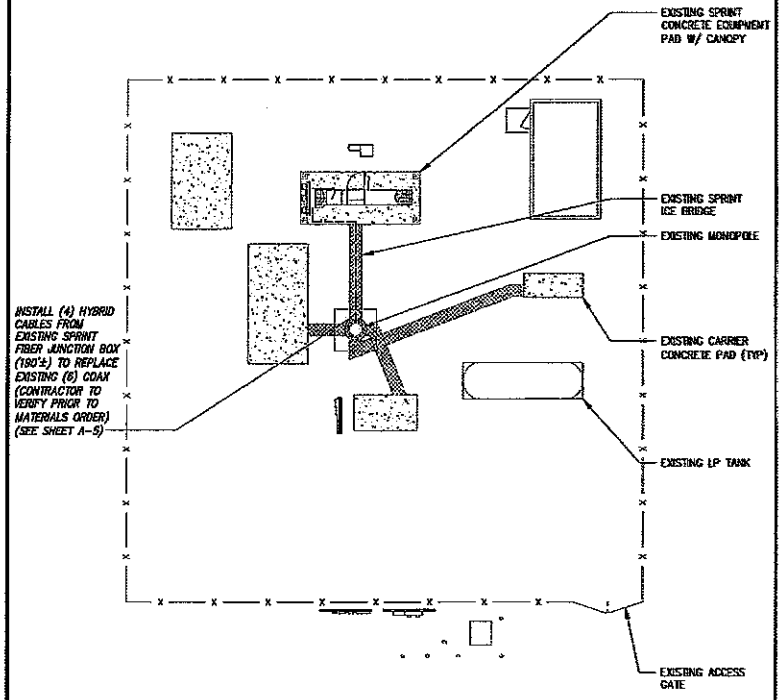
389 RT 2
PRESTON, CT 06365

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3

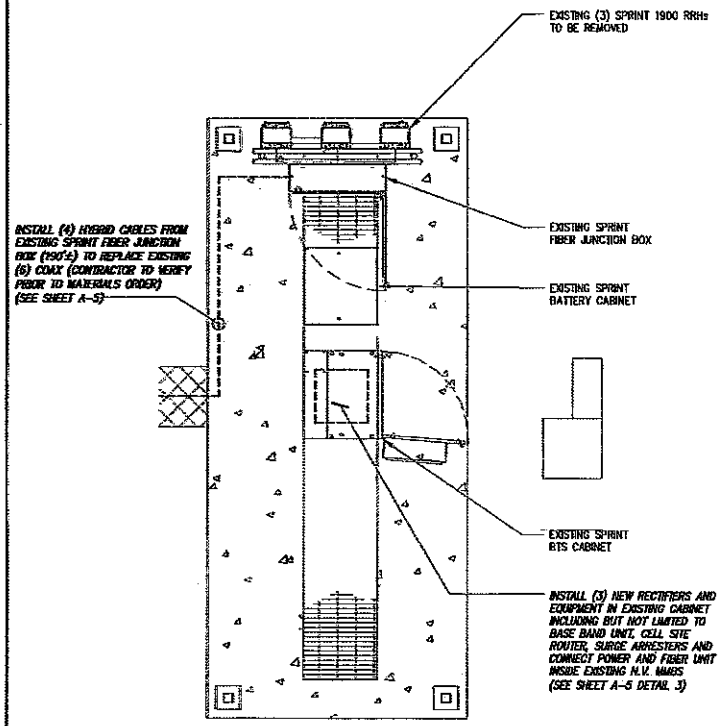


INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

SCALE: 22"x34" SHEET 1" = 5'-0" SCALE: 11"x17" SHEET 1" = 10'-0"

2.5' 0 2.5' 5' 10' (IN FEET)

OVERALL SITE PLAN | SCALE: AS NOTED | 1



NOTE:
NO LIQUID TIGHT FLEXIBLE METALLIC CONDUIT IS TO EXCEED 6 FEET PER 54-2 SECTION 26 200 ITEM E.

SCALE: 22"x34" SHEET 1" = 2'-0" SCALE: 11"x17" SHEET 1" = 4'-0"

1' 0 1' 2' 4' (IN FEET)

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

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www.infinigy.com
JOB NUMBER: 826-401

MLA PARTNERS:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT JOHN S. STEVENS No. 24795 REGISTERED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	05/05/16	BNF	1
ISSUED FOR CONSTRUCTION	05/10/16	BNF	0

SITE NAME:

PRESTON / TOWN HALL

SITE CASCADE:

CT23XC411

SITE ADDRESS:

389 RT 2
PRESTON, CT 06365

SHEET DESCRIPTION:

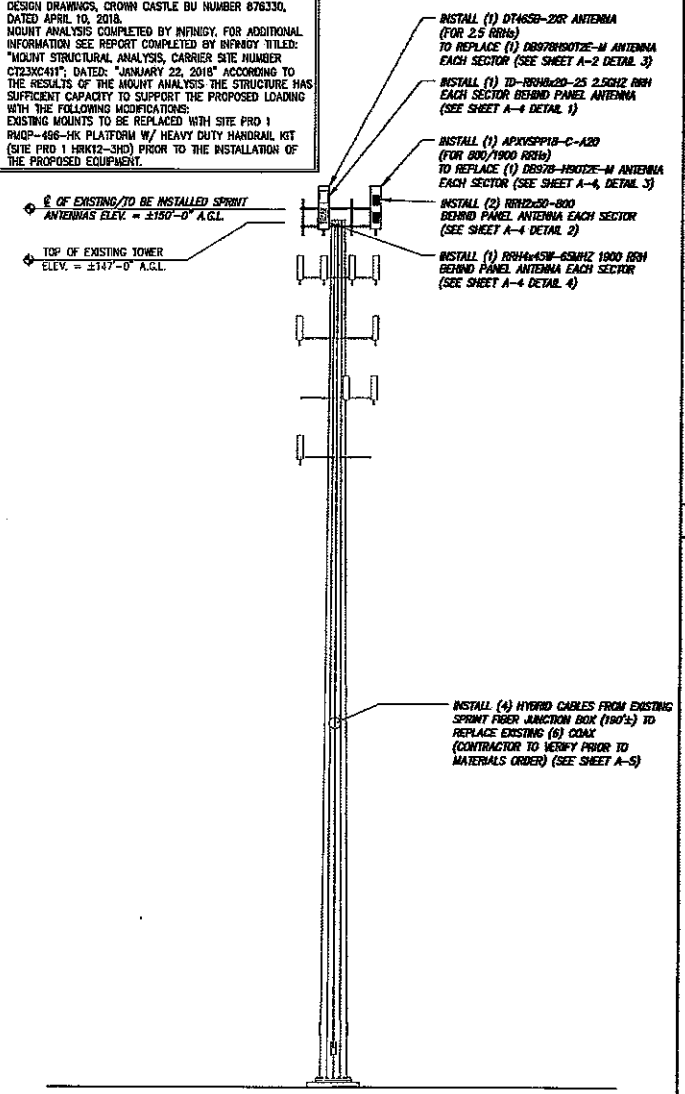
SITE PLAN

SHEET NUMBER:

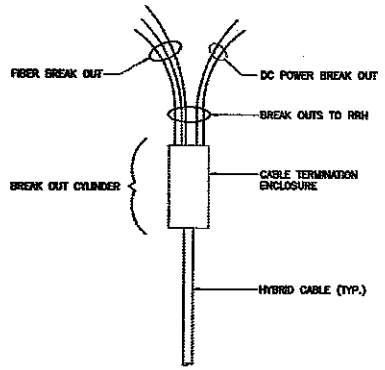
A-1

NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY TOWER ENGINEERING PROFESSIONALS DATED APRIL 10, 2018, ACCORDING TO THE RESULTS OF THE STRUCTURAL ANALYSIS, THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING WITH MODIFICATIONS SHOWN ON STRUCTURAL DESIGN DRAWINGS, CROWN CASTLE BU NUMBER 876330, DATED APRIL 10, 2018.
- MOUNT ANALYSIS COMPLETED BY INFINIGY, FOR ADDITIONAL INFORMATION SEE REPORT COMPLETED BY INFINIGY TITLED: "MOUNT STRUCTURAL ANALYSIS, CARRIER SITE NUMBER CT23XC411"; DATED: "JANUARY 22, 2018" ACCORDING TO THE RESULTS OF THE MOUNT ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING WITH THE FOLLOWING MODIFICATIONS:
- EXISTING MOUNTS TO BE REPLACED WITH SITE PRO 1 RMQP-496-HK PLATFORM W/ HEAVY DUTY HANDRAIL KIT (SITE PRO 1 HRK12-3HD) PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT.

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



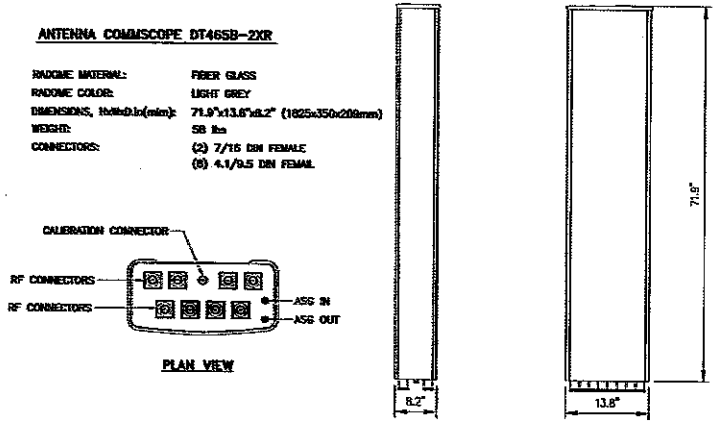
TOWER ELEVATION | NO SCALE | 1



HYBRID BREAK OUT DETAIL | NO SCALE | 2

ANTENNA COMMSCOPE DT465B-2XR

RADOME MATERIAL:	FIBER GLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mm):	71.9"x13.8"x8.2" (1825x350x208mm)
WEIGHT:	58 lbs
CONNECTORS:	(2) 7/16 DIN FEMALE (8) 4.1/9.5 DIN FEMALE



PLAN VIEW

SIDE VIEW

FRONT VIEW

2.5 ANTENNA | NO SCALE | 3

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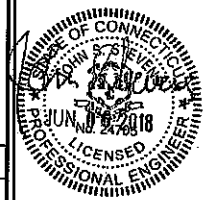
JOB NUMBER 336-133

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:


DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT COMMENTS	05/08/18	RHF	1
ISSUED FOR CONSTRUCTION	05/10/18	RHF	0

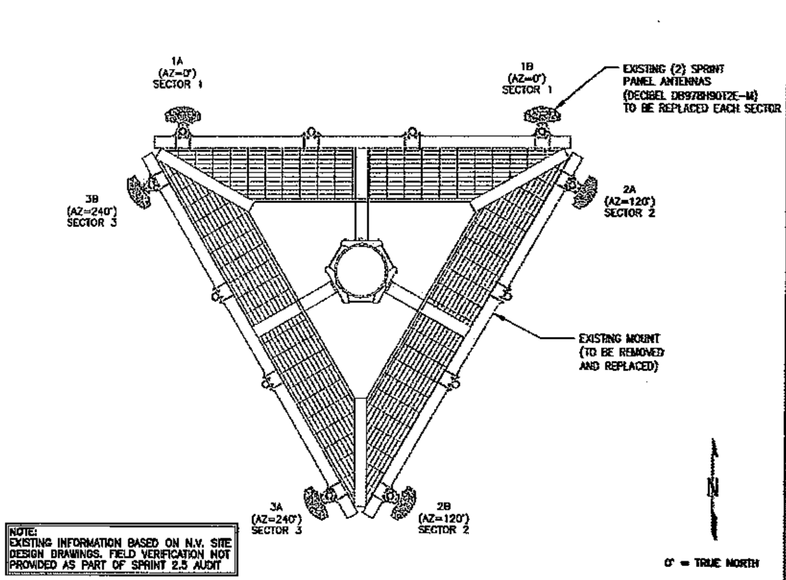
SITE NAME:
PRESTON / TOWN HALL

SITE CASCADE:
CT23XC411

SITE ADDRESS:
389 RT 2
PRESTON, CT 06365

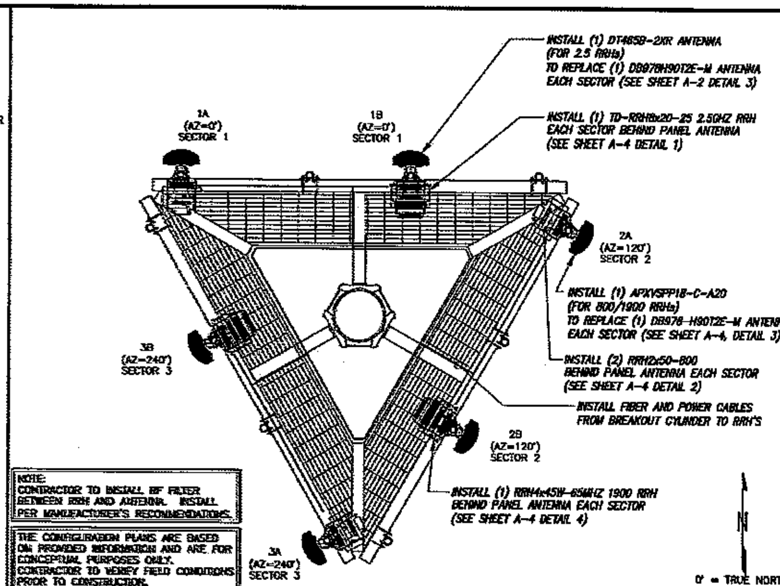
SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2



NOTE:
EXISTING INFORMATION BASED ON N.V. SITE DESIGN DRAWINGS. FIELD VERIFICATION NOT PROVIDED AS PART OF SPRINT 2.5 AUDIT

EXISTING ANTENNA & RRH LAYOUT | NO SCALE | 1



NOTE:
CONTRACTOR TO INSTALL RF FILTER BETWEEN RRH AND ANTENNA. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

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

FINAL ANTENNA & RRH LAYOUT | NO SCALE | 2

NOTES:

1. ALL ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA.

2. VERIFY AZIMUTH AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE.

3. NO OBJECT IS TO BE WITHIN 45 DEGREES OF BORE-SIGHT OF 2.5G OR ANY OTHER TOWER ANTENNA. IF NECESSARY, 2.5G ANTENNA CAN BE PLACED AT FAR EDGE OF HORIZONTAL ANTENNA MOUNT MEMBER FOR CLEAR LINE OF SITE OR EVEN ON ANOTHER SECTOR FOR CLEAR LINE OF SITE.

4. 2.5G ANTENNA MUST BE AT LEAST 6" FROM 1900MHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30MHZ FROM DUAL BAND 1900MHZ AND 800MHZ ANTENNA.

5. IF ANTENNAS ARE MOUNTED ON A FACE SURFACE SUCH AS A BUILDING WALL, PARAPET WALL, OR WATER TOWER WALL, THIS RFDS MUST BE ACCOMPANIED BY A SKETCH PROVIDED BY ITS ORIGINATING RF ENGINEER CALLING OUT THE EXACT LOCATION OF WHERE ANTENNA IS TO BE LOCATED. CONTACT SPRINT RF ENGINEER IF THE SKETCH IS MISSING.

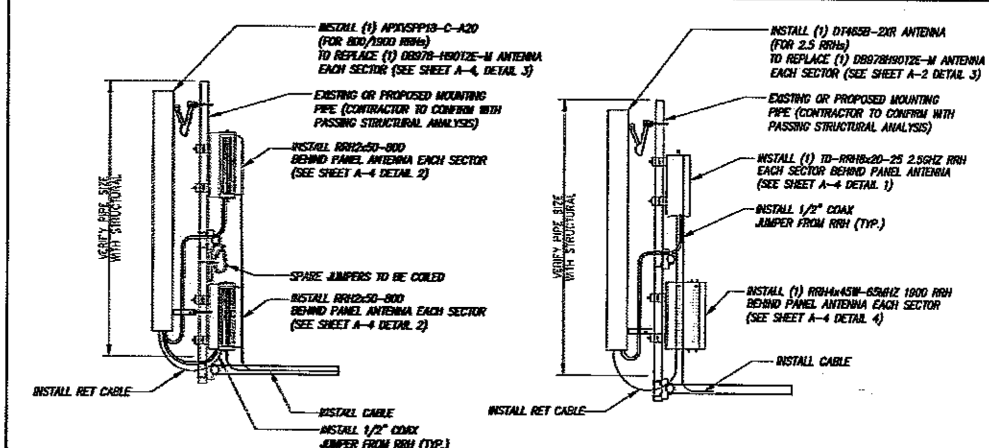
6. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5G ANTENNA AT SAME CL HEIGHT AS 1.9G ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILD DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900 MHZ AND 800 MHZ ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.

7. AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5G. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.

8. GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.

9. GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL. HTTP://WWW.3ZTELECOM.COM/ANTENNA-ALIGNMENT-TOOL/

NOTES | NO SCALE | 3



NOTES:

1. CUT DC CONDUCTORS TO LENGTH.

2. COIL FIBER CABLE AND SECURE AT SIDE OF RRH.

3. DO NO EXCEED BEND RADIUS.

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

NOTE:
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 RRH MOUNTING DETAILS.

TYPICAL ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 4

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REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	06/06/18	RMF	1
ISSUED FOR CONSTRUCTION	05/10/18	RMF	0

SITE NAME:
PRESTON / TOWN HALL

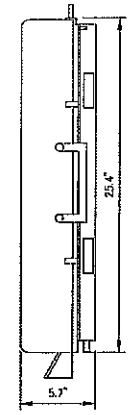
SITE CASCADE:
CT23XC411

SITE ADDRESS:
389 RT 2
PRESTON, CT 06365

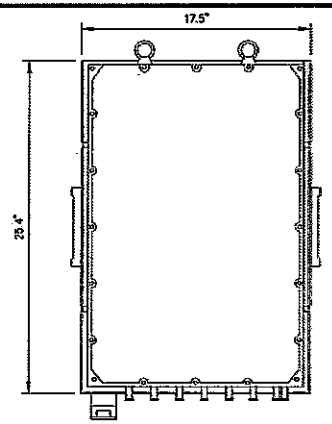
SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:
A-3

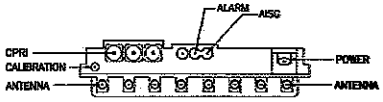
RRH: ALCATEL LUCENT TD-RRH8X20
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

NOTES

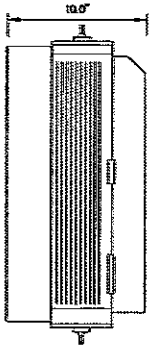
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.

2.5 GHZ RRH	NO SCALE	1

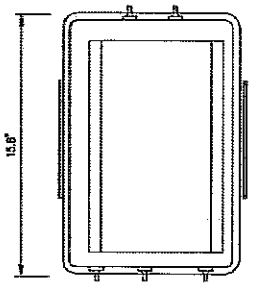
RRH: ALCATEL LUCENT RRH 800MHZ 2x50W
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

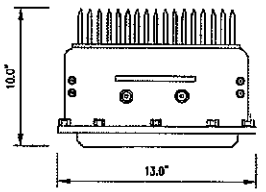
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW

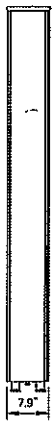


PLAN VIEW

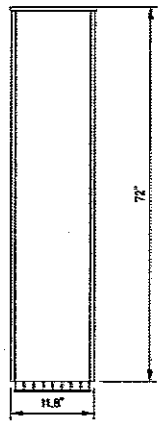
800 MHZ RRH	NO SCALE	2

ANTENNA RFS APXVSPP18-C-A20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD,in:	72"x11.8"x7.9"
WEIGHT:	57 lbs



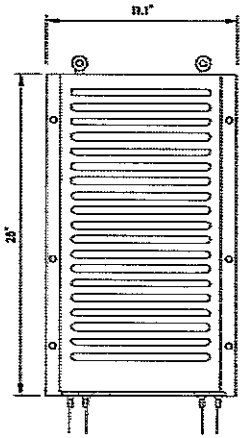
SIDE VIEW



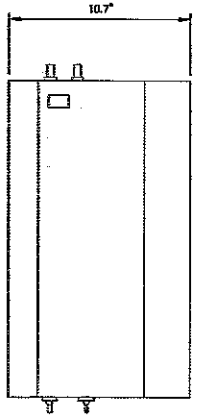
FRONT VIEW

800/1900 ANTENNA	NO SCALE	3

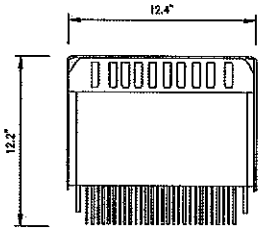
RRH: ALCATEL LUCENT 1900 MHz
COLOR: LIGHT GREY
WEIGHT: 60 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW



TOP VIEW

1900 MHZ RRH	NO SCALE	4

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MLA PARTNER:

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ENGINEERING LICENSE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	05/05/18	RW	1
ISSUED FOR CONSTRUCTION	04/10/18	RW	0

SITE NAME:

PRESTON / TOWN HALL

SITE CASCADE:

CT23XC411

SITE ADDRESS:

389 RT 2
PRESTON, CT 06365

SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-4

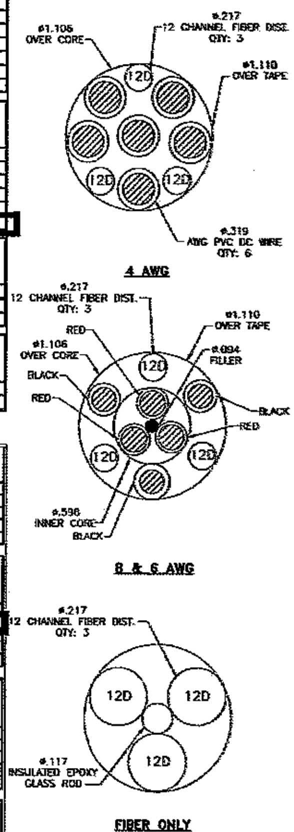
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

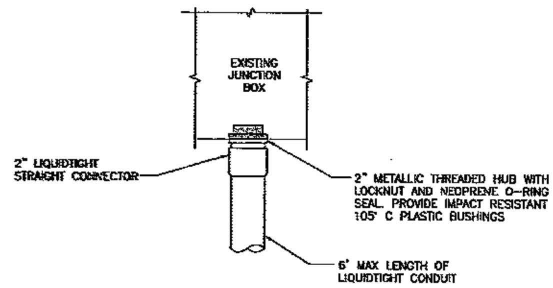
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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, 3x 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

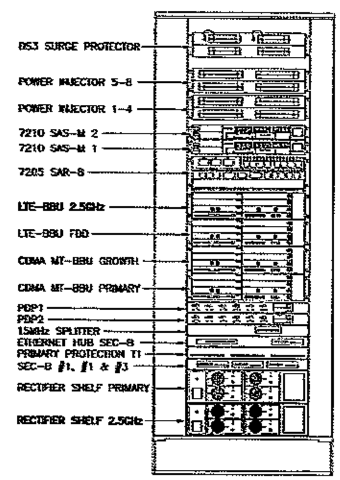
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



2.5 CABLE CROSS SECTION DATA | NO SCALE | 1



FIBER JUNCTION BOX PENETRATION | NO SCALE | 2



CABINET LAYOUT | NO SCALE | 3

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PLANS PREPARED BY:
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Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT · JOHN S. STEVENS · LICENSED PROFESSIONAL ENGINEER · JUN 06 2018

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REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	06/06/18	RMF	1
ISSUED FOR CONSTRUCTION	05/10/18	RMF	0

SITE NAME:
PRESTON / TOWN HALL

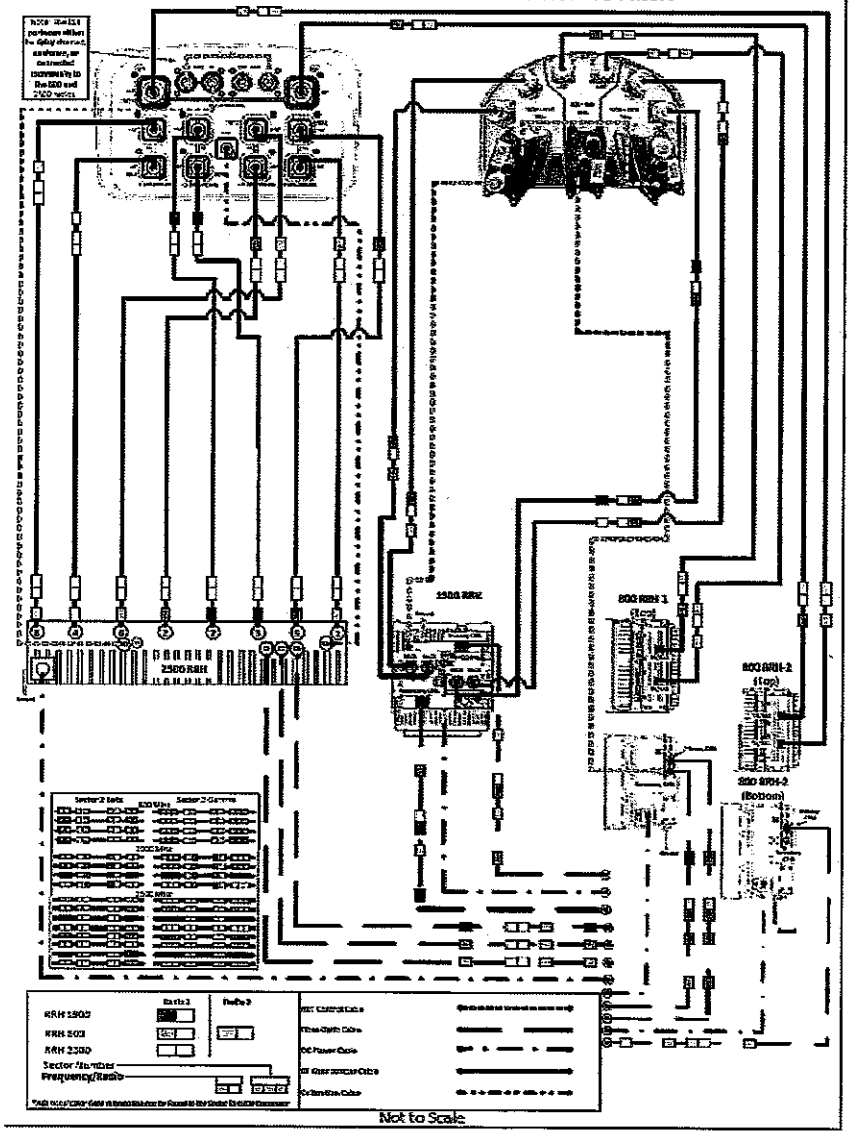
SITE CASCADE:
CT23XC411

SITE ADDRESS:
389 RT 2
PRESTON, CT 06365

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5

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



PLUMBING DIAGRAM | NO SCALE | 1

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
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1933 Watervliet Shaker Rd. | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 326-105

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24988
LICENSED PROFESSIONAL ENGINEER
JUN 06 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	06/06/18	MM	1
ISSUED FOR CONSTRUCTION	05/10/18	JRB	0

SITE NAME:

PRESTON / TOWN HALL

SITE CASCADE:

CT23XC411

SITE ADDRESS:

389 RT 2
PRESTON, CT 06365

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH MANUFACTURER AND MODEL
1	RFS	APXVSPP18-C-A20	150'	0°	(2) ALU 800MHZ 2x50-800
	COMMSCOPE	DT465B-2XR	150'	0°	(1) ALU 1900MHZ 4X45W-65MHZ (1) ALU 2.5GHZ RRH8D20-25
2	RFS	APXVSPP18-C-A20	150'	120°	(2) ALU 800MHZ 2x50-800
	COMMSCOPE	DT465B-2XR	150'	120°	(1) ALU 1900MHZ 4X45W-65MHZ (1) ALU 2.5GHZ RRH8D20-25
3	RFS	APXVSPP18-C-A20	150'	240°	(2) ALU 800MHZ 2x50-800
	COMMSCOPE	DT465B-2XR	150'	240°	(1) ALU 1900MHZ 4X45W-65MHZ (1) ALU 2.5GHZ RRH8D20-25

FEEDER CABLES

MANUFACTURER	MODEL	LENGTH	QTY
RFS	HB114-13U3M12-X00F	200±	(1)
RFS	HB114-21U3M12-X00F	200±	(6)

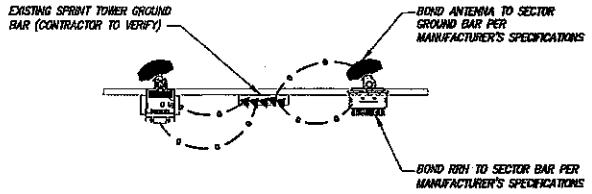
LEGEND
EXISTING
PROPOSED

NOTES:
1. CONTRACTOR TO VERIFY PROPOSED ANTENNA INFORMATION IS RE: MOST CURRENT DATA AT TIME OF CONSTRUCTION.
2. CONTRACTOR TO CONFIRM CABLE LENGTHS PRIOR TO CONSTRUCTION.

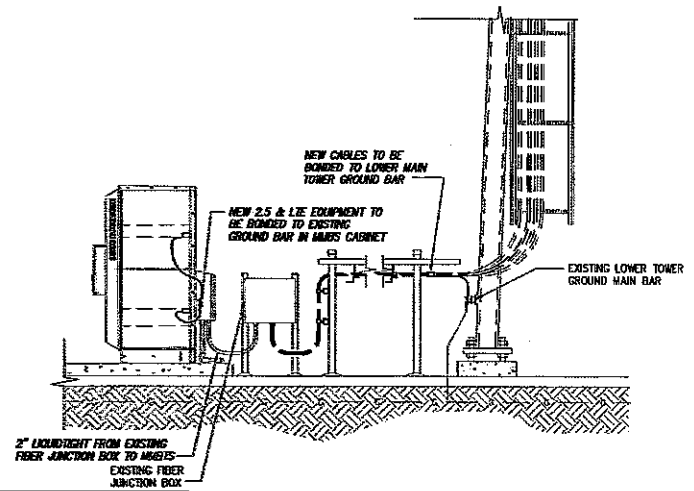
ANTENNA/CABLE SCHEDULE | NO SCALE | 1

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

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

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JOB NUMBER: 326-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN R. STEVENS
LICENSED PROFESSIONAL ENGINEER
JUN 04 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT COMMENTS	06/06/18	RMF	1
ISSUED FOR CONSTRUCTION	05/10/18	RMF	0

SITE NAME:
PRESTON / TOWN HALL

SITE CASCADE:
CT23XC411

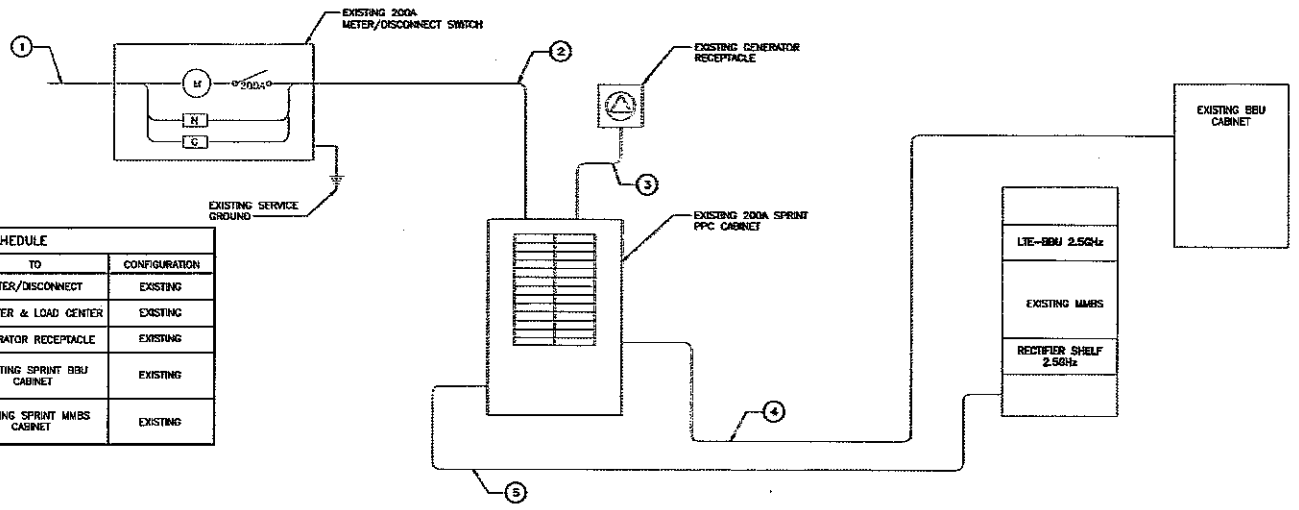
SITE ADDRESS:
389 RT 2
PRESTON, CT 06365

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-1

NOTES

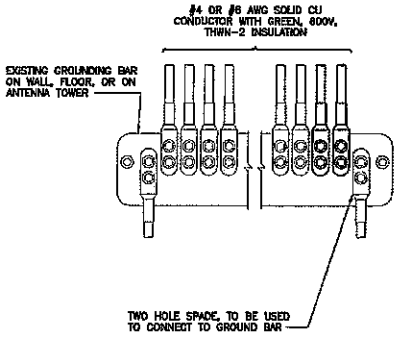
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



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

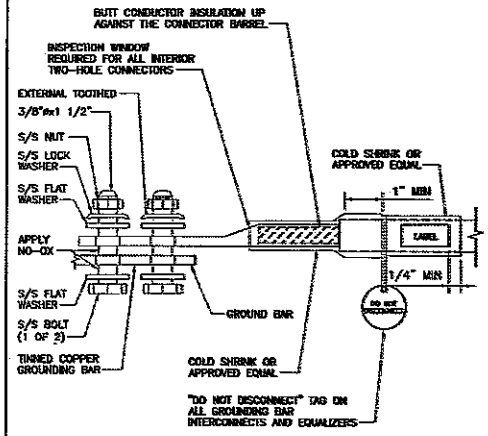
ELECTRICAL ONE-LINE DIAGRAM — NO SCALE — 1



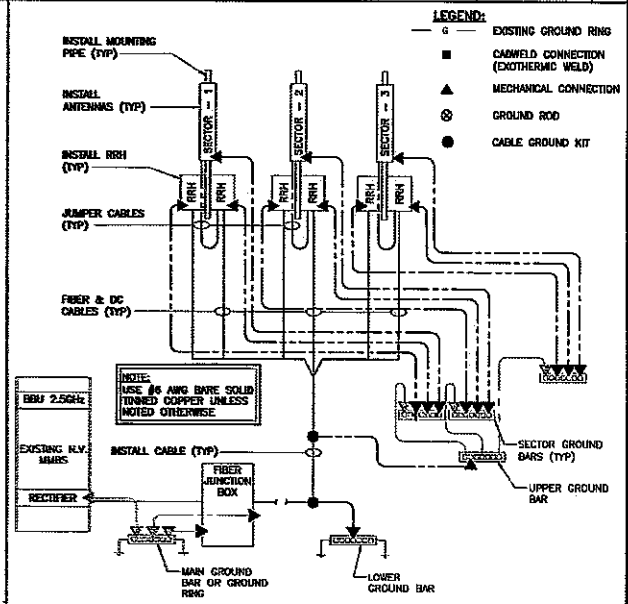
NOTES

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



TYPICAL GROUNDING RISER DIAGRAM — NO SCALE — 4

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JOB NUMBER: 628-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
12
JUNE 6, 2018
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CLIENT REVISIONS	06/05/18	RMF	1
ISSUED FOR CONSTRUCTION	05/10/18	RMF	0

SITE NAME:

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SITE ADDRESS:

389 RT 2
PRESTON, CT 06365

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

Date: **April 10, 2018**

James Williams
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

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

Subject: **Structural Modification Analysis Report**

Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT23XC411
	Carrier Site Name:	CT23XC411
Crown Castle Designation:	**Crown Castle BU Number:**	876360
	Crown Castle Site Name:	Preston / Town Hall
	Crown Castle JDE Job Number:	447234
	Crown Castle Work Order Number:	1532088
	Crown Castle Order Number:	397067 Rev. 1
Engineering Firm Designation:	**TEP Project Number:**	25620.161151
Site Data:	**389 Rt. 2, Preston, New London County, CT 06365** **Latitude *41° 29' 25.25"*, Longitude *-71° 59' 29.55"*** **147 Foot - Monopole Tower**	

Dear James Williams,

Tower Engineering Professionals is pleased to submit this **"Structural Modification 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 1148253, in accordance with order 397067, 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:

LC4.7: Existing/Reserved + Proposed Equipment with Proposed Modifications **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 135 mph converted to a nominal 3-second gust wind speed of 105 mph per Section 1609.3 and Appendix N 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.

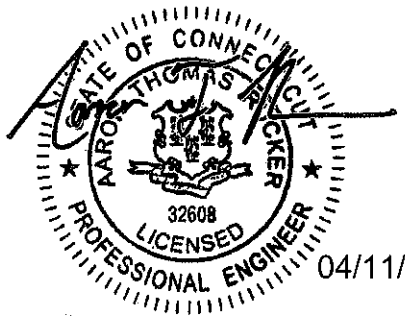
All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawings for the determined available structural capacity to be effective.

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: Riley Eaton, P.E. / JLW

Respectfully submitted by:

Aaron T. Rucker, P.E.



04/11/2018

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 147-ft monopole tower designed by Engineered Endeavors in May of 2000. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F for the appurtenances listed in Table 3. The tower has been modified multiple times in the past to accommodate additional loading. 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 105 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. (Preston Ss = 0.167).

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
147.0	150.0	3	RFS Celwave	APXVSPP18-C-A20	4	1-1/4	1
		3	Commscope	DT465B-2XR			
		3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ			
		3	Alcatel Lucent	RRH2X50-800			
		3	Alcatel Lucent	TD-RRH8X20-25			
		3	Alcatel Lucent	800MHZ RRH			
	147.0	1	SitePro 1	HRK12			
		1	SitePro 1	RMQP-496-HK			

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

Table 2 - Existing/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
147.0	147.0	6	Decibel	DB978H90T2E-M w/ Mount Pipe	6	1-5/8	3
		1	Tower Mounts	Platform Mount [LP 601-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
136.0	138.0	6	Antel	LPA-80080/4CF w/ Mount Pipe	2	1-5/8	2
		6	Andrew	SBNHH-1D65A w/ Mount Pipe			
		3	Alcatel Lucent	RRH4X45-AWS4 B66			
		3	Alcatel Lucent	RRH2x60-700			
		2	RFS Celwave	DB-B1-6C-12AB-0Z			
	136.0	1	Tower Mounts	Platform Mount [LP 601-1]	12	1-5/8	1
129.0	129.0	3	Ericsson	AIR 21 B2A B4P w/ Mount Pipe	7	1-5/8	1
		3	Ericsson	AIR 21 B4A B2P w/ Mount Pipe			
		3	Andrew	LNX-6515DS-VTM w/ Mount Pipe			
		3	Ericsson	KRY 112 144/1			
		3	Ericsson	RRUS 11 B12			
		1	Tower Mounts	Platform Mount [LP 1201-1]			
120.0	120.0	6	Ericsson	TME-RRUS-11	-	-	1
		1	Tower Mounts	Side Arm Mount [SO 102-3]			
118.0	118.0	3	KMW Communications	AM-X-WM-17-65-00T w/ Mount Pipe	3 6	3/8 1-1/4	1
		3	Powerwave Technologies	RA21.7770.00 w/ Mount Pipe			
		6	Powerwave Technologies	LGP21401			
		1	Raycap	DC6-48-60-18-8F			
		1	Tower Mounts	Platform Mount [LP 303-1]			
50.0	51.0	1	Lucent	KS24019-L112A	1	1/2	1
	50.0	1	Tower Mounts	Side Arm Mount [SO 701-1]			
45.0	46.0	1	Lucent	KS24019-L112A	1	1/2	1
	45.0	1	Tower Mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing equipment
2) Reserved equipment
3) Existing equipment to be removed; not 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)
147.0	147.0	12	Decibel	DB980	-	-
137.0	137.0	12	Decibel	DB980	-	-
127.0	127.0	12	Decibel	DB980	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	FDH	2192501	CCISites
Tower Foundation Drawings	Engineered Endeavors	1615411	CCISites
Tower Manufacturer Drawings	Engineered Endeavors	1615372	CCISites
Tower Reinforcement Drawings	Vertical Solutions	2331612	CCISites
Post Modification Inspection	Vertical Solutions	2331610	CCISites
Tower Reinforcement Drawings	PJF	3846963	CCISites
Post Modification Inspection	Tower Engineering Professionals	3846952	CCISites
Tower Reinforcement Drawings	PJF	5573224	CCISites
Post Modification Inspection	FDH	5995667	CCISites
Tower Reinforcement Drawings	PJF	5959061	CCISites
Post Modification Inspection	Engineered Tower Solutions	6072770	CCISites
Previous Structural Analysis	Tower Engineering Professionals	7355135	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.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

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.

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)[1]

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
147 - 142	Pole	TP17.326x16.25x0.1875	Pole	20.2%	Pass
142 - 137	Pole	TP18.402x17.326x0.1875	Pole	31.4%	Pass
137 - 132	Pole	TP19.478x18.402x0.1875	Pole	51.9%	Pass
132 - 127	Pole	TP20.553x19.478x0.1875	Pole	71.6%	Pass
127 - 123.62	Pole	TP21.98x20.553x0.1875	Pole	85.7%	Pass
123.62 - 118.62	Pole	TP21.856x20.78x0.25	Pole	78.9%	Pass
118.62 - 113.62	Pole	TP22.932x21.856x0.25	Pole	91.9%	Pass
113.62 - 112.41	Pole	TP23.192x22.932x0.25	Pole	94.7%	Pass
112.41 - 112.16	Pole + Reinf.	TP23.246x23.192x0.5375	Reinf. 21 Tension Rupture	82.4%	Pass
112.16 - 110.5	Pole + Reinf.	TP23.603x23.246x0.525	Reinf. 21 Tension Rupture	86.2%	Pass
110.5 - 110.25	Pole + Reinf.	TP23.657x23.603x0.75	Reinf. 21 Tension Rupture	62.1%	Pass
110.25 - 105.25	Pole + Reinf.	TP24.733x23.657x0.725	Reinf. 21 Tension Rupture	70.1%	Pass
105.25 - 105	Pole + Reinf.	TP24.787x24.733x0.725	Reinf. 21 Tension Rupture	70.5%	Pass
105 - 104.75	Pole + Reinf.	TP24.841x24.787x1	Reinf. 6 Tension Rupture	55.2%	Pass
104.75 - 103.5	Pole + Reinf.	TP25.11x24.841x0.975	Reinf. 6 Tension Rupture	56.7%	Pass
103.5 - 103.25	Pole + Reinf.	TP25.163x25.11x0.75	Reinf. 6 Tension Rupture	72.0%	Pass
103.25 - 98.25	Pole + Reinf.	TP26.239x25.163x0.725	Reinf. 6 Tension Rupture	78.9%	Pass
98.25 - 94.83	Pole + Reinf.	TP26.975x26.239x0.7125	Reinf. 6 Tension Rupture	83.2%	Pass
94.83 - 94.58	Pole + Reinf.	TP27.029x26.975x0.7	Reinf. 6 Tension Rupture	87.2%	Pass
94.58 - 94.17	Pole + Reinf.	TP27.117x27.029x0.6875	Reinf. 6 Tension Rupture	87.7%	Pass
94.17 - 93.82	Pole + Reinf.	TP27.193x27.117x0.775	Reinf. 14 Tension Rupture	77.2%	Pass
93.82 - 93.66	Pole + Reinf.	TP27.227x27.193x0.775	Reinf. 14 Tension Rupture	77.3%	Pass
93.66 - 89.08	Pole + Reinf.	TP29.11x27.227x0.75	Reinf. 14 Tension Rupture	82.3%	Pass
89.08 - 83.91	Pole + Reinf.	TP28.692x27.58x0.8375	Reinf. 14 Tension Rupture	80.5%	Pass
83.91 - 78.91	Pole + Reinf.	TP29.768x28.692x0.8125	Reinf. 14 Tension Rupture	84.5%	Pass
78.91 - 73.91	Pole + Reinf.	TP30.844x29.768x0.8	Reinf. 14 Tension Rupture	88.1%	Pass
73.91 - 68.91	Pole + Reinf.	TP31.919x30.844x0.775	Reinf. 14 Tension Rupture	91.4%	Pass
68.91 - 65.5	Pole + Reinf.	TP32.653x31.919x0.7625	Reinf. 14 Tension Rupture	93.5%	Pass
65.5 - 65.25	Pole + Reinf.	TP32.707x32.653x0.9125	Reinf. 14 Tension Rupture	86.7%	Pass
65.25 - 64.5	Pole + Reinf.	TP32.868x32.707x0.9125	Reinf. 14 Tension Rupture	87.1%	Pass
64.5 - 64.25	Pole + Reinf.	TP32.922x32.868x0.8125	Reinf. 14 Tension Rupture	91.6%	Pass
64.25 - 59.25	Pole + Reinf.	TP33.997x32.922x0.8	Reinf. 14 Tension Rupture	94.4%	Pass
59.25 - 58.58	Pole + Reinf.	TP34.142x33.997x0.7875	Reinf. 14 Tension Rupture	94.8%	Pass
58.58 - 58.33	Pole + Reinf.	TP34.195x34.142x0.85	Reinf. 13 Tension Rupture	85.6%	Pass
58.33 - 57.25	Pole + Reinf.	TP34.428x34.195x0.8375	Reinf. 13 Tension Rupture	86.1%	Pass
57.25 - 57	Pole + Reinf.	TP34.481x34.428x0.85	Reinf. 13 Tension Rupture	85.2%	Pass
57 - 52	Pole + Reinf.	TP35.557x34.481x0.8375	Reinf. 13 Tension Rupture	87.5%	Pass
52 - 49.58	Pole + Reinf.	TP37.19x35.557x0.825	Reinf. 13 Tension Rupture	88.6%	Pass
49.58 - 43.41	Pole + Reinf.	TP36.658x35.33x0.875	Reinf. 13 Tension Rupture	86.8%	Pass
43.41 - 38.41	Pole + Reinf.	TP37.734x36.658x0.8625	Reinf. 13 Tension Rupture	88.4%	Pass
38.41 - 34.5	Pole + Reinf.	TP38.575x37.734x0.85	Reinf. 13 Tension Rupture	89.6%	Pass
34.5 - 34.25	Pole + Reinf.	TP38.629x38.575x1.025	Reinf. 18 Tension Rupture	77.2%	Pass
34.25 - 33.5	Pole + Reinf.	TP38.791x38.629x1.0125	Reinf. 18 Tension Rupture	77.4%	Pass
33.5 - 33.25	Pole + Reinf.	TP38.844x38.791x0.8125	Reinf. 4 Tension Rupture	90.5%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
33.25 - 29.5	Pole + Reinf.	TP39.651x38.844x0.8	Reinf. 4 Tension Rupture	91.6%	Pass
29.5 - 29.25	Pole + Reinf.	TP39.705x39.651x0.8875	Reinf. 13 Tension Rupture	85.5%	Pass
29.25 - 28.5	Pole + Reinf.	TP39.867x39.705x0.8875	Reinf. 13 Tension Rupture	85.7%	Pass
28.5 - 28.25	Pole + Reinf.	TP39.92x39.867x0.9	Reinf. 4 Tension Rupture	84.5%	Pass
28.25 - 27.48	Pole + Reinf.	TP40.086x39.92x0.9	Reinf. 3 Tension Rupture	84.7%	Pass
27.48 - 27.23	Pole + Reinf.	TP40.14x40.086x0.9	Reinf. 3 Tension Rupture	84.8%	Pass
27.23 - 22.23	Pole + Reinf.	TP41.216x40.14x0.875	Reinf. 3 Tension Rupture	86.0%	Pass
22.23 - 17.23	Pole + Reinf.	TP42.292x41.216x0.875	Reinf. 3 Tension Rupture	87.2%	Pass
17.23 - 12.23	Pole + Reinf.	TP43.368x42.292x0.85	Reinf. 3 Tension Rupture	88.2%	Pass
12.23 - 7.23	Pole + Reinf.	TP44.444x43.368x0.8375	Reinf. 3 Tension Rupture	89.2%	Pass
7.23 - 6.9	Pole + Reinf.	TP44.515x44.444x0.8625	Reinf. 10 Tension Rupture	84.9%	Pass
6.9 - 6.55	Pole + Reinf.	TP44.59x44.515x0.7875	Reinf. 2 Tension Rupture	92.4%	Pass
6.55 - 6.33	Pole + Reinf.	TP44.638x44.59x0.7875	Reinf. 2 Tension Rupture	92.4%	Pass
6.33 - 3.25	Pole + Reinf.	TP45.301x44.638x0.775	Reinf. 2 Tension Rupture	93.0%	Pass
3.25 - 3	Pole + Reinf.	TP45.354x45.301x0.975	Reinf. 2 Tension Rupture	75.5%	Pass
3 - 2.75	Pole + Reinf.	TP45.408x45.354x0.875	Reinf. 2 Tension Rupture	84.0%	Pass
2.75 - 2.5	Pole + Reinf.	TP45.462x45.408x0.875	Reinf. 2 Tension Rupture	84.1%	Pass
2.5 - 2.25	Pole + Reinf.	TP45.516x45.462x0.7625	Reinf. 2 Tension Rupture	93.0%	Pass
2.25 - 2	Pole + Reinf.	TP45.57x45.516x0.75	Reinf. 2 Tension Rupture	92.8%	Pass
2 - 0	Pole + Reinf.	TP46x45.57x0.75	Reinf. 2 Tension Rupture	93.1%	Pass
				Summary	
			Pole	94.7%	Pass
			Reinforcement	94.8%	Pass
			Overall	**94.8%**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity – LC4.7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Original Anchor Rods	-	87.4	Pass
1	Reinforcing Anchor Rods	-	87.7	Pass
1	Base Plate	-	87.8	Pass
1	Base Foundation Soil Interaction	-	59.2	Pass
1	Base Foundation Structural	-	95.5	Pass

Structure Rating (max from all components) =	**95.5%**

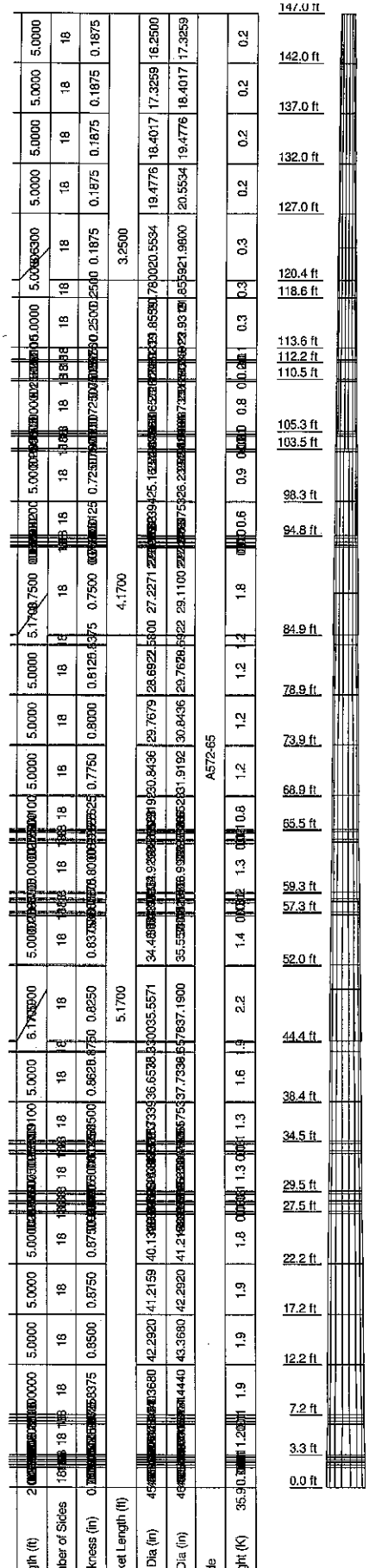
Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

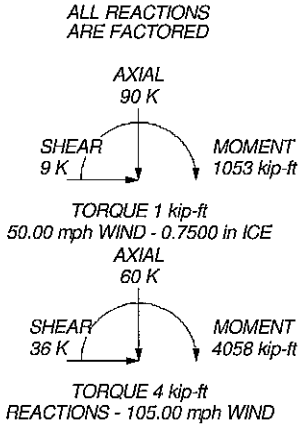
4.1) Recommendations

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 modifications depicted in "Appendix D – Structural Design Drawings" shall be installed and, upon completion, inspected. The tower and its foundation have sufficient capacity to carry the proposed load configuration once the proposed modifications are installed.

APPENDIX A

TNXTOWER OUTPUT





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20	147	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	129
APXVSPP18-C-A20	147	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	129
APXVSPP18-C-A20	147	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	129
DT465B-2XR	147	LNX-6515DS-VTM w/ Mount Pipe	129
DT465B-2XR	147	LNX-6515DS-VTM w/ Mount Pipe	129
DT465B-2XR	147	LNX-6515DS-VTM w/ Mount Pipe	129
PCS 1900MHZ 4X45W-65MHZ	147	KRY 112 144/1	129
PCS 1900MHZ 4X45W-65MHZ	147	KRY 112 144/1	129
PCS 1900MHZ 4X45W-65MHZ	147	KRY 112 144/1	129
RRH2X50-800	147	RRUS 11 B12	129
RRH2X50-800	147	RRUS 11 B12	129
RRH2X50-800	147	RRUS 11 B12	129
TD-RRH8X20-25	147	Platform Mount [LP 1201-1]	129
TD-RRH8X20-25	147	(2) TME-RRUS-11	120
TD-RRH8X20-25	147	(2) TME-RRUS-11	120
800MHZ RRH	147	(2) TME-RRUS-11	120
800MHZ RRH	147	2.4" Dia x 3-ft Mount Pipe	120
800MHZ RRH	147	2.4" Dia x 3-ft Mount Pipe	120
Platform Mount [LP 301-1]	147	2.4" Dia x 3-ft Mount Pipe	120
Miscellaneous [NA 509-3]	147	Side Arm Mount [SO 102-3]	120
(2) LPA-80080/4CF w/ Mount Pipe	136	AM-X-WM-17-65-00T w/ Mount Pipe	118
(2) LPA-80080/4CF w/ Mount Pipe	136	AM-X-WM-17-65-00T w/ Mount Pipe	118
(2) LPA-80080/4CF w/ Mount Pipe	136	AM-X-WM-17-65-00T w/ Mount Pipe	118
(2) SBNHH-1D65A w/ Mount Pipe	136	RA21.7770.00 w/ Mount Pipe	118
(2) SBNHH-1D65A w/ Mount Pipe	136	RA21.7770.00 w/ Mount Pipe	118
(2) SBNHH-1D65A w/ Mount Pipe	136	RA21.7770.00 w/ Mount Pipe	118
RRH4X45-AWS4 B66	136	(2) LGP21401	118
RRH4X45-AWS4 B66	136	(2) LGP21401	118
RRH4X45-AWS4 B66	136	(2) LGP21401	118
RRH2x60-700	136	DC6-48-60-18-8F	118
RRH2x60-700	136	Platform Mount [LP 303-1]	118
RRH2x60-700	136	KS24019-L112A	50
(2) DB-B1-6C-12AB-0Z	136	1.5" Dia. x 17" Pipe	50
Platform Mount [LP 601-1]	136	Side Arm Mount [SO 701-1]	50
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	129	KS24019-L112A	45
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	129	1.5" Dia. x 17" Pipe	45
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	129	Side Arm Mount [SO 701-1]	45

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 105.00 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.00 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.00 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.0000 ft

Tower Engineering Professionals

Tower Engineering Professionals
326 Tryon Road
Raleigh, N.C.
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: *Preston / Town Hall (BU 876360*			
Project: *TEP No. 25620.161151*			
Client: Crown Castle	Drawn by: RKE	App'd:	
Code: TIA-222-G	Date: 03/21/18	Scale:	
Path: C:\Users\reston\Desktop\Preston Town Hall\BA876360_LC4.7 (CC).eri		Dwg No	

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 London County, Connecticut.
Basic wind speed of 105.00 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.0000 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 50.00 mph is used in combination with ice.
Temperature drop of 50.00 °F.
Deflections calculated using a wind speed of 60.00 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	147.0000-142.0000	5.0000	0.00	18	16.2500	17.3259	0.1875	0.7500	A572-65 (65 ksi)
L2	142.0000-137.0000	5.0000	0.00	18	17.3259	18.4017	0.1875	0.7500	A572-65 (65 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
L3	137.0000-132.0000	5.0000	0.00	18	18.4017	19.4776	0.1875	0.7500	A572-65 (65 ksi)
L4	132.0000-127.0000	5.0000	0.00	18	19.4776	20.5534	0.1875	0.7500	A572-65 (65 ksi)
L5	127.0000-120.3700	6.6300	3.25	18	20.5534	21.9800	0.1875	0.7500	A572-65 (65 ksi)
L6	120.3700-118.6200	5.0000	0.00	18	20.7800	21.8559	0.2500	1.0000	A572-65 (65 ksi)
L7	118.6200-113.6200	5.0000	0.00	18	21.8559	22.9319	0.2500	1.0000	A572-65 (65 ksi)
L8	113.6200-112.4100	1.2100	0.00	18	22.9319	23.1923	0.2500	1.0000	A572-65 (65 ksi)
L9	112.4100-112.1600	0.2500	0.00	18	23.1923	23.2461	0.5375	2.1500	A572-65 (65 ksi)
L10	112.1600-110.5000	1.6600	0.00	18	23.2461	23.6033	0.5250	2.1000	A572-65 (65 ksi)
L11	110.5000-110.2500	0.2500	0.00	18	23.6033	23.6571	0.7500	3.0000	A572-65 (65 ksi)
L12	110.2500-105.2500	5.0000	0.00	18	23.6571	24.7330	0.7250	2.9000	A572-65 (65 ksi)
L13	105.2500-105.0000	0.2500	0.00	18	24.7330	24.7868	0.7250	2.9000	A572-65 (65 ksi)
L14	105.0000-104.7500	0.2500	0.00	18	24.7868	24.8406	1.0000	4.0000	A572-65 (65 ksi)
L15	104.7500-103.5000	1.2500	0.00	18	24.8406	25.1096	0.9750	3.9000	A572-65 (65 ksi)
L16	103.5000-103.2500	0.2500	0.00	18	25.1096	25.1634	0.7500	3.0000	A572-65 (65 ksi)
L17	103.2500-98.2500	5.0000	0.00	18	25.1634	26.2394	0.7250	2.9000	A572-65 (65 ksi)
L18	98.2500-94.8300	3.4200	0.00	18	26.2394	26.9753	0.7125	2.8500	A572-65 (65 ksi)
L19	94.8300-94.5800	0.2500	0.00	18	26.9753	27.0291	0.7000	2.8000	A572-65 (65 ksi)
L20	94.5800-94.1700	0.4100	0.00	18	27.0291	27.1173	0.6875	2.7500	A572-65 (65 ksi)
L21	94.1700-93.8200	0.3500	0.00	18	27.1173	27.1927	0.7750	3.1000	A572-65 (65 ksi)
L22	93.8200-93.6600	0.1600	0.00	18	27.1927	27.2271	0.7750	3.1000	A572-65 (65 ksi)
L23	93.6600-84.9100	8.7500	4.17	18	27.2271	29.1100	0.7500	3.0000	A572-65 (65 ksi)
L24	84.9100-83.9100	5.1700	0.00	18	27.5800	28.6922	0.8375	3.3500	A572-65 (65 ksi)
L25	83.9100-78.9100	5.0000	0.00	18	28.6922	29.7679	0.8125	3.2500	A572-65 (65 ksi)
L26	78.9100-73.9100	5.0000	0.00	18	29.7679	30.8436	0.8000	3.2000	A572-65 (65 ksi)
L27	73.9100-68.9100	5.0000	0.00	18	30.8436	31.9192	0.7750	3.1000	A572-65 (65 ksi)
L28	68.9100-65.5000	3.4100	0.00	18	31.9192	32.6528	0.7625	3.0500	A572-65 (65 ksi)
L29	65.5000-65.2500	0.2500	0.00	18	32.6528	32.7066	0.9125	3.6500	A572-65 (65 ksi)
L30	65.2500-64.5000	0.7500	0.00	18	32.7066	32.8680	0.9125	3.6500	A572-65 (65 ksi)
L31	64.5000-64.2500	0.2500	0.00	18	32.8680	32.9218	0.8125	3.2500	A572-65 (65 ksi)
L32	64.2500-59.2500	5.0000	0.00	18	32.9218	33.9974	0.8000	3.2000	A572-65 (65 ksi)
L33	59.2500-58.5800	0.6700	0.00	18	33.9974	34.1416	0.7875	3.1500	A572-65

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
	0								(65 ksi)
L34	58.5800-58.330	0.2500	0.00	18	34.1416	34.1953	0.8500	3.4000	A572-65
	0								(65 ksi)
L35	58.3300-57.250	1.0800	0.00	18	34.1953	34.4277	0.8375	3.3500	A572-65
	0								(65 ksi)
L36	57.2500-57.000	0.2500	0.00	18	34.4277	34.4815	0.8500	3.4000	A572-65
	0								(65 ksi)
L37	57.0000-52.000	5.0000	0.00	18	34.4815	35.5571	0.8375	3.3500	A572-65
	0								(65 ksi)
L38	52.0000-44.410	7.5900	5.17	18	35.5571	37.1900	0.8250	3.3000	A572-65
	0								(65 ksi)
L39	44.4100-43.410	6.1700	0.00	18	35.3300	36.6578	0.8750	3.5000	A572-65
	0								(65 ksi)
L40	43.4100-38.410	5.0000	0.00	18	36.6578	37.7339	0.8625	3.4500	A572-65
	0								(65 ksi)
L41	38.4100-34.500	3.9100	0.00	18	37.7339	38.5753	0.8500	3.4000	A572-65
	0								(65 ksi)
L42	34.5000-34.250	0.2500	0.00	18	38.5753	38.6291	1.0250	4.1000	A572-65
	0								(65 ksi)
L43	34.2500-33.500	0.7500	0.00	18	38.6291	38.7905	1.0125	4.0500	A572-65
	0								(65 ksi)
L44	33.5000-33.250	0.2500	0.00	18	38.7905	38.8443	0.8125	3.2500	A572-65
	0								(65 ksi)
L45	33.2500-29.500	3.7500	0.00	18	38.8443	39.6514	0.8000	3.2000	A572-65
	0								(65 ksi)
L46	29.5000-29.250	0.2500	0.00	18	39.6514	39.7052	0.8875	3.5500	A572-65
	0								(65 ksi)
L47	29.2500-28.500	0.7500	0.00	18	39.7052	39.8666	0.8875	3.5500	A572-65
	0								(65 ksi)
L48	28.5000-28.250	0.2500	0.00	18	39.8666	39.9204	0.9000	3.6000	A572-65
	0								(65 ksi)
L49	28.2500-27.480	0.7700	0.00	18	39.9204	40.0861	0.9000	3.6000	A572-65
	0								(65 ksi)
L50	27.4800-27.230	0.2500	0.00	18	40.0861	40.1399	0.9000	3.6000	A572-65
	0								(65 ksi)
L51	27.2300-22.230	5.0000	0.00	18	40.1399	41.2159	0.8750	3.5000	A572-65
	0								(65 ksi)
L52	22.2300-17.230	5.0000	0.00	18	41.2159	42.2920	0.8750	3.5000	A572-65
	0								(65 ksi)
L53	17.2300-12.230	5.0000	0.00	18	42.2920	43.3680	0.8500	3.4000	A572-65
	0								(65 ksi)
L54	12.2300-7.2300	5.0000	0.00	18	43.3680	44.4440	0.8375	3.3500	A572-65
									(65 ksi)
L55	7.2300-6.9000	0.3300	0.00	18	44.4440	44.5151	0.8625	3.4500	A572-65
									(65 ksi)
L56	6.9000-6.5500	0.3500	0.00	18	44.5151	44.5904	0.7875	3.1500	A572-65
									(65 ksi)
L57	6.5500-6.3300	0.2200	0.00	18	44.5904	44.6377	0.7875	3.1500	A572-65
									(65 ksi)
L58	6.3300-3.2500	3.0800	0.00	18	44.6377	45.3006	0.7750	3.1000	A572-65
									(65 ksi)
L59	3.2500-3.0000	0.2500	0.00	18	45.3006	45.3544	0.9750	3.9000	A572-65
									(65 ksi)
L60	3.0000-2.7500	0.2500	0.00	18	45.3544	45.4082	0.8750	3.5000	A572-65
									(65 ksi)
L61	2.7500-2.5000	0.2500	0.00	18	45.4082	45.4620	0.8750	3.5000	A572-65
									(65 ksi)
L62	2.5000-2.2500	0.2500	0.00	18	45.4620	45.5158	0.7625	3.0500	A572-65
									(65 ksi)
L63	2.2500-2.0000	0.2500	0.00	18	45.5158	45.5696	0.7500	3.0000	A572-65
									(65 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
L64	2.0000-0.0000	2.0000		18	45.5696	46.0000	0.7500	3.0000	A572-65 (65 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	16.5007	9.5592	311.5911	5.7022	8.2550	37.7457	623.5922	4.7805	2.5300	13.493
	17.5931	10.1995	378.4888	6.0841	8.8015	43.0026	757.4756	5.1007	2.7194	14.503
L2	17.5931	10.1995	378.4888	6.0841	8.8015	43.0026	757.4756	5.1007	2.7194	14.503
	18.6856	10.8397	454.3354	6.4660	9.3481	48.6021	909.2686	5.4209	2.9087	15.513
L3	18.6856	10.8397	454.3354	6.4660	9.3481	48.6021	909.2686	5.4209	2.9087	15.513
	19.7780	11.4800	539.6927	6.8480	9.8946	54.5442	1080.0956	5.7411	3.0981	16.523
L4	19.7780	11.4800	539.6927	6.8480	9.8946	54.5442	1080.0956	5.7411	3.0981	16.523
	20.8705	12.1203	635.1226	7.2299	10.4411	60.8289	1271.0809	6.0613	3.2874	17.533
L5	20.8705	12.1203	635.1226	7.2299	10.4411	60.8289	1271.0809	6.0613	3.2874	17.533
	22.3191	12.9693	778.1562	7.7363	11.1658	69.6908	1557.3364	6.4859	3.5385	18.872
L6	21.8107	16.2906	867.4635	7.2881	10.5562	82.1754	1736.0685	8.1468	3.2173	12.869
	22.1931	17.1443	1011.1241	7.6701	11.1028	91.0691	2023.5786	8.5738	3.4066	13.627
L7	22.1931	17.1443	1011.1241	7.6701	11.1028	91.0691	2023.5786	8.5738	3.4066	13.627
	23.2857	17.9981	1169.8296	8.0521	11.6494	100.4197	2341.1985	9.0008	3.5960	14.384
L8	23.2857	17.9981	1169.8296	8.0521	11.6494	100.4197	2341.1985	9.0008	3.5960	14.384
	23.5501	18.2047	1210.5815	8.1445	11.7817	102.7512	2422.7559	9.1041	3.6418	14.567
L9	23.5501	38.6496	2506.1225	8.0424	11.7817	212.7136	5015.5427	19.3285	3.1358	5.834
	23.6047	38.7414	2524.0186	8.0615	11.8090	213.7367	5051.3583	19.3744	3.1453	5.852
L10	23.6047	37.8613	2469.3938	8.0660	11.8090	209.1111	4942.0369	18.9342	3.1673	6.033
	23.9674	38.4565	2587.7041	8.1928	11.9905	215.8134	5178.8132	19.2319	3.2302	6.153
L11	23.9674	54.4023	3589.6482	8.1129	11.9905	299.3751	7184.0198	27.2063	2.8342	3.779
	24.0220	54.5303	3615.0584	8.1320	12.0178	300.8086	7234.8737	27.2703	2.8436	3.792
L12	24.0220	52.7702	3506.0105	8.1409	12.0178	291.7348	7016.6343	26.3901	2.8876	3.983
	25.1146	55.2461	4023.0218	8.5229	12.5644	320.1925	8051.3372	27.6283	3.0770	4.244
L13	25.1146	55.2461	4023.0218	8.5229	12.5644	320.1925	8051.3372	27.6283	3.0770	4.244
	25.1692	55.3699	4050.1270	8.5420	12.5917	321.6502	8105.5832	27.6902	3.0865	4.257
L14	25.1692	75.4994	5397.0243	8.4443	12.5917	428.6172	10801.1502	37.7569	2.6025	2.602
	25.2238	75.6702	5433.7257	8.4634	12.6190	430.5973	10874.6013	37.8423	2.6120	2.612
L15	25.2238	73.8558	5314.5666	8.4723	12.6190	421.1545	10636.1263	36.9349	2.6560	2.724
	25.4970	74.6882	5496.2996	8.5678	12.7557	430.8901	10999.8314	37.3512	2.7033	2.773
L16	25.4970	57.9881	4347.2756	8.6477	12.7557	340.8108	8700.2715	28.9995	3.0993	4.132
	25.5516	58.1161	4376.1418	8.6668	12.7830	342.3403	8758.0418	29.0636	3.1088	4.145
L17	25.5516	56.2365	4243.2794	8.6756	12.7830	331.9467	8492.1423	28.1236	3.1528	4.349
	26.6442	58.7124	4828.7729	9.0576	13.3296	362.2594	9663.8996	29.3618	3.3421	4.61
L18	26.6442	57.7284	4752.4964	9.0620	13.3296	356.5371	9511.2462	28.8697	3.3641	4.722
	27.3915	59.3927	5175.5098	9.3233	13.7035	377.6790	10357.8297	29.7020	3.4937	4.903
L19	27.3915	58.3785	5091.9752	9.3277	13.7035	371.5832	10190.6505	29.1948	3.5157	5.022
	27.4461	58.4980	5123.3160	9.3468	13.7308	373.1261	10253.3734	29.2546	3.5251	5.036
L20	27.4461	57.4807	5038.9983	9.3513	13.7308	366.9853	10084.6271	28.7458	3.5471	5.159
	27.5357	57.6732	5089.8006	9.3826	13.7756	369.4792	10186.2984	28.8421	3.5627	5.182
L21	27.5357	64.7982	5680.7963	9.3515	13.7756	412.3808	11369.0675	32.4053	3.4087	4.398
	27.6121	64.9835	5729.6623	9.3783	13.8139	414.7760	11466.8639	32.4979	3.4219	4.415
L22	27.6121	64.9835	5729.6623	9.3783	13.8139	414.7760	11466.8639	32.4979	3.4219	4.415
	27.6471	65.0682	5752.0941	9.3905	13.8314	415.8733	11511.7569	32.5403	3.4280	4.423
L23	27.6471	63.0287	5582.3405	9.3994	13.8314	403.6002	11172.0264	31.5203	3.4720	4.629
	29.5591	67.5110	6860.0032	10.0678	14.7879	463.8936	13729.0329	33.7619	3.8034	5.071
L24	28.9164	71.0876	6422.9598	9.4936	14.0106	458.4344	12854.3710	35.5505	3.3801	4.036
	29.1349	74.0442	7258.1586	9.8884	14.5757	497.9644	14525.8676	37.0291	3.5758	4.27
L25	29.1349	71.8984	7060.4737	9.8973	14.5757	484.4017	14130.2377	35.9560	3.6198	4.455

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
	30.2271	74.6724	7909.6389	10.2792	15.1221	523.0518	15829.6855	37.3433	3.8092	4.688
L26	30.2271	73.5553	7798.0426	10.2836	15.1221	515.6721	15606.3462	36.7846	3.8312	4.789
	31.3194	76.2866	8699.3940	10.6655	15.6685	555.2143	17410.2348	38.1506	4.0205	5.026
L27	31.3194	73.9642	8448.5937	10.6743	15.6685	539.2077	16908.3043	36.9891	4.0645	5.244
	32.4116	76.6102	9388.1311	11.0562	16.2150	578.9792	18788.6154	38.3124	4.2538	5.489
L28	32.4116	75.4048	9247.8358	11.0606	16.2150	570.3270	18507.8401	37.7095	4.2758	5.608
	33.1566	77.1802	9916.5751	11.3211	16.5876	597.8291	19846.1986	38.5974	4.4049	5.777
L29	33.1566	91.9288	11700.7043	11.2678	16.5876	705.3868	23416.8047	45.9731	4.1409	4.538
	33.2112	92.0845	11760.2849	11.2869	16.6150	707.8128	23536.0442	46.0510	4.1504	4.548
L30	33.2112	92.0845	11760.2849	11.2869	16.6150	707.8128	23536.0442	46.0510	4.1504	4.548
	33.3750	92.5518	11940.2395	11.3442	16.6969	715.1158	23896.1903	46.2847	4.1788	4.579
L31	33.3750	82.6671	10731.8440	11.3797	16.6969	642.7435	21477.8093	41.3414	4.3548	5.36
	33.4296	82.8058	10785.9530	11.3988	16.7243	644.9288	21586.0985	41.4107	4.3642	5.371
L32	33.4296	81.5636	10632.4231	11.4032	16.7243	635.7488	21278.8366	40.7895	4.3862	5.483
	34.5219	84.2949	11736.7401	11.7851	17.2707	679.5756	23488.9238	42.1555	4.5755	5.719
L33	34.5219	83.0090	11566.4092	11.7895	17.2707	669.7132	23148.0378	41.5124	4.5975	5.838
	34.6683	83.3693	11717.6670	11.8407	17.3439	675.6069	23450.7524	41.6926	4.6229	5.87
L34	34.6683	89.8173	12576.6750	11.8185	17.3439	725.1348	25169.8987	44.9172	4.5129	5.309
	34.7229	89.9624	12637.7272	11.8376	17.3712	727.5088	25292.0835	44.9898	4.5224	5.32
L35	34.7229	88.6727	12465.8869	11.8420	17.3712	717.6166	24948.1767	44.3448	4.5444	5.426
	34.9588	89.2903	12728.1873	11.9245	17.4893	727.7714	25473.1228	44.6536	4.5853	5.475
L36	34.9588	90.5892	12903.7439	11.9201	17.4893	737.8093	25824.4668	45.3032	4.5633	5.369
	35.0134	90.7344	12965.8492	11.9392	17.5166	740.2040	25948.7592	45.3758	4.5727	5.38
L37	35.0134	89.4333	12789.4249	11.9436	17.5166	730.1322	25595.6785	44.7251	4.5947	5.486
	36.1057	92.2926	14055.7748	12.3255	18.0630	778.1517	28130.0446	46.1551	4.7841	5.712
L38	36.1057	90.9478	13860.9473	12.3299	18.0630	767.3657	27740.1332	45.4826	4.8061	5.826
	37.7637	95.2236	15909.2277	12.9096	18.8925	842.0913	31839.3891	47.6208	5.0934	6.174
L39	37.0048	95.6901	14351.8930	12.2315	17.9476	799.6535	28722.6706	47.8542	4.6781	5.346
	37.2233	99.3779	16075.9463	12.7029	18.6222	863.2688	32173.0457	49.6984	4.9118	5.613
L40	37.2233	97.9924	15862.9024	12.7073	18.6222	851.8285	31746.6777	49.0055	4.9338	5.72
	38.3160	100.9381	17336.8950	13.0893	19.1688	904.4327	34696.6023	50.4787	5.1232	5.94
L41	38.3160	99.5090	17103.0185	13.0938	19.1688	892.2318	34228.5415	49.7640	5.1452	6.053
	39.1704	101.7792	18300.4824	13.3925	19.5963	933.8758	36625.0450	50.8993	5.2933	6.227
L42	39.1704	122.1644	21762.5413	13.3304	19.5963	1110.5451	43553.7184	61.0938	4.9853	4.864
	39.2251	122.3394	21856.2192	13.3495	19.6236	1113.7721	43741.1974	61.1813	4.9947	4.873
L43	39.2251	120.8876	21611.2170	13.3539	19.6236	1101.2870	43250.8706	60.4553	5.0167	4.955
	39.3889	121.4063	21890.6012	13.4112	19.7056	1110.8826	43810.0067	60.7147	5.0451	4.983
L44	39.3889	97.9406	17847.0074	13.4822	19.7056	905.6823	35717.4983	48.9796	5.3971	6.643
	39.4436	98.0794	17922.9643	13.5013	19.7329	908.2771	35869.5120	49.0490	5.4066	6.654
L45	39.4436	96.6022	17664.6325	13.5057	19.7329	895.1857	35352.5086	48.3103	5.4286	6.786
	40.2631	98.6514	18812.7994	13.7922	20.1429	933.9669	37650.3531	49.3351	5.5706	6.963
L46	40.2631	109.1949	20729.7551	13.7612	20.1429	1029.1348	41486.7869	54.6078	5.4166	6.103
	40.3177	109.3465	20816.1899	13.7803	20.1702	1032.0255	41659.7703	54.6836	5.4261	6.114
L47	40.3177	109.3465	20816.1899	13.7803	20.1702	1032.0255	41659.7703	54.6836	5.4261	6.114
	40.4816	109.8011	21076.9353	13.8376	20.2522	1040.7221	42181.6043	54.9110	5.4545	6.146
L48	40.4816	111.3119	21353.2374	13.8331	20.2522	1054.3652	42734.5720	55.6665	5.4325	6.036
	40.5362	111.4656	21441.8081	13.8522	20.2796	1057.3116	42911.8300	55.7434	5.4420	6.047
L49	40.5362	111.4656	21441.8081	13.8522	20.2796	1057.3116	42911.8300	55.7434	5.4420	6.047
	40.7045	111.9390	21716.1441	13.9111	20.3637	1066.4127	43460.8629	55.9801	5.4712	6.079
L50	40.7045	111.9390	21716.1441	13.9111	20.3637	1066.4127	43460.8629	55.9801	5.4712	6.079
	40.7591	112.0927	21805.7149	13.9302	20.3911	1069.3759	43640.1222	56.0570	5.4806	6.09
L51	40.7591	109.0484	21240.5464	13.9390	20.3911	1041.6595	42509.0416	54.5346	5.5246	6.314
	41.8518	112.0369	23035.1053	14.3210	20.9377	1100.1740	46100.5209	56.0291	5.7140	6.53
L52	41.8518	112.0369	23035.1053	14.3210	20.9377	1100.1740	46100.5209	56.0291	5.7140	6.53
	42.9444	115.0253	24927.9987	14.7030	21.4843	1160.2879	49888.7983	57.5236	5.9034	6.747
L53	42.9444	111.8063	24259.6478	14.7119	21.4843	1129.1792	48551.2171	55.9138	5.9474	6.997
	44.0370	114.7093	26198.8402	15.0939	22.0309	1189.1835	52432.1535	57.3656	6.1368	7.22
L54	44.0370	113.0557	25836.3368	15.0983	22.0309	1172.7292	51706.6698	56.5386	6.1588	7.354
	45.1297	115.9160	27847.3782	15.4803	22.5776	1233.4087	55731.3987	57.9690	6.3482	7.58
L55	45.1297	119.3078	28629.3464	15.4714	22.5776	1268.0434	57296.3640	59.6652	6.3042	7.309
	45.2018	119.5022	28769.5339	15.4967	22.6137	1272.2196	57576.9235	59.7624	6.3167	7.324
L56	45.2018	109.2981	26403.4613	15.5233	22.6137	1167.5893	52841.6650	54.6595	6.4487	8.189

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
	45.2783	109.4864	26540.1399	15.5500	22.6519	1171.6509	53115.2021	54.7536	6.4619	8.206
L57	45.2783	109.4864	26540.1399	15.5500	22.6519	1171.6509	53115.2021	54.7536	6.4619	8.206
	45.3263	109.6048	26626.2932	15.5668	22.6760	1174.2075	53287.6219	54.8128	6.4702	8.216
L58	45.3263	107.8957	26226.0689	15.5713	22.6760	1156.5578	52486.6468	53.9581	6.4922	8.377
	45.9994	109.5262	27433.0869	15.8066	23.0127	1192.0851	54902.2711	54.7735	6.6089	8.528
L59	45.9994	137.1721	34049.6081	15.7356	23.0127	1479.6013	68144.0195	68.5991	6.2569	6.417
	46.0540	137.3386	34173.7459	15.7547	23.0400	1483.2340	68392.4584	68.6824	6.2664	6.427
L60	46.0540	123.5303	30876.5313	15.7902	23.0400	1340.1259	61793.6908	61.7769	6.4424	7.363
	46.1087	123.6798	30988.7110	15.8093	23.0674	1343.4012	62018.1978	61.8516	6.4518	7.374
L61	46.1087	123.6798	30988.7110	15.8093	23.0674	1343.4012	62018.1978	61.8516	6.4518	7.374
	46.1633	123.8292	31101.1621	15.8284	23.0947	1346.6804	62243.2478	61.9264	6.4613	7.384
L62	46.1633	108.1806	27308.1105	15.8683	23.0947	1182.4413	54652.1538	54.1006	6.6593	8.734
	46.2179	108.3108	27406.8364	15.8874	23.1220	1185.3134	54849.7354	54.1657	6.6688	8.746
L63	46.2179	106.5649	26980.1388	15.8919	23.1220	1166.8592	53995.7787	53.2926	6.6908	8.921
	46.2726	106.6930	27077.5343	15.9110	23.1493	1169.6888	54190.6979	53.3566	6.7002	8.934
L64	46.2726	106.6930	27077.5343	15.9110	23.1493	1169.6888	54190.6979	53.3566	6.7002	8.934
	46.7096	107.7176	27865.1501	16.0637	23.3680	1192.4491	55766.9659	53.8690	6.7760	9.035

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 147.0000-142.0000				1	1	1			
L2 142.0000-137.0000				1	1	1			
L3 137.0000-132.0000				1	1	1			
L4 132.0000-127.0000				1	1	1			
L5 127.0000-120.3700				1	1	1			
L6 120.3700-118.6200				1	1	1			
L7 118.6200-113.6200				1	1	1			
L8 113.6200-112.4100				1	1	1			
L9 112.4100-112.1600				1	1	0.906601			
L10 112.1600-110.5000				1	1	0.920688			
L11 110.5000-110.2500				1	1	0.897659			
L12 110.2500-105.2500				1	1	0.901482			
L13 105.2500-105.				1	1	0.900238			

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
0000									
L14				1	1	0.869918			
105.0000-104.7500									
L15				1	1	0.884213			
104.7500-103.5000									
L16				1	1	0.904783			
103.5000-103.2500									
L17				1	1	0.910136			
103.2500-98.2500									
L18				1	1	0.909543			
98.2500-94.8300									
L19				1	1	0.904951			
94.8300-94.5800									
L20				1	1	0.919107			
94.5800-94.1700									
L21				1	1	0.920509			
94.1700-93.8200									
L22				1	1	0.919731			
93.8200-93.6600									
L23				1	1	0.927379			
93.6600-84.9100									
L24				1	1	0.924625			
84.9100-83.9100									
L25				1	1	0.931135			
83.9100-78.9100									
L26				1	1	0.925417			
78.9100-73.9100									
L27				1	1	0.935436			
73.9100-68.9100									
L28				1	1	0.937955			
68.9100-65.5000									
L29				1	1	0.884461			
65.5000-65.2500									
L30				1	1	0.881725			
65.2500-64.5000									
L31				1	1	0.9318			
64.5000-64.2500									
L32				1	1	0.927996			
64.2500-59.2500									
L33				1	1	0.940014			

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
59.2500-58.5800									
L34 58.5800-58.3300				1	1	0.921739			
L35 58.3300-57.2500				1	1	0.931258			
L36 57.2500-57.0000				1	1	0.927357			
L37 57.0000-52.0000				1	1	0.92326			
L38 52.0000-44.4100				1	1	0.928669			
L39 44.4100-43.4100				1	1	0.940224			
L40 43.4100-38.4100				1	1	0.938379			
L41 38.4100-34.5000				1	1	0.940465			
L42 34.5000-34.2500				1	1	0.966856			
L43 34.2500-33.5000				1	1	0.975869			
L44 33.5000-33.2500				1	1	1.02509			
L45 33.2500-29.5000				1	1	1.02888			
L46 29.5000-29.2500				1	1	0.982244			
L47 29.2500-28.5000				1	1	0.979926			
L48 28.5000-28.2500				1	1	1.00624			
L49 28.2500-27.4800				1	1	0.963546			
L50 27.4800-27.2300				1	1	0.962796			
L51 27.2300-22.2300				1	1	0.974707			
L52 22.2300-17.2300				1	1	0.960518			

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
L53 17.2300-12.2300				1	1	0.974329			
L54 12.2300-7.2300				1	1	0.975235			
L55 7.2300-6.9000				1	1	1.00241			
L56 6.9000-6.5500				1	1	1.03784			
L57 6.5500-6.3300				1	1	1.03724			
L58 6.3300-3.2500				1	1	1.04518			
L59 3.2500-3.0000				1	1	1.04242			
L60 3.0000-2.7500				1	1	0.976135			
L61 2.7500-2.5000				1	1	0.975474			
L62 2.5000-2.2500				1	1	1.03273			
L63 2.2500-2.0000				1	1	1.00681			
L64 2.0000-0.0000				1	1	1.00199			

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
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8) ***45***	A	Surface Ar (CaAa)	129.0000 - 0.0000	1	1	-0.250 -0.250	1.6250		1.07
LDF4-50A(1/2) ***	B	Surface Ar (CaAa)	45.0000 - 0.0000	1	1	0.250 0.250	0.6250		0.15
Safety Line 3/8	A	Surface Ar (CaAa)	147.0000 - 0.0000	1	1	0.500 0.500	0.3750		0.22
Step Pegs (5/8" SR) 7-in. w/30" step ***Proposed mods888	A	Surface Ar (CaAa)	147.0000 - 0.0000	1	1	0.500 0.500	0.3500		0.49
PL 1.25x5	B	Surface Ar (CaAa)	29.7500 - 0.0000	1	1	0.250 0.250	1.2500		0.00
PL 1.25x5 *	C	Surface Ar (CaAa)	29.7500 - 0.0000	1	1	0.000 0.000	1.2500		0.00
PL 1.25x5	B	Surface Ar (CaAa)	59.5000 - 29.7500	1	1	0.250 0.250	1.2500		0.00
PL 1.25x5 *	C	Surface Ar (CaAa)	59.5000 - 29.7500	1	1	0.000 0.000	1.2500		0.00
PL 1.25x4.75	B	Surface Ar (CaAa)	89.2500 - 59.5000	1	1	0.250 0.250	1.2500		0.00

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
PL 1.25x4.75	C	Surface Ar (CaAa)	89.2500 - 59.5000	1	1	0.000 0.000	1.2500		0.00
*									
PL 1.25x4.25	B	Surface Ar (CaAa)	106.5000 - 89.2500	1	1	0.250 0.250	1.2500		0.00
PL 1.25x4.25	C	Surface Ar (CaAa)	106.5000 - 89.2500	1	1	0.000 0.000	1.2500		0.00
***									
(Area) Aero MP3-03	A	Surface Ar (CaAa)	30.7500 - 5.7500	1	1	0.500 0.500	1.5700		0.00
(Area) Aero MP3-03	A	Surface Ar (CaAa)	30.7500 - 5.7500	1	1	-0.250 -0.250	1.5700		0.00
***									
*									
(Area) CCI-65FP-045100	A	Surface Ar (CaAa)	60.5830 - 30.7500	1	1	0.500 0.500	1.0000		0.00
(Area) CCI-65FP-045100	A	Surface Ar (CaAa)	60.5830 - 30.7500	1	1	-0.250 -0.250	1.0000		0.00
*									
(Area) CCI-65FP-040075	A	Surface Ar (CaAa)	95.6670 - 60.5830	1	1	0.500 0.500	0.7500		0.00
(Area) CCI-65FP-040075	A	Surface Ar (CaAa)	95.6670 - 60.5830	1	1	-0.250 -0.250	0.7500		0.00
*									
(Area) CCI-65FP-045100	A	Surface Ar (CaAa)	112.0000 - 106.5000	1	1	0.500 0.500	1.0000		0.00
(Area) CCI-65FP-045100	A	Surface Ar (CaAa)	112.0000 - 106.5000	1	1	-0.250 -0.250	1.0000		0.00
Proposed Mods*									
(Area) CCI-65FP-045125	A	Surface Ar (CaAa)	5.7500 - 0.0000	1	1	0.500 0.500	1.2500		0.00
(Area) CCI-65FP-045125	A	Surface Ar (CaAa)	5.7500 - 0.0000	1	1	-0.250 -0.250	1.2500		0.00
*									
(Area) CCI-65FP-045125	B	Surface Ar (CaAa)	115.0800 - 106.5000	1	1	0.250 0.250	1.2500		0.00
(Area) CCI-65FP-045125	C	Surface Ar (CaAa)	114.1600 - 106.5000	1	1	0.000 0.000	1.2500		0.00

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
147								
HB114-1-0813U4-M5J(1-1/4)	A	No	Inside Pole	147.0000 - 0.0000	3	No Ice	0.0000	1.20
						1/2" Ice	0.0000	1.20
						1" Ice	0.0000	1.20
HB114-13U3M12-XXXF(1-1/4)	A	No	Inside Pole	147.0000 - 0.0000	1	No Ice	0.0000	0.99
						1/2" Ice	0.0000	0.99
						1" Ice	0.0000	0.99
136								
LDF7-50A(1-5/8)	C	No	Inside Pole	136.0000 - 0.0000	12	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	136.0000 - 0.0000	2	No Ice	0.0000	1.30
						1/2" Ice	0.0000	1.30
						1" Ice	0.0000	1.30

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
129								
LDF7-50A(1-5/8)	A	No	Inside Pole	129.0000 - 0.0000	6	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
118								
2" Flexible Conduit	B	No	Inside Pole	118.0000 - 0.0000	1	No Ice	0.0000	0.34
						1/2" Ice	0.0000	0.34
						1" Ice	0.0000	0.34
AVA6-50(1-1/4)	B	No	Inside Pole	118.0000 - 0.0000	6	No Ice	0.0000	0.46
						1/2" Ice	0.0000	0.46
						1" Ice	0.0000	0.46
FB-L98B-002-75000(3/8)	B	No	Inside Pole	118.0000 - 0.0000	3	No Ice	0.0000	0.06
						1/2" Ice	0.0000	0.06
						1" Ice	0.0000	0.06
50								
LDF4-50A(1/2)	C	No	Inside Pole	50.0000 - 0.0000	1	No Ice	0.0000	0.15
						1/2" Ice	0.0000	0.15
						1" Ice	0.0000	0.15

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	147.0000-142.000	A	0.000	0.000	0.362	0.000	0.03
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	142.0000-137.000	A	0.000	0.000	0.362	0.000	0.03
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	137.0000-132.000	A	0.000	0.000	0.362	0.000	0.03
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L4	132.0000-127.000	A	0.000	0.000	0.688	0.000	0.04
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.06
L5	127.0000-120.370	A	0.000	0.000	1.558	0.000	0.07
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.08
L6	120.3700-118.620	A	0.000	0.000	0.411	0.000	0.02
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L7	118.6200-113.620	A	0.000	0.000	1.175	0.000	0.06
	0	B	0.000	0.000	0.183	0.000	0.01
		C	0.000	0.000	0.068	0.000	0.06
L8	113.6200-112.410	A	0.000	0.000	0.284	0.000	0.01
	0	B	0.000	0.000	0.151	0.000	0.00
		C	0.000	0.000	0.151	0.000	0.02
L9	112.4100-112.160	A	0.000	0.000	0.059	0.000	0.00
	0	B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L10	112.1600-110.500	A	0.000	0.000	0.690	0.000	0.02
	0	B	0.000	0.000	0.207	0.000	0.01
		C	0.000	0.000	0.207	0.000	0.02
L11	110.5000-110.250	A	0.000	0.000	0.109	0.000	0.00
	0	B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L12	110.2500-105.250	A	0.000	0.000	1.925	0.000	0.06

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
	0	B	0.000	0.000	0.625	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L13	105.2500-105.000	A	0.000	0.000	0.059	0.000	0.00
	0	B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L14	105.0000-104.750	A	0.000	0.000	0.059	0.000	0.00
	0	B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L15	104.7500-103.500	A	0.000	0.000	0.294	0.000	0.01
	0	B	0.000	0.000	0.156	0.000	0.00
		C	0.000	0.000	0.156	0.000	0.02
L16	103.5000-103.250	A	0.000	0.000	0.059	0.000	0.00
	0	B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L17	103.2500-98.2500	A	0.000	0.000	1.175	0.000	0.06
		B	0.000	0.000	0.625	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L18	98.2500-94.8300	A	0.000	0.000	0.929	0.000	0.04
		B	0.000	0.000	0.427	0.000	0.01
		C	0.000	0.000	0.427	0.000	0.04
L19	94.8300-94.5800	A	0.000	0.000	0.096	0.000	0.00
		B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L20	94.5800-94.1700	A	0.000	0.000	0.158	0.000	0.00
		B	0.000	0.000	0.051	0.000	0.00
		C	0.000	0.000	0.051	0.000	0.01
L21	94.1700-93.8200	A	0.000	0.000	0.135	0.000	0.00
		B	0.000	0.000	0.044	0.000	0.00
		C	0.000	0.000	0.044	0.000	0.00
L22	93.8200-93.6600	A	0.000	0.000	0.062	0.000	0.00
		B	0.000	0.000	0.020	0.000	0.00
		C	0.000	0.000	0.020	0.000	0.00
L23	93.6600-84.9100	A	0.000	0.000	3.369	0.000	0.10
		B	0.000	0.000	1.094	0.000	0.03
		C	0.000	0.000	1.094	0.000	0.11
L24	84.9100-83.9100	A	0.000	0.000	0.385	0.000	0.01
		B	0.000	0.000	0.125	0.000	0.00
		C	0.000	0.000	0.125	0.000	0.01
L25	83.9100-78.9100	A	0.000	0.000	1.925	0.000	0.06
		B	0.000	0.000	0.625	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L26	78.9100-73.9100	A	0.000	0.000	1.925	0.000	0.06
		B	0.000	0.000	0.625	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L27	73.9100-68.9100	A	0.000	0.000	1.925	0.000	0.06
		B	0.000	0.000	0.625	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L28	68.9100-65.5000	A	0.000	0.000	1.313	0.000	0.04
		B	0.000	0.000	0.426	0.000	0.01
		C	0.000	0.000	0.426	0.000	0.04
L29	65.5000-65.2500	A	0.000	0.000	0.096	0.000	0.00
		B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L30	65.2500-64.5000	A	0.000	0.000	0.289	0.000	0.01
		B	0.000	0.000	0.094	0.000	0.00
		C	0.000	0.000	0.094	0.000	0.01
L31	64.5000-64.2500	A	0.000	0.000	0.096	0.000	0.00
		B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L32	64.2500-59.2500	A	0.000	0.000	1.992	0.000	0.06
		B	0.000	0.000	0.625	0.000	0.02

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.625	0.000	0.06
L33	59.2500-58.5800	A	0.000	0.000	0.291	0.000	0.01
		B	0.000	0.000	0.084	0.000	0.00
		C	0.000	0.000	0.084	0.000	0.01
L34	58.5800-58.3300	A	0.000	0.000	0.109	0.000	0.00
		B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L35	58.3300-57.2500	A	0.000	0.000	0.470	0.000	0.01
		B	0.000	0.000	0.135	0.000	0.00
		C	0.000	0.000	0.135	0.000	0.01
L36	57.2500-57.0000	A	0.000	0.000	0.109	0.000	0.00
		B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L37	57.0000-52.0000	A	0.000	0.000	2.175	0.000	0.06
		B	0.000	0.000	0.625	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L38	52.0000-44.4100	A	0.000	0.000	3.302	0.000	0.09
		B	0.000	0.000	0.986	0.000	0.02
		C	0.000	0.000	0.949	0.000	0.10
L39	44.4100-43.4100	A	0.000	0.000	0.435	0.000	0.01
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.125	0.000	0.01
L40	43.4100-38.4100	A	0.000	0.000	2.175	0.000	0.06
		B	0.000	0.000	0.938	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L41	38.4100-34.5000	A	0.000	0.000	1.701	0.000	0.04
		B	0.000	0.000	0.733	0.000	0.01
		C	0.000	0.000	0.489	0.000	0.05
L42	34.5000-34.2500	A	0.000	0.000	0.109	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L43	34.2500-33.5000	A	0.000	0.000	0.326	0.000	0.01
		B	0.000	0.000	0.141	0.000	0.00
		C	0.000	0.000	0.094	0.000	0.01
L44	33.5000-33.2500	A	0.000	0.000	0.109	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L45	33.2500-29.5000	A	0.000	0.000	1.774	0.000	0.04
		B	0.000	0.000	0.703	0.000	0.01
		C	0.000	0.000	0.469	0.000	0.05
L46	29.5000-29.2500	A	0.000	0.000	0.137	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L47	29.2500-28.5000	A	0.000	0.000	0.412	0.000	0.01
		B	0.000	0.000	0.141	0.000	0.00
		C	0.000	0.000	0.094	0.000	0.01
L48	28.5000-28.2500	A	0.000	0.000	0.137	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L49	28.2500-27.4800	A	0.000	0.000	0.423	0.000	0.01
		B	0.000	0.000	0.144	0.000	0.00
		C	0.000	0.000	0.096	0.000	0.01
L50	27.4800-27.2300	A	0.000	0.000	0.137	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L51	27.2300-22.2300	A	0.000	0.000	2.745	0.000	0.06
		B	0.000	0.000	0.938	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L52	22.2300-17.2300	A	0.000	0.000	2.745	0.000	0.06
		B	0.000	0.000	0.938	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06

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
L53	17.2300-12.2300	A	0.000	0.000	2.745	0.000	0.06
		B	0.000	0.000	0.938	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L54	12.2300-7.2300	A	0.000	0.000	2.745	0.000	0.06
		B	0.000	0.000	0.938	0.000	0.02
		C	0.000	0.000	0.625	0.000	0.06
L55	7.2300-6.9000	A	0.000	0.000	0.181	0.000	0.00
		B	0.000	0.000	0.062	0.000	0.00
		C	0.000	0.000	0.041	0.000	0.00
L56	6.9000-6.5500	A	0.000	0.000	0.192	0.000	0.00
		B	0.000	0.000	0.066	0.000	0.00
		C	0.000	0.000	0.044	0.000	0.00
L57	6.5500-6.3300	A	0.000	0.000	0.121	0.000	0.00
		B	0.000	0.000	0.041	0.000	0.00
		C	0.000	0.000	0.028	0.000	0.00
L58	6.3300-3.2500	A	0.000	0.000	1.531	0.000	0.03
		B	0.000	0.000	0.578	0.000	0.01
		C	0.000	0.000	0.385	0.000	0.04
L59	3.2500-3.0000	A	0.000	0.000	0.121	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L60	3.0000-2.7500	A	0.000	0.000	0.121	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L61	2.7500-2.5000	A	0.000	0.000	0.121	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L62	2.5000-2.2500	A	0.000	0.000	0.121	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L63	2.2500-2.0000	A	0.000	0.000	0.121	0.000	0.00
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.031	0.000	0.00
L64	2.0000-0.0000	A	0.000	0.000	0.970	0.000	0.02
		B	0.000	0.000	0.375	0.000	0.01
		C	0.000	0.000	0.250	0.000	0.03

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	147.0000-142.000	A	1.739	0.000	0.000	3.840	0.000	0.07
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	142.0000-137.000	A	1.733	0.000	0.000	3.828	0.000	0.07
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	137.0000-132.000	A	1.726	0.000	0.000	3.815	0.000	0.07
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.05
L4	132.0000-127.000	A	1.720	0.000	0.000	4.815	0.000	0.10
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.06
L5	127.0000-120.370	A	1.712	0.000	0.000	8.368	0.000	0.18
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.08
L6	120.3700-118.620	A	1.706	0.000	0.000	2.209	0.000	0.05

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
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L7	118.6200-113.620	A	1.701	0.000	0.000	6.278	0.000	0.13
	0	B		0.000	0.000	0.652	0.000	0.02
		C		0.000	0.000	0.230	0.000	0.07
L8	113.6200-112.410	A	1.696	0.000	0.000	1.516	0.000	0.03
	0	B		0.000	0.000	0.540	0.000	0.01
		C		0.000	0.000	0.515	0.000	0.02
L9	112.4100-112.160	A	1.695	0.000	0.000	0.313	0.000	0.01
	0	B		0.000	0.000	0.112	0.000	0.00
		C		0.000	0.000	0.106	0.000	0.00
L10	112.1600-110.500	A	1.694	0.000	0.000	3.170	0.000	0.06
	0	B		0.000	0.000	0.740	0.000	0.02
		C		0.000	0.000	0.706	0.000	0.03
L11	110.5000-110.250	A	1.692	0.000	0.000	0.495	0.000	0.01
	0	B		0.000	0.000	0.111	0.000	0.00
		C		0.000	0.000	0.106	0.000	0.00
L12	110.2500-105.250	A	1.688	0.000	0.000	8.967	0.000	0.17
	0	B		0.000	0.000	2.249	0.000	0.05
		C		0.000	0.000	2.172	0.000	0.09
L13	105.2500-105.000	A	1.684	0.000	0.000	0.311	0.000	0.01
	0	B		0.000	0.000	0.115	0.000	0.00
		C		0.000	0.000	0.115	0.000	0.00
L14	105.0000-104.750	A	1.684	0.000	0.000	0.311	0.000	0.01
	0	B		0.000	0.000	0.115	0.000	0.00
		C		0.000	0.000	0.115	0.000	0.00
L15	104.7500-103.500	A	1.683	0.000	0.000	1.556	0.000	0.03
	0	B		0.000	0.000	0.577	0.000	0.01
		C		0.000	0.000	0.577	0.000	0.02
L16	103.5000-103.250	A	1.681	0.000	0.000	0.311	0.000	0.01
	0	B		0.000	0.000	0.115	0.000	0.00
		C		0.000	0.000	0.115	0.000	0.00
L17	103.2500-98.2500	A	1.677	0.000	0.000	6.206	0.000	0.13
		B		0.000	0.000	2.302	0.000	0.05
		C		0.000	0.000	2.302	0.000	0.09
L18	98.2500-94.8300	A	1.670	0.000	0.000	4.915	0.000	0.10
		B		0.000	0.000	1.570	0.000	0.03
		C		0.000	0.000	1.570	0.000	0.06
L19	94.8300-94.5800	A	1.667	0.000	0.000	0.513	0.000	0.01
		B		0.000	0.000	0.115	0.000	0.00
		C		0.000	0.000	0.115	0.000	0.00
L20	94.5800-94.1700	A	1.666	0.000	0.000	0.841	0.000	0.01
		B		0.000	0.000	0.188	0.000	0.00
		C		0.000	0.000	0.188	0.000	0.01
L21	94.1700-93.8200	A	1.666	0.000	0.000	0.718	0.000	0.01
		B		0.000	0.000	0.160	0.000	0.00
		C		0.000	0.000	0.160	0.000	0.01
L22	93.8200-93.6600	A	1.665	0.000	0.000	0.328	0.000	0.01
		B		0.000	0.000	0.073	0.000	0.00
		C		0.000	0.000	0.073	0.000	0.00
L23	93.6600-84.9100	A	1.657	0.000	0.000	17.867	0.000	0.31
		B		0.000	0.000	3.993	0.000	0.08
		C		0.000	0.000	3.993	0.000	0.16
L24	84.9100-83.9100	A	1.648	0.000	0.000	2.042	0.000	0.04
		B		0.000	0.000	0.456	0.000	0.01
		C		0.000	0.000	0.456	0.000	0.02
L25	83.9100-78.9100	A	1.642	0.000	0.000	10.134	0.000	0.18
		B		0.000	0.000	2.267	0.000	0.05
		C		0.000	0.000	2.267	0.000	0.09
L26	78.9100-73.9100	A	1.631	0.000	0.000	10.082	0.000	0.18
		B		0.000	0.000	2.256	0.000	0.05

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	2.256	0.000	0.09
L27	73.9100-68.9100	A	1.620	0.000	0.000	10.027	0.000	0.17
		B		0.000	0.000	2.245	0.000	0.04
		C		0.000	0.000	2.245	0.000	0.09
L28	68.9100-65.5000	A	1.611	0.000	0.000	6.805	0.000	0.12
		B		0.000	0.000	1.525	0.000	0.03
		C		0.000	0.000	1.525	0.000	0.06
L29	65.5000-65.2500	A	1.606	0.000	0.000	0.498	0.000	0.01
		B		0.000	0.000	0.112	0.000	0.00
		C		0.000	0.000	0.112	0.000	0.00
L30	65.2500-64.5000	A	1.605	0.000	0.000	1.492	0.000	0.03
		B		0.000	0.000	0.334	0.000	0.01
		C		0.000	0.000	0.334	0.000	0.01
L31	64.5000-64.2500	A	1.604	0.000	0.000	0.497	0.000	0.01
		B		0.000	0.000	0.111	0.000	0.00
		C		0.000	0.000	0.111	0.000	0.00
L32	64.2500-59.2500	A	1.597	0.000	0.000	9.976	0.000	0.17
		B		0.000	0.000	2.222	0.000	0.04
		C		0.000	0.000	2.222	0.000	0.09
L33	59.2500-58.5800	A	1.590	0.000	0.000	1.356	0.000	0.02
		B		0.000	0.000	0.297	0.000	0.01
		C		0.000	0.000	0.297	0.000	0.01
L34	58.5800-58.3300	A	1.588	0.000	0.000	0.506	0.000	0.01
		B		0.000	0.000	0.111	0.000	0.00
		C		0.000	0.000	0.111	0.000	0.00
L35	58.3300-57.2500	A	1.586	0.000	0.000	2.183	0.000	0.04
		B		0.000	0.000	0.478	0.000	0.01
		C		0.000	0.000	0.478	0.000	0.02
L36	57.2500-57.0000	A	1.585	0.000	0.000	0.505	0.000	0.01
		B		0.000	0.000	0.110	0.000	0.00
		C		0.000	0.000	0.110	0.000	0.00
L37	57.0000-52.0000	A	1.577	0.000	0.000	10.061	0.000	0.17
		B		0.000	0.000	2.202	0.000	0.04
		C		0.000	0.000	2.202	0.000	0.09
L38	52.0000-44.4100	A	1.558	0.000	0.000	15.126	0.000	0.26
		B		0.000	0.000	3.534	0.000	0.07
		C		0.000	0.000	3.314	0.000	0.14
L39	44.4100-43.4100	A	1.543	0.000	0.000	1.993	0.000	0.03
		B		0.000	0.000	0.811	0.000	0.01
		C		0.000	0.000	0.437	0.000	0.02
L40	43.4100-38.4100	A	1.533	0.000	0.000	9.838	0.000	0.17
		B		0.000	0.000	4.003	0.000	0.06
		C		0.000	0.000	2.158	0.000	0.09
L41	38.4100-34.5000	A	1.515	0.000	0.000	7.624	0.000	0.13
		B		0.000	0.000	3.103	0.000	0.05
		C		0.000	0.000	1.673	0.000	0.07
L42	34.5000-34.2500	A	1.506	0.000	0.000	0.485	0.000	0.01
		B		0.000	0.000	0.197	0.000	0.00
		C		0.000	0.000	0.107	0.000	0.00
L43	34.2500-33.5000	A	1.504	0.000	0.000	1.454	0.000	0.02
		B		0.000	0.000	0.592	0.000	0.01
		C		0.000	0.000	0.319	0.000	0.01
L44	33.5000-33.2500	A	1.502	0.000	0.000	0.484	0.000	0.01
		B		0.000	0.000	0.197	0.000	0.00
		C		0.000	0.000	0.106	0.000	0.00
L45	33.2500-29.5000	A	1.492	0.000	0.000	7.370	0.000	0.13
		B		0.000	0.000	2.942	0.000	0.05
		C		0.000	0.000	1.588	0.000	0.07
L46	29.5000-29.2500	A	1.483	0.000	0.000	0.508	0.000	0.01
		B		0.000	0.000	0.195	0.000	0.00
		C		0.000	0.000	0.105	0.000	0.00

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
L47	29.2500-28.5000	A	1.480	0.000	0.000	1.522	0.000	0.03
		B		0.000	0.000	0.585	0.000	0.01
		C		0.000	0.000	0.316	0.000	0.01
L48	28.5000-28.2500	A	1.478	0.000	0.000	0.507	0.000	0.01
		B		0.000	0.000	0.195	0.000	0.00
		C		0.000	0.000	0.105	0.000	0.00
L49	28.2500-27.4800	A	1.475	0.000	0.000	1.558	0.000	0.03
		B		0.000	0.000	0.599	0.000	0.01
		C		0.000	0.000	0.323	0.000	0.01
L50	27.4800-27.2300	A	1.472	0.000	0.000	0.505	0.000	0.01
		B		0.000	0.000	0.194	0.000	0.00
		C		0.000	0.000	0.105	0.000	0.00
L51	27.2300-22.2300	A	1.457	0.000	0.000	10.031	0.000	0.17
		B		0.000	0.000	3.852	0.000	0.06
		C		0.000	0.000	2.082	0.000	0.09
L52	22.2300-17.2300	A	1.425	0.000	0.000	9.869	0.000	0.17
		B		0.000	0.000	3.787	0.000	0.06
		C		0.000	0.000	2.050	0.000	0.09
L53	17.2300-12.2300	A	1.384	0.000	0.000	9.663	0.000	0.16
		B		0.000	0.000	3.705	0.000	0.06
		C		0.000	0.000	2.009	0.000	0.09
L54	12.2300-7.2300	A	1.327	0.000	0.000	9.382	0.000	0.15
		B		0.000	0.000	3.592	0.000	0.05
		C		0.000	0.000	1.952	0.000	0.08
L55	7.2300-6.9000	A	1.286	0.000	0.000	0.605	0.000	0.01
		B		0.000	0.000	0.232	0.000	0.00
		C		0.000	0.000	0.126	0.000	0.01
L56	6.9000-6.5500	A	1.279	0.000	0.000	0.640	0.000	0.01
		B		0.000	0.000	0.245	0.000	0.00
		C		0.000	0.000	0.133	0.000	0.01
L57	6.5500-6.3300	A	1.274	0.000	0.000	0.401	0.000	0.01
		B		0.000	0.000	0.153	0.000	0.00
		C		0.000	0.000	0.084	0.000	0.00
L58	6.3300-3.2500	A	1.237	0.000	0.000	5.140	0.000	0.09
		B		0.000	0.000	2.101	0.000	0.03
		C		0.000	0.000	1.147	0.000	0.05
L59	3.2500-3.0000	A	1.185	0.000	0.000	0.400	0.000	0.01
		B		0.000	0.000	0.165	0.000	0.00
		C		0.000	0.000	0.091	0.000	0.00
L60	3.0000-2.7500	A	1.175	0.000	0.000	0.398	0.000	0.01
		B		0.000	0.000	0.164	0.000	0.00
		C		0.000	0.000	0.090	0.000	0.00
L61	2.7500-2.5000	A	1.165	0.000	0.000	0.396	0.000	0.01
		B		0.000	0.000	0.163	0.000	0.00
		C		0.000	0.000	0.089	0.000	0.00
L62	2.5000-2.2500	A	1.153	0.000	0.000	0.393	0.000	0.01
		B		0.000	0.000	0.162	0.000	0.00
		C		0.000	0.000	0.089	0.000	0.00
L63	2.2500-2.0000	A	1.140	0.000	0.000	0.391	0.000	0.01
		B		0.000	0.000	0.161	0.000	0.00
		C		0.000	0.000	0.088	0.000	0.00
L64	2.0000-0.0000	A	1.057	0.000	0.000	2.988	0.000	0.05
		B		0.000	0.000	1.221	0.000	0.02
		C		0.000	0.000	0.673	0.000	0.03

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	147.0000-142.0000	0.0000	-0.1041	0.0000	-0.6643
L2	142.0000-137.0000	0.0000	-0.1043	0.0000	-0.6797
L3	137.0000-132.0000	0.0000	-0.1044	0.0000	-0.6938
L4	132.0000-127.0000	-0.0975	-0.1009	-0.1890	-0.6581
L5	127.0000-120.3700	-0.2285	-0.0963	-0.4316	-0.6117
L6	120.3700-118.6200	-0.2287	-0.0965	-0.4348	-0.6168
L7	118.6200-113.6200	-0.1735	-0.0759	-0.3095	-0.5547
L8	113.6200-112.4100	-0.0499	0.0688	-0.0441	-0.2076
L9	112.4100-112.1600	-0.0499	0.0688	-0.0441	-0.2083
L10	112.1600-110.5000	-0.1508	-0.0401	-0.2377	-0.3811
L11	110.5000-110.2500	-0.1610	-0.0509	-0.2564	-0.3986
L12	110.2500-105.2500	-0.1349	-0.0223	-0.2073	-0.3531
L13	105.2500-105.0000	-0.0502	0.0693	-0.0320	-0.1852
L14	105.0000-104.7500	-0.0502	0.0693	-0.0320	-0.1854
L15	104.7500-103.5000	-0.0502	0.0693	-0.0321	-0.1860
L16	103.5000-103.2500	-0.0503	0.0694	-0.0322	-0.1866
L17	103.2500-98.2500	-0.0504	0.0695	-0.0324	-0.1886
L18	98.2500-94.8300	-0.0727	0.0460	-0.1023	-0.2546
L19	94.8300-94.5800	-0.1371	-0.0229	-0.2843	-0.4206
L20	94.5800-94.1700	-0.1371	-0.0229	-0.2846	-0.4212
L21	94.1700-93.8200	-0.1372	-0.0229	-0.2851	-0.4218
L22	93.8200-93.6600	-0.1372	-0.0229	-0.2854	-0.4223
L23	93.6600-84.9100	-0.1380	-0.0232	-0.2903	-0.4298
L24	84.9100-83.9100	-0.1383	-0.0233	-0.2926	-0.4334
L25	83.9100-78.9100	-0.1388	-0.0235	-0.2953	-0.4369
L26	78.9100-73.9100	-0.1396	-0.0238	-0.3003	-0.4443
L27	73.9100-68.9100	-0.1403	-0.0240	-0.3051	-0.4513
L28	68.9100-65.5000	-0.1409	-0.0242	-0.3090	-0.4568
L29	65.5000-65.2500	-0.1412	-0.0243	-0.3106	-0.4591
L30	65.2500-64.5000	-0.1412	-0.0243	-0.3110	-0.4597
L31	64.5000-64.2500	-0.1413	-0.0244	-0.3114	-0.4603
L32	64.2500-59.2500	-0.1496	-0.0329	-0.3183	-0.4678
L33	59.2500-58.5800	-0.1714	-0.0556	-0.3334	-0.4828
L34	58.5800-58.3300	-0.1715	-0.0557	-0.3338	-0.4834
L35	58.3300-57.2500	-0.1716	-0.0557	-0.3344	-0.4841
L36	57.2500-57.0000	-0.1717	-0.0558	-0.3350	-0.4849
L37	57.0000-52.0000	-0.1721	-0.0560	-0.3371	-0.4877
L38	52.0000-44.4100	-0.1667	-0.0563	-0.3183	-0.4916
L39	44.4100-43.4100	-0.0947	-0.0555	-0.0596	-0.4670
L40	43.4100-38.4100	-0.0949	-0.0557	-0.0604	-0.4673
L41	38.4100-34.5000	-0.0953	-0.0560	-0.0612	-0.4706
L42	34.5000-34.2500	-0.0954	-0.0562	-0.0616	-0.4720
L43	34.2500-33.5000	-0.0954	-0.0562	-0.0617	-0.4723
L44	33.5000-33.2500	-0.0955	-0.0562	-0.0618	-0.4726
L45	33.2500-29.5000	-0.1191	-0.0802	-0.0777	-0.4868
L46	29.5000-29.2500	-0.1645	-0.1263	-0.1087	-0.5137
L47	29.2500-28.5000	-0.1646	-0.1264	-0.1088	-0.5140
L48	28.5000-28.2500	-0.1646	-0.1264	-0.1090	-0.5143
L49	28.2500-27.4800	-0.1647	-0.1265	-0.1092	-0.5145
L50	27.4800-27.2300	-0.1648	-0.1265	-0.1094	-0.5148
L51	27.2300-22.2300	-0.1651	-0.1269	-0.1103	-0.5158
L52	22.2300-17.2300	-0.1657	-0.1274	-0.1122	-0.5167
L53	17.2300-12.2300	-0.1663	-0.1280	-0.1142	-0.5156
L54	12.2300-7.2300	-0.1669	-0.1285	-0.1167	-0.5110
L55	7.2300-6.9000	-0.1672	-0.1288	-0.1183	-0.5058
L56	6.9000-6.5500	-0.1672	-0.1288	-0.1185	-0.5050
L57	6.5500-6.3300	-0.1673	-0.1288	-0.1187	-0.5042
L58	6.3300-3.2500	-0.1357	-0.0968	-0.0699	-0.4549
L59	3.2500-3.0000	-0.1284	-0.0894	-0.0628	-0.4380
L60	3.0000-2.7500	-0.1284	-0.0894	-0.0637	-0.4366
L61	2.7500-2.5000	-0.1284	-0.0894	-0.0647	-0.4351

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L62	2.5000-2.2500	-0.1284	-0.0894	-0.0658	-0.4334
L63	2.2500-2.0000	-0.1284	-0.0894	-0.0669	-0.4315
L64	2.0000-0.0000	-0.1285	-0.0895	-0.0748	-0.4184

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	20	Safety Line 3/8	142.00 - 147.00	1.0000	1.0000
L1	21	Step Pegs (5/8" SR) 7-in. w/30" step	142.00 - 147.00	1.0000	1.0000
L2	20	Safety Line 3/8	137.00 - 142.00	1.0000	1.0000
L2	21	Step Pegs (5/8" SR) 7-in. w/30" step	137.00 - 142.00	1.0000	1.0000
L3	20	Safety Line 3/8	132.00 - 137.00	1.0000	1.0000
L3	21	Step Pegs (5/8" SR) 7-in. w/30" step	132.00 - 137.00	1.0000	1.0000
L4	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	127.00 - 129.00	1.0000	1.0000
L4	20	Safety Line 3/8	127.00 - 132.00	1.0000	1.0000
L4	21	Step Pegs (5/8" SR) 7-in. w/30" step	127.00 - 132.00	1.0000	1.0000
L5	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	120.37 - 127.00	1.0000	1.0000
L5	20	Safety Line 3/8	120.37 - 127.00	1.0000	1.0000
L5	21	Step Pegs (5/8" SR) 7-in. w/30" step	120.37 - 127.00	1.0000	1.0000
L7	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	113.62 - 118.62	1.0000	1.0000
L7	20	Safety Line 3/8	113.62 - 118.62	1.0000	1.0000
L7	21	Step Pegs (5/8" SR) 7-in. w/30" step	113.62 - 118.62	1.0000	1.0000
L7	53	(Area) CCI-65FP-045125	113.62 - 115.08	1.0000	1.0000
L7	54	(Area) CCI-65FP-045125	113.62 - 114.16	1.0000	1.0000
L8	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	112.41 - 113.62	1.0000	1.0000
L8	20	Safety Line 3/8	112.41 - 113.62	1.0000	1.0000
L8	21	Step Pegs (5/8" SR) 7-in. w/30" step	112.41 - 113.62	1.0000	1.0000
L8	53	(Area) CCI-65FP-045125	112.41 - 113.62	1.0000	1.0000
L8	54	(Area) CCI-65FP-045125	112.41 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			113.62		
L9	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	112.16 - 112.41	1.0000	1.0000
L9	20	Safety Line 3/8	112.16 - 112.41	1.0000	1.0000
L9	21	Step Pegs (5/8" SR) 7-in. w/30" step	112.16 - 112.41	1.0000	1.0000
L9	53	(Area) CCI-65FP-045125	112.16 - 112.41	1.0000	1.0000
L9	54	(Area) CCI-65FP-045125	112.16 - 112.41	1.0000	1.0000
L10	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	110.50 - 112.16	1.0000	1.0000
L10	20	Safety Line 3/8	110.50 - 112.16	1.0000	1.0000
L10	21	Step Pegs (5/8" SR) 7-in. w/30" step	110.50 - 112.16	1.0000	1.0000
L10	47	(Area) CCI-65FP-045100	110.50 - 112.00	1.0000	1.0000
L10	48	(Area) CCI-65FP-045100	110.50 - 112.00	1.0000	1.0000
L10	53	(Area) CCI-65FP-045125	110.50 - 112.16	1.0000	1.0000
L10	54	(Area) CCI-65FP-045125	110.50 - 112.16	1.0000	1.0000
L11	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	110.25 - 110.50	1.0000	1.0000
L11	20	Safety Line 3/8	110.25 - 110.50	1.0000	1.0000
L11	21	Step Pegs (5/8" SR) 7-in. w/30" step	110.25 - 110.50	1.0000	1.0000
L11	47	(Area) CCI-65FP-045100	110.25 - 110.50	1.0000	1.0000
L11	48	(Area) CCI-65FP-045100	110.25 - 110.50	1.0000	1.0000
L11	53	(Area) CCI-65FP-045125	110.25 - 110.50	1.0000	1.0000
L11	54	(Area) CCI-65FP-045125	110.25 - 110.50	1.0000	1.0000
L12	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	105.25 - 110.25	1.0000	1.0000
L12	20	Safety Line 3/8	105.25 - 110.25	1.0000	1.0000
L12	21	Step Pegs (5/8" SR) 7-in. w/30" step	105.25 - 110.25	1.0000	1.0000
L12	32	PL 1.25x4.25	105.25 - 106.50	1.0000	1.0000
L12	33	PL 1.25x4.25	105.25 - 106.50	1.0000	1.0000
L12	47	(Area) CCI-65FP-045100	106.50 - 110.25	1.0000	1.0000
L12	48	(Area) CCI-65FP-045100	106.50 - 110.25	1.0000	1.0000
L12	53	(Area) CCI-65FP-045125	106.50 - 110.25	1.0000	1.0000
L12	54	(Area) CCI-65FP-045125	106.50 - 110.25	1.0000	1.0000
L13	10	MLE HYBRID	105.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)	105.25		
L13	20	Safety Line 3/8	105.00 - 105.25	1.0000	1.0000
L13	21	Step Pegs (5/8" SR) 7-in. w/30" step	105.00 - 105.25	1.0000	1.0000
L13	32	PL 1.25x4.25	105.00 - 105.25	1.0000	1.0000
L13	33	PL 1.25x4.25	105.00 - 105.25	1.0000	1.0000
L14	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	104.75 - 105.00	1.0000	1.0000
L14	20	Safety Line 3/8	104.75 - 105.00	1.0000	1.0000
L14	21	Step Pegs (5/8" SR) 7-in. w/30" step	104.75 - 105.00	1.0000	1.0000
L14	32	PL 1.25x4.25	104.75 - 105.00	1.0000	1.0000
L14	33	PL 1.25x4.25	104.75 - 105.00	1.0000	1.0000
L15	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	103.50 - 104.75	1.0000	1.0000
L15	20	Safety Line 3/8	103.50 - 104.75	1.0000	1.0000
L15	21	Step Pegs (5/8" SR) 7-in. w/30" step	103.50 - 104.75	1.0000	1.0000
L15	32	PL 1.25x4.25	103.50 - 104.75	1.0000	1.0000
L15	33	PL 1.25x4.25	103.50 - 104.75	1.0000	1.0000
L16	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	103.25 - 103.50	1.0000	1.0000
L16	20	Safety Line 3/8	103.25 - 103.50	1.0000	1.0000
L16	21	Step Pegs (5/8" SR) 7-in. w/30" step	103.25 - 103.50	1.0000	1.0000
L16	32	PL 1.25x4.25	103.25 - 103.50	1.0000	1.0000
L16	33	PL 1.25x4.25	103.25 - 103.50	1.0000	1.0000
L17	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	98.25 - 103.25	1.0000	1.0000
L17	20	Safety Line 3/8	98.25 - 103.25	1.0000	1.0000
L17	21	Step Pegs (5/8" SR) 7-in. w/30" step	98.25 - 103.25	1.0000	1.0000
L17	32	PL 1.25x4.25	98.25 - 103.25	1.0000	1.0000
L17	33	PL 1.25x4.25	98.25 - 103.25	1.0000	1.0000
L18	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	94.83 - 98.25	1.0000	1.0000
L18	20	Safety Line 3/8	94.83 - 98.25	1.0000	1.0000
L18	21	Step Pegs (5/8" SR) 7-in. w/30" step	94.83 - 98.25	1.0000	1.0000
L18	32	PL 1.25x4.25	94.83 - 98.25	1.0000	1.0000
L18	33	PL 1.25x4.25	94.83 - 98.25	1.0000	1.0000
L18	44	(Area) CCI-65FP-040075	94.83 - 95.67	1.0000	1.0000
L18	45	(Area) CCI-65FP-040075	94.83 - 95.67	1.0000	1.0000
L19	10	MLE HYBRID	94.58 - 94.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)			
L19	20	Safety Line 3/8	94.58 - 94.83	1.0000	1.0000
L19	21	Step Pegs (5/8" SR) 7-in. w/30" step	94.58 - 94.83	1.0000	1.0000
L19	32	PL 1.25x4.25	94.58 - 94.83	1.0000	1.0000
L19	33	PL 1.25x4.25	94.58 - 94.83	1.0000	1.0000
L19	44	(Area) CCI-65FP-040075	94.58 - 94.83	1.0000	1.0000
L19	45	(Area) CCI-65FP-040075	94.58 - 94.83	1.0000	1.0000
L20	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	94.17 - 94.58	1.0000	1.0000
L20	20	Safety Line 3/8	94.17 - 94.58	1.0000	1.0000
L20	21	Step Pegs (5/8" SR) 7-in. w/30" step	94.17 - 94.58	1.0000	1.0000
L20	32	PL 1.25x4.25	94.17 - 94.58	1.0000	1.0000
L20	33	PL 1.25x4.25	94.17 - 94.58	1.0000	1.0000
L20	44	(Area) CCI-65FP-040075	94.17 - 94.58	1.0000	1.0000
L20	45	(Area) CCI-65FP-040075	94.17 - 94.58	1.0000	1.0000
L21	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	93.82 - 94.17	1.0000	1.0000
L21	20	Safety Line 3/8	93.82 - 94.17	1.0000	1.0000
L21	21	Step Pegs (5/8" SR) 7-in. w/30" step	93.82 - 94.17	1.0000	1.0000
L21	32	PL 1.25x4.25	93.82 - 94.17	1.0000	1.0000
L21	33	PL 1.25x4.25	93.82 - 94.17	1.0000	1.0000
L21	44	(Area) CCI-65FP-040075	93.82 - 94.17	1.0000	1.0000
L21	45	(Area) CCI-65FP-040075	93.82 - 94.17	1.0000	1.0000
L22	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	93.66 - 93.82	1.0000	1.0000
L22	20	Safety Line 3/8	93.66 - 93.82	1.0000	1.0000
L22	21	Step Pegs (5/8" SR) 7-in. w/30" step	93.66 - 93.82	1.0000	1.0000
L22	32	PL 1.25x4.25	93.66 - 93.82	1.0000	1.0000
L22	33	PL 1.25x4.25	93.66 - 93.82	1.0000	1.0000
L22	44	(Area) CCI-65FP-040075	93.66 - 93.82	1.0000	1.0000
L22	45	(Area) CCI-65FP-040075	93.66 - 93.82	1.0000	1.0000
L23	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	84.91 - 93.66	1.0000	1.0000
L23	20	Safety Line 3/8	84.91 - 93.66	1.0000	1.0000
L23	21	Step Pegs (5/8" SR) 7-in. w/30" step	84.91 - 93.66	1.0000	1.0000
L23	29	PL 1.25x4.75	84.91 - 89.25	1.0000	1.0000
L23	30	PL 1.25x4.75	84.91 - 89.25	1.0000	1.0000
L23	32	PL 1.25x4.25	89.25 - 93.66	1.0000	1.0000
L23	33	PL 1.25x4.25	89.25 - 93.66	1.0000	1.0000
L23	44	(Area) CCI-65FP-040075	84.91 - 93.66	1.0000	1.0000
L23	45	(Area) CCI-65FP-040075	84.91 - 93.66	1.0000	1.0000
L25	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	78.91 - 83.91	1.0000	1.0000
L25	20	Safety Line 3/8	78.91 - 83.91	1.0000	1.0000
L25	21	Step Pegs (5/8" SR) 7-in. w/30" step	78.91 - 83.91	1.0000	1.0000
L25	29	PL 1.25x4.75	78.91 - 83.91	1.0000	1.0000
L25	30	PL 1.25x4.75	78.91 - 83.91	1.0000	1.0000
L25	44	(Area) CCI-65FP-040075	78.91 - 83.91	1.0000	1.0000
L25	45	(Area) CCI-65FP-040075	78.91 - 83.91	1.0000	1.0000
L26	10	MLE HYBRID	73.91 - 78.91	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)			
L26	20	Safety Line 3/8	73.91 - 78.91	1.0000	1.0000
L26	21	Step Pegs (5/8" SR) 7-in. w/30" step	73.91 - 78.91	1.0000	1.0000
L26	29	PL 1.25x4.75	73.91 - 78.91	1.0000	1.0000
L26	30	PL 1.25x4.75	73.91 - 78.91	1.0000	1.0000
L26	44	(Area) CCI-65FP-040075	73.91 - 78.91	1.0000	1.0000
L26	45	(Area) CCI-65FP-040075	73.91 - 78.91	1.0000	1.0000
L27	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	68.91 - 73.91	1.0000	1.0000
L27	20	Safety Line 3/8	68.91 - 73.91	1.0000	1.0000
L27	21	Step Pegs (5/8" SR) 7-in. w/30" step	68.91 - 73.91	1.0000	1.0000
L27	29	PL 1.25x4.75	68.91 - 73.91	1.0000	1.0000
L27	30	PL 1.25x4.75	68.91 - 73.91	1.0000	1.0000
L27	44	(Area) CCI-65FP-040075	68.91 - 73.91	1.0000	1.0000
L27	45	(Area) CCI-65FP-040075	68.91 - 73.91	1.0000	1.0000
L28	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	65.50 - 68.91	1.0000	1.0000
L28	20	Safety Line 3/8	65.50 - 68.91	1.0000	1.0000
L28	21	Step Pegs (5/8" SR) 7-in. w/30" step	65.50 - 68.91	1.0000	1.0000
L28	29	PL 1.25x4.75	65.50 - 68.91	1.0000	1.0000
L28	30	PL 1.25x4.75	65.50 - 68.91	1.0000	1.0000
L28	44	(Area) CCI-65FP-040075	65.50 - 68.91	1.0000	1.0000
L28	45	(Area) CCI-65FP-040075	65.50 - 68.91	1.0000	1.0000
L29	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	65.25 - 65.50	1.0000	1.0000
L29	20	Safety Line 3/8	65.25 - 65.50	1.0000	1.0000
L29	21	Step Pegs (5/8" SR) 7-in. w/30" step	65.25 - 65.50	1.0000	1.0000
L29	29	PL 1.25x4.75	65.25 - 65.50	1.0000	1.0000
L29	30	PL 1.25x4.75	65.25 - 65.50	1.0000	1.0000
L29	44	(Area) CCI-65FP-040075	65.25 - 65.50	1.0000	1.0000
L29	45	(Area) CCI-65FP-040075	65.25 - 65.50	1.0000	1.0000
L30	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	64.50 - 65.25	1.0000	1.0000
L30	20	Safety Line 3/8	64.50 - 65.25	1.0000	1.0000
L30	21	Step Pegs (5/8" SR) 7-in. w/30" step	64.50 - 65.25	1.0000	1.0000
L30	29	PL 1.25x4.75	64.50 - 65.25	1.0000	1.0000
L30	30	PL 1.25x4.75	64.50 - 65.25	1.0000	1.0000
L30	44	(Area) CCI-65FP-040075	64.50 - 65.25	1.0000	1.0000
L30	45	(Area) CCI-65FP-040075	64.50 - 65.25	1.0000	1.0000
L31	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	64.25 - 64.50	1.0000	1.0000
L31	20	Safety Line 3/8	64.25 - 64.50	1.0000	1.0000
L31	21	Step Pegs (5/8" SR) 7-in. w/30" step	64.25 - 64.50	1.0000	1.0000
L31	29	PL 1.25x4.75	64.25 - 64.50	1.0000	1.0000
L31	30	PL 1.25x4.75	64.25 - 64.50	1.0000	1.0000
L31	44	(Area) CCI-65FP-040075	64.25 - 64.50	1.0000	1.0000
L31	45	(Area) CCI-65FP-040075	64.25 - 64.50	1.0000	1.0000
L32	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	59.25 - 64.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	20	Safety Line 3/8	59.25 - 64.25	1.0000	1.0000
L32	21	Step Pegs (5/8" SR) 7-in. w/30" step	59.25 - 64.25	1.0000	1.0000
L32	26	PL 1.25x5	59.25 - 59.50	1.0000	1.0000
L32	27	PL 1.25x5	59.25 - 59.50	1.0000	1.0000
L32	29	PL 1.25x4.75	59.50 - 64.25	1.0000	1.0000
L32	30	PL 1.25x4.75	59.50 - 64.25	1.0000	1.0000
L32	41	(Area) CCI-65FP-045100	59.25 - 60.58	1.0000	1.0000
L32	42	(Area) CCI-65FP-045100	59.25 - 60.58	1.0000	1.0000
L32	44	(Area) CCI-65FP-040075	60.58 - 64.25	1.0000	1.0000
L32	45	(Area) CCI-65FP-040075	60.58 - 64.25	1.0000	1.0000
L33	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	58.58 - 59.25	1.0000	1.0000
L33	20	Safety Line 3/8	58.58 - 59.25	1.0000	1.0000
L33	21	Step Pegs (5/8" SR) 7-in. w/30" step	58.58 - 59.25	1.0000	1.0000
L33	26	PL 1.25x5	58.58 - 59.25	1.0000	1.0000
L33	27	PL 1.25x5	58.58 - 59.25	1.0000	1.0000
L33	41	(Area) CCI-65FP-045100	58.58 - 59.25	1.0000	1.0000
L33	42	(Area) CCI-65FP-045100	58.58 - 59.25	1.0000	1.0000
L34	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	58.33 - 58.58	1.0000	1.0000
L34	20	Safety Line 3/8	58.33 - 58.58	1.0000	1.0000
L34	21	Step Pegs (5/8" SR) 7-in. w/30" step	58.33 - 58.58	1.0000	1.0000
L34	26	PL 1.25x5	58.33 - 58.58	1.0000	1.0000
L34	27	PL 1.25x5	58.33 - 58.58	1.0000	1.0000
L34	41	(Area) CCI-65FP-045100	58.33 - 58.58	1.0000	1.0000
L34	42	(Area) CCI-65FP-045100	58.33 - 58.58	1.0000	1.0000
L35	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	57.25 - 58.33	1.0000	1.0000
L35	20	Safety Line 3/8	57.25 - 58.33	1.0000	1.0000
L35	21	Step Pegs (5/8" SR) 7-in. w/30" step	57.25 - 58.33	1.0000	1.0000
L35	26	PL 1.25x5	57.25 - 58.33	1.0000	1.0000
L35	27	PL 1.25x5	57.25 - 58.33	1.0000	1.0000
L35	41	(Area) CCI-65FP-045100	57.25 - 58.33	1.0000	1.0000
L35	42	(Area) CCI-65FP-045100	57.25 - 58.33	1.0000	1.0000
L36	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	57.00 - 57.25	1.0000	1.0000
L36	20	Safety Line 3/8	57.00 - 57.25	1.0000	1.0000
L36	21	Step Pegs (5/8" SR) 7-in. w/30" step	57.00 - 57.25	1.0000	1.0000
L36	26	PL 1.25x5	57.00 - 57.25	1.0000	1.0000
L36	27	PL 1.25x5	57.00 - 57.25	1.0000	1.0000
L36	41	(Area) CCI-65FP-045100	57.00 - 57.25	1.0000	1.0000
L36	42	(Area) CCI-65FP-045100	57.00 - 57.25	1.0000	1.0000
L37	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	52.00 - 57.00	1.0000	1.0000
L37	20	Safety Line 3/8	52.00 - 57.00	1.0000	1.0000
L37	21	Step Pegs (5/8" SR) 7-in. w/30" step	52.00 - 57.00	1.0000	1.0000
L37	26	PL 1.25x5	52.00 - 57.00	1.0000	1.0000
L37	27	PL 1.25x5	52.00 - 57.00	1.0000	1.0000
L37	41	(Area) CCI-65FP-045100	52.00 - 57.00	1.0000	1.0000
L37	42	(Area) CCI-65FP-045100	52.00 - 57.00	1.0000	1.0000
L38	10	MLE HYBRID	44.41 - 52.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)			
L38	18	LDF4-50A(1/2)	44.41 - 45.00	1.0000	1.0000
L38	20	Safety Line 3/8	44.41 - 52.00	1.0000	1.0000
L38	21	Step Pegs (5/8" SR) 7-in. w/30" step	44.41 - 52.00	1.0000	1.0000
L38	26	PL 1.25x5	44.41 - 52.00	1.0000	1.0000
L38	27	PL 1.25x5	44.41 - 52.00	1.0000	1.0000
L38	41	(Area) CCI-65FP-045100	44.41 - 52.00	1.0000	1.0000
L38	42	(Area) CCI-65FP-045100	44.41 - 52.00	1.0000	1.0000
L40	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	38.41 - 43.41	1.0000	1.0000
L40	18	LDF4-50A(1/2)	38.41 - 43.41	1.0000	1.0000
L40	20	Safety Line 3/8	38.41 - 43.41	1.0000	1.0000
L40	21	Step Pegs (5/8" SR) 7-in. w/30" step	38.41 - 43.41	1.0000	1.0000
L40	26	PL 1.25x5	38.41 - 43.41	1.0000	1.0000
L40	27	PL 1.25x5	38.41 - 43.41	1.0000	1.0000
L40	41	(Area) CCI-65FP-045100	38.41 - 43.41	1.0000	1.0000
L40	42	(Area) CCI-65FP-045100	38.41 - 43.41	1.0000	1.0000
L41	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	34.50 - 38.41	1.0000	1.0000
L41	18	LDF4-50A(1/2)	34.50 - 38.41	1.0000	1.0000
L41	20	Safety Line 3/8	34.50 - 38.41	1.0000	1.0000
L41	21	Step Pegs (5/8" SR) 7-in. w/30" step	34.50 - 38.41	1.0000	1.0000
L41	26	PL 1.25x5	34.50 - 38.41	1.0000	1.0000
L41	27	PL 1.25x5	34.50 - 38.41	1.0000	1.0000
L41	41	(Area) CCI-65FP-045100	34.50 - 38.41	1.0000	1.0000
L41	42	(Area) CCI-65FP-045100	34.50 - 38.41	1.0000	1.0000
L42	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	34.25 - 34.50	1.0000	1.0000
L42	18	LDF4-50A(1/2)	34.25 - 34.50	1.0000	1.0000
L42	20	Safety Line 3/8	34.25 - 34.50	1.0000	1.0000
L42	21	Step Pegs (5/8" SR) 7-in. w/30" step	34.25 - 34.50	1.0000	1.0000
L42	26	PL 1.25x5	34.25 - 34.50	1.0000	1.0000
L42	27	PL 1.25x5	34.25 - 34.50	1.0000	1.0000
L42	41	(Area) CCI-65FP-045100	34.25 - 34.50	1.0000	1.0000
L42	42	(Area) CCI-65FP-045100	34.25 - 34.50	1.0000	1.0000
L43	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	33.50 - 34.25	1.0000	1.0000
L43	18	LDF4-50A(1/2)	33.50 - 34.25	1.0000	1.0000
L43	20	Safety Line 3/8	33.50 - 34.25	1.0000	1.0000
L43	21	Step Pegs (5/8" SR) 7-in. w/30" step	33.50 - 34.25	1.0000	1.0000
L43	26	PL 1.25x5	33.50 - 34.25	1.0000	1.0000
L43	27	PL 1.25x5	33.50 - 34.25	1.0000	1.0000
L43	41	(Area) CCI-65FP-045100	33.50 - 34.25	1.0000	1.0000
L43	42	(Area) CCI-65FP-045100	33.50 - 34.25	1.0000	1.0000
L44	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	33.25 - 33.50	1.0000	1.0000
L44	18	LDF4-50A(1/2)	33.25 - 33.50	1.0000	1.0000
L44	20	Safety Line 3/8	33.25 - 33.50	1.0000	1.0000
L44	21	Step Pegs (5/8" SR) 7-in. w/30" step	33.25 - 33.50	1.0000	1.0000
L44	26	PL 1.25x5	33.25 - 33.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L44	27	PL 1.25x5	33.25 - 33.50	1.0000	1.0000
L44	41	(Area) CCI-65FP-045100	33.25 - 33.50	1.0000	1.0000
L44	42	(Area) CCI-65FP-045100	33.25 - 33.50	1.0000	1.0000
L45	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	29.50 - 33.25	1.0000	1.0000
L45	18	LDF4-50A(1/2)	29.50 - 33.25	1.0000	1.0000
L45	20	Safety Line 3/8	29.50 - 33.25	1.0000	1.0000
L45	21	Step Pegs (5/8" SR) 7-in. w/30" step	29.50 - 33.25	1.0000	1.0000
L45	23	PL 1.25x5	29.50 - 29.75	1.0000	1.0000
L45	24	PL 1.25x5	29.50 - 29.75	1.0000	1.0000
L45	26	PL 1.25x5	29.75 - 33.25	1.0000	1.0000
L45	27	PL 1.25x5	29.75 - 33.25	1.0000	1.0000
L45	35	(Area) Aero MP3-03	29.50 - 30.75	1.0000	1.0000
L45	36	(Area) Aero MP3-03	29.50 - 30.75	1.0000	1.0000
L45	41	(Area) CCI-65FP-045100	30.75 - 33.25	1.0000	1.0000
L45	42	(Area) CCI-65FP-045100	30.75 - 33.25	1.0000	1.0000
L46	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	29.25 - 29.50	1.0000	1.0000
L46	18	LDF4-50A(1/2)	29.25 - 29.50	1.0000	1.0000
L46	20	Safety Line 3/8	29.25 - 29.50	1.0000	1.0000
L46	21	Step Pegs (5/8" SR) 7-in. w/30" step	29.25 - 29.50	1.0000	1.0000
L46	23	PL 1.25x5	29.25 - 29.50	1.0000	1.0000
L46	24	PL 1.25x5	29.25 - 29.50	1.0000	1.0000
L46	35	(Area) Aero MP3-03	29.25 - 29.50	1.0000	1.0000
L46	36	(Area) Aero MP3-03	29.25 - 29.50	1.0000	1.0000
L47	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	28.50 - 29.25	1.0000	1.0000
L47	18	LDF4-50A(1/2)	28.50 - 29.25	1.0000	1.0000
L47	20	Safety Line 3/8	28.50 - 29.25	1.0000	1.0000
L47	21	Step Pegs (5/8" SR) 7-in. w/30" step	28.50 - 29.25	1.0000	1.0000
L47	23	PL 1.25x5	28.50 - 29.25	1.0000	1.0000
L47	24	PL 1.25x5	28.50 - 29.25	1.0000	1.0000
L47	35	(Area) Aero MP3-03	28.50 - 29.25	1.0000	1.0000
L47	36	(Area) Aero MP3-03	28.50 - 29.25	1.0000	1.0000
L48	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	28.25 - 28.50	1.0000	1.0000
L48	18	LDF4-50A(1/2)	28.25 - 28.50	1.0000	1.0000
L48	20	Safety Line 3/8	28.25 - 28.50	1.0000	1.0000
L48	21	Step Pegs (5/8" SR) 7-in. w/30" step	28.25 - 28.50	1.0000	1.0000
L48	23	PL 1.25x5	28.25 - 28.50	1.0000	1.0000
L48	24	PL 1.25x5	28.25 - 28.50	1.0000	1.0000
L48	35	(Area) Aero MP3-03	28.25 - 28.50	1.0000	1.0000
L48	36	(Area) Aero MP3-03	28.25 - 28.50	1.0000	1.0000
L49	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	27.48 - 28.25	1.0000	1.0000
L49	18	LDF4-50A(1/2)	27.48 - 28.25	1.0000	1.0000
L49	20	Safety Line 3/8	27.48 - 28.25	1.0000	1.0000
L49	21	Step Pegs (5/8" SR) 7-in. w/30" step	27.48 - 28.25	1.0000	1.0000
L49	23	PL 1.25x5	27.48 - 28.25	1.0000	1.0000
L49	24	PL 1.25x5	27.48 - 28.25	1.0000	1.0000
L49	35	(Area) Aero MP3-03	27.48 - 28.25	1.0000	1.0000
L49	36	(Area) Aero MP3-03	27.48 - 28.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L50	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	27.23 - 27.48	1.0000	1.0000
L50	18	LDF4-50A(1/2)	27.23 - 27.48	1.0000	1.0000
L50	20	Safety Line 3/8	27.23 - 27.48	1.0000	1.0000
L50	21	Step Pegs (5/8" SR) 7-in. w/30" step	27.23 - 27.48	1.0000	1.0000
L50	23	PL 1.25x5	27.23 - 27.48	1.0000	1.0000
L50	24	PL 1.25x5	27.23 - 27.48	1.0000	1.0000
L50	35	(Area) Aero MP3-03	27.23 - 27.48	1.0000	1.0000
L50	36	(Area) Aero MP3-03	27.23 - 27.48	1.0000	1.0000
L51	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	22.23 - 27.23	1.0000	1.0000
L51	18	LDF4-50A(1/2)	22.23 - 27.23	1.0000	1.0000
L51	20	Safety Line 3/8	22.23 - 27.23	1.0000	1.0000
L51	21	Step Pegs (5/8" SR) 7-in. w/30" step	22.23 - 27.23	1.0000	1.0000
L51	23	PL 1.25x5	22.23 - 27.23	1.0000	1.0000
L51	24	PL 1.25x5	22.23 - 27.23	1.0000	1.0000
L51	35	(Area) Aero MP3-03	22.23 - 27.23	1.0000	1.0000
L51	36	(Area) Aero MP3-03	22.23 - 27.23	1.0000	1.0000
L52	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	17.23 - 22.23	1.0000	1.0000
L52	18	LDF4-50A(1/2)	17.23 - 22.23	1.0000	1.0000
L52	20	Safety Line 3/8	17.23 - 22.23	1.0000	1.0000
L52	21	Step Pegs (5/8" SR) 7-in. w/30" step	17.23 - 22.23	1.0000	1.0000
L52	23	PL 1.25x5	17.23 - 22.23	1.0000	1.0000
L52	24	PL 1.25x5	17.23 - 22.23	1.0000	1.0000
L52	35	(Area) Aero MP3-03	17.23 - 22.23	1.0000	1.0000
L52	36	(Area) Aero MP3-03	17.23 - 22.23	1.0000	1.0000
L53	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	12.23 - 17.23	1.0000	1.0000
L53	18	LDF4-50A(1/2)	12.23 - 17.23	1.0000	1.0000
L53	20	Safety Line 3/8	12.23 - 17.23	1.0000	1.0000
L53	21	Step Pegs (5/8" SR) 7-in. w/30" step	12.23 - 17.23	1.0000	1.0000
L53	23	PL 1.25x5	12.23 - 17.23	1.0000	1.0000
L53	24	PL 1.25x5	12.23 - 17.23	1.0000	1.0000
L53	35	(Area) Aero MP3-03	12.23 - 17.23	1.0000	1.0000
L53	36	(Area) Aero MP3-03	12.23 - 17.23	1.0000	1.0000
L54	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	7.23 - 12.23	1.0000	1.0000
L54	18	LDF4-50A(1/2)	7.23 - 12.23	1.0000	1.0000
L54	20	Safety Line 3/8	7.23 - 12.23	1.0000	1.0000
L54	21	Step Pegs (5/8" SR) 7-in. w/30" step	7.23 - 12.23	1.0000	1.0000
L54	23	PL 1.25x5	7.23 - 12.23	1.0000	1.0000
L54	24	PL 1.25x5	7.23 - 12.23	1.0000	1.0000
L54	35	(Area) Aero MP3-03	7.23 - 12.23	1.0000	1.0000
L54	36	(Area) Aero MP3-03	7.23 - 12.23	1.0000	1.0000
L55	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	6.90 - 7.23	1.0000	1.0000
L55	18	LDF4-50A(1/2)	6.90 - 7.23	1.0000	1.0000
L55	20	Safety Line 3/8	6.90 - 7.23	1.0000	1.0000
L55	21	Step Pegs (5/8" SR) 7-in. w/30" step	6.90 - 7.23	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L55	23	PL 1.25x5	6.90 - 7.23	1.0000	1.0000
L55	24	PL 1.25x5	6.90 - 7.23	1.0000	1.0000
L55	35	(Area) Aero MP3-03	6.90 - 7.23	1.0000	1.0000
L55	36	(Area) Aero MP3-03	6.90 - 7.23	1.0000	1.0000
L56	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	6.55 - 6.90	1.0000	1.0000
L56	18	LDF4-50A(1/2)	6.55 - 6.90	1.0000	1.0000
L56	20	Safety Line 3/8	6.55 - 6.90	1.0000	1.0000
L56	21	Step Pegs (5/8" SR) 7-in. w/30" step	6.55 - 6.90	1.0000	1.0000
L56	23	PL 1.25x5	6.55 - 6.90	1.0000	1.0000
L56	24	PL 1.25x5	6.55 - 6.90	1.0000	1.0000
L56	35	(Area) Aero MP3-03	6.55 - 6.90	1.0000	1.0000
L56	36	(Area) Aero MP3-03	6.55 - 6.90	1.0000	1.0000
L57	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	6.33 - 6.55	1.0000	1.0000
L57	18	LDF4-50A(1/2)	6.33 - 6.55	1.0000	1.0000
L57	20	Safety Line 3/8	6.33 - 6.55	1.0000	1.0000
L57	21	Step Pegs (5/8" SR) 7-in. w/30" step	6.33 - 6.55	1.0000	1.0000
L57	23	PL 1.25x5	6.33 - 6.55	1.0000	1.0000
L57	24	PL 1.25x5	6.33 - 6.55	1.0000	1.0000
L57	35	(Area) Aero MP3-03	6.33 - 6.55	1.0000	1.0000
L57	36	(Area) Aero MP3-03	6.33 - 6.55	1.0000	1.0000
L58	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	3.25 - 6.33	1.0000	1.0000
L58	18	LDF4-50A(1/2)	3.25 - 6.33	1.0000	1.0000
L58	20	Safety Line 3/8	3.25 - 6.33	1.0000	1.0000
L58	21	Step Pegs (5/8" SR) 7-in. w/30" step	3.25 - 6.33	1.0000	1.0000
L58	23	PL 1.25x5	3.25 - 6.33	1.0000	1.0000
L58	24	PL 1.25x5	3.25 - 6.33	1.0000	1.0000
L58	35	(Area) Aero MP3-03	5.75 - 6.33	1.0000	1.0000
L58	36	(Area) Aero MP3-03	5.75 - 6.33	1.0000	1.0000
L58	50	(Area) CCI-65FP-045125	3.25 - 5.75	1.0000	1.0000
L58	51	(Area) CCI-65FP-045125	3.25 - 5.75	1.0000	1.0000
L59	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	3.00 - 3.25	1.0000	1.0000
L59	18	LDF4-50A(1/2)	3.00 - 3.25	1.0000	1.0000
L59	20	Safety Line 3/8	3.00 - 3.25	1.0000	1.0000
L59	21	Step Pegs (5/8" SR) 7-in. w/30" step	3.00 - 3.25	1.0000	1.0000
L59	23	PL 1.25x5	3.00 - 3.25	1.0000	1.0000
L59	24	PL 1.25x5	3.00 - 3.25	1.0000	1.0000
L59	50	(Area) CCI-65FP-045125	3.00 - 3.25	1.0000	1.0000
L59	51	(Area) CCI-65FP-045125	3.00 - 3.25	1.0000	1.0000
L60	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	2.75 - 3.00	1.0000	1.0000
L60	18	LDF4-50A(1/2)	2.75 - 3.00	1.0000	1.0000
L60	20	Safety Line 3/8	2.75 - 3.00	1.0000	1.0000
L60	21	Step Pegs (5/8" SR) 7-in. w/30" step	2.75 - 3.00	1.0000	1.0000
L60	23	PL 1.25x5	2.75 - 3.00	1.0000	1.0000
L60	24	PL 1.25x5	2.75 - 3.00	1.0000	1.0000
L60	50	(Area) CCI-65FP-045125	2.75 - 3.00	1.0000	1.0000
L60	51	(Area) CCI-65FP-045125	2.75 - 3.00	1.0000	1.0000
L61	10	MLE HYBRID	2.50 - 2.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)			
L61	18	LDF4-50A(1/2)	2.50 - 2.75	1.0000	1.0000
L61	20	Safety Line 3/8	2.50 - 2.75	1.0000	1.0000
L61	21	Step Pegs (5/8" SR) 7-in. w/30" step	2.50 - 2.75	1.0000	1.0000
L61	23	PL 1.25x5	2.50 - 2.75	1.0000	1.0000
L61	24	PL 1.25x5	2.50 - 2.75	1.0000	1.0000
L61	50	(Area) CCI-65FP-045125	2.50 - 2.75	1.0000	1.0000
L61	51	(Area) CCI-65FP-045125	2.50 - 2.75	1.0000	1.0000
L62	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	2.25 - 2.50	1.0000	1.0000
L62	18	LDF4-50A(1/2)	2.25 - 2.50	1.0000	1.0000
L62	20	Safety Line 3/8	2.25 - 2.50	1.0000	1.0000
L62	21	Step Pegs (5/8" SR) 7-in. w/30" step	2.25 - 2.50	1.0000	1.0000
L62	23	PL 1.25x5	2.25 - 2.50	1.0000	1.0000
L62	24	PL 1.25x5	2.25 - 2.50	1.0000	1.0000
L62	50	(Area) CCI-65FP-045125	2.25 - 2.50	1.0000	1.0000
L62	51	(Area) CCI-65FP-045125	2.25 - 2.50	1.0000	1.0000
L63	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	2.00 - 2.25	1.0000	1.0000
L63	18	LDF4-50A(1/2)	2.00 - 2.25	1.0000	1.0000
L63	20	Safety Line 3/8	2.00 - 2.25	1.0000	1.0000
L63	21	Step Pegs (5/8" SR) 7-in. w/30" step	2.00 - 2.25	1.0000	1.0000
L63	23	PL 1.25x5	2.00 - 2.25	1.0000	1.0000
L63	24	PL 1.25x5	2.00 - 2.25	1.0000	1.0000
L63	50	(Area) CCI-65FP-045125	2.00 - 2.25	1.0000	1.0000
L63	51	(Area) CCI-65FP-045125	2.00 - 2.25	1.0000	1.0000
L64	10	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	0.00 - 2.00	1.0000	1.0000
L64	18	LDF4-50A(1/2)	0.00 - 2.00	1.0000	1.0000
L64	20	Safety Line 3/8	0.00 - 2.00	1.0000	1.0000
L64	21	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 2.00	1.0000	1.0000
L64	23	PL 1.25x5	0.00 - 2.00	1.0000	1.0000
L64	24	PL 1.25x5	0.00 - 2.00	1.0000	1.0000
L64	50	(Area) CCI-65FP-045125	0.00 - 2.00	1.0000	1.0000
L64	51	(Area) CCI-65FP-045125	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
147									
APXVSPP18-C-A20	A	From	4.0000	0.0000	147.0000	No Ice	8.0244	5.2833	0.06

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
		Centroid-Le	-6.00			1/2" Ice	8.4800	5.7360	0.11
		g	3.00			1" Ice	8.9426	6.1960	0.16
APXVSPP18-C-A20	B	From	4.0000	0.0000	147.0000	No Ice	8.0244	5.2833	0.06
		Centroid-Le	-6.00			1/2" Ice	8.4800	5.7360	0.11
		g	3.00			1" Ice	8.9426	6.1960	0.16
APXVSPP18-C-A20	C	From	4.0000	0.0000	147.0000	No Ice	8.0244	5.2833	0.06
		Centroid-Le	-6.00			1/2" Ice	8.4800	5.7360	0.11
		g	3.00			1" Ice	8.9426	6.1960	0.16
DT465B-2XR	A	From	4.0000	0.0000	147.0000	No Ice	9.0985	5.9734	0.06
		Centroid-Le	6.00			1/2" Ice	9.5636	6.4319	0.12
		g	3.00			1" Ice	10.0357	6.8978	0.18
DT465B-2XR	B	From	4.0000	0.0000	147.0000	No Ice	9.0985	5.9734	0.06
		Centroid-Le	6.00			1/2" Ice	9.5636	6.4319	0.12
		g	3.00			1" Ice	10.0357	6.8978	0.18
DT465B-2XR	C	From	4.0000	0.0000	147.0000	No Ice	9.0985	5.9734	0.06
		Centroid-Le	6.00			1/2" Ice	9.5636	6.4319	0.12
		g	3.00			1" Ice	10.0357	6.8978	0.18
PCS 1900MHZ	A	From	4.0000	0.0000	147.0000	No Ice	2.3218	2.2381	0.06
4X45W-65MHZ		Centroid-Le	-6.00			1/2" Ice	2.5266	2.4407	0.08
		g	3.00			1" Ice	2.7388	2.6507	0.11
PCS 1900MHZ	B	From	4.0000	0.0000	147.0000	No Ice	2.3218	2.2381	0.06
4X45W-65MHZ		Centroid-Le	-6.00			1/2" Ice	2.5266	2.4407	0.08
		g	3.00			1" Ice	2.7388	2.6507	0.11
PCS 1900MHZ	C	From	4.0000	0.0000	147.0000	No Ice	2.3218	2.2381	0.06
4X45W-65MHZ		Centroid-Le	-6.00			1/2" Ice	2.5266	2.4407	0.08
		g	3.00			1" Ice	2.7388	2.6507	0.11
RRH2X50-800	A	From	4.0000	0.0000	147.0000	No Ice	2.1342	1.7730	0.05
		Centroid-Le	6.00			1/2" Ice	2.3195	1.9461	0.07
		g	3.00			1" Ice	2.5123	2.1267	0.10
RRH2X50-800	B	From	4.0000	0.0000	147.0000	No Ice	2.1342	1.7730	0.05
		Centroid-Le	6.00			1/2" Ice	2.3195	1.9461	0.07
		g	3.00			1" Ice	2.5123	2.1267	0.10
RRH2X50-800	C	From	4.0000	0.0000	147.0000	No Ice	2.1342	1.7730	0.05
		Centroid-Le	6.00			1/2" Ice	2.3195	1.9461	0.07
		g	3.00			1" Ice	2.5123	2.1267	0.10
TD-RRH8X20-25	A	From	4.0000	0.0000	147.0000	No Ice	4.0455	1.5345	0.07
		Centroid-Le	6.00			1/2" Ice	4.2975	1.7142	0.10
		g	3.00			1" Ice	4.5570	1.9008	0.13
TD-RRH8X20-25	B	From	4.0000	0.0000	147.0000	No Ice	4.0455	1.5345	0.07
		Centroid-Le	6.00			1/2" Ice	4.2975	1.7142	0.10
		g	3.00			1" Ice	4.5570	1.9008	0.13
TD-RRH8X20-25	C	From	4.0000	0.0000	147.0000	No Ice	4.0455	1.5345	0.07
		Centroid-Le	6.00			1/2" Ice	4.2975	1.7142	0.10
		g	3.00			1" Ice	4.5570	1.9008	0.13
800MHZ RRH	A	From	4.0000	0.0000	147.0000	No Ice	2.1342	1.7730	0.05
		Centroid-Le	-6.00			1/2" Ice	2.3195	1.9461	0.07
		g	3.00			1" Ice	2.5123	2.1267	0.10
800MHZ RRH	B	From	4.0000	0.0000	147.0000	No Ice	2.1342	1.7730	0.05
		Centroid-Le	-6.00			1/2" Ice	2.3195	1.9461	0.07
		g	3.00			1" Ice	2.5123	2.1267	0.10
800MHZ RRH	C	From	4.0000	0.0000	147.0000	No Ice	2.1342	1.7730	0.05
		Centroid-Le	-6.00			1/2" Ice	2.3195	1.9461	0.07
		g	3.00			1" Ice	2.5123	2.1267	0.10
Platform Mount [LP 301-1]	C	None		0.0000	147.0000	No Ice	30.1000	30.1000	1.59
						1/2" Ice	40.8000	40.8000	2.03
						1" Ice	51.5000	51.5000	2.47
Miscellaneous [NA 509-3]	C	None		0.0000	147.0000	No Ice	11.8400	11.8400	0.28

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1/2" Ice	16.9600	16.9600	0.30
						1" Ice	22.0800	22.0800	0.32
136									
(2) LPA-80080/4CF w/ Mount Pipe	A	From Centroid-Leg	4.0000 4.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	3.1098 3.5849 4.0223	6.8239 7.6513 8.3546	0.03 0.08 0.14
(2) LPA-80080/4CF w/ Mount Pipe	B	From Centroid-Leg	4.0000 2.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	3.1098 3.5849 4.0223	6.8239 7.6513 8.3546	0.03 0.08 0.14
(2) LPA-80080/4CF w/ Mount Pipe	C	From Centroid-Leg	4.0000 2.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	3.1098 3.5849 4.0223	6.8239 7.6513 8.3546	0.03 0.08 0.14
(2) SBNHH-1D65A w/ Mount Pipe	A	From Centroid-Leg	4.0000 -4.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	6.2901 6.7393 7.1973	5.5890 6.3084 7.0314	0.07 0.13 0.19
(2) SBNHH-1D65A w/ Mount Pipe	B	From Centroid-Leg	4.0000 -2.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	6.2901 6.7393 7.1973	5.5890 6.3084 7.0314	0.07 0.13 0.19
(2) SBNHH-1D65A w/ Mount Pipe	C	From Centroid-Leg	4.0000 -2.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	6.2901 6.7393 7.1973	5.5890 6.3084 7.0314	0.07 0.13 0.19
RRH4X45-AWS4 B66	A	From Centroid-Leg	4.0000 -2.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	2.6600 2.8781 3.1037	1.5861 1.7690 1.9588	0.06 0.08 0.11
RRH4X45-AWS4 B66	B	From Centroid-Leg	4.0000 2.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	2.6600 2.8781 3.1037	1.5861 1.7690 1.9588	0.06 0.08 0.11
RRH4X45-AWS4 B66	C	From Centroid-Leg	4.0000 2.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	2.6600 2.8781 3.1037	1.5861 1.7690 1.9588	0.06 0.08 0.11
RRH2x60-700	A	From Centroid-Leg	4.0000 -6.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
RRH2x60-700	B	From Centroid-Leg	4.0000 -6.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
RRH2x60-700	C	From Centroid-Leg	4.0000 -6.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
(2) DB-B1-6C-12AB-0Z	A	From Centroid-Leg	4.0000 -6.00 2.00	0.0000	136.0000	No Ice 1/2" Ice 1" Ice	3.7922 4.0441 4.3033	2.5137 2.7270 2.9472	0.03 0.06 0.10
Platform Mount [LP 601-1]	C	None		0.0000	136.0000	No Ice 1/2" Ice 1" Ice	28.4700 33.5900 38.7100	28.4700 33.5900 38.7100	1.12 1.51 1.91
129									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Centroid-Leg	4.0000 -6.00 0.00	30.0000	129.0000	No Ice 1/2" Ice 1" Ice	6.3292 6.7751 7.2137	5.6424 6.4259 7.1313	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Centroid-Leg	4.0000 -6.00 0.00	0.0000	129.0000	No Ice 1/2" Ice 1" Ice	6.3292 6.7751 7.2137	5.6424 6.4259 7.1313	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Centroid-Leg	4.0000 -6.00 0.00	30.0000	129.0000	No Ice 1/2" Ice 1" Ice	6.3292 6.7751 7.2137	5.6424 6.4259 7.1313	0.11 0.17 0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Centroid-Leg	4.0000 6.00	30.0000	129.0000	No Ice 1/2" Ice	6.3292 6.7751	5.6424 6.4259	0.11 0.17

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	0.00			1" Ice	7.2137	7.1313	0.23
ERICSSON AIR 21 B4A	B	From	4.0000	0.0000	129.0000	No Ice	6.3292	5.6424	0.11
B2P w/ Mount Pipe		Centroid-Le	6.00			1/2" Ice	6.7751	6.4259	0.17
		g	0.00			1" Ice	7.2137	7.1313	0.23
ERICSSON AIR 21 B4A	C	From	4.0000	30.0000	129.0000	No Ice	6.3292	5.6424	0.11
B2P w/ Mount Pipe		Centroid-Le	6.00			1/2" Ice	6.7751	6.4259	0.17
		g	0.00			1" Ice	7.2137	7.1313	0.23
LNX-6515DS-VTM w/	A	From	4.0000	30.0000	129.0000	No Ice	11.2110	9.3589	0.08
Mount Pipe		Centroid-Le	0.00			1/2" Ice	11.8278	10.6795	0.16
		g	0.00			1" Ice	12.4520	11.7139	0.25
LNX-6515DS-VTM w/	B	From	4.0000	0.0000	129.0000	No Ice	11.2110	9.3589	0.08
Mount Pipe		Centroid-Le	0.00			1/2" Ice	11.8278	10.6795	0.16
		g	0.00			1" Ice	12.4520	11.7139	0.25
LNX-6515DS-VTM w/	C	From	4.0000	30.0000	129.0000	No Ice	11.2110	9.3589	0.08
Mount Pipe		Centroid-Le	0.00			1/2" Ice	11.8278	10.6795	0.16
		g	0.00			1" Ice	12.4520	11.7139	0.25
KRY 112 144/1	A	From	4.0000	30.0000	129.0000	No Ice	0.3523	0.1617	0.01
		Centroid-Le	-6.00			1/2" Ice	0.4284	0.2195	0.01
		g	0.00			1" Ice	0.5119	0.2846	0.02
KRY 112 144/1	B	From	4.0000	0.0000	129.0000	No Ice	0.3523	0.1617	0.01
		Centroid-Le	-6.00			1/2" Ice	0.4284	0.2195	0.01
		g	0.00			1" Ice	0.5119	0.2846	0.02
KRY 112 144/1	C	From	4.0000	30.0000	129.0000	No Ice	0.3523	0.1617	0.01
		Centroid-Le	-6.00			1/2" Ice	0.4284	0.2195	0.01
		g	0.00			1" Ice	0.5119	0.2846	0.02
RRUS 11 B12	A	From	4.0000	30.0000	129.0000	No Ice	2.7908	1.1923	0.05
		Centroid-Le	0.00			1/2" Ice	2.9984	1.3395	0.07
		g	0.00			1" Ice	3.2134	1.4957	0.10
RRUS 11 B12	B	From	4.0000	0.0000	129.0000	No Ice	2.7908	1.1923	0.05
		Centroid-Le	0.00			1/2" Ice	2.9984	1.3395	0.07
		g	0.00			1" Ice	3.2134	1.4957	0.10
RRUS 11 B12	C	From	4.0000	30.0000	129.0000	No Ice	2.7908	1.1923	0.05
		Centroid-Le	0.00			1/2" Ice	2.9984	1.3395	0.07
		g	0.00			1" Ice	3.2134	1.4957	0.10
Platform Mount [LP 1201-1]	C	None		0.0000	129.0000	No Ice	23.1000	23.1000	2.10
						1/2" Ice	26.8000	26.8000	2.50
						1" Ice	30.5000	30.5000	2.90
120									
(2) TME-RRUS-11	A	From Leg	2.0000	35.0000	120.0000	No Ice	2.7845	1.1872	0.05
			0.00			1/2" Ice	2.9919	1.3342	0.07
			0.00			1" Ice	3.2066	1.4897	0.09
(2) TME-RRUS-11	B	From Leg	2.0000	35.0000	120.0000	No Ice	2.7845	1.1872	0.05
			0.00			1/2" Ice	2.9919	1.3342	0.07
			0.00			1" Ice	3.2066	1.4897	0.09
(2) TME-RRUS-11	C	From Leg	2.0000	25.0000	120.0000	No Ice	2.7845	1.1872	0.05
			0.00			1/2" Ice	2.9919	1.3342	0.07
			0.00			1" Ice	3.2066	1.4897	0.09
2.4" Dia x 3-ft Mount Pipe	A	From Leg	2.0000	0.0000	120.0000	No Ice	0.5826	0.5826	0.01
			0.00			1/2" Ice	0.7701	0.7701	0.02
			0.00			1" Ice	0.9669	0.9669	0.02
2.4" Dia x 3-ft Mount Pipe	B	From Leg	2.0000	0.0000	120.0000	No Ice	0.5826	0.5826	0.01
			0.00			1/2" Ice	0.7701	0.7701	0.02
			0.00			1" Ice	0.9669	0.9669	0.02
2.4" Dia x 3-ft Mount Pipe	C	From Leg	2.0000	0.0000	120.0000	No Ice	0.5826	0.5826	0.01
			0.00			1/2" Ice	0.7701	0.7701	0.02
			0.00			1" Ice	0.9669	0.9669	0.02
Side Arm Mount [SO 102-3]	C	None		0.0000	120.0000	No Ice	3.0000	3.0000	0.08

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
						1/2" Ice	3.4800	3.4800	0.11
						1" Ice	3.9600	3.9600	0.14
118									
AM-X-WM-17-65-00T w/ Mount Pipe	A	From Centroid-Leg	4.0000 -2.00 0.00	35.0000	118.0000	No Ice 1/2" Ice 1" Ice	3.5517 4.0247 4.4529	2.9694 3.7612 4.4294	0.04 0.07 0.11
AM-X-WM-17-65-00T w/ Mount Pipe	B	From Centroid-Leg	4.0000 -2.00 0.00	35.0000	118.0000	No Ice 1/2" Ice 1" Ice	3.5517 4.0247 4.4529	2.9694 3.7612 4.4294	0.04 0.07 0.11
AM-X-WM-17-65-00T w/ Mount Pipe	C	From Centroid-Leg	4.0000 -2.00 0.00	25.0000	118.0000	No Ice 1/2" Ice 1" Ice	3.5517 4.0247 4.4529	2.9694 3.7612 4.4294	0.04 0.07 0.11
RA21.7770.00 w/ Mount Pipe	A	From Centroid-Leg	4.0000 -6.00 0.00	35.0000	118.0000	No Ice 1/2" Ice 1" Ice	6.7663 7.2614 7.7350	5.0018 5.9599 6.7465	0.06 0.11 0.18
RA21.7770.00 w/ Mount Pipe	B	From Centroid-Leg	4.0000 -6.00 0.00	35.0000	118.0000	No Ice 1/2" Ice 1" Ice	6.7663 7.2614 7.7350	5.0018 5.9599 6.7465	0.06 0.11 0.18
RA21.7770.00 w/ Mount Pipe	C	From Centroid-Leg	4.0000 -6.00 0.00	25.0000	118.0000	No Ice 1/2" Ice 1" Ice	6.7663 7.2614 7.7350	5.0018 5.9599 6.7465	0.06 0.11 0.18
(2) LGP21401	A	From Centroid-Leg	4.0000 -6.00 0.00	35.0000	118.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.2070 0.2738 0.3475	0.01 0.02 0.03
(2) LGP21401	B	From Centroid-Leg	4.0000 -6.00 0.00	35.0000	118.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.2070 0.2738 0.3475	0.01 0.02 0.03
(2) LGP21401	C	From Centroid-Leg	4.0000 -6.00 0.00	25.0000	118.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.2070 0.2738 0.3475	0.01 0.02 0.03
DC6-48-60-18-8F	A	From Centroid-Leg	4.0000 -2.00 0.00	35.0000	118.0000	No Ice 1/2" Ice 1" Ice	1.2117 1.8924 2.1051	1.2117 1.8924 2.1051	0.03 0.05 0.08
Platform Mount [LP 303-1]	C	None		0.0000	118.0000	No Ice 1/2" Ice 1" Ice	14.6600 18.8700 23.0800	14.6600 18.8700 23.0800	1.25 1.48 1.71
50									
KS24019-L112A	C	From Leg	3.0000 0.00 1.00	-40.0000	50.0000	No Ice 1/2" Ice 1" Ice	0.0815 0.1333 0.1944	0.0815 0.1333 0.1944	0.01 0.01 0.01
1.5" Dia. x 17" Pipe	C	From Leg	3.0000 0.00 0.50	-40.0000	50.0000	No Ice 1/2" Ice 1" Ice	0.1587 0.2514 0.3533	0.1587 0.2514 0.3533	0.00 0.01 0.01
Side Arm Mount [SO 701-1]	C	From Leg	1.5000 0.00 0.00	-40.0000	50.0000	No Ice 1/2" Ice 1" Ice	0.8500 1.1400 1.4300	1.6700 2.3400 3.0100	0.07 0.08 0.09
45									
KS24019-L112A	A	From Leg	3.0000 0.00 1.00	0.0000	45.0000	No Ice 1/2" Ice 1" Ice	0.0815 0.1333 0.1944	0.0815 0.1333 0.1944	0.01 0.01 0.01
1.5" Dia. x 17" Pipe	A	From Leg	3.0000 0.00 0.50	0.0000	45.0000	No Ice 1/2" Ice 1" Ice	0.1587 0.2514 0.3533	0.1587 0.2514 0.3533	0.00 0.01 0.01
Side Arm Mount [SO 701-1]	A	From Leg	1.5000 0.00 0.00	0.0000	45.0000	No Ice 1/2" Ice 1" Ice	0.8500 1.1400 1.4300	1.6700 2.3400 3.0100	0.07 0.08 0.09

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
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	147 - 142	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-8.04	0.03	0.05
			Max. Mx	20	-2.64	52.66	0.02
			Max. My	2	-2.64	0.05	52.67
			Max. Vy	20	-7.98	52.66	0.02
			Max. Vx	2	-7.98	0.05	52.67
			Max. Torque	16			0.00
L2	142 - 137	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-8.54	0.06	0.11
			Max. Mx	20	-2.87	93.40	0.03
			Max. My	2	-2.87	0.09	93.41
			Max. Vy	20	-8.32	93.40	0.03
			Max. Vx	2	-8.32	0.09	93.41
			Max. Torque	16			0.00
L3	137 - 132	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.48	3.03	1.49
			Max. Mx	20	-4.95	171.18	0.20
			Max. My	2	-4.93	0.59	171.35
			Max. Vy	20	-15.10	171.18	0.20
			Max. Vx	2	-15.23	0.59	171.35
			Max. Torque	4			3.67
L4	132 - 127	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.00	3.10	1.56
			Max. Mx	20	-8.55	258.95	0.24
			Max. My	2	-8.56	0.59	259.26
			Max. Vy	20	-21.16	258.95	0.24
			Max. Vx	2	-21.03	0.59	259.26
			Max. Torque	2			4.06
L5	127 - 120.37	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.49	3.16	1.61
			Max. Mx	20	-8.93	330.79	0.25
			Max. My	2	-8.95	0.63	330.69
			Max. Vy	20	-21.37	330.79	0.25
			Max. Vx	2	-21.24	0.63	330.69
			Max. Torque	2			4.05
L6	120.37 - 118.62	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.81	3.25	1.69
			Max. Mx	20	-10.08	439.80	0.21
			Max. My	2	-10.10	0.64	439.09
			Max. Vy	20	-22.66	439.80	0.21
			Max. Vx	2	-22.54	0.64	439.09
			Max. Torque	2			4.05
L7	118.62 - 113.62	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.81	3.58	2.27
			Max. Mx	20	-12.57	564.97	0.13
			Max. My	2	-12.58	0.54	563.72
			Max. Vy	20	-25.49	564.97	0.13
			Max. Vx	2	-25.37	0.54	563.72
			Max. Torque	4			4.07
L8	113.62 - 112.41	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.03	3.59	2.28
			Max. Mx	20	-12.76	595.84	0.08
			Max. My	2	-12.77	0.49	594.44
			Max. Vy	20	-25.56	595.84	0.08
			Max. Vx	2	-25.45	0.49	594.44

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	4			4.07
L9	112.41 - 112.16	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.10	3.60	2.28
			Max. Mx	20	-12.84	602.23	0.07
			Max. My	2	-12.85	0.48	600.80
			Max. Vy	20	-25.57	602.23	0.07
			Max. Vx	2	-25.45	0.48	600.80
			Max. Torque	4			4.06
L10	112.16 - 110.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.54	3.62	2.30
			Max. Mx	20	-13.15	644.78	-0.00
			Max. My	2	-13.16	0.42	643.18
			Max. Vy	20	-25.72	644.78	-0.00
			Max. Vx	2	-25.62	0.42	643.18
			Max. Torque	4			4.06
L11	110.5 - 110.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.62	3.63	2.31
			Max. Mx	20	-13.23	651.21	-0.01
			Max. My	2	-13.24	0.41	649.59
			Max. Vy	20	-25.73	651.21	-0.01
			Max. Vx	2	-25.63	0.41	649.59
			Max. Torque	4			4.06
L12	110.25 - 105.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.22	3.69	2.37
			Max. Mx	20	-14.46	780.98	-0.23
			Max. My	2	-14.47	0.22	778.98
			Max. Vy	20	-26.18	780.98	-0.23
			Max. Vx	2	-26.13	0.22	778.98
			Max. Torque	4			4.06
L13	105.25 - 105	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.30	3.70	2.37
			Max. Mx	20	-14.53	787.53	-0.24
			Max. My	2	-14.54	0.21	785.51
			Max. Vy	20	-26.20	787.53	-0.24
			Max. Vx	2	-26.15	0.21	785.51
			Max. Torque	4			4.06
L14	105 - 104.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.40	3.70	2.37
			Max. Mx	20	-14.61	794.08	-0.25
			Max. My	2	-14.62	0.20	792.05
			Max. Vy	20	-26.23	794.08	-0.25
			Max. Vx	2	-26.17	0.20	792.05
			Max. Torque	4			4.06
L15	104.75 - 103.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.88	3.71	2.38
			Max. Mx	20	-14.99	826.94	-0.30
			Max. My	2	-15.00	0.15	824.85
			Max. Vy	20	-26.35	826.94	-0.30
			Max. Vx	2	-26.30	0.15	824.85
			Max. Torque	4			4.06
L16	103.5 - 103.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.96	3.71	2.38
			Max. Mx	20	-15.07	833.53	-0.32
			Max. My	2	-15.07	0.14	831.43
			Max. Vy	20	-26.37	833.53	-0.32
			Max. Vx	2	-26.32	0.14	831.43
			Max. Torque	4			4.06
L17	103.25 - 98.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.61	3.76	2.42

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-16.38	966.47	-0.53
			Max. My	2	-16.38	-0.06	964.17
			Max. Vy	20	-26.82	966.47	-0.53
			Max. Vx	2	-26.78	-0.06	964.17
			Max. Torque	4			4.06
L18	98.25 - 94.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.76	3.79	2.45
			Max. Mx	20	-17.30	1058.68	-0.68
			Max. My	2	-17.30	-0.19	1056.29
			Max. Vy	20	-27.12	1058.68	-0.68
			Max. Vx	2	-27.10	-0.19	1056.29
			Max. Torque	4			4.06
L19	94.83 - 94.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.85	3.80	2.46
			Max. Mx	20	-17.38	1065.46	-0.69
			Max. My	2	-17.38	-0.20	1063.06
			Max. Vy	20	-27.14	1065.46	-0.69
			Max. Vx	2	-27.12	-0.20	1063.06
			Max. Torque	4			4.06
L20	94.58 - 94.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.99	3.80	2.46
			Max. Mx	20	-17.49	1076.59	-0.71
			Max. My	2	-17.49	-0.22	1074.19
			Max. Vy	20	-27.17	1076.59	-0.71
			Max. Vx	2	-27.16	-0.22	1074.19
			Max. Torque	4			4.06
L21	94.17 - 93.82	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.12	3.81	2.47
			Max. Mx	20	-17.59	1086.11	-0.72
			Max. My	2	-17.59	-0.23	1083.70
			Max. Vy	20	-27.20	1086.11	-0.72
			Max. Vx	2	-27.19	-0.23	1083.70
			Max. Torque	4			4.06
L22	93.82 - 93.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.18	3.81	2.47
			Max. Mx	20	-17.64	1090.46	-0.73
			Max. My	2	-17.64	-0.24	1088.05
			Max. Vy	20	-27.22	1090.46	-0.73
			Max. Vx	2	-27.21	-0.24	1088.05
			Max. Torque	4			4.06
L23	93.66 - 84.91	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.89	3.87	2.53
			Max. Mx	20	-18.98	1216.06	-0.93
			Max. My	2	-18.98	-0.42	1213.67
			Max. Vy	20	-27.64	1216.06	-0.93
			Max. Vx	2	-27.66	-0.42	1213.67
			Max. Torque	4			4.06
L24	84.91 - 83.91	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.28	3.95	2.60
			Max. Mx	20	-21.66	1360.50	-1.16
			Max. My	2	-21.66	-0.63	1358.32
			Max. Vy	20	-28.23	1360.50	-1.16
			Max. Vx	2	-28.29	-0.63	1358.32
			Max. Torque	4			4.05
L25	83.91 - 78.91	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.33	4.02	2.66
			Max. Mx	20	-23.32	1502.73	-1.38
			Max. My	2	-23.31	-0.84	1500.92
			Max. Vy	20	-28.68	1502.73	-1.38
			Max. Vx	2	-28.77	-0.84	1500.92
			Max. Torque	4			4.05

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L26	78.91 - 73.91	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.40	4.09	2.73
			Max. Mx	20	-25.00	1647.20	-1.59
			Max. My	2	-25.00	-1.04	1645.91
			Max. Vy	20	-29.13	1647.20	-1.59
			Max. Vx	2	-29.24	-1.04	1645.91
			Max. Torque	4			4.05
L27	73.91 - 68.91	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.51	4.16	2.80
			Max. Mx	20	-26.72	1793.89	-1.81
			Max. My	2	-26.71	-1.25	1793.22
			Max. Vy	20	-29.57	1793.89	-1.81
			Max. Vx	2	-29.71	-1.25	1793.22
			Max. Torque	4			4.05
L28	68.91 - 65.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.96	4.20	2.84
			Max. Mx	20	-27.90	1895.20	-1.96
			Max. My	2	-27.89	-1.39	1895.01
			Max. Vy	20	-29.87	1895.20	-1.96
			Max. Vx	2	-30.02	-1.39	1895.01
			Max. Torque	4			4.05
L29	65.5 - 65.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.08	4.21	2.85
			Max. Mx	20	-28.01	1902.67	-1.98
			Max. My	2	-28.00	-1.41	1902.51
			Max. Vy	20	-29.88	1902.67	-1.98
			Max. Vx	2	-30.03	-1.41	1902.51
			Max. Torque	4			4.04
L30	65.25 - 64.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.43	4.21	2.85
			Max. Mx	20	-28.29	1925.10	-2.01
			Max. My	2	-28.28	-1.44	1925.06
			Max. Vy	20	-29.96	1925.10	-2.01
			Max. Vx	2	-30.11	-1.44	1925.06
			Max. Torque	4			4.04
L31	64.5 - 64.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.54	4.22	2.86
			Max. Mx	20	-28.39	1932.59	-2.02
			Max. My	2	-28.38	-1.45	1932.59
			Max. Vy	20	-29.98	1932.59	-2.02
			Max. Vx	2	-30.12	-1.45	1932.59
			Max. Torque	4			4.04
L32	64.25 - 59.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.79	4.26	2.91
			Max. Mx	20	-30.22	2083.56	-2.24
			Max. My	2	-30.21	-1.66	2084.34
			Max. Vy	20	-30.43	2083.56	-2.24
			Max. Vx	2	-30.59	-1.66	2084.34
			Max. Torque	4			4.04
L33	59.25 - 58.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.10	4.27	2.92
			Max. Mx	20	-30.48	2103.96	-2.27
			Max. My	2	-30.47	-1.68	2104.85
			Max. Vy	20	-30.48	2103.96	-2.27
			Max. Vx	2	-30.65	-1.68	2104.85
			Max. Torque	4			4.04
L34	58.58 - 58.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.22	4.27	2.92
			Max. Mx	20	-30.58	2111.58	-2.28
			Max. My	2	-30.57	-1.70	2112.51
			Max. Vy	20	-30.50	2111.58	-2.28

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-30.67	-1.70	2112.51
			Max. Torque	4			4.04
L35	58.33 - 57.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.73	4.28	2.93
			Max. Mx	20	-30.99	2144.57	-2.33
			Max. My	2	-30.98	-1.74	2145.68
			Max. Vy	20	-30.61	2144.57	-2.33
			Max. Vx	2	-30.78	-1.74	2145.68
			Max. Torque	4			4.04
L36	57.25 - 57	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.85	4.29	2.93
			Max. Mx	20	-31.10	2152.23	-2.34
			Max. My	2	-31.09	-1.75	2153.37
			Max. Vy	20	-30.62	2152.23	-2.34
			Max. Vx	2	-30.79	-1.75	2153.37
			Max. Torque	4			4.04
L37	57 - 52	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.26	4.34	2.99
			Max. Mx	20	-33.08	2306.43	-2.56
			Max. My	2	-33.07	-1.96	2308.46
			Max. Vy	20	-31.07	2306.43	-2.56
			Max. Vx	2	-31.26	-1.96	2308.46
			Max. Torque	4			4.04
L38	52 - 44.41	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.58	4.79	2.77
			Max. Mx	20	-34.13	2382.14	-2.79
			Max. My	2	-34.12	-1.82	2384.23
			Max. Vy	20	-31.38	2382.14	-2.79
			Max. Vx	2	-31.54	-1.82	2384.23
			Max. Torque	2			4.18
L39	44.41 - 43.41	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.12	4.85	3.34
			Max. Mx	20	-38.63	2578.02	-2.70
			Max. My	2	-38.63	-2.00	2581.33
			Max. Vy	20	-32.16	2578.02	-2.70
			Max. Vx	2	-32.29	-2.00	2581.33
			Max. Torque	4			4.27
L40	43.41 - 38.41	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.74	4.87	3.40
			Max. Mx	20	-40.82	2739.75	-2.86
			Max. My	2	-40.81	-2.15	2743.79
			Max. Vy	20	-32.57	2739.75	-2.86
			Max. Vx	2	-32.73	-2.15	2743.79
			Max. Torque	4			4.27
L41	38.41 - 34.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.81	4.88	3.44
			Max. Mx	20	-42.54	2867.64	-2.97
			Max. My	2	-42.54	-2.26	2872.33
			Max. Vy	20	-32.88	2867.64	-2.97
			Max. Vx	2	-33.06	-2.26	2872.33
			Max. Torque	4			4.27
L42	34.5 - 34.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.97	4.89	3.45
			Max. Mx	20	-42.69	2875.85	-2.98
			Max. My	2	-42.68	-2.27	2880.60
			Max. Vy	20	-32.89	2875.85	-2.98
			Max. Vx	2	-33.07	-2.27	2880.60
			Max. Torque	4			4.27
L43	34.25 - 33.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.44	4.89	3.46
			Max. Mx	20	-43.09	2900.54	-3.00

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	-43.08	-2.29	2905.42
			Max. Vy	20	-32.96	2900.54	-3.00
			Max. Vx	2	-33.14	-2.29	2905.42
			Max. Torque	4			4.27
L44	33.5 - 33.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.58	4.89	3.46
			Max. Mx	20	-43.21	2908.78	-3.01
			Max. My	2	-43.20	-2.30	2913.71
			Max. Vy	20	-32.97	2908.78	-3.01
			Max. Vx	2	-33.15	-2.30	2913.71
			Max. Torque	4			4.27
L45	33.25 - 29.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.66	4.91	3.50
			Max. Mx	20	-44.95	3032.93	-3.12
			Max. My	2	-44.94	-2.41	3038.59
			Max. Vy	20	-33.27	3032.93	-3.12
			Max. Vx	2	-33.47	-2.41	3038.59
			Max. Torque	4			4.27
L46	29.5 - 29.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.80	4.91	3.51
			Max. Mx	20	-45.08	3041.25	-3.13
			Max. My	2	-45.08	-2.41	3046.96
			Max. Vy	20	-33.27	3041.25	-3.13
			Max. Vx	2	-33.48	-2.41	3046.96
			Max. Torque	4			4.27
L47	29.25 - 28.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.24	4.91	3.52
			Max. Mx	20	-45.45	3066.22	-3.15
			Max. My	2	-45.44	-2.44	3072.09
			Max. Vy	20	-33.34	3066.22	-3.15
			Max. Vx	2	-33.55	-2.44	3072.09
			Max. Torque	4			4.27
L48	28.5 - 28.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.39	4.92	3.52
			Max. Mx	20	-45.58	3074.55	-3.16
			Max. My	2	-45.57	-2.44	3080.47
			Max. Vy	20	-33.35	3074.55	-3.16
			Max. Vx	2	-33.56	-2.44	3080.47
			Max. Torque	4			4.27
L49	28.25 - 27.48	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.84	4.92	3.53
			Max. Mx	20	-45.95	3100.25	-3.19
			Max. My	2	-45.95	-2.47	3106.34
			Max. Vy	20	-33.42	3100.25	-3.19
			Max. Vx	2	-33.64	-2.47	3106.34
			Max. Torque	4			4.27
L50	27.48 - 27.23	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.99	4.92	3.54
			Max. Mx	20	-46.08	3108.61	-3.19
			Max. My	2	-46.08	-2.47	3114.75
			Max. Vy	20	-33.43	3108.61	-3.19
			Max. Vx	2	-33.65	-2.47	3114.75
			Max. Torque	4			4.27
L51	27.23 - 22.23	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.91	4.95	3.60
			Max. Mx	20	-48.55	3276.65	-3.34
			Max. My	2	-48.55	-2.62	3283.99
			Max. Vy	20	-33.81	3276.65	-3.34
			Max. Vx	2	-34.07	-2.62	3283.99
			Max. Torque	4			4.27
L52	22.23 - 17.23	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-79.85	4.98	3.67
			Max. Mx	20	-51.05	3446.49	-3.49
			Max. My	2	-51.05	-2.77	3455.17
			Max. Vy	20	-34.16	3446.49	-3.49
			Max. Vx	2	-34.44	-2.77	3455.17
			Max. Torque	4			4.27
L53	17.23 - 12.23	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.82	5.02	3.74
			Max. Mx	20	-53.58	3617.98	-3.64
			Max. My	2	-53.58	-2.91	3628.14
			Max. Vy	20	-34.47	3617.98	-3.64
			Max. Vx	2	-34.78	-2.91	3628.14
			Max. Torque	4			4.27
L54	12.23 - 7.23	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.78	5.05	3.80
			Max. Mx	20	-56.14	3791.04	-3.79
			Max. My	2	-56.14	-3.06	3802.79
			Max. Vy	20	-34.79	3791.04	-3.79
			Max. Vx	2	-35.11	-3.06	3802.79
			Max. Torque	4			4.27
L55	7.23 - 6.9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.99	5.05	3.80
			Max. Mx	20	-56.33	3802.51	-3.80
			Max. My	2	-56.33	-3.07	3814.37
			Max. Vy	20	-34.79	3802.51	-3.80
			Max. Vx	2	-35.12	-3.07	3814.37
			Max. Torque	4			4.27
L56	6.9 - 6.55	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.20	5.05	3.81
			Max. Mx	20	-56.51	3814.69	-3.81
			Max. My	2	-56.51	-3.08	3826.67
			Max. Vy	20	-34.82	3814.69	-3.81
			Max. Vx	2	-35.15	-3.08	3826.67
			Max. Torque	4			4.27
L57	6.55 - 6.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.33	5.05	3.81
			Max. Mx	20	-56.63	3822.35	-3.81
			Max. My	2	-56.63	-3.08	3834.40
			Max. Vy	20	-34.83	3822.35	-3.81
			Max. Vx	2	-35.16	-3.08	3834.40
			Max. Torque	4			4.27
L58	6.33 - 3.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.16	5.07	3.85
			Max. Mx	20	-58.22	3929.90	-3.90
			Max. My	2	-58.22	-3.17	3942.96
			Max. Vy	20	-35.03	3929.90	-3.90
			Max. Vx	2	-35.36	-3.17	3942.96
			Max. Torque	4			4.27
L59	3.25 - 3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.34	5.07	3.85
			Max. Mx	20	-58.39	3938.65	-3.91
			Max. My	2	-58.39	-3.18	3951.80
			Max. Vy	20	-35.03	3938.65	-3.91
			Max. Vx	2	-35.36	-3.18	3951.80
			Max. Torque	4			4.27
L60	3 - 2.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.49	5.07	3.85
			Max. Mx	20	-58.53	3947.41	-3.92
			Max. My	2	-58.53	-3.19	3960.64
			Max. Vy	20	-35.04	3947.41	-3.92
			Max. Vx	2	-35.38	-3.19	3960.64

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	4			4.27
L61	2.75 - 2.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.65	5.07	3.85
			Max. Mx	20	-58.67	3956.17	-3.93
			Max. My	2	-58.67	-3.20	3969.49
			Max. Vy	20	-35.06	3956.17	-3.93
			Max. Vx	2	-35.39	-3.20	3969.49
			Max. Torque	4			4.27
L62	2.5 - 2.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.79	5.08	3.86
			Max. Mx	20	-58.79	3964.94	-3.93
			Max. My	2	-58.79	-3.20	3978.34
			Max. Vy	20	-35.08	3964.94	-3.93
			Max. Vx	2	-35.41	-3.20	3978.34
			Max. Torque	4			4.27
L63	2.25 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.93	5.08	3.86
			Max. Mx	20	-58.92	3973.71	-3.94
			Max. My	2	-58.92	-3.21	3987.19
			Max. Vy	20	-35.09	3973.71	-3.94
			Max. Vx	2	-35.43	-3.21	3987.19
			Max. Torque	4			4.27
L64	2 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.04	5.09	3.87
			Max. Mx	20	-59.90	4044.00	-4.00
			Max. My	2	-59.90	-3.27	4058.15
			Max. Vy	20	-35.22	4044.00	-4.00
			Max. Vx	2	-35.56	-3.27	4058.15
			Max. Torque	4			4.27

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	90.04	0.00	0.00
	Max. H_x	20	59.92	35.20	-0.03
	Max. H_z	3	44.94	-0.03	35.54
	Max. M_x	2	4058.15	-0.03	35.54
	Max. M_z	8	4040.92	-35.20	0.03
	Max. Torsion	4	4.27	-17.62	30.31
	Min. Vert	5	44.94	-17.62	30.31
	Min. H_x	8	59.92	-35.20	0.03
	Min. H_z	15	44.94	0.03	-35.54
	Min. M_x	14	-4056.59	0.03	-35.54
	Min. M_z	20	-4044.00	35.20	-0.03
	Min. Torsion	16	-4.23	17.62	-30.31

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

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
Dead Only	49.93	0.00	0.00	-0.62	1.22	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	59.92	0.03	-35.54	-4058.15	-3.27	-4.18
0.9 Dead+1.6 Wind 0 deg - No Ice	44.94	0.03	-35.54	-4016.13	-3.61	-4.15
1.2 Dead+1.6 Wind 30 deg - No Ice	59.92	17.62	-30.31	-3485.66	-2022.58	-4.27
0.9 Dead+1.6 Wind 30 deg - No Ice	44.94	17.62	-30.31	-3449.43	-2002.06	-4.24
1.2 Dead+1.6 Wind 60 deg - No Ice	59.92	30.48	-17.52	-2015.50	-3499.50	-3.20
0.9 Dead+1.6 Wind 60 deg - No Ice	44.94	30.48	-17.52	-1994.48	-3463.73	-3.18
1.2 Dead+1.6 Wind 90 deg - No Ice	59.92	35.20	-0.03	-5.54	-4040.92	-1.26
0.9 Dead+1.6 Wind 90 deg - No Ice	44.94	35.20	-0.03	-5.29	-3999.57	-1.25
1.2 Dead+1.6 Wind 120 deg - No Ice	59.92	30.45	17.46	2005.71	-3494.75	1.01
0.9 Dead+1.6 Wind 120 deg - No Ice	44.94	30.45	17.46	1985.17	-3459.03	1.00
1.2 Dead+1.6 Wind 150 deg - No Ice	59.92	17.56	30.28	3479.36	-2014.32	3.00
0.9 Dead+1.6 Wind 150 deg - No Ice	44.94	17.56	30.28	3443.59	-1993.90	2.98
1.2 Dead+1.6 Wind 180 deg - No Ice	59.92	-0.03	35.54	4056.59	6.27	4.17
0.9 Dead+1.6 Wind 180 deg - No Ice	44.94	-0.03	35.54	4014.98	5.83	4.14
1.2 Dead+1.6 Wind 210 deg - No Ice	59.92	-17.62	30.31	3484.14	2025.59	4.23
0.9 Dead+1.6 Wind 210 deg - No Ice	44.94	-17.62	30.31	3448.31	2004.28	4.20
1.2 Dead+1.6 Wind 240 deg - No Ice	59.92	-30.48	17.52	2013.99	3502.55	3.17
0.9 Dead+1.6 Wind 240 deg - No Ice	44.94	-30.48	17.52	1993.36	3465.98	3.15
1.2 Dead+1.6 Wind 270 deg - No Ice	59.92	-35.20	0.03	4.00	4044.00	1.27
0.9 Dead+1.6 Wind 270 deg - No Ice	44.94	-35.20	0.03	4.15	4001.84	1.26
1.2 Dead+1.6 Wind 300 deg - No Ice	59.92	-30.45	-17.46	-2007.29	3497.81	-0.97
0.9 Dead+1.6 Wind 300 deg - No Ice	44.94	-30.45	-17.46	-1986.34	3461.29	-0.97
1.2 Dead+1.6 Wind 330 deg - No Ice	59.92	-17.56	-30.28	-3480.95	2017.35	-2.96
0.9 Dead+1.6 Wind 330 deg - No Ice	44.94	-17.56	-30.28	-3444.76	1996.13	-2.95
1.2 Dead+1.0 Ice+1.0 Temp	90.04	-0.00	-0.00	-3.87	5.09	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	90.04	-0.00	-9.46	-1045.61	5.03	-0.81
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	90.04	4.29	-7.41	-857.93	-487.76	-0.88
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	90.04	7.42	-4.28	-497.13	-848.46	-0.70
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	90.04	9.42	0.00	-4.20	-1042.06	-0.34
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	90.04	7.42	4.28	488.79	-848.25	0.11
1.2 Dead+1.0 Wind 150	90.04	4.29	7.41	849.74	-487.40	0.53

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 180 deg+1.0 Ice+1.0 Temp	90.04	0.00	9.46	1037.64	5.45	0.81
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	90.04	-4.29	7.41	849.96	498.24	0.87
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	90.04	-7.42	4.28	489.16	858.94	0.70
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	90.04	-9.42	-0.00	-3.78	1052.54	0.34
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	90.04	-7.42	-4.28	-496.77	858.73	-0.11
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	90.04	-4.29	-7.41	-857.72	497.88	-0.53
Dead+Wind 0 deg - Service	49.93	0.01	-6.49	-737.80	0.41	-0.77
Dead+Wind 30 deg - Service	49.93	3.22	-5.53	-633.78	-366.45	-0.79
Dead+Wind 60 deg - Service	49.93	5.57	-3.20	-366.69	-634.79	-0.59
Dead+Wind 90 deg - Service	49.93	6.43	-0.01	-1.51	-733.15	-0.23
Dead+Wind 120 deg - Service	49.93	5.56	3.19	363.89	-633.92	0.18
Dead+Wind 150 deg - Service	49.93	3.21	5.53	631.61	-364.95	0.55
Dead+Wind 180 deg - Service	49.93	-0.01	6.49	736.50	2.14	0.77
Dead+Wind 210 deg - Service	49.93	-3.22	5.53	632.48	369.01	0.79
Dead+Wind 240 deg - Service	49.93	-5.57	3.20	365.39	637.34	0.59
Dead+Wind 270 deg - Service	49.93	-6.43	0.01	0.22	735.71	0.23
Dead+Wind 300 deg - Service	49.93	-5.56	-3.19	-365.19	636.48	-0.18
Dead+Wind 330 deg - Service	49.93	-3.21	-5.53	-632.91	367.51	-0.55

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	-49.93	0.00	0.00	49.93	0.00	0.000%
2	0.03	-59.92	-35.54	-0.03	59.92	35.54	0.000%
3	0.03	-44.94	-35.54	-0.03	44.94	35.54	0.000%
4	17.62	-59.92	-30.31	-17.62	59.92	30.31	0.000%
5	17.62	-44.94	-30.31	-17.62	44.94	30.31	0.000%
6	30.48	-59.92	-17.52	-30.48	59.92	17.52	0.000%
7	30.48	-44.94	-17.52	-30.48	44.94	17.52	0.000%
8	35.20	-59.92	-0.03	-35.20	59.92	0.03	0.000%
9	35.20	-44.94	-0.03	-35.20	44.94	0.03	0.000%
10	30.45	-59.92	17.46	-30.45	59.92	-17.46	0.000%
11	30.45	-44.94	17.46	-30.45	44.94	-17.46	0.000%
12	17.56	-59.92	30.28	-17.56	59.92	-30.28	0.000%
13	17.56	-44.94	30.28	-17.56	44.94	-30.28	0.000%
14	-0.03	-59.92	35.54	0.03	59.92	-35.54	0.000%
15	-0.03	-44.94	35.54	0.03	44.94	-35.54	0.000%
16	-17.62	-59.92	30.31	17.62	59.92	-30.31	0.000%
17	-17.62	-44.94	30.31	17.62	44.94	-30.31	0.000%
18	-30.48	-59.92	17.52	30.48	59.92	-17.52	0.000%
19	-30.48	-44.94	17.52	30.48	44.94	-17.52	0.000%
20	-35.20	-59.92	0.03	35.20	59.92	-0.03	0.000%
21	-35.20	-44.94	0.03	35.20	44.94	-0.03	0.000%
22	-30.45	-59.92	-17.46	30.45	59.92	17.46	0.000%
23	-30.45	-44.94	-17.46	30.45	44.94	17.46	0.000%
24	-17.56	-59.92	-30.28	17.56	59.92	30.28	0.000%
25	-17.56	-44.94	-30.28	17.56	44.94	30.28	0.000%
26	0.00	-90.04	0.00	0.00	90.04	0.00	0.000%
27	-0.00	-90.04	-9.46	0.00	90.04	9.46	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
28	4.29	-90.04	-7.41	-4.29	90.04	7.41	0.000%
29	7.42	-90.04	-4.28	-7.42	90.04	4.28	0.000%
30	9.42	-90.04	0.00	-9.42	90.04	-0.00	0.000%
31	7.42	-90.04	4.28	-7.42	90.04	-4.28	0.000%
32	4.29	-90.04	7.41	-4.29	90.04	-7.41	0.000%
33	0.00	-90.04	9.46	-0.00	90.04	-9.46	0.000%
34	-4.29	-90.04	7.41	4.29	90.04	-7.41	0.000%
35	-7.42	-90.04	4.28	7.42	90.04	-4.28	0.000%
36	-9.42	-90.04	-0.00	9.42	90.04	0.00	0.000%
37	-7.42	-90.04	-4.28	7.42	90.04	4.28	0.000%
38	-4.29	-90.04	-7.41	4.29	90.04	7.41	0.000%
39	0.01	-49.93	-6.49	-0.01	49.93	6.49	0.000%
40	3.22	-49.93	-5.53	-3.22	49.93	5.53	0.000%
41	5.57	-49.93	-3.20	-5.57	49.93	3.20	0.000%
42	6.43	-49.93	-0.01	-6.43	49.93	0.01	0.000%
43	5.56	-49.93	3.19	-5.56	49.93	-3.19	0.000%
44	3.21	-49.93	5.53	-3.21	49.93	-5.53	0.000%
45	-0.01	-49.93	6.49	0.01	49.93	-6.49	0.000%
46	-3.22	-49.93	5.53	3.22	49.93	-5.53	0.000%
47	-5.57	-49.93	3.20	5.57	49.93	-3.20	0.000%
48	-6.43	-49.93	0.01	6.43	49.93	-0.01	0.000%
49	-5.56	-49.93	-3.19	5.56	49.93	3.19	0.000%
50	-3.21	-49.93	-5.53	3.21	49.93	5.53	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	6	0.00000001	0.00007966
3	Yes	5	0.00000001	0.00080831
4	Yes	6	0.00000001	0.00080728
5	Yes	6	0.00000001	0.00023602
6	Yes	6	0.00000001	0.00089354
7	Yes	6	0.00000001	0.00026602
8	Yes	5	0.00000001	0.00062933
9	Yes	5	0.00000001	0.00027584
10	Yes	6	0.00000001	0.00086233
11	Yes	6	0.00000001	0.00025577
12	Yes	6	0.00000001	0.00081525
13	Yes	6	0.00000001	0.00023940
14	Yes	6	0.00000001	0.00008535
15	Yes	5	0.00000001	0.00086534
16	Yes	6	0.00000001	0.00090864
17	Yes	6	0.00000001	0.00027127
18	Yes	6	0.00000001	0.00081898
19	Yes	6	0.00000001	0.00023985
20	Yes	5	0.00000001	0.00050254
21	Yes	5	0.00000001	0.00021961
22	Yes	6	0.00000001	0.00083912
23	Yes	6	0.00000001	0.00024725
24	Yes	6	0.00000001	0.00088958
25	Yes	6	0.00000001	0.00026502
26	Yes	4	0.00000001	0.00098389
27	Yes	6	0.00000001	0.00084874
28	Yes	7	0.00000001	0.00010684

29	Yes	7	0.00000001	0.00010852
30	Yes	6	0.00000001	0.00083413
31	Yes	7	0.00000001	0.00010601
32	Yes	7	0.00000001	0.00010542
33	Yes	6	0.00000001	0.00083649
34	Yes	7	0.00000001	0.00010976
35	Yes	7	0.00000001	0.00010776
36	Yes	6	0.00000001	0.00085341
37	Yes	7	0.00000001	0.00010979
38	Yes	7	0.00000001	0.00011074
39	Yes	5	0.00000001	0.00007936
40	Yes	5	0.00000001	0.00016107
41	Yes	5	0.00000001	0.00021213
42	Yes	4	0.00000001	0.00079365
43	Yes	5	0.00000001	0.00018775
44	Yes	5	0.00000001	0.00016125
45	Yes	5	0.00000001	0.00007999
46	Yes	5	0.00000001	0.00022591
47	Yes	5	0.00000001	0.00016413
48	Yes	4	0.00000001	0.00078447
49	Yes	5	0.00000001	0.00017416
50	Yes	5	0.00000001	0.00021148

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 142	19.734	48	1.4914	0.0111
L2	142 - 137	18.183	48	1.4670	0.0111
L3	137 - 132	16.669	48	1.4217	0.0111
L4	132 - 127	15.215	48	1.3516	0.0092
L5	127 - 120.37	13.847	48	1.2569	0.0070
L6	123.62 - 118.62	12.984	48	1.1791	0.0057
L7	118.62 - 113.62	11.783	39	1.1026	0.0047
L8	113.62 - 112.41	10.692	39	0.9826	0.0034
L9	112.41 - 112.16	10.447	39	0.9524	0.0032
L10	112.16 - 110.5	10.398	39	0.9493	0.0031
L11	110.5 - 110.25	10.072	39	0.9285	0.0030
L12	110.25 - 105.25	10.023	39	0.9262	0.0029
L13	105.25 - 105	9.080	39	0.8767	0.0026
L14	105 - 104.75	9.034	39	0.8742	0.0026
L15	104.75 - 103.5	8.988	39	0.8723	0.0025
L16	103.5 - 103.25	8.762	39	0.8627	0.0025
L17	103.25 - 98.25	8.716	39	0.8602	0.0025
L18	98.25 - 94.83	7.843	39	0.8087	0.0022
L19	94.83 - 94.58	7.277	39	0.7725	0.0020
L20	94.58 - 94.17	7.237	39	0.7698	0.0020
L21	94.17 - 93.82	7.171	39	0.7653	0.0019
L22	93.82 - 93.66	7.115	39	0.7619	0.0019
L23	93.66 - 84.91	7.090	39	0.7603	0.0019
L24	89.08 - 83.91	6.383	39	0.7139	0.0017
L25	83.91 - 78.91	5.624	39	0.6834	0.0016
L26	78.91 - 73.91	4.934	39	0.6340	0.0014
L27	73.91 - 68.91	4.296	39	0.5846	0.0012
L28	68.91 - 65.5	3.710	39	0.5347	0.0011
L29	65.5 - 65.25	3.341	39	0.5008	0.0010
L30	65.25 - 64.5	3.315	39	0.4987	0.0010
L31	64.5 - 64.25	3.237	39	0.4925	0.0010
L32	64.25 - 59.25	3.211	39	0.4902	0.0010

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L33	59.25 - 58.58	2.722	39	0.4437	0.0008
L34	58.58 - 58.33	2.660	39	0.4375	0.0008
L35	58.33 - 57.25	2.637	39	0.4354	0.0008
L36	57.25 - 57	2.540	39	0.4260	0.0008
L37	57 - 52	2.518	39	0.4239	0.0008
L38	52 - 44.41	2.096	39	0.3809	0.0007
L39	49.58 - 43.41	1.909	39	0.3602	0.0006
L40	43.41 - 38.41	1.460	39	0.3301	0.0006
L41	38.41 - 34.5	1.136	39	0.2886	0.0005
L42	34.5 - 34.25	0.913	39	0.2566	0.0004
L43	34.25 - 33.5	0.900	39	0.2549	0.0004
L44	33.5 - 33.25	0.860	39	0.2497	0.0004
L45	33.25 - 29.5	0.847	39	0.2476	0.0004
L46	29.5 - 29.25	0.665	39	0.2160	0.0003
L47	29.25 - 28.5	0.654	39	0.2141	0.0003
L48	28.5 - 28.25	0.621	39	0.2085	0.0003
L49	28.25 - 27.48	0.610	39	0.2066	0.0003
L50	27.48 - 27.23	0.577	39	0.2010	0.0003
L51	27.23 - 22.23	0.566	39	0.1991	0.0003
L52	22.23 - 17.23	0.378	39	0.1618	0.0002
L53	17.23 - 12.23	0.227	39	0.1254	0.0002
L54	12.23 - 7.23	0.115	39	0.0891	0.0001
L55	7.23 - 6.9	0.040	39	0.0533	0.0001
L56	6.9 - 6.55	0.037	39	0.0510	0.0001
L57	6.55 - 6.33	0.033	39	0.0484	0.0001
L58	6.33 - 3.25	0.031	39	0.0468	0.0001
L59	3.25 - 3	0.008	39	0.0237	0.0000
L60	3 - 2.75	0.007	39	0.0222	0.0000
L61	2.75 - 2.5	0.006	39	0.0206	0.0000
L62	2.5 - 2.25	0.005	39	0.0189	0.0000
L63	2.25 - 2	0.004	39	0.0171	0.0000
L64	2 - 0	0.003	39	0.0151	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.0000	APXVSPP18-C-A20	48	19.734	1.4914	0.0111	8085
136.0000	(2) LPA-80080/4CF w/ Mount Pipe	48	16.373	1.4095	0.0108	4703
129.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	48	14.381	1.2991	0.0079	2880
120.0000	(2) TME-RRUS-11	48	12.105	1.1238	0.0049	2987
118.0000	AM-X-WM-17-65-00T w/ Mount Pipe	39	11.641	1.0913	0.0046	2674
50.0000	KS24019-L112A	39	1.941	0.3634	0.0006	8907
45.0000	KS24019-L112A	39	1.571	0.3382	0.0006	9112

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 142	108.194	2	8.1595	0.0603
L2	142 - 137	99.737	2	8.0253	0.0603
L3	137 - 132	91.482	2	7.7772	0.0603
L4	132 - 127	83.544	2	7.3999	0.0498
L5	127 - 120.37	76.072	2	6.8886	0.0381
L6	123.62 - 118.62	71.354	2	6.4659	0.0307
L7	118.62 - 113.62	64.778	2	6.0494	0.0254
L8	113.62 - 112.41	58.790	2	5.3952	0.0186
L9	112.41 - 112.16	57.445	2	5.2305	0.0171
L10	112.16 - 110.5	57.172	2	5.2137	0.0169
L11	110.5 - 110.25	55.382	2	5.1002	0.0160
L12	110.25 - 105.25	55.115	2	5.0874	0.0159
L13	105.25 - 105	49.935	2	4.8175	0.0139
L14	105 - 104.75	49.683	2	4.8037	0.0138
L15	104.75 - 103.5	49.432	2	4.7934	0.0138
L16	103.5 - 103.25	48.185	2	4.7411	0.0134
L17	103.25 - 98.25	47.938	2	4.7276	0.0133
L18	98.25 - 94.83	43.139	2	4.4460	0.0117
L19	94.83 - 94.58	40.028	2	4.2479	0.0107
L20	94.58 - 94.17	39.806	2	4.2332	0.0106
L21	94.17 - 93.82	39.444	2	4.2087	0.0105
L22	93.82 - 93.66	39.137	2	4.1899	0.0104
L23	93.66 - 84.91	38.997	2	4.1813	0.0104
L24	89.08 - 83.91	35.111	2	3.9273	0.0092
L25	83.91 - 78.91	30.939	2	3.7606	0.0086
L26	78.91 - 73.91	27.147	2	3.4887	0.0076
L27	73.91 - 68.91	23.638	2	3.2172	0.0067
L28	68.91 - 65.5	20.414	2	2.9427	0.0058
L29	65.5 - 65.25	18.380	2	2.7560	0.0053
L30	65.25 - 64.5	18.236	2	2.7445	0.0053
L31	64.5 - 64.25	17.808	2	2.7103	0.0052
L32	64.25 - 59.25	17.667	2	2.6976	0.0052
L33	59.25 - 58.58	14.977	2	2.4420	0.0045
L34	58.58 - 58.33	14.637	2	2.4079	0.0044
L35	58.33 - 57.25	14.511	2	2.3960	0.0044
L36	57.25 - 57	13.975	2	2.3446	0.0043
L37	57 - 52	13.853	2	2.3328	0.0042
L38	52 - 44.41	11.535	2	2.0963	0.0037
L39	49.58 - 43.41	10.501	2	1.9823	0.0034
L40	43.41 - 38.41	8.034	2	1.8167	0.0031
L41	38.41 - 34.5	6.252	2	1.5884	0.0026
L42	34.5 - 34.25	5.024	2	1.4118	0.0023
L43	34.25 - 33.5	4.950	2	1.4025	0.0022
L44	33.5 - 33.25	4.732	2	1.3743	0.0022
L45	33.25 - 29.5	4.661	2	1.3627	0.0022
L46	29.5 - 29.25	3.659	2	1.1886	0.0018
L47	29.25 - 28.5	3.597	2	1.1782	0.0018
L48	28.5 - 28.25	3.414	2	1.1472	0.0018
L49	28.25 - 27.48	3.355	2	1.1370	0.0018
L50	27.48 - 27.23	3.174	2	1.1058	0.0017
L51	27.23 - 22.23	3.116	2	1.0957	0.0017
L52	22.23 - 17.23	2.077	2	0.8900	0.0013
L53	17.23 - 12.23	1.250	2	0.6900	0.0010
L54	12.23 - 7.23	0.633	2	0.4902	0.0007
L55	7.23 - 6.9	0.223	2	0.2933	0.0004
L56	6.9 - 6.55	0.203	2	0.2808	0.0004
L57	6.55 - 6.33	0.183	2	0.2665	0.0004
L58	6.33 - 3.25	0.171	2	0.2575	0.0004
L59	3.25 - 3	0.046	2	0.1305	0.0002
L60	3 - 2.75	0.039	2	0.1222	0.0002
L61	2.75 - 2.5	0.033	2	0.1132	0.0002

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L62	2.5 - 2.25	0.027	2	0.1041	0.0001
L63	2.25 - 2	0.022	2	0.0938	0.0001
L64	2 - 0	0.017	2	0.0833	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.0000	APXVSPP18-C-A20	2	108.194	8.1595	0.0603	1531
136.0000	(2) LPA-80080/4CF w/ Mount Pipe	2	89.865	7.7113	0.0589	899
129.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	2	78.993	7.1169	0.0428	549
120.0000	(2) TME-RRUS-11	2	66.541	6.1654	0.0266	561
118.0000	AM-X-WM-17-65-00T w/ Mount Pipe	2	64.000	5.9881	0.0247	501
50.0000	KS24019-L112A	2	10.678	1.9997	0.0035	1622
45.0000	KS24019-L112A	2	8.645	1.8610	0.0032	1659

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	147 - 142 (1)	TP17.3259x16.25x0.1875	5.0000	0.0000	0.0	10.1995	-2.64	757.77	0.003
L2	142 - 137 (2)	TP18.4017x17.3259x0.1875	5.0000	0.0000	0.0	10.8397	-2.87	805.34	0.004
L3	137 - 132 (3)	TP19.4776x18.4017x0.1875	5.0000	0.0000	0.0	11.4800	-4.94	846.88	0.006
L4	132 - 127 (4)	TP20.5534x19.4776x0.1875	5.0000	0.0000	0.0	12.1203	-8.57	881.15	0.010
L5	127 - 120.37 (5)	TP21.98x20.5534x0.1875	6.6300	0.0000	0.0	12.5531	-8.95	903.55	0.010
L6	120.37 - 118.62 (6)	TP21.8559x20.78x0.25	5.0000	0.0000	0.0	17.1443	-10.08	1273.74	0.008
L7	118.62 - 113.62 (7)	TP22.9319x21.8559x0.25	5.0000	0.0000	0.0	17.9981	-12.57	1337.17	0.009
L8	113.62 - 112.41 (8)	TP23.1923x22.9319x0.25	1.2100	0.0000	0.0	18.2047	-12.76	1352.52	0.009
L9	112.41 - 112.16 (9)	TP23.2461x23.1923x0.5375	0.2500	0.0000	0.0	38.7414	-12.84	2878.29	0.004
L10	112.16 - 110.5 (10)	TP23.6033x23.2461x0.525	1.6600	0.0000	0.0	38.4565	-13.15	2857.13	0.005
L11	110.5 - 110.25 (11)	TP23.6571x23.6033x0.75	0.2500	0.0000	0.0	54.5303	-13.23	4051.33	0.003
L12	110.25 - 105.25 (12)	TP24.733x23.6571x0.725	5.0000	0.0000	0.0	55.2461	-14.46	4104.51	0.004
L13	105.25 - 105 (13)	TP24.7868x24.733x0.725	0.2500	0.0000	0.0	55.3699	-14.53	4113.71	0.004
L14	105 - 104.75 (14)	TP24.8406x24.7868x1	0.2500	0.0000	0.0	75.6702	-14.61	5621.92	0.003

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L15	104.75 - 103.5 (15)	TP25.1096x24.8406x0.975	1.2500	0.0000	0.0	74.6882	-14.99	5548.96	0.003
L16	103.5 - 103.25 (16)	TP25.1634x25.1096x0.75	0.2500	0.0000	0.0	58.1161	-15.07	4317.74	0.003
L17	103.25 - 98.25 (17)	TP26.2394x25.1634x0.725	5.0000	0.0000	0.0	58.7124	-16.38	4362.04	0.004
L18	98.25 - 94.83 (18)	TP26.9753x26.2394x0.7125	3.4200	0.0000	0.0	59.3927	-17.30	4412.58	0.004
L19	94.83 - 94.58 (19)	TP27.0291x26.9753x0.7	0.2500	0.0000	0.0	58.4980	-17.38	4346.11	0.004
L20	94.58 - 94.17 (20)	TP27.1173x27.0291x0.6875	0.4100	0.0000	0.0	57.6732	-17.49	4284.83	0.004
L21	94.17 - 93.82 (21)	TP27.1927x27.1173x0.775	0.3500	0.0000	0.0	64.9835	-17.59	4827.95	0.004
L22	93.82 - 93.66 (22)	TP27.2271x27.1927x0.775	0.1600	0.0000	0.0	65.0682	-17.64	4834.24	0.004
L23	93.66 - 84.91 (23)	TP29.11x27.2271x0.75	8.7500	0.0000	0.0	65.3749	-18.98	4857.03	0.004
L24	84.91 - 83.91 (24)	TP28.6922x27.58x0.8375	5.1700	0.0000	0.0	74.0442	-21.66	5501.11	0.004
L25	83.91 - 78.91 (25)	TP29.7679x28.6922x0.8125	5.0000	0.0000	0.0	74.6724	-23.32	5547.78	0.004
L26	78.91 - 73.91 (26)	TP30.8436x29.7679x0.8	5.0000	0.0000	0.0	76.2866	-25.00	5667.72	0.004
L27	73.91 - 68.91 (27)	TP31.9192x30.8436x0.775	5.0000	0.0000	0.0	76.6102	-26.72	5691.75	0.005
L28	68.91 - 65.5 (28)	TP32.6528x31.9192x0.7625	3.4100	0.0000	0.0	77.1802	-27.90	5734.10	0.005
L29	65.5 - 65.25 (29)	TP32.7066x32.6528x0.9125	0.2500	0.0000	0.0	92.0845	-28.01	6841.42	0.004
L30	65.25 - 64.5 (30)	TP32.868x32.7066x0.9125	0.7500	0.0000	0.0	92.5518	-28.29	6876.14	0.004
L31	64.5 - 64.25 (31)	TP32.9218x32.868x0.8125	0.2500	0.0000	0.0	82.8058	-28.38	6152.05	0.005
L32	64.25 - 59.25 (32)	TP33.9974x32.9218x0.8	5.0000	0.0000	0.0	84.2949	-30.21	6262.69	0.005
L33	59.25 - 58.58 (33)	TP34.1416x33.9974x0.7875	0.6700	0.0000	0.0	83.3693	-30.47	6193.92	0.005
L34	58.58 - 58.33 (34)	TP34.1953x34.1416x0.85	0.2500	0.0000	0.0	89.9624	-30.57	6683.76	0.005
L35	58.33 - 57.25 (35)	TP34.4277x34.1953x0.8375	1.0800	0.0000	0.0	89.2903	-30.98	6633.82	0.005
L36	57.25 - 57 (36)	TP34.4815x34.4277x0.85	0.2500	0.0000	0.0	90.7344	-31.09	6741.11	0.005
L37	57 - 52 (37)	TP35.5571x34.4815x0.8375	5.0000	0.0000	0.0	92.2926	-33.07	6856.88	0.005
L38	52 - 44.41 (38)	TP37.19x35.5571x0.825	7.5900	0.0000	0.0	92.3111	-34.12	6858.25	0.005
L39	44.41 - 43.41 (39)	TP36.6578x35.33x0.875	6.1700	0.0000	0.0	99.3779	-38.63	7383.28	0.005
L40	43.41 - 38.41 (40)	TP37.7339x36.6578x0.8625	5.0000	0.0000	0.0	100.9380	-40.81	7499.20	0.005
L41	38.41 - 34.5 (41)	TP38.5753x37.7339x0.85	3.9100	0.0000	0.0	101.7790	-42.54	7561.68	0.006
L42	34.5 - 34.25 (42)	TP38.6291x38.5753x1.025	0.2500	0.0000	0.0	122.1640	-42.56	9076.20	0.005
L43	34.25 - 33.5 (43)	TP38.7905x38.6291x1.0125	0.7500	0.0000	0.0	120.8880	-42.69	8981.35	0.005
L44	33.5 - 33.25 (44)	TP38.8443x38.7905x0.8125	0.2500	0.0000	0.0	97.9406	-43.09	7276.50	0.006
L45	33.25 - 29.5 (45)	TP39.6514x38.8443x0.8	3.7500	0.0000	0.0	96.6022	-43.22	7177.06	0.006
L46	29.5 - 29.25	TP39.7052x39.6514x0.8875	0.2500	0.0000	0.0	109.195	-44.96	8112.64	0.006

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	(46)					0			
L47	29.25 - 28.5	TP39.8666x39.7052x0.8875	0.7500	0.0000	0.0	109.346	-45.09	8123.90	0.006
	(47)					0			
L48	28.5 - 28.25	TP39.9204x39.8666x0.9	0.2500	0.0000	0.0	111.312	-45.45	8269.92	0.005
	(48)					0			
L49	28.25 - 27.48	TP40.0861x39.9204x0.9	0.7700	0.0000	0.0	111.466	-45.59	8281.34	0.006
	(49)					0			
L50	27.48 - 27.23	TP40.1399x40.0861x0.9	0.2500	0.0000	0.0	111.939	-45.96	8316.51	0.006
	(50)					0			
L51	27.23 - 22.23	TP41.2159x40.1399x0.875	5.0000	0.0000	0.0	109.048	-46.09	8101.75	0.006
	(51)					0			
L52	22.23 - 17.23	TP42.292x41.2159x0.875	5.0000	0.0000	0.0	112.037	-48.57	8323.78	0.006
	(52)					0			
L53	17.23 - 12.23	TP43.368x42.292x0.85	5.0000	0.0000	0.0	111.806	-51.07	8306.65	0.006
	(53)					0			
L54	12.23 - 7.23	TP44.444x43.368x0.8375	5.0000	0.0000	0.0	113.056	-53.60	8399.47	0.006
	(54)					0			
L55	7.23 - 6.9 (55)	TP44.5151x44.444x0.8625	0.3300	0.0000	0.0	119.308	-56.16	8863.97	0.006
						0			
L56	6.9 - 6.55 (56)	TP44.5904x44.5151x0.7875	0.3500	0.0000	0.0	109.298	-56.34	8120.31	0.007
						0			
L57	6.55 - 6.33 (57)	TP44.6377x44.5904x0.7875	0.2200	0.0000	0.0	109.486	-56.52	8134.29	0.007
						0			
L58	6.33 - 3.25 (58)	TP45.3006x44.6377x0.775	3.0800	0.0000	0.0	107.896	-56.64	8016.11	0.007
						0			
L59	3.25 - 3 (59)	TP45.3544x45.3006x0.975	0.2500	0.0000	0.0	137.172	-58.24	10191.20	0.006
						0			
L60	3 - 2.75 (60)	TP45.4082x45.3544x0.875	0.2500	0.0000	0.0	123.530	-58.40	9177.69	0.006
						0			
L61	2.75 - 2.5 (61)	TP45.462x45.4082x0.875	0.2500	0.0000	0.0	123.680	-58.53	9188.79	0.006
						0			
L62	2.5 - 2.25 (62)	TP45.5158x45.462x0.7625	0.2500	0.0000	0.0	108.181	-58.67	8037.28	0.007
						0			
L63	2.25 - 2 (63)	TP45.5696x45.5158x0.75	0.2500	0.0000	0.0	106.565	-58.80	7917.24	0.007
						0			
L64	2 - 0 (64)	TP46x45.5696x0.75	2.0000	0.0000	0.0	106.693	-58.93	7926.76	0.007
						0			

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	147 - 142 (1)	TP17.3259x16.25x0.1875	52.67	266.24	0.198	0.00	266.24	0.000
L2	142 - 137 (2)	TP18.4017x17.3259x0.1875	93.41	300.91	0.310	0.00	300.91	0.000
L3	137 - 132 (3)	TP19.4776x18.4017x0.1875	171.55	335.31	0.512	0.00	335.31	0.000
L4	132 - 127 (4)	TP20.5534x19.4776x0.1875	259.42	368.53	0.704	0.00	368.53	0.000
L5	127 - 120.37 (5)	TP21.98x20.5534x0.1875	330.94	391.51	0.845	0.00	391.51	0.000
L6	120.37 - 118.62 (6)	TP21.8559x20.78x0.25	439.80	563.83	0.780	0.00	563.83	0.000
L7	118.62 - 113.62 (7)	TP22.9319x21.8559x0.25	564.97	621.72	0.909	0.00	621.72	0.000
L8	113.62 - 112.41 (8)	TP23.1923x22.9319x0.25	595.84	636.16	0.937	0.00	636.16	0.000
L9	112.41 -	TP23.2461x23.1923x0.5375	602.23	1323.30	0.455	0.00	1323.30	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	112.16 (9)							
L10	112.16 - 110.5 (10)	TP23.6033x23.2461x0.525	644.78	1336.16	0.483	0.00	1336.16	0.000
L11	110.5 - 110.25 (11)	TP23.6571x23.6033x0.75	651.21	1862.38	0.350	0.00	1862.38	0.000
L12	110.25 - 105.25 (12)	TP24.733x23.6571x0.725	780.98	1982.39	0.394	0.00	1982.39	0.000
L13	105.25 - 105 (13)	TP24.7868x24.733x0.725	787.53	1991.42	0.395	0.00	1991.42	0.000
L14	105 - 104.75 (14)	TP24.8406x24.7868x1	794.08	2665.93	0.298	0.00	2665.93	0.000
L15	104.75 - 103.5 (15)	TP25.1096x24.8406x0.975	826.94	2667.75	0.310	0.00	2667.75	0.000
L16	103.5 - 103.25 (16)	TP25.1634x25.1096x0.75	833.52	2119.52	0.393	0.00	2119.52	0.000
L17	103.25 - 98.25 (17)	TP26.2394x25.1634x0.725	966.47	2242.84	0.431	0.00	2242.84	0.000
L18	98.25 - 94.83 (18)	TP26.9753x26.2394x0.7125	1058.68	2338.31	0.453	0.00	2338.31	0.000
L19	94.83 - 94.58 (19)	TP27.0291x26.9753x0.7	1065.46	2310.12	0.461	0.00	2310.12	0.000
L20	94.58 - 94.17 (20)	TP27.1173x27.0291x0.6875	1076.59	2287.54	0.471	0.00	2287.54	0.000
L21	94.17 - 93.82 (21)	TP27.1927x27.1173x0.775	1086.11	2567.98	0.423	0.00	2567.98	0.000
L22	93.82 - 93.66 (22)	TP27.2271x27.1927x0.775	1090.46	2574.78	0.424	0.00	2574.78	0.000
L23	93.66 - 84.91 (23)	TP29.11x27.2271x0.75	1216.06	2690.94	0.452	0.00	2690.94	0.000
L24	84.91 - 83.91 (24)	TP28.6922x27.58x0.8375	1360.50	3083.03	0.441	0.00	3083.03	0.000
L25	83.91 - 78.91 (25)	TP29.7679x28.6922x0.8125	1502.72	3238.34	0.464	0.00	3238.34	0.000
L26	78.91 - 73.91 (26)	TP30.8436x29.7679x0.8	1647.20	3437.47	0.479	0.00	3437.47	0.000
L27	73.91 - 68.91 (27)	TP31.9192x30.8436x0.775	1793.89	3584.61	0.500	0.00	3584.61	0.000
L28	68.91 - 65.5 (28)	TP32.6528x31.9192x0.7625	1895.20	3701.31	0.512	0.00	3701.31	0.000
L29	65.5 - 65.25 (29)	TP32.7066x32.6528x0.9125	1902.67	4382.25	0.434	0.00	4382.25	0.000
L30	65.25 - 64.5 (30)	TP32.868x32.7066x0.9125	1925.10	4427.46	0.435	0.00	4427.46	0.000
L31	64.5 - 64.25 (31)	TP32.9218x32.868x0.8125	1932.59	3992.92	0.484	0.00	3992.92	0.000
L32	64.25 - 59.25 (32)	TP33.9974x32.9218x0.8	2084.34	4207.43	0.495	0.00	4207.43	0.000
L33	59.25 - 58.58 (33)	TP34.1416x33.9974x0.7875	2104.85	4182.85	0.503	0.00	4182.85	0.000
L34	58.58 - 58.33 (34)	TP34.1953x34.1416x0.85	2112.51	4504.19	0.469	0.00	4504.19	0.000
L35	58.33 - 57.25 (35)	TP34.4277x34.1953x0.8375	2145.68	4505.82	0.476	0.00	4505.82	0.000
L36	57.25 - 57 (36)	TP34.4815x34.4277x0.85	2153.38	4582.79	0.470	0.00	4582.79	0.000
L37	57 - 52 (37)	TP35.5571x34.4815x0.8375	2308.46	4817.73	0.479	0.00	4817.73	0.000
L38	52 - 44.41 (38)	TP37.19x35.5571x0.825	2384.23	4896.13	0.487	0.00	4896.13	0.000
L39	44.41 - 43.41 (39)	TP36.6578x35.33x0.875	2581.32	5344.72	0.483	0.00	5344.72	0.000
L40	43.41 - 38.41 (40)	TP37.7339x36.6578x0.8625	2743.79	5599.57	0.490	0.00	5599.57	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L41	38.41 - 34.5 (41)	TP38.5753x37.7339x0.85	2872.33	5781.86	0.497	0.00	5781.86	0.000
L42	34.5 - 34.25 (42)	TP38.6291x38.5753x1.025	2872.33	6875.67	0.418	0.00	6875.67	0.000
L43	34.25 - 33.5 (43)	TP38.7905x38.6291x1.0125	2880.60	6818.34	0.422	0.00	6818.34	0.000
L44	33.5 - 33.25 (44)	TP38.8443x38.7905x0.8125	2905.43	5607.31	0.518	0.00	5607.31	0.000
L45	33.25 - 29.5 (45)	TP39.6514x38.8443x0.8	2913.71	5542.32	0.526	0.00	5542.32	0.000
L46	29.5 - 29.25 (46)	TP39.7052x39.6514x0.8875	3038.59	6371.63	0.477	0.00	6371.63	0.000
L47	29.25 - 28.5 (47)	TP39.8666x39.7052x0.8875	3046.96	6389.52	0.477	0.00	6389.52	0.000
L48	28.5 - 28.25 (48)	TP39.9204x39.8666x0.9	3072.09	6527.84	0.471	0.00	6527.84	0.000
L49	28.25 - 27.48 (49)	TP40.0861x39.9204x0.9	3080.47	6546.08	0.471	0.00	6546.08	0.000
L50	27.48 - 27.23 (50)	TP40.1399x40.0861x0.9	3106.34	6602.42	0.470	0.00	6602.42	0.000
L51	27.23 - 22.23 (51)	TP41.2159x40.1399x0.875	3114.75	6449.17	0.483	0.00	6449.17	0.000
L52	22.23 - 17.23 (52)	TP42.292x41.2159x0.875	3283.99	6811.45	0.482	0.00	6811.45	0.000
L53	17.23 - 12.23 (53)	TP43.368x42.292x0.85	3455.18	6991.03	0.494	0.00	6991.03	0.000
L54	12.23 - 7.23 (54)	TP44.444x43.368x0.8375	3628.14	7260.66	0.500	0.00	7260.66	0.000
L55	7.23 - 6.9 (55)	TP44.5151x44.444x0.8625	3802.78	7850.77	0.484	0.00	7850.77	0.000
L56	6.9 - 6.55 (56)	TP44.5904x44.5151x0.7875	3814.38	7228.83	0.528	0.00	7228.83	0.000
L57	6.55 - 6.33 (57)	TP44.6377x44.5904x0.7875	3826.67	7253.98	0.528	0.00	7253.98	0.000
L58	6.33 - 3.25 (58)	TP45.3006x44.6377x0.775	3834.40	7160.54	0.535	0.00	7160.54	0.000
L59	3.25 - 3 (59)	TP45.3544x45.3006x0.975	3942.97	9160.58	0.430	0.00	9160.58	0.000
L60	3 - 2.75 (60)	TP45.4082x45.3544x0.875	3951.80	8297.05	0.476	0.00	8297.05	0.000
L61	2.75 - 2.5 (61)	TP45.462x45.4082x0.875	3960.64	8317.33	0.476	0.00	8317.33	0.000
L62	2.5 - 2.25 (62)	TP45.5158x45.462x0.7625	3969.49	7320.79	0.542	0.00	7320.79	0.000
L63	2.25 - 2 (63)	TP45.5696x45.5158x0.75	3978.34	7224.32	0.551	0.00	7224.32	0.000
L64	2 - 0 (64)	TP46x45.5696x0.75	3987.19	7241.83	0.551	0.00	7241.83	0.000

Pole Shear Design Data

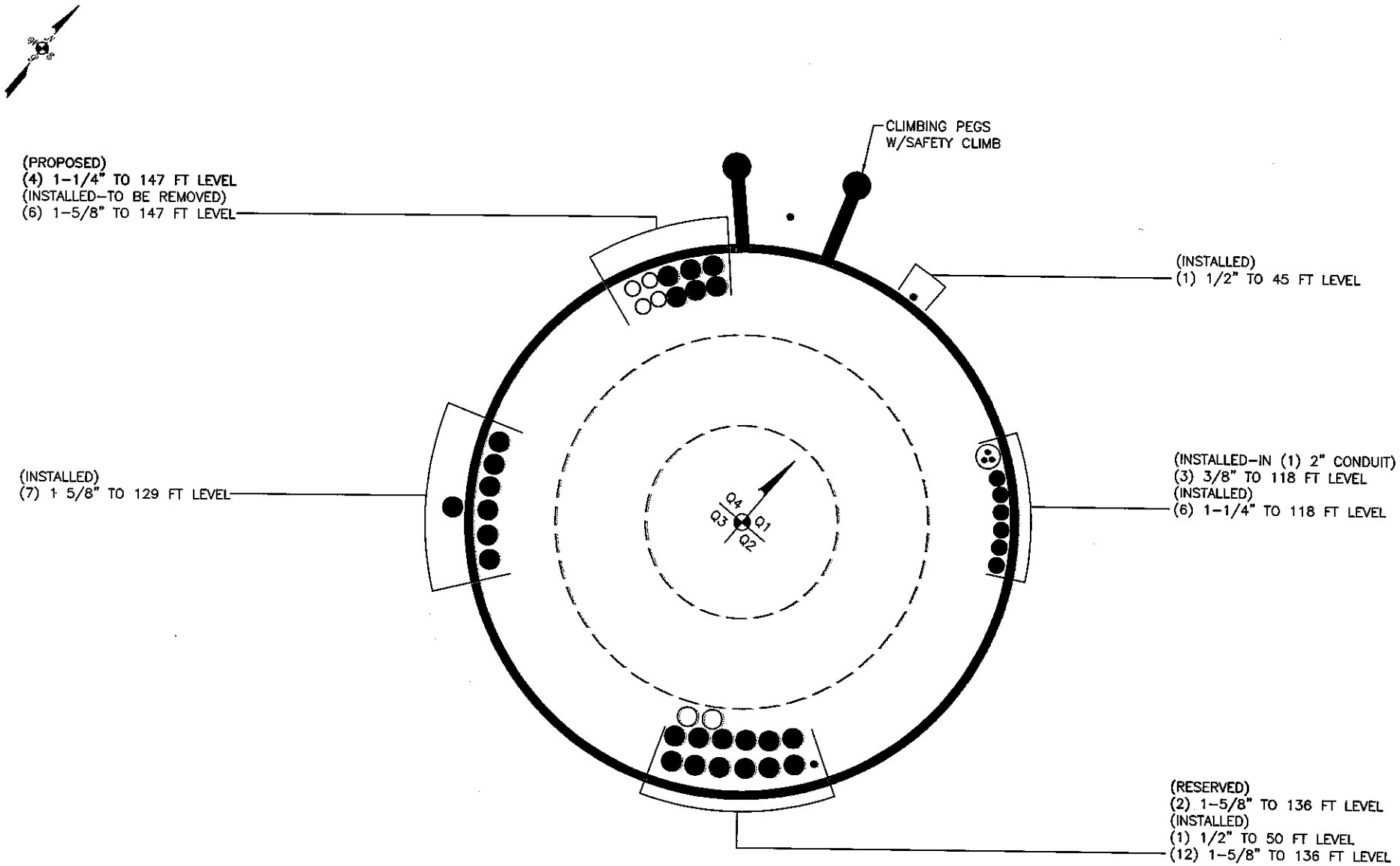
Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	147 - 142 (1)	TP17.3259x16.25x0.1875	7.98	378.88	0.021	0.00	533.13	0.000
L2	142 - 137 (2)	TP18.4017x17.3259x0.1875	8.32	402.67	0.021	0.00	602.55	0.000
L3	137 - 132 (3)	TP19.4776x18.4017x0.1875	15.20	423.44	0.036	2.58	671.44	0.004
L4	132 - 127 (4)	TP20.5534x19.4776x0.1875	21.06	440.58	0.048	3.08	737.95	0.004
L5	127 - 120.37 (5)	TP21.98x20.5534x0.1875	21.27	451.77	0.047	3.08	783.98	0.004
L6	120.37 - 118.62 (6)	TP21.8559x20.78x0.25	22.66	636.87	0.036	0.90	1129.04	0.001
L7	118.62 - 113.62 (7)	TP22.9319x21.8559x0.25	25.49	668.58	0.038	1.15	1244.97	0.001
L8	113.62 - 112.41 (8)	TP23.1923x22.9319x0.25	25.56	676.26	0.038	1.15	1273.88	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 $\frac{T_u}{\phi T_n}$
L9	112.41 - 112.16 (9)	TP23.2461x23.1923x0.5375	25.57	1439.15	0.018	1.15	2649.83	0.000
L10	112.16 - 110.5 (10)	TP23.6033x23.2461x0.525	25.72	1428.56	0.018	1.15	2675.57	0.000
L11	110.5 - 110.25 (11)	TP23.6571x23.6033x0.75	25.73	2025.67	0.013	1.15	3729.32	0.000
L12	110.25 - 105.25 (12)	TP24.733x23.6571x0.725	26.18	2052.25	0.013	1.15	3969.63	0.000
L13	105.25 - 105 (13)	TP24.7868x24.733x0.725	26.20	2056.85	0.013	1.15	3987.71	0.000
L14	105 - 104.75 (14)	TP24.8406x24.7868x1	26.23	2810.96	0.009	1.15	5338.39	0.000
L15	104.75 - 103.5 (15)	TP25.1096x24.8406x0.975	26.35	2774.48	0.009	1.15	5342.02	0.000
L16	103.5 - 103.25 (16)	TP25.1634x25.1096x0.75	26.37	2158.87	0.012	1.15	4244.22	0.000
L17	103.25 - 98.25 (17)	TP26.2394x25.1634x0.725	26.82	2181.02	0.012	1.14	4491.17	0.000
L18	98.25 - 94.83 (18)	TP26.9753x26.2394x0.7125	27.12	2206.29	0.012	1.14	4682.33	0.000
L19	94.83 - 94.58 (19)	TP27.0291x26.9753x0.7	27.14	2173.06	0.012	1.14	4625.88	0.000
L20	94.58 - 94.17 (20)	TP27.1173x27.0291x0.6875	27.17	2142.42	0.013	1.14	4580.67	0.000
L21	94.17 - 93.82 (21)	TP27.1927x27.1173x0.775	27.20	2413.97	0.011	1.14	5142.24	0.000
L22	93.82 - 93.66 (22)	TP27.2271x27.1927x0.775	27.22	2417.12	0.011	1.14	5155.85	0.000
L23	93.66 - 84.91 (23)	TP29.11x27.2271x0.75	27.64	2428.51	0.011	1.14	5388.46	0.000
L24	84.91 - 83.91 (24)	TP28.6922x27.58x0.8375	28.23	2750.56	0.010	1.14	6173.58	0.000
L25	83.91 - 78.91 (25)	TP29.7679x28.6922x0.8125	28.68	2773.89	0.010	1.14	6484.61	0.000
L26	78.91 - 73.91 (26)	TP30.8436x29.7679x0.8	29.13	2833.86	0.010	1.14	6883.35	0.000
L27	73.91 - 68.91 (27)	TP31.9192x30.8436x0.775	29.57	2845.88	0.010	1.14	7177.97	0.000
L28	68.91 - 65.5 (28)	TP32.6528x31.9192x0.7625	29.87	2867.05	0.010	1.14	7411.67	0.000
L29	65.5 - 65.25 (29)	TP32.7066x32.6528x0.9125	29.88	3420.71	0.009	1.14	8775.25	0.000
L30	65.25 - 64.5 (30)	TP32.868x32.7066x0.9125	29.96	3438.07	0.009	1.14	8865.75	0.000
L31	64.5 - 64.25 (31)	TP32.9218x32.868x0.8125	30.12	3076.03	0.010	3.99	7995.60	0.000
L32	64.25 - 59.25 (32)	TP33.9974x32.9218x0.8	30.59	3131.34	0.010	3.99	8425.17	0.000
L33	59.25 - 58.58 (33)	TP34.1416x33.9974x0.7875	30.65	3096.96	0.010	3.99	8375.92	0.000
L34	58.58 - 58.33 (34)	TP34.1953x34.1416x0.85	30.67	3341.88	0.009	3.99	9019.42	0.000
L35	58.33 - 57.25 (35)	TP34.4277x34.1953x0.8375	30.78	3316.91	0.009	3.99	9022.67	0.000
L36	57.25 - 57 (36)	TP34.4815x34.4277x0.85	30.79	3370.55	0.009	3.99	9176.75	0.000
L37	57 - 52 (37)	TP35.5571x34.4815x0.8375	31.26	3428.44	0.009	3.99	9647.25	0.000
L38	52 - 44.41 (38)	TP37.19x35.5571x0.825	31.54	3403.81	0.009	4.18	9804.25	0.000
L39	44.41 - 43.41 (39)	TP36.6578x35.33x0.875	32.29	3691.64	0.009	4.18	10702.50	0.000
L40	43.41 - 38.41	TP37.7339x36.6578x0.8625	32.73	3749.60	0.009	4.18	11212.83	0.000

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 $\frac{T_u}{\phi T_n}$
	(40)							
L41	38.41 - 34.5	TP38.5753x37.7339x0.85	33.06	3780.84	0.009	4.18	11577.83	0.000
	(41)							
L42	34.5 - 34.25	TP38.6291x38.5753x1.025	33.07	4544.60	0.007	4.18	13768.17	0.000
	(42)							
L43	34.25 - 33.5	TP38.7905x38.6291x1.0125	33.14	4509.94	0.007	4.18	13653.33	0.000
	(43)							
L44	33.5 - 33.25	TP38.8443x38.7905x0.8125	33.15	3643.40	0.009	4.18	11228.33	0.000
	(44)							
L45	33.25 - 29.5	TP39.6514x38.8443x0.8	33.27	3613.90	0.009	4.18	11098.17	0.000
	(45)							
L46	29.5 - 29.25	TP39.7052x39.6514x0.8875	33.48	4061.95	0.008	4.18	12758.83	0.000
	(46)							
L47	29.25 - 28.5	TP39.8666x39.7052x0.8875	33.55	4078.84	0.008	4.18	12794.67	0.000
	(47)							
L48	28.5 - 28.25	TP39.9204x39.8666x0.9	33.56	4140.67	0.008	4.18	13071.67	0.000
	(48)							
L49	28.25 - 27.48	TP40.0861x39.9204x0.9	33.64	4158.25	0.008	4.18	13108.17	0.000
	(49)							
L50	27.48 - 27.23	TP40.1399x40.0861x0.9	33.65	4163.96	0.008	4.18	13221.00	0.000
	(50)							
L51	27.23 - 22.23	TP41.2159x40.1399x0.875	33.74	4073.08	0.008	4.18	12914.08	0.000
	(51)							
L52	22.23 - 17.23	TP42.292x41.2159x0.875	34.14	4184.09	0.008	4.18	13639.58	0.000
	(52)							
L53	17.23 - 12.23	TP43.368x42.292x0.85	34.51	4174.89	0.008	4.18	13999.17	0.000
	(53)							
L54	12.23 - 7.23	TP44.444x43.368x0.8375	34.85	4220.99	0.008	4.18	14539.08	0.000
	(54)							
L55	7.23 - 6.9 (55)	TP44.5151x44.444x0.8625	35.12	4439.21	0.008	4.18	15720.75	0.000
L56	6.9 - 6.55 (56)	TP44.5904x44.5151x0.7875	35.15	4067.15	0.009	4.18	14475.33	0.000
L57	6.55 - 6.33 (57)	TP44.6377x44.5904x0.7875	35.16	4071.54	0.009	4.18	14525.75	0.000
L58	6.33 - 3.25 (58)	TP45.3006x44.6377x0.775	35.24	4028.25	0.009	4.18	14338.58	0.000
L59	3.25 - 3 (59)	TP45.3544x45.3006x0.975	35.36	5101.79	0.007	4.18	18343.58	0.000
L60	3 - 2.75 (60)	TP45.4082x45.3544x0.875	35.38	4594.39	0.008	4.18	16614.42	0.000
L61	2.75 - 2.5 (61)	TP45.462x45.4082x0.875	35.39	4599.95	0.008	4.18	16655.00	0.000
L62	2.5 - 2.25 (62)	TP45.5158x45.462x0.7625	35.41	4023.47	0.009	4.18	14659.50	0.000
L63	2.25 - 2 (63)	TP45.5696x45.5158x0.75	35.43	3963.38	0.009	4.18	14466.33	0.000
L64	2 - 0 (64)	TP46x45.5696x0.75	35.50	3982.41	0.009	4.18	14501.42	0.000

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876360 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	27.5	plate	L 1.25"x5" (BAR 1 & 1A	2		0												-1				
2	0	6.92	plate	L 1.25"x5" (BAR 1 & 1A	2						0				0								
3	6.58	27.5	plate	PL 1.25"x5" (BAR 1B)	1								0										
4	27.5	57.25	plate	PL 1.25"x5" (BAR 2)	3		0						0						-1				
5	57.25	87.25	plate	PL 1.25"x4.75"	3		0						0						-1				
6	87.25	105	plate	PL 1.25"x4.25"	3		0						0						-1				
7	7	29.5	channel	MP3-03 (1.25")	2											0						0	
8	0	3.25	plate	TS 1.0"x6" (TS1a)	2	-3						3											
9	0	3.25	plate	TS 1.0"x6" (TS1b)	1															1			
10	2.5	28.5	plate	CCI-AFP-045100	2	0						0											
11	2.25	28.5	plate	CCI-CFP-045100	1															0			
12	27.58	58.58	plate	CCI-AFP-045100	1													0					
13	28.5	58.58	plate	CCI-AFP-045100	2	0						0											
14	58.58	94.17	plate	CCI-AFP-040075	3	0						0						0					
15	103.5	110.5	plate	CCI-SFP-045100	3	0						0						0					
16	0	3.25	plate	(TS)1.25x6.00 (65ksi)	2			c									c						
17	3	34.5	plate	CCI-CFP-045125	4			1		-1							1				0		
18	33.5	65.5	plate	CCI-SFP-045100	4				0						0					0			0
19	65.5	93.91	plate	CCI-SFP-045100	2				0						0								
20	64.5	94.83	plate	CCI-SFP-045100	1																0		
21	93.91	112.41	plate	CCI-CFP-045125	2				0						0								
22	94.83	112.41	plate	CCI-CFP-045125	1																0		
23																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	5	1.25	6.25	0.625	n/a	27.000	18.000	4.647	1.2200	A572-65
2	5	1.25	6.25	0.625	n/a	27.000	18.000	4.647	1.2200	A572-65
3	5	1.25	6.25	0.625	27.000	27.000	18.000	4.647	1.2200	A572-65
4	5	1.25	6.25	0.625	n/a	27.000	18.000	4.647	1.2200	A572-65
5	4.75	1.25	5.9375	0.625	n/a	24.000	18.000	4.334	1.2200	A572-65
6	4.25	1.25	5.3125	0.625	n/a	18.000	21.000	3.709	1.2200	A572-65
7	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
8	1	5.25	5.25	3.375	n/a	n/a	0.750	5.250	0.0000	A572-65

115.62	5		18	21.656	22.932	0.25	A572-6
112.41	1.21		18	22.932	23.192	0.25	A572-6
112.16	0.25		18	23.192	23.246	0.5375	A572-6
110.5	1.66		18	23.246	23.603	0.525	A572-6
110.25	0.25		18	23.603	23.657	0.75	A572-6
105.25	5		18	23.657	24.733	0.725	A572-6
105	0.25		18	24.733	24.787	0.725	A572-6
104.75	0.25		18	24.787	24.841	1	A572-6
103.5	1.25		18	24.841	25.110	0.975	A572-6
103.25	0.25		18	25.110	25.163	0.75	A572-6
98.25	5		18	25.163	26.239	0.725	A572-6
94.83	3.42		18	26.239	26.975	0.7125	A572-6
94.58	0.25		18	26.975	27.029	0.7	A572-6
94.17	0.41		18	27.029	27.117	0.6875	A572-6
93.82	0.35		18	27.117	27.193	0.775	A572-6
93.66	0.16		18	27.193	27.227	0.775	A572-6
89.08	8.75	4.17	18	27.227	29.110	0.75	A572-6
83.91	5.17		18	27.580	28.692	0.8375	A572-6
78.91	5		18	28.692	29.768	0.8125	A572-6
73.91	5		18	29.768	30.844	0.8	A572-6
68.91	5		18	30.844	31.919	0.775	A572-6
65.5	3.41		18	31.919	32.653	0.7625	A572-6
65.25	0.25		18	32.653	32.707	0.9125	A572-6
64.5	0.75		18	32.707	32.868	0.9125	A572-6
64.25	0.25		18	32.868	32.922	0.8125	A572-6
59.25	5		18	32.922	33.997	0.8	A572-6
58.58	0.67		18	33.997	34.142	0.7875	A572-6
58.33	0.25		18	34.142	34.195	0.85	A572-6
57.25	1.08		18	34.195	34.428	0.8375	A572-6
57	0.25		18	34.428	34.481	0.85	A572-6
52	5		18	34.481	35.557	0.8375	A572-6
49.58	7.59	5.17	18	35.557	37.190	0.825	A572-6
43.41	6.17		18	35.330	36.658	0.875	A572-6
38.41	5		18	36.658	37.734	0.8625	A572-6
34.5	3.91		18	37.734	38.575	0.85	A572-6
34.25	0.25		18	38.575	38.629	1.025	A572-6
33.5	0.75		18	38.629	38.791	1.0125	A572-6
33.25	0.25		18	38.791	38.844	0.8125	A572-6
29.5	3.75		18	38.844	39.651	0.8	A572-6
29.25	0.25		18	39.651	39.705	0.8875	A572-6
28.5	0.75		18	39.705	39.867	0.8875	A572-6
28.25	0.25		18	39.867	39.920	0.9	A572-6
27.48	0.77		18	39.920	40.086	0.9	A572-6
27.23	0.25		18	40.086	40.140	0.9	A572-6
22.23	5		18	40.140	41.216	0.875	A572-6
17.23	5		18	41.216	42.292	0.875	A572-6
12.23	5		18	42.292	43.368	0.85	A572-6
7.23	5		18	43.368	44.444	0.8375	A572-6
6.9	0.33		18	44.444	44.515	0.8625	A572-6
6.55	0.35		18	44.515	44.590	0.7875	A572-6
5.23	0.32		18	44.590	44.628	0.7875	A572-6

7	118.62	- 113.62	12.37	564.97	25.45
8	113.62	- 112.41	12.76	595.84	25.56
9	112.41	- 112.16	12.84	602.23	25.57
10	112.16	- 110.5	13.15	644.78	25.72
11	110.5	- 110.25	13.23	651.21	25.73
12	110.25	- 105.25	14.46	780.98	26.18
13	105.25	- 105	14.53	787.53	26.20
14	105	- 104.75	14.61	794.08	26.23
15	104.75	- 103.5	14.99	826.94	26.35
16	103.5	- 103.25	15.07	833.53	26.37
17	103.25	- 98.25	16.38	966.47	26.82
18	98.25	- 94.83	17.30	######	27.12
19	94.83	- 94.58	17.38	######	27.14
20	94.58	- 94.17	17.49	######	27.17
21	94.17	- 93.82	17.59	######	27.20
22	93.82	- 93.66	17.64	######	27.22
23	93.66	- 89.08	18.98	######	27.64
24	89.08	- 83.91	21.66	######	28.23
25	83.91	- 78.91	23.32	######	28.68
26	78.91	- 73.91	25.00	######	29.13
27	73.91	- 68.91	26.72	######	29.57
28	68.91	- 65.5	27.90	######	29.87
29	65.5	- 65.25	28.01	######	29.88
30	65.25	- 64.5	28.29	######	29.96
31	64.5	- 64.25	28.39	######	29.98
32	64.25	- 59.25	30.21	######	30.59
33	59.25	- 58.58	30.47	######	30.65
34	58.58	- 58.33	30.57	######	30.67
35	58.33	- 57.25	30.98	######	30.78
36	57.25	- 57	31.09	######	30.79
37	57	- 52	33.07	######	31.26
38	52	- 49.58	34.12	######	31.54
39	49.58	- 43.41	38.63	######	32.29
40	43.41	- 38.41	40.81	######	32.73
41	38.41	- 34.5	42.54	######	33.06
42	34.5	- 34.25	42.68	######	33.07
43	34.25	- 33.5	43.08	######	33.14
44	33.5	- 33.25	43.20	######	33.15
45	33.25	- 29.5	44.94	######	33.47
46	29.5	- 29.25	45.08	######	33.48
47	29.25	- 28.5	45.44	######	33.55
48	28.5	- 28.25	45.57	######	33.56
49	28.25	- 27.48	45.95	######	33.64
50	27.48	- 27.23	46.08	######	33.65
51	27.23	- 22.23	48.55	######	34.07
52	22.23	- 17.23	51.05	######	34.44
53	17.23	- 12.23	53.58	######	34.78
54	12.23	- 7.23	56.14	######	35.11
55	7.23	- 6.9	56.33	######	35.12
56	6.9	- 6.55	56.51	######	35.15
57	6.55	- 6.23	56.63	######	35.16

12.41 - 112.16	Pole + Reinf.	TP23.246x23.192x0.5375	Reinf. 21 Tension Rupture	82.4%	Pass
112.16 - 110.5	Pole + Reinf.	TP23.603x23.246x0.525	Reinf. 21 Tension Rupture	86.2%	Pass
110.5 - 110.25	Pole + Reinf.	TP23.657x23.603x0.75	Reinf. 21 Tension Rupture	62.1%	Pass
10.25 - 105.25	Pole + Reinf.	TP24.733x23.657x0.725	Reinf. 21 Tension Rupture	70.1%	Pass
105.25 - 105	Pole + Reinf.	TP24.787x24.733x0.725	Reinf. 21 Tension Rupture	70.5%	Pass
105 - 104.75	Pole + Reinf.	TP24.841x24.787x1	Reinf. 6 Tension Rupture	55.2%	Pass
104.75 - 103.5	Pole + Reinf.	TP25.11x24.841x0.975	Reinf. 6 Tension Rupture	56.7%	Pass
103.5 - 103.25	Pole + Reinf.	TP25.163x25.11x0.75	Reinf. 6 Tension Rupture	72.0%	Pass
103.25 - 98.25	Pole + Reinf.	TP26.239x25.163x0.725	Reinf. 6 Tension Rupture	78.9%	Pass
98.25 - 94.83	Pole + Reinf.	TP26.975x26.239x0.7125	Reinf. 6 Tension Rupture	83.2%	Pass
94.83 - 94.58	Pole + Reinf.	TP27.029x26.975x0.7	Reinf. 6 Tension Rupture	87.2%	Pass
94.58 - 94.17	Pole + Reinf.	TP27.117x27.029x0.6875	Reinf. 6 Tension Rupture	87.7%	Pass
94.17 - 93.82	Pole + Reinf.	TP27.193x27.117x0.775	Reinf. 14 Tension Rupture	77.2%	Pass
93.82 - 93.66	Pole + Reinf.	TP27.227x27.193x0.775	Reinf. 14 Tension Rupture	77.3%	Pass
93.66 - 89.08	Pole + Reinf.	TP29.11x27.227x0.75	Reinf. 14 Tension Rupture	82.3%	Pass
89.08 - 83.91	Pole + Reinf.	TP28.692x27.58x0.8375	Reinf. 14 Tension Rupture	80.5%	Pass
83.91 - 78.91	Pole + Reinf.	TP29.768x28.692x0.8125	Reinf. 14 Tension Rupture	84.5%	Pass
78.91 - 73.91	Pole + Reinf.	TP30.844x29.768x0.8	Reinf. 14 Tension Rupture	88.1%	Pass
73.91 - 68.91	Pole + Reinf.	TP31.919x30.844x0.775	Reinf. 14 Tension Rupture	91.4%	Pass
68.91 - 65.5	Pole + Reinf.	TP32.653x31.919x0.7625	Reinf. 14 Tension Rupture	93.5%	Pass
65.5 - 65.25	Pole + Reinf.	TP32.707x32.653x0.9125	Reinf. 14 Tension Rupture	86.7%	Pass
65.25 - 64.5	Pole + Reinf.	TP32.868x32.707x0.9125	Reinf. 14 Tension Rupture	87.1%	Pass
64.5 - 64.25	Pole + Reinf.	TP32.922x32.868x0.8125	Reinf. 14 Tension Rupture	91.6%	Pass
64.25 - 59.25	Pole + Reinf.	TP33.997x32.922x0.8	Reinf. 14 Tension Rupture	94.4%	Pass
59.25 - 58.58	Pole + Reinf.	TP34.142x33.997x0.7875	Reinf. 14 Tension Rupture	94.8%	Pass
58.58 - 58.33	Pole + Reinf.	TP34.195x34.142x0.85	Reinf. 13 Tension Rupture	85.6%	Pass
58.33 - 57.25	Pole + Reinf.	TP34.428x34.195x0.8375	Reinf. 13 Tension Rupture	86.1%	Pass
57.25 - 57	Pole + Reinf.	TP34.481x34.428x0.85	Reinf. 13 Tension Rupture	85.2%	Pass
57 - 52	Pole + Reinf.	TP35.557x34.481x0.8375	Reinf. 13 Tension Rupture	87.5%	Pass
52 - 49.58	Pole + Reinf.	TP37.19x35.557x0.825	Reinf. 13 Tension Rupture	88.6%	Pass
49.58 - 43.41	Pole + Reinf.	TP36.658x35.33x0.875	Reinf. 13 Tension Rupture	86.8%	Pass
43.41 - 38.41	Pole + Reinf.	TP37.734x36.658x0.8625	Reinf. 13 Tension Rupture	88.4%	Pass
38.41 - 34.5	Pole + Reinf.	TP38.575x37.734x0.85	Reinf. 13 Tension Rupture	89.6%	Pass
34.5 - 34.25	Pole + Reinf.	TP38.629x38.575x1.025	Reinf. 18 Tension Rupture	77.2%	Pass
34.25 - 33.5	Pole + Reinf.	TP38.791x38.629x1.0125	Reinf. 18 Tension Rupture	77.4%	Pass
33.5 - 33.25	Pole + Reinf.	TP38.844x38.791x0.8125	Reinf. 4 Tension Rupture	90.5%	Pass
33.25 - 29.5	Pole + Reinf.	TP39.651x38.844x0.8	Reinf. 4 Tension Rupture	91.6%	Pass
29.5 - 29.25	Pole + Reinf.	TP39.705x39.651x0.8875	Reinf. 13 Tension Rupture	85.5%	Pass
29.25 - 28.5	Pole + Reinf.	TP39.867x39.705x0.8875	Reinf. 13 Tension Rupture	85.7%	Pass
28.5 - 28.25	Pole + Reinf.	TP39.92x39.867x0.9	Reinf. 4 Tension Rupture	84.5%	Pass
28.25 - 27.48	Pole + Reinf.	TP40.086x39.92x0.9	Reinf. 3 Tension Rupture	84.7%	Pass
27.48 - 27.23	Pole + Reinf.	TP40.14x40.086x0.9	Reinf. 3 Tension Rupture	84.8%	Pass
27.23 - 22.23	Pole + Reinf.	TP41.216x40.14x0.875	Reinf. 3 Tension Rupture	86.0%	Pass
22.23 - 17.23	Pole + Reinf.	TP42.292x41.216x0.875	Reinf. 3 Tension Rupture	87.2%	Pass
17.23 - 12.23	Pole + Reinf.	TP43.368x42.292x0.85	Reinf. 3 Tension Rupture	88.2%	Pass
12.23 - 7.23	Pole + Reinf.	TP44.444x43.368x0.8375	Reinf. 3 Tension Rupture	89.2%	Pass
7.23 - 6.9	Pole + Reinf.	TP44.515x44.444x0.8625	Reinf. 10 Tension Rupture	84.9%	Pass
6.9 - 6.55	Pole + Reinf.	TP44.59x44.515x0.7875	Reinf. 2 Tension Rupture	92.4%	Pass
6.55 - 6.33	Pole + Reinf.	TP44.638x44.59x0.7875	Reinf. 2 Tension Rupture	92.4%	Pass

85.21	51.7%				85.0%								85.7
85.72	52.5%				86.0%								86.7
93.43	49.6%				84.3%								85.1
94.71	50.6%				85.9%								86.7
95.72	51.6%				87.0%								87.9
.18.28	45.1%				76.6%								66.9
.18.47	45.3%				76.8%								67.1
.00.54	54.1%				90.5%								78.3
.01.50	55.1%				91.6%								79.3
.07.40	50.4%				85.5%			71.8%					74.5
.07.59	50.5%				85.7%			72.0%					74.7
.12.16	51.0%				84.5%			71.3%			83.4%	69.2%	70.1
.07.85	51.2%	77.0%		84.7%				76.7%			83.3%	74.1%	
.07.92	51.3%	77.1%		84.8%				76.8%			83.4%	74.2%	
.09.20	52.4%	78.3%		86.0%				77.9%			84.6%	75.4%	
.10.48	53.6%	79.4%		87.2%				78.9%			85.8%	76.6%	
.11.76	54.7%	80.4%		88.2%				79.8%			86.9%	77.6%	
.13.04	55.7%	81.4%		89.2%				80.7%			87.9%	78.6%	
.19.79	51.0%	81.0%	82.3%	76.3%							84.9%	79.4%	
.13.63	57.7%	82.1%	92.4%								88.0%	81.4%	
.13.68	57.8%	82.1%	92.4%								88.1%	81.4%	
.14.47	58.4%	82.6%	93.0%								88.6%	82.0%	
.43.16	48.1%	61.9%	75.5%						58.1%	52.0%	71.8%	62.6%	
.20.72	52.9%	73.0%	84.0%						65.9%	61.3%	80.2%	73.5%	
.20.79	52.9%	73.0%	84.1%						66.0%	61.3%	80.3%	73.6%	
.11.85	59.4%	81.5%	93.0%						74.4%	65.1%		78.2%	
.07.42	59.3%	81.8%	92.8%						76.7%	72.7%			
.07.93	59.7%	82.2%	93.1%						76.9%	73.0%			

TOWER ENGINEERING PROFESSIONALS

Capacity: 87.7% **PASS**

Preston / Town Hall (BU 876360)
TEP #: 25620.161151
Analysis: RKE 3/21/2018
Check: JLW 3/21/2018

Custom Anchor Rod Capacity Check_v0.0

Factored Tower Base Reactions

	LC1	LC2	
Moment:	4,058.0	1,053.0	kip-ft
Axial (Download):	60.0	90.0	kip
Shear:	36.0	9.0	
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:	18	
Pole OD:	46.000	in
Pole Thickness:	0.375	in
Plate Shape:	Round	
Plate Diameter:	61.00	in
Plate Thickness:	1.75	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" (A615-J)	3.248	75.0	100.0	Round	T/C	12	55.000		1.000	0
2-1/4" (A615-J)	3.248	75.0	100.0	Round	T/C	4	55.000		1.000	15

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	-27.496	213.74	220.35	0.29	3.47	259.81	7.88	134.19	179.0	87.4%
2	**3.248**	**-27.500**	**214.22**	**220.83**	**0.30**	**3.47**	**259.81**	**7.88**	**134.19**	**165.0**	**87.7%**

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876360*
Site Name: *Preston / Town Hall*
App #: *397067 Rev. 1*

Pole Manufacturer:	*Other*

Anchor Rod Data		
Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	55	in

Plate Data		
Diam:	61	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	12.17	in

Stiffener Data (Welding at both sides)		
Config:	3	*
Weld Type:	Groove	
Groove Depth:	0.25	in **
Groove Angle:	45	degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:	0.4375	in
Width:	6	in
Height:	14	in
Thick:	0.5	in
Notch:	0.75	in
Grade:	50	ksi
Weld str.:	80	ksi
Clear Space between Stiffeners (b):	6.68	in

Pole Data		
Diam:	46	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions		
Mu:	3036.4125	ft-kips
Axial, Pu:	0	kips
Shear, Vu:	0	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

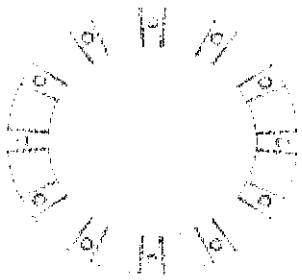
If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

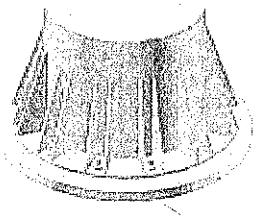
Anchor Rod Results
Max Rod (Cu+ Vu/ή): 220.8 Kips

Stiffened
AISC LRFD
φ*Tn

Base Plate Results Flexural Check

Base Plate Stress:	47.4 ksi	Stiffened
Allowable Plate Stress:	54.0 ksi	AISC LRFD
Base Plate Stress Ratio:	87.8% **Pass**	φ*Fy
		Y.L. Length: N/A, Roark





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876360*
Site Name: *Preston / Town Hall*
App #: *397067 Rev. 1*

Pole Manufacturer:	*Other*

Reactions		
Mu:	4079	ft-kips
Axial, Pu:	60	kips
Shear, Vu:	36	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	55	in

Plate Data		
Diam:	61	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	12.17	in

Stiffener Data (Welding at both sides)		
Config:	3	*
Weld Type:	Groove	
Groove Depth:	0.25	in **
Groove Angle:	45	degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:	0.4375	in
Width:	6	in
Height:	14	in
Thick:	0.5	in
Notch:	0.75	in
Grade:	50	ksi
Weld str.:	80	ksi
Clear Space between Stiffeners (b):	6.68	in

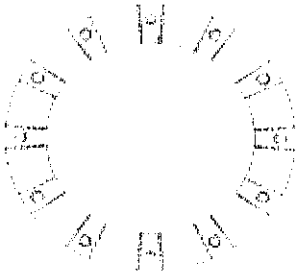
Pole Data		
Diam:	46	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

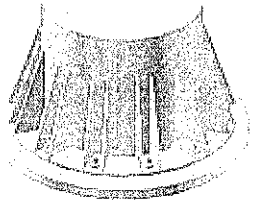
Stiffener Results

Horizontal Weld :	68.9% **Pass**
Vertical Weld:	29.7% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	33.0% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2	74.8% **Pass**
Plate Comp. (AISC Bracket):	81.1% **Pass**

Pole Results

Pole Punching Shear Check:	14.2% **Pass**





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

Pier and Pad Foundation

BU # :	876360
Site Name:	Preston / Town Hal
App. Number:	397067 Rev. 1

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	60	kips
Base Shear, Vu_comp:	36	kips
Moment, M_u:	4058	ft-kips
Tower Height, H:	147	ft
BP Dist. Above Fdn, bp_{dist}:	4.5	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, dpier:	7.0	ft
Ext. Above Grade, E:	1.00	ft
Pier Rebar Size, Sc:	8	
Pier Rebar Quantity, mc:	33	
Pier Tie/Spiral Size, St:	4	
Pier Tie/Spiral Quantity, mt:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, D:	6.0	ft
Pad Width, W:	26.0	ft
Pad Thickness, T:	3.0	ft
Pad Rebar Size, Sp:	8	
Pad Rebar Quantity, mp:	26	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, Fy:	60000	psi
Concrete Compressive Strength, F'c:	4000	psi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	123	pcf
Ultimate Net Bearing, Qnet:	15.000	ksf
Cohesion, Cu:		ksf
Friction Angle, φ:	40	degrees
SPT Blow Count, N_{blows}:	64	
Base Friction, μ:	0.3	
Neglected Depth, N:	2.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	281.42	36.00	**12.8%**	**Pass**
Bearing Pressure (ksf)	11.81	2.13	**18.1%**	**Pass**
*Overturning (kip*ft)*	7306.04	4323.50	**59.2%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	4400.04	4202.00	**95.5%**	**Pass**
Pier Compression (kip)	31187.52	95.28	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	2857.85	1690.08	**59.1%**	**Pass**
Pad Shear - 1-way (kips)	932.37	249.00	**26.7%**	**Pass**
Pad Shear - 2-way (ksi)	0.19	0.04	**21.6%**	**Pass**

Soil Rating:	**59.2%**
Structural Rating:	**95.5%**

APPENDIX D

STRUCTURAL DESIGN DRAWINGS

SITE NAME:

PRESTON / TOWN HALL

CROWN CASTLE BU NUMBER:

876360

SITE ADDRESS:

389 RT. 2
PRESTON, CT 06365
(NEW LONDON COUNTY)
N 41° 29' 25.25", W 71° 59' 29.55"

I PROVISIONS

THESE DRAWINGS ARE BASED ON
IN THE STRUCTURAL MODIFICATION
Y TEP, JOB NO. 25620.161151

ITION

NYTIME YOU ACCESS A CROWN
TO CALL THE CROWN NOC UPON
800-788-7011.

ARE AVAILABLE FROM TEP TO
IV RIGGING PLAN REVIEWS. FOR
G SERVICES, CONTACT TEP FOR

INDEX OF SHEETS

NO.	SHEET TITLE	REV
T-1	TITLE SHEET	0
N-1	MI CHECKLIST AND NOTES	0
N-2	PROJECT NOTES I	0
N-3	PROJECT NOTES II	0
N-4	NEXGEN2 INSTALLATION DETAILS	0
N-5	AJAX ONESIDE INSTALLATION DETAILS	0
N-6	FORGBOLT INSTALLATION DETAILS	0
S-1	TOWER ELEVATION AND MODIFICATION SCHEDULE	0
S-2	SECTION DETAILS	0
S-3	SHAFT REINFORCEMENT DETAILS	0
S-4	TYP. SHAFT REINFORCEMENT DETAILS I	0
S-5	TYP. SHAFT REINFORCEMENT DETAILS II	0
S-6	TRANSITION STIFFENER DETAILS	0

PROJECT INFORMATION

TOWER HEIGHT:	147-FT
TOWER MANUFACTURER:	EEI
	CCI DOCUMENT: 1615372
WORK ORDER NO.:	1532088
ORDER NO.:	397067 REV. 1
DESIGN BUILDING CODE:	2016 CONNECTICUT STATE BUILDING CODE
DESIGN STANDARD:	ANSI/TIA-222-G-2-2009

PROJECT TEAM

CCI MODIFICATION PROJECT MANAGER:

NAME	CROWN CASTLE
CONTACT	DAN VADNEY
PHONE	(518) 373-3510
EMAIL	DAN.VADNEY@CROWNCASTLE.COM

CCI MODIFICATION CONSTRUCTION MANAGER:

NAME	CROWN CASTLE
CONTACT	JASON D'AMICO
PHONE	(860) 209-0104
EMAIL	JASON.D'AMICO@CROWNCASTLE.COM

	CED-SOW-10007	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
	CED-SOW-10007	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE AND PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS AND/OR SHOP DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY/SHOP DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	CED-SOW-10007	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS, SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	CED-SOW-10007 CED-STD-10069	A CWI SHALL INSPECT ALL WELDING PERFORMED ON STRUCTURAL MEMBERS DURING FABRICATION. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	CED-SOW-10007	MATERIAL TEST REPORTS SHALL BE PROVIDED FOR MATERIAL USED AS REQUIRED PER SECTION 9.2.5 OF CED-SOW-10007. MTRS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	CED-SOW-10066 CED-STD-10069	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED NDT INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	ENG-SOW-10033	A NDE OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	CED-SOW-10007	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.

CONSTRUCTION

	CED-SOW-10144	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A VISUAL OBSERVATION OF THE REBAR SHALL BE PERFORMED BEFORE PLACING THE EPOXY. A SEALED WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	CED-SOW-10144	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED AS PART OF THE FOUNDATION REPORT.
	CED-SOW-10144	FOUNDATION SUB-GRADES SHALL BE INSPECTED AND APPROVED BY A GEOTECHNICAL ENGINEER AND RESULTS INCLUDED AS PART OF THE FOUNDATION REPORT.
	CED-SOW-10144	MICROPILES/ROCK ANCHORS SHALL BE INSPECTED BY THE FOUNDATION INSPECTION VENDOR AND SHALL BE INCLUDED AS PART OF THE FOUNDATION INSPECTION REPORT. ADDITIONAL TESTING AND/OR INSPECTION REQUIREMENTS ARE NOTED IN THESE CONTRACT DOCUMENTS.
N	CED-SOW-10007	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED IN ACCORDANCE WITH CROWN REQUIREMENTS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	ENG-STD-10323	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR THAT CERTIFIES THAT THE GROUT WAS REMOVED AND/OR INSTALLED IN ACCORDANCE WITH CROWN REQUIREMENTS FOR INCLUSION IN THE MI REPORT.
	ENG-STD-10323	A CROWN APPROVED CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST FIELD WELDS, FOLLOWING ALL PROCEDURES SPECIFIED IN CROWN STANDARD DOCUMENTS APPLICABLE TO WELD INSPECTIONS. A REPORT SHALL BE PROVIDED. NDE OF FIELD WELDS SHALL BE PERFORMED AS REQUIRED BY CROWN STANDARDS AND CONTRACT DOCUMENTS. THE NDE REPORT SHALL BE INCLUDED IN THE CWI REPORT.
	CED-SOW-10066 CED-STD-10069	THE GENERAL CONTRACTOR SHALL PROVIDE WRITTEN AND PHOTOGRAPHIC DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED PER MANUFACTURER SPECIFICATIONS AND APPLICABLE STANDARDS.
	CED-PRC-10182 CED-STD-10261	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT IN ACCORDANCE WITH APPLICABLE STANDARDS DOCUMENTING TENSION TWIST AND PLUMB.
	CED-SOW-10007	THE GENERAL CONTRACTOR SHALL SUBMIT A LEGIBLE COPY OF THE ORIGINAL DESIGN DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD. EOR/RFI FORMS APPROVING ALL CHANGES SHALL BE SUBMITTED WHEN THE EOR IS SPECIFYING ADDITIONAL INSPECTIONS DESCRIPTION AND APPLICABLE STANDARDS SHALL BE APPLIED.

POST-CONSTRUCTION

	CED-SOW-10007	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS, INCLUDING LISTING ADDITIONAL PARTIES TO THE MODIFICATION PROCESS.
;	CED-PRC-10119	POST-INSTALLED ANCHOR RODS SHALL BE TESTED BY A CROWN APPROVED PULL TEST INSPECTOR AND A REPORT SHALL BE PROVIDED INDICATING TESTING RESULTS.
	CED-SOW-10007	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI. PHOTOS SHALL DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
	CED-SOW-10007	THE MI INSPECTOR SHALL VERIFY THE INSTALLATION AND TIGHTNESS 10% OF ALL NON PRE-TENSIONED BOLTS INSTALLED AS PART OF THE MODIFICATION. THE MI INSPECTOR SHALL LOOSEN THE NUT AND VERIFY THE BOLT HOLE SIZE AND CONDITION. THE MI REPORT SHALL CONTAIN THE COMPLETED BOLT INSTALLATION VERIFICATION REPORT, INCLUDING THE SUPPORTING PHOTOGRAPHS.
	CED-PRC-10283 CED-FRM-10285	FINAL PUNCHLIST INDICATING ALL NONCONFORMANCE(S) IDENTIFIED AND THE FINAL RESOLUTION AND APPROVAL.

APPLICABLE CROWN STANDARDS; AND AS DESIGNED BY THE ENGINEER OF RI (EOR).

NO DOCUMENT, CODE OR POLICY CAN ANTICIPATE EVERY SITUATION THAT ARISE. ACCORDINGLY, THIS CHECKLIST IS INTENDED TO SERVE AS A SOURC GUIDING PRINCIPLES IN ESTABLISHING GUIDELINES FOR MODIFICATION INSPECTION

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONL' IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, AND THE MI INSP DOES NOT TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WIT EOR AT ALL TIMES. THE MI INSPECTOR SHALL INSPECT AND CONFORMANCE/NONCONFORMANCE AND PROVIDE TO THE CROWN POINT OF CO (CROWN POC) FOR EVALUATION.

ALL MI'S SHALL BE CONDUCTED BY A CROWN APPROVED MI INSPECTOR, WC FOR A CROWN APPROVED MI VENDOR. SEE CROWN CED-LST-10173, "APPROV VENDORS".

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THA GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING COORDINATING AS SOON AS A PURCHASE ORDER (PO) IS RECEIVED. IT IS EXP THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PAR CONTACT INFORMATION IS NOT KNOWN THE GC AND/OR INSPECTOR SHALL CO THE CROWN POINT OF CONTACT (CROWN POC).

REFER TO CROWN CED-SOW-10007, "MODIFICATION INSPECTION SOW", FOR FU DETAILS AND REQUIREMENTS.

SERVICE LEVEL COMMITMENT

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHAN THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:

- THE GC SHALL PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERA 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON DURING THE MI TO HAVE ANY MINOR DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPO WHEN THE MI INSPECTOR IS ON SITE.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION / ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN ONLY FROM THE GROUND SHALL E CONSIDERED INADEQUATE.

THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO CROWI DOCUMENT # CED-SOW-10007.

JST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR
ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT
RIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE
OPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE

ACCORDANCE WITH THE CONNECTICUT STATE BUILDING CODE, 2016 EDITION.

ISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING
TERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS

CTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE
ED HEREIN.

SPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE
AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS.
ED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT
TERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE
TION OF THE PROJECT.

D EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED
EGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK
SHALL NOT SCALE CONTRACT DRAWINGS IN LIEU OF FIELD VERIFICATIONS.
IMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S
ST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK.
NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL
RK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS,
ES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER
T INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE PROCEDURES.

URNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND
WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE
ORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION.
SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS
TED.

NSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS
ITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THIS
MPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES
IS WORK.

SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED
NG WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING

AINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL
ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.

WORK SHALL COMPLY TO LOCAL CODES AND THE ACI 318-11, "BUILDING
CONCRETE".

NG OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPLICABLE
OR CITY) ENGINEER.

IP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.

BE VERIFIED WITH THE PLANS (LATEST REVISION) PRIOR TO COMMENCING
INEER IMMEDIATELY IF ANY DISCREPANCIES ARE DISCOVERED. THE OWNER
ED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHILE WORK IS BEING
PONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING

Y CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR
WRITTEN APPROVAL OF THE TOWER OWNER OR ENGINEER OF RECORD.

PREFABRICATION MAPPING IS DONE AT THE RISK OF THE GC AND/OR FABRICATOR.

ATTENTION

IETHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING
JE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR
OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/ASSE A10.48

)
JPPORTING AND GUYED TOWERS)
ONOPOLE)
GALVANIZED HIGH STRENGTH BOLTS.
DE B7
I AND ALLOY STEEL NUTS.
:DENED STEEL WASHERS.

AILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR CONSTRUCTION MANUAL, LRFD, 14TH EDITION.

THROUGH STEEL UNLESS APPROVED BY THE ENGINEER.

JNLESS OTHERWISE NOTED, AFTER FABRICATION WHERE PRACTICABLE. A153/A153M OR ASTM A653/A653M, G90, AS APPLICABLE. ADDITIONALLY, TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION MEANS.

GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A780 OR K PASTED MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING.) REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE CH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS IN STICK OR AL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS HALL BE REPAINTED TO MATCH EXISTING FINISH (IF APPLICABLE).

INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.

BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS FROM

) BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE HE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE ER TIGHTENING IS COMPLETED.

ALL NOT BE REUSED.

:CORDANCE WITH THE AWS D1.1/D1.1M: 2010 "STRUCTURAL WELDING

) BY AWS CERTIFIED WELDERS.

VS CERTIFIED WELD INSPECTOR TO PERFORM VISUAL INSPECTIONS ON FIELD ALL BE ISSUED TO THE CONTRACTOR. CONTRACTOR SHALL SUBMIT LETTER NG PROFESSIONALS.

O THE WELD FOR A DISTANCE OF 2" MINIMUM ALL AROUND. GRIND THE TALLED FOR A DISTANCE OF 2" MINIMUM ALL AROUND THE AREA TO BE E 100% FREE OF ALL GALVANIZING. SURFACES TO BE WELDED SHALL BE MOISTURE, GREASE OR ANY OTHER FOREIGN MATERIAL THAT WOULD

URE OF THE STEEL IN THE VICINITY OF THE WELD AREA IS BELOW 0 JM PREHEAT AND INTERPASS TEMPERATURE REQUIREMENTS SHALL COMPLY 2 OF THE AWS D1.1/D1.1M:2010.

T-COVERED SURFACES AND PROVIDE ADEQUATE PROTECTION FROM HIGH

W HYDROGEN ELECTRODES. ELECTRODES SHALL BE APPROPRIATE FOR THE AKE THE JOINT.

EA OF THE WELDS, THE INSTALLATION AND ALL SURFACES DAMAGED BY EIVE A COLD-GALVANIZED COATING. THIS COATING SHALL BE APPLIED BY IND SHALL CONTAIN A MINIMUM OF 95% +/- PURE ZINC. THE FINISHED CKNESS OF 3 MILS.

2. WHEN SPECIFIED IN THE DRAWINGS, CONNECTION BOLTS SHALL BE INSTALLED AND TIGHTENED AS PEF SECTION 8.2.1 OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS, LOCATEI IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

8.2.1 TURN-OF-THE-NUT TIGHTENING

BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITIO AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTIO IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENE FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED BELOW. DURING THE TIGHTENING OPERATIO THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRES SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT IN A MANNER THAT WILL MINIMIZE RELAXATIO OF PREVIOUSLY PRETENSIONED BOLTS.

3. PRE-TENSIONED BOLTS AS SPECIFIED ON THE DRAWINGS SHALL BE TIGHTENED IN ACCORDANCE WITH AISC – "TURN OF THE NUT" METHOD, USING THE CHART BELOW.

BOLT LENGTHS UP TO AND INCLUDING FOUR DIA.

½"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
⅝"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
¾"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
⅞"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER FOUR DIA. BUT NOT EXCEEDING EIGHT DIA.

½"	BOLTS 2.25 TO 4.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
⅝"	BOLTS 2.75 TO 5.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
¾"	BOLTS 3.25 TO 6.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
⅞"	BOLTS 3.75 TO 7.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT

4. ALL ONE-SIDED BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

FIELD NDE MINIMUM REQUIREMENTS:

1. ALL NDE SHALL BE IN ACCORDANCE WITH AWS D1.1.
2. FOR NEW BASE STIFFENERS (INCLUSIVE OF TRANSITION STIFFENERS) AND ANCHOR ROD BRACKETS COMPLETE JOINT PENETRATION WELDS SHALL BE 100% INSPECTED BY ULTRASONIC TESTING (UT). ALI PARTIAL JOINT PENETRATION AND FILLET WELDS SHALL BE 100% INSPECTED BY MAGNETIC PARTICLE TESTIN (MT).
3. FOR NEW FLAT PLATE REINFORCEMENT AT THE BASE OF THE TOWER, COMPLETE JOINT PENETRATION WELDS SHALL BE 100% INSPECTED BY ULTRASONIC TESTING (UT). ALL PARTIAL JOINT PENETRATION AND FILLE WELDS SHALL BE 100% INSPECTED BY MAGNETIC PARTICLE TESTING (MT), BUT MAY BE LIMITED TO A HEIGH OF 10'-0".
4. FOR NDE OF THE EXISTING BASE PLATE CIRCUMFERENTIAL WELD, GC SHALL REFERENCE THE MI CHECKLIS FOR APPLICABILITY. PLEASE SEE ENG-SOW-10033: TOWER BASE PLATE NDE, AND ENG-BUL-10051: NDE REQUIREMENTS FOR MONOPOLE BASEPLATES TO PREVENT CONNECTION FAILURE. NOTIFY THE EOR AND CROWN ENGINEERING IMMEDIATELY IF ANY CRACKS ARE SUSPECTED OR HAVE BEEN IDENTIFIED. THE NDE SHALL INCLUDE ALL EXISTING MODIFICATIONS THAT HAVE BEEN WELDED TO THE BASE PLATE.
5. ALL TESTING LIMITATIONS SHALL BE DETAILED IN THE NDE REPORT.

UCTIONS.

ENT MEMBER SHALL BE REQUIRED WHERE GAPS NFORCING MEMBER EXIST AT FASTENER LOCATIONS. E MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE R. FOR TERMINATION CONNECTIONS, A CONTINUOUS ALENT INDIVIDUAL SHIM PLATES THE WIDTH OF THE . ADJACENT SHIM PLATE THICKNESSES MAY TAPER BE NO LESS THAN 1/16". STACKING OF SHIMS IS " IN THICKNESS LOCATED WITHIN THE TERMINATION MENT PLATE SHALL BE WELDED TO THE SHAFT THE BOLTS TO COLD BEND THE STEEL PLATES ROHIBITED IN LIEU OF SHIMS AND WILL BE CAUSE

ID PROCEDURES:

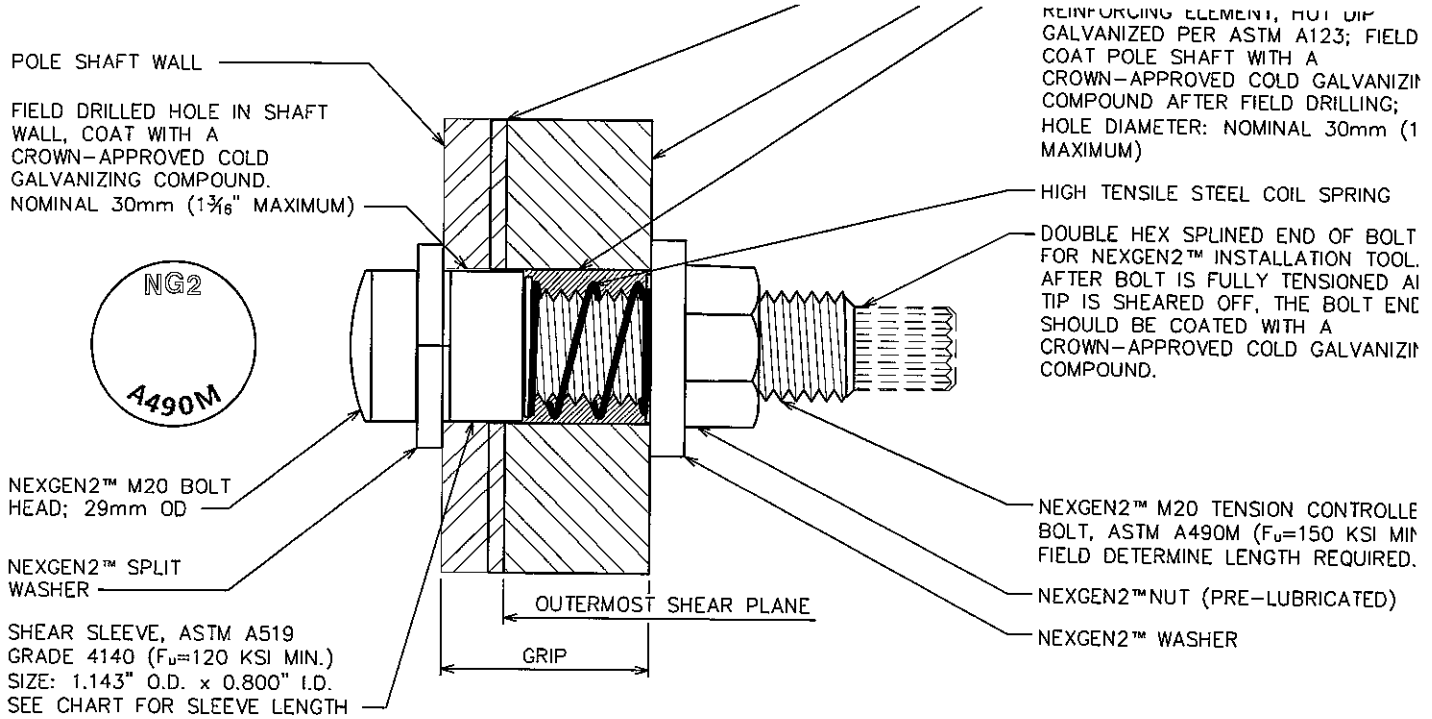
3S.

IDS TO ENSURE CORRECT TENSION WAS ACHIEVED.

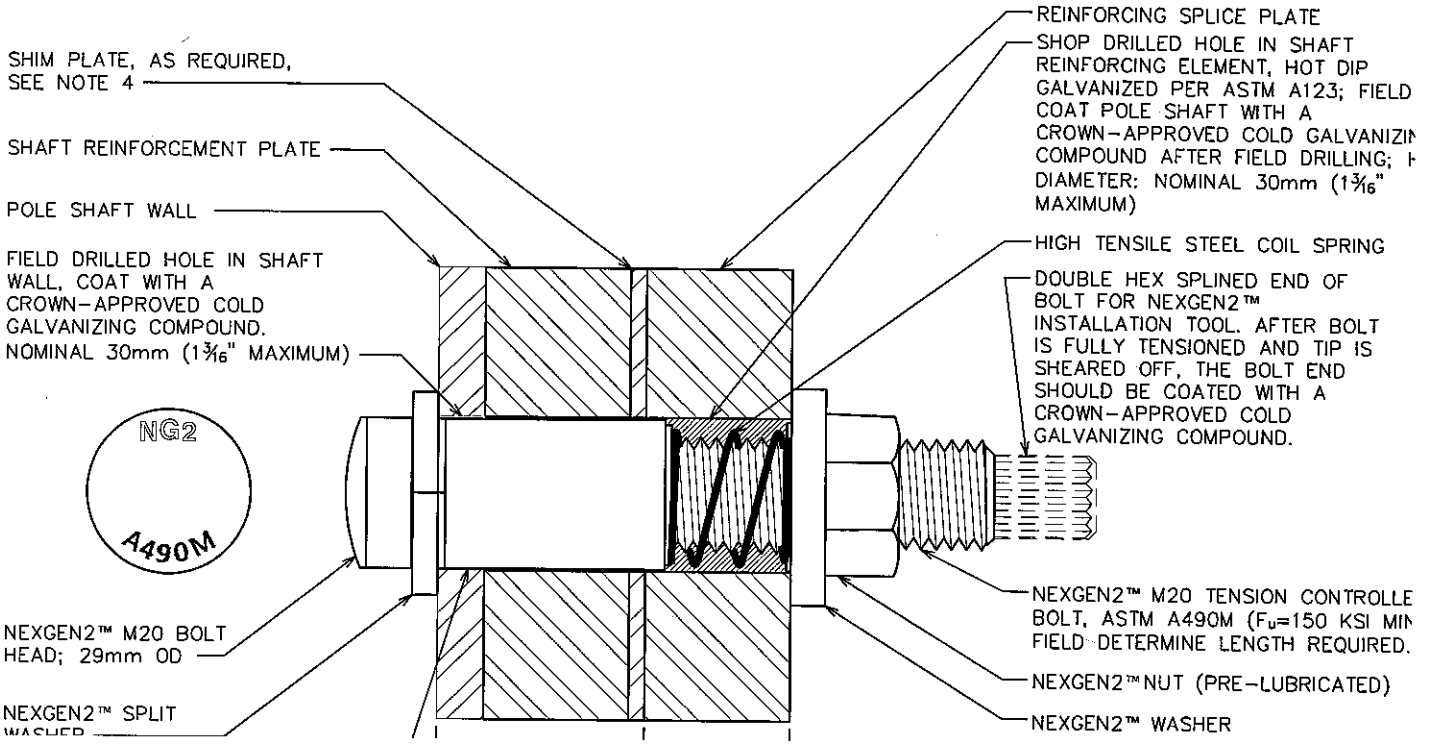
NTLY COATED WITH A CROWN-APPROVED COLD

'ACT:

A 44256
)-232-6062
WWW.AFTOWER.COM



NEXGEN2 BOLT DETAILS



SLEEVE LENGTH	MIN. GRIP RANGE	MAX. GRIP RANGE
1 1/16"	15/16"	1 7/16"
1 3/16"	1 7/16"	1 7/8"
1 5/8"	1 7/8"	2 1/4"
2"	2 1/4"	2 11/16"

ENT MEMBER SHALL BE REQUIRED WHERE GAPS NFORCING MEMBER EXIST AT FASTENER LOCATIONS. E MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE R. FOR TERMINATION CONNECTIONS, A CONTINUOUS ALENT INDIVIDUAL SHIM PLATES THE WIDTH OF THE . ADJACENT SHIM PLATE THICKNESSES MAY TAPER BE NO LESS THAN 1/16". STACKING OF SHIMS IS " IN THICKNESS LOCATED WITHIN THE TERMINATION MENT PLATE SHALL BE WELDED TO THE SHAFT THE BOLTS TO COLD BEND THE STEEL PLATES ROHIBITED IN LIEU OF SHIMS AND WILL BE CAUSE

INSTALLATION:

SEMBLED.

ERS INSTRUCTIONS FOR INSTALLATION.

R® DTI PROTRUSIONS SHALL BE ENGAGED IN ANY INFORCING MEMBERS. A FEELER GAGE MAY BE ESSION.

ICE WITH THE MANUFACTURERS REQUIREMENTS AND MODIFICATION INSPECTION SOW.

ACT:

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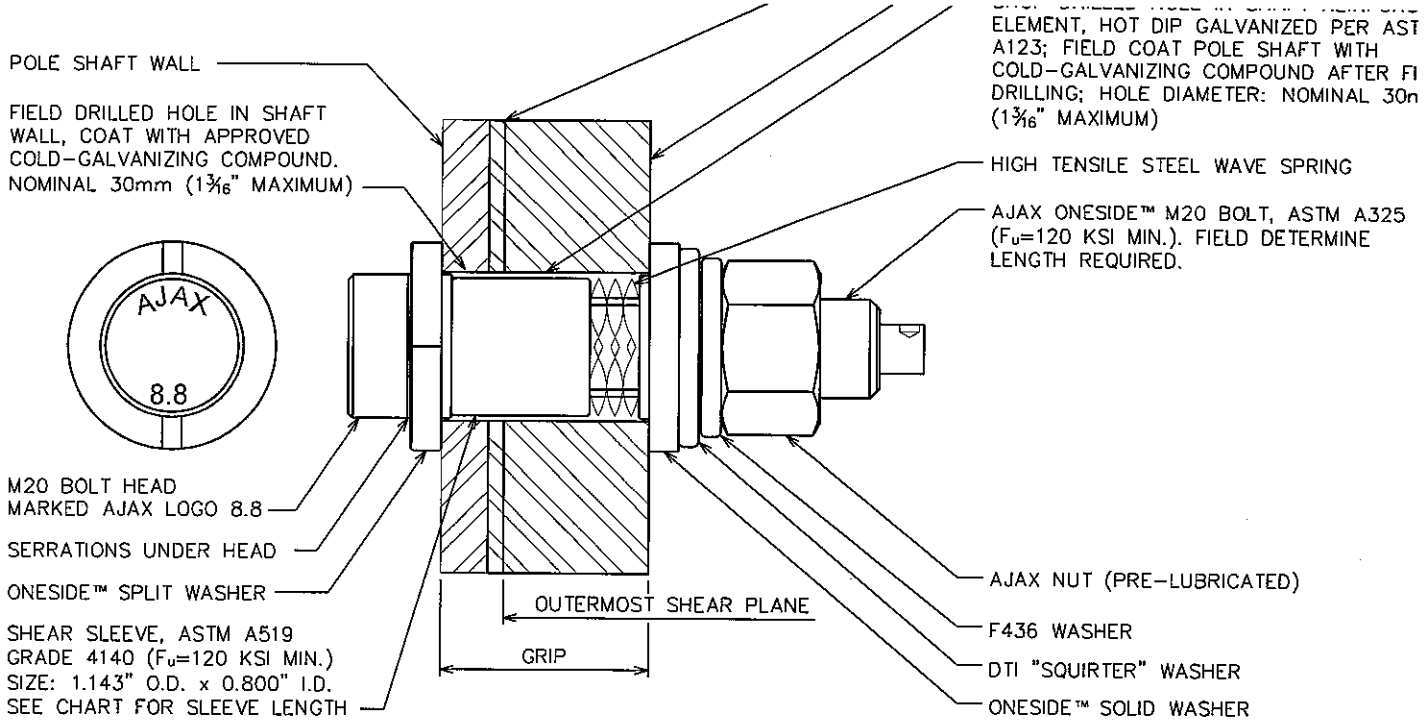
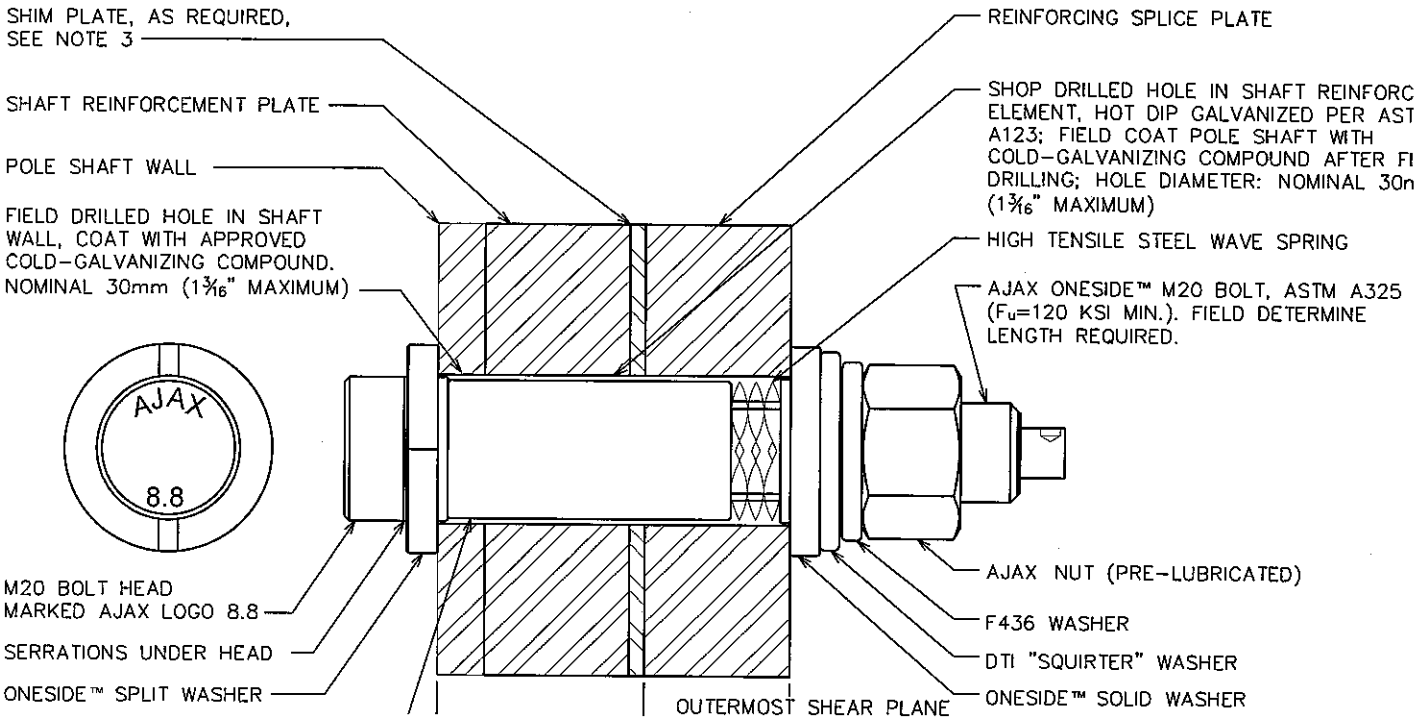
M

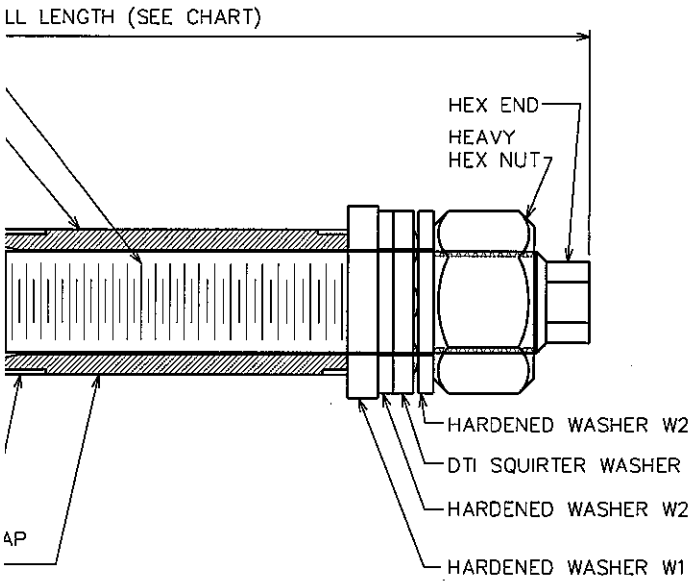


AJAX ONESIDE BOLT DETAILS

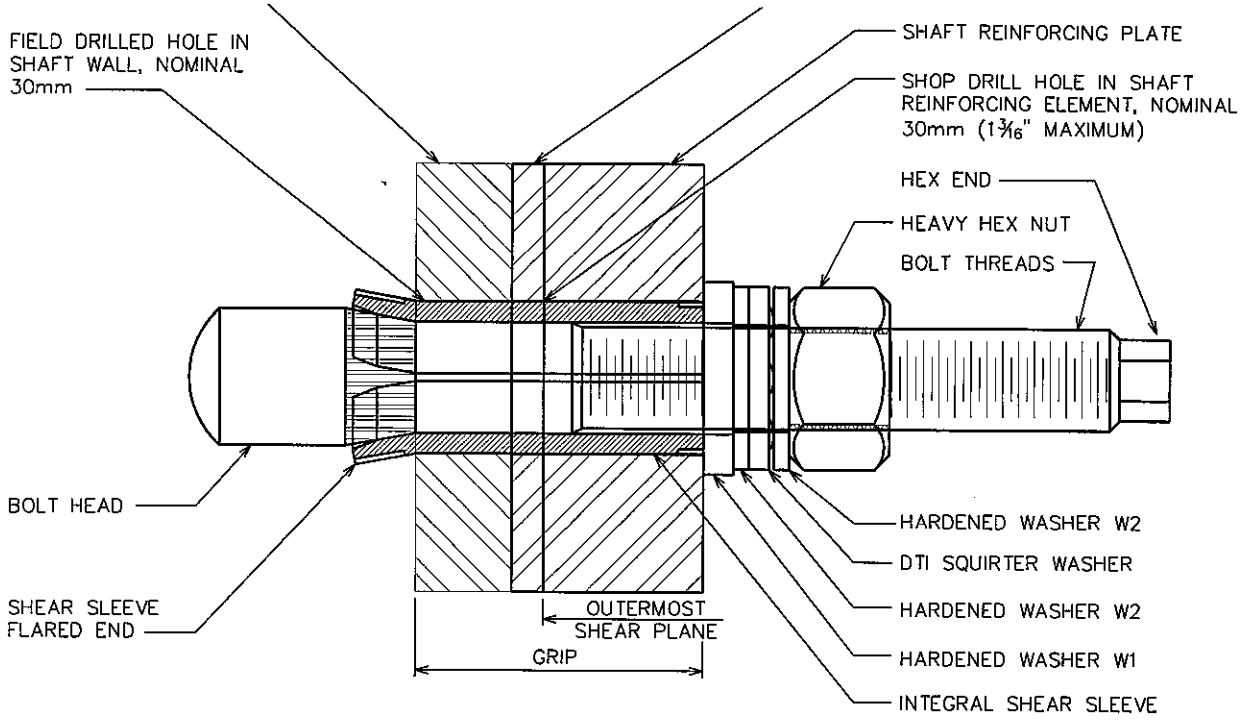


SLEEVE LENGTH	GRIP	GRIP IMP
6.0 (0.236")	12.5/20.0	0.500"/0.787"
4.0 (0.551")	20.0/32.0	0.787"/1.259"
2.0 (0.866")	30.0/50.0	1.181"/1.968"
30.0 (1.181")	40.5/50.0	1.595"/1.968"
39.0 (1.535")	49.0/77.0	1.929"/3.031"
48.0 (1.889")	60.5/77.0	2.375"/3.031"

INSPECTED ACCORDING TO THE REQUIREMENTS OF THE RCSC NTS USING HIGH-STRENGTH BOLTS', DECEMBER 31, 2009.



FORGBOLT ASSEMBLY DETAIL



INSTALLED FORGBOLT ASSEMBLY DETAIL

BOLT HOLE NOTES

BE NOMINAL 30mm DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER

BE NOMINAL 30mm DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER

PRECISION TOWER PRODUCTS:
-PHONE: 888-926-4857
-EMAIL: INFO@PRECISIONTOWERSPRODUCTS.COM
-WEB: WWW.PRECISIONTOWERPRODUCTS.COM

CONTAINS PROPRIETARY INFORMATION. PATENT PENDING

AISC GROUP A MATERIAL: ASTM A325 AND PC8.8
(TENSILE STRESS, Fu = 120 ksi MINIMUM)

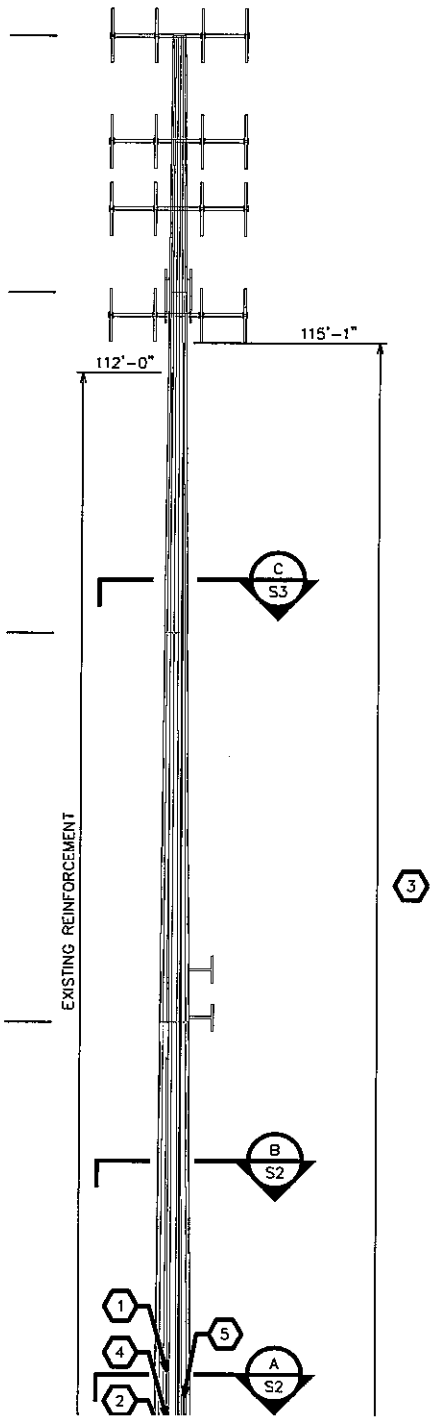
OVERALL NGTH (IN)	ESTIMATED WEIGHT EACH (LBS)	GRIP RANGE (IN)	COMMENT	COLOR CODE
5.31	1.3	⅜" TO 1"	–	RED
6.30	1.6	¾" TO 1½"	–	GREEN
7.68	1.9	1¼" TO 2¼"	–	BLUE
10.24	2.6	2" TO 3½"	SPLICE BOLT	YELLOW

FORGBOLT™ INSTALLATION

FOLLOW ALL MANUFACTURER/DISTRIBUTER RECOMMENDATIONS FOR INSTALLATION, TIGHTENING, AND INSPECTION.

1. FIELD DRILL HOLES 30mm DIAMETER.
2. SELECT CORRECT BOLT SIZE FOR INSTALLATION GRIP (REFER TO PLANS).
3. INSERT BOLT ASSEMBLY THROUGH HOLES IN SHAFT REINFORCING PLATES AND SEAT THE HARDENED WASHER W1 FLUSH AGAINST OUTSIDE OF PLATE

'80	29.110	0.2500	ASTM A572-65	–	–
580	37.190	0.3125	ASTM A572-65	–	–
530	46.000	0.3750	ASTM A572-65	ASTM A871-60	ASTM A615-75



2	REMOVE EXISTING BASE PLATE STIFFENERS. (CCI DOC ID 2331612)	0.00	S-2
3	INSTALL PROPOSED MONOPOLE SHAFT REINFORCEMENT.	1.25 – 115.08	S-2 THROU S-5
4	REINFORCE EXISTING MONOPOLE SHAFT REINFORCEMENT.	4.33 – 6.58	S-2 AND S-
5	INSTALL PROPOSED TRANSITION STIFFENERS.	0.00	S-2 AND S-
6	TEMPORARILY RELOCATE ICE BRIDGE TO ACCOMMODATE PROPOSED REINFORCEMENT.	–	S-2
7	REMOVE AND REPLACE STEP PEGS AS NECESSARY TO ACCOMMODATE PROPOSED REINFORCEMENT.	–	–
8	CROWN CASTLE WILL CONTRACT WITH A THIRD PARTY VENDOR TO PERFORM THE MODIFICATION INSPECTION. THE CONTRACTOR SHALL COORDINATE THE INSPECTION WITH THE MODIFICATION INSPECTOR AND CROWN CASTLE PROJECT MANAGER. SEE SHEET N-1 FOR DETAILS.	–	–

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY SPLICE ELEVATION PRIOR TO INSTALLATION. CONTACT TOWER OWNER AND ENGINEER OF RECORD IF SPLIC ELEVATIONS DIFFER FROM WHAT IS SHOWN. SHAFT REINFORCEMENT ELEVATIONS ARE DEPENDENT ON SPLICE ELEVATIONS AND MAY NEED TO B ADJUSTED TO ACCOMMODATE ACTUAL SPLICE ELEVATION.
2. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE THE MODIFICATION INSPECTOR/ ENGINEER OF RECORD WITH A SEALED CERTIFIED WEL INSPECTION REPORT. THIS REPORT SHALL DOCUMENT THE ENTIRE WELDING PROCESS (PRE/DURING/POST) WITH PROPER PHOTOS. WELDING SHAL CONFORM TO AWS D1.1/D1.1M: 2010 "STRUCTURAL WELDING CODE-STEEL". FOR ADDITIONAL NOTES, SEE WELDING NOTES.
3. ANTENNAS AND OTHER APPURTENANCES MAY NEED TO BE TEMPORARILY REMOVED OR MOVED DURING THE INSTALLATION OF THE MODIFICATION SHOWN ABOVE.
4. DUE TO THE MODIFICATIONS REQUIRED, CONTINUOUS INSPECTIONS AND MATERIAL TESTING WILL NEED TO BE PERFORMED.
5. CONTRACTOR SHALL ORDER AND INSTALL A NEW TOWER TAG IF THE EXISTING TOWER TAG IS MOVED OR DAMAGED DUE TO THE INSTALLATION O THE MODIFICATION SHOWN ABOVE.
6. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIE PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.
7. NO DETAILED INFORMATION REGARDING INTERFERENCES WAS PROVIDED. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. REPORT AN AND ALL DISCREPANCIES TO TOWER ENGINEERING PROFESSIONALS, INC. AND CROWN CASTLE CONSTRUCTION MANAGER IMMEDIATELY.
8. CONTRACTOR SHALL VERIFY COAX IS CONFIGURED AS SHOWN IN BASE LEVEL DRAWING ON SHEET S-2. CONTACT TEP AND CROWN CASTLE I THERE ARE DISCREPANCIES.

CROWN CASTLE 65KSI FLAT PLATE REINFORCEMENT SCHEDULE

QTY.	PART NO.	FLAT/ ANGLE	ELEV (FT.)		PLATE LENGTH (FT.)	TERMINATION BOLTS		MAX. INTERMEDIATE BOLT SPACING (IN.)	TOTAL BOLT QTY.	TOTAL STEEL WEIGHT (LB.)	TERMINATIC DETAIL	
			BOT.	TOP		BOT.	TOP				BOT.	TO
4	CCI-CFP-04512535	3, 5, 12, 16	1.25	36.25	35.00	7	7	24.00	116	2679.7	2	5
2	CCI-SFP-04510035	4, 10	32.00	67.00	35.00	6	6	20.00	62	1071.9	5	4
2	CCI-SFP-04510035	15, 18	32.00	67.00	35.00	6	6	20.00	62	1071.9	5	5
2	CCI-SFP-04510025	4, 10	67.08	92.08	25.00	6	6	20.00	50	765.6	4	4
1	CCI-SFP-04510030	16	63.00	93.00	30.00	6	6	20.00	28	459.4	5	4
2	CCI-CFP-04512522	4, 10	92.16	114.16	22.00	8	8	24.00	48	842.2	4	3A
1	CCI-CFP-04512522	16	93.08	115.08	22.00	8	8	24.00	24	421.1	4	3A
								TOTALS:	390	7311.8		

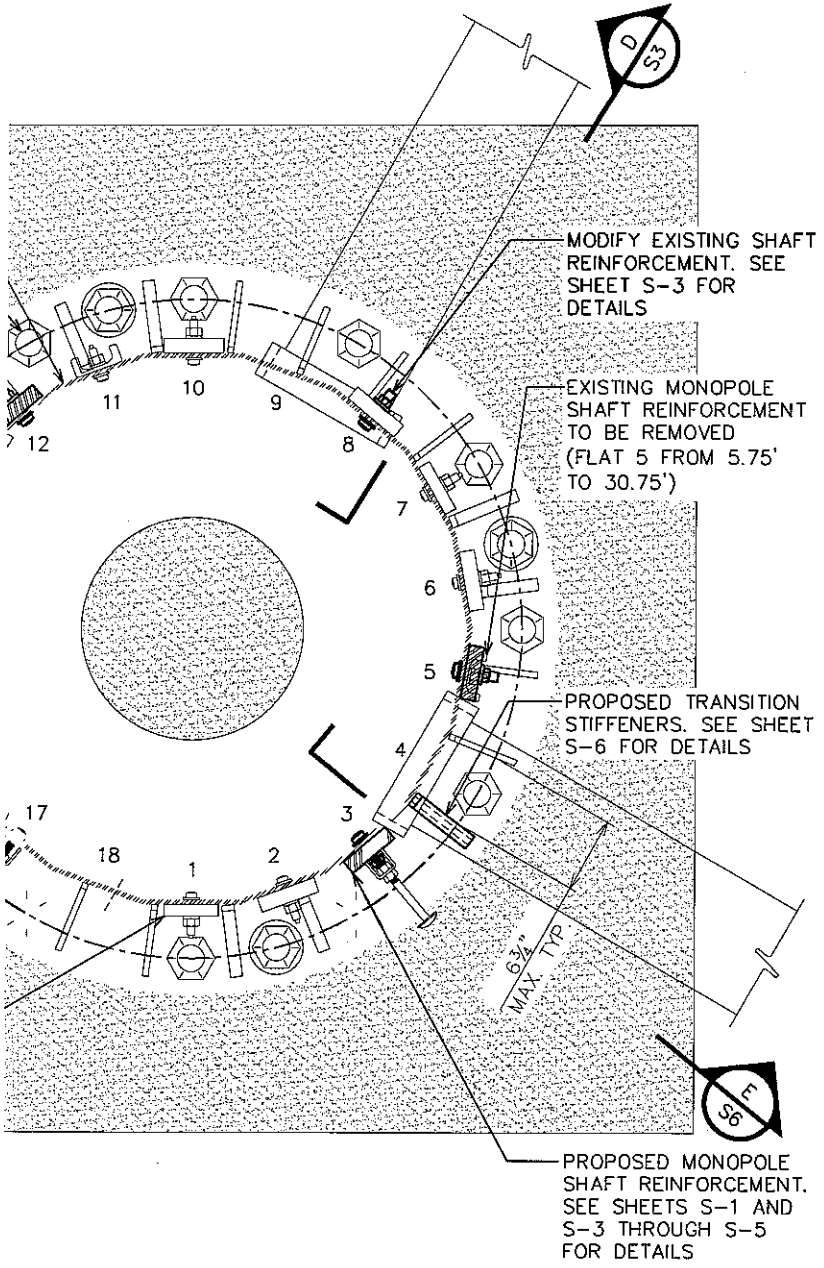
CROWN CASTLE 65KSI REINFORCEMENT SPLICE PLATE SCHEDULE

QTY.	PART NO.	FLAT/ ANGLE	ELEV (FT.)		QTY. OF BOLT HOLES PER PLATE	TOTAL BOLT HOLE QTY.	ADDITIONAL BOLT QTY. (SEE NOTE 6)	TOTAL STEEL WEIGHT (LB.)	TERMINATIC DETAIL
			BOT.	TOP					
2	CCI-SP-045100-6-6	4, 10	65.25	68.83	12	24	–	109.6	4
2	CCI-SP-045100-6-8	4, 10	90.33	94.42	14	28	–	156.2	4
1	CCI-SP-045100-6-8	16	91.25	95.33	14	14	–	78.1	4
					TOTALS:	66	–	343.9	

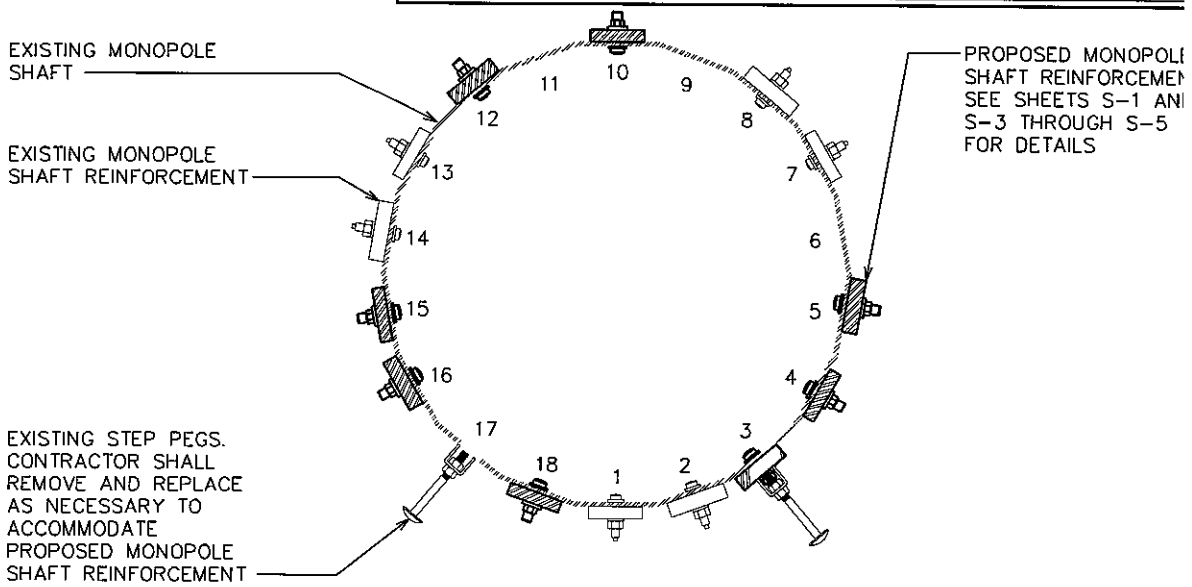
NOTES:

1. SEE SHEETS N-4 THROUGH N-6 FOR BOLT INSTALLATION DETAILS. SEE SHEET S-3 FOR PLATE DETAILS. SEE SHEETS S-4 AND S-5 FO TERMINATION DETAILS.
2. FOR FLAT PLATES STARTING AT 6", THE BOTTOM OF THE FLAT PLATE SHALL BEGIN AT 6" +/- 1". FOR SINGLE PLATES OR MULTIPLE PLATE SPLICED TOGETHER, THE BOTTOM OF THE FLAT PLATE RUN SHALL BEGIN AT THE PROPOSED ELEVATION +/- 3". FOR MULTIPLE PLATES SPLICE TOGETHER, THE TOP OF THE FLAT PLATE IS TO BE PLACED SUCH THAT THERE IS NO MORE THAN A 3" DIFFERENCE BETWEEN THE ACTUA OVERALL LENGTH OF THE SPAN AND THE PROPOSED OVERALL LENGTH OF THE SPAN, FROM THE BOTTOM OF THE BOTTOM PLATE TO THE TOP O THE TOP PLATE.
3. SHIMS FOR MONOPOLE REINFORCEMENT MEMBER SHALL BE REQUIRED WHERE GAPS BETWEEN THE POLE SHAFT AND REINFORCING MEMBER EXIST A FASTENER LOCATIONS. FOR INTERMEDIATE CONNECTIONS, THE MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE WIDTH OF THE REINFORCIN

DISCREPANCIES ARISE. CONTRACTOR TO REMOVE AND REPLACE CLIMBING SYSTEM USING ONLY APPROVED OPTIONS FROM CROWN CASTLE APPROVED REINFORCEMENT CATALOG AS NECESSARY TO INSTALL PROPOSED REINFORCEMENT. IF CLIMBING SYSTEM IS REQUIRED TO BE ATTACHED TO PROPOSED REINFORCEMENT, IT SHALL BE DONE PRIOR TO GALVANIZATION.



DISCREPANCIES ARISE. CONTRACTOR TO REMOVE AND REPLACE CLIMBING SYSTEM USING ONLY APPROVED OPTIONS FROM CROWN CASTLE APPROVED REINFORCEMENT CATALOG AS NECESSARY TO INSTALL PROPOSED REINFORCEMENT. IF CLIMBING SYSTEM IS REQUIRED TO BE ATTACHED TO PROPOSED REINFORCEMENT, IT SHALL BE DONE PRIOR TO GALVANIZATION.



SECTION B

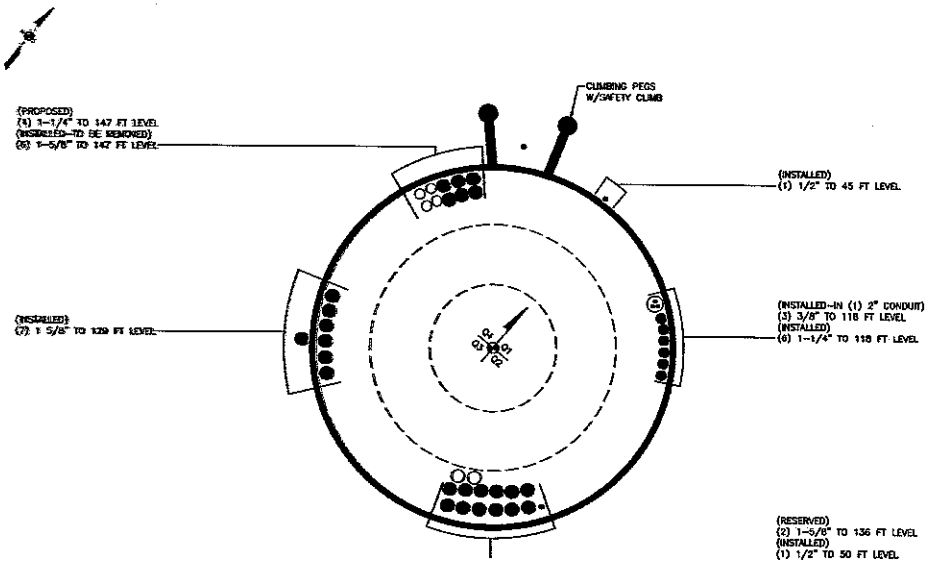
SCALE: 3/4" = 1'-0"

0 1

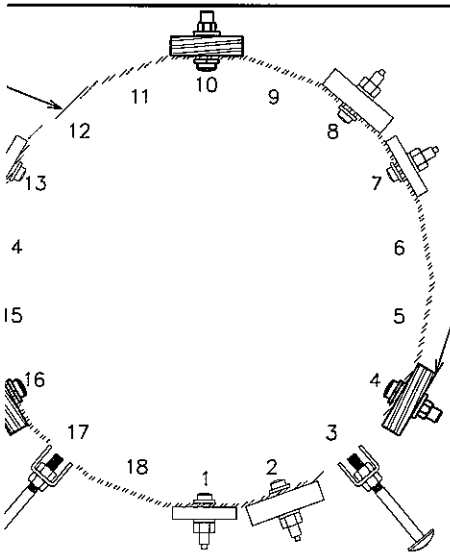
SCALE IN FEET

NOTE:

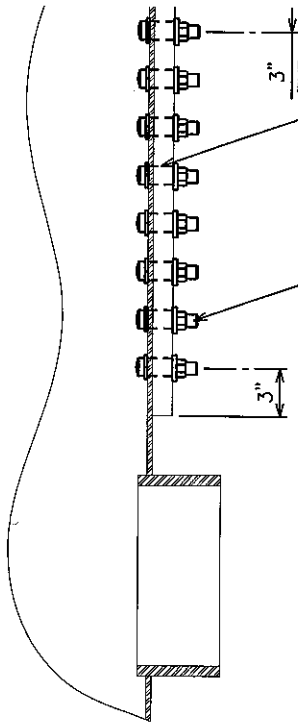
BASE LEVEL DRAWING PROVIDED BY CROWN CASTLE.



DISCREPANCIES ARISE. CONTRACTOR TO REMOVE AND REPLACE CLIMBING SYSTEM USING ONLY APPROVED OPTIONS FROM CROWN CASTLE APPROVED REINFORCEMENT CATALOG AS NECESSARY TO INSTALL PROPOSED REINFORCEMENT. IF CLIMBING SYSTEM IS REQUIRED TO BE ATTACHED TO PROPOSED REINFORCEMENT, IT SHALL BE DONE PRIOR TO GALVANIZATION.



PROPOSED MONOPOLE SHAFT REINFORCEMENT. SEE SHEETS S-1, S-2, S-4 AND S-5 FOR DETAILS



DRILL (9) 30mm HOLES IN EXISTING PLATE TO ACCOMMODATE PROPOSED TERMINATION BOLTS

(9) PROPOSED TERMINATION BOLTS. SEE SHEET N-4 THROUGH N-6 FOR BOLT DETAILS

4'-4"± BOTTOM ELEVATION

0 1 2

SCALE IN FEET

SECTION D

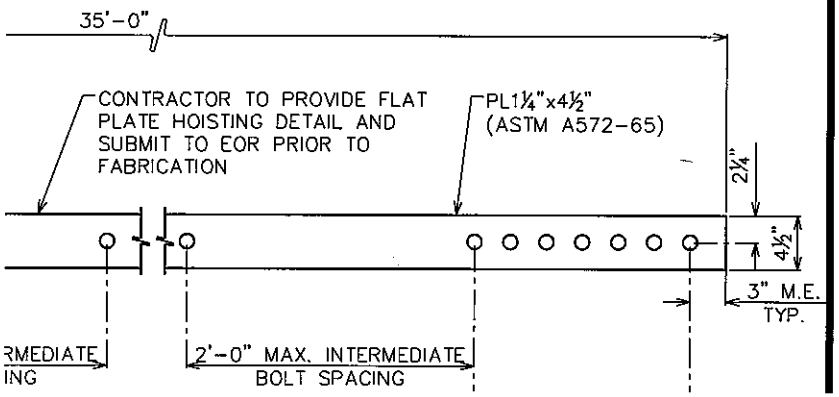
SCALE: 1" = 1'-0"

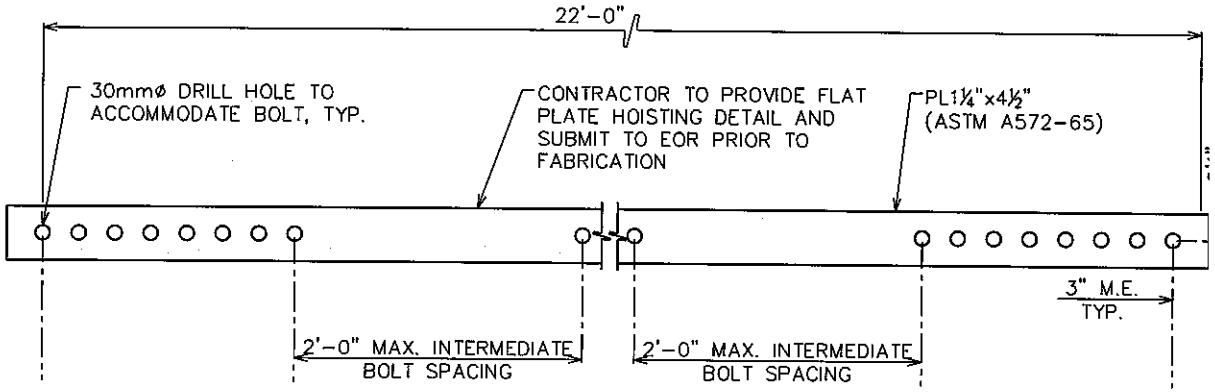
0 1

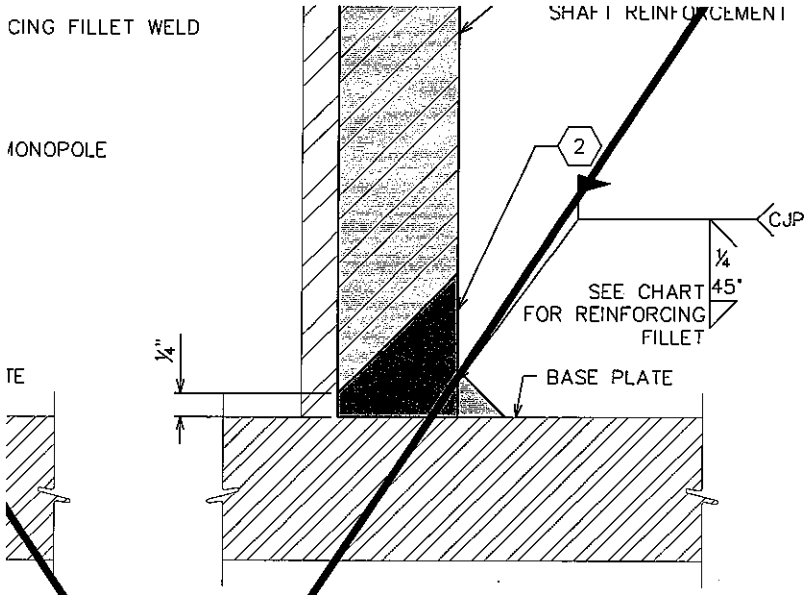
SCALE IN FEET

TO ACCOMMODATE EXISTING HOLES IN THE TOWER SHAFT. HOWEVER, THE MAXIMUM INTERMEDIATE BOLT SPACING PER SCHEDULE. EXISTING NOT BE RE-USED. NEW TOWER SHAFT BOLT HOLES SHALL BE A STING TOWER SHAFT BOLT HOLES. CONTRACTOR TO FIELD VERIFY BRICATION. TERMINATION AND SPLICE LENGTHS MAY BE ADJUSTED

TO ACCOMMODATE VARYING TERMINATION BOLT HOLE SPACING. ERMINATION BOLTS MAY NOT BE ADJUSTED.

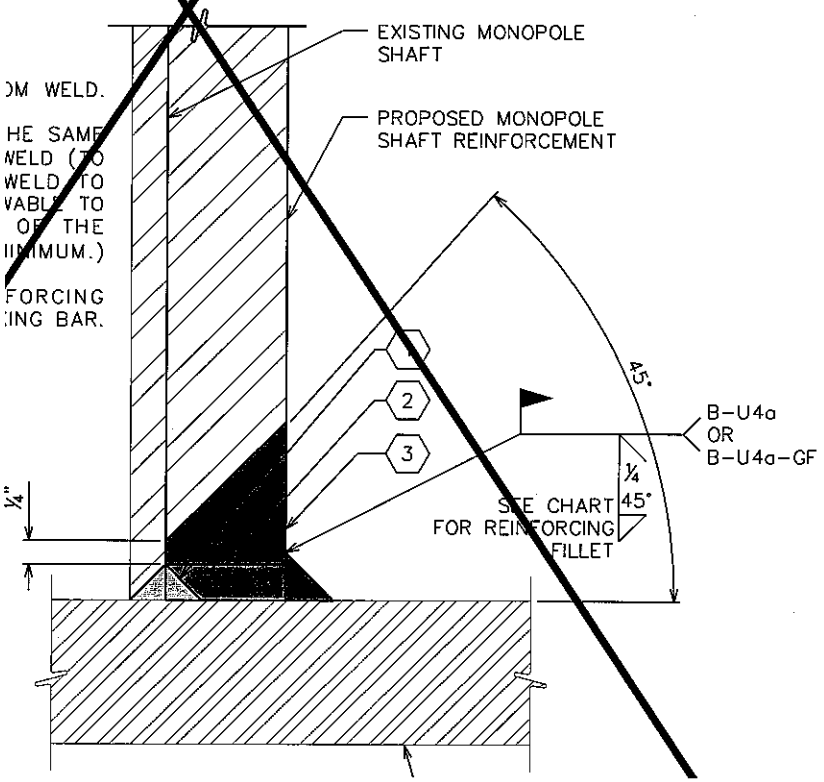


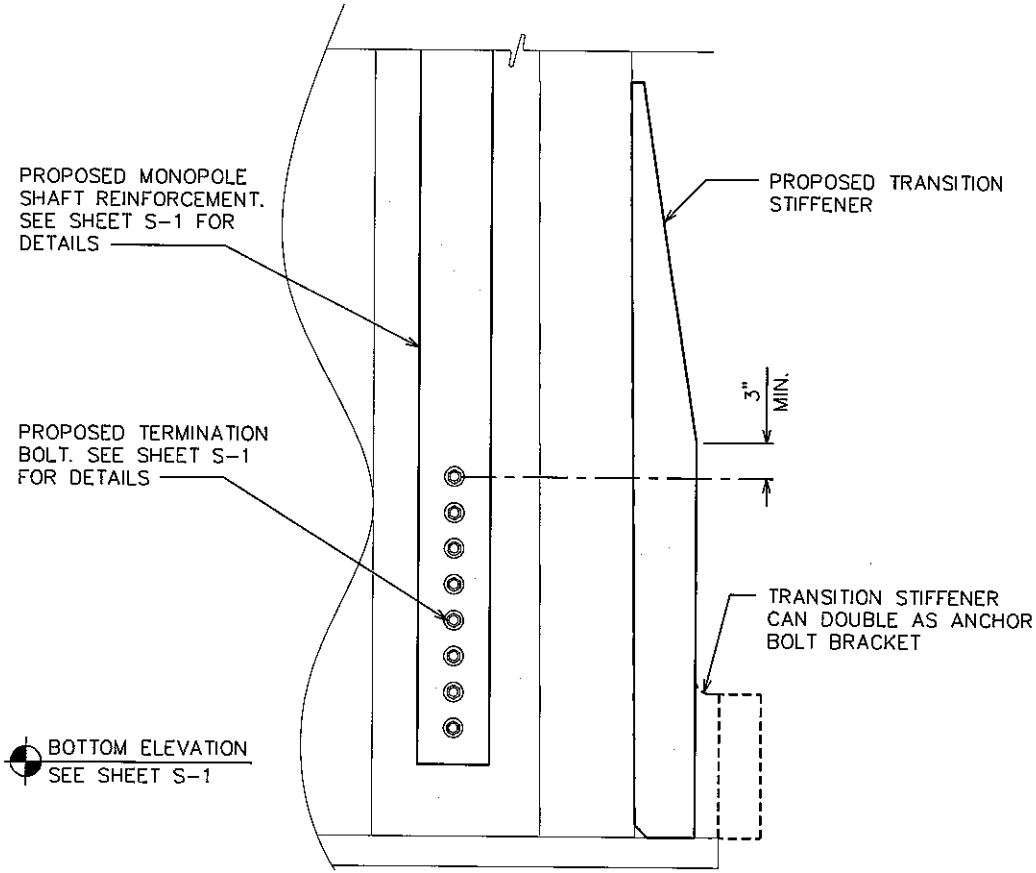


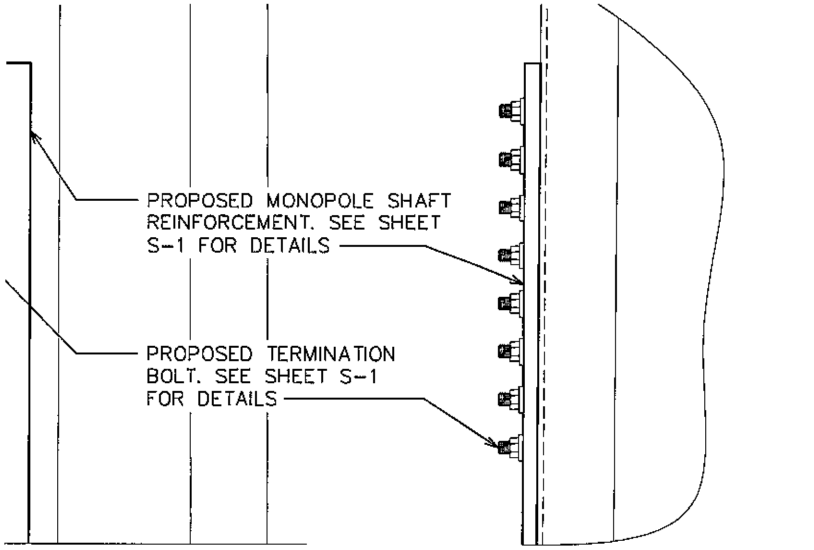


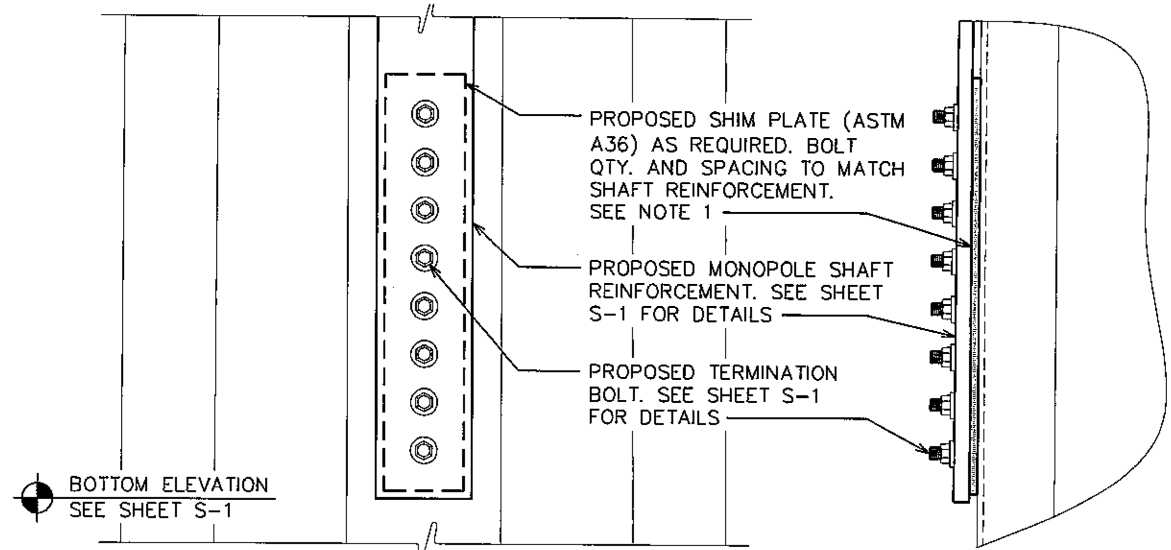
PART NUMBER	PLATE SIZE	MINIMUM REINFORCING WELD
CCI-WSFP-040075 CCI-WAFP-040075 CCI-WCFP-040075	¾" x 4"	¼"
CCI-WSFP-045100 CCI-WAFP-045100 CCI-WCFP-045100	1" x 4½"	¼"
CCI-WSFP-060100 CCI-WAFP-060100 CCI-WCFP-060100	1" x 6"	⅜"
CCI-WSFP-065125 CCI-WAFP-065125 CCI-WCFP-065125	1¼" x 6½"	½"
CCI-WSFP-085125 CCI-WAFP-085125 CCI-WCFP-085125	1¼" x 8½"	⅝"

OPTION 1









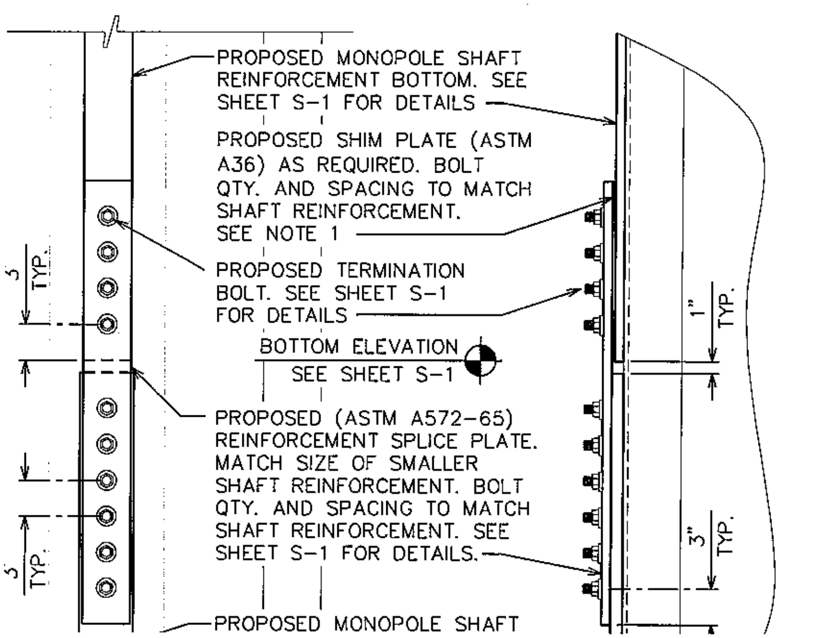
BOTTOM

'AILS (3A)

BOTTOM TERMINATION DETAILS (3B)

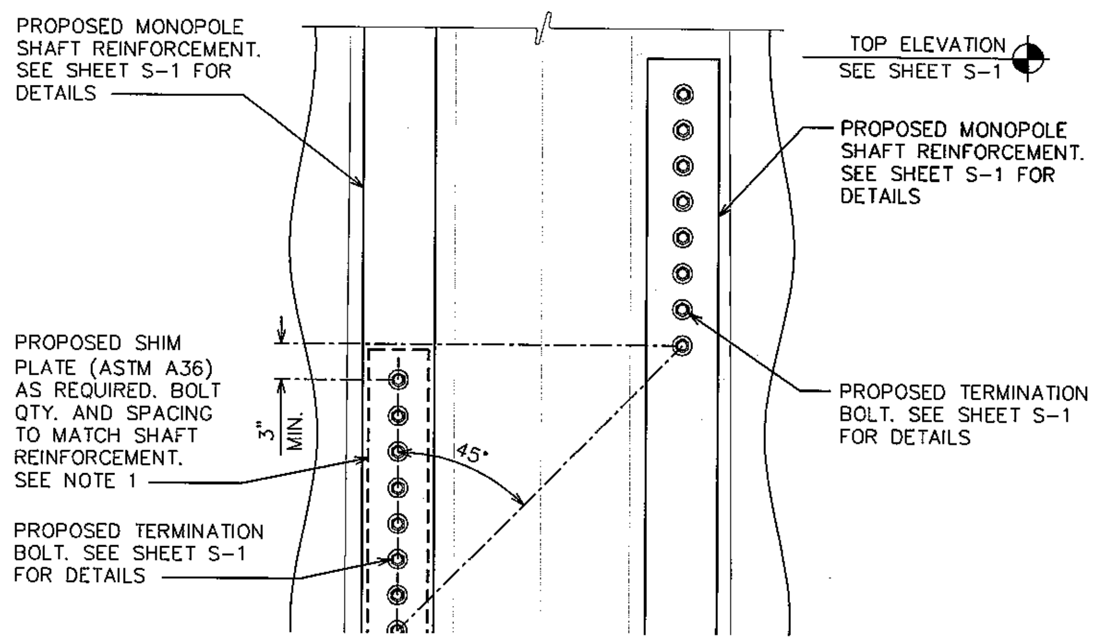
SCALE: N.T.S.

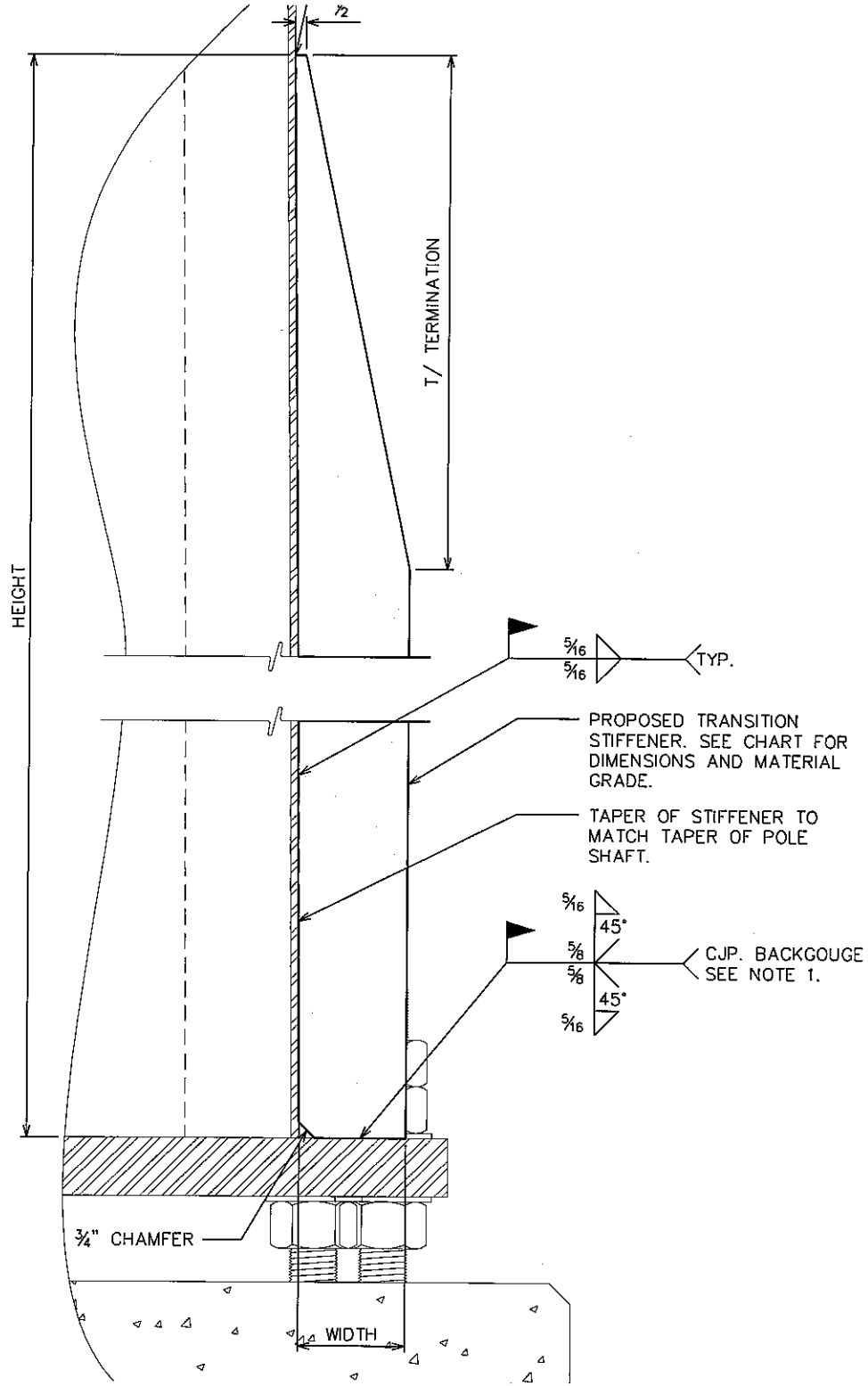
<'NESS LOCATED BETWEEN THE SHAFT REINFORCEMENT PLATE AND THE BE WELDED TO THE SHAFT REINFORCEMENT PLATE.



NOTE:

1. SHIMS GREATER THAN ¼" IN THICKNESS LOCATED WITHIN THE TERMINATION LENGTH OF THE SH REINFORCEMENT PLATE SHALL BE WELDED TO THE SHAFT REINFORCEMENT PLATE.

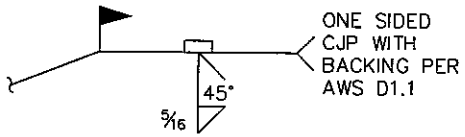




WIDTH	6"
T/ TERMINATION	2'-3"
THICKNESS	1¼"
MATERIAL	ASTM A572-65
TOTAL QUANTITY	2

NOTE:

1. WHEN A TWO-SIDED CJP WELD IS UNATTAINABLE DU TO FIT-UP, THE CONTRACTOR SHALL BE PERMITTED T USE THE ONE-SIDED CJP WELD DEPICTED BELOW CONTRACTOR SHALL RED-LINE AS-BUILT DRAWING TO INDICATE THE CHOSEN DETAIL.



EBI Consulting

environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT23XC411

Preston / Town Hall
389 Rt 2
Preston, CT 06365

May 26, 2018

EBI Project Number: 6218004012

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**11.29 %**

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

EBI Consulting
environmental | engineering | due diligence

May 26, 2018

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

Emissions Analysis for Site: **CT23XC411 – Preston / Town Hall**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **389 Rt 2, Preston, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **389 Rt 2, Preston, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

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

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20 and the Commscope DT465B-2XR** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **150 feet** above ground level (AGL) for **Sector A**, **150 feet** above ground level (AGL) for **Sector B** and **150 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.

EBI Consulting

environmental | engineering | due diligence

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):	**150 feet**	Height (AGL):	**150 feet**	Height (AGL):	**150 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts
ERP (W):	6,662.27	ERP (W):	6,662.27	ERP (W):	6,662.27
Antenna A1 MPE%	**1.21 %**	Antenna B1 MPE%	**1.21 %**	Antenna C1 MPE%	**1.21 %**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	**150 feet**	Height (AGL):	**150 feet**	Height (AGL):	**150 feet**
Frequency Bands	2500 MHz (BRS) / 850 MHz	Frequency Bands	2500 MHz (BRS) / 850 MHz	Frequency Bands	2500 MHz (BRS) / 850 MHz
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	200 Watts	Total TX Power(W):	200 Watts	Total TX Power(W):	200 Watts
ERP (W):	5,983.32	ERP (W):	5,983.32	ERP (W):	5,983.32
Antenna A2 MPE%	**1.15 %**	Antenna B2 MPE%	**1.15 %**	Antenna C2 MPE%	**1.15 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.36 %**
AT&T	2.74 %
MetroPCS	0.44 %
T-Mobile	2.66 %
Verizon Wireless	3.09 %
Site Total MPE %:	**11.29 %**

SPRINT Sector A Total:	2.36 %
SPRINT Sector B Total:	2.36 %
SPRINT Sector C Total:	2.36 %
Site Total:	11.29 %

SPRINT _ Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	150	0.76	850 MHz	567	0.13%
Sprint 1900 MHz (PCS) CDMA	5	622.47	150	5.40	1900 MHz (PCS)	1000	0.54%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	150	5.40	1900 MHz (PCS)	1000	0.54%
Sprint 2500 MHz (BRS) LTE	8	639.78	150	8.87	2500 MHz (BRS)	1000	0.89%
Sprint 850 MHz LTE	2	432.54	150	1.50	850 MHz	567	0.26%
						Total:	**2.36%**

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:	2.36 %
Sector B:	2.36 %
Sector C:	2.36 %
SPRINT Maximum Total (per sector):	2.36 %
Site Total:	11.29 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **11.29 %** 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.

Zsamba, Anne Marie (Contractor)

From: TrackingUpdates@fedex.com
Sent: Tuesday, June 12, 2018 9:40 AM
To: Zsamba, Anne Marie (Contractor)
Subject: FedEx Shipment 772428291311 Delivered

Your package has been delivered

Tracking # 772428291311

Ship date:
Fri, 6/8/2018

Rebecca Alescio
Crown Castle
Clifton Park, NY 12065
US

Delivery date:
Tue, 6/12/2018 9:37 am

The Honorable Robert Congdon
Crown Castle
389 Route 2
The Town of Preston
PRESTON, CT 06365
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772428291311
Status:	Delivered: 06/12/2018 09:37 AM Signed for By: M.NANCY
Reference:	1766.668
Signed for by:	M.NANCY
Delivery location:	Preston, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight
Packaging type:	FedEx Pak
Number of pieces:	1
Weight:	2.00 lb.
Special handling/Services:	For Saturday Delivery
Standard transit:	6/12/2018 by 1:30 pm

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:40 AM CDT on 06/12/2018.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Zsamba, Anne Marie (Contractor)

From: TrackingUpdates@fedex.com
Sent: Tuesday, June 12, 2018 9:40 AM
To: Zsamba, Anne Marie (Contractor)
Subject: FedEx Shipment 772428269629 Delivered

Your package has been delivered

Tracking # 772428269629

Ship date:
Fri, 6/8/2018

Rebecca Alescio
Crown Castle
Clifton Park, NY 12065
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Delivery date:
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The Town of Preston
389 Route 2
Town Hall
PRESTON, CT 06365
US

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Status:	Delivered: 06/12/2018 09:37 AM Signed for By: M.NANCY
Reference:	1766.668
Signed for by:	M.NANCY
Delivery location:	Preston, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight
Packaging type:	FedEx Pak
Number of pieces:	1
Weight:	2.00 lb.
Special handling/Services:	For Saturday Delivery
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