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

January 11, 2019

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

RE: **Notice of Exempt Modification for Sprint: 828054**
Sprint Site ID: CT60XC014
300 Governors Highway, South Windsor, CT 06074
Latitude: 41° 50' 0.40"/ Longitude: -72° 36' 11.00"

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 148-foot level of the existing 165-foot monopole tower 300 Governors Highway, South Windsor, CT. The tower is owned by Crown Castle. The property is owned by Electron Technologies. Sprint now intends to remove replace (3) antennas and add (3) antennas. These antennas and coax would be replaced and added at the 148-foot level of the tower. Sprint also intends to add three (3) RRH's and one (1) line.

This facility was approved by the Connecticut Siting Council in Docket No.99-51P on September 21, 1999. This approval was given without conditions.

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 Dr. M. Saud Anwar, Michele R. Lipe – Director of Planning, and the property owner Electron Technologies.

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: Nesmet Badawi.

Sincerely,

Nesmet Badawi
Real Estate Specialist
1200 MacArthur Blvd Suite 200, Mahwah NJ 07430
201-300-9621
Nesmet.Badawi.Contractor @crowncastle.com

Attachments:

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

cc:

The Honorable Dr. M. Saud Anwar
1540 Sullivan Avenue
South Windsor, CT 06074

Michele R. Lipe, AICP – Director of Planning
1540 Sullivan Avenue
South Windsor, CT 06074

Electron Technologies (Land Owner)
300 Governors Hwy
South Windsor, CT 06074

Town of South Windsor
1540 SULLIVAN AVENUE • SOUTH WINDSOR, CT 06074-2786
AREA CODE 860/644-2511
FAX 860/644-3781

CERTIFIED MAIL

September 21, 1999

Mr. Thomas M. Gilligan
Omnipoint Communications, Inc.
100 Filley Street
Bloomfield, CT 06002

Dear Mr. Gilligan:

Re: Appl 99-51P, Omnipoint Communications Services

We are pleased to advise you that the Planning & Zoning Commission voted on September 14, 1999 to approve with modifications the above referenced application for a request for a Special Exception to Section XVI for the construction of a 175 ft. multi-carrier telecommunications monopole on property located at 300 Governor's Highway, I zone as shown on plans prepared by Arcnet, Job No. A 99506823A, dated 5/9/99, as revised. This approval is subject to the following modifications:

1. Prior to commencement of any site work, a meeting must be held with Town Staff.

2. No building permit will be issued until the final mylars have been filed in the Town Clerk's office.

3. An as-built plan is required prior to issuance of a Certificate of Occupancy per Section 8.1.10 of the Zoning Regulations.

4. All plans used in the field by the developer must bear the stamp and authorized signature of the Town of South Windsor.

5. Special Exception approval is granted for five years and must be renewed prior to September 14, 2004. The attached Special Exception form must be completed and filed in the Town Clerk's office. The special exception will take effect upon filing.

Black and white transparent mylars of Sheet S-1 with the above modifications, together with three blueprint copies of the entire set of plans must be submitted to this Commission within 30 days to be stamped and signed.

After the mylars have been signed by the Commission, they will be returned to you for filing in the Office of the Town Clerk. After filing these plans, a copy of the receipt must be submitted to the Planning Department.

Sincerely,

Sue W. Larsen, Chairperson
Planning and Zoning Commission

SL/dlw

Attachment

cc: Town Engineer
Chief Building Official
Assessor
Superintendent of Pollution Control
Fire Marshal

300 GOVERNORS HIGHWAY

Location	300 GOVERNORS HIGHWAY	**Mblu**	71/ 22/ / /
Acct#	36900300	**Owner**	ELECTRON TECHNOLOGIES CORPORATIO
Assessment	$776,200	**Appraisal**	$1,108,900
PID	2698	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$628,200	$480,700	$1,108,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$439,700	$336,500	$776,200

Owner of Record

Owner	ELECTRON TECHNOLOGIES CORPORATIO
Co-Owner	P.O.BOX 316
Address	300 GOVERNORS HIGHWAY SOUTH WINDSOR, CT 06074

Sale Price	$800,000
Certificate	
Book & Page	540/ 418
Sale Date	10/04/1988
Instrument	00

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
ELECTRON TECHNOLOGIES CORPORATIO	$800,000		540/ 418	00	10/04/1988

Building Information

Building 1 : Section 1

Year Built:	1965
Living Area:	22,060
Replacement Cost:	$960,272
Building Percent Good:	63
Replacement Cost Less Depreciation:	$605,000

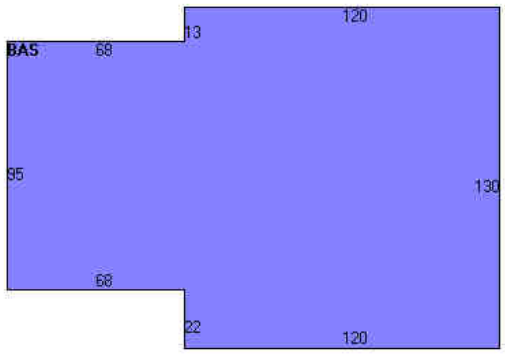
Building Attributes	
Field	**Description**
STYLE	Light Industrial

Building Photo

MODEL	Comm/Ind
Grade	C
Stories:	1.00
Occupancy	1
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minimum
Interior Wall 2	Drywall
Interior Floor 1	Concrete
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Forced Hot Air
% Central Air	100
Foundation	Poured Conc
Bldg Use	Industrial
Total Rooms	0
Total Bedrms	0
Total Fixtures	12
% Wet Sprinkler	
% Dry Sprinkler	
1st Floor Use	
Heat/AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
% Finished	25
Class	C
Wall Height	16

(http://images.vgsi.com/photos/SouthWindsorCTPhotos//\00\00\19/99.JPG)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	22,060	22,060
		22,060	22,060

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	301
Description	Industrial
Zone	I
Neighborhood	C400
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	6.03
Frontage	0
Depth	0
Assessed Value	$336,500
Appraised Value	$480,700

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	Paving	AS	Asphalt	36700 S.F.	$19,300	1
FN1	Fence			1080 L.F.	$3,200	1
LT1	Lights			1 UNITS	$700	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	$628,200	$480,700	$1,108,900
2017	$628,200	$480,700	$1,108,900
2016	$666,600	$318,700	$985,300

Assessment			
Valuation Year	Improvements	Land	Total
2017	$439,700	$336,500	$776,200
2017	$439,700	$336,500	$776,200
2016	$466,600	$223,100	$689,700

Badawi, Nesmet (Contractor)

From: TrackingUpdates@fedex.com
Sent: Monday, January 14, 2019 9:35 AM
To: Badawi, Nesmet (Contractor)
Subject: FedEx Shipment 774171134740 Delivered

Your package has been delivered

Tracking # 774171134740

Ship date:
Fri, 1/11/2019

Nesmet Badawi
Crown Castle
MAHWAH, NJ 07430
US

Delivered

Delivery date:
Mon, 1/14/2019 9:32 am

The Honorable Dr. M. Saud Anwar
1540 Sullivan Avenue
SOUTH WINDSOR, CT 06074
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774171134740
Status:	Delivered: 01/14/2019 09:32 AM Signed for By: P.PACE
Reference:	1766.6680
Signed for by:	P.PACE
Delivery location:	SOUTH WINDSOR, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	1.00 lb.

Special handling/Services:	Direct Signature Required
	Deliver Weekday
Standard transit:	1/14/2019 by 10:30 am

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:34 AM CST on 01/14/2019.

All weights are estimated.

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

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

Badawi, Nesmet (Contractor)

From: TrackingUpdates@fedex.com
Sent: Monday, January 14, 2019 9:33 AM
To: Badawi, Nesmet (Contractor)
Subject: FedEx Shipment 774171200642 Delivered

Your package has been delivered

Tracking # 774171200642

Ship date:
Fri, 1/11/2019

Nesmet Badawi
Crown Castle
MAHWAH, NJ 07430
US

Delivered

Delivery date:
Mon, 1/14/2019 9:31 am

Michele R. Lipe, AICP Dop
1540 Sullivan Avenue
SOUTH WINDSOR, CT 06074
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774171200642
Status:	Delivered: 01/14/2019 09:31 AM Signed for By: B.THOMPSON
Reference:	1766.6680
Signed for by:	B.THOMPSON
Delivery location:	SOUTH WINDSOR, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	1.00 lb.

Special handling/Services:	Direct Signature Required
	Deliver Weekday
Standard transit:	1/14/2019 by 10:30 am

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:32 AM CST on 01/14/2019.

All weights are estimated.

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

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

Badawi, Nesmet (Contractor)

From: TrackingUpdates@fedex.com
Sent: Monday, January 14, 2019 9:11 AM
To: Badawi, Nesmet (Contractor)
Subject: FedEx Shipment 774171295550 Delivered

Your package has been delivered

Tracking # 774171295550

Ship date:
Fri, 1/11/2019

Nesmet Badawi
Crown Castle
MAHWAH, NJ 07430
US

Delivered

Delivery date:
Mon, 1/14/2019 9:06 am

Electron Technologies
300 Governors Hwy
SOUTH WINDSOR, CT 06074
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774171295550
Status:	Delivered: 01/14/2019 09:06 AM Signed for By: M.SMITH
Reference:	1766.6680
Signed for by:	M.SMITH
Delivery location:	SOUTH WINDSOR, CT
Delivered to:	Shipping/Receiving
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	1.00 lb.
Special handling/Services:	Direct Signature Required

	Deliver Weekday
Standard transit:	1/14/2019 by 10:30 am

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:10 AM CST on 01/14/2019.

All weights are estimated.

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

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

Sprint

CROWN CASTLE

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	SOUTH WINDSOR/RT 5
SITE CASCADE:	CT60XC014
SITE NUMBER:	828054
SITE ADDRESS:	300 GOVERNORS HIGHWAY SOUTH WINDSOR, CT 06074
SITE TYPE:	MONOPOLE
MARKET:	N. ENGLAND

SITE INFORMATION

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

LATITUDE (NAD83):
41° 50' 00.40" N
41.833444°

LONGITUDE (NAD83):
72° 36' 11.00" W
-72.603056°

COUNTY:
HARTFORD

ZONING JURISDICTION:
TOWN OF SOUTH WINDSOR

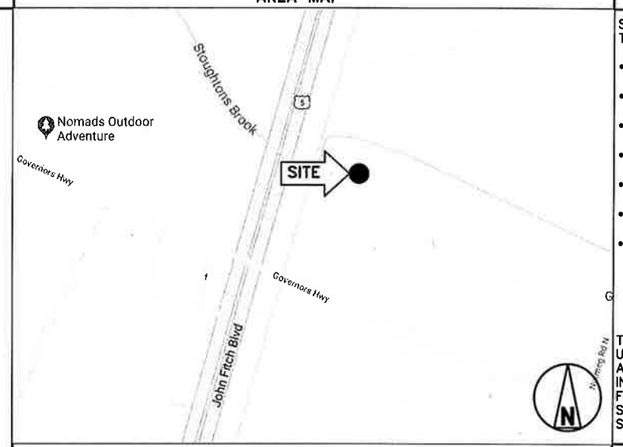
ZONING DISTRICT:
I

POWER COMPANY:
CONNECTICUT LIGHT & POWER CO
(800) 286-2000

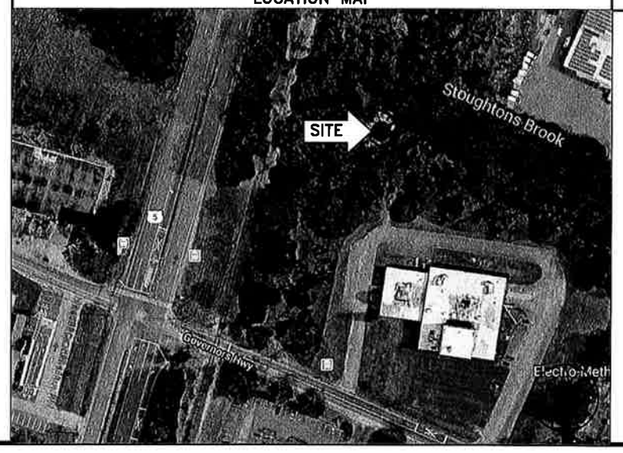
SPRINT CONSTRUCTION:
TBD

CROWN PM:
SCOTT WIATROSKI
(201) 236-9228

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 9712 TOP HAT
- REMOVE (3) ANTENNAS
- INSTALL (3) PANEL ANTENNAS (3 NNVV-65B-R4)
- INSTALL (3) PANEL ANTENNAS (3 AAHC)
- INSTALL (3) RRHs ON TOWER (3 800)
- INSTALL (1) HYBRID CABLE
- INSTALL FIBER/DC DISTRIBUTION BOX

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 – LIGHTNING 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.
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SP-1	SPRINT SPECIFICATIONS	A
SP-2	SPRINT SPECIFICATIONS	A
SP-3	SPRINT SPECIFICATIONS	A
A-1	SITE PLAN	A
A-2	TOWER ELEVATION & CABLE PLAN	A
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	A
A-4	EQUIPMENT & MOUNTING DETAILS	A
A-5	CIVIL DETAILS	A
A-6	PLUMBING DIAGRAM	A
E-1	ELECTRICAL & GROUNDING DETAILS	A
E-2	ELECTRICAL & GROUNDING DETAILS	A

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 526-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
NO. 24705
LICENSED PROFESSIONAL ENGINEER
MAY 15 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	11/09/18	RCD	A

SITE NAME:
SOUTH WINDSOR/RT 5

SITE CASCADE:
CT60XC014

SITE ADDRESS:
300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

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

1.5 DEFINITIONS:

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

B. COMPANY: SPRINT CORPORATION

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

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

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

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

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

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

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

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

3.2 DELIVERABLES:

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

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

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

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 NOTICE TO PROCEED

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

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
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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
NOV 16 2018
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	11/09/18	RCD	A

SITE NAME:

SOUTH WINDSOR/RT 5

SITE CASCADE:

CT60XC014

SITE ADDRESS:

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

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

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

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

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

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

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

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

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

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

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

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

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 SUBMITTALS:

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

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

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

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

1.4 TESTS AND INSPECTIONS:

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

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

1. COAX SWEEPS AND FIBER TESTS PER 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)

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
NOV 15 2018
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	11/09/18	RCD	A

SITE NAME:

SOUTH WINDSOR/RT 5

SITE CASCADE:

CT60XC014

SITE ADDRESS:

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

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

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

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

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

11. ALL AVAILABLE JURISDICTIONAL INFORMATION

12. PDF SCAN OF REDLINES PRODUCED IN FIELD

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

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

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

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

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.

2. STRUCTURAL BACKFILL COMPACTION REPORTS.

3. SITE RESISTANCE TO EARTH TEST.

4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION

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

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

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

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

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

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

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

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

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

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

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

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

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

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

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

3.2 PROJECT CONFERENCE CALLS:

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

3.3 PROJECT TRACKING IN SMS:

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

3.4 ADDITIONAL REPORTING:

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

3.5 PROJECT PHOTOGRAPHS:

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

1. 1SHELTER AND TOWER OVERVIEW.

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

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

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

5. PHOTOS OF TOWER SECTION STACKING.

6. CONCRETE TESTING / SAMPLES.

7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.

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

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

10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.

11. COAX CABLE ENTRY INTO SHELTER.

12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

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

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

15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.

16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.

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

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

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

20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.

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

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

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

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

25. ALL BTS GROUND CONNECTIONS.

26. ALL GROUND TEST WELLS.

27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.

28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.

29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.

30. GPS ANTENNAS.

31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.

32. DOGHOUSE/CABLE EXIT FROM ROOF.

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

34. MASTER BUS BAR.

35. TELCO BOARD AND NIU.

36. ELECTRICAL DISTRIBUTION WALL.

37. CABLE ENTRY WITH SURGE SUPPRESSION.

38. ENTRANCE TO EQUIPMENT ROOM.

39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.

40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.

41. ANTENNA AND MAST GROUNDING.

42. LANDSCAPING – WHERE APPLICABLE.

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

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
NOV 05 2018
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	11/09/18	RCD	A

SITE NAME:

SOUTH WINDSOR/RT 5

SITE CASCADE:

CT60XC014

SITE ADDRESS:

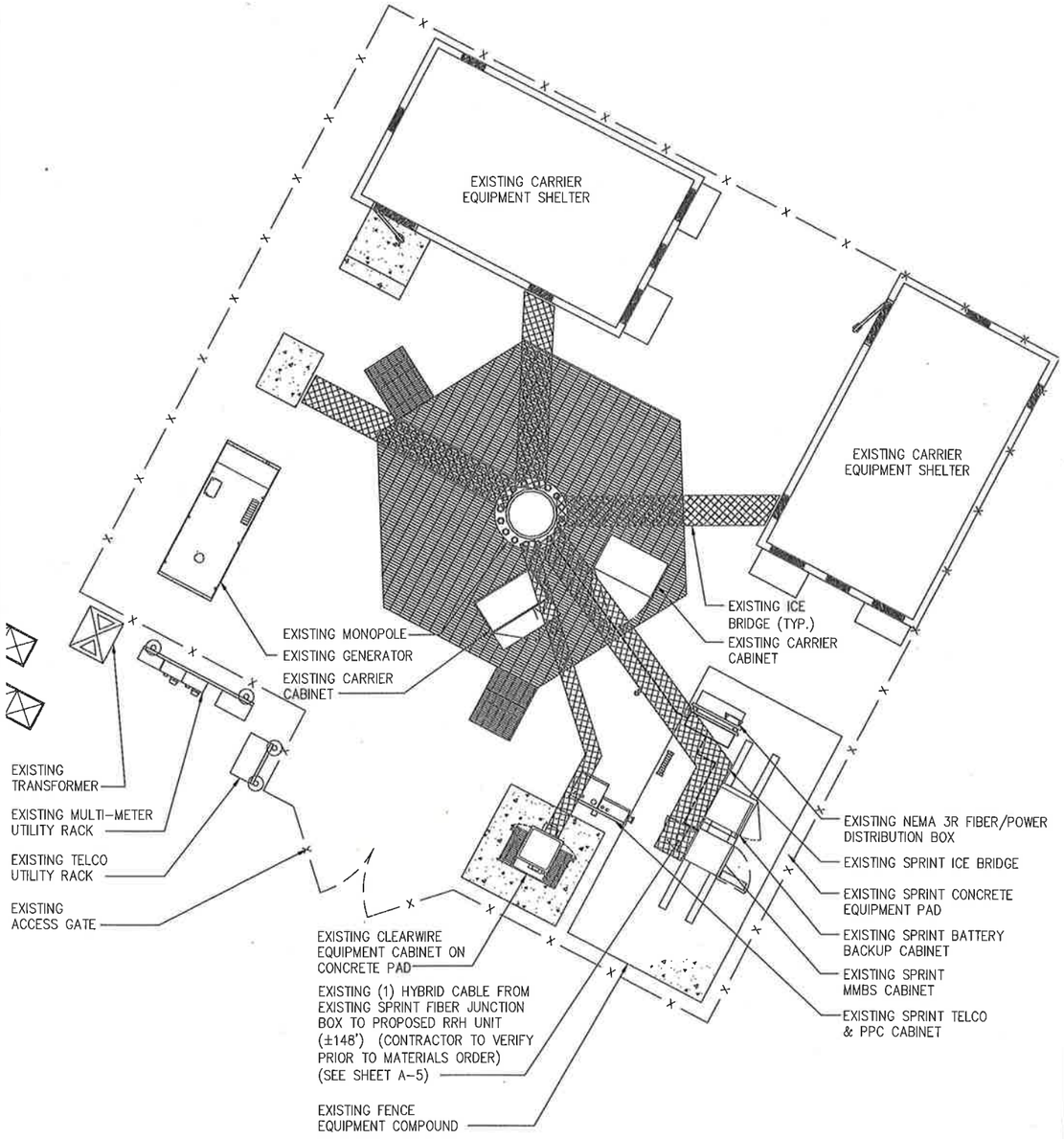
300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

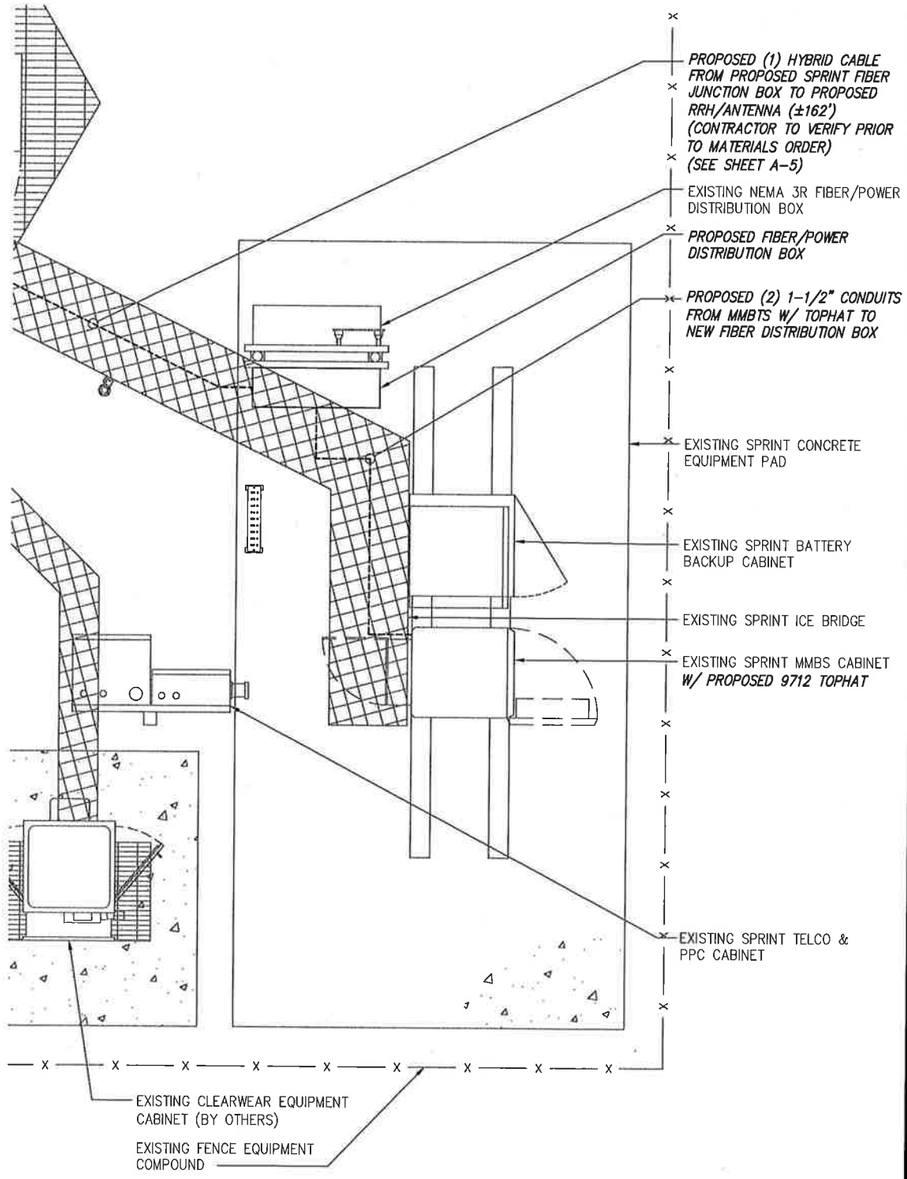
SHEET NUMBER:

SP-3



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

OVERALL SITE PLAN | SCALE: AS NOTED | 1



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

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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SITE CASCADE:

CT60XC014

SITE ADDRESS:

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

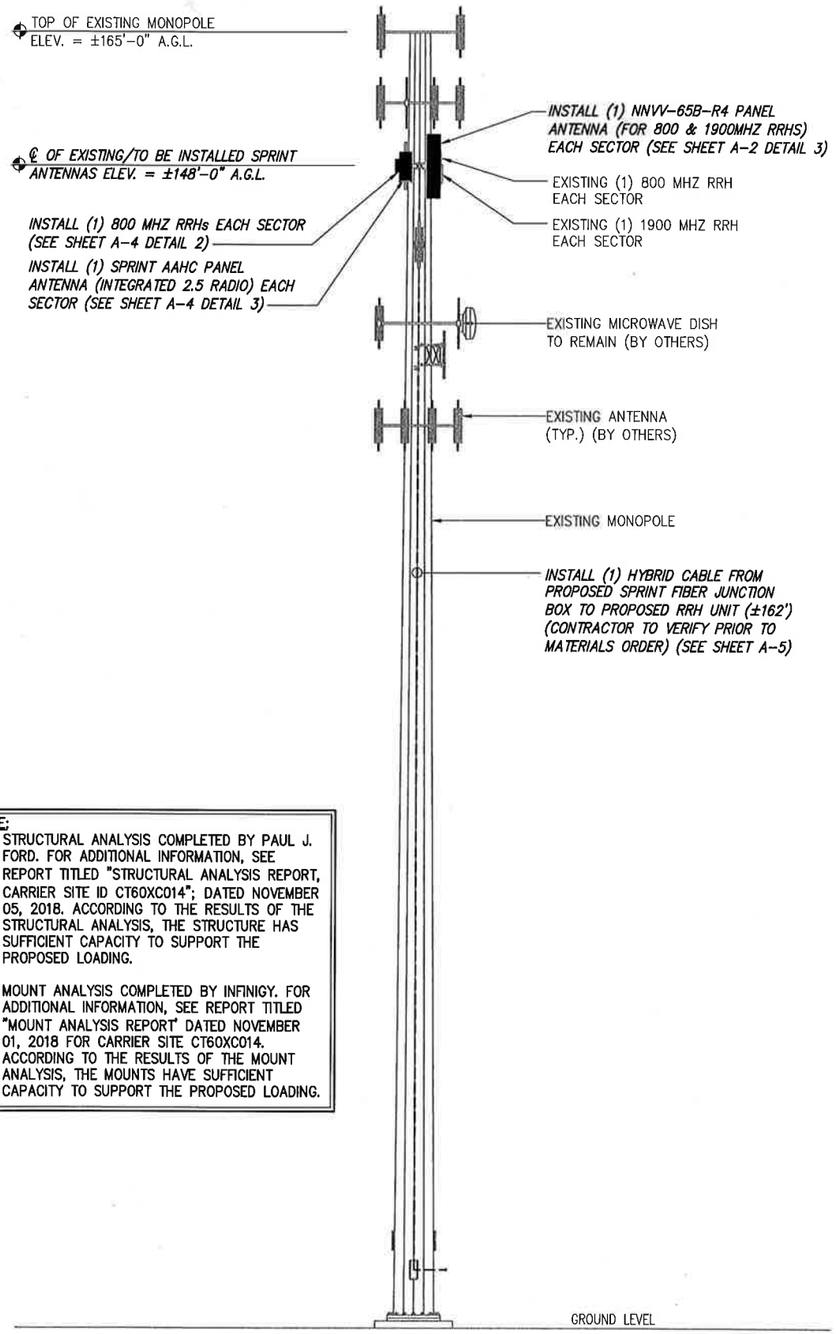
SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

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

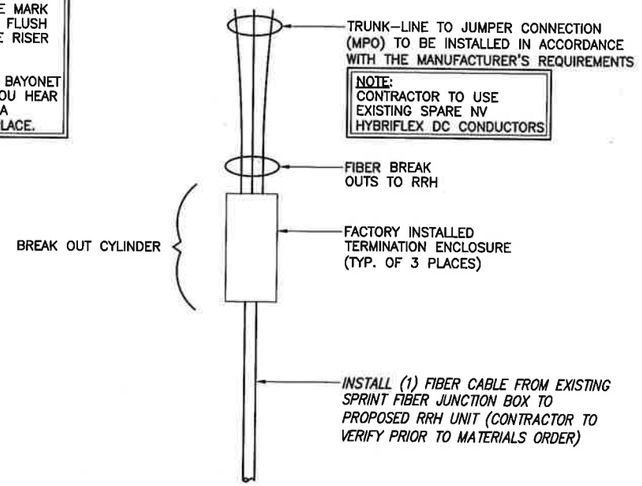


NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY PAUL J. FORD. FOR ADDITIONAL INFORMATION, SEE REPORT TITLED "STRUCTURAL ANALYSIS REPORT, CARRIER SITE ID CT60XC014"; DATED NOVEMBER 05, 2018. ACCORDING TO THE RESULTS OF THE STRUCTURAL ANALYSIS, THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- MOUNT ANALYSIS COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION, SEE REPORT TITLED "MOUNT ANALYSIS REPORT" DATED NOVEMBER 01, 2018 FOR CARRIER SITE CT60XC014. ACCORDING TO THE RESULTS OF THE MOUNT ANALYSIS, THE MOUNTS HAVE SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.

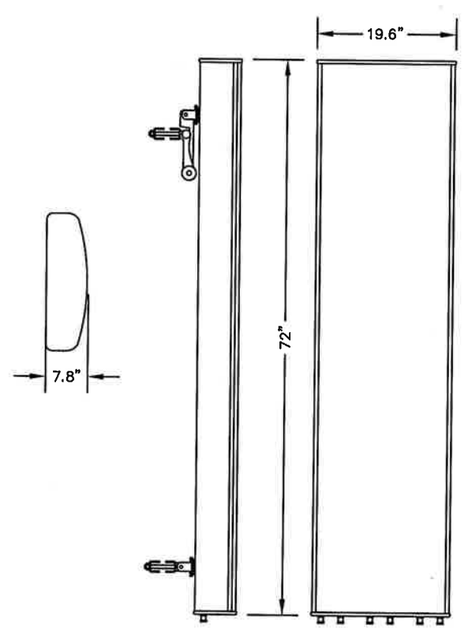
TOWER ELEVATION | NO SCALE | 1

NOTE:
CONTRACTOR TO LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.

CONTRACTOR TO ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND TO ENSURE A PROPER CONNECTION IS IN PLACE.



HYBRID BREAKOUT DETAIL | NO SCALE | 2



ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.In(mim):	72"x19.6"x7.8"
WEIGHT:	77.4 lbs
CONNECTORS:	(8) 4.3-10 DIN FEMALE

800/1900 ANTENNA | NO SCALE | 3

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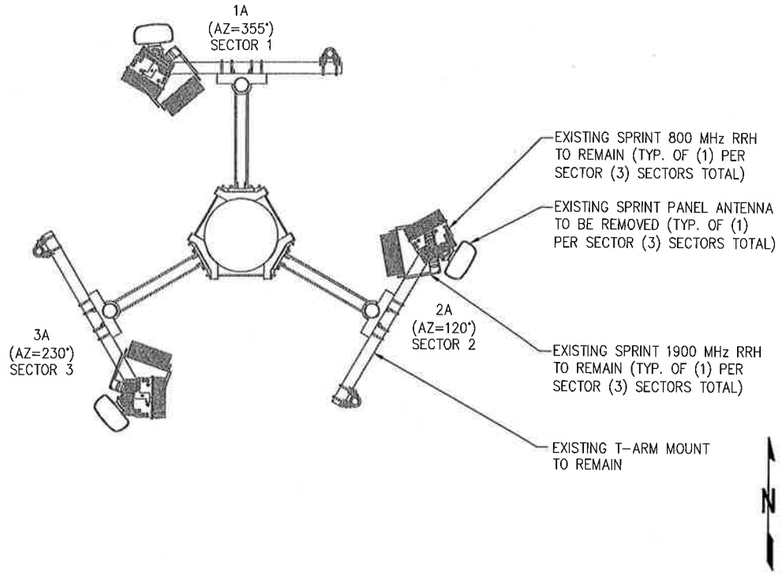
SOUTH WINDSOR/RT 5

SITE CASCADE:
CT60XC014

SITE ADDRESS:
300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

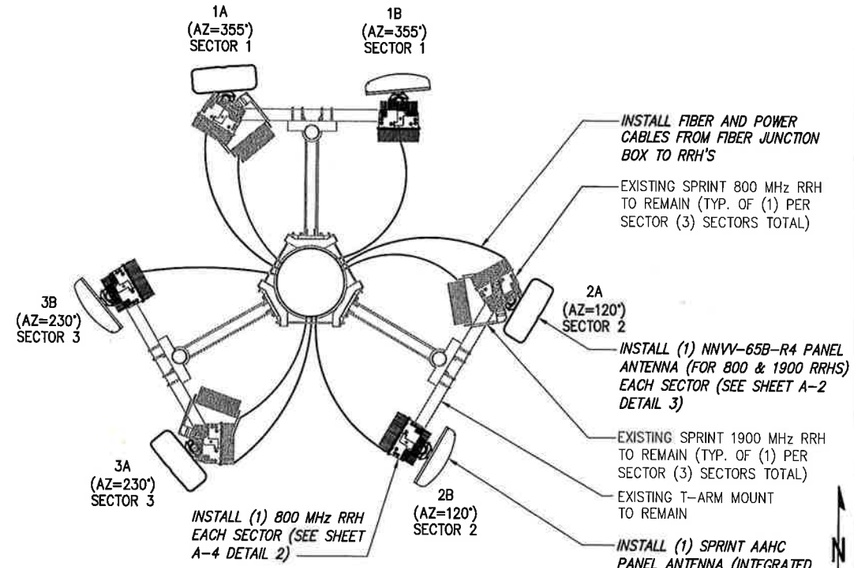
SHEET NUMBER:
A-2



0° = TRUE NORTH

EXISTING ANTENNA LAYOUT

NO SCALE | 1



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

0° = TRUE NORTH

FINAL ANTENNA & RRH LAYOUT

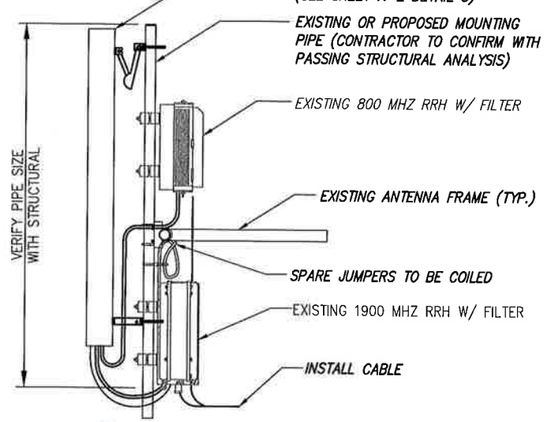
NO SCALE | 2

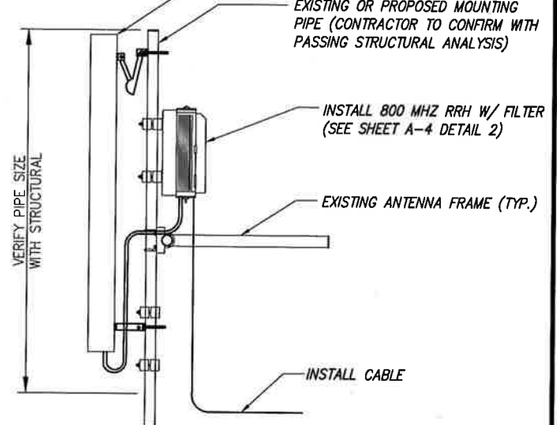
NOTES:

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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www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

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ISSUED FOR REVIEW	11/09/18	RCD	A

SITE NAME:

SOUTH WINDSOR/RT 5

SITE CASCADE:

CT60XC014

SITE ADDRESS:

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:

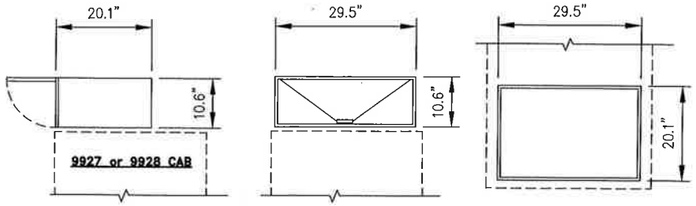
ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

A-3

TOP HAT (AUXILIARY CAB EXTENSION)

MANUFACTURER:	ALU
MODEL:	AUXILIARY CABINET EXTENSION OR "TOP HAT"
WEIGHT:	38 LBS (UNLOADED) 110 LBS (FULLY LOADED)
POWER SUPPLY:	-48 VDC
SUPPORTED TELECOM EQUIPMENT:	LTE 9926 BBU, CDMA 9926 BBU, SAR AGGREGATION ROUTER



SIDE VIEW | FRONT VIEW | TOP VIEW

NOTE:
TOP HAT ATTACHED TO EXISTING BTS CABINET USING MANUFACTURES MOUNTING KIT ('L' BRACKET EACH SIDE WITH (2) M12 BOLTS, LOCK WASHERS, AND FLAT WASHER PER BRACKET)

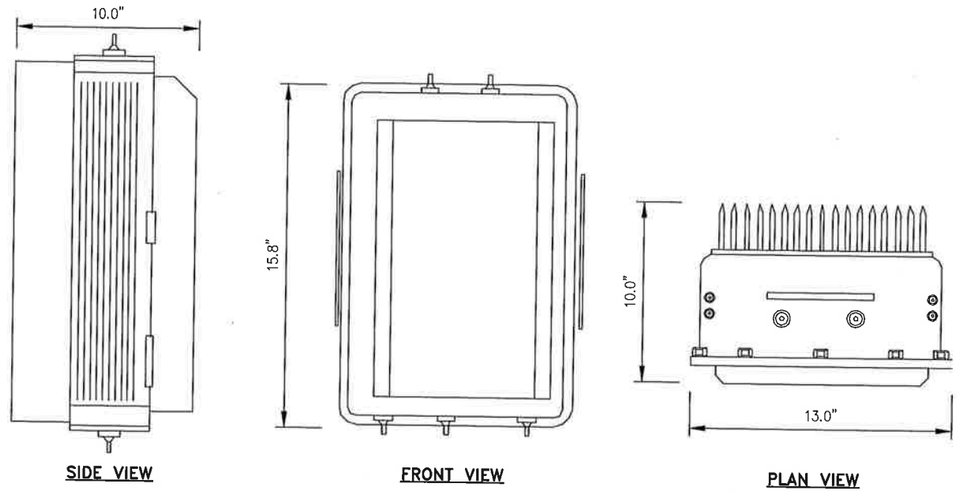
9712 TOP HAT | NO SCALE | 1

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

COLOR: LIGHT GREY
WEIGHT: 53 LBS.

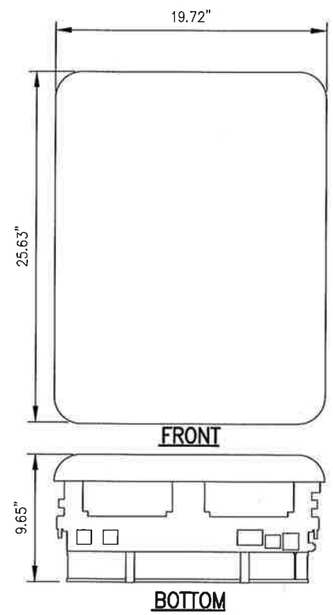
NOTES

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



SIDE VIEW | FRONT VIEW | PLAN VIEW

800 MHz RRH | NO SCALE | 2

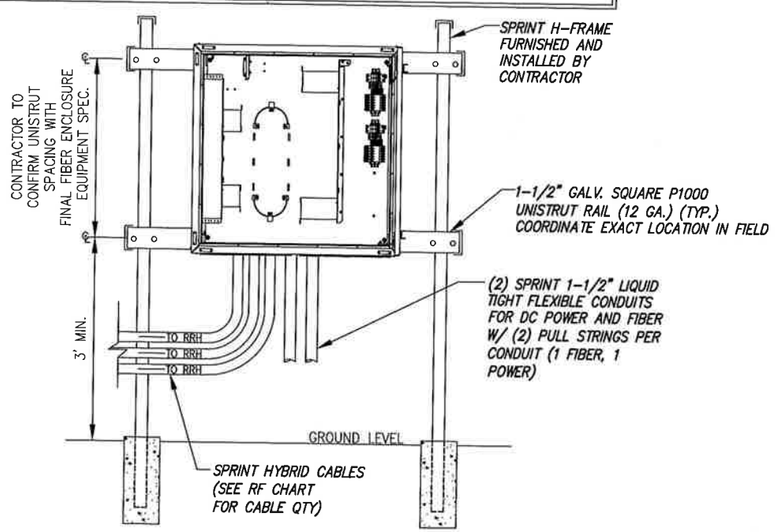


ANTENNA NOKIA AAHC

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	25.63"x19.72"x9.65"
WEIGHT:	103.6LBS

2.5 ANTENNA | NO SCALE | 3

NOTE:
- DISTRIBUTION BOX IS KITTED WITH 50' OF 1-1/2" LIQUID-TIGHT CONDUIT AND CONNECTORS. THIS SHOULD BE:
* SPLIT IN HALF,
* TERMINATED TO THE DISTRIBUTION BOX AS SHOWN,
* RAN TO AND COILED AS CLOSE TO WHERE THE CABINET IS GOING TO BE MOUNTED AS POSSIBLE.
- DISTRIBUTION BOX IS KITTED WITH 2 AWG, POWER CABLE 35' x 2EA. RUNS RED AND 2EA. RUNS BLACK. THIS SHOULD BE COILED AND LEFT INSIDE DISTRIBUTION BOX.
- BTS INSTALLATION TEAM WILL TERMINATE LIQUID-TIGHT, RUN THE FIBER JUMPERS AND POWER CABLES FROM BTS CABINET TO DISTRIBUTION BOX.



FIBER/POWER DISTRIBUTION BOX DETAIL | NO SCALE | 4

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MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEWART
NOV 16 2018
No. 24705
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

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SITE NAME:
SOUTH WINDSOR/RT 5

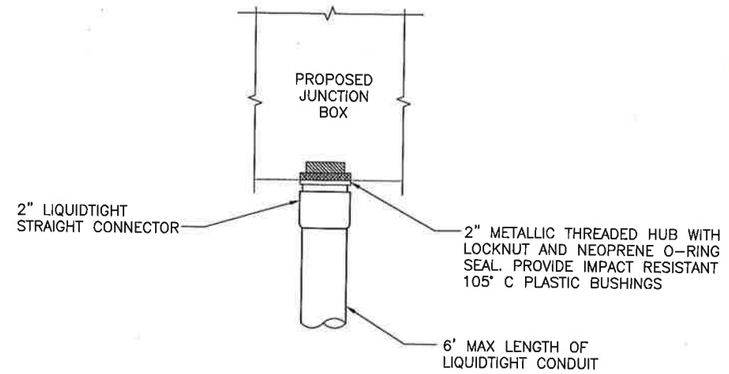
SITE CASCADE:
CT60XC014

SITE ADDRESS:
300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

DETAIL NOT USED | NO SCALE | 1



FIBER JUNCTION BOX PENETRATION | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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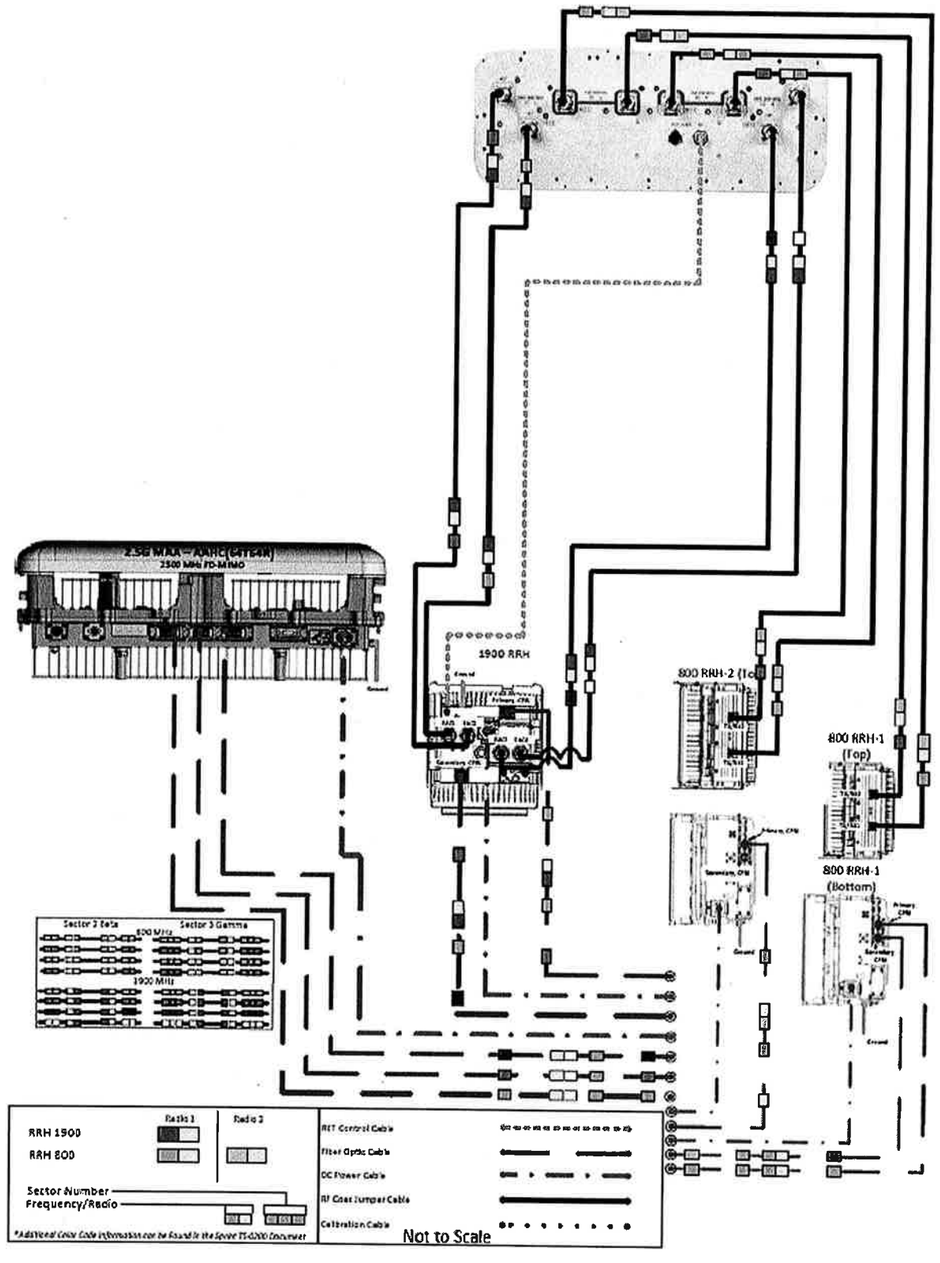
SHEET DESCRIPTION:

CIVIL DETAILS

SHEET NUMBER:

A-5

ALU 21-MIMO NNVV-65B-R4 wo Filters



PLUMBING DIAGRAM | NO SCALE | 1

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SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH/ODU MAKE AND MODEL
1	COMMSCOPE	NNVV-65B-R4	148'	355°	(1) 800MHZ RRH (1) 1900MHZ 4X45W-65MHZ
	NOKIA	AAHC	148'	355°	(1) ALU 800MHZ 2x50-800
2	COMMSCOPE	NNVV-65B-R4	148'	120°	(1) 800MHZ RRH (1) 1900MHZ 4X45W-65MHZ
	NOKIA	AAHC	148'	120°	(1) ALU 800MHZ 2x50-800
3	COMMSCOPE	NNVV-65B-R4	148'	230°	(1) 800MHZ RRH (1) 1900MHZ 4X45W-65MHZ
	NOKIA	AAHC	148'	230°	(1) ALU 800MHZ 2x50-800

FEEDER CABLES

MANUFACTURER	MODEL	LENGTH	QTY
HUBER AND SUHNER	MLC8C-08C-008R-008R	198'±	(1)

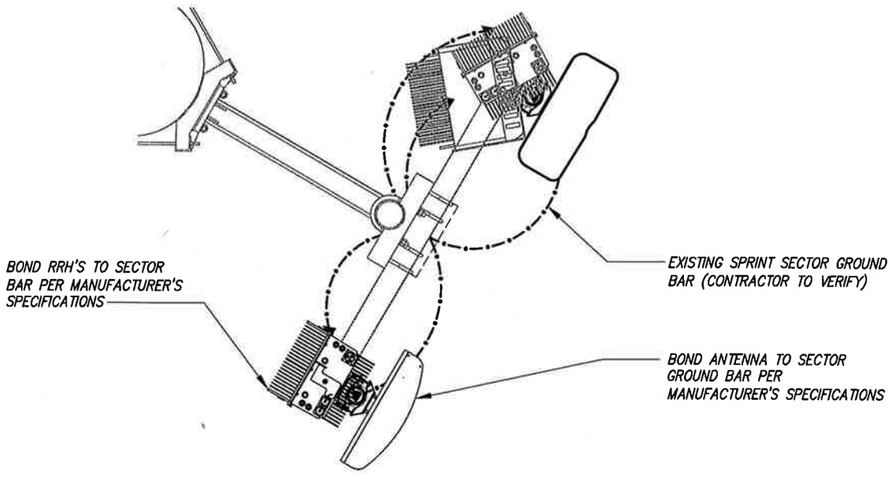
LEGEND
EXISTING
PROPOSED

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

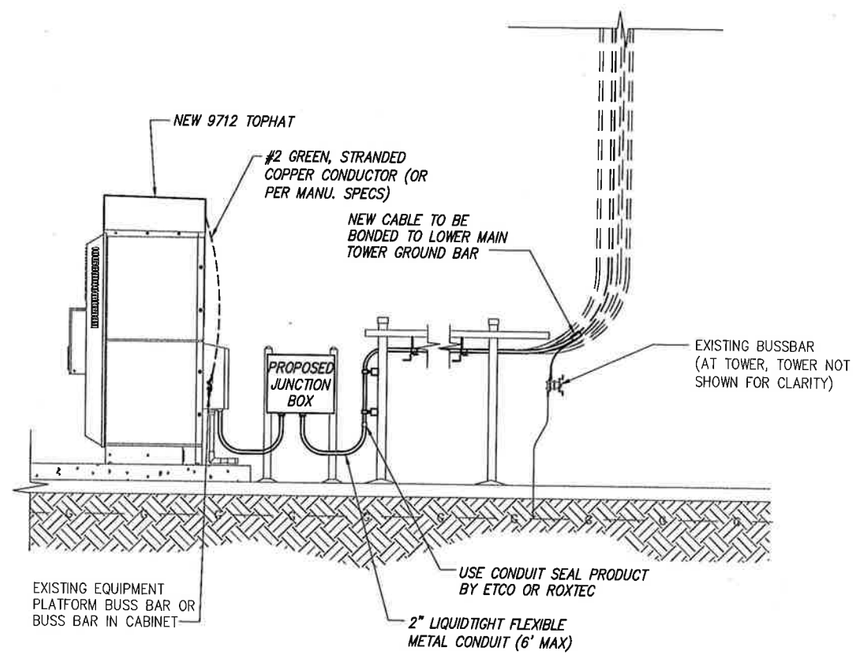
ANTENNA/CABLE SCHEDULE — NO SCALE — 1

LEGEND:

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



TYPICAL ANTENNA GROUNDING PLAN — NO SCALE — 2



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

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
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
NOV 15 2018
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	11/09/18	RCD	A

SITE NAME:

SOUTH WINDSOR/RT 5

SITE CASCADE:

CT60XC014

SITE ADDRESS:

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:

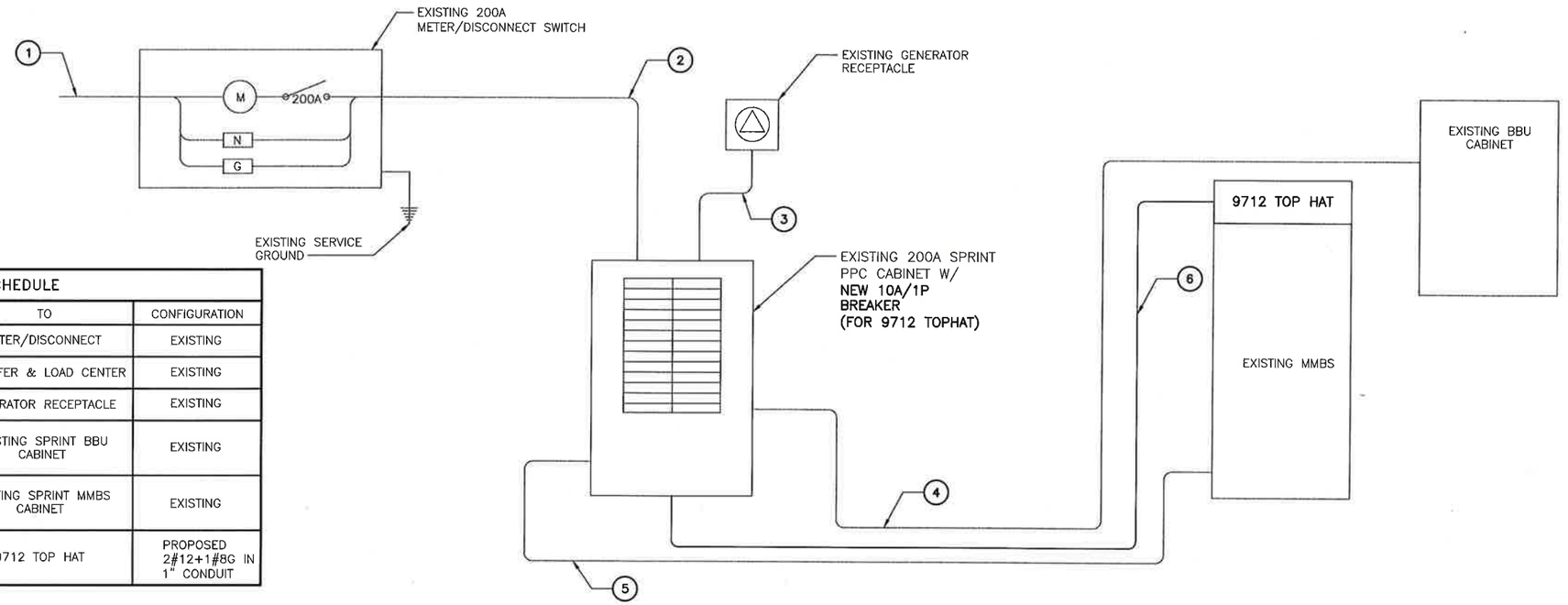
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-1

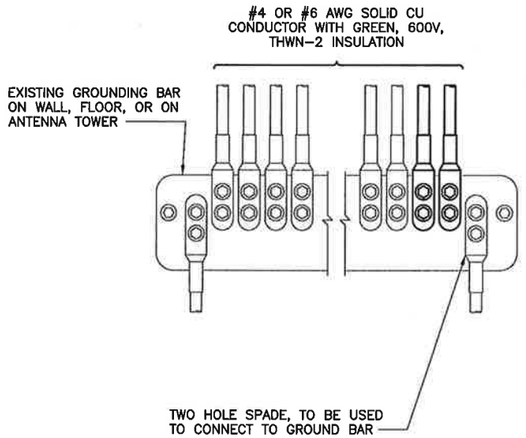
NOTES

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
6	TRANSFER & LOAD CENTER	9712 TOP HAT	PROPOSED 2#12+1#8G IN 1" CONDUIT

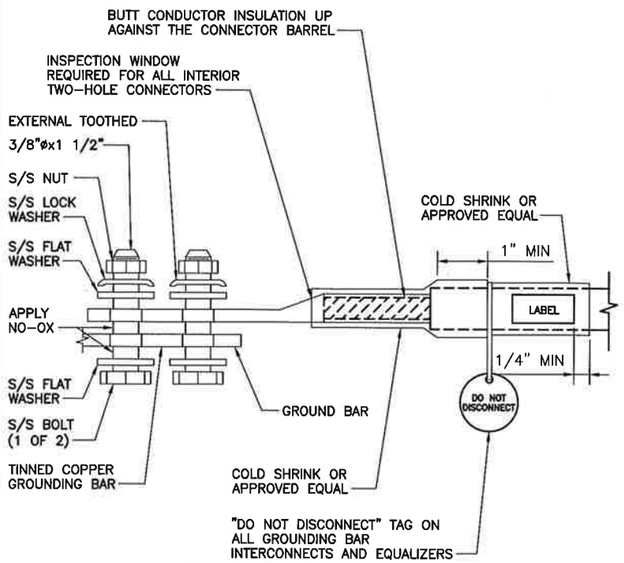
ELECTRICAL ONE-LINE DIAGRAM — NO SCALE — 1



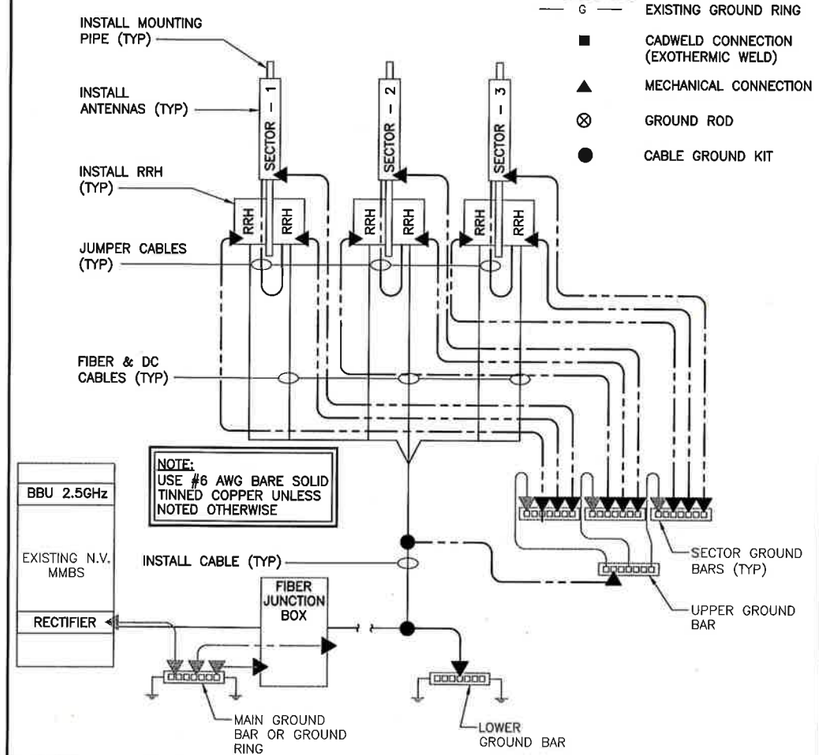
NOTES

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

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



TWO HOLE LUG — NO SCALE — 3



GROUNDING RISER DIAGRAM — NO SCALE — 4

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
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the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
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JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT — JOHN S. STEVENS — NOV 15 2018 — No. 24705 — LICENSED PROFESSIONAL ENGINEER

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	11/09/18	RCD	A

SITE NAME:

SOUTH WINDSOR/RT 5

SITE CASCADE:

CT60XC014

SITE ADDRESS:

300 GOVERNORS HIGHWAY
SOUTH WINDSOR, CT 06074

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

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: CT60XC014

South Windsor/RT 5
300 Governors Highway
South Windsor, CT 06074

January 8, 2019

EBI Project Number: 6219000021

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	12.07 %

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

EBI Consulting
environmental | engineering | due diligence

January 8, 2019

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

Emissions Analysis for Site: **CT60XC014 – South Windsor/RT 5**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **300 Governors Highway, South Windsor, 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 **300 Governors Highway, South Windsor, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

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

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

9) The antenna mounting height centerlines of the proposed panel antennas are **148 feet** above ground level (AGL) for **Sector A**, **148 feet** above ground level (AGL) for **Sector B** and **148 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**148 feet**	Height (AGL):	**148 feet**	Height (AGL):	**148 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.62 %**	Antenna B1 MPE%	**1.62 %**	Antenna C1 MPE%	**1.62 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**148 feet**	Height (AGL):	**148 feet**	Height (AGL):	**148 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**1.11 %**	Antenna B2 MPE%	**1.11 %**	Antenna C2 MPE%	**1.11 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.73 %**
Sigfox	0.03 %
T-Mobile	2.46 %
Verizon Wireless	4.98 %
Clearwire	0.12 %
AT&T	1.75 %
Site Total MPE %:	**12.07 %**

SPRINT Sector A Total:	2.73 %
SPRINT Sector B Total:	2.73 %
SPRINT Sector C Total:	2.73 %
Site Total:	12.07 %

SPRINT _ Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	148	0.67	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	941.82	148	3.36	850 MHz	567	0.58%
Sprint 1900 MHz (PCS) CDMA	5	511.82	148	4.56	1900 MHz (PCS)	1000	0.46%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	148	4.56	1900 MHz (PCS)	1000	0.46%
Sprint 2500 MHz (BRS) LTE	8	778.09	148	11.10	2500 MHz (BRS)	1000	1.11%
						Total:	**2.73%**

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:	2.73 %
Sector B:	2.73 %
Sector C:	2.73 %
SPRINT Maximum MPE % (per sector):	2.73 %
Site Total:	12.07 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.07 %** 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.

PAUL J. FORD & COMPANY

Date: **November 05, 2018**

Chanhdara Ratsavong
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J. Ford and Company
250 East Broad st., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT60XC014
	Carrier Site Name:	South Windsor/Rt 5
Crown Castle Designation:	**Crown Castle BU Number:**	828054
	Crown Castle Site Name:	South Windsor/Rt 5
	Crown Castle JDE Job Number:	474266
	Crown Castle Work Order Number:	1523206
	Crown Castle Order Number:	418458 Rev. 2
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37518-0525.001.7805
Site Data:	**300 Governors Highway, South Windsor, Hartford County, CT** **Latitude *41° 50' 0.4"*, Longitude *-72° 36' 11"*** **169 Foot - Monopole Tower**	

Dear Chanhdara Ratsavong,

Paul J. Ford and Company is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph from the 2016 Connecticut State Building Code per section 1609.3 and Appendix N. Applicable Standard references and design criteria are listed in Section 2 -Analysis Criteria.

Respectfully submitted by:

Jaime Acuna
Structural Designer
jacuna@pauljford.com

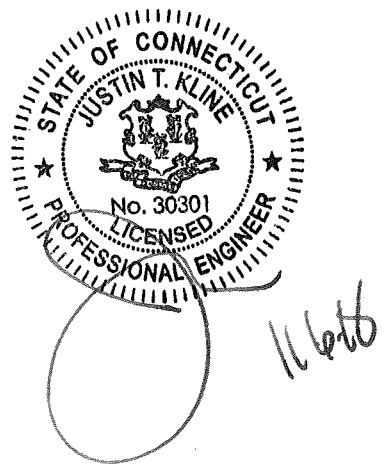

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 169 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	148.0	3	alcatel lucent	800MHZ RRH	3 1	1-1/4 1-1/2
		3	alcatel lucent	PCS 1900MHz 4x45W-65MHz		
		3	alcatel lucent	RRH2X50-800		
		3	commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	nokia	AAHC w/ Mount Pipe		
		1	tower mounts	T-Arm Mount [TA 702-3]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
165.0	167.0	2	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	11 2	1-5/8 1-3/8
	166.0	3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	165.0	3	ericsson	KRY 112 144/1		
		1	tower mounts	Platform Mount [LP 601-1]		
156.0	158.0	1	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 3	1-5/8 3/8
		2	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe		
		6	communication components inc.	DTMABP7819VG12A		
		3	ericsson	RRUS 11		
		3	ericsson	RRUS12/RRUS A2		
		6	powerwave technologies	7770.00 w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8F		
	156.0	1	tower mounts	Platform Mount [LP 714-1]		
138.0	138.0	3	rfs celwave	APXV18-206517-A	6	1-5/8
		1	tower mounts	Pipe Mount [PM 601-3]		
124.0	128.0	2	andrew	VHLP800-11	6 3 1	1/2 1/4 5/16
		3	argus technologies	LLPX310R w/ Mount Pipe		
		2	dragonwave	HORIZON DUO		
		3	samsung telecommunications	WIMAX DAP HEAD		
	124.0	1	tower mounts	Side Arm Mount [SO 701-3]		
118.0	119.0	1	sigfox	CAVITY FILTER	1	1/2
		1	sigfox	CXL 900-3LW		
		1	sigfox	LNA		
	118.0	1	tower mounts	Side Arm Mount [SO 304-1]		
111.0	111.0	3	alcatel lucent	B4 RRH2X60-4R	18 2	1-5/8 1-1/4
		6	andrew	HBXX-6517DS-A2M w/ Mount Pipe		
		6	andrew	LNX-6514DS-A1M w/ Mount Pipe		
		2	raycap	RRFDC-3315-PF-48		
		1	tower mounts	Platform Mount [LP 303-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FPA, 99A076AR1, 01/11/2000	3436696	CCISITES
4-POST-MODIFICATION INSPECTION	ETS, 03/13/2013	3773024	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD, 2012712.97, 06/29/2012	3793344	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 103179, 12/03/2010	3773025	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Centek Engineering, 10003.CO4, 06/11/2010	3487016	CCISITES
4-POST-MODIFICATION INSPECTION	FDH Velocitel, 15BZLZ1500, 12/03/2015	6000997	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37513-1535.003.7700 R1, 12/30/2014	5431037	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEI, 6255 REV 1, 03/10/2000	3436661	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEI, 99-1371 REV. 1, 01/31/2000	3436681	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.4.0), 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.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures 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 the referenced drawings.
4) The monopole was modified in conformance with the referenced modification drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J. Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	169 - 164	Pole	TP16.455x15.5x0.25	Pole	4.0%	Pass
L2	164 - 159	Pole	TP17.409x16.455x0.25	Pole	12.9%	Pass
L3	159 - 154	Pole	TP18.364x17.409x0.25	Pole	25.3%	Pass
L4	154 - 149	Pole	TP19.318x18.364x0.25	Pole	38.0%	Pass
L5	149 - 144	Pole	TP20.273x19.318x0.25	Pole	51.2%	Pass
L6	144 - 139	Pole	TP21.228x20.273x0.25	Pole	62.7%	Pass
L7	139 - 133.33	Pole	TP22.31x21.228x0.25	Pole	67.7%	Pass
L8	133.33 - 131.66	Pole	TP22.115x21.174x0.3125	Pole	65.4%	Pass
L9	131.66 - 126.66	Pole	TP23.055x22.115x0.3125	Pole	72.5%	Pass
L10	126.66 - 121.66	Pole	TP23.996x23.055x0.3125	Pole	79.4%	Pass
L11	121.66 - 116.66	Pole	TP24.937x23.996x0.3125	Pole	85.4%	Pass
L12	116.66 - 111.66	Pole	TP25.877x24.937x0.3125	Pole	90.5%	Pass
L13	111.66 - 111	Pole	TP26.001x25.877x0.3125	Pole	91.1%	Pass
L14	111 - 110.75	Pole + Reinf.	TP26.048x26.001x0.575	Reinf. 6 Tension Rupture	82.0%	Pass
L15	110.75 - 105.75	Pole + Reinf.	TP26.989x26.048x0.5625	Reinf. 6 Tension Rupture	89.5%	Pass
L16	105.75 - 101.5	Pole + Reinf.	TP27.788x26.989x0.55	Reinf. 6 Tension Rupture	95.3%	Pass
L17	101.5 - 101.25	Pole + Reinf.	TP27.835x27.788x0.9875	Reinf. 12 Tension Rupture	65.0%	Pass
L18	101.25 - 101	Pole + Reinf.	TP27.882x27.835x0.9875	Reinf. 12 Tension Rupture	65.3%	Pass
L19	101 - 100.75	Pole + Reinf.	TP27.93x27.882x0.725	Reinf. 12 Tension Rupture	86.9%	Pass
L20	100.75 - 95.75	Pole + Reinf.	TP28.87x27.93x0.7125	Reinf. 12 Tension Rupture	93.0%	Pass
L21	95.75 - 87.83	Pole + Reinf.	TP30.36x28.87x0.7	Reinf. 12 Tension Rupture	97.1%	Pass
L22	87.83 - 86.83	Pole + Reinf.	TP29.924x28.92x0.9375	Reinf. 12 Tension Rupture	80.1%	Pass
L23	86.83 - 81.83	Pole + Reinf.	TP30.865x29.924x0.925	Reinf. 12 Tension Rupture	84.1%	Pass
L24	81.83 - 81.5	Pole + Reinf.	TP30.927x30.865x0.925	Reinf. 12 Tension Rupture	84.4%	Pass
L25	81.5 - 81.25	Pole + Reinf.	TP30.974x30.927x0.95	Reinf. 11 Tension Rupture	71.7%	Pass
L26	81.25 - 76.25	Pole + Reinf.	TP31.915x30.974x0.925	Reinf. 11 Tension Rupture	74.9%	Pass
L27	76.25 - 71.25	Pole + Reinf.	TP32.856x31.915x0.9	Reinf. 11 Tension Rupture	77.9%	Pass
L28	71.25 - 66.25	Pole + Reinf.	TP33.797x32.856x0.875	Reinf. 11 Tension Rupture	80.8%	Pass
L29	66.25 - 61.25	Pole + Reinf.	TP34.738x33.797x0.8625	Reinf. 11 Tension Rupture	83.5%	Pass
L30	61.25 - 56.25	Pole + Reinf.	TP35.679x34.738x0.85	Reinf. 11 Tension Rupture	86.1%	Pass
L31	56.25 - 51.25	Pole + Reinf.	TP36.619x35.679x0.825	Reinf. 11 Tension Rupture	88.5%	Pass
L32	51.25 - 43.33	Pole + Reinf.	TP38.11x36.619x0.825	Reinf. 11 Tension Rupture	89.7%	Pass
L33	43.33 - 42.33	Pole + Reinf.	TP37.546x36.357x1.0375	Reinf. 11 Tension Rupture	76.2%	Pass
L34	42.33 - 37.4	Pole + Reinf.	TP38.473x37.546x1.025	Reinf. 11 Tension Rupture	78.0%	Pass
L35	37.4 - 37.15	Pole + Reinf.	TP38.52x38.473x1.025	Reinf. 7 Tension Rupture	78.1%	Pass
L36	37.15 - 32.15	Pole + Reinf.	TP39.459x38.52x1	Reinf. 7 Tension Rupture	79.9%	Pass
L37	32.15 - 27.15	Pole + Reinf.	TP40.399x39.459x0.975	Reinf. 7 Tension Rupture	81.6%	Pass
L38	27.15 - 22.15	Pole + Reinf.	TP41.338x40.399x0.9625	Reinf. 7 Tension Rupture	83.2%	Pass
L39	22.15 - 19.5	Pole + Reinf.	TP41.836x41.338x0.95	Reinf. 7 Tension Rupture	84.0%	Pass
L40	19.5 - 19.25	Pole + Reinf.	TP41.883x41.836x1.025	Reinf. 7 Tension Rupture	78.6%	Pass
L41	19.25 - 14.25	Pole + Reinf.	TP42.822x41.883x1	Reinf. 7 Tension Rupture	80.0%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L42	14.25 - 9.25	Pole + Reinf.	TP43.762x42.822x1	Reinf. 7 Tension Rupture	81.4%	Pass
L43	9.25 - 9	Pole + Reinf.	TP43.809x43.762x1	Reinf. 7 Tension Rupture	81.4%	Pass
L44	9 - 8.75	Pole + Reinf.	TP43.856x43.809x1.025	Reinf. 7 Tension Rupture	78.5%	Pass
L45	8.75 - 7	Pole + Reinf.	TP44.185x43.856x1.025	Reinf. 7 Tension Rupture	78.9%	Pass
L46	7 - 6.75	Pole + Reinf.	TP44.232x44.185x0.975	Reinf. 7 Tension Rupture	82.0%	Pass
L47	6.75 - 5	Pole + Reinf.	TP44.561x44.232x0.975	Reinf. 7 Tension Rupture	82.5%	Pass
L48	5 - 4.75	Pole + Reinf.	TP44.607x44.561x1.45	Reinf. 3 Compression	65.1%	Pass
L49	4.75 - 3	Pole + Reinf.	TP44.936x44.607x1.425	Reinf. 3 Compression	65.5%	Pass
L50	3 - 2.75	Pole + Reinf.	TP44.983x44.936x1.45	Reinf. 7 Tension Rupture	57.8%	Pass
L51	2.75 - 2.25	Pole + Reinf.	TP45.077x44.983x1.45	Reinf. 7 Tension Rupture	57.9%	Pass
L52	2.25 - 2	Pole + Reinf.	TP45.124x45.077x1.2	Reinf. 8 Tension Rupture	69.5%	Pass
L53	2 - 0	Pole + Reinf.	TP45.5x45.124x1.175	Reinf. 8 Tension Rupture	70.0%	Pass
					Summary	
				Pole	91.1%	Pass
				Reinforcement	97.1%	Pass
				Overall	97.1%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7.

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	67.8	Pass
1	Base Foundation	0	89.0	Pass

Structure Rating (max from all components) =	97.1%

Notes:

- All Structural rating are per TIA-222-H Section 15.5

1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

4.1) Recommendations

The monopole and its foundation have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

1) Tower is located in Hartford County, Connecticut.
2) Tower base elevation above sea level: 70.00 ft.
3) Basic wind speed of 125 mph.
4) Risk Category II.
5) Exposure Category C.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height 0.00 ft.
9) Nominal ice thickness of 1.7000 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56.00 pcf.
12) A wind speed of 50 mph is used in combination with ice.
13) Temperature drop of 50 °F.
14) Deflections calculated using a wind speed of 60 mph.
15) A non-linear (P-delta) analysis was used.
16) Pressures are calculated at each section.
17) Stress ratio used in pole design is 1.05.
18) Local be stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.
19) TA-222 H Annex S

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-H Bracing Resist. Exemption	
Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption	
Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles	
Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction	
Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow	
SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets	
SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments	
				Pole With Shroud Or No Appurtenances	
				Outside and Inside Corner Radii Are Known	

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	169.00-164.00	5.00	0.00	18	15.5000	16.4546	0.2500	1.0000	A572-65 (65 ksi)
L2	164.00-159.00	5.00	0.00	18	16.4546	17.4092	0.2500	1.0000	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
L3	159.00-154.00	5.00	0.00	18	17.4092	18.3638	0.2500	1.0000	A572-65 (65 ksi)
L4	154.00-149.00	5.00	0.00	18	18.3638	19.3183	0.2500	1.0000	A572-65 (65 ksi)
L5	149.00-144.00	5.00	0.00	18	19.3183	20.2729	0.2500	1.0000	A572-65 (65 ksi)
L6	144.00-139.00	5.00	0.00	18	20.2729	21.2275	0.2500	1.0000	A572-65 (65 ksi)
L7	139.00-133.33	5.67	3.33	18	21.2275	22.3100	0.2500	1.0000	A572-65 (65 ksi)
L8	133.33-131.66	5.00	0.00	18	21.1742	22.1148	0.3125	1.2500	A572-65 (65 ksi)
L9	131.66-126.66	5.00	0.00	18	22.1148	23.0554	0.3125	1.2500	A572-65 (65 ksi)
L10	126.66-121.66	5.00	0.00	18	23.0554	23.9960	0.3125	1.2500	A572-65 (65 ksi)
L11	121.66-116.66	5.00	0.00	18	23.9960	24.9366	0.3125	1.2500	A572-65 (65 ksi)
L12	116.66-111.66	5.00	0.00	18	24.9366	25.8772	0.3125	1.2500	A572-65 (65 ksi)
L13	111.66-111.00	0.66	0.00	18	25.8772	26.0013	0.3125	1.2500	A572-65 (65 ksi)
L14	111.00-110.75	0.25	0.00	18	26.0013	26.0484	0.5750	2.3000	A572-65 (65 ksi)
L15	110.75-105.75	5.00	0.00	18	26.0484	26.9889	0.5625	2.2500	A572-65 (65 ksi)
L16	105.75-101.50	4.25	0.00	18	26.9889	27.7884	0.5500	2.2000	A572-65 (65 ksi)
L17	101.50-101.25	0.25	0.00	18	27.7884	27.8355	0.9875	3.9500	A572-65 (65 ksi)
L18	101.25-101.00	0.25	0.00	18	27.8355	27.8825	0.9875	3.9500	A572-65 (65 ksi)
L19	101.00-100.75	0.25	0.00	18	27.8825	27.9295	0.7250	2.9000	A572-65 (65 ksi)
L20	100.75-95.75	5.00	0.00	18	27.9295	28.8701	0.7125	2.8500	A572-65 (65 ksi)
L21	95.75-87.83	7.92	4.33	18	28.8701	30.3600	0.7000	2.8000	A572-65 (65 ksi)
L22	87.83-86.83	5.33	0.00	18	28.9205	29.9235	0.9375	3.7500	A572-65 (65 ksi)
L23	86.83-81.83	5.00	0.00	18	29.9235	30.8645	0.9250	3.7000	A572-65 (65 ksi)
L24	81.83-81.50	0.33	0.00	18	30.8645	30.9266	0.9250	3.7000	A572-65 (65 ksi)
L25	81.50-81.25	0.25	0.00	18	30.9266	30.9737	0.9500	3.8000	A572-65 (65 ksi)
L26	81.25-76.25	5.00	0.00	18	30.9737	31.9146	0.9250	3.7000	A572-65 (65 ksi)
L27	76.25-71.25	5.00	0.00	18	31.9146	32.8556	0.9000	3.6000	A572-65 (65 ksi)
L28	71.25-66.25	5.00	0.00	18	32.8556	33.7966	0.8750	3.5000	A572-65 (65 ksi)
L29	66.25-61.25	5.00	0.00	18	33.7966	34.7376	0.8625	3.4500	A572-65 (65 ksi)
L30	61.25-56.25	5.00	0.00	18	34.7376	35.6785	0.8500	3.4000	A572-65 (65 ksi)
L31	56.25-51.25	5.00	0.00	18	35.6785	36.6195	0.8250	3.3000	A572-65 (65 ksi)
L32	51.25-43.33	7.92	5.33	18	36.6195	38.1100	0.8250	3.3000	A572-65 (65 ksi)
L33	43.33-42.33	6.33	0.00	18	36.3569	37.5463	1.0375	4.1500	A572-65 (65 ksi)
L34	42.33-37.40	4.93	0.00	18	37.5463	38.4726	1.0250	4.1000	A572-65 (65 ksi)
L35	37.40-37.15	0.25	0.00	18	38.4726	38.5196	1.0250	4.1000	A572-65 (65 ksi)
L36	37.15-32.15	5.00	0.00	18	38.5196	39.4591	1.0000	4.0000	A572-65 (65 ksi)
L37	32.15-27.15	5.00	0.00	18	39.4591	40.3986	0.9750	3.9000	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
L38	27.15-22.15	5.00	0.00	18	40.3986	41.3381	0.9625	3.8500	(65 ksi) A572-65 (65 ksi)
L39	22.15-19.50	2.65	0.00	18	41.3381	41.8360	0.9500	3.8000	A572-65 (65 ksi)
L40	19.50-19.25	0.25	0.00	18	41.8360	41.8830	1.0250	4.1000	A572-65 (65 ksi)
L41	19.25-14.25	5.00	0.00	18	41.8830	42.8225	1.0000	4.0000	A572-65 (65 ksi)
L42	14.25-9.25	5.00	0.00	18	42.8225	43.7620	1.0000	4.0000	A572-65 (65 ksi)
L43	9.25-9.00	0.25	0.00	18	43.7620	43.8089	1.0000	4.0000	A572-65 (65 ksi)
L44	9.00-8.75	0.25	0.00	18	43.8089	43.8559	1.0250	4.1000	A572-65 (65 ksi)
L45	8.75-7.00	1.75	0.00	18	43.8559	44.1847	1.0250	4.1000	A572-65 (65 ksi)
L46	7.00-6.75	0.25	0.00	18	44.1847	44.2317	0.9750	3.9000	A572-65 (65 ksi)
L47	6.75-5.00	1.75	0.00	18	44.2317	44.5605	0.9750	3.9000	A572-65 (65 ksi)
L48	5.00-4.75	0.25	0.00	18	44.5605	44.6075	1.4500	5.8000	A572-65 (65 ksi)
L49	4.75-3.00	1.75	0.00	18	44.6075	44.9363	1.4250	5.7000	A572-65 (65 ksi)
L50	3.00-2.75	0.25	0.00	18	44.9363	44.9833	1.4500	5.8000	A572-65 (65 ksi)
L51	2.75-2.25	0.50	0.00	18	44.9833	45.0772	1.4500	5.8000	A572-65 (65 ksi)
L52	2.25-2.00	0.25	0.00	18	45.0772	45.1242	1.2000	4.8000	A572-65 (65 ksi)
L53	2.00-0.00	2.00		18	45.1242	45.5000	1.1750	4.7000	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	15.7005	12.1009	355.5445	5.4138	7.8740	45.1542	711.5567	6.0516	2.2880	9.152
	16.6699	12.8583	426.5776	5.7526	8.3589	51.0326	853.7164	6.4304	2.4560	9.824
L2	16.6699	12.8583	426.5776	5.7526	8.3589	51.0326	853.7164	6.4304	2.4560	9.824
	17.6392	13.6158	506.4925	6.0915	8.8439	57.2705	1013.6514	6.8092	2.6240	10.496
L3	17.6392	13.6158	506.4925	6.0915	8.8439	57.2705	1013.6514	6.8092	2.6240	10.496
	18.6085	14.3733	595.8124	6.4304	9.3288	63.8682	1192.4089	7.1880	2.7920	11.168
L4	18.6085	14.3733	595.8124	6.4304	9.3288	63.8682	1192.4089	7.1880	2.7920	11.168
	19.5778	15.1307	695.0606	6.7693	9.8137	70.8254	1391.0358	7.5668	2.9600	11.84
L5	19.5778	15.1307	695.0606	6.7693	9.8137	70.8254	1391.0358	7.5668	2.9600	11.84
	20.5471	15.8882	804.7602	7.1081	10.2986	78.1424	1610.5794	7.9456	3.1280	12.512
L6	20.5471	15.8882	804.7602	7.1081	10.2986	78.1424	1610.5794	7.9456	3.1280	12.512
	21.5164	16.6456	925.4345	7.4470	10.7836	85.8189	1852.0868	8.3244	3.2960	13.184
L7	21.5164	16.6456	925.4345	7.4470	10.7836	85.8189	1852.0868	8.3244	3.2960	13.184
	22.6156	17.5046	1076.2196	7.8313	11.3335	94.9593	2153.8554	8.7540	3.4866	13.946
L8	22.0888	20.6922	1137.7489	7.4059	10.7565	105.7730	2276.9949	10.3481	3.1767	10.165
	22.4078	21.6252	1298.6833	7.7398	11.2343	115.5995	2599.0754	10.8146	3.3422	10.695
L9	22.4078	21.6252	1298.6833	7.7398	11.2343	115.5995	2599.0754	10.8146	3.3422	10.695
	23.3629	22.5581	1474.1202	8.0737	11.7122	125.8625	2950.1801	11.2812	3.5078	11.225
L10	23.3629	22.5581	1474.1202	8.0737	11.7122	125.8625	2950.1801	11.2812	3.5078	11.225
	24.3180	23.4911	1664.6854	8.4076	12.1900	136.5619	3331.5612	11.7478	3.6733	11.755
L11	24.3180	23.4911	1664.6854	8.4076	12.1900	136.5619	3331.5612	11.7478	3.6733	11.755
	25.2731	24.4240	1871.0044	8.7416	12.6678	147.6978	3744.4707	12.2143	3.8388	12.284
L12	25.2731	24.4240	1871.0044	8.7416	12.6678	147.6978	3744.4707	12.2143	3.8388	12.284
	26.2282	25.3570	2093.7030	9.0755	13.1456	159.2702	4190.1609	12.6809	4.0044	12.814
L13	26.2282	25.3570	2093.7030	9.0755	13.1456	159.2702	4190.1609	12.6809	4.0044	12.814
	26.3542	25.4801	2124.3562	9.1195	13.2087	160.8304	4251.5076	12.7425	4.0262	12.884
L14	26.3137	46.4043	3790.2095	9.0263	13.2087	286.9485	7585.4063	23.2066	3.5642	6.199

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
	26.3615	46.4902	3811.2799	9.0430	13.2326	288.0227	7627.5747	23.2495	3.5725	6.213
L15	26.3634	45.5018	3733.9174	9.0475	13.2326	282.1764	7472.7479	22.7552	3.5945	6.39
	27.3185	47.1811	4162.7761	9.3814	13.7104	303.6222	8331.0298	23.5950	3.7601	6.685
L16	27.3204	46.1545	4076.0486	9.3858	13.7104	297.2965	8157.4605	23.0816	3.7821	6.876
	28.1323	47.5501	4457.1145	9.6696	14.1165	315.7373	8920.0938	23.7796	3.9228	7.132
L17	28.0648	84.0029	7623.0995	9.5143	14.1165	540.0124	15256.2298	42.0094	3.1528	3.193
	28.1125	84.1503	7663.3002	9.5310	14.1404	541.9429	15336.6839	42.0831	3.1610	3.201
L18	28.1125	84.1503	7663.3002	9.5310	14.1404	541.9429	15336.6839	42.0831	3.1610	3.201
	28.1603	84.2977	7703.6419	9.5477	14.1643	543.8770	15417.4204	42.1568	3.1693	3.209
L19	28.2008	62.4935	5823.0659	9.6409	14.1643	411.1083	11653.7940	31.2527	3.6313	5.009
	28.2485	62.6017	5853.3701	9.6576	14.1882	412.5520	11714.4423	31.3068	3.6396	5.02
L20	28.2505	61.5506	5760.3830	9.6620	14.1882	405.9981	11528.3458	30.7812	3.6616	5.139
	29.2056	63.6777	6378.4737	9.9960	14.6660	434.9152	12765.3403	31.8449	3.8271	5.371
L21	29.2075	62.5884	6274.9201	10.0004	14.6660	427.8544	12558.0969	31.3001	3.8491	5.499
	30.7204	65.8986	7324.1268	10.5293	15.4229	474.8871	14657.8908	32.9556	4.1114	5.873
L22	30.0494	83.2668	8237.5165	9.9339	14.6916	560.6960	16485.8721	41.6413	3.4400	3.669
	30.2405	86.2516	9155.4967	10.2900	15.2012	602.2896	18323.0405	43.1340	3.6165	3.858
L23	30.2425	85.1382	9045.1152	10.2945	15.2012	595.0282	18102.1323	42.5772	3.6385	3.934
	31.1979	87.9009	9954.5110	10.6285	15.6792	634.8877	19922.1205	43.9588	3.8042	4.113
L24	31.1979	87.9009	9954.5110	10.6285	15.6792	634.8877	19922.1205	43.9588	3.8042	4.113
	31.2610	88.0832	10016.5863	10.6506	15.7107	637.5639	20046.3527	44.0500	3.8151	4.124
L25	31.2571	90.3885	10261.6094	10.6417	15.7107	653.1598	20536.7212	45.2028	3.7711	3.97
	31.3049	90.5303	10310.0024	10.6584	15.7346	655.2433	20633.5710	45.2738	3.7794	3.978
L26	31.3088	88.2214	10063.7844	10.6673	15.7346	639.5951	20140.8110	44.1191	3.8234	4.133
	32.2643	90.9840	11039.1419	11.0013	16.2126	680.8976	22092.8094	45.5006	3.9890	4.312
L27	32.2681	88.5964	10766.8022	11.0102	16.2126	664.0996	21547.7716	44.3066	4.0330	4.481
	33.2236	91.2844	11776.8187	11.3442	16.6906	705.5939	23569.1336	45.6509	4.1986	4.665
L28	33.2275	88.8181	11476.5783	11.3531	16.6906	687.6054	22968.2578	44.4175	4.2426	4.849
	34.1830	91.4315	12519.7123	11.6872	17.1687	729.2189	25055.8983	45.7244	4.4082	5.038
L29	34.1849	90.1595	12354.9217	11.6916	17.1687	719.6206	24726.1003	45.0883	4.4302	5.136
	35.1404	92.7355	13444.4598	12.0256	17.6467	761.8692	26906.6102	46.3766	4.5958	5.328
L30	35.1423	91.4252	13264.2854	12.0301	17.6467	751.6591	26546.0244	45.7213	4.6178	5.433
	36.0978	93.9639	14400.2003	12.3641	18.1247	794.5074	28819.3487	46.9909	4.7834	5.628
L31	36.1017	91.2657	14006.7840	12.3730	18.1247	772.8013	28031.9985	45.6415	4.8274	5.851
	37.0571	93.7297	15172.1509	12.7070	18.6027	815.5884	30364.2656	46.8737	4.9930	6.052
L32	37.0571	93.7297	15172.1509	12.7070	18.6027	815.5884	30364.2656	46.8737	4.9930	6.052
	38.5706	97.6326	17147.4981	13.2362	19.3599	885.7234	34317.5593	48.8256	5.2554	6.37

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
L33	37.7747	116.3077	18330.4553	12.5384	18.4693	992.4815	36685.0303	58.1649	4.5728	4.408
	37.9655	120.2244	20245.3629	12.9606	19.0735	1061.4379	40517.3652	60.1236	4.7822	4.609
L34	37.9674	118.8166	20021.9944	12.9651	19.0735	1049.7269	40070.3343	59.4196	4.8042	4.687
	38.9080	121.8303	21584.4886	13.2939	19.5441	1104.3990	43197.3786	60.9267	4.9672	4.846
L35	38.9080	121.8303	21584.4886	13.2939	19.5441	1104.3990	43197.3786	60.9267	4.9672	4.846
	38.9557	121.9831	21665.8172	13.3106	19.5680	1107.2084	43360.1429	61.0032	4.9755	4.854
L36	38.9596	119.0873	21179.6917	13.3195	19.5680	1082.3655	42387.2522	59.5550	5.0195	5.019
	39.9136	122.0692	22810.8724	13.6530	20.0452	1137.9704	45651.7599	61.0462	5.1848	5.185
L37	39.9174	119.0948	22284.0007	13.6619	20.0452	1111.6862	44597.3232	59.5587	5.2288	5.363
	40.8714	122.0022	23956.1780	13.9954	20.5225	1167.3137	47943.8782	61.0127	5.3942	5.532
L38	40.8733	120.4763	23671.5498	13.9998	20.5225	1153.4447	47374.2473	60.2496	5.4162	5.627
	41.8273	123.3464	25403.9552	14.3333	20.9997	1209.7269	50841.3375	61.6849	5.5815	5.799
L39	41.8292	121.7822	25097.3291	14.3378	20.9997	1195.1255	50227.6820	60.9027	5.6035	5.898
	42.3348	123.2836	26037.0633	14.5145	21.2527	1225.1185	52108.3868	61.6535	5.6911	5.991
L40	42.3233	132.7725	27938.3076	14.4879	21.2527	1314.5775	55913.3772	66.3989	5.5591	5.424
	42.3710	132.9253	28034.8914	14.5046	21.2766	1317.6425	56106.6719	66.4753	5.5674	5.432
L41	42.3748	129.7626	27401.3507	14.5135	21.2766	1287.8661	54838.7569	64.8936	5.6114	5.611
	43.3288	132.7445	29334.1325	14.8470	21.7538	1348.4594	58706.8636	66.3849	5.7768	5.777
L42	43.3288	132.7445	29334.1325	14.8470	21.7538	1348.4594	58706.8636	66.3849	5.7768	5.777
	44.2828	135.7264	31355.7292	15.1805	22.2311	1410.4462	62752.7170	67.8761	5.9421	5.942
L43	44.2828	135.7264	31355.7292	15.1805	22.2311	1410.4462	62752.7170	67.8761	5.9421	5.942
	44.3305	135.8755	31459.1762	15.1972	22.2549	1413.5821	62959.7471	67.9507	5.9504	5.95
L44	44.3266	139.1911	32189.1951	15.1883	22.2549	1446.3847	64420.7456	69.6088	5.9064	5.762
	44.3743	139.3439	32295.3372	15.2050	22.2788	1449.5997	64633.1695	69.6852	5.9146	5.77
L45	44.3743	139.3439	32295.3372	15.2050	22.2788	1449.5997	64633.1695	69.6852	5.9146	5.77
	44.7082	140.4137	33044.8726	15.3217	22.4458	1472.2049	66133.2265	70.2202	5.9725	5.827
L46	44.7159	133.7190	31542.2982	15.3395	22.4458	1405.2627	63126.1005	66.8722	6.0605	6.216
	44.7636	133.8643	31645.2812	15.3561	22.4697	1408.3535	63332.2020	66.9449	6.0688	6.224
L47	44.7636	133.8643	31645.2812	15.3561	22.4697	1408.3535	63332.2020	66.9449	6.0688	6.224
	45.0975	134.8819	32372.4452	15.4729	22.6367	1430.0842	64787.4869	67.4538	6.1267	6.284
L48	45.0242	198.4075	46586.7032	15.3042	22.6367	2058.0128	93234.7064	99.2226	5.2907	3.649
	45.0719	198.6237	46739.1553	15.3209	22.6606	2062.5732	93539.8112	99.3307	5.2989	3.654
L49	45.0758	195.3122	46013.1779	15.3298	22.6606	2030.5362	92086.9012	97.6747	5.3429	3.749
	45.4097	196.7995	47072.3268	15.4465	22.8276	2062.0755	94206.5925	98.4184	5.4008	3.79
L50	45.4058	200.1370	47815.6429	15.4376	22.8276	2094.6376	95694.2029	100.0875	5.3568	3.694

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
	45.4535	200.3532	47970.7630	15.4543	22.8515	2099.2384	96004.6472	100.1957	5.3651	3.7
L51	45.4535	200.3532	47970.7630	15.4543	22.8515	2099.2384	96004.6472	100.1957	5.3651	3.7
	45.5489	200.7856	48282.0089	15.4877	22.8992	2108.4552	96627.5486	100.4119	5.3816	3.711
L52	45.5875	167.1196	40648.3821	15.5764	22.8992	1775.0979	81350.2505	83.5757	5.8216	4.851
	45.6352	167.2985	40779.0746	15.5931	22.9231	1778.9514	81611.8073	83.6652	5.8299	4.858
L53	45.6391	163.9064	39997.7285	15.6020	22.9231	1744.8659	80048.0869	81.9688	5.8739	4.999
	46.0206	165.3079	41032.5467	15.7354	23.1140	1775.2248	82119.0850	82.6696	5.9400	5.055

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 169.00-164.00				1	1	1			
L2 164.00-159.00				1	1	1			
L3 159.00-154.00				1	1	1			
L4 154.00-149.00				1	1	1			
L5 149.00-144.00				1	1	1			
L6 144.00-139.00				1	1	1			
L7 139.00-133.33				1	1	1			
L8 133.33-131.66				1	1	1			
L9 131.66-126.66				1	1	1			
L10 126.66-121.66				1	1	1			
L11 121.66-116.66				1	1	1			
L12 116.66-111.66				1	1	1			
L13 111.66-111.00				1	1	1			
L14 111.00-110.75				1	1	0.936271			
L15 110.75-105.75				1	1	0.942334			
L16 105.75-101.50				1	1	0.951697			
L17 101.50-101.25				1	1	0.894841			
L18 101.25-101.00				1	1	0.893829			
L19 101.00-100.75				1	1	0.916808			
L20 100.75-95.75				1	1	0.915966			
L21 95.75-87.83				1	1	0.920543			
L22 87.83-86.83				1	1	0.912119			
L23 86.83-81.83				1	1	0.907746			
L24 81.83-81.50				1	1	0.906706			

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
L25 81.50-81.25				1	1	0.899386			
L26 81.25-76.25				1	1	0.907211			
L27 76.25-71.25				1	1	0.916495			
L28 71.25-66.25				1	1	0.92727			
L29 66.25-61.25				1	1	0.926308			
L30 61.25-56.25				1	1	0.926118			
L31 56.25-51.25				1	1	0.940381			
L32 51.25-43.33				1	1	0.933854			
L33 43.33-42.33				1	1	0.941952			
L34 42.33-37.40				1	1	0.938586			
L35 37.40-37.15				1	1	0.937868			
L36 37.15-32.15				1	1	0.946368			
L37 32.15-27.15				1	1	0.956053			
L38 27.15-22.15				1	1	0.9547			
L39 22.15-19.50				1	1	0.959994			
L40 19.50-19.25				1	1	0.954729			
L41 19.25-14.25				1	1	0.964453			
L42 14.25-9.25				1	1	0.951503			
L43 9.25-9.00				1	1	0.95087			
L44 9.00-8.75				1	1	0.963488			
L45 8.75-7.00				1	1	0.958934			
L46 7.00-6.75				1	1	0.968915			
L47 6.75-5.00				1	1	0.964507			
L48 5.00-4.75				1	1	0.856655			
L49 4.75-3.00				1	1	0.866584			
L50 3.00-2.75				1	1	0.876449			
L51 2.75-2.25				1	1	0.875119			
L52 2.25-2.00				1	1	0.856349			
L53 2.00-0.00				1	1	0.869367			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***											

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A(1-5/8)	C	No	No	CaAa (Out Of Face)	165.00 - 111.00	1	No Ice	0.20	0.82
							1/2" Ice	0.30	2.33
							1" Ice	0.40	4.46
							2" Ice	0.60	10.55
LDF7-50A(1-5/8)	C	No	No	CaAa (Out Of Face)	165.00 - 111.00	5	No Ice	0.00	0.82
							1/2" Ice	0.00	2.33
							1" Ice	0.00	4.46
							2" Ice	0.00	10.55
LDF7-50A(1-5/8)	C	No	No	CaAa (Out Of Face)	111.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	2.33
							1" Ice	0.00	4.46
							2" Ice	0.00	10.55
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	C	No	No	CaAa (Out Of Face)	165.00 - 111.00	1	No Ice	0.16	1.07
							1/2" Ice	0.26	2.37
							1" Ice	0.36	4.28
							2" Ice	0.56	9.93
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	C	No	No	CaAa (Out Of Face)	111.00 - 0.00	1	No Ice	0.00	1.07
							1/2" Ice	0.00	2.37
							1" Ice	0.00	4.28
							2" Ice	0.00	9.93
LDF7-50A(1-5/8)	C	No	No	CaAa (Out Of Face)	165.00 - 0.00	4	No Ice	0.00	0.82
							1/2" Ice	0.00	2.33
							1" Ice	0.00	4.46
							2" Ice	0.00	10.55
HCS 6X12 6AWG(1-3/8)	C	No	No	CaAa (Out Of Face)	165.00 - 0.00	2	No Ice	0.00	1.70
							1/2" Ice	0.00	2.85
							1" Ice	0.00	4.61
							2" Ice	0.00	9.96
**********									
LDF2-50(3/8")	C	No	No	Inside Pole	156.00 - 0.00	2	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
							2" Ice	0.00	0.08
100266(3/8")	C	No	No	Inside Pole	156.00 - 0.00	1	No Ice	0.00	0.09
							1/2" Ice	0.00	0.09
							1" Ice	0.00	0.09
							2" Ice	0.00	0.09
LDF7-50A(1-5/8")	C	No	No	Inside Pole	156.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
3" (Nominal) Conduit	C	No	No	Inside Pole	156.00 - 0.00	1	No Ice	0.00	1.49
							1/2" Ice	0.00	1.49
							1" Ice	0.00	1.49
							2" Ice	0.00	1.49
**********									
HB114-1-08U4-M5F(1-1/4)	C	No	No	Inside Pole	148.00 - 0.00	3	No Ice	0.00	1.08
							1/2" Ice	0.00	1.08
							1" Ice	0.00	1.08
							2" Ice	0.00	1.08
MLC6C-06C-008R-008R(1-1/2")	C	No	No	Inside Pole	148.00 - 0.00	1	No Ice	0.00	1.52
							1/2" Ice	0.00	1.52
							1" Ice	0.00	1.52
							2" Ice	0.00	1.52
**********									
LDF7-50A(1-5/8")	C	No	No	CaAa (Out Of Face)	138.00 - 124.00	1	No Ice	0.20	0.82
							1/2" Ice	0.30	2.33
							1" Ice	0.40	4.46
							2" Ice	0.60	10.54
LDF7-50A(1-5/8")	C	No	No	CaAa (Out Of Face)	124.00 - 0.00	1	No Ice	0.00	0.82
							1/2" Ice	0.00	2.33
							1" Ice	0.00	4.46
							2" Ice	0.00	10.54
LDF7-50A(1-5/8")	C	No	No	CaAa (Out Of Face)	138.00 - 0.00	5	No Ice	0.00	0.82
							1/2" Ice	0.00	2.33
							1" Ice	0.00	4.46
							2" Ice	0.00	10.54
**********									

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF4-50A(1/2")	C	No	No	CaAa (Out Of Face)	124.00 - 0.00	2	No Ice	0.00	0.15
							1/2" Ice	0.00	0.84
							1" Ice	0.00	2.14
							2" Ice	0.00	6.58
LDF4-50A(1/2")	C	No	No	Inside Pole	124.00 - 0.00	4	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
LDF1-50A(1/4")	C	No	No	Inside Pole	124.00 - 0.00	3	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
9207(5/16")	C	No	No	Inside Pole	124.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
2" (Nominal) Conduit	C	No	No	CaAa (Out Of Face)	124.00 - 0.00	1	No Ice	0.24	0.72
							1/2" Ice	0.34	2.48
							1" Ice	0.44	4.84
							2" Ice	0.64	11.41
**********									
EC4-50(1/2)	C	No	No	CaAa (Out Of Face)	118.00 - 0.00	1	No Ice	0.00	0.16
							1/2" Ice	0.00	0.85
							1" Ice	0.00	2.15
							2" Ice	0.00	6.59
**********									
LDF6-50A(1-1/4)	C	No	No	CaAa (Out Of Face)	111.00 - 0.00	1	No Ice	0.16	0.60
							1/2" Ice	0.25	1.85
							1" Ice	0.35	3.72
							2" Ice	0.55	9.27
LDF6-50A(1-1/4)	C	No	No	CaAa (Out Of Face)	111.00 - 0.00	1	No Ice	0.00	0.60
							1/2" Ice	0.00	1.85
							1" Ice	0.00	3.72
							2" Ice	0.00	9.27
HB158-1-08U8-S8J18(1-5/8)	C	No	No	CaAa (Out Of Face)	111.00 - 0.00	2	No Ice	0.20	1.30
							1/2" Ice	0.30	2.81
							1" Ice	0.40	4.94
							2" Ice	0.60	11.02
LDF7-50A(1-5/8)	C	No	No	CaAa (Out Of Face)	111.00 - 0.00	16	No Ice	0.00	0.82
							1/2" Ice	0.00	2.33
							1" Ice	0.00	4.46
							2" Ice	0.00	10.55
***									
1 1/4" Flat Reinforcement	C	No	No	CaAa (Out Of Face)	104.00 - 0.00	2	No Ice	0.21	0.00
							1/2" Ice	0.32	0.00
							1" Ice	0.43	0.00
							2" Ice	0.65	0.00
***									
1" Flat Reinforcement	C	No	No	CaAa (Out Of Face)	113.50 - 98.50	1	No Ice	0.17	0.00
							1/2" Ice	0.28	0.00
							1" Ice	0.39	0.00
							2" Ice	0.61	0.00
***									

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	169.00-164.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.361	0.01
L2	164.00-159.00	A	0.000	0.000	0.000	0.000	0.00

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
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.803	0.06
L3	159.00-154.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.803	0.09
L4	154.00-149.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.803	0.12
L5	149.00-144.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.803	0.14
L6	144.00-139.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.803	0.15
L7	139.00-133.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.969	0.19
L8	133.33-131.66	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.933	0.06
L9	131.66-126.66	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.793	0.17
L10	126.66-121.66	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.885	0.17
L11	121.66-116.66	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.990	0.18
L12	116.66-111.66	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.297	0.18
L13	111.66-111.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.505	0.02
L14	111.00-110.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.239	0.01
L15	110.75-105.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.776	0.26
L16	105.75-101.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.101	0.22
L17	101.50-101.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.343	0.01
L18	101.25-101.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.343	0.01
L19	101.00-100.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.343	0.01
L20	100.75-95.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.401	0.26
L21	95.75-87.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	9.545	0.42
L22	87.83-86.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.205	0.05
L23	86.83-81.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L24	81.83-81.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.398	0.02
L25	81.50-81.25	A	0.000	0.000	0.000	0.000	0.00

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
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L26	81.25-76.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L27	76.25-71.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L28	71.25-66.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L29	66.25-61.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L30	61.25-56.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L31	56.25-51.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L32	51.25-43.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	9.545	0.42
L33	43.33-42.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.205	0.05
L34	42.33-37.40	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.941	0.26
L35	37.40-37.15	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L36	37.15-32.15	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L37	32.15-27.15	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L38	27.15-22.15	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L39	22.15-19.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.194	0.14
L40	19.50-19.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L41	19.25-14.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L42	14.25-9.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.026	0.26
L43	9.25-9.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L44	9.00-8.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L45	8.75-7.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.109	0.09
L46	7.00-6.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L47	6.75-5.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.109	0.09
L48	5.00-4.75	A	0.000	0.000	0.000	0.000	0.00

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
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L49	4.75-3.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.109	0.09
L50	3.00-2.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L51	2.75-2.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.603	0.03
L52	2.25-2.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.301	0.01
L53	2.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.410	0.11

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	169.00-164.00	A	1.999	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.160	0.14
L2	164.00-159.00	A	1.993	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.788	0.67
L3	159.00-154.00	A	1.986	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.775	0.69
L4	154.00-149.00	A	1.980	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.762	0.73
L5	149.00-144.00	A	1.973	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.749	0.74
L6	144.00-139.00	A	1.966	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.735	0.75
L7	139.00-133.33	A	1.959	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	9.241	1.13
L8	133.33-131.66	A	1.954	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.895	0.35
L9	131.66-126.66	A	1.949	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.638	1.05
L10	126.66-121.66	A	1.941	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.707	1.10
L11	121.66-116.66	A	1.933	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.789	1.17
L12	116.66-111.66	A	1.925	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	9.857	1.18
L13	111.66-111.00	A	1.920	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.546	0.16
L14	111.00-110.75	A	1.919	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.729	0.11
L15	110.75-105.75	A	1.914	0.000	0.000	0.000	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
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	14.561	2.17
L16	105.75-101.50	A	1.906	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	15.500	1.84
L17	101.50-101.25	A	1.902	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.040	0.11
L18	101.25-101.00	A	1.901	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.040	0.11
L19	101.00-100.75	A	1.901	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.040	0.11
L20	100.75-95.75	A	1.896	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	19.146	2.15
L21	95.75-87.83	A	1.883	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	28.104	3.38
L22	87.83-86.83	A	1.874	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.549	0.43
L23	86.83-81.83	A	1.867	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.644	2.11
L24	81.83-81.50	A	1.861	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.162	0.14
L25	81.50-81.25	A	1.861	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.880	0.11
L26	81.25-76.25	A	1.854	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.565	2.10
L27	76.25-71.25	A	1.842	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.489	2.08
L28	71.25-66.25	A	1.829	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.409	2.06
L29	66.25-61.25	A	1.816	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.323	2.05
L30	61.25-56.25	A	1.801	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.231	2.03
L31	56.25-51.25	A	1.785	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.132	2.01
L32	51.25-43.33	A	1.762	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	26.913	3.13
L33	43.33-42.33	A	1.745	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.398	0.40
L34	42.33-37.40	A	1.732	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.570	1.91
L35	37.40-37.15	A	1.721	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.837	0.10
L36	37.15-32.15	A	1.708	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.655	1.91
L37	32.15-27.15	A	1.682	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.491	1.88
L38	27.15-22.15	A	1.651	0.000	0.000	0.000	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
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.299	1.84
L39	22.15-19.50	A	1.623	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.548	0.96
L40	19.50-19.25	A	1.612	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.803	0.09
L41	19.25-14.25	A	1.588	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	15.910	1.76
L42	14.25-9.25	A	1.533	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	15.565	1.69
L43	9.25-9.00	A	1.495	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.766	0.08
L44	9.00-8.75	A	1.491	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.765	0.08
L45	8.75-7.00	A	1.473	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.317	0.56
L46	7.00-6.75	A	1.453	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.753	0.08
L47	6.75-5.00	A	1.431	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.224	0.55
L48	5.00-4.75	A	1.404	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.738	0.08
L49	4.75-3.00	A	1.372	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.097	0.52
L50	3.00-2.75	A	1.332	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.716	0.07
L51	2.75-2.25	A	1.313	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.420	0.14
L52	2.25-2.00	A	1.292	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.703	0.07
L53	2.00-0.00	A	1.198	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.393	0.50

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	169.00-164.00	-0.4833	0.2791	-0.7303	0.4216
L2	164.00-159.00	-1.8825	1.0868	-2.5941	1.4977
L3	159.00-154.00	-1.9084	1.1018	-2.6587	1.5350
L4	154.00-149.00	-1.9324	1.1157	-2.7191	1.5699
L5	149.00-144.00	-1.9546	1.1285	-2.7757	1.6026
L6	144.00-139.00	-1.9752	1.1404	-2.8287	1.6331
L7	139.00-133.33	-2.6486	1.5292	-3.6381	2.1005
L8	133.33-131.66	-2.7774	1.6035	-3.7893	2.1877
L9	131.66-126.66	-2.8000	1.6166	-3.8348	2.2140
L10	126.66-121.66	-2.9003	1.6745	-3.9308	2.2694
L11	121.66-116.66	-3.0077	1.7365	-4.0273	2.3252
L12	116.66-111.66	-3.2624	1.8836	-4.4039	2.5426

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L13	111.66-111.00	-3.6331	2.0976	-4.9136	2.8369
L14	111.00-110.75	-4.2090	2.4301	-5.5389	3.1979
L15	110.75-105.75	-4.2381	2.4469	-5.5927	3.2290
L16	105.75-101.50	-4.9368	2.8503	-6.3676	3.6763
L17	101.50-101.25	-5.3630	3.0963	-6.8178	3.9362
L18	101.25-101.00	-5.3670	3.0986	-6.8244	3.9401
L19	101.00-100.75	-5.3667	3.0985	-6.8274	3.9418
L20	100.75-95.75	-5.1967	3.0003	-6.6457	3.8369
L21	95.75-87.83	-5.1040	2.9468	-6.5744	3.7957
L22	87.83-86.83	-5.1223	2.9574	-6.6047	3.8133
L23	86.83-81.83	-5.1598	2.9790	-6.6591	3.8446
L24	81.83-81.50	-5.1926	2.9980	-6.7140	3.8763
L25	81.50-81.25	-5.1966	3.0002	-6.7203	3.8800
L26	81.25-76.25	-5.2278	3.0183	-6.7726	3.9101
L27	76.25-71.25	-5.2860	3.0518	-6.8690	3.9658
L28	71.25-66.25	-5.3420	3.0842	-6.9608	4.0188
L29	66.25-61.25	-5.3963	3.1156	-7.0481	4.0692
L30	61.25-56.25	-5.4487	3.1458	-7.1304	4.1168
L31	56.25-51.25	-5.4992	3.1750	-7.2075	4.1613
L32	51.25-43.33	-5.5624	3.2114	-7.2995	4.2144
L33	43.33-42.33	-5.5700	3.2158	-7.3112	4.2211
L34	42.33-37.40	-5.5977	3.2319	-7.3256	4.2294
L35	37.40-37.15	-5.6217	3.2457	-7.3558	4.2469
L36	37.15-32.15	-5.6453	3.2593	-7.3837	4.2630
L37	32.15-27.15	-5.6893	3.2847	-7.4308	4.2902
L38	27.15-22.15	-5.7322	3.3095	-7.4676	4.3114
L39	22.15-19.50	-5.7640	3.3278	-7.4866	4.3224
L40	19.50-19.25	-5.7770	3.3354	-7.4924	4.3257
L41	19.25-14.25	-5.7980	3.3475	-7.4959	4.3278
L42	14.25-9.25	-5.8378	3.3704	-7.4814	4.3194
L43	9.25-9.00	-5.8581	3.3822	-7.4561	4.3048
L44	9.00-8.75	-5.8604	3.3835	-7.4530	4.3030
L45	8.75-7.00	-5.8681	3.3879	-7.4372	4.2939
L46	7.00-6.75	-5.8750	3.3919	-7.4167	4.2820
L47	6.75-5.00	-5.8826	3.3963	-7.3914	4.2674
L48	5.00-4.75	-5.8968	3.4045	-7.3660	4.2528
L49	4.75-3.00	-5.9039	3.4086	-7.3228	4.2278
L50	3.00-2.75	-5.9117	3.4131	-7.2641	4.1939
L51	2.75-2.25	-5.9145	3.4147	-7.2354	4.1774
L52	2.25-2.00	-5.9138	3.4143	-7.1979	4.1557
L53	2.00-0.00	-5.9217	3.4189	-7.0360	4.0622

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft	ft^2	ft^2	K

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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
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	0.15 0.21 0.28 0.44
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	0.15 0.21 0.28 0.44
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	0.15 0.21 0.28 0.44
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.48 21.23 21.99 23.44	11.02 12.55 14.10 16.45	0.16 0.30 0.44 0.78
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.48 21.23 21.99 23.44	11.02 12.55 14.10 16.45	0.16 0.30 0.44 0.78
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.48 21.23 21.99 23.44	11.02 12.55 14.10 16.45	0.16 0.30 0.44 0.78
(2) KRY 112 144/1	A	From Leg	4.00 0.00 0.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.00 0.00 0.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
RADIO 4449 B12/B71	B	From Leg	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
(2) RADIO 4449 B12/B71	C	From Leg	4.00 0.00 1.00	0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16

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
8-ft Ladder	C	None		0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.00 7.00 9.00 13.00	5.00 7.00 9.00 13.00	0.04 0.07 0.08 0.11
Platform Mount [LP 601-1]	C	None		0.000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	28.47 33.59 38.71 48.95	28.47 33.59 38.71 48.95	1.12 1.51 1.91 2.69
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(2) 7770.00 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
(2) 7770.00 w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
(2) 7770.00 w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	13.21 13.90 14.59 15.91	9.58 11.05 12.50 14.75	0.10 0.20 0.30 0.55
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	13.21 13.90 14.59 15.91	9.58 11.05 12.50 14.75	0.10 0.20 0.30 0.55
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.90 10.47 11.01 12.11	8.11 9.30 10.21 12.01	0.08 0.16 0.25 0.46
DTMABP7819VG12A	A	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.98 1.10 1.23 1.52	0.34 0.42 0.51 0.71	0.02 0.03 0.04 0.06
DTMABP7819VG12A	B	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.98 1.10 1.23 1.52	0.34 0.42 0.51 0.71	0.02 0.03 0.04 0.06
DTMABP7819VG12A	C	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.98 1.10 1.23 1.52	0.34 0.42 0.51 0.71	0.02 0.03 0.04 0.06
RRUS 11	A	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.79 3.00 3.21 3.67	1.19 1.34 1.50 1.84	0.05 0.07 0.10 0.15
RRUS 11	B	From Face	4.00 0.00 2.00	0.000	156.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21 3.67	1.19 1.34 1.50 1.84	0.05 0.07 0.10 0.15

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
							2" Ice			
RRUS 11	C	From Face	4.00		0.000	156.00	No Ice	2.79	1.19	0.05
			0.00				1/2" Ice	3.00	1.34	0.07
			2.00				1" Ice	3.21	1.50	0.10
							2" Ice	3.67	1.84	0.15
DC6-48-60-18-8F	B	From Face	4.00		0.000	156.00	No Ice	0.92	0.92	0.02
			0.00				1/2" Ice	1.46	1.46	0.04
			2.00				1" Ice	1.64	1.64	0.06
							2" Ice	2.04	2.04	0.11
DTMABP7819VG12A	A	From Face	4.00		0.000	156.00	No Ice	0.98	0.34	0.02
			0.00				1/2" Ice	1.10	0.42	0.03
			2.00				1" Ice	1.23	0.51	0.04
							2" Ice	1.52	0.71	0.06
DTMABP7819VG12A	B	From Face	4.00		0.000	156.00	No Ice	0.98	0.34	0.02
			0.00				1/2" Ice	1.10	0.42	0.03
			2.00				1" Ice	1.23	0.51	0.04
							2" Ice	1.52	0.71	0.06
DTMABP7819VG12A	C	From Face	4.00		0.000	156.00	No Ice	0.98	0.34	0.02
			0.00				1/2" Ice	1.10	0.42	0.03
			2.00				1" Ice	1.23	0.51	0.04
							2" Ice	1.52	0.71	0.06
RRUS12/RRUS A2	A	From Face	4.00		0.000	156.00	No Ice	3.14	1.84	0.07
			0.00				1/2" Ice	3.36	2.01	0.10
			2.00				1" Ice	3.59	2.20	0.13
							2" Ice	4.07	2.59	0.20
RRUS12/RRUS A2	B	From Face	4.00		0.000	156.00	No Ice	3.14	1.84	0.07
			0.00				1/2" Ice	3.36	2.01	0.10
			2.00				1" Ice	3.59	2.20	0.13
							2" Ice	4.07	2.59	0.20
RRUS12/RRUS A2	C	From Face	4.00		0.000	156.00	No Ice	3.14	1.84	0.07
			0.00				1/2" Ice	3.36	2.01	0.10
			2.00				1" Ice	3.59	2.20	0.13
							2" Ice	4.07	2.59	0.20
Platform Mount [LP 714-1]	C	None			0.000	156.00	No Ice	37.47	37.47	1.60
							1/2" Ice	44.23	44.23	2.04
							1" Ice	50.99	50.99	2.48
							2" Ice	64.51	64.51	3.36
**********										
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.00		0.000	148.00	No Ice	12.51	7.41	0.10
			0.00				1/2" Ice	13.11	8.60	0.19
			0.00				1" Ice	13.67	9.50	0.29
							2" Ice	14.82	11.33	0.52
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.00		0.000	148.00	No Ice	12.51	7.41	0.10
			0.00				1/2" Ice	13.11	8.60	0.19
			0.00				1" Ice	13.67	9.50	0.29
							2" Ice	14.82	11.33	0.52
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.00		0.000	148.00	No Ice	12.51	7.41	0.10
			0.00				1/2" Ice	13.11	8.60	0.19
			0.00				1" Ice	13.67	9.50	0.29
							2" Ice	14.82	11.33	0.52
AAHC w/ Mount Pipe	A	From Leg	4.00		0.000	148.00	No Ice	4.41	2.69	0.12
			0.00					4.73	3.08	0.16

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
			0.00			1/2" Ice	5.06 5.74	3.49 4.36	0.20 0.31
						1" Ice 2" Ice			
AAHC w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.41 4.73 5.06 5.74	2.69 3.08 3.49 4.36	0.12 0.16 0.20 0.31
AAHC w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.41 4.73 5.06 5.74	2.69 3.08 3.49 4.36	0.12 0.16 0.20 0.31
800MHZ RRH	A	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
800MHZ RRH	B	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
800MHZ RRH	C	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
PCS 1900MHz 4x45W-65MHz	A	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
PCS 1900MHz 4x45W-65MHz	B	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
PCS 1900MHz 4x45W-65MHz	C	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
RRH2X50-800	A	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.70 1.86 2.03 2.40	1.28 1.43 1.58 1.91	0.05 0.07 0.09 0.14
RRH2X50-800	B	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.70 1.86 2.03 2.40	1.28 1.43 1.58 1.91	0.05 0.07 0.09 0.14
RRH2X50-800	C	From Leg	4.00 0.00 0.00	0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.70 1.86 2.03 2.40	1.28 1.43 1.58 1.91	0.05 0.07 0.09 0.14
T-Arm Mount [TA 702-3]	C	None		0.000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.64 6.55 7.46 9.28	5.64 6.55 7.46 9.28	0.34 0.43 0.52 0.70

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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
APXV18-206517-A	A	From Face	1.00 0.00 0.00	0.000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.17 5.62 6.08 7.02	3.04 3.47 3.91 4.81	0.03 0.05 0.09 0.17
APXV18-206517-A	B	From Face	1.00 0.00 0.00	0.000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.17 5.62 6.08 7.02	3.04 3.47 3.91 4.81	0.03 0.05 0.09 0.17
APXV18-206517-A	C	From Face	1.00 0.00 0.00	0.000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.17 5.62 6.08 7.02	3.04 3.47 3.91 4.81	0.03 0.05 0.09 0.17
Pipe Mount [PM 601-3]	C	None		0.000	138.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.39 5.48 6.57 8.75	4.39 5.48 6.57 8.75	0.20 0.24 0.28 0.36
*********									
LLPX310R w/ Mount Pipe	A	From Face	3.00 0.00 4.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.46 4.79 5.12 5.82	2.85 3.37 3.91 5.01	0.04 0.08 0.12 0.22
LLPX310R w/ Mount Pipe	B	From Face	3.00 0.00 4.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.46 4.79 5.12 5.82	2.85 3.37 3.91 5.01	0.04 0.08 0.12 0.22
LLPX310R w/ Mount Pipe	C	From Face	3.00 0.00 4.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.46 4.79 5.12 5.82	2.85 3.37 3.91 5.01	0.04 0.08 0.12 0.22
HORIZON DUO	A	From Face	3.00 0.00 4.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.47 0.56 0.65 0.86	0.29 0.37 0.44 0.62	0.01 0.01 0.02 0.04
HORIZON DUO	C	From Face	3.00 0.00 4.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.47 0.56 0.65 0.86	0.29 0.37 0.44 0.62	0.01 0.01 0.02 0.04
WIMAX DAP HEAD	A	From Face	3.00 0.00 4.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.55 1.70 1.87 2.22	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
WIMAX DAP HEAD	B	From Face	3.00 0.00 4.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.55 1.70 1.87 2.22	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
WIMAX DAP HEAD	C	From Face	3.00 0.00 4.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.55 1.70 1.87 2.22	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
2.375" OD x 5' Mount Pipe	A	From Face	3.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice Ice 1" Ice	1.19 1.50 1.81 2.46	1.19 1.50 1.81 2.46	0.02 0.03 0.04 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
						2" Ice			
2.375" OD x 5' Mount Pipe	B	From Face	3.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.19 1.50 1.81 2.46	1.19 1.50 1.81 2.46	0.02 0.03 0.04 0.08
2.375" OD x 5' Mount Pipe	C	From Face	3.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.19 1.50 1.81 2.46	1.19 1.50 1.81 2.46	0.02 0.03 0.04 0.08
Side Arm Mount [SO 701-3]	C	None		0.000	124.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.83 3.92 5.01 7.19	2.83 3.92 5.01 7.19	0.20 0.24 0.28 0.36
*********									
CXL 900-3LW	B	From Leg	2.00 0.00 1.00	60.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.14 0.33 0.48 0.81	0.14 0.33 0.48 0.81	0.00 0.00 0.01 0.02
LNA	B	From Leg	2.00 0.00 1.00	60.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.14 0.19 0.25 0.39	0.05 0.09 0.13 0.24	0.00 0.00 0.00 0.01
CAVITY FILTER	B	From Leg	2.00 0.00 1.00	60.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.19 0.25 0.32 0.47	0.08 0.12 0.17 0.29	0.00 0.00 0.01 0.02
Side Arm Mount [SO 304-1]	B	From Leg	0.00 0.00 0.00	60.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.63 1.00 1.37 2.11	0.94 1.45 1.96 2.98	0.02 0.03 0.04 0.06
*********									
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.77 9.34 9.89 10.99	6.96 8.18 9.14 11.02	0.07 0.14 0.21 0.40
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.77 9.34 9.89 10.99	6.96 8.18 9.14 11.02	0.07 0.14 0.21 0.40
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.77 9.34 9.89 10.99	6.96 8.18 9.14 11.02	0.07 0.14 0.21 0.40
(2) LNX-6514DS-A1M w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.41 8.97 9.50 10.59	7.08 8.27 9.18 11.02	0.06 0.13 0.21 0.39
(2) LNX-6514DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.41 8.97 9.50 10.59	7.08 8.27 9.18 11.02	0.06 0.13 0.21 0.39
(2) LNX-6514DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00	0.000	111.00	No Ice	8.41 8.97	7.08 8.27	0.06 0.13

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
			0.00			1/2" Ice	9.50 10.59	9.18 11.02	0.21 0.39
						1" Ice 2" Ice			
B4 RRH2X60-4R	A	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.36 3.61 3.88 4.42	2.00 2.24 2.48 2.97	0.06 0.08 0.11 0.18
B4 RRH2X60-4R	B	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.36 3.61 3.88 4.42	2.00 2.24 2.48 2.97	0.06 0.08 0.11 0.18
B4 RRH2X60-4R	C	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.36 3.61 3.88 4.42	2.00 2.24 2.48 2.97	0.06 0.08 0.11 0.18
(2) RRFDC-3315-PF-48	B	From Leg	4.00 0.00 0.00	0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.36 3.60 3.84 4.34	2.19 2.39 2.61 3.05	0.03 0.06 0.09 0.17
Platform Mount [LP 303-1]	C	None		0.000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.66 18.87 23.08 31.50	14.66 18.87 23.08 31.50	1.25 1.48 1.71 2.18
**									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP800-11	A	Paraboloid w/o Radome	From Leg	3.00 0.00 4.00	60.000		124.00	2.80	No Ice 1/2" Ice 1" Ice 2" Ice	6.16 6.53 6.90 7.64	0.02 0.06 0.09 0.17
VHLP800-11	C	Paraboloid w/o Radome	From Leg	3.00 0.00 4.00	10.000		124.00	2.80	No Ice 1/2" Ice 1" Ice 2" Ice	6.16 6.53 6.90 7.64	0.02 0.06 0.09 0.17

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 169.00-164.00	166.48	1.409	50.74	6.744	A	0.000	6.744	6.744	100.00	0.000	0.000
					B	0.000	6.744		100.00	0.000	0.000
					C	0.000	6.744		100.00	0.000	0.361
L2 164.00-159.00	161.48	1.4	50.41	7.148	A	0.000	7.148	7.148	100.00	0.000	0.000
					B	0.000	7.148		100.00	0.000	0.000
					C	0.000	7.148		100.00	0.000	1.803
L3 159.00-154.00	156.48	1.391	50.08	7.552	A	0.000	7.552	7.552	100.00	0.000	0.000
					B	0.000	7.552		100.00	0.000	0.000
					C	0.000	7.552		100.00	0.000	1.803
L4 154.00-149.00	151.48	1.381	49.74	7.955	A	0.000	7.955	7.955	100.00	0.000	0.000
					B	0.000	7.955		100.00	0.000	0.000
					C	0.000	7.955		100.00	0.000	1.803
L5 149.00-144.00	146.48	1.372	49.39	8.359	A	0.000	8.359	8.359	100.00	0.000	0.000
					B	0.000	8.359		100.00	0.000	0.000
					C	0.000	8.359		100.00	0.000	1.803
L6 144.00-139.00	141.48	1.362	49.03	8.763	A	0.000	8.763	8.763	100.00	0.000	0.000
					B	0.000	8.763		100.00	0.000	0.000
					C	0.000	8.763		100.00	0.000	1.803
L7 139.00-133.33	136.14	1.351	48.63	10.426	A	0.000	10.426	10.426	100.00	0.000	0.000
					B	0.000	10.426		100.00	0.000	0.000
					C	0.000	10.426		100.00	0.000	2.969
L8 133.33-131.66	132.49	1.343	48.35	3.096	A	0.000	3.096	3.096	100.00	0.000	0.000
					B	0.000	3.096		100.00	0.000	0.000
					C	0.000	3.096		100.00	0.000	0.933
L9 131.66-126.66	129.14	1.336	48.09	9.536	A	0.000	9.536	9.536	100.00	0.000	0.000
					B	0.000	9.536		100.00	0.000	0.000
					C	0.000	9.536		100.00	0.000	2.793
L10 126.66-121.66	124.14	1.325	47.70	9.934	A	0.000	9.934	9.934	100.00	0.000	0.000
					B	0.000	9.934		100.00	0.000	0.000
					C	0.000	9.934		100.00	0.000	2.885
L11 121.66-116.66	119.14	1.313	47.29	10.331	A	0.000	10.331	10.331	100.00	0.000	0.000
					B	0.000	10.331		100.00	0.000	0.000
					C	0.000	10.331		100.00	0.000	2.990
L12 116.66-111.66	114.14	1.301	46.86	10.729	A	0.000	10.729	10.729	100.00	0.000	0.000
					B	0.000	10.729		100.00	0.000	0.000
					C	0.000	10.729		100.00	0.000	3.297
L13 111.66-111.00	111.33	1.295	46.61	1.446	A	0.000	1.446	1.446	100.00	0.000	0.000
					B	0.000	1.446		100.00	0.000	0.000
					C	0.000	1.446		100.00	0.000	0.505
L14 111.00-110.75	110.87	1.293	46.57	0.549	A	0.000	0.549	0.549	100.00	0.000	0.000
					B	0.000	0.549		100.00	0.000	0.000
					C	0.000	0.549		100.00	0.000	0.239
L15 110.75-105.75	108.24	1.287	46.34	11.184	A	0.000	11.184	11.184	100.00	0.000	0.000
					B	0.000	11.184		100.00	0.000	0.000
					C	0.000	11.184		100.00	0.000	4.776
L16 105.75-101.50	103.61	1.275	45.92	9.820	A	0.000	9.820	9.820	100.00	0.000	0.000
					B	0.000	9.820		100.00	0.000	0.000
					C	0.000	9.820		100.00	0.000	5.101
L17 101.50-101.25	101.37	1.269	45.70	0.585	A	0.000	0.585	0.585	100.00	0.000	0.000
					B	0.000	0.585		100.00	0.000	0.000
					C	0.000	0.585		100.00	0.000	0.343
L18 101.25-101.00	101.12	1.269	45.68	0.586	A	0.000	0.586	0.586	100.00	0.000	0.000
					B	0.000	0.586		100.00	0.000	0.000
					C	0.000	0.586		100.00	0.000	0.343
L19 101.00-100.75	100.87	1.268	45.66	0.588	A	0.000	0.588	0.588	100.00	0.000	0.000
					B	0.000	0.588		100.00	0.000	0.000
					C	0.000	0.588		100.00	0.000	0.343
L20 100.75-95.75	98.24	1.261	45.40	11.970	A	0.000	11.970	11.970	100.00	0.000	0.000
					B	0.000	11.970		100.00	0.000	0.000
					C	0.000	11.970		100.00	0.000	6.401
L21 95.75-87.83	91.76	1.243	44.76	19.776	A	0.000	19.776	19.776	100.00	0.000	0.000
					B	0.000	19.776		100.00	0.000	0.000
					C	0.000	19.776		100.00	0.000	9.545
L22 87.83-86.83	87.33	1.23	44.29	2.512	A	0.000	2.512	2.512	100.00	0.000	0.000
					B	0.000	2.512		100.00	0.000	0.000
					C	0.000	2.512		100.00	0.000	1.205
L23 86.83-81.83	84.32	1.221	43.97	12.800	A	0.000	12.800	12.800	100.00	0.000	0.000
					B	0.000	12.800		100.00	0.000	0.000

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
					C	0.000	12.800		100.00	0.000	6.026
L24 81.83-81.50	81.66	1.213	43.67	0.859	A	0.000	0.859	0.859	100.00	0.000	0.000
					B	0.000	0.859		100.00	0.000	0.000
					C	0.000	0.859		100.00	0.000	0.398
L25 81.50-81.25	81.37	1.212	43.64	0.652	A	0.000	0.652	0.652	100.00	0.000	0.000
					B	0.000	0.652		100.00	0.000	0.000
					C	0.000	0.652		100.00	0.000	0.301
L26 81.25-76.25	78.74	1.204	43.34	13.244	A	0.000	13.244	13.244	100.00	0.000	0.000
					B	0.000	13.244		100.00	0.000	0.000
					C	0.000	13.244		100.00	0.000	6.026
L27 76.25-71.25	73.74	1.187	42.74	13.644	A	0.000	13.644	13.644	100.00	0.000	0.000
					B	0.000	13.644		100.00	0.000	0.000
					C	0.000	13.644		100.00	0.000	6.026
L28 71.25-66.25	68.74	1.17	42.11	14.044	A	0.000	14.044	14.044	100.00	0.000	0.000
					B	0.000	14.044		100.00	0.000	0.000
					C	0.000	14.044		100.00	0.000	6.026
L29 66.25-61.25	63.74	1.151	41.45	14.443	A	0.000	14.443	14.443	100.00	0.000	0.000
					B	0.000	14.443		100.00	0.000	0.000
					C	0.000	14.443		100.00	0.000	6.026
L30 61.25-56.25	58.74	1.132	40.74	14.842	A	0.000	14.842	14.842	100.00	0.000	0.000
					B	0.000	14.842		100.00	0.000	0.000
					C	0.000	14.842		100.00	0.000	6.026
L31 56.25-51.25	53.74	1.111	39.99	15.241	A	0.000	15.241	15.241	100.00	0.000	0.000
					B	0.000	15.241		100.00	0.000	0.000
					C	0.000	15.241		100.00	0.000	6.026
L32 51.25-43.33	47.26	1.081	38.92	24.957	A	0.000	24.957	24.957	100.00	0.000	0.000
					B	0.000	24.957		100.00	0.000	0.000
					C	0.000	24.957		100.00	0.000	9.545
L33 43.33-42.33	42.83	1.059	38.12	3.156	A	0.000	3.156	3.156	100.00	0.000	0.000
					B	0.000	3.156		100.00	0.000	0.000
					C	0.000	3.156		100.00	0.000	1.205
L34 42.33-37.40	39.85	1.043	37.55	15.791	A	0.000	15.791	15.791	100.00	0.000	0.000
					B	0.000	15.791		100.00	0.000	0.000
					C	0.000	15.791		100.00	0.000	5.941
L35 37.40-37.15	37.27	1.028	37.02	0.811	A	0.000	0.811	0.811	100.00	0.000	0.000
					B	0.000	0.811		100.00	0.000	0.000
					C	0.000	0.811		100.00	0.000	0.301
L36 37.15-32.15	34.64	1.012	36.46	16.432	A	0.000	16.432	16.432	100.00	0.000	0.000
					B	0.000	16.432		100.00	0.000	0.000
					C	0.000	16.432		100.00	0.000	6.026
L37 32.15-27.15	29.64	0.98	35.28	16.831	A	0.000	16.831	16.831	100.00	0.000	0.000
					B	0.000	16.831		100.00	0.000	0.000
					C	0.000	16.831		100.00	0.000	6.026
L38 27.15-22.15	24.64	0.942	33.93	17.229	A	0.000	17.229	17.229	100.00	0.000	0.000
					B	0.000	17.229		100.00	0.000	0.000
					C	0.000	17.229		100.00	0.000	6.026
L39 22.15-19.50	20.82	0.91	32.75	9.293	A	0.000	9.293	9.293	100.00	0.000	0.000
					B	0.000	9.293		100.00	0.000	0.000
					C	0.000	9.293		100.00	0.000	3.194
L40 19.50-19.25	19.37	0.896	32.26	0.882	A	0.000	0.882	0.882	100.00	0.000	0.000
					B	0.000	0.882		100.00	0.000	0.000
					C	0.000	0.882		100.00	0.000	0.301
L41 19.25-14.25	16.74	0.869	31.28	17.855	A	0.000	17.855	17.855	100.00	0.000	0.000
					B	0.000	17.855		100.00	0.000	0.000
					C	0.000	17.855		100.00	0.000	6.026
L42 14.25-9.25	11.74	0.85	30.61	18.252	A	0.000	18.252	18.252	100.00	0.000	0.000
					B	0.000	18.252		100.00	0.000	0.000
					C	0.000	18.252		100.00	0.000	6.026
L43 9.25-9.00	9.12	0.85	30.61	0.923	A	0.000	0.923	0.923	100.00	0.000	0.000
					B	0.000	0.923		100.00	0.000	0.000
					C	0.000	0.923		100.00	0.000	0.301
L44 9.00-8.75	8.87	0.85	30.61	0.924	A	0.000	0.924	0.924	100.00	0.000	0.000
					B	0.000	0.924		100.00	0.000	0.000
					C	0.000	0.924		100.00	0.000	0.301
L45 8.75-7.00	7.87	0.85	30.61	6.496	A	0.000	6.496	6.496	100.00	0.000	0.000
					B	0.000	6.496		100.00	0.000	0.000
					C	0.000	6.496		100.00	0.000	2.109
L46 7.00-6.75	6.87	0.85	30.61	0.932	A	0.000	0.932	0.932	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					B	0.000	0.932		100.00	0.000	0.000
					C	0.000	0.932		100.00	0.000	0.301
L47 6.75-5.00	5.87	0.85	30.61	6.552	A	0.000	6.552	6.552	100.00	0.000	0.000
					B	0.000	6.552		100.00	0.000	0.000
					C	0.000	6.552		100.00	0.000	2.109
L48 5.00-4.75	4.87	0.85	30.61	0.939	A	0.000	0.939	0.939	100.00	0.000	0.000
					B	0.000	0.939		100.00	0.000	0.000
					C	0.000	0.939		100.00	0.000	0.301
L49 4.75-3.00	3.87	0.85	30.61	6.598	A	0.000	6.598	6.598	100.00	0.000	0.000
					B	0.000	6.598		100.00	0.000	0.000
					C	0.000	6.598		100.00	0.000	2.109
L50 3.00-2.75	2.87	0.85	30.61	0.946	A	0.000	0.946	0.946	100.00	0.000	0.000
					B	0.000	0.946		100.00	0.000	0.000
					C	0.000	0.946		100.00	0.000	0.301
L51 2.75-2.25	2.50	0.85	30.61	1.896	A	0.000	1.896	1.896	100.00	0.000	0.000
					B	0.000	1.896		100.00	0.000	0.000
					C	0.000	1.896		100.00	0.000	0.603
L52 2.25-2.00	2.12	0.85	30.61	0.950	A	0.000	0.950	0.950	100.00	0.000	0.000
					B	0.000	0.950		100.00	0.000	0.000
					C	0.000	0.950		100.00	0.000	0.301
L53 2.00-0.00	1.00	0.85	30.61	7.638	A	0.000	7.638	7.638	100.00	0.000	0.000
					B	0.000	7.638		100.00	0.000	0.000
					C	0.000	7.638		100.00	0.000	2.410

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 169.00-164.00	166.48	1.409	8.12	1.9986	8.409	A	0.000	8.409	8.409	100.00	0.000	0.000
						B	0.000	8.409		100.00	0.000	0.000
						C	0.000	8.409		100.00	0.000	1.160
L2 164.00-159.00	161.48	1.4	8.07	1.9925	8.808	A	0.000	8.808	8.808	100.00	0.000	0.000
						B	0.000	8.808		100.00	0.000	0.000
						C	0.000	8.808		100.00	0.000	5.788
L3 159.00-154.00	156.48	1.391	8.01	1.9863	9.207	A	0.000	9.207	9.207	100.00	0.000	0.000
						B	0.000	9.207		100.00	0.000	0.000
						C	0.000	9.207		100.00	0.000	5.775
L4 154.00-149.00	151.48	1.381	7.96	1.9799	9.605	A	0.000	9.605	9.605	100.00	0.000	0.000
						B	0.000	9.605		100.00	0.000	0.000
						C	0.000	9.605		100.00	0.000	5.762
L5 149.00-144.00	146.48	1.372	7.90	1.9732	10.004	A	0.000	10.004	10.004	100.00	0.000	0.000
						B	0.000	10.004		100.00	0.000	0.000
						C	0.000	10.004		100.00	0.000	5.749
L6 144.00-139.00	141.48	1.362	7.84	1.9664	10.402	A	0.000	10.402	10.402	100.00	0.000	0.000
						B	0.000	10.402		100.00	0.000	0.000
						C	0.000	10.402		100.00	0.000	5.735
L7 139.00-133.33	136.14	1.351	7.78	1.9588	12.277	A	0.000	12.277	12.277	100.00	0.000	0.000
						B	0.000	12.277		100.00	0.000	0.000
						C	0.000	12.277		100.00	0.000	9.241
L8 133.33-131.66	132.49	1.343	7.74	1.9535	3.641	A	0.000	3.641	3.641	100.00	0.000	0.000
						B	0.000	3.641		100.00	0.000	0.000
						C	0.000	3.641		100.00	0.000	2.895
L9 131.66-126.66	129.14	1.336	7.70	1.9485	11.159	A	0.000	11.159	11.159	100.00	0.000	0.000
						B	0.000	11.159		100.00	0.000	0.000
						C	0.000	11.159		100.00	0.000	8.638
L10 126.66-121.66	124.14	1.325	7.63	1.9408	11.551	A	0.000	11.551	11.551	100.00	0.000	0.000
						B	0.000	11.551		100.00	0.000	0.000
						C	0.000	11.551		100.00	0.000	8.707
L11 121.66-116.66	119.14	1.313	7.57	1.9329	11.942	A	0.000	11.942	11.942	100.00	0.000	0.000
						B	0.000	11.942		100.00	0.000	0.000
						C	0.000	11.942		100.00	0.000	8.789

Section Elevation	z	K_Z	q_z	t_Z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	in	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
L12 116.66-111.66	114.14	1.301	7.50	1.9246	12.333	A	0.000	12.333	12.333	100.00	0.000	0.000
						B	0.000	12.333		100.00	0.000	0.000
						C	0.000	12.333		100.00	0.000	9.857
L13 111.66-111.00	111.33	1.295	7.46	1.9198	1.657	A	0.000	1.657	1.657	100.00	0.000	0.000
						B	0.000	1.657		100.00	0.000	0.000
						C	0.000	1.657		100.00	0.000	1.546
L14 111.00-110.75	110.87	1.293	7.45	1.9190	0.629	A	0.000	0.629	0.629	100.00	0.000	0.000
						B	0.000	0.629		100.00	0.000	0.000
						C	0.000	0.629		100.00	0.000	0.729
L15 110.75-105.75	108.24	1.287	7.41	1.9144	12.779	A	0.000	12.779	12.779	100.00	0.000	0.000
						B	0.000	12.779		100.00	0.000	0.000
						C	0.000	12.779		100.00	0.000	14.561
L16 105.75-101.50	103.61	1.275	7.35	1.9061	11.170	A	0.000	11.170	11.170	100.00	0.000	0.000
						B	0.000	11.170		100.00	0.000	0.000
						C	0.000	11.170		100.00	0.000	15.500
L17 101.50-101.25	101.37	1.269	7.31	1.9019	0.664	A	0.000	0.664	0.664	100.00	0.000	0.000
						B	0.000	0.664		100.00	0.000	0.000
						C	0.000	0.664		100.00	0.000	1.040
L18 101.25-101.00	101.12	1.269	7.31	1.9014	0.665	A	0.000	0.665	0.665	100.00	0.000	0.000
						B	0.000	0.665		100.00	0.000	0.000
						C	0.000	0.665		100.00	0.000	1.040
L19 101.00-100.75	100.87	1.268	7.31	1.9010	0.667	A	0.000	0.667	0.667	100.00	0.000	0.000
						B	0.000	0.667		100.00	0.000	0.000
						C	0.000	0.667		100.00	0.000	1.040
L20 100.75-95.75	98.24	1.261	7.26	1.8959	13.550	A	0.000	13.550	13.550	100.00	0.000	0.000
						B	0.000	13.550		100.00	0.000	0.000
						C	0.000	13.550		100.00	0.000	19.146
L21 95.75-87.83	91.76	1.243	7.16	1.8830	22.262	A	0.000	22.262	22.262	100.00	0.000	0.000
						B	0.000	22.262		100.00	0.000	0.000
						C	0.000	22.262		100.00	0.000	28.104
L22 87.83-86.83	87.33	1.23	7.09	1.8738	2.826	A	0.000	2.826	2.826	100.00	0.000	0.000
						B	0.000	2.826		100.00	0.000	0.000
						C	0.000	2.826		100.00	0.000	3.549
L23 86.83-81.83	84.32	1.221	7.03	1.8672	14.356	A	0.000	14.356	14.356	100.00	0.000	0.000
						B	0.000	14.356		100.00	0.000	0.000
						C	0.000	14.356		100.00	0.000	17.644
L24 81.83-81.50	81.66	1.213	6.99	1.8612	0.961	A	0.000	0.961	0.961	100.00	0.000	0.000
						B	0.000	0.961		100.00	0.000	0.000
						C	0.000	0.961		100.00	0.000	1.162
L25 81.50-81.25	81.37	1.212	6.98	1.8606	0.729	A	0.000	0.729	0.729	100.00	0.000	0.000
						B	0.000	0.729		100.00	0.000	0.000
						C	0.000	0.729		100.00	0.000	0.880
L26 81.25-76.25	78.74	1.204	6.93	1.8545	14.790	A	0.000	14.790	14.790	100.00	0.000	0.000
						B	0.000	14.790		100.00	0.000	0.000
						C	0.000	14.790		100.00	0.000	17.565
L27 76.25-71.25	73.74	1.187	6.84	1.8423	15.179	A	0.000	15.179	15.179	100.00	0.000	0.000
						B	0.000	15.179		100.00	0.000	0.000
						C	0.000	15.179		100.00	0.000	17.489
L28 71.25-66.25	68.74	1.17	6.74	1.8294	15.568	A	0.000	15.568	15.568	100.00	0.000	0.000
						B	0.000	15.568		100.00	0.000	0.000
						C	0.000	15.568		100.00	0.000	17.409
L29 66.25-61.25	63.74	1.151	6.63	1.8157	15.956	A	0.000	15.956	15.956	100.00	0.000	0.000
						B	0.000	15.956		100.00	0.000	0.000
						C	0.000	15.956		100.00	0.000	17.323
L30 61.25-56.25	58.74	1.132	6.52	1.8009	16.342	A	0.000	16.342	16.342	100.00	0.000	0.000
						B	0.000	16.342		100.00	0.000	0.000
						C	0.000	16.342		100.00	0.000	17.231
L31 56.25-51.25	53.74	1.111	6.40	1.7850	16.729	A	0.000	16.729	16.729	100.00	0.000	0.000
						B	0.000	16.729		100.00	0.000	0.000
						C	0.000	16.729		100.00	0.000	17.132
L32 51.25-43.33	47.26	1.081	6.23	1.7622	27.283	A	0.000	27.283	27.283	100.00	0.000	0.000
						B	0.000	27.283		100.00	0.000	0.000
						C	0.000	27.283		100.00	0.000	26.913
L33 43.33-42.33	42.83	1.059	6.10	1.7449	3.450	A	0.000	3.450	3.450	100.00	0.000	0.000
						B	0.000	3.450		100.00	0.000	0.000
						C	0.000	3.450		100.00	0.000	3.398
L34 42.33-37.40	39.85	1.043	6.01	1.7324	17.215	A	0.000	17.215	17.215	100.00	0.000	0.000
						B	0.000	17.215		100.00	0.000	0.000

Section Elevation	z	K_Z	q_z	t_Z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	in	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
						C	0.000	17.215		100.00	0.000	16.570
L35 37.40-37.15	37.27	1.028	5.92	1.7208	0.883	A	0.000	0.883	0.883	100.00	0.000	0.000
						B	0.000	0.883		100.00	0.000	0.000
						C	0.000	0.883		100.00	0.000	0.837
L36 37.15-32.15	34.64	1.012	5.83	1.7083	17.855	A	0.000	17.855	17.855	100.00	0.000	0.000
						B	0.000	17.855		100.00	0.000	0.000
						C	0.000	17.855		100.00	0.000	16.655
L37 32.15-27.15	29.64	0.98	5.64	1.6818	18.233	A	0.000	18.233	18.233	100.00	0.000	0.000
						B	0.000	18.233		100.00	0.000	0.000
						C	0.000	18.233		100.00	0.000	16.491
L38 27.15-22.15	24.64	0.942	5.43	1.6511	18.605	A	0.000	18.605	18.605	100.00	0.000	0.000
						B	0.000	18.605		100.00	0.000	0.000
						C	0.000	18.605		100.00	0.000	16.299
L39 22.15-19.50	20.82	0.91	5.24	1.6235	10.010	A	0.000	10.010	10.010	100.00	0.000	0.000
						B	0.000	10.010		100.00	0.000	0.000
						C	0.000	10.010		100.00	0.000	8.548
L40 19.50-19.25	19.37	0.896	5.16	1.6118	0.949	A	0.000	0.949	0.949	100.00	0.000	0.000
						B	0.000	0.949		100.00	0.000	0.000
						C	0.000	0.949		100.00	0.000	0.803
L41 19.25-14.25	16.74	0.869	5.01	1.5885	19.179	A	0.000	19.179	19.179	100.00	0.000	0.000
						B	0.000	19.179		100.00	0.000	0.000
						C	0.000	19.179		100.00	0.000	15.910
L42 14.25-9.25	11.74	0.85	4.90	1.5331	19.530	A	0.000	19.530	19.530	100.00	0.000	0.000
						B	0.000	19.530		100.00	0.000	0.000
						C	0.000	19.530		100.00	0.000	15.565
L43 9.25-9.00	9.12	0.85	4.90	1.4949	0.985	A	0.000	0.985	0.985	100.00	0.000	0.000
						B	0.000	0.985		100.00	0.000	0.000
						C	0.000	0.985		100.00	0.000	0.766
L44 9.00-8.75	8.87	0.85	4.90	1.4908	0.986	A	0.000	0.986	0.986	100.00	0.000	0.000
						B	0.000	0.986		100.00	0.000	0.000
						C	0.000	0.986		100.00	0.000	0.765
L45 8.75-7.00	7.87	0.85	4.90	1.4730	6.925	A	0.000	6.925	6.925	100.00	0.000	0.000
						B	0.000	6.925		100.00	0.000	0.000
						C	0.000	6.925		100.00	0.000	5.317
L46 7.00-6.75	6.87	0.85	4.90	1.4532	0.993	A	0.000	0.993	0.993	100.00	0.000	0.000
						B	0.000	0.993		100.00	0.000	0.000
						C	0.000	0.993		100.00	0.000	0.753
L47 6.75-5.00	5.87	0.85	4.90	1.4305	6.970	A	0.000	6.970	6.970	100.00	0.000	0.000
						B	0.000	6.970		100.00	0.000	0.000
						C	0.000	6.970		100.00	0.000	5.224
L48 5.00-4.75	4.87	0.85	4.90	1.4041	0.997	A	0.000	0.997	0.997	100.00	0.000	0.000
						B	0.000	0.997		100.00	0.000	0.000
						C	0.000	0.997		100.00	0.000	0.738
L49 4.75-3.00	3.87	0.85	4.90	1.3722	6.998	A	0.000	6.998	6.998	100.00	0.000	0.000
						B	0.000	6.998		100.00	0.000	0.000
						C	0.000	6.998		100.00	0.000	5.097
L50 3.00-2.75	2.87	0.85	4.90	1.3319	1.002	A	0.000	1.002	1.002	100.00	0.000	0.000
						B	0.000	1.002		100.00	0.000	0.000
						C	0.000	1.002		100.00	0.000	0.716
L51 2.75-2.25	2.50	0.85	4.90	1.3134	2.005	A	0.000	2.005	2.005	100.00	0.000	0.000
						B	0.000	2.005		100.00	0.000	0.000
						C	0.000	2.005		100.00	0.000	1.420
L52 2.25-2.00	2.12	0.85	4.90	1.2922	1.004	A	0.000	1.004	1.004	100.00	0.000	0.000
						B	0.000	1.004		100.00	0.000	0.000
						C	0.000	1.004		100.00	0.000	0.703
L53 2.00-0.00	1.00	0.85	4.90	1.1982	8.038	A	0.000	8.038	8.038	100.00	0.000	0.000
						B	0.000	8.038		100.00	0.000	0.000
						C	0.000	8.038		100.00	0.000	5.393

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 169.00-164.00	166.48	1.409	10.46	6.744	A	0.000	6.744	6.744	100.00	0.000	0.000
					B	0.000	6.744		100.00	0.000	0.000
					C	0.000	6.744		100.00	0.000	0.361
L2 164.00-159.00	161.48	1.4	10.39	7.148	A	0.000	7.148	7.148	100.00	0.000	0.000
					B	0.000	7.148		100.00	0.000	0.000
					C	0.000	7.148		100.00	0.000	1.803
L3 159.00-154.00	156.48	1.391	10.32	7.552	A	0.000	7.552	7.552	100.00	0.000	0.000
					B	0.000	7.552		100.00	0.000	0.000
					C	0.000	7.552		100.00	0.000	1.803
L4 154.00-149.00	151.48	1.381	10.25	7.955	A	0.000	7.955	7.955	100.00	0.000	0.000
					B	0.000	7.955		100.00	0.000	0.000
					C	0.000	7.955		100.00	0.000	1.803
L5 149.00-144.00	146.48	1.372	10.18	8.359	A	0.000	8.359	8.359	100.00	0.000	0.000
					B	0.000	8.359		100.00	0.000	0.000
					C	0.000	8.359		100.00	0.000	1.803
L6 144.00-139.00	141.48	1.362	10.11	8.763	A	0.000	8.763	8.763	100.00	0.000	0.000
					B	0.000	8.763		100.00	0.000	0.000
					C	0.000	8.763		100.00	0.000	1.803
L7 139.00-133.33	136.14	1.351	10.03	10.426	A	0.000	10.426	10.426	100.00	0.000	0.000
					B	0.000	10.426		100.00	0.000	0.000
					C	0.000	10.426		100.00	0.000	2.969
L8 133.33-131.66	132.49	1.343	9.97	3.096	A	0.000	3.096	3.096	100.00	0.000	0.000
					B	0.000	3.096		100.00	0.000	0.000
					C	0.000	3.096		100.00	0.000	0.933
L9 131.66-126.66	129.14	1.336	9.91	9.536	A	0.000	9.536	9.536	100.00	0.000	0.000
					B	0.000	9.536		100.00	0.000	0.000
					C	0.000	9.536		100.00	0.000	2.793
L10 126.66-121.66	124.14	1.325	9.83	9.934	A	0.000	9.934	9.934	100.00	0.000	0.000
					B	0.000	9.934		100.00	0.000	0.000
					C	0.000	9.934		100.00	0.000	2.885
L11 121.66-116.66	119.14	1.313	9.75	10.331	A	0.000	10.331	10.331	100.00	0.000	0.000
					B	0.000	10.331		100.00	0.000	0.000
					C	0.000	10.331		100.00	0.000	2.990
L12 116.66-111.66	114.14	1.301	9.66	10.729	A	0.000	10.729	10.729	100.00	0.000	0.000
					B	0.000	10.729		100.00	0.000	0.000
					C	0.000	10.729		100.00	0.000	3.297
L13 111.66-111.00	111.33	1.295	9.61	1.446	A	0.000	1.446	1.446	100.00	0.000	0.000
					B	0.000	1.446		100.00	0.000	0.000
					C	0.000	1.446		100.00	0.000	0.505
L14 111.00-110.75	110.87	1.293	9.60	0.549	A	0.000	0.549	0.549	100.00	0.000	0.000
					B	0.000	0.549		100.00	0.000	0.000
					C	0.000	0.549		100.00	0.000	0.239
L15 110.75-105.75	108.24	1.287	9.55	11.184	A	0.000	11.184	11.184	100.00	0.000	0.000
					B	0.000	11.184		100.00	0.000	0.000
					C	0.000	11.184		100.00	0.000	4.776
L16 105.75-101.50	103.61	1.275	9.47	9.820	A	0.000	9.820	9.820	100.00	0.000	0.000
					B	0.000	9.820		100.00	0.000	0.000
					C	0.000	9.820		100.00	0.000	5.101
L17 101.50-101.25	101.37	1.269	9.42	0.585	A	0.000	0.585	0.585	100.00	0.000	0.000
					B	0.000	0.585		100.00	0.000	0.000
					C	0.000	0.585		100.00	0.000	0.343
L18 101.25-101.00	101.12	1.269	9.42	0.586	A	0.000	0.586	0.586	100.00	0.000	0.000
					B	0.000	0.586		100.00	0.000	0.000
					C	0.000	0.586		100.00	0.000	0.343
L19 101.00-100.75	100.87	1.268	9.41	0.588	A	0.000	0.588	0.588	100.00	0.000	0.000
					B	0.000	0.588		100.00	0.000	0.000
					C	0.000	0.588		100.00	0.000	0.343
L20 100.75-95.75	98.24	1.261	9.36	11.970	A	0.000	11.970	11.970	100.00	0.000	0.000
					B	0.000	11.970		100.00	0.000	0.000
					C	0.000	11.970		100.00	0.000	6.401
L21 95.75-87.83	91.76	1.243	9.23	19.776	A	0.000	19.776	19.776	100.00	0.000	0.000
					B	0.000	19.776		100.00	0.000	0.000
					C	0.000	19.776		100.00	0.000	9.545
L22 87.83-86.83	87.33	1.23	9.13	2.512	A	0.000	2.512	2.512	100.00	0.000	0.000
					B	0.000	2.512		100.00	0.000	0.000
					C	0.000	2.512		100.00	0.000	1.205
L23 86.83-81.83	84.32	1.221	9.06	12.800	A	0.000	12.800	12.800	100.00	0.000	0.000
					B	0.000	12.800		100.00	0.000	0.000

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
					C	0.000	12.800		100.00	0.000	6.026
L24 81.83-81.50	81.66	1.213	9.00	0.859	A	0.000	0.859	0.859	100.00	0.000	0.000
					B	0.000	0.859		100.00	0.000	0.000
					C	0.000	0.859		100.00	0.000	0.398
L25 81.50-81.25	81.37	1.212	9.00	0.652	A	0.000	0.652	0.652	100.00	0.000	0.000
					B	0.000	0.652		100.00	0.000	0.000
					C	0.000	0.652		100.00	0.000	0.301
L26 81.25-76.25	78.74	1.204	8.93	13.244	A	0.000	13.244	13.244	100.00	0.000	0.000
					B	0.000	13.244		100.00	0.000	0.000
					C	0.000	13.244		100.00	0.000	6.026
L27 76.25-71.25	73.74	1.187	8.81	13.644	A	0.000	13.644	13.644	100.00	0.000	0.000
					B	0.000	13.644		100.00	0.000	0.000
					C	0.000	13.644		100.00	0.000	6.026
L28 71.25-66.25	68.74	1.17	8.68	14.044	A	0.000	14.044	14.044	100.00	0.000	0.000
					B	0.000	14.044		100.00	0.000	0.000
					C	0.000	14.044		100.00	0.000	6.026
L29 66.25-61.25	63.74	1.151	8.54	14.443	A	0.000	14.443	14.443	100.00	0.000	0.000
					B	0.000	14.443		100.00	0.000	0.000
					C	0.000	14.443		100.00	0.000	6.026
L30 61.25-56.25	58.74	1.132	8.40	14.842	A	0.000	14.842	14.842	100.00	0.000	0.000
					B	0.000	14.842		100.00	0.000	0.000
					C	0.000	14.842		100.00	0.000	6.026
L31 56.25-51.25	53.74	1.111	8.24	15.241	A	0.000	15.241	15.241	100.00	0.000	0.000
					B	0.000	15.241		100.00	0.000	0.000
					C	0.000	15.241		100.00	0.000	6.026
L32 51.25-43.33	47.26	1.081	8.02	24.957	A	0.000	24.957	24.957	100.00	0.000	0.000
					B	0.000	24.957		100.00	0.000	0.000
					C	0.000	24.957		100.00	0.000	9.545
L33 43.33-42.33	42.83	1.059	7.86	3.156	A	0.000	3.156	3.156	100.00	0.000	0.000
					B	0.000	3.156		100.00	0.000	0.000
					C	0.000	3.156		100.00	0.000	1.205
L34 42.33-37.40	39.85	1.043	7.74	15.791	A	0.000	15.791	15.791	100.00	0.000	0.000
					B	0.000	15.791		100.00	0.000	0.000
					C	0.000	15.791		100.00	0.000	5.941
L35 37.40-37.15	37.27	1.028	7.63	0.811	A	0.000	0.811	0.811	100.00	0.000	0.000
					B	0.000	0.811		100.00	0.000	0.000
					C	0.000	0.811		100.00	0.000	0.301
L36 37.15-32.15	34.64	1.012	7.52	16.432	A	0.000	16.432	16.432	100.00	0.000	0.000
					B	0.000	16.432		100.00	0.000	0.000
					C	0.000	16.432		100.00	0.000	6.026
L37 32.15-27.15	29.64	0.98	7.27	16.831	A	0.000	16.831	16.831	100.00	0.000	0.000
					B	0.000	16.831		100.00	0.000	0.000
					C	0.000	16.831		100.00	0.000	6.026
L38 27.15-22.15	24.64	0.942	7.00	17.229	A	0.000	17.229	17.229	100.00	0.000	0.000
					B	0.000	17.229		100.00	0.000	0.000
					C	0.000	17.229		100.00	0.000	6.026
L39 22.15-19.50	20.82	0.91	6.75	9.293	A	0.000	9.293	9.293	100.00	0.000	0.000
					B	0.000	9.293		100.00	0.000	0.000
					C	0.000	9.293		100.00	0.000	3.194
L40 19.50-19.25	19.37	0.896	6.65	0.882	A	0.000	0.882	0.882	100.00	0.000	0.000
					B	0.000	0.882		100.00	0.000	0.000
					C	0.000	0.882		100.00	0.000	0.301
L41 19.25-14.25	16.74	0.869	6.45	17.855	A	0.000	17.855	17.855	100.00	0.000	0.000
					B	0.000	17.855		100.00	0.000	0.000
					C	0.000	17.855		100.00	0.000	6.026
L42 14.25-9.25	11.74	0.85	6.31	18.252	A	0.000	18.252	18.252	100.00	0.000	0.000
					B	0.000	18.252		100.00	0.000	0.000
					C	0.000	18.252		100.00	0.000	6.026
L43 9.25-9.00	9.12	0.85	6.31	0.923	A	0.000	0.923	0.923	100.00	0.000	0.000
					B	0.000	0.923		100.00	0.000	0.000
					C	0.000	0.923		100.00	0.000	0.301
L44 9.00-8.75	8.87	0.85	6.31	0.924	A	0.000	0.924	0.924	100.00	0.000	0.000
					B	0.000	0.924		100.00	0.000	0.000
					C	0.000	0.924		100.00	0.000	0.301
L45 8.75-7.00	7.87	0.85	6.31	6.496	A	0.000	6.496	6.496	100.00	0.000	0.000
					B	0.000	6.496		100.00	0.000	0.000
					C	0.000	6.496		100.00	0.000	2.109
L46 7.00-6.75	6.87	0.85	6.31	0.932	A	0.000	0.932	0.932	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					B	0.000	0.932		100.00	0.000	0.000
					C	0.000	0.932		100.00	0.000	0.301
L47 6.75-5.00	5.87	0.85	6.31	6.552	A	0.000	6.552	6.552	100.00	0.000	0.000
					B	0.000	6.552		100.00	0.000	0.000
					C	0.000	6.552		100.00	0.000	2.109
L48 5.00-4.75	4.87	0.85	6.31	0.939	A	0.000	0.939	0.939	100.00	0.000	0.000
					B	0.000	0.939		100.00	0.000	0.000
					C	0.000	0.939		100.00	0.000	0.301
L49 4.75-3.00	3.87	0.85	6.31	6.598	A	0.000	6.598	6.598	100.00	0.000	0.000
					B	0.000	6.598		100.00	0.000	0.000
					C	0.000	6.598		100.00	0.000	2.109
L50 3.00-2.75	2.87	0.85	6.31	0.946	A	0.000	0.946	0.946	100.00	0.000	0.000
					B	0.000	0.946		100.00	0.000	0.000
					C	0.000	0.946		100.00	0.000	0.301
L51 2.75-2.25	2.50	0.85	6.31	1.896	A	0.000	1.896	1.896	100.00	0.000	0.000
					B	0.000	1.896		100.00	0.000	0.000
					C	0.000	1.896		100.00	0.000	0.603
L52 2.25-2.00	2.12	0.85	6.31	0.950	A	0.000	0.950	0.950	100.00	0.000	0.000
					B	0.000	0.950		100.00	0.000	0.000
					C	0.000	0.950		100.00	0.000	0.301
L53 2.00-0.00	1.00	0.85	6.31	7.638	A	0.000	7.638	7.638	100.00	0.000	0.000
					B	0.000	7.638		100.00	0.000	0.000
					C	0.000	7.638		100.00	0.000	2.410

Load Combinations

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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	169 - 164	Pole	Max Tension	48	0.00	0.00	0.00
			Max. Compression	26	-9.30	0.65	-1.01
			Max. Mx	20	-2.33	12.25	-0.47
			Max. My	14	-2.34	0.29	-12.40
			Max. Vy	20	-6.67	12.25	-0.47
			Max. Vx	14	6.65	0.29	-12.40
			Max. Torque	10			-0.47
L2	164 - 159	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.49	1.18	-1.32
			Max. Mx	20	-2.61	46.75	-0.54
			Max. My	14	-2.62	0.41	-46.76
			Max. Vy	20	-7.11	46.75	-0.54
			Max. Vx	14	7.09	0.41	-46.76
			Max. Torque	10			-0.53
L3	159 - 154	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.41	1.32	-0.95
			Max. Mx	20	-5.22	102.79	-0.52
			Max. My	14	-5.26	0.48	-102.25
			Max. Vy	20	-13.69	102.79	-0.52
			Max. Vx	14	13.58	0.48	-102.25
			Max. Torque	10			-0.57
L4	154 - 149	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.72	2.00	-1.35
			Max. Mx	20	-5.66	172.41	-0.61
			Max. My	14	-5.70	0.64	-171.31
			Max. Vy	20	-14.15	172.41	-0.61
			Max. Vx	14	14.04	0.64	-171.31
			Max. Torque	2			0.26
L5	149 - 144	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.91	2.74	-1.78
			Max. Mx	20	-7.47	256.62	-0.71
			Max. My	14	-7.52	0.83	-254.92
			Max. Vy	20	-17.68	256.62	-0.71
			Max. Vx	14	17.56	0.83	-254.92
			Max. Torque	24			0.33
L6	144 - 139	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.29	3.52	-2.24
			Max. Mx	20	-8.06	346.14	-0.82
			Max. My	14	-8.10	1.02	-343.86
			Max. Vy	20	-18.13	346.14	-0.82
			Max. Vx	14	18.01	1.02	-343.86
			Max. Torque	24			0.42
L7	139 - 133.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.98	3.99	-2.52
			Max. Mx	20	-8.58	389.92	-0.87
			Max. My	14	-8.62	1.13	-387.36
			Max. Vy	20	-19.16	389.92	-0.87
			Max. Vx	14	19.05	1.13	-387.36

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	24			0.47
L8	133.33 - 131.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.17	5.02	-3.12
			Max. Mx	20	-9.47	487.23	-0.99
			Max. My	14	-9.52	1.35	-484.06
			Max. Vy	20	-19.73	487.23	-0.99
			Max. Vx	14	19.62	1.35	-484.06
			Max. Torque	24			0.60
L9	131.66 - 126.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.34	6.68	-3.42
			Max. Mx	20	-10.21	588.23	-1.56
			Max. My	14	-10.28	2.06	-584.04
			Max. Vy	8	20.98	-586.68	-0.03
			Max. Vx	14	20.63	2.06	-584.04
			Max. Torque	14			-2.92
L10	126.66 - 121.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.92	7.97	-4.18
			Max. Mx	20	-11.49	699.23	-3.03
			Max. My	14	-11.55	4.90	-693.36
			Max. Vy	8	22.48	-697.51	0.95
			Max. Vx	14	22.14	4.90	-693.36
			Max. Torque	14			-3.08
L11	121.66 - 116.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.04	9.06	-5.02
			Max. Mx	20	-12.39	812.90	-4.52
			Max. My	14	-12.45	7.70	-805.42
			Max. Vy	8	23.05	-811.14	1.94
			Max. Vx	14	22.70	7.70	-805.42
			Max. Torque	14			-3.16
L12	116.66 - 111.66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.09	10.36	-5.79
			Max. Mx	20	-13.30	929.35	-5.99
			Max. My	14	-13.36	10.52	-920.16
			Max. Vy	8	23.55	-927.47	2.94
			Max. Vx	14	23.20	10.52	-920.16
			Max. Torque	14			-3.27
L13	111.66 - 111	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.36	10.53	-5.89
			Max. Mx	20	-13.43	944.92	-6.18
			Max. My	14	-13.49	10.90	-935.50
			Max. Vy	8	23.62	-943.01	3.07
			Max. Vx	14	23.27	10.90	-935.50
			Max. Torque	14			-3.29
L14	111 - 110.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.53	9.17	-6.82
			Max. Mx	20	-15.72	951.87	-6.39
			Max. My	14	-15.79	10.79	-942.84
			Max. Vy	8	29.06	-950.58	2.96
			Max. Vx	14	28.66	10.79	-942.84
			Max. Torque	14			-3.29
L15	110.75 - 105.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.99	11.52	-8.19
			Max. Mx	20	-17.04	1098.92	-7.71
			Max. My	14	-17.10	13.53	-1087.89
			Max. Vy	8	29.73	-1097.29	3.70
			Max. Vx	14	29.33	13.53	-1087.89
			Max. Torque	15			-2.71
L16	105.75 - 101.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.94	13.57	-9.39
			Max. Mx	20	-18.19	1226.62	-8.84
			Max. My	14	-18.25	15.86	-1213.88
			Max. Vy	8	30.34	-1224.70	4.33

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	29.94	15.86	-1213.88
			Max. Torque	15			-2.97
L17	101.5 - 101.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.14	13.70	-9.46
			Max. Mx	20	-18.31	1234.21	-8.91
			Max. My	14	-18.37	16.00	-1221.38
			Max. Vy	8	30.37	-1232.27	4.36
			Max. Vx	14	29.97	16.00	-1221.38
			Max. Torque	15			-2.98
L18	101.25 - 101	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.35	13.82	-9.53
			Max. Mx	20	-18.40	1241.82	-8.98
			Max. My	14	-18.46	16.14	-1228.88
			Max. Vy	8	30.42	-1239.86	4.40
			Max. Vx	14	30.01	16.14	-1228.88
			Max. Torque	15			-3.00
L19	101 - 100.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.53	13.94	-9.60
			Max. Mx	20	-18.48	1249.43	-9.05
			Max. My	14	-18.54	16.27	-1236.39
			Max. Vy	8	30.46	-1247.46	4.44
			Max. Vx	14	30.05	16.27	-1236.39
			Max. Torque	15			-3.02
L20	100.75 - 95.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.26	16.41	-11.05
			Max. Mx	20	-20.06	1403.74	-10.37
			Max. My	14	-20.11	19.01	-1388.69
			Max. Vy	8	31.23	-1401.40	5.17
			Max. Vx	14	30.83	19.01	-1388.69
			Max. Torque	15			-3.34
L21	95.75 - 87.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.95	18.24	-12.11
			Max. Mx	20	-21.22	1516.88	-11.34
			Max. My	14	-21.27	20.99	-1500.37
			Max. Vy	8	31.76	-1514.26	5.69
			Max. Vx	14	31.36	20.99	-1500.37
			Max. Torque	15			-3.56
L22	87.83 - 86.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.72	20.97	-13.71
			Max. Mx	20	-24.34	1688.85	-12.77
			Max. My	14	-24.39	23.94	-1670.18
			Max. Vy	8	32.71	-1685.82	6.47
			Max. Vx	14	32.31	23.94	-1670.18
			Max. Torque	15			-3.90
L23	86.83 - 81.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.86	23.57	-15.22
			Max. Mx	20	-26.35	1854.39	-14.12
			Max. My	14	-26.40	26.72	-1833.68
			Max. Vy	8	33.47	-1850.96	7.20
			Max. Vx	14	33.06	26.72	-1833.68
			Max. Torque	15			-4.22
L24	81.83 - 81.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.14	23.75	-15.32
			Max. Mx	20	-26.50	1865.45	-14.21
			Max. My	14	-26.55	26.90	-1844.61
			Max. Vy	8	33.51	-1861.99	7.24
			Max. Vx	14	33.11	26.90	-1844.61
			Max. Torque	15			-4.24
L25	81.5 - 81.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.35	23.88	-15.40
			Max. Mx	20	-26.60	1873.83	-14.28
			Max. My	14	-26.65	27.04	-1852.89
			Max. Vy	8	33.55	-1870.36	7.28
			Max. Vx	14	33.14	27.04	-1852.89

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	15			-4.25
L26	81.25 - 76.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.54	26.54	-16.95
			Max. Mx	20	-28.67	2043.57	-15.63
			Max. My	14	-28.72	29.82	-2020.59
			Max. Vy	8	34.30	-2039.68	8.00
			Max. Vx	14	33.90	29.82	-2020.59
			Max. Torque	15			-4.57
L27	76.25 - 71.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.74	29.24	-18.52
			Max. Mx	20	-30.79	2217.00	-16.99
			Max. My	14	-30.83	32.61	-2191.98
			Max. Vy	8	35.03	-2212.68	8.72
			Max. Vx	14	34.63	32.61	-2191.98
			Max. Torque	15			-4.90
L28	71.25 - 66.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.96	31.98	-20.11
			Max. Mx	20	-32.94	2394.04	-18.35
			Max. My	14	-32.98	35.40	-2366.97
			Max. Vy	8	35.74	-2389.27	9.43
			Max. Vx	14	35.34	35.40	-2366.97
			Max. Torque	15			-5.23
L29	66.25 - 61.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.20	34.75	-21.72
			Max. Mx	20	-35.11	2574.60	-19.71
			Max. My	14	-35.15	38.20	-2545.49
			Max. Vy	8	36.44	-2569.37	10.14
			Max. Vx	14	36.04	38.20	-2545.49
			Max. Torque	15			-5.57
L30	61.25 - 56.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.44	37.55	-23.35
			Max. Mx	20	-37.32	2758.59	-21.08
			Max. My	14	-37.36	41.00	-2727.43
			Max. Vy	8	37.11	-2752.88	10.84
			Max. Vx	14	36.71	41.00	-2727.43
			Max. Torque	15			-5.91
L31	56.25 - 51.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-100.70	40.38	-24.99
			Max. Mx	20	-39.57	2945.89	-22.44
			Max. My	14	-39.60	43.79	-2912.69
			Max. Vy	8	37.77	-2939.70	11.53
			Max. Vx	14	37.37	43.79	-2912.69
			Max. Torque	15			-6.25
L32	51.25 - 43.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.90	41.86	-25.85
			Max. Mx	20	-40.74	3044.18	-23.15
			Max. My	14	-40.76	45.24	-3009.92
			Max. Vy	8	38.09	-3037.73	11.89
			Max. Vx	14	37.70	45.24	-3009.92
			Max. Torque	15			-6.43
L33	43.33 - 42.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-111.30	45.46	-27.94
			Max. Mx	20	-46.07	3288.67	-24.88
			Max. My	14	-46.09	48.79	-3251.82
			Max. Vy	8	39.08	-3281.57	12.76
			Max. Vx	14	38.68	48.79	-3251.82
			Max. Torque	15			-6.87
L34	42.33 - 37.4	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-115.96	48.25	-29.56
			Max. Mx	20	-48.79	3482.96	-26.23
			Max. My	14	-48.81	51.55	-3444.09

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	39.69	-3475.35	13.43
			Max. Vx	14	39.30	51.55	-3444.09
			Max. Torque	15			-7.20
L35	37.4 - 37.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-116.19	48.40	-29.64
			Max. Mx	20	-48.94	3492.89	-26.30
			Max. My	14	-48.96	51.69	-3453.92
			Max. Vy	8	39.71	-3485.26	13.47
			Max. Vx	14	39.31	51.69	-3453.92
			Max. Torque	15			-7.22
L36	37.15 - 32.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-120.92	51.22	-31.28
			Max. Mx	20	-51.72	3693.09	-27.67
			Max. My	14	-51.74	54.49	-3652.08
			Max. Vy	8	40.31	-3684.92	14.14
			Max. Vx	14	39.91	54.49	-3652.08
			Max. Torque	15			-7.56
L37	32.15 - 27.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-125.63	54.03	-32.91
			Max. Mx	20	-54.54	3896.14	-29.04
			Max. My	14	-54.55	57.28	-3853.10
			Max. Vy	8	40.86	-3887.43	14.82
			Max. Vx	14	40.47	57.28	-3853.10
			Max. Torque	15			-7.89
L38	27.15 - 22.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-130.33	56.82	-34.52
			Max. Mx	20	-57.38	4101.87	-30.40
			Max. My	14	-57.40	60.07	-4056.80
			Max. Vy	8	41.38	-4092.61	15.48
			Max. Vx	14	40.98	60.07	-4056.80
			Max. Torque	15			-8.22
L39	22.15 - 19.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-132.82	58.29	-35.37
			Max. Mx	20	-58.90	4211.93	-31.12
			Max. My	14	-58.91	61.54	-4165.78
			Max. Vy	8	41.64	-4202.37	15.83
			Max. Vx	14	41.25	61.54	-4165.78
			Max. Torque	15			-8.40
L40	19.5 - 19.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-133.06	58.43	-35.45
			Max. Mx	20	-59.07	4222.35	-31.19
			Max. My	14	-59.08	61.68	-4176.10
			Max. Vy	8	41.65	-4212.76	15.86
			Max. Vx	14	41.25	61.68	-4176.10
			Max. Torque	15			-8.41
L41	19.25 - 14.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-137.89	61.14	-37.02
			Max. Mx	20	-62.11	4431.93	-32.55
			Max. My	14	-62.12	64.46	-4383.66
			Max. Vy	8	42.12	-4421.76	16.51
			Max. Vx	14	41.73	64.46	-4383.66
			Max. Torque	15			-8.73
L42	14.25 - 9.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-142.66	63.76	-38.53
			Max. Mx	20	-65.19	4643.76	-33.91
			Max. My	14	-65.20	67.23	-4593.48
			Max. Vy	8	42.56	-4633.00	17.15
			Max. Vx	14	42.17	67.23	-4593.48
			Max. Torque	15			-9.04
L43	9.25 - 9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-142.89	63.88	-38.61
			Max. Mx	20	-65.36	4654.41	-33.98
			Max. My	14	-65.36	67.36	-4604.03
			Max. Vy	8	42.57	-4643.62	17.18
			Max. Vx	14	42.17	67.36	-4604.03

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	15			-9.06
L44	9 - 8.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-143.14	64.01	-38.68
			Max. Mx	20	-65.52	4665.06	-34.04
			Max. My	14	-65.52	67.50	-4614.59
			Max. Vy	8	42.59	-4654.25	17.22
			Max. Vx	14	42.20	67.50	-4614.59
			Max. Torque	15			-9.08
L45	8.75 - 7	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-144.82	64.87	-39.18
			Max. Mx	20	-66.62	4739.80	-34.52
			Max. My	14	-66.62	68.47	-4688.62
			Max. Vy	8	42.77	-4728.77	17.44
			Max. Vx	14	42.38	68.47	-4688.62
			Max. Torque	15			-9.19
L46	7 - 6.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-145.06	65.00	-39.25
			Max. Mx	20	-66.80	4750.50	-34.58
			Max. My	14	-66.80	68.60	-4699.22
			Max. Vy	8	42.76	-4739.44	17.47
			Max. Vx	14	42.37	68.60	-4699.22
			Max. Torque	15			-9.21
L47	6.75 - 5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-146.69	65.84	-39.74
			Max. Mx	20	-67.86	4825.53	-35.06
			Max. My	14	-67.87	69.57	-4773.56
			Max. Vy	8	42.95	-4814.27	17.69
			Max. Vx	14	42.56	69.57	-4773.56
			Max. Torque	15			-9.32
L48	5 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-146.96	65.96	-39.80
			Max. Mx	20	-68.08	4836.28	-35.13
			Max. My	14	-68.09	69.71	-4784.20
			Max. Vy	8	42.93	-4824.98	17.72
			Max. Vx	14	42.54	69.71	-4784.20
			Max. Torque	15			-9.34
L49	4.75 - 3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-148.85	66.77	-40.27
			Max. Mx	20	-69.43	4911.64	-35.60
			Max. My	14	-69.43	70.67	-4858.87
			Max. Vy	8	43.13	-4900.14	17.94
			Max. Vx	14	42.75	70.67	-4858.87
			Max. Torque	15			-9.45
L50	3 - 2.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.12	66.88	-40.34
			Max. Mx	20	-69.65	4922.44	-35.67
			Max. My	14	-69.65	70.81	-4869.56
			Max. Vy	8	43.13	-4910.90	17.98
			Max. Vx	14	42.74	70.81	-4869.56
			Max. Torque	15			-9.47
L51	2.75 - 2.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.66	67.10	-40.46
			Max. Mx	20	-70.05	4944.04	-35.80
			Max. My	14	-70.05	71.08	-4890.96
			Max. Vy	8	43.19	-4932.44	18.04
			Max. Vx	14	42.80	71.08	-4890.96
			Max. Torque	15			-9.50
L52	2.25 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.90	67.21	-40.53
			Max. Mx	20	-70.22	4954.85	-35.87
			Max. My	14	-70.22	71.22	-4901.67
			Max. Vy	8	43.21	-4943.22	18.07
			Max. Vx	14	42.82	71.22	-4901.67
			Max. Torque	15			-9.52
L53	2 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-151.73	68.00	-40.98
			Max. Mx	20	-71.55	5041.54	-36.41
			Max. My	14	-71.55	72.32	-4987.57
			Max. Vy	8	43.40	-5029.66	18.32

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	43.02	72.32	-4987.57
			Max. Torque	15			-9.65

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	151.73	-0.00	0.00
	Max. H_x	21	53.68	43.37	-0.23
	Max. H_z	2	71.57	-0.38	42.98
	Max. M_x	2	4975.57	-0.38	42.98
	Max. M_z	8	5029.66	-43.38	0.16
	Max. Torsion	24	9.41	21.57	36.98
	Min. Vert	9	53.68	-43.38	0.16
	Min. H_x	8	71.57	-43.38	0.16
	Min. H_z	15	53.68	0.48	-43.00
	Min. M_x	14	-4987.57	0.48	-43.00
	Min. M_z	20	-5041.54	43.37	-0.23
	Min. Torsion	15	-9.65	0.48	-43.00

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	59.64	0.00	-0.00	3.71	5.66	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	71.57	0.38	-42.98	-4975.57	-45.06	-7.77
0.9 Dead+1.0 Wind 0 deg - No Ice	53.68	0.38	-42.98	-4916.96	-46.28	-7.77
1.2 Dead+1.0 Wind 30 deg - No Ice	71.57	21.92	-37.19	-4304.48	-2543.44	-3.91
0.9 Dead+1.0 Wind 30 deg - No Ice	53.68	21.92	-37.19	-4253.94	-2514.65	-3.92
1.2 Dead+1.0 Wind 60 deg - No Ice	71.57	37.68	-21.54	-2492.55	-4369.57	0.12
0.9 Dead+1.0 Wind 60 deg - No Ice	53.68	37.68	-21.54	-2463.77	-4318.85	0.10
1.2 Dead+1.0 Wind 90 deg - No Ice	71.57	43.38	-0.16	-18.32	-5029.66	4.32
0.9 Dead+1.0 Wind 90 deg - No Ice	53.68	43.38	-0.16	-19.26	-4970.99	4.30
1.2 Dead+1.0 Wind 120 deg - No Ice	71.57	37.66	21.17	2451.52	-4367.03	7.76
0.9 Dead+1.0 Wind 120 deg - No Ice	53.68	37.66	21.17	2420.91	-4316.34	7.75
1.2 Dead+1.0 Wind 150 deg - No Ice	71.57	21.69	36.94	4279.52	-2509.84	9.43
0.9 Dead+1.0 Wind 150 deg - No Ice	53.68	21.69	36.94	4226.95	-2481.44	9.42
1.2 Dead+1.0 Wind 180 deg - No Ice	71.57	-0.48	43.00	4987.57	72.32	9.64
0.9 Dead+1.0 Wind 180 deg - No Ice	53.68	-0.48	43.00	4926.53	69.75	9.65
1.2 Dead+1.0 Wind 210 deg - No Ice	71.57	-21.85	37.22	4317.68	2548.03	6.08
0.9 Dead+1.0 Wind 210 deg - No Ice	53.68	-21.85	37.22	4264.67	2515.69	6.09
1.2 Dead+1.0 Wind 240 deg - No Ice	71.57	-37.61	21.61	2511.71	4375.33	0.86

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
0.9 Dead+1.0 Wind 240 deg - No Ice	53.68	-37.61	21.61	2480.39	4321.05	0.88
1.2 Dead+1.0 Wind 270 deg - No Ice	71.57	-43.37	0.23	36.41	5041.54	-4.24
0.9 Dead+1.0 Wind 270 deg - No Ice	53.68	-43.37	0.23	34.82	4979.29	-4.23
1.2 Dead+1.0 Wind 300 deg - No Ice	71.57	-37.64	-21.17	-2441.43	4378.23	-7.20
0.9 Dead+1.0 Wind 300 deg - No Ice	53.68	-37.64	-21.17	-2413.26	4323.91	-7.19
1.2 Dead+1.0 Wind 330 deg - No Ice	71.57	-21.57	-36.98	-4276.20	2508.51	-9.41
0.9 Dead+1.0 Wind 330 deg - No Ice	53.68	-21.57	-36.98	-4225.98	2476.63	-9.41
1.2 Dead+1.0 Ice+1.0 Temp	151.73	0.00	-0.00	40.98	68.00	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	151.73	0.08	-12.69	-1480.85	56.81	-3.57
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	151.73	6.43	-10.98	-1276.21	-705.24	-1.90
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	151.73	11.07	-6.35	-721.55	-1262.51	0.09
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	151.73	12.76	-0.03	36.01	-1464.67	2.10
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	151.73	11.07	6.28	792.63	-1261.84	3.63
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	151.73	6.38	10.93	1350.77	-697.85	4.25
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	151.73	-0.10	12.69	1563.44	82.14	3.94
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	151.73	-6.41	10.99	1359.06	839.32	2.34
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	151.73	-11.06	6.37	805.69	1396.82	0.10
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	151.73	-12.76	0.05	47.92	1600.27	-2.09
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	151.73	-11.06	-6.28	-710.41	1397.33	-3.52
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	151.73	-6.36	-10.94	-1270.00	830.68	-4.25
Dead+Wind 0 deg - Service	59.64	0.08	-8.86	-1016.90	-4.78	-1.61
Dead+Wind 30 deg - Service	59.64	4.52	-7.67	-879.59	-517.01	-0.81
Dead+Wind 60 deg - Service	59.64	7.77	-4.44	-508.12	-891.44	0.02
Dead+Wind 90 deg - Service	59.64	8.94	-0.03	-0.82	-1026.55	0.89
Dead+Wind 120 deg - Service	59.64	7.76	4.36	505.57	-890.90	1.61
Dead+Wind 150 deg - Service	59.64	4.47	7.61	880.31	-510.10	1.96
Dead+Wind 180 deg - Service	59.64	-0.10	8.86	1025.45	19.29	2.01
Dead+Wind 210 deg - Service	59.64	-4.50	7.67	888.17	526.87	1.27
Dead+Wind 240 deg - Service	59.64	-7.75	4.45	517.91	901.54	0.19
Dead+Wind 270 deg - Service	59.64	-8.94	0.05	10.40	1037.87	-0.88
Dead+Wind 300 deg - Service	59.64	-7.76	-4.36	-497.62	902.10	-1.49
Dead+Wind 330 deg - Service	59.64	-4.45	-7.62	-873.75	518.74	-1.96

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	-59.64	0.00	-0.00	59.64	0.00	0.002%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
2	0.38	-71.57	-42.98	-0.38	71.57	42.98	0.001%
3	0.38	-53.68	-42.98	-0.38	53.68	42.98	0.001%
4	21.92	-71.57	-37.19	-21.92	71.57	37.19	0.000%
5	21.92	-53.68	-37.19	-21.92	53.68	37.19	0.000%
6	37.68	-71.57	-21.54	-37.68	71.57	21.54	0.000%
7	37.68	-53.68	-21.54	-37.68	53.68	21.54	0.000%
8	43.38	-71.57	-0.16	-43.38	71.57	0.16	0.002%
9	43.38	-53.68	-0.16	-43.38	53.68	0.16	0.002%
10	37.66	-71.57	21.17	-37.66	71.57	-21.17	0.000%
11	37.66	-53.68	21.17	-37.66	53.68	-21.17	0.000%
12	21.69	-71.57	36.94	-21.69	71.57	-36.94	0.000%
13	21.69	-53.68	36.94	-21.69	53.68	-36.94	0.000%
14	-0.48	-71.57	43.00	0.48	71.57	-43.00	0.000%
15	-0.48	-53.68	43.00	0.48	53.68	-43.00	0.000%
16	-21.85	-71.57	37.22	21.85	71.57	-37.22	0.000%
17	-21.85	-53.68	37.22	21.85	53.68	-37.22	0.000%
18	-37.61	-71.57	21.61	37.61	71.57	-21.61	0.000%
19	-37.61	-53.68	21.61	37.61	53.68	-21.61	0.000%
20	-43.37	-71.57	0.23	43.37	71.57	-0.23	0.001%
21	-43.37	-53.68	0.23	43.37	53.68	-0.23	0.001%
22	-37.64	-71.57	-21.17	37.64	71.57	21.17	0.000%
23	-37.64	-53.68	-21.17	37.64	53.68	21.17	0.000%
24	-21.57	-71.57	-36.98	21.57	71.57	36.98	0.000%
25	-21.57	-53.68	-36.98	21.57	53.68	36.98	0.000%
26	0.00	-151.73	0.00	-0.00	151.73	0.00	0.000%
27	0.08	-151.73	-12.69	-0.08	151.73	12.69	0.000%
28	6.43	-151.73	-10.98	-6.43	151.73	10.98	0.000%
29	11.07	-151.73	-6.35	-11.07	151.73	6.35	0.000%
30	12.76	-151.73	-0.03	-12.76	151.73	0.03	0.000%
31	11.07	-151.73	6.28	-11.07	151.73	-6.28	0.000%
32	6.38	-151.73	10.93	-6.38	151.73	-10.93	0.000%
33	-0.10	-151.73	12.69	0.10	151.73	-12.69	0.000%
34	-6.41	-151.73	10.99	6.41	151.73	-10.99	0.000%
35	-11.06	-151.73	6.37	11.06	151.73	-6.37	0.000%
36	-12.76	-151.73	0.05	12.76	151.73	-0.05	0.000%
37	-11.06	-151.73	-6.28	11.06	151.73	6.28	0.000%
38	-6.36	-151.73	-10.94	6.36	151.73	10.94	0.000%
39	0.08	-59.64	-8.86	-0.08	59.64	8.86	0.004%
40	4.52	-59.64	-7.67	-4.52	59.64	7.67	0.001%
41	7.77	-59.64	-4.44	-7.77	59.64	4.44	0.001%
42	8.94	-59.64	-0.03	-8.94	59.64	0.03	0.004%
43	7.76	-59.64	4.36	-7.76	59.64	-4.36	0.001%
44	4.47	-59.64	7.61	-4.47	59.64	-7.61	0.001%
45	-0.10	-59.64	8.86	0.10	59.64	-8.86	0.001%
46	-4.50	-59.64	7.67	4.50	59.64	-7.67	0.001%
47	-7.75	-59.64	4.45	7.75	59.64	-4.45	0.001%
48	-8.94	-59.64	0.05	8.94	59.64	-0.05	0.004%
49	-7.76	-59.64	-4.36	7.76	59.64	4.36	0.001%
50	-4.45	-59.64	-7.62	4.45	59.64	7.62	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000697
2	Yes	22	0.00000001	0.00010303
3	Yes	21	0.00000001	0.00013932
4	Yes	28	0.00000001	0.00000000
5	Yes	27	0.00000001	0.00000000
6	Yes	28	0.00000001	0.00000000
7	Yes	27	0.00000001	0.00000000
8	Yes	21	0.00001707	0.00011283
9	Yes	20	0.00001987	0.00014855
10	Yes	28	0.00000001	0.00000000
11	Yes	27	0.00000001	0.00000000
12	Yes	28	0.00000001	0.00000000
13	Yes	27	0.00000001	0.00000000
14	Yes	24	0.00000001	0.00011586
15	Yes	24	0.00000001	0.00008421
16	Yes	28	0.00000001	0.00000000
17	Yes	27	0.00000001	0.00000000
18	Yes	28	0.00000001	0.00000000
19	Yes	27	0.00000001	0.00000000
20	Yes	22	0.00000001	0.00014418
21	Yes	22	0.00000001	0.00010565
22	Yes	28	0.00000001	0.00000000
23	Yes	27	0.00000001	0.00000000
24	Yes	28	0.00000001	0.00000000
25	Yes	27	0.00000001	0.00000000
26	Yes	19	0.00000001	0.00009739
27	Yes	25	0.00000001	0.00011370
28	Yes	26	0.00000001	0.00009792
29	Yes	26	0.00000001	0.00009929
30	Yes	25	0.00000001	0.00011062
31	Yes	26	0.00000001	0.00010919
32	Yes	26	0.00000001	0.00010150
33	Yes	25	0.00000001	0.00012222
34	Yes	26	0.00000001	0.00012134
35	Yes	26	0.00000001	0.00011854
36	Yes	25	0.00000001	0.00012046
37	Yes	26	0.00000001	0.00010612
38	Yes	26	0.00000001	0.00011394
39	Yes	17	0.00014722	0.00014885
40	Yes	20	0.00000001	0.00011418
41	Yes	20	0.00000001	0.00011903
42	Yes	17	0.00014719	0.00009240
43	Yes	20	0.00000001	0.00013539
44	Yes	20	0.00000001	0.00010533
45	Yes	19	0.00000001	0.00008967
46	Yes	20	0.00000001	0.00014087
47	Yes	20	0.00000001	0.00012087
48	Yes	17	0.00014717	0.00010361
49	Yes	20	0.00000001	0.00010817
50	Yes	20	0.00000001	0.00013949

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	169 - 164	33.33	47	2.085	0.007
L2	164 - 159	31.15	47	2.083	0.007
L3	159 - 154	28.98	47	2.064	0.007
L4	154 - 149	26.83	47	2.026	0.007
L5	149 - 144	24.74	47	1.963	0.006
L6	144 - 139	22.73	47	1.880	0.006
L7	139 - 133.33	20.81	47	1.777	0.006
L8	136.66 - 131.66	19.96	47	1.724	0.006
L9	131.66 - 126.66	18.18	47	1.651	0.006
L10	126.66 - 121.66	16.51	47	1.537	0.005

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L11	121.66 - 116.66	14.97	47	1.417	0.005
L12	116.66 - 111.66	13.55	47	1.292	0.004
L13	111.66 - 111	12.26	47	1.163	0.003
L14	111 - 110.75	12.10	47	1.146	0.003
L15	110.75 - 105.75	12.04	47	1.142	0.003
L16	105.75 - 101.5	10.89	47	1.066	0.003
L17	101.5 - 101.25	9.97	47	0.998	0.003
L18	101.25 - 101	9.92	47	0.996	0.003
L19	101 - 100.75	9.86	47	0.993	0.003
L20	100.75 - 95.75	9.81	47	0.990	0.003
L21	95.75 - 87.83	8.81	47	0.926	0.003
L22	92.16 - 86.83	8.13	47	0.879	0.002
L23	86.83 - 81.83	7.17	47	0.842	0.002
L24	81.83 - 81.5	6.31	47	0.788	0.002
L25	81.5 - 81.25	6.26	47	0.784	0.002
L26	81.25 - 76.25	6.22	47	0.781	0.002
L27	76.25 - 71.25	5.43	47	0.727	0.002
L28	71.25 - 66.25	4.70	47	0.671	0.002
L29	66.25 - 61.25	4.02	47	0.615	0.002
L30	61.25 - 56.25	3.41	47	0.559	0.002
L31	56.25 - 51.25	2.85	47	0.502	0.001
L32	51.25 - 43.33	2.36	47	0.445	0.001
L33	48.66 - 42.33	2.12	47	0.416	0.001
L34	42.33 - 37.4	1.60	47	0.378	0.001
L35	37.4 - 37.15	1.23	47	0.331	0.001
L36	37.15 - 32.15	1.21	47	0.329	0.001
L37	32.15 - 27.15	0.89	47	0.281	0.001
L38	27.15 - 22.15	0.62	47	0.233	0.001
L39	22.15 - 19.5	0.40	47	0.185	0.000
L40	19.5 - 19.25	0.31	47	0.160	0.000
L41	19.25 - 14.25	0.30	47	0.158	0.000
L42	14.25 - 9.25	0.16	47	0.113	0.000
L43	9.25 - 9	0.06	47	0.069	0.000
L44	9 - 8.75	0.06	47	0.067	0.000
L45	8.75 - 7	0.06	47	0.065	0.000
L46	7 - 6.75	0.04	47	0.050	0.000
L47	6.75 - 5	0.03	47	0.048	0.000
L48	5 - 4.75	0.02	47	0.033	0.000
L49	4.75 - 3	0.02	47	0.031	0.000
L50	3 - 2.75	0.01	47	0.021	0.000
L51	2.75 - 2.25	0.01	47	0.019	0.000
L52	2.25 - 2	0.00	47	0.016	0.000
L53	2 - 0	0.00	47	0.014	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
165.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	47	31.59	2.085	0.007	29670
156.00	(2) 7770.00 w/ Mount Pipe	47	27.69	2.044	0.007	6940
148.00	NNVV-65B-R4 w/ Mount Pipe	47	24.33	1.948	0.006	3717
138.00	APXV18-206517-A	47	20.45	1.754	0.006	3084
128.00	VHLP800-11	47	16.95	1.571	0.006	2519
124.00	LLPX310R w/ Mount Pipe	47	15.67	1.473	0.005	2374
118.00	CXL 900-3LW	47	13.91	1.325	0.004	2273
111.00	(2) HBXX-6517DS-A2M w/ Mount Pipe	47	12.10	1.146	0.003	2800

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	169 - 164	161.28	20	10.103	0.036
L2	164 - 159	150.76	20	10.097	0.036
L3	159 - 154	140.29	20	10.008	0.035
L4	154 - 149	129.95	20	9.827	0.034
L5	149 - 144	119.86	20	9.525	0.033
L6	144 - 139	110.13	20	9.122	0.032
L7	139 - 133.33	100.87	20	8.627	0.031
L8	136.66 - 131.66	96.72	20	8.371	0.030
L9	131.66 - 126.66	88.14	20	8.015	0.029
L10	126.66 - 121.66	80.06	20	7.465	0.027
L11	121.66 - 116.66	72.57	20	6.882	0.023
L12	116.66 - 111.66	65.71	18	6.273	0.019
L13	111.66 - 111	59.49	18	5.648	0.016
L14	111 - 110.75	58.71	18	5.565	0.016
L15	110.75 - 105.75	58.42	18	5.547	0.016
L16	105.75 - 101.5	52.82	18	5.177	0.015
L17	101.5 - 101.25	48.37	18	4.847	0.013
L18	101.25 - 101	48.12	18	4.836	0.013
L19	101 - 100.75	47.87	18	4.825	0.013
L20	100.75 - 95.75	47.61	18	4.809	0.013
L21	95.75 - 87.83	42.75	18	4.498	0.012
L22	92.16 - 86.83	39.46	18	4.269	0.012
L23	86.83 - 81.83	34.79	18	4.091	0.011
L24	81.83 - 81.5	30.65	18	3.825	0.010
L25	81.5 - 81.25	30.39	18	3.808	0.010
L26	81.25 - 76.25	30.19	18	3.795	0.010
L27	76.25 - 71.25	26.36	18	3.531	0.009
L28	71.25 - 66.25	22.80	18	3.262	0.009
L29	66.25 - 61.25	19.53	18	2.988	0.008
L30	61.25 - 56.25	16.55	18	2.714	0.007
L31	56.25 - 51.25	13.85	18	2.439	0.006
L32	51.25 - 43.33	11.45	18	2.161	0.006
L33	48.66 - 42.33	10.31	18	2.018	0.005
L34	42.33 - 37.4	7.75	18	1.838	0.005
L35	37.4 - 37.15	5.97	18	1.609	0.004
L36	37.15 - 32.15	5.88	18	1.598	0.004
L37	32.15 - 27.15	4.33	18	1.365	0.003
L38	27.15 - 22.15	3.03	18	1.131	0.003
L39	22.15 - 19.5	1.96	18	0.899	0.002
L40	19.5 - 19.25	1.50	18	0.777	0.002
L41	19.25 - 14.25	1.46	18	0.766	0.002
L42	14.25 - 9.25	0.77	18	0.549	0.001
L43	9.25 - 9	0.31	18	0.336	0.001
L44	9 - 8.75	0.29	18	0.325	0.001
L45	8.75 - 7	0.27	18	0.315	0.001
L46	7 - 6.75	0.17	18	0.244	0.001
L47	6.75 - 5	0.16	18	0.233	0.001
L48	5 - 4.75	0.09	18	0.160	0.000
L49	4.75 - 3	0.08	18	0.152	0.000
L50	3 - 2.75	0.03	18	0.101	0.000
L51	2.75 - 2.25	0.03	18	0.093	0.000
L52	2.25 - 2	0.02	18	0.079	0.000
L53	2 - 0	0.01	18	0.070	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
165.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	20	152.86	10.103	0.036	7116
156.00	(2) 7770.00 w/ Mount Pipe	20	134.06	9.913	0.034	1545
148.00	NNVV-65B-R4 w/ Mount Pipe	20	117.88	9.452	0.033	811
138.00	APXV18-206517-A	20	99.09	8.513	0.031	664

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
128.00	VHLP800-11	20	82.17	7.626	0.028	537
124.00	LLPX310R w/ Mount Pipe	20	76.00	7.154	0.025	504
118.00	CXL 900-3LW	18	67.49	6.436	0.020	480
111.00	(2) HBXX-6517DS-A2M w/ Mount Pipe	18	58.71	5.565	0.016	588

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L1	169 - 164 (1)	TP16.4546x15.5x0.25	5.00	0.00	0.0	12.8583	-2.33
L2	164 - 159 (2)	TP17.4092x16.4546x0.25	5.00	0.00	0.0	13.6158	-2.61
L3	159 - 154 (3)	TP18.3638x17.4092x0.25	5.00	0.00	0.0	14.3733	-5.22
L4	154 - 149 (4)	TP19.3183x18.3638x0.25	5.00	0.00	0.0	15.1307	-5.66
L5	149 - 144 (5)	TP20.2729x19.3183x0.25	5.00	0.00	0.0	15.8882	-7.47
L6	144 - 139 (6)	TP21.2275x20.2729x0.25	5.00	0.00	0.0	16.6456	-8.06
L7	139 - 133.33 (7)	TP22.31x21.2275x0.25	5.67	0.00	0.0	17.0001	-8.58
L8	133.33 - 131.66 (8)	TP22.1148x21.1742x0.3125	5.00	0.00	0.0	21.6252	-9.47
L9	131.66 - 126.66 (9)	TP23.0554x22.1148x0.3125	5.00	0.00	0.0	22.5581	-10.21
L10	126.66 - 121.66 (10)	TP23.996x23.0554x0.3125	5.00	0.00	0.0	23.4911	-11.48
L11	121.66 - 116.66 (11)	TP24.9366x23.996x0.3125	5.00	0.00	0.0	24.4240	-12.38
L12	116.66 - 111.66 (12)	TP25.8772x24.9366x0.3125	5.00	0.00	0.0	25.3570	-13.29
L13	111.66 - 111 (13)	TP26.0013x25.8772x0.3125	0.66	0.00	0.0	25.4801	-13.43
L14	111 - 110.75 (14)	TP26.0484x26.0013x0.575	0.25	0.00	0.0	46.4902	-15.72
L15	110.75 - 105.75 (15)	TP26.9889x26.0484x0.5625	5.00	0.00	0.0	47.1811	-17.04
L16	105.75 - 101.5 (16)	TP27.7884x26.9889x0.55	4.25	0.00	0.0	47.5501	-18.19
L17	101.5 - 101.25 (17)	TP27.8355x27.7884x0.9875	0.25	0.00	0.0	84.1503	-18.31
L18	101.25 - 101 (18)	TP27.8825x27.8355x0.9875	0.25	0.00	0.0	84.2977	-18.40
L19	101 - 100.75 (19)	TP27.9295x27.8825x0.725	0.25	0.00	0.0	62.6017	-18.48
L20	100.75 - 95.75 (20)	TP28.8701x27.9295x0.7125	5.00	0.00	0.0	63.6777	-20.05
L21	95.75 - 87.83 (21)	TP30.36x28.8701x0.7	7.92	0.00	0.0	64.0888	-21.22
L22	87.83 - 86.83 (22)	TP29.9235x28.9205x0.9375	5.33	0.00	0.0	86.2516	-24.33
L23	86.83 - 81.83 (23)	TP30.8645x29.9235x0.925	5.00	0.00	0.0	87.9009	-26.35
L24	81.83 - 81.5 (24)	TP30.9266x30.8645x0.925	0.33	0.00	0.0	88.0832	-26.50
L25	81.5 - 81.25 (25)	TP30.9737x30.9266x0.95	0.25	0.00	0.0	90.5303	-26.60

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L26	81.25 - 76.25 (26)	TP31.9146x30.9737x0.925	5.00	0.00	0.0	90.9840	-28.67
L27	76.25 - 71.25 (27)	TP32.8556x31.9146x0.9	5.00	0.00	0.0	91.2844	-30.79
L28	71.25 - 66.25 (28)	TP33.7966x32.8556x0.875	5.00	0.00	0.0	91.4314	-32.93
L29	66.25 - 61.25 (29)	TP34.7376x33.7966x0.8625	5.00	0.00	0.0	92.7355	-35.11
L30	61.25 - 56.25 (30)	TP35.6785x34.7376x0.85	5.00	0.00	0.0	93.9639	-37.32
L31	56.25 - 51.25 (31)	TP36.6195x35.6785x0.825	5.00	0.00	0.0	93.7297	-39.56
L32	51.25 - 43.33 (32)	TP38.11x36.6195x0.825	7.92	0.00	0.0	95.0060	-40.73
L33	43.33 - 42.33 (33)	TP37.5463x36.3569x1.0375	6.33	0.00	0.0	120.2240	-46.07
L34	42.33 - 37.4 (34)	TP38.4726x37.5463x1.025	4.93	0.00	0.0	121.8300	-48.78
L35	37.4 - 37.15 (35)	TP38.5196x38.4726x1.025	0.25	0.00	0.0	121.9830	-48.94
L36	37.15 - 32.15 (36)	TP39.4591x38.5196x1	5.00	0.00	0.0	122.0690	-51.72
L37	32.15 - 27.15 (37)	TP40.3986x39.4591x0.975	5.00	0.00	0.0	122.0020	-54.54
L38	27.15 - 22.15 (38)	TP41.3381x40.3986x0.9625	5.00	0.00	0.0	123.3460	-57.38
L39	22.15 - 19.5 (39)	TP41.836x41.3381x0.95	2.65	0.00	0.0	123.2840	-58.90
L40	19.5 - 19.25 (40)	TP41.883x41.836x1.025	0.25	0.00	0.0	132.9250	-59.07
L41	19.25 - 14.25 (41)	TP42.8225x41.883x1	5.00	0.00	0.0	132.7450	-62.11
L42	14.25 - 9.25 (42)	TP43.762x42.8225x1	5.00	0.00	0.0	135.7260	-65.19
L43	9.25 - 9 (43)	TP43.8089x43.762x1	0.25	0.00	0.0	135.8760	-65.36
L44	9 - 8.75 (44)	TP43.8559x43.8089x1.025	0.25	0.00	0.0	139.3440	-65.52
L45	8.75 - 7 (45)	TP44.1847x43.8559x1.025	1.75	0.00	0.0	140.4140	-66.62
L46	7 - 6.75 (46)	TP44.2317x44.1847x0.975	0.25	0.00	0.0	133.8640	-66.80
L47	6.75 - 5 (47)	TP44.5605x44.2317x0.975	1.75	0.00	0.0	134.8820	-67.86
L48	5 - 4.75 (48)	TP44.6075x44.5605x1.45	0.25	0.00	0.0	198.6240	-68.08
L49	4.75 - 3 (49)	TP44.9363x44.6075x1.425	1.75	0.00	0.0	196.7990	-69.43
L50	3 - 2.75 (50)	TP44.9833x44.9363x1.45	0.25	0.00	0.0	200.3530	-69.65
L51	2.75 - 2.25 (51)	TP45.0772x44.9833x1.45	0.50	0.00	0.0	200.7860	-70.05
L52	2.25 - 2 (52)	TP45.1242x45.0772x1.2	0.25	0.00	0.0	167.2990	-70.22
L53	2 - 0 (53)	TP45.5x45.1242x1.175	2.00	0.00	0.0	165.3080	-71.55

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L1	169 - 164 (1)	TP16.4546x15.5x0.25	12.51	0.00
L2	164 - 159 (2)	TP17.4092x16.4546x0.25	46.97	0.00
L3	159 - 154 (3)	TP18.3638x17.4092x0.25	102.87	0.00

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L4	154 - 149 (4)	TP19.3183x18.3638x0.25	172.42	0.00
L5	149 - 144 (5)	TP20.2729x19.3183x0.25	256.62	0.00
L6	144 - 139 (6)	TP21.2275x20.2729x0.25	346.14	0.00
L7	139 - 133.33 (7)	TP22.31x21.2275x0.25	389.92	0.00
L8	133.33 - 131.66 (8)	TP22.1148x21.1742x0.3125	487.23	0.00
L9	131.66 - 126.66 (9)	TP23.0554x22.1148x0.3125	588.23	0.00
L10	126.66 - 121.66 (10)	TP23.996x23.0554x0.3125	699.25	0.00
L11	121.66 - 116.66 (11)	TP24.9366x23.996x0.3125	813.28	0.00
L12	116.66 - 111.66 (12)	TP25.8772x24.9366x0.3125	930.06	0.00
L13	111.66 - 111 (13)	TP26.0013x25.8772x0.3125	945.67	0.00
L14	111 - 110.75 (14)	TP26.0484x26.0013x0.575	952.76	0.00
L15	110.75 - 105.75 (15)	TP26.9889x26.0484x0.5625	1099.92	0.00
L16	105.75 - 101.5 (16)	TP27.7884x26.9889x0.55	1227.71	0.00
L17	101.5 - 101.25 (17)	TP27.8355x27.7884x0.9875	1235.31	0.00
L18	101.25 - 101 (18)	TP27.8825x27.8355x0.9875	1242.92	0.00
L19	101 - 100.75 (19)	TP27.9295x27.8825x0.725	1250.53	0.00
L20	100.75 - 95.75 (20)	TP28.8701x27.9295x0.7125	1404.96	0.00
L21	95.75 - 87.83 (21)	TP30.36x28.8701x0.7	1518.17	0.00
L22	87.83 - 86.83 (22)	TP29.9235x28.9205x0.9375	1690.26	0.00
L23	86.83 - 81.83 (23)	TP30.8645x29.9235x0.925	1855.91	0.00
L24	81.83 - 81.5 (24)	TP30.9266x30.8645x0.925	1866.97	0.00
L25	81.5 - 81.25 (25)	TP30.9737x30.9266x0.95	1875.38	0.00
L26	81.25 - 76.25 (26)	TP31.9146x30.9737x0.925	2045.22	0.00
L27	76.25 - 71.25 (27)	TP32.8556x31.9146x0.9	2218.77	0.00
L28	71.25 - 66.25 (28)	TP33.7966x32.8556x0.875	2395.93	0.00
L29	66.25 - 61.25 (29)	TP34.7376x33.7966x0.8625	2576.60	0.00
L30	61.25 - 56.25 (30)	TP35.6785x34.7376x0.85	2760.70	0.00
L31	56.25 - 51.25 (31)	TP36.6195x35.6785x0.825	2948.13	0.00
L32	51.25 - 43.33 (32)	TP38.11x36.6195x0.825	3046.47	0.00
L33	43.33 - 42.33 (33)	TP37.5463x36.3569x1.0375	3291.12	0.00
L34	42.33 - 37.4 (34)	TP38.4726x37.5463x1.025	3485.53	0.00
L35	37.4 - 37.15 (35)	TP38.5196x38.4726x1.025	3495.47	0.00
L36	37.15 - 32.15 (36)	TP39.4591x38.5196x1	3695.78	0.00
L37	32.15 - 27.15 (37)	TP40.3986x39.4591x0.975	3898.96	0.00
L38	27.15 - 22.15 (38)	TP41.3381x40.3986x0.9625	4104.81	0.00
L39	22.15 - 19.5 (39)	TP41.836x41.3381x0.95	4214.93	0.00

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L40	19.5 - 19.25 (40)	TP41.883x41.836x1.025	4225.36	0.00
L41	19.25 - 14.25 (41)	TP42.8225x41.883x1	4435.06	0.00
L42	14.25 - 9.25 (42)	TP43.762x42.8225x1	4647.01	0.00
L43	9.25 - 9 (43)	TP43.8089x43.762x1	4657.67	0.00
L44	9 - 8.75 (44)	TP43.8559x43.8089x1.025	4668.32	0.00
L45	8.75 - 7 (45)	TP44.1847x43.8559x1.025	4743.11	0.00
L46	7 - 6.75 (46)	TP44.2317x44.1847x0.975	4753.81	0.00
L47	6.75 - 5 (47)	TP44.5605x44.2317x0.975	4828.89	0.00
L48	5 - 4.75 (48)	TP44.6075x44.5605x1.45	4839.64	0.00
L49	4.75 - 3 (49)	TP44.9363x44.6075x1.425	4915.05	0.00
L50	3 - 2.75 (50)	TP44.9833x44.9363x1.45	4925.85	0.00
L51	2.75 - 2.25 (51)	TP45.0772x44.9833x1.45	4947.47	0.00
L52	2.25 - 2 (52)	TP45.1242x45.0772x1.2	4958.28	0.00
L53	2 - 0 (53)	TP45.5x45.1242x1.175	5045.02	0.00

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L1	169 - 164 (1)	TP16.4546x15.5x0.25	6.66	0.00
L2	164 - 159 (2)	TP17.4092x16.4546x0.25	7.11	0.23
L3	159 - 154 (3)	TP18.3638x17.4092x0.25	13.67	0.06
L4	154 - 149 (4)	TP19.3183x18.3638x0.25	14.15	0.07
L5	149 - 144 (5)	TP20.2729x19.3183x0.25	17.68	0.11
L6	144 - 139 (6)	TP21.2275x20.2729x0.25	18.13	0.15
L7	139 - 133.33 (7)	TP22.31x21.2275x0.25	19.16	0.18
L8	133.33 - 131.66 (8)	TP22.1148x21.1742x0.3125	19.73	0.24
L9	131.66 - 126.66 (9)	TP23.0554x22.1148x0.3125	20.97	0.72
L10	126.66 - 121.66 (10)	TP23.996x23.0554x0.3125	22.53	1.78
L11	121.66 - 116.66 (11)	TP24.9366x23.996x0.3125	23.09	1.69
L12	116.66 - 111.66 (12)	TP25.8772x24.9366x0.3125	23.60	1.69
L13	111.66 - 111 (13)	TP26.0013x25.8772x0.3125	23.67	1.69
L14	111 - 110.75 (14)	TP26.0484x26.0013x0.575	29.08	1.69
L15	110.75 - 105.75 (15)	TP26.9889x26.0484x0.5625	29.73	0.87
L16	105.75 - 101.5 (16)	TP27.7884x26.9889x0.55	30.34	0.87
L17	101.5 - 101.25 (17)	TP27.8355x27.7884x0.9875	30.40	0.87
L18	101.25 - 101 (18)	TP27.8825x27.8355x0.9875	30.44	0.87
L19	101 - 100.75 (19)	TP27.9295x27.8825x0.725	30.47	0.87
L20	100.75 - 95.75 (20)	TP28.8701x27.9295x0.7125	31.23	0.87
L21	95.75 - 87.83 (21)	TP30.36x28.8701x0.7	31.76	0.87

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L22	87.83 - 86.83 (22)	TP29.9235x28.9205x0.9375	32.71	0.87
L23	86.83 - 81.83 (23)	TP30.8645x29.9235x0.925	33.47	0.87
L24	81.83 - 81.5 (24)	TP30.9266x30.8645x0.925	33.52	0.87
L25	81.5 - 81.25 (25)	TP30.9737x30.9266x0.95	33.56	0.87
L26	81.25 - 76.25 (26)	TP31.9146x30.9737x0.925	34.30	0.87
L27	76.25 - 71.25 (27)	TP32.8556x31.9146x0.9	35.03	0.87
L28	71.25 - 66.25 (28)	TP33.7966x32.8556x0.875	35.74	0.87
L29	66.25 - 61.25 (29)	TP34.7376x33.7966x0.8625	36.44	0.87
L30	61.25 - 56.25 (30)	TP35.6785x34.7376x0.85	37.11	0.87
L31	56.25 - 51.25 (31)	TP36.6195x35.6785x0.825	37.77	0.86
L32	51.25 - 43.33 (32)	TP38.11x36.6195x0.825	38.09	0.86
L33	43.33 - 42.33 (33)	TP37.5463x36.3569x1.0375	39.08	0.86
L34	42.33 - 37.4 (34)	TP38.4726x37.5463x1.025	39.69	0.86
L35	37.4 - 37.15 (35)	TP38.5196x38.4726x1.025	39.71	0.86
L36	37.15 - 32.15 (36)	TP39.4591x38.5196x1	40.31	0.86
L37	32.15 - 27.15 (37)	TP40.3986x39.4591x0.975	40.86	0.86
L38	27.15 - 22.15 (38)	TP41.3381x40.3986x0.9625	41.38	0.86
L39	22.15 - 19.5 (39)	TP41.836x41.3381x0.95	41.64	0.86
L40	19.5 - 19.25 (40)	TP41.883x41.836x1.025	41.64	0.86
L41	19.25 - 14.25 (41)	TP42.8225x41.883x1	42.12	0.86
L42	14.25 - 9.25 (42)	TP43.762x42.8225x1	42.56	0.86
L43	9.25 - 9 (43)	TP43.8089x43.762x1	42.56	0.86
L44	9 - 8.75 (44)	TP43.8559x43.8089x1.025	42.58	0.86
L45	8.75 - 7 (45)	TP44.1847x43.8559x1.025	42.77	0.86
L46	7 - 6.75 (46)	TP44.2317x44.1847x0.975	42.76	0.86
L47	6.75 - 5 (47)	TP44.5605x44.2317x0.975	42.94	0.86
L48	5 - 4.75 (48)	TP44.6075x44.5605x1.45	42.93	0.86
L49	4.75 - 3 (49)	TP44.9363x44.6075x1.425	43.13	0.86
L50	3 - 2.75 (50)	TP44.9833x44.9363x1.45	43.13	0.86
L51	2.75 - 2.25 (51)	TP45.0772x44.9833x1.45	43.18	0.86
L52	2.25 - 2 (52)	TP45.1242x45.0772x1.2	43.20	0.86
L53	2 - 0 (53)	TP45.5x45.1242x1.175	43.40	0.86

CCIpole

per TIA-222- H

Site BU: 828054

Work Order:

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	169	35.67	3.33	18	15.5	22.31	0.25	Auto	A572-65
2	136.66	48.83	4.33	18	21.17	30.36	0.3125	Auto	A572-65
3	92.16	48.83	5.33	18	28.92	38.11	0.375	Auto	A572-65
4	48.66	48.66	0	18	36.36	45.5	0.375	Auto	A572-65

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	2.25	19.5	plate	I-065125; (1) (1.1875)	4		o				o					o				o			
2	19.5	44.58	plate	I-060100; (1) (1.1875)	4		o				o					o				o			
3	3	5	plate	FP 1.25 x 8_1	4		o				o					o				o			
4	81.5	88.5	plate	I-045100; (1) (1.1875)	3			o						o						o			
5	0	3	plate	FP 1.25 x 6_1	6	o			o			o			o			o			o		
6	101	111	plate	I-060100; (1) (1.1875)	3			o						o						o			
7	0	37.4	plate	6 x 1.25; (1) (1.1875)	4	o						o			o						o		
8	0	7	plate	6 x 1.25; (1) (1.1875)	2				o									o					
9	9	37.4	plate	6 x 1.25; (1) (1.1875)	2				o									o					
10	7	9	plate	FP 4 x 1.25_1	4			o		o							o		o				
11	37.4	81.5	plate	6 x 1.25; (1) (1.1875)	6	o			o			o			o			o			o		
12	81.5	101.5	plate	4 x 1.25; (1) (1.1875)	6	o			o			o			o			o			o		
13																							

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	6.5	1.25	8.125	0.625	n/a	33.000	19.000	6.563	1.1875	A572-65
2	6	1	6	0.5	33.000	33.000	16.000	4.750	1.1875	A572-65
3	1.25	8	10	4	n/a	n/a	0.000	10.000	0.0000	A572-65
4	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
5	1.25	6	7.5	3	n/a	n/a	0.000	7.500	0.0000	A572-65
6	6	1	6	0.5	33.000	33.000	16.000	4.750	1.1875	A572-65
7	6	1.25	7.5	0.625	36.000	36.000	12.000	5.938	1.1875	A572-65
8	6	1.25	7.5	0.625	36.000	36.000	12.000	5.938	1.1875	A572-65
9	6	1.25	7.5	0.625	36.000	36.000	12.000	5.938	1.1875	A572-65
10	4	1.25	5	0.625	n/a	n/a	12.000	5.000	0.0000	A572-65
11	6	1.25	7.5	0.625	36.000	36.000	12.000	5.938	1.1875	A572-65
12	4	1.25	5	0.625	30.000	30.000	18.000	3.438	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	169 - 164	5		18	15.500	16.455	0.25	A572-65	1.000
2	164 - 159	5		18	16.455	17.409	0.25	A572-65	1.000
3	159 - 154	5		18	17.409	18.364	0.25	A572-65	1.000
4	154 - 149	5		18	18.364	19.318	0.25	A572-65	1.000
5	149 - 144	5		18	19.318	20.273	0.25	A572-65	1.000
6	144 - 139	5		18	20.273	21.228	0.25	A572-65	1.000
7	139 - 136.66	5.67	3.33	18	21.228	22.310	0.25	A572-65	1.000
8	136.66 - 131.66	5		18	21.174	22.115	0.3125	A572-65	1.000
9	131.66 - 126.66	5		18	22.115	23.055	0.3125	A572-65	1.000
10	126.66 - 121.66	5		18	23.055	23.996	0.3125	A572-65	1.000
11	121.66 - 116.66	5		18	23.996	24.937	0.3125	A572-65	1.000
12	116.66 - 111.66	5		18	24.937	25.877	0.3125	A572-65	1.000
13	111.66 - 111	0.66		18	25.877	26.001	0.3125	A572-65	1.000
14	111 - 110.75	0.25		18	26.001	26.048	0.575	A572-65	0.936
15	110.75 - 105.75	5		18	26.048	26.989	0.5625	A572-65	0.942
16	105.75 - 101.5	4.25		18	26.989	27.788	0.55	A572-65	0.952
17	101.5 - 101.25	0.25		18	27.788	27.835	0.9875	A572-65	0.895
18	101.25 - 101	0.25		18	27.835	27.882	0.9875	A572-65	0.894
19	101 - 100.75	0.25		18	27.882	27.930	0.725	A572-65	0.917
20	100.75 - 95.75	5		18	27.930	28.870	0.7125	A572-65	0.916
21	95.75 - 92.16	7.92	4.33	18	28.870	30.360	0.7	A572-65	0.921
22	92.16 - 86.83	5.33		18	28.920	29.924	0.9375	A572-65	0.912
23	86.83 - 81.83	5		18	29.924	30.865	0.925	A572-65	0.908
24	81.83 - 81.5	0.33		18	30.865	30.927	0.925	A572-65	0.907
25	81.5 - 81.25	0.25		18	30.927	30.974	0.95	A572-65	0.899
26	81.25 - 76.25	5		18	30.974	31.915	0.925	A572-65	0.907
27	76.25 - 71.25	5		18	31.915	32.856	0.9	A572-65	0.916
28	71.25 - 66.25	5		18	32.856	33.797	0.875	A572-65	0.927
29	66.25 - 61.25	5		18	33.797	34.738	0.8625	A572-65	0.926
30	61.25 - 56.25	5		18	34.738	35.679	0.85	A572-65	0.926
31	56.25 - 51.25	5		18	35.679	36.619	0.825	A572-65	0.940
32	51.25 - 48.66	7.92	5.33	18	36.619	38.110	0.825	A572-65	0.934
33	48.66 - 42.33	6.33		18	36.357	37.546	1.0375	A572-65	0.942
34	42.33 - 37.4	4.93		18	37.546	38.473	1.025	A572-65	0.939
35	37.4 - 37.15	0.25		18	38.473	38.520	1.025	A572-65	0.938
36	37.15 - 32.15	5		18	38.520	39.459	1	A572-65	0.946
37	32.15 - 27.15	5		18	39.459	40.399	0.975	A572-65	0.956
38	27.15 - 22.15	5		18	40.399	41.338	0.9625	A572-65	0.955
39	22.15 - 19.5	2.65		18	41.338	41.836	0.95	A572-65	0.960
40	19.5 - 19.25	0.25		18	41.836	41.883	1.025	A572-65	0.955
41	19.25 - 14.25	5		18	41.883	42.822	1	A572-65	0.964
42	14.25 - 9.25	5		18	42.822	43.762	1	A572-65	0.952
43	9.25 - 9	0.25		18	43.762	43.809	1	A572-65	0.951
44	9 - 8.75	0.25		18	43.809	43.856	1.025	A572-65	0.963
45	8.75 - 7	1.75		18	43.856	44.185	1.025	A572-65	0.959
46	7 - 6.75	0.25		18	44.185	44.232	0.975	A572-65	0.969
47	6.75 - 5	1.75		18	44.232	44.561	0.975	A572-65	0.965
48	5 - 4.75	0.25		18	44.561	44.607	1.45	A572-65	0.857
49	4.75 - 3	1.75		18	44.607	44.936	1.425	A572-65	0.867
50	3 - 2.75	0.25		18	44.936	44.983	1.45	A572-65	0.876
51	2.75 - 2.25	0.5		18	44.983	45.077	1.45	A572-65	0.875
52	2.25 - 2	0.25		18	45.077	45.124	1.2	A572-65	0.856
53	2 - 0	2		18	45.124	45.500	1.175	A572-65	0.869

TNX Section Forces

Increment (ft): 5		TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	169 - 164	2.33	12.51	6.66
2	164 - 159	2.61	46.97	7.11
3	159 - 154	5.22	102.87	13.67
4	154 - 149	5.66	172.42	14.15
5	149 - 144	7.47	256.62	17.68
6	144 - 139	8.06	346.14	18.13
7	139 - 136.66	8.58	389.92	19.16
8	136.66 - 131.66	9.47	487.23	19.73
9	131.66 - 126.66	10.21	588.23	20.97
10	126.66 - 121.66	11.48	699.25	22.53
11	121.66 - 116.66	12.38	813.28	23.09
12	116.66 - 111.66	13.29	930.06	23.60
13	111.66 - 111	13.43	945.67	23.67
14	111 - 110.75	15.72	952.75	29.08
15	110.75 - 105.75	17.04	1099.91	29.73
16	105.75 - 101.5	18.19	1227.71	30.34
17	101.5 - 101.25	18.31	1235.31	30.40
18	101.25 - 101	18.40	1242.92	30.44
19	101 - 100.75	18.48	1250.54	30.47
20	100.75 - 95.75	20.05	1404.96	31.23
21	95.75 - 92.16	21.22	1518.17	31.76
22	92.16 - 86.83	24.33	1690.26	32.71
23	86.83 - 81.83	26.35	1855.91	33.47
24	81.83 - 81.5	26.50	1866.98	33.52
25	81.5 - 81.25	26.60	1875.37	33.56
26	81.25 - 76.25	28.67	2045.22	34.30
27	76.25 - 71.25	30.79	2218.77	35.03
28	71.25 - 66.25	32.93	2395.92	35.74
29	66.25 - 61.25	35.11	2576.60	36.44
30	61.25 - 56.25	37.32	2760.70	37.11
31	56.25 - 51.25	39.56	2948.12	37.77
32	51.25 - 48.66	40.73	3046.48	38.10
33	48.66 - 42.33	46.07	3291.12	39.08
34	42.33 - 37.4	48.78	3485.52	39.69
35	37.4 - 37.15	48.94	3495.46	39.71
36	37.15 - 32.15	51.72	3695.78	40.31
37	32.15 - 27.15	54.54	3898.95	40.86
38	27.15 - 22.15	57.38	4104.80	41.38
39	22.15 - 19.5	58.90	4214.93	41.64
40	19.5 - 19.25	59.07	4225.35	41.64
41	19.25 - 14.25	62.11	4435.06	42.12
42	14.25 - 9.25	65.19	4647.01	42.56
43	9.25 - 9	65.36	4657.67	42.56
44	9 - 8.75	65.52	4668.33	42.58
45	8.75 - 7	66.62	4743.11	42.77
46	7 - 6.75	66.80	4753.81	42.76
47	6.75 - 5	67.86	4828.89	42.94
48	5 - 4.75	68.08	4839.64	42.93
49	4.75 - 3	69.43	4915.05	43.13
50	3 - 2.75	69.65	4925.85	43.13
51	2.75 - 2.25	70.05	4947.47	43.18
52	2.25 - 2	70.22	4958.28	43.20
53	2 - 0	71.55	5045.02	43.40

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
169 - 164	Pole	TP16.455x15.5x0.25	Pole	4.0%	Pass
164 - 159	Pole	TP17.409x16.455x0.25	Pole	12.9%	Pass
159 - 154	Pole	TP18.364x17.409x0.25	Pole	25.3%	Pass
154 - 149	Pole	TP19.318x18.364x0.25	Pole	38.0%	Pass
149 - 144	Pole	TP20.273x19.318x0.25	Pole	51.2%	Pass
144 - 139	Pole	TP21.228x20.273x0.25	Pole	62.7%	Pass
139 - 136.66	Pole	TP22.31x21.228x0.25	Pole	67.7%	Pass
136.66 - 131.66	Pole	TP22.115x21.174x0.3125	Pole	65.4%	Pass
131.66 - 126.66	Pole	TP23.055x22.115x0.3125	Pole	72.5%	Pass
126.66 - 121.66	Pole	TP23.996x23.055x0.3125	Pole	79.4%	Pass
121.66 - 116.66	Pole	TP24.937x23.996x0.3125	Pole	85.4%	Pass
116.66 - 111.66	Pole	TP25.877x24.937x0.3125	Pole	90.5%	Pass
111.66 - 111	Pole	TP26.001x25.877x0.3125	Pole	91.1%	Pass
111 - 110.75	Pole + Reinf.	TP26.048x26.001x0.575	Reinf. 6 Tension Rupture	82.0%	Pass
110.75 - 105.75	Pole + Reinf.	TP26.989x26.048x0.5625	Reinf. 6 Tension Rupture	89.5%	Pass
105.75 - 101.5	Pole + Reinf.	TP27.788x26.989x0.55	Reinf. 6 Tension Rupture	95.3%	Pass
101.5 - 101.25	Pole + Reinf.	TP27.835x27.788x0.9875	Reinf. 12 Tension Rupture	65.0%	Pass
101.25 - 101	Pole + Reinf.	TP27.882x27.835x0.9875	Reinf. 12 Tension Rupture	65.3%	Pass
101 - 100.75	Pole + Reinf.	TP27.93x27.882x0.725	Reinf. 12 Tension Rupture	86.9%	Pass
100.75 - 95.75	Pole + Reinf.	TP28.87x27.93x0.7125	Reinf. 12 Tension Rupture	93.0%	Pass
95.75 - 92.16	Pole + Reinf.	TP30.36x28.87x0.7	Reinf. 12 Tension Rupture	97.1%	Pass
92.16 - 86.83	Pole + Reinf.	TP29.924x28.92x0.9375	Reinf. 12 Tension Rupture	80.1%	Pass
86.83 - 81.83	Pole + Reinf.	TP30.865x29.924x0.925	Reinf. 12 Tension Rupture	84.1%	Pass
81.83 - 81.5	Pole + Reinf.	TP30.927x30.865x0.925	Reinf. 12 Tension Rupture	84.4%	Pass
81.5 - 81.25	Pole + Reinf.	TP30.974x30.927x0.95	Reinf. 11 Tension Rupture	71.7%	Pass
81.25 - 76.25	Pole + Reinf.	TP31.915x30.974x0.925	Reinf. 11 Tension Rupture	74.9%	Pass
76.25 - 71.25	Pole + Reinf.	TP32.856x31.915x0.9	Reinf. 11 Tension Rupture	77.9%	Pass
71.25 - 66.25	Pole + Reinf.	TP33.797x32.856x0.875	Reinf. 11 Tension Rupture	80.8%	Pass
66.25 - 61.25	Pole + Reinf.	TP34.738x33.797x0.8625	Reinf. 11 Tension Rupture	83.5%	Pass
61.25 - 56.25	Pole + Reinf.	TP35.679x34.738x0.85	Reinf. 11 Tension Rupture	86.1%	Pass
56.25 - 51.25	Pole + Reinf.	TP36.619x35.679x0.825	Reinf. 11 Tension Rupture	88.5%	Pass
51.25 - 48.66	Pole + Reinf.	TP38.11x36.619x0.825	Reinf. 11 Tension Rupture	89.7%	Pass
48.66 - 42.33	Pole + Reinf.	TP37.546x36.357x1.0375	Reinf. 11 Tension Rupture	76.2%	Pass
42.33 - 37.4	Pole + Reinf.	TP38.473x37.546x1.025	Reinf. 11 Tension Rupture	78.0%	Pass
37.4 - 37.15	Pole + Reinf.	TP38.52x38.473x1.025	Reinf. 7 Tension Rupture	78.1%	Pass
37.15 - 32.15	Pole + Reinf.	TP39.459x38.52x1	Reinf. 7 Tension Rupture	79.9%	Pass
32.15 - 27.15	Pole + Reinf.	TP40.399x39.459x0.975	Reinf. 7 Tension Rupture	81.6%	Pass
27.15 - 22.15	Pole + Reinf.	TP41.338x40.399x0.9625	Reinf. 7 Tension Rupture	83.2%	Pass
22.15 - 19.5	Pole + Reinf.	TP41.836x41.338x0.95	Reinf. 7 Tension Rupture	84.0%	Pass
19.5 - 19.25	Pole + Reinf.	TP41.883x41.836x1.025	Reinf. 7 Tension Rupture	78.6%	Pass
19.25 - 14.25	Pole + Reinf.	TP42.822x41.883x1	Reinf. 7 Tension Rupture	80.0%	Pass
14.25 - 9.25	Pole + Reinf.	TP43.762x42.822x1	Reinf. 7 Tension Rupture	81.4%	Pass
9.25 - 9	Pole + Reinf.	TP43.809x43.762x1	Reinf. 7 Tension Rupture	81.4%	Pass
9 - 8.75	Pole + Reinf.	TP43.856x43.809x1.025	Reinf. 7 Tension Rupture	78.5%	Pass
8.75 - 7	Pole + Reinf.	TP44.185x43.856x1.025	Reinf. 7 Tension Rupture	78.9%	Pass
7 - 6.75	Pole + Reinf.	TP44.232x44.185x0.975	Reinf. 7 Tension Rupture	82.0%	Pass
6.75 - 5	Pole + Reinf.	TP44.561x44.232x0.975	Reinf. 7 Tension Rupture	82.5%	Pass
5 - 4.75	Pole + Reinf.	TP44.607x44.561x1.45	Reinf. 3 Compression	65.1%	Pass
4.75 - 3	Pole + Reinf.	TP44.936x44.607x1.425	Reinf. 3 Compression	65.5%	Pass
3 - 2.75	Pole + Reinf.	TP44.983x44.936x1.45	Reinf. 7 Tension Rupture	57.8%	Pass
2.75 - 2.25	Pole + Reinf.	TP45.077x44.983x1.45	Reinf. 7 Tension Rupture	57.9%	Pass
2.25 - 2	Pole + Reinf.	TP45.124x45.077x1.2	Reinf. 8 Tension Rupture	69.5%	Pass
2 - 0	Pole + Reinf.	TP45.5x45.124x1.175	Reinf. 8 Tension Rupture	70.0%	Pass
				Summary	
			Pole	91.1%	Pass
			Reinforcement	97.1%	Pass
			Overall	97.1%	Pass

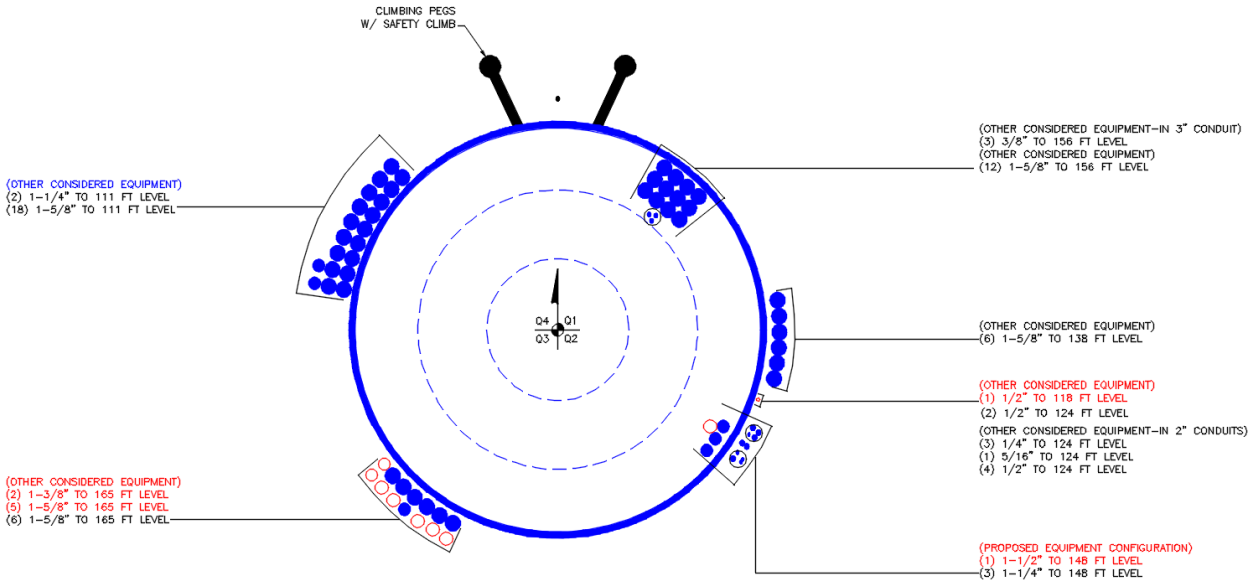
Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*											
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
169 - 164	426	n/a	426	12.86	n/a	12.86	4.0%												
164 - 159	506	n/a	506	13.62	n/a	13.62	12.9%												
159 - 154	596	n/a	596	14.37	n/a	14.37	25.3%												
154 - 149	695	n/a	695	15.13	n/a	15.13	38.0%												
149 - 144	804	n/a	804	15.89	n/a	15.89	51.2%												
144 - 139	925	n/a	925	16.65	n/a	16.65	62.7%												
139 - 136.66	985	n/a	985	17.00	n/a	17.00	67.7%												
136.66 - 131.66	1298	n/a	1298	21.62	n/a	21.62	65.4%												
131.66 - 126.66	1474	n/a	1474	22.56	n/a	22.56	72.5%												
126.66 - 121.66	1664	n/a	1664	23.49	n/a	23.49	79.4%												
121.66 - 116.66	1870	n/a	1870	24.42	n/a	24.42	85.4%												
116.66 - 111.66	2093	n/a	2093	25.36	n/a	25.36	90.5%												
111.66 - 111	2124	n/a	2124	25.48	n/a	25.48	91.1%												
111 - 110.75	2135	1674	3809	25.53	18.00	43.53	50.7%						82.0%						
110.75 - 105.75	2378	1790	4168	26.46	18.00	44.46	55.4%						89.5%						
105.75 - 101.5	2598	1892	4491	27.25	18.00	45.25	59.1%						95.3%						
101.5 - 101.25	2612	5093	7705	27.30	48.00	75.30	34.7%						56.0%						65.0%
101.25 - 101	2625	5109	7734	27.35	48.00	75.35	34.9%						56.2%						65.3%
101 - 100.75	2639	3215	5853	27.39	30.00	57.39	46.4%												86.9%
100.75 - 95.75	2918	3424	6342	28.32	30.00	58.32	49.7%												93.0%
95.75 - 92.16	3129	3578	6708	28.99	30.00	58.99	52.0%												97.1%
92.16 - 86.83	3878	5292	9170	35.17	43.50	78.67	42.9%				75.7%								80.1%
86.83 - 81.83	4261	5615	9876	36.29	43.50	79.79	45.2%				79.5%								84.1%
81.83 - 81.5	4287	5636	9923	36.36	43.50	79.86	45.3%				79.8%								84.4%
81.5 - 81.25	4307	5911	10218	36.42	45.00	81.42	44.2%											71.7%	
81.25 - 76.25	4716	6257	10974	37.54	45.00	82.54	46.3%											74.9%	
76.25 - 71.25	5151	6613	11765	38.66	45.00	83.66	48.2%											77.9%	
71.25 - 66.25	5612	6979	12591	39.78	45.00	84.78	50.1%											80.8%	
66.25 - 61.25	6099	7355	13455	40.90	45.00	85.90	51.8%											83.5%	
61.25 - 56.25	6614	7741	14356	42.02	45.00	87.02	53.4%											86.1%	
56.25 - 51.25	7157	8137	15295	43.14	45.00	88.14	55.2%											88.5%	
51.25 - 48.66	7450	8346	15796	43.72	45.00	88.72	56.2%											89.7%	
48.66 - 42.33	7721	12538	20258	44.24	69.00	113.24	48.6%		73.9%									76.2%	
42.33 - 37.4	8312	13139	21452	45.34	69.00	114.34	50.1%		75.7%									78.0%	
37.4 - 37.15	8343	13170	21513	45.40	69.00	114.40	50.2%		75.8%					78.1%		73.9%			
37.15 - 32.15	8975	13796	22771	46.52	69.00	115.52	51.7%		77.6%					79.9%		75.6%			
32.15 - 27.15	9638	14436	24074	47.64	69.00	116.64	53.2%		79.2%					81.6%		77.3%			
27.15 - 22.15	10332	15091	25423	48.75	69.00	117.75	54.6%		80.8%					83.2%		78.8%			
22.15 - 19.5	10714	15444	26158	49.35	69.00	118.35	55.4%		81.6%					84.0%		79.6%			
19.5 - 19.25	10750	17315	28066	49.40	77.50	126.90	51.8%	74.8%						78.6%		73.3%			
19.25 - 14.25	11497	18072	29569	50.52	77.50	128.02	53.2%	76.2%						80.0%		74.7%			
14.25 - 9.25	12277	18845	31122	51.64	77.50	129.14	54.5%	77.5%						81.4%		76.0%			
9.25 - 9	12317	18884	31201	51.70	77.50	129.20	54.5%	77.6%						81.4%		76.1%			
9 - 8.75	12357	20125	32482	51.75	82.50	134.25	52.6%	74.7%						78.5%			64.4%		
8.75 - 7	12640	20418	33058	52.14	82.50	134.64	53.0%	75.1%						78.9%			64.8%		
7 - 6.75	12680	19237	31918	52.20	77.50	129.70	55.1%	78.1%						82.0%	76.7%				
6.75 - 5	12968	19515	32482	52.59	77.50	130.09	55.5%	78.6%						82.5%	77.1%				
5 - 4.75	13009	33772	46781	52.65	117.50	170.15	38.9%	55.8%		65.1%				59.8%	52.7%				
4.75 - 3	13301	34230	47531	53.04	117.50	170.54	39.3%	56.1%		65.5%				60.2%	53.0%				
3 - 2.75	13343	34565	47909	53.09	122.50	175.59	39.2%	55.6%				51.9%		57.8%	55.3%				
2.75 - 2.25	13428	34700	48127	53.20	122.50	175.70	39.3%	55.7%				52.0%		57.9%	55.4%				
2.25 - 2	13470	26940	40410	53.26	90.00	143.26	46.5%					62.4%		69.5%	69.5%				
2 - 0	13812	27354	41166	53.71	90.00	143.71	46.9%					62.8%		70.0%	70.0%				

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

APPENDIX B

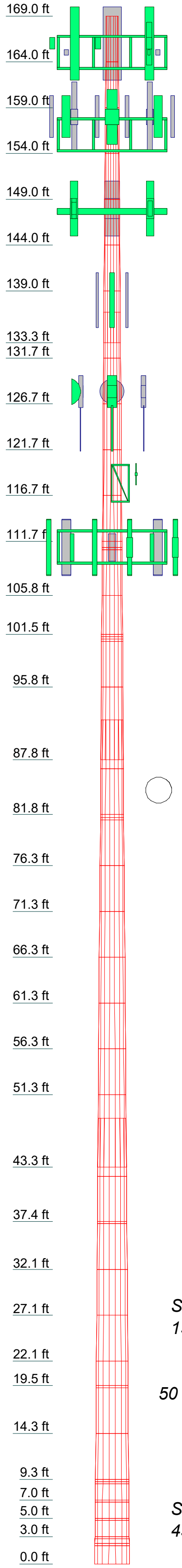
BASE LEVEL DRAWING


CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(2) 1-1/4" TO 111 FT LEVEL
(18) 1-5/8" TO 111 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN 3" CONDUIT)
(3) 3/8" TO 156 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 156 FT LEVEL
Q4 Q1
Q3 Q2
(OTHER CONSIDERED EQUIPMENT)
(6) 1-5/8" TO 138 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 118 FT LEVEL
(2) 1/2" TO 124 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN 2" CONDUITS)
(3) 1/4" TO 124 FT LEVEL
(1) 5/16" TO 124 FT LEVEL
(4) 1/2" TO 124 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 1-3/8" TO 165 FT LEVEL
(5) 1-5/8" TO 165 FT LEVEL
(6) 1-5/8" TO 165 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 148 FT LEVEL
(3) 1-1/4" TO 148 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.2500		15.5000	16.4546	A572-65	0.2
2	5.00	18	0.2500		16.4546	17.4092		0.2
3	5.00	18	0.2500		17.4092	18.3638		0.2
4	5.00	18	0.2500		18.3638	19.3183		0.3
5	5.00	18	0.2500		19.3183	20.2729		0.3
6	5.00	18	0.2500		20.2729	21.2275		0.3
7	5.00 / 6.67	18	0.2500	3.33	21.2275	[illegible]		0.3
8	[illegible]	18	[illegible]		[illegible]	[illegible]		0.4
9	5.00	18	0.3125		[illegible]	[illegible]		0.4
10	5.00	18	0.3125		23.0554	23.9960		0.4
11	5.00	18	0.3125		23.9960	24.9366		0.4
12	5.00	18	[illegible]		[illegible]	[illegible]		0.4
13–14	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
15	5.00	18	[illegible]		[illegible]	[illegible]		0.7
16	[illegible]	18	[illegible]		[illegible]	[illegible]		0.6
17–19	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
20	5.00	18	[illegible]		27.[illegible]	28.[illegible]		1.0
21	5.37 / 7.92	18	0.3750 / 0.7000	4.33	28.8701	30.3600		1.6
22	[illegible]	18	[illegible]		[illegible]	[illegible]		1.4
23	5.00	18	[illegible]		[illegible]	[illegible]		1.3
24–25	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
26	5.00	18	[illegible]		[illegible]	[illegible]		1.4
27	5.00	18	0.9000		31.9146	32.8556		1.4
28	5.00	18	0.8750		32.8556	33.7963		1.4
29	5.00	18	0.8625		33.7963	34.7370		1.4
30	5.00	18	0.8500		34.7370	35.6785		1.5
31	5.00	18	0.8250		35.6785	36.6195		1.5
32	6.92	18	0.8250	5.33	36.6195	38.1100		2.4
33	[illegible]	18	[illegible]		[illegible]	[illegible]		2.4
34	[illegible]	18	[illegible]		[illegible]	[illegible]		1.9
35	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
36	5.00	18	[illegible]		[illegible]	[illegible]		1.9
37	5.00	18	0.9750		[illegible]	40.3986		2.0
38	5.00	18	0.9625		40.3986	[illegible]		2.0
39–40	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
41	5.00	18	1.0000		[illegible]	[illegible]		2.2
42	5.00	18	[illegible]		[illegible]	[illegible]		2.2
43–53	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
								42.31



DESIGNED APPURTENANCE LOADING

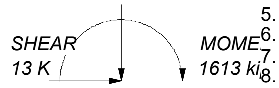
TYPE	ELEVATION
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	165
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	165
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	165
AIR 32 B2A/B66AA w/ Mount Pipe	165
AIR 32 B2A/B66AA w/ Mount Pipe	165
AIR 32 B2A/B66AA w/ Mount Pipe	165
APXVAARR24_43-U-NA20 w/ Mount Pipe	165
APXVAARR24_43-U-NA20 w/ Mount Pipe	165
APXVAARR24_43-U-NA20 w/ Mount Pipe	165
(2) KRY 112 144/1	165
KRY 112 144/1	165
RADIO 4449 B12/B71	165
(2) RADIO 4449 B12/B71	165
8-ft Ladder	165
Platform Mount [LP 601-1]	165
(2) 7770.00 w/ Mount Pipe	156
(2) 7770.00 w/ Mount Pipe	156
(2) 7770.00 w/ Mount Pipe	156
HPA-65R-BUU-H8 w/ Mount Pipe	156
HPA-65R-BUU-H8 w/ Mount Pipe	156
HPA-65R-BUU-H6 w/ Mount Pipe	156
DTMABP7819VG12A	156
DTMABP7819VG12A	156
DTMABP7819VG12A	156
RRUS 11	156
RRUS 11	156
RRUS 11	156
DC6-48-60-18-8F	156
DTMABP7819VG12A	156
DTMABP7819VG12A	156
DTMABP7819VG12A	156
RRUS12/RRUS A2	156
RRUS12/RRUS A2	156
RRUS12/RRUS A2	156
Platform Mount [LP 714-1]	156
NNVV-65B-R4 w/ Mount Pipe	148
NNVV-65B-R4 w/ Mount Pipe	148
NNVV-65B-R4 w/ Mount Pipe	148
AAHC w/ Mount Pipe	148

TYPE	ELEVATION
AAHC w/ Mount Pipe	148
AAHC w/ Mount Pipe	148
800MHZ RRH	148
800MHZ RRH	148
800MHZ RRH	148
PCS 1900MHz 4x45W-65MHz	148
PCS 1900MHz 4x45W-65MHz	148
PCS 1900MHz 4x45W-65MHz	148
RRH2X50-800	148
RRH2X50-800	148
RRH2X50-800	148
T-Arm Mount [TA 702-3]	148
APXV18-206517-A	138
APXV18-206517-A	138
APXV18-206517-A	138
Pipe Mount [PM 601-3]	138
LLPX310R w/ Mount Pipe	124
LLPX310R w/ Mount Pipe	124
LLPX310R w/ Mount Pipe	124
HORIZON DUO	124
HORIZON DUO	124
WIMAX DAP HEAD	124
WIMAX DAP HEAD	124
WIMAX DAP HEAD	124
2.375" OD x 5' Mount Pipe	124
2.375" OD x 5' Mount Pipe	124
2.375" OD x 5' Mount Pipe	124
Side Arm Mount [SO 701-3]	124
VHLP800-11	124
VHLP800-11	124
CAVITY FILTER	118
Side Arm Mount [SO 304-1]	118
CXL 900-3LW	118
LNA	118
(2) HBXX-6517DS-A2M w/ Mount Pipe	111
(2) LNX-6514DS-A1M w/ Mount Pipe	111
(2) LNX-6514DS-A1M w/ Mount Pipe	111
(2) LNX-6514DS-A1M w/ Mount Pipe	111
B4 RRH2X60-4R	111
B4 RRH2X60-4R	111
B4 RRH2X60-4R	111
(2) RRFDC-3315-PF-48	111
Platform Mount [LP 303-1]	111
(2) HBXX-6517DS-A2M w/ Mount Pipe	111
(2) HBXX-6517DS-A2M w/ Mount Pipe	111

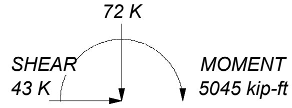
MATERIAL STRENGTH

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

ALL REACTIONS ARE FACTORED



TORQUE 4 kip-ft
50 mph WIND - 1.7000 in ICE



TORQUE 10 kip-ft
REACTIONS - 125 mph WIND

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.70 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TIA-222 H Annex S

Paul J. Ford and Company
250 East Broad st., Suite 600
Columbus, OH 43215
Phone: (614) 221-6679
FAX:

Job: **165-Ft Monopole / South Windsor/Rt 5**			
Project: **PJF# 37518-0525.001.7805 / BU# 828054**			
Client: Crown Castle	Drawn by: jacuna	App'd:	
Code: TIA-222-H	Date: 11/05/18	Scale: NTS	
Path:		Dwg No. E-1	

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

v4.5.1 - Effective 09-27-18

Date: 11/6/2018
PJF Project: 37518-0525.001.7805
Client Ref. # BU 828054
Site Name: South Windsor, CT
Description: 169 Ft Monopole
Owner: CCI
Engineer: JAB

Asymmetric Anchor Rod Analysis

Moment =	3344	k-ft	TIA Ref.	H		η =	N/A	for Base Plates, Rev. G Sect. 4.9.9
Axial =	47.7	kips (+Comp, -Tension)	ASIF =	N/A		Threads =	N-Included	for Flange Plates, Rev. G & H
Shear =	43.0	kips	Max Ratio =	100.0%		lar =	0.00	in, for Base Plates, Rev. H Sect 4.9.9 (Max of Original Items)
Anchor Qty =	12		Location =	Base Plate		Grout =	0.00	psi, for Base Plates, Rev. H Sect 4.9.9 (Note)

**** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. ****

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Type	Area Override, in^2	Area, in^2	Max Net Comp, kips	Max Net Tension, kips	Tension Override, kips	Comp Override, kips	Tension Cap, kips	Comp Cap, kips	Capacity Ratio
1	2.250	A354 Gr BC	109	125	6.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
2	2.250	A354 Gr BC	109	125	53.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
3	2.250	A354 Gr BC	109	125	66.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
4	2.250	A354 Gr BC	109	125	113.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
5	2.250	A354 Gr BC	109	125	126.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
6	2.250	A354 Gr BC	109	125	173.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
7	2.250	A354 Gr BC	109	125	186.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
8	2.250	A354 Gr BC	109	125	233.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
9	2.250	A354 Gr BC	109	125	246.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
10	2.250	A354 Gr BC	109	125	293.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
11	2.250	A354 Gr BC	109	125	306.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
12	2.250	A354 Gr BC	109	125	353.5	54.00	Original	0.00	3.98	251.46	243.51	0.00	0.00	304.47	354.00	67.8%
									47.71							

PAUL J. FORD & COMPANY

Date:	11/6/2018
Job #:	37518-0525.001.7805

Applied Reactions for RISA 3D		
TNX Moment =	5045	k-ft
TNX Axial =	72	kips
TNX Shear =	43	kips
Total Unfactored Axial =	**60.00**	**kips**
Side Bending Moment =	**5045**	**k-ft**
Corner Bending Moment (Mx) =	**3567.4**	**k-ft**
Corner Bending Moment (Mz)=	**3567.4**	**k-ft**

Micropile Spring Constant		
Number of Piles =	6	
B.C. =	117.5	in
Ag =	4.03	in^2
E =	29000	ksi
Lu =	10	ft
k = An*E / Lu =	973.92	k/in

Helical Anchor Spring Constant		
Number of Piles =	6	
B.C. =	300	in
Ag =	8.28	in^2
E =	29000	ksi
Lu =	65	ft
k = An*E / Lu =	307.85	k/in

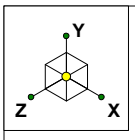
Micropile Capacity		
Max Tension from RISA =	121.376	kips
Anchor Type =	Micropile	
Ultimate Load, Pu' =	418	kips
An =		in^2
Capacity (Kips)= 0.8*Pu =	334.4	
Ratio = 121.376 / 334.4 =	**36.3%**	

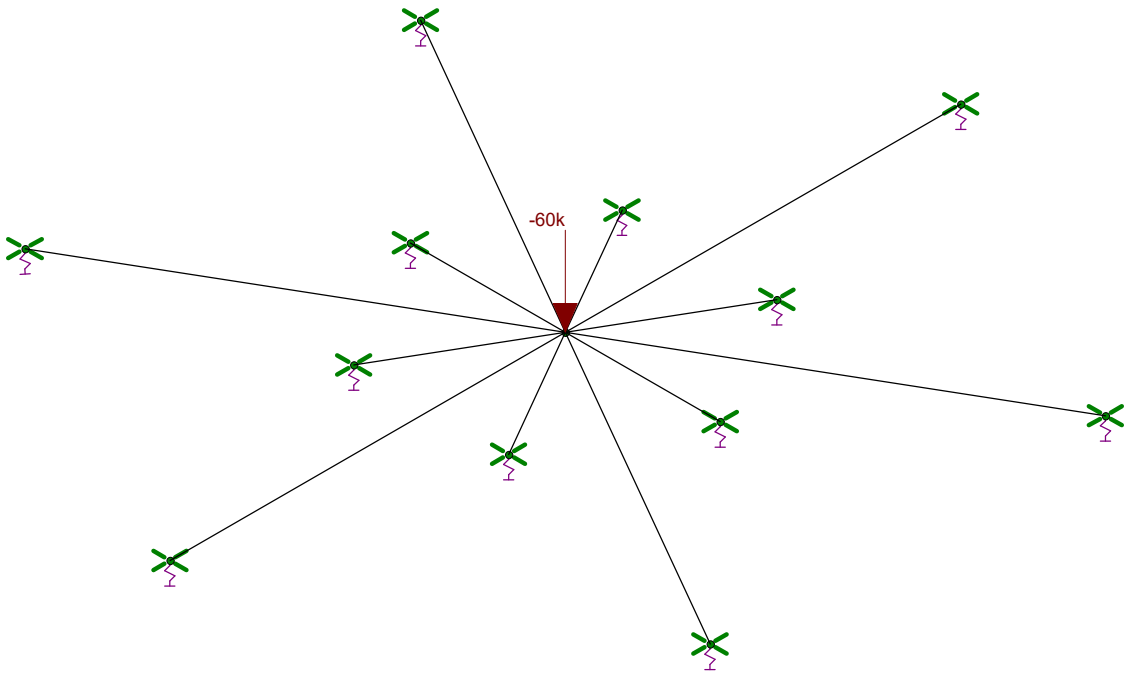
Helical Anchor Capacity		
Max Tension from RISA =	93.45	kips
Anchors per	2	
Helical Anchor Type =	RD4500.337	
Design Torque =	21000	ft-lbs
Ultimate Capacity =	140	kips
Installed Torque =	15000	ft-lbs
Installed Capacity =	100	kips
Total Capacity =	105	kips
Ratio = 93.45 / 105 =	**89.0%**	

			Load Distribution
Micropile Effective Moment =	42785	k-in	33.7%
Anchor Effective Moment =	84105	k-in	66.3%
Total Effective Moment =	126890	k-in	

Reaction for Helical Load transfer at Base plate:

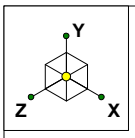
Moment =	**3343.9**	**k-ft**
Axial =	**47.7**	**kips**
Shear =	**43.0**	**kips**

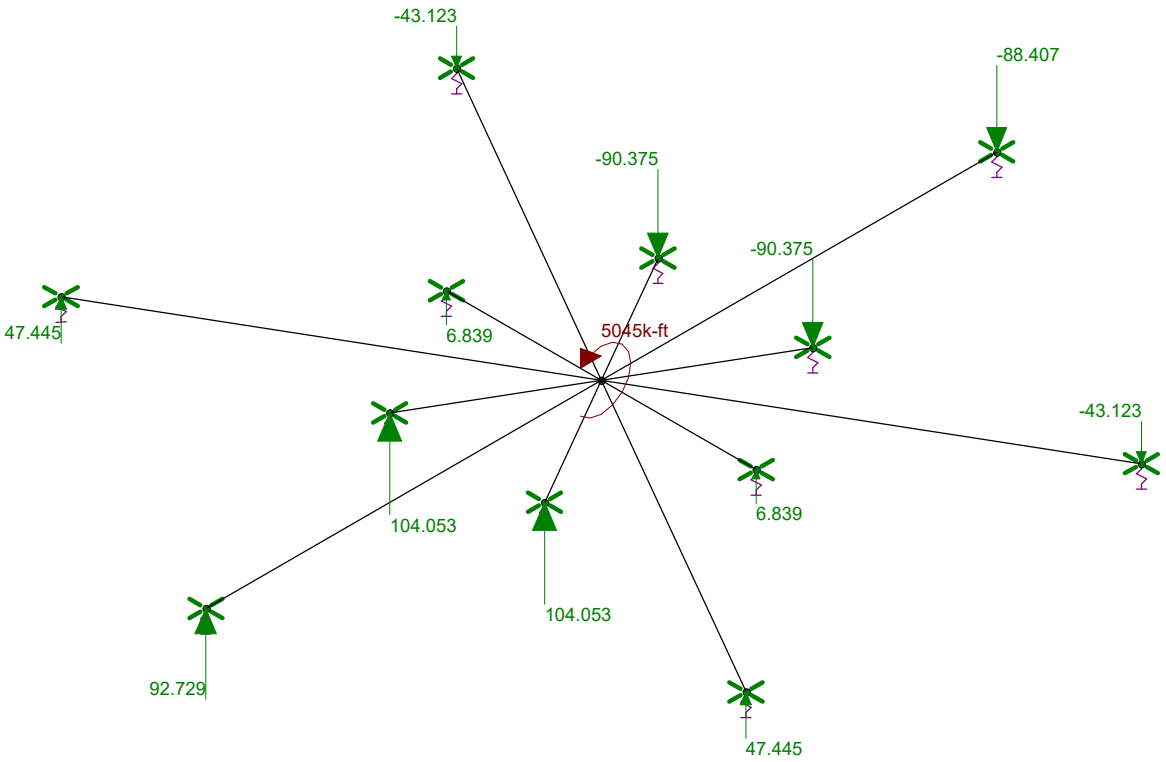




Loads: BLC 1, Dead

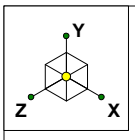
Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 1
KAT/JAB		Nov 6, 2018 at 10:51 AM
37518-0525.001.7805		375418-0525.001_Composite Fou...

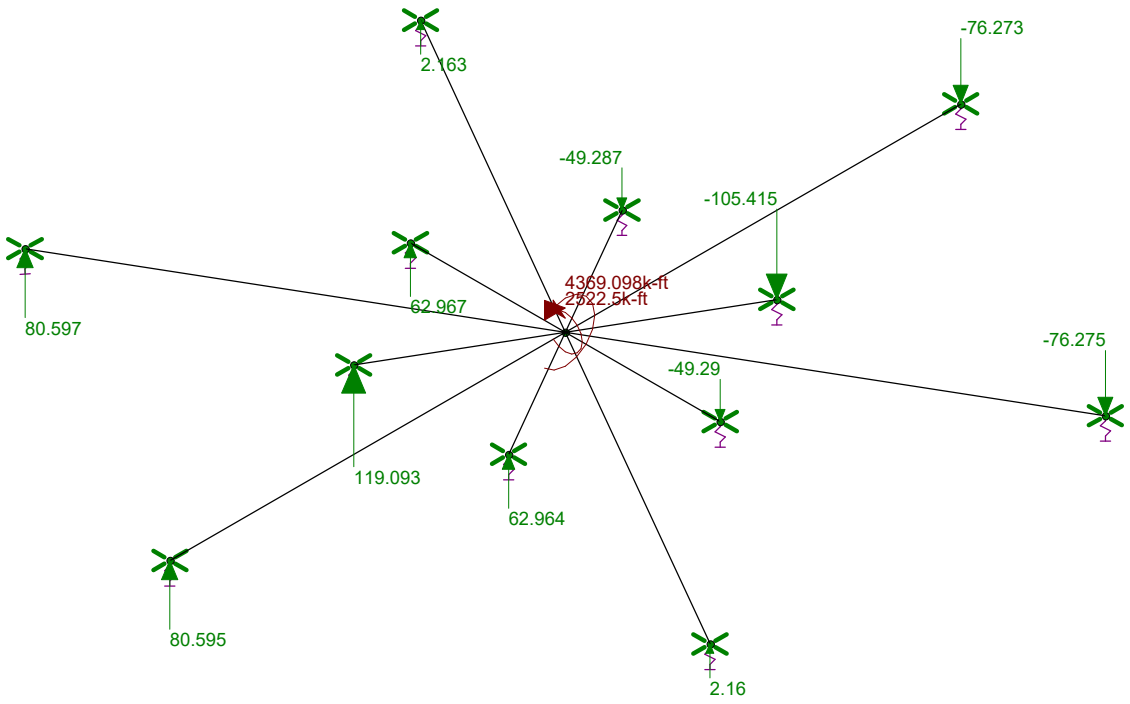




Loads: BLC 2, Wind 0
Y-direction Reaction Units are k and k-ft

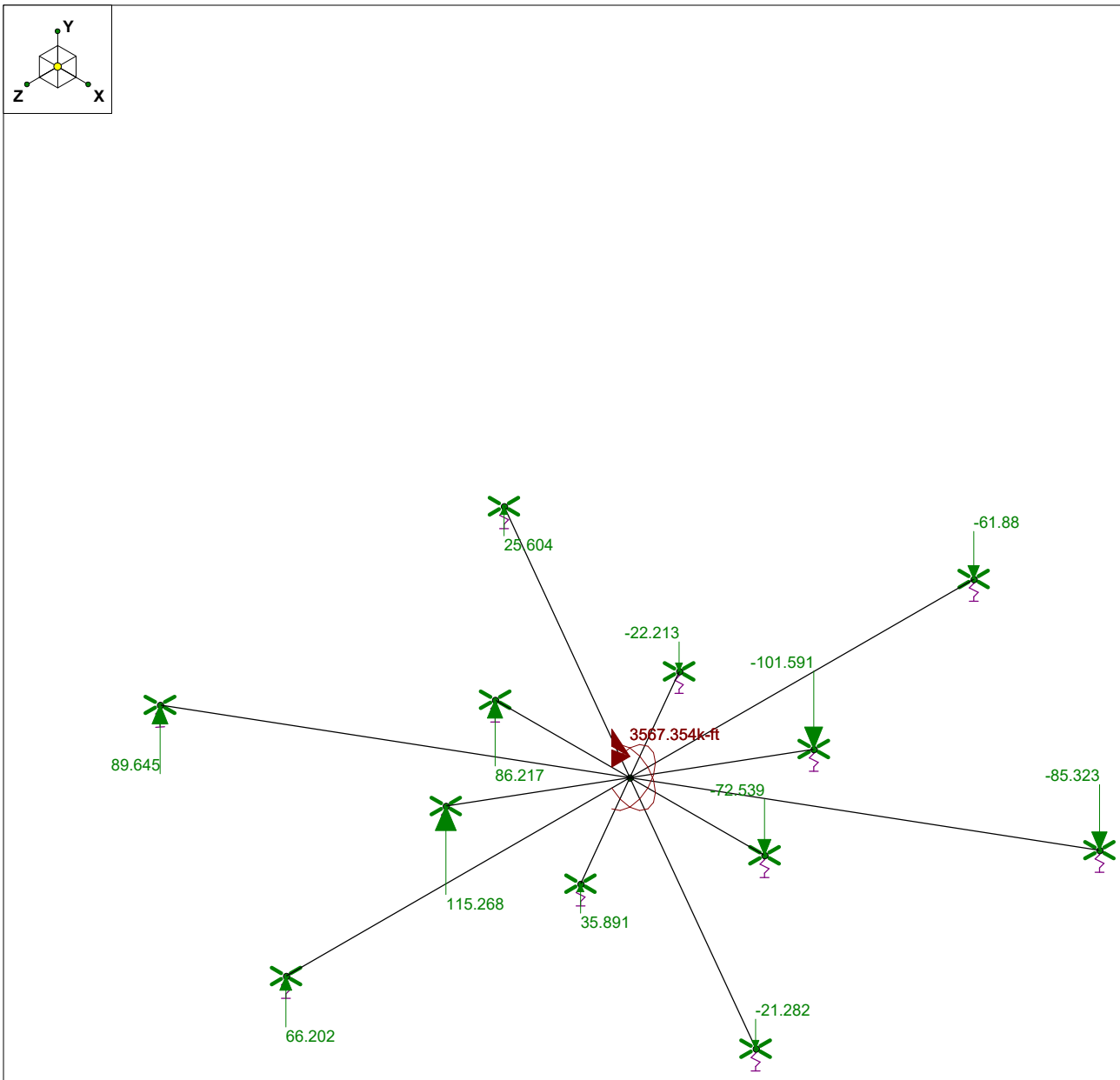
Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 2
KAT/JAB		Nov 6, 2018 at 10:51 AM
37518-0525.001.7805		375418-0525.001_Composite Fou...





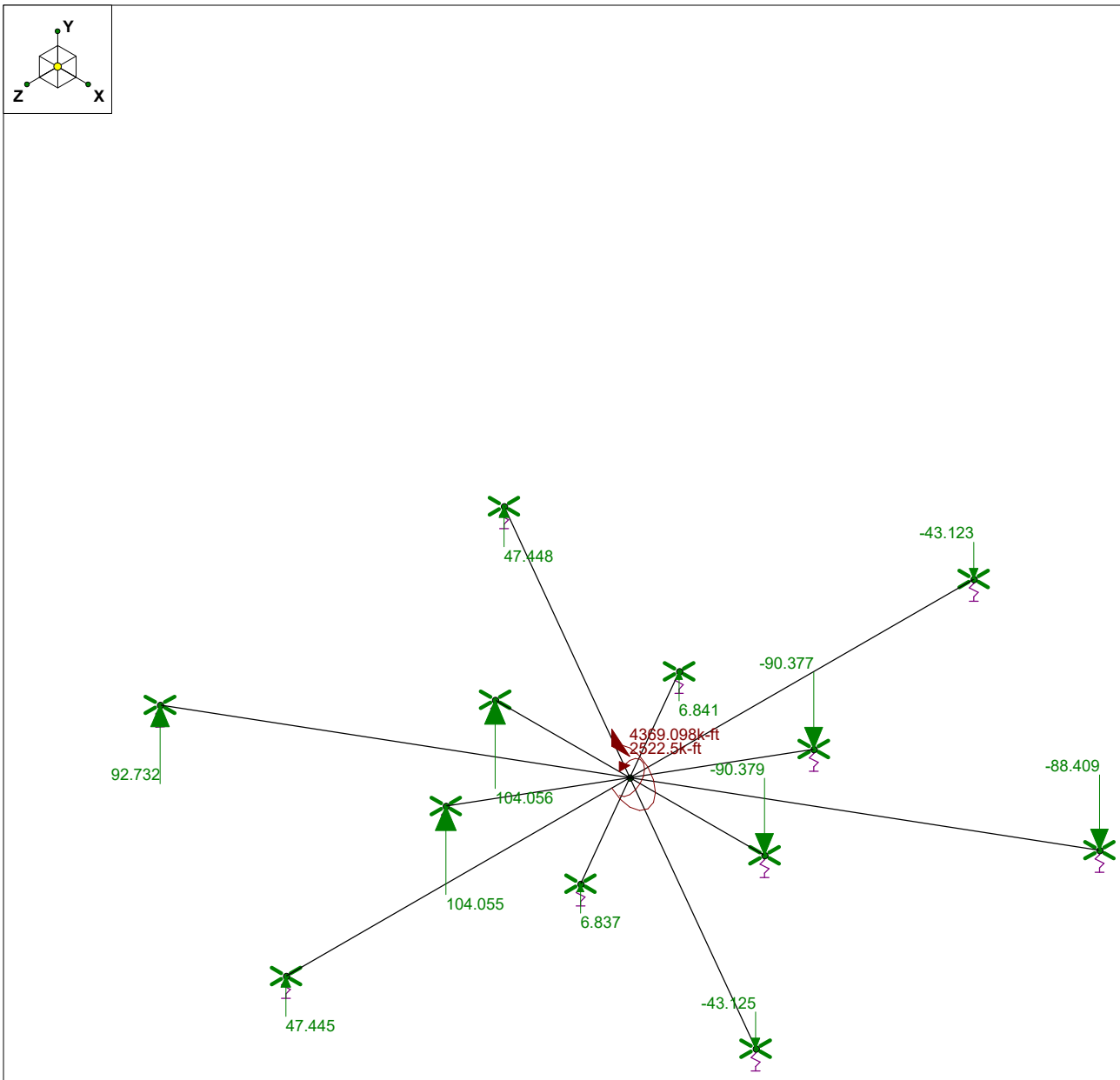
Loads: BLC 3, Wind 30
Y-direction Reaction Units are k and k-ft

Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 3
KAT/JAB		Nov 6, 2018 at 10:52 AM
37518-0525.001.7805		375418-0525.001_Composite Fou...



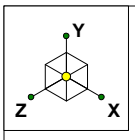
Loads: BLC 4, Wind 45
Y-direction Reaction Units are k and k-ft

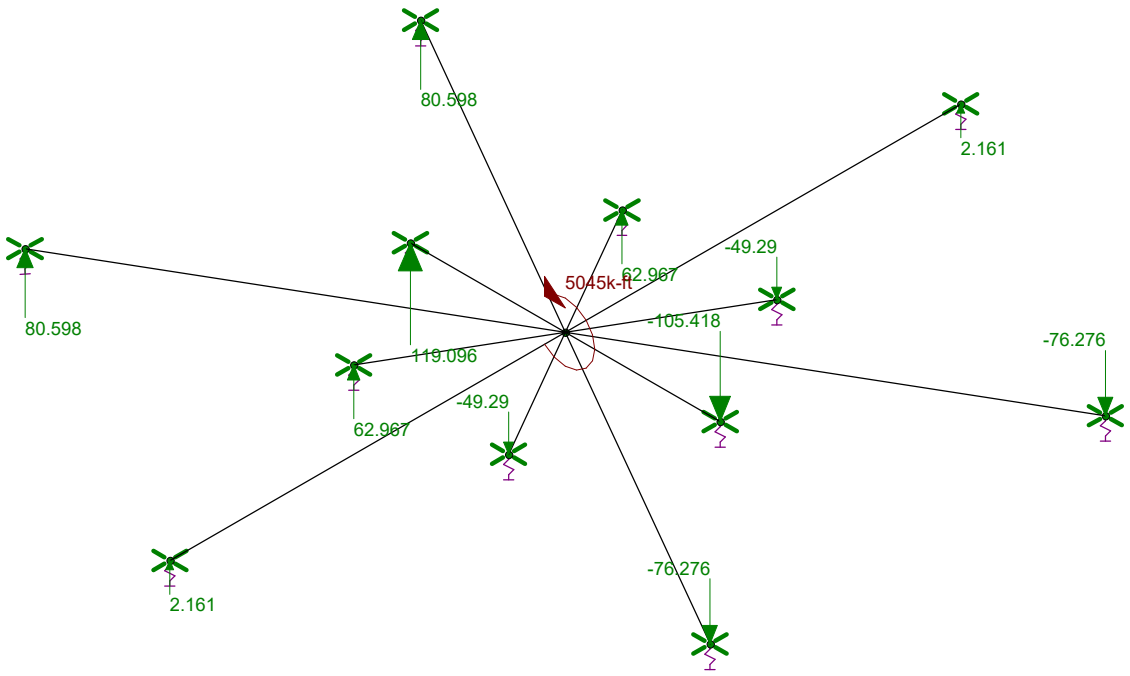
Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 4
KAT/JAB		Nov 6, 2018 at 10:52 AM
37518-0525.001.7805		375418-0525.001_Composite Fou...



Loads: BLC 5, Wind 60
Y-direction Reaction Units are k and k-ft

Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 5
KAT/JAB		Nov 6, 2018 at 10:52 AM
37518-0525.001.7805		375418-0525.001_Composite Fou...





Loads: BLC 6, Wind 90
Y-direction Reaction Units are k and k-ft

Paul J. Ford and Company	BU 828054 / South Windsor- Rt 5	SK - 6
KAT/JAB		Nov 6, 2018 at 10:52 AM
37518-0525.001.7805		375418-0525.001_Composite Fou...

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	None
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	None
Aluminum Code	None - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	CENTER	N2			RIGID	None	None	RIGID	Typical
2	M2	CENTER	N4			RIGID	None	None	RIGID	Typical
3	M3	CENTER	N6			RIGID	None	None	RIGID	Typical
4	M4	CENTER	N8			RIGID	None	None	RIGID	Typical
5	M5	CENTER	N10			RIGID	None	None	RIGID	Typical
6	M6	CENTER	N12			RIGID	None	None	RIGID	Typical
7	M7	CENTER	N8A			RIGID	None	None	RIGID	Typical
8	M8	CENTER	N10A			RIGID	None	None	RIGID	Typical
9	M9	CENTER	N12A			RIGID	None	None	RIGID	Typical
10	M10	CENTER	N14			RIGID	None	None	RIGID	Typical
11	M11	CENTER	N16			RIGID	None	None	RIGID	Typical
12	M12	CENTER	N18			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2						Yes			None
3	M3						Yes			None
4	M4						Yes			None
5	M5						Yes			None
6	M6						Yes			None
7	M7						Yes			None
8	M8						Yes			None
9	M9						Yes			None
10	M10						Yes			None
11	M11						Yes			None
12	M12						Yes			None

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	CENTER	0	0	0	0	
2	N2	0	0	12.49995	0	
3	N4	10.824885	0	6.249975	0	
4	N6	10.824885	0	-6.249975	0	
5	N8	-0.	0	-12.49995	0	
6	N10	-10.824885	0	-6.249975	0	
7	N12	-10.824885	0	6.249975	0	
8	N8A	4.895638	0	0	0	
9	N10A	2.447819	0	-4.239899	0	
10	N12A	-2.447819	0	-4.239899	0	
11	N14	-4.895638	0	0.	0	
12	N16	-2.447819	0	4.239899	0	
13	N18	2.447819	0	4.239899	0	

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Dead	None		-1		1				
2	WInd 0	None				1				
3	Wind 30	None				2				
4	Wind 45	None				2				
5	Wind 60	None				2				
6	Wind 90	None				1				

Load Combinations

	Description	S...	PDelta	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2 Dead + Wind 0	Y...	Y		1	1.2	2	1																
2	0.9 Dead + Wind 0	Y...	Y		1	.9	2	1																
3	1.2 Dead + Wind 30	Y...	Y		1	1.2	3	1																
4	0.9 Dead + Wind 30	Y...	Y		1	.9	3	1																
5	1.2 Dead + Wind 45	Y...	Y		1	1.2	4	1																
6	0.9 Dead + Wind 45	Y...	Y		1	.9	4	1																
7	1.2 Dead + Wind 60	Y...	Y		1	1.2	5	1																
8	0.9 Dead + Wind 60	Y...	Y		1	.9	5	1																
9	1.2 Dead + Wind 90	Y...	Y		1	1.2	6	1																
10	0.9 Dead + Wind 90	Y...	Y		1	.9	6	1																
11	1.2 Dead + Wind 180	Y...	Y		1	1.2	2	-1																
12	0.9 Dead + Wind 180	Y...	Y		1	.9	2	-1																
13	1.2 Dead + Wind 210	Y...	Y		1	1.2	3	-1																
14	0.9 Dead + Wind 210	Y...	Y		1	.9	3	-1																
15	1.2 Dead + Wind 225	Y...	Y		1	1.2	4	-1																
16	0.9 Dead + Wind 225	Y...	Y		1	.9	4	-1																
17	1.2 Dead + Wind 240	Y...	Y		1	1.2	5	-1																
18	0.9 Dead + Wind 240	Y...	Y		1	.9	5	-1																
19	1.2 Dead + Wind 270	Y...	Y		1	1.2	6	-1																
20	0.9 Dead + Wind 270	Y...	Y		1	.9	6	-1																

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N14	max	0	1	121.376	9	0	1	0	1	0	1	0	1
2		min	0	1	-105.418	20	0	1	0	1	0	1	0	1
3	N16	max	0	1	121.372	3	0	1	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
4		min	0	1	-105.415	14	0	1	0	1	0	1	0	1
5	N18	max	0	1	106.332	1	0	1	0	1	0	1	0	1
6		min	0	1	-90.375	12	0	1	0	1	0	1	0	1
7	N8A	max	0	1	121.376	19	0	1	0	1	0	1	0	1
8		min	0	1	-105.418	10	0	1	0	1	0	1	0	1
9	N10A	max	0	1	121.372	13	0	1	0	1	0	1	0	1
10		min	0	1	-105.415	4	0	1	0	1	0	1	0	1
11	N12A	max	0	1	106.332	11	0	1	0	1	0	1	0	1
12		min	0	1	-90.375	2	0	1	0	1	0	1	0	1
13	N10	max	0	1	81.319	9	0	1	0	1	0	1	0	1
14		min	0	1	-76.276	20	0	1	0	1	0	1	0	1
15	N8	max	0	1	93.45	11	0	1	0	1	0	1	0	1
16		min	0	1	-88.407	2	0	1	0	1	0	1	0	1
17	N6	max	0	1	93.452	17	0	1	0	1	0	1	0	1
18		min	0	1	-88.409	8	0	1	0	1	0	1	0	1
19	N4	max	0	1	81.319	19	0	1	0	1	0	1	0	1
20		min	0	1	-76.276	10	0	1	0	1	0	1	0	1
21	N2	max	0	1	93.45	1	0	1	0	1	0	1	0	1
22		min	0	1	-88.407	12	0	1	0	1	0	1	0	1
23	N12	max	0	1	93.452	7	0	1	0	1	0	1	0	1
24		min	0	1	-88.409	18	0	1	0	1	0	1	0	1
25	Totals:	max	0	1	72	19	0	1						
26		min	0	1	54	10	0	1						

Joint Loads and Enforced Displacements (BLC 1 : Dead)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Y	-60

Joint Loads and Enforced Displacements (BLC 2 : Wind 0)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mx	5045

Joint Loads and Enforced Displacements (BLC 3 : Wind 30)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mx	4369.098
2	CENTER	L	Mz	2522.5

Joint Loads and Enforced Displacements (BLC 4 : Wind 45)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mx	3567.354
2	CENTER	L	Mz	3567.354

Joint Loads and Enforced Displacements (BLC 5 : Wind 60)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mx	2522.5
2	CENTER	L	Mz	4369.098

Joint Loads and Enforced Displacements (BLC 6 : Wind 90)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	CENTER	L	Mz	5045

Envelope Joint Reactions - Overstrength

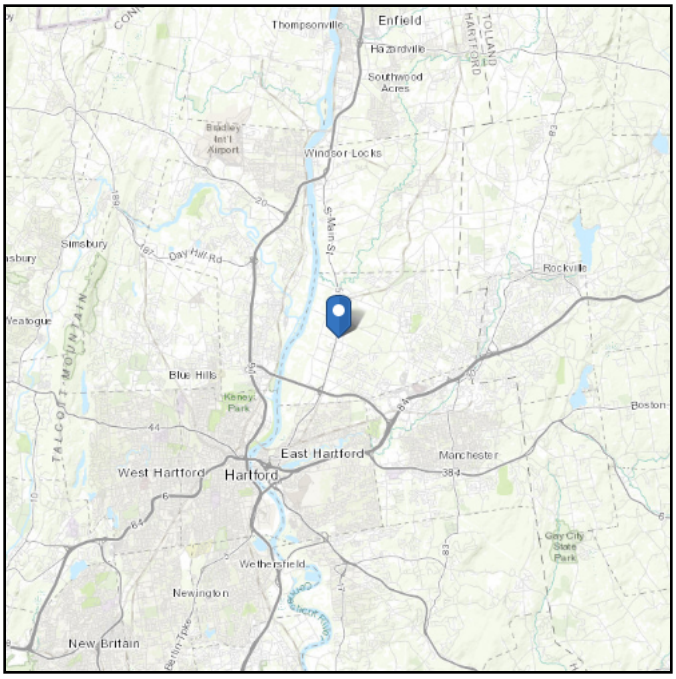
Joint	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
No Data to Print ...												

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 70.37 ft (NAVD 88)
Latitude: 41.833444
Longitude: -72.603056



Wind

Results:

Wind Speed:	122 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed Oct 03 2018

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

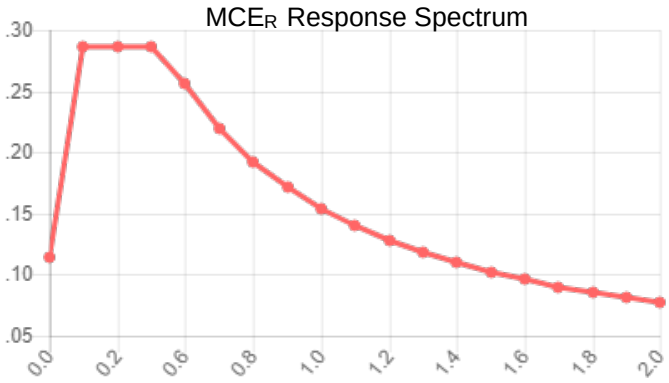
Seismic

Site Soil Class: D - Stiff Soil

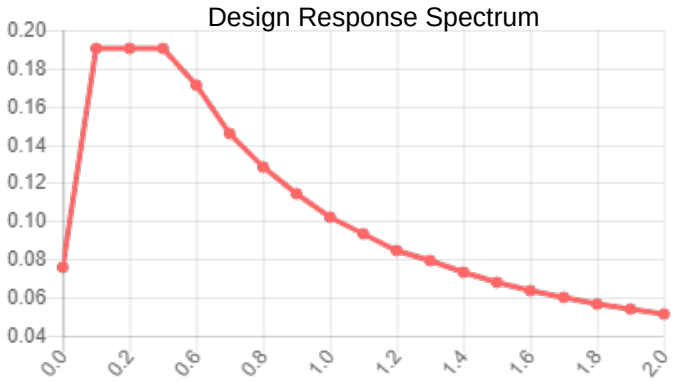
Results:

S_S :	0.179	S_{DS} :	0.190
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.600	T_L :	6.000
F_v :	2.400	PGA :	0.089
S_{MS} :	0.286	PGA_M :	0.143
S_{M1} :	0.154	F_{PGA} :	1.600
		I_e :	1

Seismic Design Category B



S_a(g) vs T(s)



S_a(g) vs T(s)

Data Accessed: Wed Oct 03 2018

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Oct 03 2018

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Date: **November 1, 2018**

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Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Patricia Pelon
Crown Castle
3 Corporate Dr., St 101
Clifton Park, NY 12065

Subject:	**Mount Analysis Report**	
Carrier Designation:	**Sprint Equipment Upgrade**	
	Carrier Site Number:	CT60XC014
	Carrier Site Name:	CT60XC014Q17.3
Crown Castle Designation:	**Crown Castle BU Number:**	828054
	Crown Castle Site Name:	South Windsor/RT 5
	Crown Castle JDE Job Number:	474266
	Crown Castle Order Number:	418458, Rev. 2
Engineering Firm Designation:	**Infinigy Report Designation:**	1039-B0002-B
Site Data:	**300 Governors Highway, South Windsor, CT, 06074** **Latitude 41°50'00.40" Longitude -72°36'11.00"**	
Structure Information:	**Tower Height & Type:**	**165.0 ft Monopole**
	Mount Elevation:	**148.0 ft**
	Mount Type:	**5.0 ft T-Arm**

Dear Patricia Pelon,

Infinigy is pleased to submit this **"Mount Analysis"** to determine the structural integrity of Sprint's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

T-Arm (Typical) **Sufficient**

The analysis has been performed in accordance with the TIA-222-H Standard. This analysis utilizes an ultimate 3-second gust wind speed of 125 mph from the 2018 Connecticut State Building Code. Exposure Category C with a maximum topographic factor, Kzt, of 1.0 and Risk Category II was/were used in this analysis.

We at Infinigy Engineering, PLLC 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.

Mount analysis prepared by: Christopher Kudlacik
Respectfully Submitted by:

Joseph R. Johnston, P.E.
VP Structural Engineering / Principal

TABLE OF CONTENTS

1) INTRODUCTION

This mount is an existing 5.0 ft T-Arm designed by SitePro1.This mount is installed at the 148.0 ft elevation on 3 sector(s) of the 165.0 ft Monopole**.**

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Final Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
148.0	148.0	3	CommScope	NNVV-65B-R4	T-Arm
		3	Nokia	AAHC	
		3	Alcatel Lucent	800Mhz RRH	
		3	Alcatel Lucent	PCS 1900Mhz 4x45W-65Mhz	
		3	Alcatel Lucent	RRH2x50-800	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Sprint Application	418458, Rev 2	CCI Sites
Design Drawings	April 15, 2011	RMV5-2XX	SitePro1
Tia Inspection Photos	March 27, 2018	828054	CCI Sites

3.1) Analysis Method

RISA-3D (Version 17.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision B).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A53 (GR 35)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Infinigy should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (T-Arm, Typical)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe	MP2	148.0	63.3%	Pass
	Standoff	M1		52.1%	Pass
	Horizontal	M2		40.7%	Pass
	½" Bolts	--		6.7%	Pass

Structure Rating (max from all components) =	63.3%

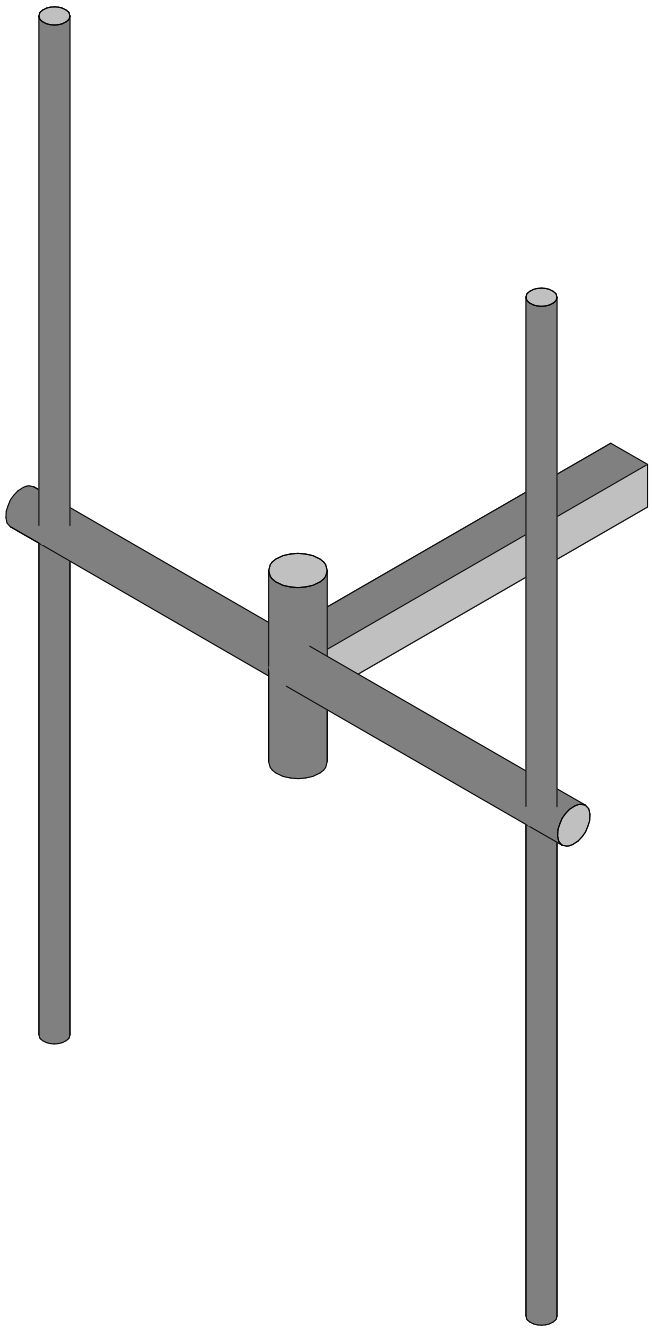
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical

4.1) Recommendations

The Sector Frame Mount has sufficient capacity to support the proposed loading. No modifications are required at this time.

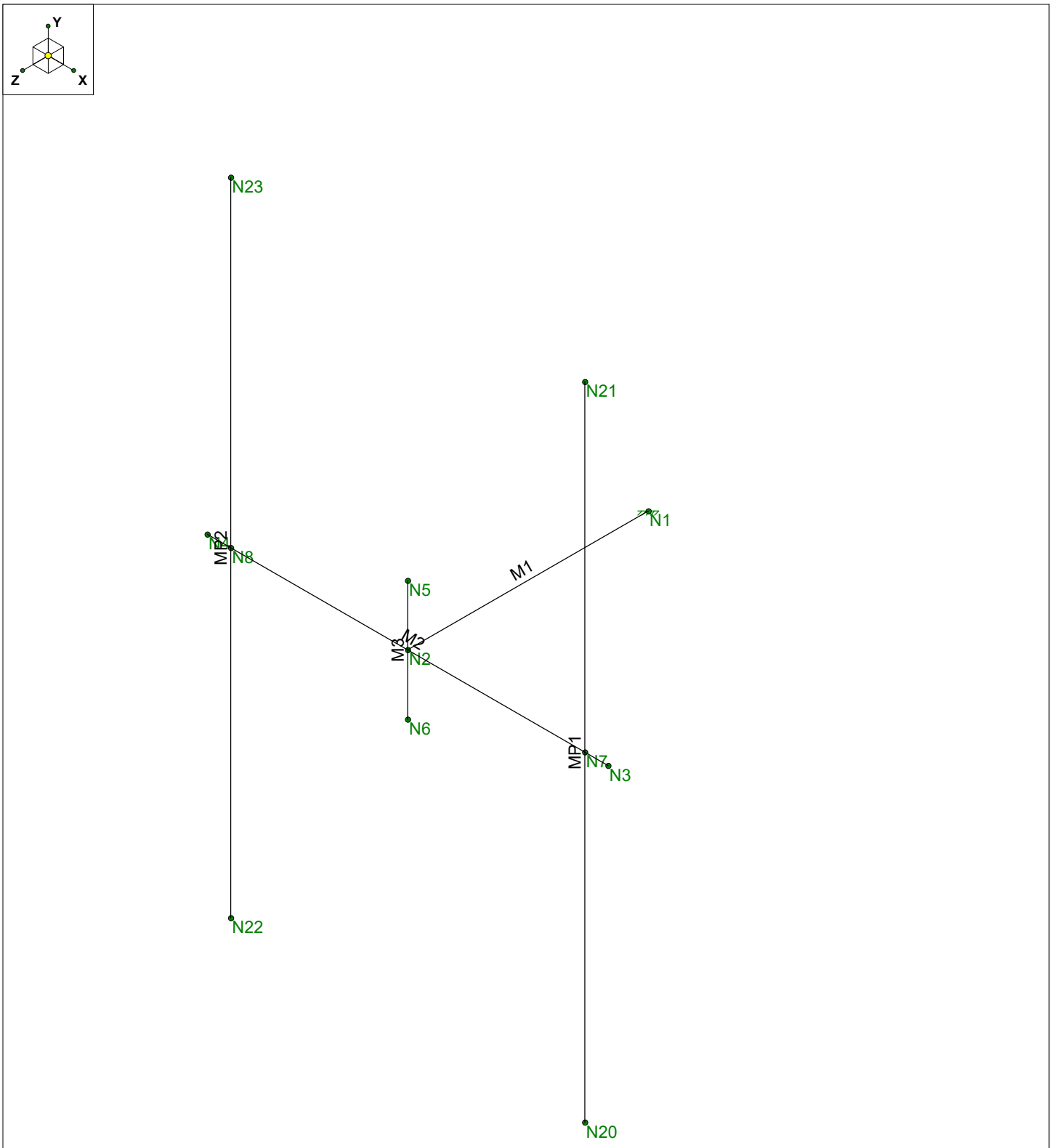
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Infinigy Engineering PLLC	828054	Existing Configuration
CLK		Nov 1, 2018 at 4:54 PM
1039-B0002-B		828054.r3d



Envelope Only Solution

Infinigy Engineering PLLC	828054	Wireframe
CLK		Nov 1, 2018 at 4:54 PM
1039-B0002-B		828054.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Site Name:	828054
Client:	Crown Castle
Carrier:	Sprint
Engineer:	CLK
Date:	11/1/2018

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INFINIGY WIND LOAD CALCULATOR 3.0.2

Site Information Inputs:

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

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	125	mph (ultimate 3-second gust)
Wind Centerline 1 (z_1):	148.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	C	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
52.10	1.00	**62.52**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
8.34	1.00	**24.53**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (ultimate 3-second gust)
Base Ice Thickness:	2.00	in

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
Commscope NNVV-65B-R4	148.0	3	1.00	Flat	Flat	52.10	12.27	639.31	299.57	384.51	554.38
Nokia AAHC	148.0	3	1.00	Flat	Flat	52.10	4.21	219.43	108.00	135.86	191.58
Alcatel Luccent 800Mhz RRH	148.0	3	1.00	Flat	Flat	52.10	2.13	111.19	92.37	97.08	106.48
Alcatel Lucent PCS 1900Mhz 4X45W-65Mhz	148.0	3	1.00	Flat	Flat	52.10	2.31	120.48	116.14	117.22	119.39
Alcatel Lucent RRH2X50-800	148.0	3	1.00	Flat	Flat	52.10	1.70	88.61	66.80	72.25	83.16

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N2	N1			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
2	M2	N4	N3			3" STD Pipe	Beam	None	A53 Gr.B	Typical
3	M3	N6	N5			4" STD Pipe	Beam	None	A53 Gr.B	Typical
4	MP1	N20	N21			2" STD Pipe	Beam	None	A53 Gr.B	Typical
5	MP2	N22	N23			2" STD Pipe	Beam	None	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A53 Gr.B	HSS4X4X4	1	36	0
3	A53 Gr.B	PIPE_2.0	2	192	0
4	A53 Gr.B	PIPE_3.0	1	60	0
5	A53 Gr.B	PIPE_4.0	1	18	0
6	Total HR Steel		5	306	.1

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			7			
2	Wind Load AZI 000	WLZ					7		1	
3	Wind Load AZI 090	WLX					7		1	
4	Ice Weight	OL1					7	5		
5	Wind + Ice Load AZI ...	OL2					7		1	
6	Wind + Ice Load AZI ...	OL3					7		1	
7	Service Live 1	LL				3				
8	Service Live 2	OL4				1				
9	Service Live 3	OL5				1				
10	BLC 2 Transient Area...	None						4		
11	BLC 3 Transient Area...	None						4		
12	BLC 5 Transient Area...	None						4		
13	BLC 6 Transient Area...	None						4		

Load Combinations

	Description	Solve P...	S...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...
1	1.4D	Yes	Y	DL 1.4										
2	1.2D + 1W AZI 000	Yes	Y	DL 1.2	W... 1									
3	1.2D + 1W AZI 030	Yes	Y	DL 1.2	W... .866	W... .5								
4	1.2D + 1W AZI 060	Yes	Y	DL 1.2	W... .5	W... .866								
5	1.2D + 1W AZI 090	Yes	Y	DL 1.2		W... 1								
6	1.2D + 1W AZI 120	Yes	Y	DL 1.2	W... -.5	W... .866								
7	1.2D + 1W AZI 150	Yes	Y	DL 1.2	W... -.866	W... .5								
8	1.2D + 1W AZI 180	Yes	Y	DL 1.2	W... -1									
9	1.2D + 1W AZI 210	Yes	Y	DL 1.2	W... -.866	W... -.5								
10	1.2D + 1W AZI 240	Yes	Y	DL 1.2	W... -.5	W... -.866								
11	1.2D + 1W AZI 270	Yes	Y	DL 1.2		W... -1								
12	1.2D + 1W AZI 300	Yes	Y	DL 1.2	W... .5	W... -.866								
13	1.2D + 1W AZI 330	Yes	Y	DL 1.2	W... .866	W... -.5								
14	0.9D + 1W AZI 000	Yes	Y	DL .9	W... 1									
15	0.9D + 1W AZI 030	Yes	Y	DL .9	W... .866	W... .5								
16	0.9D + 1W AZI 060	Yes	Y	DL .9	W... .5	W... .866								
17	0.9D + 1W AZI 090	Yes	Y	DL .9		W... 1								
18	0.9D + 1W AZI 120	Yes	Y	DL .9	W... -.5	W... .866								

Load Combinations (Continued)

	Description	Solve	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
19	0.9D + 1W AZI 150	Yes	Y		DL	.9	W...	-.866	W...	.5														
20	0.9D + 1W AZI 180	Yes	Y		DL	.9	W...	-1																
21	0.9D + 1W AZI 210	Yes	Y		DL	.9	W...	-.866	W...	-.5														
22	0.9D + 1W AZI 240	Yes	Y		DL	.9	W...	-.5	W...	-.866														
23	0.9D + 1W AZI 270	Yes	Y		DL	.9			W...	-1														
24	0.9D + 1W AZI 300	Yes	Y		DL	.9	W...	.5	W...	-.866														
25	0.9D + 1W AZI 330	Yes	Y		DL	.9	W...	.866	W...	-.5														
26	1.2D + 1.0Di	Yes	Y		DL	1.2	OL1	1																
27	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	1														
28	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	.5												
29	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	.866												
30	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1			OL3	1												
31	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	.866												
32	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	.5												
33	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-1														
34	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	-.5												
35	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	-.866												
36	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1			OL3	-1												
37	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	-.866												
38	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	-.5												
39	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	.058														
40	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	.05	W...	.029												
41	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	.029	W...	.05												
42	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5			W...	.058												
43	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	-.029	W...	.05												
44	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	-.05	W...	.029												
45	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	-.058														
46	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	-.05	W...	-.029												
47	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	-.029	W...	-.05												
48	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5			W...	-.058												
49	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	.029	W...	-.05												
50	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	LL	1.5	W...	.05	W...	-.029												
51	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	.058														
52	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	.05	W...	.029												
53	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	.029	W...	.05												
54	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5			W...	.058												
55	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	-.029	W...	.05												
56	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	-.05	W...	.029												
57	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	-.058														
58	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	-.05	W...	-.029												
59	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	-.029	W...	-.05												
60	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5			W...	-.058												
61	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	.029	W...	-.05												
62	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL4	1.5	W...	.05	W...	-.029												
63	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	.058														
64	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	.05	W...	.029												
65	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	.029	W...	.05												
66	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5			W...	.058												
67	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	-.029	W...	.05												
68	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	-.05	W...	.029												
69	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	-.058														
70	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	-.05	W...	-.029												
71	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	-.029	W...	-.05												
72	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5			W...	-.058												
73	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	.029	W...	-.05												
74	1.2D + 1.5L + 1.0WL (3...	Yes	Y		DL	1.2	OL5	1.5	W...	.05	W...	-.029												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	978.558	17	2084.619	50	1501.843	14	-917.196	14	2841.534	17	1896.816	72
2		min	-978.558	11	438.464	14	-1501.843	8	-6213.983	45	-2842.273	11	-1437.827	54
3	Totals:	max	978.558	17	2084.619	50	1501.843	14						
4		min	-978.558	11	438.464	14	-1501.843	8						

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

	Member	Shape	Code Ch...	Loc[in]	LC	Shear Check	Loc.....		LC	phi*Pnc [lb]	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M1	HSS4X4X4	.521	36	36	.228	36	y	72	103155.903	106155	12311...	12311...	1...	H1-1b
2	M2	PIPE_3.0	.407	30	72	.103	30		8	63524.805	65205	5748.75	5748.75	1	H1-1b
3	M3	PIPE_4.0	.001	9	8	.001	9		8	92571.332	93240	10631...	10631...	1...	H1-1b
4	MP1	PIPE_2.0	.312	48	8	.040	48		8	14916.096	32130	1871.6...	1871.6...	1...	H1-1b
5	MP2	PIPE_2.0	.633	48	8	.048	48		8	14916.096	32130	1871.6...	1871.6...	1...	H1-1b

APPENDIX D

ADDITIONAL CALCUATIONS

Date:	11/1/2018
Client	Crown Castle
Carrier	Sprint
Engineer:	CLK
Site:	828054
Job #:	1039-B0002-B

Code:	LRFD	
Axial:	2084.00	lbs
Shear:	1501.00	lbs

Bolt Capacity (1/2" A307 Bolt)				
	Ult Load / Bolt	Factored Load (ϕ=0.75)	# of Bolts	Factor Joint Capacity
Axial (lb)	8226.7	6170.0	2	12340
Shear(lb)	5133.3	3850.0	2	7700

Interaction Check	
$T / \phi T_n$	16.9%
$V / \phi Vn$	19.5%
≤1.0	6.7%
	OK

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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