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

August 15, 2018

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

RE: **Notice of Exempt Modification for Sprint DO Macro: 826217**
Sprint Site ID: CT52XC109
240 Kensington Road, Berlin, CT 06037
Latitude: 41° 37' 34.30"/ Longitude: -72° 48 32.33"

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 118-foot level of the existing 191.6-foot monopole tower at 240 Kensington Road, Berlin, CT. The tower is owned by Crown Castle. The property is owned by the Town of Berlin. Sprint now intends to replace three (3) antennas with three (3) new antennas and add three (3) new antennas. These antennas would be installed at the 118-foot level of the tower. Sprint also intends to install nine (9) RRH's, three (3) hybrid cables and remove six (6) coax cables.

On August 9, 2018, Crown Castle inquired with the Town of Berlin Land Use Department for the original tower approval. We were ask to review their file and found that the tower was approved on December 10, 1998 by the Berlin Planning and Zoning Commission. Please see attached Notice of Decision.

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 Berlin Town Manager Mr. Jack Healy, The Berlin Town Planner Mr. Marek Kozikowski, the property owner is the Town of Berlin and Crown Castle is the tower owner.

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

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

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

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

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

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

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

Sincerely,

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

Attachments:

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

cc: Mr. Jack Healy-Town Manager
Town of Berlin
240 Kensington Road
Berlin, CT 06037
(860) 828-7003

Mr. Marek Kozikowski-Town Planner
Town of Berlin
240 Kensington Road
Berlin, CT 06037
(860) 828-7066

Barbadora, Jeff

From: fsemnosk <fsemnosk@town.berlin.ct.us>
Sent: Thursday, August 9, 2018 2:14 PM
To: Barbadora, Jeff
Cc: Marek Kozikowski; mgiusti
Subject: RE: 240 Kensington Road

Good Afternoon – we have a substantial file of documents for the cell tower located on our town hall facility on 240 Kensington Road – Our office is Room 7 – Berlin Town Hall – 240 Kensington Road – hours are Monday thru Weds – 8:30 a.m. to 4:30 p.m. /Thursday 8:30 a.m. to 7:00 p.m./Friday 8:30 a.m. to 1 p.m. The file is available for review at your convenience – our files may not provide the information you may need – Any question regarding lease agreements may need to be directed to the Town Manager's Office, Town Clerk for Town Council action, or the Finance Department.

Fran Semnoski
Planning & Zoning Department

From: Barbadora, Jeff [mailto:Jeff.Barbadora@crowncastle.com]
Sent: Thursday, August 09, 2018 1:34 PM
To: fsemnosk
Subject: 240 Kensington Road

Good Afternoon,

I have an inquiry regarding original zoning documents for a cell tower and I am hoping you can provide more information.

We are applying for CSC Zoning Approval for tower modifications and new requirements ask that we procure original zoning documents from the jurisdiction, if possible. However, if these documents are not available, please let me know.

The tower is located at 240 Kensington Road and according to lease documents this may have been approved around 1999– Town of Berlin owns the property and signed the lease at that time.

If you have any questions, please don't hesitate to call or e-mail me.

Thanks,

Jeffrey Barbadora
781-970-0053
12 Gill Street, Suite 5800, Woburn, MA 01801
CrownCastle.com

VOL. 415 PAGE 0924

Town of Berlin

Department of Development Services

December 31, 1998

000047

NOTICE OF DECISION

BERLIN PLANNING AND ZONING COMMISSION

Application: **Special Permit**

Applicant: **Omnipoint Communications, Inc.**

Location: **Lot 29, Block 54, 240 Kensington Road**

At its Regular Meeting of December 10, 1998, the Berlin Planning and Zoning Commission voted four to two, with one abstention to approve the Special Permit of Omnipoint Communications for a 190' telecommunications tower at Lot 29, Block 54, 240 Kensington Road.

Town of Berlin
Owner of Record

RECEIVED January 7, 1999
AT 9 HR 15 MIN A.M.
AND RECORDED IN
BERLIN LAND RECORDS
VOL 415 PAGE 924
Joanne G. Vair
TOWN CLERK

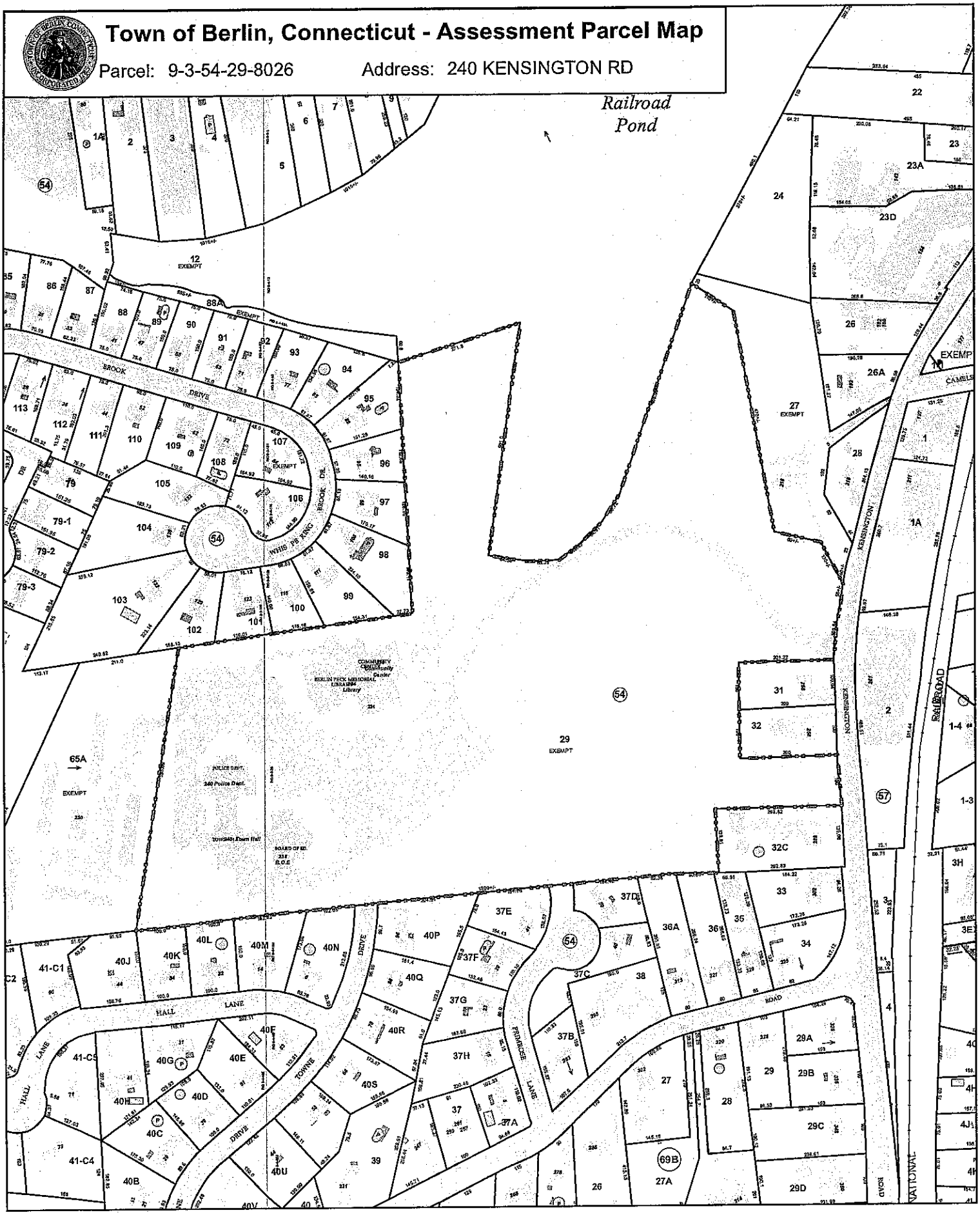
Brian J. Miller
Brian J. Miller, AICP
Director of Development Services

Visit Our Web Site: http://www.edc.ci.berlin.ct.us

Town of Berlin, Connecticut • Planning and Zoning Commission
240 Kensington Road • Berlin, CT 06037 • (860) 828-7060 • Fax (860) 828-7180

Town of Berlin, Connecticut - Assessment Parcel Map

Parcel: 9-3-54-29-8026 Address: 240 KENSINGTON RD



N W E S

NEGEO
New England Geosystems
www.negeosystems.com
282 Main Street Extension - E2
Middletown, CT 06457 - (203)404-7139

Approximate Scale: 1 inch = 250 feet

0 125 250 375 500 Feet

Map Produced: December 2017

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

Town of Berlin, CT

Property Listing Report

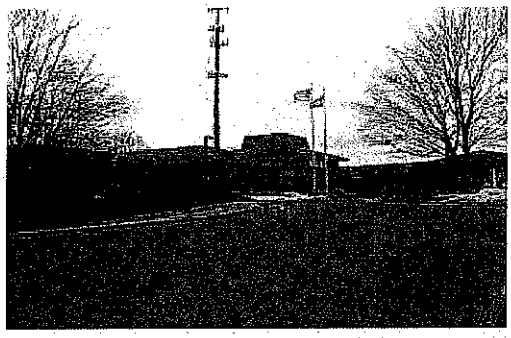
Map Block Lot 9-3-54-29-8026 Account 1101150

Property Information

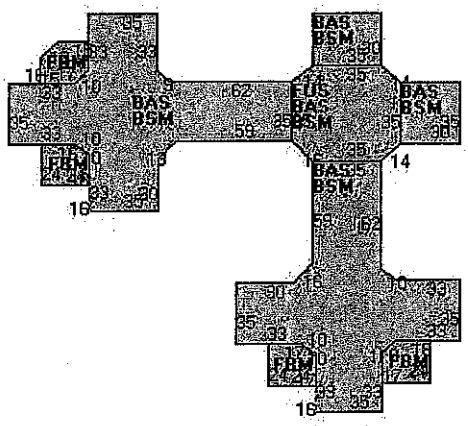
Property Location	240 KENSINGTON RD
Owner	BERLIN TOWN OF
Co-Owner	TOWN HALL COMPLEX
Mailing Address	240 KENSINGTON ROAD KENSINGTON CT 06037
Land Use	9031 Municipal MDL-96
Land Class	E
Zoning Code	R-15
Census Tract	

Street Index	7
Acreage	25.1
Utilities	All Public
Lot Setting/Desc	Level
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	1975
Stories	1
Building Style	Other Municip
Building Use	Comm/Ind
Building Condition	G
Interior Floors 1	Carpet
Interior Floors 2	
Total Rooms	

Bedrooms	
Full Bathrooms	2
Half Bathrooms	
Extra Fixtures	
Bath Style	
Kitchen Style	
Roof Style	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Fireplaces	

Exterior Walls	Brick Veneer
Exterior Walls 2	
Interior Walls	Drywall/Plaste
Interior Walls 2	
Heating Type	Hot Water
Heating Fuel	Oil/Gas
AC Type	Central
Fin Basement Area	
Fin Basement Class	

Report Created On 8/9/2018

Town of Berlin, CT

Property Listing Report | Map Block Lot 9-3-54-29-8026 | Account 1101150

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

Item	Appraised	Assessed
Buildings	12482200	8737600
Extras	0	0
Improvements	12837900	8986600
Outbuildings	355700	249000
Land	1283500	898500
Total	14121400	9885100

Outbuilding and Extra Features

Type	Description
Paving - Asphalt	117800 S.F.
MERC VAP/FLU	36 UNITS

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Basement	20900	0
Upper Story, Finished	2870	2870
First Floor	20900	20900
Basement, Finished	2170	2170
Total Area	46840	25940

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
BERLIN TOWN OF	165/ 370	10/2/2007	0
BERLIN TOWN OF	165/ 370	10/2/2007	0
BERLIN TOWN OF	165/ 0	9/17/1971	
BERLIN TOWN OF	165/ 0	9/17/1971	

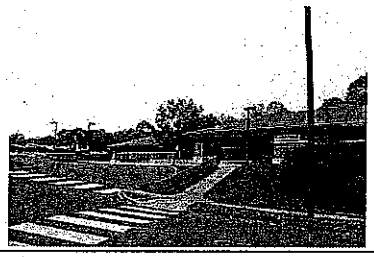
Report Created On 8/9/2018

Town of Berlin, CT

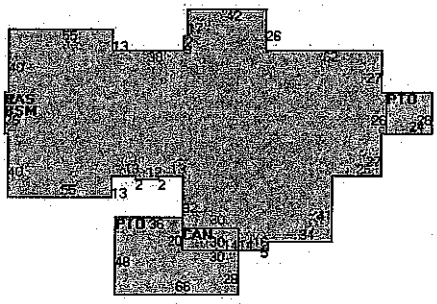
Property Listing Report

Map Block Lot 9-3-54-29-8026 Account 1101150

Photo



Sketch



Primary Construction Details

Year Built	1988	Kitchen Style	
Stories	1	Roof Style	Gable/Hip
Building Style	Other Municip	Roof Cover	Asph/F Gls/Cmp
Building Use	Comm/Ind	Exterior Walls	Brick Veneer
Building Condition	G	Interior Walls	Drywall/Plaste
Floors	Carpet	Heating Type	Hot Water
Total Rooms		Heating Fuel	Oil/Gas
Bedrooms		AC Type	Central
Bathrooms	2	Gross Bldg Area	
Bath Style		Total Living Area	
Half Bath			

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Canopy	420	0
Basement	21704	0
First Floor	21704	21704
Patio	3192	0
Total Area		

Report Created On 8/9/2018

Sprint

CROWN CASTLE

PROJECT:	DO MACRO UPGRADE
SITE NAME:	NEWINGTON_1
SITE CASCADE:	CT52XC109
SITE NUMBER:	826217
SITE ADDRESS:	240 KENSINGTON ROAD BERLIN, CT 06037
SITE TYPE:	MONOPOLE
MARKET:	N. ENGLAND

SITE INFORMATION

PROPERTY OWNER:
TBD

LATITUDE (NAD83):
N 41° 37' 34.30"
41.626194

LONGITUDE (NAD83):
W 72° 46' 32.33"
-72.775647

COUNTY:
HARTFORD

ZONING JURISDICTION:
HARTFORD COUNTY

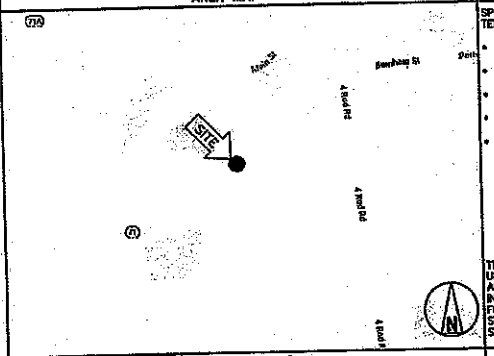
ZONING DISTRICT:
TBD

POWER COMPANY:
EVERSOURCE
(800) 592-2000

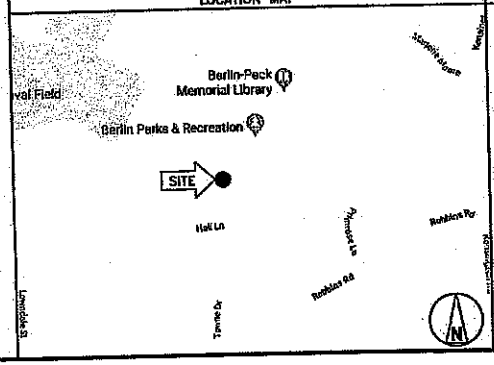
SPRINT CONSTRUCTION:
TBD

CROWN PM:
SCOTT WIATROSKI
(201) 238-9228

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL (6) PANEL ANTENNAS (3 800/1900, 3 2500)
- REMOVE (3) PANEL ANTENNAS
- INSTALL (9) RRHs (3 800, 3 1900)
- INSTALL (3) HYBRID CABLES
- REMOVE (6) EXISTING COAX

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.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	MONOPOLE ELEVATION & CABLE PLAN	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	COLOR CODING & NOTES	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	CIVIL DETAILS	0
E-1	ELECTRICAL & GROUNDING PLAN	0
E-2	ELECTRICAL & GROUNDING DETAILS	0

PLANS PREPARED FOR:
Sprint
6550 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1633 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER: 826-103

A&E PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24220
PROFESSIONAL ENGINEER
LICENSED

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/20/18	RCD	0
ISSUED FOR REVIEW	07/06/18	RCD	A

SITE NAME:
NEWINGTON_1

SITE CASCADE:
CT52XC109

SITE ADDRESS:
240 KENSINGTON ROAD
BERLIN, CT 06037

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 OF THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED CALL 1-800-788-7011 TO NOTIFY THE CROWN CASTLE NOC WORK HAS BEGUN.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 826-107

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT – JOHN S. STEVENS – No. 24705 – JULY 23 2018 – PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/23/18	BCD	0
ISSUED FOR REVIEW	07/05/18	BCD	A

SITE NAME:

NEWINGTON_1

SITE CASCADE:

CT52XC109

SITE ADDRESS:

240 KENSINGTON ROAD
BERLIN, CT 06037

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-CRUBBING; 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 485. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

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

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS - ANTENNALIGN ALIGNMENT TOOL (AAT)

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

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1933 Watervliet Shaker Rd | Albany, NY 12209
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER: 328-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
OCT. 31, 2018
REGISTERED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/20/18	MDI	D
ISSUED FOR REVIEW	07/05/18	MDI	A

SITE NAME:

NEWINGTON_1

SITE CASCADE:

CT52XC109

SITE ADDRESS:

240 KENSINGTON ROAD
BERLIN, CT 06037

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 OPS 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. OPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING—TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING –TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

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

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Overland Park, Kansas 66251

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JOB NUMBER: 828-001

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 26705
PROFESSIONAL ENGINEER
09-09-2016

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/20/16	RDD	B
ISSUED FOR REVIEW	07/05/16	RDD	A

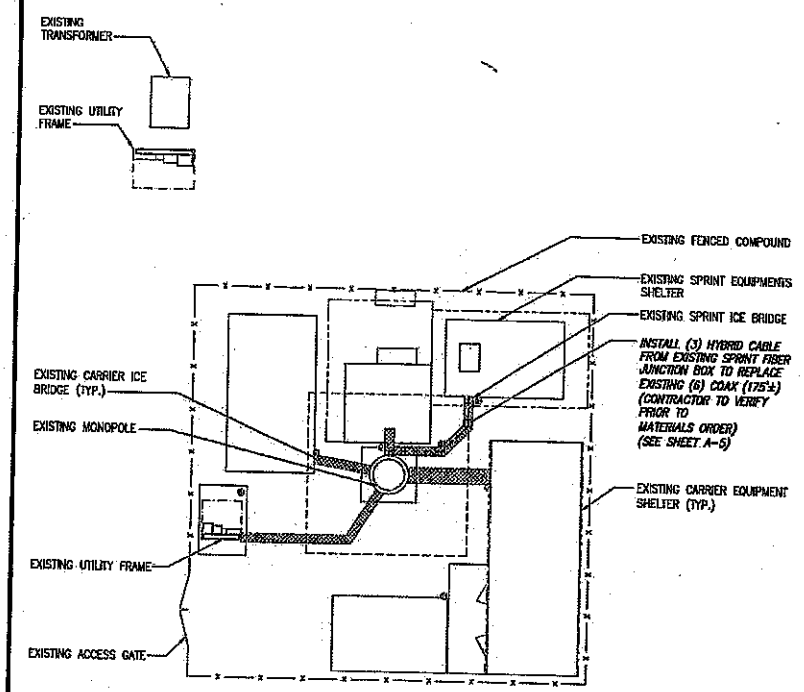
SITE NAME:
NEWINGTON_1

SITE CASCADE:
CT52XC109

SITE ADDRESS:
240 KENSINGTON ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

SHEET NUMBER:
SP-3

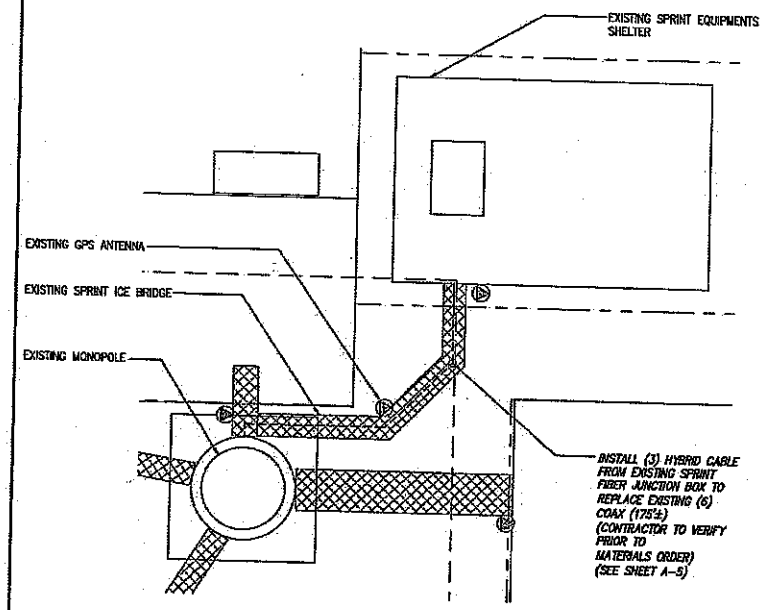


INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

SCALE: 22"x34" SHEET 1" = 8'-0"
SCALE: 11"x17" SHEET 1" = 16'-0"

4' 0 4' 8' 16'
(IN FEET)

OVERALL SITE PLAN | SCALE: AS NOTED | 1



NOTE:
NO LIQUID TIGHT FLEXIBLE METALLIC CONDUIT IS TO EXCEED 6 FEET PER 5P-2 SECTION 26 200 ITEM E.

SCALE: 22"x34" SHEET 1" = 3'-0"
SCALE: 11"x17" SHEET 1" = 6'-0"

1.5' 0 1.5' 3' 6'
(IN FEET)

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
PROFESSIONAL ENGINEER
LICENSED
APRIL 29 2016

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/20/18	RCD	C
ISSUED FOR REVIEW	07/05/18	RCD	A

SITE NAME:

NEWINGTON_1

SITE CASCADE:

CT52XC109

SITE ADDRESS:

240 KENSINGTON ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

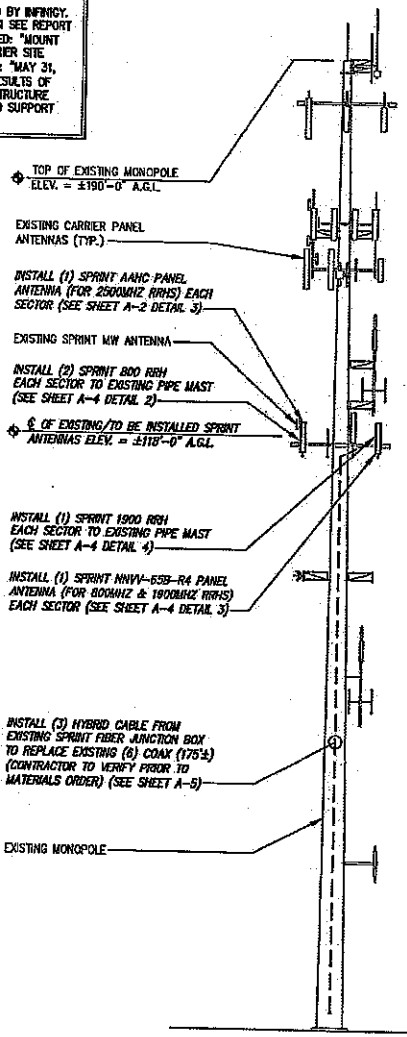
SITE PLAN

SHEET NUMBER:

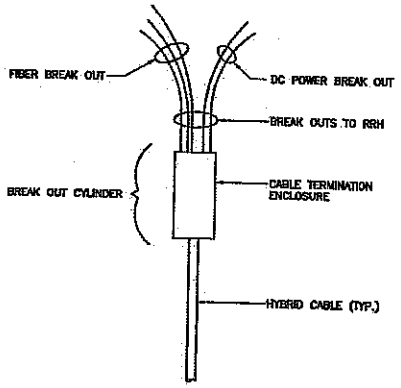
A-1

NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY: B+T GROUP. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT03XC204", DATED: "MAY 31, 2018", B+T GROUP, INC. PROJECT NUMBER: "77921.006.01". ACCORDING TO RESULTS OF STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- MOUNT ANALYSIS COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT COMPLETED BY INFINIGY TITLED: "MOUNT STRUCTURAL ANALYSIS, CARRIER SITE NUMBER CT03XC204"; DATED: "MAY 31, 2018" ACCORDING TO THE RESULTS OF THE MOUNT ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.

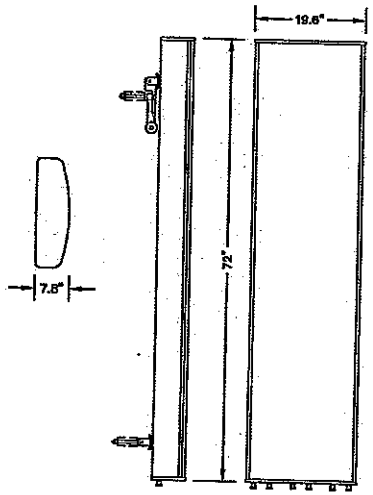
NOTE: SEE DETAIL 2 ON A-3 FOR ANTENNA LAYOUT



MONOPOLE ELEVATION | NO SCALE | 1



HYBRID BREAK OUT DETAIL | NO SCALE | 2



ANTENNA COMMSCOPE NNVV-65B-R4

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

ANTENNA | NO SCALE | 3

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Overland Park, Kansas 66251

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JOB NUMBER 026-163

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
LICENSED PROFESSIONAL ENGINEER
Jun 28 2018

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/05/18	RCD	0
ISSUED FOR REVIEW	07/05/18	RCD	A

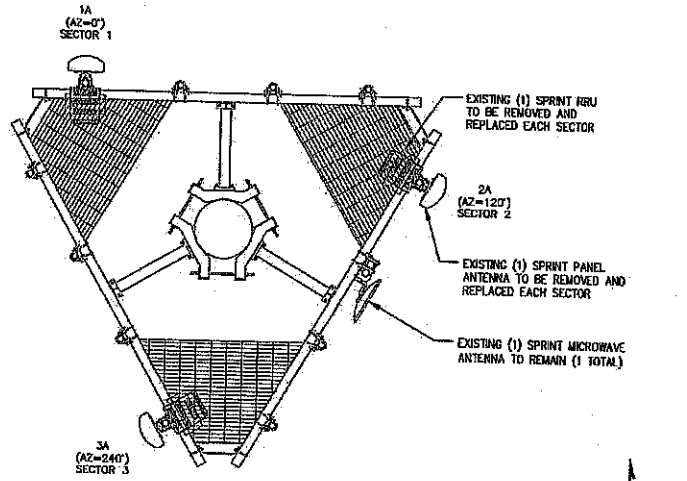
SITE NAME:
NEWINGTON_1

SITE CASCADE:
CT52XC109

SITE ADDRESS:
240 KENSINGTON ROAD
BERLIN, CT 06037

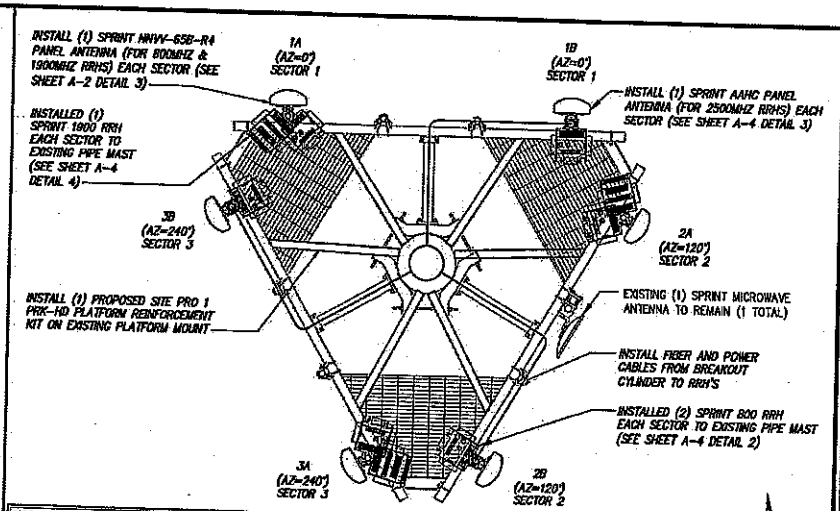
SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2



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

EXISTING ANTENNA & RRH LAYOUT | NO SCALE | 1



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

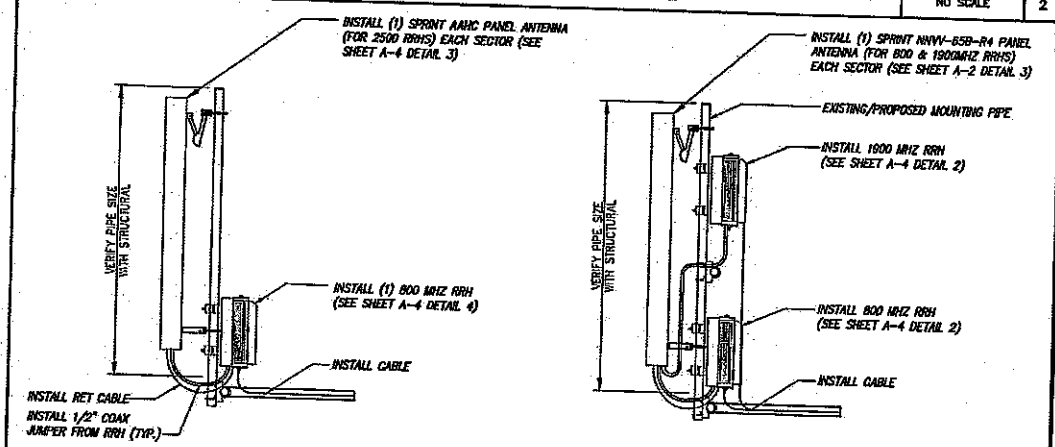
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

FINAL ANTENNA & RRH LAYOUT | NO SCALE | 2

NOTES:

1. ALL ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA.
2. VERIFY AZIMUTH AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE.
3. NO OBJECT IS TO BE WITHIN 45 DEGREES OF BORE-SIGHT OF 2.5G OR ANY OTHER TOWER ANTENNA. IF NECESSARY, 2.5G ANTENNA CAN BE PLACED AT FAR EDGE OF HORIZONTAL ANTENNA MOUNT MEMBER FOR CLEAR LINE OF SITE OR EVEN ON ANOTHER SECTOR FOR CLEAR LINE OF SITE.
4. 2.5G ANTENNA MUST BE AT LEAST 6" FROM 1900MHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30MHZ FROM DUAL BAND 1900MHZ AND 800MHZ ANTENNA.
5. IF ANTENNAS ARE MOUNTED ON A FACE SURFACE SUCH AS A BUILDING WALL, PARAPET WALL, OR WATER TOWER WALL, THIS RFDS MUST BE ACCOMPANIED BY A SKETCH PROVIDED BY ITS ORIGINATING RF ENGINEER CALLING OUT THE EXACT LOCATION OF WHERE ANTENNA IS TO BE LOCATED. CONTACT SPRINT RF ENGINEER IF THE SKETCH IS MISSING.
6. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5G ANTENNA AT SAME CL HEIGHT AS 1.9G ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILD DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900 MHZ AND 800 MHZ ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
7. AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5G. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
8. GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.
9. GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL. HTTP://WWW.3ZTELECOM.COM/ANTENNA-ALIGNMENT-TOOL/

NOTES | NO SCALE | 3



NOTES:

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

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

NOTE:
SPARE DC CABLES ARE COILED UP ON HV 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: 926-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
JULY 23, 2014
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/28/14	RCD	0
ISSUED FOR REVIEW	07/05/14	RCD	A

SITE NAME:
NEWINGTON_1

SITE CASCADE:
CT52XC109

SITE ADDRESS:
240 KENSINGTON ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

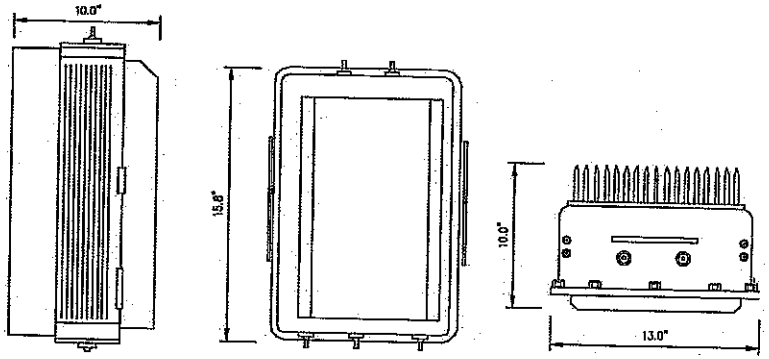
SHEET NUMBER:
A-3

NOT USED

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.



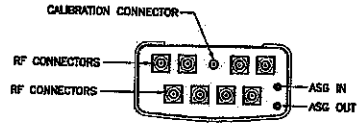
SIDE VIEW | FRONT VIEW | PLAN VIEW

800 RRH'S

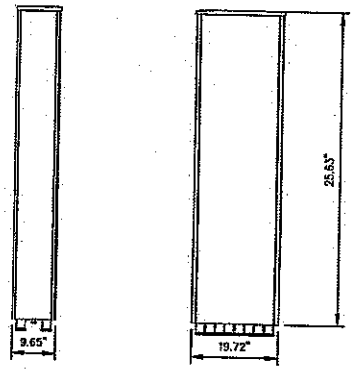
NO SCALE | 2

ANTENNA NOKIA AAHC

RADOME MATERIAL:	–
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mm):	25.63"x19.72"x9.65" (640x493x241mm)
WEIGHT:	103.62 lbs
CONNECTORS:	–
	–



PLAN VIEW

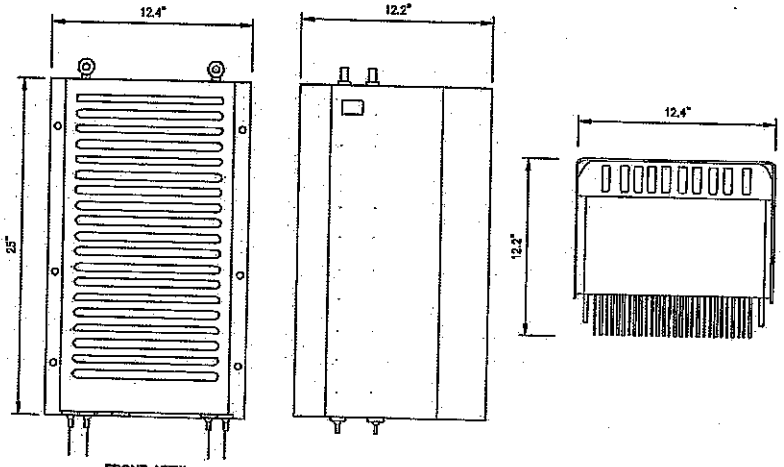


SIDE VIEW | FRONT VIEW

2.5 ANTENNA

NO SCALE | 3

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



FRONT VIEW | SIDE VIEW | TOP VIEW

1900 RRH'S

NO SCALE | 4

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JOB NUMBER: 526-005

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
10-2-2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/26/18	BCD	B
ISSUED FOR REVIEW	07/06/18	BCD	A

SITE NAME:
NEWINGTON_1

SITE CASCADE:
CT52XC109

SITE ADDRESS:
240 KENSINGTON ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

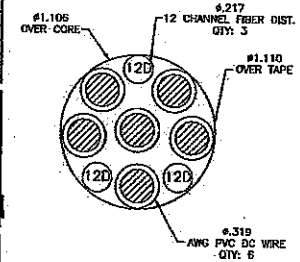
RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	Hybrid cable MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	Hybrid cable MN: HB134-08U3M12-050F 3x8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB134-08U3M12-075F	75 ft
	MN: HB134-08U3M12-100F	100 ft
	MN: HB134-08U3M12-125F	125 ft
	MN: HB134-08U3M12-150F	150 ft
	MN: HB134-08U3M12-175F	175 ft
	MN: HB134-08U3M12-200F	200 ft
6 AWG Power	Hybrid cable MN: HB134-13U3M12-225F 3x6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors - 1 1/4 cable, 225 ft	225 ft
	MN: HB134-13U3M12-250F	250 ft
	MN: HB134-13U3M12-275F	275 ft
	MN: HB134-13U3M12-300F	300 ft
4 AWG Power	Hybrid cable MN: HB134-21U3M12-325F 3x4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors - 1 1/4 cable, 325 ft	325 ft
	MN: HB134-21U3M12-350F	350 ft
	MN: HB134-21U3M12-375F	375 ft

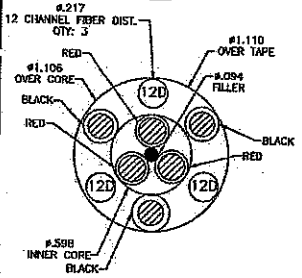
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Fiber Only	Hybrid Jumper cable MN: HBF012-M9-5F1 5 ft, 2x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M4-10F1	10 ft
	MN: HBF012-M4-15F1	15 ft
	MN: HBF012-M4-20F1	20 ft
	MN: HBF012-M4-25F1	25 ft
	MN: HBF012-M4-30F1	30 ft
8 AWG Power	Hybrid Jumper cable MN: HBF058-08U3M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U3M3-10F1	10 ft
	MN: HBF058-08U3M3-15F1	15 ft
	MN: HBF058-08U3M3-20F1	20 ft
	MN: HBF058-08U3M3-25F1	25 ft
	MN: HBF058-08U3M3-30F1	30 ft
6 AWG Power	Hybrid Jumper cable MN: HBF058-13U3M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U3M3-10F1	10 ft
	MN: HBF058-13U3M3-15F1	15 ft
	MN: HBF058-13U3M3-20F1	20 ft
	MN: HBF058-13U3M3-25F1	25 ft
	MN: HBF058-13U3M3-30F1	30 ft
4 AWG Power	Hybrid Jumper cable MN: HBF078-21U3M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U3M3-10F1	10 ft
	MN: HBF078-21U3M3-15F1	15 ft
	MN: HBF078-21U3M3-20F1	20 ft
	MN: HBF078-21U3M3-25F1	25 ft
	MN: HBF078-21U3M3-30F1	30 ft

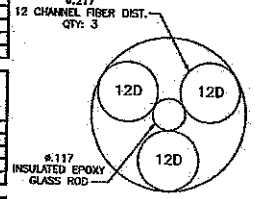
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



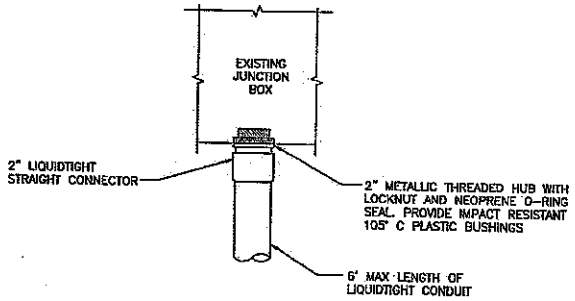
4 AWG



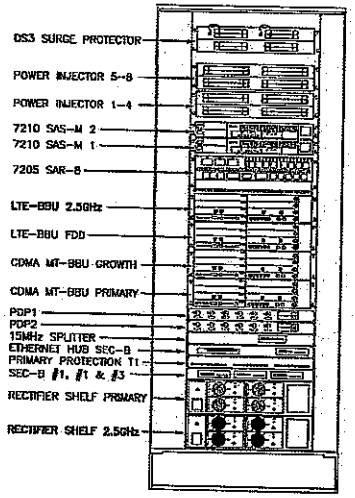
8 & 6 AWG



FIBER ONLY



FIBER JUNCTION BOX PENETRATION | NO SCALE | 2



2.5 CABLE CROSS SECTION DATA | NO SCALE | 1

CABINET LAYOUT | NO SCALE | 3

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

PLANS PREPARED BY:
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AOR NUMBER 526-103

MLA PARTNER:
CROWN CASTLE

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/20/18	RCS	0
ISSUED FOR REVIEW	07/05/18	RCS	A

SITE NAME:
NEWINGTON_1

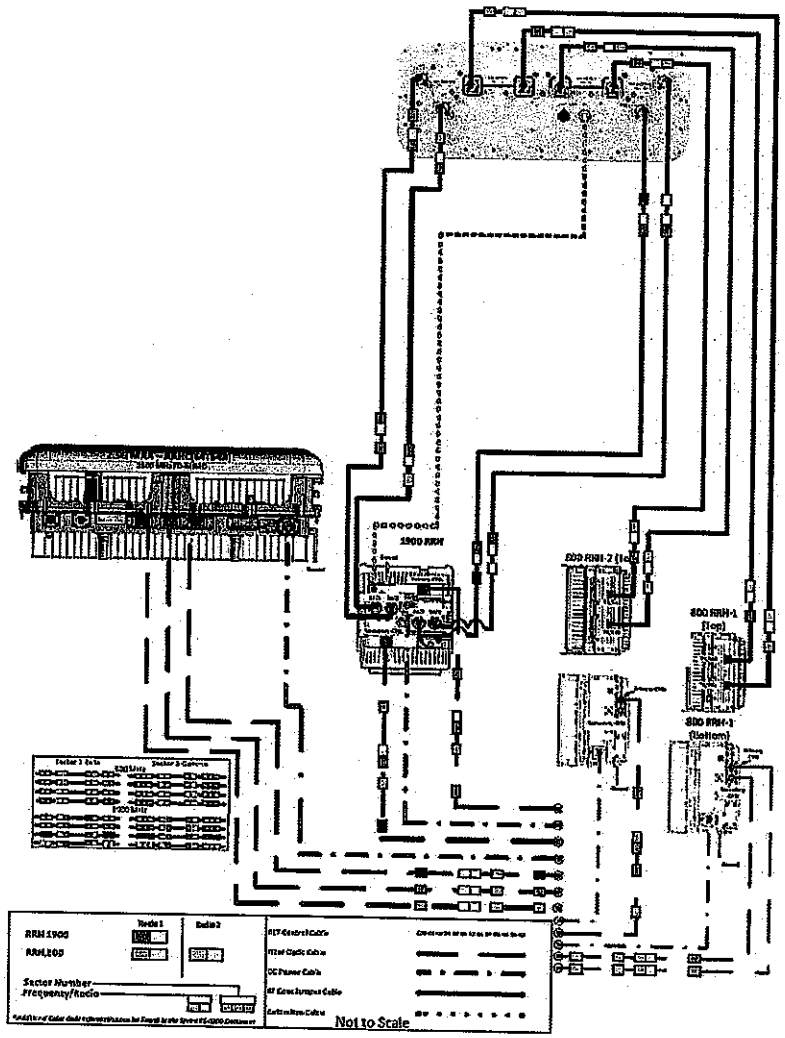
SITE CASCADE:
CT52XC109

SITE ADDRESS:
240 KENSINGTON ROAD
BERLIN, CT 06037

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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JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
JUL 23 2018

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/20/18	RCI	0
ISSUED FOR REVIEW	07/05/18	RCI	A

SITE NAME:

NEWINGTON_1

SITE CASCADE:

CT52XC109

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240 KENSINGTON ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH/DDU MAKE AND MODEL
1	COMMSCOPE	NNVV-65B-R4	118'	0°	(2) ALU 800MHZ 2X50-800 (1) ALU 1900MHZ 4X45W
	NOKIA	AAHC	118'	0°	INTEGRATED 2.5 RADIO
2	COMMSCOPE	NNVV-65B-R4	118'	120°	(2) ALU 800MHZ 2x50-800 (1) ALU 1900MHZ 4X45W
	NOKIA	AAHC	118'	120°	INTEGRATED 2.5 RADIO.
	ANDREW	VHLP2-18	120'	120°	DRAGONWAVE HORIZON DUO
3	COMMSCOPE	NNVV-65B-R4	118'	240°	(2) ALU 800MHZ 2x50-800 (1) ALU 1900MHZ 4X45W
	NOKIA	AAHC	118'	240°	INTEGRATED 2.5 RADIO

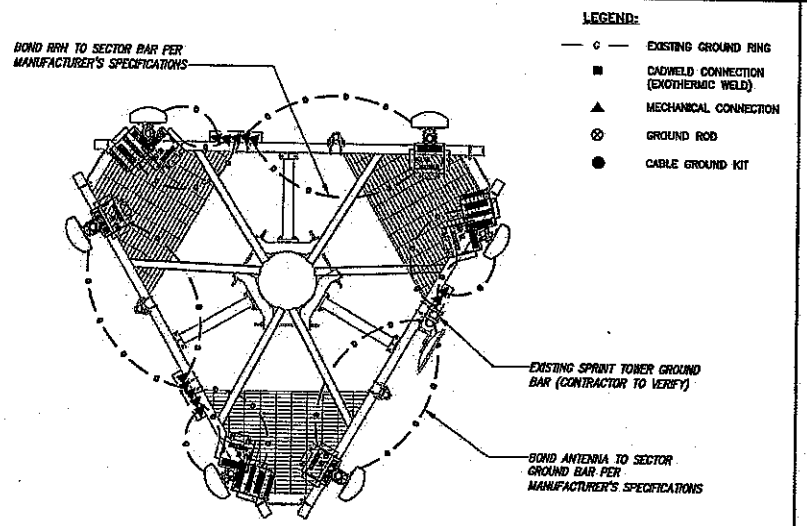
FEEDER CABLES

	MANUFACTURER	MODEL	LENGTH	QTY
	ANDREW	LDF4-50A	175'±	(1)
	RFS	HB158-21U5M48-175F	175'±	(3)

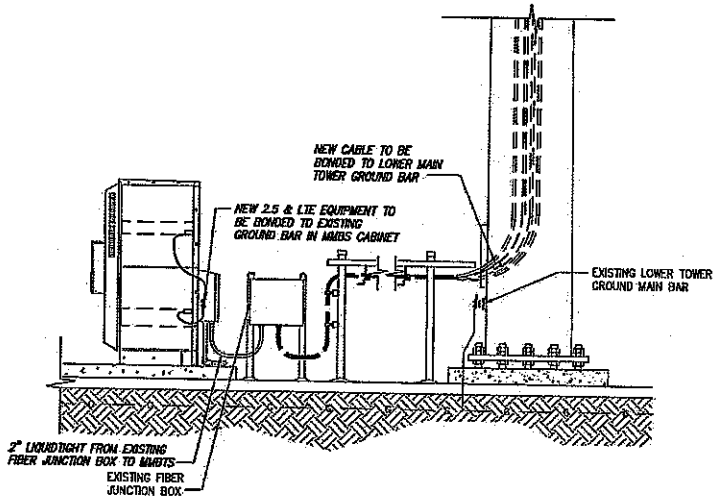
LEGEND
EXISTING
PROPOSED

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



TYPICAL ANTENNA GROUNDING PLAN — NO SCALE — 2



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

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MLA PARTNER:
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ENGINEERING LICENSE:
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JOHN S. STEVENS
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REGISTERED PROFESSIONAL ENGINEER
07/25/18

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REVISIONS:

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ISSUED FOR CONSTRUCTION	07/20/18	RCD	B
ISSUED FOR REVIEW	07/05/18	RCD	A

SITE NAME:
NEWINGTON_1

SITE CASCADE:
CT52XC109

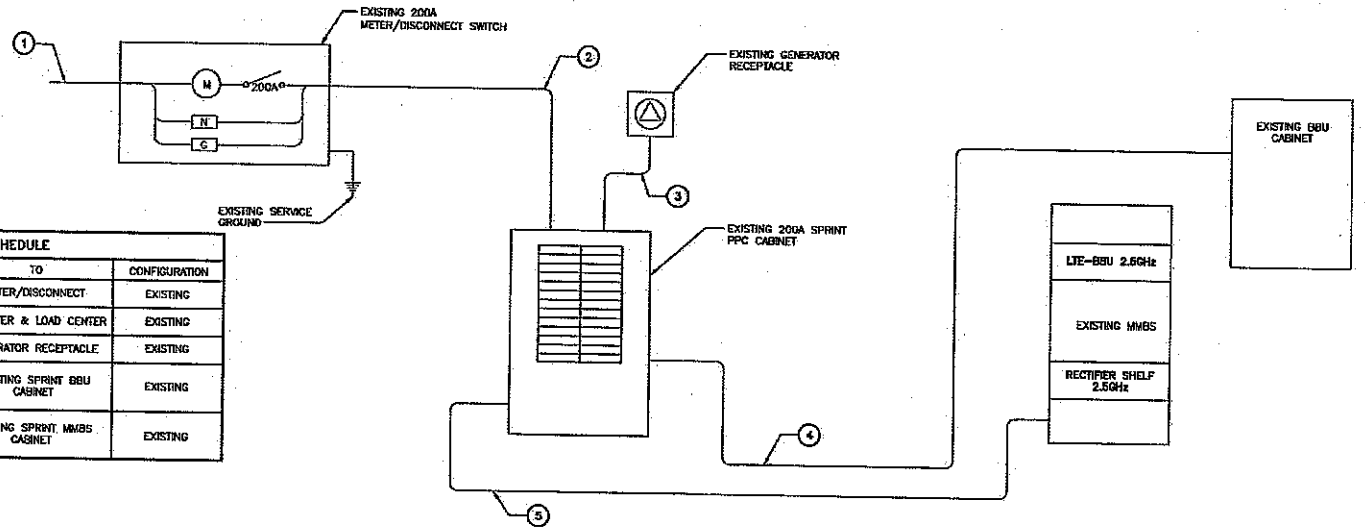
SITE ADDRESS:
240 KENSINGTON ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-1

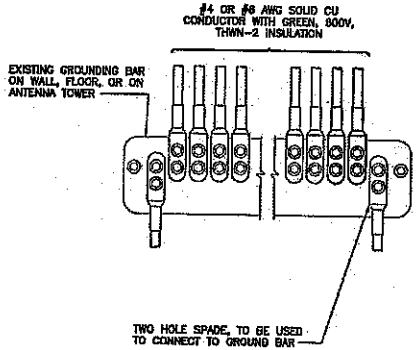
NOTES

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



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

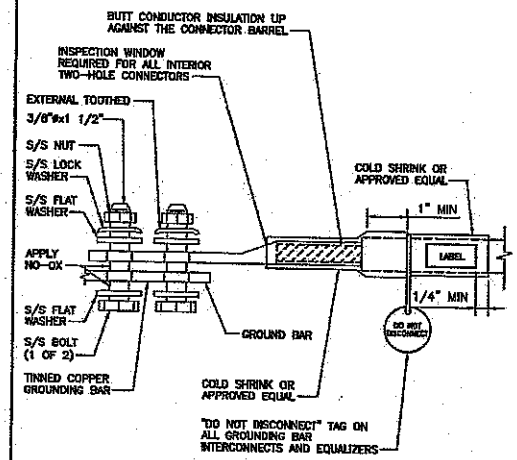
ELECTRICAL ONE-LINE DIAGRAM | NO SCALE | 1



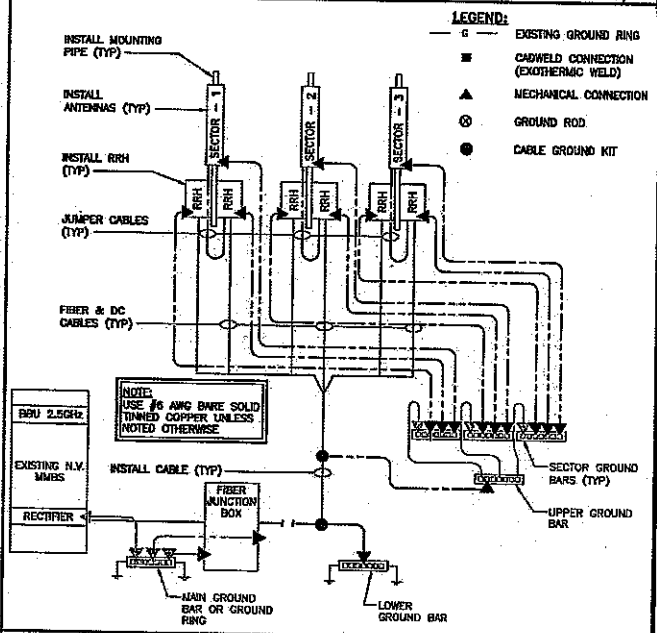
NOTES

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

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



TWO HOLE LUG | NO SCALE | 3



GROUNDING RISER DIAGRAM | NO SCALE | 4

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Phone: 518-690-0790 | Fax: 518-690-0793
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ASE NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
12.9.2018
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
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ISSUED FOR REVIEW	07/05/18	RKD	A

SITE NAME:

NEWINGTON_1

SITE CASCADE:

CT52XC109

SITE ADDRESS:

240 KENSINGTON ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

June 22, 2018

Denice Nicholson
Crown Castle
3 Corporate Park Drive Suite 101
Clifton Park, NY 12065
(518) 373-3516

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Clearwire Corp* Co-Locate**	
	Carrier Site Number:	CT52XC109
	Carrier Site Name:	CT52XC109
Crown Castle Designation:	**Crown Castle BU Number:**	826217
	Crown Castle Site Name:	Newington_1
	Crown Castle JDE Job Number:	509438
	Crown Castle Work Order Number:	1592276
	Crown Castle Order Number:	443622 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	87581.018.01
Site Data:	**240 Kensington Road, Berlin, Hartford County, CT** **Latitude *41° 37' 34.3"*, Longitude *-72° 46' 32.33"*** **191.667 Foot - Monopole Tower**	

Dear Denice Nicholson,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1208521, in accordance with order 443622, revision 0.

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

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

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

Structural analysis prepared by: James Lindsey

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2019

Chad E. Tuttle, P.E.

tnxTower Report - version 7.0.5.1

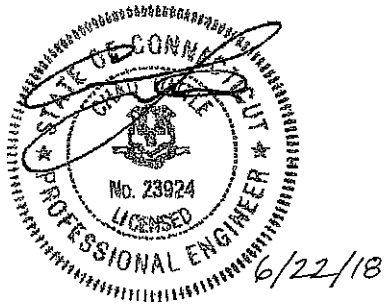


TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 191.6 ft. Monopole designed by PiROD Manufactures and mapped by TEP in May of 2015. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F. This tower was modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 1-inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
116.0	118.0	6	Alcatel Lucent	800MHZ 2X50W RRH	3	1-5/8	--
		3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ			
		3	Commscope	NNVV-65B-R4			
		3	Nokia	AAHC			
		3	Site Pro1	PRK-HD			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
192.0	196.0	1	Kathrein	OGB4-900D	1	7/8	1
191.0	196.0	1	Andrew	DB589-A	1	5/16	1
	191.0	1	--	Side Arm Mount [SO 702-1]			
	190.0	1	Motorola	WB2623			
184.0	184.0	1	--	Platform Mount [LP 405-1]	19	1-5/8	1
	181.0	3	Commscope	ATBT-BOTTOM-24V			
		3	Commscope	LNX-6515DS-VTM			
		3	Ericsson	AIR -32 B2A/B66AA			
		6	Ericsson	KRY 112 144/1			
		3	RFS Celwave	APX16DWV-16DWVS-E-A20			
160.0	160.0	3	Alcatel Lucent	RRH2X60-AWS	14	1-5/8	1
		3	Alcatel Lucent	RRH2X60-PCS			
		3	Alcatel Lucent	RRH2x40 700			
		4	Andrew	LNX-6514DS-A1M			
		6	Commscope	HBXX-6517DS-VTM			
		2	Commscope	LNX-8513DS-VTM			
		1	RFS Celwave	DB-T1-6Z-8AB-0Z			
		6	RFS Celwave	FD9R6004/2C-3L			
		1	--	Platform Mount [LP 303-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
158.0	158.0	1	Decibel	DB205-A	2	7/8	1
		1	Sinclair	SRL-224NM-4			
		2	--	Side Arm Mount [SO 702-1]			
151.0	151.0	3	Ericsson	RRUS 32	--	--	2
		3	CCI Antennas	TPA-65R-LCUUUU-H8			
		3	Ericsson	RRUS 32 B2			
		3	Kaelus	DBC0062F3V52-1			
		3	--	2.5" Std (2.88" O.D.) Pipe Handrail			
		6	--	2.5" Std (2.88" O.D.) Pipe Masts			
		1	Site Pro 1	PRK-1245			
		3	Communication Components Inc.	DTMABP7819VG12A	12	1-1/4	1
		3	Andrew	SBNH-1D6565C			
		3	Powerwave Tech.	7770.00			
		1	Raycap	DC6-48-60-18-8F			
		1	--	Platform Mount [LP 403-1]			
150.0	152.0	3	Ericsson	RRUS 12	--	--	2
	150.0	3	Ericsson	RRUS 11			
		1	Raycap	DC6-48-60-18-8F	2	3/4	1
		1	--	Pipe Mount [PM 601-3]	1	3/8	
		1	--	Side Arm Mount [SO 102-3]			
132.0	132.0	1	Sinclair	SRL-235-2	1	7/8	1
		1	--	Side Arm Mount [SO 702-1]			
124.0	124.0	1	Decibel	PCS 1900 TMA RX	--	--	1
		1	--	Side Arm Mount [SO 104-3]			
116.0	120.0	1	Andrew	VHLP2-18	--	--	1
	118.0	9	Decibel	844G65VTZAS	--	--	3
		3	**Argus Tech.**	**LLPX310R**	**6**	**5/16**	**4**
		3	**Samsung Telecomm.**	**WIMAX DAP HEAD**	**2**	**1/2**	
	116.0	1	Dragonwave	HORIZON DUO	1	1/2	1
		1	--	Platform Mount [LP 405-1]			
90.0	99.0	1	Decibel	DB205-A	1	7/8	1
	90.0	1	Andrew	KP2F-34	2	1/2	
		1	MTI Wireless Edge	MT-485002	1	5/16	
		2	--	Side Arm Mount [SO 702-1]			
70.0	70.0	1	Sinclair	SRL-235-2	2	7/8	1
		1	--	Side Arm Mount [SO 701-1]			
33.0	33.0	1	Decibel	DB909XVTE-M	2	1/2	1
		1	--	Side Arm Mount [SO 702-1]			

Notes:

1) Existing Equipment
2) Reserved Equipment
3) Abandoned Equipment; Considered in this analysis
4) **Equipment To Be Removed; Not considered in this analysis**

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
190.0	190.0	1	Decibel	DB809	1	1-5/8
177.67	177.67	12	EMS	RR90-17-00DP	12	1-5/8
155.0	155.0	2	Decibel	DB205	2	1-5/8
140.0	140.0	2	Decibel	DB205	2	1-5/8
127.67	127.67	12	EMS	RR90-17-00DP	12	1-5/8
117.67	117.67	12	EMS	RR90-17-00DP	12	1-5/8
25.0	25.0	1	Decibel	DB516	2	1-5/8
		1	Decibel	DB809M		
20.0	20.0	1	Decibel	DB205	1	1-5/8

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Order Information	Clearwire Corp Co-Locate, Rev. 0	443622	CCI Sites
Tower Manufacturer Drawing	PiROD, File No. A-115400	3438498	CCI Sites
Tower Mapping	TEP, Project No. 25651-57340	3438498	CCI Sites
Mount Analysis	HDG LLC, Project No. CT1019	Date: 01/23/2018	---
Mount Analysis	CLS, Project No. 42284-CT52XC109-01-MA	Date: 06/01/2018	---
Tower Modification Drawing	Natcomm Inc., Date: 03/18/2008	3678661	CCI Sites
Tower Modification Drawing	B+T Group, Date: 10/17/2014	4003976	CCI Sites
Post Modification Inspection	SGS, Date: 01/08/2015	5493013	CCI Sites
Tower Modification Drawing	B+T Group, Date: 06/16/2015	5753424	CCI Sites
Post Modification Inspection	SGS, Date: 10/21/2015	5947973	CCI Sites
Foundation Drawing	Pirod, File No. A-115400	3463552	CCI Sites
Geotech Report	French & Parrello, Job No. 98A209ERI	3438510	CCI Sites
	FDH, Project No. 1307031600		
Antenna Configuration	Crown CAD Package	Date: 06/19/2018	CCI Sites

3.1) Analysis Method

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

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) Mount areas and weights are assumed based on photographs provided.

5) The existing base plate grout was not considered in this analysis.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	191.667 - 186.667	Pole	P18x0.375	1	-1.781	--	1.7	Pass
L2	186.667 - 181.567	Pole	P24x0.375	2	-11.476	--	2.1	Pass
L3	181.567 - 176.567	Pole	P24x0.375	3	-5.062	--	6.3	Pass
L4	176.567 - 171.567	Pole	P24x0.375	4	-5.767	--	10.8	Pass
L5	171.567 - 166.567	Pole	P24x0.375	5	-6.475	--	15.5	Pass
L6	166.567 - 161.567	Pole	P24x0.375	6	-7.186	--	20.5	Pass
L7	161.567 - 156.567	Pole	P24x0.375	7	-10.893	--	29.1	Pass
L8	156.567 - 151.567	Pole	P24x0.375	8	-11.646	--	39.3	Pass
L9	151.567 - 146.567	Pole	P24x0.375	9	-17.301	--	55.7	Pass
L10	146.567 - 141.567	Pole	P24x0.375	10	-18.198	--	72.8	Pass
L11	141.567 - 141.417	Pole	P24x0.375	11	-18.236	--	73.3	Pass
L12	141.417 - 136.417	Pole	P36x0.375	12	-19.405	--	42.8	Pass
L13	136.417 - 131.417	Pole	P36x0.375	13	-21.032	--	51.3	Pass
L14	131.417 - 126.417	Pole	P36x0.375	14	-22.235	--	60.1	Pass
L15	126.417 - 121.417	Pole	P36x0.375	15	-24.484	--	69.2	Pass
L16	121.417 - 121.167	Pole	P36x0.375	16	-24.563	--	69.7	Pass
L17	121.167 - 116.167	Pole	P42x0.375	17	-26.078	--	59.3	Pass
L18	116.167 - 111.167	Pole	P42x0.375	18	-31.492	--	68.5	Pass
L19	111.167 - 110.042	Pole	P42x0.375	19	-31.810	--	70.5	Pass
L20	110.042 - 109.792	Pole + Reinf.	P42x0.4875	20	-31.902	--	55.0	Pass
L21	109.792 - 105.083	Pole + Reinf.	P42x0.4875	21	-33.567	--	61.5	Pass
L22	105.083 - 104.833	Pole + Reinf.	P42x0.5625	22	-33.680	--	56.2	Pass
L23	104.833 - 100.917	Pole + Reinf.	P42x0.5625	23	-36.121	--	61.3	Pass
L24	100.917 - 100.667	Pole	P48x0.375	24	-36.235	--	68.0	Pass
L25	100.667 - 95.833	Pole	P48x0.375	25	-38.116	--	75.1	Pass
L26	95.833 - 95.583	Pole + Reinf.	P48x0.475	26	-38.217	--	60.0	Pass
L27	95.583 - 90.583	Pole + Reinf.	P48x0.475	27	-40.041	--	65.9	Pass
L28	90.583 - 89.917	Pole + Reinf.	P48x0.475	28	-40.443	--	66.7	Pass
L29	89.917 - 89.667	Pole + Reinf.	P48x0.575	29	-40.560	--	55.6	Pass
L30	89.667 - 84.667	Pole + Reinf.	P48x0.575	30	-43.438	--	60.7	Pass
L31	84.667 - 80.833	Pole + Reinf.	P48x0.575	31	-46.649	--	64.6	Pass
L32	80.833 - 80.583	Pole + Reinf.	P54x0.4875	32	-46.859	--	60.8	Pass
L33	80.583 - 75.583	Pole + Reinf.	P54x0.4875	33	-49.473	--	65.7	Pass
L34	75.583 - 70.583	Pole + Reinf.	P54x0.4875	34	-52.286	--	70.6	Pass
L35	70.583 - 69.5	Pole + Reinf.	P54x0.4875	35	-53.304	--	71.7	Pass
L36	69.5 - 69.25	Pole + Reinf.	P54x0.5875	36	-53.498	--	59.5	Pass
L37	69.25 - 64.25	Pole + Reinf.	P54x0.5875	37	-59.884	--	63.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L38	64.25 - 60.583	Pole + Reinf.	P54x0.5875	38	-65.078	--	67.1	Pass
L39	60.583 - 60.333	Pole + Reinf.	P60x0.5125	39	-65.287	--	63.0	Pass
L40	60.333 - 55.333	Pole + Reinf.	P60x0.5125	40	-69.107	--	67.2	Pass
L41	55.333 - 52.167	Pole + Reinf.	P60x0.5125	41	-70.621	--	69.8	Pass
L42	52.167 - 51.917	Pole + Reinf.	P60x0.625	42	-70.770	--	58.5	Pass
L43	51.917 - 46.917	Pole + Reinf.	P60x0.625	43	-73.901	--	62.0	Pass
L44	46.917 - 41.917	Pole + Reinf.	P60x0.625	44	-77.904	--	65.7	Pass
L45	41.917 - 40.333	Pole + Reinf.	P60x0.625	45	-79.161	--	66.8	Pass
L46	40.333 - 40.083	Pole + Reinf.	P60x0.6	46	-79.356	--	67.5	Pass
L47	40.083 - 35.083	Pole + Reinf.	P60x0.6	47	-83.057	--	71.2	Pass
L48	35.083 - 30.083	Pole + Reinf.	P60x0.6	48	-86.317	--	74.9	Pass
L49	30.083 - 28	Pole + Reinf.	P60x0.6	49	-87.451	--	76.5	Pass
L50	28 - 27.75	Pole + Reinf.	P60x0.725	50	-87.619	--	64.4	Pass
L51	27.75 - 22.75	Pole + Reinf.	P60x0.725	51	-91.762	--	67.6	Pass
L52	22.75 - 20.083	Pole + Reinf.	P60x0.725	52	-94.001	--	69.3	Pass
L53	20.083 - 19.833	Pole	P60x0.625	53	-94.201	--	77.3	Pass
L54	19.833 - 17	Pole	P60x0.625	54	-96.362	--	79.3	Pass
L55	17 - 16.75	Pole + Reinf.	P60x0.725	55	-96.589	--	68.7	Pass
L56	16.75 - 11.65	Pole + Reinf.	P60x0.75	56	-100.840	--	70.2	Pass
L57	11.65 - 11.417	Pole + Reinf.	P60x0.75	57	-101.005	--	70.4	Pass
L58	11.417 - 9.375	Pole + Reinf.	P60x0.75	58	-102.379	--	71.6	Pass
L59	9.375 - 9.125	Pole + Reinf.	P60x0.8	59	-102.561	--	71.2	Pass
L60	9.125 - 4.833	Pole + Reinf.	P60x0.8	60	-105.561	--	73.8	Pass
L61	4.833 - 4.583	Pole + Reinf.	P60x0.75	61	-105.740	--	75.5	Pass
L62	4.583 - 0	Pole + Reinf.	P60x0.75	62	-108.896	--	78.3	Pass
							Summary	
						Pole (L54)	79.3	Pass
						Reinforcement	76.9	Pass
						Rating =	79.3	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	Capacity	Pass / Fail
1	Flange Connection	180	2.3	Pass
1	Flange Connection	140	48.1	Pass
1	Bridge Stiffener	120	74.3	Pass
	Flange Connections		44.7	Pass
1	Bridge Stiffener	100	74.0	Pass
	Flange Connections		45.4	Pass
1	Bridge Stiffener	80	69.4	Pass
	Flange Connections		43.6	Pass
1	Bridge Stiffener	60	50.6	Pass
	Flange Connections		39.3	Pass

Notes	Component	Elevation (ft)	Capacity	Pass / Fail
1	Existing Bridge Stiffener	40	62.6	Pass
	New Bridge Stiffener		53.1	Pass
	Flange Connections-53BC		43.4	Pass
	Flange Connections-47BC		38.9	Pass
1	Existing Bridge Stiffener	20	72.1	Pass
	New Bridge Stiffener		63.3	Pass
	Flange Connections-53BC		51.7	Pass
	Flange Connections-47BC		46.4	Pass
1	Anchor Rods	Base	39.8	Pass
1	Base Plate	Base	47.1	Pass
1	Base Foundation (Structure)	Base	88.2	Pass
1	Base Foundation (Soil Interaction)	Base	70.8	Pass

Structure Rating (max from all components) =	88.2%

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

4.1) Recommendations

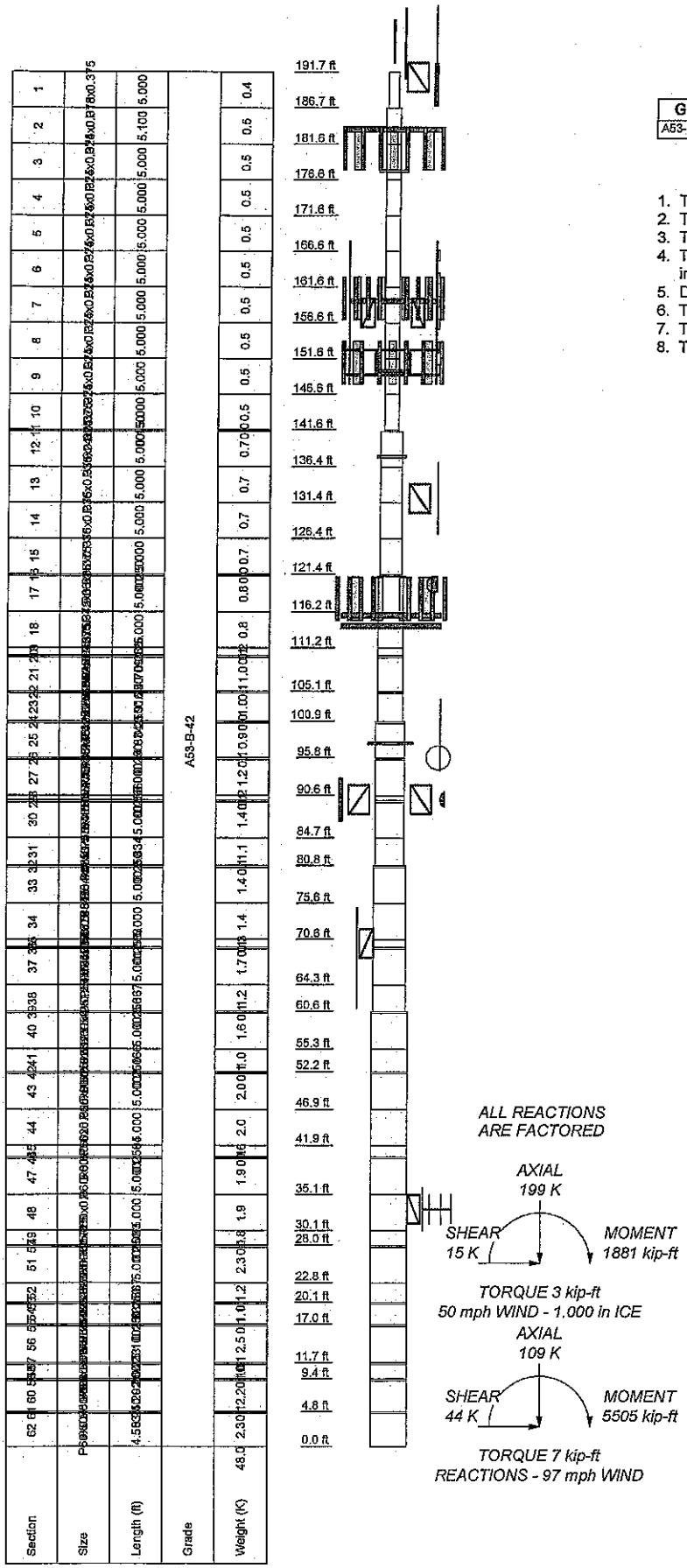
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

Table 7 – Existing Loading Tilt-Sway Results for 60 mph Service Wind – LC7

Elevation (ft)	*Dish Model*	*Diameter (ft)*	*Tilt (°)*	*Twist (°)*
116.0	VHLP2-18	2.175	0.587	0.002

APPENDIX A

TNXTOWER OUTPUT



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 79.3%

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Phone: (918) 587-4630
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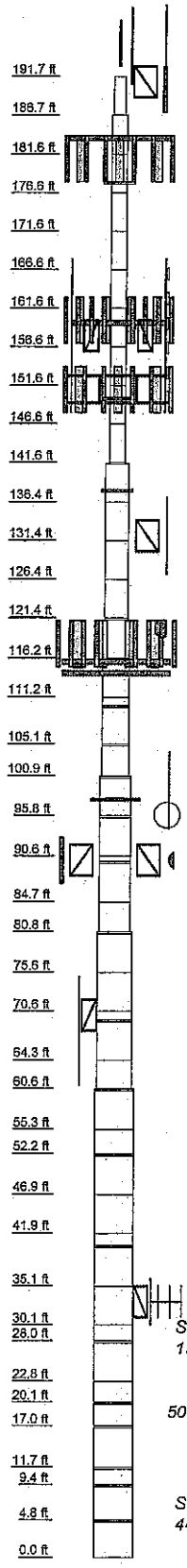
Job: 87581.018.01 - Newington_1, CT (BU# 82621			
Project:			
Client: Crown Castle	Drawn by: Gireesh Acharya	App'd:	
Code: TIA-222-G	Date: 06/22/18	Scale: NTS	
Path:		Dwg No. E-1	

Section	Size	Length (ft)	Grade	Weight (K)
1	P18x0.375	5.000	A53-B-42	0.4
2	P18x0.375	5.100		0.5
3	P18x0.375	5.000		0.5
4	P18x0.375	5.000		0.5
5	P18x0.375	5.000		0.5
6	P18x0.375	5.000		0.5
7	P18x0.375	5.000		0.5
8	P18x0.375	5.000		0.5
9	P18x0.375	5.000		0.5
10	P18x0.375	5.000		0.5
11	P18x0.375	5.000		0.7
12	P18x0.375	5.000		0.7
13	P18x0.375	5.000		0.7
14	P18x0.375	6.000		0.7
15	P18x0.375	6.000		0.7
16	P18x0.375	5.000		0.8
17	P18x0.375	5.000		0.8
18	P18x0.375	5.000		0.8
19	P18x0.375	5.000		1.0
20	P18x0.375	5.000		1.0
21	P18x0.375	5.000		0.9
22	P18x0.375	5.000		0.9
23	P18x0.375	5.000		0.9
24	P18x0.375	5.000		1.0
25	P18x0.375	5.000		1.2
26	P18x0.375	5.000		1.2
27	P18x0.375	5.000		1.2
28	P18x0.375	5.000		1.2
29	P18x0.375	5.000		1.4
30	P18x0.375	5.000		1.4
31	P18x0.375	5.000		1.1
32	P18x0.375	5.000		1.1
33	P18x0.375	5.000		1.4
34	P18x0.375	5.000		1.4
35	P18x0.375	5.000		1.7
36	P18x0.375	5.000		1.7
37	P18x0.375	5.000		1.2
38	P18x0.375	5.000		1.2
39	P18x0.375	5.000		1.6
40	P18x0.375	5.000		1.6
41	P18x0.375	5.000		1.0
42	P18x0.375	5.000		1.0
43	P18x0.375	5.000		2.0
44	P18x0.375	5.000		2.0
45	P18x0.375	5.000		1.6
46	P18x0.375	5.000		1.6
47	P18x0.375	5.000		1.9
48	P18x0.375	3.000		1.9
49	P18x0.375	5.000		1.9
50	P18x0.375	5.000		1.9
51	P18x0.375	5.000		2.3
52	P18x0.375	5.000		2.3
53	P18x0.375	5.000		1.2
54	P18x0.375	5.000		1.2
55	P18x0.375	5.000		1.0
56	P18x0.375	5.000		1.0
57	P18x0.375	5.000		2.5
58	P18x0.375	5.000		2.5
59	P18x0.375	5.000		1.0
60	P18x0.375	5.000		1.0
61	P18x0.375	4.583		2.2
62	P18x0.375	5.000		2.2
63	P18x0.375	5.000		2.3
64	P18x0.375	5.000		2.3
				48.0



ALL REACTIONS ARE FACTORED

AXIAL 199 K

SHEAR 15 K

MOME 1881 K

TORQUE 3 kip-ft
50 mph WIND - 1.000 in ICE

AXIAL 109 K

SHEAR 44 K

MOME 5505 k

TORQUE 7 kip-ft
REACTIONS - 97 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
OGB4-900D (E)	192	RRUS 32 B2 (R)	151
6' x 2" Mount Pipe (E-Omni support)	192	RRUS 32 B2 (R)	151
Lightning Rod 5/8" x 4' on 4' Pole (E)	191.667	DBC0062F3V52-1 (R)	151
DB589-A (E)	191	DBC0062F3V52-1 (R)	151
WB2623 w/ Mount Pipe (E)	191	DBC0062F3V52-1 (R)	151
3' x 2" Pipe Mount (E-For Omni)	191	(3) 10' x 2.875" Pipe Mount (R - Mount Mod)	151
Side Arm Mount [SO 702-1] (E)	191	(3) 10' x 2.875" Pipe Mount (R - Mount Mod)	151
LNX-6515DS-VTM w/ Mount Pipe (E)	184	(3) 10' x 2.875" Pipe Mount (R - Mount Mod)	151
LNX-6515DS-VTM w/ Mount Pipe (E)	184	Miscellaneous [NA 510-1] (R - Mount Mod)	151
LNX-6515DS-VTM w/ Mount Pipe (E)	184	Miscellaneous [NA 509-3] (R-PRK-1245 - Mount Mod)	151
AIR -32 B2A/B66AA w/ Mount Pipe (E)	184	Platform Mount [LP 403-1] (E)	151
AIR -32 B2A/B66AA w/ Mount Pipe (E)	184	7770.00 w/ Mount Pipe (E)	151
AIR -32 B2A/B66AA w/ Mount Pipe (E)	184	RRUS 11 (R)	150
APX16DWV-16DWVS-E-A20 w/ Mount Pipe (E)	184	RRUS 11 (R)	150
APX16DWV-16DWVS-E-A20 w/ Mount Pipe (E)	184	RRUS 11 (R)	150
APX16DWV-16DWVS-E-A20 w/ Mount Pipe (E)	184	RRUS 12 (R)	150
(2) KRY 112 144/1 (E)	184	RRUS 12 (R)	150
(2) KRY 112 144/1 (E)	184	RRUS 12 (R)	150
(2) KRY 112 144/1 (E)	184	Side Arm Mount [SO 102-3] (E)	150
ATBT-BOTTOM-24V (E)	184	Pipe Mount [PM 601-3] (E)	150
ATBT-BOTTOM-24V (E)	184	DC6-48-60-18-8F (E)	150
ATBT-BOTTOM-24V (E)	184	4' ICE SHIELDS (E)	138
Platform Mount [LP 405-1] (E)	184	Side Arm Mount [SO 702-1] (E)	132
4' ICE SHIELDS (E)	178	Side Arm Mount [SO 104-3] (E-Mount Attachment)	132
(2) HBXX-6517DS-VTM w/ Mount Pipe (E)	160	SRL-235-2 (E)	132
(2) HBXX-6517DS-VTM w/ Mount Pipe (E)	160	4' x 2" Pipe Mount (E-For Omni)	132
LNX-6514DS-A1M w/ Mount Pipe (E)	160	Side Arm Mount [SO 104-3] (E)	124
LNX-6514DS-A1M w/ Mount Pipe (E)	160	PCS 1900 TMA RX (E)	124
(2) LNX-6514DS-A1M w/ Mount Pipe (E)	160	2' x 2" Pipe Mount (E-For TMA)	124
LNX-8513DS-VTM w/ Mount Pipe (E)	160	(3) 844G65VTZAS w/ Mount Pipe (AB)	116
LNX-8513DS-VTM w/ Mount Pipe (E)	160	NNVV-65B-R4 w/ Mount Pipe (P)	116
RRH2x40 700 (E)	160	NNVV-65B-R4 w/ Mount Pipe (P)	116
RRH2x40 700 (E)	160	NNVV-65B-R4 w/ Mount Pipe (P)	116
RRH2x40 700 (E)	160	AAHC w/ Mount Pipe (P)	116
RRH2X60-AWS (E)	160	AAHC w/ Mount Pipe (P)	116
RRH2X60-AWS (E)	160	AAHC w/ Mount Pipe (P)	116
RRH2X60-AWS (E)	160	800MHZ 2X50W RRH (P)	116
RRH2X60-PCS (E)	160	(2) 800MHZ 2X50W RRH (P)	116
RRH2X60-PCS (E)	160	(3) 800MHZ 2X50W RRH (P)	116
RRH2X60-PCS (E)	160	(2) PCS 1900MHZ 4X45W-65MHZ (P)	116
(2) FD9R6004/2C-3L (E)	160	PCS 1900MHZ 4X45W-65MHZ (P)	116
(2) FD9R6004/2C-3L (E)	160	HORIZON DUO (E - V. Offset Per APP)	116
(2) FD9R6004/2C-3L (E)	160	Platform Mount [LP 405-1] (E)	116
DB-T1-6Z-8AB-0Z (E)	160	(3) 844G65VTZAS w/ Mount Pipe (AB)	116
Platform Mount [LP 303-1] (E)	160	(3) 844G65VTZAS w/ Mount Pipe (AB)	116
(2) HBXX-6517DS-VTM w/ Mount Pipe (E)	160	Andrew VHLP2-18 (E)	116
DB205-A (E)	158	Miscellaneous [NA 509-3] (P - Site Pro1 - PRK-HD)	114.5
4' x 2" Pipe Mount (E-For Omni)	158	4' ICE SHIELDS (E)	98
4' x 2" Pipe Mount (E-For Omni)	158	4' ICE SHIELDS (E)	98
Side Arm Mount [SO 702-1] (E)	158	4' ICE SHIELDS (E)	98
Side Arm Mount [SO 702-1] (E)	158	5' x 2" Pipe Mount (E-For Omni)	90
SRL-224NM-4 (E)	158	DB205-A (E-Per Photo)	90
7770.00 w/ Mount Pipe (E)	151	Side Arm Mount [SO 702-1] (E)	90
7770.00 w/ Mount Pipe (E)	151	Side Arm Mount [SO 702-1] (E)	90
SBNH-1D6565C w/ Mount Pipe (E)	151	MT-485002 w/ Mount Pipe (E)	90
SBNH-1D6565C w/ Mount Pipe (E)	151	KP2F-34 (E)	90
SBNH-1D6565C w/ Mount Pipe (E)	151	2" x 2" Omni (E-Per Photo)	70
DTMABP7819VG12A (E)	151	6' x 2" Mount Pipe (E-For Omni)	70
DTMABP7819VG12A (E)	151	Side Arm Mount [SO 701-1] (E)	70
DTMABP7819VG12A (E)	151	Side Arm Mount [SO 102-3] (E-Mount Attachment)	70
DC6-48-60-18-8F (E)	151	SRL-235-2 (E)	70
TPA-65R-LCUUUU-H8 (R)	151	Side Arm Mount [SO 702-1] (E)	33
TPA-65R-LCUUUU-H8 (R)	151	6' x 2" Mount Pipe (E-For Yagi)	33
TPA-65R-LCUUUU-H8 (R)	151	DB909XVTE-M (E)	33
RRUS 32 (R)	151	2" x 4' Omni (E-Per Photo)	33
RRUS 32 (R)	151		
RRUS 32 (R)	151		
RRUS 32 B2 (R)	151		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

B+T Group
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Phone: (918) 587-4630
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TOWER DESIGN NOTES

Job: wington_1, CT (BU# 826217

Project:			
Client: Crown Castle	Drawn by: Gireesh Acharya	App'd:	
Code: TIA-222-G	Date: 06/22/18	Scale: NTS	
Path:		Dwg No. E-1	

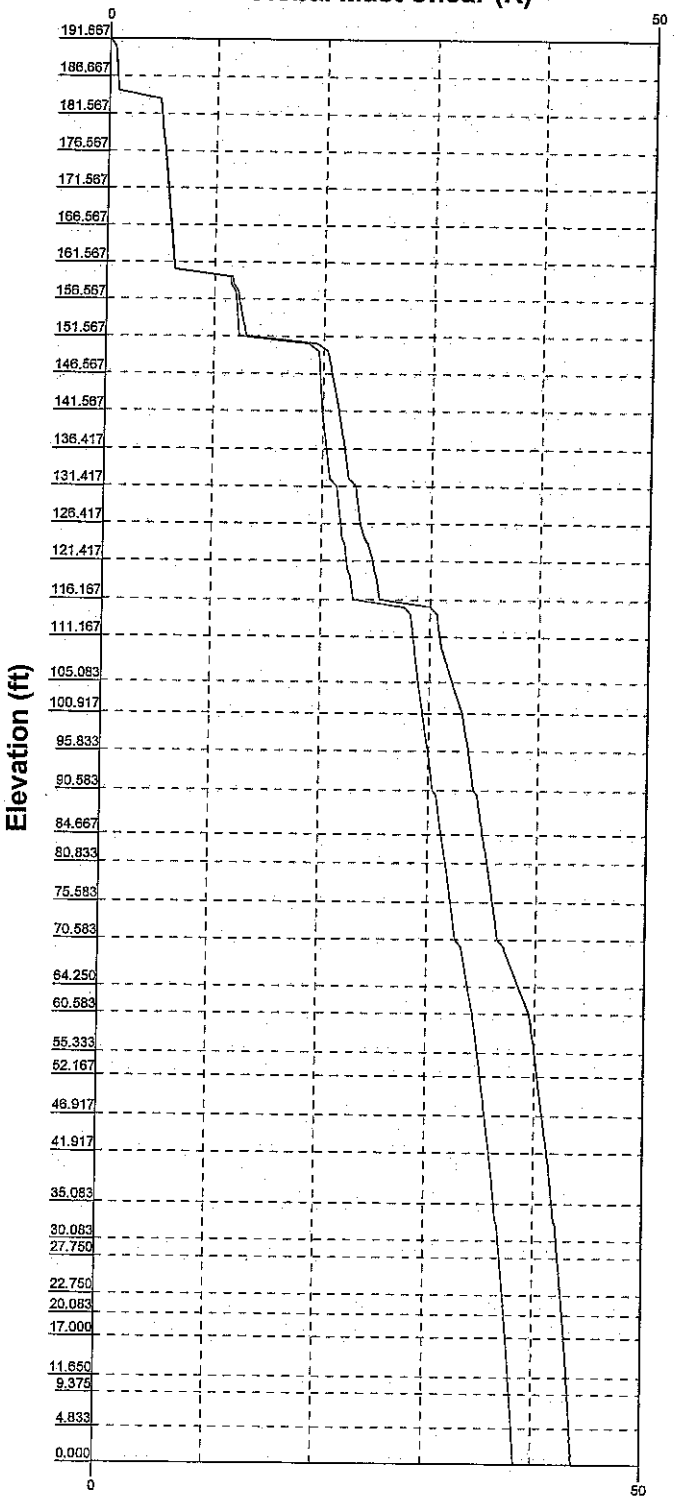
TIA-222-G - 97 mph/50 mph 1.000 in Ice Exposure B

Vx Vz

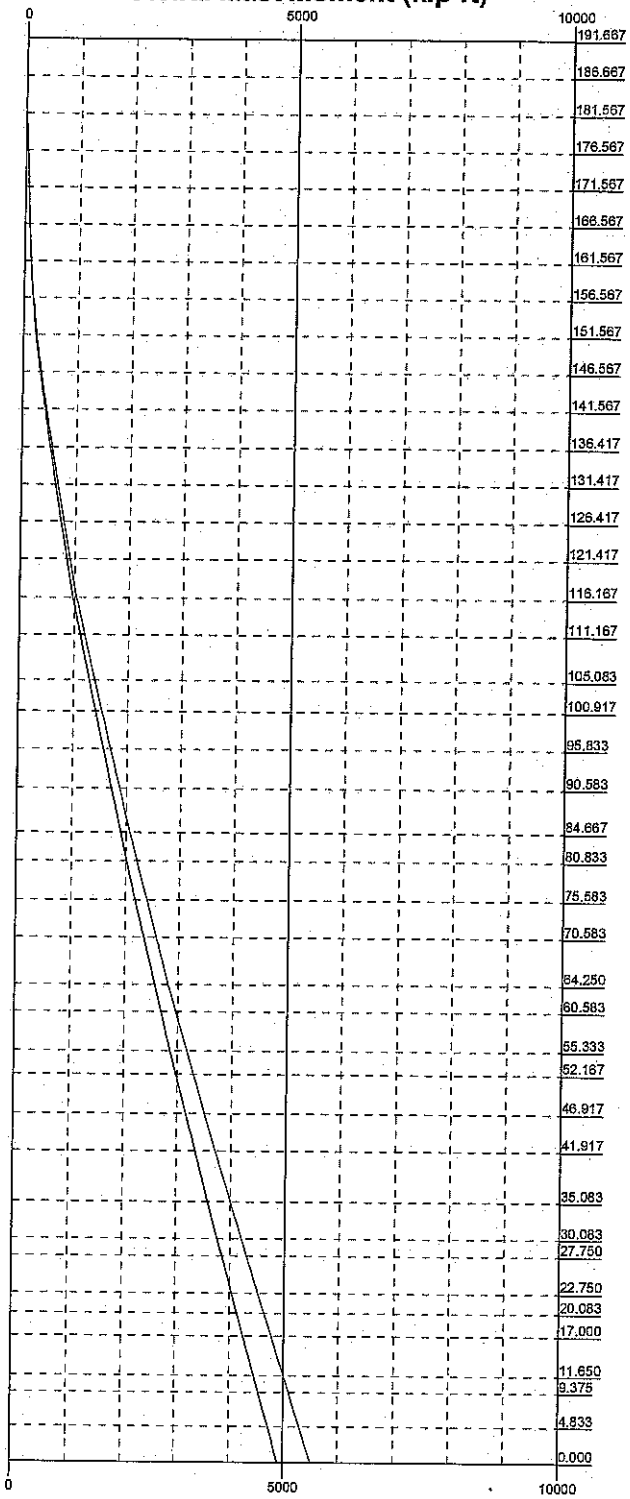
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



B+T GRP

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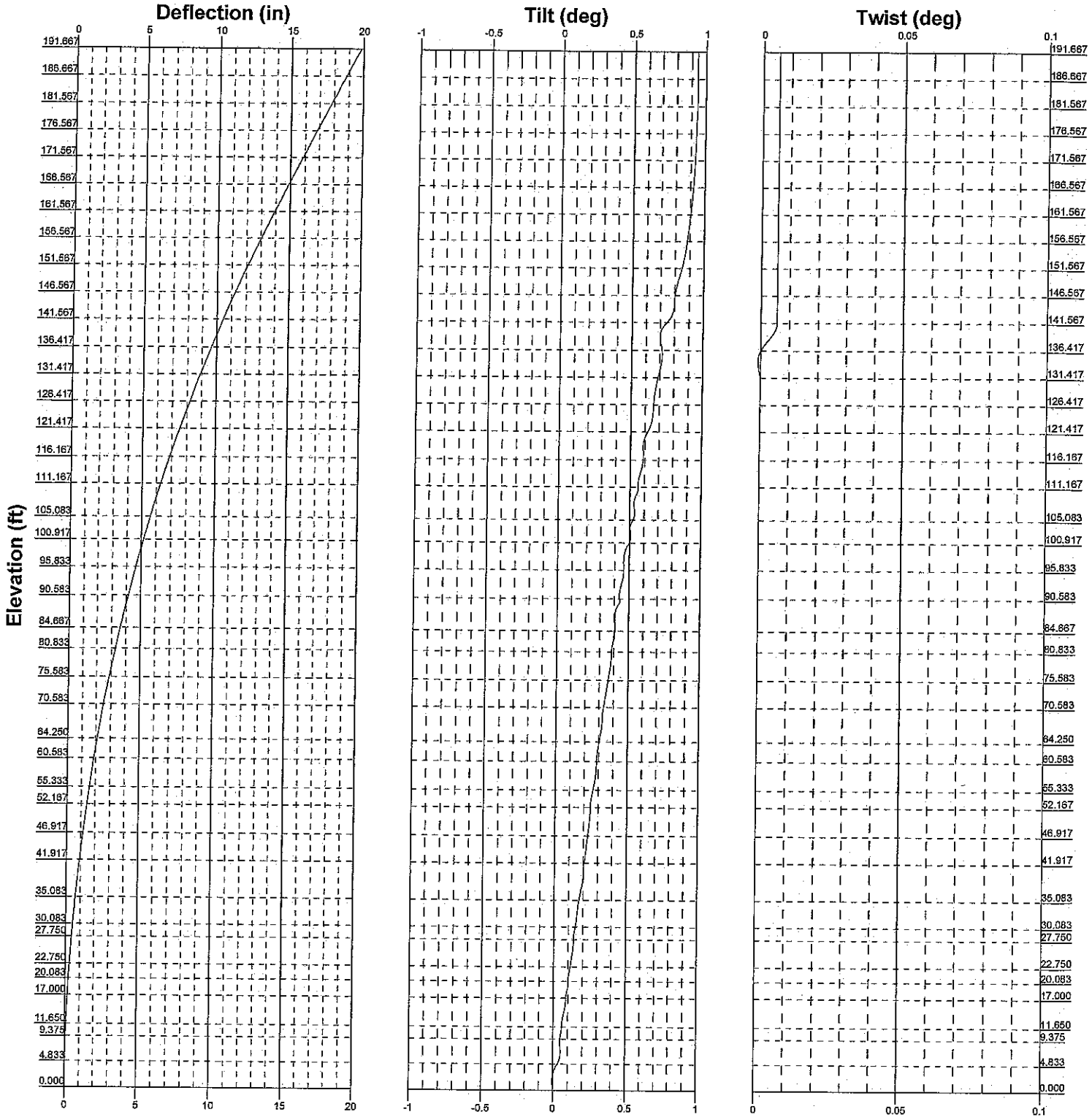
Job: 87581.018.01 - Newington_1, CT (BU# 826217			
Project:			
Client: Crown Castle	Drawn by: Gireesh Acharya	App'd:	
Code: TIA-222-G	Date: 06/22/18	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-G - Service - 60 mph

Maximum Values



B+T GRP

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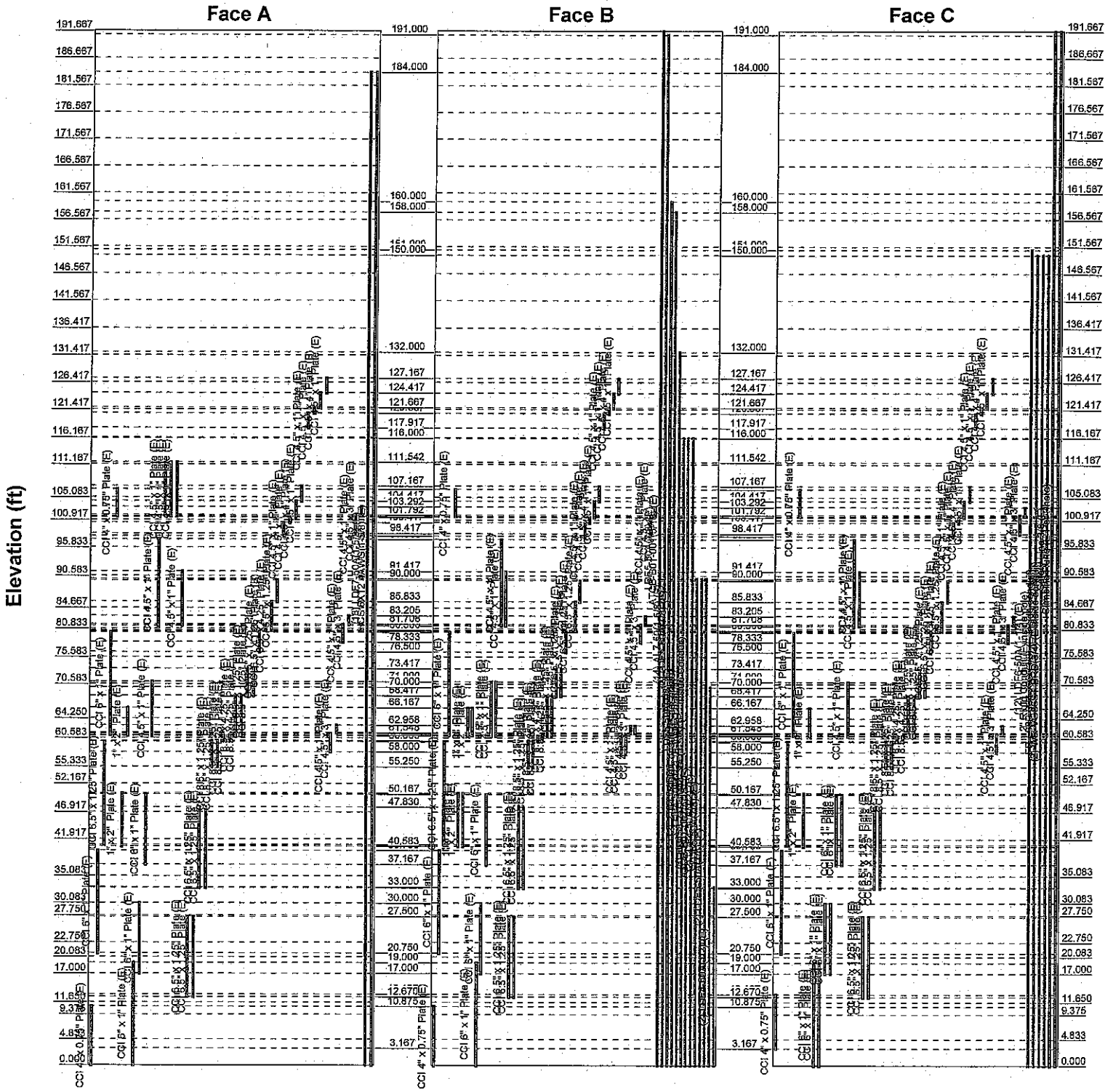
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: *87581.018.01 - Newington_1, CT (BU# 826217*			
Project:			
Client: Crown Castle	Drawn by: Gireesh Acharya	App'd:	
Code: TIA-222-G	Date: 06/22/18	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart

0' - 191'8"

Round Flat App In Face App Out Face Truss Leg



B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job: 87581.018.01 - Newington_1, CT (BU# 826217		
	Project:		
	Client: Crown Castle	Drawn by: Gireesh Acharya	App'd:
	Code: TIA-222-G	Date: 06/22/18	Scale: NTS
	Path:		Dwg No. E-7

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	191.667-186.667	5.000	P18x0.375	A53-B-42 (42 ksi)	
L2	186.667-181.567	5.100	P24x0.375	A53-B-42 (42 ksi)	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L3	181.567-176.567	5.000	P24x0.375	A53-B-42 (42 ksi)	
L4	176.567-171.567	5.000	P24x0.375	A53-B-42 (42 ksi)	
L5	171.567-166.567	5.000	P24x0.375	A53-B-42 (42 ksi)	
L6	166.567-161.567	5.000	P24x0.375	A53-B-42 (42 ksi)	
L7	161.567-156.567	5.000	P24x0.375	A53-B-42 (42 ksi)	
L8	156.567-151.567	5.000	P24x0.375	A53-B-42 (42 ksi)	
L9	151.567-146.567	5.000	P24x0.375	A53-B-42 (42 ksi)	
L10	146.567-141.567	5.000	P24x0.375	A53-B-42 (42 ksi)	
L11	141.567-141.417	0.150	P24x0.375	A53-B-42 (42 ksi)	
L12	141.417-136.417	5.000	P36x0.375	A53-B-42 (42 ksi)	
L13	136.417-131.417	5.000	P36x0.375	A53-B-42 (42 ksi)	
L14	131.417-126.417	5.000	P36x0.375	A53-B-42 (42 ksi)	
L15	126.417-121.417	5.000	P36x0.375	A53-B-42 (42 ksi)	
L16	121.417-121.167	0.250	P36x0.375	A53-B-42 (42 ksi)	
L17	121.167-116.167	5.000	P42x0.375	A53-B-42 (42 ksi)	
L18	116.167-111.167	5.000	P42x0.375	A53-B-42 (42 ksi)	
L19	111.167-110.042	1.125	P42x0.375	A53-B-42 (42 ksi)	
L20	110.042-109.792	0.250	P42x0.4875	A53-B-42 (42 ksi)	
L21	109.792-105.083	4.709	P42x0.4875	A53-B-42 (42 ksi)	
L22	105.083-104.833	0.250	P42x0.5625	A53-B-42 (42 ksi)	
L23	104.833-100.917	3.916	P42x0.5625	A53-B-42 (42 ksi)	
L24	100.917-100.667	0.250	P48x0.375	A53-B-42 (42 ksi)	
L25	100.667-95.833	4.834	P48x0.375	A53-B-42 (42 ksi)	
L26	95.833-95.583	0.250	P48x0.475	A53-B-42 (42 ksi)	
L27	95.583-90.583	5.000	P48x0.475	A53-B-42 (42 ksi)	
L28	90.583-89.917	0.666	P48x0.475	A53-B-42 (42 ksi)	
L29	89.917-89.667	0.250	P48x0.575	A53-B-42 (42 ksi)	
L30	89.667-84.667	5.000	P48x0.575	A53-B-42 (42 ksi)	
L31	84.667-80.833	3.834	P48x0.575	A53-B-42 (42 ksi)	
L32	80.833-80.583	0.250	P54x0.4875	A53-B-42 (42 ksi)	
L33	80.583-75.583	5.000	P54x0.4875	A53-B-42	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L34	75.583-70.583	5.000	P54x0.4875	(42 ksi) A53-B-42 (42 ksi)	
L35	70.583-69.500	1.083	P54x0.4875	A53-B-42 (42 ksi)	
L36	69.500-69.250	0.250	P54x0.5875	A53-B-42 (42 ksi)	
L37	69.250-64.250	5.000	P54x0.5875	A53-B-42 (42 ksi)	
L38	64.250-60.583	3.667	P54x0.5875	A53-B-42 (42 ksi)	
L39	60.583-60.333	0.250	P60x0.5125	A53-B-42 (42 ksi)	
L40	60.333-55.333	5.000	P60x0.5125	A53-B-42 (42 ksi)	
L41	55.333-52.167	3.166	P60x0.5125	A53-B-42 (42 ksi)	
L42	52.167-51.917	0.250	P60x0.625	A53-B-42 (42 ksi)	
L43	51.917-46.917	5.000	P60x0.625	A53-B-42 (42 ksi)	
L44	46.917-41.917	5.000	P60x0.625	A53-B-42 (42 ksi)	
L45	41.917-40.333	1.584	P60x0.625	A53-B-42 (42 ksi)	
L46	40.333-40.083	0.250	P60x0.6	A53-B-42 (42 ksi)	
L47	40.083-35.083	5.000	P60x0.6	A53-B-42 (42 ksi)	
L48	35.083-30.083	5.000	P60x0.6	A53-B-42 (42 ksi)	
L49	30.083-28.000	2.083	P60x0.6	A53-B-42 (42 ksi)	
L50	28.000-27.750	0.250	P60x0.725	A53-B-42 (42 ksi)	
L51	27.750-22.750	5.000	P60x0.725	A53-B-42 (42 ksi)	
L52	22.750-20.083	2.667	P60x0.725	A53-B-42 (42 ksi)	
L53	20.083-19.833	0.250	P60x0.625	A53-B-42 (42 ksi)	
L54	19.833-17.000	2.833	P60x0.625	A53-B-42 (42 ksi)	
L55	17.000-16.750	0.250	P60x0.725	A53-B-42 (42 ksi)	
L56	16.750-11.650	5.100	P60x0.75	A53-B-42 (42 ksi)	
L57	11.650-11.417	0.233	P60x0.75	A53-B-42 (42 ksi)	
L58	11.417-9.375	2.042	P60x0.75	A53-B-42 (42 ksi)	
L59	9.375-9.125	0.250	P60x0.8	A53-B-42 (42 ksi)	
L60	9.125-4.833	4.292	P60x0.8	A53-B-42 (42 ksi)	
L61	4.833-4.583	0.250	P60x0.75	A53-B-42 (42 ksi)	
L62	4.583-0.000	4.583	P60x0.75	A53-B-42 (42 ksi)	

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 191.667-186.667				1	1	1			
L2 186.667-181.567				1	1	1			
L3 181.567-176.567				1	1	1			
L4 176.567-171.567				1	1	1			
L5 171.567-166.567				1	1	1			
L6 166.567-161.567				1	1	1			
L7 161.567-156.567				1	1	1			
L8 156.567-151.567				1	1	1			
L9 151.567-146.567				1	1	1			
L10 146.567-141.567				1	1	1			
L11 141.567-141.417				1	1	1			
L12 141.417-136.417				1	1	1			
L13 136.417-131.417				1	1	1			
L14 131.417-126.417				1	1	1			
L15 126.417-121.417				1	1	1			
L16 121.417-121.167				1	1	1			
L17 121.167-116.167				1	1	1			
L18 116.167-111.167				1	1	1			
L19 111.167-110.042				1	1	1			

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
L20 110.042-109.792				1	1	0.983655			
L21 109.792-105.083				1	1	0.983655			
L22 105.083-104.833				1	1	0.976951			
L23 104.833-100.917				1	1	0.976951			
L24 100.917-100.667				1	1	1			
L25 100.667-95.833				1	1	1			
L26 95.833-95.583				1	1	0.981492			
L27 95.583-90.583				1	1	0.981492			
L28 90.583-89.917				1	1	0.981492			
L29 89.917-89.667				1	1	0.97009			
L30 89.667-84.667				1	1	0.97009			
L31 84.667-80.833				1	1	0.97009			
L32 80.833-80.583				1	1	0.990478			
L33 80.583-75.583				1	1	0.990478			
L34 75.583-70.583				1	1	0.990478			
L35 70.583-69.500				1	1	0.990478			
L36 69.500-69.250				1	1	1.00601			
L37 69.250-64.250				1	1	1.00601			
L38 64.250-60.583				1	1	1.00601			
L39 60.583-60.333				1	1	0.987891			
L40 60.333-55.333				1	1	0.987891			
L41 55.333-52.167				1	1	0.987891			
L42 52.167-51.917				1	1	1.01747			
L43 51.917-46.917				1	1	1.01747			
L44 46.917-41.917				1	1	1.01747			
L45 41.917-40.333				1	1	1.01747			
L46				1	1	0.995499			

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
40.333-40.083									
L47				1	1	0.995499			
40.083-35.083									
L48				1	1	0.995499			
35.083-30.083									
L49				1	1	0.995499			
30.083-28.000									
L50				1	1	1.00337			
28.000-27.750									
L51				1	1	1.00337			
27.750-22.750									
L52				1	1	1.00337			
22.750-20.083									
L53				1	1	1			
20.083-19.833									
L54				1	1	1			
19.833-17.000									
L55				1	1	1.04129			
17.000-16.750									
L56				1	1	1.02849			
16.750-11.650									
L57				1	1	1.02849			
11.650-11.417									
L58				1	1	1.02849			
11.417-9.375									
L59				1	1	1.00535			
9.375-9.125									
L60				1	1	1.00535			
9.125-4.833									
L61				1	1	1.04998			
4.833-4.583									
L62				1	1	1.04998			
4.583-0.000									

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
* Reinforcement Plates*									
CCI 4" x 0.75" Plate (E)	A	Surface Af (CaAa)	10.875 - 0.000	1	1	0.400 0.450	4.000	9.500	0.000
CCI 4" x 0.75" Plate (E)	B	Surface Af (CaAa)	10.875 - 0.000	1	1	-0.250 -0.200	4.000	9.500	0.000
CCI 4" x 0.75" Plate (E)	C	Surface Af (CaAa)	13.167 - 3.167	1	1	0.250 0.300	4.000	9.500	0.000
GAP									
CCI 6" x 1" Plate (E)	A	Surface Af (CaAa)	39.750 - 20.750	1	1	0.400 0.500	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	B	Surface Af (CaAa)	39.750 - 20.750	1	1	0.400 0.500	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	C	Surface Af (CaAa)	39.750 - 20.750	1	1	0.400 0.500	6.000	14.000	0.000
GAP									
CCI 6.5" x 1.25" Plate	A	Surface Af	59.917 - 40.833	1	1	-0.450	6.500	15.500	0.000

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
(E)		(CaAa)				-0.400			
CCI 6.5" x 1.25" Plate	B	Surface Af	59.917 - 40.833	1	1	-0.450	6.500	15.500	0.000
(E)		(CaAa)				-0.400			
CCI 6.5" x 1.25" Plate	C	Surface Af	59.917 - 40.833	1	1	-0.400	6.500	15.500	0.000
(E)		(CaAa)				-0.350			
GAP									
CCI 6" x 1" Plate	A	Surface Af	80.167 - 61.167	1	1	-0.450	6.000	14.000	0.000
(E)		(CaAa)				-0.400			
CCI 6" x 1" Plate	B	Surface Af	80.167 - 61.167	1	1	-0.350	6.000	14.000	0.000
(E)		(CaAa)				-0.300			
CCI 6" x 1" Plate	C	Surface Af	80.167 - 61.167	1	1	-0.450	6.000	14.000	0.000
(E)		(CaAa)				-0.400			
GAP									
CCI 4" x 0.75" Plate	A	Surface Af	106.583 - 101.583	1	1	-0.500	4.000	9.500	0.000
(E)		(CaAa)				-0.450			
CCI 4" x 0.75" Plate	B	Surface Af	106.583 - 101.583	1	1	-0.500	4.000	9.500	0.000
(E)		(CaAa)				-0.450			
CCI 4" x 0.75" Plate	C	Surface Af	106.583 - 101.583	1	1	-0.500	4.000	9.500	0.000
(E)		(CaAa)				-0.450			
GAP									
1" x 2" Plate	A	Surface Af	50.417 - 40.583	1	1	-0.450	1.000	6.000	0.007
(E)		(CaAa)				-0.400			
1" x 2" Plate	B	Surface Af	50.417 - 40.583	1	1	-0.350	1.000	6.000	0.007
(E)		(CaAa)				-0.300			
1" x 2" Plate	B	Surface Af	50.417 - 40.583	1	1	0.200	1.000	6.000	0.007
(E)		(CaAa)				0.250			
1" x 2" Plate	C	Surface Af	50.417 - 40.583	1	1	-0.350	1.000	6.000	0.007
(E)		(CaAa)				-0.300			
GAP									
1" x 2" Plate	A	Surface Af	66.167 - 61.083	1	1	-0.350	1.000	6.000	0.007
(E)		(CaAa)				-0.300			
1" x 2" Plate	B	Surface Af	66.167 - 61.083	1	1	-0.450	1.000	6.000	0.007
(E)		(CaAa)				-0.400			
1" x 2" Plate	B	Surface Af	66.167 - 61.083	1	1	0.300	1.000	6.000	0.007
(E)		(CaAa)				0.350			
1" x 2" Plate	C	Surface Af	66.167 - 61.083	1	1	-0.450	1.000	6.000	0.007
(E)		(CaAa)				-0.400			
GAP									
CCI 6" x 1" Plate	A	Surface Af	19.000 - 0.000	1	1	0.300	6.000	14.000	0.000
(E)		(CaAa)				0.350			
CCI 6" x 1" Plate	B	Surface Af	19.000 - 0.000	1	1	0.400	6.000	14.000	0.000
(E)		(CaAa)				0.450			
CCI 6" x 1" Plate	C	Surface Af	19.000 - 0.000	1	1	0.450	6.000	14.000	0.000
(E)		(CaAa)				0.500			
CCI 6" x 1" Plate	C	Surface Af	19.000 - 0.000	1	1	-0.500	6.000	14.000	0.000
(E)		(CaAa)				-0.450			
GAP									
CCI 6" x 1" Plate	A	Surface Af	30.000 - 17.000	1	1	-0.150	6.000	14.000	0.000
(E)		(CaAa)				-0.100			
CCI 6" x 1" Plate	B	Surface Af	30.000 - 17.000	1	1	-0.450	6.000	14.000	0.000
(E)		(CaAa)				-0.400			
CCI 6" x 1" Plate	C	Surface Af	30.000 - 17.000	1	1	0.350	6.000	14.000	0.000
(E)		(CaAa)				0.400			
CCI 6" x 1" Plate	C	Surface Af	30.000 - 17.000	1	1	-0.500	6.000	14.000	0.000
(E)		(CaAa)				-0.450			
GAP									
CCI 6" x 1" Plate	A	Surface Af	50.167 - 37.167	1	1	0.250	6.000	14.000	0.000
(E)		(CaAa)				0.300			
CCI 6" x 1" Plate	B	Surface Af	50.167 - 37.167	1	1	0.100	6.000	14.000	0.000
(E)		(CaAa)				0.150			
CCI 6" x 1" Plate	C	Surface Af	50.167 - 37.167	1	1	-0.400	6.000	14.000	0.000

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
(E)		(CaAa)				-0.350			
CCI 6" x 1" Plate	C	Surface Af	50.167 - 37.167	1	1	0.450	6.000	14.000	0.000
(E)		(CaAa)				0.500			
GAP									
CCI 4.5" x 1" Plate	A	Surface Af	71.000 - 61.000	1	1	-0.250	4.500	11.000	0.000
(E)		(CaAa)				-0.200			
CCI 4.5" x 1" Plate	B	Surface Af	71.000 - 61.000	1	1	-0.450	4.500	11.000	0.000
(E)		(CaAa)				-0.400			
CCI 4.5" x 1" Plate	B	Surface Af	71.000 - 61.000	1	1	0.400	4.500	11.000	0.000
(E)		(CaAa)				0.450			
CCI 4.5" x 1" Plate	C	Surface Af	71.000 - 61.000	1	1	0.350	4.500	11.000	0.000
(E)		(CaAa)				0.400			
GAP									
CCI 4.5" x 1" Plate	A	Surface Af	97.333 - 81.333	1	1	-0.500	4.500	11.000	0.000
(E)		(CaAa)				-0.450			
CCI 4.5" x 1" Plate	B	Surface Af	97.333 - 81.333	1	1	-0.500	4.500	11.000	0.000
(E)		(CaAa)				-0.450			
CCI 4.5" x 1" Plate	C	Surface Af	97.333 - 81.333	1	1	-0.500	4.500	11.000	0.000
(E)		(CaAa)				-0.450			
GAP									
CCI 4.5" x 1" Plate	A	Surface Af	111.542 - 101.542	1	1	-0.350	4.500	11.000	0.000
(E)		(CaAa)				-0.300			
CCI 4.5" x 1" Plate	A	Surface Af	111.542 - 101.542	1	1	-0.350	4.500	11.000	0.000
(E)		(CaAa)				-0.300			
CCI 4.5" x 1" Plate	A	Surface Af	111.542 - 101.542	1	1	-0.350	4.500	11.000	0.000
(E)		(CaAa)				-0.300			
GAP									
CCI 4.5" x 1" Plate	A	Surface Af	91.417 - 81.417	1	1	-0.150	4.500	11.000	0.000
(E)		(CaAa)				-0.100			
CCI 4.5" x 1" Plate	B	Surface Af	91.417 - 81.417	1	1	-0.150	4.500	11.000	0.000
(E)		(CaAa)				-0.100			
CCI 4.5" x 1" Plate	C	Surface Af	91.417 - 81.417	1	1	-0.150	4.500	11.000	0.000
(E)		(CaAa)				-0.100			
GAP									
* BS*									
CCI 6.5" x 1.25" Plate	A	Surface Af	27.500 - 12.670	1	1	0.400	6.500	15.500	0.028
(E)		(CaAa)				0.450			
CCI 6.5" x 1.25" Plate	A	Surface Af	27.500 - 12.670	1	1	-0.250	6.500	15.500	0.028
(E)		(CaAa)				-0.200			
CCI 6.5" x 1.25" Plate	B	Surface Af	27.500 - 12.670	1	1	0.450	6.500	15.500	0.028
(E)		(CaAa)				0.500			
CCI 6.5" x 1.25" Plate	B	Surface Af	27.500 - 12.670	1	1	-0.250	6.500	15.500	0.028
(E)		(CaAa)				-0.200			
CCI 6.5" x 1.25" Plate	C	Surface Af	27.500 - 12.670	1	1	0.350	6.500	15.500	0.028
(E)		(CaAa)				0.400			
CCI 6.5" x 1.25" Plate	C	Surface Af	27.500 - 12.670	1	1	-0.250	6.500	15.500	0.028
(E)		(CaAa)				-0.200			
GAP									
CCI 6.5" x 1.25" Plate	A	Surface Af	47.830 - 32.830	1	1	0.400	6.500	15.500	0.028
(E)		(CaAa)				0.450			
CCI 6.5" x 1.25" Plate	A	Surface Af	47.830 - 32.830	1	1	-0.400	6.500	15.500	0.028
(E)		(CaAa)				-0.350			
CCI 6.5" x 1.25" Plate	B	Surface Af	47.830 - 32.830	1	1	-0.400	6.500	15.500	0.028
(E)		(CaAa)				-0.350			
CCI 6.5" x 1.25" Plate	B	Surface Af	47.830 - 32.830	1	1	-0.250	6.500	15.500	0.028
(E)		(CaAa)				-0.200			
CCI 6.5" x 1.25" Plate	C	Surface Af	47.830 - 32.830	1	1	-0.400	6.500	15.500	0.028
(E)		(CaAa)				0.350			
CCI 6.5" x 1.25" Plate	C	Surface Af	47.830 - 32.830	1	1	-0.250	6.500	15.500	0.028
(E)		(CaAa)				-0.200			
GAP									

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
CCI 8.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	60.083 - 55.250	1	1	0.200 0.250	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	60.083 - 55.250	1	1	-0.400 -0.350	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	60.083 - 55.250	1	1	0.150 0.200	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	60.083 - 55.250	1	1	-0.350 -0.300	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	C	Surface Af (CaAa)	60.083 - 55.250	1	1	0.100 0.150	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	C	Surface Af (CaAa)	60.083 - 55.250	1	1	-0.500 -0.450	8.500	19.500	0.036
GAP									
CCI 8.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	61.083 - 60.083	1	1	0.200 0.250	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	61.083 - 60.083	1	1	-0.400 -0.350	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	61.083 - 60.083	1	1	0.150 0.200	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	61.083 - 60.083	1	1	-0.350 -0.300	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	C	Surface Af (CaAa)	61.083 - 60.083	1	1	0.100 0.150	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	C	Surface Af (CaAa)	61.083 - 60.083	1	1	-0.500 -0.450	8.500	19.500	0.036
GAP									
CCI 8.5" x 4.25" Plate (E)	A	Surface Af (CaAa)	68.417 - 61.083	1	1	0.200 0.250	8.500	25.500	0.123
CCI 8.5" x 4.25" Plate (E)	A	Surface Af (CaAa)	68.417 - 61.083	1	1	-0.400 -0.350	8.500	25.500	0.123
CCI 8.5" x 4.25" Plate (E)	B	Surface Af (CaAa)	68.417 - 61.083	1	1	0.150 0.200	8.500	25.500	0.123
CCI 8.5" x 4.25" Plate (E)	B	Surface Af (CaAa)	68.417 - 61.083	1	1	-0.350 -0.300	8.500	25.500	0.123
CCI 8.5" x 4.25" Plate (E)	C	Surface Af (CaAa)	68.417 - 61.083	1	1	0.100 0.150	8.500	25.500	0.123
CCI 8.5" x 4.25" Plate (E)	C	Surface Af (CaAa)	68.417 - 61.083	1	1	-0.500 -0.450	8.500	25.500	0.123
GAP									
CCI 8.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	73.417 - 68.417	1	1	0.200 0.250	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	73.417 - 68.417	1	1	-0.400 -0.350	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	73.417 - 68.417	1	1	0.150 0.200	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	73.417 - 68.417	1	1	-0.350 -0.300	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	C	Surface Af (CaAa)	73.417 - 68.417	1	1	0.100 0.150	8.500	19.500	0.036
CCI 8.5" x 1.25" Plate (E)	C	Surface Af (CaAa)	73.417 - 68.417	1	1	-0.500 -0.450	8.500	19.500	0.036
GAP									
CCI 6.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	80.333 - 76.500	1	1	0.050 0.100	6.500	15.500	0.028
CCI 6.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	80.333 - 76.500	1	1	0.000 0.050	6.500	15.500	0.028
CCI 6.5" x 1.25" Plate (E)	C	Surface Af (CaAa)	80.333 - 76.500	1	1	0.150 0.200	6.500	15.500	0.028
GAP									
CCI 6.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	80.500 - 80.333	1	1	0.050 0.100	6.500	15.500	0.028

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
CCI 6.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	80.500 - 80.333	1	1	0.000 0.050	6.500	15.500	0.028
CCI 6.5" x 1.25" Plate (E) **GAP**	C	Surface Af (CaAa)	80.500 - 80.333	1	1	0.150 0.200	6.500	15.500	0.028
CCI 6.5" x 4.25" Plate (E)	A	Surface Af (CaAa)	85.833 - 80.500	1	1	0.050 0.100	6.500	21.500	0.094
CCI 6.5" x 4.25" Plate (E)	B	Surface Af (CaAa)	85.833 - 80.500	1	1	0.000 0.050	6.500	21.500	0.094
CCI 6.5" x 4.25" Plate (E) **GAP**	C	Surface Af (CaAa)	85.833 - 80.500	1	1	0.150 0.200	6.500	21.500	0.094
CCI 6.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	89.750 - 85.833	1	1	0.050 0.100	6.500	15.500	0.028
CCI 6.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	89.750 - 85.833	1	1	0.000 0.050	6.500	15.500	0.028
CCI 6.5" x 1.25" Plate (E) **GAP**	C	Surface Af (CaAa)	89.750 - 85.833	1	1	0.150 0.200	6.500	15.500	0.028
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	100.417 - 97.917	1	1	-0.150 -0.100	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	100.417 - 97.917	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E) **GAP**	C	Surface Af (CaAa)	100.417 - 97.917	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	101.417 - 100.417	1	1	-0.150 -0.100	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	101.417 - 100.417	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E) **GAP**	C	Surface Af (CaAa)	101.417 - 100.417	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 4" Plate (E)	A	Surface Af (CaAa)	104.417 - 101.417	1	1	-0.150 -0.100	4.500	17.000	0.061
CCI 4.5" x 4" Plate (E)	B	Surface Af (CaAa)	104.417 - 101.417	1	1	-0.100 -0.050	4.500	17.000	0.061
CCI 4.5" x 4" Plate (E) **GAP**	C	Surface Af (CaAa)	104.417 - 101.417	1	1	-0.100 -0.050	4.500	17.000	0.061
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	107.167 - 104.417	1	1	-0.150 -0.100	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	107.167 - 104.417	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E) **GAP**	C	Surface Af (CaAa)	107.167 - 104.417	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	120.667 - 117.917	1	1	-0.150 -0.100	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	120.667 - 117.917	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E) **GAP**	C	Surface Af (CaAa)	120.667 - 117.917	1	1	-0.200 -0.150	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	121.667 - 120.667	1	1	-0.150 -0.100	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	121.667 - 120.667	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E) **GAP**	C	Surface Af (CaAa)	121.667 - 120.667	1	1	-0.200 -0.150	4.500	11.000	0.015

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
CCI 4.5" x 4" Plate (E)	A	Surface Af (CaAa)	124.417 - 121.667	1	1	-0.150 -0.100	4.500	17.000	0.061
CCI 4.5" x 4" Plate (E)	B	Surface Af (CaAa)	124.417 - 121.667	1	1	-0.100 -0.050	4.500	17.000	0.061
CCI 4.5" x 4" Plate (E)	C	Surface Af (CaAa)	124.417 - 121.667	1	1	-0.200 -0.150	4.500	17.000	0.061
GAP									
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	127.167 - 124.417	1	1	-0.150 -0.100	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	127.167 - 124.417	1	1	-0.100 -0.050	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	C	Surface Af (CaAa)	127.167 - 124.417	1	1	-0.200 -0.150	4.500	11.000	0.015
GAP									
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	61.458 - 58.000	1	1	-0.250 -0.200	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	61.458 - 58.000	1	1	-0.450 -0.400	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	61.458 - 58.000	1	1	0.400 0.450	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	C	Surface Af (CaAa)	61.458 - 58.000	1	1	0.350 0.400	4.500	11.000	0.015
GAP									
CCI 4.5" x 3" Plate (E)	A	Surface Af (CaAa)	62.958 - 61.548	1	1	-0.250 -0.200	4.500	15.000	0.046
CCI 4.5" x 3" Plate (E)	B	Surface Af (CaAa)	62.958 - 61.548	1	1	-0.450 -0.400	4.500	15.000	0.046
CCI 4.5" x 3" Plate (E)	B	Surface Af (CaAa)	62.958 - 61.548	1	1	0.400 0.450	4.500	15.000	0.046
CCI 4.5" x 3" Plate (E)	C	Surface Af (CaAa)	62.958 - 61.548	1	1	0.350 0.400	4.500	15.000	0.046
GAP									
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	81.708 - 78.333	1	1	-0.500 -0.450	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	81.708 - 78.333	1	1	-0.500 -0.450	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	C	Surface Af (CaAa)	81.708 - 78.333	1	1	-0.500 -0.450	4.500	11.000	0.015
GAP									
CCI 4.5" x 3" Plate (E)	A	Surface Af (CaAa)	83.205 - 81.708	1	1	-0.500 -0.450	4.500	15.000	0.046
CCI 4.5" x 3" Plate (E)	B	Surface Af (CaAa)	83.205 - 81.708	1	1	-0.500 -0.450	4.500	15.000	0.046
CCI 4.5" x 3" Plate (E)	C	Surface Af (CaAa)	83.205 - 81.708	1	1	-0.500 -0.450	4.500	15.000	0.046
GAP									
CCI 4.5" x 1" Plate (E)	A	Surface Af (CaAa)	101.792 - 98.417	1	1	0.300 0.350	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	B	Surface Af (CaAa)	101.792 - 98.417	1	1	0.300 0.350	4.500	11.000	0.015
CCI 4.5" x 1" Plate (E)	C	Surface Af (CaAa)	101.792 - 98.417	1	1	0.300 0.350	4.500	11.000	0.015
GAP									
CCI 4.5" x 3" Plate (E)	A	Surface Af (CaAa)	103.292 - 101.792	1	1	0.300 0.350	4.500	15.000	0.046
CCI 4.5" x 3" Plate (E)	B	Surface Af (CaAa)	103.292 - 101.792	1	1	0.300 0.350	4.500	15.000	0.046
CCI 4.5" x 3" Plate (E)	C	Surface Af (CaAa)	103.292 - 101.792	1	1	0.300 0.350	4.500	15.000	0.046
HCS 6X12 4AWG(1-5/8) (E)	A	Surface Ar (CaAa)	184.000 - 0.000	1	1	-0.400 -0.360	1.660		0.002

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
GAP									
AL7-50(1-5/8) (E)	B	Surface Ar (CaAa)	160.000 - 0.000	14	12	-0.150 0.300	1.960		0.001
GAP									
Safety Line 3/8 (E)	C	Surface Ar (CaAa)	191.667 - 0.000	1	1	0.000 0.010	0.375		0.000
Climbing Rung (E-Per Photo)	C	Surface Ar (CaAa)	191.667 - 0.000	1	1	-0.050 0.050	1.000		0.008
GAP									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight klf
GAP								
GAP								
LDF5-50A(7/8) (E)	B	No	Inside Pole	191.667 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
GAP								
ATCB-B01-001(5/16) (E)	B	No	Inside Pole	191.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
GAP								
LDF7-50A(1-5/8) (E)	A	No	Inside Pole	184.000 - 0.000	18	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
GAP								
LDF5-50A(7/8) (E)	B	No	Inside Pole	158.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
GAP								
LDF6-50A(1-1/4) (E)	C	No	Inside Pole	151.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
2" Rigid Conduit (E-inside pole)	C	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.003
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.003
FB-L98B-034-XXX(3/8) (E-inside conduit)	C	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
WR-VG86ST-BRD(3/4) (E-inside conduit)	C	No	Inside Pole	150.000 - 0.000	2	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
GAP								
LDF5-50A(7/8) (E)	B	No	Inside Pole	132.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
GAP								
2-1/4" Rigid Conduit (E-per photo)	B	No	Inside Pole	116.000 - 0.000	2	No Ice	0.000	0.003
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.003
LDF4-50A(1/2) (E-inside conduit)	B	No	Inside Pole	116.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
HB158-21U6M48-30F(1 -5/8)	B	No	Inside Pole	116.000 - 0.000	3	No Ice	0.000	0.002
						1/2" Ice	0.000	0.002

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight klf
(P - Inside Conduit)						1" Ice	0.000	0.002
GAP								
ATCB-B01-001(5/16) (E)	B	No	Inside Pole	90.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF4-50A(1/2) (E)	B	No	Inside Pole	90.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF5-50A(7/8) (E)	B	No	Inside Pole	90.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
GAP								
LDF5-50A(7/8) (E)	B	No	Inside Pole	70.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
GAP								
LDF4-50A(1/2) (E)	B	No	Inside Pole	33.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
GAP								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L1	191.667-186.667	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.002
		C	0.000	0.000	0.688	0.000	0.043
L2	186.667-181.567	A	0.000	0.000	0.404	0.000	0.042
		B	0.000	0.000	0.000	0.000	0.002
		C	0.000	0.000	0.701	0.000	0.044
L3	181.567-176.567	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	0.000	0.000	0.002
		C	0.000	0.000	0.688	0.000	0.043
L4	176.567-171.567	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	0.000	0.000	0.002
		C	0.000	0.000	0.688	0.000	0.043
L5	171.567-166.567	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	0.000	0.000	0.002
		C	0.000	0.000	0.688	0.000	0.043
L6	166.567-161.567	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	0.000	0.000	0.002
		C	0.000	0.000	0.688	0.000	0.043
L7	161.567-156.567	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	8.074	0.000	0.028
		C	0.000	0.000	0.688	0.000	0.043
L8	156.567-151.567	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	11.760	0.000	0.042
		C	0.000	0.000	0.688	0.000	0.043
L9	151.567-146.567	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	11.760	0.000	0.042
		C	0.000	0.000	0.688	0.000	0.089
L10	146.567-141.567	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	11.760	0.000	0.042
		C	0.000	0.000	0.688	0.000	0.099
L11	141.567-141.417	A	0.000	0.000	0.025	0.000	0.003
		B	0.000	0.000	0.353	0.000	0.001

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.021	0.000	0.003
L12	141.417-136.417	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	11.760	0.000	0.042
		C	0.000	0.000	0.688	0.000	0.099
L13	136.417-131.417	A	0.000	0.000	0.830	0.000	0.086
		B	0.000	0.000	11.760	0.000	0.042
		C	0.000	0.000	0.688	0.000	0.099
L14	131.417-126.417	A	0.000	0.000	1.393	0.000	0.097
		B	0.000	0.000	12.323	0.000	0.055
		C	0.000	0.000	1.250	0.000	0.111
L15	126.417-121.417	A	0.000	0.000	4.580	0.000	0.289
		B	0.000	0.000	15.510	0.000	0.246
		C	0.000	0.000	4.438	0.000	0.302
L16	121.417-121.167	A	0.000	0.000	0.229	0.000	0.008
		B	0.000	0.000	0.775	0.000	0.006
		C	0.000	0.000	0.222	0.000	0.009
L17	121.167-116.167	A	0.000	0.000	3.268	0.000	0.136
		B	0.000	0.000	14.198	0.000	0.093
		C	0.000	0.000	3.125	0.000	0.149
L18	116.167-111.167	A	0.000	0.000	1.674	0.000	0.086
		B	0.000	0.000	11.760	0.000	0.108
		C	0.000	0.000	0.688	0.000	0.099
L19	111.167-110.042	A	0.000	0.000	2.718	0.000	0.019
		B	0.000	0.000	2.646	0.000	0.025
		C	0.000	0.000	0.155	0.000	0.022
L20	110.042-109.792	A	0.000	0.000	0.604	0.000	0.004
		B	0.000	0.000	0.588	0.000	0.005
		C	0.000	0.000	0.034	0.000	0.005
L21	109.792-105.083	A	0.000	0.000	13.940	0.000	0.113
		B	0.000	0.000	13.639	0.000	0.136
		C	0.000	0.000	3.210	0.000	0.125
L22	105.083-104.833	A	0.000	0.000	0.958	0.000	0.008
		B	0.000	0.000	0.942	0.000	0.009
		C	0.000	0.000	0.389	0.000	0.009
L23	104.833-100.917	A	0.000	0.000	14.940	0.000	0.347
		B	0.000	0.000	16.095	0.000	0.366
		C	0.000	0.000	7.423	0.000	0.358
L24	100.917-100.667	A	0.000	0.000	0.416	0.000	0.012
		B	0.000	0.000	0.963	0.000	0.013
		C	0.000	0.000	0.409	0.000	0.013
L25	100.667-95.833	A	0.000	0.000	5.677	0.000	0.160
		B	0.000	0.000	16.245	0.000	0.183
		C	0.000	0.000	5.540	0.000	0.173
L26	95.833-95.583	A	0.000	0.000	0.229	0.000	0.004
		B	0.000	0.000	0.775	0.000	0.005
		C	0.000	0.000	0.222	0.000	0.005
L27	95.583-90.583	A	0.000	0.000	5.205	0.000	0.086
		B	0.000	0.000	16.136	0.000	0.110
		C	0.000	0.000	5.063	0.000	0.099
L28	90.583-89.917	A	0.000	0.000	1.110	0.000	0.011
		B	0.000	0.000	2.565	0.000	0.015
		C	0.000	0.000	1.091	0.000	0.013
L29	89.917-89.667	A	0.000	0.000	0.506	0.000	0.007
		B	0.000	0.000	1.053	0.000	0.008
		C	0.000	0.000	0.499	0.000	0.007
L30	89.667-84.667	A	0.000	0.000	13.747	0.000	0.301
		B	0.000	0.000	24.677	0.000	0.329
		C	0.000	0.000	13.604	0.000	0.315
L31	84.667-80.833	A	0.000	0.000	11.507	0.000	0.508
		B	0.000	0.000	19.888	0.000	0.530
		C	0.000	0.000	11.398	0.000	0.519

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
L32	80.833-80.583	A	0.000	0.000	0.500	0.000	0.032
		B	0.000	0.000	1.046	0.000	0.033
		C	0.000	0.000	0.493	0.000	0.032
L33	80.583-75.583	A	0.000	0.000	11.525	0.000	0.239
		B	0.000	0.000	22.455	0.000	0.266
		C	0.000	0.000	11.382	0.000	0.252
L34	75.583-70.583	A	0.000	0.000	14.172	0.000	0.291
		B	0.000	0.000	25.415	0.000	0.318
		C	0.000	0.000	14.030	0.000	0.304
L35	70.583-69.500	A	0.000	0.000	5.144	0.000	0.097
		B	0.000	0.000	8.323	0.000	0.103
		C	0.000	0.000	5.113	0.000	0.100
L36	69.500-69.250	A	0.000	0.000	1.187	0.000	0.022
		B	0.000	0.000	1.921	0.000	0.024
		C	0.000	0.000	1.180	0.000	0.023
L37	69.250-64.250	A	0.000	0.000	24.066	0.000	1.184
		B	0.000	0.000	39.066	0.000	1.228
		C	0.000	0.000	23.924	0.000	1.197
L38	64.250-60.583	A	0.000	0.000	18.761	0.000	0.978
		B	0.000	0.000	31.456	0.000	1.100
		C	0.000	0.000	18.656	0.000	0.987
L39	60.583-60.333	A	0.000	0.000	0.937	0.000	0.026
		B	0.000	0.000	1.671	0.000	0.032
		C	0.000	0.000	0.930	0.000	0.027
L40	60.333-55.333	A	0.000	0.000	21.712	0.000	0.483
		B	0.000	0.000	34.392	0.000	0.550
		C	0.000	0.000	21.570	0.000	0.497
L41	55.333-52.167	A	0.000	0.000	4.191	0.000	0.060
		B	0.000	0.000	11.111	0.000	0.080
		C	0.000	0.000	4.100	0.000	0.069
L42	52.167-51.917	A	0.000	0.000	0.312	0.000	0.004
		B	0.000	0.000	0.859	0.000	0.006
		C	0.000	0.000	0.305	0.000	0.005
L43	51.917-46.917	A	0.000	0.000	12.058	0.000	0.160
		B	0.000	0.000	23.572	0.000	0.215
		C	0.000	0.000	15.166	0.000	0.174
L44	46.917-41.917	A	0.000	0.000	22.913	0.000	0.396
		B	0.000	0.000	34.677	0.000	0.461
		C	0.000	0.000	27.771	0.000	0.410
L45	41.917-40.333	A	0.000	0.000	6.676	0.000	0.124
		B	0.000	0.000	10.361	0.000	0.143
		C	0.000	0.000	8.214	0.000	0.128
L46	40.333-40.083	A	0.000	0.000	0.833	0.000	0.018
		B	0.000	0.000	1.380	0.000	0.020
		C	0.000	0.000	1.076	0.000	0.019
L47	40.083-35.083	A	0.000	0.000	19.246	0.000	0.362
		B	0.000	0.000	30.176	0.000	0.393
		C	0.000	0.000	22.020	0.000	0.376
L48	35.083-30.083	A	0.000	0.000	10.711	0.000	0.210
		B	0.000	0.000	21.642	0.000	0.242
		C	0.000	0.000	10.569	0.000	0.224
L49	30.083-28.000	A	0.000	0.000	4.429	0.000	0.036
		B	0.000	0.000	8.982	0.000	0.049
		C	0.000	0.000	6.369	0.000	0.041
L50	28.000-27.750	A	0.000	0.000	0.541	0.000	0.004
		B	0.000	0.000	1.088	0.000	0.006
		C	0.000	0.000	0.784	0.000	0.005
L51	27.750-22.750	A	0.000	0.000	21.122	0.000	0.348
		B	0.000	0.000	32.052	0.000	0.381
		C	0.000	0.000	25.979	0.000	0.362
L52	22.750-20.083	A	0.000	0.000	10.888	0.000	0.193

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	16.718	0.000	0.211
		C	0.000	0.000	13.479	0.000	0.200
L53	20.083-19.833	A	0.000	0.000	0.833	0.000	0.018
		B	0.000	0.000	1.380	0.000	0.020
		C	0.000	0.000	1.076	0.000	0.019
L54	19.833-17.000	A	0.000	0.000	11.441	0.000	0.205
		B	0.000	0.000	17.634	0.000	0.224
		C	0.000	0.000	16.194	0.000	0.213
L55	17.000-16.750	A	0.000	0.000	0.833	0.000	0.018
		B	0.000	0.000	1.380	0.000	0.020
		C	0.000	0.000	1.076	0.000	0.019
L56	16.750-11.650	A	0.000	0.000	14.787	0.000	0.313
		B	0.000	0.000	25.935	0.000	0.346
		C	0.000	0.000	20.753	0.000	0.327
L57	11.650-11.417	A	0.000	0.000	0.272	0.000	0.004
		B	0.000	0.000	0.781	0.000	0.006
		C	0.000	0.000	0.653	0.000	0.005
L58	11.417-9.375	A	0.000	0.000	3.381	0.000	0.035
		B	0.000	0.000	7.845	0.000	0.048
		C	0.000	0.000	5.726	0.000	0.041
L59	9.375-9.125	A	0.000	0.000	0.458	0.000	0.004
		B	0.000	0.000	1.005	0.000	0.006
		C	0.000	0.000	0.701	0.000	0.005
L60	9.125-4.833	A	0.000	0.000	7.866	0.000	0.074
		B	0.000	0.000	17.248	0.000	0.102
		C	0.000	0.000	12.035	0.000	0.085
L61	4.833-4.583	A	0.000	0.000	0.458	0.000	0.004
		B	0.000	0.000	1.005	0.000	0.006
		C	0.000	0.000	0.701	0.000	0.005
L62	4.583-0.000	A	0.000	0.000	8.399	0.000	0.079
		B	0.000	0.000	18.418	0.000	0.108
		C	0.000	0.000	10.740	0.000	0.091

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	191.667-186.667	A	2.382	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.002
		C		0.000	0.000	5.451	0.000	0.132
L2	186.667-181.567	A	2.375	0.000	0.000	1.560	0.000	0.070
		B		0.000	0.000	0.000	0.000	0.002
		C		0.000	0.000	5.547	0.000	0.135
L3	181.567-176.567	A	2.369	0.000	0.000	3.199	0.000	0.144
		B		0.000	0.000	0.000	0.000	0.002
		C		0.000	0.000	5.425	0.000	0.132
L4	176.567-171.567	A	2.362	0.000	0.000	3.192	0.000	0.144
		B		0.000	0.000	0.000	0.000	0.002
		C		0.000	0.000	5.411	0.000	0.131
L5	171.567-166.567	A	2.355	0.000	0.000	3.185	0.000	0.144
		B		0.000	0.000	0.000	0.000	0.002
		C		0.000	0.000	5.397	0.000	0.131
L6	166.567-161.567	A	2.348	0.000	0.000	3.178	0.000	0.143
		B		0.000	0.000	0.000	0.000	0.002
		C		0.000	0.000	5.383	0.000	0.130
L7	161.567-156.567	A	2.341	0.000	0.000	3.171	0.000	0.143
		B		0.000	0.000	12.102	0.000	0.240

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	5.369	0.000	0.130
L8	156.567-151.567	A	2.333	0.000	0.000	3.163	0.000	0.143
		B		0.000	0.000	17.616	0.000	0.349
		C		0.000	0.000	5.354	0.000	0.129
L9	151.567-146.567	A	2.326	0.000	0.000	3.156	0.000	0.142
		B		0.000	0.000	17.607	0.000	0.348
		C		0.000	0.000	5.339	0.000	0.174
L10	146.567-141.567	A	2.318	0.000	0.000	3.148	0.000	0.142
		B		0.000	0.000	17.597	0.000	0.347
		C		0.000	0.000	5.323	0.000	0.184
L11	141.567-141.417	A	2.313	0.000	0.000	0.094	0.000	0.004
		B		0.000	0.000	0.528	0.000	0.010
		C		0.000	0.000	0.159	0.000	0.006
L12	141.417-136.417	A	2.309	0.000	0.000	3.139	0.000	0.142
		B		0.000	0.000	17.586	0.000	0.346
		C		0.000	0.000	5.306	0.000	0.184
L13	136.417-131.417	A	2.301	0.000	0.000	3.131	0.000	0.141
		B		0.000	0.000	17.576	0.000	0.345
		C		0.000	0.000	5.289	0.000	0.183
L14	131.417-126.417	A	2.292	0.000	0.000	3.699	0.000	0.166
		B		0.000	0.000	18.142	0.000	0.370
		C		0.000	0.000	5.848	0.000	0.207
L15	126.417-121.417	A	2.283	0.000	0.000	6.941	0.000	0.446
		B		0.000	0.000	21.382	0.000	0.649
		C		0.000	0.000	9.081	0.000	0.487
L16	121.417-121.167	A	2.278	0.000	0.000	0.334	0.000	0.015
		B		0.000	0.000	1.056	0.000	0.025
		C		0.000	0.000	0.441	0.000	0.017
L17	121.167-116.167	A	2.273	0.000	0.000	5.570	0.000	0.247
		B		0.000	0.000	20.009	0.000	0.449
		C		0.000	0.000	7.701	0.000	0.288
L18	116.167-111.167	A	2.263	0.000	0.000	4.219	0.000	0.159
		B		0.000	0.000	17.529	0.000	0.406
		C		0.000	0.000	5.214	0.000	0.181
L19	111.167-110.042	A	2.257	0.000	0.000	4.070	0.000	0.089
		B		0.000	0.000	3.942	0.000	0.092
		C		0.000	0.000	1.170	0.000	0.041
L20	110.042-109.792	A	2.256	0.000	0.000	0.904	0.000	0.020
		B		0.000	0.000	0.876	0.000	0.020
		C		0.000	0.000	0.260	0.000	0.009
L21	109.792-105.083	A	2.251	0.000	0.000	19.806	0.000	0.464
		B		0.000	0.000	19.279	0.000	0.474
		C		0.000	0.000	7.671	0.000	0.261
L22	105.083-104.833	A	2.245	0.000	0.000	1.292	0.000	0.032
		B		0.000	0.000	1.265	0.000	0.032
		C		0.000	0.000	0.648	0.000	0.021
L23	104.833-100.917	A	2.241	0.000	0.000	19.597	0.000	0.735
		B		0.000	0.000	21.040	0.000	0.776
		C		0.000	0.000	11.382	0.000	0.599
L24	100.917-100.667	A	2.236	0.000	0.000	0.528	0.000	0.023
		B		0.000	0.000	1.249	0.000	0.036
		C		0.000	0.000	0.632	0.000	0.025
L25	100.667-95.833	A	2.231	0.000	0.000	8.545	0.000	0.321
		B		0.000	0.000	22.493	0.000	0.577
		C		0.000	0.000	10.563	0.000	0.359
L26	95.833-95.583	A	2.225	0.000	0.000	0.445	0.000	0.011
		B		0.000	0.000	1.166	0.000	0.024
		C		0.000	0.000	0.549	0.000	0.013
L27	95.583-90.583	A	2.219	0.000	0.000	9.724	0.000	0.236
		B		0.000	0.000	24.149	0.000	0.500
		C		0.000	0.000	11.800	0.000	0.276

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
L28	90.583-89.917	A	2.212	0.000	0.000	1.846	0.000	0.041
		B		0.000	0.000	3.767	0.000	0.076
		C		0.000	0.000	2.122	0.000	0.046
L29	89.917-89.667	A	2.211	0.000	0.000	0.775	0.000	0.019
		B		0.000	0.000	1.496	0.000	0.033
		C		0.000	0.000	0.879	0.000	0.021
L30	89.667-84.667	A	2.204	0.000	0.000	18.868	0.000	0.627
		B		0.000	0.000	33.289	0.000	0.893
		C		0.000	0.000	20.930	0.000	0.667
L31	84.667-80.833	A	2.193	0.000	0.000	15.193	0.000	0.798
		B		0.000	0.000	26.249	0.000	1.001
		C		0.000	0.000	16.765	0.000	0.828
L32	80.833-80.583	A	2.187	0.000	0.000	0.608	0.000	0.045
		B		0.000	0.000	1.329	0.000	0.058
		C		0.000	0.000	0.710	0.000	0.047
L33	80.583-75.583	A	2.180	0.000	0.000	15.274	0.000	0.496
		B		0.000	0.000	29.689	0.000	0.759
		C		0.000	0.000	17.311	0.000	0.534
L34	75.583-70.583	A	2.166	0.000	0.000	17.377	0.000	0.574
		B		0.000	0.000	32.202	0.000	0.843
		C		0.000	0.000	19.400	0.000	0.612
L35	70.583-69.500	A	2.156	0.000	0.000	5.884	0.000	0.196
		B		0.000	0.000	10.077	0.000	0.270
		C		0.000	0.000	6.320	0.000	0.204
L36	69.500-69.250	A	2.154	0.000	0.000	1.358	0.000	0.045
		B		0.000	0.000	2.326	0.000	0.062
		C		0.000	0.000	1.458	0.000	0.047
L37	69.250-64.250	A	2.146	0.000	0.000	28.760	0.000	1.701
		B		0.000	0.000	49.016	0.000	2.080
		C		0.000	0.000	30.764	0.000	1.738
L38	64.250-60.583	A	2.132	0.000	0.000	22.225	0.000	1.398
		B		0.000	0.000	39.158	0.000	1.820
		C		0.000	0.000	23.683	0.000	1.426
L39	60.583-60.333	A	2.125	0.000	0.000	0.891	0.000	0.044
		B		0.000	0.000	1.806	0.000	0.065
		C		0.000	0.000	0.990	0.000	0.046
L40	60.333-55.333	A	2.115	0.000	0.000	23.542	0.000	0.883
		B		0.000	0.000	39.754	0.000	1.217
		C		0.000	0.000	25.515	0.000	0.920
L41	55.333-52.167	A	2.100	0.000	0.000	6.732	0.000	0.155
		B		0.000	0.000	15.846	0.000	0.320
		C		0.000	0.000	7.971	0.000	0.178
L42	52.167-51.917	A	2.093	0.000	0.000	0.515	0.000	0.011
		B		0.000	0.000	1.235	0.000	0.024
		C		0.000	0.000	0.613	0.000	0.013
L43	51.917-46.917	A	2.082	0.000	0.000	18.747	0.000	0.434
		B		0.000	0.000	35.142	0.000	0.755
		C		0.000	0.000	24.684	0.000	0.528
L44	46.917-41.917	A	2.060	0.000	0.000	32.663	0.000	0.866
		B		0.000	0.000	49.898	0.000	1.211
		C		0.000	0.000	40.720	0.000	0.989
L45	41.917-40.333	A	2.045	0.000	0.000	9.451	0.000	0.259
		B		0.000	0.000	14.765	0.000	0.363
		C		0.000	0.000	11.996	0.000	0.298
L46	40.333-40.083	A	2.040	0.000	0.000	1.120	0.000	0.034
		B		0.000	0.000	1.839	0.000	0.047
		C		0.000	0.000	1.521	0.000	0.040
L47	40.083-35.083	A	2.026	0.000	0.000	26.307	0.000	0.720
		B		0.000	0.000	40.684	0.000	0.973
		C		0.000	0.000	31.761	0.000	0.805
L48	35.083-30.083	A	1.997	0.000	0.000	15.779	0.000	0.419

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	30.149	0.000	0.670
		C		0.000	0.000	17.634	0.000	0.454
L49	30.083-28.000	A	1.975	0.000	0.000	6.487	0.000	0.121
		B		0.000	0.000	12.471	0.000	0.225
		C		0.000	0.000	9.689	0.000	0.168
L50	28.000-27.750	A	1.967	0.000	0.000	0.790	0.000	0.015
		B		0.000	0.000	1.508	0.000	0.027
		C		0.000	0.000	1.186	0.000	0.020
L51	27.750-22.750	A	1.947	0.000	0.000	28.344	0.000	0.718
		B		0.000	0.000	42.701	0.000	0.965
		C		0.000	0.000	36.231	0.000	0.832
L52	22.750-20.083	A	1.915	0.000	0.000	14.501	0.000	0.380
		B		0.000	0.000	22.154	0.000	0.510
		C		0.000	0.000	18.682	0.000	0.439
L53	20.083-19.833	A	1.902	0.000	0.000	1.100	0.000	0.032
		B		0.000	0.000	1.817	0.000	0.045
		C		0.000	0.000	1.491	0.000	0.038
L54	19.833-17.000	A	1.887	0.000	0.000	15.182	0.000	0.398
		B		0.000	0.000	23.308	0.000	0.534
		C		0.000	0.000	22.336	0.000	0.491
L55	17.000-16.750	A	1.870	0.000	0.000	1.135	0.000	0.032
		B		0.000	0.000	1.852	0.000	0.044
		C		0.000	0.000	1.563	0.000	0.038
L56	16.750-11.650	A	1.838	0.000	0.000	20.389	0.000	0.561
		B		0.000	0.000	35.005	0.000	0.802
		C		0.000	0.000	30.433	0.000	0.686
L57	11.650-11.417	A	1.800	0.000	0.000	0.438	0.000	0.009
		B		0.000	0.000	1.105	0.000	0.020
		C		0.000	0.000	1.041	0.000	0.017
L58	11.417-9.375	A	1.782	0.000	0.000	5.219	0.000	0.097
		B		0.000	0.000	11.065	0.000	0.191
		C		0.000	0.000	9.095	0.000	0.144
L59	9.375-9.125	A	1.761	0.000	0.000	0.698	0.000	0.012
		B		0.000	0.000	1.414	0.000	0.024
		C		0.000	0.000	1.109	0.000	0.017
L60	9.125-4.833	A	1.712	0.000	0.000	11.889	0.000	0.208
		B		0.000	0.000	24.163	0.000	0.401
		C		0.000	0.000	18.868	0.000	0.291
L61	4.833-4.583	A	1.646	0.000	0.000	0.685	0.000	0.012
		B		0.000	0.000	1.399	0.000	0.023
		C		0.000	0.000	1.085	0.000	0.016
L62	4.583-0.000	A	1.532	0.000	0.000	12.297	0.000	0.202
		B		0.000	0.000	25.361	0.000	0.392
		C		0.000	0.000	16.654	0.000	0.250

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	191.667-186.667	-0.001	0.198	-0.004	0.853
L2	186.667-181.567	-0.111	0.223	-0.254	0.956
L3	181.567-176.567	-0.223	0.247	-0.484	0.947
L4	176.567-171.567	-0.223	0.247	-0.483	0.946
L5	171.567-166.567	-0.223	0.247	-0.483	0.945
L6	166.567-161.567	-0.223	0.247	-0.482	0.944
L7	161.567-156.567	1.248	-0.384	0.864	0.106

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L8	156.567-151.567	1.580	-0.526	1.163	-0.080
L9	151.567-146.567	1.580	-0.526	1.164	-0.081
L10	146.567-141.567	1.580	-0.526	1.165	-0.082
L11	141.567-141.417	1.580	-0.526	1.166	-0.082
L12	141.417-136.417	1.840	-0.609	1.468	-0.079
L13	136.417-131.417	1.840	-0.609	1.470	-0.081
L14	131.417-126.417	1.766	-0.570	1.437	-0.077
L15	126.417-121.417	1.466	-0.415	1.286	-0.053
L16	121.417-121.167	1.463	-0.416	1.295	-0.056
L17	121.167-116.167	1.681	-0.501	1.472	-0.063
L18	116.167-111.167	1.760	-0.510	1.462	0.009
L19	111.167-110.042	0.142	0.659	0.116	0.916
L20	110.042-109.792	0.142	0.659	0.116	0.916
L21	109.792-105.083	0.111	0.587	0.097	0.829
L22	105.083-104.833	0.080	0.501	0.076	0.717
L23	104.833-100.917	0.205	0.364	0.201	0.587
L24	100.917-100.667	1.189	-0.315	1.190	-0.006
L25	100.667-95.833	1.379	-0.404	1.284	-0.032
L26	95.833-95.583	1.512	-0.498	1.289	-0.071
L27	95.583-90.583	1.450	-0.478	1.245	-0.069
L28	90.583-89.917	1.207	-0.397	1.061	-0.060
L29	89.917-89.667	1.019	-0.424	0.951	-0.096
L30	89.667-84.667	0.725	-0.467	0.758	-0.159
L31	84.667-80.833	0.684	-0.447	0.728	-0.163
L32	80.833-80.583	0.911	-0.597	1.013	-0.225
L33	80.583-75.583	1.102	-0.538	1.167	-0.189
L34	75.583-70.583	1.371	-0.481	1.339	-0.168
L35	70.583-69.500	0.603	-0.291	0.547	-0.043
L36	69.500-69.250	0.603	-0.291	0.547	-0.043
L37	69.250-64.250	0.618	-0.282	0.573	-0.032
L38	64.250-60.583	0.317	-0.186	0.365	0.044
L39	60.583-60.333	0.579	-0.345	0.677	-0.065
L40	60.333-55.333	0.852	-0.334	0.885	-0.062
L41	55.333-52.167	1.446	-0.345	1.337	0.052
L42	52.167-51.917	1.458	-0.341	1.344	0.058
L43	51.917-46.917	1.488	-0.668	1.450	-0.255
L44	46.917-41.917	1.330	-0.806	1.336	-0.471
L45	41.917-40.333	1.399	-0.883	1.396	-0.544
L46	40.333-40.083	1.561	-1.126	1.511	-0.835
L47	40.083-35.083	1.314	-0.860	1.262	-0.594
L48	35.083-30.083	1.370	-0.591	1.294	-0.261
L49	30.083-28.000	0.341	-0.977	0.384	-0.626
L50	28.000-27.750	0.305	-0.991	0.352	-0.643
L51	27.750-22.750	0.180	-0.564	0.224	-0.345
L52	22.750-20.083	0.181	-0.568	0.229	-0.350
L53	20.083-19.833	0.204	-0.639	0.260	-0.397
L54	19.833-17.000	0.400	-0.682	0.458	-0.478
L55	17.000-16.750	1.234	-0.348	1.231	-0.153
L56	16.750-11.650	1.234	-0.357	1.223	-0.148
L57	11.650-11.417	1.469	-0.528	1.393	-0.215
L58	11.417-9.375	1.597	-1.104	1.529	-0.821
L59	9.375-9.125	1.639	-1.292	1.575	-1.021
L60	9.125-4.833	1.639	-1.292	1.581	-1.029
L61	4.833-4.583	1.639	-1.292	1.588	-1.040
L62	4.583-0.000	1.961	-1.481	1.916	-1.237

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	214	Safety Line 3/8	186.67 - 191.67	1.0000	1.0000
L1	215	Climbing Rung	186.67 - 191.67	1.0000	1.0000
L2	186	HCS 6X12 4AWG(1-5/8)	181.57 - 184.00	1.0000	1.0000
L2	214	Safety Line 3/8	181.57 - 186.67	1.0000	1.0000
L2	215	Climbing Rung	181.57 - 186.67	1.0000	1.0000
L3	186	HCS 6X12 4AWG(1-5/8)	176.57 - 181.57	1.0000	1.0000
L3	214	Safety Line 3/8	176.57 - 181.57	1.0000	1.0000
L3	215	Climbing Rung	176.57 - 181.57	1.0000	1.0000
L4	186	HCS 6X12 4AWG(1-5/8)	171.57 - 176.57	1.0000	1.0000
L4	214	Safety Line 3/8	171.57 - 176.57	1.0000	1.0000
L4	215	Climbing Rung	171.57 - 176.57	1.0000	1.0000
L5	186	HCS 6X12 4AWG(1-5/8)	166.57 - 171.57	1.0000	1.0000
L5	214	Safety Line 3/8	166.57 - 171.57	1.0000	1.0000
L5	215	Climbing Rung	166.57 - 171.57	1.0000	1.0000
L6	186	HCS 6X12 4AWG(1-5/8)	161.57 - 166.57	1.0000	1.0000
L6	214	Safety Line 3/8	161.57 - 166.57	1.0000	1.0000
L6	215	Climbing Rung	161.57 - 166.57	1.0000	1.0000
L7	186	HCS 6X12 4AWG(1-5/8)	156.57 - 161.57	1.0000	1.0000
L7	188	AL7-50(1-5/8)	156.57 - 160.00	1.0000	1.0000
L7	214	Safety Line 3/8	156.57 - 161.57	1.0000	1.0000
L7	215	Climbing Rung	156.57 - 161.57	1.0000	1.0000
L8	186	HCS 6X12 4AWG(1-5/8)	151.57 - 156.57	1.0000	1.0000
L8	188	AL7-50(1-5/8)	151.57 - 156.57	1.0000	1.0000
L8	214	Safety Line 3/8	151.57 - 156.57	1.0000	1.0000
L8	215	Climbing Rung	151.57 - 156.57	1.0000	1.0000
L9	186	HCS 6X12 4AWG(1-5/8)	146.57 - 151.57	1.0000	1.0000
L9	188	AL7-50(1-5/8)	146.57 - 151.57	1.0000	1.0000
L9	214	Safety Line 3/8	146.57 - 151.57	1.0000	1.0000
L9	215	Climbing Rung	146.57 - 151.57	1.0000	1.0000
L10	186	HCS 6X12 4AWG(1-5/8)	141.57 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L10	188	AL7-50(1-5/8)	146.57 141.57 -	1.0000	1.0000
L10	214	Safety Line 3/8	146.57 141.57 -	1.0000	1.0000
L10	215	Climbing Rung	146.57 141.57 -	1.0000	1.0000
L11	186	HCS 6X12 4AWG(1-5/8)	146.57 141.42 -	1.0000	1.0000
L11	188	AL7-50(1-5/8)	141.57 141.42 -	1.0000	1.0000
L11	214	Safety Line 3/8	141.57 141.42 -	1.0000	1.0000
L11	215	Climbing Rung	141.57 141.42 -	1.0000	1.0000
L12	186	HCS 6X12 4AWG(1-5/8)	141.57 136.42 -	1.0000	1.0000
L12	188	AL7-50(1-5/8)	141.42 136.42 -	1.0000	1.0000
L12	214	Safety Line 3/8	141.42 136.42 -	1.0000	1.0000
L12	215	Climbing Rung	141.42 136.42 -	1.0000	1.0000
L13	186	HCS 6X12 4AWG(1-5/8)	141.42 131.42 -	1.0000	1.0000
L13	188	AL7-50(1-5/8)	136.42 131.42 -	1.0000	1.0000
L13	214	Safety Line 3/8	136.42 131.42 -	1.0000	1.0000
L13	215	Climbing Rung	136.42 131.42 -	1.0000	1.0000
L14	151	CCI 4.5" x 1" Plate	136.42 126.42 -	1.0000	1.0000
L14	152	CCI 4.5" x 1" Plate	127.17 126.42 -	1.0000	1.0000
L14	153	CCI 4.5" x 1" Plate	127.17 126.42 -	1.0000	1.0000
L14	186	HCS 6X12 4AWG(1-5/8)	127.17 126.42 -	1.0000	1.0000
L14	188	AL7-50(1-5/8)	131.42 126.42 -	1.0000	1.0000
L14	214	Safety Line 3/8	131.42 126.42 -	1.0000	1.0000
L14	215	Climbing Rung	131.42 126.42 -	1.0000	1.0000
L15	143	CCI 4.5" x 1" Plate	131.42 121.42 -	1.0000	1.0000
L15	144	CCI 4.5" x 1" Plate	121.67 121.42 -	1.0000	1.0000
L15	145	CCI 4.5" x 1" Plate	121.67 121.42 -	1.0000	1.0000
L15	147	CCI 4.5" x 4" Plate	121.67 121.67 -	1.0000	1.0000
L15	148	CCI 4.5" x 4" Plate	124.42 121.67 -	1.0000	1.0000
L15	149	CCI 4.5" x 4" Plate	124.42 121.67 -	1.0000	1.0000
L15	151	CCI 4.5" x 1" Plate	124.42 124.42 -	1.0000	1.0000
L15	152	CCI 4.5" x 1" Plate	126.42 124.42 -	1.0000	1.0000
L15	153	CCI 4.5" x 1" Plate	126.42 124.42 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	186	HCS 6X12 4AWG(1-5/8)	121.42 - 126.42	1.0000	1.0000
L15	188	AL7-50(1-5/8)	121.42 - 126.42	1.0000	1.0000
L15	214	Safety Line 3/8	121.42 - 126.42	1.0000	1.0000
L15	215	Climbing Rung	121.42 - 126.42	1.0000	1.0000
L16	143	CCI 4.5" x 1" Plate	121.17 - 121.42	1.0000	1.0000
L16	144	CCI 4.5" x 1" Plate	121.17 - 121.42	1.0000	1.0000
L16	145	CCI 4.5" x 1" Plate	121.17 - 121.42	1.0000	1.0000
L16	186	HCS 6X12 4AWG(1-5/8)	121.17 - 121.42	1.0000	1.0000
L16	188	AL7-50(1-5/8)	121.17 - 121.42	1.0000	1.0000
L16	214	Safety Line 3/8	121.17 - 121.42	1.0000	1.0000
L16	215	Climbing Rung	121.17 - 121.42	1.0000	1.0000
L17	139	CCI 4.5" x 1" Plate	117.92 - 120.67	1.0000	1.0000
L17	140	CCI 4.5" x 1" Plate	117.92 - 120.67	1.0000	1.0000
L17	141	CCI 4.5" x 1" Plate	117.92 - 120.67	1.0000	1.0000
L17	143	CCI 4.5" x 1" Plate	120.67 - 121.17	1.0000	1.0000
L17	144	CCI 4.5" x 1" Plate	120.67 - 121.17	1.0000	1.0000
L17	145	CCI 4.5" x 1" Plate	120.67 - 121.17	1.0000	1.0000
L17	186	HCS 6X12 4AWG(1-5/8)	116.17 - 121.17	1.0000	1.0000
L17	188	AL7-50(1-5/8)	116.17 - 121.17	1.0000	1.0000
L17	214	Safety Line 3/8	116.17 - 121.17	1.0000	1.0000
L17	215	Climbing Rung	116.17 - 121.17	1.0000	1.0000
L18	56	CCI 4.5" x 1" Plate	111.17 - 111.54	1.0000	1.0000
L18	57	CCI 4.5" x 1" Plate	111.17 - 111.54	1.0000	1.0000
L18	58	CCI 4.5" x 1" Plate	111.17 - 111.54	1.0000	1.0000
L18	186	HCS 6X12 4AWG(1-5/8)	111.17 - 116.17	1.0000	1.0000
L18	188	AL7-50(1-5/8)	111.17 - 116.17	1.0000	1.0000
L18	214	Safety Line 3/8	111.17 - 116.17	1.0000	1.0000
L18	215	Climbing Rung	111.17 - 116.17	1.0000	1.0000
L19	56	CCI 4.5" x 1" Plate	110.04 - 111.17	1.0000	1.0000
L19	57	CCI 4.5" x 1" Plate	110.04 - 111.17	1.0000	1.0000
L19	58	CCI 4.5" x 1" Plate	110.04 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L19	186	HCS 6X12 4AWG(1-5/8)	111.17 - 110.04	1.0000	1.0000
L19	188	AL7-50(1-5/8)	111.17 - 110.04	1.0000	1.0000
L19	214	Safety Line 3/8	111.17 - 110.04	1.0000	1.0000
L19	215	Climbing Rung	111.17 - 110.04	1.0000	1.0000
L20	56	CCI 4.5" x 1" Plate	111.17 - 109.79	1.0000	1.0000
L20	57	CCI 4.5" x 1" Plate	110.04 - 109.79	1.0000	1.0000
L20	58	CCI 4.5" x 1" Plate	110.04 - 109.79	1.0000	1.0000
L20	186	HCS 6X12 4AWG(1-5/8)	110.04 - 109.79	1.0000	1.0000
L20	188	AL7-50(1-5/8)	110.04 - 109.79	1.0000	1.0000
L20	214	Safety Line 3/8	110.04 - 109.79	1.0000	1.0000
L20	215	Climbing Rung	110.04 - 109.79	1.0000	1.0000
L21	18	CCI 4" x 0.75" Plate	110.04 - 105.08	1.0000	1.0000
L21	19	CCI 4" x 0.75" Plate	106.58 - 105.08	1.0000	1.0000
L21	20	CCI 4" x 0.75" Plate	106.58 - 105.08	1.0000	1.0000
L21	56	CCI 4.5" x 1" Plate	106.58 - 105.08	1.0000	1.0000
L21	57	CCI 4.5" x 1" Plate	109.79 - 105.08	1.0000	1.0000
L21	58	CCI 4.5" x 1" Plate	109.79 - 105.08	1.0000	1.0000
L21	135	CCI 4.5" x 1" Plate	109.79 - 105.08	1.0000	1.0000
L21	136	CCI 4.5" x 1" Plate	107.17 - 105.08	1.0000	1.0000
L21	137	CCI 4.5" x 1" Plate	107.17 - 105.08	1.0000	1.0000
L21	186	HCS 6X12 4AWG(1-5/8)	107.17 - 105.08	1.0000	1.0000
L21	188	AL7-50(1-5/8)	109.79 - 105.08	1.0000	1.0000
L21	214	Safety Line 3/8	109.79 - 105.08	1.0000	1.0000
L21	215	Climbing Rung	109.79 - 105.08	1.0000	1.0000
L22	18	CCI 4" x 0.75" Plate	109.79 - 104.83	1.0000	1.0000
L22	19	CCI 4" x 0.75" Plate	105.08 - 104.83	1.0000	1.0000
L22	20	CCI 4" x 0.75" Plate	105.08 - 104.83	1.0000	1.0000
L22	56	CCI 4.5" x 1" Plate	105.08 - 104.83	1.0000	1.0000
L22	57	CCI 4.5" x 1" Plate	105.08 - 104.83	1.0000	1.0000
L22	58	CCI 4.5" x 1" Plate	105.08 - 104.83	1.0000	1.0000
L22	135	CCI 4.5" x 1" Plate	105.08 - 104.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	136	CCI 4.5" x 1" Plate	105.08 104.83 -	1.0000	1.0000
L22	137	CCI 4.5" x 1" Plate	105.08 104.83 -	1.0000	1.0000
L22	186	HCS 6X12 4AWG(1-5/8)	105.08 104.83 -	1.0000	1.0000
L22	188	AL7-50(1-5/8)	105.08 104.83 -	1.0000	1.0000
L22	214	Safety Line 3/8	105.08 104.83 -	1.0000	1.0000
L22	215	Climbing Rung	105.08 104.83 -	1.0000	1.0000
L23	18	CCI 4" x 0.75" Plate	105.08 101.58 -	1.0000	1.0000
L23	19	CCI 4" x 0.75" Plate	104.83 101.58 -	1.0000	1.0000
L23	20	CCI 4" x 0.75" Plate	104.83 101.58 -	1.0000	1.0000
L23	56	CCI 4.5" x 1" Plate	104.83 101.54 -	1.0000	1.0000
L23	57	CCI 4.5" x 1" Plate	104.83 101.54 -	1.0000	1.0000
L23	58	CCI 4.5" x 1" Plate	104.83 101.54 -	1.0000	1.0000
L23	127	CCI 4.5" x 1" Plate	104.83 100.92 -	1.0000	1.0000
L23	128	CCI 4.5" x 1" Plate	101.42 100.92 -	1.0000	1.0000
L23	129	CCI 4.5" x 1" Plate	101.42 100.92 -	1.0000	1.0000
L23	131	CCI 4.5" x 4" Plate	101.42 101.42 -	1.0000	1.0000
L23	132	CCI 4.5" x 4" Plate	104.42 101.42 -	1.0000	1.0000
L23	133	CCI 4.5" x 4" Plate	104.42 101.42 -	1.0000	1.0000
L23	135	CCI 4.5" x 1" Plate	104.42 104.42 -	1.0000	1.0000
L23	136	CCI 4.5" x 1" Plate	104.83 104.42 -	1.0000	1.0000
L23	137	CCI 4.5" x 1" Plate	104.83 104.42 -	1.0000	1.0000
L23	173	CCI 4.5" x 1" Plate	104.83 100.92 -	1.0000	1.0000
L23	174	CCI 4.5" x 1" Plate	101.79 100.92 -	1.0000	1.0000
L23	175	CCI 4.5" x 1" Plate	101.79 100.92 -	1.0000	1.0000
L23	177	CCI 4.5" x 3" Plate	101.79 101.79 -	1.0000	1.0000
L23	178	CCI 4.5" x 3" Plate	103.29 101.79 -	1.0000	1.0000
L23	179	CCI 4.5" x 3" Plate	103.29 101.79 -	1.0000	1.0000
L23	186	HCS 6X12 4AWG(1-5/8)	103.29 100.92 -	1.0000	1.0000
L23	188	AL7-50(1-5/8)	104.83 100.92 -	1.0000	1.0000
L23	214	Safety Line 3/8	104.83 100.92 -	1.0000	1.0000
L23	215	Climbing Rung	104.83 100.92 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	127	CCI 4.5" x 1" Plate	104.83 - 100.67 - 100.92	1.0000	1.0000
L24	128	CCI 4.5" x 1" Plate	100.67 - 100.92	1.0000	1.0000
L24	129	CCI 4.5" x 1" Plate	100.67 - 100.92	1.0000	1.0000
L24	173	CCI 4.5" x 1" Plate	100.67 - 100.92	1.0000	1.0000
L24	174	CCI 4.5" x 1" Plate	100.67 - 100.92	1.0000	1.0000
L24	175	CCI 4.5" x 1" Plate	100.67 - 100.92	1.0000	1.0000
L24	186	HCS 6X12 4AWG(1-5/8)	100.67 - 100.92	1.0000	1.0000
L24	188	AL7-50(1-5/8)	100.67 - 100.92	1.0000	1.0000
L24	214	Safety Line 3/8	100.67 - 100.92	1.0000	1.0000
L24	215	Climbing Rung	100.67 - 100.92	1.0000	1.0000
L25	52	CCI 4.5" x 1" Plate	95.83 - 97.33	1.0000	1.0000
L25	53	CCI 4.5" x 1" Plate	95.83 - 97.33	1.0000	1.0000
L25	54	CCI 4.5" x 1" Plate	95.83 - 97.33	1.0000	1.0000
L25	123	CCI 4.5" x 1" Plate	97.92 - 100.42	1.0000	1.0000
L25	124	CCI 4.5" x 1" Plate	97.92 - 100.42	1.0000	1.0000
L25	125	CCI 4.5" x 1" Plate	97.92 - 100.42	1.0000	1.0000
L25	127	CCI 4.5" x 1" Plate	100.42 - 100.67	1.0000	1.0000
L25	128	CCI 4.5" x 1" Plate	100.42 - 100.67	1.0000	1.0000
L25	129	CCI 4.5" x 1" Plate	100.42 - 100.67	1.0000	1.0000
L25	173	CCI 4.5" x 1" Plate	98.42 - 100.67	1.0000	1.0000
L25	174	CCI 4.5" x 1" Plate	98.42 - 100.67	1.0000	1.0000
L25	175	CCI 4.5" x 1" Plate	98.42 - 100.67	1.0000	1.0000
L25	186	HCS 6X12 4AWG(1-5/8)	95.83 - 100.67	1.0000	1.0000
L25	188	AL7-50(1-5/8)	95.83 - 100.67	1.0000	1.0000
L25	214	Safety Line 3/8	95.83 - 100.67	1.0000	1.0000
L25	215	Climbing Rung	95.83 - 100.67	1.0000	1.0000
L26	52	CCI 4.5" x 1" Plate	95.58 - 95.83	1.0000	1.0000
L26	53	CCI 4.5" x 1" Plate	95.58 - 95.83	1.0000	1.0000
L26	54	CCI 4.5" x 1" Plate	95.58 - 95.83	1.0000	1.0000
L26	186	HCS 6X12 4AWG(1-5/8)	95.58 - 95.83	1.0000	1.0000
L26	188	AL7-50(1-5/8)	95.58 - 95.83	1.0000	1.0000
L26	214	Safety Line 3/8	95.58 - 95.83	1.0000	1.0000
L26	215	Climbing Rung	95.58 - 95.83	1.0000	1.0000
L27	52	CCI 4.5" x 1" Plate	90.58 - 95.58	1.0000	1.0000
L27	53	CCI 4.5" x 1" Plate	90.58 - 95.58	1.0000	1.0000
L27	54	CCI 4.5" x 1" Plate	90.58 - 95.58	1.0000	1.0000
L27	60	CCI 4.5" x 1" Plate	90.58 - 91.42	1.0000	1.0000
L27	61	CCI 4.5" x 1" Plate	90.58 - 91.42	1.0000	1.0000
L27	62	CCI 4.5" x 1" Plate	90.58 - 91.42	1.0000	1.0000
L27	186	HCS 6X12 4AWG(1-5/8)	90.58 - 95.58	1.0000	1.0000
L27	188	AL7-50(1-5/8)	90.58 - 95.58	1.0000	1.0000
L27	214	Safety Line 3/8	90.58 - 95.58	1.0000	1.0000
L27	215	Climbing Rung	90.58 - 95.58	1.0000	1.0000
L28	52	CCI 4.5" x 1" Plate	89.92 - 90.58	1.0000	1.0000
L28	53	CCI 4.5" x 1" Plate	89.92 - 90.58	1.0000	1.0000
L28	54	CCI 4.5" x 1" Plate	89.92 - 90.58	1.0000	1.0000
L28	60	CCI 4.5" x 1" Plate	89.92 - 90.58	1.0000	1.0000
L28	61	CCI 4.5" x 1" Plate	89.92 - 90.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L28	62	CCI 4.5" x 1" Plate	89.92 - 90.58	1.0000	1.0000
L28	186	HCS 6X12 4AWG(1-5/8)	89.92 - 90.58	1.0000	1.0000
L28	188	AL7-50(1-5/8)	89.92 - 90.58	1.0000	1.0000
L28	214	Safety Line 3/8	89.92 - 90.58	1.0000	1.0000
L28	215	Climbing Rung	89.92 - 90.58	1.0000	1.0000
L29	52	CCI 4.5" x 1" Plate	89.67 - 89.92	1.0000	1.0000
L29	53	CCI 4.5" x 1" Plate	89.67 - 89.92	1.0000	1.0000
L29	54	CCI 4.5" x 1" Plate	89.67 - 89.92	1.0000	1.0000
L29	60	CCI 4.5" x 1" Plate	89.67 - 89.92	1.0000	1.0000
L29	61	CCI 4.5" x 1" Plate	89.67 - 89.92	1.0000	1.0000
L29	62	CCI 4.5" x 1" Plate	89.67 - 89.92	1.0000	1.0000
L29	119	CCI 6.5" x 1.25" Plate	89.67 - 89.75	1.0000	1.0000
L29	120	CCI 6.5" x 1.25" Plate	89.67 - 89.75	1.0000	1.0000
L29	121	CCI 6.5" x 1.25" Plate	89.67 - 89.75	1.0000	1.0000
L29	186	HCS 6X12 4AWG(1-5/8)	89.67 - 89.92	1.0000	1.0000
L29	188	AL7-50(1-5/8)	89.67 - 89.92	1.0000	1.0000
L29	214	Safety Line 3/8	89.67 - 89.92	1.0000	1.0000
L29	215	Climbing Rung	89.67 - 89.92	1.0000	1.0000
L30	52	CCI 4.5" x 1" Plate	84.67 - 89.67	1.0000	1.0000
L30	53	CCI 4.5" x 1" Plate	84.67 - 89.67	1.0000	1.0000
L30	54	CCI 4.5" x 1" Plate	84.67 - 89.67	1.0000	1.0000
L30	60	CCI 4.5" x 1" Plate	84.67 - 89.67	1.0000	1.0000
L30	61	CCI 4.5" x 1" Plate	84.67 - 89.67	1.0000	1.0000
L30	62	CCI 4.5" x 1" Plate	84.67 - 89.67	1.0000	1.0000
L30	115	CCI 6.5" x 4.25" Plate	84.67 - 85.83	1.0000	1.0000
L30	116	CCI 6.5" x 4.25" Plate	84.67 - 85.83	1.0000	1.0000
L30	117	CCI 6.5" x 4.25" Plate	84.67 - 85.83	1.0000	1.0000
L30	119	CCI 6.5" x 1.25" Plate	85.83 - 89.67	1.0000	1.0000
L30	120	CCI 6.5" x 1.25" Plate	85.83 - 89.67	1.0000	1.0000
L30	121	CCI 6.5" x 1.25" Plate	85.83 - 89.67	1.0000	1.0000
L30	186	HCS 6X12 4AWG(1-5/8)	84.67 - 89.67	1.0000	1.0000
L30	188	AL7-50(1-5/8)	84.67 - 89.67	1.0000	1.0000
L30	214	Safety Line 3/8	84.67 - 89.67	1.0000	1.0000
L30	215	Climbing Rung	84.67 - 89.67	1.0000	1.0000
L31	52	CCI 4.5" x 1" Plate	81.33 - 84.67	1.0000	1.0000
L31	53	CCI 4.5" x 1" Plate	81.33 - 84.67	1.0000	1.0000
L31	54	CCI 4.5" x 1" Plate	81.33 - 84.67	1.0000	1.0000
L31	60	CCI 4.5" x 1" Plate	81.42 - 84.67	1.0000	1.0000
L31	61	CCI 4.5" x 1" Plate	81.42 - 84.67	1.0000	1.0000
L31	62	CCI 4.5" x 1" Plate	81.42 - 84.67	1.0000	1.0000
L31	115	CCI 6.5" x 4.25" Plate	80.83 - 84.67	1.0000	1.0000
L31	116	CCI 6.5" x 4.25" Plate	80.83 - 84.67	1.0000	1.0000
L31	117	CCI 6.5" x 4.25" Plate	80.83 - 84.67	1.0000	1.0000
L31	165	CCI 4.5" x 1" Plate	80.83 - 81.71	1.0000	1.0000
L31	166	CCI 4.5" x 1" Plate	80.83 - 81.71	1.0000	1.0000
L31	167	CCI 4.5" x 1" Plate	80.83 - 81.71	1.0000	1.0000
L31	169	CCI 4.5" x 3" Plate	81.71 - 83.20	1.0000	1.0000
L31	170	CCI 4.5" x 3" Plate	81.71 - 83.20	1.0000	1.0000
L31	171	CCI 4.5" x 3" Plate	81.71 - 83.20	1.0000	1.0000
L31	186	HCS 6X12 4AWG(1-5/8)	80.83 - 84.67	1.0000	1.0000
L31	188	AL7-50(1-5/8)	80.83 - 84.67	1.0000	1.0000
L31	214	Safety Line 3/8	80.83 - 84.67	1.0000	1.0000
L31	215	Climbing Rung	80.83 - 84.67	1.0000	1.0000
L32	115	CCI 6.5" x 4.25" Plate	80.58 - 80.83	1.0000	1.0000
L32	116	CCI 6.5" x 4.25" Plate	80.58 - 80.83	1.0000	1.0000
L32	117	CCI 6.5" x 4.25" Plate	80.58 - 80.83	1.0000	1.0000
L32	165	CCI 4.5" x 1" Plate	80.58 - 80.83	1.0000	1.0000
L32	166	CCI 4.5" x 1" Plate	80.58 - 80.83	1.0000	1.0000
L32	167	CCI 4.5" x 1" Plate	80.58 - 80.83	1.0000	1.0000
L32	186	HCS 6X12 4AWG(1-5/8)	80.58 - 80.83	1.0000	1.0000
L32	188	AL7-50(1-5/8)	80.58 - 80.83	1.0000	1.0000
L32	214	Safety Line 3/8	80.58 - 80.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	215	Climbing Rung	80.58 - 80.83	1.0000	1.0000
L33	14	CCI 6" x 1" Plate	75.58 - 80.17	1.0000	1.0000
L33	15	CCI 6" x 1" Plate	75.58 - 80.17	1.0000	1.0000
L33	16	CCI 6" x 1" Plate	75.58 - 80.17	1.0000	1.0000
L33	107	CCI 6.5" x 1.25" Plate	76.50 - 80.33	1.0000	1.0000
L33	108	CCI 6.5" x 1.25" Plate	76.50 - 80.33	1.0000	1.0000
L33	109	CCI 6.5" x 1.25" Plate	76.50 - 80.33	1.0000	1.0000
L33	111	CCI 6.5" x 1.25" Plate	80.33 - 80.50	1.0000	1.0000
L33	112	CCI 6.5" x 1.25" Plate	80.33 - 80.50	1.0000	1.0000
L33	113	CCI 6.5" x 1.25" Plate	80.33 - 80.50	1.0000	1.0000
L33	115	CCI 6.5" x 4.25" Plate	80.50 - 80.58	1.0000	1.0000
L33	116	CCI 6.5" x 4.25" Plate	80.50 - 80.58	1.0000	1.0000
L33	117	CCI 6.5" x 4.25" Plate	80.50 - 80.58	1.0000	1.0000
L33	165	CCI 4.5" x 1" Plate	78.33 - 80.58	1.0000	1.0000
L33	166	CCI 4.5" x 1" Plate	78.33 - 80.58	1.0000	1.0000
L33	167	CCI 4.5" x 1" Plate	78.33 - 80.58	1.0000	1.0000
L33	186	HCS 6X12 4AWG(1-5/8)	75.58 - 80.58	1.0000	1.0000
L33	188	AL7-50(1-5/8)	75.58 - 80.58	1.0000	1.0000
L33	214	Safety Line 3/8	75.58 - 80.58	1.0000	1.0000
L33	215	Climbing Rung	75.58 - 80.58	1.0000	1.0000
L34	14	CCI 6" x 1" Plate	70.58 - 75.58	1.0000	1.0000
L34	15	CCI 6" x 1" Plate	70.58 - 75.58	1.0000	1.0000
L34	16	CCI 6" x 1" Plate	70.58 - 75.58	1.0000	1.0000
L34	47	CCI 4.5" x 1" Plate	70.58 - 71.00	1.0000	1.0000
L34	48	CCI 4.5" x 1" Plate	70.58 - 71.00	1.0000	1.0000
L34	49	CCI 4.5" x 1" Plate	70.58 - 71.00	1.0000	1.0000
L34	50	CCI 4.5" x 1" Plate	70.58 - 71.00	1.0000	1.0000
L34	100	CCI 8.5" x 1.25" Plate	70.58 - 73.42	1.0000	1.0000
L34	101	CCI 8.5" x 1.25" Plate	70.58 - 73.42	1.0000	1.0000
L34	102	CCI 8.5" x 1.25" Plate	70.58 - 73.42	1.0000	1.0000
L34	103	CCI 8.5" x 1.25" Plate	70.58 - 73.42	1.0000	1.0000
L34	104	CCI 8.5" x 1.25" Plate	70.58 - 73.42	1.0000	1.0000
L34	105	CCI 8.5" x 1.25" Plate	70.58 - 73.42	1.0000	1.0000
L34	186	HCS 6X12 4AWG(1-5/8)	70.58 - 75.58	1.0000	1.0000
L34	188	AL7-50(1-5/8)	70.58 - 75.58	1.0000	1.0000
L34	214	Safety Line 3/8	70.58 - 75.58	1.0000	1.0000
L34	215	Climbing Rung	70.58 - 75.58	1.0000	1.0000
L35	14	CCI 6" x 1" Plate	69.50 - 70.58	1.0000	1.0000
L35	15	CCI 6" x 1" Plate	69.50 - 70.58	1.0000	1.0000
L35	16	CCI 6" x 1" Plate	69.50 - 70.58	1.0000	1.0000
L35	47	CCI 4.5" x 1" Plate	69.50 - 70.58	1.0000	1.0000
L35	48	CCI 4.5" x 1" Plate	69.50 - 70.58	1.0000	1.0000
L35	49	CCI 4.5" x 1" Plate	69.50 - 70.58	1.0000	1.0000
L35	50	CCI 4.5" x 1" Plate	69.50 - 70.58	1.0000	1.0000
L35	100	CCI 8.5" x 1.25" Plate	69.50 - 70.58	1.0000	1.0000
L35	101	CCI 8.5" x 1.25" Plate	69.50 - 70.58	1.0000	1.0000
L35	102	CCI 8.5" x 1.25" Plate	69.50 - 70.58	1.0000	1.0000
L35	103	CCI 8.5" x 1.25" Plate	69.50 - 70.58	1.0000	1.0000
L35	104	CCI 8.5" x 1.25" Plate	69.50 - 70.58	1.0000	1.0000
L35	105	CCI 8.5" x 1.25" Plate	69.50 - 70.58	1.0000	1.0000
L35	186	HCS 6X12 4AWG(1-5/8)	69.50 - 70.58	1.0000	1.0000
L35	188	AL7-50(1-5/8)	69.50 - 70.58	1.0000	1.0000
L35	214	Safety Line 3/8	69.50 - 70.58	1.0000	1.0000
L35	215	Climbing Rung	69.50 - 70.58	1.0000	1.0000
L36	14	CCI 6" x 1" Plate	69.25 - 69.50	1.0000	1.0000
L36	15	CCI 6" x 1" Plate	69.25 - 69.50	1.0000	1.0000
L36	16	CCI 6" x 1" Plate	69.25 - 69.50	1.0000	1.0000
L36	47	CCI 4.5" x 1" Plate	69.25 - 69.50	1.0000	1.0000
L36	48	CCI 4.5" x 1" Plate	69.25 - 69.50	1.0000	1.0000
L36	49	CCI 4.5" x 1" Plate	69.25 - 69.50	1.0000	1.0000
L36	50	CCI 4.5" x 1" Plate	69.25 - 69.50	1.0000	1.0000
L36	100	CCI 8.5" x 1.25" Plate	69.25 - 69.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L36	101	CCI 8.5" x 1.25" Plate	69.25 - 69.50	1.0000	1.0000
L36	102	CCI 8.5" x 1.25" Plate	69.25 - 69.50	1.0000	1.0000
L36	103	CCI 8.5" x 1.25" Plate	69.25 - 69.50	1.0000	1.0000
L36	104	CCI 8.5" x 1.25" Plate	69.25 - 69.50	1.0000	1.0000
L36	105	CCI 8.5" x 1.25" Plate	69.25 - 69.50	1.0000	1.0000
L36	186	HCS 6X12 4AWG(1-5/8)	69.25 - 69.50	1.0000	1.0000
L36	188	AL7-50(1-5/8)	69.25 - 69.50	1.0000	1.0000
L36	214	Safety Line 3/8	69.25 - 69.50	1.0000	1.0000
L36	215	Climbing Rung	69.25 - 69.50	1.0000	1.0000
L37	14	CCI 6" x 1" Plate	64.25 - 69.25	1.0000	1.0000
L37	15	CCI 6" x 1" Plate	64.25 - 69.25	1.0000	1.0000
L37	16	CCI 6" x 1" Plate	64.25 - 69.25	1.0000	1.0000
L37	27	1" x 2" Plate	64.25 - 66.17	1.0000	1.0000
L37	28	1" x 2" Plate	64.25 - 66.17	1.0000	1.0000
L37	29	1" x 2" Plate	64.25 - 66.17	1.0000	1.0000
L37	30	1" x 2" Plate	64.25 - 66.17	1.0000	1.0000
L37	47	CCI 4.5" x 1" Plate	64.25 - 69.25	1.0000	1.0000
L37	48	CCI 4.5" x 1" Plate	64.25 - 69.25	1.0000	1.0000
L37	49	CCI 4.5" x 1" Plate	64.25 - 69.25	1.0000	1.0000
L37	50	CCI 4.5" x 1" Plate	64.25 - 69.25	1.0000	1.0000
L37	93	CCI 8.5" x 4.25" Plate	64.25 - 68.42	1.0000	1.0000
L37	94	CCI 8.5" x 4.25" Plate	64.25 - 68.42	1.0000	1.0000
L37	95	CCI 8.5" x 4.25" Plate	64.25 - 68.42	1.0000	1.0000
L37	96	CCI 8.5" x 4.25" Plate	64.25 - 68.42	1.0000	1.0000
L37	97	CCI 8.5" x 4.25" Plate	64.25 - 68.42	1.0000	1.0000
L37	98	CCI 8.5" x 4.25" Plate	64.25 - 68.42	1.0000	1.0000
L37	100	CCI 8.5" x 1.25" Plate	68.42 - 69.25	1.0000	1.0000
L37	101	CCI 8.5" x 1.25" Plate	68.42 - 69.25	1.0000	1.0000
L37	102	CCI 8.5" x 1.25" Plate	68.42 - 69.25	1.0000	1.0000
L37	103	CCI 8.5" x 1.25" Plate	68.42 - 69.25	1.0000	1.0000
L37	104	CCI 8.5" x 1.25" Plate	68.42 - 69.25	1.0000	1.0000
L37	105	CCI 8.5" x 1.25" Plate	68.42 - 69.25	1.0000	1.0000
L37	186	HCS 6X12 4AWG(1-5/8)	64.25 - 69.25	1.0000	1.0000
L37	188	AL7-50(1-5/8)	64.25 - 69.25	1.0000	1.0000
L37	214	Safety Line 3/8	64.25 - 69.25	1.0000	1.0000
L37	215	Climbing Rung	64.25 - 69.25	1.0000	1.0000
L38	14	CCI 6" x 1" Plate	61.17 - 64.25	1.0000	1.0000
L38	15	CCI 6" x 1" Plate	61.17 - 64.25	1.0000	1.0000
L38	16	CCI 6" x 1" Plate	61.17 - 64.25	1.0000	1.0000
L38	27	1" x 2" Plate	61.08 - 64.25	1.0000	1.0000
L38	28	1" x 2" Plate	61.08 - 64.25	1.0000	1.0000
L38	29	1" x 2" Plate	61.08 - 64.25	1.0000	1.0000
L38	30	1" x 2" Plate	61.08 - 64.25	1.0000	1.0000
L38	47	CCI 4.5" x 1" Plate	61.00 - 64.25	1.0000	1.0000
L38	48	CCI 4.5" x 1" Plate	61.00 - 64.25	1.0000	1.0000
L38	49	CCI 4.5" x 1" Plate	61.00 - 64.25	1.0000	1.0000
L38	50	CCI 4.5" x 1" Plate	61.00 - 64.25	1.0000	1.0000
L38	86	CCI 8.5" x 1.25" Plate	60.58 - 61.08	1.0000	1.0000
L38	87	CCI 8.5" x 1.25" Plate	60.58 - 61.08	1.0000	1.0000
L38	88	CCI 8.5" x 1.25" Plate	60.58 - 61.08	1.0000	1.0000
L38	89	CCI 8.5" x 1.25" Plate	60.58 - 61.08	1.0000	1.0000
L38	90	CCI 8.5" x 1.25" Plate	60.58 - 61.08	1.0000	1.0000
L38	91	CCI 8.5" x 1.25" Plate	60.58 - 61.08	1.0000	1.0000
L38	93	CCI 8.5" x 4.25" Plate	61.08 - 64.25	1.0000	1.0000
L38	94	CCI 8.5" x 4.25" Plate	61.08 - 64.25	1.0000	1.0000
L38	95	CCI 8.5" x 4.25" Plate	61.08 - 64.25	1.0000	1.0000
L38	96	CCI 8.5" x 4.25" Plate	61.08 - 64.25	1.0000	1.0000
L38	97	CCI 8.5" x 4.25" Plate	61.08 - 64.25	1.0000	1.0000
L38	98	CCI 8.5" x 4.25" Plate	61.08 - 64.25	1.0000	1.0000
L38	155	CCI 4.5" x 1" Plate	60.58 - 61.46	1.0000	1.0000
L38	156	CCI 4.5" x 1" Plate	60.58 - 61.46	1.0000	1.0000
L38	157	CCI 4.5" x 1" Plate	60.58 - 61.46	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L38	158	CCI 4.5" x 1" Plate	60.58 - 61.46	1.0000	1.0000
L38	160	CCI 4.5" x 3" Plate	61.55 - 62.96	1.0000	1.0000
L38	161	CCI 4.5" x 3" Plate	61.55 - 62.96	1.0000	1.0000
L38	162	CCI 4.5" x 3" Plate	61.55 - 62.96	1.0000	1.0000
L38	163	CCI 4.5" x 3" Plate	61.55 - 62.96	1.0000	1.0000
L38	186	HCS 6X12 4AWG(1-5/8)	60.58 - 64.25	1.0000	1.0000
L38	188	AL7-50(1-5/8)	60.58 - 64.25	1.0000	1.0000
L38	214	Safety Line 3/8	60.58 - 64.25	1.0000	1.0000
L38	215	Climbing Rung	60.58 - 64.25	1.0000	1.0000
L39	86	CCI 8.5" x 1.25" Plate	60.33 - 60.58	1.0000	1.0000
L39	87	CCI 8.5" x 1.25" Plate	60.33 - 60.58	1.0000	1.0000
L39	88	CCI 8.5" x 1.25" Plate	60.33 - 60.58	1.0000	1.0000
L39	89	CCI 8.5" x 1.25" Plate	60.33 - 60.58	1.0000	1.0000
L39	90	CCI 8.5" x 1.25" Plate	60.33 - 60.58	1.0000	1.0000
L39	91	CCI 8.5" x 1.25" Plate	60.33 - 60.58	1.0000	1.0000
L39	155	CCI 4.5" x 1" Plate	60.33 - 60.58	1.0000	1.0000
L39	156	CCI 4.5" x 1" Plate	60.33 - 60.58	1.0000	1.0000
L39	157	CCI 4.5" x 1" Plate	60.33 - 60.58	1.0000	1.0000
L39	158	CCI 4.5" x 1" Plate	60.33 - 60.58	1.0000	1.0000
L39	186	HCS 6X12 4AWG(1-5/8)	60.33 - 60.58	1.0000	1.0000
L39	188	AL7-50(1-5/8)	60.33 - 60.58	1.0000	1.0000
L39	214	Safety Line 3/8	60.33 - 60.58	1.0000	1.0000
L39	215	Climbing Rung	60.33 - 60.58	1.0000	1.0000
L40	10	CCI 6.5" x 1.25" Plate	55.33 - 59.92	1.0000	1.0000
L40	11	CCI 6.5" x 1.25" Plate	55.33 - 59.92	1.0000	1.0000
L40	12	CCI 6.5" x 1.25" Plate	55.33 - 59.92	1.0000	1.0000
L40	79	CCI 8.5" x 1.25" Plate	55.33 - 60.08	1.0000	1.0000
L40	80	CCI 8.5" x 1.25" Plate	55.33 - 60.08	1.0000	1.0000
L40	81	CCI 8.5" x 1.25" Plate	55.33 - 60.08	1.0000	1.0000
L40	82	CCI 8.5" x 1.25" Plate	55.33 - 60.08	1.0000	1.0000
L40	83	CCI 8.5" x 1.25" Plate	55.33 - 60.08	1.0000	1.0000
L40	84	CCI 8.5" x 1.25" Plate	55.33 - 60.08	1.0000	1.0000
L40	86	CCI 8.5" x 1.25" Plate	60.08 - 60.33	1.0000	1.0000
L40	87	CCI 8.5" x 1.25" Plate	60.08 - 60.33	1.0000	1.0000
L40	88	CCI 8.5" x 1.25" Plate	60.08 - 60.33	1.0000	1.0000
L40	89	CCI 8.5" x 1.25" Plate	60.08 - 60.33	1.0000	1.0000
L40	90	CCI 8.5" x 1.25" Plate	60.08 - 60.33	1.0000	1.0000
L40	91	CCI 8.5" x 1.25" Plate	60.08 - 60.33	1.0000	1.0000
L40	155	CCI 4.5" x 1" Plate	58.00 - 60.33	1.0000	1.0000
L40	156	CCI 4.5" x 1" Plate	58.00 - 60.33	1.0000	1.0000
L40	157	CCI 4.5" x 1" Plate	58.00 - 60.33	1.0000	1.0000
L40	158	CCI 4.5" x 1" Plate	58.00 - 60.33	1.0000	1.0000
L40	186	HCS 6X12 4AWG(1-5/8)	55.33 - 60.33	1.0000	1.0000
L40	188	AL7-50(1-5/8)	55.33 - 60.33	1.0000	1.0000
L40	214	Safety Line 3/8	55.33 - 60.33	1.0000	1.0000
L40	215	Climbing Rung	55.33 - 60.33	1.0000	1.0000
L41	10	CCI 6.5" x 1.25" Plate	52.17 - 55.33	1.0000	1.0000
L41	11	CCI 6.5" x 1.25" Plate	52.17 - 55.33	1.0000	1.0000
L41	12	CCI 6.5" x 1.25" Plate	52.17 - 55.33	1.0000	1.0000
L41	79	CCI 8.5" x 1.25" Plate	55.25 - 55.33	1.0000	1.0000
L41	80	CCI 8.5" x 1.25" Plate	55.25 - 55.33	1.0000	1.0000
L41	81	CCI 8.5" x 1.25" Plate	55.25 - 55.33	1.0000	1.0000
L41	82	CCI 8.5" x 1.25" Plate	55.25 - 55.33	1.0000	1.0000
L41	83	CCI 8.5" x 1.25" Plate	55.25 - 55.33	1.0000	1.0000
L41	84	CCI 8.5" x 1.25" Plate	55.25 - 55.33	1.0000	1.0000
L41	186	HCS 6X12 4AWG(1-5/8)	52.17 - 55.33	1.0000	1.0000
L41	188	AL7-50(1-5/8)	52.17 - 55.33	1.0000	1.0000
L41	214	Safety Line 3/8	52.17 - 55.33	1.0000	1.0000
L41	215	Climbing Rung	52.17 - 55.33	1.0000	1.0000
L42	10	CCI 6.5" x 1.25" Plate	51.92 - 52.17	1.0000	1.0000
L42	11	CCI 6.5" x 1.25" Plate	51.92 - 52.17	1.0000	1.0000
L42	12	CCI 6.5" x 1.25" Plate	51.92 - 52.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L42	186	HCS 6X12 4AWG(1-5/8)	51.92 - 52.17	1.0000	1.0000
L42	188	AL7-50(1-5/8)	51.92 - 52.17	1.0000	1.0000
L42	214	Safety Line 3/8	51.92 - 52.17	1.0000	1.0000
L42	215	Climbing Rung	51.92 - 52.17	1.0000	1.0000
L43	10	CCI 6.5" x 1.25" Plate	46.92 - 51.92	1.0000	1.0000
L43	11	CCI 6.5" x 1.25" Plate	46.92 - 51.92	1.0000	1.0000
L43	12	CCI 6.5" x 1.25" Plate	46.92 - 51.92	1.0000	1.0000
L43	22	1" x 2" Plate	46.92 - 50.42	1.0000	1.0000
L43	23	1" x 2" Plate	46.92 - 50.42	1.0000	1.0000
L43	24	1" x 2" Plate	46.92 - 50.42	1.0000	1.0000
L43	25	1" x 2" Plate	46.92 - 50.42	1.0000	1.0000
L43	42	CCI 6" x 1" Plate	46.92 - 50.17	1.0000	1.0000
L43	43	CCI 6" x 1" Plate	46.92 - 50.17	1.0000	1.0000
L43	44	CCI 6" x 1" Plate	46.92 - 50.17	1.0000	1.0000
L43	45	CCI 6" x 1" Plate	46.92 - 50.17	1.0000	1.0000
L43	72	CCI 6.5" x 1.25" Plate	46.92 - 47.83	1.0000	1.0000
L43	73	CCI 6.5" x 1.25" Plate	46.92 - 47.83	1.0000	1.0000
L43	74	CCI 6.5" x 1.25" Plate	46.92 - 47.83	1.0000	1.0000
L43	75	CCI 6.5" x 1.25" Plate	46.92 - 47.83	1.0000	1.0000
L43	76	CCI 6.5" x 1.25" Plate	46.92 - 47.83	1.0000	1.0000
L43	77	CCI 6.5" x 1.25" Plate	46.92 - 47.83	1.0000	1.0000
L43	186	HCS 6X12 4AWG(1-5/8)	46.92 - 51.92	1.0000	1.0000
L43	188	AL7-50(1-5/8)	46.92 - 51.92	1.0000	1.0000
L43	214	Safety Line 3/8	46.92 - 51.92	1.0000	1.0000
L43	215	Climbing Rung	46.92 - 51.92	1.0000	1.0000
L44	10	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	11	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	12	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	22	1" x 2" Plate	41.92 - 46.92	1.0000	1.0000
L44	23	1" x 2" Plate	41.92 - 46.92	1.0000	1.0000
L44	24	1" x 2" Plate	41.92 - 46.92	1.0000	1.0000
L44	25	1" x 2" Plate	41.92 - 46.92	1.0000	1.0000
L44	42	CCI 6" x 1" Plate	41.92 - 46.92	1.0000	1.0000
L44	43	CCI 6" x 1" Plate	41.92 - 46.92	1.0000	1.0000
L44	44	CCI 6" x 1" Plate	41.92 - 46.92	1.0000	1.0000
L44	45	CCI 6" x 1" Plate	41.92 - 46.92	1.0000	1.0000
L44	72	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	73	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	74	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	75	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	76	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	77	CCI 6.5" x 1.25" Plate	41.92 - 46.92	1.0000	1.0000
L44	186	HCS 6X12 4AWG(1-5/8)	41.92 - 46.92	1.0000	1.0000
L44	188	AL7-50(1-5/8)	41.92 - 46.92	1.0000	1.0000
L44	214	Safety Line 3/8	41.92 - 46.92	1.0000	1.0000
L44	215	Climbing Rung	41.92 - 46.92	1.0000	1.0000
L45	10	CCI 6.5" x 1.25" Plate	40.83 - 41.92	1.0000	1.0000
L45	11	CCI 6.5" x 1.25" Plate	40.83 - 41.92	1.0000	1.0000
L45	12	CCI 6.5" x 1.25" Plate	40.83 - 41.92	1.0000	1.0000
L45	22	1" x 2" Plate	40.58 - 41.92	1.0000	1.0000
L45	23	1" x 2" Plate	40.58 - 41.92	1.0000	1.0000
L45	24	1" x 2" Plate	40.58 - 41.92	1.0000	1.0000
L45	25	1" x 2" Plate	40.58 - 41.92	1.0000	1.0000
L45	42	CCI 6" x 1" Plate	40.33 - 41.92	1.0000	1.0000
L45	43	CCI 6" x 1" Plate	40.33 - 41.92	1.0000	1.0000
L45	44	CCI 6" x 1" Plate	40.33 - 41.92	1.0000	1.0000
L45	45	CCI 6" x 1" Plate	40.33 - 41.92	1.0000	1.0000
L45	72	CCI 6.5" x 1.25" Plate	40.33 - 41.92	1.0000	1.0000
L45	73	CCI 6.5" x 1.25" Plate	40.33 - 41.92	1.0000	1.0000
L45	74	CCI 6.5" x 1.25" Plate	40.33 - 41.92	1.0000	1.0000
L45	75	CCI 6.5" x 1.25" Plate	40.33 - 41.92	1.0000	1.0000
L45	76	CCI 6.5" x 1.25" Plate	40.33 - 41.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L45	77	CCI 6.5" x 1.25" Plate	40.33 - 41.92	1.0000	1.0000
L45	186	HCS 6X12 4AWG(1-5/8)	40.33 - 41.92	1.0000	1.0000
L45	188	AL7-50(1-5/8)	40.33 - 41.92	1.0000	1.0000
L45	214	Safety Line 3/8	40.33 - 41.92	1.0000	1.0000
L45	215	Climbing Rung	40.33 - 41.92	1.0000	1.0000
L46	42	CCI 6" x 1" Plate	40.08 - 40.33	1.0000	1.0000
L46	43	CCI 6" x 1" Plate	40.08 - 40.33	1.0000	1.0000
L46	44	CCI 6" x 1" Plate	40.08 - 40.33	1.0000	1.0000
L46	45	CCI 6" x 1" Plate	40.08 - 40.33	1.0000	1.0000
L46	72	CCI 6.5" x 1.25" Plate	40.08 - 40.33	1.0000	1.0000
L46	73	CCI 6.5" x 1.25" Plate	40.08 - 40.33	1.0000	1.0000
L46	74	CCI 6.5" x 1.25" Plate	40.08 - 40.33	1.0000	1.0000
L46	75	CCI 6.5" x 1.25" Plate	40.08 - 40.33	1.0000	1.0000
L46	76	CCI 6.5" x 1.25" Plate	40.08 - 40.33	1.0000	1.0000
L46	77	CCI 6.5" x 1.25" Plate	40.08 - 40.33	1.0000	1.0000
L46	186	HCS 6X12 4AWG(1-5/8)	40.08 - 40.33	1.0000	1.0000
L46	188	AL7-50(1-5/8)	40.08 - 40.33	1.0000	1.0000
L46	214	Safety Line 3/8	40.08 - 40.33	1.0000	1.0000
L46	215	Climbing Rung	40.08 - 40.33	1.0000	1.0000
L47	6	CCI 6" x 1" Plate	35.08 - 39.75	1.0000	1.0000
L47	7	CCI 6" x 1" Plate	35.08 - 39.75	1.0000	1.0000
L47	8	CCI 6" x 1" Plate	35.08 - 39.75	1.0000	1.0000
L47	42	CCI 6" x 1" Plate	37.17 - 40.08	1.0000	1.0000
L47	43	CCI 6" x 1" Plate	37.17 - 40.08	1.0000	1.0000
L47	44	CCI 6" x 1" Plate	37.17 - 40.08	1.0000	1.0000
L47	45	CCI 6" x 1" Plate	37.17 - 40.08	1.0000	1.0000
L47	72	CCI 6.5" x 1.25" Plate	35.08 - 40.08	1.0000	1.0000
L47	73	CCI 6.5" x 1.25" Plate	35.08 - 40.08	1.0000	1.0000
L47	74	CCI 6.5" x 1.25" Plate	35.08 - 40.08	1.0000	1.0000
L47	75	CCI 6.5" x 1.25" Plate	35.08 - 40.08	1.0000	1.0000
L47	76	CCI 6.5" x 1.25" Plate	35.08 - 40.08	1.0000	1.0000
L47	77	CCI 6.5" x 1.25" Plate	35.08 - 40.08	1.0000	1.0000
L47	186	HCS 6X12 4AWG(1-5/8)	35.08 - 40.08	1.0000	1.0000
L47	188	AL7-50(1-5/8)	35.08 - 40.08	1.0000	1.0000
L47	214	Safety Line 3/8	35.08 - 40.08	1.0000	1.0000
L47	215	Climbing Rung	35.08 - 40.08	1.0000	1.0000
L48	6	CCI 6" x 1" Plate	30.08 - 35.08	1.0000	1.0000
L48	7	CCI 6" x 1" Plate	30.08 - 35.08	1.0000	1.0000
L48	8	CCI 6" x 1" Plate	30.08 - 35.08	1.0000	1.0000
L48	72	CCI 6.5" x 1.25" Plate	32.83 - 35.08	1.0000	1.0000
L48	73	CCI 6.5" x 1.25" Plate	32.83 - 35.08	1.0000	1.0000
L48	74	CCI 6.5" x 1.25" Plate	32.83 - 35.08	1.0000	1.0000
L48	75	CCI 6.5" x 1.25" Plate	32.83 - 35.08	1.0000	1.0000
L48	76	CCI 6.5" x 1.25" Plate	32.83 - 35.08	1.0000	1.0000
L48	77	CCI 6.5" x 1.25" Plate	32.83 - 35.08	1.0000	1.0000
L48	186	HCS 6X12 4AWG(1-5/8)	30.08 - 35.08	1.0000	1.0000
L48	188	AL7-50(1-5/8)	30.08 - 35.08	1.0000	1.0000
L48	214	Safety Line 3/8	30.08 - 35.08	1.0000	1.0000
L48	215	Climbing Rung	30.08 - 35.08	1.0000	1.0000
L49	6	CCI 6" x 1" Plate	28.00 - 30.08	1.0000	1.0000
L49	7	CCI 6" x 1" Plate	28.00 - 30.08	1.0000	1.0000
L49	8	CCI 6" x 1" Plate	28.00 - 30.08	1.0000	1.0000
L49	37	CCI 6" x 1" Plate	28.00 - 30.00	1.0000	1.0000
L49	38	CCI 6" x 1" Plate	28.00 - 30.00	1.0000	1.0000
L49	39	CCI 6" x 1" Plate	28.00 - 30.00	1.0000	1.0000
L49	40	CCI 6" x 1" Plate	28.00 - 30.00	1.0000	1.0000
L49	186	HCS 6X12 4AWG(1-5/8)	28.00 - 30.08	1.0000	1.0000
L49	188	AL7-50(1-5/8)	28.00 - 30.08	1.0000	1.0000
L49	214	Safety Line 3/8	28.00 - 30.08	1.0000	1.0000
L49	215	Climbing Rung	28.00 - 30.08	1.0000	1.0000
L50	6	CCI 6" x 1" Plate	27.75 - 28.00	1.0000	1.0000
L50	7	CCI 6" x 1" Plate	27.75 - 28.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L50	8	CCI 6" x 1" Plate	27.75 - 28.00	1.0000	1.0000
L50	37	CCI 6" x 1" Plate	27.75 - 28.00	1.0000	1.0000
L50	38	CCI 6" x 1" Plate	27.75 - 28.00	1.0000	1.0000
L50	39	CCI 6" x 1" Plate	27.75 - 28.00	1.0000	1.0000
L50	40	CCI 6" x 1" Plate	27.75 - 28.00	1.0000	1.0000
L50	186	HCS 6X12 4AWG(1-5/8)	27.75 - 28.00	1.0000	1.0000
L50	188	AL7-50(1-5/8)	27.75 - 28.00	1.0000	1.0000
L50	214	Safety Line 3/8	27.75 - 28.00	1.0000	1.0000
L50	215	Climbing Rung	27.75 - 28.00	1.0000	1.0000
L51	6	CCI 6" x 1" Plate	22.75 - 27.75	1.0000	1.0000
L51	7	CCI 6" x 1" Plate	22.75 - 27.75	1.0000	1.0000
L51	8	CCI 6" x 1" Plate	22.75 - 27.75	1.0000	1.0000
L51	37	CCI 6" x 1" Plate	22.75 - 27.75	1.0000	1.0000
L51	38	CCI 6" x 1" Plate	22.75 - 27.75	1.0000	1.0000
L51	39	CCI 6" x 1" Plate	22.75 - 27.75	1.0000	1.0000
L51	40	CCI 6" x 1" Plate	22.75 - 27.75	1.0000	1.0000
L51	65	CCI 6.5" x 1.25" Plate	22.75 - 27.50	1.0000	1.0000
L51	66	CCI 6.5" x 1.25" Plate	22.75 - 27.50	1.0000	1.0000
L51	67	CCI 6.5" x 1.25" Plate	22.75 - 27.50	1.0000	1.0000
L51	68	CCI 6.5" x 1.25" Plate	22.75 - 27.50	1.0000	1.0000
L51	69	CCI 6.5" x 1.25" Plate	22.75 - 27.50	1.0000	1.0000
L51	70	CCI 6.5" x 1.25" Plate	22.75 - 27.50	1.0000	1.0000
L51	186	HCS 6X12 4AWG(1-5/8)	22.75 - 27.75	1.0000	1.0000
L51	188	AL7-50(1-5/8)	22.75 - 27.75	1.0000	1.0000
L51	214	Safety Line 3/8	22.75 - 27.75	1.0000	1.0000
L51	215	Climbing Rung	22.75 - 27.75	1.0000	1.0000
L52	6	CCI 6" x 1" Plate	20.75 - 22.75	1.0000	1.0000
L52	7	CCI 6" x 1" Plate	20.75 - 22.75	1.0000	1.0000
L52	8	CCI 6" x 1" Plate	20.75 - 22.75	1.0000	1.0000
L52	37	CCI 6" x 1" Plate	20.08 - 22.75	1.0000	1.0000
L52	38	CCI 6" x 1" Plate	20.08 - 22.75	1.0000	1.0000
L52	39	CCI 6" x 1" Plate	20.08 - 22.75	1.0000	1.0000
L52	40	CCI 6" x 1" Plate	20.08 - 22.75	1.0000	1.0000
L52	65	CCI 6.5" x 1.25" Plate	20.08 - 22.75	1.0000	1.0000
L52	66	CCI 6.5" x 1.25" Plate	20.08 - 22.75	1.0000	1.0000
L52	67	CCI 6.5" x 1.25" Plate	20.08 - 22.75	1.0000	1.0000
L52	68	CCI 6.5" x 1.25" Plate	20.08 - 22.75	1.0000	1.0000
L52	69	CCI 6.5" x 1.25" Plate	20.08 - 22.75	1.0000	1.0000
L52	70	CCI 6.5" x 1.25" Plate	20.08 - 22.75	1.0000	1.0000
L52	186	HCS 6X12 4AWG(1-5/8)	20.08 - 22.75	1.0000	1.0000
L52	188	AL7-50(1-5/8)	20.08 - 22.75	1.0000	1.0000
L52	214	Safety Line 3/8	20.08 - 22.75	1.0000	1.0000
L52	215	Climbing Rung	20.08 - 22.75	1.0000	1.0000
L53	37	CCI 6" x 1" Plate	19.83 - 20.08	1.0000	1.0000
L53	38	CCI 6" x 1" Plate	19.83 - 20.08	1.0000	1.0000
L53	39	CCI 6" x 1" Plate	19.83 - 20.08	1.0000	1.0000
L53	40	CCI 6" x 1" Plate	19.83 - 20.08	1.0000	1.0000
L53	65	CCI 6.5" x 1.25" Plate	19.83 - 20.08	1.0000	1.0000
L53	66	CCI 6.5" x 1.25" Plate	19.83 - 20.08	1.0000	1.0000
L53	67	CCI 6.5" x 1.25" Plate	19.83 - 20.08	1.0000	1.0000
L53	68	CCI 6.5" x 1.25" Plate	19.83 - 20.08	1.0000	1.0000
L53	69	CCI 6.5" x 1.25" Plate	19.83 - 20.08	1.0000	1.0000
L53	70	CCI 6.5" x 1.25" Plate	19.83 - 20.08	1.0000	1.0000
L53	186	HCS 6X12 4AWG(1-5/8)	19.83 - 20.08	1.0000	1.0000
L53	188	AL7-50(1-5/8)	19.83 - 20.08	1.0000	1.0000
L53	214	Safety Line 3/8	19.83 - 20.08	1.0000	1.0000
L53	215	Climbing Rung	19.83 - 20.08	1.0000	1.0000
L54	32	CCI 6" x 1" Plate	17.00 - 19.00	1.0000	1.0000
L54	33	CCI 6" x 1" Plate	17.00 - 19.00	1.0000	1.0000
L54	34	CCI 6" x 1" Plate	17.00 - 19.00	1.0000	1.0000
L54	35	CCI 6" x 1" Plate	17.00 - 19.00	1.0000	1.0000
L54	37	CCI 6" x 1" Plate	17.00 - 19.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L54	38	CCI 6" x 1" Plate	17.00 - 19.83	1.0000	1.0000
L54	39	CCI 6" x 1" Plate	17.00 - 19.83	1.0000	1.0000
L54	40	CCI 6" x 1" Plate	17.00 - 19.83	1.0000	1.0000
L54	65	CCI 6.5" x 1.25" Plate	17.00 - 19.83	1.0000	1.0000
L54	66	CCI 6.5" x 1.25" Plate	17.00 - 19.83	1.0000	1.0000
L54	67	CCI 6.5" x 1.25" Plate	17.00 - 19.83	1.0000	1.0000
L54	68	CCI 6.5" x 1.25" Plate	17.00 - 19.83	1.0000	1.0000
L54	69	CCI 6.5" x 1.25" Plate	17.00 - 19.83	1.0000	1.0000
L54	70	CCI 6.5" x 1.25" Plate	17.00 - 19.83	1.0000	1.0000
L54	186	HCS 6X12 4AWG(1-5/8)	17.00 - 19.83	1.0000	1.0000
L54	188	AL7-50(1-5/8)	17.00 - 19.83	1.0000	1.0000
L54	214	Safety Line 3/8	17.00 - 19.83	1.0000	1.0000
L54	215	Climbing Rung	17.00 - 19.83	1.0000	1.0000
L55	32	CCI 6" x 1" Plate	16.75 - 17.00	1.0000	1.0000
L55	33	CCI 6" x 1" Plate	16.75 - 17.00	1.0000	1.0000
L55	34	CCI 6" x 1" Plate	16.75 - 17.00	1.0000	1.0000
L55	35	CCI 6" x 1" Plate	16.75 - 17.00	1.0000	1.0000
L55	65	CCI 6.5" x 1.25" Plate	16.75 - 17.00	1.0000	1.0000
L55	66	CCI 6.5" x 1.25" Plate	16.75 - 17.00	1.0000	1.0000
L55	67	CCI 6.5" x 1.25" Plate	16.75 - 17.00	1.0000	1.0000
L55	68	CCI 6.5" x 1.25" Plate	16.75 - 17.00	1.0000	1.0000
L55	69	CCI 6.5" x 1.25" Plate	16.75 - 17.00	1.0000	1.0000
L55	70	CCI 6.5" x 1.25" Plate	16.75 - 17.00	1.0000	1.0000
L55	186	HCS 6X12 4AWG(1-5/8)	16.75 - 17.00	1.0000	1.0000
L55	188	AL7-50(1-5/8)	16.75 - 17.00	1.0000	1.0000
L55	214	Safety Line 3/8	16.75 - 17.00	1.0000	1.0000
L55	215	Climbing Rung	16.75 - 17.00	1.0000	1.0000
L56	4	CCI 4" x 0.75" Plate	11.65 - 13.17	1.0000	1.0000
L56	32	CCI 6" x 1" Plate	11.65 - 16.75	1.0000	1.0000
L56	33	CCI 6" x 1" Plate	11.65 - 16.75	1.0000	1.0000
L56	34	CCI 6" x 1" Plate	11.65 - 16.75	1.0000	1.0000
L56	35	CCI 6" x 1" Plate	11.65 - 16.75	1.0000	1.0000
L56	65	CCI 6.5" x 1.25" Plate	12.67 - 16.75	1.0000	1.0000
L56	66	CCI 6.5" x 1.25" Plate	12.67 - 16.75	1.0000	1.0000
L56	67	CCI 6.5" x 1.25" Plate	12.67 - 16.75	1.0000	1.0000
L56	68	CCI 6.5" x 1.25" Plate	12.67 - 16.75	1.0000	1.0000
L56	69	CCI 6.5" x 1.25" Plate	12.67 - 16.75	1.0000	1.0000
L56	70	CCI 6.5" x 1.25" Plate	12.67 - 16.75	1.0000	1.0000
L56	186	HCS 6X12 4AWG(1-5/8)	11.65 - 16.75	1.0000	1.0000
L56	188	AL7-50(1-5/8)	11.65 - 16.75	1.0000	1.0000
L56	214	Safety Line 3/8	11.65 - 16.75	1.0000	1.0000
L56	215	Climbing Rung	11.65 - 16.75	1.0000	1.0000
L57	4	CCI 4" x 0.75" Plate	11.42 - 11.65	1.0000	1.0000
L57	32	CCI 6" x 1" Plate	11.42 - 11.65	1.0000	1.0000
L57	33	CCI 6" x 1" Plate	11.42 - 11.65	1.0000	1.0000
L57	34	CCI 6" x 1" Plate	11.42 - 11.65	1.0000	1.0000
L57	35	CCI 6" x 1" Plate	11.42 - 11.65	1.0000	1.0000
L57	186	HCS 6X12 4AWG(1-5/8)	11.42 - 11.65	1.0000	1.0000
L57	188	AL7-50(1-5/8)	11.42 - 11.65	1.0000	1.0000
L57	214	Safety Line 3/8	11.42 - 11.65	1.0000	1.0000
L57	215	Climbing Rung	11.42 - 11.65	1.0000	1.0000
L58	2	CCI 4" x 0.75" Plate	9.38 - 10.88	1.0000	1.0000
L58	3	CCI 4" x 0.75" Plate	9.38 - 10.88	1.0000	1.0000
L58	4	CCI 4" x 0.75" Plate	9.38 - 11.42	1.0000	1.0000
L58	32	CCI 6" x 1" Plate	9.38 - 11.42	1.0000	1.0000
L58	33	CCI 6" x 1" Plate	9.38 - 11.42	1.0000	1.0000
L58	34	CCI 6" x 1" Plate	9.38 - 11.42	1.0000	1.0000
L58	35	CCI 6" x 1" Plate	9.38 - 11.42	1.0000	1.0000
L58	186	HCS 6X12 4AWG(1-5/8)	9.38 - 11.42	1.0000	1.0000
L58	188	AL7-50(1-5/8)	9.38 - 11.42	1.0000	1.0000
L58	214	Safety Line 3/8	9.38 - 11.42	1.0000	1.0000
L58	215	Climbing Rung	9.38 - 11.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L59	2	CCI 4" x 0.75" Plate	9.13 - 9.38	1.0000	1.0000
L59	3	CCI 4" x 0.75" Plate	9.13 - 9.38	1.0000	1.0000
L59	4	CCI 4" x 0.75" Plate	9.13 - 9.38	1.0000	1.0000
L59	32	CCI 6" x 1" Plate	9.13 - 9.38	1.0000	1.0000
L59	33	CCI 6" x 1" Plate	9.13 - 9.38	1.0000	1.0000
L59	34	CCI 6" x 1" Plate	9.13 - 9.38	1.0000	1.0000
L59	35	CCI 6" x 1" Plate	9.13 - 9.38	1.0000	1.0000
L59	186	HCS 6X12 4AWG(1-5/8)	9.13 - 9.38	1.0000	1.0000
L59	188	AL7-50(1-5/8)	9.13 - 9.38	1.0000	1.0000
L59	214	Safety Line 3/8	9.13 - 9.38	1.0000	1.0000
L59	215	Climbing Rung	9.13 - 9.38	1.0000	1.0000
L60	2	CCI 4" x 0.75" Plate	4.83 - 9.13	1.0000	1.0000
L60	3	CCI 4" x 0.75" Plate	4.83 - 9.13	1.0000	1.0000
L60	4	CCI 4" x 0.75" Plate	4.83 - 9.13	1.0000	1.0000
L60	32	CCI 6" x 1" Plate	4.83 - 9.13	1.0000	1.0000
L60	33	CCI 6" x 1" Plate	4.83 - 9.13	1.0000	1.0000
L60	34	CCI 6" x 1" Plate	4.83 - 9.13	1.0000	1.0000
L60	35	CCI 6" x 1" Plate	4.83 - 9.13	1.0000	1.0000
L60	186	HCS 6X12 4AWG(1-5/8)	4.83 - 9.13	1.0000	1.0000
L60	188	AL7-50(1-5/8)	4.83 - 9.13	1.0000	1.0000
L60	214	Safety Line 3/8	4.83 - 9.13	1.0000	1.0000
L60	215	Climbing Rung	4.83 - 9.13	1.0000	1.0000
L61	2	CCI 4" x 0.75" Plate	4.58 - 4.83	1.0000	1.0000
L61	3	CCI 4" x 0.75" Plate	4.58 - 4.83	1.0000	1.0000
L61	4	CCI 4" x 0.75" Plate	4.58 - 4.83	1.0000	1.0000
L61	32	CCI 6" x 1" Plate	4.58 - 4.83	1.0000	1.0000
L61	33	CCI 6" x 1" Plate	4.58 - 4.83	1.0000	1.0000
L61	34	CCI 6" x 1" Plate	4.58 - 4.83	1.0000	1.0000
L61	35	CCI 6" x 1" Plate	4.58 - 4.83	1.0000	1.0000
L61	186	HCS 6X12 4AWG(1-5/8)	4.58 - 4.83	1.0000	1.0000
L61	188	AL7-50(1-5/8)	4.58 - 4.83	1.0000	1.0000
L61	214	Safety Line 3/8	4.58 - 4.83	1.0000	1.0000
L61	215	Climbing Rung	4.58 - 4.83	1.0000	1.0000
L62	2	CCI 4" x 0.75" Plate	0.00 - 4.58	1.0000	1.0000
L62	3	CCI 4" x 0.75" Plate	0.00 - 4.58	1.0000	1.0000
L62	4	CCI 4" x 0.75" Plate	3.17 - 4.58	1.0000	1.0000
L62	32	CCI 6" x 1" Plate	0.00 - 4.58	1.0000	1.0000
L62	33	CCI 6" x 1" Plate	0.00 - 4.58	1.0000	1.0000
L62	34	CCI 6" x 1" Plate	0.00 - 4.58	1.0000	1.0000
L62	35	CCI 6" x 1" Plate	0.00 - 4.58	1.0000	1.0000
L62	186	HCS 6X12 4AWG(1-5/8)	0.00 - 4.58	1.0000	1.0000
L62	188	AL7-50(1-5/8)	0.00 - 4.58	1.0000	1.0000
L62	214	Safety Line 3/8	0.00 - 4.58	1.0000	1.0000
L62	215	Climbing Rung	0.00 - 4.58	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod 5/8" x 4' on 4'	B	From Leg	1.000	0.000	191.667	No Ice	1.393	1.393	0.066

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
Pole			0.000			1/2" Ice	2.131	2.131	0.087
(E)			4.000			1" Ice	2.702	2.702	0.112
GAP									
OGB4-900D	A	From Leg	1.000	0.000	192.000	No Ice	0.785	0.785	0.010
(E)			0.000			1/2" Ice	1.028	1.028	0.016
			4.000			1" Ice	1.281	1.281	0.025
6' x 2" Mount Pipe	A	From Leg	0.500	0.000	192.000	No Ice	1.425	1.425	0.022
(E-Omni support)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
GAP									
DB589-A	B	From Leg	6.000	0.000	191.000	No Ice	2.763	2.763	0.012
(E)			0.000			1/2" Ice	4.170	4.170	0.033
			5.000			1" Ice	5.593	5.593	0.063
WB2623 w/ Mount Pipe	B	From Leg	6.000	0.000	191.000	No Ice	1.929	0.866	0.020
(E)			0.000			1/2" Ice	2.158	1.110	0.038
			-1.000			1" Ice	2.399	1.369	0.058
3' x 2" Pipe Mount	B	From Leg	6.000	0.000	191.000	No Ice	0.583	0.583	0.011
(E-For Omni)			0.000			1/2" Ice	0.770	0.770	0.017
			-1.000			1" Ice	0.967	0.967	0.024
Side Arm Mount [SO 702-1]	B	From Leg	3.000	0.000	191.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.250	2.050	0.038
			0.000			1" Ice	1.500	2.670	0.049
GAP									
LNX-6515DS-VTM w/	A	From Leg	4.000	0.000	184.000	No Ice	11.683	9.842	0.083
Mount Pipe			0.000			1/2" Ice	12.404	11.366	0.173
(E)			-3.000			1" Ice	13.135	12.914	0.273
LNX-6515DS-VTM w/	B	From Leg	4.000	0.000	184.000	No Ice	11.683	9.842	0.083
Mount Pipe			0.000			1/2" Ice	12.404	11.366	0.173
(E)			-3.000			1" Ice	13.135	12.914	0.273
LNX-6515DS-VTM w/	C	From Leg	4.000	0.000	184.000	No Ice	11.683	9.842	0.083
Mount Pipe			0.000			1/2" Ice	12.404	11.366	0.173
(E)			-3.000			1" Ice	13.135	12.914	0.273
AIR -32 B2A/B66AA w/	A	From Leg	4.000	0.000	184.000	No Ice	6.747	6.070	0.153
Mount Pipe			0.000			1/2" Ice	7.202	6.867	0.214
(E)			-3.000			1" Ice	7.648	7.583	0.282
AIR -32 B2A/B66AA w/	B	From Leg	4.000	0.000	184.000	No Ice	6.747	6.070	0.153
Mount Pipe			0.000			1/2" Ice	7.202	6.867	0.214
(E)			-3.000			1" Ice	7.648	7.583	0.282
AIR -32 B2A/B66AA w/	C	From Leg	4.000	0.000	184.000	No Ice	6.747	6.070	0.153
Mount Pipe			0.000			1/2" Ice	7.202	6.867	0.214
(E)			-3.000			1" Ice	7.648	7.583	0.282
APX16DWV-16DWVS-E-A	A	From Leg	4.000	0.000	184.000	No Ice	7.233	3.782	0.064
20 w/ Mount Pipe			0.000			1/2" Ice	7.712	4.643	0.115
(E)			-3.000			1" Ice	8.176	5.382	0.173
APX16DWV-16DWVS-E-A	B	From Leg	4.000	0.000	184.000	No Ice	7.233	3.782	0.064
20 w/ Mount Pipe			0.000			1/2" Ice	7.712	4.643	0.115
(E)			-3.000			1" Ice	8.176	5.382	0.173
APX16DWV-16DWVS-E-A	C	From Leg	4.000	0.000	184.000	No Ice	7.233	3.782	0.064
20 w/ Mount Pipe			0.000			1/2" Ice	7.712	4.643	0.115
(E)			-3.000			1" Ice	8.176	5.382	0.173
(2) KRY 112 144/1	A	From Leg	4.000	0.000	184.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			-3.000			1" Ice	0.509	0.301	0.019
(2) KRY 112 144/1	B	From Leg	4.000	0.000	184.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			-3.000			1" Ice	0.509	0.301	0.019
(2) KRY 112 144/1	C	From Leg	4.000	0.000	184.000	No Ice	0.350	0.175	0.011

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			-3.000			1" Ice	0.509	0.301	0.019
ATBT-BOTTOM-24V	A	From Leg	4.000	0.000	184.000	No Ice	0.104	0.065	0.003
(E)			0.000			1/2" Ice	0.148	0.102	0.004
			-3.000			1" Ice	0.199	0.147	0.006
ATBT-BOTTOM-24V	B	From Leg	4.000	0.000	184.000	No Ice	0.104	0.065	0.003
(E)			0.000			1/2" Ice	0.148	0.102	0.004
			-3.000			1" Ice	0.199	0.147	0.006
ATBT-BOTTOM-24V	C	From Leg	4.000	0.000	184.000	No Ice	0.104	0.065	0.003
(E)			0.000			1/2" Ice	0.148	0.102	0.004
			-3.000			1" Ice	0.199	0.147	0.006
Platform Mount [LP 405-1]	C	None		0.000	184.000	No Ice	20.800	20.800	1.800
(E)						1/2" Ice	28.100	28.100	2.066
						1" Ice	35.400	35.400	2.332
GAP									
(2) HBXX-6517DS-VTM w/	A	From Leg	4.000	0.000	160.000	No Ice	8.765	6.963	0.069
Mount Pipe			0.000			1/2" Ice	9.342	8.182	0.139
(E)			0.000			1" Ice	9.889	9.144	0.217
(2) HBXX-6517DS-VTM w/	B	From Leg	4.000	0.000	160.000	No Ice	8.765	6.963	0.069
Mount Pipe			0.000			1/2" Ice	9.342	8.182	0.139
(E)			0.000			1" Ice	9.889	9.144	0.217
(2) HBXX-6517DS-VTM w/	C	From Leg	4.000	0.000	160.000	No Ice	8.765	6.963	0.069
Mount Pipe			0.000			1/2" Ice	9.342	8.182	0.139
(E)			0.000			1" Ice	9.889	9.144	0.217
LNX-6514DS-A1M w/	A	From Leg	4.000	0.000	160.000	No Ice	8.411	7.082	0.065
Mount Pipe			0.000			1/2" Ice	8.975	8.273	0.134
(E)			0.000			1" Ice	9.505	9.185	0.211
LNX-6514DS-A1M w/	B	From Leg	4.000	0.000	160.000	No Ice	8.411	7.082	0.065
Mount Pipe			0.000			1/2" Ice	8.975	8.273	0.134
(E)			0.000			1" Ice	9.505	9.185	0.211
(2) LNX-6514DS-A1M w/	C	From Leg	4.000	0.000	160.000	No Ice	8.411	7.082	0.065
Mount Pipe			0.000			1/2" Ice	8.975	8.273	0.134
(E)			0.000			1" Ice	9.505	9.185	0.211
LNX-8513DS-VTM w/	A	From Leg	4.000	0.000	160.000	No Ice	8.411	7.082	0.065
Mount Pipe			0.000			1/2" Ice	8.975	8.273	0.134
(E)			0.000			1" Ice	9.505	9.185	0.211
LNX-8513DS-VTM w/	B	From Leg	4.000	0.000	160.000	No Ice	8.411	7.082	0.065
Mount Pipe			0.000			1/2" Ice	8.975	8.273	0.134
(E)			0.000			1" Ice	9.505	9.185	0.211
RRH2x40 700	A	From Leg	4.000	0.000	160.000	No Ice	1.962	1.034	0.050
(E)			0.000			1/2" Ice	2.137	1.168	0.067
			0.000			1" Ice	2.318	1.311	0.086
RRH2x40 700	B	From Leg	4.000	0.000	160.000	No Ice	1.962	1.034	0.050
(E)			0.000			1/2" Ice	2.137	1.168	0.067
			0.000			1" Ice	2.318	1.311	0.086
RRH2x40 700	C	From Leg	4.000	0.000	160.000	No Ice	1.962	1.034	0.050
(E)			0.000			1/2" Ice	2.137	1.168	0.067
			0.000			1" Ice	2.318	1.311	0.086
RRH2X60-AWS	A	From Leg	4.000	0.000	160.000	No Ice	3.500	1.816	0.060
(E)			0.000			1/2" Ice	3.761	2.052	0.083
			0.000			1" Ice	4.029	2.289	0.109
RRH2X60-AWS	B	From Leg	4.000	0.000	160.000	No Ice	3.500	1.816	0.060
(E)			0.000			1/2" Ice	3.761	2.052	0.083
			0.000			1" Ice	4.029	2.289	0.109
RRH2X60-AWS	C	From Leg	4.000	0.000	160.000	No Ice	3.500	1.816	0.060
(E)			0.000			1/2" Ice	3.761	2.052	0.083
			0.000			1" Ice	4.029	2.289	0.109

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert ft / ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
RRH2X60-PCS (E)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	2.200 2.393 2.593	1.723 1.901 2.087	0.055 0.075 0.099
RRH2X60-PCS (E)	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	2.200 2.393 2.593	1.723 1.901 2.087	0.055 0.075 0.099
RRH2X60-PCS (E)	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	2.200 2.393 2.593	1.723 1.901 2.087	0.055 0.075 0.099
(2) FD9R6004/2C-3L (E)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	0.314 0.386 0.466	0.076 0.119 0.169	0.003 0.005 0.009
(2) FD9R6004/2C-3L (E)	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	0.314 0.386 0.466	0.076 0.119 0.169	0.003 0.005 0.009
(2) FD9R6004/2C-3L (E)	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	0.314 0.386 0.466	0.076 0.119 0.169	0.003 0.005 0.009
DB-T1-6Z-8AB-0Z (E)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	4.800 5.070 5.348	2.000 2.193 2.393	0.044 0.080 0.120
Platform Mount [LP 303-1] (E)	C	None		0.000	160.000	No Ice 1/2" Ice 1" Ice	14.660 18.870 23.080	14.660 18.870 23.080	1.250 1.481 1.713
GAP									
SRL-224NM-4 (E)	B	From Leg	6.000 0.000 0.000	0.000	158.000	No Ice 1/2" Ice 1" Ice	2.600 4.680 6.760	2.600 4.680 6.760	0.035 0.045 0.056
DB205-A (E)	C	From Leg	6.000 0.000 0.000	0.000	158.000	No Ice 1/2" Ice 1" Ice	1.200 2.160 3.120	1.200 2.160 3.120	0.038 0.049 0.061
4' x 2" Pipe Mount (E-For Omni)	B	From Leg	6.000 0.000 0.000	0.000	158.000	No Ice 1/2" Ice 1" Ice	0.785 1.028 1.281	0.785 1.028 1.281	0.029 0.035 0.044
4' x 2" Pipe Mount (E-For Omni)	C	From Leg	6.000 0.000 0.000	0.000	158.000	No Ice 1/2" Ice 1" Ice	0.785 1.028 1.281	0.785 1.028 1.281	0.029 0.035 0.044
Side Arm Mount [SO 702-1] (E)	B	From Leg	3.000 0.000 0.000	0.000	158.000	No Ice 1/2" Ice 1" Ice	1.000 1.250 1.500	1.430 2.050 2.670	0.027 0.038 0.049
Side Arm Mount [SO 702-1] (E)	C	From Leg	3.000 0.000 0.000	0.000	158.000	No Ice 1/2" Ice 1" Ice	1.000 1.250 1.500	1.430 2.050 2.670	0.027 0.038 0.049
GAP									
7770.00 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.055 0.103 0.157
7770.00 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.055 0.103 0.157
7770.00 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.055 0.103 0.157
SBNH-1D6565C w/ Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.099 0.189 0.288
SBNH-1D6565C w/ Mount	B	From Leg	4.000	0.000	151.000	No Ice	11.683	9.842	0.099

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe			0.000			1/2" Ice	12.404	11.366	0.189
(E)			0.000			1" Ice	13.135	12.914	0.288
SBNH-1D6565C w/ Mount	C	From Leg	4.000	0.000	151.000	No Ice	11.683	9.842	0.099
Pipe			0.000			1/2" Ice	12.404	11.366	0.189
(E)			0.000			1" Ice	13.135	12.914	0.288
DTMABP7819VG12A	A	From Leg	4.000	0.000	151.000	No Ice	0.976	0.339	0.019
(E)			0.000			1/2" Ice	1.100	0.419	0.026
			0.000			1" Ice	1.232	0.510	0.036
DTMABP7819VG12A	B	From Leg	4.000	0.000	151.000	No Ice	0.976	0.339	0.019
(E)			0.000			1/2" Ice	1.100	0.419	0.026
			0.000			1" Ice	1.232	0.510	0.036
DTMABP7819VG12A	C	From Leg	4.000	0.000	151.000	No Ice	0.976	0.339	0.019
(E)			0.000			1/2" Ice	1.100	0.419	0.026
			0.000			1" Ice	1.232	0.510	0.036
DC6-48-60-18-8F	A	From Leg	4.000	0.000	151.000	No Ice	0.917	0.917	0.019
(E)			0.000			1/2" Ice	1.458	1.458	0.037
			0.000			1" Ice	1.643	1.643	0.057
TPA-65R-LCUUUU-H8	A	From Leg	4.000	0.000	151.000	No Ice	13.298	8.822	0.082
(R)			0.000			1/2" Ice	13.897	9.421	0.161
			0.000			1" Ice	14.504	10.026	0.248
TPA-65R-LCUUUU-H8	B	From Leg	4.000	0.000	151.000	No Ice	13.298	8.822	0.082
(R)			0.000			1/2" Ice	13.897	9.421	0.161
			0.000			1" Ice	14.504	10.026	0.248
TPA-65R-LCUUUU-H8	C	From Leg	4.000	0.000	151.000	No Ice	13.298	8.822	0.082
(R)			0.000			1/2" Ice	13.897	9.421	0.161
			0.000			1" Ice	14.504	10.026	0.248
RRUS 32	A	From Leg	4.000	0.000	151.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			0.000			1" Ice	3.316	2.166	0.103
RRUS 32	B	From Leg	4.000	0.000	151.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			0.000			1" Ice	3.316	2.166	0.103
RRUS 32	C	From Leg	4.000	0.000	151.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			0.000			1" Ice	3.316	2.166	0.103
RRUS 32 B2	A	From Leg	4.000	0.000	151.000	No Ice	2.731	1.668	0.053
(R)			0.000			1/2" Ice	2.953	1.855	0.074
			0.000			1" Ice	3.182	2.049	0.098
RRUS 32 B2	B	From Leg	4.000	0.000	151.000	No Ice	2.731	1.668	0.053
(R)			0.000			1/2" Ice	2.953	1.855	0.074
			0.000			1" Ice	3.182	2.049	0.098
RRUS 32 B2	C	From Leg	4.000	0.000	151.000	No Ice	2.731	1.668	0.053
(R)			0.000			1/2" Ice	2.953	1.855	0.074
			0.000			1" Ice	3.182	2.049	0.098
DBC0062F3V52-1	A	From Leg	4.000	0.000	151.000	No Ice	0.711	0.220	0.013
(R)			0.000			1/2" Ice	0.818	0.289	0.018
			0.000			1" Ice	0.932	0.366	0.025
DBC0062F3V52-1	B	From Leg	4.000	0.000	151.000	No Ice	0.711	0.220	0.013
(R)			0.000			1/2" Ice	0.818	0.289	0.018
			0.000			1" Ice	0.932	0.366	0.025
DBC0062F3V52-1	C	From Leg	4.000	0.000	151.000	No Ice	0.711	0.220	0.013
(R)			0.000			1/2" Ice	0.818	0.289	0.018
			0.000			1" Ice	0.932	0.366	0.025
(3) 10' x 2.875" Pipe Mount	A	From Leg	4.000	0.000	151.000	No Ice	2.375	2.375	0.037
(R - Mount Mod)			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
(3) 10' x 2.875" Pipe Mount	B	From Leg	4.000	0.000	151.000	No Ice	2.875	2.875	0.085

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(R - Mount Mod)			0.000			1/2" Ice	3.907	3.907	0.106
			0.000			1" Ice	4.956	4.956	0.134
(3) 10' x 2.875" Pipe Mount	C	From Leg	4.000	0.000	151.000	No Ice	2.875	2.875	0.085
(R - Mount Mod)			0.000			1/2" Ice	3.907	3.907	0.106
			0.000			1" Ice	4.956	4.956	0.134
Miscellaneous [NA 510-1]	C	None		0.000	151.000	No Ice	6.000	6.000	0.256
(R - Mount Mod)						1/2" Ice	8.500	8.500	0.340
						1" Ice	11.000	11.000	0.423
Miscellaneous [NA 509-3]	C	None		0.000	151.000	No Ice	11.840	11.840	0.275
(R-PRK-1245 - Mount Mod)						1/2" Ice	16.960	16.960	0.296
						1" Ice	22.080	22.080	0.317
Platform Mount [LP 403-1]	C	None		0.000	151.000	No Ice	18.850	18.850	1.500
(E)						1/2" Ice	24.300	24.300	1.797
						1" Ice	29.750	29.750	2.093
GAP									
DC6-48-60-18-8F	C	From Leg	1.000	0.000	150.000	No Ice	0.917	0.917	0.019
(E)			0.000			1/2" Ice	1.458	1.458	0.037
			0.000			1" Ice	1.643	1.643	0.057
RRUS 11	A	From Leg	1.000	0.000	150.000	No Ice	2.784	1.187	0.048
(R)			0.000			1/2" Ice	2.992	1.334	0.068
			0.000			1" Ice	3.207	1.490	0.092
RRUS 11	B	From Leg	1.000	0.000	150.000	No Ice	2.784	1.187	0.048
(R)			0.000			1/2" Ice	2.992	1.334	0.068
			0.000			1" Ice	3.207	1.490	0.092
RRUS 11	C	From Leg	1.000	0.000	150.000	No Ice	2.784	1.187	0.048
(R)			0.000			1/2" Ice	2.992	1.334	0.068
			0.000			1" Ice	3.207	1.490	0.092
RRUS 12	A	From Leg	1.000	0.000	150.000	No Ice	3.145	1.285	0.058
(R)			0.000			1/2" Ice	3.365	1.438	0.081
			2.000			1" Ice	3.592	1.600	0.108
RRUS 12	B	From Leg	1.000	0.000	150.000	No Ice	3.145	1.285	0.058
(R)			0.000			1/2" Ice	3.365	1.438	0.081
			2.000			1" Ice	3.592	1.600	0.108
RRUS 12	C	From Leg	1.000	0.000	150.000	No Ice	3.145	1.285	0.058
(R)			0.000			1/2" Ice	3.365	1.438	0.081
			2.000			1" Ice	3.592	1.600	0.108
Side Arm Mount [SO 102-3]	C	None		0.000	150.000	No Ice	3.000	3.000	0.081
(E)						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
Pipe Mount [PM 601-3]	C	None		0.000	150.000	No Ice	4.390	4.390	0.195
(E)						1/2" Ice	5.480	5.480	0.237
						1" Ice	6.570	6.570	0.280
GAP									
SRL-235-2	B	From Leg	6.000	0.000	132.000	No Ice	7.000	7.000	0.076
(E)			0.000			1/2" Ice	9.037	9.037	0.125
			0.000			1" Ice	11.092	11.092	0.187
4' x 2" Pipe Mount	B	From Leg	6.000	0.000	132.000	No Ice	0.785	0.785	0.029
(E-For Omni)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
Side Arm Mount [SO 702-1]	B	From Leg	3.000	0.000	132.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.250	2.050	0.038
			0.000			1" Ice	1.500	2.670	0.049
Side Arm Mount [SO 104-3]	C	None		0.000	132.000	No Ice	3.300	3.300	0.287
(E-Mount Attachment)						1/2" Ice	4.130	4.130	0.317
						1" Ice	4.960	4.960	0.347
GAP									
PCS 1900 TMA RX	A	From Leg	2.000	0.000	124.000	No Ice	0.539	0.529	0.018

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
(E)			0.000 0.000			1/2" Ice	0.638	0.628	0.023
2' x 2" Pipe Mount (E-For TMA)	A	From Leg	2.000 0.000 0.000	0.000	124.000	1" Ice No Ice 1/2" Ice 1" Ice	0.745 0.023 0.049 0.085	0.734 0.023 0.049 0.085	0.031 0.007 0.008 0.009
Side Arm Mount [SO 104-3] (E)	C	None		0.000	124.000	No Ice 1/2" Ice 1" Ice	3.300 4.130 4.960	3.300 4.130 4.960	0.287 0.317 0.347
GAP * Sprint*									
(3) 844G65VTZAS w/ Mount Pipe (AB)	A	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	5.486 5.876 6.273	4.984 5.600 6.227	0.034 0.086 0.144
(3) 844G65VTZAS w/ Mount Pipe (AB)	B	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	5.486 5.876 6.273	4.984 5.600 6.227	0.034 0.086 0.144
(3) 844G65VTZAS w/ Mount Pipe (AB) *	C	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	5.486 5.876 6.273	4.984 5.600 6.227	0.034 0.086 0.144
* Clear Wire*									
NNVV-65B-R4 w/ Mount Pipe (P)	A	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	12.509 13.108 13.672	7.413 8.598 9.496	0.103 0.194 0.293
NNVV-65B-R4 w/ Mount Pipe (P)	B	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	12.509 13.108 13.672	7.413 8.598 9.496	0.103 0.194 0.293
NNVV-65B-R4 w/ Mount Pipe (P)	C	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	12.509 13.108 13.672	7.413 8.598 9.496	0.103 0.194 0.293
AAHC w/ Mount Pipe (P)	A	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	4.409 4.727 5.055	2.691 3.079 3.486	0.115 0.156 0.202
AAHC w/ Mount Pipe (P)	B	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	4.409 4.727 5.055	2.691 3.079 3.486	0.115 0.156 0.202
AAHC w/ Mount Pipe (P)	C	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	4.409 4.727 5.055	2.691 3.079 3.486	0.115 0.156 0.202
800MHZ 2X50W RRH (P)	A	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	2.134 2.320 2.512	1.773 1.946 2.127	0.053 0.074 0.098
(2) 800MHZ 2X50W RRH (P)	B	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	2.134 2.320 2.512	1.773 1.946 2.127	0.053 0.074 0.098
(3) 800MHZ 2X50W RRH (P)	C	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	2.134 2.320 2.512	1.773 1.946 2.127	0.053 0.074 0.098
(2) PCS 1900MHZ 4X45W-65MHZ (P)	A	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.060 0.083 0.110
PCS 1900MHZ 4X45W-65MHZ (P)	B	From Leg	4.000 0.000 2.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.060 0.083 0.110
HORIZON DUO (E - V. Offset Per APP)	A	From Leg	4.000 0.000 0.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	0.469 0.556 0.650	0.294 0.365 0.444	0.007 0.012 0.018

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Miscellaneous [NA 509-3] (P - Site Pro1 - PRK-HD)	C	None		0.000	114.500	No Ice	11.840	11.840	0.275
						1/2" Ice	16.960	16.960	0.296
						1" Ice	22.080	22.080	0.317
Platform Mount [LP 405-1] (E)	C	None		0.000	116.000	No Ice	20.800	20.800	1.800
						1/2" Ice	28.100	28.100	2.066
						1" Ice	35.400	35.400	2.332
GAP									
DB205-A (E-Per Photo)	B	From Leg	6.000 0.000 9.000	0.000	90.000	No Ice	1.200	1.200	0.038
						1/2" Ice	2.160	2.160	0.049
						1" Ice	3.120	3.120	0.061
MT-485002 w/ Mount Pipe (E)	C	From Leg	6.000 0.000 0.000	0.000	90.000	No Ice	1.372	0.473	0.011
						1/2" Ice	1.574	0.681	0.022
						1" Ice	1.788	0.902	0.037
5' x 2" Pipe Mount (E-For Omni)	B	From Leg	6.000 0.000 0.000	0.000	90.000	No Ice	1.000	1.000	0.029
						1/2" Ice	1.393	1.393	0.037
						1" Ice	1.703	1.703	0.048
Side Arm Mount [SO 702-1] (E)	B	From Leg	3.000 0.000 0.000	0.000	90.000	No Ice	1.000	1.430	0.027
						1/2" Ice	1.250	2.050	0.038
						1" Ice	1.500	2.670	0.049
Side Arm Mount [SO 702-1] (E)	C	From Leg	3.000 0.000 0.000	0.000	90.000	No Ice	1.000	1.430	0.027
						1/2" Ice	1.250	2.050	0.038
						1" Ice	1.500	2.670	0.049
GAP									
SRL-235-2 (E)	C	From Leg	3.000 0.000 0.000	0.000	70.000	No Ice	7.000	7.000	0.076
						1/2" Ice	9.037	9.037	0.125
						1" Ice	11.092	11.092	0.187
2" x 2' Omni (E-Per Photo)	C	From Leg	3.000 0.000 -6.000	0.000	70.000	No Ice	0.304	0.304	0.005
						1/2" Ice	0.432	0.432	0.008
						1" Ice	0.578	0.578	0.013
6' x 2" Mount Pipe (E-For Omni)	C	From Leg	3.000 0.000 0.000	0.000	70.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
Side Arm Mount [SO 701-1] (E)	C	From Leg	1.500 0.000 0.000	0.000	70.000	No Ice	0.850	1.670	0.065
						1/2" Ice	1.140	2.340	0.079
						1" Ice	1.430	3.010	0.093
Side Arm Mount [SO 102-3] (E-Mount Attachment)	C	None		0.000	70.000	No Ice	3.000	3.000	0.081
						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
GAP									
DB909XVTE-M (E)	B	From Leg	3.000 0.000 0.000	0.000	33.000	No Ice	1.943	1.943	0.024
						1/2" Ice	2.622	2.622	0.047
						1" Ice	2.952	2.952	0.073
2" x 4' Omni (E-Per Photo)	B	From Leg	3.000 0.000 0.000	0.000	33.000	No Ice	0.304	0.304	0.005
						1/2" Ice	0.432	0.432	0.008
						1" Ice	0.578	0.578	0.013
6' x 2" Mount Pipe (E-For Yagi)	B	From Leg	3.000 0.000 0.000	0.000	33.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
Side Arm Mount [SO 702-1] (E)	B	From Leg	1.500 0.000 0.000	0.000	33.000	No Ice	1.000	1.430	0.027
						1/2" Ice	1.250	2.050	0.038
						1" Ice	1.500	2.670	0.049
GAP									
4' ICE SHIELDS (E)	A	From Leg	0.500 0.000 0.000	0.000	178.000	No Ice	1.400	0.467	0.030
						1/2" Ice	1.884	0.640	0.095
						1" Ice	2.377	0.821	0.167
4' ICE SHIELDS (E)	A	From Leg	0.500 0.000	0.000	138.000	No Ice	1.400	0.467	0.030
						1/2" Ice	1.884	0.640	0.095

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
4' ICE SHIELDS (E)	A	From Leg	0.000 0.500 0.000	0.000	98.000	1" Ice No Ice 1/2" Ice	2.377 1.400 1.884	0.821 0.467 0.640	0.167 0.030 0.095
4' ICE SHIELDS (E)	B	From Leg	0.000 0.500 0.000	0.000	98.000	1" Ice No Ice 1/2" Ice	2.377 1.400 1.884	0.821 0.467 0.640	0.167 0.030 0.095
4' ICE SHIELDS (E)	C	From Leg	0.000 0.500 0.000	0.000	98.000	1" Ice No Ice 1/2" Ice	2.377 1.400 1.884	0.821 0.467 0.640	0.167 0.030 0.095
GAP			0.000			1" Ice	2.377	0.821	0.167

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
Andrew VHLP2-18 (E)	B	Paraboloid w/Shroud (HP)	From Leg	4.000 0.000 4.000	0.000		116.000	2.175	No Ice 1/2" Ice 1" Ice	3.715 4.006 4.296	0.031 0.052 0.072
GAP											
KP2F-34 (E)	B	Grid	From Leg	6.000 0.000 0.000	5.000		90.000	2.000	No Ice 1/2" Ice 1" Ice	3.140 3.410 3.680	0.005 0.023 0.040
GAP											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice

Comb. No.	Description
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	191.667 - 186.667	Pole	Max Tension	48	0.000	-0.000	0.000
			Max. Compression	26	-1.790	-3.079	-1.608
			Max. Mx	30	-1.780	-5.057	-1.576
			Max. My	14	-0.626	-0.448	-4.097
			Max. Vy	8	0.729	-4.362	-0.276
			Max. Vx	14	0.717	-0.448	-4.097
			Max. Torque	5			-1.659
L2	186.667 - 181.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-11.524	-3.069	-1.780
			Max. Mx	8	-4.353	-10.426	-0.406
			Max. My	14	-4.328	-0.513	-10.219
			Max. Vy	8	4.917	-10.426	-0.406
			Max. Vx	14	4.926	-0.513	-10.219
			Max. Torque	5			-1.660
L3	181.567 - 176.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-13.192	-3.042	-1.349

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	176.567 - 171.567	Pole	Max. Mx	8	-5.092	-35.864	-0.491
			Max. My	14	-5.062	-0.580	-35.789
			Max. Vy	8	5.274	-35.864	-0.491
			Max. Vx	14	5.330	-0.580	-35.789
			Max. Torque	5			-1.660
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-14.444	-3.019	-1.540
			Max. Mx	8	-5.799	-63.036	-0.629
			Max. My	14	-5.767	-0.648	-63.323
			Max. Vy	8	5.601	-63.036	-0.629
			Max. Vx	14	5.661	-0.648	-63.323
			Max. Torque	5			-1.644
L5	171.567 - 166.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-15.694	-2.997	-1.732
			Max. Mx	8	-6.509	-91.832	-0.768
			Max. My	14	-6.475	-0.716	-92.498
			Max. Vy	8	5.923	-91.832	-0.768
			Max. Vx	14	5.987	-0.716	-92.498
			Max. Torque	5			-1.644
L6	166.567 - 161.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-16.941	-2.978	-1.924
			Max. Mx	8	-7.221	-122.219	-0.907
			Max. My	14	-7.186	-0.784	-123.285
			Max. Vy	8	6.239	-122.219	-0.907
			Max. Vx	14	6.306	-0.784	-123.285
			Max. Torque	5			-1.644
L7	161.567 - 156.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-29.693	-3.207	-2.363
			Max. Mx	8	-10.969	-172.071	-1.407
			Max. My	14	-10.890	-0.844	-174.526
			Max. Vy	8	11.967	-172.071	-1.407
			Max. Vx	14	12.236	-0.844	-174.526
			Max. Torque	5			-2.345
L8	156.567 - 151.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.292	-3.615	-2.419
			Max. Mx	8	-11.753	-232.660	-1.537
			Max. My	14	-11.643	-0.961	-237.544
			Max. Vy	8	12.259	-232.660	-1.537
			Max. Vx	14	12.960	-0.961	-237.544
			Max. Torque	5			-2.344
L9	151.567 - 146.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.790	-3.827	-3.062
			Max. Mx	8	-17.474	-325.924	-2.440
			Max. My	14	-17.301	-1.054	-336.306
			Max. Vy	8	19.670	-325.924	-2.440
			Max. Vx	14	20.824	-1.054	-336.306
			Max. Torque	5			-2.388
L10	146.567 - 141.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.450	-4.264	-3.127
			Max. Mx	8	-18.389	-424.854	-2.575
			Max. My	14	-18.198	-1.182	-442.066
			Max. Vy	8	19.900	-424.854	-2.575
			Max. Vx	14	21.476	-1.182	-442.066
			Max. Torque	5			-2.355

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L11	141.567 - 141.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.499	-4.277	-3.129
			Max. Mx	8	-18.426	-427.839	-2.580
			Max. My	14	-18.236	-1.186	-445.288
			Max. Vy	8	19.900	-427.839	-2.580
			Max. Vx	14	21.488	-1.186	-445.288
			Max. Torque	5			-2.354
L12	141.417 - 136.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.015	-4.837	-2.401
			Max. Mx	8	-19.601	-528.460	-2.664
			Max. My	14	-19.405	-1.336	-554.036
			Max. Vy	8	20.343	-528.460	-2.664
			Max. Vx	14	22.044	-1.336	-554.036
			Max. Torque	5			-2.354
L13	136.417 - 131.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.220	-9.160	-4.648
			Max. Mx	8	-21.226	-632.486	-3.286
			Max. My	14	-21.028	-2.289	-666.361
			Max. Vy	8	21.300	-632.486	-3.286
			Max. Vx	14	23.082	-2.289	-666.361
			Max. Torque	5			-5.103
L14	131.417 - 126.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.409	-9.731	-4.724
			Max. Mx	8	-22.432	-739.989	-3.399
			Max. My	14	-22.235	-2.403	-782.961
			Max. Vy	8	21.689	-739.989	-3.399
			Max. Vx	14	23.543	-2.403	-782.961
			Max. Torque	5			-5.103
L15	126.417 - 121.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.113	-10.465	-4.529
			Max. Mx	8	-24.703	-850.051	-3.427
			Max. My	14	-24.484	-2.628	-903.576
			Max. Vy	8	22.270	-850.051	-3.427
			Max. Vx	14	24.719	-2.628	-903.576
			Max. Torque	5			-5.102
L16	121.417 - 121.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.245	-10.498	-4.533
			Max. Mx	8	-24.782	-855.624	-3.433
			Max. My	14	-24.563	-2.637	-909.759
			Max. Vy	8	22.284	-855.624	-3.433
			Max. Vx	14	24.736	-2.637	-909.759
			Max. Torque	5			-5.061
L17	121.167 - 116.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.050	-11.825	-4.993
			Max. Mx	8	-26.291	-968.982	-3.851
			Max. My	14	-26.076	-3.184	-1035.326
			Max. Vy	20	-22.916	964.861	-1.583
			Max. Vx	2	-25.369	-0.692	1029.792
			Max. Torque	5			-5.654
L18	116.167 - 111.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.102	-12.510	-4.673
			Max. Mx	8	-31.719	-1115.467	-4.089
			Max. My	14	-31.489	-3.619	-1194.227

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L19	111.167 - 110.042	Pole	Max. Vy	20	-28.430	1111.335	-1.236
			Max. Vx	2	-30.945	-0.299	1188.822
			Max. Torque	5			-5.653
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.699	-12.557	-4.772
			Max. Mx	8	-32.035	-1147.464	-4.169
			Max. My	14	-31.807	-3.709	-1229.106
			Max. Vy	20	-28.522	1143.348	-1.182
			Max. Vx	2	-31.065	-0.200	1223.676
			Max. Torque	5			-5.625
L20	110.042 - 109.792	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.846	-12.568	-4.794
			Max. Mx	8	-32.126	-1154.588	-4.188
			Max. My	14	-31.898	-3.730	-1236.875
			Max. Vy	20	-28.537	1150.476	-1.170
			Max. Vx	2	-31.086	-0.179	1231.440
			Max. Torque	5			-5.624
L21	109.792 - 105.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.895	-12.753	-5.231
			Max. Mx	8	-33.813	-1289.772	-4.536
			Max. My	14	-33.567	-4.104	-1385.666
			Max. Vy	20	-28.941	1285.735	-0.954
			Max. Vx	2	-32.097	0.241	1380.100
			Max. Torque	5			-5.624
L22	105.083 - 104.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.088	-12.763	-5.256
			Max. Mx	8	-33.926	-1297.001	-4.556
			Max. My	14	-33.680	-4.125	-1393.699
			Max. Vy	20	-28.957	1292.969	-0.944
			Max. Vx	2	-32.146	0.262	1388.124
			Max. Torque	5			-5.624
L23	104.833 - 100.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-86.032	-12.944	-5.667
			Max. Mx	8	-36.382	-1411.052	-4.921
			Max. My	14	-36.121	-4.418	-1521.512
			Max. Vy	20	-29.365	1407.116	-0.840
			Max. Vx	2	-33.084	0.630	1515.677
			Max. Torque	5			-5.624
L24	100.917 - 100.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-86.215	-12.978	-5.675
			Max. Mx	8	-36.494	-1418.387	-4.942
			Max. My	14	-36.235	-4.438	-1529.789
			Max. Vy	20	-29.383	1414.456	-0.830
			Max. Vx	2	-33.105	0.652	1523.943
			Max. Torque	5			-5.623
L25	100.667 - 95.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-90.501	-13.611	-5.792
			Max. Mx	8	-38.367	-1561.541	-5.314
			Max. My	14	-38.116	-4.826	-1691.231
			Max. Vy	20	-29.918	1557.677	-0.623
			Max. Vx	2	-33.685	1.080	1685.219
			Max. Torque	5			-5.623
L26	95.833 - 95.583	Pole	Max Tension	1	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-90.658	-13.645	-5.796
			Max. Mx	8	-38.465	-1569.015	-5.333
			Max. My	14	-38.217	-4.847	-1699.655
			Max. Vy	20	-29.934	1565.154	-0.612
			Max. Vx	2	-33.702	1.101	1693.637
			Max. Torque	5			-5.622
L27	95.583 - 90.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-93.830	-14.302	-5.873
			Max. Mx	8	-40.280	-1719.665	-5.696
			Max. My	14	-40.041	-5.251	-1869.379
			Max. Vy	20	-30.385	1715.865	-0.375
			Max. Vx	2	-34.180	1.541	1863.233
			Max. Torque	5			-5.622
L28	90.583 - 89.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-94.807	-15.652	-7.752
			Max. Mx	8	-40.680	-1740.857	-6.276
			Max. My	14	-40.443	-5.784	-1893.175
			Max. Vy	20	-30.722	1736.052	-0.876
			Max. Vx	2	-34.509	1.119	1885.891
			Max. Torque	17			6.647
L29	89.917 - 89.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-95.004	-15.682	-7.753
			Max. Mx	8	-40.796	-1748.531	-6.291
			Max. My	14	-40.560	-5.802	-1901.804
			Max. Vy	20	-30.743	1743.733	-0.865
			Max. Vx	2	-34.532	1.142	1894.518
			Max. Torque	17			6.647
L30	89.667 - 84.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-99.753	-15.988	-7.567
			Max. Mx	8	-43.666	-1903.029	-6.438
			Max. My	14	-43.438	-5.942	-2075.611
			Max. Vy	20	-31.215	1898.784	-0.490
			Max. Vx	2	-35.056	1.797	2068.565
			Max. Torque	17			6.647
L31	84.667 - 80.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-104.508	-15.979	-7.240
			Max. Mx	8	-46.868	-2022.963	-6.381
			Max. My	14	-46.649	-5.824	-2210.563
			Max. Vy	20	-31.633	2019.592	-0.031
			Max. Vx	2	-35.505	2.526	2204.043
			Max. Torque	17			6.646
L32	80.833 - 80.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-104.797	-15.980	-7.217
			Max. Mx	8	-47.077	-2030.836	-6.375
			Max. My	14	-46.859	-5.814	-2219.420
			Max. Vy	20	-31.653	2027.528	0.001
			Max. Vx	2	-35.527	2.576	2212.938
			Max. Torque	17			6.645
L33	80.583 - 75.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-109.143	-16.533	-7.107
			Max. Mx	8	-49.680	-2190.023	-6.603
			Max. My	14	-49.473	-6.055	-2398.212
			Max. Vy	20	-32.142	2187.063	0.296
			Max. Vx	2	-36.024	3.132	2391.808

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L34	75.583 - 70.583	Pole	Max. Torque	17			6.645
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-113.755	-17.592	-6.997
			Max. Mx	8	-52.482	-2351.928	-6.823
			Max. My	14	-52.286	-6.642	-2579.475
			Max. Vy	20	-32.606	2348.624	0.599
			Max. Vx	2	-36.524	3.342	2573.164
L35	70.583 - 69.5	Pole	Max. Torque	17			6.645
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-115.911	-14.869	-8.649
			Max. Mx	8	-53.499	-2386.688	-7.305
			Max. My	14	-53.304	-6.037	-2619.695
			Max. Vy	20	-33.174	2384.872	0.243
			Max. Vx	2	-37.124	4.132	2612.504
L36	69.5 - 69.25	Pole	Max. Torque	17			6.644
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-116.218	-14.916	-8.642
			Max. Mx	8	-53.691	-2394.993	-7.315
			Max. My	14	-53.498	-6.077	-2628.969
			Max. Vy	20	-33.191	2393.145	0.265
			Max. Vx	2	-37.145	4.138	2621.792
L37	69.25 - 64.25	Pole	Max. Torque	7			-5.941
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-125.219	-16.648	-8.070
			Max. Mx	8	-60.085	-2563.435	-7.088
			Max. My	14	-59.884	-7.637	-2817.457
			Max. Vy	20	-33.802	2559.421	1.144
			Max. Vx	2	-38.492	3.503	2811.394
L38	64.25 - 60.583	Pole	Max. Torque	7			-5.941
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-132.497	-17.304	-7.848
			Max. Mx	8	-65.282	-2688.484	-7.051
			Max. My	14	-65.078	-8.328	-2960.142
			Max. Vy	20	-34.276	2683.789	1.658
			Max. Vx	2	-39.513	3.491	2954.634
L39	60.583 - 60.333	Pole	Max. Torque	7			-5.940
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-132.805	-17.323	-7.847
			Max. Mx	8	-65.489	-2697.040	-7.068
			Max. My	14	-65.287	-8.344	-2970.019
			Max. Vy	20	-34.292	2692.361	1.674
			Max. Vx	2	-39.531	3.521	2964.512
L40	60.333 - 55.333	Pole	Max. Torque	7			-5.940
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-138.867	-18.176	-7.731
			Max. Mx	8	-69.297	-2869.693	-7.310
			Max. My	14	-69.107	-8.943	-3168.842
			Max. Vy	20	-34.774	2864.772	2.084
			Max. Vx	2	-40.056	3.848	3163.508
L41	55.333 - 52.167	Pole	Max. Torque	7			-5.940
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-141.289	-18.638	-7.801
			Max. Mx	8	-70.802	-2980.110	-7.566
			Max. My	14	-70.621	-9.239	-3296.075
			Max. Vy	20	-35.043	2975.202	2.240
			Max. Vx	2	-40.321	4.137	3290.645
			Max. Torque	7			-5.939

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L42	52.167 - 51.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-141.502	-18.676	-7.808
			Max. Mx	8	-70.949	-2988.865	-7.586
			Max. My	14	-70.770	-9.262	-3306.158
			Max. Vy	20	-35.058	2983.958	2.251
			Max. Vx	2	-40.335	4.160	3300.720
			Max. Torque	7			-5.939
L43	51.917 - 46.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-146.540	-19.810	-7.792
			Max. Mx	8	-74.068	-3165.241	-7.996
			Max. My	14	-73.901	-9.855	-3509.048
			Max. Vy	20	-35.498	3160.100	2.492
			Max. Vx	2	-40.811	4.490	3503.446
			Max. Torque	7			-5.939
L44	46.917 - 41.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-153.062	-21.389	-7.353
			Max. Mx	8	-78.059	-3343.980	-8.187
			Max. My	14	-77.904	-10.683	-3714.100
			Max. Vy	20	-35.916	3338.136	2.950
			Max. Vx	2	-41.294	4.585	3708.770
			Max. Torque	7			-5.939
L45	41.917 - 40.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-155.074	-21.854	-7.195
			Max. Mx	8	-79.312	-3401.024	-8.243
			Max. My	14	-79.161	-10.938	-3779.547
			Max. Vy	20	-36.048	3394.971	3.099
			Max. Vx	2	-41.444	4.622	3774.312
			Max. Torque	7			-5.938
L46	40.333 - 40.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-155.358	-21.915	-7.162
			Max. Mx	8	-79.504	-3410.040	-8.248
			Max. My	14	-79.357	-10.972	-3789.893
			Max. Vy	20	-36.053	3403.965	3.126
			Max. Vx	2	-41.447	4.633	3784.679
			Max. Torque	7			-5.938
L47	40.083 - 35.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-161.125	-23.035	-6.593
			Max. Mx	8	-83.190	-3591.298	-8.359
			Max. My	14	-83.057	-11.663	-3997.766
			Max. Vy	20	-36.420	3584.788	3.662
			Max. Vx	2	-41.814	4.863	3992.980
			Max. Torque	7			-5.938
L48	35.083 - 30.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-166.181	-25.366	-7.318
			Max. Mx	8	-86.431	-3774.912	-8.844
			Max. My	14	-86.317	-12.599	-4208.100
			Max. Vy	20	-36.874	3767.424	3.792
			Max. Vx	2	-42.262	4.812	4202.952
			Max. Torque	7			-6.590
L49	30.083 - 28	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-167.980	-25.493	-7.235
			Max. Mx	8	-87.558	-3851.761	-9.000
			Max. My	14	-87.451	-12.774	-4296.236
			Max. Vy	20	-36.993	3844.290	3.881

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L50	28 - 27.75	Pole	Max. Vx	2	-42.375	4.996	4291.021
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-168.221	-25.508	-7.225
			Max. Mx	8	-87.723	-3861.001	-9.019
			Max. My	14	-87.619	-12.795	-4306.830
			Max. Vy	20	-36.997	3853.533	3.892
L51	27.75 - 22.75	Pole	Max. Vx	2	-42.376	5.018	4301.607
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-174.456	-25.740	-7.234
			Max. Mx	8	-91.851	-4046.590	-9.536
			Max. My	14	-91.762	-13.177	-4519.703
			Max. Vy	20	-37.319	4039.240	3.964
L52	22.75 - 20.083	Pole	Max. Vx	2	-42.711	5.496	4514.035
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-177.768	-25.863	-7.247
			Max. Mx	8	-94.081	-4146.205	-9.815
			Max. My	14	-94.001	-13.379	-4633.900
			Max. Vy	20	-37.483	4138.921	3.998
L53	20.083 - 19.833	Pole	Max. Vx	2	-42.882	5.751	4627.987
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-178.049	-25.875	-7.248
			Max. Mx	8	-94.279	-4155.564	-9.841
			Max. My	14	-94.201	-13.398	-4644.627
			Max. Vy	20	-37.481	4148.286	4.001
L54	19.833 - 17	Pole	Max. Vx	2	-42.878	5.775	4638.691
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-181.353	-26.073	-7.223
			Max. Mx	8	-96.430	-4261.845	-10.136
			Max. My	14	-96.362	-13.611	-4766.411
			Max. Vy	20	-37.647	4254.638	4.038
L55	17 - 16.75	Pole	Max. Vx	2	-43.050	6.047	4760.216
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-181.657	-26.109	-7.231
			Max. Mx	8	-96.654	-4271.243	-10.162
			Max. My	14	-96.589	-13.629	-4777.179
			Max. Vy	20	-37.638	4264.042	4.041
L56	16.75 - 11.65	Pole	Max. Vx	2	-43.039	6.071	4770.961
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-187.601	-26.786	-7.374
			Max. Mx	8	-100.888	-4463.724	-10.661
			Max. My	14	-100.840	-14.018	-4997.531
			Max. Vy	20	-37.926	4456.635	4.137
L57	11.65 - 11.417	Pole	Max. Vx	2	-43.325	6.551	4990.907
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-187.818	-26.814	-7.375
			Max. Mx	8	-101.050	-4472.553	-10.678
			Max. My	14	-101.005	-14.037	-5007.625
			Max. Vy	20	-37.925	4465.466	4.147
L58	11.417 - 9.375	Pole	Max. Vx	2	-43.321	6.572	5000.994
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-189.747	-27.092	-7.289

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L59	9.375 - 9.125	Pole	Max. Mx	8	-102.418	-4550.039	-10.829
			Max. My	14	-102.379	-14.205	-5096.193
			Max. Vy	20	-38.041	4542.972	4.234
			Max. Vx	2	-43.430	6.751	5089.498
			Max. Torque	7			-6.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-189.989	-27.127	-7.275
L60	9.125 - 4.833	Pole	Max. Mx	8	-102.598	-4559.540	-10.847
			Max. My	14	-102.561	-14.225	-5107.050
			Max. Vy	20	-38.040	4552.475	4.245
			Max. Vx	2	-43.426	6.773	5100.347
			Max. Torque	7			-6.589
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-194.117	-27.718	-7.035
L61	4.833 - 4.583	Pole	Max. Mx	8	-105.583	-4723.139	-11.162
			Max. My	14	-105.561	-14.575	-5293.882
			Max. Vy	20	-38.268	4716.117	4.427
			Max. Vx	2	-43.638	7.150	5287.045
			Max. Torque	7			-6.589
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-194.352	-27.752	-7.022
L62	4.583 - 0	Pole	Max. Mx	8	-105.760	-4732.697	-11.180
			Max. My	14	-105.740	-14.595	-5304.790
			Max. Vy	20	-38.264	4725.677	4.438
			Max. Vx	2	-43.631	7.172	5297.945
			Max. Torque	7			-6.589
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-198.522	-28.401	-6.762
			Max. Mx	8	-108.898	-4908.384	-11.513
			Max. My	14	-108.896	-14.966	-5505.186
			Max. Vy	20	-38.482	4901.410	4.633
			Max. Vx	2	-43.828	7.573	5498.199
			Max. Torque	7			-6.589

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	198.522	-0.000	-0.000
	Max. H_x	20	108.907	38.457	0.062
	Max. H_z	2	108.907	0.102	43.801
	Max. M_x	2	5498.199	0.102	43.801
	Max. M_z	8	4908.384	-38.417	-0.053
	Max. Torsion	19	6.488	33.075	-19.085
	Min. Vert	19	81.680	33.075	-19.085
	Min. H_x	8	108.907	-38.417	-0.053
	Min. H_z	14	108.907	-0.066	-43.792
	Min. M_x	14	-5505.186	-0.066	-43.792
	Min. M_z	20	-4901.410	38.457	0.062
	Min. Torsion	7	-6.589	-33.054	19.110

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	90.756	0.000	0.000	3.232	-4.786	-0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	108.907	-0.102	-43.801	-5498.199	7.574	5.196
0.9 Dead+1.6 Wind 0 deg - No Ice	81.680	-0.102	-43.801	-5446.431	8.981	5.197
1.2 Dead+1.6 Wind 30 deg - No Ice	108.907	19.467	-33.855	-4293.526	-2473.327	6.454
0.9 Dead+1.6 Wind 30 deg - No Ice	81.680	19.467	-33.855	-4252.753	-2447.806	6.461
1.2 Dead+1.6 Wind 60 deg - No Ice	108.907	33.054	-19.110	-2443.762	-4234.882	6.578
0.9 Dead+1.6 Wind 60 deg - No Ice	81.680	33.054	-19.110	-2420.865	-4192.012	6.589
1.2 Dead+1.6 Wind 90 deg - No Ice	108.907	38.417	0.053	11.513	-4908.384	4.958
0.9 Dead+1.6 Wind 90 deg - No Ice	81.680	38.417	0.053	10.387	-4859.002	4.971
1.2 Dead+1.6 Wind 120 deg - No Ice	108.907	34.755	20.170	2540.989	-4371.167	1.976
0.9 Dead+1.6 Wind 120 deg - No Ice	81.680	34.755	20.170	2515.380	-4327.418	1.986
1.2 Dead+1.6 Wind 150 deg - No Ice	108.907	21.983	38.153	4768.933	-2748.740	-2.244
0.9 Dead+1.6 Wind 150 deg - No Ice	81.680	21.983	38.153	4722.201	-2720.938	-2.239
1.2 Dead+1.6 Wind 180 deg - No Ice	108.907	0.066	43.792	5505.186	-14.966	-5.289
0.9 Dead+1.6 Wind 180 deg - No Ice	81.680	0.066	43.792	5451.316	-13.352	-5.290
1.2 Dead+1.6 Wind 210 deg - No Ice	108.907	-19.429	33.879	4304.374	2457.078	-6.470
0.9 Dead+1.6 Wind 210 deg - No Ice	81.680	-19.429	33.879	4261.472	2434.652	-6.477
1.2 Dead+1.6 Wind 240 deg - No Ice	108.907	-33.075	19.085	2448.616	4225.821	-6.477
0.9 Dead+1.6 Wind 240 deg - No Ice	81.680	-33.075	19.085	2423.642	4185.993	-6.488
1.2 Dead+1.6 Wind 270 deg - No Ice	108.907	-38.457	-0.062	-4.633	4901.410	-5.000
0.9 Dead+1.6 Wind 270 deg - No Ice	81.680	-38.457	-0.062	-5.604	4855.060	-5.013
1.2 Dead+1.6 Wind 300 deg - No Ice	108.907	-34.783	-20.184	-2534.831	4362.888	-1.991
0.9 Dead+1.6 Wind 300 deg - No Ice	81.680	-34.783	-20.184	-2511.317	4322.181	-2.001
1.2 Dead+1.6 Wind 330 deg - No Ice	108.907	-22.009	-38.181	-4764.331	2740.150	2.279
0.9 Dead+1.6 Wind 330 deg - No Ice	81.680	-22.009	-38.181	-4719.687	2715.383	2.274
1.2 Dead+1.0 Ice+1.0 Temp	198.522	0.000	0.000	6.762	-28.401	-0.001
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	198.522	-0.046	-14.512	-1852.226	-24.329	2.229
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	198.522	6.593	-11.510	-1495.680	-888.696	3.038
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	198.522	11.180	-6.491	-847.422	-1497.302	3.124
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	198.522	13.635	0.001	6.575	-1811.792	2.403
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	198.522	11.843	6.884	893.792	-1552.705	0.993

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
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	198.522	7.273	12.675	1621.213	-953.423	-0.818
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	198.522	0.005	14.497	1864.489	-28.979	-2.308
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	198.522	-6.590	11.512	1509.620	830.728	-3.037
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	198.522	-11.209	6.465	858.494	1442.757	-3.051
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	198.522	-13.657	-0.028	4.429	1756.748	-2.283
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	198.522	-11.861	-6.899	-881.702	1497.224	-0.960
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	198.522	-7.303	-12.684	-1608.592	898.999	0.740
Dead+Wind 0 deg - Service	90.756	-0.022	-9.372	-1167.039	-2.053	0.955
Dead+Wind 30 deg - Service	90.756	4.165	-7.244	-910.640	-529.682	1.384
Dead+Wind 60 deg - Service	90.756	7.072	-4.089	-517.221	-904.287	1.414
Dead+Wind 90 deg - Service	90.756	8.220	0.011	4.934	-1047.525	1.066
Dead+Wind 120 deg - Service	90.756	7.436	4.315	542.912	-933.342	0.445
Dead+Wind 150 deg - Service	90.756	4.704	8.163	1016.889	-588.354	-0.302
Dead+Wind 180 deg - Service	90.756	0.014	9.370	1173.493	-6.849	-0.975
Dead+Wind 210 deg - Service	90.756	-4.157	7.249	917.920	518.897	-1.388
Dead+Wind 240 deg - Service	90.756	-7.077	4.083	523.226	895.036	-1.393
Dead+Wind 270 deg - Service	90.756	-8.228	-0.013	1.500	1038.723	-1.075
Dead+Wind 300 deg - Service	90.756	-7.442	-4.319	-536.635	924.262	-0.448
Dead+Wind 330 deg - Service	90.756	-4.709	-8.169	-1010.947	579.202	0.310

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.000	-90.756	0.000	0.000	90.756	0.000	0.000%
2	-0.102	-108.907	-43.801	0.102	108.907	43.801	0.000%
3	-0.102	-81.680	-43.801	0.102	81.680	43.801	0.000%
4	19.467	-108.907	-33.855	-19.467	108.907	33.855	0.000%
5	19.467	-81.680	-33.855	-19.467	81.680	33.855	0.000%
6	33.054	-108.907	-19.110	-33.054	108.907	19.110	0.000%
7	33.054	-81.680	-19.110	-33.054	81.680	19.110	0.000%
8	38.417	-108.907	0.053	-38.417	108.907	-0.053	0.000%
9	38.417	-81.680	0.053	-38.417	81.680	-0.053	0.000%
10	34.755	-108.907	20.170	-34.755	108.907	-20.170	0.000%
11	34.755	-81.680	20.170	-34.755	81.680	-20.170	0.000%
12	21.983	-108.907	38.153	-21.983	108.907	-38.153	0.000%
13	21.983	-81.680	38.153	-21.983	81.680	-38.153	0.000%
14	0.066	-108.907	43.792	-0.066	108.907	-43.792	0.000%
15	0.066	-81.680	43.792	-0.066	81.680	-43.792	0.000%
16	-19.429	-108.907	33.879	19.429	108.907	-33.879	0.000%
17	-19.429	-81.680	33.879	19.429	81.680	-33.879	0.000%
18	-33.075	-108.907	19.085	33.075	108.907	-19.085	0.000%
19	-33.075	-81.680	19.085	33.075	81.680	-19.085	0.000%
20	-38.457	-108.907	-0.062	38.457	108.907	0.062	0.000%
21	-38.457	-81.680	-0.062	38.457	81.680	0.062	0.000%
22	-34.783	-108.907	-20.184	34.783	108.907	20.184	0.000%
23	-34.783	-81.680	-20.184	34.783	81.680	20.184	0.000%
24	-22.009	-108.907	-38.181	22.009	108.907	38.181	0.000%
25	-22.009	-81.680	-38.181	22.009	81.680	38.181	0.000%
26	0.000	-198.522	0.000	-0.000	198.522	-0.000	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
27	-0.046	-198.522	-14.512	0.046	198.522	14.512	0.000%
28	6.593	-198.522	-11.510	-6.593	198.522	11.510	0.000%
29	11.180	-198.522	-6.491	-11.180	198.522	6.491	0.000%
30	13.635	-198.522	0.001	-13.635	198.522	-0.001	0.000%
31	11.843	-198.522	6.884	-11.843	198.522	-6.884	0.000%
32	7.273	-198.522	12.675	-7.273	198.522	-12.675	0.000%
33	0.005	-198.522	14.497	-0.005	198.522	-14.497	0.000%
34	-6.590	-198.522	11.512	6.590	198.522	-11.512	0.000%
35	-11.209	-198.522	6.465	11.209	198.522	-6.465	0.000%
36	-13.657	-198.522	-0.028	13.657	198.522	0.028	0.000%
37	-11.861	-198.522	-6.899	11.861	198.522	6.899	0.000%
38	-7.303	-198.522	-12.684	7.303	198.522	12.684	0.000%
39	-0.022	-90.756	-9.372	0.022	90.756	9.372	0.000%
40	4.165	-90.756	-7.244	-4.165	90.756	7.244	0.000%
41	7.072	-90.756	-4.089	-7.072	90.756	4.089	0.000%
42	8.220	-90.756	0.011	-8.220	90.756	-0.011	0.000%
43	7.436	-90.756	4.315	-7.436	90.756	-4.315	0.000%
44	4.704	-90.756	8.163	-4.704	90.756	-8.163	0.000%
45	0.014	-90.756	9.370	-0.014	90.756	-9.370	0.000%
46	-4.157	-90.756	7.249	4.157	90.756	-7.249	0.000%
47	-7.077	-90.756	4.083	7.077	90.756	-4.083	0.000%
48	-8.228	-90.756	-0.013	8.228	90.756	0.013	0.000%
49	-7.442	-90.756	-4.319	7.442	90.756	4.319	0.000%
50	-4.709	-90.756	-8.169	4.709	90.756	8.169	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000415
2	Yes	5	0.00000001	0.00080683
3	Yes	5	0.00000001	0.00040203
4	Yes	6	0.00000001	0.00024218
5	Yes	6	0.00000001	0.00008899
6	Yes	6	0.00000001	0.00019746
7	Yes	6	0.00000001	0.00007167
8	Yes	5	0.00000001	0.00064572
9	Yes	5	0.00000001	0.00032561
10	Yes	6	0.00000001	0.00022976
11	Yes	6	0.00000001	0.00008342
12	Yes	6	0.00000001	0.00027811
13	Yes	6	0.00000001	0.00009947
14	Yes	5	0.00000001	0.00087344
15	Yes	5	0.00000001	0.00043545
16	Yes	6	0.00000001	0.00019913
17	Yes	6	0.00000001	0.00007211
18	Yes	6	0.00000001	0.00023685
19	Yes	6	0.00000001	0.00008717
20	Yes	5	0.00000001	0.00061694
21	Yes	5	0.00000001	0.00031098
22	Yes	6	0.00000001	0.00021985
23	Yes	6	0.00000001	0.00007979
24	Yes	6	0.00000001	0.00025586
25	Yes	6	0.00000001	0.00009120
26	Yes	5	0.00000001	0.00026749
27	Yes	7	0.00000001	0.00012859

28	Yes	7	0.00000001	0.00013898
29	Yes	7	0.00000001	0.00013591
30	Yes	7	0.00000001	0.00012979
31	Yes	7	0.00000001	0.00014201
32	Yes	7	0.00000001	0.00014898
33	Yes	7	0.00000001	0.00013085
34	Yes	7	0.00000001	0.00013480
35	Yes	7	0.00000001	0.00013390
36	Yes	7	0.00000001	0.00012443
37	Yes	7	0.00000001	0.00013423
38	Yes	7	0.00000001	0.00014122
39	Yes	5	0.00000001	0.00004425
40	Yes	5	0.00000001	0.00007995
41	Yes	5	0.00000001	0.00006105
42	Yes	4	0.00000001	0.00095811
43	Yes	5	0.00000001	0.00006861
44	Yes	5	0.00000001	0.00008177
45	Yes	5	0.00000001	0.00004539
46	Yes	5	0.00000001	0.00006187
47	Yes	5	0.00000001	0.00007764
48	Yes	4	0.00000001	0.00094656
49	Yes	5	0.00000001	0.00006250
50	Yes	5	0.00000001	0.00007184

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.667 - 186.667	19.852	45	0.947	0.007
L2	186.667 - 181.567	18.862	45	0.946	0.006
L3	181.567 - 176.567	17.852	45	0.945	0.006
L4	176.567 - 171.567	16.865	45	0.941	0.006
L5	171.567 - 166.567	15.884	45	0.933	0.005
L6	166.567 - 161.567	14.913	45	0.921	0.005
L7	161.567 - 156.567	13.958	45	0.904	0.005
L8	156.567 - 151.567	13.023	45	0.881	0.004
L9	151.567 - 146.567	12.117	45	0.848	0.004
L10	146.567 - 141.567	11.250	45	0.803	0.003
L11	141.567 - 141.417	10.440	45	0.742	0.003
L12	141.417 - 136.417	10.416	45	0.740	0.003
L13	136.417 - 131.417	9.653	45	0.717	0.003
L14	131.417 - 126.417	8.916	45	0.689	0.003
L15	126.417 - 121.417	8.211	45	0.656	0.002
L16	121.417 - 121.167	7.543	45	0.618	0.002
L17	121.167 - 116.167	7.511	45	0.616	0.002
L18	116.167 - 111.167	6.881	45	0.588	0.002
L19	111.167 - 110.042	6.282	45	0.556	0.002
L20	110.042 - 109.792	6.151	45	0.548	0.002
L21	109.792 - 105.083	6.123	45	0.547	0.002
L22	105.083 - 104.833	5.597	45	0.519	0.001
L23	104.833 - 100.917	5.570	45	0.518	0.001
L24	100.917 - 100.667	5.154	45	0.496	0.001
L25	100.667 - 95.833	5.128	45	0.494	0.001
L26	95.833 - 95.583	4.642	45	0.465	0.001
L27	95.583 - 90.583	4.618	45	0.463	0.001
L28	90.583 - 89.917	4.146	45	0.436	0.001
L29	89.917 - 89.667	4.086	45	0.433	0.001
L30	89.667 - 84.667	4.063	45	0.431	0.001
L31	84.667 - 80.833	3.624	45	0.406	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L32	80.833 - 80.583	3.306	45	0.386	0.001
L33	80.583 - 75.583	3.286	45	0.385	0.001
L34	75.583 - 70.583	2.896	45	0.361	0.001
L35	70.583 - 69.5	2.532	44	0.335	0.001
L36	69.5 - 69.25	2.456	44	0.329	0.001
L37	69.25 - 64.25	2.439	44	0.328	0.001
L38	64.25 - 60.583	2.108	44	0.305	0.001
L39	60.583 - 60.333	1.881	44	0.286	0.001
L40	60.333 - 55.333	1.866	44	0.285	0.001
L41	55.333 - 52.167	1.579	44	0.263	0.001
L42	52.167 - 51.917	1.409	44	0.249	0.000
L43	51.917 - 46.917	1.396	44	0.248	0.000
L44	46.917 - 41.917	1.147	44	0.228	0.000
L45	41.917 - 40.333	0.920	44	0.206	0.000
L46	40.333 - 40.083	0.853	44	0.199	0.000
L47	40.083 - 35.083	0.842	44	0.198	0.000
L48	35.083 - 30.083	0.647	44	0.174	0.000
L49	30.083 - 28	0.478	44	0.149	0.000
L50	28 - 27.75	0.415	44	0.138	0.000
L51	27.75 - 22.75	0.408	44	0.137	0.000
L52	22.75 - 20.083	0.276	44	0.115	0.000
L53	20.083 - 19.833	0.215	44	0.102	0.000
L54	19.833 - 17	0.210	44	0.101	0.000
L55	17 - 16.75	0.155	44	0.085	0.000
L56	16.75 - 11.65	0.150	44	0.084	0.000
L57	11.65 - 11.417	0.074	44	0.059	0.000
L58	11.417 - 9.375	0.071	44	0.058	0.000
L59	9.375 - 9.125	0.048	44	0.048	0.000
L60	9.125 - 4.833	0.046	44	0.047	0.000
L61	4.833 - 4.583	0.013	44	0.026	0.000
L62	4.583 - 0	0.012	44	0.025	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.000	OGB4-900D	45	19.852	0.947	0.007	197537
191.667	Lightning Rod 5/8" x 4' on 4' Pole	45	19.852	0.947	0.007	197537
191.000	DB589-A	45	19.720	0.947	0.007	197537
184.000	LNX-6515DS-VTM w/ Mount Pipe	45	18.334	0.945	0.006	175529
178.000	4' ICE SHIELDS	45	17.148	0.942	0.006	61755
160.000	(2) HBXX-6517DS-VTM w/ Mount Pipe	45	13.662	0.897	0.005	13130
158.000	SRL-224NM-4	45	13.288	0.888	0.005	11452
151.000	7770.00 w/ Mount Pipe	45	12.016	0.844	0.004	7224
150.000	DC6-48-60-18-8F	45	11.840	0.836	0.004	6755
138.000	4' ICE SHIELDS	45	9.892	0.720	0.003	10908
132.000	SRL-235-2	45	9.000	0.693	0.003	9583
124.000	PCS 1900 TMA RX	45	7.883	0.638	0.002	7740
120.000	Andrew VHLP2-18	45	7.361	0.607	0.002	9117
116.000	(3) 844G65VTZAS w/ Mount Pipe	45	6.860	0.587	0.002	9541
114.500	Miscellaneous [NA 509-3]	45	6.677	0.579	0.002	9180
98.000	4' ICE SHIELDS	45	4.856	0.478	0.001	9611
90.000	KP2F-34	45	4.093	0.433	0.001	10918
70.000	SRL-235-2	44	2.491	0.332	0.001	11448
33.000	DB909XVTE-M	44	0.573	0.164	0.000	11433

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.667 - 186.667	92.988	14	4.426	0.033
L2	186.667 - 181.567	88.359	14	4.422	0.030
L3	181.567 - 176.567	83.642	14	4.419	0.029
L4	176.567 - 171.567	79.026	14	4.402	0.027
L5	171.567 - 166.567	74.439	14	4.366	0.025
L6	166.567 - 161.567	69.899	14	4.309	0.024
L7	161.567 - 156.567	65.431	14	4.230	0.022
L8	156.567 - 151.567	61.058	14	4.123	0.021
L9	151.567 - 146.567	56.819	14	3.972	0.018
L10	146.567 - 141.567	52.765	14	3.764	0.016
L11	141.567 - 141.417	48.968	14	3.479	0.014
L12	141.417 - 136.417	48.859	14	3.469	0.014
L13	136.417 - 131.417	45.283	14	3.362	0.013
L14	131.417 - 126.417	41.829	14	3.232	0.013
L15	126.417 - 121.417	38.525	14	3.077	0.011
L16	121.417 - 121.167	35.396	14	2.897	0.010
L17	121.167 - 116.167	35.245	14	2.888	0.010
L18	116.167 - 111.167	32.289	14	2.757	0.009
L19	111.167 - 110.042	29.479	14	2.608	0.008
L20	110.042 - 109.792	28.869	14	2.571	0.008
L21	109.792 - 105.083	28.734	14	2.565	0.007
L22	105.083 - 104.833	26.268	14	2.437	0.007
L23	104.833 - 100.917	26.140	14	2.430	0.007
L24	100.917 - 100.667	24.189	14	2.327	0.006
L25	100.667 - 95.833	24.068	14	2.320	0.006
L26	95.833 - 95.583	21.788	14	2.181	0.006
L27	95.583 - 90.583	21.674	14	2.175	0.006
L28	90.583 - 89.917	19.462	14	2.048	0.005
L29	89.917 - 89.667	19.178	14	2.031	0.005
L30	89.667 - 84.667	19.072	14	2.025	0.005
L31	84.667 - 80.833	17.012	14	1.908	0.004
L32	80.833 - 80.583	15.520	14	1.810	0.004
L33	80.583 - 75.583	15.425	14	1.805	0.004
L34	75.583 - 70.583	13.593	14	1.693	0.004
L35	70.583 - 69.5	11.882	14	1.572	0.003
L36	69.5 - 69.25	11.529	14	1.545	0.003
L37	69.25 - 64.25	11.448	14	1.540	0.003
L38	64.25 - 60.583	9.893	14	1.430	0.003
L39	60.583 - 60.333	8.828	14	1.344	0.003
L40	60.333 - 55.333	8.757	14	1.339	0.003
L41	55.333 - 52.167	7.409	14	1.236	0.002
L42	52.167 - 51.917	6.612	14	1.167	0.002
L43	51.917 - 46.917	6.551	14	1.163	0.002
L44	46.917 - 41.917	5.382	14	1.068	0.002
L45	41.917 - 40.333	4.315	14	0.968	0.002
L46	40.333 - 40.083	3.999	14	0.936	0.002
L47	40.083 - 35.083	3.951	14	0.930	0.002
L48	35.083 - 30.083	3.035	14	0.818	0.001
L49	30.083 - 28	2.240	14	0.700	0.001
L50	28 - 27.75	1.946	14	0.649	0.001
L51	27.75 - 22.75	1.912	14	0.644	0.001
L52	22.75 - 20.083	1.293	14	0.538	0.001
L53	20.083 - 19.833	1.009	14	0.479	0.001
L54	19.833 - 17	0.984	14	0.473	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L55	17 - 16.75	0.725	14	0.399	0.001
L56	16.75 - 11.65	0.704	14	0.393	0.001
L57	11.65 - 11.417	0.346	14	0.277	0.000
L58	11.417 - 9.375	0.332	14	0.272	0.000
L59	9.375 - 9.125	0.226	14	0.224	0.000
L60	9.125 - 4.833	0.215	14	0.219	0.000
L61	4.833 - 4.583	0.062	14	0.121	0.000
L62	4.583 - 0	0.056	14	0.115	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.000	OGB4-900D	14	92.988	4.426	0.033	45491
191.667	Lightning Rod 5/8" x 4' on 4' Pole	14	92.988	4.426	0.033	45491
191.000	DB589-A	14	92.370	4.426	0.033	45491
184.000	LNX-6515DS-VTM w/ Mount Pipe	14	85.891	4.421	0.029	44345
178.000	4' ICE SHIELDS	14	80.347	4.408	0.027	14009
160.000	(2) HBXX-6517DS-VTM w/ Mount Pipe	14	64.048	4.200	0.022	2853
158.000	SRL-224NM-4	14	62.299	4.157	0.021	2489
151.000	7770.00 w/ Mount Pipe	14	56.348	3.952	0.018	1570
150.000	DC6-48-60-18-8F	14	55.525	3.914	0.018	1468
138.000	4' ICE SHIELDS	14	46.402	3.375	0.013	2353
132.000	SRL-235-2	14	42.225	3.251	0.013	2067
124.000	PCS 1900 TMA RX	14	36.989	2.994	0.010	1668
120.000	Andrew VHLP2-18	14	34.543	2.849	0.009	1963
116.000	(3) 844G65VTZAS w/ Mount Pipe	14	32.193	2.753	0.009	2053
114.500	Miscellaneous [NA 509-3]	14	31.335	2.714	0.008	1974
98.000	4' ICE SHIELDS	14	22.793	2.241	0.006	2057
90.000	KP2F-34	14	19.213	2.033	0.005	2335
70.000	SRL-235-2	14	11.691	1.557	0.003	2444
33.000	DB909XVTE-M	14	2.689	0.770	0.001	2435

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	191.667 - 186.667 (1)	P18x0.375	5.000	0.000	0.0	20.764	-1.781	784.878	0.002
L2	186.667 - 181.567 (2)	P24x0.375	5.100	0.000	0.0	27.833	-11.476	1052.070	0.011
L3	181.567 - 176.567 (3)	P24x0.375	5.000	0.000	0.0	27.833	-5.062	1052.070	0.005
L4	176.567 - 171.567 (4)	P24x0.375	5.000	0.000	0.0	27.833	-5.767	1052.070	0.005

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L5	171.567 - 166.567 (5)	P24x0.375	5.000	0.000	0.0	27.833	-6.475	1052.070	0.006
L6	166.567 - 161.567 (6)	P24x0.375	5.000	0.000	0.0	27.833	-7.186	1052.070	0.007
L7	161.567 - 156.567 (7)	P24x0.375	5.000	0.000	0.0	27.833	-10.893	1052.070	0.010
L8	156.567 - 151.567 (8)	P24x0.375	5.000	0.000	0.0	27.833	-11.646	1052.070	0.011
L9	151.567 - 146.567 (9)	P24x0.375	5.000	0.000	0.0	27.833	-17.301	1052.070	0.016
L10	146.567 - 141.567 (10)	P24x0.375	5.000	0.000	0.0	27.833	-18.198	1052.070	0.017
L11	141.567 - 141.417 (11)	P24x0.375	0.150	0.000	0.0	27.833	-18.236	1052.070	0.017
L12	141.417 - 136.417 (12)	P36x0.375	5.000	0.000	0.0	41.970	-19.405	1490.100	0.013
L13	136.417 - 131.417 (13)	P36x0.375	5.000	0.000	0.0	41.970	-21.032	1490.100	0.014
L14	131.417 - 126.417 (14)	P36x0.375	5.000	0.000	0.0	41.970	-22.235	1490.100	0.015
L15	126.417 - 121.417 (15)	P36x0.375	5.000	0.000	0.0	41.970	-24.484	1490.100	0.016
L16	121.417 - 121.167 (16)	P36x0.375	0.250	0.000	0.0	41.970	-24.563	1490.100	0.016
L17	121.167 - 116.167 (17)	P42x0.375	5.000	0.000	0.0	49.038	-26.078	1668.870	0.016
L18	116.167 - 111.167 (18)	P42x0.375	5.000	0.000	0.0	49.038	-31.492	1668.870	0.019
L19	111.167 - 110.042 (19)	P42x0.375	1.125	0.000	0.0	49.038	-31.810	1668.870	0.019
L20	110.042 - 109.792 (20)	P42x0.4875	0.250	0.000	0.0	63.577	-31.902	2332.130	0.014
L21	109.792 - 105.083 (21)	P42x0.4875	4.709	0.000	0.0	63.577	-33.567	2332.130	0.014
L22	105.083 - 104.833 (22)	P42x0.5625	0.250	0.000	0.0	73.226	-33.680	2767.950	0.012
L23	104.833 - 100.917 (23)	P42x0.5625	3.916	0.000	0.0	73.226	-36.121	2767.950	0.013
L24	100.917 - 100.667 (24)	P48x0.375	0.250	0.000	0.0	56.107	-36.235	1847.490	0.020
L25	100.667 - 95.833 (25)	P48x0.375	4.834	0.000	0.0	56.107	-38.116	1847.490	0.021
L26	95.833 - 95.583 (26)	P48x0.475	0.250	0.000	0.0	70.920	-38.217	2481.390	0.015
L27	95.583 - 90.583 (27)	P48x0.475	5.000	0.000	0.0	70.920	-40.041	2481.390	0.016
L28	90.583 - 89.917 (28)	P48x0.475	0.666	0.000	0.0	70.920	-40.443	2481.390	0.016
L29	89.917 - 89.667 (29)	P48x0.575	0.250	0.000	0.0	85.669	-40.560	3174.020	0.013
L30	89.667 - 84.667 (30)	P48x0.575	5.000	0.000	0.0	85.669	-43.438	3174.020	0.014
L31	84.667 - 80.833 (31)	P48x0.575	3.834	0.000	0.0	85.669	-46.649	3174.020	0.015
L32	80.833 - 80.583 (32)	P54x0.4875	0.250	0.000	0.0	81.956	-46.859	2797.170	0.017
L33	80.583 - 75.583 (33)	P54x0.4875	5.000	0.000	0.0	81.956	-49.473	2797.170	0.018
L34	75.583 - 70.583 (34)	P54x0.4875	5.000	0.000	0.0	81.956	-52.286	2797.170	0.019

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L35	70.583 - 69.5 (35)	P54x0.4875	1.083	0.000	0.0	81.956	-53.304	2797.170	0.019
L36	69.5 - 69.25 (36)	P54x0.5875	0.250	0.000	0.0	98.583	-53.498	3545.230	0.015
L37	69.25 - 64.25 (37)	P54x0.5875	5.000	0.000	0.0	98.583	-59.884	3545.230	0.017
L38	64.25 - 60.583 (38)	P54x0.5875	3.667	0.000	0.0	98.583	-65.078	3545.230	0.018
L39	60.583 - 60.333 (39)	P60x0.5125	0.250	0.000	0.0	95.779	-65.287	3222.890	0.020
L40	60.333 - 55.333 (40)	P60x0.5125	5.000	0.000	0.0	95.779	-69.107	3222.890	0.021
L41	55.333 - 52.167 (41)	P60x0.5125	3.166	0.000	0.0	95.779	-70.621	3222.890	0.022
L42	52.167 - 51.917 (42)	P60x0.625	0.250	0.000	0.0	116.583	-70.770	4139.150	0.017
L43	51.917 - 46.917 (43)	P60x0.625	5.000	0.000	0.0	116.583	-73.901	4139.150	0.018
L44	46.917 - 41.917 (44)	P60x0.625	5.000	0.000	0.0	116.583	-77.904	4139.150	0.019
L45	41.917 - 40.333 (45)	P60x0.625	1.584	0.000	0.0	116.583	-79.161	4139.150	0.019
L46	40.333 - 40.083 (46)	P60x0.6	0.250	0.000	0.0	111.966	-79.356	3929.110	0.020
L47	40.083 - 35.083 (47)	P60x0.6	5.000	0.000	0.0	111.966	-83.057	3929.110	0.021
L48	35.083 - 30.083 (48)	P60x0.6	5.000	0.000	0.0	111.966	-86.317	3929.110	0.022
L49	30.083 - 28 (49)	P60x0.6	2.083	0.000	0.0	111.966	-87.451	3929.110	0.022
L50	28 - 27.75 (50)	P60x0.725	0.250	0.000	0.0	135.008	-87.619	5015.910	0.017
L51	27.75 - 22.75 (51)	P60x0.725	5.000	0.000	0.0	135.008	-91.762	5015.910	0.018
L52	22.75 - 20.083 (52)	P60x0.725	2.667	0.000	0.0	135.008	-94.001	5015.910	0.019
L53	20.083 - 19.833 (53)	P60x0.625	0.250	0.000	0.0	116.583	-94.201	4139.150	0.023
L54	19.833 - 17 (54)	P60x0.625	2.833	0.000	0.0	116.583	-96.362	4139.150	0.023
L55	17 - 16.75 (55)	P60x0.725	0.250	0.000	0.0	135.008	-96.589	5015.910	0.019
L56	16.75 - 11.65 (56)	P60x0.75	5.100	0.000	0.0	139.605	-100.840	5244.230	0.019
L57	11.65 - 11.417 (57)	P60x0.75	0.233	0.000	0.0	139.605	-101.005	5244.230	0.019
L58	11.417 - 9.375 (58)	P60x0.75	2.042	0.000	0.0	139.605	-102.379	5244.230	0.020
L59	9.375 - 9.125 (59)	P60x0.8	0.250	0.000	0.0	148.786	-102.561	5624.100	0.018
L60	9.125 - 4.833 (60)	P60x0.8	4.292	0.000	0.0	148.786	-105.561	5624.100	0.019
L61	4.833 - 4.583 (61)	P60x0.75	0.250	0.000	0.0	139.605	-105.740	5244.230	0.020
L62	4.583 - 0 (62)	P60x0.75	4.583	0.000	0.0	139.605	-108.896	5244.230	0.021

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	191.667 - 186.667 (1)	P18x0.375	5.356	367.000	0.015	0.000	367.000	0.000
L2	186.667 - 181.567 (2)	P24x0.375	8.844	623.717	0.014	0.000	623.717	0.000
L3	181.567 - 176.567 (3)	P24x0.375	36.167	623.717	0.058	0.000	623.717	0.000
L4	176.567 - 171.567 (4)	P24x0.375	63.703	623.717	0.102	0.000	623.717	0.000
L5	171.567 - 166.567 (5)	P24x0.375	92.881	623.717	0.149	0.000	623.717	0.000
L6	166.567 - 161.567 (6)	P24x0.375	123.669	623.717	0.198	0.000	623.717	0.000
L7	161.567 - 156.567 (7)	P24x0.375	174.778	623.717	0.280	0.000	623.717	0.000
L8	156.567 - 151.567 (8)	P24x0.375	237.699	623.717	0.381	0.000	623.717	0.000
L9	151.567 - 146.567 (9)	P24x0.375	336.308	623.717	0.539	0.000	623.717	0.000
L10	146.567 - 141.567 (10)	P24x0.375	442.068	623.717	0.709	0.000	623.717	0.000
L11	141.567 - 141.417 (11)	P24x0.375	445.290	623.717	0.714	0.000	623.717	0.000
L12	141.417 - 136.417 (12)	P36x0.375	554.038	1338.808	0.414	0.000	1338.808	0.000
L13	136.417 - 131.417 (13)	P36x0.375	666.498	1338.808	0.498	0.000	1338.808	0.000
L14	131.417 - 126.417 (14)	P36x0.375	782.965	1338.808	0.585	0.000	1338.808	0.000
L15	126.417 - 121.417 (15)	P36x0.375	903.583	1338.808	0.675	0.000	1338.808	0.000
L16	121.417 - 121.167 (16)	P36x0.375	909.767	1338.808	0.680	0.000	1338.808	0.000
L17	121.167 - 116.167 (17)	P42x0.375	1035.583	1796.558	0.576	0.000	1796.558	0.000
L18	116.167 - 111.167 (18)	P42x0.375	1194.675	1796.558	0.665	0.000	1796.558	0.000
L19	111.167 - 110.042 (19)	P42x0.375	1229.575	1796.558	0.684	0.000	1796.558	0.000
L20	110.042 - 109.792 (20)	P42x0.4875	1237.342	2395.433	0.517	0.000	2395.433	0.000
L21	109.792 - 105.083 (21)	P42x0.4875	1385.675	2395.433	0.578	0.000	2395.433	0.000
L22	105.083 - 104.833 (22)	P42x0.5625	1393.708	2809.308	0.496	0.000	2809.308	0.000
L23	104.833 - 100.917 (23)	P42x0.5625	1521.517	2809.308	0.542	0.000	2809.308	0.000
L24	100.917 - 100.667 (24)	P48x0.375	1529.792	2321.108	0.659	0.000	2321.108	0.000
L25	100.667 - 95.833 (25)	P48x0.375	1691.242	2321.108	0.729	0.000	2321.108	0.000
L26	95.833 - 95.583 (26)	P48x0.475	1699.658	2999.958	0.567	0.000	2999.958	0.000
L27	95.583 - 90.583 (27)	P48x0.475	1869.383	2999.958	0.623	0.000	2999.958	0.000
L28	90.583 - 89.917 (28)	P48x0.475	1893.183	2999.958	0.631	0.000	2999.958	0.000
L29	89.917 - 89.667 (29)	P48x0.575	1901.817	3702.967	0.514	0.000	3702.967	0.000
L30	89.667 - 84.667 (30)	P48x0.575	2075.617	3702.967	0.561	0.000	3702.967	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L31	84.667 - 80.833 (31)	P48x0.575	2210.567	3702.967	0.597	0.000	3702.967	0.000
L32	80.833 - 80.583 (32)	P54x0.4875	2219.425	3864.467	0.574	0.000	3864.467	0.000
L33	80.583 - 75.583 (33)	P54x0.4875	2398.217	3864.467	0.621	0.000	3864.467	0.000
L34	75.583 - 70.583 (34)	P54x0.4875	2579.483	3864.467	0.667	0.000	3864.467	0.000
L35	70.583 - 69.5 (35)	P54x0.4875	2619.700	3864.467	0.678	0.000	3864.467	0.000
L36	69.5 - 69.25 (36)	P54x0.5875	2628.975	4739.867	0.555	0.000	4739.867	0.000
L37	69.25 - 64.25 (37)	P54x0.5875	2817.467	4739.867	0.594	0.000	4739.867	0.000
L38	64.25 - 60.583 (38)	P54x0.5875	2960.150	4739.867	0.625	0.000	4739.867	0.000
L39	60.583 - 60.333 (39)	P60x0.5125	2970.033	4992.042	0.595	0.000	4992.042	0.000
L40	60.333 - 55.333 (40)	P60x0.5125	3168.858	4992.042	0.635	0.000	4992.042	0.000
L41	55.333 - 52.167 (41)	P60x0.5125	3296.092	4992.042	0.660	0.000	4992.042	0.000
L42	52.167 - 51.917 (42)	P60x0.625	3306.175	6198.183	0.533	0.000	6198.183	0.000
L43	51.917 - 46.917 (43)	P60x0.625	3509.058	6198.183	0.566	0.000	6198.183	0.000
L44	46.917 - 41.917 (44)	P60x0.625	3714.117	6198.183	0.599	0.000	6198.183	0.000
L45	41.917 - 40.333 (45)	P60x0.625	3779.567	6198.183	0.610	0.000	6198.183	0.000
L46	40.333 - 40.083 (46)	P60x0.6	3789.908	5926.841	0.639	0.000	5926.841	0.000
L47	40.083 - 35.083 (47)	P60x0.6	3997.783	5926.841	0.675	0.000	5926.841	0.000
L48	35.083 - 30.083 (48)	P60x0.6	4208.117	5926.841	0.710	0.000	5926.841	0.000
L49	30.083 - 28 (49)	P60x0.6	4296.258	5926.841	0.725	0.000	5926.841	0.000
L50	28 - 27.75 (50)	P60x0.725	4306.850	7302.233	0.590	0.000	7302.233	0.000
L51	27.75 - 22.75 (51)	P60x0.725	4519.725	7302.233	0.619	0.000	7302.233	0.000
L52	22.75 - 20.083 (52)	P60x0.725	4633.917	7302.233	0.635	0.000	7302.233	0.000
L53	20.083 - 19.833 (53)	P60x0.625	4644.650	6198.183	0.749	0.000	6198.183	0.000
L54	19.833 - 17 (54)	P60x0.625	4766.433	6198.183	0.769	0.000	6198.183	0.000
L55	17 - 16.75 (55)	P60x0.725	4777.200	7302.233	0.654	0.000	7302.233	0.000
L56	16.75 - 11.65 (56)	P60x0.75	4997.550	7582.875	0.659	0.000	7582.875	0.000
L57	11.65 - 11.417 (57)	P60x0.75	5007.642	7582.875	0.660	0.000	7582.875	0.000
L58	11.417 - 9.375 (58)	P60x0.75	5096.217	7582.875	0.672	0.000	7582.875	0.000
L59	9.375 - 9.125 (59)	P60x0.8	5107.067	8149.650	0.627	0.000	8149.650	0.000
L60	9.125 - 4.833 (60)	P60x0.8	5293.900	8149.650	0.650	0.000	8149.650	0.000
L61	4.833 - 4.583 (61)	P60x0.75	5304.808	7582.875	0.700	0.000	7582.875	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L62	4.583 - 0 (62)	P60x0.75	5505.208	7582.875	0.726	0.000	7582.875	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	191.667 - 186.667 (1)	P18x0.375	0.345	392.439	0.001	0.060	564.642	0.000
L2	186.667 - 181.567 (2)	P24x0.375	1.890	526.035	0.004	0.367	1019.708	0.000
L3	181.567 - 176.567 (3)	P24x0.375	5.334	526.035	0.010	0.962	1019.708	0.001
L4	176.567 - 171.567 (4)	P24x0.375	5.665	526.035	0.011	0.962	1019.708	0.001
L5	171.567 - 166.567 (5)	P24x0.375	5.990	526.035	0.011	0.962	1019.708	0.001
L6	166.567 - 161.567 (6)	P24x0.375	6.309	526.035	0.012	0.962	1019.708	0.001
L7	161.567 - 156.567 (7)	P24x0.375	12.213	526.035	0.023	0.929	1019.708	0.001
L8	156.567 - 151.567 (8)	P24x0.375	12.940	526.035	0.025	1.083	1019.708	0.001
L9	151.567 - 146.567 (9)	P24x0.375	20.824	526.035	0.040	2.122	1019.708	0.002
L10	146.567 - 141.567 (10)	P24x0.375	21.476	526.035	0.041	2.264	1019.708	0.002
L11	141.567 - 141.417 (11)	P24x0.375	21.488	526.035	0.041	2.268	1019.708	0.002
L12	141.417 - 136.417 (12)	P36x0.375	22.044	745.048	0.030	2.268	2189.067	0.001
L13	136.417 - 131.417 (13)	P36x0.375	23.056	745.048	0.031	2.686	2189.067	0.001
L14	131.417 - 126.417 (14)	P36x0.375	23.543	745.048	0.032	4.657	2189.067	0.002
L15	126.417 - 121.417 (15)	P36x0.375	24.719	745.048	0.033	4.819	2189.067	0.002
L16	121.417 - 121.167 (16)	P36x0.375	24.736	745.048	0.033	4.819	2189.067	0.002
L17	121.167 - 116.167 (17)	P42x0.375	25.394	834.437	0.030	3.076	2868.842	0.001
L18	116.167 - 111.167 (18)	P42x0.375	30.965	834.437	0.037	3.238	2868.842	0.001
L19	111.167 - 110.042 (19)	P42x0.375	31.067	834.437	0.037	3.238	2868.842	0.001
L20	110.042 - 109.792 (20)	P42x0.4875	31.087	1166.060	0.027	3.238	3987.583	0.001
L21	109.792 - 105.083 (21)	P42x0.4875	32.092	1166.060	0.028	5.333	3987.583	0.001
L22	105.083 - 104.833 (22)	P42x0.5625	32.140	1383.970	0.023	5.333	4715.900	0.001
L23	104.833 - 100.917 (23)	P42x0.5625	33.078	1383.970	0.024	5.354	4715.900	0.001
L24	100.917 - 100.667 (24)	P48x0.375	33.099	923.745	0.036	5.354	3637.700	0.001
L25	100.667 -	P48x0.375	33.679	923.745	0.036	5.353	3637.700	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L26	95.833 (25) - 95.833 - 95.583 (26)	P48x0.475	33.696	1240.700	0.027	5.353	4865.533	0.001
L27	95.583 - 90.583 (27)	P48x0.475	34.174	1240.700	0.028	5.352	4865.533	0.001
L28	90.583 - 89.917 (28)	P48x0.475	34.503	1240.700	0.028	6.127	4865.533	0.001
L29	89.917 - 89.667 (29)	P48x0.575	34.526	1587.010	0.022	6.127	6197.767	0.001
L30	89.667 - 84.667 (30)	P48x0.575	35.050	1587.010	0.022	6.126	6197.767	0.001
L31	84.667 - 80.833 (31)	P48x0.575	35.499	1587.010	0.022	6.126	6197.767	0.001
L32	80.833 - 80.583 (32)	P54x0.4875	35.521	1398.580	0.025	6.126	6181.017	0.001
L33	80.583 - 75.583 (33)	P54x0.4875	36.018	1398.580	0.026	6.125	6181.017	0.001
L34	75.583 - 70.583 (34)	P54x0.4875	36.518	1398.580	0.026	6.124	6181.017	0.001
L35	70.583 - 69.5 (35)	P54x0.4875	37.118	1398.580	0.027	6.124	6181.017	0.001
L36	69.5 - 69.25 (36)	P54x0.5875	37.139	1772.620	0.021	4.516	7805.091	0.001
L37	69.25 - 64.25 (37)	P54x0.5875	38.485	1772.620	0.022	4.600	7805.091	0.001
L38	64.25 - 60.583 (38)	P54x0.5875	39.506	1772.620	0.022	4.638	7805.091	0.001
L39	60.583 - 60.333 (39)	P60x0.5125	39.524	1611.450	0.025	4.638	7920.767	0.001
L40	60.333 - 55.333 (40)	P60x0.5125	40.050	1611.450	0.025	4.638	7920.767	0.001
L41	55.333 - 52.167 (41)	P60x0.5125	40.315	1611.450	0.025	4.638	7920.767	0.001
L42	52.167 - 51.917 (42)	P60x0.625	40.328	2069.580	0.019	4.638	10134.583	0.000
L43	51.917 - 46.917 (43)	P60x0.625	40.804	2069.580	0.020	4.637	10134.583	0.000
L44	46.917 - 41.917 (44)	P60x0.625	41.287	2069.580	0.020	4.637	10134.583	0.000
L45	41.917 - 40.333 (45)	P60x0.625	41.437	2069.580	0.020	4.637	10134.583	0.000
L46	40.333 - 40.083 (46)	P60x0.6	41.440	1964.560	0.021	4.637	9628.250	0.000
L47	40.083 - 35.083 (47)	P60x0.6	41.807	1964.560	0.021	4.637	9628.250	0.000
L48	35.083 - 30.083 (48)	P60x0.6	42.254	1964.560	0.022	5.290	9628.250	0.001
L49	30.083 - 28 (49)	P60x0.6	42.367	1964.560	0.022	5.290	9628.250	0.001
L50	28 - 27.75 (50)	P60x0.725	42.369	2507.960	0.017	5.290	12240.416	0.000
L51	27.75 - 22.75 (51)	P60x0.725	42.704	2507.960	0.017	5.289	12240.416	0.000
L52	22.75 - 20.083 (52)	P60x0.725	42.875	2507.960	0.017	5.289	12240.416	0.000
L53	20.083 - 19.833 (53)	P60x0.625	42.871	2069.580	0.021	5.289	10134.583	0.001
L54	19.833 - 17 (54)	P60x0.625	43.043	2069.580	0.021	5.289	10134.583	0.001
L55	17 - 16.75 (55)	P60x0.725	43.032	2507.960	0.017	5.289	12240.416	0.000
L56	16.75 - 11.65	P60x0.75	43.316	2622.110	0.017	5.289	12786.916	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L57	11.65 - 11.417 (56) (57)	P60x0.75	43.313	2622.110	0.017	5.289	12786.916	0.000
L58	11.417 - 9.375 (58)	P60x0.75	43.422	2622.110	0.017	5.289	12786.916	0.000
L59	9.375 - 9.125 (59)	P60x0.8	43.418	2812.050	0.015	5.289	13690.333	0.000
L60	9.125 - 4.833 (60)	P60x0.8	43.630	2812.050	0.016	5.289	13690.333	0.000
L61	4.833 - 4.583 (61)	P60x0.75	43.623	2622.110	0.017	5.289	12786.916	0.000
L62	4.583 - 0 (62)	P60x0.75	43.820	2622.110	0.017	5.289	12786.916	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	191.667 - 186.667 (1)	0.002	0.015	0.000	0.001	0.000	0.017 ✔	1.000	4.8.2 ✔
L2	186.667 - 181.567 (2)	0.011	0.014	0.000	0.004	0.000	0.025 ✔	1.000	4.8.2 ✔
L3	181.567 - 176.567 (3)	0.005	0.058	0.000	0.010	0.001	0.063 ✔	1.000	4.8.2 ✔
L4	176.567 - 171.567 (4)	0.005	0.102	0.000	0.011	0.001	0.108 ✔	1.000	4.8.2 ✔
L5	171.567 - 166.567 (5)	0.006	0.149	0.000	0.011	0.001	0.155 ✔	1.000	4.8.2 ✔
L6	166.567 - 161.567 (6)	0.007	0.198	0.000	0.012	0.001	0.205 ✔	1.000	4.8.2 ✔
L7	161.567 - 156.567 (7)	0.010	0.280	0.000	0.023	0.001	0.291 ✔	1.000	4.8.2 ✔
L8	156.567 - 151.567 (8)	0.011	0.381	0.000	0.025	0.001	0.393 ✔	1.000	4.8.2 ✔
L9	151.567 - 146.567 (9)	0.016	0.539	0.000	0.040	0.002	0.557 ✔	1.000	4.8.2 ✔
L10	146.567 - 141.567 (10)	0.017	0.709	0.000	0.041	0.002	0.728 ✔	1.000	4.8.2 ✔
L11	141.567 - 141.417 (11)	0.017	0.714	0.000	0.041	0.002	0.733 ✔	1.000	4.8.2 ✔
L12	141.417 - 136.417 (12)	0.013	0.414	0.000	0.030	0.001	0.428 ✔	1.000	4.8.2 ✔
L13	136.417 - 131.417 (13)	0.014	0.498	0.000	0.031	0.001	0.513 ✔	1.000	4.8.2 ✔
L14	131.417 - 126.417 (14)	0.015	0.585	0.000	0.032	0.002	0.601 ✔	1.000	4.8.2 ✔
L15	126.417 - 121.417 (15)	0.016	0.675	0.000	0.033	0.002	0.693 ✔	1.000	4.8.2 ✔
L16	121.417 - 121.167 (16)	0.016	0.680	0.000	0.033	0.002	0.697 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L17	121.167 - 116.167 (17)	0.016	0.576	0.000	0.030	0.001	0.593 ✔	1.000	4.8.2 ✔
L18	116.167 - 111.167 (18)	0.019	0.665	0.000	0.037	0.001	0.685 ✔	1.000	4.8.2 ✔
L19	111.167 - 110.042 (19)	0.019	0.684	0.000	0.037	0.001	0.705 ✔	1.000	4.8.2 ✔
L20	110.042 - 109.792 (20)	0.014	0.517	0.000	0.027	0.001	0.531 ✔	1.000	4.8.2 ✔
L21	109.792 - 105.083 (21)	0.014	0.578	0.000	0.028	0.001	0.594 ✔	1.000	4.8.2 ✔
L22	105.083 - 104.833 (22)	0.012	0.496	0.000	0.023	0.001	0.509 ✔	1.000	4.8.2 ✔
L23	104.833 - 100.917 (23)	0.013	0.542	0.000	0.024	0.001	0.555 ✔	1.000	4.8.2 ✔
L24	100.917 - 100.667 (24)	0.020	0.659	0.000	0.036	0.001	0.680 ✔	1.000	4.8.2 ✔
L25	100.667 - 95.833 (25)	0.021	0.729	0.000	0.036	0.001	0.751 ✔	1.000	4.8.2 ✔
L26	95.833 - 95.583 (26)	0.015	0.567	0.000	0.027	0.001	0.583 ✔	1.000	4.8.2 ✔
L27	95.583 - 90.583 (27)	0.016	0.623	0.000	0.028	0.001	0.640 ✔	1.000	4.8.2 ✔
L28	90.583 - 89.917 (28)	0.016	0.631	0.000	0.028	0.001	0.648 ✔	1.000	4.8.2 ✔
L29	89.917 - 89.667 (29)	0.013	0.514	0.000	0.022	0.001	0.527 ✔	1.000	4.8.2 ✔
L30	89.667 - 84.667 (30)	0.014	0.561	0.000	0.022	0.001	0.575 ✔	1.000	4.8.2 ✔
L31	84.667 - 80.833 (31)	0.015	0.597	0.000	0.022	0.001	0.612 ✔	1.000	4.8.2 ✔
L32	80.833 - 80.583 (32)	0.017	0.574	0.000	0.025	0.001	0.592 ✔	1.000	4.8.2 ✔
L33	80.583 - 75.583 (33)	0.018	0.621	0.000	0.026	0.001	0.639 ✔	1.000	4.8.2 ✔
L34	75.583 - 70.583 (34)	0.019	0.667	0.000	0.026	0.001	0.687 ✔	1.000	4.8.2 ✔
L35	70.583 - 69.5 (35)	0.019	0.678	0.000	0.027	0.001	0.698 ✔	1.000	4.8.2 ✔
L36	69.5 - 69.25 (36)	0.015	0.555	0.000	0.021	0.001	0.570 ✔	1.000	4.8.2 ✔
L37	69.25 - 64.25 (37)	0.017	0.594	0.000	0.022	0.001	0.612 ✔	1.000	4.8.2 ✔
L38	64.25 - 60.583 (38)	0.018	0.625	0.000	0.022	0.001	0.643 ✔	1.000	4.8.2 ✔
L39	60.583 - 60.333 (39)	0.020	0.595	0.000	0.025	0.001	0.616 ✔	1.000	4.8.2 ✔
L40	60.333 - 55.333 (40)	0.021	0.635	0.000	0.025	0.001	0.657 ✔	1.000	4.8.2 ✔
L41	55.333 - 52.167 (41)	0.022	0.660	0.000	0.025	0.001	0.683 ✔	1.000	4.8.2 ✔
L42	52.167 - 51.917 (42)	0.017	0.533	0.000	0.019	0.000	0.551 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L43	51.917 - 46.917 (43)	0.018	0.566	0.000	0.020	0.000	0.584 ✔	1.000	4.8.2 ✔
L44	46.917 - 41.917 (44)	0.019	0.599	0.000	0.020	0.000	0.618 ✔	1.000	4.8.2 ✔
L45	41.917 - 40.333 (45)	0.019	0.610	0.000	0.020	0.000	0.629 ✔	1.000	4.8.2 ✔
L46	40.333 - 40.083 (46)	0.020	0.639	0.000	0.021	0.000	0.660 ✔	1.000	4.8.2 ✔
L47	40.083 - 35.083 (47)	0.021	0.675	0.000	0.021	0.000	0.696 ✔	1.000	4.8.2 ✔
L48	35.083 - 30.083 (48)	0.022	0.710	0.000	0.022	0.001	0.732 ✔	1.000	4.8.2 ✔
L49	30.083 - 28 (49)	0.022	0.725	0.000	0.022	0.001	0.748 ✔	1.000	4.8.2 ✔
L50	28 - 27.75 (50)	0.017	0.590	0.000	0.017	0.000	0.608 ✔	1.000	4.8.2 ✔
L51	27.75 - 22.75 (51)	0.018	0.619	0.000	0.017	0.000	0.638 ✔	1.000	4.8.2 ✔
L52	22.75 - 20.083 (52)	0.019	0.635	0.000	0.017	0.000	0.654 ✔	1.000	4.8.2 ✔
L53	20.083 - 19.833 (53)	0.023	0.749	0.000	0.021	0.001	0.773 ✔	1.000	4.8.2 ✔
L54	19.833 - 17 (54)	0.023	0.769	0.000	0.021	0.001	0.793 ✔	1.000	4.8.2 ✔
L55	17 - 16.75 (55)	0.019	0.654	0.000	0.017	0.000	0.674 ✔	1.000	4.8.2 ✔
L56	16.75 - 11.65 (56)	0.019	0.659	0.000	0.017	0.000	0.679 ✔	1.000	4.8.2 ✔
L57	11.65 - 11.417 (57)	0.019	0.660	0.000	0.017	0.000	0.680 ✔	1.000	4.8.2 ✔
L58	11.417 - 9.375 (58)	0.020	0.672	0.000	0.017	0.000	0.692 ✔	1.000	4.8.2 ✔
L59	9.375 - 9.125 (59)	0.018	0.627	0.000	0.015	0.000	0.645 ✔	1.000	4.8.2 ✔
L60	9.125 - 4.833 (60)	0.019	0.650	0.000	0.016	0.000	0.669 ✔	1.000	4.8.2 ✔
L61	4.833 - 4.583 (61)	0.020	0.700	0.000	0.017	0.000	0.720 ✔	1.000	4.8.2 ✔
L62	4.583 - 0 (62)	0.021	0.726	0.000	0.017	0.000	0.747 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P / K	ϕP_{allow} / K	% Capacity	Pass Fail
L1	191.667 - 186.667	Pole	P18x0.375	1	-1.781	784.878	**	**

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L2	186.667 - 181.567	Pole	P24x0.375	2	-11.476	1052.070	**	**
L3	181.567 - 176.567	Pole	P24x0.375	3	-5.062	1052.070	**	**
L4	176.567 - 171.567	Pole	P24x0.375	4	-5.767	1052.070	**	**
L5	171.567 - 166.567	Pole	P24x0.375	5	-6.475	1052.070	**	**
L6	166.567 - 161.567	Pole	P24x0.375	6	-7.186	1052.070	**	**
L7	161.567 - 156.567	Pole	P24x0.375	7	-10.893	1052.070	**	**
L8	156.567 - 151.567	Pole	P24x0.375	8	-11.646	1052.070	**	**
L9	151.567 - 146.567	Pole	P24x0.375	9	-17.301	1052.070	**	**
L10	146.567 - 141.567	Pole	P24x0.375	10	-18.198	1052.070	**	**
L11	141.567 - 141.417	Pole	P24x0.375	11	-18.236	1052.070	**	**
L12	141.417 - 136.417	Pole	P36x0.375	12	-19.405	1490.100	**	**
L13	136.417 - 131.417	Pole	P36x0.375	13	-21.032	1490.100	**	**
L14	131.417 - 126.417	Pole	P36x0.375	14	-22.235	1490.100	**	**
L15	126.417 - 121.417	Pole	P36x0.375	15	-24.484	1490.100	**	**
L16	121.417 - 121.167	Pole	P36x0.375	16	-24.563	1490.100	**	**
L17	121.167 - 116.167	Pole	P42x0.375	17	-26.078	1668.870	**	**
L18	116.167 - 111.167	Pole	P42x0.375	18	-31.492	1668.870	**	**
L19	111.167 - 110.042	Pole	P42x0.375	19	-31.810	1668.870	**	**
L20	110.042 - 109.792	Pole	P42x0.4875	20	-31.902	2332.130	**	**
L21	109.792 - 105.083	Pole	P42x0.4875	21	-33.567	2332.130	**	**
L22	105.083 - 104.833	Pole	P42x0.5625	22	-33.680	2767.950	**	**
L23	104.833 - 100.917	Pole	P42x0.5625	23	-36.121	2767.950	**	**
L24	100.917 - 100.667	Pole	P48x0.375	24	-36.235	1847.490	**	**
L25	100.667 - 95.833	Pole	P48x0.375	25	-38.116	1847.490	**	**
L26	95.833 - 95.583	Pole	P48x0.475	26	-38.217	2481.390	**	**
L27	95.583 - 90.583	Pole	P48x0.475	27	-40.041	2481.390	**	**
L28	90.583 - 89.917	Pole	P48x0.475	28	-40.443	2481.390	**	**
L29	89.917 - 89.667	Pole	P48x0.575	29	-40.560	3174.020	**	**
L30	89.667 - 84.667	Pole	P48x0.575	30	-43.438	3174.020	**	**
L31	84.667 - 80.833	Pole	P48x0.575	31	-46.649	3174.020	**	**
L32	80.833 - 80.583	Pole	P54x0.4875	32	-46.859	2797.170	**	**
L33	80.583 - 75.583	Pole	P54x0.4875	33	-49.473	2797.170	**	**
L34	75.583 - 70.583	Pole	P54x0.4875	34	-52.286	2797.170	**	**
L35	70.583 - 69.5	Pole	P54x0.4875	35	-53.304	2797.170	**	**
L36	69.5 - 69.25	Pole	P54x0.5875	36	-53.498	3545.230	**	**
L37	69.25 - 64.25	Pole	P54x0.5875	37	-59.884	3545.230	**	**
L38	64.25 - 60.583	Pole	P54x0.5875	38	-65.078	3545.230	**	**
L39	60.583 - 60.333	Pole	P60x0.5125	39	-65.287	3222.890	**	**

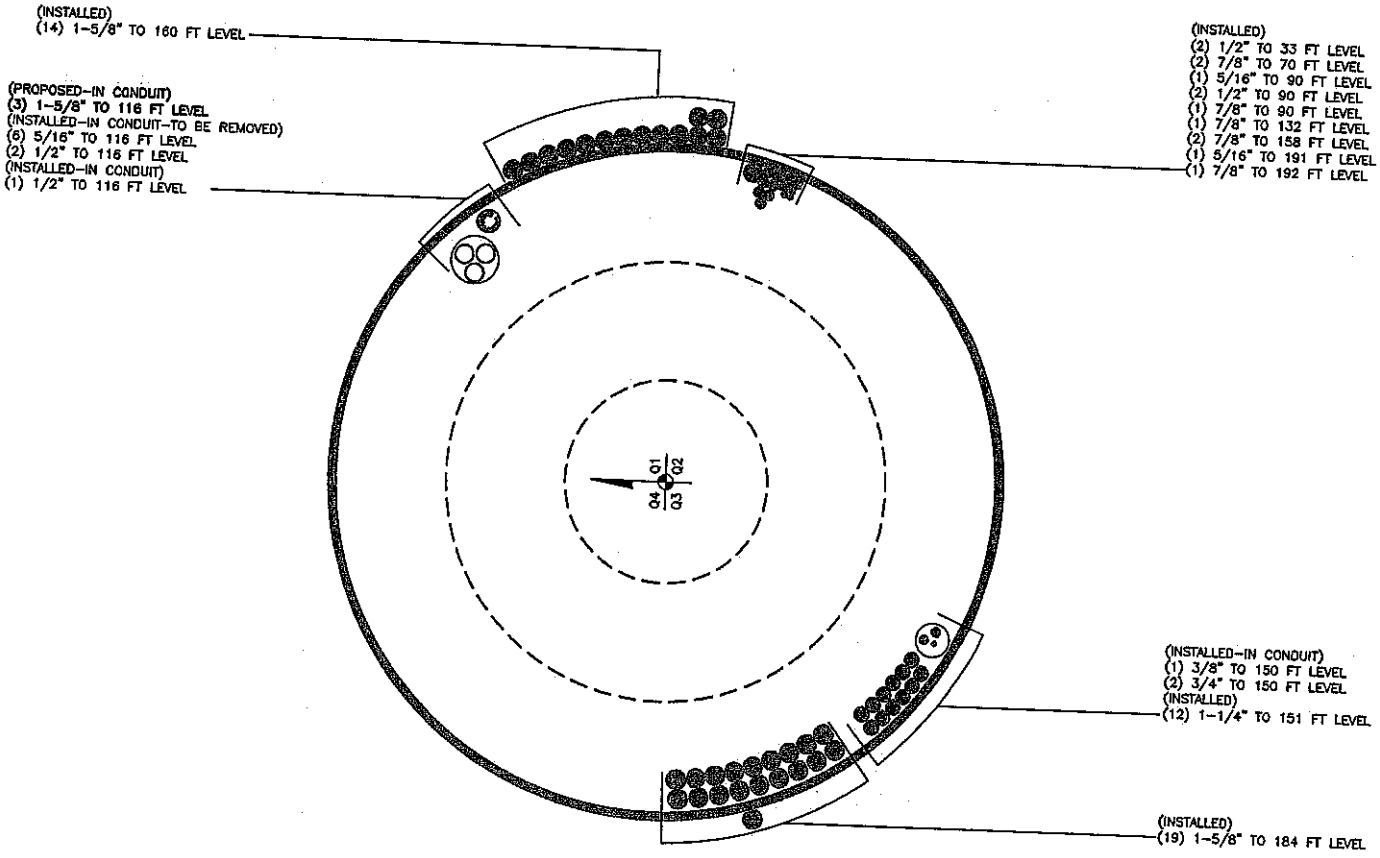
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L40	60.333 - 55.333	Pole	P60x0.5125	40	-69.107	3222.890	**	**
L41	55.333 - 52.167	Pole	P60x0.5125	41	-70.621	3222.890	**	**
L42	52.167 - 51.917	Pole	P60x0.625	42	-70.770	4139.150	**	**
L43	51.917 - 46.917	Pole	P60x0.625	43	-73.901	4139.150	**	**
L44	46.917 - 41.917	Pole	P60x0.625	44	-77.904	4139.150	**	**
L45	41.917 - 40.333	Pole	P60x0.625	45	-79.161	4139.150	**	**
L46	40.333 - 40.083	Pole	P60x0.6	46	-79.356	3929.110	**	**
L47	40.083 - 35.083	Pole	P60x0.6	47	-83.057	3929.110	**	**
L48	35.083 - 30.083	Pole	P60x0.6	48	-86.317	3929.110	**	**
L49	30.083 - 28	Pole	P60x0.6	49	-87.451	3929.110	**	**
L50	28 - 27.75	Pole	P60x0.725	50	-87.619	5015.910	**	**
L51	27.75 - 22.75	Pole	P60x0.725	51	-91.762	5015.910	**	**
L52	22.75 - 20.083	Pole	P60x0.725	52	-94.001	5015.910	**	**
L53	20.083 - 19.833	Pole	P60x0.625	53	-94.201	4139.150	**	**
L54	19.833 - 17	Pole	P60x0.625	54	-96.362	4139.150	**	**
L55	17 - 16.75	Pole	P60x0.725	55	-96.589	5015.910	**	**
L56	16.75 - 11.65	Pole	P60x0.75	56	-100.840	5244.230	**	**
L57	11.65 - 11.417	Pole	P60x0.75	57	-101.005	5244.230	**	**
L58	11.417 - 9.375	Pole	P60x0.75	58	-102.379	5244.230	**	**
L59	9.375 - 9.125	Pole	P60x0.8	59	-102.561	5624.100	**	**
L60	9.125 - 4.833	Pole	P60x0.8	60	-105.561	5624.100	**	**
L61	4.833 - 4.583	Pole	P60x0.75	61	-105.740	5244.230	**	**
L62	4.583 - 0	Pole	P60x0.75	62	-108.896	5244.230	**	**
						Summary		
						Pole (L54)	**	**
						RATING =	**	**

**See Additional Calculation

Program Version 7.0.5.1

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT:826217

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- G

Site BU: 826217

Work Order: 1592276

CROWN CASTLE

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	191.667	10.084		0	18	18	0.375	n/a	A53-B-42
2	181.583	40.166		0	24.00	24	0.375	n/a	A53-B-42
3	141.417	20.25		0	36.00	36	0.375	n/a	A53-B-42
4	121.167	20.25		0	42.00	42	0.375	n/a	A53-B-42
5	100.917	20.084		0	48.00	48	0.375	n/a	A53-B-42
6	80.833	20.25		0	54.00	54	0.375	n/a	A53-B-42
7	60.583	20.25		0	60.00	60	0.375	n/a	A53-B-42
8	40.333	20.25		0	60.00	60	0.5	n/a	A53-B-42
9	20.083	20.083		0	60.00	60	0.625	n/a	A53-B-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	9.375	plate	CCI-AFP-040075	2				270														
2	20.083	40.333	plate	CCI-SFP-060100	3				166						186						313		
3	40.333	60.583	plate	CCI-SFP-065125	3				67.5						188						312		
4	60.583	80.833	plate	CCI-SFP-060100	3				67.5						190						307		
5	80.833	89.917	plate	CCI-SFP-045100	3				72						192						307		
6	100.917	105.083	plate	CCI-AFP-040075	3			137						178							312		
7	4.833	11.667	plate	CCI-AFP-040075	1																303		
8	0	17	plate	CCI-SFP-060100	4		365			113					198		223			294			
9	20.083	28	plate	CCI-SFP-060100	4			59				157						247				339	
10	40.333	52.167	plate	CCI-SFP-060100	4		365				126						234			294			
11	60.583	69.5	plate	CCI-SFP-045100	4				80			155						254					341
12	80.833	95.833	plate	CCI-SFP-045100	3					90						213						333	
13	100.917	110.042	plate	CCI-SFP-045100	3		230					150							270				
14																							

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	4	0.75	3	0.375	18.000	18.000	16.000	2.063	1.1875	A572-65
2	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
3	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
4	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
5	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
6	4	0.75	3	0.375	18.000	18.000	16.000	2.063	1.1875	A572-65
7	4	0.75	3	0.375	18.000	18.000	16.000	2.063	1.1875	A572-65
8	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
9	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
10	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
11	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
12	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
13	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	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	191.667 - 186.667	5	0	0	18.000	18.000	0.375	A53-B-42	1.000
2	186.667 - 181.567	5.1		0	24.000	24.000	0.375	A53-B-42	1.000
3	181.567 - 176.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
4	176.567 - 171.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
5	171.567 - 166.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
6	166.567 - 161.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
7	161.567 - 156.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
8	156.567 - 151.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
9	151.567 - 146.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
10	146.567 - 141.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
11	141.567 - 141.417	0.15	0	0	24.000	24.000	0.375	A53-B-42	1.000
12	141.417 - 136.417	5		0	24.000	24.000	0.375	A53-B-42	1.000
13	136.417 - 131.417	5		0	36.000	36.000	0.375	A53-B-42	1.000
14	131.417 - 126.417	5		0	36.000	36.000	0.375	A53-B-42	1.000
15	126.417 - 121.417	5		0	36.000	36.000	0.375	A53-B-42	1.000
16	121.417 - 121.167	0.25	0	0	36.000	36.000	0.375	A53-B-42	1.000
17	121.167 - 116.167	5		0	36.000	36.000	0.375	A53-B-42	1.000
18	116.167 - 111.167	5		0	42.000	42.000	0.375	A53-B-42	1.000
19	111.167 - 110.042	1.125		0	42.000	42.000	0.375	A53-B-42	1.000
20	110.042 - 109.792	0.25		0	42.000	42.000	0.375	A53-B-42	1.000
21	109.792 - 105.083	4.709		0	42.000	42.000	0.4875	A53-B-42	0.984
22	105.083 - 104.833	0.25		0	42.000	42.000	0.4875	A53-B-42	0.984
23	104.833 - 100.917	3.916	0	0	42.000	42.000	0.5625	A53-B-42	0.977
24	100.917 - 100.667	0.25		0	42.000	42.000	0.5625	A53-B-42	0.977
25	100.667 - 95.833	4.834		0	48.000	48.000	0.375	A53-B-42	1.000
26	95.833 - 95.583	0.25		0	48.000	48.000	0.375	A53-B-42	1.000
27	95.583 - 90.583	5		0	48.000	48.000	0.475	A53-B-42	0.981
28	90.583 - 89.917	0.666		0	48.000	48.000	0.475	A53-B-42	0.981
29	89.917 - 89.667	0.25		0	48.000	48.000	0.475	A53-B-42	0.981
30	89.667 - 84.667	5		0	48.000	48.000	0.575	A53-B-42	0.970
31	84.667 - 80.833	3.834	0	0	48.000	48.000	0.575	A53-B-42	0.970
32	80.833 - 80.583	0.25		0	48.000	48.000	0.575	A53-B-42	0.970
33	80.583 - 75.583	5		0	54.000	54.000	0.4875	A53-B-42	0.990
34	75.583 - 70.583	5		0	54.000	54.000	0.4875	A53-B-42	0.990
35	70.583 - 69.5	1.083		0	54.000	54.000	0.4875	A53-B-42	0.990
36	69.5 - 69.25	0.25		0	54.000	54.000	0.4875	A53-B-42	0.990
37	69.25 - 64.25	5		0	54.000	54.000	0.5875	A53-B-42	1.006
38	64.25 - 60.583	3.667	0	0	54.000	54.000	0.5875	A53-B-42	1.006
39	60.583 - 60.333	0.25		0	54.000	54.000	0.5875	A53-B-42	1.006
40	60.333 - 55.333	5		0	60.000	60.000	0.5125	A53-B-42	0.988
41	55.333 - 52.167	3.166		0	60.000	60.000	0.5125	A53-B-42	0.988
42	52.167 - 51.917	0.25		0	60.000	60.000	0.5125	A53-B-42	0.988
43	51.917 - 46.917	5		0	60.000	60.000	0.625	A53-B-42	1.017
44	46.917 - 41.917	5		0	60.000	60.000	0.625	A53-B-42	1.017
45	41.917 - 40.333	1.584	0	0	60.000	60.000	0.625	A53-B-42	1.017
46	40.333 - 40.083	0.25		0	60.000	60.000	0.625	A53-B-42	1.017
47	40.083 - 35.083	5		0	60.000	60.000	0.6	A53-B-42	0.995
48	35.083 - 30.083	5		0	60.000	60.000	0.6	A53-B-42	0.995
49	30.083 - 28	2.083		0	60.000	60.000	0.6	A53-B-42	0.995
50	28 - 27.75	0.25		0	60.000	60.000	0.6	A53-B-42	0.995
51	27.75 - 22.75	5		0	60.000	60.000	0.725	A53-B-42	1.003
52	22.75 - 20.083	2.667	0	0	60.000	60.000	0.725	A53-B-42	1.003
53	20.083 - 19.833	0.25		0	60.000	60.000	0.725	A53-B-42	1.003
54	19.833 - 17	2.833		0	60.000	60.000	0.625	A53-B-42	1.000
55	17 - 16.75	0.25		0	60.000	60.000	0.625	A53-B-42	1.000
56	16.75 - 11.65	5.1		0	60.000	60.000	0.725	A53-B-42	1.041
57	11.65 - 11.417	0.233		0	60.000	60.000	0.75	A53-B-42	1.028
58	11.417 - 9.375	2.042		0	60.000	60.000	0.75	A53-B-42	1.028
59	9.375 - 9.125	0.25		0	60.000	60.000	0.75	A53-B-42	1.028
60	9.125 - 4.833	4.292		0	60.000	60.000	0.8	A53-B-42	1.005
61	4.833 - 4.583	0.25		0	60.000	60.000	0.8	A53-B-42	1.005
62	4.583 - 0	4.583		0	60.000	60.000	0.75	A53-B-42	1.050

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output		
		P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	191.667 - 186.667	1.78	5.36	0.34
2	186.667 - 181.567	4.35	10.60	4.93
3	181.567 - 176.567	5.06	36.17	5.33
4	176.567 - 171.567	5.77	63.70	5.66
5	171.567 - 166.567	6.47	92.88	5.99
6	166.567 - 161.567	7.19	123.67	6.31
7	161.567 - 156.567	10.89	174.78	12.21
8	156.567 - 151.567	11.65	237.70	12.94
9	151.567 - 146.567	17.30	336.31	20.82
10	146.567 - 141.567	18.20	442.07	21.48
11	141.567 - 141.417	18.24	445.29	21.49
12	141.417 - 136.417	19.41	554.04	22.04
13	136.417 - 131.417	21.03	666.50	23.06
14	131.417 - 126.417	22.24	783.00	23.52
15	126.417 - 121.417	24.49	903.63	24.71
16	121.417 - 121.167	24.57	909.81	24.73
17	121.167 - 116.167	26.08	1035.58	25.39
18	116.167 - 111.167	31.49	1194.67	30.96
19	111.167 - 110.042	31.81	1229.57	31.07
20	110.042 - 109.792	31.90	1237.35	31.09
21	109.792 - 105.083	33.57	1385.67	32.09
22	105.083 - 104.833	33.68	1393.71	32.14
23	104.833 - 100.917	36.12	1521.52	33.08
24	100.917 - 100.667	36.23	1529.80	33.10
25	100.667 - 95.833	38.12	1691.24	33.68
26	95.833 - 95.583	38.22	1699.66	33.70
27	95.583 - 90.583	40.04	1869.39	34.17
28	90.583 - 89.917	40.44	1893.18	34.50
29	89.917 - 89.667	40.56	1901.81	34.53
30	89.667 - 84.667	43.44	2075.62	35.05
31	84.667 - 80.833	46.65	2210.57	35.50
32	80.833 - 80.583	46.86	2219.43	35.52
33	80.583 - 75.583	49.47	2398.22	36.02
34	75.583 - 70.583	52.29	2579.48	36.52
35	70.583 - 69.5	53.30	2619.70	37.12
36	69.5 - 69.25	53.50	2628.98	37.14
37	69.25 - 64.25	59.88	2817.47	38.49
38	64.25 - 60.583	65.08	2960.15	39.51
39	60.583 - 60.333	65.29	2970.03	39.52
40	60.333 - 55.333	69.11	3168.85	40.05
41	55.333 - 52.167	70.62	3296.09	40.31
42	52.167 - 51.917	70.77	3306.17	40.33
43	51.917 - 46.917	73.90	3509.06	40.80
44	46.917 - 41.917	77.90	3714.12	41.29
45	41.917 - 40.333	79.16	3779.56	41.44
46	40.333 - 40.083	79.36	3789.91	41.44
47	40.083 - 35.083	83.06	3997.78	41.81
48	35.083 - 30.083	86.32	4208.12	42.25
49	30.083 - 28	87.45	4296.25	42.37
50	28 - 27.75	87.62	4306.85	42.37
51	27.75 - 22.75	91.76	4519.72	42.70
52	22.75 - 20.083	94.00	4633.92	42.87
53	20.083 - 19.833	94.20	4644.65	42.87
54	19.833 - 17	96.36	4766.43	43.04
55	17 - 16.75	96.59	4777.20	43.03
56	16.75 - 11.65	100.84	4997.55	43.32
57	11.65 - 11.417	101.00	5007.64	43.31
58	11.417 - 9.375	102.38	5096.21	43.42
59	9.375 - 9.125	102.56	5107.07	43.42
60	9.125 - 4.833	105.56	5293.90	43.63
61	4.833 - 4.583	105.74	5304.81	43.62
62	4.583 - 0	108.90	5505.21	43.82

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
191.67 - 186.67	Pole	TP18x18x0.375	Pole	1.7%	Pass
186.67 - 181.57	Pole	TP24x24x0.375	Pole	2.1%	Pass
181.57 - 176.57	Pole	TP24x24x0.375	Pole	6.3%	Pass
176.57 - 171.57	Pole	TP24x24x0.375	Pole	10.8%	Pass
171.57 - 166.57	Pole	TP24x24x0.375	Pole	15.5%	Pass
166.57 - 161.57	Pole	TP24x24x0.375	Pole	20.5%	Pass
161.57 - 156.57	Pole	TP24x24x0.375	Pole	29.1%	Pass
156.57 - 151.57	Pole	TP24x24x0.375	Pole	39.3%	Pass
151.57 - 146.57	Pole	TP24x24x0.375	Pole	55.7%	Pass
146.57 - 141.57	Pole	TP24x24x0.375	Pole	72.8%	Pass
141.57 - 141.42	Pole	TP24x24x0.375	Pole	73.3%	Pass
141.42 - 136.42	Pole	TP36x36x0.375	Pole	42.8%	Pass
136.42 - 131.42	Pole	TP36x36x0.375	Pole	51.3%	Pass
131.42 - 126.42	Pole	TP36x36x0.375	Pole	60.1%	Pass
126.42 - 121.42	Pole	TP36x36x0.375	Pole	69.2%	Pass
121.42 - 121.17	Pole	TP36x36x0.375	Pole	69.7%	Pass
121.17 - 116.17	Pole	TP42x42x0.375	Pole	59.3%	Pass
116.17 - 111.17	Pole	TP42x42x0.375	Pole	68.5%	Pass
111.17 - 110.04	Pole	TP42x42x0.375	Pole	70.5%	Pass
110.04 - 109.79	Pole + Reinf.	TP42x42x0.4875	Reinf. 13 Tension Rupture	55.0%	Pass
109.79 - 105.08	Pole + Reinf.	TP42x42x0.4875	Reinf. 13 Tension Rupture	61.5%	Pass
105.08 - 104.83	Pole + Reinf.	TP42x42x0.5625	Reinf. 6 Tension Rupture	56.2%	Pass
104.83 - 100.92	Pole + Reinf.	TP42x42x0.5625	Reinf. 6 Tension Rupture	61.3%	Pass
100.92 - 100.67	Pole	TP48x48x0.375	Pole	68.0%	Pass
100.67 - 95.83	Pole	TP48x48x0.375	Pole	75.1%	Pass
95.83 - 95.58	Pole + Reinf.	TP48x48x0.475	Pole	60.0%	Pass
95.58 - 90.58	Pole + Reinf.	TP48x48x0.475	Pole	65.9%	Pass
90.58 - 89.92	Pole + Reinf.	TP48x48x0.475	Pole	66.7%	Pass
89.92 - 89.67	Pole + Reinf.	TP48x48x0.575	Pole	55.6%	Pass
89.67 - 84.67	Pole + Reinf.	TP48x48x0.575	Pole	60.7%	Pass
84.67 - 80.83	Pole + Reinf.	TP48x48x0.575	Pole	64.6%	Pass
80.83 - 80.58	Pole + Reinf.	TP54x54x0.4875	Pole	60.8%	Pass
80.58 - 75.58	Pole + Reinf.	TP54x54x0.4875	Pole	65.7%	Pass
75.58 - 70.58	Pole + Reinf.	TP54x54x0.4875	Pole	70.6%	Pass
70.58 - 69.5	Pole + Reinf.	TP54x54x0.4875	Pole	71.7%	Pass
69.5 - 69.25	Pole + Reinf.	TP54x54x0.5875	Pole	59.5%	Pass
69.25 - 64.25	Pole + Reinf.	TP54x54x0.5875	Pole	63.8%	Pass
64.25 - 60.58	Pole + Reinf.	TP54x54x0.5875	Pole	67.1%	Pass
60.58 - 60.33	Pole + Reinf.	TP60x60x0.5125	Pole	63.0%	Pass
60.33 - 55.33	Pole + Reinf.	TP60x60x0.5125	Pole	67.2%	Pass
55.33 - 52.17	Pole + Reinf.	TP60x60x0.5125	Pole	69.8%	Pass
52.17 - 51.92	Pole + Reinf.	TP60x60x0.625	Pole	58.5%	Pass
51.92 - 46.92	Pole + Reinf.	TP60x60x0.625	Pole	62.0%	Pass
46.92 - 41.92	Pole + Reinf.	TP60x60x0.625	Pole	65.7%	Pass
41.92 - 40.33	Pole + Reinf.	TP60x60x0.625	Pole	66.8%	Pass
40.33 - 40.08	Pole + Reinf.	TP60x60x0.6	Pole	67.5%	Pass
40.08 - 35.08	Pole + Reinf.	TP60x60x0.6	Pole	71.2%	Pass
35.08 - 30.08	Pole + Reinf.	TP60x60x0.6	Pole	74.9%	Pass
30.08 - 28	Pole + Reinf.	TP60x60x0.6	Pole	76.5%	Pass
28 - 27.75	Pole + Reinf.	TP60x60x0.725	Pole	64.4%	Pass
27.75 - 22.75	Pole + Reinf.	TP60x60x0.725	Pole	67.6%	Pass
22.75 - 20.08	Pole + Reinf.	TP60x60x0.725	Pole	69.3%	Pass
20.08 - 19.83	Pole	TP60x60x0.625	Pole	77.3%	Pass
19.83 - 17	Pole	TP60x60x0.625	Pole	79.3%	Pass
17 - 16.75	Pole + Reinf.	TP60x60x0.725	Pole	68.7%	Pass
16.75 - 11.65	Pole + Reinf.	TP60x60x0.75	Pole	70.2%	Pass
11.65 - 11.42	Pole + Reinf.	TP60x60x0.75	Pole	70.4%	Pass
11.42 - 9.38	Pole + Reinf.	TP60x60x0.75	Pole	71.6%	Pass
9.38 - 9.13	Pole + Reinf.	TP60x60x0.8	Reinf. 7 Tension Rupture	71.2%	Pass
9.13 - 4.83	Pole + Reinf.	TP60x60x0.8	Reinf. 7 Tension Rupture	73.8%	Pass
4.83 - 4.58	Pole + Reinf.	TP60x60x0.75	Pole	75.5%	Pass
4.58 - 0	Pole + Reinf.	TP60x60x0.75	Pole	78.3%	Pass
				Summary	
			Pole	79.3%	Pass
			Reinforcement	76.3%	Pass
			Overall	79.3%	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	R13
191.67 - 186.67	807	n/a	807	20.76	n/a	20.76	1.7%													
186.67 - 181.57	1942	n/a	1942	27.83	n/a	27.83	2.1%													
181.57 - 176.57	1942	n/a	1942	27.83	n/a	27.83	6.3%													
176.57 - 171.57	1942	n/a	1942	27.83	n/a	27.83	10.8%													
171.57 - 166.57	1942	n/a	1942	27.83	n/a	27.83	15.5%													
166.57 - 161.57	1942	n/a	1942	27.83	n/a	27.83	20.5%													
161.57 - 156.57	1942	n/a	1942	27.83	n/a	27.83	29.1%													
156.57 - 151.57	1942	n/a	1942	27.83	n/a	27.83	39.3%													
151.57 - 146.57	1942	n/a	1942	27.83	n/a	27.83	55.7%													
146.57 - 141.57	1942	n/a	1942	27.83	n/a	27.83	72.6%													
141.57 - 141.42	1942	n/a	1942	27.83	n/a	27.83	73.3%													
141.42 - 136.42	6659	n/a	6659	41.97	n/a	41.97	42.8%													
136.42 - 131.42	6659	n/a	6659	41.97	n/a	41.97	51.3%													
131.42 - 126.42	6659	n/a	6659	41.97	n/a	41.97	60.1%													
126.42 - 121.42	6659	n/a	6659	41.97	n/a	41.97	69.2%													
121.42 - 121.17	6659	n/a	6659	41.97	n/a	41.97	69.7%													
121.17 - 116.17	10622	n/a	10622	49.04	n/a	49.04	59.3%													
116.17 - 111.17	10622	n/a	10622	49.04	n/a	49.04	68.5%													
111.17 - 110.04	10622	n/a	10622	49.04	n/a	49.04	70.5%													
110.04 - 109.79	10622	3132	13754	49.04	13.50	62.54	54.7%													
109.79 - 105.08	10622	3132	13754	49.04	13.50	62.54	61.1%													55.0%
105.08 - 104.83	10622	5106	15728	49.04	22.50	71.54	53.9%						56.2%							61.5%
104.83 - 100.92	10622	5106	15728	49.04	22.50	71.54	58.8%						61.3%							54.5%
100.92 - 100.67	15908	n/a	15908	56.11	n/a	56.11	68.0%													59.5%
100.67 - 95.83	15908	n/a	15908	56.11	n/a	56.11	75.1%													
95.83 - 95.58	15908	4064	19972	56.11	13.50	69.61	69.0%													
95.58 - 90.58	15908	4064	19972	56.11	13.50	69.61	65.9%												59.3%	
90.58 - 89.92	15908	4064	19972	56.11	13.50	69.61	65.7%												65.2%	
89.92 - 89.67	15908	8127	24036	56.11	27.00	83.11	65.6%												66.0%	
89.67 - 84.67	15908	8127	24036	56.11	27.00	83.11	60.7%					55.0%							56.0%	
84.67 - 80.83	15908	8127	24036	56.11	27.00	83.11	64.6%					60.0%							60.0%	
80.83 - 80.58	22710	6614	29324	63.18	18.00	81.18	60.8%					63.9%							63.9%	
80.58 - 75.58	22710	6614	29324	63.18	18.00	81.18	65.7%				54.0%									
75.58 - 70.58	22710	6614	29324	63.18	18.00	81.18	70.6%				58.3%									
70.58 - 69.5	22710	6614	29324	63.18	18.00	81.18	71.7%				62.6%									
69.5 - 69.25	22710	12687	35397	63.18	36.00	99.18	69.5%				63.6%									
69.25 - 64.25	22710	12687	35397	63.18	36.00	99.18	63.8%				52.8%							57.0%		
64.25 - 60.58	22710	12687	35397	63.18	36.00	99.18	67.1%				56.7%							61.2%		
60.58 - 60.33	31217	11364	42581	70.24	24.38	94.62	69.0%				59.6%							64.4%		
60.33 - 55.33	31217	11364	42581	70.24	24.38	94.62	67.2%			54.7%										
55.33 - 52.17	31217	11364	42581	70.24	24.38	94.62	69.8%			58.4%										
52.17 - 51.92	31219	19812	51030	70.24	48.38	118.62	68.5%			60.7%										
51.92 - 46.92	31219	19812	51030	70.24	48.38	118.62	62.0%			50.4%							49.7%			
46.92 - 41.92	31219	19812	51030	70.24	48.38	118.62	65.7%			53.5%							52.7%			
41.92 - 40.33	31219	19812	51030	70.24	48.38	118.62	66.8%			56.6%							55.8%			
40.33 - 40.08	41363	7892	49255	93.46	18.00	111.46	67.5%			57.6%							56.7%			
40.08 - 35.08	41363	7892	49255	93.46	18.00	111.46	71.2%		60.8%											
35.08 - 30.08	41363	7892	49255	93.46	18.00	111.46	74.9%		64.1%											
30.08 - 28	41363	7892	49255	93.46	18.00	111.46	76.5%		67.5%											
28 - 27.75	41368	17587	58955	93.46	42.00	135.46	64.4%		68.9%											
27.75 - 22.75	41368	17587	58955	93.46	42.00	135.46	67.6%		56.7%								56.8%			
22.75 - 20.08	41368	17587	58955	93.46	42.00	135.46	69.3%		59.5%								59.6%			
20.08 - 19.83	51381	n/a	51381	116.58	n/a	116.58	77.3%		61.0%								61.2%			
19.83 - 17	51381	n/a	51381	116.58	n/a	116.58	79.3%													
17 - 16.75	51383	8145	59528	116.58	24.00	140.58	68.7%													
16.75 - 11.65	51395	9920	61315	116.58	27.00	143.58	70.2%							60.4%						
11.65 - 11.42	51395	9920	61315	116.58	27.00	143.58	70.4%						70.0%	62.6%						
11.42 - 9.38	51395	9920	61315	116.58	27.00	143.58	71.6%						70.1%	62.9%						
9.38 - 9.13	51382	13787	65169	116.58	33.00	149.58	67.0%	70.6%					71.3%	64.0%						
9.13 - 4.83	51382	13787	65169	116.58	33.00	149.58	69.5%	73.2%					71.2%	60.8%						
4.83 - 4.58	51446	9839	61284	116.58	30.00	146.58	75.5%	73.5%					73.8%	63.1%						
4.58 - 0	51446	9839	61284	116.58	30.00	146.58	78.3%	76.3%						65.7%						
														66.2%						

Note: Section capacity checked in 5 degree increments.

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Reactions		
Mu	10.604	ft-kips
Axial, Pu:	4.347	kips
Shear, Vu:	4.929	kips
Elevation:	180	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Pole Manufacturer:	Pirod

if No stiffeners, Criteria:	TIA G	<-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	16		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle (in.):	21		

Plate Data		
Diam:	24	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.53	in

Stiffener Data (Welding at Both Sides)		
Config:	2	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	5	in
Thick:	0.625	in
Notch:		in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	18	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

		Rigid
Bolt Tension Capacity, φ*Tn,B1:	54.54 kips	φ*Tn
Adjusted φ*Tn (due to Vu=Vu/Qty), B:	54.54 kips	φTn[(1-(Vu/φVn)^2]^0.5
Max Bolt directly applied Tu:	1.24 Kips	
Min. PL "tc" for B cap. w/o Pry:	1.087 in	
Min PL "treq" for actual T w/ Pry:	0.126 in	
Min PL "t1" for actual T w/o Pry:	0.164 in	
T allowable w/o Prying:	54.54 kips	α'<0 case
Prying Force, q:	0.00 kips	
Total Bolt Tension=Tu+q:	1.24 kips	
Non-Prying Bolt Stress Ratio, Tu/B:	2.3% **Pass**	

Exterior Flange Plate Results Flexural Check

		Rigid
Compression Side Plate Stress:	Rohn/Pirod, OK	TIA G
Allowable Plate Stress:	32.4 ksi	φ*Fy
Compression Plate Stress Ratio:	Rohn/Pirod, OK	Comp. Y.L. Length:
No Prying		10.82
Tension Side Stress Ratio, (treq/t)^2:	1.0% **Pass**	

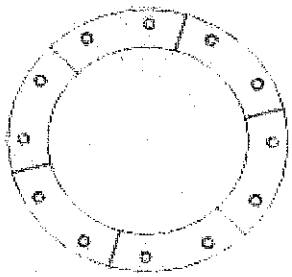
b/Le>2, Stiffeners are not fully effective

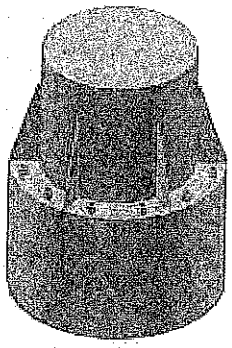
Stiffener Results N/A for Rohn / Pirod

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A





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

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

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Reactions		
Mu	445.289	ft-kips
Axial, Pu:	18.235	kips
Shear, Vu:	21.488	kips
Elevation:	140	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Pole Manufacturer:	Pirod

If No stiffeners, Criteria:	TIA G

<-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	24		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle (in.):	33		

Plate Data		
Diam:	36.375	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.14	in

Stiffener Data (Welding at Both Sides)		
Config:	2	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	6	in
Height:	8	in
Thick:	1	in
Notch:	1	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	24	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

			Stiffened
Bolt Tension Capacity, φ*Tn,**B1**:	54.54	kips	φ*Tn
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.53	kips	φTn[(1-(Vu/φVn)^2]^0.5
Max Bolt directly applied Tu:	26.23	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	Stiffened	in	
Min PL "treq" for actual **T w/ Pry:**	Stiffened	in	
Min PL "t1" for actual **T w/o Pry:**	Stiffened	in	
T allowable	54.54	kips	<-- B, Stiffened
Prying Force, q:	0.00	kips	Stiffened
Total Bolt Tension=Tu+q:	26.23	kips	
Non-Prying Bolt Stress Ratio, Tu/B:	48.1%	**Pass**	

Exterior Flange Plate Results Flexural Check

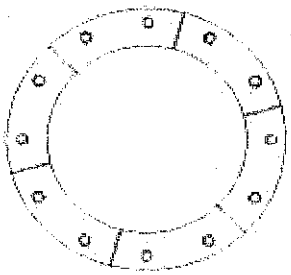
		Stiffened
Compression Side Plate Stress:	Rohn/Pirod, OK	TIA G
Allowable Plate Stress:	32.4 ksi	φ*Fy
Compression Plate Stress Ratio:	Rohn/Pirod, OK	Comp. Y.L. Length:
Stiffened		N/A, Roark
Tension Side Stress Ratio, (treq/t)^2:	N/A	

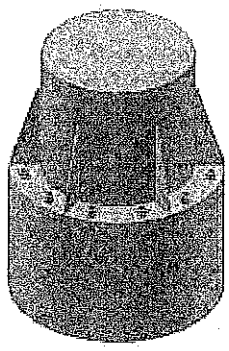
Stiffener Results N/A for Rohn / Pirod

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A





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

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

PROJECT	**87581.018.01 - Newington_1, CT**		
SUBJECT	**Bridge Stiffeners @120'**		
DATE	**06-22-18**	PAGE 1 OF 1	

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Tulsa, OK 74119
(918) 587-4630

0

Determine Load to Bridge Stiffener:

M =	**909.8 k-ft**	From Risa Model
I =	**7461.4 in^4**	From AutoCAD Sketch
ybar =	**22.000 in**	
S =	339.15 in^3	I/y
fc =	32.19 ksi	M/S
Ag =	4.500 in^2	
Pu =	144.86 k	fc x Ag

Stiffener Width	**4.500 in**
Stiffener Thickness	**1.000 in**
Stiffener Height	**39.000 in**
Fy	**65 ksi**
Fu	**80 ksi**
Step Width	**3.00 in**
Bolt Circle	**39.00 in**
Number of Bolts	**28**
Bolt Size	**1**
Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag — Eqn E3-1, AISC 13th Edition, Section E3.

K =	0.99	
l =	16.000 in	Unsupported Length
Iy =	.375 in^4	Local Weak Axis Moment of Intertia
Ag =	4.500 in^2	Stiffener Cross Sectional Area
ry =	.289 in	Radius of Gyration (Weak Axis)
kl/r =	54.87	
4.71 x √(E/Fy) =	99.49	Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.
Fe =	95.06 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	48.82 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	219.70 k	Nominal Compressive Strength
ΦPn =	197.73 k	Allowable Compressive Strength

Unity% = 73.3 %

Tension Rupture Check:

AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	4.500 in^2	Gross Area
An =	3.250 in^2	Net Area
Ae =	3.250 in^2	Effective Area
ΦRn =	263.25 k	Tension Yielding: Eqn J4-1
ΦRn =	195.00 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	195.00 ksi	

Unity% 74.29 %

Moment to Existing Bolt Group:

S_{BG} =	382.64 in^3	# Bolts Acting	7
ft =	28.53 ksi		
Ab =	.785 in^2		
T =	156.87 k		
Arm =	39.00 ksi		
M_{EQ} =	509.8 k-ft	**<-------Insert into Flange Spreadsheet**	

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Reactions		
Mu	509.8	ft-kips
Axial, Pu:	24.566	kips
Shear, Vu:	24.728	kips
Elevation:	120	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Pole Manufacturer:	Other

If No stiffeners, Criteria:	TIA G	<-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	28		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle (in.):	39		

Plate Data		
Diam:	42	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	4.04	in

Stiffener Data (Welding at Both Sides)		
Config:	2	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	5	in
Thick:	0.625	in
Notch:		in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	36	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

Bolt Tension Capacity, φ*Tn,**B1**:	54.54 kips	Rigid
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.53 kips	φ*Tn
Max Bolt directly applied Tu:	21.53 Kips	φTn[(1-(Vu/φVn)^2]^0.5
Min. PL "tc" for **B** cap. **w/o** Pry:	1.017 in	
Min PL "treq" for actual **T w/ Pry:**	0.485 in	
Min PL "t1" for actual **T w/o Pry:**	0.639 in	
T allowable w/o Prying:	54.54 kips	α'<0 case
Prying Force, q:	0.00 kips	
Total Bolt Tension=Tu+q:	21.53 kips	
Non-Prying Bolt Stress Ratio, Tu/B:	39.5% **Pass**	

Exterior Flange Plate Results Flexural Check

Compression Side Plate Stress:	13.9 ksi	Rigid
Allowable Plate Stress:	32.4 ksi	TIA G
Compression Plate Stress Ratio:	43.0% **Pass**	φ*Fy
No Prying		Comp. Y.L. Length: 15.00
Tension Side Stress Ratio, (treq/t)^2:	15.0% **Pass**	

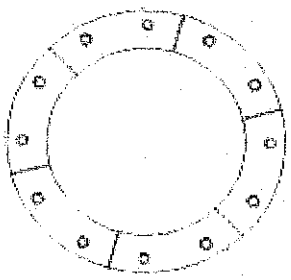
b/Le>2. Stiffeners are not fully effective

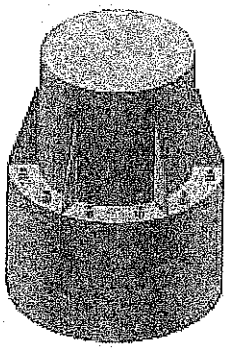
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Manufacturer:	Other

Reactions		
Moment:	509.8	ft-kips
Axial:	24.566	kips
Shear:	24.728	kips
Exterior Flange Run, T+q:	21.53	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Elevation: 120 feet

Bolt Data			
Qty:	28		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	39	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	21.5	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty),	54.5	Kips
Bolt Stress Ratio:	39.5%	**Pass**

Plate Data		
Plate Outer Diam:	41.25	in
Plate Inner Diam:	36	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	4.63	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	23.3	Kips, Ext. Cu=Interior Cu
Plate Stress:	14.5	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	44.7%	**Pass**

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

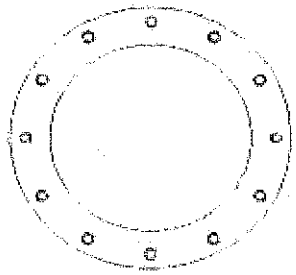
Stiffener Results

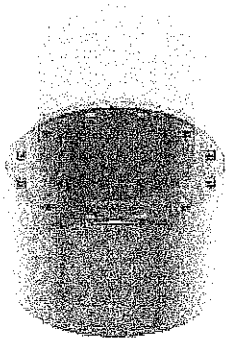
Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Pole OuterDiam:	42	in
Thick:	0.375	in
Pole Inner Diam:	41.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi





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

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

PROJECT	**87581.018.01 - Newington_1, CT**				
SUBJECT	**Bridge Stiffeners @100'**				
DATE	**06-22-18**	PAGE	1	OF	1

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(918) 587-4630

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Determine Load to Bridge Stiffener:

M =	**1529.8 k-ft**	From Risa Model
I =	**14381.2 in^4**	From AutoCAD Sketch
ybar =	**25.000 in**	
S =	575.25 in^3	I/y
fc =	31.91 ksi	M/S
Ag =	4.500 in^2	
Pu =	143.61 k	fc x Ag

Stiffener Width	**4.500 in**
Stiffener Thickness	**1.000 in**
Stiffener Height	**58.500 in**
Fy	**65 ksi**
Fu	**80 ksi**
Step Width	**3.00 in**
Bolt Circle	**45.00 in**
Number of Bolts	**32**
Bolt Size	**1**
Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag — Eqn E3-1, AISC 13th Edition, Section E3.

K =	0.99	
l =	16.500 in	Unsupported Length
Iy =	.375 in^4	Local Weak Axis Moment of Intertia
Ag =	4.500 in^2	Stiffener Cross Sectional Area
ry =	.289 in	Radius of Gyration (Weak Axis)
kl/r =	56.59	

4.71 x √(E/Fy) = 99.49 — Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.

Fe =	89.39 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	47.94 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	215.75 k	Nominal Compressive Strength
ΦPn =	194.17 k	Allowable Compressive Strength

Unity% = 74.0 %

Tension Rupture Check:

AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	4.500 in^2	Gross Area
An =	3.250 in^2	Net Area
Ae =	3.250 in^2	Effective Area
ΦRn =	263.25 k	Tension Yielding: Eqn J4-1
ΦRn =	195.00 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	195.00 ksi	

Unity% 73.64 %

Moment to Existing Bolt Group:

S_{BG} =	639.16 in^3	# Bolts Acting	8
ft =	28.72 ksi		
Ab =	.785 in^2		
T =	180.46 k		
Arm =	45.00 ksi		
M_{EQ} =	676.7 k-ft	**<-------Insert into Flange Spreadsheet**	

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Reactions		
Mu	676.7	ft-kips
Axial, Pu:	36.234	kips
Shear, Vu:	33.099	kips
Elevation:	100	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Pole Manufacturer:	Other

If No stiffeners, Criteria: TIA G <-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	32		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle (in.):	45		

Plate Data		
Diam:	48	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	4.12	in

Stiffener Data (Welding at Both Sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	5	in
Thick:	0.625	in
Notch:		in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	42	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

			Stiffened
Bolt Tension Capacity, φ*Tn,**B1**:	54.54	kips	φ*Tn
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.52	kips	φTn[(1-(Vu/φVn)^2]^0.5
Max Bolt directly applied Tu:	21.42	Kips	
Min. PL "tc" for **B** cap. **w/o Pry:**	Stiffened	in	
Min PL "treq" for actual **T w/ Pry:**	Stiffened	in	
Min PL "t1" for actual **T w/o Pry:**	Stiffened	in	
T allowable	54.54	kips	<-- B, Stiffened
Prying Force, q:	0.00	kips	Stiffened
Total Bolt Tension=Tu+q:	21.42	kips	
Non-Prying Bolt Stress Ratio, Tu/B:	39.3%	**Pass**	

Exterior Flange Plate Results Flexural Check

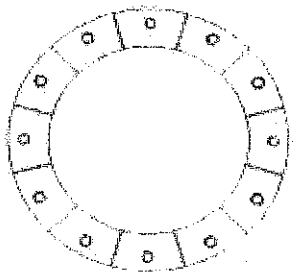
			Stiffened
Compression Side Plate Stress:	14.0	ksi	TIA G
Allowable Plate Stress:	32.4	ksi	φ*Fy
Compression Plate Stress Ratio:	43.3%	**Pass**	Comp. Y.L. Length:
Stiffened			N/A, Roark
Tension Side Stress Ratio, (treq/t)^2:	N/A		

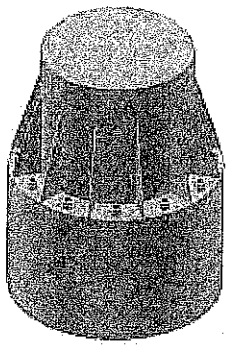
Stiffener Results

Horizontal Weld :	36.5%	**Pass**
Vertical Weld:	26.8%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	17.6%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	25.8%	**Pass**
Plate Comp. (AISC Bracket):	48.3%	**Pass**

Pole Results

Pole Punching Shear Check:	14.7%	**Pass**





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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Manufacturer:	Other

Reactions		
Moment:	676.7	ft-kips
Axial:	36.234	kips
Shear:	33.099	kips
Exterior Flange Run, T+q:	21.42	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Elevation: 100 feet

Bolt Data			
Qty:	32		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	45	in	

Plate Data		
Plate Outer Diam:	47.25	in
Plate Inner Diam:	42	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	4.64	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Pole OuterDiam:	48	in
Thick:	0.375	in
Pole Inner Diam:	47.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	21.4 Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty),	54.5 Kips
Bolt Stress Ratio:	39.3% **Pass**

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	23.7 Kips, Ext. Cu=Interior Cu
Plate Stress:	14.7 ksi
Allowable Plate Stress, φ*Fy:	32.4 ksi
Plate Stress Ratio:	45.4% **Pass**

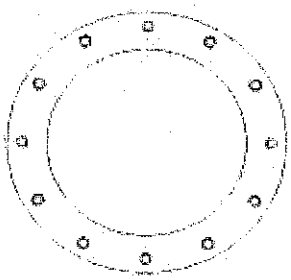
n/a

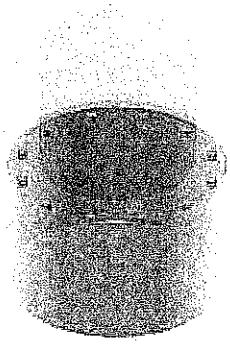
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





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

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

PROJECT	**87581.018.01 - Newington_1, CT**		
SUBJECT	**Bridge Stiffeners @80'**		
DATE	**06-22-18**	PAGE 1 OF 1	

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

0

Determine Load to Bridge Stiffener:

M =	**2219.4 k-ft**	From Risa Model
I =	**24813.4 in^4**	From AutoCAD Sketch
ybar =	**28.000 in**	
S =	886.19 in^3	I/y
fc =	30.05 ksi	M/S
Ag =	4.500 in^2	
Pu =	135.24 k	fc x Ag

Stiffener Width	**4.500 in**
Stiffener Thickness	**1.000 in**
Stiffener Height	**111.000 in**
Fy	**65 ksi**
Fu	**80 ksi**
Step Width	**3.00 in**
Bolt Circle	**51.00 in**
Number of Bolts	**36**
Bolt Size	**1**
Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag — Eqn E3-1, AISC 13th Edition, Section E3.

K =	0.99	
l =	16.000 in	Unsupported Length
Iy =	.375 in^4	Local Weak Axis Moment of Intertia
Ag =	4.500 in^2	Stiffener Cross Sectional Area
ry =	.289 in	Radius of Gyration (Weak Axis)
kl/r =	54.87	
4.71 x √(E/Fy) =	99.49	Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.
Fe =	95.06 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	48.82 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	219.70 k	Nominal Compressive Strength
ΦPn =	197.73 k	Allowable Compressive Strength

Unity% = 68.4 %

Tension Rupture Check:

AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	4.500 in^2	Gross Area
An =	3.250 in^2	Net Area
Ae =	3.250 in^2	Effective Area
ΦRn =	263.25 k	Tension Yielding: Eqn J4-1
ΦRn =	195.00 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	195.00 ksi	

Unity% 69.35 %

Moment to Existing Bolt Group:

S_{BG} =	973.07 in^3	# Bolts Acting	9
ft =	27.37 ksi		
Ab =	.785 in^2		
T =	193.47 k		
Arm =	51.00 ksi		
M_{EQ} =	822.2 k-ft	**<-------Insert into Flange Spreadsheet**	

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Reactions		
Mu	822.2	ft-kips
Axial, Pu:	46.859	kips
Shear, Vu:	35.52	kips
Elevation:	80	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Pole Manufacturer:	Other

If No stiffeners, Criteria: TIA G <-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	36		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle (in.):	51		

Plate Data		
Diam:	54	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	4.19	in

Stiffener Data (Welding at Both Sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	5	in
Thick:	0.625	in
Notch:		in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	48	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

		Stiffened
Bolt Tension Capacity, φ*Tn,B1:	54.54 kips	φ*Tn
Adjusted φ*Tn (due to Vu=Vu/Qty), B:	54.52 kips	φTn[(1-(Vu/φVn)^2]^0.5
Max Bolt directly applied Tu:	20.19 Kips	
Min. PL "tc" for B cap. w/o Pry:	Stiffened in	
Min PL "treq" for actual T w/ Pry:	Stiffened in	
Min PL "t1" for actual T w/o Pry:	Stiffened in	
T allowable	54.54 kips	<-- B, Stiffened
Prying Force, q:	0.00 kips	Stiffened
Total Bolt Tension=Tu+q:	20.19 kips	
Non-Prying Bolt Stress Ratio, Tu/B:	37.0% **Pass**	

Exterior Flange Plate Results Flexural Check

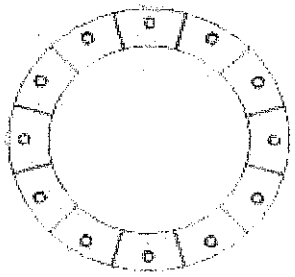
		Stiffened
Compression Side Plate Stress:	13.5 ksi	TIA G
Allowable Plate Stress:	32.4 ksi	φ*Fy
Compression Plate Stress Ratio:	41.7% **Pass**	Comp. Y.L. Length:
Stiffened		N/A, Roark
Tension Side Stress Ratio, (treq/t)^2:	N/A	

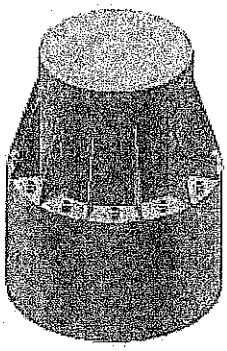
Stiffener Results

Horizontal Weld :	34.6% **Pass**
Vertical Weld:	25.4% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	16.4% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	24.3% **Pass**
Plate Comp. (AISC Bracket):	45.8% **Pass**

Pole Results

Pole Punching Shear Check:	13.9% **Pass**





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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Manufacturer:	Other

Reactions		
Moment:	822.2	ft-kips
Axial:	46.859	kips
Shear:	35.52	kips
Exterior Flange Run, T+q:	20.19	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Elevation: 80 feet

Bolt Data			
Qty:	36		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	51	in	

Plate Data		
Plate Outer Diam:	53.25	in
Plate Inner Diam:	48	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	4.65	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Pole OuterDiam:	54	in
Thick:	0.375	in
Pole Inner Diam:	53.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	20.2 Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty),	54.5 Kips
Bolt Stress Ratio:	37.0% **Pass**

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	22.8 Kips, Ext. Cu=Interior Cu
Plate Stress:	14.1 ksi
Allowable Plate Stress, φ*Fy:	32.4 ksi
Plate Stress Ratio:	43.6% **Pass**

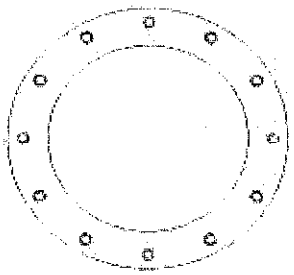
n/a

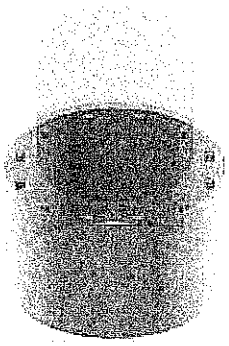
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





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

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

PROJECT	**87581.018.01 - Newington_1, CT**				
SUBJECT	**Existing and New Bridge Stiffeners @ 60'**				
DATE	**06-22-18**	PAGE	1	OF	1

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

0

Determine Load to Bridge Stiffener:

M =	**2970.0 k-ft**	From Risa Model	**Stiffener Width**	**4.500 in**
I =	**50598.5 in^4**	From AutoCAD Sketch	**Stiffener Thickness**	**1.000 in**
ybar =	**31.000 in**		**Stiffener Height**	**159.000 in**
S =	1632.21 in^3	I/y	**Fy**	**65 ksi**
fc =	21.84 ksi	M/S	**Fu**	**80 ksi**
Ag =	4.500 in^2		**Step Width**	**3.00 in**
Pu =	98.26 k	fc x Ag	**Bolt Circle**	**57.00 in**
			Number of Bolts	**48**
			Bolt Size	**1**
			Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag		Eqn E3-1, AISC 13th Edition, Section E3.
K =	0.99	
l =	16.500 in	Unsupported Length
Iy =	.375 in^4	Local Weak Axis Moment of Intertia
Ag =	4.500 in^2	Stiffener Cross Sectional Area
ry =	.289 in	Radius of Gyration (Weak Axis)
kl/r =	56.59	
4.71 x √(E/Fy) =	99.49	Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.
Fe =	89.39 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	47.94 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	215.75 k	Nominal Compressive Strength
ΦPn =	194.17 k	Allowable Compressive Strength

Unity% = 50.6 %

Tension Rupture Check:

AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	4.500 in^2	Gross Area
An =	3.250 in^2	Net Area
Ae =	3.250 in^2	Effective Area
ΦRn =	263.25 k	Tension Yielding: Eqn J4-1
ΦRn =	195.00 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	195.00 ksi	

Unity% 50.39 %

Moment to Existing Bolt Group:

S_{BG} =	1775.38 in^3	# Bolts Acting	12
ft =	20.07 ksi		
Ab =	.785 in^2		
T =	189.20 k		
Arm =	57.00 ksi		
M_{EQ} =	898.7 k-ft	**<-------Insert into Flange Spreadsheet**	

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Reactions		
Mu	898.7	ft-kips
Axial, Pu:	65.286	kips
Shear, Vu:	39.523	kips
Elevation:	60	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Pole Manufacturer: Other

If No stiffeners, Criteria: TIA G <-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	48		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle (in.):	57		

Plate Data		
Diam:	60	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.53	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	54	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

		Rigid
Bolt Tension Capacity, φ*Tn,B1:	54.54 kips	φ*Tn
Adjusted φ*Tn (due to Vu=Vu/Qty), B:	54.53 kips	φTn[(1-(Vu/φVn)^2]^0.5
Max Bolt directly applied Tu:	14.41 Kips	
Min. PL "tc" for B cap. w/o Pry:	1.087 in	
Min PL "treq" for actual T w/ Pry:	0.429 in	
Min PL "t1" for actual T w/o Pry:	0.559 in	
T allowable w/o Prying:	54.54 kips	α'<0 case
Prying Force, q:	0.00 kips	
Total Bolt Tension=Tu+q:	14.41 kips	
Non-Prying Bolt Stress Ratio, Tu/B:	26.4% **Pass**	

Exterior Flange Plate Results Flexural Check

		Rigid
Compression Side Plate Stress:	12.1 ksi	TIA G
Allowable Plate Stress:	32.4 ksi	φ*Fy
Compression Plate Stress Ratio:	37.2% **Pass**	Comp. Y.L. Length:
No Prying		18.25
Tension Side Stress Ratio, (treq/t)^2:	11.8% **Pass**	

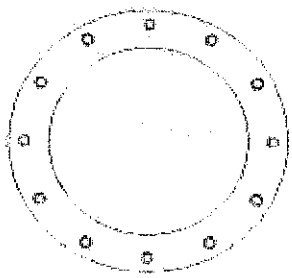
n/a

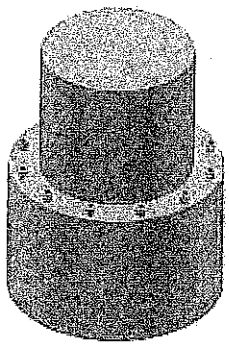
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Manufacturer:	Other

Reactions		
Moment:	898.7	ft-kips
Axial:	65.286	kips
Shear:	39.523	kips
Exterior Flange Run, T+q:	14.41	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Elevation: 60 feet

Bolt Data			
Qty:	48		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	57	in	

Plate Data		
Plate Outer Diam:	59.25	in
Plate Inner Diam:	54	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	3.88	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Pole OuterDiam:	60	in
Thick:	0.375	in
Pole Inner Diam:	59.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	14.4 Kips, Ext. Flange Tu+q
Adjusted φ*Tn (due to Vu=Vu/Qty),	54.5 Kips
Bolt Stress Ratio:	26.4% **Pass**

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	17.1 Kips, Ext. Cu=Interior Cu
Plate Stress:	12.7 ksi
Allowable Plate Stress, φ*Fy:	32.4 ksi
Plate Stress Ratio:	39.3% **Pass**

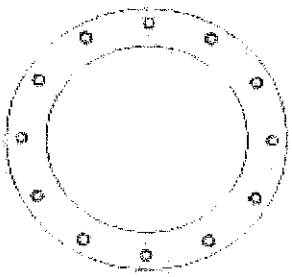
n/a

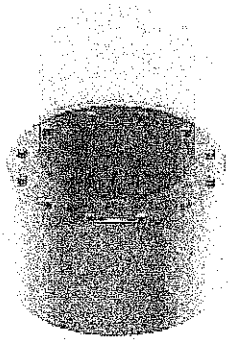
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





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

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

PROJECT	**87581.018.01 - Newington_1, CT**				
SUBJECT	**Existing Bridge Stiffeners @ 40'**				
DATE	**06-22-18**	PAGE	1	OF	1

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

0

Determine Load to Bridge Stiffener:

M =	**3789.9 k-ft**	From Risa Model
I =	**60442.4 in^4**	From AutoCAD Sketch
ybar =	**31.125 in**	
S =	1941.92 in^3	I/y
fc =	23.42 ksi	M/S
Ag =	8.125 in^2	
Pu =	190.28 k	fc x Ag

Stiffener Width	**6.500 in**
Stiffener Thickness	**1.250 in**
Stiffener Height	**179.000 in**
Fy	**65 ksi**
Fu	**80 ksi**
Step Width	**.00 in**
Bolt Circle	**50.00 in**
Number of Bolts	**64**
Bolt Size	**1 1/4**
Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag — Eqn E3-1, AISC 13th Edition, Section E3.

K =	0.99	
l =	25.000 in	Unsupported Length
Iy =	1.058 in^4	Local Weak Axis Moment of Intertia
Ag =	8.125 in^2	Stiffener Cross Sectional Area
ry =	.361 in	Radius of Gyration (Weak Axis)
kl/r =	68.59	
4.71 x √(E/Fy) =	99.49	Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.
Fe =	60.84 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	41.56 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	337.70 k	Nominal Compressive Strength
ΦPn =	303.93 k	Allowable Compressive Strength

Unity% = 62.6 %

Tension Rupture Check:

AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	8.125 in^2	Gross Area
An =	6.563 in^2	Net Area
Ae =	6.563 in^2	Effective Area
ΦRn =	475.31 k	Tension Yielding: Eqn J4-1
ΦRn =	393.75 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	393.75 ksi	

Unity% 48.33 %

Moment to Existing Bolt Group:

S_{BG} =	2417.70 in^3	# Bolts Acting	16
ft =	18.81 ksi		
Ab =	1.227 in^2		
T =	369.35 k		
Arm =	50.00 ksi		
M_{EQ} =	1539.0 k-ft	**<-------Insert into Flange Spreadsheet**	

PROJECT	**87581.018.01 - Newington_1, CT**		
SUBJECT	**New Bridge Stiffeners @ 40'**		
DATE	**06-22-18**	PAGE 1 OF 1	

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

0

Determine Load to Bridge Stiffener:

M =	**3789.9 k-ft**	From Risa Model
I =	**60442.4 in^4**	From AutoCAD Sketch
ybar =	**31.000 in**	
S =	1949.75 in^3	I/y
fc =	23.33 ksi	M/S
Ag =	6.000 in^2	
Pu =	139.95 k	fc x Ag

Stiffener Width	**6.000 in**
Stiffener Thickness	**1.000 in**
Stiffener Height	**156.000 in**
Fy	**65 ksi**
Fu	**80 ksi**
Step Width	**.00 in**
Bolt Circle	**50.00 in**
Number of Bolts	**64**
Bolt Size	**1 1/4**
Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag — Eqn E3-1, AISC 13th Edition, Section E3.

K =	0.99	
l =	16.000 in	Unsupported Length
Iy =	.500 in^4	Local Weak Axis Moment of Intertia
Ag =	6.000 in^2	Stiffener Cross Sectional Area
ry =	.289 in	Radius of Gyration (Weak Axis)
kl/r =	54.87	
4.71 x √(E/Fy) =	99.49	Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.
Fe =	95.06 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	48.82 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	292.94 k	Nominal Compressive Strength
ΦPn =	263.64 k	Allowable Compressive Strength

Unity% = 53.1 %

Tension Rupture Check:

AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	6.000 in^2	Gross Area
An =	4.750 in^2	Net Area
Ae =	4.750 in^2	Effective Area
ΦRn =	351.00 k	Tension Yielding: Eqn J4-1
ΦRn =	285.00 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	285.00 ksi	

Unity% 49.11 %

Moment to Existing Bolt Group:

S_{BG} =	2417.70 in^3	# Bolts Acting	16
ft =	18.81 ksi		
Ab =	1.227 in^2		
T =	369.35 k		
Arm =	50.00 ksi		
M_{EQ} =	1539.0 k-ft	**<-------Insert into Flange Spreadsheet**	

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Manufacturer:	Other

Reactions		
Moment:	861.51	ft-kips
Axial:	79.356	kips
Shear:	41.44	kips
Exterior Flange Run, T+q:	0	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Elevation: 40-53BC feet

Bolt Data			
Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	53	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	21.9 Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty),	76.3 Kips
Bolt Stress Ratio:	28.7% **Pass**

Plate Data		
Plate Outer Diam:	59	in
Plate Inner Diam:	45	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.79	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	26.9 Kips, Ext. Cu=Interior Cu
Plate Stress:	14.0 ksi
Allowable Plate Stress, φ*Fy:	32.4 ksi
Plate Stress Ratio:	43.4% **Pass**

Stiffener Data (Welding at Both Sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	6	in
Thick:	0.5	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

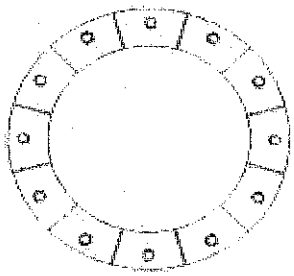
Stiffener Results

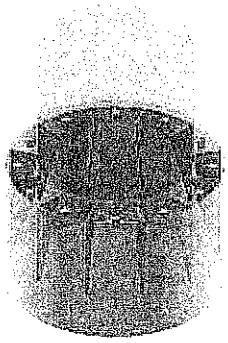
Horizontal Weld :	22.1% **Pass**
Vertical Weld:	11.8% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	8.1% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	19.0% **Pass**
Plate Comp. (AISC Bracket):	25.2% **Pass**

Pole Results

Pole Punching Shear Check:	4.5% **Pass**

Pole Data		
Pole OuterDiam:	60	in
Thick:	0.5	in
Pole Inner Diam:	59	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi





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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Manufacturer:	Other

Reactions		
Moment:	677.49	ft-kips
Axial:	79.356	kips
Shear:	41.44	kips
Exterior Flange Run, T+q:	0	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Elevation: 40-47BC feet

Bolt Data			
Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	47	in	

Plate Data		
Plate Outer Diam:	59	in
Plate Inner Diam:	45	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.79	in

Stiffener Data (Welding at Both Sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	6	in
Thick:	0.5	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Pole OuterDiam:	60	in
Thick:	0.5	in
Pole Inner Diam:	59	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	19.1 Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty),	76.3 Kips
Bolt Stress Ratio:	25.1% **Pass**

Interior Flange Plate Results Flexural Check

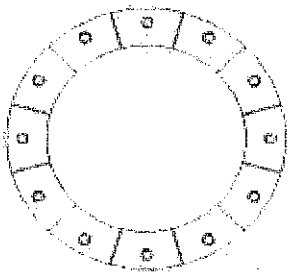
Controlling Bolt Axial Force:	24.1 Kips, Ext. Cu=Interior Cu
Plate Stress:	12.6 ksi
Allowable Plate Stress, φ*Fy:	32.4 ksi
Plate Stress Ratio:	38.9% **Pass**

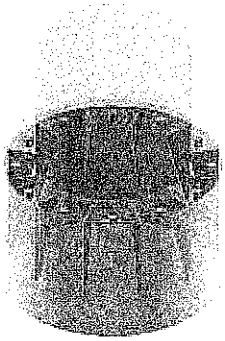
Stiffener Results

Horizontal Weld :	17.9% **Pass**
Vertical Weld:	9.6% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	6.3% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	15.1% **Pass**
Plate Comp. (AISC Bracket):	20.4% **Pass**

Pole Results

Pole Punching Shear Check:	3.7% **Pass**





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

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

PROJECT	**87581.018.01 - Newington_1, CT**		
SUBJECT	**Existing Bridge Stiffeners @ 20'**		
DATE	**06-22-18**	PAGE 1 OF 1	

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

0

Determine Load to Bridge Stiffener:

M =	**4633.9 k-ft**	From Risa Model
I =	**61968.8 in^4**	From AutoCAD Sketch
ybar =	**31.125 in**	
S =	1990.96 in^3	I/y
fc =	27.93 ksi	M/S
Ag =	8.125 in^2	
Pu =	226.93 k	fc x Ag

Stiffener Width	**6.500 in**
Stiffener Thickness	**1.250 in**
Stiffener Height	**178.000 in**
Fy	**65 ksi**
Fu	**80 ksi**
Step Width	**.00 in**
Bolt Circle	**50.00 in**
Number of Bolts	**64**
Bolt Size	**1 1/4**
Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag — Eqn E3-1, AISC 13th Edition, Section E3.

K =	0.99	
l =	24.000 in	Unsupported Length
Iy =	1.058 in^4	Local Weak Axis Moment of Intertia
Ag =	8.125 in^2	Stiffener Cross Sectional Area
ry =	.361 in	Radius of Gyration (Weak Axis)
kl/r =	65.85	
4.71 x √(E/Fy) =	99.49	Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.
Fe =	66.02 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	43.05 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	349.75 k	Nominal Compressive Strength
ΦPn =	314.78 k	Allowable Compressive Strength

Unity% = 72.1 %

Tension Rupture Check: AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	8.125 in^2	Gross Area
An =	6.563 in^2	Net Area
Ae =	6.563 in^2	Effective Area
ΦRn =	475.31 k	Tension Yielding: Eqn J4-1
ΦRn =	393.75 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	393.75 ksi	

Unity% 57.63 %

Moment to Existing Bolt Group:

S_{BG} =	2478.75 in^3	# Bolts Acting	16
ft =	22.43 ksi		
Ab =	1.227 in^2		
T =	440.48 k		
Arm =	50.00 ksi		
M_{EQ} =	1835.3 k-ft	**<-------Insert into Flange Spreadsheet**	

PROJECT	**87581.018.01 - Newington_1, CT**		
SUBJECT	**New Bridge Stiffeners @ 20'**		
DATE	**06-22-18**	PAGE 1 OF 1	

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

0

Determine Load to Bridge Stiffener:

M =	**4633.9 k-ft**	From Risa Model
I =	**61968.8 in^4**	From AutoCAD Sketch
ybar =	**31.000 in**	
S =	1998.99 in^3	I/y
fc =	27.82 ksi	M/S
Ag =	6.000 in^2	
Pu =	166.91 k	fc x Ag

Stiffener Width	**6.000 in**
Stiffener Thickness	**1.000 in**
Stiffener Height	**156.000 in**
Fy	**65 ksi**
Fu	**80 ksi**
Step Width	**.00 in**
Bolt Circle	**50.00 in**
Number of Bolts	**64**
Bolt Size	**1 1/4**
Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag — Eqn E3-1, AISC 13th Edition, Section E3.

K =	0.99	
l =	16.000 in	Unsupported Length
Iy =	.500 in^4	Local Weak Axis Moment of Intertia
Ag =	6.000 in^2	Stiffener Cross Sectional Area
ry =	.289 in	Radius of Gyration (Weak Axis)
kl/r =	54.87	
4.71 x √(E/Fy) =	99.49	Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.
Fe =	95.06 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	48.82 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	292.94 k	Nominal Compressive Strength
ΦPn =	263.64 k	Allowable Compressive Strength

Unity% = 63.3 %

Tension Rupture Check:

AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	6.000 in^2	Gross Area
An =	4.750 in^2	Net Area
Ae =	4.750 in^2	Effective Area
ΦRn =	351.00 k	Tension Yielding: Eqn J4-1
ΦRn =	285.00 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	285.00 ksi	

Unity% 58.56 %

Moment to Existing Bolt Group:

S_{BG} =	2478.75 in^3	# Bolts Acting	16
ft =	22.43 ksi		
Ab =	1.227 in^2		
T =	440.48 k		
Arm =	50.00 ksi		
M_{EQ} =	1835.3 k-ft	**<-------Insert into Flange Spreadsheet**	

PROJECT	**87581.018.01 - Newington_1, CT**		
SUBJECT	**New Bridge Stiffeners @ 20'**		
DATE	**06-22-18**	PAGE 1 OF 1	

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

0

Determine Load to Bridge Stiffener:

M =	**4633.9 k-ft**	From Risa Model
I =	**61968.8 in^4**	From AutoCAD Sketch
ybar =	**31.000 in**	
S =	1998.99 in^3	I/y
fc =	27.82 ksi	M/S
Ag =	6.000 in^2	
Pu =	166.91 k	fc x Ag

Stiffener Width	**6.000 in**
Stiffener Thickness	**1.000 in**
Stiffener Height	**156.000 in**
Fy	**65 ksi**
Fu	**80 ksi**
Step Width	**.00 in**
Bolt Circle	**50.00 in**
Number of Bolts	**64**
Bolt Size	**1 1/4**
Gap @ Flange	**6.00 in**

Determine ΦPn (Allowable Axial Load):

Pn = Fcr x Ag — Eqn E3-1, AISC 13th Edition, Section E3.

K =	0.99	
l =	16.000 in	Unsupported Length
Iy =	.500 in^4	Local Weak Axis Moment of Intertia
Ag =	6.000 in^2	Stiffener Cross Sectional Area
ry =	.289 in	Radius of Gyration (Weak Axis)
kl/r =	54.87	

4.71 x √(E/Fy) = 99.49 — Limit State Equation for Flexural Buckling - AISC 13th Edition, Section E3.

Fe =	95.06 ksi	Eqn E3-4 - AISC 13th Edition, Section E3. Elastic Critical Buckling Stress
Fcr =	48.82 ksi	Eqn E3-2, AISC 13th Edition, Section E3 Critical Buckling Stress
Pn =	292.94 k	Nominal Compressive Strength
ΦPn =	263.64 k	Allowable Compressive Strength

Unity% = 63.3 %

Tension Rupture Check:

AISC 13th Edition, Chapter J4.1

Hole Size	1.25	
U =	1	Shear Lag Factor - Table D3.1 and TIA222-G
Ag =	6.000 in^2	Gross Area
An =	4.750 in^2	Net Area
Ae =	4.750 in^2	Effective Area
ΦRn =	351.00 k	Tension Yielding: Eqn J4-1
ΦRn =	285.00 k	Tension Rupture: Eqn J4-2
ΦRn(Equiv)	285.00 ksi	

Unity% 58.56 %

Moment to Existing Bolt Group:

S_{BG} =	2478.75 in^3	# Bolts Acting	16
ft =	22.43 ksi		
Ab =	1.227 in^2		
T =	440.48 k		
Arm =	50.00 ksi		
M_{EQ} =	1835.3 k-ft	**<-------Insert into Flange Spreadsheet**	

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Manufacturer:	Other

Reactions		
Moment:	1027.37	ft-kips
Axial:	94	kips
Shear:	42.874	kips
Exterior Flange Run, T+q:	0	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Elevation: 20-53BC feet

Bolt Data			
Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	53	in	

Plate Data		
Plate Outer Diam:	58.75	in
Plate Inner Diam:	45	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.77	in

Stiffener Data (Welding at Both Sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	6	in
Thick:	0.5	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Pole OuterDiam:	60	in
Thick:	0.625	in
Pole Inner Diam:	58.75	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	26.1 Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty),	76.3 Kips
Bolt Stress Ratio:	34.3% **Pass**

Interior Flange Plate Results Flexural Check

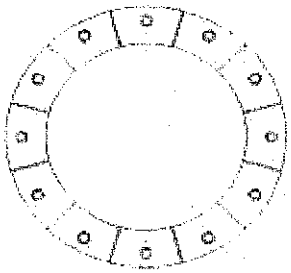
Controlling Bolt Axial Force:	32.0 Kips, Ext. Cu=Interior Cu
Plate Stress:	16.7 ksi
Allowable Plate Stress, φ*Fy:	32.4 ksi
Plate Stress Ratio:	51.7% **Pass**

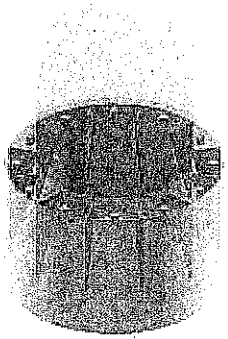
Stiffener Results

Horizontal Weld :	22.4% **Pass**
Vertical Weld:	12.0% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	8.2% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	19.3% **Pass**
Plate Comp. (AISC Bracket):	25.5% **Pass**

Pole Results

Pole Punching Shear Check:	3.7% **Pass**





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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *826217*
Site Name: *Newington ,CT*
App #: *443622 Rev. 0*

Manufacturer:	Other

Reactions		
Moment:	807.93	ft-kips
Axial:	94	kips
Shear:	42.874	kips
Exterior Flange Run, T+q:	0	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Elevation: 20-47BC feet

Bolt Data			
Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	47	in	

Plate Data		
Plate Outer Diam:	58.75	in
Plate Inner Diam:	45	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.77	in

Stiffener Data (Welding at Both Sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	6	in
Thick:	0.5	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Pole OuterDiam:	60	in
Thick:	0.625	in
Pole Inner Diam:	58.75	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	22.8 Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty),	76.3 Kips
Bolt Stress Ratio:	30.0% **Pass**

Interior Flange Plate Results Flexural Check

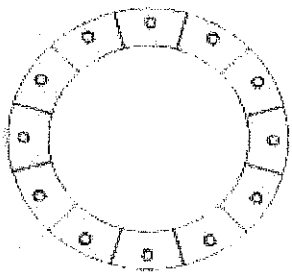
Controlling Bolt Axial Force:	28.7 Kips, Ext. Cu=Interior Cu
Plate Stress:	15.0 ksi
Allowable Plate Stress, φ*Fy:	32.4 ksi
Plate Stress Ratio:	46.4% **Pass**

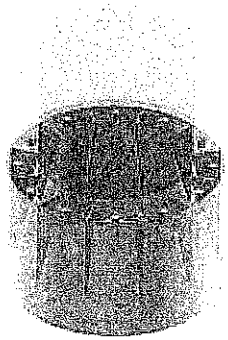
Stiffener Results

Horizontal Weld :	18.1% **Pass**
Vertical Weld:	9.7% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	6.4% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	15.3% **Pass**
Plate Comp. (AISC Bracket):	20.6% **Pass**

Pole Results

Pole Punching Shear Check:	3.0% **Pass**





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Anchor Rod Information for TIA/EIA-222-F and TIA-222-G-2

Site Information	
ID:	826217
Name:	Newington 1
App. #:	443622 Rev. 0

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Base Reactions		
Moment:	5505	ft-kip
Axial:	109	kip
Shear:	44	kip
Base Plate Type:	Circular	

Design Information	
TIA Code:	G
ASIF:	1.000
Failure:	105%
eta Factor:	0.50

Original Anchor Rod Data		
Quantity:	52	
Diameter:	1.25	in
Material:	A687	
Bolt Circle:	67.0	in
Bolt Spacing:		in
Bolt Group Area:	63.81	in^2
Bolt Group MOIx:	35807	in^4

Reactions Seen by Original AR Group		
Moment:	2522.4	kip-ft
Axial:	109.0	kip
Shear:	44.0	kip

Original AR Capacity Check		
Combined Load:	38.5	kip
Allowable load:	116.3	kip
AR Capacity:	33.1%	Pass

First Added Anchor Rod Data		
Quantity:	10	
Diameter:	2.25	in
Material:	A687	
Bolt Circle:	92.3	in
Bolt Group Area:	39.76	in^2
Bolt Group MOIx:	42342	in^4

Reactions Seen by First Added AR Group		
Moment:	2982.6	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

First Added AR Capacity Check		
Combined Load:	155.1	kip
Allowable load:	389.7	kip
AR Capacity:	39.8%	Pass

Second Added Anchor Rod Data		
Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group		
Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check		
Combined Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

Third Added Anchor Rod Data		
Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group		
Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check		
Combined Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

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

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

Site Data

BU#: *826217*
Site Name: *Newington_1*
App #: *443622 Rev. 0*

Pole Manufacturer:	*Other*

Anchor Rod Data		
Qty:	52	
Diam:	1.25	in
Rod Material:	Other	
Strength (Fu):	150	ksi
Yield (Fy):	105	ksi
Bolt Circle:	67	in

Plate Data		
Diam:	70	in
Thick:	1.25	in
Grade:	36	ksi
Single-Rod B-eff:	3.62	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	6	in
Thick:	0.5	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	60	in
Thick:	0.625	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	57	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions		
Mu:	2522.4	ft-kips
Axial, Pu:	109	kips
Shear, Vu:	44	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

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

Anchor Rod Results

		Stiffened
Max Rod (Cu+ Vu/ή):	38.5 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	116.3 Kips	φ*Tn
Anchor Rod Stress Ratio:	33.1% **Pass**	

Base Plate Results Shear Check Only

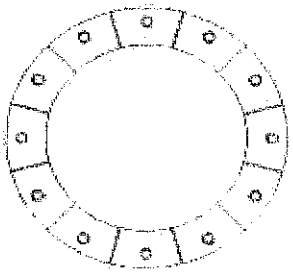
		Stiffened
Base Plate Stress:	4.9 ksi	AISC LRFD
Allowable Plate Stress:	19.4 ksi	φ*Fy
Base Plate Stress Ratio:	25.3% **Pass**	Y.L. Length: N/A, Roark

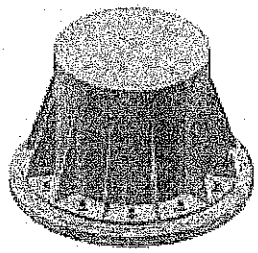
Stiffener Results

Horizontal Weld :	47.1% **Pass**
Vertical Weld:	25.2% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	21.4% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2	44.3% **Pass**
Plate Comp. (AISC Bracket):	53.6% **Pass**

Pole Results

Pole Punching Shear Check:	7.7% **Pass**





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

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

Pier and Pad Foundation

BU # :	826217
Site Name:	Newington_1, CT
App. Number:	443622 Rev. 0

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	109	kips
Base Shear, Vu_comp:	44	kips
Moment, M_u:	4305	ft-kips
Tower Height, H:	191.667	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, dpier:	7.0	ft
Ext. Above Grade, E:	0.50	ft
Pier Rebar Size, Sc:	9	
Pier Rebar Quantity, mc:	34	
Pier Tie/Spiral Size, St:	4	
Pier Tie/Spiral Quantity, mt:	11	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, D:	9.0	ft
Pad Width, W:	20.5	ft
Pad Thickness, T:	2.5	ft
Pad Rebar Size, Sp:	11	
Pad Rebar Quantity, mp:	30	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, Fy:	60000	psi
Concrete Compressive Strength, F'c:	3000	psi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	130	pcf
Ultimate Gross Bearing, Qult:	16.000	ksf
Cohesion, Cu:	0.000	ksf
Friction Angle, ϕ:	36	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.35	
Neglected Depth, N:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw:	None	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	334.55	44.00	**13.2%**	**Pass**
Bearing Pressure (ksf)	12.00	4.73	**39.4%**	**Pass**
*Overturning (kip*ft)*	6683.66	4734.00	**70.8%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	5542.90	4613.00	**83.2%**	**Pass**
Pier Compression (kip)	18370.97	157.49	**0.9%**	**Pass**
*Pad Flexure (kip*ft)*	4769.42	2295.22	**48.1%**	**Pass**
Pad Shear - 1-way (kips)	502.95	443.44	**88.2%**	**Pass**
Pad Shear - 2-way (ksi)	0.16	0.00	**0.0%**	**Pass**

Soil Rating:	**70.8%**
Structural Rating:	**88.2%**

Version 2.5.5

EBI Consulting

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

SPRINT Existing Facility

Site ID: CT52XC109

Newington_1
240 Kensington Road
Berlin, CT 06037

August 5, 2018

EBI Project Number: 6218005334

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**16.57 %**

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

EBI Consulting
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August 5, 2018

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

Emissions Analysis for Site: **CT52XC109 – Newington_1**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **240 Kensington Road, Berlin, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS), 2500 MHz (BRS) and 18 GHz microwave 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 **240 Kensington Road, Berlin, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 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) 1 microwave channel (18 GHz) was considered for sector B of the proposed installation. This channel has a transmit power of 1 Watt.

7) 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.

8) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) 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 as well as the **Andrew VHLP2-18** for microwave transmissions in the 18 GHz frequency band. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerlines of the proposed panel antennas and microwave dishes are **118 feet** above ground level (AGL) for **Sector A, 118 feet** above ground level (AGL) for **Sector B** and **118 feet** above ground level (AGL) for Sector C.

11) 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.

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SPRINT Site Inventory and Power Data by Antenna

Sector:	A
Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd
Height (AGL):	**118 feet**
Frequency Bands:	850 MHz / 1900 MHz (PCS)
Channel Count:	10
Total TX Power(W):	280 Watts
ERP (W):	7,378.61
Antenna A1 MPE%:	**2.61 %**
Antenna #:	**2**
Make / Model:	Nokia AAHC
Gain:	15.05 dBd
Height (AGL):	**118 feet**
Frequency Bands:	2500 MHz (BRS)
Channel Count:	8
Total TX Power(W):	160 Watts
ERP (W):	5,118.23
Antenna A2 MPE%:	**1.47 %**

Sector:	B
Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd
Height (AGL):	**118 feet**
Frequency Bands:	850 MHz / 1900 MHz (PCS)
Channel Count:	10
Total TX Power(W):	280 Watts
ERP (W):	7,378.61
Antenna B1 MPE%:	**2.61 %**
Antenna #:	2
Make / Model:	Nokia AAHC
Gain:	15.05 dBd
Height (AGL):	**118 feet**
Frequency Bands:	2500 MHz (BRS)
Channel Count:	8
Total TX Power(W):	160 Watts
ERP (W):	5,118.23
Antenna B2 MPE%:	**1.47 %**

Sector:	C
Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd
Height (AGL):	**118 feet**
Frequency Bands:	850 MHz / 1900 MHz (PCS)
Channel Count:	10
Total TX Power(W):	280 Watts
ERP (W):	7,378.61
Antenna C1 MPE%:	**2.61 %**
Antenna #:	**2**
Make / Model:	Nokia AAHC
Gain:	15.05 dBd
Height (AGL):	**118 feet**
Frequency Bands:	2500 MHz (BRS)
Channel Count:	8
Total TX Power(W):	160 Watts
ERP (W):	5,118.23
Antenna C2 MPE%:	**1.47 %**

Microwave Backhaul Data

Antenna Type:	Gain (dBd)	Height (feet AGL):	Frequency Bands	Channel Count	Total TX Power(W)	ERP (W)	MPE %	Sector
Andrew VHLP2-18	36.85 dBd	118	18 GHz	1	1	4,841.72	0.14	B

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Sector B	**4.22 %**
AT&T	1.64 %
Clearwire	0.14 %
MetroPCS	0.68 %
T-Mobile	2.22 %
Nextel	0.47 %
Town of Berlin	5.61 %
Verizon Wireless	1.59 %
Site Total MPE %:	**16.57 %**

SPRINT Sector A Total:	4.08 %
SPRINT Sector B Total:	4.22 %
SPRINT Sector C Total:	4.08 %
Site Total:	16.57 %

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Sprint Maximum MPE Power Values (Sector B)

SPRINT Frequency Band / Technology (Sector B)	# 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	118	1.08	850 MHz	567	0.19%
Sprint 850 MHz LTE	2	941.82	118	5.40	850 MHz	567	0.96%
Sprint 1900 MHz (PCS) CDMA	5	511.82	118	7.33	1900 MHz (PCS)	1000	0.73%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	118	7.33	1900 MHz (PCS)	1000	0.73%
Sprint 2500 MHz (BRS) LTE	8	639.78	118	14.67	2500 MHz (BRS)	1000	1.47%
Sprint 18 GHz Microwave	1	4,841.72	118	1.39	18 GHz	1000	0.14%
						Total:	**4.22%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	4.08 %
Sector B:	4.22 %
Sector C:	4.08 %
SPRINT Maximum MPE % (Sector B):	4.22 %
Site Total:	16.57 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **16.57 %** 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.

ORIGIN ID:BEDA (781) 970-0053
JEFF BARBADORA
CROWN CASTLE
12 GILL STREET
SUITE 5800
WOBURN, MA 01801
UNITED STATES US

SHIP DATE: 15AUG18
ACTWGT: 1.00 LB
CAD: 104924191/INET4040

BILL SENDER

TO MR. JACK HEALY-TOWN MANAGER
TOWN OF BERLIN
240 KENSINGTON ROAD

BERLIN CT 06037
(860) 828-7003 REF: 1766.6680
INV:
PO: DEPT:

552J1/3309/DCA5

FedEx Express

J182018072201uv

TRK# 0201 7729 8495 8290

THU - 16 AUG 10:30A
PRIORITY OVERNIGHT

EB BDLA 06037
CT-US BDL

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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.

Barbadora, Jeff

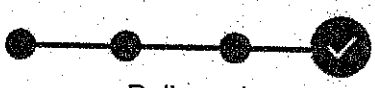
From: TrackingUpdates@fedex.com
Sent: Thursday, August 16, 2018 10:13 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772984958290 Delivered

Your package has been delivered

Tracking # 772984958290

Ship date:
Wed, 8/15/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US



Delivery date:
Thu, 8/16/2018 10:10 am

Mr. Jack Healy-Town Manager
Town of Berlin
240 Kensington Road
BERLIN, CT 06037
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772984958290
Status:	Delivered: 08/16/2018 10:10 AM Signed for By: C.SULIVAN
Reference:	1766.6680
Signed for by:	C.SULIVAN
Delivery location:	BERLIN, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Pak
Number of pieces:	1
Weight:	2.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	8/16/2018 by 10:30 am

ORIGIN ID:BEDA (781) 970-0053
JEFF BARBADORA
CROWN CASTLE
12 GILL STREET
SUITE 5800
WOBURN, MA 01801
UNITED STATES US

SHIP DATE: 15AUG18
ACTWGT: 1.00 LB
CAD: 104924191/INET4040

BILL SENDER

TO **MR.MAREK KOZIKOWSKI-TOWN PLANNER**
TOWN OF BERLIN
240 KENSINGTON ROAD

BERLIN CT 06037
(860) 828-7066 REF: 1766.6680
INV:
PO: DEPT:

552J1/3309/DCA5

FedEx Express

J182018072201uv

TRK# 0201 **7729 8497 8979**

THU - 16 AUG 10:30A
PRIORITY OVERNIGHT

EB BDLA

06037
CT-US **BDL**

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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.

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Thursday, August 16, 2018 10:14 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772984978979 Delivered

Your package has been delivered

Tracking # 772984978979

Ship date:
Wed, 8/15/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US

Delivery date:
Thu, 8/16/2018 10:10 am

Mr.Marek Kozikowski-Town Planner
Town of Berlin
240 Kensington Road
BERLIN, CT 06037
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772984978979
Status:	Delivered: 08/16/2018 10:10 AM Signed for By: C.SULIVAN
Reference:	1766.6680
Signed for by:	C.SULIVAN
Delivery location:	BERLIN, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Pak
Number of pieces:	1
Weight:	2.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	8/16/2018 by 10:30 am