



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

November 8, 2018

Robert C. Wilson
Empire Telecom USA, LLC
16 Esquire Road
Billerica, MA 01862

RE: **EM-AT&T-110-181001** – AT&T notice of intent to modify an existing telecommunications facility located at 10 Sparks Street, Plainville, Connecticut.

Dear Mr. Wilson:

The Connecticut Siting Council (Council) is in receipt of your correspondence of November 7, 2018 submitted in response to the Council's October 30, 2018 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/FC

Robidoux, Evan

From: Nora Oliver <noliver@empiretelecomm.com>
Sent: Wednesday, November 07, 2018 2:48 PM
To: CSC-DL Siting Council
Cc: Cunliffe, Fred
Subject: 10 SPARKS STREET, PLAINVILLE, 06062/ AT&T Site# CT1054
Attachments: CT1054 LL Proof of Delivery1.pdf

Hello,

Please find attached the proof of Delivery of Notice to the landowner.

Please let me know if you have any questions.

Thank you,

Nora Oliver
Empire Telecom USA
16 Esquire Road
Billerica, MA 01862
Tel: 978-808-2111
Email: Noliver@EmpireTelecomm.com

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Robert C. Wilson
Site Acquisition Manager
Empire Telecom
200 N. Warner Road, Suite 215
King of Prussia, PA 19406

RE: **EM-AT&T-110-181001** – AT&T notice of intent to modify an existing telecommunications facility located at 10 Sparks Street, Plainville, Connecticut.

Dear Mr. Wilson:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on October 1, 2018. On October 3, 2018, the Council issued a letter (enclosed) stating that the above referenced request for exempt modification was incomplete because there was no proof of notice to the underlying property owner provided in the request and the referenced Structural Modification drawings had missing sections. The Council requested that Empire Telecom provide proof of proper notice of this exempt modification request to the chief elected official of the host municipality and the underlying property owner and submit a complete copy of the Structural Modification Drawings referenced in the Structural Analysis Report.

On October 29, 2018, the Council received an electronic mail with mailing receipts and a passing structural with the Structural Modification drawings. The property card provided with the initial request shows Heartland Plainville, LLC as the underlying property owner, however the mailing receipts provided do not indicate that notice of the request was sent to the underlying property owner.

Therefore, the exempt modification request remains incomplete at this time. The Council recommends that Empire Telecom provide proof of proper notice of this exempt modification request to the underlying property owner on or before November 30, 2018. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to November 30, 2018.

This notice of incompleteness shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

Melanie Bachman
Executive Director

MAB/FOC/IN

Enclosure: Letter of Incomplete dated October 3, 2018.

c: The Honorable Katherine Pugliese, Chairman, Town of Plainville
Robert E. Lee, Town Manager, Town of Plainville
Mark DeVoe, AICP, Dir. of Planning and Economic Development, Town of Plainville

S:\EMS_TS\1_BYTOWN\Plainville\SparksSt\AT&T_CING\em-at&t-110-181001_2nd-incompletltr_sparksStreet.docx



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October 3, 2018

Robert Wilson
Empire Telecom USA, LLC
16 Esquire Road
Billerica, MA 01862

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Dear Mr. Wilson:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on October 1, 2018.

According to Section 16-50j-71 of the Regulations of Connecticut State Agencies, "...any modification, as defined in Section 16-50j-2a of the Regulations of Connecticut State Agencies, to an existing tower site, except as specified in Sections 16-50j-72 and 16-50j-88 of the Regulations of Connecticut State Agencies, may have a substantial adverse environmental effect."

Staff has reviewed this exempt modification request for completeness and has identified a deficiency in the filing due to lack of notice. The Council issued a memorandum on June 22, 2017 to entities requesting exempt modifications requiring a copy of the entire notice and attachments be physically mailed to the chief elected official of the host municipality and the underlying property owner and proof of such mailing shall be submitted to the Council with the request for exempt modification. See attached.

The above referenced request for exempt modification lacks proof that the entire request for exempt modification was physically mailed to the chief elected official of the host municipality and the underlying property owner. Also, the Structural Modification Drawings provided in Appendix D of the request were not properly copied and sections of the sheets have been truncated rendering missing information. Please note that these Structural Modification Drawings were not included in the electronic copy of the request.

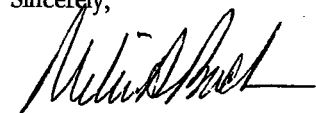
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This notice of incompleteness shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).



Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,



Melanie Bachman
Executive Director

MAB/FOC/IN

Enclosures: June 22, 2017 Memo to carriers on Notices

- c: The Honorable Katherine Pugliese, Chairman, Town of Plainville
- Robert E. Lee, Town Manager, Town of Plainville
- Mark DeVoe, AICP, Dir. of Planning and Economic Development, Town of Plainville



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VIA ELECTRONIC MAIL

MEMORANDUM

To: Telecommunications Carriers and their Representatives
From: Melanie Bachman, Executive Director *MAB*
Re: Exempt Modification/Tower Share Filing Notification
Date: June 22, 2017

Pursuant to Regulations of Connecticut State Agencies § 16-50j-73 and §16-50j-88, the April 2013 *Filing Guide for Modification of Existing Telecommunications Facilities*, and the August 2013 *Tower Share Filing Guide*, notice in writing shall be provided to "the Council, the property owner of record... and the chief elected official" of the intent to modify or share an existing telecommunications facility" (see Attachments).

Effective immediately, a copy of the notice and the attachments, including, but not limited to, engineering drawings, structural analysis (the structural analysis report without tower data and calculation appendices is sufficient) and power density calculation of the request for an exempt modification or tower share shall be physically mailed to the chief elected official of the host municipality and underlying property owner where the existing telecommunications facility is located and proof of mailing shall be submitted to the Council with the request. Proof of mailing requires an acknowledgment from the carrier (United States Postal Service or private carrier such as UPS/FedEx) that a parcel was delivered to the recipient. **E-mail service is unacceptable.**

Thank you in advance for your cooperation.

Attachments: Altrio Investment Group, LLC correspondence, dated June 16, 2017
City of Danbury email correspondence, dated June 8, 2017

MAB/FOC/laf

Recipient List: Christopher B. Fisher, Esq., AT&T
Ray Perry, Airosmith Development, Inc.
Arthur Perkowski, Airosmith Development, Inc.
Alex Murshteyn, Centerline Communications
Michael Gentile, Centerline Communications
David Ford, Centerline Communications
Adam Wolfey, Centerline Communications
Steve Levine, Centek Engineering, Inc.
Jeff Barbadora, Crown Castle
Amanda Cornwall, Crown Castle
Kimberly Myl, Crown Castle
Donna Neal, Crown Castle
Sarah Snell, Empire Telecom
Nicole Caplan, Empire Telecom
Jack Andrews, Empire Telecom
Jennifer Iliades, Empire Telecom
Melanie Howlett, HPC Wireless
Alex Giannaras, HPC Wireless
Denise Sabo, Northeast Site Solutions
Deborah Chase, Northeast Site Solutions
Victoria Masse, Northeast Site Solutions

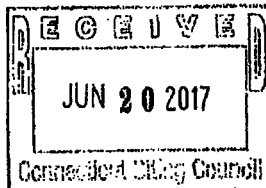
Mark Roberts, QC Development
Tim Burks, SAI Communications
Rick Woods, SBA
Kri Pelletier, SBA
Peter Nute, SBA
Adam Brillard, Smartlink, LLC
David Barbagallo, Smartlink LLC
Romina Kirchmaier, Smartlink LLC
Thomas J. Regan, Esq., Sprint
Sam Simons, T-Mobile
Greg Shappy, Transcend Wireless
Kyle Richers, Transcend Wireless
Jennifer Ardis, Transcend Wireless
James Burgess, TRM, Inc.
Jacqueline Clifford, TRM, Inc.
Matt Burke, TRM, Inc.
Jon Ritter, TRM, Inc.
Kenneth C. Baldwin, Esq., Verizon Wireless
Eric Dahl, Vertical Development LLC
Jamie Ford, Vertical Development LLC
Matthew Bandle, Vertical Development LLC



21 Acorn Road Phone: 203-481-3496
Branford, CT Fax: 203-483-8804
06405 asecondino@asecondinoandco.com

ALTRIO INVESTMENT GROUP, LLC

em-t-mobile-014-170523



June 16, 2017

Ms. Amanda Cornwall
Crown Castle
12 Gill Street, Suite 5800
Woburn, MA 01801

ORIGINAL

**RE: T-Mobile Tower Modifications, 21 Acorn Road, Branford CT
Reference Site # CTNH509A**

Dear Ms. Cornwall,

Please provide Altrio Investment Group (*Landlord and Property Owner*) with all pertinent documentation and information regarding modifications to the subject communication tower or ground lease area including structural analysis report, modification drawings, structural drawings, and drawings indicating T-Mobile equipment plans and elevations.

Please also notify all involved parties that any holes or penetrations in the building envelope are to be performed by the Landlord, Altrio Investment Group LLC and will be billed to the responsible parties.

Best regards,

Alfred J. Secondino
Managing Member

CC: Melanie A Bachman, CT Siting Council, Executive Director
File

Cunliffe, Fred

From: Bachman, Melanie
Sent: Thursday, June 08, 2017 3:35 PM
To: 'Deborah Chase'
Cc: 'Sheldon Freinle'; 'Denise Sabo'; 'Victoria Masse'
Subject: RE: 41 Padanaram Road, Danbury CT 06811 (CT11896A L1900) T-Mobile Antenna EM Application

Good afternoon.

I received a call from Robin Edwards, Corporation Counsel for the City of Danbury. She was concerned about how notice of this request was provided to the City and indicated that it appeared the request was submitted through their "311 service?" From their website, this appears to be a City Service Request Form. I snipped the link to it below for your convenience. The cover letter indicates that a copy was sent to the Mayor and the Director of Planning. Could someone please confirm that a copy of the letter was actually sent rather than submitted to the "311 service" when you have a chance?

Thanks.

Resources



Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
860-827-2951



CONFIDENTIAL INFORMATION:

From: Deborah Chase [mailto:deborah@northeastsitesolutions.com]
Sent: Friday, May 26, 2017 3:12 PM
To: CSC-DL Siting Council <Siting.Council@ct.gov>; Bachman, Melanie <Melanie.Bachman@ct.gov>; Mathews, Lisa A <Lisa.A.Mathews@ct.gov>
Cc: Sheldon Freinle <sheldon@northeastsitesolutions.com>; Denise Sabo <denise@northeastsitesolutions.com>; Victoria Masse <victoria@northeastsitesolutions.com>
Subject: 41 Padanaram Road, Danbury CT 06811 (CT11896A L1900) T-Mobile Antenna EM Application

Siting Council,

Enclosed please find the Notice of Exempt Modification package from Northeast Site Solutions on behalf of T-Mobile in connection with the above-referenced site.


We are mailing the original and two (2) copies to your office.

Please let me know if you have any questions or problems with the attachment.

Sincerely,

Deborah Chase
Senior Project Coordinator & Analyst
Mobile: 860-490-8839



 Save a tree. Reduce. Reuse. Recycle.

USPS Tracking® FAQs > (<https://www.usps.com/faqs/uspstracking-faqs.htm>)

Track Another Package +

Tracking Number: 9510812444778309193122

Remove X

On Time

Expected Delivery on

WEDNESDAY

7 NOVEMBER
2018 ⓘ

[See Product Information](#) ▾

Feedback

 **Delivered**

November 7, 2018 at 10:13 am
Delivered
PLAINVILLE, CT 06062

Text & Email Updates



Proof of Delivery



Tracking History



Product Information



**Postal
Product:**
Priority
Mail®

Features:
Insured
Signature Confirmation™

Signed for By: M KALETSKY // PLAINVILLE, CT
06062 // 10:13 am

See Less ^

Can't find what you're looking for?

Go to our FAQs section to find answers to your tracking questions.

FAQs (<https://www.usps.com/faqs/uspstracking-faqs.htm>)

Feedback

The easiest tracking number is the one you don't have to know.

With Informed Delivery®, you never have to type in another tracking number. Sign up to:

- See images* of incoming mail.
- Automatically track the packages you're expecting.

- Set up email and text alerts so you don't need to enter tracking numbers.
- Enter USPS Delivery Instructions™ for your mail carrier.

Sign Up

([https://reg.usps.com/entreg/RegistrationAction_input?](https://reg.usps.com/entreg/RegistrationAction_input?app=Uspstools&appURL=https%3A%2F%2Ftools.usps.com%2Fgo%2FTrackConfirmAction%3FtRef%3Dfullpage&tLc%3D2&text28777%3D%26tLabe...)

*NOTE: Black and white (grayscale) images show the outside, front of letter-sized envelopes and mailpieces that are processed through USPS automated equipment.

Feedback

Robidoux, Evan

From: Nora Oliver <noliver@empiretelecomm.com>
Sent: Friday, November 02, 2018 1:44 PM
To: CSC-DL Siting Council
Subject: FW: CT1054 RE: Council Incomplete Letter for EM-AT&T-110-181001-SparksSt-Plainville
Attachments: CT1054. 20181029123556942.pdf;
10035333.DE113.PASSINGSTRUCTURALwMODS.CT1054_07.16.208.pdf

Hello,

Please find attached and below the documentations from the Incomplete Letter for 10 Sparks St, Plainville, CT.

Let me know if you have any questions.

Thank you

Nora Oliver
Empire Telecom USA
16 Esquire Road
Billerica, MA 01862
Tel: 978-808-2111
Email: Noliver@EmpireTelecomm.com

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From: Nora Oliver
Sent: Monday, October 29, 2018 3:47 PM
To: Fred.Cunliffe@ct.gov
Subject: FW: CT1054 RE: Council Incomplete Letter for EM-AT&T-110-181001-SparksSt-Plainville

From: Nora Oliver
Sent: Monday, October 29, 2018 3:27 PM
To: Cunliffe, Fred <Fred.Cunliffe@ct.gov>
Cc: Nora Oliver <noliver@empiretelecomm.com>
Subject: Ct1054 RE: Council Incomplete Letter for EM-AT&T-110-181001-SparksSt-Plainville

Mr. Cunliffe,

Per our phone conversation please find attached the correspondence from Mr. Wilson. I have also included the Proof of Delivery (Green Cards).

Should I be mailing out hard copies or is the soft copy acceptable for this time?

Please let me know if you any questions.

Much appreciate it.

Thank you

Nora Oliver
Empire Telecom USA
16 Esquire Road
Billerica, MA 01862
Tel: 978-808-2111
Cell:781-248-1963
Email: Noliver@EmpireTelecomm.com

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From: Cunliffe, Fred [<mailto:Fred.Cunliffe@ct.gov>]
Sent: Monday, October 29, 2018 9:07 AM
To: Nora Oliver <noliver@empiretelecomm.com>
Subject: FW: Council Incomplete Letter for EM-AT&T-110-181001-SparksSt-Plainville

Good morning, FYI

Fred Cunliffe
Siting Analyst Supervisor
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
website:ct.gov/csc
email:fred.cunliffe@ct.gov
desk-860.827.2939
fax-860.827.2950

From: Robidoux, Evan
Sent: Thursday, October 04, 2018 4:08 PM
To: 'Robert Wilson'
Cc: CSC-DL Siting Council
Subject: Council Incomplete Letter for EM-AT&T-110-181001-SparksSt-Plainville

Please see the attached correspondence.

Evan Robidoux
Clerk Typist
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

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October 3, 2018

Robert Wilson
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16 Esquire Road
Billerica, MA 01862

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Dear Mr. Wilson:

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According to Section 16-50j-71 of the Regulations of Connecticut State Agencies, "...any modification, as defined in Section 16-50j-2a of the Regulations of Connecticut State Agencies, to an existing tower site, except as specified in Sections 16-50j-72 and 16-50j-88 of the Regulations of Connecticut State Agencies, may have a substantial adverse environmental effect."

Staff has reviewed this exempt modification request for completeness and has identified a deficiency in the filing due to lack of notice. The Council issued a memorandum on June 22, 2017 to entities requesting exempt modifications requiring a copy of the entire notice and attachments be physically mailed to the chief elected official of the host municipality and the underlying property owner and proof of such mailing shall be submitted to the Council with the request for exempt modification. See attached.

The above referenced request for exempt modification lacks proof that the entire request for exempt modification was physically mailed to the chief elected official of the host municipality and the underlying property owner. Also, the Structural Modification Drawings provided in Appendix D of the request were not properly copied and sections of the sheets have been truncated rendering missing information. Please note that these Structural Modification Drawings were not included in the electronic copy of the request.

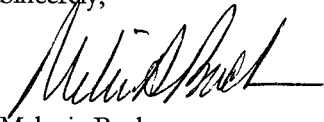
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Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

A handwritten signature in black ink, appearing to read 'Melanie Bachman', written over a light blue horizontal line.

Melanie Bachman
Executive Director

MAB/FOC/IN

Enclosures: June 22, 2017 Memo to carriers on Notices

- c: The Honorable Katherine Pugliese, Chairman, Town of Plainville
- Robert E. Lee, Town Manager, Town of Plainville
- Mark DeVoe, AICP, Dir. of Planning and Economic Development, Town of Plainville



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VIA ELECTRONIC MAIL

MEMORANDUM

To: Telecommunications Carriers and their Representatives
From: Melanie Bachman, Executive Director *MAB*
Re: Exempt Modification/Tower Share Filing Notification
Date: June 22, 2017

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Effective immediately, **a copy of the notice and the attachments**, including, but not limited to, engineering drawings, structural analysis (the structural analysis report without tower data and calculation appendices is sufficient) and power density calculation of the request for an exempt modification or tower share shall be physically mailed to the chief elected official of the host municipality and underlying property owner where the existing telecommunications facility is located and proof of mailing shall be submitted to the Council with the request. Proof of mailing requires an acknowledgment from the carrier (United States Postal Service or private carrier such as UPS/FedEx) that a parcel was delivered to the recipient. **E-mail service is unacceptable.**

Thank you in advance for your cooperation.

Attachments: Altrio Investment Group, LLC correspondence, dated June 16, 2017
City of Danbury email correspondence, dated June 8, 2017

MAB/FOC/laf



S:\ADMINISTRATION\General Correspondence\Memos\Telcom\20170622-memotocarriers_notice_m

CONNECTICUT SITING COUNCIL
Affirmative Action / Equal Opportunity Employer

Recipient List:	Christopher B. Fisher, Esq., AT&T Ray Perry, Airosmith Development, Inc. Arthur Perkowski, Airosmith Development, Inc. Alex Murshteyn, Centerline Communications Michael Gentile, Centerline Communications David Ford, Centerline Communications Adam Wolfey, Centerline Communications Steve Levine, Centek Engineering, Inc. Jeff Barbadora, Crown Castle Amanda Cornwall, Crown Castle Kimberly Myl, Crown Castle Donna Neal, Crown Castle Sarah Snell, Empire Telecom Nicole Caplan, Empire Telecom Jack Andrews, Empire Telecom Jennifer Iliades, Empire Telecom Melanie Howlett, HPC Wireless Alex Giannaras, HPC Wireless Denise Sabo, Northeast Site Solutions Deborah Chase, Northeast Site Solutions Victoria Masse, Northeast Site Solutions	Mark Roberts, QC Development Tim Burks, SAI Communications Rick Woods, SBA Kri Pelletier, SBA Peter Nute, SBA Adam Brailard, Smartlink, LLC David Barbagallo, Smartlink LLC Romina Kirchmaier, Smartlink LLC Thomas J. Regan, Esq., Sprint Sam Simons, T-Mobile Greg Shappy, Transcend Wireless Kyle Richers, Transcend Wireless Jennifer Ardis, Transcend Wireless James Burgess, TRM, Inc. Jacqueline Clifford, TRM, Inc. Matt Burke, TRM, Inc. Jon Ritter, TRM, Inc. Kenneth C. Baldwin, Esq., Verizon Wireless Eric Dahl, Vertical Development LLC Jamie Ford, Vertical Development LLC Matthew Bandle, Vertical Development LLC
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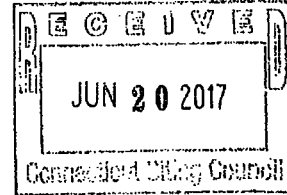


21 Acorn Road
Branford, CT
06405

Phone: 203-481-3496
Fax: 203-483-8604
asecondino@asecondinoandson.com

ALTRIO INVESTMENT GROUP, LLC

em-t-mobile-014-170523



June 16, 2017

Ms. Amanda Cornwall
Crown Castle
12 Gill Street, Suite 5800
Woburn, MA 01801

ORIGINAL

**RE: T-Mobile Tower Modifications, 21 Acorn Road, Branford CT
Reference Site # CTNH509A**

Dear Ms. Cornwall,

Please provide Altrio Investment Group (*Landlord and Property Owner*) with all pertinent documentation and information regarding modifications to the subject communication tower or ground lease area including structural analysis report, modification drawings, structural drawings, and drawings indicating T-Mobile equipment plans and elevations.

Please also notify all involved parties that any holes or penetrations in the building envelope are to be performed by the Landlord, Altrio Investment Group LLC and will be billed to the responsible parties.

Best regards,

Alfred J. Secondino
Managing Member

CC: Melanie A Bachman, CT Siting Council, Executive Director
File

Cunliffe, Fred

From: Bachman, Melanie
Sent: Thursday, June 08, 2017 3:35 PM
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Cc: 'Sheldon Freinle'; 'Denise Sabo'; 'Victoria Masse'
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Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
860-827-2951



CONFIDENTIAL INFORMATION:

From: Deborah Chase [mailto:deborah@northeastsitesolutions.com]
Sent: Friday, May 26, 2017 3:12 PM
To: CSC-DL Siting Council <Siting.Council@ct.gov>; Bachman, Melanie <Melanie.Bachman@ct.gov>; Mathews, Lisa A <Lisa.A.Mathews@ct.gov>
Cc: Sheldon Freinle <sheldon@northeastsitesolutions.com>; Denise Sabo <denise@northeastsitesolutions.com>; Victoria Masse <victoria@northeastsitesolutions.com>
Subject: 41 Padanaram Road, Danbury CT 06811 (CT11896A L1900) T-Mobile Antenna EM Application

Siting Council,

Enclosed please find the Notice of Exempt Modification package from Northeast Site Solutions on behalf of T-Mobile in connection with the above-referenced site.

We are mailing the original and two (2) copies to your office.

Please let me know if you have any questions or problems with the attachment.


Sincerely,

Deborah Chase

Senior Project Coordinator & Analyst

Mobile: 860-490-8839



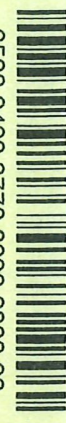
 Save a tree. Reduce. Reuse. Recycle.

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mark S. Devoe, AICP
Director of Planning & Economic Development
 One Central Square, Room 100
 Plainville, CT 06062



9590 9402 3770 8032 0832 90

2. Article Number (Transfer from service label)
 7014 2120 0001 6938 3500

PS Form 3811, July 2015 PSN 7530-02-000-9053

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
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1. Article Addressed to:

Crown Castle
Paul Pedicone, Project Manager
 3 Corporate Drive, Suite 101
 Clifton Park, NY 12065



9590 9402 3845 8032 6732 10

2. Article Number (Transfer from service label)
 7015 0640 0007 2962 5631

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature *James Coode* Agent

B. Received by (Printed Name) *James Coode* Addressee

C. Date of Delivery *8/16/15*

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type
- Adult Signature
 - Adult Signature Restricted Delivery
 - Certified Mail®
 - Certified Mail Restricted Delivery
 - Collect on Delivery
 - Collect on Delivery Restricted Delivery
 - Registered Mail Express®
 - Registered Mail™
 - Registered Mail Restricted Delivery
 - Return Receipt for Merchandise
 - Signature Confirmation™
 - Signature Confirmation Restricted Delivery

Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature *Blair* Agent

B. Received by (Printed Name) *Blair* Addressee

C. Date of Delivery *8/15*

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type
- Adult Signature
 - Adult Signature Restricted Delivery
 - Certified Mail®
 - Certified Mail Restricted Delivery
 - Collect on Delivery
 - Collect on Delivery Restricted Delivery
 - Priority Mail Express®
 - Registered Mail™
 - Registered Mail Restricted Delivery
 - Return Receipt for Merchandise
 - Signature Confirmation™
 - Signature Confirmation Restricted Delivery

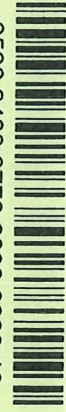
Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Robert E. Lee, Town Manager
Plainville Municipal Center
 One Central Square, Room 100
 Plainville, CT 06062



9590 9402 3770 8032 0833 13

2. Article Number (Transfer from service label)
 7014 2120 0001 6938 3487

PS Form 3811, July 2015 PSN 7530-02-000-9053

SENDER: COMPLETE THIS SECTION

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Foster Zucchi
Building Official
Plainville Municipal Center
 One Central Square, Room 100
 Plainville, CT 06062



9590 9402 3770 8032 0833 06

2. Article Number (Transfer from service label)
 7014 2120 0001 6938 3494

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature *James Coode* Agent

B. Received by (Printed Name) *James Coode* Addressee

C. Date of Delivery *8/16/15*

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type
- Adult Signature
 - Adult Signature Restricted Delivery
 - Certified Mail®
 - Certified Mail Restricted Delivery
 - Collect on Delivery
 - Collect on Delivery Restricted Delivery
 - Registered Mail Express®
 - Registered Mail™
 - Registered Mail Restricted Delivery
 - Return Receipt for Merchandise
 - Signature Confirmation™
 - Signature Confirmation Restricted Delivery

Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature *Blair* Agent

B. Received by (Printed Name) *Blair* Addressee

C. Date of Delivery *8/16/15*

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type
- Adult Signature
 - Adult Signature Restricted Delivery
 - Certified Mail®
 - Certified Mail Restricted Delivery
 - Collect on Delivery
 - Collect on Delivery Restricted Delivery
 - Priority Mail Express®
 - Registered Mail™
 - Registered Mail Restricted Delivery
 - Return Receipt for Merchandise
 - Signature Confirmation™
 - Signature Confirmation Restricted Delivery

Domestic Return Receipt

Date: July 16, 2018

Timothy Howell
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

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

Subject: Structural Modification Report

Carrier Designation:

AT&T Mobility Co-Locate

Carrier Site Number:

CT1054

Carrier Site Name:

10035333

Crown Castle Designation:

Crown Castle BU Number:

876333

Crown Castle Site Name:

CREATIVE DIMENSIONS

Crown Castle JDE Job Number:

478074

Crown Castle Work Order Number:

1578501

Crown Castle Order Number:

421157 Rev. 1

Engineering Firm Designation:

Paul J. Ford and Company Project Number: 37518-2227.001.7700

Site Data:

10 Sparks St., PLAINVILLE, Hartford County, CT
Latitude 41° 40' 24.52", Longitude -72° 51' 16.17"
137 Foot - Monopole Tower

Dear Mr. Howell,

Paul J. Ford and Company is pleased to submit this "Structural Modification 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 1202439, in accordance with order 421157, revision 1.

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

LC4.5: Modified Structure w/ Existing + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing 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 ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1 were used in this analysis.

All modifications and 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 Paul J. Ford and Company 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.

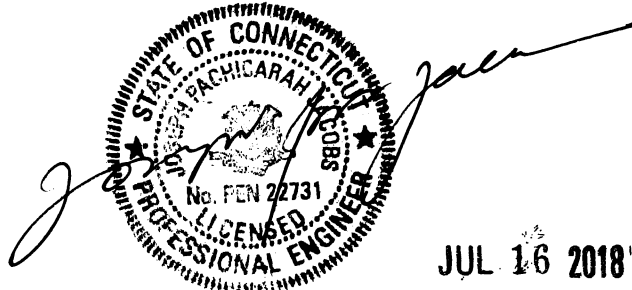
Respectfully submitted by:



Shardul Kadam, P.E.
Project Engineer I

BKK

tnxTower Report - version 7.0.5.1



JUL 16 2018

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1) INTRODUCTION

This tower is a 137 ft Monopole tower designed by PITTSBURG MONOPOLE in April of 1997. The tower was originally designed for a wind speed of 85 mph per TIA-222-F.

2) ANALYSIS CRITERIA

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 ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1 were used in this analysis.

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
113.0	115.0	3	ericsson	RRUS 32	2	3/4	-
		3	ericsson	RRUS 32 B2			
		3	ericsson	RRUS 32 B66			
		3	ericsson	RRUS 4478 B14			
		6	kaelus	DBC0061F1V51-2			
		3	kathrein	80010966 w/ Mount Pipe			
		6	kathrein	860 10025			
		3	powerwave technologies	1001940			
		3	quintel technology	QS66512-2 w/ Mount Pipe			
		1	raycap	DC6-48-60-0-8F			

Table 2 - Existing 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	
124.0	131.0	1	andrew	VHLP1-23	6 4 2	5/16 1-1/4 1/2	1	
		1	andrew	VHLP2.5-18				
		2	samsung telecommunications	WIMAX DAP HEAD				
	124.0	3	alcatel lucent	TD-RRH8x20-25				
		3	argus technologies	LLPX310R-V4 w/ Mount Pipe				
		1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe				
		2	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe				
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe				
		3	rfs celwave	IBC1900BB-1				
		3	rfs celwave	IBC1900HG-2A				
		3	samsung telecommunications	WIMAX DAP HEAD				
		1	tower mounts	Miscellaneous [NA 507-1]				
		1	tower mounts	Platform Mount (LP 101-1)				
	122.0	125.0	3	alcatel lucent				PCS 1900MHz 4x45W-65MHz
122.0		3	alcatel lucent	800MHz 2X50W RRH W/FILTER				
		1	tower mounts	Pipe Mount [PM 601-3]				
113.0	115.0	3	ericsson	RRUS 32 B30	12 2 4	7/8 3/8 3/4	1	
		3	ericsson	RRUS-11				
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe				
		3	cci antennas	OPA-65R-LCUU-H8 w/ Mount Pipe				
		3	ericsson	RRUS-11				
		3	powerwave technologies	7770.00 w/ Mount Pipe				
		6	powerwave technologies	LGP21401				
	113.0	113.0	2	raycap				DC6-48-60-18-8F
			1	tower mounts				Miscellaneous [NA 507-1]
			1	tower mounts				Platform Mount [LP 712-1]
92.0	93.0	3	andrew	HBX-6516DS-VTM w/ Mount Pipe	6 1	7/8 3/8	3	
	92.0	1	tower mounts	T-Arm Mount [TA 602-3]				
50.0	50.0	1	lucent	KS24019-L112A	1	1/2	1	
		1	tower mounts	Side Arm Mount [SO 701-1]				

Notes:

- 1) Existing Equipment
- 2) Equipment To Be Removed
- 3) Abandoned Equipment considered in the 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)
-	-	-	-	-	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welt, P.E., P.C., 07/23/1996	1529723	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 25662.30277, 7/10/2015	5781873	CCISITES
4-POST-MODIFICATION INSPECTION	PJF, 67310-0038, 07/01/2010	6560711	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 25662.67617, 08/10/2017	7011614	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Hodge Design Associates, M97-0012, 08/07/1997	1616541	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Pittsburg Monopole Division, 367, 04/15/1997	1615369	CCISITES

3.1) Analysis Method

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

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) Monopole was modified in conformance with the referenced modification drawings.
- 5) Monopole will be modified in conformance with the referenced proposed modification drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
137 - 132	Pole	TP12.75x12.75x0.375	Pole	0.4%	Pass
132 - 127	Pole	TP12.75x12.75x0.375	Pole	2.8%	Pass
127 - 125	Pole	TP12.75x12.75x0.375	Pole	4.0%	Pass
125 - 120	Pole	TP24x24x0.375	Pole	7.3%	Pass
120 - 115	Pole	TP24x24x0.375	Pole	14.6%	Pass
115 - 110	Pole	TP24x24x0.375	Pole	29.4%	Pass
110 - 105	Pole	TP24x24x0.375	Pole	44.8%	Pass
105 - 100	Pole	TP24x24x0.375	Pole	60.4%	Pass
100 - 95	Pole	TP24x24x0.375	Pole	76.4%	Pass
95 - 90	Pole	TP24x24x0.375	Pole	93.3%	Pass
90 - 89.25	Pole	TP24x24x0.375	Pole	95.9%	Pass
89.25 - 89	Pole + Reinf.	TP24x24x0.4938	Pole	75.9%	Pass
89 - 88.75	Pole + Reinf.	TP24x24x0.7	Pole	55.4%	Pass
88.75 - 85.66	Pole + Reinf.	TP24x24x0.7	Pole	61.7%	Pass
85.66 - 85.41	Pole + Reinf.	TP24x24x0.875	Reinf. 2 Tension Rupture	64.6%	Pass
85.41 - 81.2	Pole + Reinf.	TP24x24x0.875	Reinf. 2 Tension Rupture	73.7%	Pass
81.2 - 80.95	Pole + Reinf.	TP24x24x0.7	Pole	71.5%	Pass
80.95 - 80	Pole + Reinf.	TP24x24x0.7	Pole	73.5%	Pass
80 - 79.75	Pole	TP36x36x0.375	Pole	61.8%	Pass
79.75 - 74.75	Pole	TP36x36x0.375	Pole	71.0%	Pass
74.75 - 69.75	Pole	TP36x36x0.375	Pole	80.6%	Pass
69.75 - 65.5	Pole	TP36x36x0.375	Pole	89.1%	Pass
65.5 - 65.25	Pole + Reinf.	TP36x36x0.4625	Pole	73.9%	Pass
65.25 - 60.25	Pole + Reinf.	TP36x36x0.4625	Pole	82.5%	Pass
60.25 - 58.39	Pole + Reinf.	TP36x36x0.4625	Pole	85.8%	Pass
58.39 - 58.14	Pole + Reinf.	TP36x36x0.5625	Pole	72.8%	Pass
58.14 - 57.5	Pole + Reinf.	TP36x36x0.5625	Pole	73.8%	Pass
57.5 - 57.25	Pole + Reinf.	TP36x36x0.475	Pole	88.1%	Pass
57.25 - 54	Pole + Reinf.	TP36x36x0.475	Pole	94.1%	Pass
54 - 53.75	Pole + Reinf.	TP36x36x0.6	Pole	74.8%	Pass
53.75 - 49.5	Pole + Reinf.	TP36x36x0.6	Pole	81.2%	Pass
49.5 - 49.25	Pole + Reinf.	TP36x36x0.7	Pole	70.4%	Pass
49.25 - 44.25	Pole + Reinf.	TP36x36x0.7	Pole	77.1%	Pass
44.25 - 41.5	Pole + Reinf.	TP36x36x0.7	Pole	81.0%	Pass
41.5 - 41.25	Pole + Reinf.	TP36x36x0.6	Pole	93.0%	Pass
41.25 - 40	Pole + Reinf.	TP36x36x0.6	Pole	95.0%	Pass

40 - 39.75	Pole	TP42x42x0.5	Pole	80.4%	Pass
39.75 - 34.75	Pole	TP42x42x0.5	Pole	87.4%	Pass
34.75 - 29.75	Pole	TP42x42x0.5	Pole	94.6%	Pass
29.75 - 29.5	Pole	TP42x42x0.5	Pole	95.0%	Pass
29.5 - 29.25	Pole + Reinf.	TP42x42x0.5	Pole	95.9%	Pass
29.25 - 28.25	Pole + Reinf.	TP42x42x0.5	Pole	97.4%	Pass
28.25 - 28	Pole + Reinf.	TP42x42x0.675	Pole	73.3%	Pass
28 - 23	Pole + Reinf.	TP42x42x0.675	Pole	78.9%	Pass
23 - 19.5	Pole + Reinf.	TP42x42x0.675	Pole	82.9%	Pass
19.5 - 19.25	Pole + Reinf.	TP42x42x0.725	Pole	76.7%	Pass
19.25 - 14.25	Pole + Reinf.	TP42x42x0.725	Pole	82.1%	Pass
14.25 - 9.25	Pole + Reinf.	TP42x42x0.725	Pole	87.7%	Pass
9.25 - 4.25	Pole + Reinf.	TP42x42x0.725	Pole	93.5%	Pass
4.25 - 2.75	Pole + Reinf.	TP42x42x0.725	Pole	95.2%	Pass
2.75 - 2.5	Pole + Reinf.	TP42x42x0.9	Pole	83.4%	Pass
2.5 - 2.25	Pole + Reinf.	TP42x42x1.05	Pole	75.4%	Pass
2.25 - 1.5	Pole + Reinf.	TP42x42x1.05	Pole	76.1%	Pass
1.5 - 1.25	Pole + Reinf.	TP42x42x1	Pole	80.6%	Pass
1.25 - 0	Pole + Reinf.	TP42x42x1	Pole	81.8%	Pass
				Summary	
			Pole	97.4%	Pass
			Reinforcement	88.5%	Pass
			Overall	97.4%	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC4.5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	120	26.7	Pass
1	Flange Connection	80	71.7	Pass
1	Flange Connection	40	92.5	Pass
1	Anchor Rods	0	96.1	Pass
1	Base Plate	0	93.9	Pass
1	Base Foundation Structural Steel	0	82.9	Pass
1	Base Foundation Soil Interaction	0	30.3	Pass

Structure Rating (max from all components) =	97.4%
---	--------------

Notes:

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

4.1) Recommendations

The monopole and its foundation will have sufficient capacity to carry the proposed loading configuration once the proposed modifications are installed.

- Install the proposed modifications per the attached drawings.

APPENDIX A
TNXTOWER OUTPUT

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.
- ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
- Basic wind speed of 97.0 mph.
- Structure Class II.
- Exposure Category C.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Nominal ice thickness of 1.00 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50.0 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60.0 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

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile
 Include Bolts In Member Capacity
 Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt.
 Autocalc Torque Arm Areas
 Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption
 <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--|--|--|

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	137.00-132.00	5.00	P12.75x0.375	A53-B-35 (35 ksi)	
L2	132.00-127.00	5.00	P12.75x0.375	A53-B-35 (35 ksi)	
L3	127.00-125.00	2.00	P12.75x0.375	A53-B-35 (35 ksi)	
L4	125.00-120.00	5.00	P24x0.375	A53-B-35 (35 ksi)	
L5	120.00-115.00	5.00	P24x0.375	A53-B-35	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L6	115.00-110.00	5.00	P24x0.375	(35 ksi) A53-B-35	
L7	110.00-105.00	5.00	P24x0.375	(35 ksi) A53-B-35	
L8	105.00-100.00	5.00	P24x0.375	(35 ksi) A53-B-35	
L9	100.00-95.00	5.00	P24x0.375	(35 ksi) A53-B-35	
L10	95.00-90.00	5.00	P24x0.375	(35 ksi) A53-B-35	
L11	90.00-89.25	0.75	P24x0.375	(35 ksi) A53-B-35	
L12	89.25-89.00	0.25	P24x0.49375	(35 ksi) A53-B-35	
L13	89.00-88.75	0.25	P24x0.7	(35 ksi) A53-B-35	
L14	88.75-85.66	3.09	P24x0.7	(35 ksi) A53-B-35	
L15	85.66-85.41	0.25	P24x0.875	(35 ksi) A53-B-35	
L16	85.41-81.20	4.21	P24x0.875	(35 ksi) A53-B-35	
L17	81.20-80.95	0.25	P24x0.7	(35 ksi) A53-B-35	
L18	80.95-80.00	0.95	P24x0.7	(35 ksi) A53-B-35	
L19	80.00-79.75	0.25	P36x0.375	(35 ksi) A53-B-35	
L20	79.75-74.75	5.00	P36x0.375	(35 ksi) A53-B-35	
L21	74.75-69.75	5.00	P36x0.375	(35 ksi) A53-B-35	
L22	69.75-65.50	4.25	P36x0.375	(35 ksi) A53-B-35	
L23	65.50-65.25	0.25	P36x0.4625	(35 ksi) A53-B-35	
L24	65.25-60.25	5.00	P36x0.4625	(35 ksi) A53-B-35	
L25	60.25-58.39	1.86	P36x0.4625	(35 ksi) A53-B-35	
L26	58.39-58.14	0.25	P36x0.5625	(35 ksi) A53-B-35	
L27	58.14-57.50	0.64	P36x0.5625	(35 ksi) A53-B-35	
L28	57.50-57.25	0.25	P36x0.475	(35 ksi) A53-B-35	
L29	57.25-54.00	3.25	P36x0.475	(35 ksi) A53-B-35	
L30	54.00-53.75	0.25	P36x0.6	(35 ksi) A53-B-35	
L31	53.75-49.50	4.25	P36x0.6	(35 ksi) A53-B-35	
L32	49.50-49.25	0.25	P36x0.7	(35 ksi) A53-B-35	
L33	49.25-44.25	5.00	P36x0.7	(35 ksi) A53-B-35	
L34	44.25-41.50	2.75	P36x0.7	(35 ksi) A53-B-35	
L35	41.50-41.25	0.25	P36x0.6	(35 ksi) A53-B-35	
L36	41.25-40.00	1.25	P36x0.6	(35 ksi) A53-B-35	
L37	40.00-39.75	0.25	P42x0.5	(35 ksi) A53-B-35	
L38	39.75-34.75	5.00	P42x0.5	(35 ksi) A53-B-35	
L39	34.75-29.75	5.00	P42x0.5	(35 ksi) A53-B-35	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L40	29.75-29.50	0.25	P42x0.5	A53-B-35 (35 ksi)	
L41	29.50-29.25	0.25	P42x0.5	A53-B-35 (35 ksi)	
L42	29.25-28.25	1.00	P42x0.5	A53-B-35 (35 ksi)	
L43	28.25-28.00	0.25	P42x0.675	A53-B-35 (35 ksi)	
L44	28.00-23.00	5.00	P42x0.675	A53-B-35 (35 ksi)	
L45	23.00-19.50	3.50	P42x0.675	A53-B-35 (35 ksi)	
L46	19.50-19.25	0.25	P42x0.725	A53-B-35 (35 ksi)	
L47	19.25-14.25	5.00	P42x0.725	A53-B-35 (35 ksi)	
L48	14.25-9.25	5.00	P42x0.725	A53-B-35 (35 ksi)	
L49	9.25-4.25	5.00	P42x0.725	A53-B-35 (35 ksi)	
L50	4.25-2.75	1.50	P42x0.725	A53-B-35 (35 ksi)	
L51	2.75-2.50	0.25	P42x0.9	A53-B-35 (35 ksi)	
L52	2.50-2.25	0.25	P42x1.05	A53-B-35 (35 ksi)	
L53	2.25-1.50	0.75	P42x1.05	A53-B-35 (35 ksi)	
L54	1.50-1.25	0.25	P42x1	A53-B-35 (35 ksi)	
L55	1.25-0.00	1.25	P42x1	A53-B-35 (35 ksi)	

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	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 137.00-132.00				1	1	1			
L2 132.00-127.00				1	1	1			
L3 127.00-125.00				1	1	1			
L4 125.00-120.00				1	1	1			
L5 120.00-115.00				1	1	1			
L6 115.00-110.00				1	1	1			
L7 110.00-105.00				1	1	1			
L8 105.00-100.00				1	1	1			
L9 100.00-95.00				1	1	1			
L10 95.00-90.00				1	1	1			
L11 90.00-89.25				1	1	1			
L12 89.25-89.00				1	1	1.01016			
L13 89.00-88.75				1	1	0.982302			
L14 88.75-85.66				1	1	0.982302			
L15 85.66-				1	1	0.92452			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	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
ft	ft ²	in							
85.41									
L16 85.41-81.20				1	1	0.92452			
L17 81.20-80.95				1	1	0.982302			
L18 80.95-80.00				1	1	0.982302			
L19 80.00-79.75				1	1	1			
L20 79.75-74.75				1	1	1			
L21 74.75-69.75				1	1	1			
L22 69.75-65.50				1	1	1			
L23 65.50-65.25				1	1	0.987106			
L24 65.25-60.25				1	1	0.987106			
L25 60.25-58.39				1	1	0.987106			
L26 58.39-58.14				1	1	1.04745			
L27 58.14-57.50				1	1	1.04745			
L28 57.50-57.25				1	1	1.06757			
L29 57.25-54.00				1	1	1.06757			
L30 54.00-53.75				1	1	1.05046			
L31 53.75-49.50				1	1	1.05046			
L32 49.50-49.25				1	1	1.01888			
L33 49.25-44.25				1	1	1.01888			
L34 44.25-41.50				1	1	1.01888			
L35 41.50-41.25				1	1	0.966165			
L36 41.25-40.00				1	1	0.966165			
L37 40.00-39.75				1	1	1			
L38 39.75-34.75				1	1	1			
L39 34.75-29.75				1	1	1			
L40 29.75-29.50				1	1	1			
L41 29.50-29.25				1	1	1.06903			
L42 29.25-28.25				1	1	1.06903			
L43 28.25-28.00				1	1	1.07338			
L44 28.00-23.00				1	1	1.07338			
L45 23.00-19.50				1	1	1.07338			
L46 19.50-19.25				1	1	1.0963			
L47 19.25-14.25				1	1	1.0963			
L48 14.25-9.25				1	1	1.0963			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	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
ft	ft ²	in							
L49 9.25-4.25				1	1	1.0963			
L50 4.25-2.75				1	1	1.0963			
L51 2.75-2.50				1	1	0.967563			
L52 2.50-2.25				1	1	0.887368			
L53 2.25-1.50				1	1	0.887368			
L54 1.50-1.25				1	1	0.860728			
L55 1.25-0.00				1	1	0.860728			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		$C_A A_A$ ft ² /ft	Weight plf
LDF4-50A(1/2)	C	No	Inside Pole	124.00 - 0.00	2	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
9207(5/16")	C	No	Inside Pole	124.00 - 0.00	6	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
2" Conduit	C	No	Inside Pole	124.00 - 0.00	2	No Ice	0.00	1.16
						1/2" Ice	0.00	1.16
						1" Ice	0.00	1.16
HB114-1-08U4-M5J(1 1/4")	C	No	Inside Pole	124.00 - 0.00	3	No Ice	0.00	1.08
						1/2" Ice	0.00	1.08
						1" Ice	0.00	1.08
HB114-21U3M12-XXXF(1-1/4")	C	No	Inside Pole	124.00 - 0.00	1	No Ice	0.00	1.22
						1/2" Ice	0.00	1.22
						1" Ice	0.00	1.22

LDF5-50A(7/8")	C	No	Inside Pole	113.00 - 0.00	12	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
FB-L98B-002-75000(3/8")	C	No	Inside Pole	113.00 - 0.00	2	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	113.00 - 0.00	4	No Ice	0.00	0.59
						1/2" Ice	0.00	0.59
						1" Ice	0.00	0.59
2" Conduit	C	No	Inside Pole	113.00 - 0.00	1	No Ice	0.00	1.16
						1/2" Ice	0.00	1.16
						1" Ice	0.00	1.16
WR-VG86ST-BRD(3/4)	C	No	CaAa (Out Of Face)	113.00 - 0.00	1	No Ice	0.08	0.58
						1/2" Ice	0.18	1.38
						1" Ice	0.28	2.78
WR-VG86ST-BRD(3/4)	C	No	CaAa (Out Of Face)	113.00 - 0.00	1	No Ice	0.00	0.58
						1/2" Ice	0.00	1.38
						1" Ice	0.00	2.78

LDF2-50(3/8")	C	No	Inside Pole	92.00 - 0.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
FXL 780 PE(7/8)	C	No	Inside Pole	92.00 - 0.00	6	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25

LDF4-50A(1/2")	C	No	Inside Pole	50.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15

WT 4x6.5 Step Ladder	C	No	CaAa (Out Of Face)	40.00 - 0.00	1	No Ice	0.67	6.50
						1/2" Ice	0.78	8.75
						1" Ice	0.89	11.34
WT 4x6.5 Step Ladder	C	No	CaAa (Out Of Face)	80.00 - 40.00	1	No Ice	0.67	6.50

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
			Face)			1/2" Ice	0.78	8.75
						1" Ice	0.89	11.34

1" Flat Reinforcement	C	No	CaAa (Out Of Face)	59.00 - 40.25	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
3/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	86.00 - 80.25	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00

3/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	20.50 - 0.50	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
3/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	50.50 - 40.50	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
3/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	66.50 - 56.50	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
3/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	90.50 - 80.50	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	44.25 - 35.75	1	No Ice	0.21	28.00
						1/2" Ice	0.32	29.59
						1" Ice	0.43	31.90
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	83.00 - 76.50	1	No Ice	0.17	15.00
						1/2" Ice	0.28	16.80
						1" Ice	0.39	18.60
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	31.00 - 0.00	1	No Ice	0.21	0.00
						1/2" Ice	0.32	0.00
						1" Ice	0.43	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	55.50 - 40.50	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	90.50 - 80.50	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	83.75 - 77.25	1	No Ice	0.17	15.00
						1/2" Ice	0.28	16.80
						1" Ice	0.39	18.60
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	43.25 - 37.25	1	No Ice	0.17	15.00
						1/2" Ice	0.28	16.80
						1" Ice	0.39	18.60

Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	137.00-132.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	132.00-127.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	127.00-125.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L4	125.00-120.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L5	120.00-115.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L6	115.00-110.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L7	110.00-105.00	C	0.000	0.000	0.000	0.238	0.06
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L8	105.00-100.00	C	0.000	0.000	0.000	0.398	0.08
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L9	100.00-95.00	C	0.000	0.000	0.000	0.398	0.08
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L10	95.00-90.00	C	0.000	0.000	0.000	0.398	0.08
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L11	90.00-89.25	C	0.000	0.000	0.000	0.543	0.08
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L12	89.25-89.00	C	0.000	0.000	0.000	0.278	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L13	89.00-88.75	C	0.000	0.000	0.000	0.093	0.00
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L14	88.75-85.66	C	0.000	0.000	0.000	0.093	0.00
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L15	85.66-85.41	C	0.000	0.000	0.000	1.189	0.06
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L16	85.41-81.20	C	0.000	0.000	0.000	0.124	0.00
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L17	81.20-80.95	C	0.000	0.000	0.000	2.814	0.14
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L18	80.95-80.00	C	0.000	0.000	0.000	0.207	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L19	80.00-79.75	C	0.000	0.000	0.000	0.611	0.05
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L20	79.75-74.75	C	0.000	0.000	0.000	0.270	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L21	74.75-69.75	C	0.000	0.000	0.000	4.689	0.21
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L22	69.75-65.50	C	0.000	0.000	0.000	3.731	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L23	65.50-65.25	C	0.000	0.000	0.000	3.296	0.10
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L24	65.25-60.25	C	0.000	0.000	0.000	0.218	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L25	60.25-58.39	C	0.000	0.000	0.000	4.356	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L26	58.39-58.14	C	0.000	0.000	0.000	1.722	0.05
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L27	58.14-57.50	C	0.000	0.000	0.000	0.259	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L28	57.50-57.25	C	0.000	0.000	0.000	0.664	0.02
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L29	57.25-54.00	C	0.000	0.000	0.000	0.259	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L30	54.00-53.75	C	0.000	0.000	0.000	3.310	0.08
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L31	53.75-49.50	C	0.000	0.000	0.000	0.270	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L32	49.50-49.25	C	0.000	0.000	0.000	4.713	0.10
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L33	49.25-44.25	C	0.000	0.000	0.000	0.301	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L34	44.25-41.50	C	0.000	0.000	0.000	6.023	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L35	41.50-41.25	C	0.000	0.000	0.000	4.177	0.17
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L36	41.25-40.00	C	0.000	0.000	0.000	0.395	0.02
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L37	40.00-39.75	C	0.000	0.000	0.000	1.787	0.08
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L38	39.75-34.75	C	0.000	0.000	0.000	0.280	0.02
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L39	34.75-29.75	C	0.000	0.000	0.000	4.981	0.27
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L40	29.75-29.50	C	0.000	0.000	0.000	3.991	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L41	29.50-29.25	C	0.000	0.000	0.000	0.239	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L42	29.25-28.25	C	0.000	0.000	0.000	0.239	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L43	28.25-28.00	C	0.000	0.000	0.000	0.955	0.02
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L44	28.00-23.00	C	0.000	0.000	0.000	0.239	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L45	23.00-19.50	C	0.000	0.000	0.000	4.773	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L46	19.50-19.25	C	0.000	0.000	0.000	3.466	0.09
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L47	19.25-14.25	C	0.000	0.000	0.000	0.270	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L48	14.25-9.25	C	0.000	0.000	0.000	5.398	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L49	9.25-4.25	C	0.000	0.000	0.000	5.398	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L50	4.25-2.75	C	0.000	0.000	0.000	5.398	0.12
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L51	2.75-2.50	C	0.000	0.000	0.000	1.619	0.04
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L52	2.50-2.25	C	0.000	0.000	0.000	0.270	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation	Face	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		ft ²	ft ²	ft ²	ft ²	K
L53	2.25-1.50	C	0.000	0.000	0.000	0.270	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L54	1.50-1.25	C	0.000	0.000	0.000	0.810	0.02
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L55	1.25-0.00	C	0.000	0.000	0.000	0.270	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.287	0.03

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		in	ft ²	ft ²	ft ²	ft ²	K
L1	137.00-132.00	A	2.302	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	132.00-127.00	A	2.293	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	127.00-125.00	A	2.287	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L4	125.00-120.00	A	2.280	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L5	120.00-115.00	A	2.271	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L6	115.00-110.00	A	2.261	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.595	0.12
L7	110.00-105.00	A	2.251	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.648	0.17
L8	105.00-100.00	A	2.240	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.638	0.17
L9	100.00-95.00	A	2.229	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.626	0.17
L10	95.00-90.00	A	2.217	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.253	0.17
L11	90.00-89.25	A	2.210	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.347	0.03
L12	89.25-89.00	A	2.209	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.449	0.01
L13	89.00-88.75	A	2.208	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.449	0.01
L14	88.75-85.66	A	2.204	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.745	0.11
L15	85.66-85.41	A	2.200	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.601	0.01
L16	85.41-81.20	A	2.194	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	12.940	0.25
L17	81.20-80.95	A	2.188	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L18	80.95-80.00	C	2.186	0.000	0.000	0.000	0.925	0.02
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L19	80.00-79.75	C	2.185	0.000	0.000	0.000	2.727	0.08
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L20	79.75-74.75	C	2.178	0.000	0.000	0.000	0.743	0.03
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L21	74.75-69.75	C	2.163	0.000	0.000	0.000	12.069	0.41
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L22	69.75-65.50	C	2.149	0.000	0.000	0.000	8.297	0.27
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L23	65.50-65.25	C	2.142	0.000	0.000	0.000	7.630	0.22
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L24	65.25-60.25	C	2.133	0.000	0.000	0.000	0.563	0.01
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L25	60.25-58.39	C	2.121	0.000	0.000	0.000	11.228	0.26
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L26	58.39-58.14	C	2.117	0.000	0.000	0.000	4.552	0.10
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L27	58.14-57.50	C	2.115	0.000	0.000	0.000	0.718	0.01
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L28	57.50-57.25	C	2.114	0.000	0.000	0.000	1.838	0.03
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L29	57.25-54.00	C	2.107	0.000	0.000	0.000	0.717	0.01
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L30	54.00-53.75	C	2.100	0.000	0.000	0.000	8.777	0.17
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L31	53.75-49.50	C	2.092	0.000	0.000	0.000	0.725	0.01
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L32	49.50-49.25	C	2.082	0.000	0.000	0.000	12.881	0.22
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L33	49.25-44.25	C	2.071	0.000	0.000	0.000	0.868	0.01
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L34	44.25-41.50	C	2.053	0.000	0.000	0.000	17.297	0.25
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L35	41.50-41.25	C	2.046	0.000	0.000	0.000	12.378	0.29
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L36	41.25-40.00	C	2.042	0.000	0.000	0.000	1.179	0.03
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L37	40.00-39.75	C	2.038	0.000	0.000	0.000	5.134	0.14
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L38	39.75-34.75	C	2.024	0.000	0.000	0.000	0.722	0.03
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L39	34.75-29.75	C	1.995	0.000	0.000	0.000	12.179	0.46
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L40	29.75-29.50	C	1.979	0.000	0.000	0.000	8.758	0.25
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L41	29.50-29.25	C		0.000	0.000	0.000	0.557	0.01
		A	1.977	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
L42	29.25-28.25	C		0.000	0.000	0.000	0.557	0.01
		A	1.973	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.226	0.05
L43	28.25-28.00	A	1.968	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.556	0.01
L44	28.00-23.00	A	1.949	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.053	0.24
L45	23.00-19.50	A	1.914	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.208	0.17
L46	19.50-19.25	A	1.896	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.681	0.01
L47	19.25-14.25	A	1.869	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	13.496	0.24
L48	14.25-9.25	A	1.804	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	13.214	0.23
L49	9.25-4.25	A	1.707	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	12.792	0.22
L50	4.25-2.75	A	1.598	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.697	0.06
L51	2.75-2.50	A	1.553	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.606	0.01
L52	2.50-2.25	A	1.537	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.603	0.01
L53	2.25-1.50	A	1.501	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.785	0.03
L54	1.50-1.25	A	1.455	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.585	0.01
L55	1.25-0.00	A	1.345	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.595	0.05

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	137.00-132.00	0.00	0.00	0.00	0.00
L2	132.00-127.00	0.00	0.00	0.00	0.00
L3	127.00-125.00	0.00	0.00	0.00	0.00
L4	125.00-120.00	0.00	0.00	0.00	0.00
L5	120.00-115.00	0.00	0.00	0.00	0.00
L6	115.00-110.00	-0.06	0.03	-0.31	0.18
L7	110.00-105.00	-0.10	0.06	-0.47	0.27
L8	105.00-100.00	-0.10	0.06	-0.47	0.27
L9	100.00-95.00	-0.10	0.06	-0.47	0.27
L10	95.00-90.00	-0.13	0.08	-0.56	0.32
L11	90.00-89.25	-0.41	0.23	-1.12	0.65
L12	89.25-89.00	-0.41	0.23	-1.12	0.65
L13	89.00-88.75	-0.41	0.23	-1.12	0.65

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
L14	88.75-85.66	-0.42	0.24	-1.14	0.66
L15	85.66-85.41	-0.52	0.30	-1.31	0.76
L16	85.41-81.20	-0.65	0.38	-1.47	0.85
L17	81.20-80.95	-0.76	0.44	-1.58	0.91
L18	80.95-80.00	-0.63	0.36	-1.42	0.82
L19	80.00-79.75	-1.03	0.60	-1.83	1.06
L20	79.75-74.75	-0.93	0.54	-1.63	0.94
L21	74.75-69.75	-0.78	0.45	-1.29	0.74
L22	69.75-65.50	-0.80	0.46	-1.36	0.78
L23	65.50-65.25	-0.88	0.51	-1.56	0.90
L24	65.25-60.25	-0.88	0.51	-1.56	0.90
L25	60.25-58.39	-0.92	0.53	-1.64	0.95
L26	58.39-58.14	-1.00	0.58	-1.80	1.04
L27	58.14-57.50	-1.00	0.58	-1.80	1.04
L28	57.50-57.25	-1.00	0.58	-1.80	1.04
L29	57.25-54.00	-0.99	0.57	-1.74	1.00
L30	54.00-53.75	-1.03	0.60	-1.81	1.04
L31	53.75-49.50	-1.05	0.61	-1.85	1.07
L32	49.50-49.25	-1.12	0.64	-1.98	1.15
L33	49.25-44.25	-1.12	0.64	-1.98	1.14
L34	44.25-41.50	-1.31	0.76	-2.24	1.29
L35	41.50-41.25	-1.34	0.78	-2.28	1.32
L36	41.25-40.00	-1.26	0.73	-2.15	1.24
L37	40.00-39.75	-1.10	0.64	-1.95	1.13
L38	39.75-34.75	-1.01	0.58	-1.77	1.02
L39	34.75-29.75	-0.84	0.49	-1.43	0.82
L40	29.75-29.50	-0.97	0.56	-1.67	0.97
L41	29.50-29.25	-0.97	0.56	-1.67	0.97
L42	29.25-28.25	-0.97	0.56	-1.67	0.96
L43	28.25-28.00	-0.97	0.56	-1.67	0.96
L44	28.00-23.00	-0.97	0.56	-1.67	0.96
L45	23.00-19.50	-1.00	0.58	-1.73	1.00
L46	19.50-19.25	-1.07	0.62	-1.89	1.09
L47	19.25-14.25	-1.07	0.62	-1.88	1.09
L48	14.25-9.25	-1.07	0.62	-1.86	1.08
L49	9.25-4.25	-1.07	0.62	-1.83	1.06
L50	4.25-2.75	-1.07	0.62	-1.80	1.04
L51	2.75-2.50	-1.07	0.62	-1.78	1.03
L52	2.50-2.25	-1.07	0.62	-1.78	1.03
L53	2.25-1.50	-1.07	0.62	-1.77	1.02
L54	1.50-1.25	-1.07	0.62	-1.75	1.01
L55	1.25-0.00	-1.03	0.60	-1.63	0.94

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
*** LLPX310R-V4 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice 1/2" Ice	4.44 4.77 5.10	2.85 3.37 3.90	0.04 0.08 0.12

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
LLPX310R-V4 w/ Mount Pipe	B	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	4.44	2.85	0.04
			0.00			1/2"	4.77	3.37	0.08
LLPX310R-V4 w/ Mount Pipe	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	4.44	2.85	0.04
			0.00			1/2"	4.77	3.37	0.08
WIMAX DAP HEAD	A	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	1.55	0.68	0.03
			0.00			1/2"	1.70	0.80	0.04
WIMAX DAP HEAD	B	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	1.55	0.68	0.03
			0.00			1/2"	1.70	0.80	0.04
WIMAX DAP HEAD	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	1.55	0.68	0.03
			0.00			1/2"	1.70	0.80	0.04
WIMAX DAP HEAD	B	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	1.55	0.68	0.03
			7.00			1/2"	1.70	0.80	0.04
WIMAX DAP HEAD	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	1.55	0.68	0.03
			7.00			1/2"	1.70	0.80	0.04
APXVSP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	8.26	6.95	0.08
			0.00			1/2"	8.82	8.13	0.15
APXV9ERR18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	8.26	7.47	0.09
			0.00			1/2"	8.82	8.66	0.16
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	8.26	6.95	0.08
			0.00			1/2"	8.82	8.13	0.15
IBC1900BB-1	A	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900BB-1	B	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900BB-1	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	A	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	B	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03
IBC1900HG-2A	C	From Leg	4.00	0.000	124.00	1" Ice			
			0.00			No Ice	0.97	0.46	0.02
			0.00			1/2"	1.09	0.56	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice	6.58	4.96	0.08
						1/2"	7.03	5.75	0.13
						Ice	7.47	6.47	0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice	6.58	4.96	0.08
						1/2"	7.03	5.75	0.13
						Ice	7.47	6.47	0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice	6.58	4.96	0.08
						1/2"	7.03	5.75	0.13
						Ice	7.47	6.47	0.19
TD-RRH8x20-25	A	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice	4.05	1.53	0.07
						1/2"	4.30	1.71	0.10
						Ice	4.56	1.90	0.13
TD-RRH8x20-25	B	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice	4.05	1.53	0.07
						1/2"	4.30	1.71	0.10
						Ice	4.56	1.90	0.13
TD-RRH8x20-25	C	From Leg	4.00 0.00 0.00	0.000	124.00	No Ice	4.05	1.53	0.07
						1/2"	4.30	1.71	0.10
						Ice	4.56	1.90	0.13
Platform Mount (LP 101-1)	C	None		0.000	124.00	No Ice	36.21	36.21	1.50
						1/2"	42.82	42.82	2.30
						Ice	49.43	49.43	3.10
Miscellaneous [NA 507-1]	C	None		0.000	124.00	No Ice	4.80	4.80	0.25
						1/2"	6.70	6.70	0.29
						Ice	8.60	8.60	0.34

PCS 1900MHz 4x45W- 65MHz	A	From Leg	1.00 0.00 3.00	0.000	122.00	No Ice	2.32	2.24	0.06
						1/2"	2.53	2.44	0.08
						Ice	2.74	2.65	0.11
PCS 1900MHz 4x45W- 65MHz	B	From Leg	1.00 0.00 3.00	0.000	122.00	No Ice	2.32	2.24	0.06
						1/2"	2.53	2.44	0.08
						Ice	2.74	2.65	0.11
PCS 1900MHz 4x45W- 65MHz	C	From Leg	1.00 0.00 3.00	0.000	122.00	No Ice	2.32	2.24	0.06
						1/2"	2.53	2.44	0.08
						Ice	2.74	2.65	0.11
800MHz 2X50W RRH W/FILTER	A	From Leg	1.00 0.00 0.00	0.000	122.00	No Ice	2.06	1.93	0.06
						1/2"	2.24	2.11	0.09
						Ice	2.43	2.29	0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	1.00 0.00 0.00	0.000	122.00	No Ice	2.06	1.93	0.06
						1/2"	2.24	2.11	0.09
						Ice	2.43	2.29	0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	1.00 0.00 0.00	0.000	122.00	No Ice	2.06	1.93	0.06
						1/2"	2.24	2.11	0.09
						Ice	2.43	2.29	0.11
Pipe Mount [PM 601-3]	C	None		0.000	122.00	No Ice	4.39	4.39	0.20
						1/2"	5.48	5.48	0.24
						Ice	6.57	6.57	0.28

80010966 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.000	113.00	No Ice	17.60	9.64	0.15
						1/2"	18.33	11.15	0.26
						Ice	19.07	12.70	0.39

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
80010966 w/ Mount Pipe	B	From Leg	4.00	0.000	113.00	1" Ice			
			0.00			No Ice	17.60	9.64	0.15
			2.00			1/2"	18.33	11.15	0.26
80010966 w/ Mount Pipe	C	From Leg	4.00	0.000	113.00	Ice	19.07	12.70	0.39
			0.00			1" Ice			
			2.00			No Ice	17.60	9.64	0.15
QS66512-2 w/ Mount Pipe	A	From Leg	4.00	0.000	113.00	1/2"	18.33	11.15	0.26
			0.00			Ice	19.07	12.70	0.39
			2.00			1" Ice			
QS66512-2 w/ Mount Pipe	B	From Leg	4.00	0.000	113.00	No Ice	3.83	6.22	0.14
			0.00			1/2"	9.29	9.66	0.21
			2.00			Ice	9.91	10.62	0.30
QS66512-2 w/ Mount Pipe	C	From Leg	4.00	0.000	113.00	1" Ice			
			0.00			No Ice	3.83	6.22	0.14
			2.00			1/2"	9.29	9.66	0.21
RRUS 32	A	From Leg	4.00	0.000	113.00	Ice	9.91	10.62	0.30
			0.00			1" Ice			
			2.00			No Ice	3.83	6.22	0.14
RRUS 32	B	From Leg	4.00	0.000	113.00	1/2"	9.29	9.66	0.21
			0.00			Ice	9.91	10.62	0.30
			2.00			1" Ice			
RRUS 32	C	From Leg	4.00	0.000	113.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
1001940	A	From Leg	4.00	0.000	113.00	1" Ice			
			0.00			No Ice	2.86	1.78	0.06
			2.00			1/2"	3.08	1.97	0.08
1001940	B	From Leg	4.00	0.000	113.00	Ice	3.32	2.17	0.10
			0.00			1" Ice			
			2.00			No Ice	2.86	1.78	0.06
1001940	C	From Leg	4.00	0.000	113.00	1/2"	3.08	1.97	0.08
			0.00			Ice	3.32	2.17	0.10
			2.00			1" Ice			
(2) DBC0061F1V51-2	A	From Leg	4.00	0.000	113.00	No Ice	0.18	0.08	0.00
			0.00			1/2"	0.23	0.13	0.00
			2.00			Ice	0.30	0.18	0.01
(2) DBC0061F1V51-2	B	From Leg	4.00	0.000	113.00	1" Ice			
			0.00			No Ice	0.18	0.08	0.00
			2.00			1/2"	0.23	0.13	0.00
(2) DBC0061F1V51-2	C	From Leg	4.00	0.000	113.00	Ice	0.30	0.18	0.01
			0.00			1" Ice			
			2.00			No Ice	0.18	0.08	0.00
(2) DBC0061F1V51-2	A	From Leg	4.00	0.000	113.00	1/2"	0.28	0.50	0.02
			0.00			Ice	0.35	0.59	0.02
			2.00			1" Ice			
(2) DBC0061F1V51-2	B	From Leg	4.00	0.000	113.00	No Ice	0.21	0.41	0.01
			0.00			1/2"	0.28	0.50	0.02
			2.00			Ice	0.35	0.59	0.02
(2) DBC0061F1V51-2	C	From Leg	4.00	0.000	113.00	1" Ice			
			0.00			No Ice	0.21	0.41	0.01
			2.00			1/2"	0.28	0.50	0.02
RRUS 4478 B14	A	From Leg	4.00	0.000	113.00	Ice	0.35	0.59	0.02
			0.00			1" Ice			
			2.00			No Ice	1.84	1.06	0.06
RRUS 4478 B14	B	From Leg	4.00	0.000	113.00	1/2"	2.01	1.20	0.08
			0.00			Ice	2.19	1.34	0.09
			2.00			1" Ice			
RRUS 4478 B14	C	From Leg	4.00	0.000	113.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			2.00			Ice	2.19	1.34	0.09
						1" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
RRUS 4478 B14	C	From Leg	4.00	0.000	113.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			2.00			Ice	2.19	1.34	0.09
						1" Ice			
RRUS 32 B66	A	From Leg	4.00	0.000	113.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
						1" Ice			
RRUS 32 B66	B	From Leg	4.00	0.000	113.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
						1" Ice			
RRUS 32 B66	C	From Leg	4.00	0.000	113.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			2.00			Ice	3.19	2.05	0.10
						1" Ice			
DC6-48-60-0-8F	A	From Leg	4.00	0.000	113.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			2.00			Ice	1.64	1.64	0.06
						1" Ice			
RRUS 32 B2	A	From Leg	4.00	0.000	113.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			2.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B2	B	From Leg	4.00	0.000	113.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			2.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B2	C	From Leg	4.00	0.000	113.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			2.00			Ice	3.18	2.05	0.10
						1" Ice			
(2) 860 10025	A	From Leg	4.00	0.000	113.00	No Ice	0.14	0.12	0.00
			0.00			1/2"	0.19	0.17	0.00
			2.00			Ice	0.25	0.23	0.01
						1" Ice			
(2) 860 10025	B	From Leg	4.00	0.000	113.00	No Ice	0.14	0.12	0.00
			0.00			1/2"	0.19	0.17	0.00
			2.00			Ice	0.25	0.23	0.01
						1" Ice			
(2) 860 10025	C	From Leg	4.00	0.000	113.00	No Ice	0.14	0.12	0.00
			0.00			1/2"	0.19	0.17	0.00
			2.00			Ice	0.25	0.23	0.01
						1" Ice			
OPA-65R-LCUU-H8 w/ Mount Pipe	A	From Leg	4.00	0.000	113.00	No Ice	12.98	9.32	0.12
			0.00			1/2"	13.67	10.79	0.21
			2.00			Ice	14.36	12.24	0.32
						1" Ice			
OPA-65R-LCUU-H8 w/ Mount Pipe	B	From Leg	4.00	0.000	113.00	No Ice	12.98	9.32	0.12
			0.00			1/2"	13.67	10.79	0.21
			2.00			Ice	14.36	12.24	0.32
						1" Ice			
OPA-65R-LCUU-H8 w/ Mount Pipe	C	From Leg	4.00	0.000	113.00	No Ice	12.98	9.32	0.12
			0.00			1/2"	13.67	10.79	0.21
			2.00			Ice	14.36	12.24	0.32
						1" Ice			
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.000	113.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.000	113.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.000	113.00	No Ice	5.75	4.25	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice			
RRUS-11	A	From Leg	4.00	0.000	113.00	No Ice	2.79	1.19	0.05
			0.00			1/2"	3.00	1.34	0.07
			2.00			Ice	3.21	1.50	0.09
						1" Ice			
RRUS-11	B	From Leg	4.00	0.000	113.00	No Ice	2.79	1.19	0.05
			0.00			1/2"	3.00	1.34	0.07
			2.00			Ice	3.21	1.50	0.09
						1" Ice			
RRUS-11	C	From Leg	4.00	0.000	113.00	No Ice	2.79	1.19	0.05
			0.00			1/2"	3.00	1.34	0.07
			2.00			Ice	3.21	1.50	0.09
						1" Ice			
(2) LGP21401	A	From Leg	4.00	0.000	113.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			2.00			Ice	1.38	0.54	0.03
						1" Ice			
(2) LGP21401	B	From Leg	4.00	0.000	113.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			2.00			Ice	1.38	0.54	0.03
						1" Ice			
(2) LGP21401	C	From Leg	4.00	0.000	113.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			2.00			Ice	1.38	0.54	0.03
						1" Ice			
DC6-48-60-18-8F	A	From Leg	4.00	0.000	113.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			2.00			Ice	1.64	1.64	0.06
						1" Ice			
DC6-48-60-18-8F	A	From Leg	4.00	0.000	113.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			2.00			Ice	1.64	1.64	0.06
						1" Ice			
Platform Mount [LP 712-1]	C	None		0.000	113.00	No Ice	24.53	24.53	1.34
						1/2"	29.94	29.94	1.65
						Ice	35.35	35.35	1.96
						1" Ice			
Miscellaneous [NA 507-1]	C	None		0.000	113.00	No Ice	4.80	4.80	0.25
						1/2"	6.70	6.70	0.29
						Ice	8.60	8.60	0.34
						1" Ice			

HBX-6516DS-VTM w/ Mount Pipe	A	From Leg	4.00	0.000	92.00	No Ice	3.60	3.24	0.03
			0.00			1/2"	4.00	3.91	0.06
			1.00			Ice	4.39	4.56	0.10
						1" Ice			
HBX-6516DS-VTM w/ Mount Pipe	B	From Leg	4.00	0.000	92.00	No Ice	3.60	3.24	0.03
			0.00			1/2"	4.00	3.91	0.06
			1.00			Ice	4.39	4.56	0.10
						1" Ice			
HBX-6516DS-VTM w/ Mount Pipe	C	From Leg	4.00	0.000	92.00	No Ice	3.60	3.24	0.03
			0.00			1/2"	4.00	3.91	0.06
			1.00			Ice	4.39	4.56	0.10
						1" Ice			
5' x 2' Pipe Mount	A	None		0.000	92.00	No Ice	1.00	1.00	0.03
						1/2"	1.39	1.39	0.04
						Ice	1.70	1.70	0.05
						1" Ice			
5' x 2' Pipe Mount	B	None		0.000	92.00	No Ice	1.00	1.00	0.03
						1/2"	1.39	1.39	0.04
						Ice	1.70	1.70	0.05
						1" Ice			
5' x 2' Pipe Mount	C	None		0.000	92.00	No Ice	1.00	1.00	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _{Front} ft ²	C _A A _{Side} ft ²	Weight K	
						1/2" Ice	1.39	1.39	0.04
						1" Ice	1.70	1.70	0.05
T-Arm Mount [TA 602-3]	C	None		0.000	92.00	No Ice	11.59	11.59	0.77
						1/2" Ice	15.44	15.44	0.99
						1" Ice	19.29	19.29	1.21

KS24019-L112A	C	From Leg	1.00 0.00 0.00	0.000	50.00	No Ice	0.14	0.14	0.01
						1/2" Ice	0.20	0.20	0.01
						1" Ice	0.26	0.26	0.01
Side Arm Mount [SO 701-1]	C	None		0.000	50.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09

Bridge Stiffener (53" x 9" x 1")	A	None		0.000	40.00	No Ice	4.47	0.74	0.11
						1/2" Ice	4.81	1.24	0.13
						1" Ice	5.16	1.71	0.15
Bridge Stiffener (53" x 9" x 1")	B	None		0.000	40.00	No Ice	0.00	0.00	0.11
						1/2" Ice	0.00	0.00	0.13
						1" Ice	0.00	0.00	0.15
Bridge Stiffener (53" x 9" x 1")	C	None		0.000	40.00	No Ice	0.00	0.00	0.11
						1/2" Ice	0.00	0.00	0.13
						1" Ice	0.00	0.00	0.15
Bridge Stiffener (43" x 9.5" x 1")	A	None		0.000	80.00	No Ice	3.66	0.60	0.12
						1/2" Ice	3.95	1.01	0.13
						1" Ice	4.24	1.29	0.15
Bridge Stiffener (43" x 9.5" x 1")	B	None		0.000	80.00	No Ice	0.00	0.00	0.12
						1/2" Ice	0.00	0.00	0.13
						1" Ice	0.00	0.00	0.15
Bridge Stiffener (43" x 9.5" x 1")	C	None		0.000	80.00	No Ice	0.00	0.00	0.12
						1/2" Ice	0.00	0.00	0.13
						1" Ice	0.00	0.00	0.15

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	
VHLP2.5-18	B	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 7.00	0.000		124.00	2.92	No Ice 1/2" Ice 1" Ice	6.68 7.07 7.46	0.05 0.08 0.12
VHLP1-23	C	Paraboloid w/o Radome	From Leg	4.00 0.00 7.00	0.000		124.00	1.27	No Ice 1/2" Ice 1" Ice	1.28 1.45 1.62	0.01 0.02 0.03

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 137.00-132.00	134.50	1.347	31	5.313	A	0.000	5.313	5.313	100.00	0.000	0.000
					B	0.000	5.313		100.00	0.000	0.000
					C	0.000	5.313		100.00	0.000	0.000
L2 132.00-127.00	129.50	1.336	31	5.313	A	0.000	5.313	5.313	100.00	0.000	0.000
					B	0.000	5.313		100.00	0.000	0.000
					C	0.000	5.313		100.00	0.000	0.000
L3 127.00-125.00	126.00	1.329	30	2.125	A	0.000	2.125	2.125	100.00	0.000	0.000
					B	0.000	2.125		100.00	0.000	0.000
					C	0.000	2.125		100.00	0.000	0.000
L4 125.00-120.00	122.50	1.321	30	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	0.000
L5 120.00-115.00	117.50	1.309	30	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	0.000
L6 115.00-110.00	112.50	1.297	30	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	0.238
L7 110.00-105.00	107.50	1.285	29	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	0.398
L8 105.00-100.00	102.50	1.272	29	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	0.398
L9 100.00-95.00	97.50	1.259	29	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	0.398
L10 95.00-90.00	92.50	1.245	28	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	0.543
L11 90.00-89.25	89.63	1.237	28	1.500	A	0.000	1.500	1.500	100.00	0.000	0.000
					B	0.000	1.500		100.00	0.000	0.000
					C	0.000	1.500		100.00	0.000	0.278
L12 89.25-89.00	89.13	1.235	28	0.500	A	0.000	0.500	0.500	100.00	0.000	0.000
					B	0.000	0.500		100.00	0.000	0.000
					C	0.000	0.500		100.00	0.000	0.093
L13 89.00-88.75	88.88	1.235	28	0.500	A	0.000	0.500	0.500	100.00	0.000	0.000
					B	0.000	0.500		100.00	0.000	0.000
					C	0.000	0.500		100.00	0.000	0.093
L14 88.75-85.66	87.21	1.23	28	6.180	A	0.000	6.180	6.180	100.00	0.000	0.000
					B	0.000	6.180		100.00	0.000	0.000
					C	0.000	6.180		100.00	0.000	1.189
L15 85.66-85.41	85.54	1.225	28	0.500	A	0.000	0.500	0.500	100.00	0.000	0.000
					B	0.000	0.500		100.00	0.000	0.000
					C	0.000	0.500		100.00	0.000	0.124
L16 85.41-81.20	83.31	1.218	28	8.420	A	0.000	8.420	8.420	100.00	0.000	0.000
					B	0.000	8.420		100.00	0.000	0.000
					C	0.000	8.420		100.00	0.000	2.814
L17 81.20-80.95	81.08	1.211	28	0.500	A	0.000	0.500	0.500	100.00	0.000	0.000
					B	0.000	0.500		100.00	0.000	0.000
					C	0.000	0.500		100.00	0.000	0.207
L18 80.95-80.00	80.48	1.209	28	1.900	A	0.000	1.900	1.900	100.00	0.000	0.000
					B	0.000	1.900		100.00	0.000	0.000
					C	0.000	1.900		100.00	0.000	0.611
L19 80.00-79.75	79.88	1.207	28	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.270
L20 79.75-74.75	77.25	1.199	27	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
					B	0.000	15.000		100.00	0.000	0.000
					C	0.000	15.000		100.00	0.000	4.689
L21 74.75-69.75	72.25	1.182	27	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
					B	0.000	15.000		100.00	0.000	0.000
					C	0.000	15.000		100.00	0.000	3.731

Section Elevation ft	z ft	K_z	q_z psf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	C_{AA} In Face ft ²	C_{AA} Out Face ft ²
L22 69.75- 65.50	67.63	1.166	27	12.750	A	0.000	12.750	12.750	100.00	0.000	0.000
					B	0.000	12.750		100.00	0.000	0.000
					C	0.000	12.750		100.00	0.000	3.296
L23 65.50- 65.25	65.38	1.157	26	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.218
L24 65.25- 60.25	62.75	1.147	26	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
					B	0.000	15.000		100.00	0.000	0.000
					C	0.000	15.000		100.00	0.000	4.356
L25 60.25- 58.39	59.32	1.134	26	5.580	A	0.000	5.580	5.580	100.00	0.000	0.000
					B	0.000	5.580		100.00	0.000	0.000
					C	0.000	5.580		100.00	0.000	1.722
L26 58.39- 58.14	58.27	1.13	26	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.259
L27 58.14- 57.50	57.82	1.128	26	1.920	A	0.000	1.920	1.920	100.00	0.000	0.000
					B	0.000	1.920		100.00	0.000	0.000
					C	0.000	1.920		100.00	0.000	0.664
L28 57.50- 57.25	57.38	1.126	26	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.259
L29 57.25- 54.00	55.63	1.119	26	9.750	A	0.000	9.750	9.750	100.00	0.000	0.000
					B	0.000	9.750		100.00	0.000	0.000
					C	0.000	9.750		100.00	0.000	3.310
L30 54.00- 53.75	53.88	1.111	25	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.270
L31 53.75- 49.50	51.63	1.101	25	12.750	A	0.000	12.750	12.750	100.00	0.000	0.000
					B	0.000	12.750		100.00	0.000	0.000
					C	0.000	12.750		100.00	0.000	4.713
L32 49.50- 49.25	49.38	1.091	25	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.301
L33 49.25- 44.25	46.75	1.078	25	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
					B	0.000	15.000		100.00	0.000	0.000
					C	0.000	15.000		100.00	0.000	6.023
L34 44.25- 41.50	42.88	1.059	24	8.250	A	0.000	8.250	8.250	100.00	0.000	0.000
					B	0.000	8.250		100.00	0.000	0.000
					C	0.000	8.250		100.00	0.000	4.177
L35 41.50- 41.25	41.38	1.051	24	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.395
L36 41.25- 40.00	40.63	1.047	24	3.750	A	0.000	3.750	3.750	100.00	0.000	0.000
					B	0.000	3.750		100.00	0.000	0.000
					C	0.000	3.750		100.00	0.000	1.787
L37 40.00- 39.75	39.88	1.043	24	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.280
L38 39.75- 34.75	37.25	1.028	24	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	4.981
L39 34.75- 29.75	32.25	0.997	23	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	3.991
L40 29.75- 29.50	29.63	0.98	22	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.239
L41 29.50- 29.25	29.38	0.978	22	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.239
L42 29.25- 28.25	28.75	0.973	22	3.500	A	0.000	3.500	3.500	100.00	0.000	0.000
					B	0.000	3.500		100.00	0.000	0.000
					C	0.000	3.500		100.00	0.000	0.955
L43 28.25- 28.00	28.13	0.969	22	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.239
L44 28.00- 23.00	25.50	0.949	22	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L45 23.00-19.50	21.25	0.913	21	12.250	C	0.000	17.500		100.00	0.000	4.773
					A	0.000	12.250	12.250	100.00	0.000	0.000
					B	0.000	12.250		100.00	0.000	0.000
					C	0.000	12.250		100.00	0.000	3.466
L46 19.50-19.25	19.38	0.896	21	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.270
L47 19.25-14.25	16.75	0.869	20	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	5.398
L48 14.25-9.25	11.75	0.85	19	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	5.398
L49 9.25-4.25	6.75	0.85	19	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	5.398
L50 4.25-2.75	3.50	0.85	19	5.250	A	0.000	5.250	5.250	100.00	0.000	0.000
					B	0.000	5.250		100.00	0.000	0.000
					C	0.000	5.250		100.00	0.000	1.619
L51 2.75-2.50	2.63	0.85	19	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.270
L52 2.50-2.25	2.38	0.85	19	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.270
L53 2.25-1.50	1.88	0.85	19	2.625	A	0.000	2.625	2.625	100.00	0.000	0.000
					B	0.000	2.625		100.00	0.000	0.000
					C	0.000	2.625		100.00	0.000	0.810
L54 1.50-1.25	1.38	0.85	19	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.270
L55 1.25-0.00	0.63	0.85	19	4.375	A	0.000	4.375	4.375	100.00	0.000	0.000
					B	0.000	4.375		100.00	0.000	0.000
					C	0.000	4.375		100.00	0.000	1.287

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K _Z	q _z psf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 137.00-132.00	134.50	1.347	8	2.30	7.231	A	0.000	7.231	7.231	100.00	0.000	0.000
						B	0.000	7.231		100.00	0.000	0.000
						C	0.000	7.231		100.00	0.000	0.000
L2 132.00-127.00	129.50	1.336	8	2.29	7.223	A	0.000	7.223	7.223	100.00	0.000	0.000
						B	0.000	7.223		100.00	0.000	0.000
						C	0.000	7.223		100.00	0.000	0.000
L3 127.00-125.00	126.00	1.329	8	2.29	2.887	A	0.000	2.887	2.887	100.00	0.000	0.000
						B	0.000	2.887		100.00	0.000	0.000
						C	0.000	2.887		100.00	0.000	0.000
L4 125.00-120.00	122.50	1.321	8	2.28	11.900	A	0.000	11.900	11.900	100.00	0.000	0.000
						B	0.000	11.900		100.00	0.000	0.000
						C	0.000	11.900		100.00	0.000	0.000
L5 120.00-115.00	117.50	1.309	8	2.27	11.892	A	0.000	11.892	11.892	100.00	0.000	0.000
						B	0.000	11.892		100.00	0.000	0.000
						C	0.000	11.892		100.00	0.000	0.000
L6 115.00-110.00	112.50	1.297	8	2.26	11.884	A	0.000	11.884	11.884	100.00	0.000	0.000
						B	0.000	11.884		100.00	0.000	0.000
						C	0.000	11.884		100.00	0.000	1.595
L7 110.00-105.00	107.50	1.285	8	2.25	11.876	A	0.000	11.876	11.876	100.00	0.000	0.000
						B	0.000	11.876		100.00	0.000	0.000
						C	0.000	11.876		100.00	0.000	2.648
L8 105.00-	102.50	1.272	8	2.24	11.867	A	0.000	11.867	11.867	100.00	0.000	0.000

Section Elevation	z	K _z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
100.00						B	0.000	11.867		100.00	0.000	0.000
						C	0.000	11.867		100.00	0.000	2.638
L9 100.00- 95.00	97.50	1.259	8	2.23	11.857	A	0.000	11.857	11.857	100.00	0.000	0.000
						B	0.000	11.857		100.00	0.000	0.000
						C	0.000	11.857		100.00	0.000	2.626
L10 95.00- 90.00	92.50	1.245	8	2.22	11.848	A	0.000	11.848	11.848	100.00	0.000	0.000
						B	0.000	11.848		100.00	0.000	0.000
						C	0.000	11.848		100.00	0.000	3.253
L11 90.00- 89.25	89.63	1.237	8	2.21	1.776	A	0.000	1.776	1.776	100.00	0.000	0.000
						B	0.000	1.776		100.00	0.000	0.000
						C	0.000	1.776		100.00	0.000	1.347
L12 89.25- 89.00	89.13	1.235	8	2.21	0.592	A	0.000	0.592	0.592	100.00	0.000	0.000
						B	0.000	0.592		100.00	0.000	0.000
						C	0.000	0.592		100.00	0.000	0.449
L13 89.00- 88.75	88.88	1.235	8	2.21	0.592	A	0.000	0.592	0.592	100.00	0.000	0.000
						B	0.000	0.592		100.00	0.000	0.000
						C	0.000	0.592		100.00	0.000	0.449
L14 88.75- 85.66	87.21	1.23	7	2.20	7.315	A	0.000	7.315	7.315	100.00	0.000	0.000
						B	0.000	7.315		100.00	0.000	0.000
						C	0.000	7.315		100.00	0.000	5.745
L15 85.66- 85.41	85.54	1.225	7	2.20	0.592	A	0.000	0.592	0.592	100.00	0.000	0.000
						B	0.000	0.592		100.00	0.000	0.000
						C	0.000	0.592		100.00	0.000	0.601
L16 85.41- 81.20	83.31	1.218	7	2.19	9.959	A	0.000	9.959	9.959	100.00	0.000	0.000
						B	0.000	9.959		100.00	0.000	0.000
						C	0.000	9.959		100.00	0.000	12.940
L17 81.20- 80.95	81.08	1.211	7	2.19	0.591	A	0.000	0.591	0.591	100.00	0.000	0.000
						B	0.000	0.591		100.00	0.000	0.000
						C	0.000	0.591		100.00	0.000	0.925
L18 80.95- 80.00	80.48	1.209	7	2.19	2.246	A	0.000	2.246	2.246	100.00	0.000	0.000
						B	0.000	2.246		100.00	0.000	0.000
						C	0.000	2.246		100.00	0.000	2.727
L19 80.00- 79.75	79.88	1.207	7	2.18	0.841	A	0.000	0.841	0.841	100.00	0.000	0.000
						B	0.000	0.841		100.00	0.000	0.000
						C	0.000	0.841		100.00	0.000	0.743
L20 79.75- 74.75	77.25	1.199	7	2.18	16.815	A	0.000	16.815	16.815	100.00	0.000	0.000
						B	0.000	16.815		100.00	0.000	0.000
						C	0.000	16.815		100.00	0.000	12.069
L21 74.75- 69.75	72.25	1.182	7	2.16	16.803	A	0.000	16.803	16.803	100.00	0.000	0.000
						B	0.000	16.803		100.00	0.000	0.000
						C	0.000	16.803		100.00	0.000	8.297
L22 69.75- 65.50	67.63	1.166	7	2.15	14.272	A	0.000	14.272	14.272	100.00	0.000	0.000
						B	0.000	14.272		100.00	0.000	0.000
						C	0.000	14.272		100.00	0.000	7.630
L23 65.50- 65.25	65.38	1.157	7	2.14	0.839	A	0.000	0.839	0.839	100.00	0.000	0.000
						B	0.000	0.839		100.00	0.000	0.000
						C	0.000	0.839		100.00	0.000	0.563
L24 65.25- 60.25	62.75	1.147	7	2.13	16.777	A	0.000	16.777	16.777	100.00	0.000	0.000
						B	0.000	16.777		100.00	0.000	0.000
						C	0.000	16.777		100.00	0.000	11.228
L25 60.25- 58.39	59.32	1.134	7	2.12	6.237	A	0.000	6.237	6.237	100.00	0.000	0.000
						B	0.000	6.237		100.00	0.000	0.000
						C	0.000	6.237		100.00	0.000	4.552
L26 58.39- 58.14	58.27	1.13	7	2.12	0.838	A	0.000	0.838	0.838	100.00	0.000	0.000
						B	0.000	0.838		100.00	0.000	0.000
						C	0.000	0.838		100.00	0.000	0.718
L27 58.14- 57.50	57.82	1.128	7	2.12	2.146	A	0.000	2.146	2.146	100.00	0.000	0.000
						B	0.000	2.146		100.00	0.000	0.000
						C	0.000	2.146		100.00	0.000	1.838
L28 57.50- 57.25	57.38	1.126	7	2.11	0.838	A	0.000	0.838	0.838	100.00	0.000	0.000
						B	0.000	0.838		100.00	0.000	0.000
						C	0.000	0.838		100.00	0.000	0.717
L29 57.25- 54.00	55.63	1.119	7	2.11	10.891	A	0.000	10.891	10.891	100.00	0.000	0.000
						B	0.000	10.891		100.00	0.000	0.000
						C	0.000	10.891		100.00	0.000	8.777
L30 54.00- 53.75	53.88	1.111	7	2.10	0.838	A	0.000	0.838	0.838	100.00	0.000	0.000
						B	0.000	0.838		100.00	0.000	0.000
						C	0.000	0.838		100.00	0.000	0.725

Section Elevation ft	z ft	K _z	q _z psf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L31 53.75-49.50	51.63	1.101	7	2.09	14.232	A	0.000	14.232	14.232	100.00	0.000	0.000
						B	0.000	14.232		100.00	0.000	0.000
						C	0.000	14.232		100.00	0.000	12.881
L32 49.50-49.25	49.38	1.091	7	2.08	0.837	A	0.000	0.837	0.837	100.00	0.000	0.000
						B	0.000	0.837		100.00	0.000	0.000
						C	0.000	0.837		100.00	0.000	0.868
L33 49.25-44.25	46.75	1.078	7	2.07	16.726	A	0.000	16.726	16.726	100.00	0.000	0.000
						B	0.000	16.726		100.00	0.000	0.000
						C	0.000	16.726		100.00	0.000	17.297
L34 44.25-41.50	42.88	1.059	6	2.05	9.191	A	0.000	9.191	9.191	100.00	0.000	0.000
						B	0.000	9.191		100.00	0.000	0.000
						C	0.000	9.191		100.00	0.000	12.378
L35 41.50-41.25	41.38	1.051	6	2.05	0.835	A	0.000	0.835	0.835	100.00	0.000	0.000
						B	0.000	0.835		100.00	0.000	0.000
						C	0.000	0.835		100.00	0.000	1.179
L36 41.25-40.00	40.63	1.047	6	2.04	4.175	A	0.000	4.175	4.175	100.00	0.000	0.000
						B	0.000	4.175		100.00	0.000	0.000
						C	0.000	4.175		100.00	0.000	5.134
L37 40.00-39.75	39.88	1.043	6	2.04	0.960	A	0.000	0.960	0.960	100.00	0.000	0.000
						B	0.000	0.960		100.00	0.000	0.000
						C	0.000	0.960		100.00	0.000	0.722
L38 39.75-34.75	37.25	1.028	6	2.02	19.187	A	0.000	19.187	19.187	100.00	0.000	0.000
						B	0.000	19.187		100.00	0.000	0.000
						C	0.000	19.187		100.00	0.000	12.179
L39 34.75-29.75	32.25	0.997	6	2.00	19.163	A	0.000	19.163	19.163	100.00	0.000	0.000
						B	0.000	19.163		100.00	0.000	0.000
						C	0.000	19.163		100.00	0.000	8.758
L40 29.75-29.50	29.63	0.98	6	1.98	0.957	A	0.000	0.957	0.957	100.00	0.000	0.000
						B	0.000	0.957		100.00	0.000	0.000
						C	0.000	0.957		100.00	0.000	0.557
L41 29.50-29.25	29.38	0.978	6	1.98	0.957	A	0.000	0.957	0.957	100.00	0.000	0.000
						B	0.000	0.957		100.00	0.000	0.000
						C	0.000	0.957		100.00	0.000	0.557
L42 29.25-28.25	28.75	0.973	6	1.97	3.829	A	0.000	3.829	3.829	100.00	0.000	0.000
						B	0.000	3.829		100.00	0.000	0.000
						C	0.000	3.829		100.00	0.000	2.226
L43 28.25-28.00	28.13	0.969	6	1.97	0.957	A	0.000	0.957	0.957	100.00	0.000	0.000
						B	0.000	0.957		100.00	0.000	0.000
						C	0.000	0.957		100.00	0.000	0.556
L44 28.00-23.00	25.50	0.949	6	1.95	19.124	A	0.000	19.124	19.124	100.00	0.000	0.000
						B	0.000	19.124		100.00	0.000	0.000
						C	0.000	19.124		100.00	0.000	11.053
L45 23.00-19.50	21.25	0.913	6	1.91	13.366	A	0.000	13.366	13.366	100.00	0.000	0.000
						B	0.000	13.366		100.00	0.000	0.000
						C	0.000	13.366		100.00	0.000	8.208
L46 19.50-19.25	19.38	0.896	5	1.90	0.954	A	0.000	0.954	0.954	100.00	0.000	0.000
						B	0.000	0.954		100.00	0.000	0.000
						C	0.000	0.954		100.00	0.000	0.681
L47 19.25-14.25	16.75	0.869	5	1.87	19.057	A	0.000	19.057	19.057	100.00	0.000	0.000
						B	0.000	19.057		100.00	0.000	0.000
						C	0.000	19.057		100.00	0.000	13.496
L48 14.25-9.25	11.75	0.85	5	1.80	19.003	A	0.000	19.003	19.003	100.00	0.000	0.000
						B	0.000	19.003		100.00	0.000	0.000
						C	0.000	19.003		100.00	0.000	13.214
L49 9.25-4.25	6.75	0.85	5	1.71	18.922	A	0.000	18.922	18.922	100.00	0.000	0.000
						B	0.000	18.922		100.00	0.000	0.000
						C	0.000	18.922		100.00	0.000	12.792
L50 4.25-2.75	3.50	0.85	5	1.60	5.650	A	0.000	5.650	5.650	100.00	0.000	0.000
						B	0.000	5.650		100.00	0.000	0.000
						C	0.000	5.650		100.00	0.000	3.697
L51 2.75-2.50	2.63	0.85	5	1.55	0.940	A	0.000	0.940	0.940	100.00	0.000	0.000
						B	0.000	0.940		100.00	0.000	0.000
						C	0.000	0.940		100.00	0.000	0.606
L52 2.50-2.25	2.38	0.85	5	1.54	0.939	A	0.000	0.939	0.939	100.00	0.000	0.000
						B	0.000	0.939		100.00	0.000	0.000
						C	0.000	0.939		100.00	0.000	0.603
L53 2.25-1.50	1.88	0.85	5	1.50	2.813	A	0.000	2.813	2.813	100.00	0.000	0.000
						B	0.000	2.813		100.00	0.000	0.000

Section Elevation ft	z ft	K _z	q _z psf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L54 1.50-1.25	1.38	0.85	5	1.46	0.936	C	0.000	2.813	0.936	100.00	0.000	1.785
						A	0.000	0.936		100.00	0.000	0.000
						B	0.000	0.936		100.00	0.000	0.000
L55 1.25-0.00	0.63	0.85	5	1.35	4.655	C	0.000	0.936	4.655	100.00	0.000	0.585
						A	0.000	4.655		100.00	0.000	0.000
						B	0.000	4.655		100.00	0.000	0.000
						C	0.000	4.655		100.00	0.000	2.595

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K _z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 137.00-132.00	134.50	1.347	11	5.313	A	0.000	5.313	5.313	100.00	0.000	0.000
					B	0.000	5.313	100.00	0.000	0.000	
					C	0.000	5.313	100.00	0.000	0.000	
L2 132.00-127.00	129.50	1.336	10	5.313	A	0.000	5.313	5.313	100.00	0.000	0.000
					B	0.000	5.313	100.00	0.000	0.000	
					C	0.000	5.313	100.00	0.000	0.000	
L3 127.00-125.00	126.00	1.329	10	2.125	A	0.000	2.125	2.125	100.00	0.000	0.000
					B	0.000	2.125	100.00	0.000	0.000	
					C	0.000	2.125	100.00	0.000	0.000	
L4 125.00-120.00	122.50	1.321	10	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000	100.00	0.000	0.000	
					C	0.000	10.000	100.00	0.000	0.000	
L5 120.00-115.00	117.50	1.309	10	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000	100.00	0.000	0.000	
					C	0.000	10.000	100.00	0.000	0.000	
L6 115.00-110.00	112.50	1.297	10	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000	100.00	0.000	0.000	
					C	0.000	10.000	100.00	0.000	0.238	
L7 110.00-105.00	107.50	1.285	10	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000	100.00	0.000	0.000	
					C	0.000	10.000	100.00	0.000	0.398	
L8 105.00-100.00	102.50	1.272	10	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000	100.00	0.000	0.000	
					C	0.000	10.000	100.00	0.000	0.398	
L9 100.00-95.00	97.50	1.259	10	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000	100.00	0.000	0.000	
					C	0.000	10.000	100.00	0.000	0.398	
L10 95.00-90.00	92.50	1.245	10	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000	100.00	0.000	0.000	
					C	0.000	10.000	100.00	0.000	0.543	
L11 90.00-89.25	89.63	1.237	10	1.500	A	0.000	1.500	1.500	100.00	0.000	0.000
					B	0.000	1.500	100.00	0.000	0.000	
					C	0.000	1.500	100.00	0.000	0.278	
L12 89.25-89.00	89.13	1.235	10	0.500	A	0.000	0.500	0.500	100.00	0.000	0.000
					B	0.000	0.500	100.00	0.000	0.000	
					C	0.000	0.500	100.00	0.000	0.093	
L13 89.00-88.75	88.88	1.235	10	0.500	A	0.000	0.500	0.500	100.00	0.000	0.000
					B	0.000	0.500	100.00	0.000	0.000	
					C	0.000	0.500	100.00	0.000	0.093	
L14 88.75-85.66	87.21	1.23	10	6.180	A	0.000	6.180	6.180	100.00	0.000	0.000
					B	0.000	6.180	100.00	0.000	0.000	
					C	0.000	6.180	100.00	0.000	1.189	
L15 85.66-85.41	85.54	1.225	10	0.500	A	0.000	0.500	0.500	100.00	0.000	0.000
					B	0.000	0.500	100.00	0.000	0.000	
					C	0.000	0.500	100.00	0.000	0.124	
L16 85.41-81.20	83.31	1.218	10	8.420	A	0.000	8.420	8.420	100.00	0.000	0.000
					B	0.000	8.420	100.00	0.000	0.000	

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L17 81.20-80.95	81.08	1.211	9	0.500	C	0.000	8.420		100.00	0.000	2.814
					A	0.000	0.500	0.500	100.00	0.000	0.000
					B	0.000	0.500		100.00	0.000	0.000
					C	0.000	0.500		100.00	0.000	0.207
L18 80.95-80.00	80.48	1.209	9	1.900	A	0.000	1.900	1.900	100.00	0.000	0.000
					B	0.000	1.900		100.00	0.000	0.000
					C	0.000	1.900		100.00	0.000	0.611
L19 80.00-79.75	79.88	1.207	9	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.270
L20 79.75-74.75	77.25	1.199	9	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
					B	0.000	15.000		100.00	0.000	0.000
					C	0.000	15.000		100.00	0.000	4.689
L21 74.75-69.75	72.25	1.182	9	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
					B	0.000	15.000		100.00	0.000	0.000
					C	0.000	15.000		100.00	0.000	3.731
L22 69.75-65.50	67.63	1.166	9	12.750	A	0.000	12.750	12.750	100.00	0.000	0.000
					B	0.000	12.750		100.00	0.000	0.000
					C	0.000	12.750		100.00	0.000	3.296
L23 65.50-65.25	65.38	1.157	9	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.218
L24 65.25-60.25	62.75	1.147	9	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
					B	0.000	15.000		100.00	0.000	0.000
					C	0.000	15.000		100.00	0.000	4.356
L25 60.25-58.39	59.32	1.134	9	5.580	A	0.000	5.580	5.580	100.00	0.000	0.000
					B	0.000	5.580		100.00	0.000	0.000
					C	0.000	5.580		100.00	0.000	1.722
L26 58.39-58.14	58.27	1.13	9	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.259
L27 58.14-57.50	57.82	1.128	9	1.920	A	0.000	1.920	1.920	100.00	0.000	0.000
					B	0.000	1.920		100.00	0.000	0.000
					C	0.000	1.920		100.00	0.000	0.664
L28 57.50-57.25	57.38	1.126	9	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.259
L29 57.25-54.00	55.63	1.119	9	9.750	A	0.000	9.750	9.750	100.00	0.000	0.000
					B	0.000	9.750		100.00	0.000	0.000
					C	0.000	9.750		100.00	0.000	3.310
L30 54.00-53.75	53.88	1.111	9	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.270
L31 53.75-49.50	51.63	1.101	9	12.750	A	0.000	12.750	12.750	100.00	0.000	0.000
					B	0.000	12.750		100.00	0.000	0.000
					C	0.000	12.750		100.00	0.000	4.713
L32 49.50-49.25	49.38	1.091	9	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.301
L33 49.25-44.25	46.75	1.078	8	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
					B	0.000	15.000		100.00	0.000	0.000
					C	0.000	15.000		100.00	0.000	6.023
L34 44.25-41.50	42.88	1.059	8	8.250	A	0.000	8.250	8.250	100.00	0.000	0.000
					B	0.000	8.250		100.00	0.000	0.000
					C	0.000	8.250		100.00	0.000	4.177
L35 41.50-41.25	41.38	1.051	8	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.395
L36 41.25-40.00	40.63	1.047	8	3.750	A	0.000	3.750	3.750	100.00	0.000	0.000
					B	0.000	3.750		100.00	0.000	0.000
					C	0.000	3.750		100.00	0.000	1.787
L37 40.00-39.75	39.88	1.043	8	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.280
L38 39.75-34.75	37.25	1.028	8	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	4.981
L39 34.75-	32.25	0.997	8	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
29.75					B	0.000	17.500		100.00	0.000	0.000
L40 29.75-29.50	29.63	0.98	8	0.875	C	0.000	17.500		100.00	0.000	3.991
					A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.239
L41 29.50-29.25	29.38	0.978	8	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.239
L42 29.25-28.25	28.75	0.973	8	3.500	A	0.000	3.500	3.500	100.00	0.000	0.000
					B	0.000	3.500		100.00	0.000	0.000
					C	0.000	3.500		100.00	0.000	0.955
L43 28.25-28.00	28.13	0.969	8	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.239
L44 28.00-23.00	25.50	0.949	7	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	4.773
L45 23.00-19.50	21.25	0.913	7	12.250	A	0.000	12.250	12.250	100.00	0.000	0.000
					B	0.000	12.250		100.00	0.000	0.000
					C	0.000	12.250		100.00	0.000	3.466
L46 19.50-19.25	19.38	0.896	7	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.270
L47 19.25-14.25	16.75	0.869	7	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	5.398
L48 14.25-9.25	11.75	0.85	7	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	5.398
L49 9.25-4.25	6.75	0.85	7	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
					B	0.000	17.500		100.00	0.000	0.000
					C	0.000	17.500		100.00	0.000	5.398
L50 4.25-2.75	3.50	0.85	7	5.250	A	0.000	5.250	5.250	100.00	0.000	0.000
					B	0.000	5.250		100.00	0.000	0.000
					C	0.000	5.250		100.00	0.000	1.619
L51 2.75-2.50	2.63	0.85	7	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.270
L52 2.50-2.25	2.38	0.85	7	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.270
L53 2.25-1.50	1.88	0.85	7	2.625	A	0.000	2.625	2.625	100.00	0.000	0.000
					B	0.000	2.625		100.00	0.000	0.000
					C	0.000	2.625		100.00	0.000	0.810
L54 1.50-1.25	1.38	0.85	7	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
					B	0.000	0.875		100.00	0.000	0.000
					C	0.000	0.875		100.00	0.000	0.270
L55 1.25-0.00	0.63	0.85	7	4.375	A	0.000	4.375	4.375	100.00	0.000	0.000
					B	0.000	4.375		100.00	0.000	0.000
					C	0.000	4.375		100.00	0.000	1.287

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

Comb. No.	Description
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	137 - 132	Pole	Max Tension	48	0.00	0	0
			Max. Compression	26	-0.51	0	0
			Max. Mx	20	-0.28	0	0
			Max. My	2	-0.28	0	0
			Max. Vy	20	-0.20	0	0
			Max. Vx	2	-0.20	0	0
L2	132 - 127	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-1.29	-1	-1
			Max. Mx	8	-0.61	-4	0
			Max. My	14	-0.62	-1	-3
			Max. Vy	20	-0.87	4	0
			Max. Vx	2	-0.75	0	3
L3	127 - 125	Pole	Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-1.49	-1	-1
			Max. Mx	8	-0.72	-6	-1
			Max. My	14	-0.73	-1	-5
			Max. Vy	20	-0.95	6	1
L4	125 - 120	Pole	Max. Vx	2	-0.83	1	5
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L5	120 - 115	Pole	Max. Compression	26	-15.45	-1	-1
			Max. Mx	20	-4.89	36	1
			Max. My	14	-4.92	-2	-34
			Max. Vy	20	-7.56	36	1
			Max. Vx	2	-7.41	1	34
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-16.43	-1	-1
			Max. Mx	20	-5.49	75	2
			Max. My	2	-5.50	2	72
L6	115 - 110	Pole	Max. Vy	20	-7.92	75	2
			Max. Vx	2	-7.77	2	72
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-32.28	-1	1
			Max. Mx	20	-10.32	151	3
			Max. My	2	-10.34	3	148
			Max. Vy	20	-16.25	151	3
			Max. Vx	2	-16.09	3	148
			Max. Torque	4			-1
L7	110 - 105	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-33.39	-1	1
			Max. Mx	20	-11.00	234	4
			Max. My	2	-11.02	3	230
			Max. Vy	20	-16.60	234	4
			Max. Vx	2	-16.44	3	230
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-34.51	-1	1
			Max. Mx	20	-11.70	317	4
L8	105 - 100	Pole	Max. My	2	-11.72	4	313
			Max. Vy	20	-16.94	317	4
			Max. Vx	2	-16.78	4	313
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-35.62	0	0
			Max. Mx	20	-12.41	403	5
			Max. My	2	-12.44	5	397
			Max. Vy	20	-17.25	403	5
			Max. Vx	2	-17.09	5	397
L9	100 - 95	Pole	Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-39.63	0	0
			Max. Mx	20	-14.24	493	6
			Max. My	2	-14.25	5	486
			Max. Vy	20	-18.76	493	6
			Max. Vx	2	-18.60	5	486
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-39.79	0	0
L10	95 - 90	Pole	Max. Mx	20	-14.35	507	6
			Max. My	2	-14.37	6	500
			Max. Vy	20	-18.81	507	6
			Max. Vx	2	-18.66	6	500
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-39.86	0	0
			Max. Mx	20	-14.41	511	6
			Max. My	2	-14.43	6	505
			Max. Vy	20	-18.83	511	6
L11	90 - 89.25	Pole	Max. Vx	2	-18.67	6	505
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-39.94	0	0
			Max. Mx	20	-14.47	516	6
			Max. My	2	-14.48	6	510
			Max. Vy	20	-18.85	516	6
			Max. Vx	2	-18.70	6	510
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
L12	89.25 - 89	Pole	Max. Compression	26	-39.94	0	0
			Max. Mx	20	-14.47	516	6
			Max. My	2	-14.48	6	510
			Max. Vy	20	-18.85	516	6
			Max. Vx	2	-18.70	6	510
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-39.94	0	0
			Max. Mx	20	-14.47	516	6
			Max. My	2	-14.48	6	510
L13	89 - 88.75	Pole	Max. Vy	20	-18.85	516	6
			Max. Vx	2	-18.70	6	510
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-39.94	0	0
			Max. Mx	20	-14.47	516	6
			Max. My	2	-14.48	6	510
			Max. Vy	20	-18.85	516	6
			Max. Vx	2	-18.70	6	510
			Max. Torque	4			-1

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L14	88.75 - 85.66	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-40.91	0	0
			Max. Mx	20	-15.19	575	6
			Max. My	2	-15.21	6	568
			Max. Vy	20	-19.14	575	6
			Max. Vx	2	-18.98	6	568
L15	85.66 - 85.41	Pole	Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-41.00	0	0
			Max. Mx	20	-15.26	580	6
			Max. My	2	-15.28	6	573
			Max. Vy	20	-19.17	580	6
L16	85.41 - 81.2	Pole	Max. Vx	2	-19.01	6	573
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-42.59	0	0
			Max. Mx	20	-16.46	662	7
			Max. My	2	-16.48	7	654
L17	81.2 - 80.95	Pole	Max. Vy	20	-19.82	662	7
			Max. Vx	2	-19.66	7	654
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-42.68	0	0
			Max. Mx	20	-16.53	667	7
L18	80.95 - 80	Pole	Max. My	2	-16.55	7	659
			Max. Vy	20	-19.86	667	7
			Max. Vx	2	-19.70	7	659
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-43.03	0	0
L19	80 - 79.75	Pole	Max. Mx	20	-16.79	686	7
			Max. My	2	-16.80	7	678
			Max. Vy	20	-20.00	686	7
			Max. Vx	2	-19.84	7	678
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
L20	79.75 - 74.75	Pole	Max. Compression	26	-43.86	0	0
			Max. Mx	20	-17.28	691	7
			Max. My	2	-17.29	7	683
			Max. Vy	20	-20.25	691	7
			Max. Vx	2	-20.09	7	683
			Max. Torque	4			-1
L21	74.75 - 69.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-45.67	0	0
			Max. Mx	20	-18.38	795	8
			Max. My	2	-18.40	8	786
			Max. Vy	20	-21.35	795	8
			Max. Vx	2	-21.19	8	786
L22	69.75 - 65.5	Pole	Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-47.32	1	0
			Max. Mx	20	-19.40	904	8
			Max. My	2	-19.42	9	894
			Max. Vy	20	-22.37	904	8
L23	65.5 - 65.25	Pole	Max. Vx	2	-22.21	9	894
			Max. Torque	4			-1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-48.72	1	0
			Max. Mx	20	-20.28	1001	9
			Max. My	2	-20.30	9	990
L23	65.5 - 65.25	Pole	Max. Vy	20	-23.22	1001	9
			Max. Vx	2	-23.07	9	990
			Max. Torque	23			1
L23	65.5 - 65.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-48.81	1	0

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L24	65.25 - 60.25	Pole	Max. Mx	20	-20.35	1007	9
			Max. My	2	-20.37	9	996
			Max. Vy	20	-23.27	1007	9
			Max. Vx	2	-23.11	9	996
			Max. Torque	23			1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-50.64	1	0
			Max. Mx	20	-21.57	1126	9
			Max. My	2	-21.58	10	1114
			Max. Vy	20	-24.28	1126	9
L25	60.25 - 58.39	Pole	Max. Vx	2	-24.13	10	1114
			Max. Torque	23			1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-51.31	1	0
			Max. Mx	20	-22.02	1171	10
			Max. My	2	-22.03	10	1159
			Max. Vy	20	-24.66	1171	10
			Max. Vx	2	-24.51	10	1159
			Max. Torque	23			1
			Max Tension	1	0.00	0	0
L26	58.39 - 58.14	Pole	Max. Compression	26	-51.42	1	0
			Max. Mx	20	-22.11	1178	10
			Max. My	2	-22.12	10	1166
			Max. Vy	20	-24.71	1178	10
			Max. Vx	2	-24.55	10	1166
			Max. Torque	23			1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-51.69	1	0
			Max. Mx	20	-22.30	1193	10
			Max. My	2	-22.31	10	1181
L27	58.14 - 57.5	Pole	Max. Vy	20	-24.84	1193	10
			Max. Vx	2	-24.68	10	1181
			Max. Torque	23			1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-51.79	1	-1
			Max. Mx	20	-22.37	1200	10
			Max. My	2	-22.38	10	1187
			Max. Vy	20	-24.89	1200	10
			Max. Vx	2	-24.73	10	1187
			Max. Torque	23			1
L28	57.5 - 57.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-53.04	1	-1
			Max. Mx	20	-23.24	1282	10
			Max. My	2	-23.25	11	1269
			Max. Vy	20	-25.55	1282	10
			Max. Vx	2	-25.39	11	1269
			Max. Torque	23			1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-53.15	1	-1
			Max. Mx	20	-23.33	1288	10
L29	57.25 - 54	Pole	Max. My	2	-23.34	11	1275
			Max. Vy	20	-25.59	1288	10
			Max. Vx	2	-25.44	11	1275
			Max. Torque	23			1
			Max Tension	1	0.00	0	0
			Max. Compression	26	-55.18	2	-1
			Max. Mx	20	-24.79	1399	11
			Max. My	2	-24.80	12	1385
			Max. Vy	20	-26.54	1399	11
			Max. Vx	2	-26.39	12	1385
L30	54 - 53.75	Pole	Max. Torque	25			2
			Max Tension	1	0.00	0	0
			Max. Compression	26	-55.29	2	-1
			Max. Mx	20	-24.89	1405	11
			Max. My	2	-24.90	12	1392
			Max. Vy	20	-26.59	1405	11

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L33	49.25 - 44.25	Pole	Max. Vx	2	-26.43	12	1392
			Max. Torque	25			2
			Max Tension	1	0.00	0	0
			Max. Compression	26	-57.67	2	-1
			Max. Mx	20	-26.69	1541	12
			Max. My	2	-26.70	12	1526
			Max. Vy	20	-27.61	1541	12
L34	44.25 - 41.5	Pole	Max. Vx	2	-27.46	12	1526
			Max. Torque	25			2
			Max Tension	1	0.00	0	0
			Max. Compression	26	-59.14	2	-1
			Max. Mx	20	-27.81	1618	12
			Max. My	2	-27.82	13	1603
			Max. Vy	20	-28.20	1618	12
L35	41.5 - 41.25	Pole	Max. Vx	2	-28.04	13	1603
			Max. Torque	25			2
			Max Tension	1	0.00	0	0
			Max. Compression	26	-59.26	2	-1
			Max. Mx	20	-27.91	1625	12
			Max. My	2	-27.92	13	1610
			Max. Vy	20	-28.24	1625	12
L36	41.25 - 40	Pole	Max. Vx	2	-28.08	13	1610
			Max. Torque	25			3
			Max Tension	1	0.00	0	0
			Max. Compression	26	-59.87	2	-1
			Max. Mx	20	-28.35	1660	12
			Max. My	2	-28.36	13	1645
			Max. Vy	20	-28.50	1660	12
L37	40 - 39.75	Pole	Max. Vx	2	-28.34	13	1645
			Max. Torque	25			3
			Max Tension	1	0.00	0	0
			Max. Compression	26	-60.70	3	-1
			Max. Mx	20	-28.85	1668	12
			Max. My	2	-28.86	13	1652
			Max. Vy	20	-28.74	1668	12
L38	39.75 - 34.75	Pole	Max. Vx	2	-28.58	13	1652
			Max. Torque	25			3
			Max Tension	1	0.00	0	0
			Max. Compression	26	-63.09	3	-2
			Max. Mx	20	-30.56	1814	12
			Max. My	2	-30.57	14	1797
			Max. Vy	20	-29.77	1814	12
L39	34.75 - 29.75	Pole	Max. Vx	2	-29.61	14	1797
			Max. Torque	25			3
			Max Tension	1	0.00	0	0
			Max. Compression	26	-65.23	3	-2
			Max. Mx	20	-32.12	1965	13
			Max. My	2	-32.13	15	1947
			Max. Vy	20	-30.39	1965	13
L40	29.75 - 29.5	Pole	Max. Vx	2	-30.23	15	1947
			Max. Torque	25			3
			Max Tension	1	0.00	0	0
			Max. Compression	26	-65.33	3	-2
			Max. Mx	20	-32.21	1972	13
			Max. My	2	-32.22	15	1954
			Max. Vy	20	-30.43	1972	13
L41	29.5 - 29.25	Pole	Max. Vx	2	-30.27	15	1954
			Max. Torque	25			3
			Max Tension	1	0.00	0	0
			Max. Compression	26	-65.45	3	-2
			Max. Mx	20	-32.29	1980	13
			Max. My	2	-32.30	15	1962
			Max. Vy	20	-30.48	1980	13
L42	29.25 -	Pole	Max. Vx	2	-30.32	15	1962
			Max. Torque	25			3
			Max Tension	1	0.00	0	0

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
	28.25		Max. Compression	26	-65.89	3	-2
			Max. Mx	20	-32.62	2010	13
			Max. My	2	-32.62	15	1992
			Max. Vy	20	-30.67	2010	13
			Max. Vx	2	-30.51	15	1992
			Max. Torque	25			3
L43	28.25 - 28	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-66.03	3	-2
			Max. Mx	20	-32.73	2018	13
			Max. My	2	-32.74	15	2000
			Max. Vy	20	-30.71	2018	13
			Max. Vx	2	-30.55	15	2000
			Max. Torque	25			3
L44	28 - 23	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-68.74	4	-2
			Max. Mx	20	-34.86	2174	14
			Max. My	2	-34.87	16	2155
			Max. Vy	20	-31.64	2174	14
			Max. Vx	2	-31.48	16	2155
			Max. Torque	25			4
L45	23 - 19.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-70.62	4	-2
			Max. Mx	20	-36.36	2286	14
			Max. My	2	-36.37	16	2266
			Max. Vy	20	-32.25	2286	14
			Max. Vx	2	-32.10	16	2266
			Max. Torque	25			4
L46	19.5 - 19.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-70.77	4	-2
			Max. Mx	20	-36.49	2294	14
			Max. My	2	-36.50	16	2274
			Max. Vy	20	-32.29	2294	14
			Max. Vx	2	-32.13	16	2274
			Max. Torque	25			4
L47	19.25 - 14.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-73.63	4	-2
			Max. Mx	20	-38.82	2458	15
			Max. My	2	-38.82	17	2437
			Max. Vy	20	-33.13	2458	15
			Max. Vx	2	-32.98	17	2437
			Max. Torque	25			4
L48	14.25 - 9.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-76.47	4	-2
			Max. Mx	20	-41.17	2625	16
			Max. My	2	-41.17	18	2604
			Max. Vy	20	-33.93	2625	16
			Max. Vx	2	-33.78	18	2604
			Max. Torque	25			5
L49	9.25 - 4.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-79.28	5	-2
			Max. Mx	20	-43.53	2797	16
			Max. My	2	-43.53	19	2774
			Max. Vy	20	-34.70	2797	16
			Max. Vx	2	-34.55	19	2774
			Max. Torque	25			5
L50	4.25 - 2.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-80.11	5	-2
			Max. Mx	20	-44.24	2849	17
			Max. My	2	-44.24	19	2826
			Max. Vy	20	-34.93	2849	17
			Max. Vx	2	-34.78	19	2826
			Max. Torque	25			5
L51	2.75 - 2.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-80.26	5	-2
			Max. Mx	20	-44.38	2858	17
			Max. My	2	-44.38	19	2835
			Max. Vy	20	-34.95	2858	17

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L52	2.5 - 2.25	Pole	Max. Vx	2	-34.80	19	2835
			Max. Torque	25			5
			Max Tension	1	0.00	0	0
			Max. Compression	26	-80.41	5	-2
			Max. Mx	20	-44.51	2866	17
			Max. My	2	-44.51	19	2844
			Max. Vy	20	-34.99	2866	17
L53	2.25 - 1.5	Pole	Max. Vx	2	-34.84	19	2844
			Max. Torque	25			5
			Max Tension	1	0.00	0	0
			Max. Compression	26	-80.88	5	-3
			Max. Mx	20	-44.91	2893	17
			Max. My	2	-44.91	19	2870
			Max. Vy	20	-35.12	2893	17
L54	1.5 - 1.25	Pole	Max. Vx	2	-34.97	19	2870
			Max. Torque	25			5
			Max Tension	1	0.00	0	0
			Max. Compression	26	-81.02	5	-3
			Max. Mx	20	-45.04	2902	17
			Max. My	2	-45.04	19	2879
			Max. Vy	20	-35.15	2902	17
L55	1.25 - 0	Pole	Max. Vx	2	-35.00	19	2879
			Max. Torque	25			5
			Max Tension	1	0.00	0	0
			Max. Compression	26	-81.73	5	-3
			Max. Mx	20	-45.66	2946	17
			Max. My	2	-45.66	19	2922
			Max. Vy	20	-35.36	2946	17

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	81.73	0.00	0.00
	Max. H _x	21	34.25	35.34	0.13
	Max. H _z	3	34.25	0.13	35.19
	Max. M _x	2	2922	0.13	35.19
	Max. M _z	8	2934	-35.28	-0.05
	Max. Torsion	25	5	17.77	30.48
	Min. Vert	21	34.25	35.34	0.13
	Min. H _x	8	45.67	-35.28	-0.05
	Min. H _z	15	34.25	-0.12	-35.14
	Min. M _x	14	-2918	-0.12	-35.14
	Min. M _z	20	-2946	35.34	0.13
	Min. Torsion	13	-5	-17.70	-30.41

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	38.06	-0.00	0.00	1	1	0
1.2 Dead+1.6 Wind 0 deg - No Ice	45.67	-0.13	-35.19	-2922	19	-4
0.9 Dead+1.6 Wind 0 deg - No Ice	34.25	-0.13	-35.19	-2901	19	-4
1.2 Dead+1.6 Wind 30 deg - No Ice	45.67	17.68	-30.40	-2520	-1472	-2

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
0.9 Dead+1.6 Wind 30 deg - No Ice	34.25	17.68	-30.40	-2502	-1461	-2
1.2 Dead+1.6 Wind 60 deg - No Ice	45.67	30.59	-17.49	-1446	-2546	1
0.9 Dead+1.6 Wind 60 deg - No Ice	34.25	30.59	-17.49	-1436	-2527	1
1.2 Dead+1.6 Wind 90 deg - No Ice	45.67	35.28	0.05	8	-2934	3
0.9 Dead+1.6 Wind 90 deg - No Ice	34.25	35.28	0.05	8	-2913	3
1.2 Dead+1.6 Wind 120 deg - No Ice	45.67	30.61	17.55	1457	-2548	5
0.9 Dead+1.6 Wind 120 deg - No Ice	34.25	30.61	17.55	1446	-2530	5
1.2 Dead+1.6 Wind 150 deg - No Ice	45.67	17.70	30.41	2524	-1474	5
0.9 Dead+1.6 Wind 150 deg - No Ice	34.25	17.70	30.41	2505	-1464	5
1.2 Dead+1.6 Wind 180 deg - No Ice	45.67	0.12	35.14	2918	-15	4
0.9 Dead+1.6 Wind 180 deg - No Ice	34.25	0.12	35.14	2896	-15	4
1.2 Dead+1.6 Wind 210 deg - No Ice	45.67	-17.55	30.44	2528	1457	2
0.9 Dead+1.6 Wind 210 deg - No Ice	34.25	-17.55	30.44	2509	1446	2
1.2 Dead+1.6 Wind 240 deg - No Ice	45.67	-30.62	17.41	1437	2553	0
0.9 Dead+1.6 Wind 240 deg - No Ice	34.25	-30.62	17.41	1426	2534	0
1.2 Dead+1.6 Wind 270 deg - No Ice	45.67	-35.34	-0.13	-17	2946	-3
0.9 Dead+1.6 Wind 270 deg - No Ice	34.25	-35.34	-0.13	-17	2923	-3
1.2 Dead+1.6 Wind 300 deg - No Ice	45.67	-30.62	-17.65	-1468	2554	-5
0.9 Dead+1.6 Wind 300 deg - No Ice	34.25	-30.62	-17.65	-1457	2534	-5
1.2 Dead+1.6 Wind 330 deg - No Ice	45.67	-17.77	-30.48	-2531	1487	-5
0.9 Dead+1.6 Wind 330 deg - No Ice	34.25	-17.77	-30.48	-2512	1476	-5
1.2 Dead+1.0 Ice+1.0 Temp	81.73	-0.00	-0.00	3	5	0
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	81.73	-0.02	-9.72	-885	8	-2
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	81.73	4.88	-8.40	-764	-442	-1
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	81.73	8.45	-4.84	-438	-768	0
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	81.73	9.74	0.01	4	-886	1
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	81.73	8.45	4.85	445	-768	2
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	81.73	4.88	8.40	769	-442	2
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	81.73	0.03	9.71	889	1	2
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	81.73	-4.85	8.41	770	448	1
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	81.73	-8.45	4.82	441	778	0
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	81.73	-9.75	-0.03	-1	897	-1
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	81.73	-8.45	-4.87	-443	778	-2
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	81.73	-4.90	-8.42	-766	454	-2
Dead+Wind 0 deg - Service	38.06	-0.03	-7.53	-622	5	0
Dead+Wind 30 deg - Service	38.06	3.78	-6.50	-536	-312	0

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 60 deg - Service	38.06	6.54	-3.74	-307	-541	0
Dead+Wind 90 deg - Service	38.06	7.55	0.01	2	-624	0
Dead+Wind 120 deg - Service	38.06	6.55	3.76	311	-542	0
Dead+Wind 150 deg - Service	38.06	3.79	6.51	538	-313	0
Dead+Wind 180 deg - Service	38.06	0.03	7.52	622	-2	0
Dead+Wind 210 deg - Service	38.06	-3.75	6.51	539	312	0
Dead+Wind 240 deg - Service	38.06	-6.55	3.72	307	545	0
Dead+Wind 270 deg - Service	38.06	-7.56	-0.03	-3	629	0
Dead+Wind 300 deg - Service	38.06	-6.55	-3.78	-312	545	0
Dead+Wind 330 deg - Service	38.06	-3.80	-6.52	-538	318	0

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-38.06	0.00	0.00	38.06	-0.00	0.000%
2	-0.13	-45.67	-35.19	0.13	45.67	35.19	0.000%
3	-0.13	-34.25	-35.19	0.13	34.25	35.19	0.000%
4	17.68	-45.67	-30.40	-17.68	45.67	30.40	0.000%
5	17.68	-34.25	-30.40	-17.68	34.25	30.40	0.000%
6	30.59	-45.67	-17.49	-30.59	45.67	17.49	0.000%
7	30.59	-34.25	-17.49	-30.59	34.25	17.49	0.000%
8	35.29	-45.67	0.05	-35.28	45.67	-0.05	0.000%
9	35.29	-34.25	0.05	-35.28	34.25	-0.05	0.001%
10	30.61	-45.67	17.55	-30.61	45.67	-17.55	0.000%
11	30.61	-34.25	17.55	-30.61	34.25	-17.55	0.000%
12	17.70	-45.67	30.41	-17.70	45.67	-30.41	0.000%
13	17.70	-34.25	30.41	-17.70	34.25	-30.41	0.000%
14	0.12	-45.67	35.14	-0.12	45.67	-35.14	0.001%
15	0.12	-34.25	35.14	-0.12	34.25	-35.14	0.001%
16	-17.55	-45.67	30.44	17.55	45.67	-30.44	0.000%
17	-17.55	-34.25	30.44	17.55	34.25	-30.44	0.000%
18	-30.62	-45.67	17.41	30.62	45.67	-17.41	0.000%
19	-30.62	-34.25	17.41	30.62	34.25	-17.41	0.000%
20	-35.34	-45.67	-0.13	35.34	45.67	0.13	0.001%
21	-35.34	-34.25	-0.13	35.34	34.25	0.13	0.001%
22	-30.62	-45.67	-17.65	30.62	45.67	17.65	0.000%
23	-30.62	-34.25	-17.65	30.62	34.25	17.65	0.000%
24	-17.77	-45.67	-30.48	17.77	45.67	30.48	0.000%
25	-17.77	-34.25	-30.48	17.77	34.25	30.48	0.000%
26	0.00	-81.73	0.00	0.00	81.73	0.00	0.000%
27	-0.02	-81.73	-9.72	0.02	81.73	9.72	0.000%
28	4.88	-81.73	-8.40	-4.88	81.73	8.40	0.000%
29	8.45	-81.73	-4.84	-8.45	81.73	4.84	0.000%
30	9.74	-81.73	0.01	-9.74	81.73	-0.01	0.000%
31	8.45	-81.73	4.85	-8.45	81.73	-4.85	0.000%
32	4.88	-81.73	8.40	-4.88	81.73	-8.40	0.000%
33	0.03	-81.73	9.71	-0.03	81.73	-9.71	0.000%
34	-4.85	-81.73	8.41	4.85	81.73	-8.41	0.000%
35	-8.45	-81.73	4.82	8.45	81.73	-4.82	0.000%
36	-9.75	-81.73	-0.03	9.75	81.73	0.03	0.000%
37	-8.45	-81.73	-4.87	8.45	81.73	4.87	0.000%
38	-4.90	-81.73	-8.42	4.90	81.73	8.42	0.000%
39	-0.03	-38.06	-7.53	0.03	38.06	7.53	0.003%
40	3.78	-38.06	-6.50	-3.78	38.06	6.50	0.001%
41	6.55	-38.06	-3.74	-6.54	38.06	3.74	0.001%
42	7.55	-38.06	0.01	-7.55	38.06	-0.01	0.003%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
43	6.55	-38.06	3.76	-6.55	38.06	-3.76	0.001%
44	3.79	-38.06	6.51	-3.79	38.06	-6.51	0.001%
45	0.03	-38.06	7.52	-0.03	38.06	-7.52	0.003%
46	-3.76	-38.06	6.51	3.75	38.06	-6.51	0.001%
47	-6.55	-38.06	3.72	6.55	38.06	-3.72	0.001%
48	-7.56	-38.06	-0.03	7.56	38.06	0.03	0.003%
49	-6.55	-38.06	-3.78	6.55	38.06	3.78	0.001%
50	-3.80	-38.06	-6.52	3.80	38.06	6.52	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	18	0.00000001	0.00010334
3	Yes	18	0.00000001	0.00008001
4	Yes	21	0.00000001	0.00009812
5	Yes	21	0.00000001	0.00007193
6	Yes	21	0.00000001	0.00009686
7	Yes	21	0.00000001	0.00007098
8	Yes	18	0.00000001	0.00007418
9	Yes	17	0.00000001	0.00012402
10	Yes	21	0.00000001	0.00010388
11	Yes	21	0.00000001	0.00007622
12	Yes	21	0.00000001	0.00009518
13	Yes	21	0.00000001	0.00006967
14	Yes	17	0.00000001	0.00014832
15	Yes	17	0.00000001	0.00011602
16	Yes	21	0.00000001	0.00009858
17	Yes	21	0.00000001	0.00007228
18	Yes	21	0.00000001	0.00009848
19	Yes	21	0.00000001	0.00007216
20	Yes	17	0.00000001	0.00012443
21	Yes	17	0.00000001	0.00009631
22	Yes	21	0.00000001	0.00009654
23	Yes	21	0.00000001	0.00007059
24	Yes	21	0.00000001	0.00010547
25	Yes	21	0.00000001	0.00007738
26	Yes	6	0.00000001	0.00000001
27	Yes	20	0.00000001	0.00011114
28	Yes	20	0.00000001	0.00012613
29	Yes	20	0.00000001	0.00012645
30	Yes	20	0.00000001	0.00011108
31	Yes	20	0.00000001	0.00012825
32	Yes	20	0.00000001	0.00012643
33	Yes	20	0.00000001	0.00011111
34	Yes	20	0.00000001	0.00012759
35	Yes	20	0.00000001	0.00012742
36	Yes	20	0.00000001	0.00011208
37	Yes	20	0.00000001	0.00012780
38	Yes	20	0.00000001	0.00012927
39	Yes	14	0.00000001	0.00008613
40	Yes	16	0.00000001	0.00008271
41	Yes	15	0.00000001	0.00014898
42	Yes	14	0.00000001	0.00008204
43	Yes	16	0.00000001	0.00007573
44	Yes	16	0.00000001	0.00007990
45	Yes	14	0.00000001	0.00009201
46	Yes	15	0.00000001	0.00014715
47	Yes	16	0.00000001	0.00007825
48	Yes	14	0.00000001	0.00008256
49	Yes	16	0.00000001	0.00007947
50	Yes	16	0.00000001	0.00007619

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	137 - 132	15.33	48	0.946	0.004
L2	132 - 127	14.34	48	0.946	0.004
L3	127 - 125	13.35	48	0.944	0.003
L4	125 - 120	12.96	48	0.943	0.002
L5	120 - 115	11.97	48	0.940	0.002
L6	115 - 110	10.99	48	0.931	0.002
L7	110 - 105	10.02	48	0.915	0.002
L8	105 - 100	9.08	48	0.885	0.001
L9	100 - 95	8.17	48	0.842	0.001
L10	95 - 90	7.32	48	0.786	0.001
L11	90 - 89.25	6.53	48	0.717	0.001
L12	89.25 - 89	6.42	48	0.705	0.001
L13	89 - 88.75	6.38	48	0.702	0.001
L14	88.75 - 85.66	6.35	48	0.700	0.001
L15	85.66 - 85.41	5.90	48	0.670	0.001
L16	85.41 - 81.2	5.87	48	0.668	0.001
L17	81.2 - 80.95	5.30	48	0.631	0.001
L18	80.95 - 80	5.26	48	0.628	0.001
L19	80 - 79.75	5.14	48	0.617	0.001
L20	79.75 - 74.75	5.11	48	0.616	0.001
L21	74.75 - 69.75	4.48	48	0.582	0.001
L22	69.75 - 65.5	3.89	48	0.543	0.000
L23	65.5 - 65.25	3.42	48	0.507	0.000
L24	65.25 - 60.25	3.40	48	0.505	0.000
L25	60.25 - 58.39	2.89	48	0.465	0.000
L26	58.39 - 58.14	2.71	48	0.449	0.000
L27	58.14 - 57.5	2.69	48	0.447	0.000
L28	57.5 - 57.25	2.63	48	0.443	0.000
L29	57.25 - 54	2.60	48	0.441	0.000
L30	54 - 53.75	2.31	48	0.411	0.000
L31	53.75 - 49.5	2.29	48	0.410	0.000
L32	49.5 - 49.25	1.94	48	0.376	0.000
L33	49.25 - 44.25	1.92	48	0.375	0.000
L34	44.25 - 41.5	1.55	48	0.338	0.000
L35	41.5 - 41.25	1.36	48	0.316	0.000
L36	41.25 - 40	1.34	48	0.314	0.000
L37	40 - 39.75	1.26	48	0.302	0.000
L38	39.75 - 34.75	1.25	48	0.300	0.000
L39	34.75 - 29.75	0.95	48	0.262	0.000
L40	29.75 - 29.5	0.70	48	0.222	0.000
L41	29.5 - 29.25	0.69	48	0.220	0.000
L42	29.25 - 28.25	0.68	48	0.217	0.000
L43	28.25 - 28	0.63	48	0.209	0.000
L44	28 - 23	0.62	48	0.207	0.000
L45	23 - 19.5	0.42	48	0.173	0.000
L46	19.5 - 19.25	0.30	48	0.148	0.000
L47	19.25 - 14.25	0.30	48	0.146	0.000
L48	14.25 - 9.25	0.16	48	0.110	0.000
L49	9.25 - 4.25	0.07	48	0.072	0.000
L50	4.25 - 2.75	0.01	48	0.031	0.000
L51	2.75 - 2.5	0.01	48	0.018	0.000
L52	2.5 - 2.25	0.00	48	0.016	0.000
L53	2.25 - 1.5	0.00	48	0.014	0.000
L54	1.5 - 1.25	0.00	48	0.010	0.000
L55	1.25 - 0	0.00	48	0.008	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	VHLP2.5-18	48	14.14	0.946	0.004	157701
124.00	LLPX310R-V4 w/ Mount Pipe	48	12.76	0.942	0.002	76338
122.00	PCS 1900MHz 4x45W-65MHz	48	12.37	0.941	0.002	65989
113.00	80010966 w/ Mount Pipe	48	10.60	0.926	0.002	17497
92.00	HBX-6516DS-VTM w/ Mount Pipe	48	6.84	0.747	0.001	4231
80.00	Bridge Stiffener (43" x 9.5" x 1")	48	5.14	0.617	0.001	6859
50.00	KS24019-L112A	48	1.98	0.380	0.000	7533
40.00	Bridge Stiffener (53" x 9" x 1")	48	1.26	0.302	0.000	7109

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	137 - 132	71.99	20	4.453	0.016
L2	132 - 127	67.33	20	4.452	0.016
L3	127 - 125	62.68	20	4.443	0.010
L4	125 - 120	60.82	20	4.433	0.007
L5	120 - 115	56.19	20	4.420	0.006
L6	115 - 110	51.58	20	4.380	0.005
L7	110 - 105	47.04	20	4.299	0.004
L8	105 - 100	42.61	20	4.158	0.004
L9	100 - 95	38.36	20	3.957	0.004
L10	95 - 90	34.35	20	3.693	0.004
L11	90 - 89.25	30.65	20	3.366	0.005
L12	89.25 - 89	30.13	20	3.311	0.005
L13	89 - 88.75	29.95	20	3.296	0.005
L14	88.75 - 85.66	29.78	20	3.286	0.005
L15	85.66 - 85.41	27.70	20	3.148	0.005
L16	85.41 - 81.2	27.54	20	3.138	0.005
L17	81.2 - 80.95	24.85	20	2.964	0.005
L18	80.95 - 80	24.69	20	2.950	0.005
L19	80 - 79.75	24.11	20	2.898	0.005
L20	79.75 - 74.75	23.96	20	2.890	0.005
L21	74.75 - 69.75	21.01	20	2.732	0.005
L22	69.75 - 65.5	18.25	20	2.550	0.005
L23	65.5 - 65.25	16.05	20	2.377	0.005
L24	65.25 - 60.25	15.93	20	2.369	0.005
L25	60.25 - 58.39	13.55	20	2.182	0.004
L26	58.39 - 58.14	12.71	20	2.108	0.004
L27	58.14 - 57.5	12.60	20	2.099	0.004
L28	57.5 - 57.25	12.32	20	2.077	0.004
L29	57.25 - 54	12.21	20	2.067	0.004
L30	54 - 53.75	10.85	20	1.930	0.004
L31	53.75 - 49.5	10.75	20	1.921	0.004
L32	49.5 - 49.25	9.11	20	1.766	0.004
L33	49.25 - 44.25	9.02	20	1.758	0.004
L34	44.25 - 41.5	7.26	20	1.585	0.003
L35	41.5 - 41.25	6.38	20	1.483	0.003
L36	41.25 - 40	6.30	20	1.471	0.003
L37	40 - 39.75	5.93	20	1.416	0.003
L38	39.75 - 34.75	5.85	20	1.407	0.003
L39	34.75 - 29.75	4.47	20	1.231	0.003
L40	29.75 - 29.5	3.28	20	1.039	0.002
L41	29.5 - 29.25	3.23	20	1.029	0.002
L42	29.25 - 28.25	3.17	20	1.019	0.002
L43	28.25 - 28	2.96	20	0.979	0.002
L44	28 - 23	2.91	20	0.971	0.002
L45	23 - 19.5	1.98	20	0.812	0.002

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L46	19.5 - 19.25	1.42	20	0.693	0.002
L47	19.25 - 14.25	1.39	20	0.685	0.002
L48	14.25 - 9.25	0.76	20	0.516	0.001
L49	9.25 - 4.25	0.31	20	0.336	0.001
L50	4.25 - 2.75	0.06	20	0.143	0.000
L51	2.75 - 2.5	0.02	20	0.083	0.000
L52	2.5 - 2.25	0.02	20	0.075	0.000
L53	2.25 - 1.5	0.02	20	0.068	0.000
L54	1.5 - 1.25	0.01	20	0.046	0.000
L55	1.25 - 0	0.01	20	0.038	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	VHLP2.5-18	20	66.40	4.451	0.016	42265
124.00	LLPX310R-V4 w/ Mount Pipe	20	59.89	4.430	0.007	18282
122.00	PCS 1900MHz 4x45W-65MHz	20	58.04	4.426	0.006	15002
113.00	80010966 w/ Mount Pipe	20	49.76	4.353	0.005	3776
92.00	HBX-6516DS-VTM w/ Mount Pipe	20	32.09	3.508	0.005	905
80.00	Bridge Stiffener (43" x 9.5" x 1")	20	24.11	2.898	0.005	1465
50.00	KS24019-L112A	20	9.29	1.783	0.004	1606
40.00	Bridge Stiffener (53" x 9" x 1")	20	5.93	1.416	0.003	1516

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K
L1	137 - 132 (1)	P12.75x0.375	5.00	0.00	0.0	14.58	-0.28
L2	132 - 127 (2)	P12.75x0.375	5.00	0.00	0.0	14.58	-0.60
L3	127 - 125 (3)	P12.75x0.375	2.00	0.00	0.0	14.58	-0.72
L4	125 - 120 (4)	P24x0.375	5.00	0.00	0.0	27.83	-4.90
L5	120 - 115 (5)	P24x0.375	5.00	0.00	0.0	27.83	-5.49
L6	115 - 110 (6)	P24x0.375	5.00	0.00	0.0	27.83	-10.32
L7	110 - 105 (7)	P24x0.375	5.00	0.00	0.0	27.83	-11.00
L8	105 - 100 (8)	P24x0.375	5.00	0.00	0.0	27.83	-11.70
L9	100 - 95 (9)	P24x0.375	5.00	0.00	0.0	27.83	-12.41
L10	95 - 90 (10)	P24x0.375	5.00	0.00	0.0	27.83	-14.23
L11	90 - 89.25 (11)	P24x0.375	0.75	0.00	0.0	27.83	-14.35
L12	89.25 - 89 (12)	P24x0.49375	0.25	0.00	0.0	36.46	-14.41
L13	89 - 88.75 (13)	P24x0.7	0.25	0.00	0.0	51.24	-14.47
L14	88.75 - 85.66 (14)	P24x0.7	3.09	0.00	0.0	51.24	-15.19
L15	85.66 - 85.41 (15)	P24x0.875	0.25	0.00	0.0	63.57	-15.26
L16	85.41 - 81.2 (16)	P24x0.875	4.21	0.00	0.0	63.57	-16.46
L17	81.2 - 80.95 (17)	P24x0.7	0.25	0.00	0.0	51.24	-16.53
L18	80.95 - 80 (18)	P24x0.7	0.95	0.00	0.0	51.24	-16.79

Section No.	Elevation ft	Size	L ft	L_u ft	KI/r	A in^2	P_u K
L19	80 - 79.75 (19)	P36x0.375	0.25	0.00	0.0	41.97	-17.28
L20	79.75 - 74.75 (20)	P36x0.375	5.00	0.00	0.0	41.97	-18.38
L21	74.75 - 69.75 (21)	P36x0.375	5.00	0.00	0.0	41.97	-19.40
L22	69.75 - 65.5 (22)	P36x0.375	4.25	0.00	0.0	41.97	-20.28
L23	65.5 - 65.25 (23)	P36x0.4625	0.25	0.00	0.0	51.64	-20.35
L24	65.25 - 60.25 (24)	P36x0.4625	5.00	0.00	0.0	51.64	-21.57
L25	60.25 - 58.39 (25)	P36x0.4625	1.86	0.00	0.0	51.64	-22.02
L26	58.39 - 58.14 (26)	P36x0.5625	0.25	0.00	0.0	62.62	-22.11
L27	58.14 - 57.5 (27)	P36x0.5625	0.64	0.00	0.0	62.62	-22.30
L28	57.5 - 57.25 (28)	P36x0.475	0.25	0.00	0.0	53.01	-22.37
L29	57.25 - 54 (29)	P36x0.475	3.25	0.00	0.0	53.01	-23.24
L30	54 - 53.75 (30)	P36x0.6	0.25	0.00	0.0	66.73	-23.33
L31	53.75 - 49.5 (31)	P36x0.6	4.25	0.00	0.0	66.73	-24.79
L32	49.5 - 49.25 (32)	P36x0.7	0.25	0.00	0.0	77.63	-24.89
L33	49.25 - 44.25 (33)	P36x0.7	5.00	0.00	0.0	77.63	-26.69
L34	44.25 - 41.5 (34)	P36x0.7	2.75	0.00	0.0	77.63	-27.81
L35	41.5 - 41.25 (35)	P36x0.6	0.25	0.00	0.0	66.73	-27.91
L36	41.25 - 40 (36)	P36x0.6	1.25	0.00	0.0	66.73	-28.35
L37	40 - 39.75 (37)	P42x0.5	0.25	0.00	0.0	65.19	-28.85
L38	39.75 - 34.75 (38)	P42x0.5	5.00	0.00	0.0	65.19	-30.56
L39	34.75 - 29.75 (39)	P42x0.5	5.00	0.00	0.0	65.19	-32.12
L40	29.75 - 29.5 (40)	P42x0.5	0.25	0.00	0.0	65.19	-32.21
L41	29.5 - 29.25 (41)	P42x0.5	0.25	0.00	0.0	65.19	-32.29
L42	29.25 - 28.25 (42)	P42x0.5	1.00	0.00	0.0	65.19	-32.62
L43	28.25 - 28 (43)	P42x0.675	0.25	0.00	0.0	87.63	-32.73
L44	28 - 23 (44)	P42x0.675	5.00	0.00	0.0	87.63	-34.86
L45	23 - 19.5 (45)	P42x0.675	3.50	0.00	0.0	87.63	-36.36
L46	19.5 - 19.25 (46)	P42x0.725	0.25	0.00	0.0	94.01	-36.49
L47	19.25 - 14.25 (47)	P42x0.725	5.00	0.00	0.0	94.01	-38.82
L48	14.25 - 9.25 (48)	P42x0.725	5.00	0.00	0.0	94.01	-41.17
L49	9.25 - 4.25 (49)	P42x0.725	5.00	0.00	0.0	94.01	-43.53
L50	4.25 - 2.75 (50)	P42x0.725	1.50	0.00	0.0	94.01	-44.24
L51	2.75 - 2.5 (51)	P42x0.9	0.25	0.00	0.0	116.21	-44.38
L52	2.5 - 2.25 (52)	P42x1.05	0.25	0.00	0.0	135.08	-44.51
L53	2.25 - 1.5 (53)	P42x1.05	0.75	0.00	0.0	135.08	-44.91
L54	1.5 - 1.25 (54)	P42x1	0.25	0.00	0.0	128.80	-45.04
L55	1.25 - 0 (55)	P42x1	1.25	0.00	0.0	128.80	-45.66

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L1	137 - 132 (1)	P12.75x0.375	0	0
L2	132 - 127 (2)	P12.75x0.375	4	0
L3	127 - 125 (3)	P12.75x0.375	6	0
L4	125 - 120 (4)	P24x0.375	36	0
L5	120 - 115 (5)	P24x0.375	75	0
L6	115 - 110 (6)	P24x0.375	152	0
L7	110 - 105 (7)	P24x0.375	234	0
L8	105 - 100 (8)	P24x0.375	318	0
L9	100 - 95 (9)	P24x0.375	403	0
L10	95 - 90 (10)	P24x0.375	493	0
L11	90 - 89.25 (11)	P24x0.375	507	0
L12	89.25 - 89 (12)	P24x0.49375	512	0
L13	89 - 88.75 (13)	P24x0.7	516	0
L14	88.75 - 85.66 (14)	P24x0.7	575	0
L15	85.66 - 85.41 (15)	P24x0.875	580	0
L16	85.41 - 81.2 (16)	P24x0.875	662	0
L17	81.2 - 80.95 (17)	P24x0.7	667	0
L18	80.95 - 80 (18)	P24x0.7	686	0
L19	80 - 79.75 (19)	P36x0.375	691	0
L20	79.75 - 74.75 (20)	P36x0.375	795	0
L21	74.75 - 69.75 (21)	P36x0.375	904	0
L22	69.75 - 65.5 (22)	P36x0.375	1001	0
L23	65.5 - 65.25 (23)	P36x0.4625	1007	0
L24	65.25 - 60.25 (24)	P36x0.4625	1126	0
L25	60.25 - 58.39 (25)	P36x0.4625	1172	0
L26	58.39 - 58.14 (26)	P36x0.5625	1178	0
L27	58.14 - 57.5 (27)	P36x0.5625	1194	0
L28	57.5 - 57.25 (28)	P36x0.475	1200	0
L29	57.25 - 54 (29)	P36x0.475	1282	0
L30	54 - 53.75 (30)	P36x0.6	1288	0
L31	53.75 - 49.5 (31)	P36x0.6	1399	0
L32	49.5 - 49.25 (32)	P36x0.7	1405	0
L33	49.25 - 44.25 (33)	P36x0.7	1541	0
L34	44.25 - 41.5 (34)	P36x0.7	1618	0
L35	41.5 - 41.25 (35)	P36x0.6	1625	0
L36	41.25 - 40 (36)	P36x0.6	1661	0
L37	40 - 39.75 (37)	P42x0.5	1668	0
L38	39.75 - 34.75 (38)	P42x0.5	1814	0

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L39	34.75 - 29.75 (39)	P42x0.5	1965	0
L40	29.75 - 29.5 (40)	P42x0.5	1972	0
L41	29.5 - 29.25 (41)	P42x0.5	1980	0
L42	29.25 - 28.25 (42)	P42x0.5	2011	0
L43	28.25 - 28 (43)	P42x0.675	2018	0
L44	28 - 23 (44)	P42x0.675	2174	0
L45	23 - 19.5 (45)	P42x0.675	2286	0
L46	19.5 - 19.25 (46)	P42x0.725	2294	0
L47	19.25 - 14.25 (47)	P42x0.725	2458	0
L48	14.25 - 9.25 (48)	P42x0.725	2625	0
L49	9.25 - 4.25 (49)	P42x0.725	2797	0
L50	4.25 - 2.75 (50)	P42x0.725	2849	0
L51	2.75 - 2.5 (51)	P42x0.9	2858	0
L52	2.5 - 2.25 (52)	P42x1.05	2867	0
L53	2.25 - 1.5 (53)	P42x1.05	2893	0
L54	1.5 - 1.25 (54)	P42x1	2902	0
L55	1.25 - 0 (55)	P42x1	2946	0

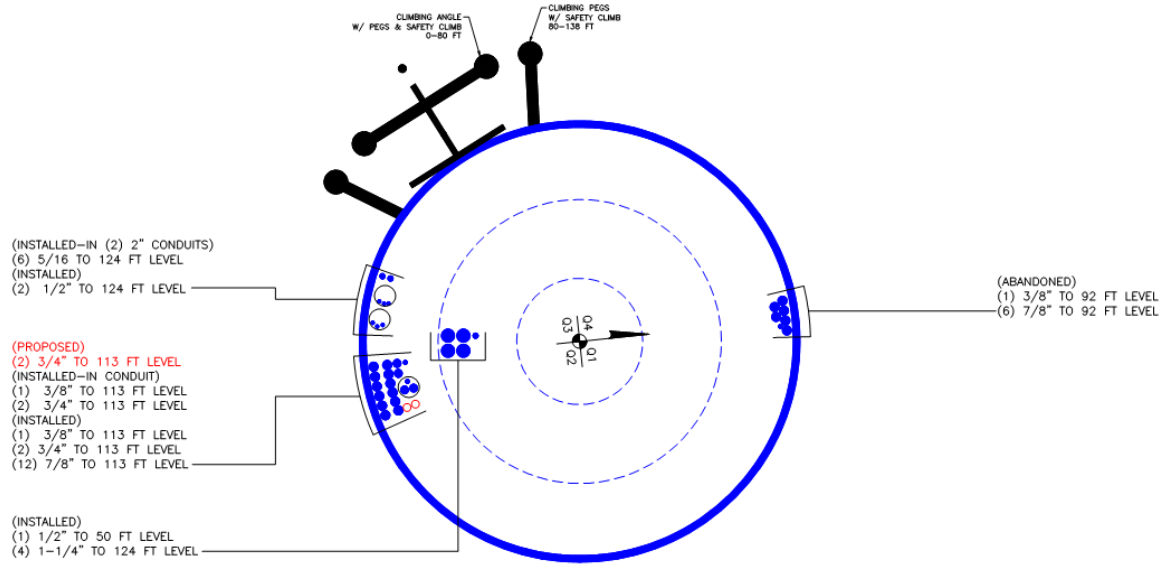
Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L1	137 - 132 (1)	P12.75x0.375	0.20	0
L2	132 - 127 (2)	P12.75x0.375	0.84	0
L3	127 - 125 (3)	P12.75x0.375	0.91	0
L4	125 - 120 (4)	P24x0.375	7.50	0
L5	120 - 115 (5)	P24x0.375	7.92	1
L6	115 - 110 (6)	P24x0.375	16.25	0
L7	110 - 105 (7)	P24x0.375	16.61	0
L8	105 - 100 (8)	P24x0.375	16.94	0
L9	100 - 95 (9)	P24x0.375	17.26	0
L10	95 - 90 (10)	P24x0.375	18.76	0
L11	90 - 89.25 (11)	P24x0.375	18.82	0
L12	89.25 - 89 (12)	P24x0.49375	18.84	0
L13	89 - 88.75 (13)	P24x0.7	18.86	0
L14	88.75 - 85.66 (14)	P24x0.7	19.14	0
L15	85.66 - 85.41 (15)	P24x0.875	19.18	0
L16	85.41 - 81.2 (16)	P24x0.875	19.82	0
L17	81.2 - 80.95 (17)	P24x0.7	19.86	0
L18	80.95 - 80 (18)	P24x0.7	20.00	0
L19	80 - 79.75 (19)	P36x0.375	20.26	0
L20	79.75 - 74.75 (20)	P36x0.375	21.36	0
L21	74.75 - 69.75 (21)	P36x0.375	22.38	1

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L22	69.75 - 65.5 (22)	P36x0.375	23.23	1
L23	65.5 - 65.25 (23)	P36x0.4625	23.28	1
L24	65.25 - 60.25 (24)	P36x0.4625	24.29	1
L25	60.25 - 58.39 (25)	P36x0.4625	24.67	1
L26	58.39 - 58.14 (26)	P36x0.5625	24.71	1
L27	58.14 - 57.5 (27)	P36x0.5625	24.84	1
L28	57.5 - 57.25 (28)	P36x0.475	24.90	1
L29	57.25 - 54 (29)	P36x0.475	25.55	1
L30	54 - 53.75 (30)	P36x0.6	25.60	1
L31	53.75 - 49.5 (31)	P36x0.6	26.55	2
L32	49.5 - 49.25 (32)	P36x0.7	26.60	2
L33	49.25 - 44.25 (33)	P36x0.7	27.62	2
L34	44.25 - 41.5 (34)	P36x0.7	28.20	2
L35	41.5 - 41.25 (35)	P36x0.6	28.24	2
L36	41.25 - 40 (36)	P36x0.6	28.50	2
L37	40 - 39.75 (37)	P42x0.5	28.74	2
L38	39.75 - 34.75 (38)	P42x0.5	29.77	2
L39	34.75 - 29.75 (39)	P42x0.5	30.39	2
L40	29.75 - 29.5 (40)	P42x0.5	30.43	2
L41	29.5 - 29.25 (41)	P42x0.5	30.48	2
L42	29.25 - 28.25 (42)	P42x0.5	30.67	2
L43	28.25 - 28 (43)	P42x0.675	30.71	2
L44	28 - 23 (44)	P42x0.675	31.64	2
L45	23 - 19.5 (45)	P42x0.675	32.25	2
L46	19.5 - 19.25 (46)	P42x0.725	32.29	2
L47	19.25 - 14.25 (47)	P42x0.725	33.13	2
L48	14.25 - 9.25 (48)	P42x0.725	33.93	3
L49	9.25 - 4.25 (49)	P42x0.725	34.70	3
L50	4.25 - 2.75 (50)	P42x0.725	34.94	3
L51	2.75 - 2.5 (51)	P42x0.9	34.95	3
L52	2.5 - 2.25 (52)	P42x1.05	34.99	3
L53	2.25 - 1.5 (53)	P42x1.05	35.12	3
L54	1.5 - 1.25 (54)	P42x1	35.15	3
L55	1.25 - 0 (55)	P42x1	35.36	3

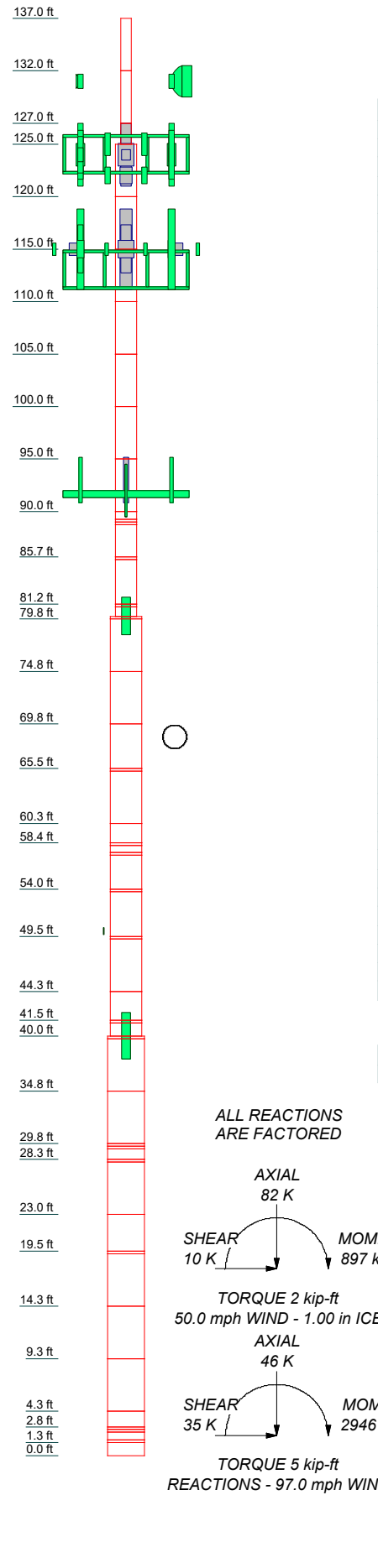
APPENDIX B

BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Section	Size	Length (ft)	Grade	Weight (K)
1		5.00	0.2	0.2
2		5.00	0.2	0.2
3		2.00	0.1	0.1
4		5.00	0.5	0.5
5		5.00	0.5	0.5
6		5.00	0.5	0.5
7		5.00	0.5	0.5
8		5.00	0.5	0.5
9		5.00	0.5	0.5
10		5.00	0.5	0.5
11-14		5.00	0.5	0.5
15-19		5.00	0.5	0.5
20		5.00	0.7	0.7
21		5.00	0.7	0.7
22		0.254.25	0.6	0.6
23		5.00	0.9	0.9
24		5.00	0.3	0.3
25		5.00	0.3	0.3
26-29		5.00	1.0	1.0
30		5.00	1.0	1.0
31		5.00	1.0	1.0
32		5.00	1.0	1.0
33		5.00	1.3	1.3
34		5.00	1.0	1.0
35-37		5.00	1.1	1.1
38		5.00	1.1	1.1
39		5.00	1.1	1.1
40		5.00	1.6	1.6
41		5.00	1.1	1.1
42		5.00	1.8	1.8
43		5.00	1.8	1.8
44		5.00	1.6	1.6
45		5.00	1.8	1.8
46		5.00	1.8	1.8
47		5.00	1.8	1.8
48		5.00	1.8	1.8
49		5.00	1.8	1.8
50		5.00	1.8	1.8
51		5.00	1.8	1.8
52		5.00	1.8	1.8
53		5.00	1.8	1.8
54		5.00	1.8	1.8
55		5.00	1.8	1.8
56		5.00	1.8	1.8
57		5.00	1.8	1.8
58		5.00	1.8	1.8
59		5.00	1.8	1.8
60		5.00	1.8	1.8
61		5.00	1.8	1.8
62		5.00	1.8	1.8
63		5.00	1.8	1.8
64		5.00	1.8	1.8
65		5.00	1.8	1.8
66		5.00	1.8	1.8
67		5.00	1.8	1.8
68		5.00	1.8	1.8
69		5.00	1.8	1.8
70		5.00	1.8	1.8
71		5.00	1.8	1.8
72		5.00	1.8	1.8
73		5.00	1.8	1.8
74		5.00	1.8	1.8
75		5.00	1.8	1.8
76		5.00	1.8	1.8
77		5.00	1.8	1.8
78		5.00	1.8	1.8
79		5.00	1.8	1.8
80		5.00	1.8	1.8
81		5.00	1.8	1.8
82		5.00	1.8	1.8
83		5.00	1.8	1.8
84		5.00	1.8	1.8
85		5.00	1.8	1.8
86		5.00	1.8	1.8
87		5.00	1.8	1.8
88		5.00	1.8	1.8
89		5.00	1.8	1.8
90		5.00	1.8	1.8
91		5.00	1.8	1.8
92		5.00	1.8	1.8
93		5.00	1.8	1.8
94		5.00	1.8	1.8
95		5.00	1.8	1.8
96		5.00	1.8	1.8
97		5.00	1.8	1.8
98		5.00	1.8	1.8
99		5.00	1.8	1.8
100		5.00	1.8	1.8



DESIGNED APPURTENANCE LOADING

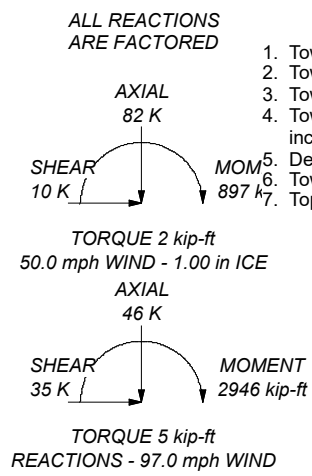
TYPE	ELEVATION	TYPE	ELEVATION
LLPX310R-V4 w/ Mount Pipe	124	RRUS 4478 B14	113
LLPX310R-V4 w/ Mount Pipe	124	RRUS 4478 B14	113
LLPX310R-V4 w/ Mount Pipe	124	RRUS 4478 B14	113
WIMAX DAP HEAD	124	RRUS 32 B66	113
WIMAX DAP HEAD	124	RRUS 32 B66	113
WIMAX DAP HEAD	124	RRUS 32 B66	113
WIMAX DAP HEAD	124	DC6-48-60-0-8F	113
WIMAX DAP HEAD	124	RRUS 32 B2	113
APXVSPP18-C-A20 w/ Mount Pipe	124	RRUS 32 B2	113
APXV9ERR18-C-A20 w/ Mount Pipe	124	RRUS 32 B2	113
APXVSPP18-C-A20 w/ Mount Pipe	124	(2) 860 10025	113
IBC1900BB-1	124	(2) 860 10025	113
IBC1900BB-1	124	(2) 860 10025	113
IBC1900BB-1	124	OPA-65R-LCUU-H8 w/ Mount Pipe	113
IBC1900HG-2A	124	OPA-65R-LCUU-H8 w/ Mount Pipe	113
IBC1900HG-2A	124	OPA-65R-LCUU-H8 w/ Mount Pipe	113
IBC1900HG-2A	124	7770.00 w/ Mount Pipe	113
APXVTM14-C-120 w/ Mount Pipe	124	7770.00 w/ Mount Pipe	113
APXVTM14-C-120 w/ Mount Pipe	124	7770.00 w/ Mount Pipe	113
APXVTM14-C-120 w/ Mount Pipe	124	RRUS-11	113
TD-RRH8x20-25	124	RRUS-11	113
TD-RRH8x20-25	124	RRUS-11	113
TD-RRH8x20-25	124	(2) LGP21401	113
Platform Mount (LP 101-1)	124	(2) LGP21401	113
Miscellaneous [NA 507-1]	124	(2) LGP21401	113
VHLP2.5-18	124	DC6-48-60-18-8F	113
VHLP1-23	124	DC6-48-60-18-8F	113
PCS 1900MHz 4x45W-65MHz	122	Platform Mount [LP 712-1]	113
800MHz 2X50W RRR W/FILTER	122	Miscellaneous [NA 507-1]	113
800MHz 2X50W RRR W/FILTER	122	80010966 w/ Mount Pipe	113
800MHz 2X50W RRR W/FILTER	122	80010966 w/ Mount Pipe	113
Pipe Mount [PM 601-3]	122	HBX-6516DS-VTM w/ Mount Pipe	92
PCS 1900MHz 4x45W-65MHz	122	5' x 2' Pipe Mount	92
PCS 1900MHz 4x45W-65MHz	122	5' x 2' Pipe Mount	92
80010966 w/ Mount Pipe	113	5' x 2' Pipe Mount	92
QS66512-2 w/ Mount Pipe	113	T-Arm Mount [TA 602-3]	92
QS66512-2 w/ Mount Pipe	113	HBX-6516DS-VTM w/ Mount Pipe	92
QS66512-2 w/ Mount Pipe	113	HBX-6516DS-VTM w/ Mount Pipe	92
RRUS 32	113	Bridge Stiffener (43" x 9.5" x 1")	80
RRUS 32	113	Bridge Stiffener (43" x 9.5" x 1")	80
RRUS 32	113	Bridge Stiffener (43" x 9.5" x 1")	80
1001940	113	KS24019-L112A	50
1001940	113	Side Arm Mount [SO 701-1]	50
1001940	113	Bridge Stiffener (53" x 9" x 1")	40
(2) DBC0061F1V51-2	113	Bridge Stiffener (53" x 9" x 1")	40
(2) DBC0061F1V51-2	113	Bridge Stiffener (53" x 9" x 1")	40
(2) DBC0061F1V51-2	113	Bridge Stiffener (53" x 9" x 1")	40

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97.0 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.0 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft



<p>Paul J. Ford and Company 250 East Broad st., Suite 600 Columbus, OH 43215 Phone: (614) 221-6679 FAX:</p>	Job: 138 ft Monopole / Creative Dimensions
	Project: PJF 37518-2227.001.7700 / BU 876333
	Client: CCI
	Code: TIA-222-G
	Path: TIA-222-G
Drawn by: skadam	App'd:
Date: 07/16/18	Scale: NTS
Dwg No. E-1	

Site BU: 876333
Work Order: _____

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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	137	12		0	12.75	12.75	0.375	n/a	A53-B-35
2	125	5		0	24.00	24	0.375	n/a	A53-B-35
3	120	40		0	24.00	24	0.375	n/a	A53-B-35
4	80	40		0	36.00	36	0.375	n/a	A53-B-35
5	40	40		0	42.00	42	0.5	n/a	A53-B-35

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	41.5	58.39	plate	4.875 x 1; (1) (1.1875)	3	84	174	293															
2	81.2	85.66	plate	3.75 x 0.75; (1) (1.1875)	3				79	207	323												
3	0	2.5	solid round	diameter Threaded Rod	3							152	222	350									
4	1.5	19.5	plate	CCI-SFP-040075	3										110	197	324						
5	40	49.5	plate	CCI-SFP-040075	3												23.5	135	248				
6	57.5	65.5	plate	CCI-SFP-040075	3															67.6	192	306	
7	80	89.25	plate	CCI-SFP-040075	3	19.7	128	265															
8	2.75	28.25	plate	CCI-SFP-065125	3				80	172	296												
9	2.5	29.5	plate	CCI-SFP-045100	1							340											
10	0	2.75	plate	FP 1.25 x 6.75_1	4								80	172	296	245							
11	40	54	plate	CCI-SFP-045100	3												110	220	340				
12	80	89	plate	CCI-SFP-045100	3															100	230	345	
13																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _v (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	4.875	1	4.875	0.5	18.000	18.000	18.000	3.625	1.1875	A572-50
2	3.75	0.75	2.8125	0.375	9.000	12.000	18.000	1.875	1.1875	A572-50
3	-	-	3.976078202	6.25	n/a	n/a	0.000	3.976	0.0000	A193 Gr B7
4	4	0.75	3	0.375	12.000	12.000	16.000	2.063	1.1875	A572-65
5	4	0.75	3	0.375	12.000	12.000	16.000	2.063	1.1875	A572-65
6	4	0.75	3	0.375	12.000	12.000	16.000	2.063	1.1875	A572-65
7	4	0.75	3	0.375	12.000	12.000	16.000	2.063	1.1875	A572-65
8	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
9	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
10	1.25	6.75	8.4375	3.375	n/a	n/a	0.000	8.438	0.0000	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

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	137 - 132	5		0	12.750	12.750	0.375	A53-B-35	1.000
2	132 - 127	5		0	12.750	12.750	0.375	A53-B-35	1.000
3	127 - 125	2	0	0	12.750	12.750	0.375	A53-B-35	1.000
4	125 - 120	5	0	0	24.000	24.000	0.375	A53-B-35	1.000
5	120 - 115	5		0	24.000	24.000	0.375	A53-B-35	1.000
6	115 - 110	5		0	24.000	24.000	0.375	A53-B-35	1.000
7	110 - 105	5		0	24.000	24.000	0.375	A53-B-35	1.000
8	105 - 100	5		0	24.000	24.000	0.375	A53-B-35	1.000
9	100 - 95	5		0	24.000	24.000	0.375	A53-B-35	1.000
10	95 - 90	5		0	24.000	24.000	0.375	A53-B-35	1.000
11	90 - 89.25	0.75		0	24.000	24.000	0.375	A53-B-35	1.000
12	89.25 - 89	0.25		0	24.000	24.000	0.49375	A53-B-35	1.010
13	89 - 88.75	0.25		0	24.000	24.000	0.7	A53-B-35	0.982
14	88.75 - 85.66	3.09		0	24.000	24.000	0.7	A53-B-35	0.982
15	85.66 - 85.41	0.25		0	24.000	24.000	0.875	A53-B-35	0.925
16	85.41 - 81.2	4.21		0	24.000	24.000	0.875	A53-B-35	0.925
17	81.2 - 80.95	0.25		0	24.000	24.000	0.7	A53-B-35	0.982
18	80.95 - 80	0.95	0	0	24.000	24.000	0.7	A53-B-35	0.982
19	80 - 79.75	0.25		0	36.000	36.000	0.375	A53-B-35	1.000
20	79.75 - 74.75	5		0	36.000	36.000	0.375	A53-B-35	1.000
21	74.75 - 69.75	5		0	36.000	36.000	0.375	A53-B-35	1.000
22	69.75 - 65.5	4.25		0	36.000	36.000	0.375	A53-B-35	1.000
23	65.5 - 65.25	0.25		0	36.000	36.000	0.4625	A53-B-35	0.987
24	65.25 - 60.25	5		0	36.000	36.000	0.4625	A53-B-35	0.987
25	60.25 - 58.39	1.86		0	36.000	36.000	0.4625	A53-B-35	0.987
26	58.39 - 58.14	0.25		0	36.000	36.000	0.5625	A53-B-35	1.047
27	58.14 - 57.5	0.64		0	36.000	36.000	0.5625	A53-B-35	1.047
28	57.5 - 57.25	0.25		0	36.000	36.000	0.475	A53-B-35	1.068
29	57.25 - 54	3.25		0	36.000	36.000	0.475	A53-B-35	1.068
30	54 - 53.75	0.25		0	36.000	36.000	0.6	A53-B-35	1.050
31	53.75 - 49.5	4.25		0	36.000	36.000	0.6	A53-B-35	1.050
32	49.5 - 49.25	0.25		0	36.000	36.000	0.7	A53-B-35	1.019
33	49.25 - 44.25	5		0	36.000	36.000	0.7	A53-B-35	1.019
34	44.25 - 41.5	2.75		0	36.000	36.000	0.7	A53-B-35	1.019
35	41.5 - 41.25	0.25		0	36.000	36.000	0.6	A53-B-35	0.966
36	41.25 - 40	1.25	0	0	36.000	36.000	0.6	A53-B-35	0.966
37	40 - 39.75	0.25		0	42.000	42.000	0.5	A53-B-35	1.000
38	39.75 - 34.75	5		0	42.000	42.000	0.5	A53-B-35	1.000
39	34.75 - 29.75	5		0	42.000	42.000	0.5	A53-B-35	1.000
40	29.75 - 29.5	0.25		0	42.000	42.000	0.5	A53-B-35	1.000
41	29.5 - 29.25	0.25		0	42.000	42.000	0.5	A53-B-35	1.069
42	29.25 - 28.25	1		0	42.000	42.000	0.5	A53-B-35	1.069
43	28.25 - 28	0.25		0	42.000	42.000	0.675	A53-B-35	1.073
44	28 - 23	5		0	42.000	42.000	0.675	A53-B-35	1.073
45	23 - 19.5	3.5		0	42.000	42.000	0.675	A53-B-35	1.073
46	19.5 - 19.25	0.25		0	42.000	42.000	0.725	A53-B-35	1.096
47	19.25 - 14.25	5		0	42.000	42.000	0.725	A53-B-35	1.096
48	14.25 - 9.25	5		0	42.000	42.000	0.725	A53-B-35	1.096
49	9.25 - 4.25	5		0	42.000	42.000	0.725	A53-B-35	1.096
50	4.25 - 2.75	1.5		0	42.000	42.000	0.725	A53-B-35	1.096
51	2.75 - 2.5	0.25		0	42.000	42.000	0.9	A53-B-35	0.968
52	2.5 - 2.25	0.25		0	42.000	42.000	1.05	A53-B-35	0.887
53	2.25 - 1.5	0.75		0	42.000	42.000	1.05	A53-B-35	0.887
54	1.5 - 1.25	0.25		0	42.000	42.000	1	A53-B-35	0.861
55	1.25 - 0	1.25		0	42.000	42.000	1	A53-B-35	0.861

TNX Section Forces

Increment (ft):		5	TNX Output		
	Section Height (ft)	P _u	M _{ux} (kip-ft)	V _u	
		(K)		(K)	
1	137 - 132	0.28	0.49	0.20	
2	132 - 127	0.60	3.98	0.84	
3	127 - 125	0.72	5.72	0.91	
4	125 - 120	4.90	36.19	7.50	
5	120 - 115	5.49	74.86	7.92	
6	115 - 110	10.32	151.55	16.25	
7	110 - 105	11.00	233.69	16.61	
8	105 - 100	11.70	317.55	16.94	
9	100 - 95	12.41	403.02	17.26	
10	95 - 90	14.23	492.85	18.76	
11	90 - 89.25	14.35	506.93	18.82	
12	89.25 - 89	14.41	511.64	18.84	
13	89 - 88.75	14.47	516.35	18.86	
14	88.75 - 85.66	15.19	575.04	19.14	
15	85.66 - 85.41	15.26	579.83	19.18	
16	85.41 - 81.2	16.46	661.94	19.82	
17	81.2 - 80.95	16.53	666.91	19.86	
18	80.95 - 80	16.79	685.85	20.00	
19	80 - 79.75	17.28	690.92	20.26	
20	79.75 - 74.75	18.38	795.03	21.36	
21	74.75 - 69.75	19.40	904.37	22.38	
22	69.75 - 65.5	20.28	1001.27	23.23	
23	65.5 - 65.25	20.35	1007.09	23.28	
24	65.25 - 60.25	21.57	1126.00	24.29	
25	60.25 - 58.39	22.02	1171.52	24.67	
26	58.39 - 58.14	22.11	1177.69	24.71	
27	58.14 - 57.5	22.30	1193.55	24.84	
28	57.5 - 57.25	22.37	1199.77	24.90	
29	57.25 - 54	23.24	1281.74	25.55	
30	54 - 53.75	23.33	1288.13	25.60	
31	53.75 - 49.5	24.79	1398.81	26.55	
32	49.5 - 49.25	24.89	1405.46	26.60	
33	49.25 - 44.25	26.69	1540.99	27.62	
34	44.25 - 41.5	27.81	1617.88	28.20	
35	41.5 - 41.25	27.91	1624.96	28.24	
36	41.25 - 40	28.35	1660.50	28.50	
37	40 - 39.75	28.85	1667.71	28.74	
38	39.75 - 34.75	30.56	1814.29	29.77	
39	34.75 - 29.75	32.12	1964.70	30.39	
40	29.75 - 29.5	32.21	1972.31	30.43	
41	29.5 - 29.25	32.29	1979.92	30.48	
42	29.25 - 28.25	32.62	2010.50	30.67	
43	28.25 - 28	32.73	2018.17	30.71	
44	28 - 23	34.86	2174.08	31.64	
45	23 - 19.5	36.36	2285.89	32.25	
46	19.5 - 19.25	36.49	2293.96	32.29	
47	19.25 - 14.25	38.82	2457.55	33.13	
48	14.25 - 9.25	41.17	2625.22	33.93	
49	9.25 - 4.25	43.53	2796.80	34.70	
50	4.25 - 2.75	44.24	2849.02	34.94	
51	2.75 - 2.5	44.38	2857.75	34.95	
52	2.5 - 2.25	44.51	2866.50	34.99	
53	2.25 - 1.5	44.91	2892.80	35.12	
54	1.5 - 1.25	45.04	2901.58	35.15	
55	1.25 - 0	45.66	2945.66	35.36	

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
137 - 132	Pole	TP12.75x12.75x0.375	Pole	0.4%	Pass
132 - 127	Pole	TP12.75x12.75x0.375	Pole	2.8%	Pass
127 - 125	Pole	TP12.75x12.75x0.375	Pole	4.0%	Pass
125 - 120	Pole	TP24x24x0.375	Pole	7.3%	Pass
120 - 115	Pole	TP24x24x0.375	Pole	14.6%	Pass
115 - 110	Pole	TP24x24x0.375	Pole	29.4%	Pass
110 - 105	Pole	TP24x24x0.375	Pole	44.8%	Pass
105 - 100	Pole	TP24x24x0.375	Pole	60.4%	Pass
100 - 95	Pole	TP24x24x0.375	Pole	76.4%	Pass
95 - 90	Pole	TP24x24x0.375	Pole	93.3%	Pass
90 - 89.25	Pole	TP24x24x0.375	Pole	95.9%	Pass
89.25 - 89	Pole + Reinf.	TP24x24x0.4938	Pole	75.9%	Pass
89 - 88.75	Pole + Reinf.	TP24x24x0.7	Pole	55.4%	Pass
88.75 - 85.66	Pole + Reinf.	TP24x24x0.7	Pole	61.7%	Pass
85.66 - 85.41	Pole + Reinf.	TP24x24x0.875	Reinf. 2 Tension Rupture	64.6%	Pass
85.41 - 81.2	Pole + Reinf.	TP24x24x0.875	Reinf. 2 Tension Rupture	73.7%	Pass
81.2 - 80.95	Pole + Reinf.	TP24x24x0.7	Pole	71.5%	Pass
80.95 - 80	Pole + Reinf.	TP24x24x0.7	Pole	73.5%	Pass
80 - 79.75	Pole	TP36x36x0.375	Pole	61.8%	Pass
79.75 - 74.75	Pole	TP36x36x0.375	Pole	71.0%	Pass
74.75 - 69.75	Pole	TP36x36x0.375	Pole	80.6%	Pass
69.75 - 65.5	Pole	TP36x36x0.375	Pole	89.1%	Pass
65.5 - 65.25	Pole + Reinf.	TP36x36x0.4625	Pole	73.9%	Pass
65.25 - 60.25	Pole + Reinf.	TP36x36x0.4625	Pole	82.5%	Pass
60.25 - 58.39	Pole + Reinf.	TP36x36x0.4625	Pole	85.8%	Pass
58.39 - 58.14	Pole + Reinf.	TP36x36x0.5625	Pole	72.8%	Pass
58.14 - 57.5	Pole + Reinf.	TP36x36x0.5625	Pole	73.8%	Pass
57.5 - 57.25	Pole + Reinf.	TP36x36x0.475	Pole	88.1%	Pass
57.25 - 54	Pole + Reinf.	TP36x36x0.475	Pole	94.1%	Pass
54 - 53.75	Pole + Reinf.	TP36x36x0.6	Pole	74.8%	Pass
53.75 - 49.5	Pole + Reinf.	TP36x36x0.6	Pole	81.2%	Pass
49.5 - 49.25	Pole + Reinf.	TP36x36x0.7	Pole	70.4%	Pass
49.25 - 44.25	Pole + Reinf.	TP36x36x0.7	Pole	77.1%	Pass
44.25 - 41.5	Pole + Reinf.	TP36x36x0.7	Pole	81.0%	Pass
41.5 - 41.25	Pole + Reinf.	TP36x36x0.6	Pole	93.0%	Pass
41.25 - 40	Pole + Reinf.	TP36x36x0.6	Pole	95.0%	Pass
40 - 39.75	Pole	TP42x42x0.5	Pole	80.4%	Pass
39.75 - 34.75	Pole	TP42x42x0.5	Pole	87.4%	Pass
34.75 - 29.75	Pole	TP42x42x0.5	Pole	94.6%	Pass
29.75 - 29.5	Pole	TP42x42x0.5	Pole	95.0%	Pass
29.5 - 29.25	Pole + Reinf.	TP42x42x0.5	Pole	95.9%	Pass
29.25 - 28.25	Pole + Reinf.	TP42x42x0.5	Pole	97.4%	Pass
28.25 - 28	Pole + Reinf.	TP42x42x0.675	Pole	73.3%	Pass
28 - 23	Pole + Reinf.	TP42x42x0.675	Pole	78.9%	Pass
23 - 19.5	Pole + Reinf.	TP42x42x0.675	Pole	82.9%	Pass
19.5 - 19.25	Pole + Reinf.	TP42x42x0.725	Pole	76.7%	Pass
19.25 - 14.25	Pole + Reinf.	TP42x42x0.725	Pole	82.1%	Pass
14.25 - 9.25	Pole + Reinf.	TP42x42x0.725	Pole	87.7%	Pass
9.25 - 4.25	Pole + Reinf.	TP42x42x0.725	Pole	93.5%	Pass
4.25 - 2.75	Pole + Reinf.	TP42x42x0.725	Pole	95.2%	Pass
2.75 - 2.5	Pole + Reinf.	TP42x42x0.9	Pole	83.4%	Pass
2.5 - 2.25	Pole + Reinf.	TP42x42x1.05	Pole	75.4%	Pass
2.25 - 1.5	Pole + Reinf.	TP42x42x1.05	Pole	76.1%	Pass
1.5 - 1.25	Pole + Reinf.	TP42x42x1	Pole	80.6%	Pass
1.25 - 0	Pole + Reinf.	TP42x42x1	Pole	81.8%	Pass
				Summary	
			Pole	97.4%	Pass
			Reinforcement	88.5%	Pass
			Overall	97.4%	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
137 - 132	279	n/a	279	14.58	n/a	14.58	0.4%												
132 - 127	279	n/a	279	14.58	n/a	14.58	2.8%												
127 - 125	279	n/a	279	14.58	n/a	14.58	4.0%												
125 - 120	1942	n/a	1942	27.83	n/a	27.83	7.3%												
120 - 115	1942	n/a	1942	27.83	n/a	27.83	14.6%												
115 - 110	1942	n/a	1942	27.83	n/a	27.83	29.4%												
110 - 105	1942	n/a	1942	27.83	n/a	27.83	44.8%												
105 - 100	1942	n/a	1942	27.83	n/a	27.83	60.4%												
100 - 95	1942	n/a	1942	27.83	n/a	27.83	76.4%												
95 - 90	1942	n/a	1942	27.83	n/a	27.83	93.3%												
90 - 89.25	1942	n/a	1942	27.83	n/a	27.83	95.9%												
89.25 - 89	1944	579	2523	27.83	9.00	36.83	75.9%							72.4%					
89 - 88.75	1946	1561	3506	27.83	22.50	50.33	55.4%							51.7%					50.2%
88.75 - 85.66	1946	1561	3506	27.83	22.50	50.33	61.7%							57.5%					55.9%
85.66 - 85.41	1945	2285	4231	27.83	30.94	58.77	51.5%	64.6%						50.0%					47.9%
85.41 - 81.2	1945	2285	4231	27.83	30.94	58.77	58.8%	73.7%						57.0%					54.6%
81.2 - 80.95	1946	1561	3506	27.83	22.50	50.33	71.5%							66.6%					64.7%
80.95 - 80	1946	1561	3506	27.83	22.50	50.33	73.5%							68.5%					66.5%
80 - 79.75	6659	n/a	6659	41.97	n/a	41.97	61.8%												
79.75 - 74.75	6659	n/a	6659	41.97	n/a	41.97	71.0%												
74.75 - 69.75	6659	n/a	6659	41.97	n/a	41.97	80.6%												
69.75 - 65.5	6659	n/a	6659	41.97	n/a	41.97	89.1%												
65.5 - 65.25	6659	1433	8092	41.97	9.00	50.97	73.9%						67.2%						
65.25 - 60.25	6659	1433	8092	41.97	9.00	50.97	82.5%						75.1%						
60.25 - 58.39	6659	1433	8092	41.97	9.00	50.97	85.8%						78.1%						
58.39 - 58.14	6675	3198	9873	41.97	23.63	65.59	72.8%	69.8%					62.5%						
58.14 - 57.5	6675	3198	9873	41.97	23.63	65.59	73.8%	70.7%					63.4%						
57.5 - 57.25	6677	1651	8328	41.97	14.63	56.59	88.1%	82.9%											
57.25 - 54	6677	1651	8328	41.97	14.63	56.59	94.1%	88.5%											
54 - 53.75	6679	3868	10547	41.97	28.13	70.09	74.8%	69.2%											61.5%
53.75 - 49.5	6679	3868	10547	41.97	28.13	70.09	81.2%	75.1%											66.8%
49.5 - 49.25	6680	5556	12237	41.97	37.13	79.09	70.4%	66.2%				64.6%							59.4%
49.25 - 44.25	6680	5556	12237	41.97	37.13	79.09	77.1%	72.5%				70.8%							65.1%
44.25 - 41.5	6680	5556	12237	41.97	37.13	79.09	81.0%	76.1%				74.3%							68.3%
41.5 - 41.25	6661	3765	10426	41.97	22.50	64.47	93.0%					84.7%							81.4%
41.25 - 40	6661	3765	10426	41.97	22.50	64.47	95.0%					86.6%							83.2%
40 - 39.75	14036	n/a	14036	65.19	n/a	65.19	80.4%												
39.75 - 34.75	14036	n/a	14036	65.19	n/a	65.19	87.4%												
34.75 - 29.75	14036	n/a	14036	65.19	n/a	65.19	94.6%												
29.75 - 29.5	14036	n/a	14036	65.19	n/a	65.19	95.0%												
29.5 - 29.25	14044	129	14173	65.19	4.50	69.69	95.9%									70.5%			
29.25 - 28.25	14044	129	14173	65.19	4.50	69.69	97.4%									71.6%			
28.25 - 28	14040	4725	18765	65.19	28.88	94.06	73.3%								54.4%				56.1%
28 - 23	14040	4725	18765	65.19	28.88	94.06	78.9%								58.6%				60.5%
23 - 19.5	14040	4725	18765	65.19	28.88	94.06	82.9%								61.6%				63.6%
19.5 - 19.25	14036	6116	20152	65.19	37.88	103.06	76.7%				69.0%				57.9%				57.8%
19.25 - 14.25	14036	6116	20152	65.19	37.88	103.06	82.1%				73.9%				62.0%				61.9%
14.25 - 9.25	14036	6116	20152	65.19	37.88	103.06	87.7%				79.0%				66.2%				66.2%
9.25 - 4.25	14036	6116	20152	65.19	37.88	103.06	93.5%				84.1%				70.6%				70.5%
4.25 - 2.75	14036	6116	20152	65.19	37.88	103.06	95.2%				85.7%				71.9%				71.8%
2.75 - 2.5	14179	10510	24689	65.19	47.25	112.44	83.4%				68.8%					68.4%			68.0%
2.5 - 2.25	14496	14292	28788	65.19	54.68	119.87	75.4%			42.3%	61.6%								64.0%
2.25 - 1.5	14496	14292	28788	65.19	54.68	119.87	76.1%			42.7%	62.2%								64.6%
1.5 - 1.25	14477	12735	27212	65.19	45.68	110.87	80.6%			46.2%									68.3%
1.25 - 0	14477	12735	27212	65.19	45.68	110.87	81.8%			46.9%									69.4%

Note: Section capacity checked in 5 degree increments.

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

Site Data

BU#: 876333
 Site Name: Creative Dimensions
 App #:

Reactions		
Mu	36	ft-kips
Axial, Pu:	4.9	kips
Shear, Vu:	7.5	kips
Elevation:	120	feet

Bolt Threads:
N-Included
$V_n = \phi(0.45 \cdot A_b \cdot F_u)$
$\phi = 0.75, \phi \cdot V_n$ (kips):
17.89

Pole Manufacturer: Other

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

Bolt Data

Qty:	8	
Diameter (in.):	0.75	Bolt Fu: 120
Bolt Material:	A325	Bolt Fy: 92
N/A:	0	<-- Disregard
N/A:	0	<-- Disregard
Circle (in.):	25	

Flange Bolt Results

Bolt Tension Capacity, $\phi \cdot T_n, B1$: 30.06 kips
 Adjusted $\phi \cdot T_n$ (due to $V_u = V_u / Q_t$), **B**: 30.02 kips
 Max Bolt directly applied T_u : 8.03 Kips
 Min. PL "tc" for **B** cap. **w/o** Pry: 0.323 in
 Min PL "treq" for actual **T w/** Pry: 0.128 in
 Min PL "t1" for actual **T w/o** Pry: 0.167 in
 T allowable w/o Prying: 30.06 kips $\alpha < 0$ case
 Prying Force, q: 0.00 kips
 Total Bolt Tension = $T_u + q$: 8.03 kips
 Non-Prying Bolt Stress Ratio, T_u / B : 26.7% **Pass**

Non-Rigid
$\phi \cdot T_n$
$\phi T_n [(1 - (V_u / \phi V_n))^2]^{0.5}$

Plate Data

Diam:	32	in
Thick, t:	0.75	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	2.75	in

Exterior Flange Plate Results

Flexural Check
 Compression Side Plate Stress: 4.7 ksi
 Allowable Plate Stress: 32.4 ksi
 Compression Plate Stress Ratio: 14.5% **Pass**
No Prying
 Tension Side Stress Ratio, $(treq/t)^2$: 2.9% **Pass**

Non-Rigid
TIA G
$\phi \cdot F_y$
Comp. Y.L. Length:
7.00

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

n/a

Stiffener Results

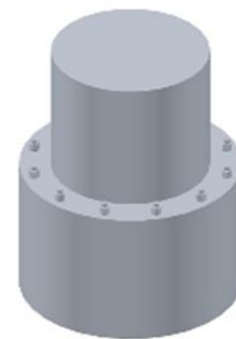
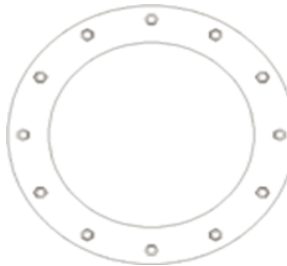
Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $f_b / F_b + (f_v / F_v)^2$: n/a
 Plate Tension+Shear, $f_t / F_t + (f_v / F_v)^2$: n/a
 Plate Comp. (AISC Bracket): n/a

Pole Results

Pole Punching Shear Check: n/a

Pole Data

Diam:	24	in
Thick:	0.375	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None



* 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

BOLTED FLANGE JUMP ANALYSIS PER TIA-222-G & AISC 13TH ED. (BLACK)

General Parameters & Loading		
Flange Elevation:	80.00	ft
TIA Reference Standard:	TIA-222-G	
AISC Manual:	13th Ed. (Black)	
Method:	LRFD	
ASD Stress Increase, ASIF:	1.00	
Moment, Muf:	686.00	k-ft
Axial, Puf:	16.80	kips
Shear, Vf:	20.00	kips

Pole Parameters	Upper Pole		Lower Pole	
	Round	Round		
Number of Sides	4	4		
Pole Diameter, Dp:	24.00	36.00		in
Pole Thickness, tp:	0.3750	0.3750		in
Pole Fy:	35	35		ksi
Pole Fu:	60	60		ksi
Flange Diameter, Df:	35.00	36.00		in
Flange Thickness, tf:	1.88	1.88		in

Flange Parameters		
Number of Bolt Circles:	(1) Bolt Circle	
	Bolt Circle 1	Bolt Circle 2
Qty. Bolts:	24	
Bolt Diameter:	0.75	
Bolt Circle:	28.63	
Bolt Spacing:	Symmetric	Symmetric
Start Angle, for Symmetric:	0.00	
Bolt Area, Ag:	0.4418	0.0000
		in ²
	Thickness	Width
Top Flange Stiffener Parameters		Height
Bot. Flange Stiffener Parameters		

	Bolt Circle 1	Bolt Circle 2	
Max. Tension:	10.88	0.00	kips
Max. Net Tension:	10.69	0.00	kips
Max. Net Compression:	11.08	0.00	kips
Moment to Bolt Circle:	155.78	0.00	k-ft
Axial to Bolt Circle:	4.74	0.00	kips
Shear to Bolt Circle:	20.00	0.00	kips
Equivalent Bolt Circle:	28.63	0.00	in

Shaft Reinforcing Parameters				
	Generation 1	Generation 2	Generation 3	Generation 4
Top Condition	Existing	Design		
Top Shaft Reinf. Designation	CCI-040075	CCI-045100		
Top Shaft Reinf. Thickness				in
Top Shaft Reinf. Width				in
Top Shaft Reinf. Term. Bolts	10	12		
Top Shaft Reinf. Bolt Spacing	3.00	3.00		in
Top Shaft Reinf. End Spacing	3.00	3.00		in
Top Shaft Reinf. Start Elevation		80.50		ft
Bottom Condition				
Bottom Shaft Reinf. Designation				
Bottom Shaft Reinf. Thickness				in
Bottom Shaft Reinf. Width				in
Bottom Shaft Reinf. Term. Bolts				
Bottom Shaft Reinf. Bolt Spacing				in
Bottom Shaft Reinf. End Spacing				in
Bottom Shaft Reinf. End Elevation				ft

Bridge Stiffener Parameters				
	Generation 1	Generation 2	Generation 3	Generation 4
Reference Document	PMI 5781873			
Analysis, Design, New, Ignore	Analysis	Design		
Jump Plate Designation	CCI-045100	CCI-045100		
Jump Plate Width Override				in
Jump Plate Thickness Override				in
Clear Distance from Flange	0.00	0.00		in
Jump Plate Fy	65	65		ksi
Jump Plate Fu	80	80		ksi
Bolt Type	EXISTING AJAX	APPROVED BLIND BOLT		
Bolt Tension Method	Case 1	Case 1		
Top Bolt Quantity	10	12		
Top Bolt Spacing	3.00	3.00		in
Top Bolt Edge Distance	3.00	3.00		in
Bottom Bolt Quantity	10	8		
Bottom Bolt Spacing	3.00	3.00		in
Bottom Bolt Edge Distance	3.00	3.00		in
Unbraced Length	18.00	18.00		in
Unbraced Length Override	18.00	18.00		in
K	0.80	0.80		
Stiffener Circle	37.00	37.00		in
Clearance Check	OK	OK		
Qty. Jump Plates	3	3		in
Location 1	20	100		deg
Location 2	128	230		deg
Location 3	265	340		deg
Location 4				deg
Location 5				deg
Location 6				deg

BOLTED FLANGE JUMP ANALYSIS PER TIA-222-G & AISC 13TH ED. (BLACK)

Jump Plate Analysis

	Generation 1	Generation 2	Generation 3	Generation 4	
Applied Axial Load (Pu)	130.59	129.50			kips
Hole Diameter	1.19	1.19			in
Gross Area (Ag)	4.50	4.50			in ²
Net Area (An)	3.31	3.31			in ²
b/t Ratio	4.50	4.50			
Radius of Gyration (r)	0.29	0.29			in
K L / r	49.88	49.88			
Q (Where Qa = 1.0)	1.00	1.00			
ASIF Value	1.00	1.00			
Critical Stress (Fa or Fcr)	51.31	51.31			ksi
Nominal Compressive Capacity	207.80	207.80			kips
Nominal Tensile Capacity	198.75	198.75			kips
Controlling Stress Ratio	65.7%	65.2%			

Bolt Analysis

	Generation 1	Generation 2	Generation 3	Generation 4	
Top Bolt Shear Load (Vu)	13.059	16.563			kips
Top Bolt Tension Load (Tu)	8.961	9.708			kips
Top Eccentricity (e)	6.500	6.500			in
Top Bolt Bearing Capacity (Rn)	45.315	45.315			kips
Top Bolt Shear Capacity (Vn)	37.000	37.000			kips
Top Bolt Tension Capacity (Tn)	30.000	13.500			kips
Top Connection Length Reduction	N/a	N/a			
Top Bolt Combined Stress Ratio	21.4%	71.7%			

Bottom Bolt Shear Load (Vu)	13.059	24.844			kips
Bottom Bolt Tension Load (Tu)	0.689	1.579			kips
Bottom Eccentricity (e)	0.500	0.500			in
Bottom Bolt Bearing Capacity (Rn)	45.315	45.315			kips
Bottom Bolt Shear Capacity (Vn)	37.000	37.000			kips
Bottom Bolt Tension Capacity (Tn)	30.000	13.500			kips
Bottom Connection Length Reduction	N/a	N/a			
Bottom Bolt Combined Stress Ratio	12.5%	46.5%			

Analysis Summary

	Generation 1	Generation 2	Generation 3	Generation 4
JUMP PLATE COMBINED STRESS RATIO	65.7%	65.2%		
TOP BOLT COMBINED STRESS RATIO	21.4%	71.7%		
BOTTOM BOLT COMBINED STRESS RATIO	12.5%	46.5%		

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

Site Data

BU#: 876333
 Site Name: Creative Dimensions
 App #:

Reactions		
Mu	155.78	ft-kips
Axial, Pu:	4.74	kips
Shear, Vu:	20	kips
Elevation:	80	feet

Bolt Threads:
N-Included
$V_n = \phi(0.45 \cdot A_b \cdot F_u)$
$\phi = 0.75, \phi \cdot V_n$ (kips):
17.89

Pole Manufacturer: Other

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

Bolt Data

Qty:	24	
Diameter (in.):	0.75	Bolt Fu: 120
Bolt Material:	A325	Bolt Fy: 92
N/A:	0	<-- Disregard
N/A:	0	<-- Disregard
Circle (in.):	28.625	

Flange Bolt Results

Bolt Tension Capacity, $\phi \cdot T_n, B1$: 30.06 kips
 Adjusted $\phi \cdot T_n$ (due to $V_u = V_u / Q_t$), **B**: 30.03 kips
 Max Bolt directly applied T_u : 10.69 Kips
 Min. PL "tc" for **B** cap. **w/o** Pry: 1.191 in
 Min PL "treq" for actual **T w/** Pry: 0.538 in
 Min PL "t1" for actual **T w/o** Pry: 0.710 in
 T allowable w/o Prying: 30.06 kips $\alpha < 0$ case
 Prying Force, q: 0.00 kips
 Total Bolt Tension= $T_u + q$: 10.69 kips
 Non-Prying Bolt Stress Ratio, T_u / B : 35.6% **Pass**

Rigid
$\phi \cdot T_n$
$\phi T_n [(1 - (V_u / \phi V_n)^2)^{0.5}]$

Plate Data

Diam:	35	in
Thick, t:	1.875	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.14	in

Exterior Flange Plate Results

Flexural Check
 Compression Side Plate Stress: 5.3 ksi
 Allowable Plate Stress: 32.4 ksi
 Compression Plate Stress Ratio: 16.5% **Pass**
No Prying
 Tension Side Stress Ratio, $(treq/t)^2$: 8.2% **Pass**

Rigid
TIA G
$\phi \cdot F_y$
Comp. Y.L. Length:
15.60

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

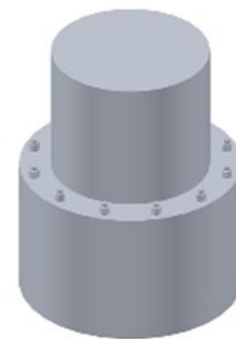
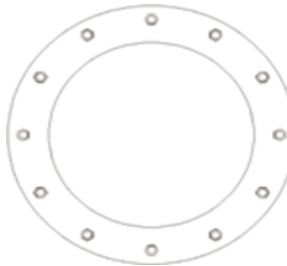
n/a

Stiffener Results

Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $f_b / F_b + (f_v / F_v)^2$: n/a
 Plate Tension+Shear, $f_t / F_t + (f_v / F_v)^2$: 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#: 876333
 Site Name: Creative Dimensions
 App #:

Manufacturer: Other

Bolt Data

Qty:	24	Bolt Fu:	120
Diam:	0.75	Bolt Fy:	92
Bolt Material:	A325		
N/A:	0	<-- Disregard	
N/A:	0	<-- Disregard	
Circle:	28.625	in	

Reactions

Moment:	155.78	ft-kips
Axial:	4.74	kips
Shear:	20	kips
Exterior Flange Run, T+q:	10.69	kips

Bolt Threads:

N-Included
$V_n = \phi(0.45 \cdot A_b \cdot F_u)$
$\phi = 0.75, \phi \cdot V_n$ (kips):
17.89

Elevation: 80 feet

Interior Flange Bolt Results

Maximum Bolt Tension, Tu: 10.7 Kips, Ext. Flange Tu+q
 Adjusted $\phi \cdot T_n$ (due to $V_u = V_u / Q_t$), I: 30.0 Kips
 Bolt Stress Ratio: 35.6% **Pass**

Plate Data

Plate Outer Diam:	35.25	in
Plate Inner Diam:	24.25	in (Hole @ Ctr)
Thick:	1.875	in
Grade:	36	ksi
Effective Width:	4.61	in

Interior Flange Plate Results

Controlling Bolt Axial Force: 11.1 Kips, Ext. Cu=Interior Cu
 Plate Stress: 9.1 ksi
 Allowable Plate Stress, $\phi \cdot F_y$: 32.4 ksi
 Plate Stress Ratio: 27.9% **Pass**

Flexural Check

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

n/a

Stiffener Results

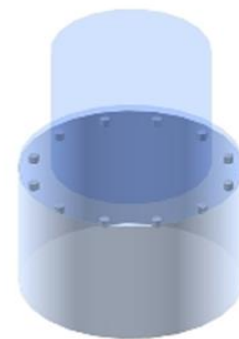
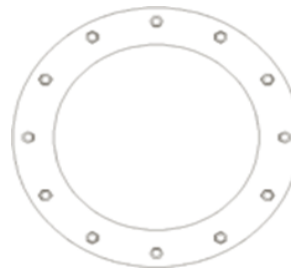
Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $f_b / F_b + (f_v / F_v)^2$: n/a
 Plate Tension+Shear, $f_t / F_t + (f_v / F_v)^2$: n/a
 Plate Comp. (AISC Bracket): n/a

Pole Results

Pole Punching Shear Check: n/a

Pole Data

Pole OuterDiam:	36	in
Thick:	0.375	in
Pole Inner Diam:	35.25	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	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

BOLTED FLANGE JUMP ANALYSIS PER TIA-222-G & AISC 13TH ED. (BLACK)

General Parameters & Loading		
Flange Elevation:	40.00	ft
TIA Reference Standard:	TIA-222-G	
AISC Manual:	13th Ed. (Black)	
Method:	LRFD	
ASD Stress Increase, ASIF:	1.00	
Moment, Muf:	1661.00	k-ft
Axial, Puf:	28.35	kips
Shear, Vf:	28.50	kips

Pole Parameters			
	Upper Pole	Lower Pole	
Number of Sides	Round	Round	
Pole Diameter, Dp:	36.00	42.00	in
Pole Thickness, tp:	0.3750	0.5000	in
Pole Fy:	35	35	ksi
Pole Fu:	60	60	ksi
Flange Diameter, Df:	40.75	42.00	in
Flange Thickness, tf:	1.75	1.75	in

Flange Parameters			
Number of Bolt Circles:	(1) Bolt Circle		
	Bolt Circle 1	Bolt Circle 2	
Qty. Bolts:	32		
Bolt Diameter:	0.75		in
Bolt Circle:	38.50		in
Bolt Spacing:	Symmetric	Symmetric	
Start Angle, for Symmetric:	0.00		degrees
Bolt Area, Ag:	0.4418	0.0000	in ²
	Thickness	Width	Height
Top Flange Stiffener Parameters			
Bot. Flange Stiffener Parameters			

	Bolt Circle 1	Bolt Circle 2	
Max. Tension:	16.36	0.00	kips
Max. Net Tension:	16.12	0.00	kips
Max. Net Compression:	16.60	0.00	kips
Moment to Bolt Circle:	419.81	0.00	k-ft
Axial to Bolt Circle:	7.71	0.00	kips
Shear to Bolt Circle:	28.50	0.00	kips
Equivalent Bolt Circle:	38.50	0.00	in

Shaft Reinforcing Parameters					
	Generation 1	Generation 2	Generation 3	Generation 4	
Top Condition	Existing	Design			
Top Shaft Reinf. Designation	CCI-040075	CCI-045100			
Top Shaft Reinf. Thickness					in
Top Shaft Reinf. Width					in
Top Shaft Reinf. Term. Bolts	14	10			
Top Shaft Reinf. Bolt Spacing	3.00	3.00			in
Top Shaft Reinf. End Spacing	3.00	3.00			in
Top Shaft Reinf. Start Elevation		40.50			ft
Bottom Condition					
Bottom Shaft Reinf. Designation					
Bottom Shaft Reinf. Thickness					in
Bottom Shaft Reinf. Width					in
Bottom Shaft Reinf. Term. Bolts					
Bottom Shaft Reinf. Bolt Spacing					in
Bottom Shaft Reinf. End Spacing					in
Bottom Shaft Reinf. End Elevation					ft

Bridge Stiffener Parameters					
	Generation 1	Generation 2	Generation 3	Generation 4	
Reference Document	PMI 5781873				
Analysis, Design, New, Ignore	Analysis	Design			
Jump Plate Designation	CCI-065125	CCI-045100			
Jump Plate Width Override					in
Jump Plate Thickness Override					in
Clear Distance from Flange	0.00	0.00			in
Jump Plate Fy	65	65			ksi
Jump Plate Fu	80	80			ksi
Bolt Type	EXISTING AJAX	APPROVED BLIND BOLT			
Bolt Tension Method	Case 1	Case 1			
Top Bolt Quantity	14	10			
Top Bolt Spacing	3.00	3.00			in
Top Bolt Edge Distance	3.00	3.00			in
Bottom Bolt Quantity	14	8			
Bottom Bolt Spacing	3.00	3.00			in
Bottom Bolt Edge Distance	3.00	3.00			in
Unbraced Length	18.00	18.00			in
Unbraced Length Override	18.00	18.00			in
K	0.80	0.80			
Stiffener Circle	43.25	43.00			in
Clearance Check	OK	OK			
Qty. Jump Plates	3	3			in
Location 1	24	110			deg
Location 2	135	220			deg
Location 3	248	340			deg
Location 4					deg
Location 5					deg
Location 6					deg

BOLTED FLANGE JUMP ANALYSIS PER TIA-222-G & AISC 13TH ED. (BLACK)

Jump Plate Analysis

	Generation 1	Generation 2	Generation 3	Generation 4	
Applied Axial Load (Pu)	311.46	183.93			kips
Hole Diameter	1.19	1.19			in
Gross Area (Ag)	8.13	4.50			in ²
Net Area (An)	6.64	3.31			in ²
b/t Ratio	5.20	4.50			
Radius of Gyration (r)	0.36	0.29			in
K L / r	39.91	49.88			
Q (Where Qa = 1.0)	1.00	1.00			
ASIF Value	1.00	1.00			
Critical Stress (Fa or Fcr)	55.87	51.31			ksi
Nominal Compressive Capacity	408.54	207.80			kips
Nominal Tensile Capacity	398.44	198.75			kips
Controlling Stress Ratio	78.2%	92.5%			

Bolt Analysis

	Generation 1	Generation 2	Generation 3	Generation 4	
Top Bolt Shear Load (Vu)	22.247	19.875			kips
Top Bolt Tension Load (Tu)	6.347	7.344			kips
Top Eccentricity (e)	3.625	3.500			in
Top Bolt Bearing Capacity (Rn)	45.315	45.315			kips
Top Bolt Shear Capacity (Vn)	37.000	37.000			kips
Top Bolt Tension Capacity (Tn)	30.000	13.500			kips
Top Connection Length Reduction	N/a	N/a			
Top Bolt Combined Stress Ratio	40.6%	58.4%			
Bottom Bolt Shear Load (Vu)	22.247	24.844			kips
Bottom Bolt Tension Load (Tu)	1.068	1.542			kips
Bottom Eccentricity (e)	0.625	0.500			in
Bottom Bolt Bearing Capacity (Rn)	60.420	60.420			kips
Bottom Bolt Shear Capacity (Vn)	37.000	37.000			kips
Bottom Bolt Tension Capacity (Tn)	30.000	18.000			kips
Bottom Connection Length Reduction	N/a	N/a			
Bottom Bolt Combined Stress Ratio	36.3%	45.8%			

Analysis Summary

	Generation 1	Generation 2	Generation 3	Generation 4
JUMP PLATE COMBINED STRESS RATIO	78.2%	92.5%		
TOP BOLT COMBINED STRESS RATIO	40.6%	58.4%		
BOTTOM BOLT COMBINED STRESS RATIO	36.3%	45.8%		

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

Site Data

BU#: 876333
 Site Name: Creative Dimensions
 App #:

Reactions		
Mu	419.81	ft-kips
Axial, Pu:	7.71	kips
Shear, Vu:	28.5	kips
Elevation:	40	feet

Bolt Threads:
N-Included
$V_n = \phi(0.45 \cdot A_b \cdot F_u)$
$\phi = 0.75, \phi \cdot V_n$ (kips):
17.89

Pole Manufacturer: Other

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

Bolt Data

Qty:	32	
Diameter (in.):	0.75	Bolt Fu: 120
Bolt Material:	A325	Bolt Fy: 92
N/A:	0	<-- Disregard
N/A:	0	<-- Disregard
Circle (in.):	38.5	

Flange Bolt Results

Bolt Tension Capacity, $\phi \cdot T_n, B1$: 30.06 kips
 Adjusted $\phi \cdot T_n$ (due to $V_u = V_u / Q_t$), **B**: 30.02 kips
 Max Bolt directly applied T_u : 16.12 Kips
 Min. PL "tc" for **B** cap. **w/o** Pry: 0.754 in
 Min PL "treq" for actual **T w/** Pry: 0.415 in
 Min PL "t1" for actual **T w/o** Pry: 0.553 in
 T allowable w/o Prying: 30.06 kips $\alpha < 0$ case
 Prying Force, q: 0.00 kips
 Total Bolt Tension= $T_u + q$: 16.12 kips
 Non-Prying Bolt Stress Ratio, T_u / B : 53.7% **Pass**

Rigid
$\phi \cdot T_n$
$\phi T_n [(1 - (V_u / \phi V_n))^2]^{0.5}$

Plate Data

Diam:	40.75	in
Thick, t:	1.75	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.53	in

Exterior Flange Plate Results

Flexural Check
 Compression Side Plate Stress: 4.9 ksi
 Allowable Plate Stress: 32.4 ksi
 Compression Plate Stress Ratio: 15.2% **Pass**
No Prying
 Tension Side Stress Ratio, $(treq/t)^2$: 5.6% **Pass**

Rigid
TIA G
$\phi \cdot F_y$
Comp. Y.L. Length:
13.65

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

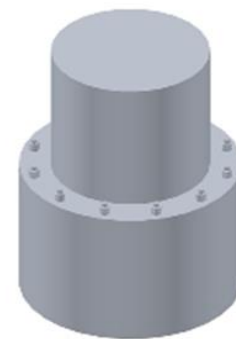
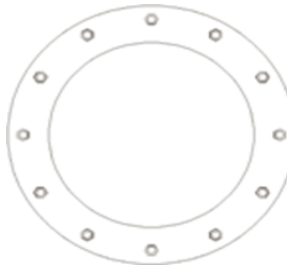
n/a

Stiffener Results

Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $f_b / F_b + (f_v / F_v)^2$: n/a
 Plate Tension+Shear, $f_t / F_t + (f_v / F_v)^2$: 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#: 876333
 Site Name: Creative Dimensions
 App #:

Manufacturer: Other

Bolt Data

Qty:	32		
Diam:	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	0	<-- Disregard	
N/A:	0	<-- Disregard	
Circle:	38.5	in	

Plate Data

Plate Outer Diam:	41	in
Plate Inner Diam:	36.25	in (Hole @ Ctr)
Thick:	1.75	in
Grade:	36	ksi
Effective Width:	4.03	in

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:	0	
Groove Depth:	0	in **
Groove Angle:	0	degrees
Fillet H. Weld:	0	<-- Disregard
Fillet V. Weld:	0	in
Width:	0	in
Height:	0	in
Thick:	0	in
Notch:	0	in
Grade:	0	ksi
Weld str.:	0	ksi

Pole Data

Pole OuterDiam:	42	in
Thick:	0.5	in
Pole Inner Diam:	41	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi

Reactions

Moment:	419.81	ft-kips
Axial:	7.71	kips
Shear:	28.5	kips
Exterior Flange Run, T+q:	16.12	kips

Bolt Threads:

N-Included
$V_n = \phi(0.45 \cdot A_b \cdot F_u)$
$\phi = 0.75, \phi \cdot V_n$ (kips):
17.89

Elevation: 40 feet

Interior Flange Bolt Results

Maximum Bolt Tension, Tu: 16.1 Kips, Ext. Flange Tu+q
 Adjusted $\phi \cdot T_n$ (due to $V_u = V_u / Q_t$), I: 30.0 Kips
 Bolt Stress Ratio: 53.7% **Pass**

Interior Flange Plate Results

Controlling Bolt Axial Force: 16.6 Kips, Ext. Cu=Interior Cu
 Plate Stress: 6.7 ksi
 Allowable Plate Stress, $\phi \cdot F_y$: 32.4 ksi
 Plate Stress Ratio: 20.8% **Pass**

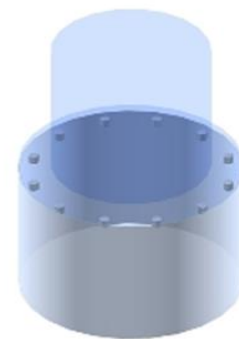
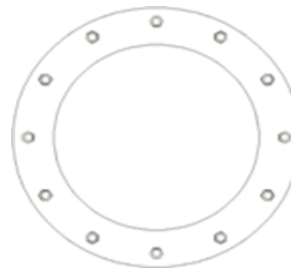
n/a

Stiffener Results

Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $f_b / F_b + (f_v / F_v)^2$: n/a
 Plate Tension+Shear, $f_t / F_t + (f_v / F_v)^2$: 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

Asymmetric Anchor Rod Analysis

Moment =	2946	k-ft	TIA Ref.	G	Location =	Base Plate	
Axial =	46.0	kips	ASIF =	1.0000	η =	0.55	for BP, Rev. G Sect. 4.9.9
Shear =	35.0	kips	Max Ratio =	100.0%	Threads =	N/A	for FP, Rev. G
Anchor Qty =	28						

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

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Area Override, in ²	Area, in ²	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	2.000	Other	36	58	0.0	48.00	0.00	3.14	97.43	94.12	99.72	0.00	116.00	86.0%
2	2.000	Other	36	58	18.0	48.00	0.00	3.14	100.65	97.34	102.94	0.00	116.00	88.7%
3	2.000	Other	36	58	36.0	48.00	0.00	3.14	104.49	101.18	106.78	0.00	116.00	92.0%
4	2.000	Other	36	58	54.0	48.00	0.00	3.14	107.67	104.36	109.96	0.00	116.00	94.8%
5	2.000	Other	36	58	72.0	48.00	0.00	3.14	109.19	105.88	111.48	0.00	116.00	96.1%
6	2.000	Other	36	58	90.0	48.00	0.00	3.14	108.55	105.24	110.83	0.00	116.00	95.5%
7	2.000	Other	36	58	108.0	48.00	0.00	3.14	105.85	102.54	108.14	0.00	116.00	93.2%
8	2.000	Other	36	58	126.0	48.00	0.00	3.14	101.83	98.52	104.12	0.00	116.00	89.8%
9	2.000	Other	36	58	144.0	48.00	0.00	3.14	97.69	94.38	99.98	0.00	116.00	86.2%
10	2.000	Other	36	58	162.0	48.00	0.00	3.14	94.74	91.43	97.03	0.00	116.00	83.6%
11	2.000	Other	36	58	180.0	48.00	0.00	3.14	93.88	90.57	96.17	0.00	116.00	82.9%
12	2.000	Other	36	58	198.0	48.00	0.00	3.14	95.16	91.85	97.45	0.00	116.00	84.0%
13	2.000	Other	36	58	216.0	48.00	0.00	3.14	97.73	94.42	100.02	0.00	116.00	86.2%
14	2.000	Other	36	58	234.0	48.00	0.00	3.14	100.35	97.04	102.64	0.00	116.00	88.5%
15	2.000	Other	36	58	252.0	48.00	0.00	3.14	101.94	98.63	104.23	0.00	116.00	89.9%
16	2.000	Other	36	58	270.0	48.00	0.00	3.14	101.95	98.64	104.24	0.00	116.00	89.9%
17	2.000	Other	36	58	288.0	48.00	0.00	3.14	100.46	97.15	102.75	0.00	116.00	88.6%
18	2.000	Other	36	58	306.0	48.00	0.00	3.14	98.20	94.89	100.49	0.00	116.00	86.6%
19	2.000	Other	36	58	324.0	48.00	0.00	3.14	96.31	93.00	98.60	0.00	116.00	85.0%
20	2.000	Other	36	58	342.0	48.00	0.00	3.14	95.87	92.56	98.16	0.00	116.00	84.6%
21							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
22	2.000	A193 Gr B7	105	125	10.0	54.00	0.00	3.14	110.95	107.64	113.24	249.00	249.00	45.5%
23	2.000	A193 Gr B7	105	125	100.0	54.00	0.00	3.14	120.09	116.78	122.38	249.00	249.00	49.1%
24	2.000	A193 Gr B7	105	125	190.0	54.00	0.00	3.14	106.24	102.93	108.53	249.00	249.00	43.6%
25	2.000	A193 Gr B7	105	125	280.0	54.00	0.00	3.14	114.09	110.78	116.38	249.00	249.00	46.7%
26	2.250	A193 Gr B7	105	125	152.0	54.50	0.00	3.98	137.85	133.66	140.75	0.00	325.00	43.3%
27	2.250	A193 Gr B7	105	125	244.0	54.50	0.00	3.98	146.08	141.89	148.98	0.00	325.00	45.8%
28	2.250	A193 Gr B7	105	125	350.0	54.50	0.00	3.98	137.91	133.72	140.81	0.00	325.00	43.3%

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#: 876333
Site Name: <i>Creative Dimensions</i>
App #:
Pole Manufacturer: <i>Other</i>

Anchor Rod Data

Qty:	20	
Diam:	2	in
Rod Material:	Other	
Strength (Fu):	58	ksi
Yield (Fy):	36	ksi
Bolt Circle:	48	in

Plate Data

Diam:	54	in
Thick:	2	in
Grade:	36	ksi
Single-Rod B-eff:	6.60	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

Diam:	42	in
Thick:	0.5	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions			Reactions adjusted to account for additional anchor rods
Mu:	2150.8	ft-kips	
Axial, Pu:	33.1	kips	
Shear, Vu:	25.2	kips	
Eta Factor, η	0.55	TIA G (Fig. 4-4)	

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

Anchor Rod Results

Max Rod (Cu+ Vu/η): 111.5 Kips
 Allowable Axial, Φ*Fu*Anet: 116.0 Kips
 Anchor Rod Stress Ratio: 96.1% **Pass**

Rigid
AISC LRFD
φ*Tn

Base Plate Results

Base Plate Stress: 30.4 ksi
 Allowable Plate Stress: 32.4 ksi
 Base Plate Stress Ratio: 93.9% **Pass**

Flexural Check

Rigid
AISC LRFD
φ*Fy
Y.L. Length: 23.24

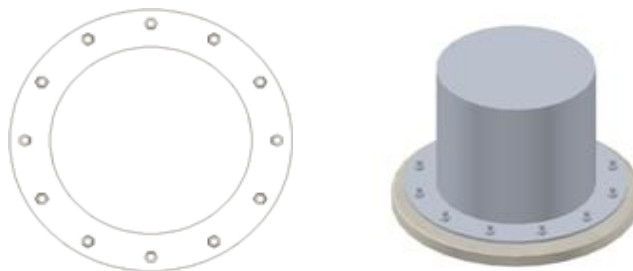
n/a

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

Drilled Pier Foundation



BU # :	876333
Site Name:	Creative Dimensions
App. Number:	

TIA-222 Revisor:	G
Tower Type:	Monopole

Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	2946	
Axial Force (kips)	46	
Shear Force (kips)	35	

Material Properties	
Concrete Strength, f'c:	4 ksi
Rebar Strength, Fy:	60 ksi

Pier Design Data	
Depth	30 ft
Ext. Above Grade	0.5 ft
Pier Section 1	
<i>From 0.5' above grade to 30' below grade</i>	
Pier Diameter	6.5 ft
Rebar Quantity	16
Rebar Size	11
Clear Cover to Ties	4 in
Tie Size	5

Analysis Results		
Soil Lateral Capacity	Compression	Uplift
D _{v=0} (ft from TOC)	7.18	-
Soil Safety Factor	4.39	-
Max Moment (kip-ft)	3192.71	-
Rating	30.3%	-
Soil Vertical Capacity	Compression	Uplift
Skin Friction (kips)	278.08	-
End Bearing (kips)	1459.64	-
Weight of Concrete (kips)	127.51	-
Total Capacity (kips)	1737.72	-
Axial (kips)	173.51	-
Rating	10.0%	-
Reinforced Concrete Capacity	Compression	Uplift
Critical Depth (ft from TOC)	6.63	-
Critical Moment (kip-ft)	3190.79	-
Critical Moment Capacity	3849.36	-
Rating	82.9%	-
Soil Interaction Rating		30.3%
Structural Foundation Rating		82.9%

Soil Profile			
Groundwater Depth	8	ft	# of Layers
			11

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	113	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	3.33	1.33	112	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	3.33	4	0.67	112	150	0	34	0.000	0.000	0.16	0.16			Cohesionless
4	4	6	2	113	150	0	39	0.000	0.000	0.31	0.31			Cohesionless
5	6	8	2	113	150	0	37	0.000	0.000	0.41	0.41			Cohesionless
6	8	10	2	50.6	87.6	0	37	0.000	0.000	0.50	0.50			Cohesionless
7	10	12	2	49.6	87.6	0	35	0.00	0.00	0.51	0.51			Cohesionless
8	12	14	2	49.6	87.6	0	34	0.00	0.00	0.54	0.54			Cohesionless
9	14	20	6	50.6	87.6	0	35	0.00	0.00	0.66	0.66			Cohesionless
10	20	25	5	51.6	87.6	0	41	0.00	0.00	0.96	0.96			Cohesionless
11	25	30	5	50.6	87.6	0	36	0.00	0.00	0.95	0.95	58.65		Cohesionless

APPENDIX D
MODIFICATION DRAWINGS

MODIFIED 137'-0" MONOPOLE

BU #876333; CREATIVE DIMENSIONS

10 SPARKS ST.
 PLAINVILLE, CONNECTICUT 06062
 HARTFORD COUNTY
 LAT: 41° 40' 24.52"; LONG: -72° 51' 16.17"
 ORDER: 421157 REV. 1; WO: 1578501

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PJF PAUL J. FORD & COMPANY
 250 E Broad St, Ste 600 - Columbus, OH 43215
 Phone 614.221.6679 www.pauljford.com
CROWN CASTLE
 3530 TORINGDON WAT SUITE 300 CHARLOTTE, NC 28277
 PH: (774) 416-2000

PROJECT CONTACTS

STRUCTURE OWNER:
 CROWN CASTLE
 MOD PM: DAN VADNEY AT DAN.VADNEY@CROWNCastle.COM
 PH: (518) 373-3510
 MOD CM: JASON D'AMICO AT JASON.DAMICO@CROWNCastle.COM
 PH: (860) 209-0104

ENGINEER OF RECORD:
 PJFMOD@PAULJFORD.COM

THIS PROJECT INCLUDES THE FOLLOWING ITEMS

REMOVE EXISTING SHAFT REINFORCING AS REQUIRED
SHAFT REINFORCING
FIELD WELDED STIFFENERS
BOLTED FLANGE JUMPS
OBSTRUCTION SIGNAGE
REMOVAL OF EXISTING BASE PLATE GROUT
INSTALLATION OF NEW BASE PLATE GROUT

SHEET INDEX

SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET
MI-1	MI CHECKLIST
N-1	GENERAL NOTES
B-1	FORGBolt® DETAILS
B-2	NEXGEN2™ BOLT DETAIL
B-3	AJAX ONESIDE™ BOLT DETAIL
S-1	MONOPOLE PROFILE
S-2	BOLTED FLANGE JUMP DETAILS
S-3	BOLTED FLANGE JUMP DETAILS
S-4	BASE PLATE DETAILS
S-5	TRANSITION STIFFENER DETAILS


WIND DESIGN DATA

REFERENCE STANDARD	ANSI/TIA-222-G-2-2009
LOCAL CODE	2016 CSBC
ULTIMATE WIND SPEED (3-SECOND GUST)	125 MPH
CONVERTED NOMINAL WIND SPEED (3-SECOND GUST)	97 MPH
ICE THICKNESS	1.0 IN
ICE WIND SPEED	50 MPH
SERVICE WIND SPEED	60 MPH
RISK CATEGORY	II
EXPOSURE CATEGORY	C
Kzt	1.0

TOWER MANUFACTURER: PITTSBURGH MONOPOLE DIVISION
 TOWER MANUFACTURER #: 367


THE ASSOCIATED FAILING SA WO NUMBER FOR THIS PROJECT IS 1519272

QUALIFIED ENGINEERING SERVICES ARE AVAILABLE FROM PAUL J. FORD & COMPANY TO ASSIST CONTRACTORS IN CLASS IV RIGGING PLAN REVIEWS. FOR REQUESTED QUALIFIED ENGINEERING SERVICES, PLEASE CONTACT RIGGING@PAULJFORD.COM.



SAFETY CLIMB: "LOOK UP"

THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION AND INSPECTION. TOWER REINFORCEMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO; PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, OR IMPACT TO THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS



J. Jacobs

JUL 16 2018

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT (800) 788-7011.

REV	DATE	DESCRIPTION
-----	------	-------------

BU #876333; CREATIVE DIMENSIONS
 PLAINVILLE, CONNECTICUT
 MODIFIED 137'-0" MONOPOLE

PROJECT No:	37518-2227.001.7700
DRAWN BY:	IM
DESIGNED BY:	SK
CHECKED BY:	BKK
DATE:	7-16-2018

TITLE SHEET

T-1

MI CHECKLIST

REQUIRED	REPORT ITEM	APPLICABLE CROWN DOC #	BRIEF DESCRIPTION
PRE-CONSTRUCTION			
X	MI CHECKLIST DRAWING	CED-SOW-10007	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
X	EOR APPROVED SHOP DRAWINGS	CED-SOW-10007	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE AND PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS AND/OR SHOP DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY/SHOP DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATION INSPECTION	CED-SOW-10007	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS, SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATOR CERTIFIED WELD INSPECTION	CED-SOW-10007 CED-STD-10069	A CWI SHALL INSPECT ALL WELDING PERFORMED ON STRUCTURAL MEMBERS DURING FABRICATION. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORTS (MTR)	CED-SOW-10007	MATERIAL TEST REPORTS SHALL BE PROVIDED FOR MATERIAL USED AS REQUIRED PER SECTION 9.2.5 OF CED-SOW-10007. MTRS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	FABRICATOR NDE INSPECTION REPORT	CED-SOW-10066 CED-STD-10069	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED NDT INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	NDE OF MONOPOLE BASE PLATE	ENG-SOW-10033	A NDE OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	CED-SOW-10007	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
ADDITIONAL TESTING AND INSPECTIONS:			
NA			
CONSTRUCTION			
NA	FOUNDATION INSPECTIONS	CED-SOW-10144	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A VISUAL OBSERVATION OF THE REBAR SHALL BE PERFORMED BEFORE PLACING THE EPOXY. A SEALED WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	CONCRETE COMP. STRENGTH AND SLUMP TEST	CED-SOW-10144	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED AS PART OF THE FOUNDATION REPORT.
NA	EARTHWORK	CED-SOW-10144	FOUNDATION SUB-GRADES SHALL BE INSPECTED AND APPROVED BY A GEOTECHNICAL ENGINEER AND RESULTS INCLUDED AS PART OF THE FOUNDATION REPORT.
NA	MICROPILE/ROCK ANCHOR	CED-SOW-10144	MICROPILES/ROCK ANCHORS SHALL BE INSPECTED BY THE FOUNDATION INSPECTION VENDOR AND SHALL BE INCLUDED AS PART OF THE FOUNDATION INSPECTION REPORT, ADDITIONAL TESTING AND/OR INSPECTION REQUIREMENTS ARE NOTED IN THESE CONTRACT DOCUMENTS.
NA	POST-INSTALLED ANCHOR ROD VERIFICATION	CED-SOW-10007	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED IN ACCORDANCE WITH CROWN REQUIREMENTS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	BASE PLATE GROUT VERIFICATION	ENG-STD-10323	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR THAT CERTIFIES THAT THE GROUT WAS REMOVED AND/OR INSTALLED IN ACCORDANCE WITH CROWN REQUIREMENTS FOR INCLUSION IN THE MI REPORT.
X	FIELD CERTIFIED WELD INSPECTION	CED-SOW-10066 CED-STD-10069	A CROWN APPROVED CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST FIELD WELDS, FOLLOWING ALL PROCEDURES SPECIFIED IN CROWN STANDARD DOCUMENTS APPLICABLE TO WELD INSPECTIONS. A REPORT SHALL BE PROVIDED. NDE OF FIELD WELDS SHALL BE PERFORMED AS REQUIRED BY CROWN STANDARDS AND CONTRACT DOCUMENTS. THE NDE REPORT SHALL BE INCLUDED IN THE CWI REPORT.
X	ON-SITE COLD GALVANIZING VERIFICATION	ENG-STD-10149 ENG-BUL-10149	THE GENERAL CONTRACTOR SHALL PROVIDE WRITTEN AND PHOTOGRAPHIC DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED PER MANUFACTURER SPECIFICATIONS AND APPLICABLE STANDARDS.
NA	TENSION TWIST AND PLUMB	CED-PRC-10182 CED-STD-10261	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT IN ACCORDANCE WITH APPLICABLE STANDARDS DOCUMENTING TENSION TWIST AND PLUMB.
X	GC AS-BUILT DRAWINGS	CED-SOW-10007	THE GENERAL CONTRACTOR SHALL SUBMIT A LEGIBLE COPY OF THE ORIGINAL DESIGN DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD. EOR/RFI FORMS APPROVING ALL CHANGES SHALL BE SUBMITTED WHEN THE EOR IS SPECIFYING ADDITIONAL INSPECTIONS DESCRIPTION AND APPLICABLE STANDARDS SHALL BE APPLIED.
ADDITIONAL TESTING AND INSPECTIONS:			
NA			
POST-CONSTRUCTION			
X	CONSTRUCTION COMPLIANCE LETTER	CED-SOW-10007	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS, INCLUDING LISTING ADDITIONAL PARTIES TO THE MODIFICATION PROCESS.
NA	POST-INSTALLED ANCHOR ROD PULL TESTS	CED-PRC-10119	POST-INSTALLED ANCHOR RODS SHALL BE TESTED BY A CROWN APPROVED PULL TEST INSPECTOR AND A REPORT SHALL BE PROVIDED INDICATING TESTING RESULTS.
X	PHOTOGRAPHS	CED-SOW-10007	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI. PHOTOS SHALL DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
NA	BOLT INSTALLATION VERIFICATION REPORT	CED-SOW-10007	THE MI INSPECTOR SHALL VERIFY THE INSTALLATION AND TIGHTNESS 10% OF ALL NON PRE-TENSIONED BOLTS INSTALLED AS PART OF THE MODIFICATION. THE MI INSPECTOR SHALL LOOSEN THE NUT AND VERIFY THE BOLT HOLE SIZE AND CONDITION. THE MI REPORT SHALL CONTAIN THE COMPLETED BOLT INSTALLATION VERIFICATION REPORT, INCLUDING THE SUPPORTING PHOTOGRAPHS.
X	PUNCHLIST DEVELOPMENT AND CORRECTION DOCUMENTATION	CED-PRC-10283 CED-FRM-10285	FINAL PUNCHLIST INDICATING ALL NONCONFORMANCE(S) IDENTIFIED AND THE FINAL RESOLUTION AND APPROVAL.
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	CED-SOW-10007	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
ADDITIONAL TESTING AND INSPECTIONS:			
NA			

MODIFICATION INSPECTION NOTES

GENERAL

THE MI IS AN ON-SITE VISUAL AND HANDS-ON INSPECTION OF TOWER MODIFICATIONS INCLUDING A REVIEW OF CONSTRUCTION REPORTS AND ADDITIONAL PERTINENT DOCUMENTATION PROVIDED BY THE GENERAL CONTRACTOR (GC), AS WELL AS ANY INSPECTION DOCUMENTS PROVIDED BY 3RD PARTY INSPECTORS. THE MI IS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS; IN ACCORDANCE WITH APPLICABLE CROWN STANDARDS; AND AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

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

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

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

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

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

SERVICE LEVEL COMMITMENT

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

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

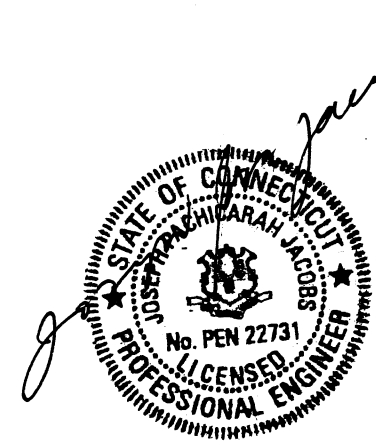
REQUIRED PHOTOS

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

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

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

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



JUL 16 2018

REV	DATE	DESCRIPTION

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 PH: (724) 416-2000

BU #876333; CREATIVE DIMENSIONS
 PLAINVILLE, CONNECTICUT
 MODIFIED 137'-0" MONOPOLE

PROJECT No:	37518-2227.001.1700
DRAWN BY:	IM
DESIGNED BY:	SK
CHECKED BY:	BKK
DATE:	7-16-2018

MI CHECKLIST

MI-1

1. GENERAL NOTES

- 1.1. THE MONOPOLE STRUCTURE IN ITS EXISTING CONDITION DOES NOT HAVE THE STRUCTURAL CAPACITY TO CARRY ALL OF THE PROPOSED AND EXISTING LOADS FROM THE ATTACHED STRUCTURAL MODIFICATION REPORT AT THE REQUIRED MINIMUM WIND SPEEDS. DO NOT INSTALL ANY NEW LOADS UNTIL THE MONOPOLE REINFORCING SYSTEM IS COMPLETELY AND SUCCESSFULLY INSTALLED.
1.2. THESE DRAWINGS WERE PREPARED FROM INFORMATION PROVIDED BY CROWN CASTLE. THE INFORMATION PROVIDED HAS NOT BEEN FIELD VERIFIED BY THE ENGINEER OF RECORD (EOR) FOR ACCURACY AND THEREFORE DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL SITE CONDITIONS SHOULD BE ANTICIPATED.
1.3. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.
1.4. THIS STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING REPAIR SYSTEM HAS BEEN SUCCESSFULLY COMPLETED.
1.5. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSII/ASSE A10.48 (LATEST EDITION);
1.6. OBSERVATION VISITS TO THE SITE BY CROWN CASTLE AND/OR THE EOR SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
1.7. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
1.8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW COAXIAL CABLES AND OTHER EQUIPMENT DURING CONSTRUCTION.
1.10. ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE POLE THAT MAY INTERFERE WITH THE INSTALLATION OF THE REINFORCING SYSTEM WILL HAVE TO BE REMOVED AND RELOCATED, REPLACED, OR RE-INSTALLED AS REQUIRED AFTER THE REINFORCING IS SUCCESSFULLY COMPLETED.
1.11. ANY AND ALL EXISTING PLATFORMS THAT ARE LOCATED IN AREAS OF THE POLE SHAFT WHERE SHAFT REINFORCING MUST BE APPLIED SHALL BE TEMPORARILY REMOVED OR OTHERWISE SUPPORTED TO PERMIT NEW CONTINUOUS REINFORCEMENT TO BE ATTACHED.
1.12. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS APPROVAL OF THE YOUR CROWN POC.
1.13. FOR STANDARD CROWN PARTS SEE THE MOST RECENT VERSION OF THE "CCI APPROVED REINFORCEMENT COMPONENTS" CATALOG.
1.14. ALL SOLUTIONS FOR THE REPLACEMENT, RELOCATION OR MODIFICATION OF THE SAFETY CLIMB AND/OR ANY OF THE MONOPOLE CLIMBING FACILITIES SHALL BE COORDINATED WITH TUF-TUG PRODUCTS.

2. STRUCTURAL STEEL

- 2.1. STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING REFERENCE STANDARDS:
2.1.1. BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
2.1.1.1. "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS."
2.1.1.2. "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS," AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.
2.1.1.3. "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
2.1.2. BY THE AMERICAN WELDING SOCIETY (AWS):
2.1.2.1. "STRUCTURAL WELDING CODE - STEEL D1.1."
2.1.2.2. "STANDARD SYMBOLS FOR WELDING, BRAZING, AND NONDESTRUCTIVE EXAMINATION"
2.2. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS," DEC. 31, 2009.
2.3. ANY MATERIAL OR WORKMANSHIP WHICH IS OBSERVED TO BE DEFECTIVE OR INCONSISTENT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED, MODIFIED, OR REPLACED AT THE CONTRACTOR'S EXPENSE.
2.4. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS D1.1. ALL WELD ELECTRODES SHALL BE E80XX UNLESS NOTED OTHERWISE ON THE DRAWINGS.
2.5. ALL WELDED CONNECTIONS SHALL BE MADE BY WELDERS CERTIFIED BY AWS. CONTRACTOR SHALL SUBMIT WELDERS' CERTIFICATION AND QUALIFICATION DOCUMENTATION TO CROWN CASTLE'S TESTING AGENCY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2.6. STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A572 GRADE 65(FY = 65 KSI MIN) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
2.7. SURFACES OF EXISTING STEEL SHALL BE PREPARED AS REQUIRED FOR FIELD WELDING PER AWS. SEE SECTION I NOTES REGARDING TOUCH UP OF GALVANIZED SURFACES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS FIELD WELDING.
2.8. NO WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL AND SUPERVISION OF THE TESTING AGENCY.
2.9. FIELD CUTTING OF STEEL:
2.9.1. IMPORTANT CUTTING AND WELDING SAFETY GUIDELINES: THE CONTRACTOR SHALL FOLLOW ALL CROWN CASTLE CUTTING, WELDING, FIRE PREVENTION AND SAFETY GUIDELINES.
2.9.2. ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS. NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS.

3. TOUCH UP OF GALVANIZING

- 3.1. THE CONTRACTOR SHALL TOUCH UP ANY AND ALL AREAS OF GALVANIZING ON THE EXISTING STRUCTURE OR NEW COMPONENTS THAT ARE DAMAGED OR ABRADED DURING CONSTRUCTION.
3.2. CONTRACTOR SHALL CLEAN AND PREPARE ALL FIELD WELDS ON GALVANIZED AND PRIME PAINTED SURFACES FOR TOUCH-UP COATING IN ACCORDANCE WITH AWS D1.1.
3.3. CROWN CASTLE'S TESTING AGENCY SHALL TEST AND VERIFY THE COATING THICKNESS AFTER THE CONTRACTOR HAS APPLIED THE ZRC COLD GALVANIZING COMPOUND AND IT HAS SUFFICIENTLY DRIED.

4. HOT-DIP GALVANIZING

- 4.1. HOT-DIP GALVANIZE ALL STRUCTURAL STEEL MEMBERS AND ALL STEEL ACCESSORIES, BOLTS, WASHERS, ETC. PER ASTM A123 OR PER ASTM A153, AS APPROPRIATE.
4.2. PROPERLY PREPARE STEEL ITEMS FOR GALVANIZING. DRILL OR PUNCH WEEP AND/OR DRAINAGE HOLES WITH EOR APPROVAL OF LOCATIONS.
4.3. ALL GALVANIZING SHALL BE DONE AFTER FABRICATION IS COMPLETED AND PRIOR TO FIELD INSTALLATION.

5. PERPETUAL INSPECTION AND MAINTENANCE BY THE OWNER

- 5.1. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MONOPOLE REINFORCING SYSTEM AND THE WORK HAS BEEN ACCEPTED BY CROWN CASTLE, CROWN CASTLE WILL BE RESPONSIBLE FOR THE LONG TERM AND PERPETUAL INSPECTION AND MAINTENANCE OF THE POLE AND REINFORCING SYSTEM.
5.2. ANY FIELD WELDED CONNECTIONS ARE SUBJECT TO CORROSION DAMAGE AND DETERIORATION IF THEY ARE NOT PROPERLY MAINTAINED AND COVERED WITH CORROSION PREVENTIVE COATING SUCH AS THE ZRC GALVANIZING COMPOUND SPECIFIED PREVIOUSLY.
5.3. CROWN CASTLE SHALL REFER TO ANSII/ITIA-222-G-2-2009, SECTION 14 AND ANNEX J FOR RECOMMENDATIONS FOR MAINTENANCE AND INSPECTION.

6. FIELD NDE MINIMUM REQUIREMENTS

- 6.1. ALL NDE SHALL BE IN ACCORDANCE WITH AWS D1.1.
6.2. FOR NEW BASE STIFFENERS (INCLUSIVE OF TRANSITION STIFFENERS) AND ANCHOR ROD BRACKETS, COMPLETE JOINT PENETRATION WELDS SHALL BE 100% INSPECTED BY UT.
6.3. FOR NEW FLAT PLATE REINFORCEMENT AT THE BASE OF THE TOWER, COMPLETE JOINT PENETRATION WELDS SHALL BE 100% INSPECTED BY UT.
6.4. FOR NDE OF THE EXISTING BASE PLATE CIRCUMFERENTIAL WELD, GC SHALL REFERENCE THE MI CHECKLIST FOR APPLICABILITY.
6.5. ALL TESTING LIMITATIONS SHALL BE DETAILED IN THE NDE REPORT.

7. FOUNDATION WORK - (NOT REQUIRED)

8. CAST-IN-PLACE CONCRETE - (NOT REQUIRED)

9. EPOXY GROUTED REINFORCING ANCHOR RODS - (NOT REQUIRED)

10. BASE PLATE GROUT REMOVAL

- 10.1. THE GC SHALL BEGIN THIS PROCEDURE AS EARLY AS POSSIBLE DURING THE MODIFICATION PROCESS SO THAT IF ISSUES ARISE, THEY CAN BE RESOLVED WITHIN THE ANTICIPATED MODIFICATION TIMELINE.
10.2. IF ANY DETERIORATED GROUT EXISTS, BEGIN AT THIS LOCATION. REMOVE DETERIORATED GROUT AND THE GROUT AROUND THE NEAREST ONE OR TWO ANCHOR RODS TO FULLY EXPOSE THE LEVELING NUT.
10.3. OTHERWISE, CHECK THE LEVELING NUT FOR TIGHTNESS IN ACCORDANCE WITH SECTION 1.3.2.3 OF ENG-PRC-10012 "BASE PLATE GROUT REPAIR".
10.4. IN THE EVENT THAT SEVERE CORROSION IS NOT ENCOUNTERED, AND BEING SURE TO CHECK EACH ANCHOR ROD FOR CORROSION PER ENG-BUL-10114 "RUST CLASSIFICATION".
10.5. CONSISTENT WITH SECTION 1.3.2.4 OF ENG-PRC-10012 "BASE PLATE GROUT REPAIR", HAND TOOL CLEAN TO SSPC-SP2 AND SOLVENT CLEAN TO SSPC-SP1.
10.6. APPLY BY BRUSH TWO COATS OF A CROWN-APPROVED COLD-GALVANIZING COMPOUND TO ALL EXPOSED STRUCTURAL STEEL ELEMENTS BENEATH THE BASE PLATE.

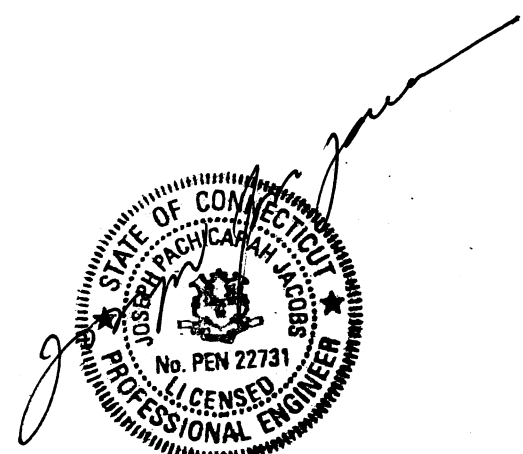
11. BASE PLATE GROUT

- 11.1. NEW GROUT FOR THE POLE BASE SHALL BE NON-SHRINK, NON-METALLIC, GROUT (NS GROUT BY EUCLID, OR APPROVED EQUAL) WITH A 7500 PSI MINIMUM COMPRESSIVE STRENGTH.
11.2. GROUT SHALL BE INSTALLED TIGHT UNDER THE BASE PLATE AND BEARING PLATE REGION WITH NO VOIDS REMAINING BETWEEN THE TOP OF THE EXISTING CONCRETE AND THE UNDERSIDE OF THE EXISTING BASE PLATE AND BEARING PLATE.
11.3. CAULK AROUND ANCHOR RODS WHEN GROUTING.

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BU #876333; CREATIVE DIMENSIONS
PLAINVILLE, CONNECTICUT
MODIFIED 137'-0" MONOPOLE



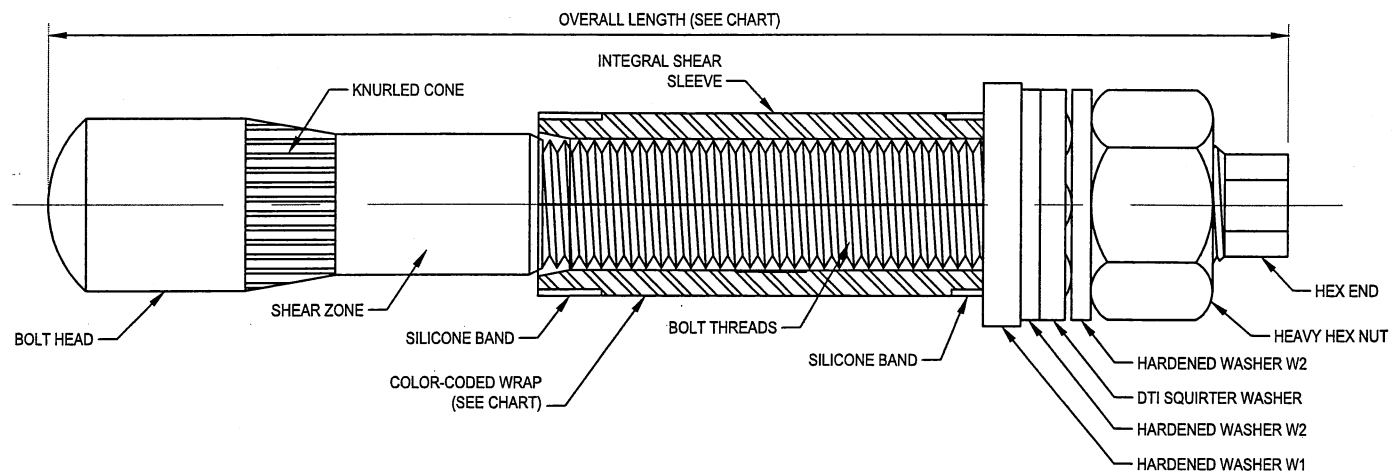
JUL 16 2018

Table with 2 columns: Field Name and Value. Includes PROJECT No., DRAWN BY, DESIGNED BY, CHECKED BY, and DATE.

GENERAL NOTES

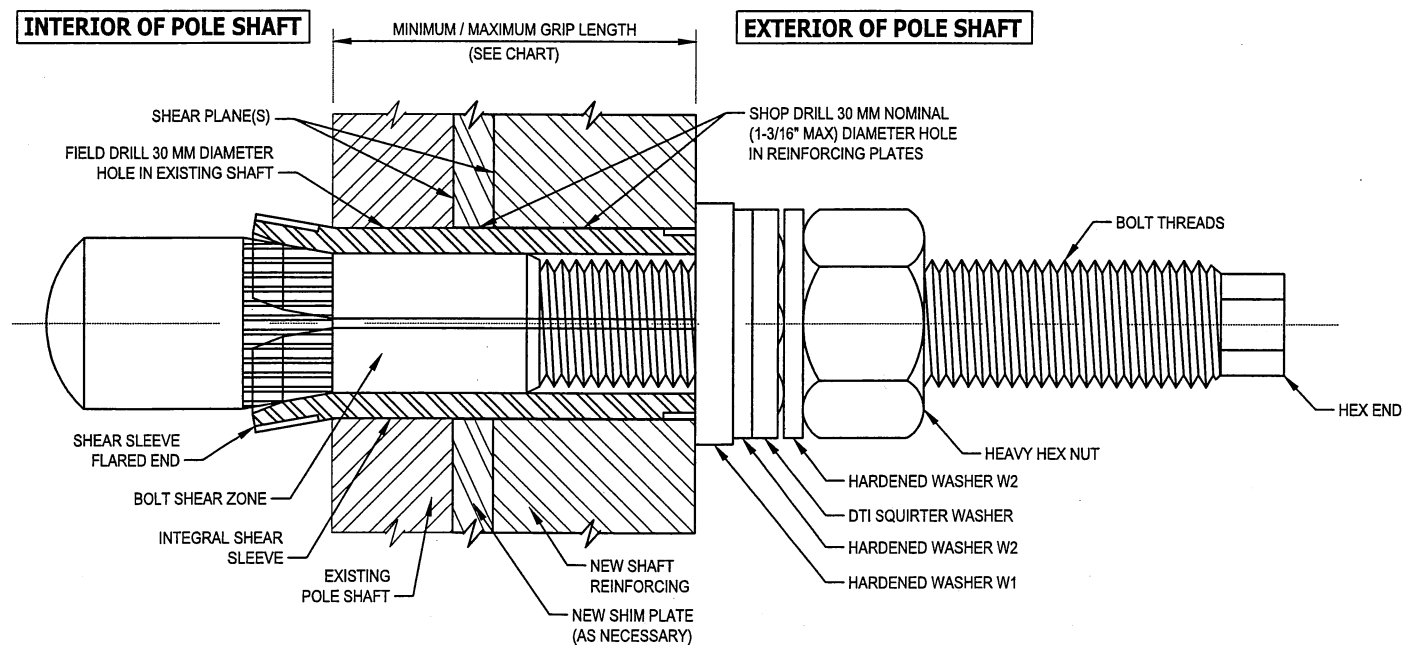
V1.0 37518-2227.001.DWG

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PRE-INSTALLED FORGBolt® ASSEMBLY DETAIL

1
B-1



INSTALLED FORGBolt® ASSEMBLY DETAIL

2
B-1

FORGBolt®		AISC Group A Material: ASTM A325 and PC8.8 (Tensile Stress, Fu = 120 ksi minimum)				
GROUP A	FORGBolt® Size (mm)	Overall Length (inches)	Estimated Weight Each (lbs)	Grip Range (inch)	Comment	Color Code
FORGBolt® A325 - PC8.8	1 135	5.31	1.3	3/8" to 1"	--	RED
	2 160	6.30	1.6	3/4" to 1-1/2"	--	GREEN
	3 195	7.68	1.9	1-1/4" to 2-1/4"	--	BLUE
	4 260	10.24	2.6	2" to 3-1/2"	Splice Bolt	YELLOW
	5 365	14.37	3.6	3-1/2" to 5-1/2"	Flange Jump Bolt	ORANGE
	6 440	17.32	4.3	5-1/2" to 8-1/2"	Flange Jump Bolt	BLACK
DTI Note	Each Group A (A325/PC8.8) FORGBolt® assembly shall have a 'Squirter' DTI that is compatible with a M20-PC8.8 bolt.					

FOLLOW ALL MANUFACTURER / DISTRIBUTOR RECOMMENDATIONS FOR INSTALLATION, TIGHTENING, AND INSPECTION

INSTALLATION NOTES:

1. FIELD DRILL HOLES TO 30 MM DIAMETER.
2. SELECT CORRECT BOLT SIZE FOR INSTALLATION GRIP (REFER TO PLANS).
3. INSERT BOLT ASSEMBLY THROUGH HOLES IN SHAFT REINFORCING PLATES AND SEAT THE HARDENED WASHER W1 FLUSH AGAINST OUTSIDE OF PLATE.
4. HAND TIGHTEN NUT TO FINGER TIGHT.
5. TIGHTEN NUT TO PRETENSIONED CONDITION AND UNTIL DTI SHOWS PROPER INDICATION.
6. PROPERLY DOCUMENT AND INSPECT BOLT TIGHTENING PER PLAN REQUIREMENTS.

BOLT HOLE NOTES:

1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.

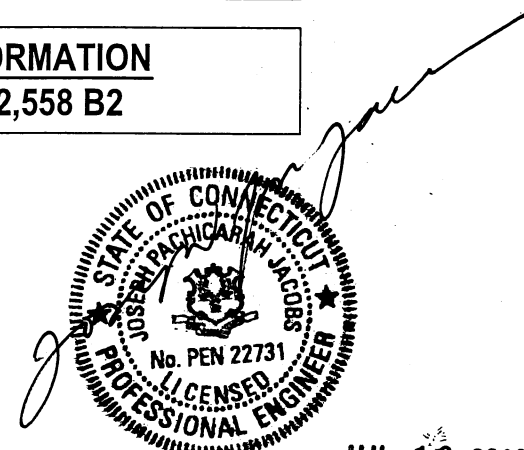
BOLT TIGHTENING AND INSPECTION NOTES:

1. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

AISC GROUP A MATERIAL: ASTM A325 AND PC8.8
(Fu = 120 KSI MIN TENSILE STRESS)

CONTAINS PROPRIETARY INFORMATION
U.S. PATENT NUMBER 9,562,558 B2

DISTRIBUTOR CONTACT:
PRECISION TOWER PRODUCTS
PHONE: 888-926-4857
EMAIL: info@precisiontowerproducts.com
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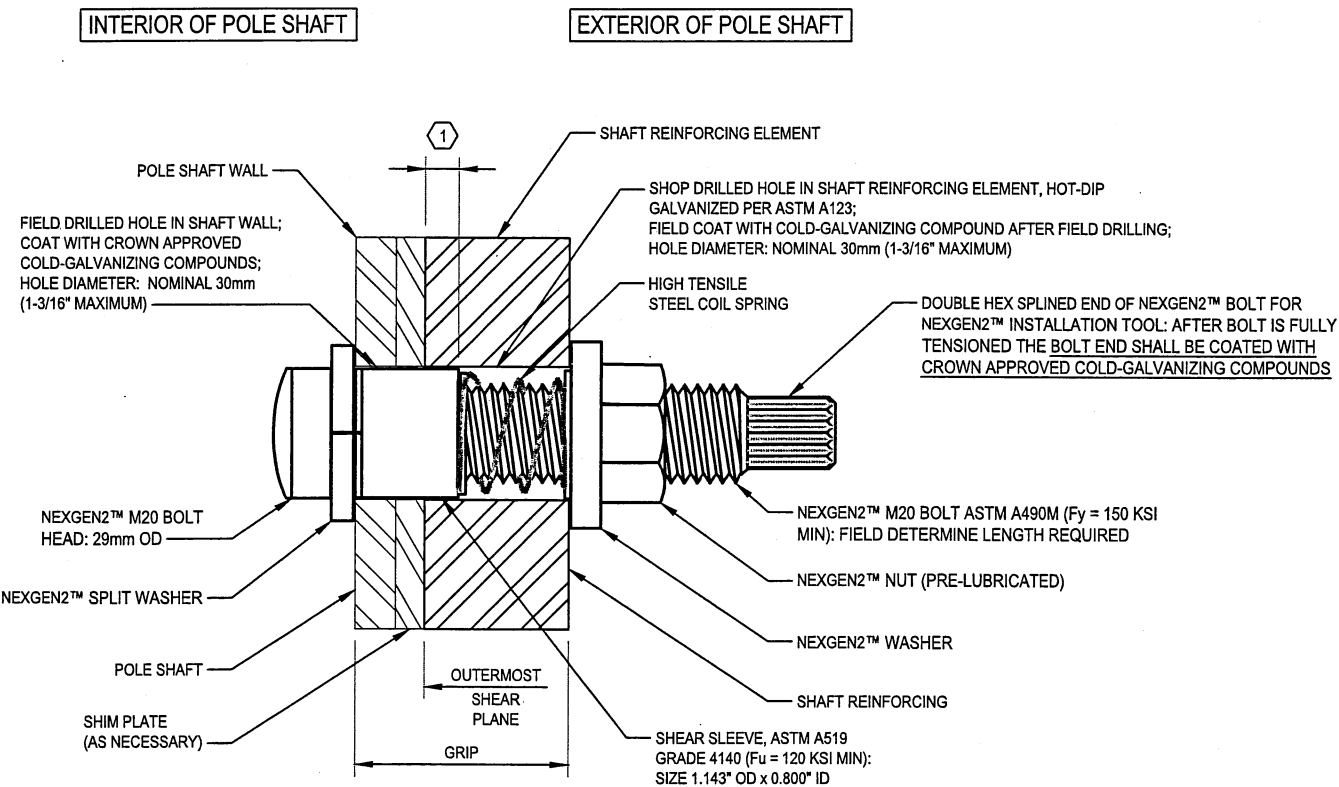
BU #876333; CREATIVE DIMENSIONS
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MODIFIED 137'-0" MONOPOLE

PROJECT No:	37518-2227.001.7700
DRAWN BY:	IM
DESIGNED BY:	SK
CHECKED BY:	BKK
DATE:	7-16-2018

FORGBolt®
DETAILS

B-1

1 NOTE: SHEAR SLEEVE LENGTH: THE SHEAR SLEEVE SHALL PROJECT A MINIMUM OF 3/8" BEYOND THE OUTERMOST SHEAR PLANE. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS SHOWING NEXGEN2™ BOLT LENGTHS AND SHEAR SLEEVE LENGTHS TO THE EOR FOR REVIEW AND APPROVAL.



TYPICAL NEXGEN2™ BOLT DETAIL 1 B-2

FOLLOW ALL MANUFACTURER / DISTRIBUTOR RECOMMENDATIONS FOR INSTALLATION, TIGHTENING, AND INSPECTION

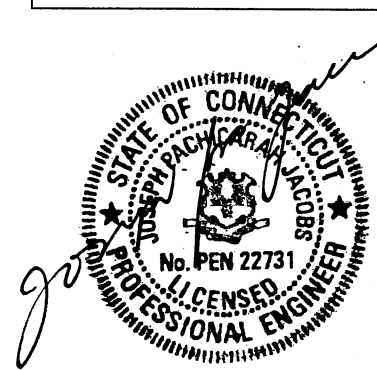
- BOLT HOLE NOTES:**
1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
 2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.
- BOLT TIGHTENING AND INSPECTION NOTES:**
1. ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF SECTION 8.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. PER SECTION 8.2.3: ALL FASTENER ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS IN AISC SECTION 8.1 WITHOUT SEVERING THE SPLINED END AND WITH WASHERS POSITIONED AS REQUIRED IN AISC SECTION 6.2. PER REQUIREMENTS IN SECTION 8.1: PRIOR TO BOLT PRETENSIONING, THE JOINT SHALL FIRST BE COMPACTED TO THE SNUG-TIGHT CONDITION. SNUG TIGHT IS THE CONDITION THAT EXISTS WHEN ALL OF THE PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND THE BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT THE REMOVAL OF THE NUTS WITHOUT THE USE OF A WRENCH. ONCE THE SNUG TIGHT CONDITION IS ACHIEVED, THEN THE BOLT ASSEMBLY CAN BE TIGHTENED TO THE PRETENSIONED CONDITION.
 2. ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF SECTION 9.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. NOTE THAT COMPLETE INSPECTION OF ALL NEXGEN2™ BOLT ASSEMBLIES IS REQUIRED IN ADDITION TO ROUTINE OBSERVATION.
 3. ALL NEXGEN2™ BOLTS SHALL BE INSPECTED BY A QUALIFIED BOLT INSPECTOR PER NOTES 1 AND 2, ABOVE. DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT: THE SHOP-DRILLED AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE NEXGEN2™ BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION; AND THE CONTRACTOR'S TENSIONING PROCEDURE. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THAT THE DOUBLE HEX SPLINED END OF THE BOLTS HAVE BEEN TWISTED OFF AND COATED WITH CROWN APPROVED COLD-GALVANIZING COMPOUND..

PART NUMBER	BOLT LENGTH	SLEEVE LENGTH	MIN GRIP RANGE	MAX GRIP RANGE
2NG2032	M20x75	1/2"	5/8"	1 3/8"
2NG2036	M20x95	11/16"	15/16"	1 7/16"
2NG2048	M20x95	1 3/16"	1 7/16"	1 7/8"
2NG2057	M20x95	1 5/8"	1 7/8"	2 1/4"
2NG2068	M20x135	2"	2 1/4"	2 11/16"
2NG2096	M20x135	2 7/16"	2 11/16"	3 3/4"
2NG2127	M20x175	3"	3 3/4"	5"
2NG2212	M20x250	4"	5"	8 5/16"

NOTE: NEXGEN2™ BOLT ASSEMBLY SHALL BE MAGNI 565 COATED PER ASTM F2833 AND MANUFACTURER SPECIFICATIONS.

NOTE: INSTALL NEXGEN2™ BOLT ASSEMBLY PER MANUFACTURER'S INSTRUCTIONS.

DISTRIBUTOR CONTACT DETAILS:
 ALLFASTENERS
 959 LAKE ROAD
 MEDINA, OHIO, USA 44256
 PHONE: 440-232-6060
 FAX 440-232-6062
 WEBSITES: WWW.ALLFASTENERS.COM
 WWW.AFTOWER.COM



JUL 16 2018

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CROWN CASTLE
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 PH: (724) 416-2000

BU #876333; CREATIVE DIMENSIONS
 PLAINVILLE, CONNECTICUT
 MODIFIED 137'-0" MONOPOLE

PROJECT No:	37518-2227.001.7700
DRAWN BY:	IM
DESIGNED BY:	SK
CHECKED BY:	BKK
DATE:	7-16-2018

NEXGEN2™ BOLT DETAIL

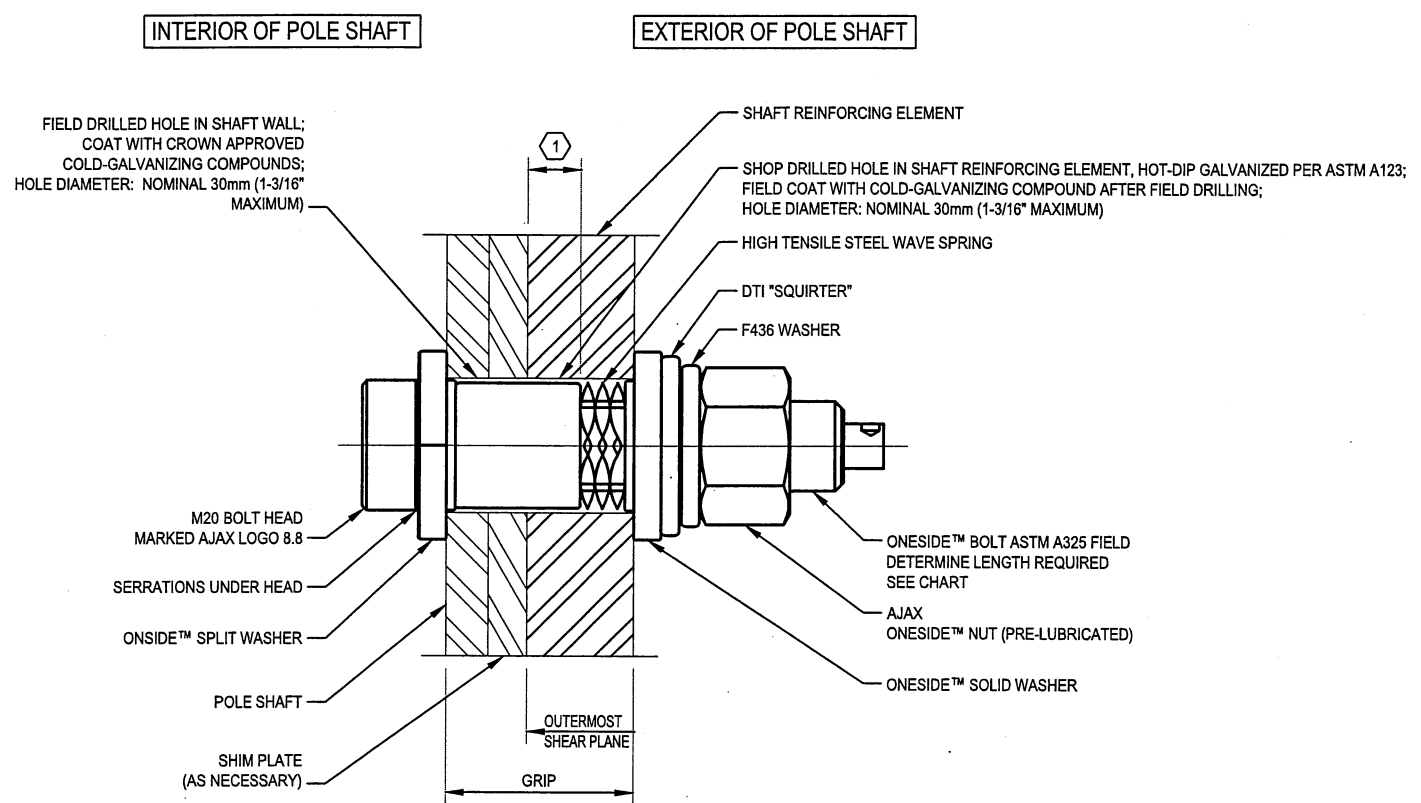
B-2

① NOTE: SHEAR SLEEVE LENGTH: THE SHEAR SLEEVE SHALL PROJECT A MINIMUM OF 3/8" BEYOND THE OUTERMOST SHEAR PLANE. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS SHOWING AJAX ONESIDE™ BOLT LENGTHS AND SHEAR SLEEVE LENGTHS TO THE EOR FOR REVIEW AND APPROVAL.

FOLLOW ALL MANUFACTURER / DISTRIBUTOR RECOMMENDATIONS FOR INSTALLATION, TIGHTENING, AND INSPECTION

- BOLT HOLE NOTES:**
1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
 2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.
- BOLT TIGHTENING AND INSPECTION NOTES:**
1. ALL AJAX ONESIDE™ BOLT ASSEMBLIES SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF SECTION 8.2.4 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. PER SECTION 8.2.4: ALL FASTENER ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS IN AISC SECTION 8.1 WITH WASHERS POSITIONED AS REQUIRED IN AISC SECTION 6.2. PER REQUIREMENTS IN SECTION 8.1: PRIOR TO BOLT PRETENSIONING, THE JOINT SHALL FIRST BE COMPACTED TO THE SNUG-TIGHT CONDITION. SNUG TIGHT IS THE CONDITION THAT EXISTS WHEN ALL OF THE PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND THE BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT THE REMOVAL OF THE NUTS WITHOUT THE USE OF A WRENCH. ONCE THE SNUG TIGHT CONDITION IS ACHIEVED, THEN THE BOLT ASSEMBLY CAN BE TIGHTENED TO THE PRETENSIONED CONDITION.
 2. ALL AJAX ONESIDE™ BOLT ASSEMBLIES SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF SECTION 9.2.4 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. NOTE THAT COMPLETE INSPECTION OF ALL AJAX ONESIDE™ BOLT ASSEMBLIES IS REQUIRED IN ADDITION TO ROUTINE OBSERVATION.
 3. ALL AJAX ONESIDE™ BOLTS SHALL BE INSPECTED BY A QUALIFIED BOLT INSPECTOR PER NOTES 1 AND 2, ABOVE. DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT: THE SHOP-DRILLED AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE AJAX ONESIDE™ BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION; AND THE CONTRACTOR'S TENSIONING PROCEDURE. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THAT THE DIRECT TENSION INDICATOR WASHERS SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED.
 4. A MINIMUM OF 4 OUT OF 5 SQUIRTER® DTI PROTRUSIONS SHALL BE ENGAGED IN ANY AJAX ONESIDE™/DTI BOLT ASSEMBLY IN THE REINFORCING MEMBERS. A FEELER GAGE MAY BE USED TO VERIFY PROTRUSION COMPRESSION.
 5. INSPECTIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS AND CROWN DOCUMENT ENG-SOW-10007: *MODIFICATION INSPECTION SOW*.

- BOLT ASSEMBLY AND INSTALLATION:**
1. BOLT MUST BE PURCHASED PRE-ASSEMBLED.
 2. FOLLOW BOLT AND DTI MANUFACTURERS INSTRUCTIONS FOR INSTALLATION.



TYPICAL AJAX ONESIDE™ BOLT DETAIL ①
B-3

AJAX ONESIDE™ BOLT DETAIL

CODE	SIZE	COLOR	SLEEVE LENGTH	GRIP	GRIP IMP
OSBA20.65-6	M20 x 65	ORANGE	6.0 (0.236")	12.5 / 20.0	0.500" / 0.787"
OSBA20.95-14	M20 x 95	BLACK	14.0 (0.551")	20.0 / 32.0	0.787" / 1.259"
OSBA20.95-22	M20 x 95	GREEN	22.0 (0.866")	30.0 / 50.0	1.181" / 1.968"
OSBA20.95-30	M20 x 95	YELLOW	30.0 (1.181")	40.5 / 50.0	1.595" / 1.968"
OSBA20.135-39	M20 x 135	BLUE	39.0 (1.535")	49.0 / 77.0	1.929" / 3.031"
OSBA20.135-48	M20 x 135	BROWN	48.0 (1.889")	60.5 / 77.0	2.375" / 3.031"
OSBA20.135-57	M20 x 135	PURPLE	57.0 (2.244")	67.0 / 90.0	2.637" / 3.543"
OSBA20.165-76	M20 x 165	RED	76.0 (3.000")	87.0 / 120.0	3.425" / 4.724"
OSBA20.250	M20 x 250	SILVER	MTO	121.0 / 211.0	4.724" / 8.310"

DISTRIBUTOR
 IRA SVENSGAARD AND ASSOCIATES
 PETER SVENDSGAARD - PETERS@IRASVENS.COM
 JOHN KILLAM - JOHN@IRASVENS.COM
 PHONE: (530) 647-8225
 FAX: (530) 647-8229

MANUFACTURER
 AJAX FASTENERS
 SALES + TECH: ONESIDE@AJAXFAST.COM.AU



JUL 16 2018

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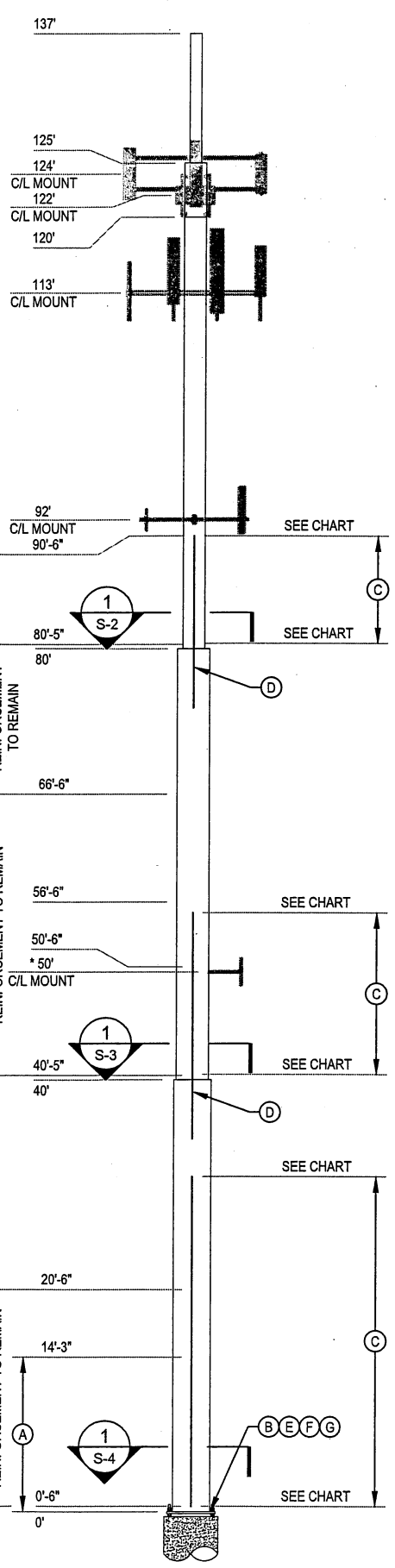
CROWN CASTLE
 3530 TORINGDON WAT SUITE 300 CHARLOTTE, NC 28277
 PH: (724) 416-2000

BU #876333; CREATIVE DIMENSIONS
 PLAINVILLE, CONNECTICUT
 MODIFIED 137'-0" MONOPOLE

PROJECT No:	37518-2227.001.7700
DRAWN BY:	IM
DESIGNED BY:	SK
CHECKED BY:	BKK
DATE:	7-16-2018

AJAX ONESIDE™ BOLT DETAIL

B-3



TOWER MODIFICATION SCHEDULE

	ELEVATION	TOWER MODIFICATION DESCRIPTION	REFERENCE SHEETS
(A)	6" TO 14'-3"	REMOVE EXISTING SHAFT REINFORCING ANGLES 80°, 172°, 294°	S-1 & S-4
(B)	0'	INSTALL NEW TRANSITION STIFFENERS w/ BEARING PLATE AT BASE PLATE	S-4 TO S-5
(C)	1'-0" TO 31'-0", 40'-6" TO 55'-6", 80'-6" TO 90'-6"	INSTALL NEW SHAFT REINFORCING	S-1
(D)	40' & 80'	INSTALL NEW BOLTED FLANGE JUMP	S-1 TO S-3
(E)	0'	REMOVE EXISTING BASE PLATE GROUT. SEE BASE PLATE GROUT REMOVAL NOTES	S-1 & N-1
(F)	0'	RE-INSTALL NEW GROUT, AFTER ALL BASE PLATE WORK & WELDING, PER ENG-PRC-10012 "BASE PLATE GROUT REPAIR"	S-1 & N-1
(G)	-	** CONTRACTOR TO POST SIGNAGE INDICATING OBSTRUCTED CLIMBING FACILITIES	S-1

**** CONTRACTOR NOTE: REFER TO THE OBSTRUCTION CLIMBING FACILITIES SIGNAGE SHEET OF CROWN DOCUMENT CAT-CED-10300 FOR INFORMATION REGARDING OBSTRUCTION SIGNAGE.**

MANUFACTURER POLE SPECIFICATIONS

TAPER	NA
BASE PLATE STEEL	ASTM A36 GRADE 36 (36 KSI)
ANCHOR RODS	2"Ø ASTM A36 GRADE 36
FLANGE PLATE STEEL	ASTM A36 GRADE 36 (36 KSI)
FLANGE BOLTS	3/4"Ø A325

SHAFT SECTION DATA

SHAFT SECTION	SECTION LENGTH (FT)	PLATE THICKNESS (IN)	LAP SPLICE (FT)	DIAMETER ACROSS FLATS (IN)		POLE GRADE (ksi)	POLE SHAPE
				@ TOP	@ BOTTOM		
1	12.00	0.3750		12.800	12.800	35	ROUND
2	5.00	0.3750		24.000	24.000	35	ROUND
3	40.00	0.3750		24.000	24.000	35	ROUND
4	40.00	0.3750		36.000	36.000	35	ROUND
5	40.00	0.5000		42.000	42.000	35	ROUND

NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES

EXISTING MOUNTS MAY NEED TO BE ADJUSTED, MOVED AND/OR TEMPORARILY SUPPORTED DURING THE INSTALLATION OF SHAFT REINFORCING

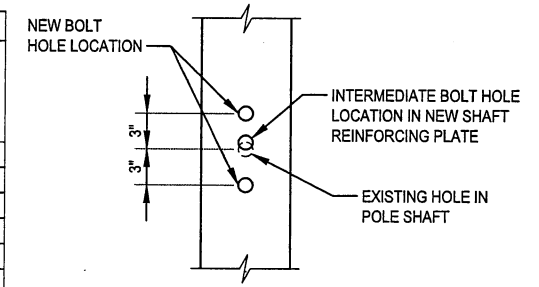
PRIOR TO FABRICATION AND INSTALLATION CONTRACTOR SHALL VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.

NEW CCI FLAT PLATE (65 KSI) REINFORCING SCHEDULE

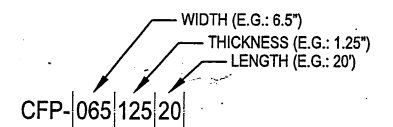
BOTTOM ELEVATION	TOP ELEVATION	ELEMENT	FLAT # / DEGREE SEPARATION	ELEMENT LENGTH	ELEMENT QUANTITY	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAXIMUM INTERMEDIATE BOLT SPACING	APPROXIMATE BOLTS PER ELEMENT	STEEL WEIGHT PER PLATE	APPROXIMATE TOTAL BOLT QUANTITY	ESTIMATED TOTAL STEEL WEIGHT	NOTES
1'-0"	31'-0"	CFP-06512530#1	80, 172, 296	30'-0"	3	WELD	11	19"	26	829 LBS.	78	2486 LBS.	SHAFT REINFORCING
1'-0"	31'-0"	CCI-SFP-04510030	340	30'-0"	1	6	6	20"	28	459 LBS.	84	459 LBS.	SHAFT REINFORCING
40'-6"	55'-6"	CFP-04510030#2	110, 220, 340	15'-0"	3	10	6	20"	22	230 LBS.	66	690 LBS.	SHAFT REINFORCING
80'-6"	90'-6"	CFP-04510030#3	100, 230, 340	10'-0"	3	12	6	20"	21	153 LBS.	63	459 LBS.	SHAFT REINFORCING
37'-3"	43'-3"	CCI-CFP-0451006 #4	110, 220, 340	6'-0"	3	8	10*	18"	8	92 LBS.	24	276 LBS.	JUMP PLATE
77'-3"	83'-9"	CCI-CFP-0451006.5 #5	100, 230, 345	6'-6"	3	8	12*	18"	8	100 LBS.	24	300 LBS.	JUMP PLATE
											339	4670 LBS.	

NOTES:

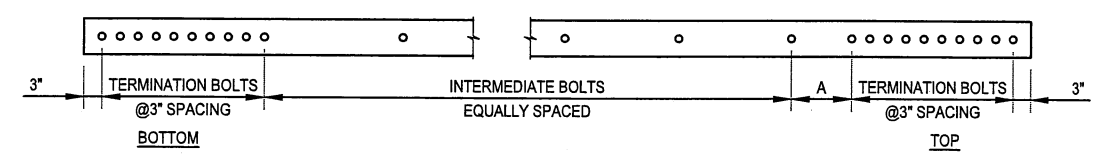
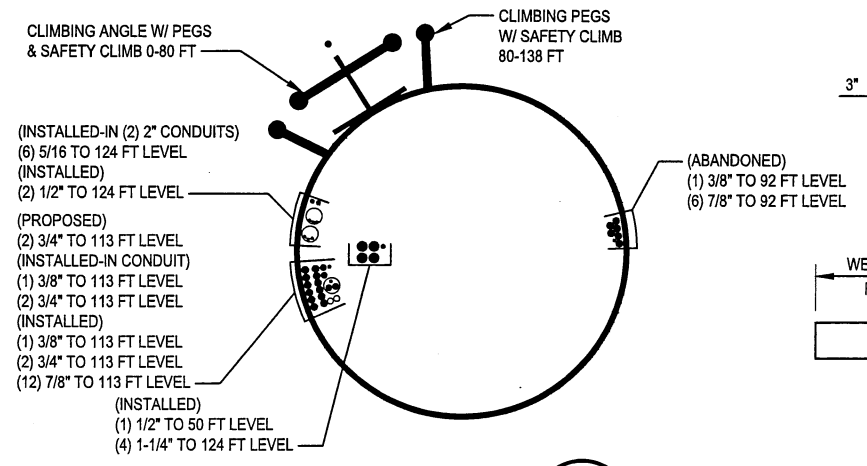
- ALL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. ALTERNATIVELY, ALL NEW STIFFENER PLATE STEEL REINFORCING MAY BE COLD GALVANIZED AS FOLLOWS: APPLY A MINIMUM OF TWO COATS OF ZRC-BRAND ZINC-RICH COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS; DRY 1.5 MILS. APPLY PER ZRC (MANUFACTURER) RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-831-3275 FOR PRODUCT INFORMATION.
- ALL REINFORCING SHALL BE ASTM A572 GR. 50.
- WELDS SHALL BE E80XX OR GREATER. TERMINATION WELDS SHALL BE 3/8" FILLET WELDS.
- HOLES FOR BOLTS ARE 30mm UNLESS NOTED OTHERWISE.
- ALL SHIMS SHALL BE ASTM A-36.
- ALL HOLES ARE TO BE DRILLED, DO NOT BURN OR PUNCH.
- FOR PLATES STARTING AT 6", THE BOTTOM OF THE FLAT PLATE SHALL BEGIN AT 6" ± 1". FOR SINGLE PLATES OR MULTIPLE PLATES SPliced TOGETHER, THE BOTTOM OF THE FLAT PLATE SHALL BEGIN AT THE PROPOSED ELEVATION ± 3". FOR MULTIPLE PLATES SPliced TOGETHER, THE TOP OF THE FLAT PLATE IS TO BE PLACED SUCH THAT THERE IS NO MORE THAN 3" DIFFERENCE BETWEEN THE ACTUAL OVERALL LENGTH OF THE SPAN AND THE PROPOSED OVERALL LENGTH OF THE SPAN, FROM THE BOTTOM OF THE PLATE
- FOR JUMP PLATES, TERMINATION BOLTS LISTED ARE INCLUDED IN TERMINATION BOLTS FOR SHAFT REINFORCING



INTERMEDIATE BOLT HOLE FIX

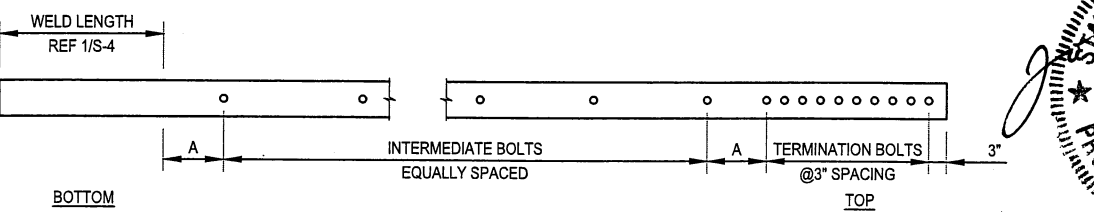


CUSTOM FLAT PLATE PART NUMBER BREAKDOWN



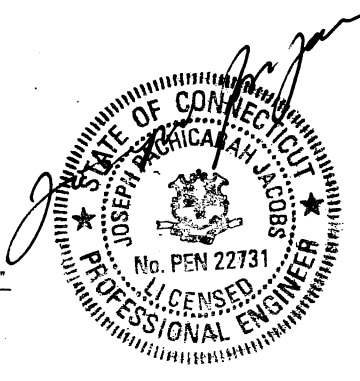
CUSTOM BOLTED FLAT PLATE DETAIL

NOTE: "A" DIMENSION MAY VARY, NOT TO EXCEED MAXIMUM INTERMEDIATE BOLT SPACING



CUSTOM WELDED FLAT PLATE DETAIL

NOTE: "A" DIMENSION MAY VARY, NOT TO EXCEED MAXIMUM INTERMEDIATE BOLT SPACING



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MONOPOLE PROFILE

S-1

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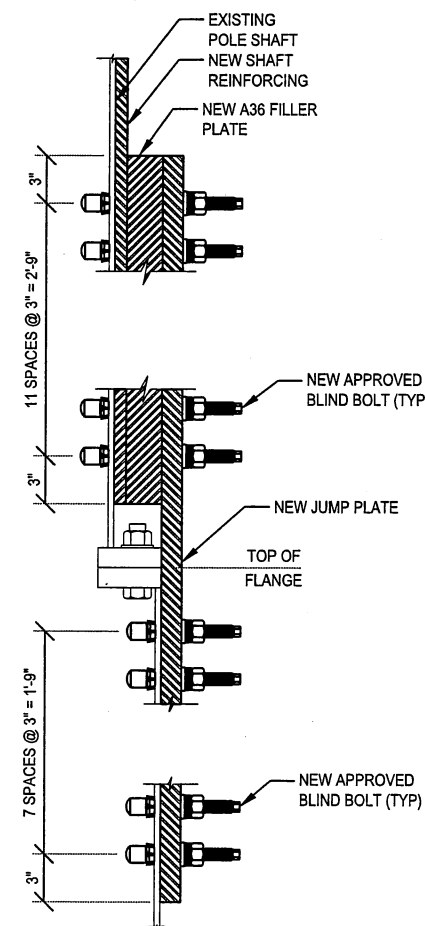
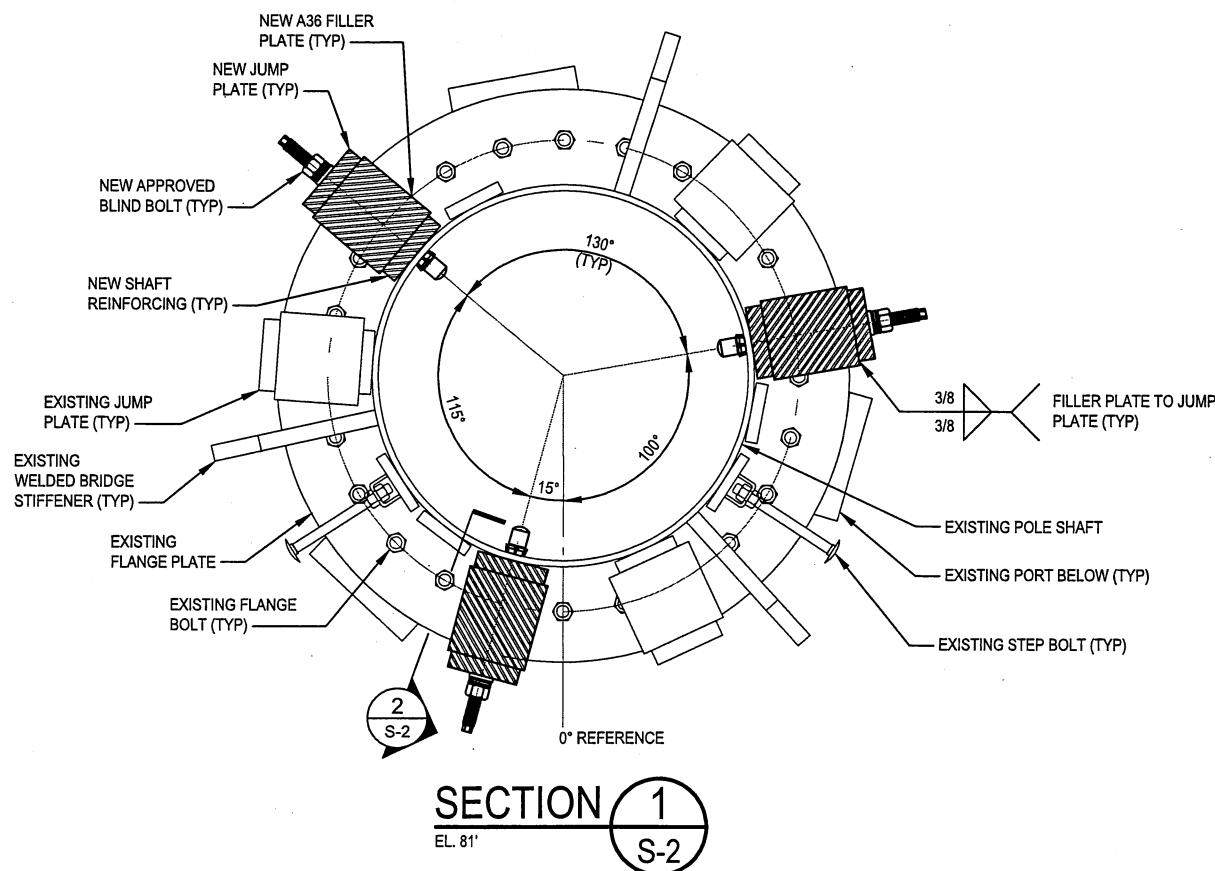
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 PH: (724) 416-2000

FILLER PLATE SCHEDULE							
BOTTOM ELEVATION	TOP ELEVATION	FILLER PLATE DIMENSIONS	FLAT # / DEGREE SEPARATION	QUANTITY OF BOLT HOLES PER PLATE	STEEL WEIGHT PER PLATE (BLACK)	TOTAL BOLT HOLE QUANTITY	TOTAL STEEL WEIGHT (BLACK)
80'-6"	83'-9"	39" x 5" x 5.5"	100, 230, 345	12	305	36	915
TOTAL						36	915

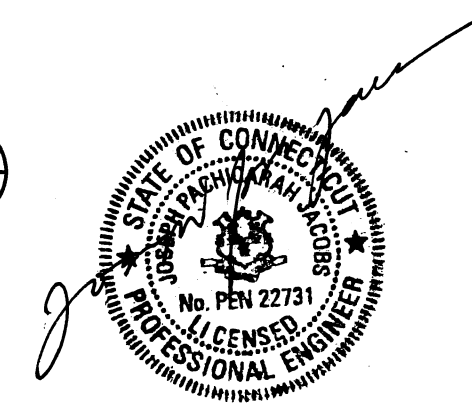
NOTES:

- 1 ALL NEW FILLER PLATE STEEL REINFORCING SHALL BE COLD GALVANIZED AS FOLLOWS:
 APPLY A MINIMUM OF TWO COATS OF ZRC-BRAND ZINC-RICH COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS; DRY 1.5 MILS. APPLY PER ZRC (MANUFACTURER) RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-831-3275 FOR PRODUCT INFORMATION.
- 2 ALL FILLER PLATES SHALL BE ASTM A36 GR. 36
- 3 HOLES FOR THE BOLTS ARE 30mm UNLESS NOTED OTHERWISE.
- 4 DEGREE SEPARATION ARE MEASURED FROM 0 DEGREE REFERENCE, AND ARE COUNTER-CLOCKWISE.

CONTRACTOR TO SEE ORIGINAL MANUFACTURER DOCUMENTS FOR EXISTING POLE INFORMATION, EXISTING FLANGE PLATE INFORMATION, AND FLANGE BOLT INFORMATION. SEE CHART ON SHEET S-1 FOR SHAFT REINFORCING SIZES, INCLUDING APPROVED BLIND BOLT QUANTITIES. EXISTING CONDITIONS TO BE FIELD VERIFIED PRIOR TO FABRICATION.



SEE CHART ON SHEET S-1 FOR NEW SHAFT REINFORCING LOCATIONS.



JUL 16 2018

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BOLTED FLANGE
 JUMP DETAILS

S-2

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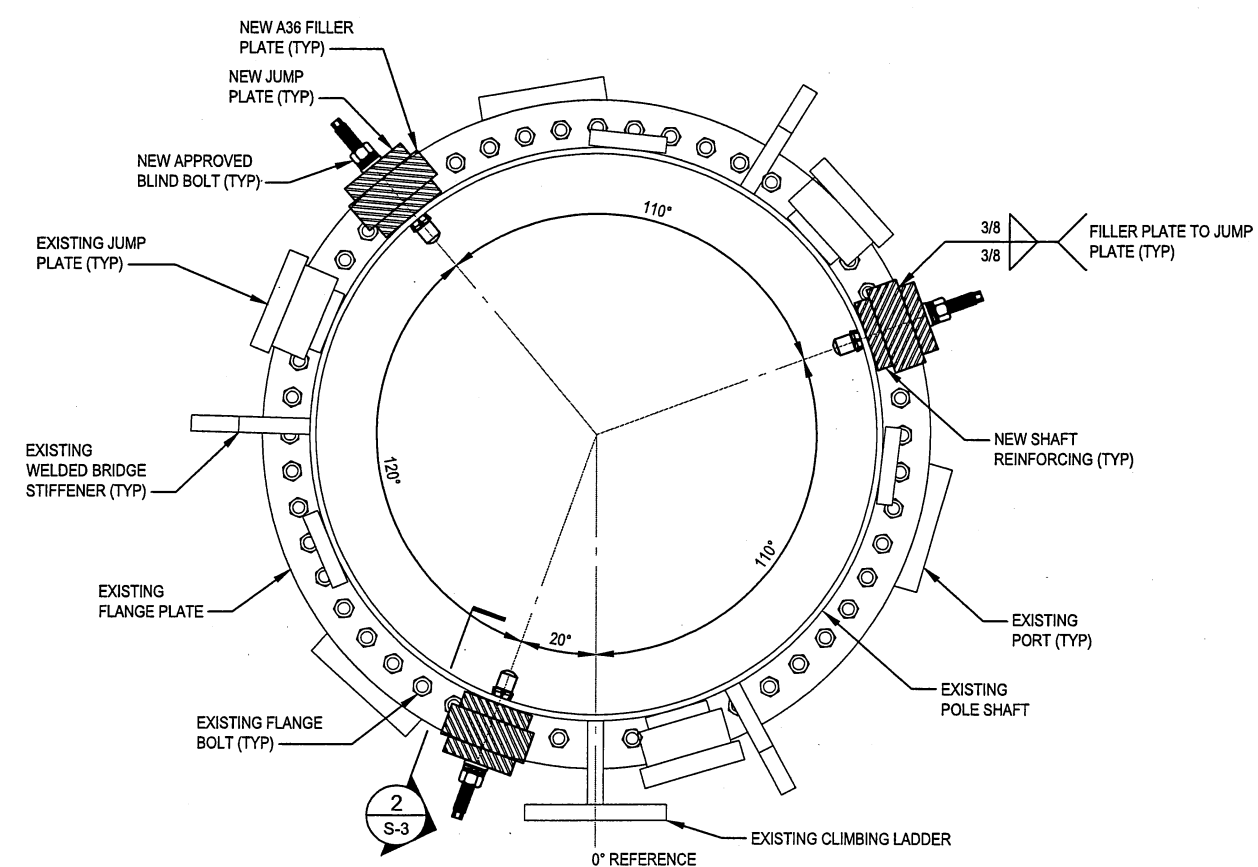
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FILLER PLATE SCHEDULE							
BOTTOM ELEVATION	TOP ELEVATION	FILLER PLATE DIMENSIONS	FLAT #/DEGREE SEPARATION	QUANTITY OF BOLT HOLES PER PLATE	STEEL WEIGHT PER PLATE (BLACK)	TOTAL BOLT HOLE QUANTITY	TOTAL STEEL WEIGHT (BLACK)
40'-6"	43'-3"	33" x 2" x 5.5"	110, 220, 340	10	103	30	309
TOTAL						30	309

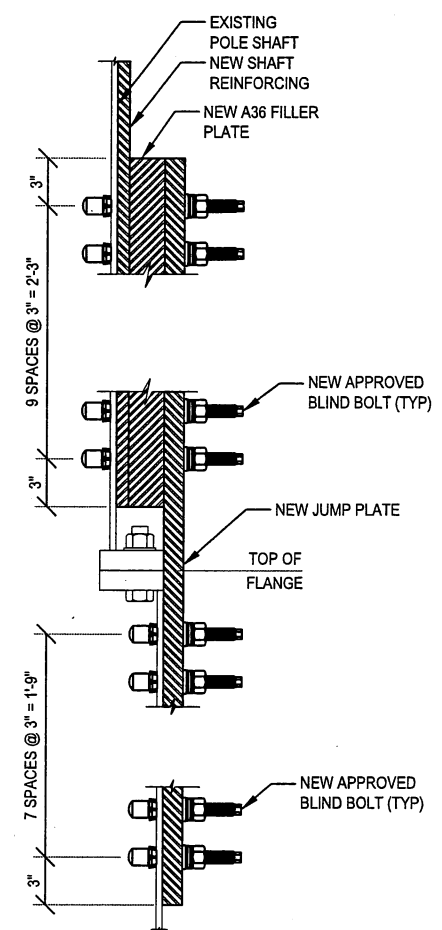
- NOTES:**
- ALL NEW FILLER PLATE STEEL REINFORCING SHALL BE COLD GALVANIZED AS FOLLOWS:
 APPLY A MINIMUM OF TWO COATS OF ZRC-BRAND ZINC-RICH COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS; DRY 1.5 MILS. APPLY PER ZRC (MANUFACTURER) RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-831-3275 FOR PRODUCT INFORMATION.
 - ALL FILLER PLATES SHALL BE ASTM A36 GR. 36
 - HOLES FOR THE BOLTS ARE 30mm UNLESS NOTED OTHERWISE.
 - DEGREE SEPARATION ARE MEASURED FROM 0 DEGREE REFERENCE, AND ARE COUNTER-CLOCKWISE.

CONTRACTOR TO SEE ORIGINAL MANUFACTURER DOCUMENTS FOR EXISTING POLE INFORMATION, EXISTING FLANGE PLATE INFORMATION, AND FLANGE BOLT INFORMATION. SEE CHART ON SHEET S-1 FOR SHAFT REINFORCING SIZES, INCLUDING APPROVED BLIND BOLT QUANTITIES. EXISTING CONDITIONS TO BE FIELD VERIFIED PRIOR TO FABRICATION.

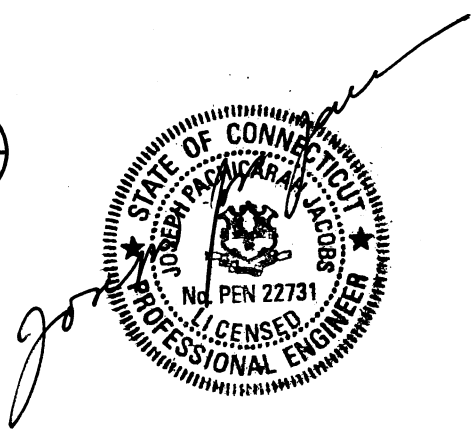


SECTION 1
 EL. 40' S-3

SEE CHART ON SHEET S-1 FOR NEW SHAFT REINFORCING LOCATIONS.



SECTION 2
 S-3



BU #876333; CREATIVE DIMENSIONS
 PLAINVILLE, CONNECTICUT
 MODIFIED 137'-0" MONOPOLE

PROJECT No:	37518-2227.001.7700
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**BOLTED FLANGE
 JUMP DETAILS**

S-3

REV	DATE	DESCRIPTION

JUL 16 2018

V1.0 37518-2227.001.DWG

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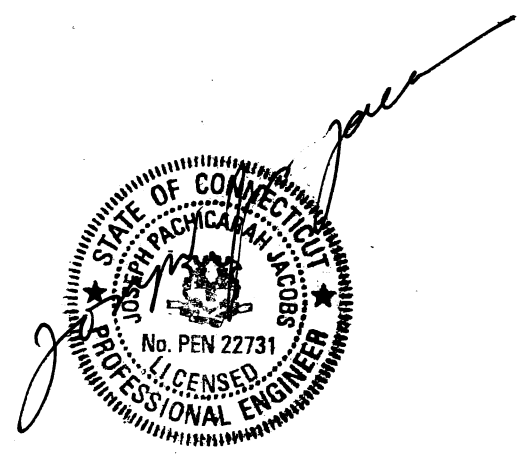
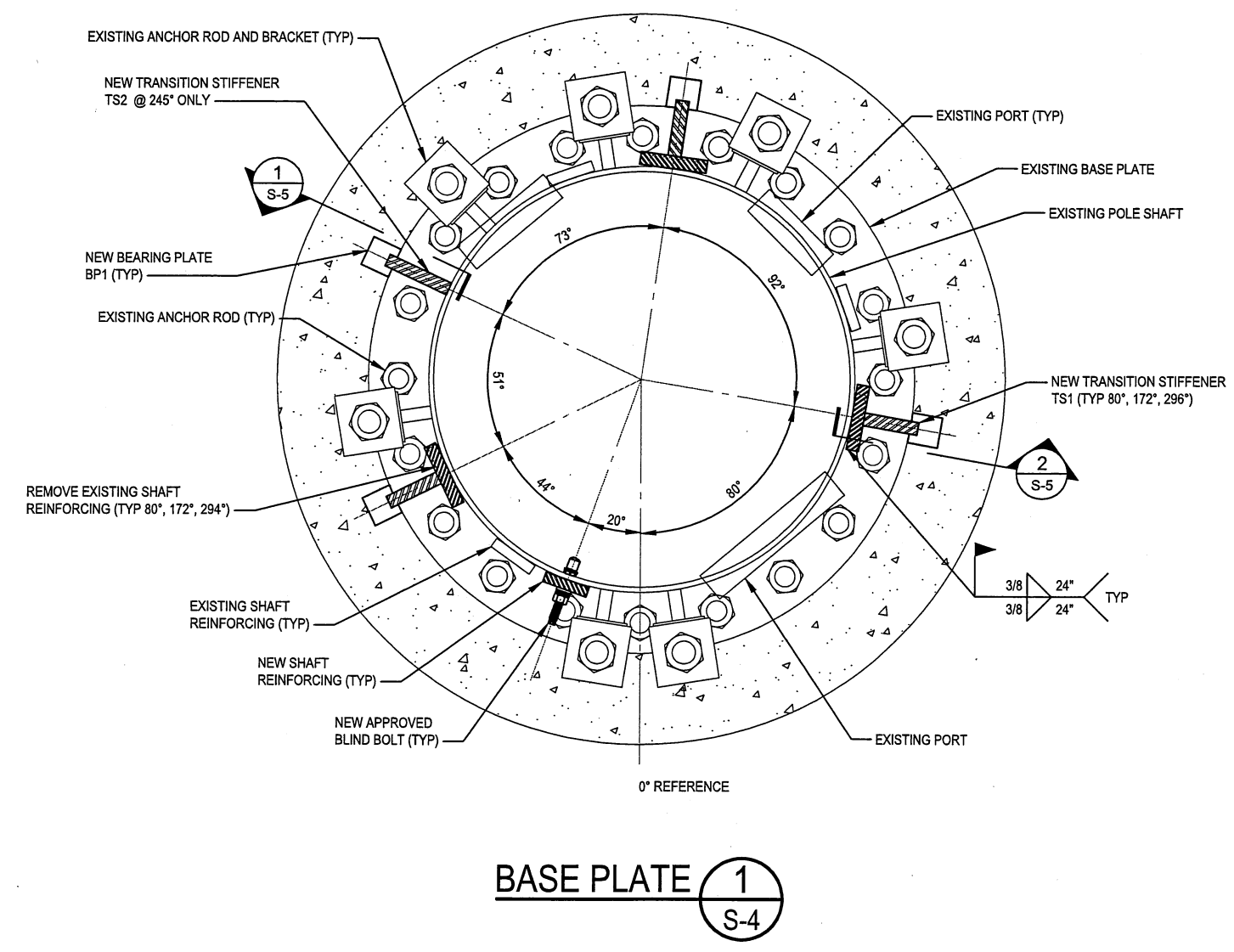
BU #876333; CREATIVE DIMENSIONS
 PLAINVILLE, CONNECTICUT
 MODIFIED 137'-0" MONOPOLE

PROJECT No: 37518-2227.001.7700
 DRAWN BY: IM
 DESIGNED BY: SK
 CHECKED BY: BKK
 DATE: 7-16-2018

BASE PLATE
 DETAILS

S-4

SEE CHART ON SHEET S-1 FOR NEW SHAFT REINFORCING LOCATIONS (IN DEGREES FROM 0° REFERENCE)



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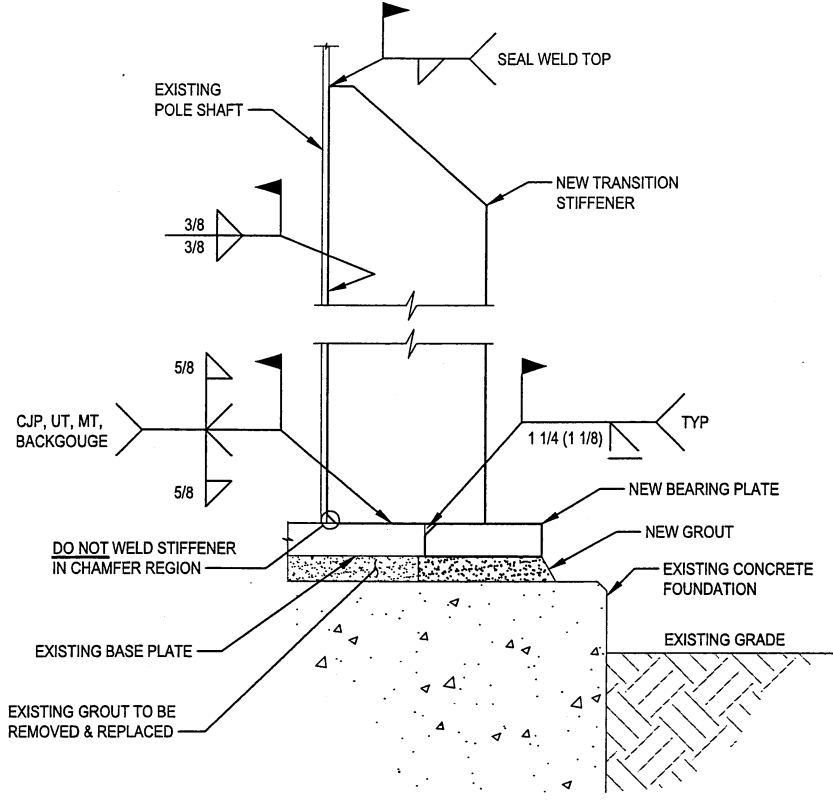
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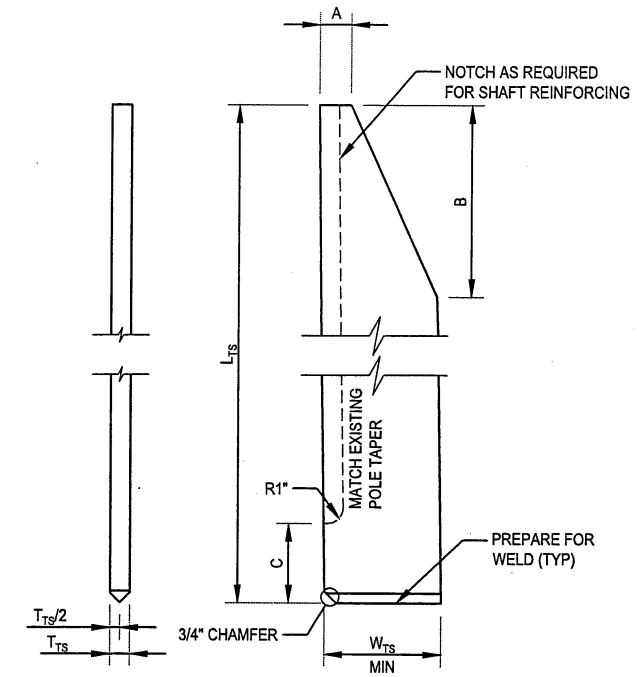
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TRANSITION STIFFENER DETAILS

S-5

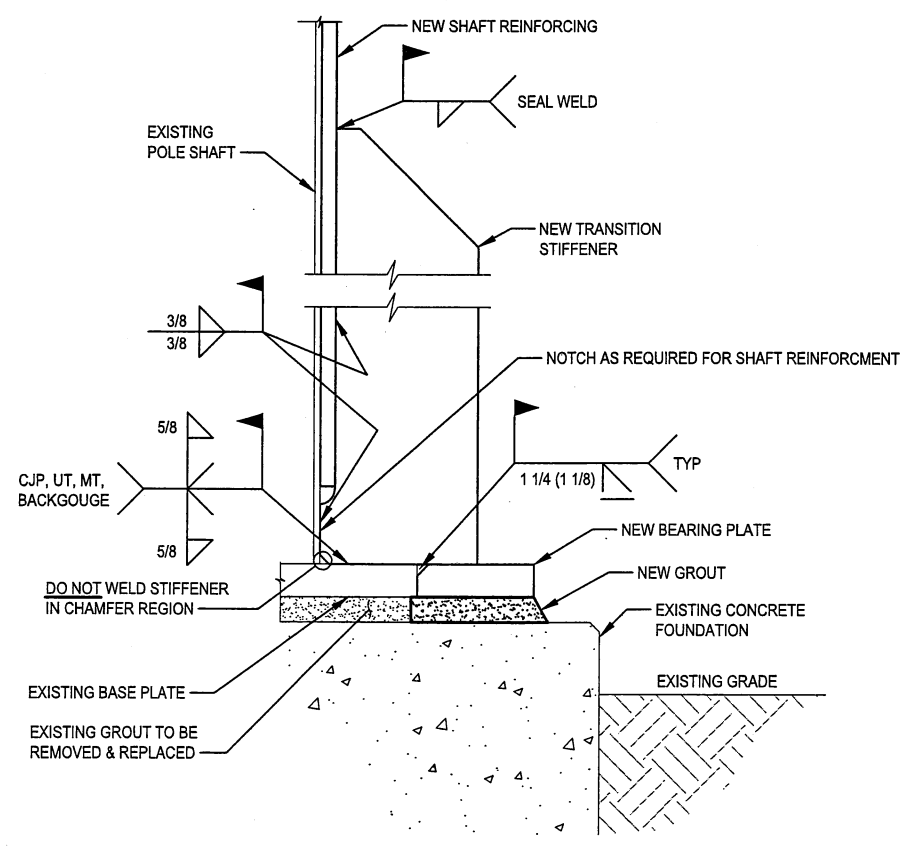


TRANSITION STIFFENER DETAIL 1
 S-5

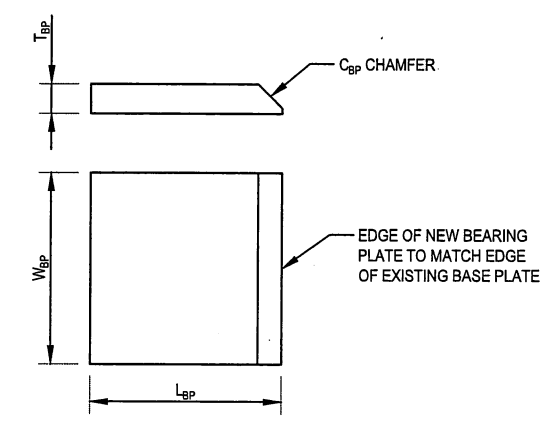


TRANSITION STIFFENER

TRANSITION STIFFENER										
PART #	ANGLE	QTY	MAT'L SPEC	T _{TS} (IN)	W _{TS} (IN)	L _{TS} (IN)	A (IN)	B (IN)	NOTCH	
									REQ'D	C (IN)
TS1	80°, 172°, 296°	3	ASTM A572 GR 65KSI	1 1/4	6 3/4	36	3	12	YES	11
TS2	245°	1	ASTM A572 GR 65KSI	1 1/4	6 3/4	64	3	12	-	-



TRANSITION STIFFENER DETAIL 2
 S-5



BEARING PLATE

BEARING PLATE							
PART #	FLAT # / ANGLE	QTY	MAT'L SPEC	T _{BP} (IN)	W _{BP} (IN)	L _{BP} (IN)	C _{BP} (IN)
BP1	80°, 172°, 245° 296°	4	ASTM A572 GR 50KSI	1 1/2	3	3	1 3/8



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