COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF	)	
NEW CINGULAR WIRELESS PCS, LLC	)	
AND AMERICAN TOWERS LLC	)	
FOR ISSUANCE OF A CERTIFICATE OF PUBLIC	)	CASE NO.: 2014-00017
CONVENIENCE AND NECESSITY TO CONSTRUCT	)	
A WIRELESS COMMUNICATIONS FACILITY	)	
IN THE COMMONWEALTH OF KENTUCKY	)	
IN THE COUNTY OF BRECKINRIDGE	)	

SITE NAME: JAKE HORSLEY

* * * * * * *

APPLICATION FOR
CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY
FOR CONSTRUCTION OF A WIRELESS COMMUNICATIONS FACILITY

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility ("AT&T Mobility"), and American Towers LLC, a Delaware limited liability company d/b/a Delaware American Towers LLC ("Applicants"), by counsel, pursuant to (i) KRS §§ 278.020, 278.040, 278.650, 278.665, and other statutory authority, and the rules and regulations applicable thereto, and (ii) the Telecommunications Act of 1996, respectfully submit this Application requesting issuance of a Certificate of Public Convenience and Necessity ("CPCN") from the Kentucky Public Service Commission ("PSC") to construct, maintain, and operate a Wireless Communications Facility ("WCF") to serve the customers of AT&T Mobility with wireless communications services.

In support of this Application, Applicants respectfully provide and state the following information:

1. The complete name and address of the Applicants: New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility, having a local address of 601 West Chestnut Street, Louisville, Kentucky 40203; American Towers LLC, a Delaware limited liability company d/b/a Delaware American Towers LLC, having a mailing address of 10 Presidential Way, Woburn, Massachusetts 01801.

2. Applicants propose construction of an antenna tower for communications services, which is to be located in an area outside the jurisdiction of a planning commission, and Applicants submit this application to the PSC for a certificate of public convenience and necessity pursuant to KRS §§ 278.020(1), 278.040, 278.650, 278.665, and other statutory authority.

3. The Certificate of Authority filed with the Kentucky Secretary of State for AT&T Mobility was attached to a prior application and is part of the case record for PSC case number 2011-00473 and is hereby incorporated by reference. A certificate of formation for American Towers LLC is attached as part of **Exhibit A**.

4. AT&T Mobility operates on frequencies licensed by the Federal Communications Commission ("FCC") pursuant to applicable FCC requirements. A copy of the AT&T Mobility's FCC license to provide wireless services is attached to this Application or described as part of **Exhibit A**, and the facility will be constructed and operated in accordance with applicable FCC regulations. American Towers LLC will build, own and manage the tower and tower compound where AT&T Mobility will place its equipment building, antennas, radio electronics equipment and appurtenances.

5. The public convenience and necessity require the construction of the

proposed WCF. The construction of the WCF will bring or improve AT&T Mobility's services to an area currently not served or not adequately served by increasing coverage and/or capacity and thereby enhancing the public's access to innovative and competitive wireless communications services. The WCF will provide a necessary link in the AT&T Mobility communications network that is designed to meet the increasing demands for wireless services in Kentucky's wireless communications service area. The WCF is an integral link in AT&T Mobility's network design that must be in place to provide adequate coverage to the service area.

6. To address the above-described service needs, Applicants propose to construct a WCF at 218 Williams Lane, Stephensport, Kentucky 40170 (37°55'53.15" North latitude, 86°28'37.73" West longitude), on a parcel of land located entirely within the county referenced in the caption of this application. The property on which the WCF will be located is owned by Cornelius and Adina Hollingshead pursuant to a Deed recorded at Deed Book 298, Page 681, and Deed Book 256, Page 774 in the office of the Breckinridge County Clerk. The proposed WCF will consist of a 255-foot tall tower, with an approximately 10-foot tall lightning arrestor attached at the top, for a total height of 265-feet. The WCF will also include concrete foundations and a shelter or cabinets to accommodate the placement of the AT&T Mobility's radio electronics equipment and appurtenant equipment. The WCF equipment cabinet or shelter will be approved for use in the Commonwealth of Kentucky by the relevant building inspector. The WCF compound will be fenced and all access gate(s) will be secured. A description of the manner in which the proposed WCF will be constructed is attached as **Exhibit B** and **Exhibit C**.

7. A list of utilities, corporations, or persons with whom the proposed WCF is likely to compete is attached as **Exhibit D,** along with a map of suitable scale showing the location of the proposed new construction as well as the location of any like facilities located anywhere within the map area, along with a map key showing the owner of such other facilities.

8. The site development plan and a vertical profile sketch of the WCF signed and sealed by a professional engineer registered in Kentucky depicting the tower height, as well as a proposed configuration for the antennas has also been included as part of **Exhibit B**.

9. Foundation design plans signed and sealed by a professional engineer registered in Kentucky and a description of the standards according to which the tower was designed are included as part of **Exhibit C**.

10. Applicants have considered the likely effects of the installation of the proposed WCF on nearby land uses and values and have concluded that there is no more suitable location reasonably available from which adequate services can be provided, and that there are no reasonably available opportunities to co-locate the necessary antennas on an existing structure. When suitable towers or structures exist, AT&T Mobility attempts to co-locate on existing structures such as communications towers or other structures capable of supporting its facilities; however, no other suitable or available co-location site was found to be located in the vicinity of the site. A report detailing the site selection process for the subject site (including documentation as to why co-location is not possible for this site) is attached as **Exhibit E**.

11. A copy of the Notice of Proposed Construction and 1A letter issued to the Federal Aviation Administration ("FAA") is attached as **Exhibit F**.

12. A copy of the Application for Kentucky Airport Zoning Commission ("KAZC") Approval to construct the tower is attached as **Exhibit G**.

13. A geotechnical engineering firm has performed soil boring(s) and subsequent geotechnical engineering studies at the WCF site. A copy of the geotechnical engineering report, signed and sealed by a professional engineer registered in the Commonwealth of Kentucky, is attached as **Exhibit H**. The name and address of the geotechnical engineering firm and the professional engineer registered in the Commonwealth of Kentucky who supervised the examination of this WCF site are included as part of this exhibit.

14. Clear directions to the proposed WCF site from the County seat are attached as **Exhibit I**. The name and telephone number of the preparer of **Exhibit I** are included as part of this exhibit.

15. Applicants, pursuant to a written agreement, have acquired the right to use the WCF site and associated property rights. A copy of the redacted agreement or an abbreviated agreement recorded with the County Clerk is attached as **Exhibit J**. The financial terms of the lease agreement are confidential and proprietary.

16. Personnel directly responsible for the design and construction of the proposed WCF are well qualified and experienced. The tower and foundation drawings for the proposed tower submitted as part of **Exhibit C** bear the signature and stamp of a professional engineer registered in the Commonwealth of Kentucky. All tower designs

meet or exceed the minimum requirements of applicable laws and regulations.

17. The Construction Manager for the proposed facility is Ron Rohr, and the identity and qualifications of each person directly responsible for design and construction of the proposed tower are contained **Exhibits B & C**.

18. As noted on the Survey attached as part of **Exhibit B**, the surveyor has determined that the site is not within any flood hazard area.

19. **Exhibit B** includes a map drawn to an appropriate scale that shows the location of the proposed tower and identifies every owner of real estate within 500 feet of the proposed tower (according to the records maintained by the County Property Valuation Administrator). Every structure and every easement within 500 feet of the proposed tower or within 200 feet of the access road including intersection with the public street system is illustrated in **Exhibit B**.

20. Applicants have notified every person who, according to the records of the County Property Valuation Administrator, owns property which is within 500 feet of the proposed tower or contiguous to the site property, by certified mail, return receipt requested, of the proposed construction. Each notified property owner has been provided with a map of the location of the proposed construction, the telephone number and address of the PSC, and has been informed of his or her right to request intervention. A list of the notified property owners and a copy of the form of the notice sent by certified mail to each landowner are attached as **Exhibit K** and **Exhibit L**, respectively.

21. Applicants have notified the applicable County Judge/Executive by certified mail, return receipt requested, of the proposed construction. This notice included the PSC

docket number under which the application will be processed and informed the County Judge/Executive of his/her right to request intervention. A copy of this notice is attached as **Exhibit M**.

22. Notice signs meeting the requirements prescribed by 807 KAR 5:063, Section 1(2) that measure at least 2 feet in height and 4 feet in width and that contain all required language in letters of required height, have been posted, one in a visible location on the proposed site and one on the nearest public road. Such signs shall remain posted for at least two weeks after filing of the Application, and a copy of the posted text is attached as **Exhibit N**. Notice of the location of the proposed facility has also been requested in a newspaper of general circulation in the county in which the WCF is proposed to be located.

23. The general area where the proposed facility is to be located is rural in character and sparsely populated.

24. The process that was used by the AT&T Mobility radio frequency engineers in selecting the site for the proposed WCF was consistent with the general process used for selecting all other existing and proposed WCF facilities within the proposed network design area. AT&T Mobility's radio frequency engineers have conducted studies and tests in order to develop a highly efficient network that is designed to handle voice and data traffic in the service area. The engineers determined an optimum area for the placement of the proposed facility in terms of elevation and location to provide the best quality service to customers in the service area. A radio frequency design search area prepared in reference to these radio frequency studies was considered when searching for sites for antennas that would provide the coverage deemed necessary by AT&T Mobility. A map of the area in

which the tower is proposed to be located which is drawn to scale and clearly depicts the necessary search area within which the site should be located pursuant to radio frequency requirements is attached as **Exhibit O**.

25. All Exhibits to this Application are hereby incorporated by reference as if fully set out as part of the Application.

26. All responses and requests associated with this Application may be directed to:

David A. Pike
Pike Legal Group, PLLC
1578 Highway 44 East, Suite 6
P. O. Box 369
Shepherdsville, KY 40165-0369
Telephone: (502) 955-4400
Telefax: (502) 543-4410
Email: dpike@pikelegal.com

Patrick W. Turner
General Attorney-Kentucky
AT&T Kentucky
1600 Williams Street
Suite 5200
Columbia, South Carolina 29201
Telephone: (803) 401-2900
Telefax: (803) 254-1731
Email: pt1285@att.com

Matthew Russell
Attorney
American Towers LLC
10 Presidential Way
Woburn, MA 01801
Telephone: 781.926.7154
Email: matthew.russell@americantower.com

WHEREFORE, Applicants respectfully request that the PSC accept the foregoing Application for filing, and having met the requirements of KRS §§ 278.020(1), 278.650, and 278.665 and all applicable rules and regulations of the PSC, grant a Certificate of Public Convenience and Necessity to construct and operate the WCF at the location set forth herein.

Respectfully submitted,

David A. Pike
Pike Legal Group, PLLC
1578 Highway 44 East, Suite 6
P. O. Box 369
Shepherdsville, KY 40165-0369
Telephone: (502) 955-4400
Telefax: (502) 543-4410
Email: dpike@pikelegal.com
Attorney for New Cingular Wireless PCS, LLC d/b/a AT&T Mobility

and

Matthew Russell
10 Presidential Way
Woburn, MA 01801
Telephone: 781.926.7154
Email: matthew.russell@americantower.com
Attorney for American Towers LLC d/b/a Delaware American Towers LLC

LIST OF EXHIBITS

A - FCC License Documentation

B - Site Development Plan:

500' Vicinity Map
Legal Descriptions
Flood Plain Certification
Site Plan
Vertical Tower Profile

C - Tower and Foundation Design

D - Competing Utilities, Corporations, or Persons List and Map of Like Facilities in Vicinity

E - Co-location Report

F - FAA

G - Kentucky Airport Zoning Commission

H - Geotechnical Report

I - Directions to WCF Site

J - Copy of Real Estate Agreement

K - Notification Listing

L - Copy of Property Owner Notification

M - Copy of County Judge/Executive Notice

N - Copy of Posted Notices

O - Copy of Radio Frequency Design Search Area

EXHIBIT A
FCC LICENSE DOCUMENTATION

Commonwealth of Kentucky
Trey Grayson, Secretary of State

8/6/2009

Division of Corporations
Business Filings

P. O. Box 718
Frankfort, KY 40602
(502) 564-2848
http://www.sos.ky.gov

Certificate of Authorization

Authentication Number: 84012
Jurisdiction: Briggs Law Office, PSC
Visit http://apps.sos.ky.gov/business/obdb/certvalidate.aspx to authenticate this certificate.

I, Trey Grayson, Secretary of State of the Commonwealth of Kentucky, do hereby certify that according to the records in the Office of the Secretary of State,

NEW CINGULAR WIRELESS PCS, LLC

, a limited liability company organized under the laws of the state of Delaware, is authorized to transact business in the Commonwealth of Kentucky and received the authority to transact business in Kentucky on October 14, 1999.

I further certify that all fees and penalties owed to the Secretary of State have been paid; that an application for certificate of withdrawal has not been filed; and that the most recent annual report required by KRS 275.190 has been delivered to the Secretary of State.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 6th day of August, 2009.

Trey Grayson
Secretary of State
Commonwealth of Kentucky
84012/0481848

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THAT THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF CONVERSION OF A DELAWARE CORPORATION UNDER THE NAME OF "AMERICAN TOWERS, INC." TO A DELAWARE LIMITED LIABILITY COMPANY, CHANGING ITS NAME FROM "AMERICAN TOWERS, INC." TO "AMERICAN TOWERS LLC", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF JUNE, A.D. 2011, AT 11:54 O'CLOCK A.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF CONVERSION IS THE THIRTIETH DAY OF JUNE, A.D. 2011, AT 11:59 O'CLOCK P.M.

Jeffrey W. Bullock, Secretary of State

2525871 8100V

AUTHENTICATION: 8874959

110780451

DATE: 06-30-11

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 11:54 AM 06/30/2011
FILED 11:54 AM 06/30/2011
SRV 110780451 - 2525871 FILE

STATE OF DELAWARE
CERTIFICATE OF CONVERSION
FROM A CORPORATION TO A
LIMITED LIABILITY COMPANY PURSUANT TO
SECTION 18-214 OF THE LIMITED LIABILITY ACT

1.) The jurisdiction where the Corporation first formed is Delaware.

2.) The jurisdiction immediately prior to filing this Certificate is Delaware.

3.) The date the corporation first formed is July 19, 1995.

4.) The name of the Corporation immediately prior to filing this Certificate is American Towers, Inc.

5.) The name of the Limited Liability Company as set forth in the Certificate of Formation is American Towers LLC.

6.) The effective date of this Certificate of Conversion is the 30th of June, 2011 at 11:59 p.m.

IN WITNESS WHEREOF, the undersigned have executed this Certificate on the 29 day of June, 2011 A.D.

By: _____
Authorized Person

Name: Michael John McCormack
Print or Type

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THAT THE ATTACHED IS A TRUE AND CORRECT COPY OF CERTIFICATE OF FORMATION OF "AMERICAN TOWERS LLC" FILED IN THIS OFFICE ON THE THIRTIETH DAY OF JUNE, A.D. 2011, AT 11:54 O'CLOCK A.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF FORMATION IS THE THIRTIETH DAY OF JUNE, A.D. 2011, AT 11:59 O'CLOCK P.M.

Jeffrey W. Bullock, Secretary of State

2525871 8100V

AUTHENTICATION: 8874959

110780451

DATE: 06-30-11

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 11:54 AM 06/30/2011
FILED 11:54 AM 06/30/2011
SRV 110780451 - 2525871 FILE

CERTIFICATE OF FORMATION

OF

AMERICAN TOWERS LLC

1. The name of the limited liability company is American Towers LLC.

2. The address of its registered office in the State of Delaware is Corporation Trust Center, 1209 Orange Street, in the City of Wilmington, Delaware 19801. The name of its registered agent at such address is The Corporation Trust Company.

3. The effective date of this Certificate of Formation is June 30, 2011 at 11:59 p.m.

IN WITNESS WHEREOF, the undersigned have executed this Certificate of Formation of American Towers LLC this 29 day of June, 2011.

By: _____
Authorized Person

Michael John McCormack

ULS License

Cellular License - KNKN748 - NEW CINGULAR WIRELESS PCS, LLC

PA This license has pending applications: 0006003502

Call Sign	KNKN748	Radio Service	CL - Cellular
Status	Active	Auth Type	Regular

Market

Market	CMA445 - Kentucky 3 - Meade	Channel Block	A
Submarket	0	Phase	2

Dates

Grant	08/30/2011	Expiration	10/01/2021
Effective	11/24/2012	Cancellation	

Five Year Buildout Date

01/06/1997

Control Points

1 1650 Lyndon Farms Court, LOUISVILLE, KY
P: (502)329-4700

Licensee

FRN 0003291192 Type Limited Liability Company

Licensee

NEW CINGULAR WIRELESS PCS, LLC
2200 N. Greenville Ave, 1W
Richardson, TX 75082
ATTN Reginald Youngblood

P:(972)234-7003
F:(972)301-6893
E:FCCMW@att.com

Contact

AT&T MOBILITY LLC
MICHAEL P GOGGIN
1120 20TH STREET, NW, SUITE 1000
WASHINGTON, DC 20036

P:(202)457-2055
F:(202)457-3073
E:MG7268@ATT.COM

Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Demographics

Race

Ethnicity Gender

ULS License

PCS Broadband License - KNLG923 - NEW CINGULAR WIRELESS PCS, LLC

Call Sign	KNLG923	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Market

Market	BTA263 - Louisville, KY	Channel Block	F
Submarket	0	Associated Frequencies (MHz)	001890.00000000-001895.00000000 001970.00000000-001975.00000000

Dates

Grant	09/28/2007	Expiration	08/21/2017
Effective	11/24/2012	Cancellation	

Buildout Deadlines

1st	08/21/2002	2nd	

Notification Dates

1st	10/05/2001	2nd	

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

NEW CINGULAR WIRELESS PCS, LLC
2200 N. Greenville Ave, 1W
Richardson, TX 75082
ATTN Reginald Youngblood

P:(972)234-7003
F:(972)301-6893
E:FCCMW@att.com

Contact

AT&T MOBILITY LLC
Michael P Goggin
1120 20th Street, NW - Suite 1000
Washington, DC 20036
ATTN Michael P. Goggin

P:(202)457-2055
F:(202)457-3073
E:michael.p.goggin@att.com

Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

ULS License

PCS Broadband License - WPOI255 - NEW CINGULAR WIRELESS PCS, LLC

Call Sign	WPOI255	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Market

Market	MTA026 - Louisville-Lexington-Evansvill	Channel Block	A
Submarket	19	Associated Frequencies (MHz)	001850.00000000-001865.00000000 001930.00000000-001945.00000000

Dates

Grant	07/07/2005	Expiration	06/23/2015
Effective	11/24/2012	Cancellation	

Buildout Deadlines

1st	06/23/2000	2nd	06/23/2005

Notification Dates

1st	07/07/2000	2nd	02/17/2005

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

NEW CINGULAR WIRELESS PCS, LLC
2200 N. Greenville Ave, 1W
Richardson, TX 75082
ATTN Reginald Youngblood

P:(972)234-7003
F:(972)301-6893
E:FCCMW@att.com

Contact

AT&T MOBILITY LLC
Michael P Goggin
1120 20th Street, NW - Suite 1000
Washington, DC 20036
ATTN Michael P. Goggin

P:(202)457-2055
F:(202)457-3073
E:michael.p.goggin@att.com

Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

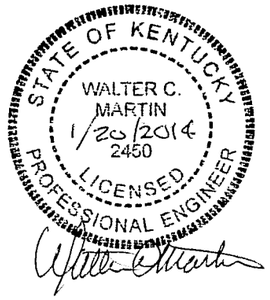
Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

EXHIBIT B

SITE DEVELOPMENT PLAN:

500' VICINITY MAP
LEGAL DESCRIPTIONS
FLOOD PLAIN CERTIFICATION
SITE PLAN
VERTICAL TOWER PROFILE

B



AMERICAN TOWER CORPORATION

at&t

SITE NAME:

JAKE HORSLEY

SITE NUMBER:

AT&T SITE# 143741/ ATC # 281318

NEW 255' SELF SUPPORT TOWER W/ 10' LIGHTING ARRESTOR INSTALLED WITHIN NEW 80' X 80' FENCED TELECOMMUNICATIONS FACILITY

SITE INFORMATION

SITE NAME:	JAKE HORSLEY
SITE NUMBER:	13-8578
SITE ADDRESS	218 WILLIAMS LANE STEPHENSPORT, KENTUCKY 40170
JURISDICTION:	BRECKINRIDGE COUNTY
TAX ACCOUNT ID:	6357
MAP/PARCEL:	54-1N
PARCEL SIZE/COMPOUND SIZE	100' X 100'/ 80' X 80'
SITE COORDINATES:	37° 55' 53.15" 86° 28' 37.73"
GROUND ELEVATION:	746.6'
STRUCTURE TYPE:	SELF SUPPORT
STRUCTURE HEIGHT:	255'
GROUND LANDLORD ADDRESS:	226 WILLIAMS LANE
GROUND LANDLORD ADDRESS:	STEPHENSPORT, KY 40170
LANDLORD NAME:	CORNELIUS & ADINA
LANDLORD ADDRESS:	226 WILLIAMS LANE STEPHENSPORT, KY 40170
APPLICANT:	AMERICAN TOWER CORPORATION 116 HUNTINGTON AVE. BOSTON, MA 02116
APPLICANT PHONE:	(617) 375-7500

CODE ANALYSIS

BUILDING CODE:	IBC 2010 KY BLDG Code 2007
ELECTRICAL CODE:	NEC 2005
FIRE SAFETY CODE:	NFPA 101
USE GROUP:	U (UTILITY)
CONSTRUCTION TYPE:	11B

PROJECT DESCRIPTION

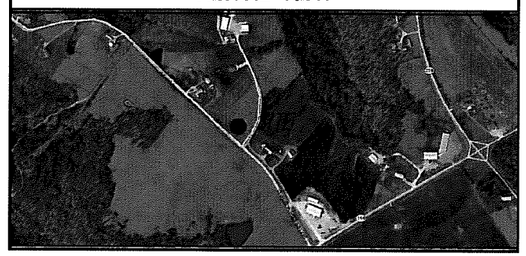
1. NEW 100' X 100' LEASED/ 80' x 80' FENCED TELECOMMUNICATIONS FACILITY TO BE INSTALLED.
2. NEW 255' SELF SUPPORT TOWER TO BE INSTALLED WITHIN FENCED TELECOMMUNICATIONS FACILITY.
3. NEW ELECTRICAL SERVICE TO BE INSTALLED.
4. NEW TELEPHONE SERVICE TO BE INSTALLED.

AREA MAP

DIRECTIONS

BEGINNING AT THE BRECKINRIDGE COUNTY COURT HOUSE, 111 2ND STREET HARDINSBURG, KY PROCEED WEST ON 2ND STREET TOWARD KY-259 FOR .01 MILES. TURN RIGHT ONTO KY-259/MAIN ST. AND PROCEED FOR 12.7 MILES. TURN LEFT ONTO KY-144 AND PROCEED FOR .3 MILES. TURN RIGHT ONTO WILLIAMS RD. AND PROCEED .2 MILES. SITE IS ON YOUR RIGHT.

AERIAL VIEW



SHEET INDEX

DRAWING SHEET	DRAWING TITLE
T-1	TITLE SHEET
S-1	500' ADJOINERS AND ABUTTERS
S-2	SITE SURVEY
C-1	SITE LAYOUT
C1-2	DIM. TO PROPERTY LINES
C-2	TOWER ELEVATION

AMERICAN TOWER REVIEW

THE FOLLOWING PARITES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS

ATC R.F.: _____ DATE: _____

ATC ZONING: _____ DATE: _____

ATC S.A.: _____ DATE: _____

ATC P & T: _____ DATE: _____

ATC CONST.: _____ DATE: _____

ATC A&E MGR.: _____ DATE: _____

PROPERTY OWNER: _____ DATE: _____

at&t

AMERICAN TOWER CORPORATION

FSTan
Formerly F.S. Land & T. Alan Neal Company
Land Surveyors and Consulting Engineers
428 E Warnock Street
Louisville, KY 40217
Phone: (502) 635-5866 (502) 636-8111
Fax: (502) 636-8263

PROPERTY OWNER:
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170

SITE ADDRESS:
218 WILLIAMS LANE
STEPHENSPORT, KY 40170

SITE NUMBER:
AT&T SITE# 143741/ ATC # 281318

REVISIONS
MOVED LEASE AREA 11-06-13
REVISED TOWER HEIGHT 11-11-13
REVISED SITE ADDRESS 12-17-13
REVISED SITE PLANS 01-16-14

SITE NAME: JAKE HORSLEY

TITLE SHEET

DATE: 10-24-13

CHECKED BY: FS II

DRAWN BY: SMF

FSTAN PROJECT NO.:
13-8578

T-1

SHEET 1

S1/1 – VICINITY AND 500' STRUCTURAL MAP

S1/2 – ABUTTING PROPERTY OWNERS

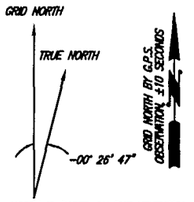
S1/3 – U.S.G.S. QUAD MAP

SHEET 2

S2/1 – LEASE AREA

S2/2 – LEGAL DESCRIPTIONS

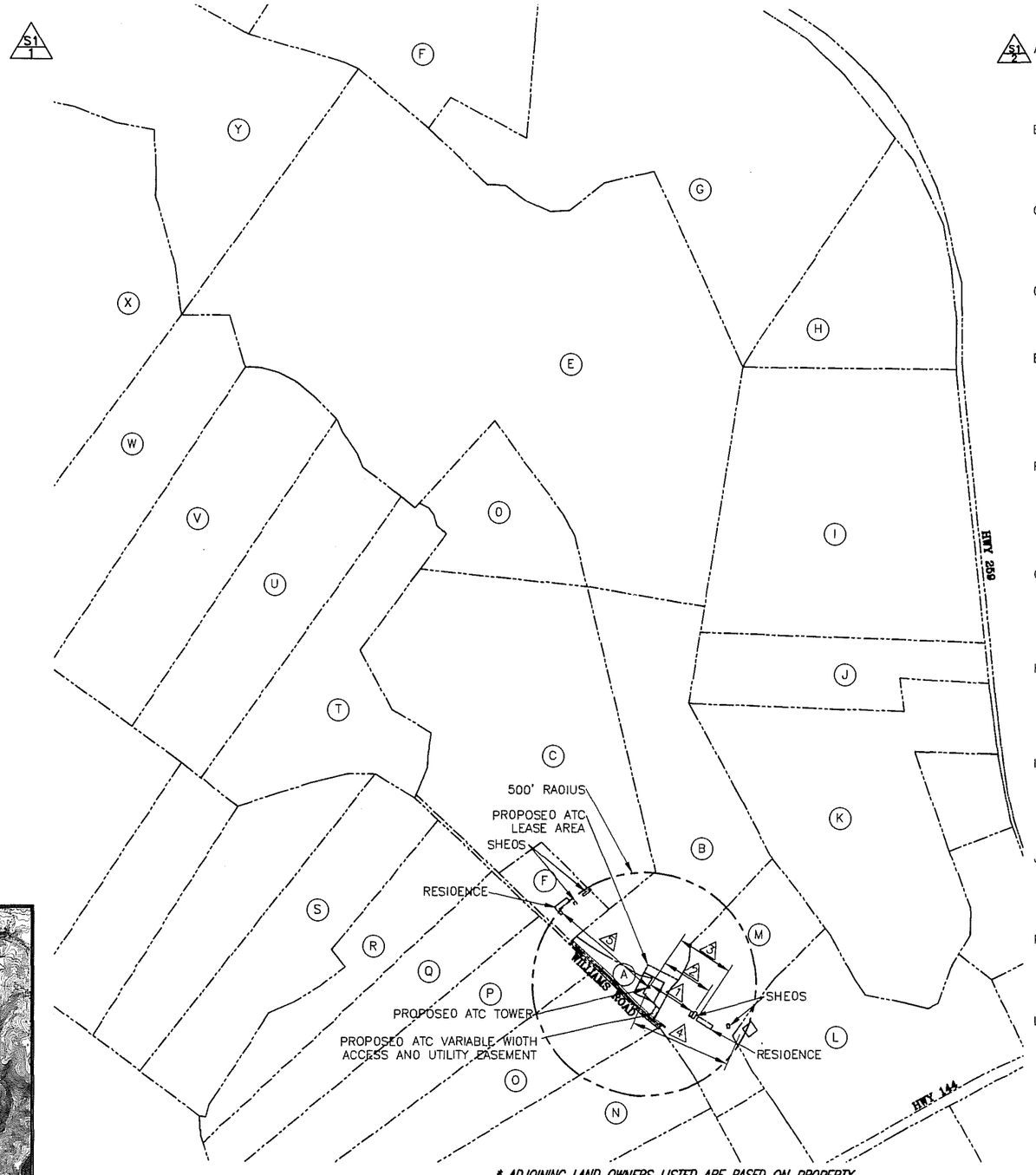
S2/3 – FLOOD ZONE DATA



NORTH IS BASED ON THE KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE AND WAS DETERMINED BY COMPUTATION FROM G.P.S. OBSERVATION ON OCTOBER 11, 2013

S1/3 QUAD MAP
SCALE: 1"=2000'

U.S.G.S. 7 1/2 MINUTE QUAD MAP OF (QUAD MAP NAME)



* ADJOINING LAND OWNERS LISTED ARE BASED ON PROPERTY VALUATION ADMINISTRATION ("PVA") RECORDS ISSUED BY A REPRESENTATIVE FROM BRECKINRIDGE COUNTY, TO BE IN COMPLIANCE WITH ALL STATUTORY AND REGULATORY REQUIREMENTS BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION AND FOR TELECOMMUNICATION USE ONLY.

S1/2

A. 54-1N
CORNELIUS & AOINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

B. 54-1F-4
CORNELIUS & AOINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

C. 54-1F-1
CORNELIUS & AOINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

O. 54-1F-2 CORNELIUS & AOINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

E. 54-1G
HOLLINGSHEAO CORNELIUS & AOINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

F. 54-1F-5
HOLLINGSHEAO CORNELIUS & AOINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

G. 54-17
BRIAR PATCH FARMS LLC
T OARREN BROWN PRESIOENT
6640 HWY 79
GUSTON, KY 40142
ZONING: NO ZONING

H. 54-1F-6
KEITH BENNIE W & OANIEL R KEITH
212 SANOSTONE RO
SHEPHEROSVILLE, KY 40165
ZONING: NO ZONING

I. 54-1M
WHELAN JONATHAN & MARION & H ROSALIE
4300 OLO ST RO
BRANOENBURG, KY 4010
ZONING: NO ZONING

J. 54-1L
HUBER NATHAN H & VIOLET G
13233 E HWY 144
STEPHENSPORT, KY 40170
ZONING: NO ZONING

K. 54-1F-8
SMITH CONROY LEE & BONITA K
12915 N HWY 259
STEPHENSPORT, KY 40170
ZONING: NO ZONING

L. 54-1H
HUBER NATHAN H & VIOLET G
13233 E HWY 144
STEPHENSPORT, KY 40170
ZONING: NO ZONING

M. 54-1J
HUBER NATHAN H & VIOLET G
13233 E HWY 144
STEPHENSPORT, KY 40170
ZONING: NO ZONING

N. 54-1B5
LAWSON LONNIE R & OOROTHY L
636 OLO STATE ROAO
BRANOENBURG, KY 40108
ZONING: NO ZONING

0. 54-1B4
LAWSON LONNIE R & OOROTHY L
636 OLO STATE ROAO
BRANOENBURG, KY 40108
ZONING: NO ZONING

P 54-1B3
LAWSON LONNIE R & OOROTHY L
636 OLO STATE ROAO
BRANOENBURG, KY 40108
ZONING: NO ZONING

Q 54-1B2 OUKES OEREK S
LAWSON LONNIE R & OOROTHY L
636 OLO STATE ROAO
BRANOENBURG, KY 40108
ZONING: NO ZONING

R. 54-1B1
LAWSON LONNIE R & OOROTHY L
636 OLO STATE ROAO
BRANOENBURG, KY 40108
ZONING: NO ZONING

S. 54-5R
BROWN GEORGE ANO HELEN
519 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

T. 54-5B
RUTHERFORO ERNEST & SUSAN
686 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

U. 54-5N
SIMMONS GARY R & PATRICIA
752 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

V. 54-5J
SIMMONS GARY R & PATRICIA
752 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

W. 54-5-0
ESPY B J SR LIVING TRUST
BJ ESPY SR TRUSTEE
PO BOX 549
BRANOENBURG, KY 40108
ZONING: NO ZONING

X. 54-4
MILLER PAUL O & WM H POWERS
120 CIRCLE OR.
HAROINSBURG, KY 40143
ZONING: NO ZONING

Y. 54-1F-9
HORSLEY MILTON JR & CONNIE
101 JAYS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

TOWER TO STRUCTURE DIST.	
1	215'±
2	229'±
3	212'±
4	456'±
5	484'±

AMERICAN TOWER CORPORATION

FStan

Formerly F.S. Land & T. Alan Neal Company
Land Surveyors and Consulting Engineers
428 E Warnock Street
Louisville, KY 40217
Phone: (502) 635-5888 (502) 636-5111
Fax: (502) 636-5263

SITE NUMBER:
AT&T# 143741 / ATC# 281318

SITE NAME:
JAKE HORSLEY

SITE ADDRESS:
218 WILLIAMS LANE
STEPHENSPORT, KY 40170

LEASE AREA:
10,000 SQ. FT.

PROPERTY OWNER:
CORNELIUS HOLLINGSHEAD
226 WILLIAMS LANE
STEPHENSPORT, KY 40170

MAP NUMBER:
54

PARCEL NUMBER:
1N & 1F-4

SOURCE OF TITLE:
DEED 298, PAGE 681
DEED 256, PAGE 774

DWG BY:	CHKD BY:	DATE:
SMF	FSN	10.24.13

FSTAN PROJECT NO.:
13-8576

SHEET 1 OF 2

REVISIONS:
MOVED LEASE AREA – 11.06.13
ADD TITLE NOTES – 12.20.13
UPDATE PRO. OWN. – 01.16.14

DATE COMPILED: 08-21-13

JAKE HORSLEY
AT&T # 143741 / ATC # 281318
SITE ADDRESS: 218 WILLIAMS LANE
STEPHENSPORT, KY 40170
OWNER ADDRESS: 226 WILLIAMS LANE
STEPHENSPORT, KY 40170

SHEET 2

S2/1 – LEASE AREA

S2/2 – LEGAL DESCRIPTIONS

S2/3 – FLOOD ZONE DATA

GRID NORTH

TRUE NORTH

-00° 26' 47"

GRID NORTH BY G.P.S. OBSERVATION ±10 SECONDS

NORTH IS BASED ON THE KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE AND WAS DETERMINED BY COMPUTATION FROM G.P.S. OBSERVATION ON OCTOBER 11, 2013

UNDERGROUND UTILITIES
CALL 3 WORKING DAYS
BEFORE YOU DIG
INDIANA 1-800-382-5544
KENTUCKY 1-800-752-6007
OHIO 1-800-362-2764
UTILITIES PROTECTION SERVICE
NON-MEMBERS MUST CALL DIRECTLY

The utility information shown on this plat, prepared by FSTAN was obtained from visible records and or by field locations. It is the contractor's responsibility to verify their existence and location, and to contact the appropriate utility company for field locations.

COORDINATE POINT LOCATION

NAD 1983
LATITUDE: 37° 55' 53.15"
LONGITUDE: 86° 28' 37.73"
NAVD 1988
ELEVATION: 746.6'
STATE PLANE COORDINATE SINGLE ZONE (BLUE MARBLE GEOGRAPHIC CALCULATOR VERSION 3.0)
NORTHING: 3863541.0892
EASTING: 4711539.4740

POWER SOURCE

UTILITY COMPANY: MEADE COUNTY RECC
IDENTIFICATION #: N/A

TELEPHONE SOURCE

TELEPHONE COMPANY: BRANDENBURG TELEPHONE
IDENTIFICATION #: N/A

PROJECT BENCHMARK

NORTH: 3863489.64
EAST: 4711541.14
ELEVATION: 745.47
LOCATION: BEING A SET IRON ROD LOCATED AT THE SOUTHWEST CORNER OF THE LEASE AREA

SURVEYOR'S REVIEW OF "SPECIAL EXCEPTIONS"

NOTES CORRESPONDING TO THE OLD REPUBLIC NATIONAL TITLE INS. CO., "COMMITMENT FOR TITLE INSURANCE", COMMITMENT 01-1313B948-01T, EFFECTIVE DATE: 11/15/2013 AT 7:00 AM.

(7) SUBJECT TO COVENANTS, RESTRICTIONS, RESERVATIONS, EASEMENTS, AND RIGHTS OF WAY AND BUILDING SETBACKS AS SHOWN ON THE PLAT OF THE MELVIN MARTIN PROPERTY, AS RECORDED IN CABINET SLIDE A-318 OF BRECKINRIDGE COUNTY RECORDS.
(Does apply to the Proposed Lease Area and the Variable Width Access & Utility Easement)

(8) WARRANTY DEED OF FLOWAGE EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA, RECORDED 11/13/1964, AS BOOK 168, PAGE 252 OF THE BRECKINRIDGE COUNTY RECORDS.
(Does not apply to the Proposed Lease Area and the Variable Width Access & Utility Easement)

(9) SUBJECT TO GAS PIPELINE RIGHT OF WAY EASEMENT AS CONTAINED IN DEED, RECORDED 02/21/1969, IN BOOK 113, PAGE 625 OF THE BRECKINRIDGE COUNTY RECORDS.
(Does not apply to the Proposed Lease Area and the Variable Width Access & Utility Easement)

(10) DEED OF CONVEYANCE IN FAVOR OF COMMONWEALTH OF KENTUCKY, RECORDED 03/01/1996, AS BOOK 176, PAGE 377 OF THE BRECKINRIDGE COUNTY RECORDS.
(Does not apply to the Proposed Lease Area and the Variable Width Access & Utility Easement)

(11) SUBJECT TO SPRING WATER TRANSMISSION LINE AND INGRESS AND EGRESS AS CONTAINED IN DEED, RECORDED 07/11/1992, IN BOOK 211, PAGE 289 OF THE BRECKINRIDGE COUNTY RECORDS.
(Location of Water Line & Equipment vague & ambiguous – Surveyor unable to plot)

(12) SUBJECT TO SPRING WATER TRANSMISSION LINE AND EGRESS AS CONTAINED IN DEED, RECORDED 05/05/1995, IN BOOK 234, PAGE 481 OF THE BRECKINRIDGE COUNTY RECORDS.
(Location of Water Line & Equipment vague & ambiguous – Surveyor unable to plot)

(13) OIL AND GAS LEASE, BY AND BETWEEN R.T. WILLIAMS, ET AL AND CORAL E. WILLIAMS, AND MERIDIAN ENERGY CORPORATION, RECORDED 04/14/1997, IN BOOK 28, PAGE 160 OF THE BRECKINRIDGE COUNTY RECORDS.
(Description vague & ambiguous – Surveyor unable to plot)
NOTE: ASSIGNMENT OF OIL AND GAS LEASE, BY AND BETWEEN MERIDIAN ENERGY CORPORATION, ASSIGNOR, AND BLAZER ENERGY CORP., ASSIGNEE, RECORDED 06/25/1997, AS BOOK 29, PAGE 193 OF BRECKINRIDGE COUNTY RECORDS.
(Description vague & ambiguous – Surveyor unable to plot)

(14) OIL AND GAS LEASE, BY AND BETWEEN MELVIN B. MARTIN AND RUTH E. MARTIN, AND MERIDIAN ENERGY CORPORATION, RECORDED 04/14/1997, IN BOOK 28, PAGE 164 OF THE BRECKINRIDGE COUNTY RECORDS.
(Description vague & ambiguous – Surveyor unable to plot)
NOTE: RATIFICATION RECORDED 04/14/1997, AS BOOK 28, PAGE 167 OF THE BRECKINRIDGE COUNTY RECORDS.
(Description vague & ambiguous – Surveyor unable to plot)

(15) OIL AND GAS LEASE (PAID UP), BY AND BETWEEN CORNELIUS HOLLINGSHEAD AND ADINA K. HOLLINGSHEAD, AKA ADINA HOLLINGSHEAD, AND PIPER SERVICES CORP., RECORDED 05/24/2004, IN BOOK 34, PAGE 271 OF THE BRECKINRIDGE COUNTY RECORDS.
(Does apply to the Proposed Lease Area and the Variable Width Access & Utility Easement)
NOTE: PARTIAL ASSIGNMENT OF OIL AND GAS LEASES, BY AND BETWEEN SAMSON RESOURCES COMPANY, ASSIGNOR, AND AURORA OIL & GAS CORPORATION, SUCCESSOR VIA MERGER TO THE INTERNATIONAL OIL ALUMINA AGENCY, LTD. ASSIGNEE, RECORDED 02/27/2008, AS BOOK 35, PAGE 429 OF BRECKINRIDGE COUNTY RECORDS.
(Does apply to the Proposed Lease Area and the Variable Width Access & Utility Easement)

LEGAL DESCRIPTIONS:

S2/2

This is a description for American Tower Corporation, of a lease area to be located on the property of Cornelius Hollingshead which is further described as follows:

LEASE AREA

Beginning at an existing iron rod found at the southwest corner of a Lot 6 found in Plat Cabinet A, Slide 318 of the Office of the Clerk, Breckinridge County Kentucky; said Plat being the property conveyed to Cornelius Hollingshead in Deed Book 298, Page 681 and Deed Book 256, Page 774 in the aforesaid clerk's office; thence traversing said Property S61°50'18"E – 342.83' to a set #5 iron rod with cap #3282 and the True Point Of Beginning of the proposed Lease Area; thence S62°48'31"E – 100.00' to a set #5 iron rod with cap #3282; thence S27°11'29"W – 100.00' to a set #5 iron rod with cap #3282; thence N62°48'31W – 100.00' to a set #5 iron rod with cap #3282; thence N27°11'29"E – 100.00' to the point of beginning, containing 10,000 square feet as per survey by FStan Land Surveyors & Consulting Engineers, Frank L Sellinger, II, surveyor, dated October 21, 2013.

VARIABLE WIDTH ACCESS & UTILITY EASEMENT

Beginning at an existing iron rod found at the southwest corner of a Lot 6 found in Plat Cabinet A, Slide 318 of the Office of the Clerk, Breckinridge County Kentucky; said Plat being the property conveyed to Cornelius Hollingshead in Deed Book 298, Page 681 and Deed Book 256, Page 774 in the aforesaid clerk's office; thence traversing said Property S61°50'18"E – 342.83' to a set #5 iron rod with cap #3282 and the True Point Of Beginning of the proposed Access & Utility Easement; thence N27°11'29"E – 38.47' to a set #5 iron rod with cap #3282; thence S62°48'31"E – 148.75' to a set #5 iron rod with cap #3282 and being on the east line of Lot 6 in said Plat; thence with said line for two calls S41°53'00"W – 47.27' to a set #5 iron rod with cap #3282; thence S27°12'06"W – 107.26' to a set #5 iron rod with cap #3282; thence S33°20'01"W – 62.26' to a set mag nail in the center line of Williams Road; thence with said center line N49°54'33"W – 20.14' to a set mag nail; thence leaving said center line N33°20'01"E – 63.75' to a set #5 iron rod with cap #3282; thence N36°30'22"W – 19.27' to a set #5 iron rod with cap #3282; thence N27°11'29"E – 100.00' to a set #5 iron rod with cap #3282; thence N62°48'31"W – 100.00' to the point of beginning, containing 10,769.6 square feet as per survey by FStan Land Surveyors & Consulting Engineers, Frank L Sellinger, II, surveyor, dated October 21, 2013.

PARENT TRACT DESCRIPTION (PROVIDED BY OTHERS)

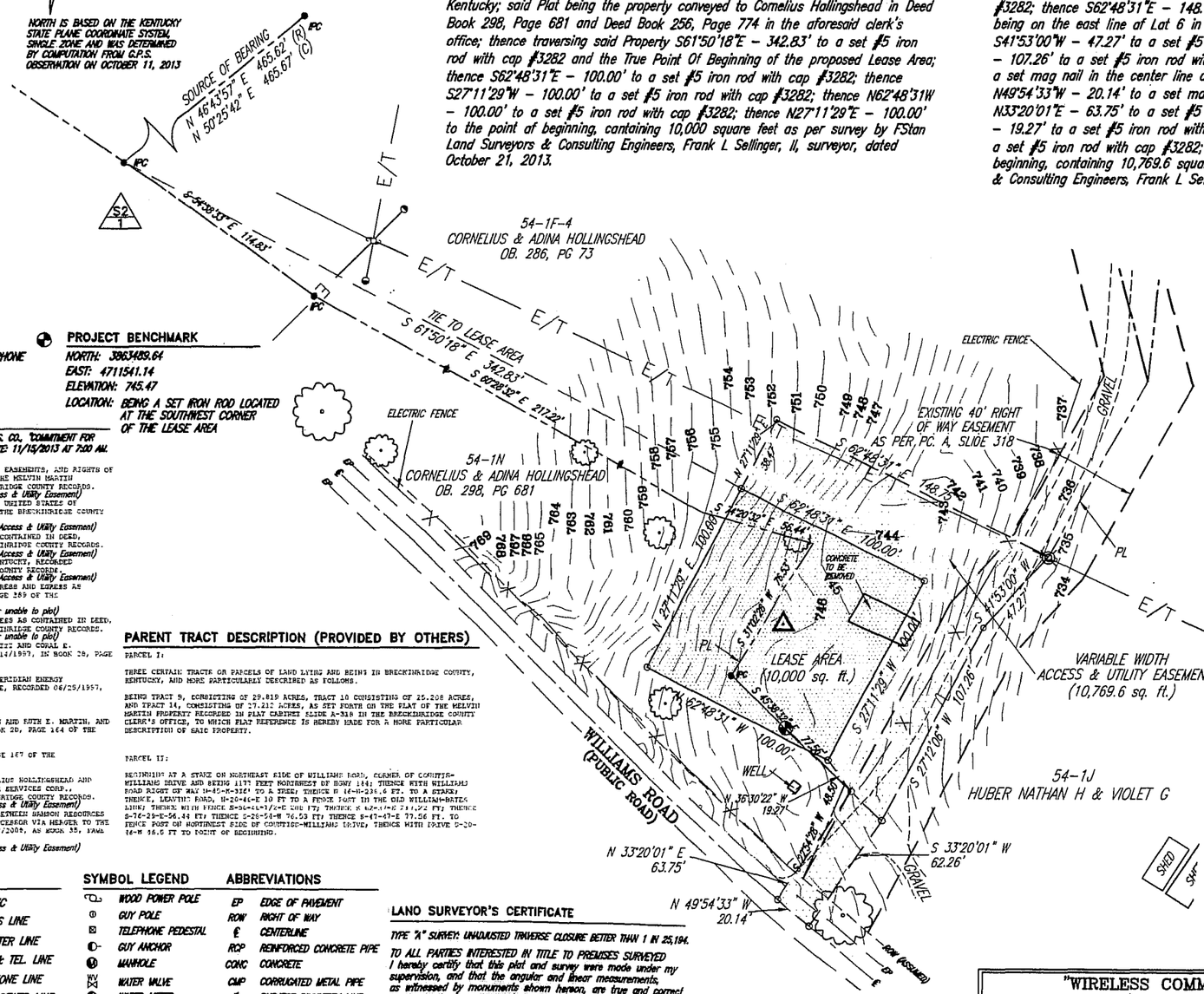
PARCEL I:

THREE CERTAIN TRACTS OR PARCELS OF LAND LYING AND BEING IN BRECKINRIDGE COUNTY, KENTUCKY, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS.

BEING TRACT 9, CONSISTING OF 29.819 ACRES, TRACT 10 CONSISTING OF 25.208 ACRES, AND TRACT 14, CONSISTING OF 27.212 ACRES, AS SET FORTH ON THE PLAT OF THE MELVIN MARTIN PROPERTY RECORDED IN PLAT CABINET SLIDE A-318 IN THE BRECKINRIDGE COUNTY CLERK'S OFFICE, TO WHICH PLAT REFERENCE IS HEREBY MADE FOR A MORE PARTICULAR DESCRIPTION OF SAID PROPERTY.

PARCEL II:

BEGINNING AT A STAKE ON NORTHEAST SIDE OF WILLIAMS ROAD, CORNER OF COURTES-WILLIAMS DRIVE AND BEING 1177 FEET NORTHWEST OF HWY 144; THENCE WITH WILLIAMS ROAD RIGHT OF WAY N-45-W-316' TO A TREE; THENCE N 46-00-23E.6 FT. TO A STAKE; THENCE, LEAVING ROAD, N-29-45-E 10 FT TO A FENCE POST IN THE OLD WILLIAM-BATES LINE; THENCE WITH FENCE S-56-45-E 1/2-E 200 FT; THENCE S 62-45-E 241.22 FT; THENCE S-76-29-E-56.44 FT; THENCE S-28-54-W 76.53 FT; THENCE S-47-47-E 77.56 FT. TO FENCE POST ON NORTHWEST SIDE OF COURTES-WILLIAMS DRIVE; THENCE WITH DRIVE S-20-E-W 86.6 FT TO POINT OF BEGINNING.



0' 50' 100'

(IN FEET)
SCALE: 1" = 50'

LINE LEGEND

—E—E—E—	OVERHEAD ELECTRIC
—G—G—G—	UNDERGROUND GAS LINE
—W—W—W—	UNDERGROUND WATER LINE
—E/T—E/T—E/T—	OVERHEAD ELEC. & TEL. LINE
—T—T—T—	OVERHEAD TELEPHONE LINE
—D—D—D—	DRAINAGE/STORM SEWER LINE
—X—X—X—	EXISTING FENCE
—XX—XX—XX—	PROPOSED FENCE
— — — —	SUBJECT PROPERTY BOUNDARY
———	RIGHT OF WAY CENTERLINE

NOTE: SYMBOLS, ABBREVIATIONS, OR LINESTYLES DON'T NECESSARILY APPEAR ON DRAWING(S). USE ONLY AS APPLICABLE

SYMBOL LEGEND

	WOOD POWER POLE
	GUY POLE
	TELEPHONE PEDESTAL
	GUY ANCHOR
MH	MANHOLE
WV	WATER VALVE
WM	WATER METER
E	ELECTRIC BOX
* F.P.	FENCE POST
XXXXX	SPOT ELEVATION
	SET #5 REBAR (UNLESS OTHERWISE NOTED)
	EXISTING #5 REBAR (UNLESS OTHERWISE NOTED)

ABBREVIATIONS

EP	EDGE OF PAVEMENT
ROW	RIGHT OF WAY
℄	CENTERLINE
RCP	REINFORCED CONCRETE PIPE
CONC	CONCRETE
CMP	CORRUGATED METAL PIPE
PL	SUBJECT PROPERTY LINE
TC	TOP OF CURB
BC	BOTTOM OF CURB
POB	POINT OF BEGINNING
IPC	IRON PIN CAPPED

LAND SURVEYOR'S CERTIFICATE

TYPE "A" SURVEY: UNADJUSTED TRAVERSE CLOSURE BETTER THAN 1 IN 25,194.

TO ALL PARTIES INTERESTED IN TITLE TO PREMISES SURVEYED I hereby certify that this plat and survey were made under my supervision, and that the angular and linear measurements, as witnessed by monuments shown hereon, are true and correct to the best of my knowledge and belief. This survey and plat meets or exceeds the minimum standards of the governing authorities. This property is subject to any recorded easements or right of ways not shown hereon.

Frank L. Sellinger 11.26.13
Frank L. Sellinger, KY. Reg. No. 3282

STATE OF KENTUCKY
FRANK L. SELLINGER
3282
LICENSED PROFESSIONAL LAND SURVEYOR

DRIVE TO DIRECTIONS

BEGINNING AT THE BRECKINRIDGE COUNTY COURT HOUSE, 111 2ND STREET HARDINSBURG, KY PROCEED WEST ON 2ND STREET TOWARD KY-259 FOR .01 MILES. TURN RIGHT ONTO KY-259/MAIN ST. AND PROCEED FOR 12.7 MILES. TURN LEFT ONTO KY-144 AND PROCEED FOR .3 MILES. TURN RIGHT ONTO WILLIAMS RD. AND PROCEED .2 MILES. SITE IS ON YOUR RIGHT.

SURVEYORS NOTES

SOURCE OF BEARING IS A G.P.S. OBSERVATION ON OCTOBER 11, 2013.

SITE SHOWN SUBJECT TO RIGHT OF WAYS AND EASEMENTS SHOWN HEREON OR NOT.

SOURCE OF BORARON BASED ON THE NORTHWEST PROPERTY LINE OF LOT SIX WHICH HAS THE BEARING OF N 46°43'57" E PER PLAT CABINET A, SLIDE 318, AND THE CALCULATED BEARING OF N 50°25'42" E

NO SEARCH OF PUBLIC RECORDS HAS BEEN PERFORMED BY THIS FIRM TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE PARENT TRACT.

THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY.

EXISTING CONTOURS ARE AT ONE FOOT INTERVALS.

"WIRELESS COMMUNICATION SITE SURVEY"

OWNER APPROVAL: _____ DATE: _____

TENANT APPROVAL: _____ DATE: _____

S2/3

I HAVE REVIEWED THE FLOOD INSURANCE RATE MAPS (FIRM) MAP NO. 21027C0090C DATED 08/04/2008 AND THE LEASE AREA DOES NOT APPEAR TO BE IN A FLOOD PRONE AREA. THE LEASE AREA IS LOCATED IN ZONE X.

AMERICAN TOWER CORPORATION

FStan
Formerly F.S. Land & T. Alan Neal Company
Land Surveyors and Consulting Engineers
426 E Warnock Street
Louisville, KY 40217
Phone: (502) 635-5866 (502) 636-5111
Fax: (502) 636-5283

SITE NUMBER: AT&T# 143741 / ATC# 281318

SITE NAME: JAKE HORSLEY

SITE ADDRESS: 218 WILLIAMS LANE STEPHENSPORT, KY 40170

LEASE AREA: 10,000 sq. ft.

PROPERTY OWNER: CORNELIUS HOLLINGSHEAD 226 WILLIAMS LANE STEPHENSPORT, KY 40170

MAP NUMBER: 54

PARCEL NUMBER: 1N & 1F-4

SOURCE OF TITLE: DEED 298, PAGE 681 DEED 286, PAGE 73

DWG BY:	CHKD BY:	DATE:
SNS	FLS	10.24.13

FSTAN PROJECT NO.: 13-8576

SHEET 2 OF 2

REVISIONS:

MOVED LEASE AREA – 11.06.13
ADD TITLE NOTES – 12.20.13

JAKE HORSLEY
AT&T # 143741 / ATC # 281318
SITE ADDRESS: 218 WILLIAMS LANE STEPHENSPORT, KY 40170
OWNER ADDRESS: 226 WILLIAMS LANE STEPHENSPORT, KY 40170

GENERAL NOTES

1.) THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC AUTHORITIES.

2.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSEPCTIONS THAT MAY BE REQUIRED BY ANY FEDERAL , STATE, COUNTY OR MUNICIPAL AUTHORITIES.

3.) THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS. ERRORS, OR OMISSIONS PRIOR O THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK MINOR OMISSIONS OR ERRORS IN THE BID PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.

4.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.

5.) THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

6.) THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

7.) THIS PLAN WAS PREPARED USING AN APPROVED PLAN ENTITLED SITE PLAN BY FSTAN DATED 06-13-13 AND SHOULD NOT BE CONSTRUED AS AN ACCURATE SURVEY.

8.) THE PROPOSED FACILITY WILL CAUSE ON A "DE MINIMUM" INCREASE IN STORMWATER RUNOFF. THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.

9.) NO NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.

10.) THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (THERE IS NO HANDICAP ACCESS REQUIRED)

11.) THE FACILITY IS UNMANNED AND DOES NOT REQUIRED POTABLE WATER OR SANITARY SERVICE.

12.) POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.

13.) CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.

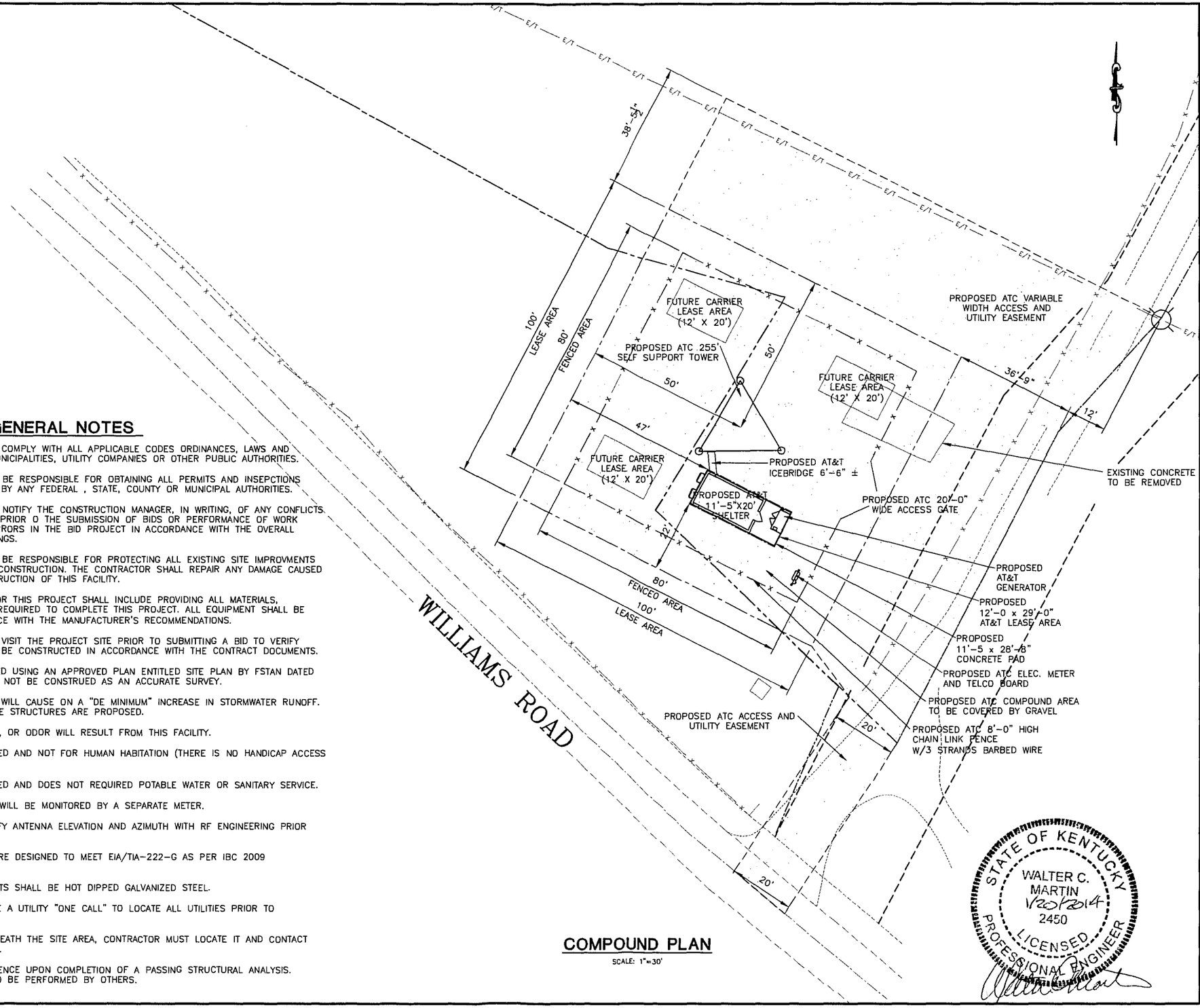
14.) MOUNTS AND ANTENNA ARE DESIGNED TO MEET EIA/TIA-222-G AS PER IBC 2009 REQUIREMENTS.

15.) ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.

16.) CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.

17.) IF ANY PIPING EXIST BENEATH THE SITE AREA, CONTRACTOR MUST LOCATE IT AND CONTACT OWNERS REPRESENTATIVE.

18.) CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING STRUCTURAL ANALYSIS. STRUCTURAL ANALYSIS TO BE PERFORMED BY OTHERS.



COMPOUND PLAN

SCALE: 1"=30'

STATE OF KENTUCKY
WALTER C. MARTIN
1/20/2014
2450
LICENSED PROFESSIONAL ENGINEER

at&t

AMERICAN TOWER CORPORATION

FSTan
Formerly F.S. Land & T. Alan Neal Company
Land Surveyors and Consulting Engineers
436 E Stornock Street
Louisville, KY 40217
Phone: (502) 636-8866 (502) 636-8111
Fax: (502) 636-8883

PROPERTY OWNER:
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170

SITE ADDRESS:
218 WILLIAMS LANE
STEPHENSPORT, KY 40170

SITE NUMBER:
AT&T SITE# 143741/ ATC # 281318

REVISIONS
MOVED LEASE AREA 11-06-13
REVISED TOWER HEIGHT 11-11-13
REVISED SITE ADDRESS 12-17-13
REVISED SITE PLANS 01-16-14

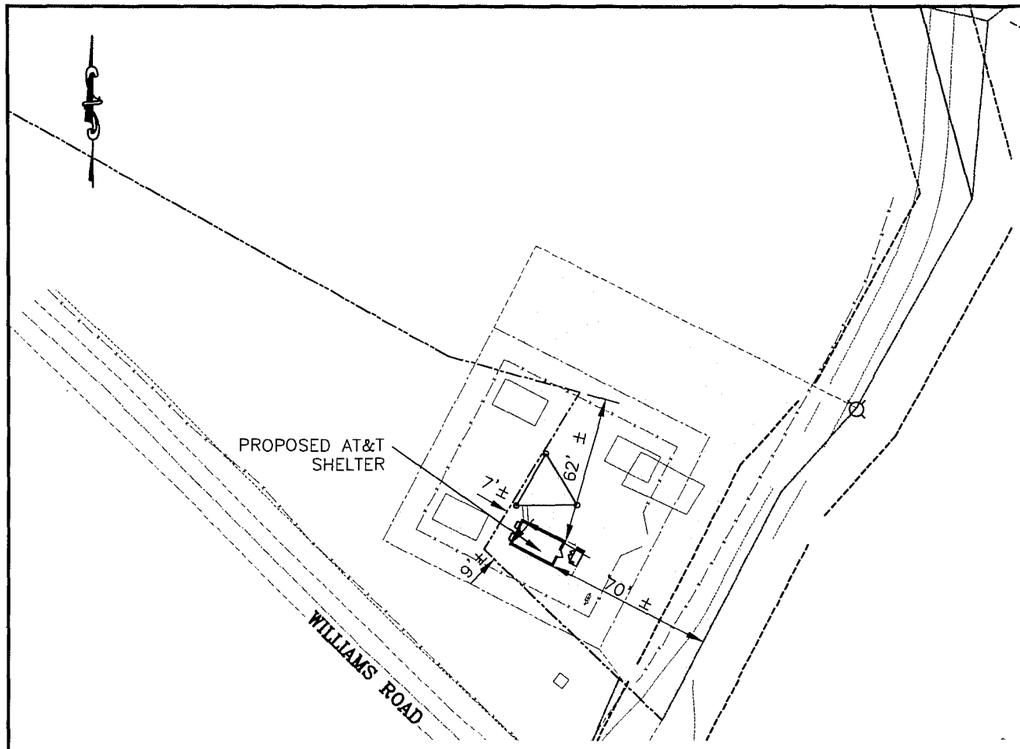
SITE NAME: JAKE HORSLEY

SITE LAYOUT

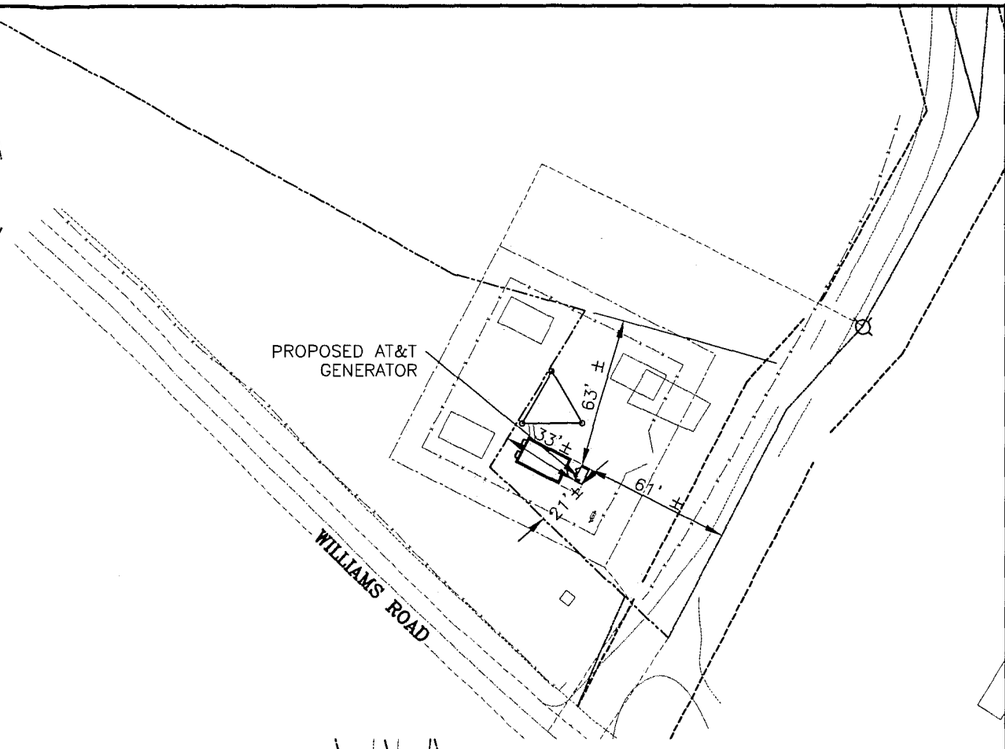
DATE: 10-24-13
CHECKED BY: FS II
DRAWN BY: SMF

FSTAN PROJECT NO.:
13-8578

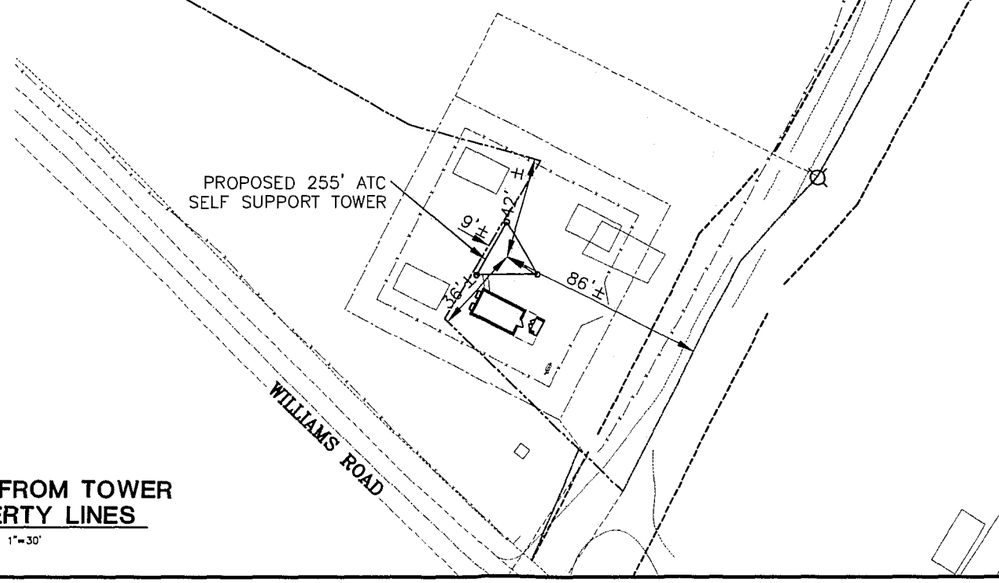
C-1



DIMENSIONS FROM SHELTER
TO PROPERTY LINES
SCALE: 1"=30'



DIMENSIONS FROM GENERATOR
TO PROPERTY LINES
SCALE: 1"=30'



DIMENSIONS FROM TOWER
TO PROPERTY LINES
SCALE: 1"=30'

STATE OF KENTUCKY
WALTER C. MARTIN
1/20/2014
2450
LICENSED PROFESSIONAL ENGINEER

at&t

AMERICAN TOWER CORPORATION

FStan
Formerly F.S. Land & T. Alan Neal Company
Land Surveyors and Consulting Engineers
426 E Yarmouth Street
Louisville, KY 40217
Phone: (502) 635-5866 (502) 636-5111
Fax: (502) 636-5883

PROPERTY OWNER:
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170

SITE ADDRESS:
218 WILLIAMS LANE
STEPHENSPORT, KY 40170

SITE NUMBER:
AT&T SITE# 143741/ ATC # 281318

REVISIONS
MOVED LEASE AREA 11-06-13
REVISED TOWER HEIGHT 11-11-13
REVISED SITE ADDRESS 12-17-13
REVISED SITE PLANS 01-16-14

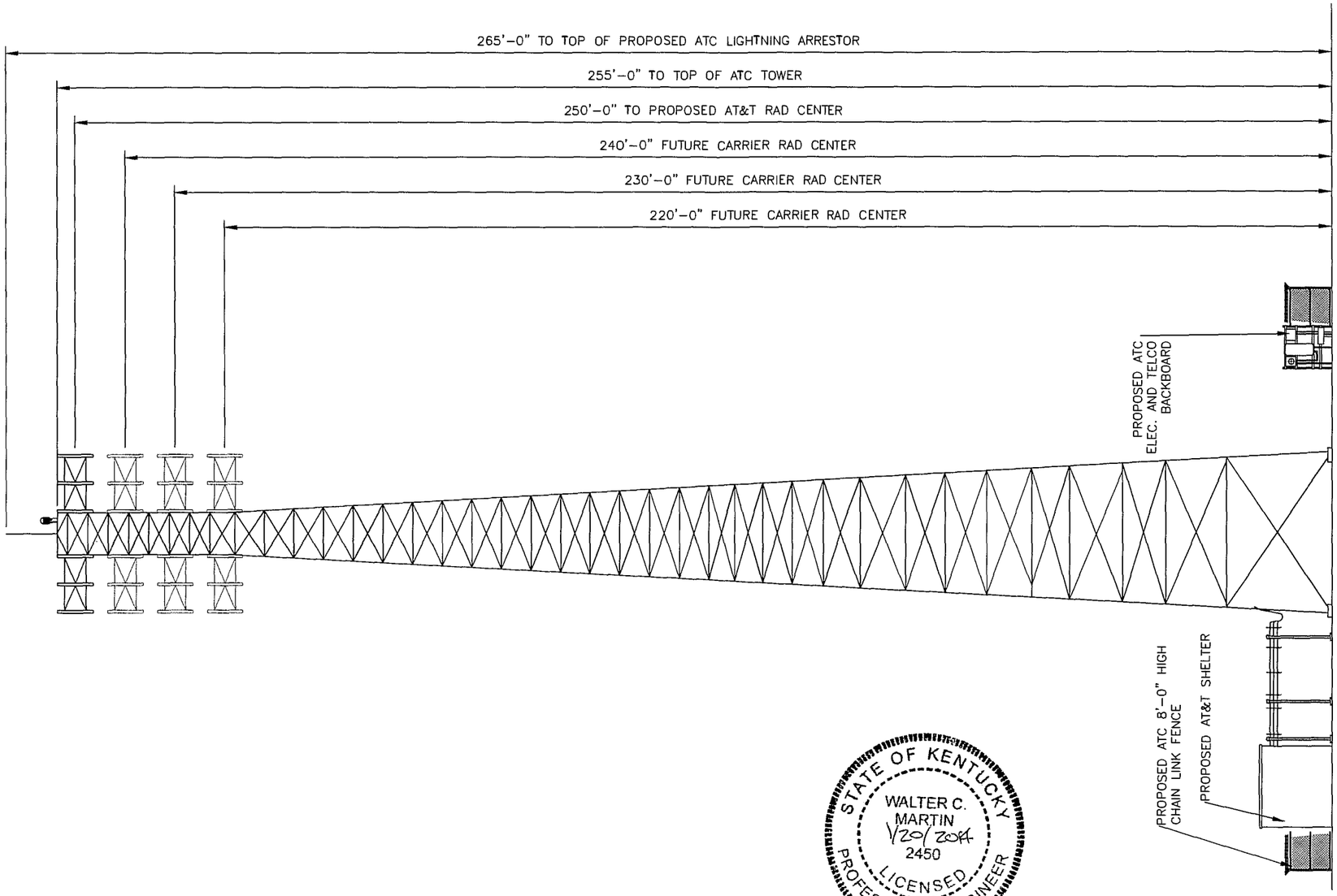
SITE NAME: JAKE HORSLEY

DIMENSIONS TO PROPERTY LINES

DATE: 10-24-13
CHECKED BY: FS II
DRAWN BY: SMF

FSTAN PROJECT NO.:
13-8578

C1-2



NOTE:
THE ELEVATIONS SHOWN ON THIS SHEET ARE FOR PICTORIAL PURPOSES ONLY. THIS DESIGN WAS PROVIDED BY OTHERS. REFER TO TOWER PLANS FOR TOWER DESIGN.

TOWER ELEVATION

NOT TO SCALE

STATE OF KENTUCKY
WALTER C. MARTIN
1/20/2014
2450
LICENSED PROFESSIONAL ENGINEER

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AMERICAN TOWER CORPORATION

FSTan
Formerly F.S. Land & T. Alan Neal Company
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438 E Warnock Street
Louisville, KY 40217
Phone: (502) 635-2866 (502) 636-5111
Fax: (502) 636-2853

PROPERTY OWNER:
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226 WILLIAMS LANE
STEPHENSPORT, KY 40170

SITE ADDRESS:
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SITE NUMBER:
AT&T SITE# 143741/ ATC # 281318

REVISIONS	
MOVED LEASE AREA	11-06-13
REVISED TOWER HEIGHT	11-11-13
REVISED SITE ADDRESS	12-17-13
REVISED SITE PLANS	01-16-14

SITE NAME: JAKE HORSLEY

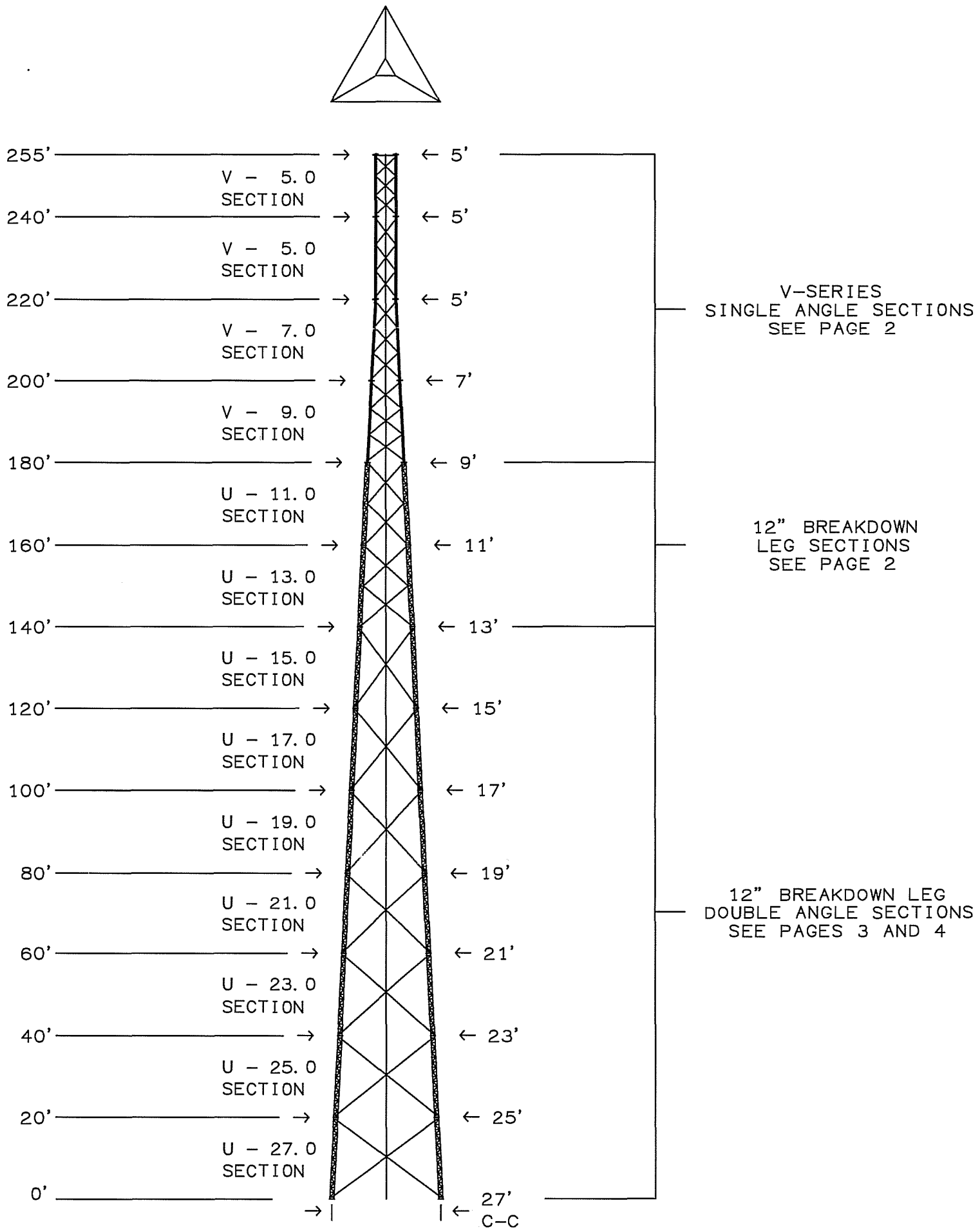
TOWER ELEVATION

DRAWN BY: SMF | CHECKED BY: FS II | DATE: 10-24-13

FSTAN PROJECT NO.: 13-8578

C-2

EXHIBIT C
TOWER AND FOUNDATION DESIGN



STATE OF KENTUCKY
NITESH AHUJA
28866
LICENSED PROFESSIONAL ENGINEER

DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

A	ADDED FOUNDATIONS	JAK	12/04/2013
REV	DESCRIPTION OF REVISIONS	INI	DATE

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From: F1015805.DFT - 12/03/2013 13:58
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AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

KENTUCKY C.O.A. 1542			
APPROVED/ENG.	M_S	12/4/2013	
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PAGE 1 OF 13

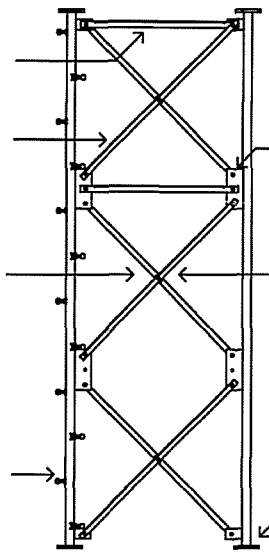
V-SERIES LEG SECTION DATA 180' - 255' ELEVATION

SECTION			LEG									DIAGONAL BRACE								HOR
#	LENGTH	* WEIGHT	NOM SIZE	WALL	GRADE	CLIMBING QTY	CLIMBING PART#	NON-CLIMB QTY	NON-CLIMB PART#	CONNECT BOLT+ DIAM	CONNECT BOLT+ LENGTH	PART NUMBER ** #1	#2	#3	ANGLE FACE	ANGLE THICK	CONNECT BOLT DIAM	CONNECT BOLT LENGTH	CENTER SPACER	QTY
V- 5.0	15'	734#	2-1/2"	0.203	A572-50	1	226169	2	226170	3/4"	3-1/2"	227077	227077	227077	2"	1/8"	3/4"	2-1/4"	116467	1
V- 5.0	20'	1285#	4"	0.237	A572-50	1	226184	2	226185	3/4"	3-1/2"	227113	227113	227113	2"	3/16"	3/4"	2-1/4"	116467	
V- 7.0	20'	1609#	5"	0.258	A572-50	1	226200	2	226201	3/4"	3-1/2"	226190	226189	231342	2"	3/16"	3/4"	2-1/4"	116467	
V- 9.0	20'	2293#	6"	0.280	A572-50	3	229377			1"	4-3/4"	225035	225034	231345	2-1/2"	3/16"	3/4"	2-1/4"	116467	

+ AT BOTTOM OF SECTION
* THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.
** PANELS ARE NUMBERED BEGINNING AT THE TOP OF THE SECTION.

HORIZONTAL DATA		
HORIZ HT	IN SEC#	HORIZ PART#
255	V- 5.0	227584

TYPICAL V-SERIES SECTION ASSEMBLY 180' - 255' ELEVATION

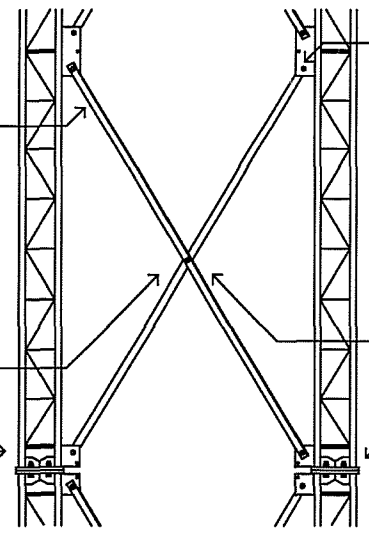


BREAKDOWN SECTION DATA (12" LEG) 140' - 180' ELEVATION

SEC #	SECTION LENGTH	LEG SIZE	LEG PART#	TOP DIAG PART#	BOT DIAG PART#	DIAGONAL ANGLE FACE	DIAGONAL ANGLE THICK	SECTION WEIGHT	LEG CONNECT+ DIAM	LEG CONNECT+ LENGTH	DIAG CONNECT DIAM	DIAG CONNECT LENGTH
U-11.0	20'	1- 3/4"	229588	105568	105571	3"	3/16"	2990#	1"	4-3/4"	1 "	2-1/4"
U-13.0	20'	1- 3/4"	229588	105574	105576	3"	3/16"	3056#	1"	4-3/4"	1 "	2-1/4"

* THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.
+ USE 1 FLAT WASHER UNDER EACH LOCK WASHER FOR LEG CONNECTION ONLY.

TYPICAL BREAKDOWN SECTION ASSEMBLY (12" LEG) 140' - 180' ELEVATION



STATE OF KENTUCKY
NITESH AHUJA
28866
LICENSED PROFESSIONAL ENGINEER

DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

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AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

KENTUCKY C.O.A. 1542		
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BREAKDOWN SECTION LEG DATA (12" LEG WITH DOUBLE ANGLES) 0' – 140' ELEVATION

SECTION				LEG		LEG CONNECT @ BOTTOM+		
#	MODEL	LENGTH	WEIGHT*	SIZE	PART #	DIAM	LENGTH	#
7	U-15.0	20'	3953#	2 "	208332	1"	4-3/4"	12
6	U-17.0	20'	4615#	2- 1/4 "	208334	1"	4-3/4"	12
5	U-19.0	20'	4676#	2- 1/4 "	208334	1"	4-3/4"	12
4	U-21.0	20'	5327#	2- 1/2 "	208335	1"	4-3/4"	12
3	U-23.0	20'	6119#	2- 1/2 "	208335	1"	4-3/4"	12
2	U-25.0	20'	7007#	2- 3/4 "	208337	1"	4-3/4"	12
1	U-27.0	20'	7047#	2- 3/4 "	208337			

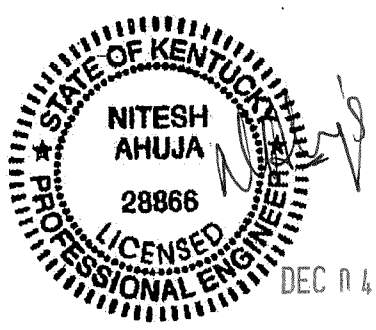
* THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.

\+ QTY IS PER LEG. USE 1 LOCK WASHER AND 1 FLAT WASHER UNDER EACH PLAIN NUT.

BREAKDOWN SECTION DIAGONAL DATA (12" LEG WITH DOUBLE ANGLES) 0' – 140' ELEVATION

SECTION		DIAGONAL PART #			DIAG ANGLE		DIAG END BOLT		DIAG CENTER & SPACER BOLT		CENTER PLATE	SPACER	
#	MODEL	UPPER	LOWER	LONG	FACE	THICK	DIAM	LENGTH	DIAM	LENGTH	PART #	PART #	#*
7	U-15.0	215272	215276	215357	3"	3/16"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	5
6	U-17.0	215280	215284	215361	3"	3/16"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	6
5	U-19.0	215288	215292	215364	3"	3/16"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	7
4	U-21.0	215295	215299	215368	3"	3/16"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8
3	U-23.0	215304	215308	215373	3-1/2"	1/4"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8
2	U-25.0	215312	215316	215377	3-1/2"	1/4"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8
1	U-27.0	215320	215324	215380	3-1/2"	1/4"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8

* QUANTITY IS PER PANEL PER FACE. USE 1 LOCK WASHER UNDER EACH PLAIN NUT.



DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

KENTUCKY C.O.A. 1542		
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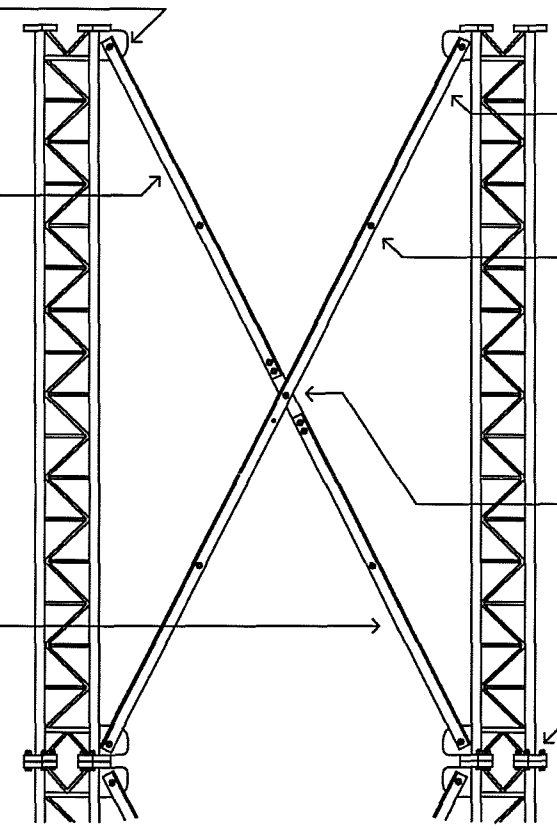
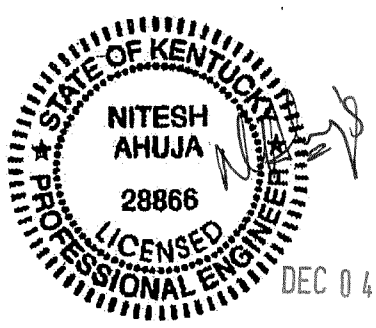
TYPICAL BREAKDOWN SECTION ASSEMBLY (12" LEG WITH DOUBLE ANGLES) 0' - 140' ELEVATION



ATTENTION ERECTOR:

1. EXTRA CARE MUST BE TAKEN WHEN STANDING BREAKDOWN LEG SECTIONS FROM A FLAT "ASSEMBLY" POSITION ON THE GROUND TO AN UPRIGHT POSITION FOR STACKING. POOR RIGGING AND/OR LIFTING PROCEDURES MAY DAMAGE THE ANGLE BRACES AND/OR BREAKDOWN LEGS. IT IS THE RESPONSIBILTY OF THE TOWER CONTRACTOR TO ENSURE BREAKDOWN LEGS AND ANGLES ARE NOT DAMAGED DURING THE TOWER ASSEMBLY AND ERECTION.
2. WHEN LIFTING ("FLYING") SINGLE PANEL TOWER SECTIONS TO PLACE THEM ON PREVIOUSLY ERECTED SECTIONS, A MINIMUM OF TWO (2) FULL SECTIONS (TYPICALLY 40') MUST BE ASSEMBLED TOGETHER TO PROVIDE ADEQUATE STABILITY TO THE TOWER LEGS AND ANGLE BRACES. IT IS THE RESPONSIBILTY OF THE TOWER CONTRACTOR TO ENSURE BREAKDOWN LEGS AND ANGLES ARE NOT DAMAGED DURING THE TOWER ASSEMBLY AND ERECTION.



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Nitesh Ahuja, KY Professional Engineer #28866

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AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

KENTUCKY C.O.A. 1542		
APPROVED/ENG.	M_S	12/4/2013
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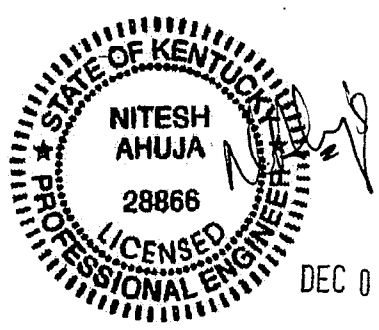
DRAWING NO. 252333
PAGE 4 OF 13

GENERAL NOTES

1. TOWER MEETS THE REQUIREMENTS OF THE 2013 KENTUCKY BUILDING CODE UTILIZING AN 90 MPH 3-SEC GUST BASIC WIND SPEED WITH A STRUCTURE CLASS OF II, TOPOGRAPHIC CATEGORY OF 1 AND EXPOSURE C CRITERIA WITH NO ICE PER ANSI/TIA-222-G.
   TOWER MEETS THE REQUIREMENTS OF THE 2013 KENTUCKY BUILDING CODE UTILIZING AN 30 MPH 3-SEC GUST BASIC WIND SPEED WITH A STRUCTURE CLASS OF II, TOPOGRAPHIC CATEGORY OF 1 AND EXPOSURE C CRITERIA WITH .75" RADIAL ICE PER ANSI/TIA-222-G.
2. NO TWIST AND SWAY LIMITATIONS SPECIFIED OR USED FOR THIS TOWER.
3. MATERIAL: (A) SOLID RODS TO ASTM A572 GRADE 50. (B) ANGLES TO ASTM A36. (C) PIPE TO ASTM A500 GRADE B. (D) STEEL PLATES TO ASTM A36. (E) CONNECTION BOLTS TO ASTM A325 OR ASTM A449 (Fu=120 KSI AND Fy=92 KSI) AND ANCHOR BOLTS TO ASTM F1554 (Fu=150 KSI AND Fy=105 KSI). (F) TOWER LEG PIPE TO BE ASTM A500 GRADE B/C WITH 50KSI MIN. YIELD STRENGTH
4. BASE REACTIONS PER TIA-222-G FOR 90 MPH BASIC WIND SPEED WITH NO ICE (REACTIONS INCLUDE TIA-222-G LOAD FACTORS): TOTAL WEIGHT = 93.0 KIPS. MAXIMUM COMPRESSION = 625.0 KIPS PER LEG. MOMENT = 13888.0 KIP-FT. MAXIMUM UPLIFT = 556.0 KIPS PER LEG. MAXIMUM SHEAR = 95.0 KIPS TOTAL.
5. BASE REACTIONS PER TIA-222-G FOR 30 MPH BASIC WIND SPEED WITH 0.75" RADIAL ICE (REACTIONS INCLUDE TIA-222-G LOAD FACTORS): TOTAL WEIGHT = 287.0 KIPS. MOMENT = 1627.0 KIP-FT. MAXIMUM SHEAR = 10.0 KIPS TOTAL.
6. FINISH: ALL BOLTS ARE GALVANIZED IN ACCORDANCE WITH ASTMA153 (HOT DIPPED) OR ASTM B695 CLASS 50 (MECHANICAL). ALL OTHER STRUCTURAL MATERIALS ARE GALVANIZED IN ACCORDANCE WITH ASTM123.
7. ANTENNAS: 250'-135 SQ. FT. AREA WITH 3,000# WITH ICE/115 SQ. FT. AREA WITH 2,000# NO ICE AND (18) 1-5/8" LINES
   240'-135 SQ. FT. AREA WITH 3,000# WITH ICE/115 SQ. FT. AREA WITH 2,000# NO ICE AND (18) 1-5/8" LINES
   230'-135 SQ. FT. AREA WITH 3,000# WITH ICE/115 SQ. FT. AREA WITH 2,000# NO ICE AND (18) 1-5/8" LINES
   220'-135 SQ. FT. AREA WITH 3,000# WITH ICE/115 SQ. FT. AREA WITH 2,000# NO ICE AND (18) 1-5/8" LINES
   NOTE: (A) ELEVATIONS ARE TO THE BOTTOM OF THE ANTENNAS EXCEPT FOR MICROWAVE DISHES, WHICH ARE TO THE CENTERLINE. (B) ALL TRANSMISSION LINES MUST BE PLACED ON PIROD SUPPLIED LINE BRACKETS.
8. REMOVE FOUNDATION TEMPLATE PRIOR TO ERECTING TOWER. INSTALL BASE SECTION WITH MINIMUM OF 2" CLEARANCE ABOVE CONCRETE. SEE BASE SECTION PLACEMENT PAGE FOR MORE INFORMATION. PACK NON-SHRINK STRUCTURAL GROUT UNDER BASE SECTION AFTER LEVELING TOWER.
9. MIN. WELDS 5/16" UNLESS OTHERWISE SPECIFIED. ALL WELDING TO CONFORM TO AWS D1.1 SPECIFICATIONS .
10. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, SEQUENCES AND PROCEDURES.
11. ALL BOLTS AND NUTS MUST BE IN PLACE BEFORE THE ADJOINING SECTIONS ARE INSTALLED.
12. ALL STRUCTURAL BOLTS ARE TO BE TIGHTENED TO A SNUG TIGHT CONDITION AS DEFINED BY AISC SPECIFICATION UNLESS OTHERWISE NOTED.
13. ATTENTION TOWER ERECTOR: COAT ALL BOLT ASSEMBLIESTHAT USE PIN LOCK NUTS WITH ZINC RICH COLD GALVANIZING COMPOUND AFTER FINAL TIGHTNENING.
14. TIA-222-G GROUNDING FOR TOWER.
15. BASED ON THE LOADING LISTED ABOVE, THIS TOWER HAS A THEORETICAL FAILURE POINT AT TOWER MIDPOINT OR ABOVE FOR AN EFFECTIVE "ZERO FALL ZONE" AT GROUND LEVEL.



DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

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AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

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PAGE 5 OF 13

FOUNDATION NOTES

ALTERNATE FOUNDATION #1

1. SOIL AS PER REPORT BY FSTAN, DATED: 11/25/13 (PROJECT#13-8633)
2. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 (2008) BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR NOT PERMITTED.
3. A COLD JOINT IS PERMISSIBLE UPON CONSULTATION WITH PIROD. ALL COLD JOINTS SHALL BE COATED WITH BONDING AGENTS PRIOR TO SECOND POUR.
4. ALL FILL SHOULD BE PLACED IN LOOSE LEVEL LIFTS OFNO MORE THAN 8" THICK. FILL MATERIALS SHOULD BE CLEAN AND FREE OF ORGANIC AND FROZEN MATERIALS OR ANY OTHER DELETERIOUS MATERIALS. COMPACT FILL TO 98% OF STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698.
5. BENDING, STRAIGHTENING OR REALIGNING (HOT OR COLD) OF THE ANCHOR BOLTS BY ANY METHOD IS PROHIBITED.
6. CROWN TOP OF FOUNDATION FOR PROPER DRAINAGE.
7. THE ON-SITE GEOTECHNICAL ENGINEER SHALL CONFIRM THAT THE INSITU SOIL STRENGTHS MEET OR EXCEED THOSE PARAMETERS GIVEN IN THE SOIL REPORT.
8. DIFFICULTIES DURING EXCAVATION MAY ARISE DUE TO THE PRESENCE OF BOULDERS, COBBLES, AND/OR SHALLOW BEDROCK. THE BOULDERS, COBBLES, AND/OR ROCK MUST BE REMOVED FROM THE EXCAVATION.
9. ANY SOFT OR UNSTABLE SUBGRADE SOILS DETECTED DURING THE EXCAVATION SHOULD BE REMOVED AND REPLACED WITH COMPACTED FILL.
10. SUBGRADE PREPARATIONS AND BACKFILLING MUST BE COMPLETED PER THE SPECIFICATIONS IN THE REFERENCED GEOTECHNICAL REPORT ABOVE.

STATE OF KENTUCKY
NITESH AHUJA
28866
LICENSED PROFESSIONAL ENGINEER

DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	JAK	12/04/2013

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#281318 JAKE HORSLEY, KY
V-27.0 X 255'

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APPROVED/FOUND.	M_S	12/4/2013
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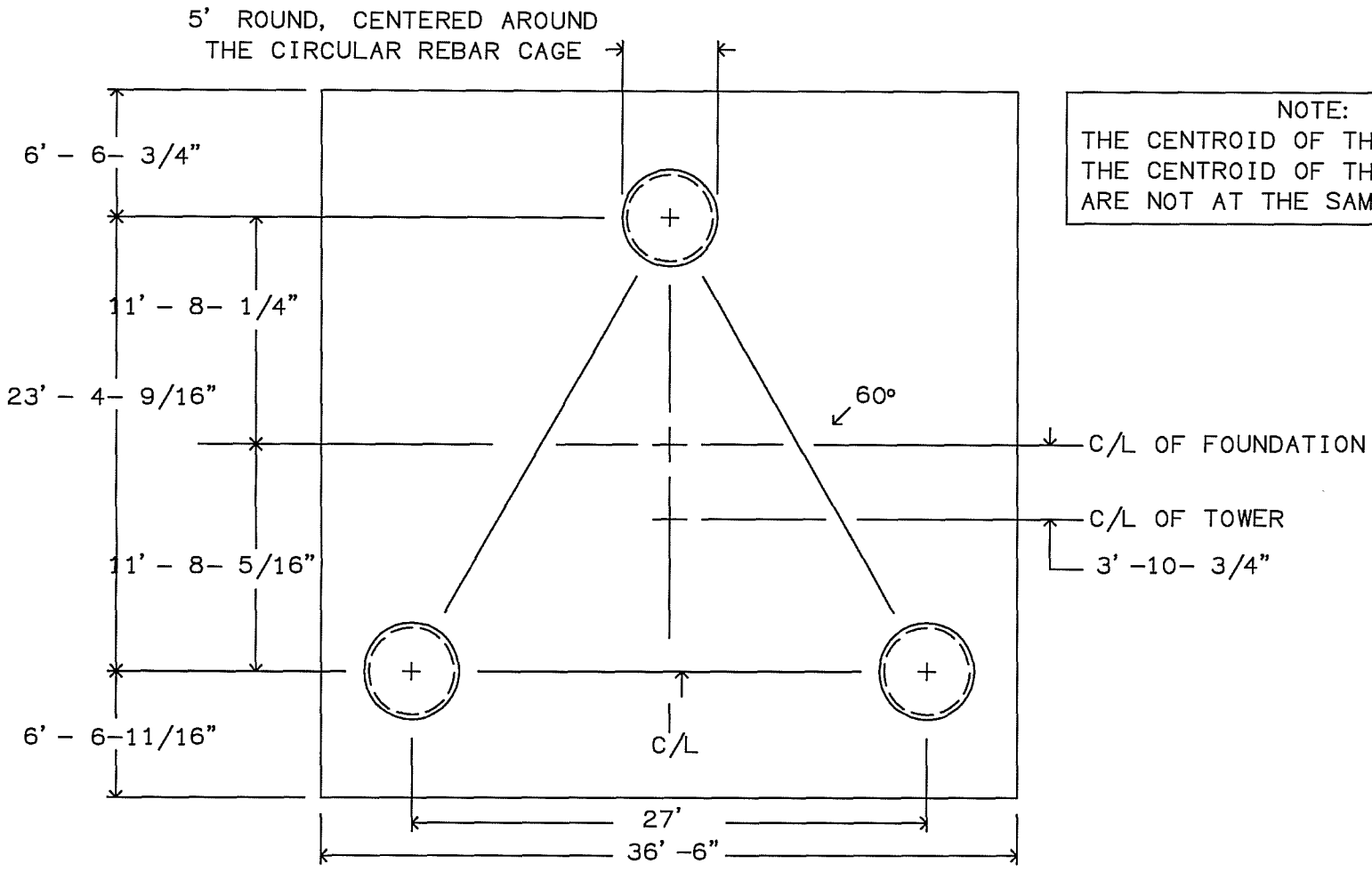
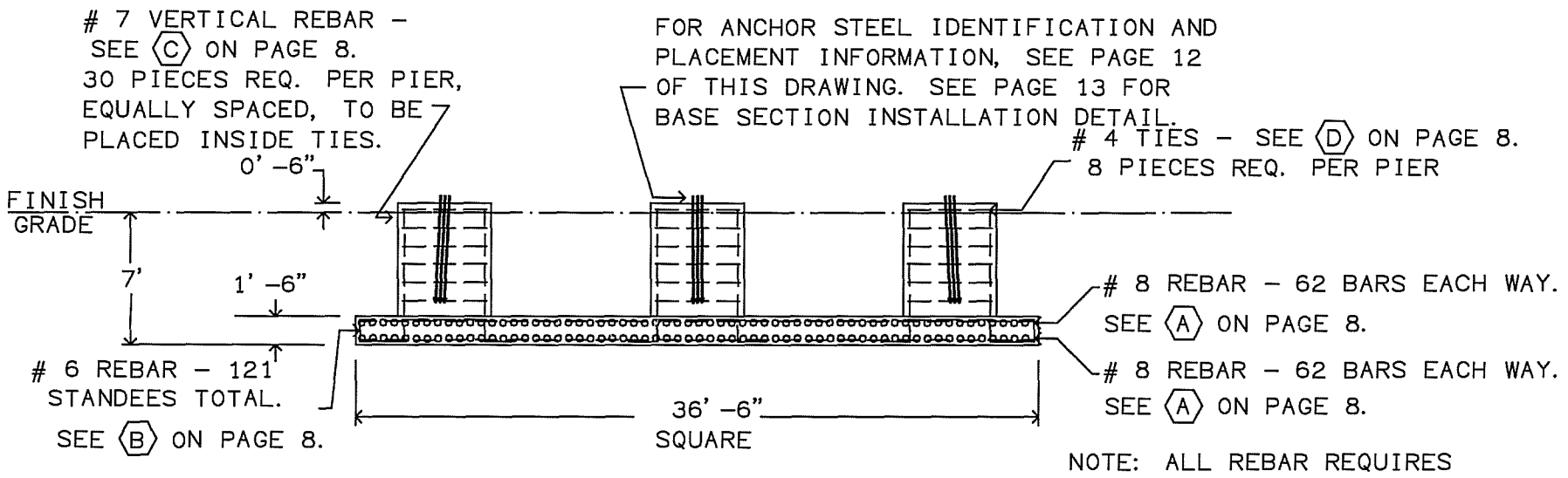
PAGE 6 OF 13



NOTE:
THE CENTROID OF THE TOWER AND THE CENTROID OF THE FOUNDATION ARE NOT AT THE SAME POINT!



NOTE: ALL REBAR REQUIRES MIN. 3" CONCRETE COVERAGE

ALTERNATE FOUNDATION #1

87.1 CUBIC YARDS CONCRETE REQUIRED

FOR INSTALLATION SPECIFICATIONS AND ADDITIONAL INFORMATION, SEE PAGE 6 OF THIS DRAWING.

STATE OF KENTUCKY · NITESH AHUJA · 28866 · LICENSED PROFESSIONAL ENGINEER

DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	JAK	12/04/2013

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AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

KENTUCKY C.O.A. 1542		
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APPROVED/FOUND.	M_S	12/4/2013
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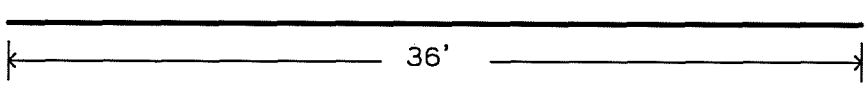
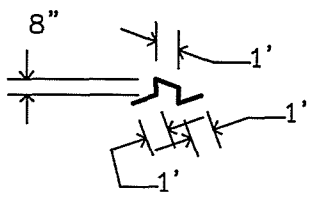
Ⓐ



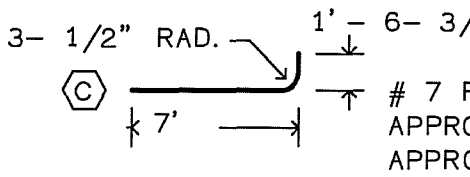
8 REBAR – 248 PIECES REQ. TOTAL
APPROX WT = 96.1# EACH, 23833# TOTAL

REBAR SUPPORTS MAY CONSIST OF ANY ACCEPTABLE MEANS OF SECURELY SUPPORTING THE TOP REINFORCEMENT GRID ABOVE THE BOTTOM REINFORCEMENT GRID WHILE MAINTAINING A SEPARATION OF 1' (OUTSIDE REBAR TO OUTSIDE REBAR).

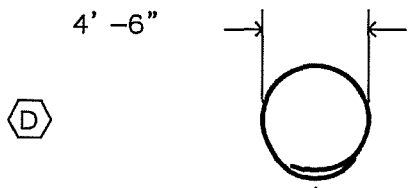
Ⓑ



6 REBAR – 121 PIECES REQUIRED TOTAL
TYPE 26 STANDEE PLACED BETWEEN REBAR GRIDS ON NOMINAL 4' SPACING THROUGHOUT
APPROX UNBENT LENGTH = 4' – 4– 1/4"
APPROX WT = 6.5# EACH, 787# TOTAL



7 REBAR – 90 PIECES REQUIRED TOTAL
APPROX UNBENT LENGTH = 8' – 4– 7/8"
APPROX WT = 17.2# EACH, 1548# TOTAL



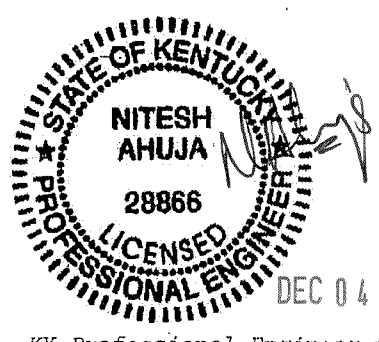
4 REBAR – 24 PIECES REQUIRED TOTAL
APPROX UNBENT LENGTH = 15' – 8– 1/4"
APPROX WT = 10.5# EACH, 252# TOTAL

LAP DIMENSION: 1' – 6– 1/2"
PLACE CIRCULAR TIES SO THAT LAPS ON ADJACENT TIES ARE 180 DEGREES APART. PLACE ONE TIE AT TOP OF PAD AND TWO TIES AT TOP OF PIER REBAR. EQUALLY SPACE REMAINING TIES ALONG PIER.

ALTERNATE FOUNDATION #1

REBAR DETAIL

TOTAL APPROX REBAR WEIGHT = 26420#
REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS.



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Nitesh Ahuja, KY Professional Engineer #28866

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	JAK	12/04/2013

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#281318 JAKE HORSLEY, KY
V–27.0 X 255'

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FOUNDATION NOTES

ALTERNATE FOUNDATION #2

1. SOIL AS PER REPORT BY FSTAN, DATED: 11/25/13 (PROJECT#13-8633)
2. CONCRETE TO BE 3000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 (2008) BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR NOT PERMITTED.
3. A COLD JOINT IS PERMISSIBLE UPON CONSULTATION WITH PIROD. ALL COLD JOINTS SHALL BE COATED WITH BONDING AGENTS PRIOR TO SECOND POUR.
4. ALL REINFORCING STEEL TO BE FORMED INTO A CAGE PRIOR TO SETTING INTO POSITION IN THE EXCAVATED PIER.
5. PERMANENT STEEL CASING SHALL NOT BE USED WITHOUT CONSENT FROM FOUNDATION DESIGNERS.
6. BENDING, STRAIGHTENING OR REALIGNING (HOT OR COLD) OF THE ANCHOR BOLTS BY ANY METHOD IS PROHIBITED.
7. CROWN TOP OF FOUNDATION FOR PROPER DRAINAGE.
8. THE ON-SITE GEOTECHNICAL ENGINEER SHALL CONFIRM THAT THE INSITU SOIL STRENGTHS MEET OR EXCEED THOSE PARAMETERS GIVEN IN THE SOIL REPORT.
9. A TEMPORARY, FULL LENGTH STEEL CASING MAY BE REQUIRED DURING INSTALLATION.
10. DRILLING SLURRY AND TREMIE METHODS OF CONCRETE PLACEMENT MAY BE REQUIRED DURING INSTALLATION.
11. DIFFICULT DRILLING AND/OR ROCK CORING IS TO BE EXPECTED BELOW A DEPTH OF 15 FT. THE DRILLING CONTRACTOR SHOULD BE PREPARED TO REMOVE ROCK AND/OR ROCK CORES FROM THE EXCAVATION.
12. THE CAISSON MUST PENETRATE A MINIMUM OF 9.5' INTO THE HARD AND HIGHLY WEATHERED SHALE BEDROCK LAYER.

STATE OF KENTUCKY
NITESH AHUJA
28866
LICENSED PROFESSIONAL ENGINEER

DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	JAK	12/04/2013

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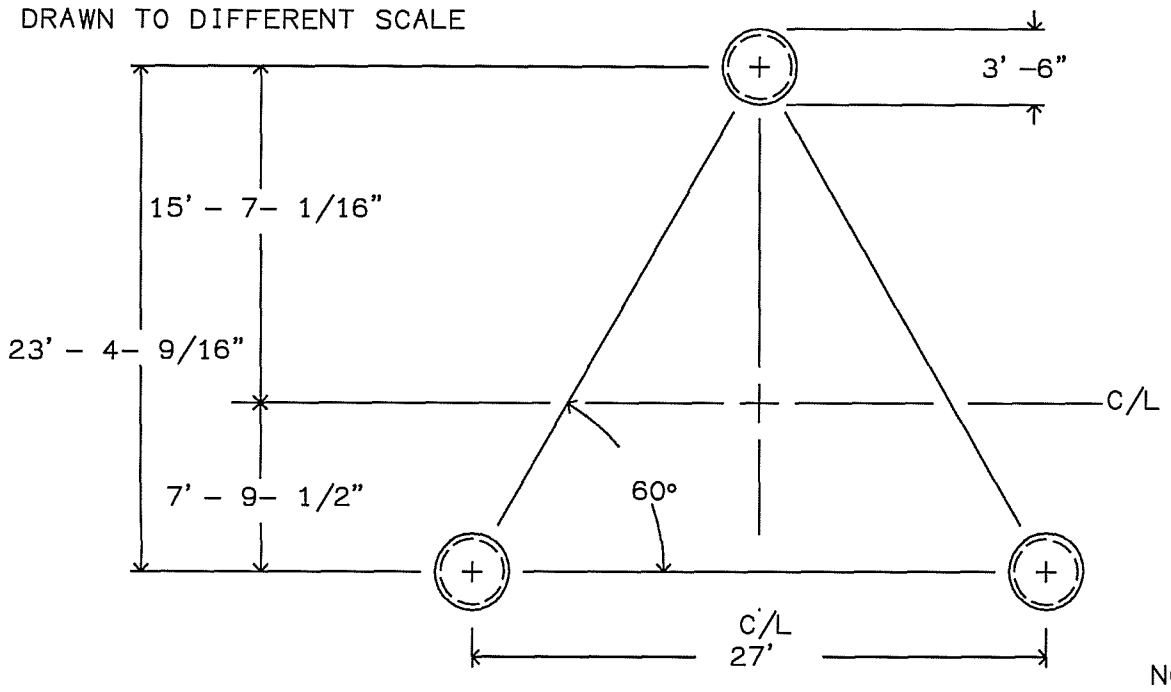
TOP VIEW

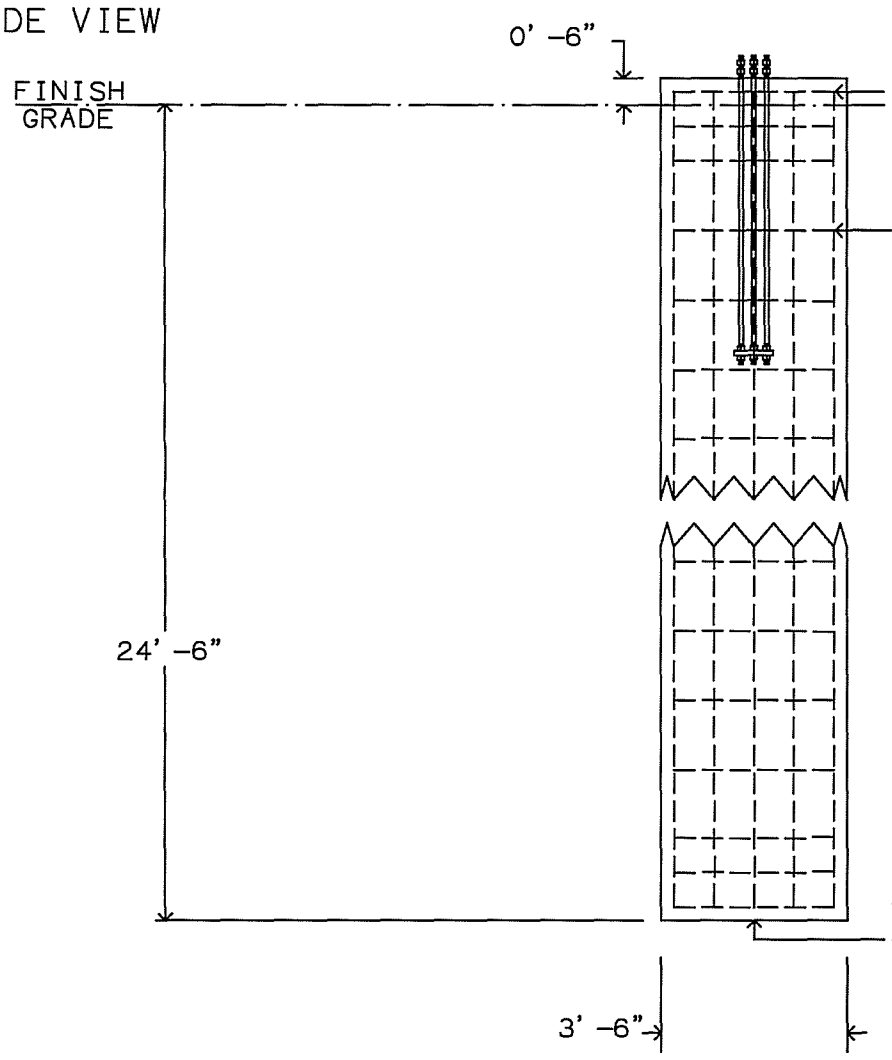
TOP AND SIDE VIEWS ARE
DRAWN TO DIFFERENT SCALE



NOTE: ALL REBAR REQUIRES MINIMUM 3" CONCRETE COVERAGE

FOR ANCHOR STEEL IDENTIFICATION AND PLACEMENT INFORMATION, SEE PAGE 12. SEE PAGE 13 FOR BASE SECTION INSTALLATION DETAIL.

SIDE VIEW



FOR DETAIL VIEW OF REBAR CAGE END AREA, SEE ⟨E⟩ ON PAGE 11.

4 HORIZONTAL TIES - SEE ⟨B⟩ ON PAGE 11. 19 PIECES REQUIRED PER PIER, EQUALLY SPACED.

9 VERTICAL REBAR - SEE ⟨A⟩ ON PAGE 11. 20 PIECES REQUIRED PER PIER, EQUALLY SPACED, TO BE PLACED INSIDE TIES.

ALTERNATE FOUNDATION #2

THREE PIERS REQUIRED
8.9 CUBIC YARDS CONCRETE REQUIRED EACH PIER

FOR INSTALLATION SPECIFICATIONS AND ADDITIONAL INFORMATION, SEE PAGE 9 OF THIS DRAWING.

STATE OF KENTUCKY
NITESH AHUJA
28866
LICENSED PROFESSIONAL ENGINEER

DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

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AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

KENTUCKY C.O.A.	1542	
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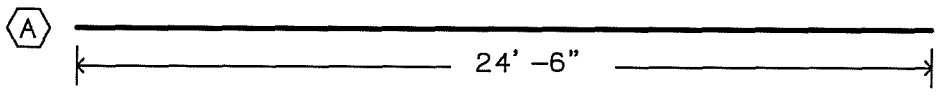
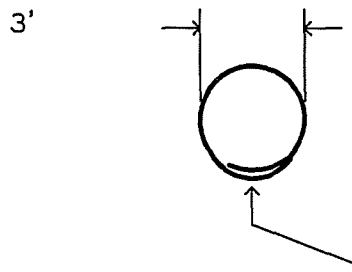


9 REBAR - 60 PIECES REQ. TOTAL
APPROX WT = 83.3# EACH, 4998# TOTAL

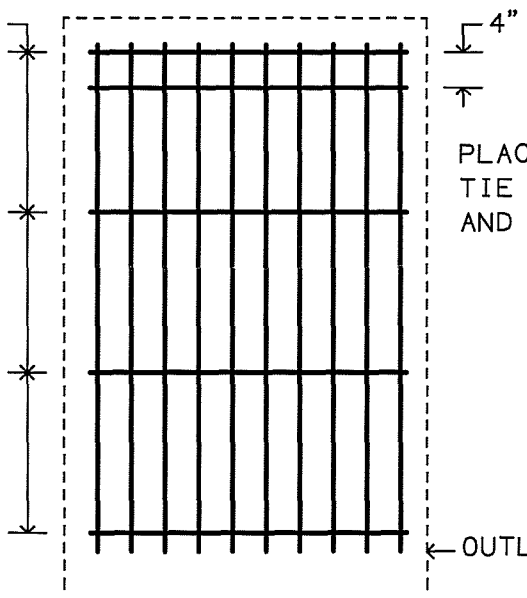


4 REBAR - 57 PIECES REQUIRED TOTAL
APPROX UNBENT LENGTH = 11' - 2- 1/2"
APPROX WT = 7.5# EACH, 428# TOTAL

LAP DIMENSION: 1' - 9- 3/8"
PLACE CIRCULAR TIES SO THAT LAPS ON ADJACENT TIES ARE 180 DEGREES APART.

1' -6"

PLACE FIRST TIE AT END OF VERTICAL BARS (TOP AND BOTTOM) AND CONTINUE SPACING AS SHOWN THROUGHOUT PIER.



PLACE AN ADDITIONAL CIRCULAR TIE 4" FROM THE END TIE (TOP AND BOTTOM) AS SHOWN.

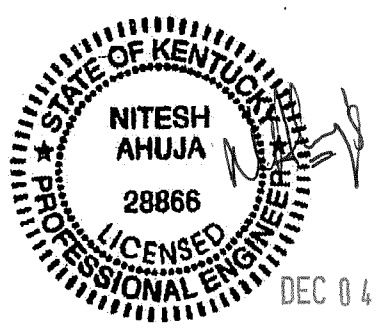
OUTLINE OF CONCRETE PIER

DETAIL OF REBAR CAGE END
(E)

ALTERNATE FOUNDATION #2

REBAR DETAIL

TOTAL APPROX REBAR WEIGHT = 5426#
REINFORCING BAR TO CONFORM TO
ASTM A615 GRADE 60 SPECIFICATIONS.



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AMERICAN TOWER CORP.
#281318 JAKE HORSLEY, KY
V-27.0 X 255'

REV	DESCRIPTION OF REVISIONS	INI	DATE
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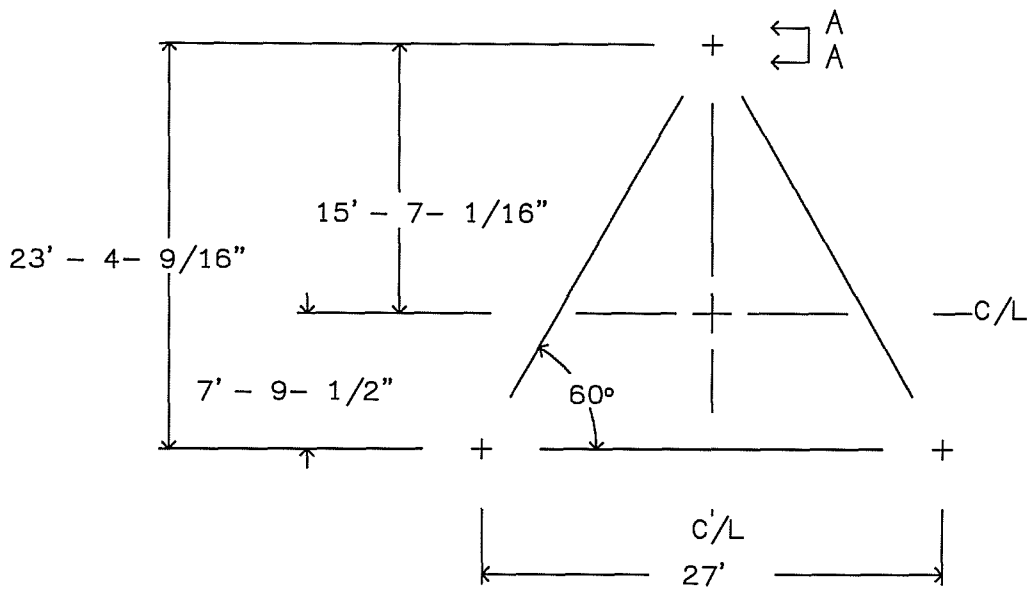
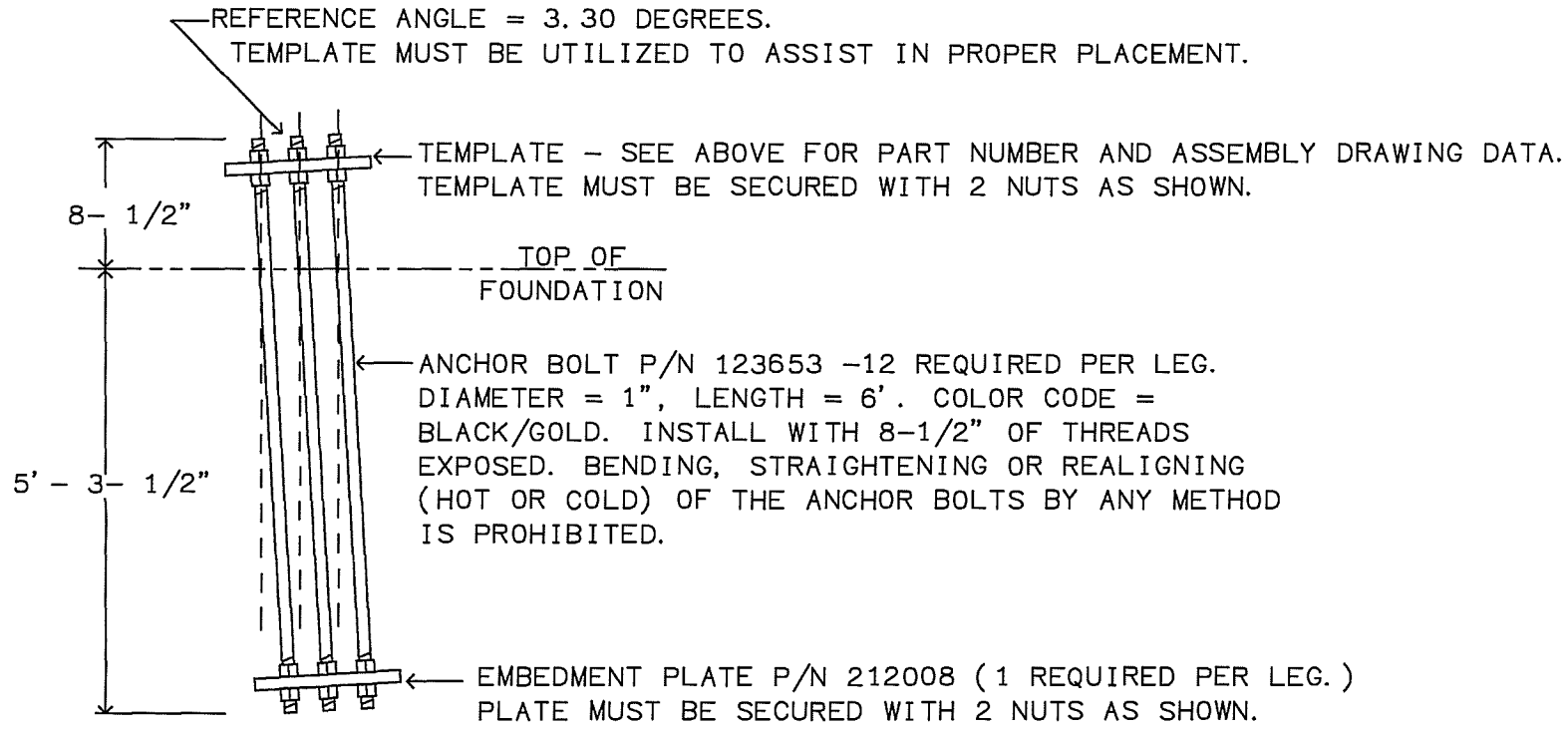


TOWER ANCHOR STEEL PLACEMENT – TOP VIEW

TEMPLATE ASSEMBLY P/N 216152 INCLUDES CORNER PLATE P/N 211902, IS REQUIRED FOR INSTALLATION AND MUST BE PLACED AS SHOWN. SEE DRAWING # 211875 FOR TEMPLATE ASSEMBLY DETAILS. SEE PAGE 7 FOR TOWER C/L LOCATION RELATIVE TO THE FOUNDATION LAYOUT. TEMPLATE PLACEMENT +/– 3". EACH LEG MUST BE CENTERED IN PIER WITHIN +/– 10% OF PIER DIAMETER. TEMPLATE MUST BE LEVEL +/– 1 DEGREE. INSTALL TEMPLATE WITH SUFFICIENT SPACE BENEATH (2" MINIMUM) TO PERMIT FINISHING OF CONCRETE AND TO FACILITATE TEMPLATE REMOVAL PRIOR TO TOWER ERECTION.

SEE PAGE 13 FOR BASE SECTION INSTALLATION DETAIL.



VIEW A – A – ANCHOR BOLT INSTALLATION DETAIL (NOT TO SCALE)

ATTENTION CONTRACTOR INSTALLING THE ANCHOR BOLTS!

1" DIAMETER ANCHOR BOLTS FOR TAPERED TOWER.

VERIFY THE PART NUMBERS AND SIZES FOR ALL COMPONENTS ON THIS PAGE AND PAGE 13.

IF THERE ARE ANY DISCREPANCIES, PLEASE NOTIFY PIROD, INC. PRIOR TO INSTALLATION!!

STATE OF KENTUCKY
NITESH AHUJA
28866
LICENSED PROFESSIONAL ENGINEER

DEC 04 2013

Nitesh Ahuja, KY Professional Engineer #28866

REV	DESCRIPTION OF REVISIONS	INI	DATE
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#281318 JAKE HORSLEY, KY
V–27.0 X 255'

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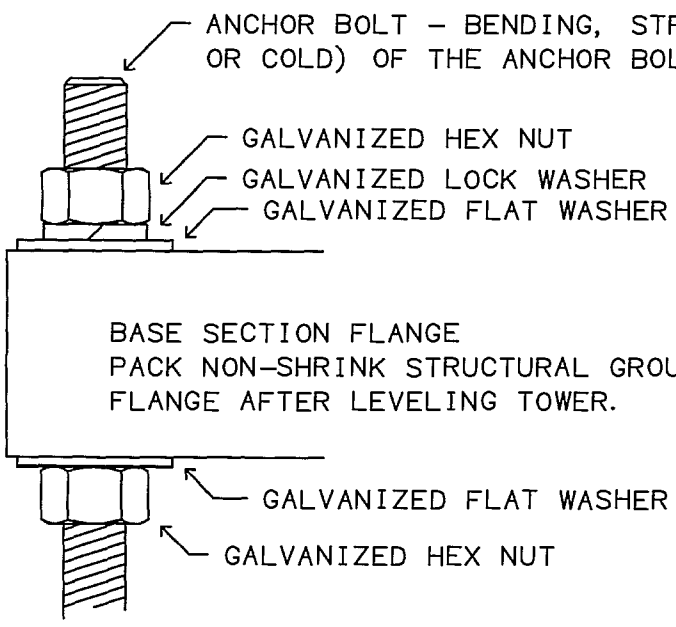

BASE SECTION INSTALLATION DETAIL

STATE OF KENTUCKY
NITESH AHUJA
28866
LICENSED PROFESSIONAL ENGINEER

DEC 0 4 2013

Nitesh Ahuja, KY Professional Engineer #28866

AMERICAN TOWER CORP.
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V-27.0 X 255'

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DRAWING NO. 252333
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valmont
STRUCTURES

December 4, 2013

American Tower Corp.

Attn: Mr. Ron Rohr

SUBJECT: Valmont File #240826 Model V-27.0 x 255' Self Supporting Tower
Site: #281318 Jake Horsley – Stephensport, KY

Thank you for your inquiry concerning tower design codes and practices as they relate to your requested tower designs.

Valmont Structures has been designing and building guyed and self-supporting towers and monopoles since the early 1950's. During this time, we have sold thousands of towers ranging in height form as little as 50' high to in excess of 1400'. These towers were individually engineered to accommodate the loading requirements imparted by the design wind speed, ice considerations, antenna loading, and other factors dictated by the national code requirements existing at the time the tower was built.

The present National Tower code, the TIA-222-G, represents the latest refinement of specific minimum requirements for tower engineers and manufacturers to follow to help assure that the tower structure and its foundation are designed to meet the most realistic conditions for local weather while assuring that the tower is designed to stringent factors of safety.

The TIA-222-G code incorporates an escalating wind factor based on tower height. If 90 MPH 3 second gust is the basic design wind speed at the 10 meter height, then per the specification, this speed is then increased in stages up the tower. "Meeting the code" implies that the design will have all of the code requirements for safety factors intact at the wind speed specified. Thus, the ultimate survival speed would be considerably higher.

While failure is extremely rare in any kind of tower, it is especially so for self supported towers and monopoles. In fact, only if a tower or monopole were subjected to a direct hit from a tornado or the severest of hurricanes would failure be predicted, and then usually only if hit by flying debris.

We are aware of only a very few documented instances of a self supporting tower or monopole failure. Self supporting towers and monopoles can be designed such that the most common mode of failure is in the upper middle region of the tower, with the upper portion of the tower remaining connected and "bending and bowing over" against the base of the tower or pole. The fact that the wind is normally greater on the upper portion of the structure contributes to the likelihood of this type of failure.

Communications Division, Valmont Industries, Inc.
1545 Pidco Drive Plymouth, Indiana 46563-4005 USA
574-936-4221 Fax 574-936-6796 www.valmont.com

valmont
STRUCTURES

This particular Tower is designed such that its first point of predicted failure is in the region above the 140' level. The predicted mode of wind induced failure would be a buckling of the tower legs above the 140' level with the top sections of the tower folding over on to the intact base sections. This would then affect a "zero fall zone" at ground level.

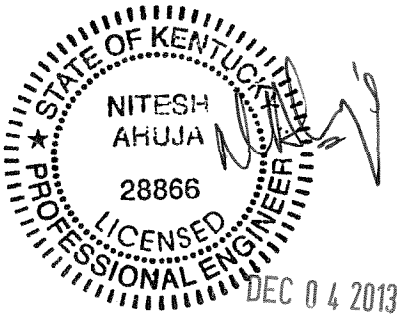
As Senior Engineer of the company and a registered P.E. in 20 states, I oversee all engineering and application of our towers. I am a graduate engineer from Auburn University and am assisted by other registered professional engineers on our staff.

Valmont Structures is an AISC approved shop. All Valmont Structures welders are AWS and CWB qualified. Mathematical and physical tests are performed routinely on tower sections and designs as required. Our total design, engineer and build process has been quality audited by our customers including public utilities, telephone companies, government agencies, and of course AISC.

We trust the above and the attached will be helpful to you. If you should need anything else, please let us know at your convenience.

Sincerely,

Nitesh Ahuja, P.E.
Senior Engineer
Ext. #5257



PiROD
MICROFLECT

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1545 Pidco Drive Plymouth, Indiana 46563-4005 USA
574-936-4221 Fax 574-936-6796 www.valmont.com

AMERICAN TOWER™
CORPORATION

11/7/13

Dear Commissioners:

The construction manager for the proposed new communications facility will be Ron Rohr. His contact information is 740-438-9710. Ron Rohr has been involved in the construction of communications facilities for over 17 years, and general construction for over 20 years.

Some of the notable and most recent projects are:

2010 - Present
American Tower Corporation – Construction Manager

- Successfully led the construction team on the 140 site, Southern Ohio Launch while maintaining a respectful and professional demeanor under difficult circumstances.
- Played a key part in the collaborating efforts to build the scope of work, pricing matrix, and close out documentation on several projects.
- Have cultivated a pool of responsible, dependable and quality driven GC's to work on ATC projects throughout the Midwest and Northeast Region.

1990 – 2009
Superior Concepts – Owner

- Contract Project and Construction Manager to multiple wireless carriers. Work included, but not limited to, permitting all the way through to final construction close outs. Also managed several DAS projects in shopping malls and residential areas.
- Equipment operator, cell site super intendant, regional foreman, etc...
- Carpentry, Construction and Consulting

Accreditations and Licenses

OSHA Electrical Safety
Vallen Safety Knowledge Systems / Fall Protection
Builders Exchange of Central Ohio / Estimating & Bid Preparation
Amphenol Wireless Cable Connector Training
Commscope Connector Training
Andrew Connector Training
Current OSHA Safety Training
Current Haz Com Training
FAA/FCC Training

Thank you,

Ron Rohr
Construction Manager

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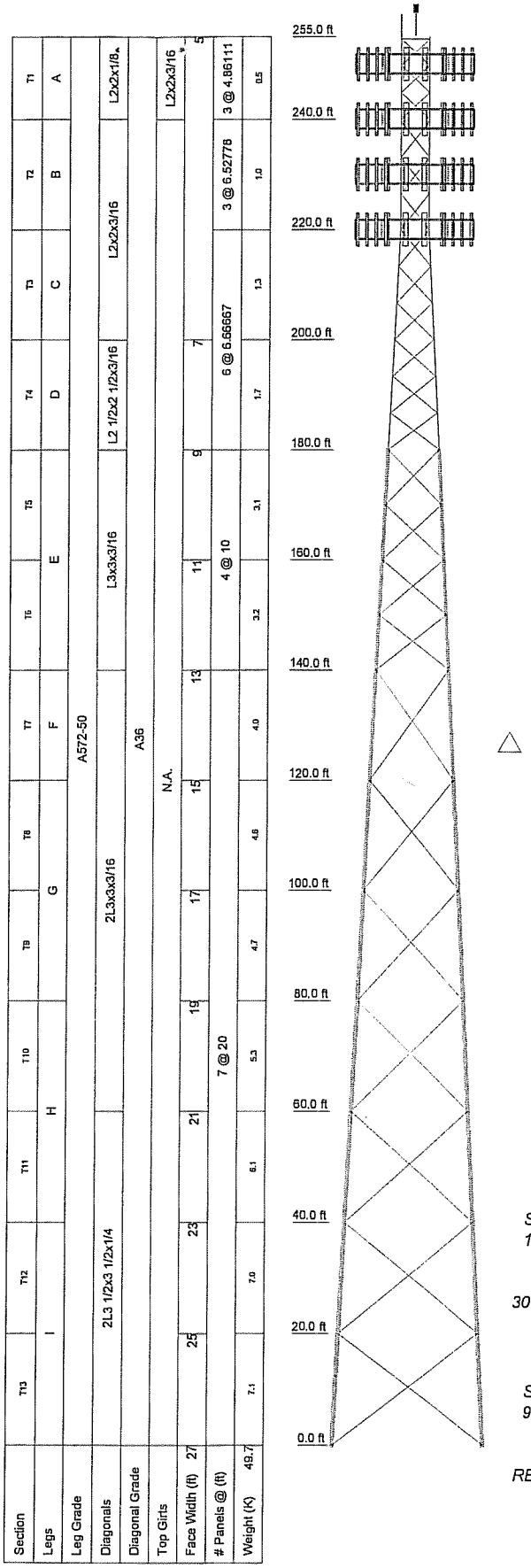


DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Beacon	255	ATC Loading	240
Beacon Extender (4') 803062	255	ATC Loading	230
1/2" x 4' lightning rod	255	ATC Loading	220
ATC Loading	250		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 2.50" - 0.75" conn.-15' -C-(Pirod 226169)	F	#12ZG -2.00" - 0.875" conn.-HBD-Trans (Pirod 208332)
B	P- 4.00"- 0.75" conn.-20' -C-Trans-6B-4B-(Pirod 226184)	G	#12ZG -2.25" - 0.875" conn. (Pirod 208334)
C	P- 5.00"- 0.75" conn.-Trans-20' -C-(Pirod 226200)	H	#12ZG - 2.50" - 0.875" conn. (Pirod 208335)
D	P- 6.00"- 0.75" conn.-HBD-Trans-20' -C-(Pirod	I	#12ZG - 2.75" - 0.875" conn. (Pirod 208337)

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Breckinridge County, Kentucky.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Zero Fall Zone
9. TOWER RATING: 99.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 625 K
UPLIFT: -556 K
SHEAR: 62 K

AXIAL 287 K
SHEAR 10 K *MOMENT 1627 kip-ft*
TORQUE 0 kip-ft
30 mph WIND - 0.7500 in ICE

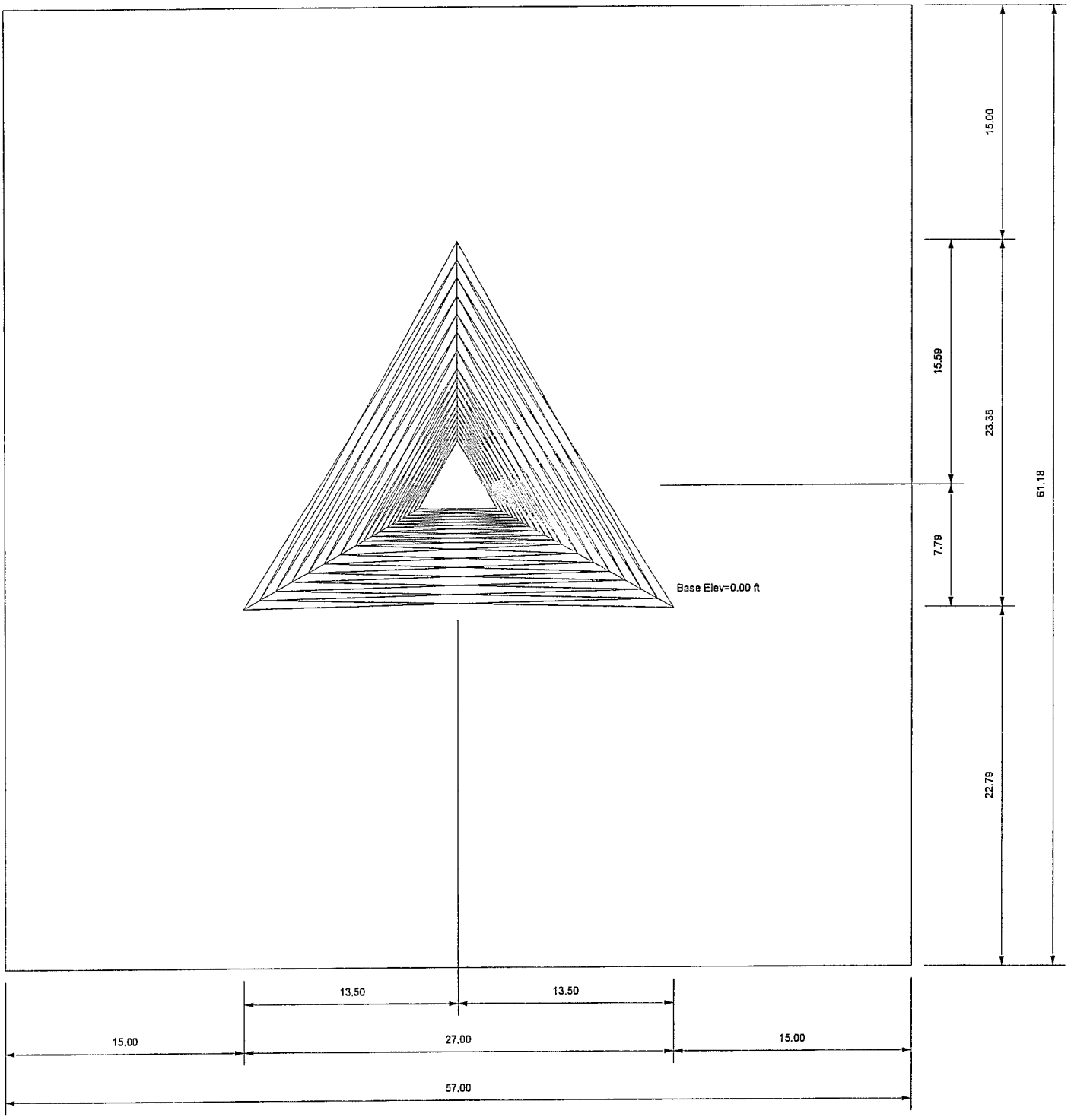
AXIAL 93 K
SHEAR 95 K *MOMENT 13888 kip-ft*
TORQUE 12 kip-ft
REACTIONS - 90 mph WIND

STATE OF KENTUCKY
NITESH AHUJA
28866
LICENSED PROFESSIONAL ENGINEER
DEC 04 2013

Valmont
1545 Pidco Drive
Plymouth, IN
Phone: 574-936-4221
FAX:

Job: *240826*			
Project: *V-27 x 255' - #281318 Jake Horsley, KY*			
Client: American Tower Corp.	Drawn by: SKK	App'd:	
Code: TIA-222-G	Date: 12/03/13	Scale: NTS	
Path: \\plysrfile01\FileRoom\Documents\240040828 ATC #281318 Jake Horsley, KY V25s 255\V2 Tower Calcs\240828.eri		Dwg No. E	

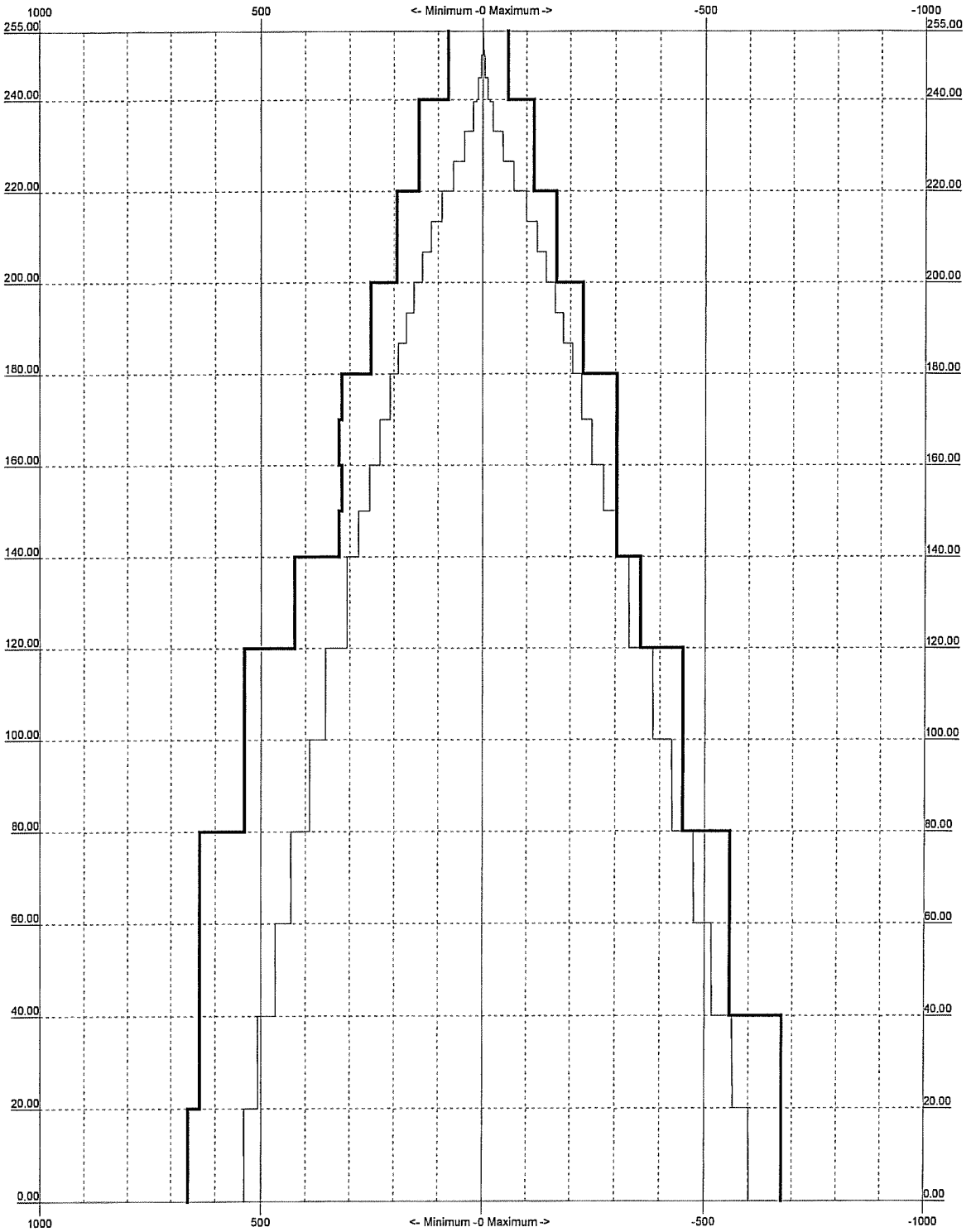
Plot Plan
Total Area - 0.08 Acres



Valmont 1545 Pidco Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job: *240826*		
	Project: *V-27 x 255' - #281318 Jake Horsley, KY*		
	Client: American Tower Corp.	Drawn by: SKK	App'd:
	Code: TIA-222-G	Date: 12/03/13	Scale: NTS
	Path:		Dwg No.

TIA-222-G - 90 mph/30 mph 0.7500 in Ice Exposure C

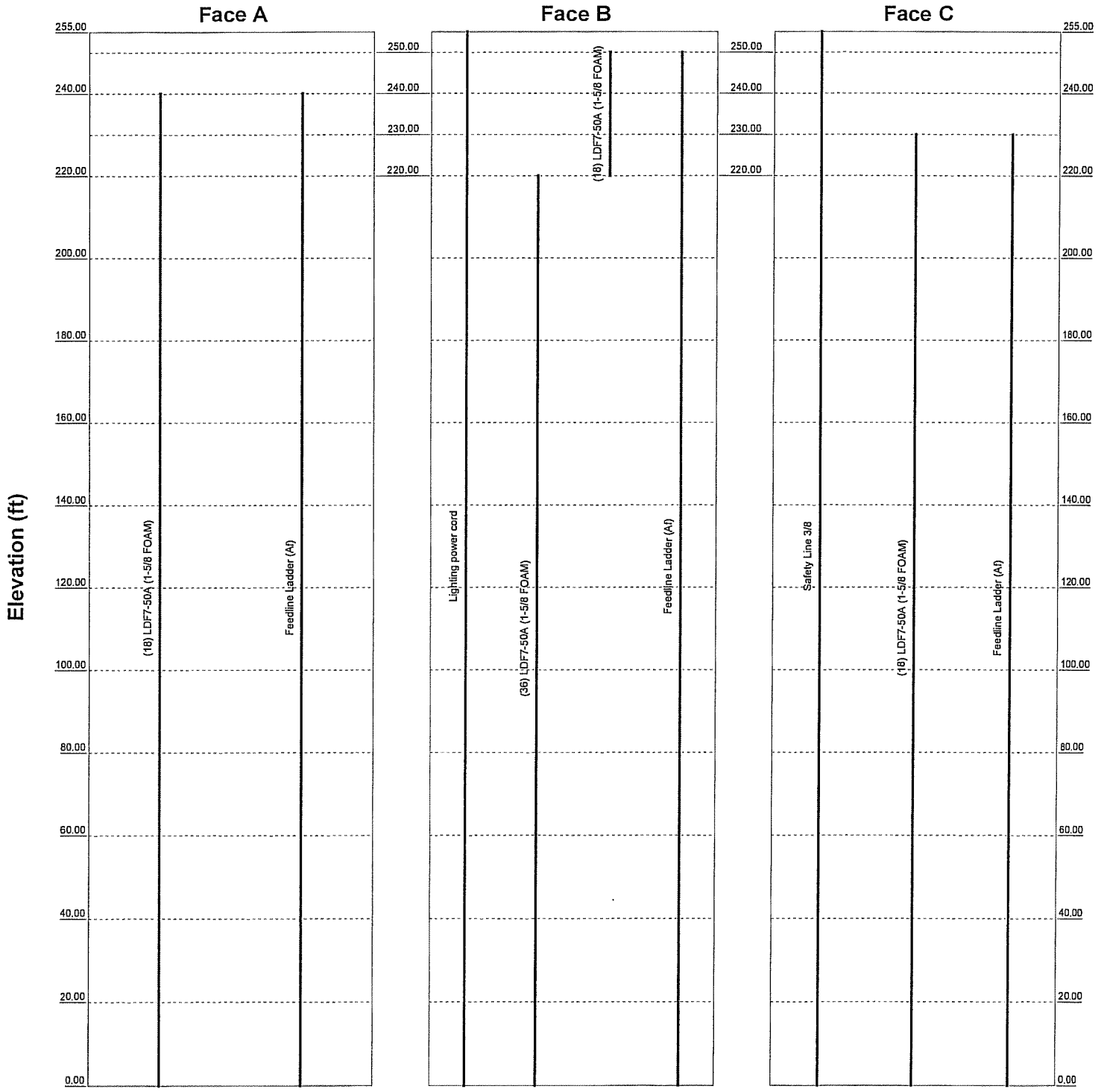
Leg Capacity ——— Leg Compression (K)



Valmont 1545 Pidco Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job: *240826*		
	Project: *V-27 x 255' - #281318 Jake Horsley, KY*		
	Client: American Tower Corp.	Drawn by: SKK	App'd:
	Code: TIA-222-G	Date: 12/03/13	Scale: NTS
	Path:		Dwg No. E

Feedline Distribution Chart
0' - 255'

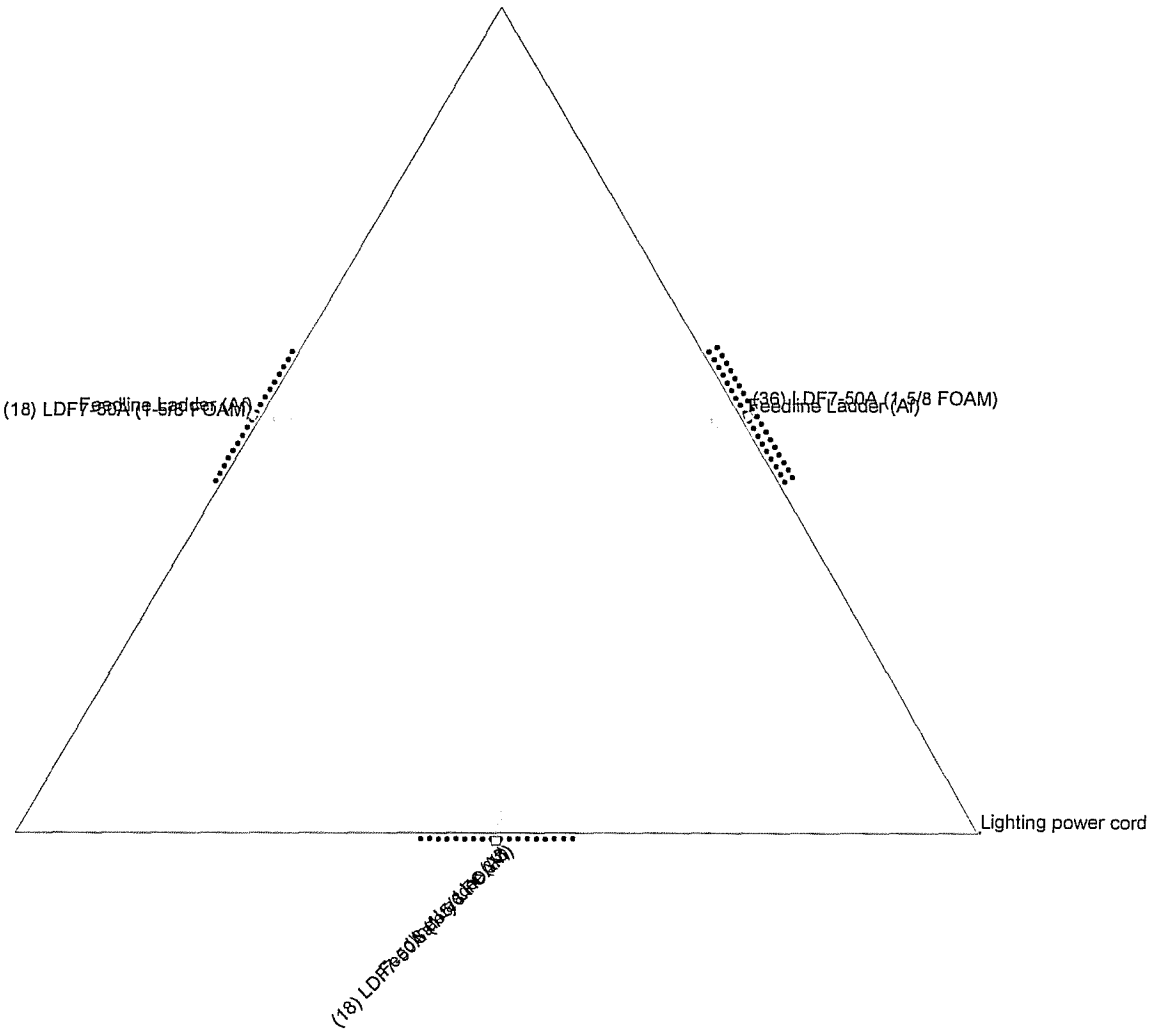
Round Flat App In Face App Out Face Truss Leg



Valmont 1545 Pidco Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job: *240826*		
	Project: *V-27 x 255' - #281318 Jake Horsley, KY*		
	Client: American Tower Corp.	Drawn by: SKK	App'd:
	Code: TIA-222-G	Date: 12/03/13	Scale: NTS
	Path: \\plymfile01\FileRoom\Documents\240\240826 ATC #281318 Jake Horsley, KY V29 x 255\V27 Tower Data\240826.eri		Dwg No.

Feedline Plan

____ Round _____ Flat _____ App In Face _____ App Out Face _____ Truss-Leg



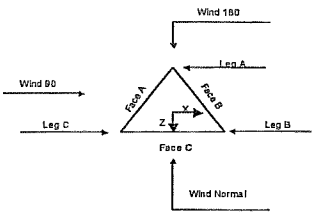
Valmont	Job: *240826*		
1545 Pidco Drive	Project: *V-27 x 255' - #281318 Jake Horsley, KY*		
Plymouth, IN	Client: American Tower Corp.	Drawn by: SKK	App'd:
Phone: 574-936-4221	Code: TIA-222-G	Date: 12/03/13	Scale: NTS
FAX:	Path:		Dwg No. E

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 255.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 27.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:
Tower is located in Breckinridge County, Kentucky.
Basic wind speed of 90 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 30 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Zero Fall Zone.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	255.00-248.00		V-Series Leg	5.88	1	15.88
T2	248.88-220.08		V-Series Leg	5.88	1	20.08
T3	220.08-208.00		V-Series Leg	5.88	1	20.80
T4	200.80-188.88		V-Series Leg	7.88	1	20.80
T5	180.00-160.00		PiRod 12BD Truss Leg	9.00	1	20.80
T6	168.00-148.08		PiRod 12BD Truss Leg	11.00	1	20.00
T7	148.80-128.08		PiRod 12BDH Truss Leg	13.80	1	20.88
T8	120.00-188.00		PiRod 12BDH Truss Leg	15.80	1	20.00
T9	180.08-80.08		PiRod 12BDH Truss Leg	17.80	1	20.08
T10	80.88-60.00		PiRod 12BDH Truss Leg	19.00	1	20.00
T11	60.88-48.88		PiRod 12BDH Truss Leg	21.88	1	20.08
T12	40.08-20.88		PiRod 12BDH Truss Leg	23.08	1	20.00
T13	20.00-0.08		PiRod 12BDH Truss Leg	25.00	1	20.08

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	255.80-248.00	4.86	X Brace	No	No	5.0008	8.0008
T2	240.88-220.08	6.53	X Brace	No	No	5.0000	8.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T3	228.00-208.00	6.67	X Brace	No	No	0.0000	0.0800
T4	208.88-180.08	6.67	X Brace	No	No	0.0088	0.0800
T5	188.88-160.88	10.00	X Brace	No	No	0.0088	0.0800
T6	168.00-140.08	18.00	X Brace	No	No	0.0088	0.0000
T7	140.08-120.80	20.08	X Brace	No	No	0.8808	0.0000
T8	128.80-180.08	20.80	X Brace	No	No	0.0008	0.0800
T9	100.00-88.00	20.80	X Brace	No	No	8.8008	0.0000
T10	88.08-60.08	20.88	X Brace	No	No	0.0088	0.0000
T11	60.00-40.00	20.08	X Brace	No	No	8.0000	0.0000
T12	40.00-20.08	20.00	X Brace	No	No	8.0088	0.0080
T13	20.00-0.80	20.08	X Brace	No	No	8.0080	0.8888

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 255.00-240.00	Pipe	P- 2.50" - 0.75" conn.-15' -C-(Pired 226160)	A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T2 240.80-220.00	Pipe	P- 4.00"- 0.75" conn.-20' -C-Trans-6B-4B-(Pired 226184)	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 220.00-200.00	Pipe	P- 5.80"- 0.75" conn.-Trans-20' -C-(Pired 226200)	A572-58 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 208.80-180.00	Pipe	P- 6.00"- 0.75" conn.-HBD-Trans-20' -C-(Pired 229377)	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 180.00-160.00	Truss Leg	#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pired 229588)	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 168.80-140.00	Truss Leg	#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pired 229588)	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 140.00-120.00	Truss Leg	#12ZG -2.88" - 0.875" conn.-HBD-Trans (Pired 208332)	A572-50 (50 ksi)	Double Equal Angle	2L3x3x3/16	A36 (36 ksi)
T8 120.00-100.00	Truss Leg	#12ZG -2.25" - 0.875" conn. (Pired 208334)	A572-58 (50 ksi)	Double Equal Angle	2L3x3x3/16	A36 (36 ksi)
T9 100.88-80.00	Truss Leg	#12ZG -2.25" - 0.875" conn. (Pired 208334)	A572-50 (58 ksi)	Double Equal Angle	2L3x3x3/16	A36 (36 ksi)
T10 80.00-60.00	Truss Leg	#12ZG - 2.50" - 0.875" conn. (Pired 208335)	A572-58 (50 ksi)	Double Equal Angle	2L3x3x3/16	A36 (36 ksi)
T11 60.80-40.00	Truss Leg	#12ZG - 2.50" - 0.875" conn. (Pired 208335)	A572-50 (58 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)
T12 40.00-20.00	Truss Leg	#12ZG - 2.75" - 0.875" conn. (Pired 208337)	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)
T13 20.08-0.00	Truss Leg	#12ZG - 2.75" - 0.875" conn. (Pired 208337)	A572-58 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 255.00-240.00	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 255.00-240.00	0.00	0.2500	A36 (36 ksi)	1	1	1.85	36.0000	36.0000
T2 240.00-220.00	0.00	0.2500	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T3 220.00-200.00	0.00	0.3750	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T4 200.00-180.00	0.00	0.3750	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T5 180.00-160.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T6 160.00-140.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T7 140.00-120.00	0.00	0.6250	A36 (36 ksi)	1	1	1.85	36.0000	36.0000
T8 120.00-100.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T9 100.00-80.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T10 80.00-60.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T11 60.00-48.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T12 40.00-20.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T13 20.00-0.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X / Y	X / Y	X / Y	X / Y	X / Y	X / Y	X / Y
T1 255.00-240.00	Yes	Yes	1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
T2 240.00-220.00	Yes	Yes	1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
T3 220.00-200.00	Yes	Yes	1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
T4	Yes	Yes	1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
200.00-180.00										
T5	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
180.00-168.00										
T6	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
160.00-140.00										
T7	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
140.00-120.00										
T8	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
120.00-100.00										
T9	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
100.00-80.00										
T10	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
80.00-60.00										
T11	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
60.00-40.00										
T12	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
40.00-20.00										
T13	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
20.00-0.00										

[1]Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Truss-Leg K Factors: Truss-Legs Used As Leg Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals	Truss-Legs Used As Inner Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals
T5	1	0.5	0.7	1	0.5	0.7
180.00-160.00						
T6	1	0.5	0.7	1	0.5	0.7
160.00-140.00						
T7	1	0.5	0.7	1	0.5	0.7
140.00-120.00						
T8	1	0.5	0.7	1	0.5	0.7
120.00-100.00						
T9	1	0.5	0.7	1	0.5	0.7
100.00-80.00						
T10	1	0.5	0.7	1	0.5	0.7
80.00-60.00						
T11	1	0.5	0.7	1	0.5	0.7
60.00-40.00						
T12	1	0.5	0.7	1	0.5	0.7
40.00-20.00						
T13	1	0.5	0.7	1	0.5	0.7
20.00-0.00						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Connection Offsets: Diagonal Vert. Top in	Horiz. Top in	Vert. Bot. in	Horiz. Bot. in	K-Bracing Vert. Top in	Horiz. Top in	Vert. Bot. in	Horiz. Bot. in
T9	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
100.00-80.00								
T10	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
80.00-60.00								
T11	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
60.00-40.00								
T12	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
40.00-20.00								
T13	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
20.00-0.00								

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1	Flange	0.7500	4	0.7500	1	0.7500	1	1.0000	0	1.0000	0	1.0000	0	1.0000	0
255.00-240.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2	Flange	0.7500	6	0.7500	1	0.7588	1	1.0000	0	1.0000	8	1.0000	8	1.0000	0
240.00-220.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	0.7500	8	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
220.00-200.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4	Flange	1.0000	6	0.7500	1	0.8000	0	1.8000	0	1.0000	0	1.8800	0	1.0000	0
200.00-180.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5	Flange	1.0000	6	1.0000	1	0.0000	0	1.0000	0	1.0000	0	1.0000	8	1.8800	0
180.00-160.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	1.0000	6	1.0000	1	8.0000	0	1.0000	0	1.8800	0	1.0000	8	1.0000	8
160.00-140.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7	Flange	1.8000	12	0.8750	1	8.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
140.00-120.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8	Flange	1.0000	12	0.8750	1	0.0000	0	1.0000	0	1.0000	0	1.0000	8	1.8000	0
120.00-100.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9	Flange	1.0008	12	0.8750	1	0.8000	0	1.0000	0	1.8000	0	1.0008	0	1.0000	0
100.00-80.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	1.0080	12	0.8750	1	0.8000	0	1.0000	0	1.0000	0	1.0008	0	1.8000	8
80.00-60.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11	Flange	1.0000	12	0.8758	1	0.0000	0	1.0000	0	1.0000	0	1.8888	0	1.0008	0
60.00-40.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T12	Flange	1.0000	12	0.8750	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
40.00-20.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T13 20.00-0.00	Flange	1.0000	12	0.8750	1	0.0800	0	1.0000	8	1.0000	0	1.0000	0	1.8008	8
		F1554-105		A325N		A325N		A325N		A325N		A325N		A325N	

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Tower Elevation ft	Leg Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1	0.0000	1	8.0000	0.75	0.0008	0.75	0.0000	0.75	8.0000	0.75	0.0000	0.75	0.0000	0.75
255.00-240.00														
T2	0.0000	1	0.0000	0.75	0.0008	0.75	0.0000	0.75	8.8000	0.75	0.0000	0.75	0.0000	0.75
240.00-220.00														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
220.00-200.00														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	8.0000	0.75	0.0000	0.75	0.0000	0.75
200.00-180.00														
T5	0.0000	1	0.0000	0.75	0.0000	0.75	0.0008	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
180.00-160.00														
T6	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	8.8000	0.75	0.0000	0.75	0.0000	0.75
160.00-140.00														
T7	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
140.00-120.00														
T8	0.0800	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
120.00-100.00														
T9	0.0000	1	0.0000	0.75	0.0000	0.75	0.8000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
100.00-80.00														
T10	0.0000	1	8.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
80.00-60.00														
T11	0.0000	1	0.0000	0.75	0.0000	0.75	8.0800	0.75	0.8000	0.75	0.0808	0.75	0.0000	0.75
60.00-40.00														
T12	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
40.00-20.00														
T13 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets: Diagonal Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	K-Bracing Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1	5.0000	5.0000	5.0000	5.0000	0.0000	0.0000	0.0000	0.0000
255.00-240.00								
T2	5.0000	5.0000	5.0000	5.0000	0.0000	0.0000	0.0000	0.0800
240.00-220.00								
T3	5.0000	6.2500	5.0000	6.2500	0.0000	0.0000	0.0800	0.0000
220.00-200.00								
T4	5.0000	6.2500	5.0000	6.2500	0.8000	0.8008	0.0000	0.8008
200.00-180.00								
T5	5.0000	10.7500	5.0000	10.7500	0.0000	0.0008	0.0000	0.8800
180.00-160.00								
T6	5.0000	10.7500	5.0000	10.7500	0.0008	0.0000	0.0000	0.0000
160.00-140.00								
T7	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
140.00-120.00								
T8	5.0008	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
120.00-100.00								

Tower Elevation	Connection Offsets: Diagonal Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	K-Bracing Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T9	5.0000	11.5000	5.0000	11.5008	0.0000	0.0000	0.0000	0.0008
100.00-80.00								
T10	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.8000	0.0008
80.00-60.00								
T11	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0800	0.0000
60.00-40.00								
T12	5.0000	11.5000	5.0000	11.5008	0.0008	0.0800	0.8000	0.0008
40.00-20.00								
T13 20.00-0.00	5.0000	11.5000	5.0000	11.5008	0.0000	0.0800	0.0800	0.8008

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1	Flange	0.7500	4	0.7500	1	8.7500	1	1.0000	0	1.0000	0	1.0000	0	1.0000	0
255.00-240.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2	Flange	0.7500	6	0.7500	1	0.7588	1	1.0000	0	1.8800	8	1.0000	8	1.8000	0
240.00-220.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	0.7500	8	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0800	0
220.00-200.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4	Flange	1.0000	6	0.7500	1	0.8000	0	1.8008	0	1.0000	0	1.8800	0	1.0000	0
200.00-180.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5	Flange	1.0008	6	1.0000	1	0.0000	0	1.0000	0	1.0000	0	1.0000	8	1.8800	0
180.00-160.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	1.0000	6	1.0000	1	8.0000	0	1.0000	0	1.8800	0	1.0000	8	1.0000	8
160.00-140.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7	Flange	1.8000	12	0.8750	1	8.0000	0	1.0000	0	1.0000	0	1.0008	0	1.0000	0
140.00-120.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8	Flange	1.0000	12	0.8750	1	0.0000	0	1.0000	0	1.0000	0	1.0000	8	1.8000	0
120.00-100.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9	Flange	1.0008	12	0.8750	1	0.8000	0	1.0000	0	1.8000	0	1.0008	0	1.0000	0
100.00-80.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	1.0080	12	0.8750	1	0.8000	0	1.0000	0	1.0000	0	1.0008	0	1.8000	8
80.00-60.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11	Flange	1.0000	12	0.8758	1	0.0000	0	1.0000	0	1.0000	0	1.8888	0	1.0008	0
60.00-40.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T12	Flange	1.0000	12	0.8750	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
40.00-20.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T13 20.00-0.00	Flange	1.0000	12	0.8750	1	0.0800	0	1.0000	8	1.0000	0	1.0000	0	1.8008	8
		F1554-105		A325N		A325N		A325N		A325N		A325N		A325N	

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	255.00-240.00	A	8.000	0.000	8.008	0.000	0.00
		B	8.000	0.000	41.945	0.808	0.23
		C	8.000	0.008	0.563	0.000	0.00
T2	240.00-220.00	A	0.000	0.000	81.280	0.000	8.46
		B	0.000	0.000	83.820	0.000	0.47
		C	0.000	0.000	41.390	0.000	0.24
T3	220.00-200.00	A	0.008	8.000	81.280	8.000	8.46
		B	0.000	8.000	154.300	0.000	8.76
		C	8.000	0.000	82.030	0.000	0.47
T4	200.00-180.00	A	0.008	0.000	81.280	0.000	0.46
		B	0.000	0.000	154.300	0.000	0.76
		C	0.000	0.000	82.038	0.088	0.47
T5	180.00-160.00	A	0.000	0.000	81.280	0.000	0.46
		B	0.000	0.008	154.300	0.888	0.76
		C	0.000	0.800	82.030	0.000	0.47
T6	160.00-140.00	A	0.000	0.008	81.288	0.088	0.46
		B	8.000	0.008	154.300	0.008	0.76
		C	0.008	8.000	82.038	0.008	0.47
T7	140.00-120.00	A	8.000	8.080	81.280	0.800	0.46
		B	0.800	0.000	154.380	0.008	0.76
		C	0.000	0.008	82.830	0.000	0.47
T8	120.80-188.00	A	0.808	0.000	81.280	0.000	0.46
		B	0.800	8.000	154.300	0.000	0.76
		C	0.000	0.008	82.038	0.808	0.47
T9	100.00-80.00	A	0.000	0.000	81.280	0.000	0.46
		B	0.000	0.000	154.300	0.008	0.76
		C	0.000	0.800	82.030	0.000	0.47
T10	80.00-60.00	A	0.800	0.000	81.280	0.008	0.46
		B	0.000	0.000	154.300	0.000	0.76
		C	0.000	0.000	82.030	0.000	0.47
T11	60.00-40.00	A	0.000	0.000	81.208	0.000	0.46
		B	0.000	0.000	154.300	8.000	0.76
		C	0.000	0.000	82.030	0.000	8.47

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	C	No	Ar (CaAa)	255.00 - 0.00	3.0008	0	1	1	0.3750	0.3750		0.22
Lighting power cord	B	No	Ar (CaAa)	255.00 - 0.00	0.5800	0.5	1	1	0.2000 0.0000	0.8700		0.15
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CaAa)	230.00 - 0.00	1.0008	0	18	18	1.0280 1.0000	1.9800		8.82
LDF7-50A (1-5/8 FOAM)	B	No	Ar (CaAa)	220.00 - 0.00	1.0000	0	36	18	1.0290 1.0080	1.9800		8.82
LDF7-50A (1-5/8 FOAM)	B	No	Ar (CaAa)	250.00 - 220.88	1.0000	0	18	18	1.0280 1.0000	1.9800		8.82
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	240.00 - 0.88	1.0000	0	18	18	1.0280 1.0000	1.9800		8.82
Feedline Ladder (Af)	B	No	Af (CaAa)	250.00 - 0.00	1.0000	0	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	A	No	Af (CaAa)	240.00 - 0.88	1.8008	8	1	1	3.0080	3.0000		8.40
Feedline Ladder (Af)	C	No	Af (CaAa)	230.00 - 0.88	1.8000	0	1	1	3.0000	3.0000		8.40

Tower Section	Tower Elevation ft	Face	A_e ft²	A_r ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
T12	40.00-20.88	A	0.000	8.000	81.280	0.000	0.46
		B	0.000	8.000	154.308	0.000	0.76
		C	0.808	8.000	82.030	0.800	0.47
T13	20.80-8.00	A	0.000	8.000	81.280	0.000	0.46
		B	8.000	0.008	154.388	8.080	0.76
		C	0.088	0.000	82.030	0.000	8.47

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
T1	255.00-240.80	A	1.835	8.000	0.080	8.008	0.080	0.00
		B		8.000	0.000	86.643	0.000	1.46
		C		0.008	0.000	6.067	0.000	0.08
T2	240.00-220.00	A	1.821	8.000	0.080	159.539	8.008	2.72
		B		0.000	8.800	168.565	0.008	2.85
		C		0.008	0.000	87.805	8.080	1.46
T3	220.00-200.00	A	1.805	0.880	0.000	159.363	0.080	2.70
		B		0.000	0.000	169.267	0.080	4.80
		C		0.000	8.800	167.353	0.000	2.01
T4	200.00-180.00	A	1.787	0.000	0.000	159.213	0.880	2.68
		B		0.000	0.000	169.021	0.000	3.98
		C		0.008	0.000	167.111	8.080	2.78
T5	180.00-160.08	A	1.767	0.000	0.000	159.026	0.000	2.66
		B		0.000	0.080	168.751	0.000	3.55
		C		0.000	0.808	166.045	0.000	2.76
T6	160.80-148.08	A	1.745	0.000	0.000	158.018	0.000	2.64
		B		0.000	0.880	168.450	8.080	3.92
		C		8.000	0.000	166.549	0.808	2.73
T7	140.08-120.00	A	1.720	0.000	0.000	158.583	0.000	2.61
		B		0.000	0.880	160.110	0.080	3.09
		C		0.000	0.000	166.215	0.008	2.70
T8	120.00-100.00	A	1.692	0.000	0.008	150.314	0.800	2.58
		B		0.008	0.080	167.721	0.000	3.86
		C		0.000	0.000	165.032	0.000	2.67
T9	100.80-80.00	A	1.658	0.000	8.008	157.996	0.000	2.54
		B		0.800	0.000	167.261	8.880	3.01
		C		0.000	0.080	165.379	0.008	2.63
T10	80.00-60.00	A	1.617	0.000	0.000	157.608	0.000	2.49
		B		0.008	0.008	166.698	0.000	3.76
		C		0.000	8.880	164.026	0.000	2.58
T11	60.00-40.00	A	1.564	0.000	0.000	157.103	0.088	2.44
		B		0.000	0.000	165.967	0.000	3.70
		C		0.000	0.800	164.187	8.880	2.51
T12	40.00-20.08	A	1.406	0.000	0.000	156.369	0.000	2.35
		B		0.000	0.808	164.903	0.000	3.60
		C		0.000	0.000	163.062	0.000	2.42
T13	20.80-8.00	A	1.331	8.000	0.000	154.914	0.880	2.18
		B		0.008	0.008	162.795	8.088	3.41
		C		0.000	0.000	160.989	0.080	2.24

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	255.00-240.00	3.0894	-1.5587	2.6602	-0.9106
T2	240.08-220.80	0.0536	-0.8889	0.1377	-0.5974
T3	220.88-200.08	1.8027	-0.5163	8.2104	0.1162
T4	200.00-180.00	1.2415	-8.6358	0.2581	0.1605
T5	180.00-160.80	1.4829	-0.7569	0.2730	0.1921
T6	168.00-140.00	1.7342	-8.8830	0.3126	0.2339
T7	140.00-128.00	1.9901	-1.0160	0.3541	0.2768
T8	120.80-100.00	2.2423	-1.1380	0.3903	0.3151
T9	100.80-80.80	2.4944	-1.2646	0.4252	0.3517
T10	80.00-60.80	2.7306	-1.3830	0.4571	0.3849
T11	60.00-48.80	2.9562	-1.4962	0.4839	0.4125
T12	40.80-20.00	3.1725	-1.6052	0.5057	0.4334
T13	20.80-0.00	3.4132	-1.7255	8.5106	0.4331

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Safety Line 3/8	240.00 - 255.00	0.6000	0.5788
T1	2	Lighting power cord	240.00 - 255.00	0.6000	0.5788
T1	5	LDF7-50A (1-5/0 FOAM)	240.00 - 250.08	0.6000	0.5788
T1	7	Feedline Ladder (Af)	240.00 - 250.00	1.0000	1.0000
T2	1	Safety Line 3/8	220.00 - 240.00	0.6000	0.5857
T2	2	Lighting power cord	220.00 - 240.08	0.6080	0.5857
T2	3	LDF7-50A (1-5/8 FOAM)	220.80 - 230.00	0.6000	0.5857
T2	5	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.5857
T2	6	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.5857
T2	7	Feedline Ladder (Af)	220.00 - 240.00	1.0000	1.0000
T2	8	Feedline Ladder (Af)	228.00 - 240.00	1.0000	1.0000
T2	9	Feedline Ladder (Af)	220.08 - 230.08	1.0000	1.0000
T3	1	Safety Line 3/0	200.80 - 220.00	0.6000	0.6000
T3	2	Lighting power cord	200.00 - 220.00	0.6000	0.6000
T3	3	LDF7-50A (1-5/8 FOAM)	200.00 - 220.80	0.6000	0.6000
T3	4	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.6000
T3	6	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.6000
T3	7	Feedline Ladder (Af)	200.08 - 220.80	1.0000	1.0000
T3	8	Feedline Ladder (Af)	200.08 -	1.0008	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	9	Feedline Ladder (Af)	220.80 - 200.00	1.0000	1.0000
T4	1	Safety Line 3/8	188.00 - 200.00	0.6000	0.6008
T4	2	Lighting power cord	180.00 - 200.80	0.6000	0.6000
T4	3	LDF7-50A (1-5/0 FOAM)	180.00 - 200.00	0.6080	0.6000
T4	4	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6008
T4	6	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6800
T4	7	Feedline Ladder (Af)	180.08 - 208.00	1.0000	1.0000
T4	8	Feedline Ladder (Af)	180.00 - 200.00	1.0000	1.0000
T4	9	Feedline Ladder (Af)	180.00 - 200.00	1.0800	1.0800
T5	1	Safety Line 3/8	160.80 - 180.00	0.6088	0.5885
T5	2	Lighting power cord	160.08 - 180.00	0.6008	0.5885
T5	3	LDF7-50A (1-5/8 FOAM)	160.08 - 180.00	0.6000	0.5885
T5	4	LDF7-50A (1-5/0 FOAM)	160.00 - 188.00	0.6000	0.5885
T5	6	LDF7-50A (1-5/0 FOAM)	160.00 - 180.00	0.6000	0.5885
T5	7	Feedline Ladder (Af)	160.00 - 180.08	1.0000	1.0088
T5	8	Feedline Ladder (Af)	160.00 - 180.00	1.0000	1.0000
T5	9	Feedline Ladder (Af)	160.00 - 180.00	1.0000	1.0000
T6	1	Safety Line 3/8	140.00 - 160.80	0.6000	0.6080
T6	2	Lighting power cord	140.08 - 160.00	0.6888	0.6888
T6	3	LDF7-50A (1-5/8 FOAM)	140.08 - 160.00	0.6000	0.6000
T6	4	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	8.6000	0.6008
T6	6	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T6	7	Feedline Ladder (Af)	140.80 - 160.00	1.0000	1.0000
T6	8	Feedline Ladder (Af)	140.80 - 160.00	1.0000	1.0008
T6	9	Feedline Ladder (Af)	140.00 - 160.00	1.0000	1.0000
T7	1	Safety Line 3/8	120.00 - 148.00	0.6000	0.6000
T7	2	Lighting power cord	120.00 - 140.00	0.6000	0.6000
T7	3	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6008
T7	4	LDF7-50A (1-5/0 FOAM)	120.00 - 140.00	0.6008	0.6000
T7	6	LDF7-50A (1-5/0 FOAM)	120.00 - 140.00	0.6000	0.6000
T7	7	Feedline Ladder (Af)	120.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	8	Feedline Ladder (Af)	140.00 - 148.00	1.0000	1.0000
T7	9	Feedline Ladder (Af)	120.00 - 140.00	1.0000	1.0000
T8	1	Safety Line 3/8	100.88 - 120.08	0.6000	0.6000
T8	2	Lighting power cord	100.08 - 120.08	0.6000	0.6000
T8	3	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T8	4	LDF7-50A (1-5/8 FOAM)	100.00 - 120.80	0.6000	0.6000
T8	6	LDF7-50A (1-5/8 FOAM)	100.08 - 120.00	0.6000	0.6000
T8	7	Feedline Ladder (Af)	108.00 - 120.00	1.0000	1.0000
T8	8	Feedline Ladder (Af)	100.00 - 120.00	1.0000	1.0000
T8	9	Feedline Ladder (Af)	100.00 - 120.00	1.0000	1.0000
T9	1	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T9	2	Lighting power cord	80.00 - 100.00	0.6000	0.6000
T9	3	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T9	4	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T9	6	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T9	7	Feedline Ladder (Af)	80.88 - 100.00	1.0000	1.0000
T9	8	Feedline Ladder (Af)	80.00 - 100.00	1.0000	1.0000
T9	9	Feedline Ladder (Af)	80.00 - 100.00	1.0000	1.0000
T10	1	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T10	2	Lighting power cord	60.80 - 80.08	0.6000	0.6000
T10	3	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T10	4	LDF7-50A (1-5/0 FOAM)	60.08 - 80.00	0.6000	0.6000
T10	6	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6008
T10	7	Feedline Ladder (Af)	60.00 - 80.00	1.0000	1.0000
T10	8	Feedline Ladder (Af)	60.00 - 80.00	1.0000	1.0000
T10	9	Feedline Ladder (Af)	60.00 - 80.00	1.0000	1.0000
T11	1	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T11	2	Lighting power cord	40.00 - 60.00	0.6000	0.6080
T11	3	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T11	4	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T11	6	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T11	7	Feedline Ladder (Af)	40.80 - 60.00	1.0000	1.0000
T11	8	Feedline Ladder (Af)	40.00 - 60.00	1.0000	1.0000
T11	9	Feedline Ladder (Af)	40.00 - 60.00	1.0000	1.0000
T12	1	Safety Line 3/8	20.00 - 40.08	0.6000	0.6000
T12	2	Lighting power cord	20.00 - 40.00	0.6000	0.6000
T12	3	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6008
T12	4	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T12	6	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T12	7	Feedline Ladder (Af)	20.00 - 48.00	1.0000	1.0000
T12	8	Feedline Ladder (Af)	28.80 - 40.00	1.0000	1.0000
T12	9	Feedline Ladder (Af)	20.00 - 48.00	1.0000	1.0008
T13	1	Safety Line 3/8	0.00 - 20.00	0.6000	0.6008
T13	2	Lighting power cord	0.00 - 20.00	0.6000	0.6000
T13	3	LDF7-50A (1-5/0 FOAM)	0.00 - 20.00	0.6000	0.6000
T13	4	LDF7-50A (1-5/0 FOAM)	0.00 - 20.00	0.6000	0.6000
T13	6	LDF7-50A (1-5/8 FOAM)	0.00 - 20.00	0.6000	0.6000
T13	7	Feedline Ladder (Af)	0.00 - 20.00	1.0000	1.0000
T13	8	Feedline Ladder (Af)	0.00 - 20.00	1.0000	1.0000
T13	9	Feedline Ladder (Af)	0.00 - 20.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
Beacon	A	From Leg	8.00 8.08 4.39	0.0000	255.08	No Ice 1/2" Ice 1" Ice	2.40 2.67 2.96	2.40 2.67 2.96	0.87 0.10 0.12
Beacon Extender (4') 803062	A	From Leg	0.00 0.00 2.21	0.0000	255.00	No Ice 1/2" Ice 1" Ice	1.11 1.32 1.54	1.11 1.32 1.53	0.03 0.04 0.05
1/2" x 4' lightning rod	C	From Leg	0.88 0.00 2.00	0.0000	255.80	No Ice 1/2" Ice 1" Ice	0.20 0.60 0.89	0.20 0.60 0.89	0.01 0.02 0.02
ATC Loading	C	None		0.0000	250.00	No Ice 1/2" Ice 1" Ice	115.00 135.00 155.00	115.00 135.00 155.00	2.00 3.00 4.00
ATC Loading	C	None		0.0000	240.00	No Ice 1/2" Ice 1" Ice	115.00 135.00 155.00	115.00 135.00 155.00	2.00 3.00 4.00
ATC Loading	C	None		0.0000	230.00	No Ice 1/2" Ice 1" Ice	115.00 135.00 155.00	115.00 135.00 155.00	2.00 3.00 4.00
ATC Loading	C	None		0.0000	220.00	No Ice 1/2" Ice 1" Ice	115.00 135.00 155.00	115.00 135.00 155.00	2.00 3.00 4.00

Truss-Leg Properties

Section Designation	Area in²	Area Ice in²	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in²
#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pirod 229588)	2200.6887	5803.4093	0.84	2.27	7.6410	20.1681	7.2158
#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pirod 229538)	2200.6087	5796.0560	0.84	2.26	7.6410	20.1252	7.2158
#12ZG -2.00" - 0.875" conn.-HBD-Trans (Pirod 208332)	2321.4820	5854.1205	0.99	2.29	8.0607	20.3268	9.4248
#12ZG -2.25" - 0.875" conn. (Pirod 208334)	2457.0620	5910.1026	1.17	2.31	8.5315	20.5212	11.9282
#12ZG -2.25" -	2457.0620	5891.2118	1.17	2.30	8.5315	20.4556	11.9282

Section Designation	Area in²	Area Ice in²	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in²
0.875" conn. (Pirod 208334)							
#12ZG - 2.50" - 0.875" conn. (Pirod 208335)	2597.2622	5940.0820	1.37	2.31	9.0183	20.6253	14.7262
#12ZG - 2.50" - 0.875" conn. (Pirod 208335)	2597.2622	5910.0109	1.37	2.28	9.0183	20.5289	14.7262
#12ZG - 2.75" - 0.875" conn. (Pirod 208337)	2816.7341	5938.2486	1.63	2.28	9.7883	20.6189	17.8187
#12ZG - 2.75" - 0.875" conn. (Pirod 208337)	2816.7341	5851.3735	1.63	2.19	9.7883	20.3173	17.8187

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{Ar} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	247.50	1.532	27	78.594	A	6.589	7.188	7.188	52.17	0.000	0.000
255.00-240.00					B	6.589	7.188		52.17	41.945	0.000
					C	6.589	7.188		52.17	0.563	8.000
T2	230.00	1.508	27	107.500	A	7.056	15.080	15.000	68.81	81.280	0.000
240.80-220.00					B	7.056	15.080		68.81	83.020	0.000
					C	7.056	15.000		68.81	41.380	8.088
T3	210.00	1.48	26	129.283	A	7.669	18.574	18.574	78.78	81.280	0.000
220.00-200.00					B	7.669	18.574		70.78	154.308	0.000
					C	7.669	18.574		78.78	82.038	0.080
T4	190.80	1.449	26	171.855	A	11.361	22.120	22.120	66.07	81.280	8.080
200.00-180.08					B	11.361	22.120		66.07	154.300	0.000
					C	11.361	22.120		66.07	82.030	0.000
T5	170.00	1.415	25	222.945	A	12.313	25.512	25.512	67.45	81.280	0.000
180.80-160.00					B	12.313	25.512		67.45	154.300	0.000
					C	12.313	25.512		67.45	82.030	0.000
T6	158.00	1.378	24	262.945	A	13.727	25.512	25.512	65.02	81.280	0.000
160.08-140.00					B	13.727	25.512		65.02	154.300	0.080
					C	13.727	25.512		65.02	82.038	0.080
T7	130.80	1.337	24	303.362	A	11.332	26.914	26.914	70.37	81.280	0.000
148.00-120.00					B	11.332	26.914		70.37	154.300	0.000
					C	11.332	26.914		70.37	82.030	0.080
T8	110.00	1.291	23	343.780	A	11.896	28.486	28.486	70.54	81.280	0.008
120.08-100.00					B	11.896	28.486		70.54	154.300	8.000
					C	11.896	28.486		70.54	82.030	0.000
T9	90.08	1.238	22	383.780	A	12.514	28.486	28.486	69.48	81.280	0.000
100.00-80.00					B	12.514	28.486		69.48	154.308	0.080
					C	12.514	28.486		69.48	82.030	8.000
T10	70.00	1.174	21	424.197	A	13.178	30.111	30.111	69.56	81.280	0.000
80.00-60.00					B	13.178	30.111		69.56	154.300	0.000
					C	13.178	30.111		69.56	82.030	0.080
T11	50.00	1.094	19	464.197	A	16.198	30.111	30.111	65.02	81.280	0.080
60.00-40.00					B	16.198	30.111		65.02	154.300	0.000
					C	16.198	38.111		65.02	82.030	0.000

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{Ar} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T12	30.00	0.982	17	364.614	A	17.060	32.655	32.655	65.68	81.280	0.080
40.00-20.00					B	17.060	32.655		65.68	154.300	0.088
					C	17.060	32.655		65.68	82.030	0.080
T13 20.00-0.08	10.80	0.85	15	544.614	A	17.958	32.655	32.655	64.52	81.280	0.000
					B	17.958	32.655		64.52	154.300	0.800
					C	17.958	32.655		64.52	82.030	0.088

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_z	q_z psf	t_i in	A_G ft²	Face	A_F ft²	A_R ft²	A_{Ar} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	247.50	1.532	3	1.8348	83.181	A	6.589	28.451	16.362	46.70	0.008	0.000
255.00-240.00						B	6.589	28.451		46.70	86.643	0.000
						C	6.589	28.451		46.70	6.067	0.000
T2	230.00	1.508	3	1.8214	113.571	A	7.056	39.995	27.143	57.69	159.539	0.000
240.00-220.00						B	7.056	39.995		57.69	168.565	0.000
						C	7.056	39.995		57.69	87.805	0.000
T3	210.00	1.48	3	1.8049	135.307	A	7.669	44.470	30.627	58.74	159.383	0.000
220.80-200.08						B	7.669	44.470		58.74	169.267	0.000
						C	7.669	44.470		58.74	167.353	8.000
T4	190.00	1.449	3	1.7870	177.019	A	11.361	50.294	34.053	55.23	159.213	0.000
200.00-188.00						B	11.361	50.294		55.23	169.021	0.000
						C	11.361	58.294		55.23	167.111	0.000
T5	170.00	1.415	3	1.7672	228.843	A	12.313	81.846	67.339	71.52	159.026	0.000
180.08-160.08						B	12.313	81.846		71.52	168.751	0.000
						C	12.313	81.846		71.52	166.845	0.000
T6	158.00	1.378	3	1.7452	268.736	A	13.727	83.167	67.196	69.35	158.818	0.000
160.00-140.08						B	13.727	83.167		69.35	168.458	0.800
						C	13.727	83.167		69.35	166.549	0.000
T7	130.00	1.337	3	1.7204	309.104	A	11.332	88.866	67.869	73.61	158.583	0.800
140.08-120.00						B	11.332	80.866		73.61	168.110	0.000
						C	11.332	80.866		73.61	166.215	0.000
T8	110.00	1.291	3	1.6919	349.426	A	11.896	81.935	68.518	73.02	158.314	0.000
120.00-100.00						B	11.896	81.935		73.02	167.721	0.000
						C	11.896	81.935		73.02	165.832	8.000
T9 100.00-80.00	90.00	1.238	2	1.6583	389.314	A	12.514	82.133	68.299	72.16	157.896	0.000
						B	12.514	82.133		72.16	167.261	0.000
T10 80.08-60.00	70.00	1.174	2	1.6171	429.594	A	13.178	83.073	68.865	71.55	157.608	0.000
						B	13.178	83.073		71.55	166.698	0.000
						C	13.178	83.073		71.55	164.826	8.000
T11 60.00-40.00	50.00	1.094	2	1.5636	469.416	A	16.198	82.989	68.517	69.08	157.103	0.000
						B	16.198	82.989		69.08	165.967	0.800
						C	16.198	82.989		69.08	164.107	0.000
T12 40.00-20.00	30.00	0.982	2	1.4858	509.573	A	17.060	83.329	68.844	68.58	156.369	0.000
						B	17.060	83.329		68.58	164.903	0.000
						C	17.060	83.329		68.58	163.062	0.000
T13 20.00-0.00	10.00	0.85	2	1.3312	549.057	A	17.958	81.497	67.837	68.21	154.914	0.000
						B	17.958	81.497		68.21	162.795	0.800
						C	17.958	81.497		68.21	160.989	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{Ar} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	247.50	1.532	12	78.594	A	6.589	7.188	7.188	52.17	0.000	0.000
255.00-240.08					B	6.589	7.188		52.17	41.945	0.000
					C	6.589	7.188		52.17	0.563	0.080
T2	230.00	1.508	12	107.500	A	7.056	15.080	15.000	68.81	81.280	0.000
240.88-228.00					B	7.056	15.080		68.81	83.020	0.000
					C	7.056	15.000		68.81	41.390	0.000
T3	210.00	1.48	12	129.283	A	7.669	18.574	18.574	70.78	81.280	0.080
220.00-208.00					B	7.669	18.574		70.78	154.300	0.080
					C	7.669	18.574		70.78	82.030	8.800
T4	190.00	1.449	11	171.055	A	11.361	22.120	22.120	66.07	81.280	0.000
200.00-180.00					B	11.361	22.120		66.07	154.308	0.000
					C	11.361	22.120		66.07	82.030	0.000
T5	170.00	1.415	11	222.945	A	12.313	25.512	25.512	67.45	81.280	0.000
180.00-160.00					B	12.313	25.512		67.45	154.308	0.000
					C	12.313	25.512		67.45	82.030	0.000
T6	150.00	1.378	11	262.945	A	13.727	25.512	25.512	65.02	81.280	0.000
160.00-140.08					B	13.727	25.512		65.02	154.300	0.080
					C	13.727	25.512		65.02	82.030	0.000
T7	130.00	1.337	10	303.362	A	11.332	26.914	26.914	70.37	81.280	0.000
140.08-120.00					B	11.332	26.914		70.37	154.300	0.000
					C	11.332	26.914		70.37	82.030	0.080
T8	110.00	1.291	10	343.788	A	11.196	28.486	28.486	70.54	81.280	0.000
120.00-100.00					B	11.896	28.486		70.54	154.308	8.000
					C	11.896	28.486		70.54	82.030	0.000
T9	90.00	1.238	10	383.780	A	12.514	28.486	28.486	69.48	81.280	0.000
100.00-80.00					B	12.514	28.486		69.48	154.300	0.080
					C	12.514	28.486		69.48	82.030	0.000
T10	70.00	1.174	9	424.197	A	13.178	30.111	30.111	69.56	81.280	0.000
80.80-60.00					B	13.178	30.111		69.56	154.300	0.000
					C	13.178	30.111		69.56	82.030	0.000
T11	50.00	1.094	9	464.197	A	16.198	30.111	30.111	65.02	81.280	0.080
60.00-40.00					B	16.198	30.111		65.02	154.300	0.000
					C	16.198	30.111		65.02	82.030	0.000
T12	30.00	0.982	8	364.614	A	17.060	32.655	32.655	65.68	81.280	0.000
40.00-20.00					B	17.060	32.655		65.68	154.380	0.000
					C	17.060	32.655		65.68	82.030	0.000
T13 20.00-0.00	10.00	0.85	7	544.614	A	17.958	32.655	32.655	64.52	81.280	0.000
					B	17.958	32.655		64.52	154.300	0.080
					C	17.958	32.655		64.52	82.030	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.24	0.49	A	0.175	2.681	27	1	1	18.690	1.26	84.00	B
255.00-248.00			B	0.175	2.681		1	1	10.690			
			C	0.175	2.681		1	1	10.690			
T2	1.17	1.00	A	0.205	2.579	27	1	1	15.126	3.05	152.78	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_f	q_z psf	D_f	D_g	A_E ft²	F K	w plf	Ctrl. Face
240.00-220.00			B	0.205	2.579		1	1	15.126			
			C	0.285	2.579		1	1	15.126			
T3	1.69	1.28	A	0.203	2.586	26	1	1	16.962	4.25	212.27	B
220.00-208.08			B	0.203	2.586		1	1	16.962			
			C	0.203	2.586		1	1	16.962			
T4	1.69	1.73	A	0.196	2.61	26	1	1	21.545	4.43	221.27	B
208.00-188.00			B	0.196	2.61		1	1	21.545			
			C	0.196	2.61		1	1	21.545			
T5	1.69	3.09	A	0.17	2.7	25	1	1	23.257	4.46	223.11	B
188.00-160.00			B	0.17	2.7		1	1	23.257			
			C	0.17	2.7		1	1	23.257			
T6	1.69	3.15	A	0.149	2.774	24	1	1	24.399	4.45	222.35	B
160.00-140.00			B	0.149	2.774		1	1	24.399			
			C	0.149	2.774		1	1	24.399			
T7	1.69	4.03	A	0.126	2.861	24	1	1	22.284	4.24	211.82	B
140.00-120.00			B	0.126	2.861		1	1	22.284			
			C	0.126	2.861		1	1	22.284			
T8	1.69	4.62	A	0.117	2.895	23	1	1	23.373	4.17	208.27	B
120.00-188.00			B	0.117	2.895		1	1	23.373			
			C	0.117	2.895		1	1	23.373			
T9	1.69	4.68	A	0.107	2.937	22	1	1	23.853	4.04	201.87	B
188.00-80.00			B	0.187	2.937		1	1	23.853			
			C	0.187	2.937		1	1	23.853			
T10	1.69	5.33	A	0.102	2.956	21	1	1	25.101	3.90	195.11	B
80.00-60.00			B	0.102	2.956		1	1	25.101			
			C	0.102	2.956		1	1	25.101			
T11	1.69	6.11	A	0.1	2.965	19	1	1	28.090	3.78	189.22	B
60.88-40.08			B	0.1	2.965		1	1	28.090			
			C	0.1	2.965		1	1	28.090			
T12	1.69	7.82	A	0.099	2.97	17	1	1	29.941	3.48	174.07	B
40.88-28.00			B	0.099	2.97		1	1	29.941			
			C	0.099	2.97		1	1	29.941			
T13	1.69	7.13	A	0.093	2.993	15	1	1	30.760	3.05	152.63	B
28.00-0.00			B	0.093	2.993		1	1	30.768			
			C	0.093	2.993		1	1	30.768			
Sum Weight:	28.02	49.66						OTM	6141.88 kip-ft	48.55		

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_f	q_z psf	D_f	D_g	A_E ft²	F K	w plf	Ctrl. Face
200.00-188.08			B	0.196	2.61		0.8	1	19.273			
			C	0.196	2.61		0.8	1	19.273			
T5	1.69	3.09	A	0.17	2.7	25	0.8	1	20.794	4.32	216.86	C
180.88-160.08			B	0.17	2.7		0.8	1	20.794			
			C	0.17	2.7		0.8	1	20.794			
T6	1.69	3.15	A	0.149	2.774	24	0.8	1	21.654	4.29	214.49	C
160.80-140.00			B	0.149	2.774		0.8	1	21.654			
			C	0.149	2.774		0.8	1	21.654			
T7	1.69	4.83	A	0.126	2.861	24	0.8	1	20.018	4.11	205.32	C
140.00-128.08			B	0.126	2.861		0.8	1	28.010			
			C	0.126	2.861		0.8	1	20.018			
T8	1.69	4.62	A	0.117	2.895	23	0.8	1	20.993	4.03	281.61	C
128.00-100.00			B	0.117	2.895		0.8	1	20.993			
			C	0.117	2.895		0.8	1	20.993			
T9	1.69	4.68	A	0.107	2.937	22	0.8	1	21.350	3.90	195.05	C
100.00-80.80			B	0.107	2.937		0.8	1	21.350			
			C	0.107	2.937		0.8	1	21.350			
T10	1.69	5.33	A	0.102	2.956	21	0.8	1	22.466	3.77	188.26	C
80.00-60.88			B	0.102	2.956		0.8	1	22.466			
			C	0.102	2.956		0.8	1	22.466			
T11	1.69	6.11	A	0.1	2.965	19	0.8	1	24.851	3.63	181.35	C
60.08-48.00			B	0.1	2.965		0.8	1	24.851			
			C	0.1	2.965		0.8	1	24.851			
T12	1.69	7.82	A	0.099	2.97	17	0.8	1	26.529	3.33	166.61	C
40.88-20.08			B	0.099	2.97		0.8	1	26.529			
			C	0.099	2.97		0.8	1	26.529			
T13	1.69	7.13	A	0.093	2.993	15	0.8	1	27.168	2.92	145.78	C
20.00-0.00			B	0.093	2.993		0.8	1	27.168			
			C	0.093	2.993		0.8	1	27.168			
Sum Weight:	20.02	49.66						OTM	5945.30 kip-ft	46.90		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_f	q_z psf	D_f	D_g	A_E ft²	F K	w plf	Ctrl. Face
T1	0.24	0.49	A	0.175	2.681	27	0.8	1	9.372	1.18	78.68	C
255.00-240.00			B	0.175	2.681		0.8	1	9.372			
			C	0.175	2.681		0.8	1	9.372			
T2	1.17	1.08	A	0.205	2.579	27	0.8	1	13.715	2.97	148.59	C
240.00-220.00			B	0.205	2.579		0.8	1	13.715			
			C	0.205	2.579		0.8	1	13.715			
T3	1.69	1.28	A	0.203	2.586	26	0.8	1	15.428	4.16	207.87	C
220.08-200.88			B	0.203	2.586		0.8	1	15.428			
			C	0.203	2.586		0.8	1	15.428			
T4	1.69	1.73	A	0.196	2.61	26	0.8	1	19.273	4.30	214.83	C

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_f	q_z psf	D_f	D_g	A_E ft²	F K	w plf	Ctrl. Face
T1	0.24	0.49	A	0.175	2.681	27	0.85	1	9.781	1.20	79.95	C
255.00-240.08			B	0.175	2.681		0.85	1	9.701			
			C	0.175	2.681		0.85	1	9.701			
T2	1.17	1.00	A	0.285	2.579	27	0.85	1	14.068	3.24	162.17	C
240.00-220.00			B	0.205	2.579		0.85	1	14.068			
			C	0.285	2.579		0.85	1	14.068			
T3	1.69	1.28	A	0.203	2.586	26	0.85	1	15.811	3.81	198.73	C
220.88-208.80			B	0.203	2.586		0.85	1	15.811			
			C	0.283	2.586		0.85	1	15.811			
T4	1.69	1.73	A	0.196	2.61	26	0.85	1	19.841	3.97	198.58	C
280.00-188.88			B	0.196	2.61		0.85	1	19.841			
			C	0.196	2.61		0.85	1	19.841			
T5	1.69	3.89	A	0.17	2.7	25	0.85	1	21.418	4.01	200.37	C
180.00-160.00			B	0.17	2.7		0.85	1	21.418			
			C	0.17	2.7		0.85	1	21.410			
T6	1.69	3.15	A	0.149	2.774	24	0.85	1	22.340	3.99	199.46	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_f	q_z psf	D_f	D_g	A_E ft²	F K	w plf	Ctrl. Face
160.80-140.00			B	0.149	2.774		0.85	1	22.340			
			C	0.149	2.774		0.85	1	22.340			
T7	1.69	4.03	A	0.126	2.861	24	0.85	1	20.585	3.81	190.46	C
140.00-120.00			B	0.126	2.861		0.85	1	20.585			
			C	0.126	2.861		0.85	1	20.585			
T8	1.69	4.62	A	0.117	2.895	23	0.85	1	21.588	3.75	187.35	C
120.00-100.00			B	0.117	2.895		0.85	1	21.588			
			C	0.117	2.895		0.85	1	21.588			
T9	1.69	4.68	A	0.107	2.937	22	0.85	1	21.976	3.63	181.49	C
188.88-80.00			B	0.107	2.937		0.85	1	21.976			
			C	0.187	2.937		0.85	1	21.976			
T10	1.69	5.33	A	0.182	2.956	21	0.85	1	23.125	3.51	175.58	C
80.88-68.00			B	0.102	2.956		0.85	1	23.125			
			C	0.102	2.956		0.85	1	23.125			
T11	1.69	6.11	A	0.1	2.965	19	0.85	1	25.661	3.40	169.83	C
60.88-48.00			B	0.1	2.965		0.85	1	25.661			
			C	0.1	2.965		0.85	1	25.661			
T12	1.69	7.82	A	0.099	2.97	17	0.85	1	27.382	3.13	156.37	C
40.00-20.00			B	0.899	2.97		0.85	1	27.382			
			C	0.899	2.97		0.85	1	27.382			
T13	1.69	7.13	A	0.893	2.993	15	0.85	1	28.066	2.74	137.01	C
20.00-0.00			B	0.093	2.993		0.85	1	28.866			
			C	0.893	2.993		0.85	1	28.066			
Sum Weight:	20.82	49.66						OTM	5648.89 kip-ft	44.19		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_f	q_z psf	D_f	D_g	A_E ft²	F K	w plf	Ctrl. Face
T1	1.54	2.22	A	0.421	2.023	3	1	1	24.959	0.27	18.23	B
255.00-240.00			B	0.421	2.823		1	1	24.959			
			C	0.421	2.023		1	1	24.959			
T2	7.03	3.16	A	0.414	2.036	3	1	1	32.754	0.60*	29.94	B
240.00-228.80			B	0.414	2.836		1	1	32.754			
			C	0.414	2.036		1	1	32.754			
T3	9.51	3.66	A	0.385	2.894	3	1	1	35.686	0.68	34.20	C
220.00-208.88			B	0.385	2.894		1	1	35.686			
			C	0.385	2.894		1	1	35.686			
T4	9.45	4.73	A	0.348	2.175	3	1	1	42.313	0.71	35.51	C
208.00-188.00			B	0.348	2.175		1	1	42.313			
			C	0.348	2.175		1	1	42.313			
T5	9.37	11.83	A	0.411	2.842	3	1	1	64.799	0.78	39.02	C
180.00-160.00			B	0.411	2.842		1	1	64.799			
			C	0.411	2.842		1	1	64.799			
T6	9.29	12.05	A	0.361	2.147	3	1	1	65.295	0.78	39.18	C
160.00-140.00			B	0.361	2.147		1	1	65.295			
			C	0.361	2.147		1	1	65.295			
T7	9.21	13.12	A	0.298	2.301	3	1	1	59.722	0.75	37.62	C
140.00-120.00			B	0.298	2.301		1	1	59.722			
			C	0.298	2.301		1	1	59.722			
T8	9.10	13.84	A	0.269	2.383	3	1	1	60.219	0.74	36.89	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_f	q_z psf	D_f	D_g	A_E ft²	F K	w plf	Ctrl. Face
120.08-100.00			B	0.269	2.383		1	1	60.219			
			C	0.269	2.383		1	1	60.219			
T9	8.98	13.90	A	0.243	2.458	2	1	1	60.425	0.72	35.78	C
100.00-80.00			B	0.243	2.458		1	1	60.425			
			C	0.243	2.458		1	1	60.425			
T10	8.83	14.66	A	0.224	2.518	2	1	1	61.287	0.69	34.39	C
80.08-60.00			B	0.224	2.518		1	1	61.287			
			C	0.224	2.518		1	1	61.287			
T11	8.64	15.70	A	0.211	2.559	2	1	1	64.045	0.66	32.77	C
60.08-40.08			B	0.211	2.559		1	1	64.045			
			C	0.211	2.559		1	1	64.045			
T12	8.37	16.56	A	0.197	2.606	2	1	1	64.888	0.59	29.67	C
40.00-20.00			B	0.197	2.606		1	1	64.888			
			C	0.197	2.606		1	1	64.888			
T13	7.83	16.22	A	0.181	2.66	2	1	1	64.528	0.51	25.54	C
20.00-0.00			B	0.181	2.66		1	1	64.528			
			C	0.181	2.66		1	1	64.528			
Sum Weight:	107.17	141.65			$^*1.1A_E$ limit			OTM	1081.41 kip-ft	8.48		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_f	q_z psf	D_f	D_g	A_E ft²	F K	w plf	Ctrl. Face
T1	1.54	2.22	A	0.421	2.023	3	0.8	1	23.641	0.27	17.78	C
255.00-240.00			B	0.421	2.023		0.8	1	23.641			
			C	0.421	2.023		0.8	1	23.641			
T2	7.03	3.16	A	0.414	2.036	3	0.8	1	31.343	0.60*	29.94	C
240.00-220.00			B	0.414	2.036		0.8	1	31.343			
			C	0.414	2.036		0.8	1	31.343			
T3	9.51	3.66	A	0.385	2.094	3	0.8	1	34.152	0.68	33.80	B
220.00-200.08			B	0.385	2.094		0.8	1	34.152			
			C	0.385	2.094		0.8	1	34.152			
T4	9.45	4.73	A	0.348	2.175	3	0.8	1	40.041	0.70	34.92	B
280.08-180.00			B	0.348	2.175		0.8	1	40.041			
			C	0.348	2.175		0.8	1	40.041			
T5	9.37	11.83	A	0.411	2.842	3	0.8	1	62.336	0.77	38.43	B
180.00-160.08			B	0.411	2.842		0.8	1	62.336			
			C	0.411	2.842		0.8	1	62.336			
T6	9.29	12.05	A	0.361	2.147	3	0.8	1	62.549	0.77	38.50	B
160.88-140.00			B	0.361	2.147		0.8	1	62.549			
			C	0.361	2.147		0.8	1	62.549			
T7	9.21	13.12	A	0.298	2.301	3	0.8	1	57.455	0.74	37.04	B
148.00-128.00			B	0.298	2.301		0.8	1	57.455			
			C	0.298	2.301		0.8	1	57.455			
T8	9.10	13.84	A	0.269	2.383	3	0.8	1	57.840	0.73	36.28	B
120.00-100.00			B	0.269	2.383		0.8	1	57.840			
			C	0.269	2.383		0.8	1	57.840			
T9	8.98	13.90	A	0.243	2.458	2	0.8	1	57.923	0.70	35.15	B
100.80-80.08			B	0.243	2.458		0.8	1	57.923			
			C	0.243	2.458		0.8	1	57.923			
T10	8.83	14.66	A	0.224	2.518	2	0.8	1	58.651	0.67	33.74	B

Section Elevation	Add Weight	Self Weight	Face	e	C_F	q_z	D_F	D_R	A_E	F	w	Ctrl. Face
ft	K	K				psf			ft^2	K	plf	
60.00-60.00			B	0.224	2.518		0.8	1	58.651			
			C	0.224	2.518		0.8	1	58.651			
T11	8.64	15.70	A	0.211	2.559	2	0.8	1	60.806	0.64	32.01	B
60.00-40.00			B	0.211	2.559		0.8	1	60.806			
			C	0.211	2.559		0.8	1	60.806			
T12	8.37	16.56	A	0.197	2.606	2	0.8	1	61.476	0.58	28.94	B
40.00-20.08			B	0.197	2.606		0.8	1	61.476			
			C	0.197	2.606		0.8	1	61.476			
T13	7.83	16.22	A	0.181	2.66	2	0.8	1	60.936	0.50	24.86	B
20.00-0.00			B	0.181	2.66		0.8	1	60.936			
			C	0.181	2.66		0.8	1	60.936			
Sum Weight:	107.17	141.65			*2.1A_E limit			OTM	1065.53 kip-ft	8.34		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	Face	e	C_F	q_z	D_F	D_R	A_E	F	w	Ctrl. Face
ft	K	K				psf			ft^2	K	plf	
T1	1.53	2.22	A	0.421	2.023	3	0.85	1	23.971	0.24	16.33	C
255.00-240.00			B	0.421	2.023		0.85	1	23.971			
			C	0.421	2.023		0.85	1	23.971			
T2	7.03	3.16	A	0.414	2.036	3	0.85	1	31.696	0.60*	29.94	C
240.00-220.00			B	0.414	2.036		0.85	1	31.696			
			C	0.414	2.036		0.85	1	31.696			
T3	9.51	3.66	A	8.385	2.094	3	0.85	1	34.536	0.68	34.04	B
220.08-200.00			B	8.385	2.094		0.85	1	34.536			
			C	8.385	2.094		0.85	1	34.536			
T4	9.45	4.73	A	8.348	2.175	3	0.85	1	40.609	0.70	35.20	B
200.00-180.80			B	8.348	2.175		0.85	1	40.609			
			C	8.348	2.175		0.85	1	40.609			
T5	9.37	11.83	A	0.411	2.042	3	0.85	1	62.952	0.77	38.71	B
180.00-160.00			B	0.411	2.042		0.85	1	62.952			
			C	0.411	2.042		0.85	1	62.952			
T6	9.29	12.05	A	0.361	2.147	3	0.85	1	63.236	0.78	38.80	B
160.08-140.08			B	0.361	2.147		0.85	1	63.236			
			C	0.361	2.147		0.85	1	63.236			
T7	9.21	13.12	A	0.298	2.301	3	0.85	1	58.022	0.75	37.31	B
140.00-120.08			B	0.298	2.301		0.85	1	58.022			
			C	0.298	2.301		0.85	1	58.022			
T8	9.10	13.84	A	0.269	2.383	3	0.85	1	58.434	0.73	36.55	B
120.00-100.00			B	0.269	2.383		0.85	1	58.434			
			C	0.269	2.383		0.85	1	58.434			
T9	8.98	13.50	A	0.243	2.458	2	0.85	1	58.548	0.71	35.42	B
100.00-80.00			B	0.243	2.458		0.85	1	58.548			
			C	0.243	2.458		0.85	1	58.548			
T10	8.83	14.66	A	0.224	2.518	2	0.85	1	59.310	0.68	34.01	B
80.88-60.00			B	0.224	2.518		0.85	1	59.310			
			C	0.224	2.518		0.85	1	59.310			
T11	8.64	15.70	A	0.211	2.559	2	0.85	1	61.616	0.65	32.30	B
60.08-40.00			B	0.211	2.559		0.85	1	61.616			
			C	0.211	2.559		0.85	1	61.616			
T12	8.37	16.56	A	0.197	2.686	2	0.85	1	62.339	0.58	29.21	B

Section Elevation	Add Weight	Self Weight	Face	e	C_F	q_z	D_F	D_R	A_E	F	w	Ctrl. Face
ft	K	K				psf			ft^2	K	plf	
40.00-20.00			B	0.197	2.606		0.85	1	62.329			
			C	0.197	2.606		0.85	1	62.329			
T13	7.83	16.22	A	0.181	2.66	2	0.85	1	61.834	0.50	25.11	B
20.00-0.00			B	0.181	2.66		0.85	1	61.834			
			C	0.181	2.66		0.85	1	61.834			
Sum Weight:	107.17	141.65			*2.1A_E limit			OTM	1066.71 kip-ft	8.38		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	Face	e	C_F	q_z	D_F	D_R	A_E	F	w	Ctrl. Face
ft	K	K				psf			ft^2	K	plf	
T1	0.24	0.49	A	0.175	2.681	12	1	1	10.698	0.56	37.33	B
255.08-248.00			B	0.175	2.681		1	1	10.698			
			C	0.175	2.681		1	1	10.698			
T2	1.17	1.00	A	0.205	2.579	12	1	1	15.126	1.36	67.87	B
240.00-220.00			B	0.205	2.579		1	1	15.126			
			C	0.205	2.579		1	1	15.126			
T3	1.69	1.28	A	0.203	2.586	12	1	1	16.962	1.89	94.34	B
220.00-200.00			B	0.203	2.586		1	1	16.962			
			C	0.203	2.586		1	1	16.962			
T4	1.69	1.73	A	8.196	2.61	11	1	1	21.545	1.97	98.34	B
200.00-180.00			B	0.196	2.61		1	1	21.545			
			C	0.196	2.61		1	1	21.545			
T5	1.69	3.09	A	8.17	2.7	11	1	1	23.257	1.98	99.16	B
180.00-160.00			B	0.17	2.7		1	1	23.257			
			C	0.17	2.7		1	1	23.257			
T6	1.69	3.15	A	0.149	2.774	11	1	1	24.399	1.98	98.82	B
160.00-140.08			B	8.149	2.774		1	1	24.399			
			C	8.149	2.774		1	1	24.399			
T7	1.69	4.03	A	0.126	2.861	10	1	1	22.284	1.88	94.14	B
140.08-120.00			B	0.126	2.861		1	1	22.284			
			C	0.126	2.861		1	1	22.284			
T8	1.69	4.62	A	0.117	2.895	18	1	1	23.373	1.85	92.56	B
120.00-100.00			B	0.117	2.895		1	1	23.373			
			C	0.117	2.895		1	1	23.373			
T9	1.69	4.68	A	0.107	2.937	10	1	1	23.853	1.79	89.72	B
100.00-80.00			B	0.107	2.937		1	1	23.853			
			C	0.107	2.937		1	1	23.853			
T10	1.69	5.33	A	0.102	2.956	9	1	1	25.101	1.73	86.72	B
80.80-60.08			B	0.102	2.956		1	1	25.101			
			C	8.102	2.956		1	1	25.101			
T11	1.69	6.11	A	0.1	2.965	9	1	1	28.090	1.68	84.18	B
60.00-40.00			B	0.1	2.965		1	1	28.090			
			C	0.1	2.965		1	1	28.090			
T12	1.69	7.02	A	8.099	2.97	8	1	1	29.941	1.55	77.36	B
40.08-20.08			B	0.099	2.97		1	1	29.941			
			C	0.099	2.97		1	1	29.941			
T13	1.69	7.13	A	8.093	2.993	7	1	1	30.760	1.36	67.83	B
20.00-0.00			B	0.093	2.993		1	1	30.760			
			C	0.093	2.993		1	1	30.760			
Sum Weight:	20.02	49.66						OTM	2729.73	21.58		

Section Elevation	Add Weight	Self Weight	Face	e	C_F	q_z	D_F	D_R	A_E	F	w	Ctrl. Face
ft	K	K				psf			ft^2	K	plf	
									kip-ft			

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	Face	e	C_F	q_z	D_F	D_R	A_E	F	w	Ctrl. Face
ft	K	K				psf			ft^2	K	plf	
T1	0.24	0.49	A	0.175	2.681	12	0.8	1	9.372	0.52	34.93	C
255.00-240.00			B	0.175	2.681		0.8	1	9.372			
			C	0.175	2.681		0.8	1	9.372			
T2	1.17	1.00	A	0.205	2.579	12	0.8	1	13.715	1.32	66.04	C
240.00-220.00			B	0.205	2.579		0.8	1	13.715			
			C	0.205	2.579		0.8	1	13.715			
T3	1.69	1.28	A	8.203	2.586	12	0.8	1	15.428	1.85	92.39	C
220.00-200.00			B	0.203	2.586		0.8	1	15.428			
			C	0.203	2.586		0.8	1	15.428			
T4	1.69	1.73	A	0.196	2.61	11	0.8	1	19.273	1.91	95.48	C
200.00-180.08			B	8.196	2.61		0.8	1	19.273			
			C	0.196	2.61		0.8	1	19.273			
T5	1.69	3.09	A	0.17	2.7	11	0.8	1	20.794	1.92	96.03	C
180.00-160.00			B	0.17	2.7		0.8	1	20.794			
			C	0.17	2.7		0.8	1	20.794			
T6	1.69	3.15	A	0.149	2.774	11	0.8	1	21.654	1.91	95.33	C
160.08-140.00			B	0.149	2.774		0.8	1	21.654			
			C	0.149	2.774		0.8	1	21.654			
T7	1.69	4.03	A	8.126	2.861	10	0.8	1	20.018	1.83	91.26	C
140.08-120.00			B	0.126	2.861		0.8	1	20.018			
			C	0.126	2.861		0.8	1	20.018			
T8	1.69	4.62	A	0.117	2.895	18	0.8	1	20.993	1.79	89.60	C
120.00-100.00			B	0.117	2.895		0.8	1	20.993			
			C	0.117	2.895		0.8	1	20.993			
T9	1.69	4.68	A	0.107	2.937	10	0.8	1	21.350	1.73	86.69	C
100.08-80.08			B	0.107	2.937		0.8	1	21.350			
			C	0.107	2.937		0.8	1	21.350			
T10	1.69	5.33	A	8.182	2.956	9	0.8	1	22.466	1.67	83.67	C
80.00-60.00			B	0.102	2.956		0.8	1	22.466			
			C	0.102	2.956		0.8	1	22.466			
T11	1.69	6.11	A	0.1	2.965	9	0.8	1	24.851	1.61	80.60	C
60.00-40.00			B	0.1	2.965		0.8	1	24.851			
			C	0.1	2.965		0.8	1	24.851			
T12	1.69	7.02	A	0.099	2.97	8	0.8	1	26.529	1.48	74.85	C
40.00-20.00			B	0.099	2.97		0.8	1	26.529			
			C	8.099	2.97		0.8	1	26.529			
T13	1.69	7.13	A	0.093	2.993	7	0.8	1	27.168	1.30	64.79	C
20.00-0.00			B	8.093	2.993		0.8	1	27.168			
			C	0.093	2.993		0.8	1	27.168			
Sum Weight:	20.02	49.66						OTM	2642.36 kip-ft	20.84		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	Face	e	C_F	q_z	D_F	D_R	A_E	F	w	Ctrl. Face
ft	K	K				psf			ft^2	K	plf	
T1	0.24	0.49	A	0.175	2.681	12	0.85	1	9.701	0.53	35.53	C
255.00-240.00			B	0.175	2.681		0.85	1	9.701			
			C	0.175	2.681		0.85	1	9.701			
T2	1.17	1.80	A	0.205	2.579	12	0.85	1	14.068	1.44	72.08	C
240.00-220.08			B	0.205	2.579		0.85	1	14.068			
			C	0.205	2.579		0.85	1	14.068			
T3	1.69	1.28	A	0.203	2.586	12	0.85	1	15.811	1.70	84.77	C
220.00-208.00			B	0.203	2.586		0.85	1	15.811			
			C	0.203	2.586		0.85	1	15.811			
T4	1.69	1.73	A	0.196	2.61	11	0.85	1	19.841	1.77	88.26	C
200.08-180.00			B	0.196	2.61		0.85	1	19.841			
			C	0.196	2.61		0.85	1	19.841			
T5	1.69	3.09	A	0.17	2.7	11	0.85	1	21.418	1.78	89.05	C
180.08-160.08			B	0.17	2.7		0.85	1	21.410			
			C	0.17	2.7		0.85	1	21.418			
T6	1.69	3.15	A	0.149	2.774	11	0.85	1	22.348	1.77	88.65	C
160.00-140.00			B	0.149	2.774		0.85	1	22.348			
			C	0.149	2.774		0.85	1	22.348			
T7	1.69	4.03	A	0.126	2.861	10	0.85	1	20.583	1.69	84.65	C
140.00-120.00			B	0.126	2.861		0.85	1	20.583			
			C	0.126	2.861		0.85	1	20.583			
T8	1.69	4.62	A	0.117	2.895	10	0.85	1	21.588	1.67	83.27	C
120.00-100.00			B	0.117	2.895		0.85	1	21.588			
			C	0.117	2.895		0.85	1	21.588			
T9	1.69	4.68	A	0.107	2.937	10	0.85	1	21.976	1.61	80.66	C
100.00-80.00			B	0.107	2.937		0.85	1	21.976			
			C	0.107	2.937		0.85	1	21.976			
T10	1.69	5.33	A	0.102	2.956	9	0.85	1	23.125	1.56	78.08	C
80.00-60.00			B	0.102	2.956		0.85	1	23.125			
			C	0.102	2.956		0.85	1	23.125			
T11	1.69	6.11	A	0.1	2.965	9	0.85	1	25.661	1.51	75.48	C
60.00-40.00			B	0.1	2.965		0.85	1	25.661			
			C	0.1	2.965		0.85	1	25.661			
T12	1.69	7.02	A	0.099	2.97	8	0.85	1	27.382	1.39	69.50	C
40.08-20.00			B	0.099	2.97		0.85	1	27.382			
			C	0.099	2.97		0.85	1	27.382			
T13	1.69	7.13	A	0.093	2.993	7	0.85	1	28.066	1.22	60.89	C
20.00-0.00			B	0.093	2.993		8.85	1	28.066			
			C	0.893	2.993		8.85	1	28.066			
Sum Weight:	20.02	49.66						OTM	2510.62 kip-ft	19.64		

Mast Vectors - No Ice

Section No.	Section Elevation	Wind Azimuth	Directionality	F	V_x	V_z	OTM_x	OTM_z	Torque
	ft	°		K	K	K	kip-ft	kip-ft	kip-ft
T1	255.00-240.00	0	Wind Normal	1.02	0.00	-1.02	-253.33	-0.33	0.26
		30	Wind 90	1.20	0.60	-1.04	-257.22	-148.73	0.19
		60	Wind 60	1.19	1.02	-0.59	-146.07	-253.03	0.82
		90	Wind 90	1.20	1.20	0.00	-0.18	-297.14	-0.16

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
		120	Wind Normal	1.02	0.89	0.51	126.39	-219.56	-8.25
		150	Wind 90	0.74	0.37	0.64	158.99	-92.23	-8.21
		180	Wind 60	0.94	0.00	0.91	232.91	-0.33	-0.24
		210	Wind 90	1.20	-0.60	1.04	256.86	148.87	-0.19
		240	Wind Normal	1.26	-1.09	0.63	155.75	269.74	-0.02
		270	Wind 90	1.20	-1.20	0.00	-0.18	296.47	8.16
		300	Wind 60	0.94	-0.82	-0.47	-116.72	201.53	0.23
		330	Wind 90	0.74	-0.37	-0.64	-139.35	91.36	0.21
T2	248.00-220.00	0	Wind Normal	2.82	0.00	-2.82	-649.07	-0.81	8.81
		30	Wind 90	2.79	1.40	-2.42	-556.85	-321.29	-0.88
		60	Wind 60	2.97	2.57	-1.49	-342.12	-591.95	-0.17
		90	Wind 98	3.24	3.24	0.00	-0.36	-745.99	-0.22
		120	Wind Normal	3.05	2.64	1.53	350.85	-688.33	-0.19
		150	Wind 90	2.79	1.40	2.42	556.12	-321.29	-0.10
		180	Wind 60	2.74	0.08	2.74	629.43	-0.01	-0.01
		210	Wind 90	2.79	-1.40	2.42	556.12	321.28	0.08
		240	Wind Normal	3.05	-2.64	1.53	350.85	688.31	0.17
		270	Wind 90	3.24	-3.24	0.00	-0.36	745.98	0.22
		300	Wind 60	2.97	-2.57	-1.49	-342.12	591.93	0.18
		330	Wind 90	2.79	-1.40	-2.42	-556.85	321.28	0.10
T3	220.00-200.80	0	Wind Normal	3.51	0.00	-3.51	-736.58	-0.56	8.29
		30	Wind 90	3.81	1.91	-3.30	-694.03	-401.08	0.19
		60	Wind 68	4.16	3.60	-2.08	-436.83	-736.64	0.02
		90	Wind 90	3.81	3.81	0.00	-0.30	-801.61	-0.16
		120	Wind Normal	3.51	3.04	1.75	367.83	-638.19	-0.28
		158	Wind 90	3.30	1.75	3.03	636.08	-367.97	-0.33
		180	Wind 60	3.42	0.88	3.42	717.51	-0.56	-0.29
		210	Wind 90	3.81	-1.91	3.30	693.42	399.97	-0.19
		240	Wind Normal	4.25	-3.68	2.12	445.45	771.52	-0.02
		270	Wind 98	3.81	-3.81	0.00	-0.30	800.49	0.16
		300	Wind 60	3.42	-2.96	-1.71	-359.21	621.08	0.27
		330	Wind 90	3.30	-1.75	-3.03	-636.69	366.86	0.33
T4	200.80-180.80	0	Wind Normal	3.70	0.80	-3.70	-703.69	-0.71	0.38
		30	Wind 90	3.97	1.99	-3.44	-653.90	-378.01	0.25
		60	Wind 60	4.30	3.72	-2.15	-406.57	-707.71	0.03
		90	Wind 90	3.97	3.97	0.00	-0.38	-755.32	-0.21
		120	Wind Normal	3.70	3.21	1.85	351.27	-609.79	-0.36
		150	Wind 90	3.66	1.83	3.17	602.33	-348.68	-0.43
		180	Wind 60	3.57	0.08	3.57	678.46	-0.71	-0.37
		218	Wind 90	3.97	-1.99	3.44	653.13	376.60	-0.25
		240	Wind Normal	4.43	-3.83	2.21	428.03	727.47	-0.03
		270	Wind 98	3.97	-3.97	0.00	-0.38	753.90	0.21
		300	Wind 60	3.57	-3.09	-1.79	-330.81	587.19	0.35
		338	Wind 90	3.66	-1.83	-3.17	-603.09	347.27	0.43
T5	180.80-160.08	0	Wind Normal	3.76	0.00	-3.76	-668.83	-0.86	0.46
		30	Wind 90	4.01	2.00	-3.47	-590.46	-341.49	0.30
		60	Wind 60	4.32	3.74	-2.16	-367.77	-637.04	0.03
		90	Wind 98	4.01	4.01	0.00	-0.46	-682.13	-0.25
		120	Wind Normal	3.76	3.25	1.88	318.72	-553.70	-0.44
		158	Wind 90	3.71	1.85	3.21	545.13	-315.86	-0.51
		188	Wind 60	3.61	0.08	3.61	613.93	-0.86	-0.45
		218	Wind 90	4.81	-2.00	3.47	589.53	339.78	-0.30
		240	Wind Normal	4.46	-3.86	2.23	378.82	656.08	-0.03
		270	Wind 98	4.01	-4.01	0.00	-8.46	680.41	0.25
		300	Wind 68	3.61	-3.13	-1.81	-307.66	531.23	0.42
		330	Wind 90	3.71	-1.85	-3.21	-546.06	314.14	0.51
T6	160.08-140.00	0	Wind Normal	3.76	0.00	-3.76	-564.30	-1.01	0.54
		30	Wind 90	3.99	1.99	-3.45	-518.76	-380.20	0.35
		60	Wind 60	4.29	3.72	-2.14	-322.28	-558.27	0.04
		90	Wind 90	3.99	3.98	0.00	-0.55	-599.39	-0.29
		120	Wind Normal	3.76	3.25	1.88	281.33	-489.23	-0.51

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
		150	Wind 90	3.70	1.85	3.20	470.50	-278.17	-0.60
		180	Wind 60	3.60	0.00	3.60	539.61	-1.01	-0.52
		210	Wind 90	3.99	-1.99	3.45	517.66	298.18	-0.35
		248	Wind Normal	4.45	-3.85	2.22	332.98	576.68	-0.04
		270	Wind 90	3.99	-3.99	0.00	-0.55	597.37	8.29
		300	Wind 60	3.60	-3.12	-1.80	-270.63	466.78	0.49
		330	Wind 90	3.70	-1.85	-3.20	-480.60	276.15	0.60
T7	140.88-120.00	0	Wind Normal	3.57	0.80	-3.57	-464.49	-1.16	8.59
		30	Wind 90	3.81	1.90	-3.38	-429.47	-248.76	8.39
		60	Wind 60	4.11	3.56	-2.05	-267.65	-463.48	0.04
		90	Wind 98	3.81	3.81	0.00	-0.63	-496.35	-0.32
		120	Wind Normal	3.57	3.09	1.78	231.31	-402.88	-0.56
		158	Wind 90	3.52	1.76	3.05	396.13	-230.23	-0.66
		180	Wind 60	3.44	0.80	3.44	446.34	-1.16	-0.57
		210	Wind 90	3.81	-1.90	3.30	428.22	246.44	-0.39
		248	Wind Normal	4.24	-3.67	2.12	271.74	475.79	-0.04
		270	Wind 90	3.81	-3.81	0.08	-0.63	494.03	0.22
		300	Wind 60	3.44	-2.98	-1.72	-224.11	385.93	8.54
		338	Wind 90	3.52	-1.76	-3.05	-397.39	227.91	0.66
T8	120.80-100.00	0	Wind Normal	3.52	0.00	-3.52	-387.93	-1.31	0.66
		30	Wind 90	3.75	1.87	-3.25	-357.66	-207.40	0.43
		60	Wind 60	4.03	3.49	-2.02	-222.47	-385.42	0.05
		90	Wind 90	3.75	3.75	0.00	-0.71	-413.48	-0.36
		120	Wind Normal	3.52	3.05	1.76	192.90	-336.65	-0.62
		150	Wind 90	3.47	1.74	3.01	338.03	-192.26	-0.73
		180	Wind 60	3.39	0.00	3.39	371.86	-1.31	-0.63
		210	Wind 90	3.75	-1.87	3.25	356.24	204.77	-0.43
		240	Wind Normal	4.17	-3.61	2.08	228.39	395.49	-0.05
		270	Wind 90	3.75	-3.75	0.08	-0.71	410.86	0.36
		300	Wind 60	3.39	-2.93	-1.69	-186.99	321.34	0.59
		330	Wind 90	3.47	-1.74	-3.01	-331.44	189.64	0.73
T9	108.00-80.00	0	Wind Normal	3.42	0.00	-3.42	-308.49	-1.46	0.71
		30	Wind 90	3.63	1.81	-3.14	-283.71	-164.81	0.46
		60	Wind 60	3.98	3.38	-1.99	-176.34	-305.52	0.05
		90	Wind 90	3.63	3.63	0.00	-0.79	-328.15	-0.38
		120	Wind Normal	3.42	2.96	1.71	153.06	-267.04	-0.67
		158	Wind 90	3.37	1.68	2.92	261.57	-152.94	-0.78
		180	Wind 60	3.28	0.00	3.28	294.64	-1.46	-0.68
		210	Wind 90	3.63	-1.81	3.14	282.13	161.88	-0.46
		240	Wind Normal	4.04	-3.50	2.02	180.89	313.22	-0.05
		270	Wind 90	3.63	-3.63	0.00	-0.79	325.23	0.38
		300	Wind 60	3.28	-2.84	-1.64	-148.58	254.39	0.64
		330	Wind 90	3.37	-1.68	-2.92	-263.15	150.01	0.78
T10	80.00-60.00	0	Wind Normal	3.32	0.80	-3.32	-232.96	-1.61	0.75
		30	Wind 90	3.51	1.75	-3.04	-213.65	-124.46	0.49
		60	Wind 60	3.77	3.26	-1.88	-132.65	-229.86	0.05
		90	Wind 90	3.51	3.51	0.00	-0.87	-247.31	-0.40
		120	Wind Normal	3.32	2.87	1.66	115.18	-202.61	-0.71
		150	Wind 90	3.26	1.63	2.82	196.74	-115.70	-0.83
		180	Wind 60	3.18	8.00	3.18	221.63	-1.61	-0.72
		210	Wind 90	3.51	-1.75	3.84	211.91	121.23	-0.49
		240	Wind Normal	3.90	-3.38	1.95	135.71	234.95	-0.85
		270	Wind 90	3.51	-3.51	0.00	-0.87	244.08	8.40
		300	Wind 68	3.18	-2.75	-1.59	-112.12	191.08	0.68
		330	Wind 98	3.26	-1.63	-2.82	-198.48	112.48	0.83
T11	60.00-48.08	0	Wind Normal	3.24	0.80	-3.24	-162.84	-1.76	0.80
		30	Wind 90	3.40	1.70	-2.94	-148.03	-86.68	0.51
		60	Wind 60	3.63	3.14	-1.81	-91.62	-158.81	0.06
		90	Wind 90	3.40	3.40	0.80	-0.95	-171.59	-0.42
		120	Wind Normal	3.24	2.80	1.62	80.00	-141.97	-0.75
		150	Wind 98	3.16	1.58	2.74	136.03	-88.85	-0.87

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
		180	Wind 60	3.88	0.00	3.08	153.07	-1.76	-0.76
		210	Wind 90	3.40	-1.70	2.94	146.13	83.15	-0.51
		240	Wind Normal	3.78	-3.28	1.89	93.66	162.10	-0.06
		270	Wind 90	3.40	-3.40	0.00	-0.95	168.07	0.42
		308	Wind 68	3.08	-2.67	-1.54	-77.96	131.63	0.71
		330	Wind 90	3.16	-1.58	-2.74	-137.93	77.32	0.87
T12	40.00-20.00	0	Wind Normal	2.99	0.00	-2.99	-90.75	-1.91	0.79
		30	Wind 90	3.13	1.56	-2.71	-82.28	-48.82	0.51
		60	Wind 60	3.33	2.89	-1.67	-51.07	-88.49	0.05
		90	Wind 90	3.13	3.13	0.00	-1.03	-95.73	-0.42
		120	Wind Normal	2.99	2.59	1.50	43.83	-79.61	-0.74
		150	Wind 90	2.92	1.46	2.53	74.78	-45.68	-0.86
		180	Wind 60	2.84	0.00	2.84	84.21	-1.91	-0.75
		210	Wind 90	3.13	-1.56	2.71	80.22	45.00	-0.51
		240	Wind Normal	3.48	-3.02	1.74	51.19	88.54	-0.06
		270	Wind 98	3.13	-3.13	0.00	-1.03	91.91	0.42
		300	Wind 68	2.84	-2.46	-1.42	-43.65	71.91	0.70
		330	Wind 98	2.92	-1.46	-2.53	-76.84	41.86	0.86
T13	20.00-0.00	0	Wind Normal	2.63	0.00	-2.63	-27.39	-2.06	0.73
		38	Wind 90	2.74	1.37	-2.37	-24.84	-15.77	0.48
		60	Wind 60	2.92	2.53	-1.46	-15.69	-27.31	0.05
		90	Wind 90	2.74	2.74	0.08	-1.11	-29.47	-0.39
		120	Wind Normal	2.63	2.28	1.31	12.03	-24.82	-0.70
		150	Wind 98	2.56	1.28	2.22	21.05	-14.86	-0.81
		188	Wind 68	2.49	0.00	2.49	23.80	-2.06	-0.71
		210	Wind 90	2.74	-1.37	2.37	22.63	11.64	-0.48
		240	Wind Normal	3.05	-2.64	1.53	14.13	24.37	-0.05
		278	Wind 90	2.74	-2.74	0.00	-1.11	25.34	0.39
		300	Wind 60	2.49	-2.16	-1.25	-13.57	19.51	0.66
		330	Wind 90	2.56	-1.28	-2.22	-23.27	10.73	0.81

Mast Totals - No Ice

Wind Azimuth °	V_x K	V_z K	OTM_z kip-ft	OTM_x kip-ft	Torque kip-ft
0	0.00	-41.24	-5228.65	-14.76	7.01
30	21.87	-37.88	-4810.85	-2787.58	4.47
60	40.61	-23.45	-2980.98	-5163.54	0.31
90	44.19	0.00	-8.33	-5693.65	-4.00
120	35.92	20.74	2624.69	-4575.28	-6.76
150	20.18	34.95	4394.49	-2556.73	-7.73
180	0.00	39.59	5007.41	-14.76	-6.71
210	-21.87	37.88	4794.20	2757.98	-4.47
240	-42.05	24.28	3062.61	5304.27	-0.33
270	-44.19	0.00	-8.33	5634.13	4.00
300	-34.48	-19.91	-2543.06	4375.52	6.47
330	-20.18	-34.95	-4411.14	2527.21	7.73

Mast Vectors - With Ice

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
T1	255.00-240.00	0	Wind Normal	0.20	0.00	-0.20	-51.08	-2.16	0.04
		30	Wind 90	0.24	0.12	-0.21	-53.34	-32.46	0.04
		60	Wind 60	8.27	0.23	-0.13	-33.85	-59.32	0.01
		90	Wind 90	0.24	0.24	0.00	-0.84	-62.77	-0.02
		120	Wind Normal	0.20	0.18	0.10	24.27	-45.66	-0.04
		158	Wind 90	0.17	0.09	0.15	36.53	-23.73	-0.04
		180	Wind 60	0.20	0.00	0.20	47.71	-2.16	-0.04
		210	Wind 90	0.24	-0.12	0.21	51.65	28.15	-0.04
		240	Wind Normal	0.27	-0.24	0.14	33.88	56.47	-0.01
		278	Wind 90	0.24	-0.24	0.00	-0.84	58.46	0.02
		308	Wind 60	0.20	-0.17	-0.10	-25.12	39.89	0.03
		330	Wind 90	0.17	-0.89	-0.15	-38.21	19.42	0.04
T2	240.00-220.80	0	Wind Normal	0.54	0.00	-0.54	-125.12	-0.32	0.01
		30	Wind 90	0.55	0.28	-0.48	-112.20	-64.02	-0.01
		60	Wind 60	0.60	0.52	-0.30	-70.71	-119.58	-0.02
		90	Wind 90	0.60	0.60	0.08	-1.85	-138.03	-0.03
		120	Wind Normal	0.60	0.52	0.30	67.01	-119.58	-0.03
		150	Wind 90	0.55	0.28	0.48	100.49	-64.02	-0.02
		180	Wind 68	0.53	0.00	0.53	119.76	-0.32	-0.01
		210	Wind 90	0.55	-0.28	0.48	108.49	63.39	0.01
		240	Wind Normal	0.60	-0.52	0.30	67.01	118.95	8.02
		270	Wind 90	0.60	-0.60	0.08	-1.85	137.40	0.03
		300	Wind 60	0.60	-0.52	-0.30	-70.71	118.95	0.03
		330	Wind 90	0.55	-0.28	-0.48	-112.20	63.39	0.02
T3	220.00-200.00	0	Wind Normal	8.68	0.00	-0.68	-144.56	-2.67	8.81
		30	Wind 90	0.67	0.34	-0.58	-123.24	-73.29	8.81
		60	Wind 60	0.67	0.58	-0.33	-71.04	-124.13	0.01
		90	Wind 90	0.67	0.67	0.08	-0.92	-143.91	0.01
		120	Wind Normal	0.68	0.59	0.34	70.89	-127.07	-0.05
		150	Wind 90	0.68	0.34	0.59	122.89	-74.16	-0.01
		180	Wind 60	0.68	0.00	0.68	141.85	-2.67	-8.01
		210	Wind 90	0.67	-0.34	0.58	121.39	67.94	-0.01
		240	Wind Normal	0.68	-0.59	0.34	70.03	128.22	-0.01
		270	Wind 90	0.67	-0.67	0.08	-0.92	138.56	-0.01
		300	Wind 60	0.68	-0.59	-0.34	-71.91	120.28	0.08
		330	Wind 90	0.68	-0.34	-0.59	-124.74	68.81	8.81
T4	200.00-180.00	0	Wind Normal	0.71	0.00	-0.71	-136.09	-3.37	0.01
		30	Wind 90	0.70	0.35	-0.60	-115.66	-69.49	0.02
		60	Wind 60	0.60	0.60	-0.35	-66.72	-116.95	0.02
		90	Wind 90	0.70	0.70	8.00	-1.14	-135.60	0.01
		120	Wind Normal	0.71	0.62	0.36	66.33	-120.24	0.08
		150	Wind 98	8.70	0.35	0.61	114.70	-70.25	-0.01
		180	Wind 60	0.70	0.00	0.70	131.54	-3.37	-0.01
		210	Wind 90	0.70	-0.35	0.60	113.37	62.74	-0.02
		240	Wind Normal	0.70	-0.61	0.35	65.57	112.17	-0.02
		270	Wind 90	0.70	-0.70	0.00	-1.14	128.86	-0.01
		300	Wind 60	0.70	-0.60	-0.35	-67.49	111.54	-0.00
		330	Wind 90	0.70	-0.35	-0.61	-116.99	63.51	0.01
T5	180.00-160.00	0	Wind Normal	0.78	0.00	-0.78	-134.04	-4.06	0.02
		30	Wind 90	0.77	0.38	-0.66	-114.28	-69.21	0.02
		60	Wind 60	0.76	0.66	-0.38	-66.01	-116.08	0.02
		90	Wind 90	0.77	0.77	0.00	-1.37	-134.35	0.01
		120	Wind Normal	8.78	0.68	0.39	64.97	-118.96	0.00
		150	Wind 90	0.77	0.39	0.67	112.61	-69.86	-0.01
		180	Wind 60	0.77	0.08	0.77	129.30	-4.06	-0.02
		210	Wind 90	0.77	-0.38	0.66	111.47	61.08	-0.02
		240	Wind Normal	0.77	-0.67	0.39	64.31	109.70	-0.02
		270	Wind 90	0.77	-0.77	0.00	-1.37	126.22	-0.01
		300	Wind 60	0.77	-0.67	-0.38	-66.70	109.09	-0.00
		330	Wind 90	0.77	-0.39	-0.67	-115.34	61.74	0.01
T6	160.00-140.00	0	Wind Normal	0.78	0.00	-0.78	-119.13	-4.75	0.02

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
		30	Wind 60	0.77	0.38	-0.67	-101.40	-62.37	0.02
		60	Wind 60	0.76	0.66	-0.38	-58.77	-103.78	0.02
		90	Wind 90	0.77	0.77	0.00	-1.59	-119.99	0.01
		120	Wind Normal	0.78	0.68	0.38	57.17	-106.53	0.00
		150	Wind 90	0.78	0.39	0.67	99.21	-62.95	-0.01
		180	Wind 60	0.77	0.00	0.77	113.91	-4.75	-0.02
		210	Wind 90	0.77	-0.38	0.67	98.21	52.87	-0.02
		240	Wind Normal	0.78	-0.67	0.39	56.60	96.04	-0.02
		270	Wind 90	0.77	-0.77	0.00	-1.59	110.50	-0.01
		300	Wind 60	0.77	-0.67	-0.39	-59.35	55.28	-0.00
		330	Wind 90	0.78	-0.39	-0.67	-102.40	53.45	0.01
T7	140.88-120.00	0	Wind Normal	0.75	0.00	-0.75	-99.64	-5.42	0.02
		30	Wind 90	0.74	0.37	-0.64	-85.08	-53.44	0.03
		60	Wind 60	0.73	0.64	-0.37	-49.50	-87.99	0.03
		90	Wind 90	0.74	0.74	0.00	-1.83	-101.46	0.02
		120	Wind Normal	0.75	0.65	0.38	47.88	-90.13	0.00
		150	Wind 90	0.75	0.37	0.65	82.18	-53.93	-0.01
		180	Wind 60	0.74	0.00	0.74	94.48	-5.42	-0.02
		210	Wind 90	0.74	-0.37	0.64	81.34	42.60	-0.03
		240	Wind Normal	0.74	-0.65	0.37	46.59	78.45	-0.03
		270	Wind 90	0.74	-0.74	0.00	-1.83	90.61	-0.02
		300	Wind 60	0.74	-0.64	-0.37	-49.98	77.98	-0.03
		330	Wind 90	0.75	-0.37	-0.65	-85.84	43.08	0.01
T8	120.00-100.00	0	Wind Normal	0.74	0.00	-0.74	-83.23	-6.89	0.02
		30	Wind 90	0.72	0.36	-0.63	-71.83	-43.98	0.03
		60	Wind 60	0.72	0.62	-0.36	-41.58	-74.52	0.03
		90	Wind 90	0.72	0.72	0.00	-2.07	-85.71	0.02
		120	Wind Normal	0.74	0.64	0.37	38.51	-76.37	0.03
		150	Wind 90	0.73	0.37	0.63	67.57	-46.30	-0.01
		180	Wind 60	0.73	0.00	0.73	77.75	-6.09	-0.02
		210	Wind 90	0.72	-0.36	0.63	66.89	33.72	-0.03
		240	Wind Normal	0.73	-0.63	0.37	38.11	63.51	-0.03
		270	Wind 90	0.72	-0.72	0.00	-2.07	73.54	-0.02
		300	Wind 60	0.73	-0.62	-0.36	-41.98	63.04	-0.00
		330	Wind 90	0.73	-0.37	-0.63	-71.71	34.12	0.01
T9	100.80-80.88	0	Wind Normal	0.72	0.00	-0.72	-66.73	-6.74	0.03
		30	Wind 90	0.70	0.35	-0.61	-57.00	-38.31	0.03
		60	Wind 60	0.70	0.60	-0.35	-33.64	-60.99	0.03
		90	Wind 90	0.70	0.70	0.00	-2.32	-69.88	0.02
		120	Wind Normal	0.72	0.62	0.36	29.88	-62.52	0.01
		150	Wind 90	0.71	0.35	0.61	52.90	-38.62	-0.01
		180	Wind 60	0.70	0.00	0.70	60.95	-6.74	-0.02
		210	Wind 90	0.70	-0.35	0.61	52.36	24.83	-0.03
		240	Wind Normal	0.71	-0.61	0.35	29.57	48.50	-0.03
		270	Wind 90	0.70	-0.70	0.00	-2.32	56.40	-0.02
		300	Wind 60	0.70	-0.61	-0.35	-33.96	48.05	-0.01
		330	Wind 90	0.71	-0.35	-0.61	-57.54	25.14	0.01
T10	80.88-60.88	0	Wind Normal	0.69	0.00	-0.69	-50.73	-7.37	0.03
		30	Wind 90	0.67	0.34	-0.58	-43.42	-36.95	0.03
		60	Wind 60	0.67	0.58	-0.33	-25.97	-47.88	0.03
		90	Wind 90	0.67	0.67	0.00	-2.59	-54.53	0.02
		120	Wind Normal	0.69	0.60	0.34	21.48	-49.06	0.01
		150	Wind 90	0.68	0.34	0.59	38.65	-31.18	-0.01
		180	Wind 60	0.67	0.00	0.67	44.65	-7.37	-0.83
		210	Wind 90	0.67	-0.34	0.58	38.25	16.20	-0.83
		240	Wind Normal	0.68	-0.59	0.34	21.25	33.92	-0.03
		270	Wind 90	0.67	-0.67	0.00	-2.59	39.78	-0.02
		300	Wind 60	0.67	-0.58	-0.34	-26.20	33.53	-0.01
		330	Wind 90	0.68	-0.34	-0.59	-43.82	16.43	0.01
T11	60.00-40.00	0	Wind Normal	0.66	0.00	-0.66	-35.63	-7.98	0.03
		30	Wind 90	0.64	0.32	-0.55	-30.58	-23.98	0.03

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
		60	Wind 60	0.63	0.55	-0.32	-18.72	-35.44	0.03
		90	Wind 90	0.64	0.64	0.00	-2.87	-39.98	0.02
		120	Wind Normal	0.66	0.57	0.33	13.51	-36.36	0.01
		150	Wind 90	0.65	0.32	0.56	25.10	-24.13	-0.01
		180	Wind 60	0.64	0.00	0.64	29.14	-7.98	-0.03
		210	Wind 90	0.64	-0.32	0.55	24.84	8.02	-0.03
		240	Wind Normal	0.65	-0.56	0.32	13.36	20.13	-0.03
		270	Wind 90	0.64	-0.64	0.00	-2.87	24.02	-0.02
		300	Wind 60	0.64	-0.55	-0.32	-18.87	19.74	+0.01
		330	Wind 90	0.65	-0.32	-0.56	-30.84	8.17	0.01
T12	40.80-20.08	0	Wind Normal	0.59	0.00	-0.59	-20.99	-8.54	0.03
		30	Wind 90	0.58	0.29	-0.50	-18.22	-17.22	0.03
		60	Wind 60	0.57	0.50	-0.29	-11.79	-23.43	0.03
		90	Wind 90	0.58	0.58	0.00	-3.19	-25.90	0.02
		120	Wind Normal	0.59	0.51	0.38	5.72	-23.95	0.01
		150	Wind 90	0.58	0.29	0.51	12.00	-17.20	-0.01
		180	Wind 60	0.58	0.00	0.58	14.18	-8.54	-0.02
		210	Wind 90	0.58	-0.29	0.50	11.85	0.14	-0.03
		240	Wind Normal	0.59	-0.51	0.29	5.63	6.74	-0.03
		270	Wind 90	0.58	-0.58	0.00	-3.19	8.83	-0.02
		300	Wind 60	0.58	-0.50	-0.29	-11.87	6.50	-0.01
		330	Wind 90	0.58	-0.29	-0.51	-18.37	0.23	0.01
T13	20.00-0.00	0	Wind Normal	0.51	0.00	-0.51	-8.70	-8.96	0.02
		30	Wind 90	0.50	0.25	-0.43	-7.90	-11.45	0.03
		60	Wind 60	0.49	0.43	-0.25	-6.05	-13.23	0.03
		90	Wind 90	0.58	0.58	0.00	-3.39	-13.94	0.02
		120	Wind Normal	0.51	0.44	0.26	-1.03	-13.39	0.01
		150	Wind 90	0.50	0.25	0.43	8.76	-11.47	-0.01
		180	Wind 60	0.50	0.00	0.50	1.38	-8.96	-0.02
		210	Wind 90	0.50	-0.25	0.43	8.72	-6.47	-0.03
		240	Wind Normal	0.51	-0.44	0.25	-1.86	-4.58	-0.03
		270	Wind 90	0.50	-0.50	0.00	-3.39	-3.99	-0.02
		300	Wind 60	0.50	-0.43	-0.25	-6.88	-4.66	-0.01
		330	Wind 90	0.50	-0.25	-0.43	-7.94	-6.45	0.01

Mast Totals - With Ice

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.08	-8.35	-1075.66	-68.43	0.29
30	4.13	-7.15	-933.16	-592.08	0.32
60	7.16	-4.13	-554.38	-983.33	0.26
90	8.30	0.00	-26.17	-1126.04	8.13
120	7.29	4.21	505.80	-989.83	-0.02
150	4.13	7.15	873.58	-587.90	-0.17
180	0.88	8.20	1005.79	-68.43	-8.28
210	-4.13	7.15	888.83	455.22	-8.32
240	-7.28	4.28	509.98	860.21	-0.27
270	-8.30	0.08	-26.17	989.18	-0.13
300	-7.16	-4.13	-550.20	839.22	0.82
330	-4.13	-7.15	-925.92	451.04	8.17

Mast Vectors - Service

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
T1	255.00-240.00	0	Wind Normal	0.45	0.00	-0.45	-112.69	-0.33	0.12
		38	Wind 90	0.53	0.27	-0.46	-114.42	-66.29	0.08
		60	Wind 60	8.52	0.45	-0.26	-65.02	-112.64	0.01
		98	Wind 98	8.53	0.53	8.00	-0.18	-132.25	-0.07
		120	Wind Normal	8.45	0.39	8.23	56.08	-97.77	-0.11
		150	Wind 90	0.33	0.17	0.29	70.56	-41.17	-0.10
		180	Wind 60	0.42	0.00	8.42	183.41	-0.33	-0.11
		210	Wind 90	0.53	-0.27	0.46	114.06	65.63	-0.08
		240	Wind Normal	0.56	-0.48	0.28	69.12	119.70	-0.01
		270	Wind 98	0.53	-0.53	8.00	-0.18	131.58	0.07
		380	Wind 60	0.42	-0.36	-0.21	-51.98	89.38	0.18
		330	Wind 90	8.33	-0.17	-0.29	-70.92	40.51	0.10
T2	248.00-220.00	0	Wind Normal	1.25	0.80	-1.25	-288.68	-0.01	0.01
		30	Wind 90	1.24	0.62	-1.08	-247.69	-142.80	-8.04
		60	Wind 68	1.32	1.14	-0.66	-152.26	-263.09	-0.07
		90	Wind 98	1.44	1.44	8.00	-0.36	-331.56	-0.10
		120	Wind Normal	1.36	1.18	8.68	155.73	-270.37	-0.08
		150	Wind 90	1.24	0.62	1.08	246.96	-142.80	-8.05
		180	Wind 60	1.22	0.00	1.22	279.55	-0.01	-0.01
		210	Wind 90	1.24	-0.62	1.08	246.96	142.79	0.84
		240	Wind Normal	1.36	-1.18	0.68	155.73	270.36	0.08
		270	Wind 98	1.44	-1.44	0.00	-8.36	331.54	0.18
		300	Wind 68	1.32	-1.14	-0.66	-152.26	263.88	0.08
		330	Wind 90	1.24	-0.62	-1.08	-247.69	142.78	0.05
T3	220.08-208.80	0	Wind Normal	1.56	0.00	-1.56	-327.54	-0.56	8.13
		30	Wind 90	1.70	0.85	-1.47	-308.63	-178.57	8.09
		68	Wind 68	1.85	1.68	-0.92	-194.31	-336.60	8.01
		90	Wind 90	1.70	1.70	0.00	-0.30	-356.58	-0.07
		120	Wind Normal	1.56	1.35	0.78	163.31	-283.95	-0.12
		150	Wind 90	1.36	0.78	1.35	282.53	-163.85	-0.15
		180	Wind 60	1.52	0.80	1.52	318.72	-0.56	-8.13
		218	Wind 98	1.70	-0.85	1.47	308.02	177.45	-0.09
		240	Wind Normal	1.89	-1.63	0.94	197.81	342.59	-8.81
		270	Wind 90	1.70	-1.70	0.00	-0.30	355.46	0.07
		300	Wind 68	1.52	-1.32	-0.76	-159.82	275.73	0.12
		330	Wind 98	1.68	-0.78	-1.35	-283.14	162.74	0.15
T4	288.80-180.00	0	Wind Normal	1.65	0.00	-1.65	-312.96	-0.71	0.17
		30	Wind 98	1.71	0.88	-1.53	-290.83	-168.40	0.11
		60	Wind 60	1.91	1.65	-0.95	-181.88	-314.93	0.01
		90	Wind 90	1.77	1.77	0.00	-0.38	-336.09	-0.09
		120	Wind Normal	1.65	1.42	0.82	155.91	-271.41	-0.16
		150	Wind 90	1.63	0.81	1.41	267.49	-155.36	-0.19
		180	Wind 60	1.59	0.80	1.59	301.32	-0.71	-0.16
		210	Wind 90	1.77	-0.88	1.53	290.07	166.98	-0.11
		240	Wind Normal	1.97	-1.70	8.98	186.47	322.93	-0.01
		270	Wind 90	1.77	-1.77	0.00	-0.38	334.67	8.09
		308	Wind 60	1.59	-1.38	-0.79	-151.24	260.58	0.16
		338	Wind 98	1.63	-0.81	-1.41	-268.26	153.95	8.19
T5	180.08-160.00	8	Wind Normal	1.67	0.08	-1.67	-284.13	-0.86	0.21
		30	Wind 90	1.78	0.89	-1.54	-262.69	-152.25	0.13
		60	Wind 60	1.92	1.66	-0.96	-163.71	-283.61	0.01
		98	Wind 98	1.78	1.78	8.00	-0.46	-303.65	-0.11
		120	Wind Normal	1.67	1.45	0.83	141.39	-246.97	-0.19
		150	Wind 90	1.65	0.82	1.43	242.82	-140.86	-0.23
		180	Wind 60	1.61	0.80	1.61	272.68	-0.86	-0.20
		210	Wind 98	1.78	-0.89	1.54	261.76	158.53	-0.13
		248	Wind Normal	1.98	-1.72	0.99	168.11	291.12	-0.01
		278	Wind 90	1.78	-1.78	8.00	-0.46	301.93	0.11

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
		300	Wind 60	1.61	-1.39	-0.80	-137.00	235.62	0.19
		330	Wind 90	1.65	-0.82	-1.43	-242.95	139.14	0.23
T6	168.08-140.00	0	Wind Normal	1.67	0.00	-1.67	-251.10	-1.01	0.24
		30	Wind 90	1.77	0.89	-1.54	-230.86	-133.98	0.16
		60	Wind 60	1.91	1.65	-0.95	-143.54	-248.68	0.02
		90	Wind 90	1.77	1.77	0.00	-0.55	-266.95	-0.13
		120	Wind Normal	1.67	1.45	0.84	124.73	-218.00	-0.23
		150	Wind 98	1.64	0.82	1.42	212.81	-124.19	-0.27
		188	Wind 60	1.60	0.00	1.60	239.53	-1.01	-0.23
		218	Wind 90	1.77	-0.89	1.54	229.77	131.96	-0.16
		240	Wind Normal	1.98	-1.71	0.99	147.69	255.74	-0.02
		270	Wind 90	1.77	-1.77	0.80	-0.53	264.94	8.13
		300	Wind 60	1.68	-1.39	-0.80	-120.38	206.90	0.22
		330	Wind 90	1.64	-0.82	-1.42	-213.90	122.17	0.27
T7	148.00-120.00	8	Wind Normal	1.59	0.08	-1.59	-206.79	-1.16	0.26
		30	Wind 90	1.69	0.85	-1.47	-191.23	-111.20	0.17
		60	Wind 60	1.83	1.58	-0.91	-119.26	-206.64	0.02
		90	Wind 90	1.69	1.69	0.00	-0.63	-221.25	-8.14
		120	Wind Normal	1.59	1.37	0.79	102.45	-179.70	-0.25
		150	Wind 98	1.57	0.78	1.36	175.71	-102.97	-0.29
		180	Wind 60	1.53	0.00	1.53	198.03	-1.16	-0.25
		210	Wind 90	1.69	-0.85	1.47	189.97	108.85	-0.17
		240	Wind Normal	1.88	-1.63	0.94	121.76	210.82	-0.02
		270	Wind 90	1.69	-1.69	0.00	-0.63	218.92	0.14
		300	Wind 60	1.53	-1.32	-0.76	-99.95	170.88	0.24
		330	Wind 98	1.57	-0.78	-1.36	-176.96	100.65	0.29
T8	128.00-100.08	0	Wind Normal	1.56	0.00	-1.56	-172.81	-1.31	0.29
		30	Wind 90	1.67	0.83	-1.44	-159.35	-92.90	0.19
		68	Wind 60	1.79	1.55	-0.90	-99.27	-172.03	8.02
		90	Wind 90	1.67	1.67	0.00	-8.71	-184.50	-0.16
		120	Wind Normal	1.56	1.35	0.78	85.34	-150.35	-0.27
		110	Wind 90	1.54	0.77	1.34	146.29	-86.18	-0.32
		180	Wind 60	1.51	0.00	1.51	164.88	-1.31	-0.28
		210	Wind 90	1.67	-0.83	1.44	157.94	90.28	-0.19
		240	Wind Normal	1.85	-1.60	0.93	101.11	175.05	-8.82
		270	Wind 90	1.67	-1.67	8.08	-0.71	181.88	0.16
		300	Wind 60	1.51	-1.30	-0.75	-83.50	142.09	8.26
		330	Wind 90	1.54	-0.77	-1.34	-147.78	83.56	0.32
T9	108.08-80.00	0	Wind Normal	1.52	0.08	-1.52	-147.54	-1.46	0.32
		30	Wind 90	1.61	0.81	-1.40	-126.53	-74.06	0.21
		60	Wind 60	1.73	1.58	-0.87	-78.81	-136.60	0.02
		90	Wind 90	1.61	1.61	0.00	-8.79	-146.66	-0.17
		120	Wind Normal	1.52	1.32	0.76	67.39	-119.90	-0.30
		150	Wind 90	1.50	0.75	1.38	115.82	-68.78	-0.35
		180	Wind 60	1.46	0.00	1.46	130.51	-1.48	-0.30
		210	Wind 90	1.61	-0.81	1.48	124.95	71.14	-0.21
		240	Wind Normal	1.79	-1.55	0.90	79.96	138.40	-0.02
		270	Wind 90	1.61	-1.61	0.00	-8.79	143.73	0.17
		300	Wind 60	1.46	-1.26	-0.73	-66.44	112.25	0.28
		330	Wind 90	1.50	-0.75	-1.30	-117.39	65.86	0.35
T10	88.00-60.00	0	Wind Normal	1.47	0.08	-1.47	-104.02	-1.61	0.34
		30	Wind 90	1.56	0.78	-1.35	-95.44	-56.21	0.22
		60	Wind 60	1.67	1.45	-0.84	-59.44	-103.06	0.02
		90	Wind 98	1.56	1.56	0.08	-0.87	-110.81	-0.18
		120	Wind Normal	1.47	1.28	8.74	50.71	-98.94	-0.31
		158	Wind 90	1.45	0.72	1.25	86.96	-52.32	-0.37
		180	Wind 60	1.41	0.88	1.41	98.02	-1.61	-0.32
		210	Wind 90	1.56	-0.78	1.35	93.70	52.99	-0.22
		240	Wind Normal	1.73	-1.50	0.87	59.83	103.53	-0.02
		270	Wind 90	1.56	-1.56	0.00	-0.87	107.59	8.18
		300	Wind 60	1.41	-1.22	-0.71	-50.31	84.03	0.30

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
		330	Wind 90	1.45	-0.72	-1.25	-86.70	49.09	0.37
T11	60.00-40.00	0	Wind Normal	1.44	0.00	-1.44	-72.80	-1.76	0.35
		30	Wind 90	1.51	0.75	-1.31	-66.32	-39.50	0.23
		60	Wind 60	1.61	1.40	-0.81	-41.25	-71.56	0.02
		90	Wind 90	1.51	1.51	0.00	-0.95	-77.24	-0.19
		120	Wind Normal	1.44	1.25	0.72	35.03	-64.08	-0.33
		150	Wind 90	1.41	0.70	1.22	59.93	-36.91	-0.39
		180	Wind 60	1.37	0.00	1.37	67.50	-1.76	-0.34
		210	Wind 90	1.51	-0.75	1.31	64.42	33.98	-0.23
		240	Wind Normal	1.68	-1.46	0.84	41.18	71.07	-0.03
		270	Wind 90	1.51	-1.51	0.00	-0.95	73.72	0.19
		300	Wind 60	1.37	-1.19	-0.68	-35.18	57.52	0.32
		330	Wind 90	1.41	-0.70	-1.22	-61.83	33.39	0.39
T12	40.00-20.00	0	Wind Normal	1.33	0.00	-1.33	-48.91	-1.91	0.35
		30	Wind 90	1.39	0.69	-1.20	-37.14	-22.76	0.23
		60	Wind 60	1.48	1.28	-0.74	-23.25	-40.39	0.02
		90	Wind 90	1.39	1.39	0.00	-1.03	-43.61	-0.19
		120	Wind Normal	1.33	1.15	0.66	18.91	-36.45	-0.33
		150	Wind 90	1.30	0.65	1.12	32.66	-21.37	-0.38
		180	Wind 60	1.26	0.00	1.26	36.86	-1.91	-0.33
		210	Wind 90	1.39	-0.69	1.28	35.08	18.94	-0.23
		240	Wind Normal	1.55	-1.34	0.77	22.18	38.29	-0.03
		270	Wind 90	1.39	-1.39	0.80	-1.03	39.78	0.19
		300	Wind 60	1.26	-1.09	-0.63	-19.97	30.98	0.31
		330	Wind 90	1.30	-0.65	-1.12	-34.73	17.34	0.38
T13	20.00-0.00	0	Wind Normal	1.17	0.00	-1.17	-12.79	-2.06	0.33
		30	Wind 90	1.22	0.61	-1.05	-11.66	-8.15	0.21
		60	Wind 60	1.30	1.12	-0.65	-7.59	-13.29	0.02
		90	Wind 90	1.22	1.22	0.00	-1.11	-14.24	-0.18
		120	Wind Normal	1.17	1.01	0.58	4.73	-12.18	-0.31
		150	Wind 90	1.14	0.57	0.99	8.34	-7.75	-0.36
		180	Wind 60	1.11	0.00	1.11	9.96	-2.06	-0.31
		210	Wind 90	1.22	-0.61	1.05	9.43	4.03	-0.21
		240	Wind Normal	1.36	-1.17	0.68	5.67	9.69	-0.02
		270	Wind 90	1.22	-1.22	0.00	-1.11	18.12	0.18
		300	Wind 60	1.11	-0.96	-0.55	-6.65	7.52	0.30
		330	Wind 90	1.14	-0.57	-0.99	-10.96	3.62	0.36

Mast Totals - Service

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	-18.33	-2324.92	-14.76	3.12
30	9.72	-16.83	-2142.78	-1247.09	1.99
60	18.85	-18.42	-1329.51	-2303.11	8.14
90	19.64	0.88	-8.33	-2525.38	-1.78
120	15.96	9.22	1161.90	-2041.66	-3.81
150	8.97	15.54	1948.48	-1144.52	-3.44
180	0.00	17.39	2220.89	-14.76	-2.98
210	-9.72	16.83	2126.13	1217.57	-1.99
240	-18.69	18.79	1356.54	2349.25	-8.15
270	-19.64	0.08	-8.33	2495.86	1.78
300	-15.33	-8.85	-1134.87	1936.48	2.88
330	-8.97	-15.54	-1965.13	1115.88	3.44

Discrete Appurtenance Pressures - No Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft²	C_AA_C Side ft²
Beacon	0.0000	0.07	0.00	-2.89	259.39	1.547	27	2.40	2.40
Beacon Extender (4') 803062	0.0000	0.03	0.00	-2.89	257.21	1.544	27	1.11	1.11
1/2" x 4' lightning rod	240.0006	0.81	-2.50	1.44	257.80	1.544	27	0.20	0.20
ATC Loading	0.0000	2.08	0.00	0.00	250.00	1.535	27	115.00	115.00
ATC Loading	0.0000	2.80	0.80	0.00	240.00	1.522	27	115.00	115.00
ATC Loading	0.0008	2.00	0.00	0.08	230.00	1.508	27	115.00	115.00
ATC Loading	0.0008	2.00	0.00	0.80	220.08	1.494	26	115.00	115.00
	Sum Weight:	8.12							

Discrete Appurtenance Vectors - No Ice

Beacon - Elevation 259.39 - From Leg A

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.06	0.00	0.08	-0.06	-14.64	0.00	0.00
30	0.05	0.03	0.03	-0.05	-12.78	-7.21	-0.08
60	0.03	0.05	0.05	-0.03	-7.42	-12.49	-0.14
90	0.00	0.06	0.06	0.00	-0.21	-14.43	-0.16
120	0.03	0.05	0.05	0.03	7.00	-12.49	-0.14
150	0.05	0.03	0.03	0.05	12.28	-7.21	-0.08
180	0.06	0.00	0.00	0.06	14.22	0.00	0.00
210	0.05	0.03	-0.03	0.05	12.28	7.21	0.08
240	0.03	0.05	-0.05	0.03	7.00	12.49	0.14
270	0.00	0.06	-0.06	0.00	-0.21	14.43	0.16
300	0.03	0.05	-0.05	-0.03	-7.42	12.49	0.14
330	0.05	0.03	-0.03	-0.05	-12.78	7.21	0.08

Beacon Extender (4') 803062 - Elevation 257.21 - From Leg A

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.03	0.00	0.00	-0.03	-6.69	0.00	0.00
30	0.02	0.01	0.01	-0.02	-5.81	-3.30	-0.04
60	0.01	0.02	0.02	-0.01	-3.39	-5.72	-0.06
90	0.00	0.03	0.03	0.00	-0.09	-6.60	-0.07
120	0.01	0.02	0.02	0.01	3.22	-5.72	-0.06
150	0.02	0.01	0.01	0.02	5.63	-3.30	-0.04
180	0.03	0.00	0.00	0.03	6.52	0.00	0.00
210	0.02	0.01	-0.01	0.02	5.63	3.30	0.04
240	0.01	0.02	-0.02	0.01	3.22	5.72	0.06
270	0.00	0.03	-0.03	0.00	-0.09	6.60	0.07
300	0.01	0.02	-0.02	-0.01	-3.39	5.72	0.06
330	0.02	0.01	-0.01	-0.02	-5.81	3.30	0.04

1/2" x 4' lightning rod - Elevation 257 - From Leg C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	0.00	0.00	-0.08	-1.37	8.84	-0.01
30	0.80	8.00	8.08	-0.88	-1.81	-0.56	-0.01
60	0.00	0.00	0.00	-0.00	-8.57	-8.99	0.80
90	8.80	8.00	0.88	0.80	0.02	-1.15	0.01
120	8.80	8.00	0.80	0.08	0.61	-8.99	0.81
150	8.80	0.00	0.08	0.00	1.05	-0.56	0.01
180	8.00	0.00	8.00	0.00	1.21	8.84	0.01
210	0.00	8.00	-0.80	0.80	1.05	8.63	0.01
240	0.80	8.80	-0.88	0.00	0.61	1.06	0.00
270	0.08	0.88	-0.00	0.88	0.02	1.22	-0.81
300	0.80	8.08	-0.80	-0.00	-0.57	1.86	-0.01
330	8.80	0.00	-0.80	-0.08	-1.01	0.63	-8.81

ATC Loading - Elevation 230 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.64	0.00	0.80	-2.64	-661.12	0.08	0.80
30	2.64	8.00	1.32	-2.29	-572.55	-330.56	0.00
60	2.64	8.00	2.29	-1.32	-338.56	-572.55	0.00
90	2.64	8.00	2.64	0.88	8.00	-661.12	0.00
120	2.64	8.00	2.29	1.32	330.56	-572.55	0.80
150	2.64	0.80	1.32	2.29	572.55	-338.56	0.08
180	2.64	0.00	0.88	2.64	661.12	0.08	8.00
210	2.64	0.00	-1.32	2.29	572.55	330.56	0.00
240	2.64	0.00	-2.29	1.32	330.56	572.55	0.80
270	2.64	8.80	-2.64	0.08	8.80	661.12	0.80
300	2.64	0.00	-2.29	-1.32	-338.56	572.55	0.00
330	2.64	8.08	-1.32	-2.29	-572.55	338.56	0.00

ATC Loading - Elevation 240 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.62	0.00	0.00	-2.62	-629.24	0.00	8.00
30	2.62	8.80	1.31	-2.27	-544.94	-314.62	8.00
60	2.62	8.00	2.27	-1.31	-314.62	-544.94	0.00
90	2.62	0.00	2.62	0.00	0.00	-629.24	0.80
120	2.62	0.00	2.27	1.31	314.62	-544.94	0.00
150	2.62	0.00	1.31	2.27	544.94	-314.62	0.00
180	2.62	0.00	8.80	2.62	629.24	0.08	0.00
210	2.62	8.00	-1.31	2.27	544.94	314.62	0.00
240	2.62	8.08	-2.27	1.31	314.62	544.94	0.80
270	2.62	8.00	-2.62	0.80	0.00	629.24	0.80
300	2.62	0.00	-2.27	-1.31	-314.62	544.94	0.80
330	2.62	0.00	-1.31	-2.27	-544.94	314.62	0.00

ATC Loading - Elevation 250 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.60	0.00	0.00	-2.60	-597.65	0.00	8.00
30	2.60	0.00	1.30	-2.25	-517.58	-298.82	0.00
60	2.60	0.00	2.25	-1.30	-298.82	-517.58	0.00
90	2.60	0.00	2.60	0.00	0.00	-597.65	0.00

ATC Loading - Elevation 230 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
120	2.60	0.00	2.25	1.30	298.82	-517.58	8.80
150	2.60	0.80	1.30	2.25	517.58	-298.82	0.80
180	2.60	8.00	8.88	2.60	597.65	8.00	0.80
210	2.60	0.80	-1.30	2.25	517.58	298.82	0.00
240	2.60	8.88	-2.25	1.30	298.82	517.58	0.08
270	2.68	0.00	-2.60	0.00	8.00	597.65	0.80
300	2.68	0.00	-2.25	-1.30	-298.82	517.58	8.88
330	2.60	0.00	-1.30	-2.25	-517.58	298.82	0.80

ATC Loading - Elevation 220 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.57	0.00	8.00	-2.57	-566.34	0.08	8.00
30	2.57	8.80	1.29	-2.23	-490.46	-283.17	8.80
60	2.57	0.88	2.23	-1.29	-283.17	-490.46	8.80
90	2.57	8.88	2.57	0.80	0.00	-566.34	0.00
120	2.57	8.80	2.23	1.29	283.17	-490.46	0.80
150	2.57	8.00	1.29	2.23	498.46	-283.17	0.00
180	2.57	0.00	8.88	2.57	566.34	0.08	8.00
210	2.57	0.00	-1.29	2.23	490.46	283.17	8.80
240	2.57	8.80	-2.23	1.29	283.17	490.46	0.00
270	2.57	8.00	-2.57	0.00	0.00	566.34	0.88
300	2.57	8.00	-2.23	-1.29	-283.17	498.46	8.80
330	2.57	8.00	-1.29	-2.23	-490.46	283.17	8.80

Discrete Appurtenance Totals - No Ice

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	-10.52	-2476.85	0.84	-0.01
30	5.26	-9.11	-2145.05	-1238.25	-0.12
60	9.11	-5.26	-1238.56	-2144.74	-0.20
90	10.52	0.00	-0.28	-2476.53	-8.23
120	9.11	5.26	1238.01	-2144.74	-0.19
150	5.26	9.11	2144.49	-1238.25	-0.10
180	0.80	10.52	2476.29	0.84	0.01
210	-5.26	9.11	2144.49	1238.32	0.12
240	-9.11	5.26	1238.01	2144.81	0.20
270	-10.52	8.00	-0.28	2476.60	0.23
300	-9.11	-5.26	-1238.56	2144.81	0.19
330	-5.26	-9.11	-2145.85	1238.32	0.10

Discrete Appurtenance Pressures - With Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft²	C_AA_C Side ft²	t_z in
Beacon	0.0000	0.16	0.00	-2.89	259.39	1.547	3	3.40	3.40	1.8403

Description	Aiming Azimuth °	Weight K	Offset$_x$ ft	Offset$_z$ ft	z ft	K_a	q_z psf	C_AA_c Front ft²	C_AA_c Side ft²	I_z lm
Beacon Extender (4') 803062	0.0000	0.07	0.00	-2.89	257.21	1.544	3	1.89	1.89	1.8483
1/2" x 4' lightning rod	240.0808	0.04	-2.50	1.44	257.00	1.544	3	1.25	1.25	1.8403
ATC Loading	0.8000	5.67	0.00	0.00	250.00	1.535	3	188.47	188.47	1.8367
ATC Loading	0.0000	5.66	0.00	0.00	240.00	1.522	3	188.17	188.17	1.8292
ATC Loading	8.0000	5.64	0.00	0.00	230.80	1.508	3	187.86	187.86	1.8214
ATC Loading	0.0000	5.63	0.00	0.00	220.00	1.494	3	187.53	187.53	1.8134
	Sum Weight:	22.87								

Discrete Appurtenance Vectors - With Ice

Beacon - Elevation 239.39 - From Leg A

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.00	0.00	-0.01	-2.74	0.00	0.80
30	0.01	0.00	0.00	-0.01	-2.45	-1.13	-0.01
60	0.00	0.01	0.01	-0.00	-1.69	-1.96	-0.02
90	0.00	0.01	0.01	0.00	-0.47	-2.27	-0.03
120	0.00	0.01	0.01	0.00	0.67	-1.96	-0.02
150	0.01	0.00	0.00	0.01	1.50	-1.13	-0.01
180	0.01	0.00	0.00	0.01	1.80	0.08	0.00
210	0.01	0.00	-0.00	0.01	1.50	1.13	0.01
240	0.00	0.01	-0.01	0.00	0.67	1.96	0.02
270	0.00	0.01	-0.01	0.00	-0.47	2.27	0.03
300	0.00	0.01	-0.01	-0.00	-1.68	1.96	0.02
330	0.01	0.00	-0.00	-0.01	-2.43	1.13	0.01

Beacon Extender (4') 803062 - Elevation 257.21 - From Leg A

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	0.00	0.00	-0.00	-1.44	0.08	0.00
30	0.00	0.00	0.00	-0.00	-1.27	-0.62	-0.01
60	0.00	0.00	0.00	-0.00	-0.82	-1.08	-0.01
90	0.00	0.00	0.00	0.00	-0.19	-1.24	-0.01
120	0.00	0.00	0.00	0.00	0.43	-1.08	-0.01
150	0.00	0.00	0.00	0.00	0.89	-0.62	-0.01
180	0.00	0.00	0.00	0.00	1.05	0.08	0.00
210	0.00	0.00	-0.00	0.00	0.89	0.62	0.01
240	0.00	0.00	-0.00	0.00	0.43	1.08	0.01
270	0.00	0.00	-0.00	0.00	-0.19	1.24	0.01
300	0.00	0.00	-0.00	-0.00	-0.82	1.08	0.01
330	0.00	0.00	-0.00	-0.00	-1.27	0.62	0.01

1/2" x 4' lightning rod - Elevation 257 - From Leg C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	0.00	0.00	-0.00	-0.77	0.89	-0.01
30	0.00	0.00	0.00	-0.00	-0.66	-0.32	-0.00
60	0.00	0.00	0.00	-0.00	-0.36	-0.62	0.00
90	0.00	0.00	0.00	0.00	0.05	-0.73	0.00

1/2" x 4' lightning rod - Elevation 257 - From Leg C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
120	0.00	0.00	0.00	0.00	0.47	-0.62	0.01
150	0.00	0.00	0.00	0.00	0.77	-0.32	0.01
180	0.00	0.00	0.00	0.00	0.88	0.09	0.01
210	0.00	0.00	-0.00	0.00	0.77	0.54	0.00
240	0.00	0.00	-0.00	0.00	0.47	0.81	0.00
270	0.00	0.00	-0.00	0.00	0.05	0.92	-0.00
300	0.00	0.00	-0.00	-0.00	-0.36	0.81	-0.01
330	0.00	0.00	-0.00	-0.00	-0.66	0.54	-0.01

ATC Loading - Elevation 230 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.48	0.00	8.00	-0.48	-120.39	8.00	0.80
30	8.48	0.00	0.24	-0.42	-104.26	-60.19	0.00
60	0.48	0.00	0.42	-0.24	-68.19	-104.26	0.80
90	0.48	0.00	0.48	8.00	0.00	-120.39	0.80
120	0.48	0.00	0.42	0.24	60.19	-104.26	0.00
150	0.48	0.00	8.24	0.42	104.26	-60.19	0.00
180	0.48	0.00	0.00	0.48	120.39	0.00	0.00
210	0.48	0.00	-0.24	0.42	104.26	60.19	0.00
240	0.48	0.00	-0.42	0.24	60.19	104.26	0.00
270	0.48	0.00	-0.48	0.00	0.00	120.39	0.00
300	0.48	0.00	-0.42	-0.24	-60.19	104.26	0.00
330	0.48	0.00	-0.24	-0.42	-104.26	60.19	0.80

ATC Loading - Elevation 240 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.48	0.00	0.00	-0.48	-114.40	0.00	0.00
30	0.48	0.00	0.24	-0.41	-99.07	-57.20	0.00
60	0.48	0.00	0.41	-0.24	-57.20	-99.07	0.00
90	0.48	0.00	0.48	0.00	0.00	-114.40	0.00
120	0.48	0.00	0.41	0.24	57.20	-99.07	0.00
150	0.48	0.00	0.24	0.41	99.07	-57.20	0.00
180	0.48	0.00	0.00	0.48	114.40	0.00	0.00
210	0.48	0.00	-0.24	0.41	99.07	57.20	0.00
240	0.48	0.00	-0.41	0.24	57.20	99.07	0.00
270	0.48	0.00	-0.48	0.00	0.00	114.40	0.00
300	0.48	0.00	-0.41	-0.24	-57.20	99.07	0.00
330	0.48	0.00	-0.24	-0.41	-99.07	57.20	0.00

ATC Loading - Elevation 230 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.47	0.00	0.00	-0.47	-108.48	0.00	0.00
30	0.47	0.00	0.24	-0.41	-93.94	-54.24	0.00
60	0.47	0.00	0.41	-0.24	-54.24	-93.94	0.00
90	0.47	0.00	0.47	0.00	0.00	-108.48	0.00
120	0.47	0.00	0.41	0.24	54.24	-93.94	0.80
150	0.47	0.00	0.24	0.41	93.94	-54.24	0.00
180	0.47	0.00	0.00	0.47	108.48	0.00	0.00

ATC Loading - Elevation 230 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
210	0.47	0.00	-0.24	0.41	93.94	54.24	0.80
240	0.47	0.00	-0.41	8.24	54.24	93.94	0.00
270	0.47	0.00	-0.47	0.00	0.00	108.48	0.00
300	0.47	0.00	-0.41	-0.24	-54.24	93.94	0.00
330	0.47	0.00	-0.24	-0.41	-93.94	54.24	0.00

ATC Loading - Elevation 220 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.47	0.80	0.00	-0.47	-102.62	0.00	0.00
30	0.47	0.00	0.23	-0.40	-88.87	-51.31	0.00
60	0.47	0.00	0.48	-0.23	-51.31	-88.87	0.00
90	0.47	0.00	0.47	0.00	0.00	-102.62	0.00
120	0.47	0.00	0.40	0.23	51.31	-88.87	0.00
150	0.47	0.00	0.23	0.48	88.87	-51.31	0.80
180	0.47	0.00	0.00	0.47	102.62	0.00	0.80
210	0.47	0.00	-0.23	0.40	88.87	51.31	0.00
240	0.47	0.00	-0.40	0.23	51.31	88.87	0.00
270	0.47	0.00	-0.47	0.00	0.00	102.62	0.00
300	0.47	0.00	-0.40	-0.23	-51.31	88.87	0.00
330	0.47	0.00	-0.23	-0.40	-88.87	51.31	0.00

Discrete Appurtenance Totals - With Ice

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	-1.91	-450.83	0.00	-0.01
30	0.96	-1.66	-390.51	-225.02	-0.82
60	1.66	-0.96	-225.72	-389.81	-0.03
90	1.91	0.00	-0.61	-450.13	-0.03
120	1.66	0.96	224.50	-389.81	-0.03
150	0.96	1.66	389.30	-225.02	-0.01
180	0.00	1.91	419.61	0.00	0.01
210	-0.96	1.66	389.30	225.20	0.02
240	-1.66	0.96	224.58	389.99	0.03
270	-1.91	0.00	-0.61	450.31	0.03
300	-1.66	-0.96	-225.72	389.99	0.03
330	-0.96	-1.66	-390.51	225.20	0.01

Discrete Appurtenance Pressures - Service $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	Offset$_x$ ft	Offset$_z$ ft	z ft	K_a	q_z psf	C_AA_c Front ft²	C_AA_c Side ft²
Beacon	0.0000	0.07	0.00	-2.89	259.39	1.547	12	2.40	2.40
Beacon Extender (4') 803062	0.0000	0.03	0.00	-2.89	257.21	1.544	12	1.11	1.11
1/2" x 4' lightning rod	240.0000	0.01	-2.50	1.44	257.00	1.544	12	0.20	0.20

Description	Aiming Azimuth °	Weight K	Offset$_x$ ft	Offset$_z$ ft	z ft	K_a	q_z psf	C_AA_c Front ft²	C_AA_c Side ft²
ATC Loading	0.0008	2.00	0.80	0.00	250.00	1.535	12	115.00	115.00
ATC Loading	0.0000	2.00	0.00	0.00	240.00	1.522	12	115.00	115.00
ATC Loading	0.0000	2.00	0.00	0.00	230.00	1.508	12	115.08	115.00
ATC Loading	0.0000	2.00	0.08	0.80	220.00	1.494	12	115.00	115.00
	Sum Weight:	8.12							

Discrete Appurtenance Vectors - Service

Beacon - Elevation 239.39 - From Leg A

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	8.82	0.00	0.00	-0.02	-6.62	8.00	0.00
30	8.02	0.01	0.01	-0.02	-5.76	-3.21	-0.04
60	0.01	0.02	0.82	-0.01	-3.42	-5.55	-0.06
90	0.00	0.02	0.02	0.00	-0.21	-6.41	-0.07
128	0.01	0.02	0.02	0.01	3.00	-5.55	-0.06
150	0.02	0.01	0.01	0.02	5.34	-3.21	-0.04
180	0.02	0.00	0.00	0.02	6.20	0.00	0.00
210	0.02	0.01	-0.01	0.02	5.34	3.21	0.04
240	0.01	0.02	-0.02	0.01	3.00	5.55	0.86
278	0.00	0.02	-0.02	0.00	-0.21	6.41	0.07
388	0.01	0.02	-0.02	-0.01	-3.42	5.55	0.06
330	0.02	0.01	-0.01	-0.82	-5.76	3.21	0.84

Beacon Extender (4') 803062 - Elevation 257.21 - From Leg A

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.00	0.00	-0.01	-3.02	0.00	0.00
30	0.01	0.01	0.01	-0.01	-2.63	-1.47	-0.02
60	0.01	0.01	0.01	-0.01	-1.55	-2.54	-0.03
98	0.08	0.01	0.01	0.00	-0.09	-2.94	-0.03
120	0.01	0.01	0.01	0.01	1.38	-2.54	-0.03
150	0.01	0.01	0.01	8.01	2.46	-1.47	-0.02
180	0.01	0.00	0.00	8.01	2.85	0.00	0.00
210	0.01	0.01	-0.01	0.01	2.46	1.47	0.82
240	0.01	0.01	-0.01	0.01	1.38	2.54	0.03
270	0.00	0.01	-0.01	0.00	-8.09	2.94	0.03
300	0.01	0.01	-0.01	-0.01	-1.55	2.54	0.03
330	0.01	0.01	-0.01	-0.01	-2.63	1.47	0.02

1/2" x 4' lightning rod - Elevation 237 - From Leg C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	8.00	0.00	-0.00	-0.51	0.04	-0.01
30	0.08	0.00	0.00	-0.80	-0.44	-0.23	-0.00
60	8.00	0.00	0.00	-0.08	-0.24	-0.42	0.80
90	0.00	0.00	0.00	0.00	0.02	-0.49	0.00
120	0.00	0.00	0.00	0.06	0.26	-0.42	0.01
150	0.00	0.00	0.00	0.00	0.48	-0.23	0.01
180	0.00	0.00	8.80	0.00	0.55	0.04	0.01

1/2" x 4' lightning rod - Elevation 257 - Front Lrc C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
210	0.00	0.00	-0.00	0.00	0.48	0.30	0.00
240	0.00	0.00	-0.00	0.00	0.28	0.49	0.08
270	0.00	0.00	-0.00	0.00	0.02	0.56	-0.00
300	0.00	0.00	-0.00	-0.00	-0.24	0.49	-0.01
330	0.00	0.00	-0.00	-0.00	-0.44	0.30	-0.01

ATC Loading - Elevation 230 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.18	0.00	0.00	-1.18	-293.83	0.00	0.00
30	1.18	0.00	0.59	-1.02	-254.47	-146.92	0.00
60	1.18	0.00	1.02	-0.59	-146.92	-254.47	0.00
90	1.18	0.00	1.18	0.00	0.00	-293.83	0.00
120	1.18	0.00	1.02	0.59	146.92	-254.47	0.00
150	1.18	0.00	0.59	1.02	254.47	-146.92	0.00
180	1.18	0.00	0.00	1.18	293.83	0.00	0.00
210	1.18	0.00	-0.59	1.02	254.47	146.92	0.00
240	1.18	0.00	-1.02	0.59	146.92	254.47	0.00
270	1.18	0.00	-1.18	0.00	0.00	293.83	0.00
300	1.18	0.00	-1.02	-0.59	-146.92	254.47	0.00
330	1.18	0.00	-0.59	-1.02	-254.47	146.92	0.00

ATC Loading - Elevation 240 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.17	0.00	0.00	-1.17	-279.66	0.00	0.00
30	1.17	0.00	0.58	-1.01	-242.20	-139.83	0.00
60	1.17	0.00	1.01	-0.58	-139.83	-242.20	0.00
90	1.17	0.00	1.17	0.00	0.00	-279.66	0.00
120	1.17	0.00	1.01	0.58	139.83	-242.20	0.00
150	1.17	0.00	0.58	1.01	242.20	-139.83	0.00
180	1.17	0.00	0.00	1.17	279.66	0.00	0.00
210	1.17	0.00	-0.58	1.01	242.20	139.83	0.00
240	1.17	0.00	-1.01	0.58	139.83	242.20	0.00
270	1.17	0.00	-1.17	0.00	0.00	279.66	0.00
300	1.17	0.00	-1.01	-0.58	-139.83	242.20	0.00
330	1.17	0.00	-0.58	-1.01	-242.20	139.83	0.00

ATC Loading - Elevation 230 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
8	1.15	0.00	0.00	-1.15	-265.62	0.00	0.00
30	1.15	0.00	0.58	-1.00	-230.03	-132.81	0.00
60	1.15	0.00	1.00	-0.58	-132.81	-230.03	0.00
90	1.15	0.00	1.15	0.00	0.00	-265.62	0.00
120	1.15	0.00	1.00	0.58	132.81	-230.03	0.00
150	1.15	0.00	0.58	1.00	230.03	-132.81	0.00
180	1.15	0.00	0.00	1.15	265.62	0.00	0.00
210	1.15	0.00	-0.58	1.00	230.03	132.81	0.00
240	1.15	0.00	-1.00	0.58	132.81	230.03	0.00
270	1.15	0.00	-1.15	0.00	0.00	265.62	0.00

ATC Loading - Elevation 230 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
300	1.15	8.00	-1.00	-0.58	-132.81	230.03	0.00
330	1.15	0.00	-0.58	-1.00	-230.03	132.81	0.00

ATC Loading - Elevation 220 - None C

Wind Azimuth °	F_x K	F_z K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.14	0.00	0.00	-1.14	-251.71	0.00	0.00
30	1.14	0.00	0.57	-0.99	-217.98	-125.85	0.00
60	1.14	0.00	0.99	-0.57	-125.85	-217.98	0.00
90	1.14	0.00	1.14	0.00	0.00	-251.71	0.00
120	1.14	0.00	0.99	0.57	125.85	-217.98	0.00
150	1.14	0.00	0.57	0.99	217.98	-125.85	0.00
180	1.14	0.00	0.00	1.14	251.71	0.00	0.00
210	1.14	0.00	-0.57	0.99	217.98	125.85	0.00
240	1.14	0.00	-0.99	0.57	125.85	217.98	0.00
270	1.14	0.00	-1.14	0.00	0.00	251.71	0.00
300	1.14	0.00	-0.99	-0.57	-125.85	217.98	0.00
330	1.14	0.00	-0.57	-0.99	-217.98	125.85	0.00

Discrete Appurtenance Totals - Service

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	-4.68	-1100.97	0.04	-0.01
30	2.34	-4.05	-953.51	-550.31	-0.06
60	4.05	-2.34	-550.63	-953.20	-0.09
90	4.68	0.00	-0.28	-1100.66	-0.10
120	4.05	2.34	550.07	-953.28	-0.09
150	2.34	4.05	952.95	-550.31	-0.05
180	0.00	4.68	1100.42	0.04	0.01
210	-2.34	4.05	952.95	550.38	0.06
240	-4.05	2.34	550.07	953.27	0.09
270	-4.68	0.00	-0.28	1100.73	0.10
300	-4.05	-2.34	-550.63	953.27	0.09
330	-2.34	-4.05	-953.51	550.38	0.05

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	36.09					
Bracing Weight	13.56					
Total Member Self-Weight	49.66			-8.60	-14.72	
Total Weight	77.79			-8.60	-14.72	
Wind 8 deg - No Ice		0.00	-51.77	-7697.50	-14.72	7.00
Wind 38 deg - No Ice		27.13	-46.99	-6955.90	-4025.75	4.35

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 60 deg - No Ice		49.73	-28.71	-4219.54	-7308.28	0.11
Wind 90 deg - No Ice		54.71	0.00	-8.60	-8140.19	-4.22
Wind 120 deg - No Ice		45.04	26.00	3062.78	-6720.02	-6.95
Wind 158 deg - No Ice		25.44	44.07	6538.98	-3794.97	-7.84
Wind 188 deg - No Ice		0.00	50.11	7483.70	-14.72	-6.70
Wind 218 deg - No Ice		-27.13	46.99	6938.69	3996.30	-4.35
Wind 248 deg - No Ice		-51.16	29.54	4300.62	7449.08	-0.12
Wind 270 deg - No Ice		-54.71	0.88	-8.60	8111.74	4.22
Wind 300 deg - No Ice		-43.60	-25.17	-3781.62	6520.33	6.66
Wind 338 deg - No Ice		-25.44	-44.87	-6556.19	3763.53	7.84
Member Ice	91.99					
Total Weight Ice	271.69			-26.78	-68.34	
Wind 8 deg - Ice		0.08	-10.26	-1526.49	-68.34	8.20
Wind 38 deg - Ice		5.08	-8.81	-3323.67	-817.10	0.30
Wind 60 deg - Ice		8.81	-5.09	-780.10	-1373.13	0.23
Wind 90 deg - Ice		10.21	0.00	-26.78	-1576.17	8.18
Wind 128 deg - Ice		8.94	5.16	720.31	-1379.64	-0.03
Wind 150 deg - Ice		5.09	8.81	1262.88	-812.92	-0.18
Wind 188 deg - Ice		8.88	10.11	1455.40	-68.34	-0.27
Wind 218 deg - Ice		-5.08	8.81	1270.12	680.43	-0.30
Wind 248 deg - Ice		-8.94	5.16	734.49	1250.21	-0.23
Wind 278 deg - Ice		-10.21	0.00	-26.78	1439.49	-0.10
Wind 300 deg - Ice		-8.82	-5.09	-775.92	1229.22	0.05
Wind 338 deg - Ice		-5.09	-8.81	-1316.43	676.25	0.18
Total Weight	77.79			-8.60	-14.72	
Wind 8 deg - Service		0.00	-23.01	-3417.56	8.04	3.11
Wind 38 deg - Service		12.06	-20.89	-3087.96	-1782.64	1.93
Wind 60 deg - Service		20.18	-12.76	-1071.80	-3241.54	0.05
Wind 90 deg - Service		24.32	0.00	-0.28	-3611.28	-1.88
Wind 128 deg - Service		20.02	11.56	1720.30	-2908.10	-3.09
Wind 158 deg - Service		11.31	19.59	2909.76	-1680.08	-3.48
Wind 180 deg - Service		0.00	22.27	3329.64	8.04	-2.96
Wind 210 deg - Service		-12.06	20.89	3087.41	1782.71	-1.93
Wind 240 deg - Service		-22.74	13.13	1914.93	3317.28	-0.06
Wind 278 deg - Service		-24.32	0.00	-0.28	3611.35	1.80
Wind 308 deg - Service		-19.38	-11.19	-1677.17	2904.50	2.96
Wind 330 deg - Service		-11.31	-19.59	-2910.32	1600.15	3.48

Load Combinations

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

Comb. No.	Description
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 218 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 278 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 338 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 248 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 338 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 dc g - 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
T1	255 - 240	Leg	Max Tension	7	9.65	0.39	-0.35
			Max. Compression	2	-11.59	-0.00	-0.67
			Max. Mx	8	0.09	0.66	-0.87
			Max. My	14	9.19	-0.00	0.69
			Max. Vy	8	1.41	-0.15	-0.85
			Max. Vx	2	-1.42	0.01	0.18
		Diagonal	Max Tension	24	3.28	0.00	0.00
			Max. Compression	12	-3.00	0.00	0.00
			Max. Mx	6	-0.89	0.03	-0.00
			Max. My	12	-2.81	-0.00	0.01
			Max. Vy	36	-0.02	0.02	-0.00
			Max. Vx	12	0.00	-0.00	0.01
		Top Girt	Max Tension	15	0.45	0.09	0.00
			Max. Compression	2	-0.55	0.00	0.00
			Max. Mx	26	-0.02	-0.04	0.00
			Max. My	10	0.09	0.00	-0.80
			Max. Vy	26	-0.03	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	10	0.69	0.08	0.08
T2	240 - 220	Leg	Max Tension	7	65.53	0.86	-8.04
			Max. Compression	2	-71.67	0.03	1.12
			Max. Mx	8	34.75	-2.29	0.28
			Max. My	14	39.82	-0.01	-2.41
			Max. Vy	28	-4.18	1.21	0.42
			Max. Vx	14	4.79	-0.02	-1.46
		Diagonal	Max Tension	24	18.74	0.86	0.80
			Max. Compression	24	-11.30	8.08	0.80
			Max. Mx	5	-3.94	-0.86	0.80
			Max. My	18	-18.24	-0.03	0.81
			Max. Vy	27	-8.82	0.04	0.08
			Max. Vx	10	-0.08	8.00	0.81
T3	220 - 200	Leg	Max Tension	7	135.00	0.08	-0.01
			Max. Compression	2	-145.55	2.52	-0.02
			Max. Mx	18	-99.21	3.68	-0.01
			Max. My	8	-4.73	0.08	2.41
			Max. Vy	18	-0.98	3.68	-0.01
			Max. Vx	16	0.89	0.82	-1.44
		Diagonal	Max Tension	12	8.39	0.00	0.08
			Max. Compression	12	-8.79	0.00	0.08
			Max. Mx	5	-4.48	-0.06	-0.00
			Max. My	24	-8.72	-0.04	-0.02
			Max. Vy	27	-0.03	0.03	0.81
			Max. Vx	24	0.00	0.08	0.80
T4	200 - 180	Leg	Max Tension	7	190.67	-3.30	-0.00
			Max. Compression	2	-205.12	-4.34	-0.82
			Max. Mx	2	-285.12	-4.34	-0.02
			Max. My	8	-6.16	-0.05	2.43
			Max. Vy	2	1.26	3.59	-0.01
			Max. Vx	4	-0.47	0.86	-1.17
		Diagonal	Max Tension	12	8.98	0.00	0.00
			Max. Compression	12	-9.87	0.08	0.08
			Max. Mx	4	3.76	8.10	-0.00
			Max. My	24	-8.99	-0.06	-0.03
			Max. Vy	27	-0.04	0.05	-0.00
			Max. Vx	24	8.01	0.00	0.00
T5	180 - 160	Leg	Max Tension	7	231.73	-5.17	-0.01
			Max. Compression	2	-248.96	11.15	-0.05
			Max. Mx	2	-225.08	16.49	-0.06
			Max. My	8	-8.93	-0.29	11.53
			Max. Vy	18	-2.62	16.48	-0.02
			Max. Vx	8	-1.54	8.17	10.82
		Diagonal	Max Tension	12	9.30	0.00	0.00
			Max. Compression	12	-10.37	0.00	0.00
			Max. Mx	2	6.16	8.13	-0.88
			Max. My	31	0.29	0.07	0.01
			Max. Vy	31	-0.05	0.09	-0.81
			Max. Vx	31	-0.00	8.08	0.00
T6	160 - 140	Leg	Max Tension	7	279.82	-4.94	-0.81
			Max. Compression	2	-382.38	9.12	-0.13
			Max. Mx	2	-274.59	15.74	-0.04
			Max. My	8	-11.12	-0.35	11.60
			Max. Vy	18	-1.60	15.72	-0.01
			Max. Vx	8	-1.11	-0.35	11.68
		Diagonal	Max Tension	10	10.17	8.00	0.00
			Max. Compression	10	-10.35	0.00	0.00
			Max. Mx	6	7.29	0.14	0.00
			Max. My	24	-9.77	-0.06	-0.04
			Max. Vy	29	0.06	0.08	-0.01
			Max. Vx	24	0.01	0.00	0.08

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T7	140 - 120	Leg	Max Tension	7	386.88	4.69	-8.01
			Max. Compression	2	-330.64	21.68	-0.19
			Max. Mx	18	-329.78	21.62	-8.01
			Max. My	8	-12.64	0.19	12.88
			Max. Vy	19	-1.51	21.54	-0.01
			Max. Vx	16	-0.76	0.19	12.77
		Diagonal	Max Tension	23	15.88	0.88	0.88
			Max. Compression	10	-17.71	0.88	0.00
			Max. Mx	6	15.34	-0.27	-8.01
			Max. My	24	-15.75	0.86	8.87
			Max. Vy	29	-8.10	-0.25	-8.05
			Max. Vx	29	-0.81	0.08	0.00
T8	120 - 100	Leg	Max Tension	7	353.13	8.12	-0.01
			Max. Compression	2	-385.49	20.73	-0.20
			Max. Mx	18	-384.54	20.76	-8.01
			Max. My	8	-15.98	-0.16	11.13
			Max. Vy	18	-1.72	20.76	-8.81
			Max. Vx	10	-0.48	-10.58	10.35
		Diagonal	Max Tension	18	14.64	0.00	0.00
			Max. Compression	12	-15.66	0.00	0.00
			Max. Mx	29	1.53	-0.30	-0.05
			Max. My	30	0.83	-0.30	0.06
			Max. Vy	29	-0.12	-0.30	-0.05
			Max. Vx	38	0.01	0.80	0.00
T9	100 - 80	Leg	Max Tension	7	391.60	0.44	-0.01
			Max. Compression	2	-427.64	18.59	-8.16
			Max. Mx	18	-426.58	18.61	-0.08
			Max. My	8	-17.81	0.27	9.58
			Max. Vy	19	-1.20	10.54	-0.00
			Max. Vx	16	-0.63	0.27	9.49
		Diagonal	Max Tension	23	14.89	0.08	0.00
			Max. Compression	10	-16.54	0.00	0.00
			Max. Mx	29	1.06	-0.34	-0.06
			Max. My	29	1.27	-0.30	0.06
			Max. Vy	29	-0.13	-0.34	-8.86
			Max. Vx	32	-0.01	0.80	8.00
T10	80 - 60	Leg	Max Tension	7	433.04	4.19	-8.01
			Max. Compression	2	-475.79	17.41	-0.28
			Max. Mx	22	427.00	-17.56	-0.20
			Max. My	8	-21.21	-0.19	14.64
			Max. Vy	22	1.33	-17.56	-0.20
			Max. Vx	16	-0.76	-0.19	14.62
		Diagonal	Max Tension	12	14.69	0.00	0.00
			Max. Compression	12	-15.81	0.00	8.00
			Max. Mx	29	8.91	-0.40	0.06
			Max. My	27	-0.49	-0.40	8.07
			Max. Vy	29	-0.15	-0.40	-0.06
			Max. Vx	27	0.01	0.08	8.00
T11	60 - 40	Leg	Max Tension	7	468.16	-0.19	-0.00
			Max. Compression	2	-516.73	18.38	-0.14
			Max. Mx	18	-515.53	18.32	0.00
			Max. My	24	-20.82	-0.59	7.42
			Max. Vy	18	-1.15	18.32	0.00
			Max. Vx	4	-0.41	-0.57	-7.40
		Diagonal	Max Tension	23	15.88	0.08	0.08
			Max. Compression	10	-17.72	0.00	0.08
			Max. Mx	29	1.67	-0.56	-0.09
			Max. My	28	2.16	-0.53	0.09
			Max. Vy	29	-0.20	-0.56	-0.09
			Max. Vx	29	0.01	0.00	0.00
T12	40 - 20	Leg	Max Tension	7	507.51	0.94	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	2	-364.59	13.34	-8.13
			Max. Mx	22	409.37	-14.15	-0.15
			Max. My	4	-27.72	-0.78	-18.37
			Max. Vy	22	1.01	-14.15	-0.15
			Max. Vx	4	1.14	-0.78	-18.37
		Diagonal	Max Tension	10	16.22	8.00	8.00
			Max. Compression	12	-16.12	8.00	0.08
			Max. Mx	29	0.01	-0.68	0.10
			Max. My	22	-15.96	-8.24	0.10
			Max. Vy	29	-0.22	-0.68	0.18
			Max. Vx	29	0.01	0.00	0.00
T13	20 - 0	Leg	Max Tension	7	538.11	-1.20	-0.00
			Max. Compression	2	-601.50	9.22	-0.89
			Max. Mx	18	-600.13	9.23	-0.00
			Max. My	24	-27.51	-0.97	11.87
			Max. Vy	18	-0.63	9.23	-0.00
			Max. Vx	4	-0.72	-0.96	-11.84
		Diagonal	Max Tension	15	17.49	8.88	0.00
			Max. Compression	2	-19.68	0.08	0.88
			Max. Mx	30	2.47	-0.65	-0.10
			Max. My	31	1.95	-0.65	-0.10
			Max. Vy	30	-0.22	-0.65	-0.10
			Max. Vx	31	-0.01	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	623.75	53.37	-30.81
	Max. H_x	18	623.75	53.37	-30.81
	Max. H_z	7	-556.35	-48.32	27.89
	Min. Vert	7	-556.35	-48.32	27.89
	Min. H_x	7	-556.35	-48.32	27.89
	Min. H_z	18	623.75	53.37	-30.81
Leg B	Max. Vert	10	625.07	-53.27	-31.05
	Max. H_x	23	-555.37	48.19	28.08
	Max. H_z	23	-555.37	48.19	28.08
	Min. Vert	23	-555.37	48.19	28.08
	Min. H_x	10	625.87	-53.27	-31.05
	Min. H_z	10	625.07	-53.27	-31.85
Leg A	Max. Vert	2	625.07	0.25	61.65
	Max. H_x	21	23.76	3.51	1.65
	Max. H_z	2	625.07	0.25	61.65
	Min. Vert	15	-555.36	-0.22	-55.77
	Min. H_x	9	23.76	-3.49	1.65
	Min. H_z	15	-555.36	-0.22	-55.77

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	77.79	-0.00	0.80	-8.55	-14.66	-0.08
1.2 Dead+1.6 Wind 8 deg - No Ice	93.35	-8.08	-94.52	-13883.32	-17.88	11.37
0.9 Dead+1.6 Wind 0 deg - No Ice	70.01	-0.00	-94.52	-13862.83	-13.42	11.33
1.2 Dead+1.6 Wind 30 deg - No Ice	93.35	43.77	-75.81	-11341.59	-6562.28	7.28
0.9 Dead+1.6 Wind 30 deg - No Ice	78.01	43.77	-75.81	-11320.02	-6546.79	7.26
1.2 Dead+1.6 Wind 60 deg - No Ice	93.35	79.56	-45.94	-6791.33	-11762.60	0.16
0.9 Dead+1.6 Wind 60 deg - No Ice	70.01	79.56	-45.94	-6777.46	-11738.65	8.16
1.2 Dead+1.6 Wind 90 deg - No Ice	93.35	87.54	0.00	-12.59	-13103.13	-7.11
0.9 Dead+1.6 Wind 90 deg - No Ice	70.01	87.54	0.00	-9.91	-13076.73	-7.08
1.2 Dead+1.6 Wind 120 deg - No Ice	93.35	81.86	47.26	6928.42	-12036.49	-11.31
0.9 Dead+1.6 Wind 120 deg - No Ice	70.01	81.86	47.26	6919.68	-12012.22	-11.27
1.2 Dead+1.6 Wind 150 deg - No Ice	93.35	43.77	75.81	11322.84	-6558.79	-12.49
0.9 Dead+1.6 Wind 150 deg - No Ice	70.01	43.77	75.81	11306.42	-6543.41	-12.45
1.2 Dead+1.6 Wind 180 deg - No Ice	93.35	-8.00	91.87	13551.40	-17.88	-10.87
0.9 Dead+1.6 Wind 180 deg - No Ice	70.01	-0.00	91.87	13531.51	-13.41	-10.83
1.2 Dead+1.6 Wind 210 deg - No Ice	93.35	-43.77	75.81	11322.92	6523.87	-7.28
0.9 Dead+1.6 Wind 210 deg - No Ice	78.81	-43.77	75.81	11306.49	6516.63	-7.25
1.2 Dead+1.6 Wind 240 deg - No Ice	93.35	-81.86	47.26	6928.51	12008.87	-0.18
0.9 Dead+1.6 Wind 240 deg - No Ice	70.01	-81.86	47.26	6919.69	11985.53	-0.18
1.2 Dead+1.6 Wind 270 deg - No Ice	93.35	-87.54	0.00	-12.68	13067.59	7.11
0.9 Dead+1.6 Wind 270 deg - No Ice	70.01	-87.54	0.00	-9.91	13850.11	7.08
1.2 Dead+1.6 Wind 300 deg - No Ice	93.35	-79.56	-45.94	-6791.43	11727.01	10.84
0.9 Dead+1.6 Wind 300 deg - No Ice	70.01	-79.56	-45.94	-6777.56	11711.99	10.79
1.2 Dead+1.6 Wind 330 deg - No Ice	93.35	-43.77	-75.81	-11341.78	6526.60	12.49
0.9 Dead+1.6 Wind 330 deg - No Ice	78.01	-43.77	-75.81	-11320.12	6520.03	12.45
1.2 Dead+1.0 Ice+1.0 Temp	287.24	-0.00	0.00	-28.91	-72.23	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	287.24	-0.88	-10.40	-1594.50	-72.81	0.36
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	287.24	5.14	-8.91	-1371.78	-847.95	0.35
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	287.24	8.88	-5.13	-803.77	-1414.38	0.23
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	287.24	10.29	0.00	-29.21	-1623.08	8.06
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	287.24	9.08	5.20	753.44	-1428.39	-0.12
1.2 Dead+1.0 Wind 150	287.24	5.14	8.91	1313.37	-847.94	-0.27

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
dcg+1.8 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180 dcg+1.0 Ice+1.0 Temp	287.24	-0.08	10.25	1319.91	-72.81	-0.36
1.2 Dead+1.0 Wind 218 dcg+1.0 Ice+1.0 Temp	287.24	-5.14	8.91	1313.37	702.32	-0.35
1.2 Dead+1.8 Wind 240 dcg+1.8 Ice+1.0 Temp	287.24	-9.00	5.20	753.43	1282.77	-0.24
1.2 Dead+1.0 Wind 278 dcg+1.0 Ice+1.0 Temp	287.24	-10.29	0.08	-29.22	1477.46	-0.06
1.2 Dead+1.0 Wind 300 dcg+1.0 Ice+1.0 Temp	287.24	-8.88	-5.13	-803.77	1268.76	8.12
1.2 Dead+1.0 Wind 330 dcg+1.0 Ice+1.8 Temp	287.24	-5.14	-8.91	-1371.79	782.33	0.27
Dead+Wind 8 deg - Service	77.79	-8.80	-26.26	-3859.72	-14.80	3.15
Dead+Wind 30 deg - Service	77.79	12.16	-21.06	-3153.23	-1830.33	1.96
Dead+Wind 60 deg - Service	77.79	22.18	-12.76	-1890.30	-3273.90	8.04
Dead+Wind 90 deg - Service	77.79	24.32	0.00	-8.67	-3645.85	-1.91
Dead+Wind 120 deg - Service	77.79	22.74	13.13	1916.87	-3349.92	-3.13
Dead+Wind 150 deg - Service	77.79	12.16	21.06	3135.93	-1830.32	-3.52
Dead+Wind 180 deg - Service	77.79	-0.00	25.52	3754.64	-14.81	-3.81
Dead+Wind 218 deg - Service	77.79	-12.16	21.86	3135.93	1800.71	-1.96
Dead+Wind 248 deg - Service	77.79	-22.74	13.13	1916.87	3320.31	-0.05
Dead+Wind 270 deg - Service	77.79	-24.32	0.80	-8.68	3616.25	1.91
Dead+Wind 300 deg - Service	77.79	-22.10	-12.76	-1890.31	3244.30	3.00
Dead+Wind 330 deg - Service	77.79	-12.16	-21.06	-3153.24	1800.73	3.52

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-77.79	0.80	0.08	77.79	-8.00	8.001%
2	0.00	-93.35	-94.53	0.00	93.35	94.52	0.001%
3	0.08	-70.01	-94.53	0.08	70.01	94.52	0.001%
4	43.77	-93.35	-75.81	-43.77	93.35	75.81	0.001%
5	43.77	-70.01	-75.81	-43.77	70.81	75.81	0.001%
6	79.56	-93.35	-45.94	-79.56	93.35	45.94	8.081%
7	79.56	-70.01	-45.94	-79.56	70.01	45.94	0.081%
8	87.54	-93.35	0.08	-87.54	93.35	-0.00	0.001%
9	87.54	-70.81	0.00	-87.54	70.01	-0.00	0.001%
10	81.86	-93.35	47.26	-81.86	93.35	-47.26	0.001%
11	81.86	-70.01	47.26	-81.86	70.01	-47.26	0.001%
12	43.77	-93.35	75.81	-43.77	93.35	-75.81	0.001%
13	43.77	-70.01	75.81	-43.77	70.01	-75.81	0.001%
14	0.00	-93.35	91.87	0.00	93.35	-91.87	0.001%
15	0.08	-70.81	91.87	0.08	70.01	-91.87	0.001%
16	-43.77	-93.35	75.81	43.77	93.35	-75.81	0.001%
17	-43.77	-70.01	75.81	43.77	70.81	-75.81	0.001%
18	-81.86	-93.35	47.26	81.86	93.35	-47.26	0.001%
19	-81.86	-70.01	47.26	81.86	70.01	-47.26	0.001%
20	-87.54	-93.35	0.00	87.54	93.35	-0.00	0.081%
21	-87.54	-70.01	0.80	87.54	70.01	-0.00	0.001%
22	-79.56	-93.35	-45.94	79.56	93.35	45.94	0.001%
23	-79.56	-70.01	-45.94	79.56	70.81	45.94	0.001%
24	-43.77	-93.35	-75.81	43.77	93.35	75.81	0.001%
25	-43.77	-70.81	-75.81	43.77	70.01	75.81	0.081%
26	0.00	-287.24	8.80	0.00	287.24	-0.00	8.000%
27	0.00	-287.24	-10.40	0.00	287.24	10.40	0.800%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
28	5.15	-287.24	-8.91	-5.14	287.24	8.91	0.888%
29	8.88	-287.24	-5.13	-8.88	287.24	5.13	0.800%
30	10.29	-287.24	0.08	-10.29	287.24	-0.80	8.088%
31	9.88	-287.24	5.20	-9.00	287.24	-5.20	0.800%
32	5.15	-287.24	8.91	-5.14	287.24	-8.91	0.888%
33	0.00	-287.24	10.25	0.80	287.24	-10.25	0.880%
34	-5.35	-287.24	8.91	5.14	287.24	-8.91	8.800%
35	-9.08	-287.24	5.28	9.08	287.24	-5.20	0.000%
36	-10.29	-287.24	8.00	10.29	287.24	-0.88	0.800%
37	-8.88	-287.24	-5.13	8.88	287.24	5.13	0.800%
38	-5.15	-287.24	-8.91	5.14	287.24	8.91	0.000%
39	0.00	-77.79	-26.26	0.00	77.79	26.26	8.000%
40	12.16	-77.79	-21.86	-12.16	77.79	21.06	0.800%
41	22.10	-77.79	-12.76	-22.10	77.79	12.76	0.000%
42	24.32	-77.79	0.00	-24.32	77.79	-0.00	0.000%
43	22.74	-77.79	13.13	-22.74	77.79	-13.13	0.000%
44	12.16	-77.79	21.06	-12.16	77.79	-21.06	0.800%
45	8.00	-77.79	25.52	8.00	77.79	-25.52	0.800%
46	-12.16	-77.79	21.06	12.16	77.79	-21.06	8.000%
47	-22.74	-77.79	13.13	22.74	77.79	-13.13	8.000%
48	-24.32	-77.79	8.00	24.32	77.79	-0.00	0.000%
49	-22.18	-77.79	-12.76	22.10	77.79	12.76	0.800%
50	-12.16	-77.79	-21.06	12.16	77.79	21.06	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	8.08008001	0.08812273
2	Yes	13	8.88008001	0.08005936
3	Yes	13	8.80008001	0.00005353
4	Yes	13	8.00008001	8.88006495
5	Yes	13	8.80000001	0.88005886
6	Yes	13	8.08008801	0.08006910
7	Yes	13	8.88088001	0.08006282
8	Yes	13	8.80000001	0.00006497
9	Yes	13	8.00000083	8.00005887
10	Yes	13	8.08000001	0.08005935
11	Yes	13	8.00000001	0.08805353
12	Yes	13	8.00000001	0.00006490
13	Yes	13	8.00008001	8.00005882
14	Yes	13	8.00008001	0.88006908
15	Yes	13	8.00000001	0.00006288
16	Yes	13	8.00000001	0.00006494
17	Yes	13	8.00000801	0.00005885
18	Yes	13	8.00000001	0.08005935
19	Yes	13	8.00088001	0.00005352
20	Yes	13	8.00008001	0.00006497
21	Yes	13	8.00000001	0.00005887
22	Yes	13	8.00000001	0.00006909
23	Yes	13	8.00000001	0.00006281
24	Yes	13	8.80000001	0.00006491
25	Yes	13	8.00080001	8.80005882
26	Yes	9	8.00008081	0.80012047
27	Yes	13	8.80000001	0.00006338
28	Yes	13	0.00000001	0.00006631

29	Yes	13	0.00008001	0.80006726
30	Yes	13	0.08008001	0.80006639
31	Yes	13	0.08000001	0.00006554
32	Yes	13	8.00000801	0.00006411
33	Yes	13	8.80080001	0.00006384
34	Yes	13	0.00000081	0.00006170
35	Yes	13	8.88008001	8.88006136
36	Yes	13	0.08000001	0.00006159
37	Yes	13	0.00000001	0.00006316
38	Yes	13	8.00000801	0.08006391
39	Yes	13	8.00000001	0.00005776
40	Yes	13	0.00000001	0.00005938
41	Yes	13	0.00808001	0.00006029
42	Yes	13	0.00000001	8.80005937
43	Yes	13	0.00000001	0.00005773
44	Yes	13	0.00980001	0.08005932
45	Yes	13	8.00000001	0.00006034
46	Yes	13	0.00008001	0.08005932
47	Yes	13	8.08800001	0.00085771
48	Yes	13	8.00800001	0.80005934
49	Yes	13	0.00000001	0.00006036
50	Yes	13	0.00000801	0.00005935

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	255 - 240	13.240	39	0.5332	0.0145
T2	240 - 220	11.571	39	0.5249	0.0127
T3	220 - 200	9.306	39	0.4716	0.0094
T4	200 - 180	7.315	39	0.3971	0.0068
T5	180 - 160	5.572	39	0.3233	0.0054
T6	168 - 148	4.325	39	0.2713	0.0044
T7	140 - 120	3.183	39	0.2145	0.0034
T8	120 - 100	2.247	39	0.1721	0.0026
T9	100 - 80	1.516	39	0.1377	0.0020
T10	80 - 60	0.946	39	0.1030	0.0014
T11	60 - 40	0.520	39	0.0748	0.0009
T12	48 - 20	0.238	39	0.0465	0.0006
T13	20 - 0	0.060	39	0.0229	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
255.00	Beacon	39	13.240	0.5332	0.0145	90188
250.00	ATC Loading	39	12.688	0.5323	0.0139	90180
240.00	ATC Loading	39	11.571	0.5249	0.0127	36446
230.00	ATC Loading	39	10.429	0.5034	0.0111	62106
220.00	ATC Loading	39	9.306	0.4716	0.0094	16089

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	255 - 240	47.579	2	1.9148	0.0524
T2	240 - 220	41.588	2	1.8855	0.0460
T3	220 - 200	33.453	2	1.6948	0.0342
T4	208 - 180	26.295	2	1.4274	0.0245
T5	180 - 160	20.678	2	1.1622	0.0194
T6	160 - 140	15.549	2	0.9753	0.0155
T7	140 - 120	11.445	2	0.7707	0.0120
T8	120 - 100	8.083	2	0.6186	0.0092
T9	100 - 80	5.451	2	0.4952	0.0070
T10	80 - 60	3.403	2	0.3704	0.0050
T11	60 - 40	1.871	2	0.2688	0.0032
T12	40 - 20	0.854	2	0.1678	0.0021
T13	20 - 0	0.217	2	0.0823	0.0010

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
255.00	Beacon	2	47.579	1.9140	0.0524	25329
250.00	ATC Loading	2	45.598	1.9114	0.0505	25329
240.00	ATC Loading	2	41.588	1.8855	0.0460	10251
230.00	ATC Loading	2	37.488	1.8087	0.8403	17652
220.00	ATC Loading	2	33.453	1.6948	0.0342	4469

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable		Allowable Ratio	Criteria
T1	255	Leg	A325N	0.7500	4	2.41	29.82	0.081	✓	1	Bolt Tension
		Diagonal	A325N	0.7500	1	3.28	18.44	0.314	✓	1	Member Bearing
		Top Girt	A325N	0.7500	1	0.45	10.77	0.041	✓	1	Member Bearing
T2	240	Leg	A325N	0.7500	6	10.92	29.82	0.366	✓	1	Bolt Tension
		Diagonal	A325N	0.7500	1	10.74	14.36	0.748	✓	1	Gusset Bearing
T3	220	Leg	A325N	0.7500	8	16.87	29.82	0.566	✓	1	Bolt Tension
		Diagonal	A325N	0.7500	1	8.79	15.66	0.561	✓	1	Member Bearing
T4	200	Leg	A325N	1.0000	6	31.70	53.01	0.599	✓	1	Bolt Tension
		Diagonal	A325N	0.7500	1	9.07	15.66	0.579	✓	1	Member Bearing
T5	160	Leg	A325N	1.0008	6	38.62	53.01	0.729	✓	1	Bolt Tension
		Diagonal	A325N	1.0008	1	9.30	15.83	0.588	✓	1	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T6	160	Leg	A325N	1.0000	6	46.64	53.01	0.880 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	10.17	15.83	0.642 ✓	1	Member Bearing
T7	140	Leg	A325N	1.0000	12	25.57	53.01	0.482 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	15.80	31.32	0.504 ✓	1	Member Bearing
T8	120	Leg	A325N	1.0000	12	29.59	53.01	0.558 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	14.64	31.32	0.468 ✓	1	Member Bearing
T9	100	Leg	A325N	1.0000	12	32.63	53.01	0.616 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	14.89	31.32	0.475 ✓	1	Member Bearing
T10	80	Leg	A325N	1.0000	12	36.09	53.01	0.681 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	14.69	31.32	0.469 ✓	1	Member Bearing
T11	60	Leg	A325N	1.0000	12	39.01	53.01	0.736 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	15.88	41.76	0.378 ✓	1	Member Bearing
T12	40	Leg	A325N	1.0000	12	42.29	53.81	0.798 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	16.22	41.76	0.388 ✓	1	Member Bearing
T13	20	Leg	F1554-10 5	1.0080	12	44.84	55.22	0.812 ✓	1	Bolt Tension
		Diagonal	A325N	0.8750	1	17.49	41.76	0.419 ✓	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	255 - 240	P- 2.50" - 0.75" conn.-15' -C-(Pirod 226169)	15.08	4.86	61.6 K=1.00	1.7048	-11.99	58.12	0.206 [1] ✓
T2	240 - 228	P- 4.00"- 0.75" conn.-20' -C-Trans-6B-4B-(Pirod 226184)	20.00	6.53	51.9 K=1.00	3.1741	-71.67	117.31	0.611 [1] ✓
T3	220 - 200	P- 5.00"- 0.75" conn.-Trans-20' -C-(Pirod 226200)	20.03	6.68	42.7 K=1.00	4.2999	-145.55	169.37	0.859 [1] ✓
T4	200 - 188	P- 6.00"- 0.75" conn.-HBD-Trans-20' -C-(Pirod 229377)	20.03	6.68	35.7 K=1.00	5.5813	-285.12	228.83	0.896 [1] ✓
T5	180 - 168	#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pirod 229588)	28.03	10.02	38.4 K=1.00	7.2158	-248.96	303.46	0.820 [1] ✓
T6	160 - 140	#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pirod 229588)	20.03	10.02	38.4 K=1.00	7.2158	-302.38	303.46	0.996 [1] ✓
T7	140 - 120	#12ZG -2.00" - 0.875" conn.-HBD-Trans (Pirod	20.03	20.03	48.8 K=1.00	9.4248	-330.64	356.29	0.928 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
		208332)							
T8	120 - 100	#12ZG -2.25" - 0.875" conn. (Pirod 208334)	20.03	20.03	48.8 K=1.00	11.9282	-385.49	451.15	0.854 [1] ✓
T9	100 - 80	#12ZG -2.25" - 0.875" conn. (Pirod 208334)	20.03	20.03	48.8 K=1.80	11.9282	-427.61	451.15	0.948 [1] ✓
T10	80 - 60	#12ZG - 2.50" - 0.875" conn. (Pirod 208335)	20.03	20.03	48.7 K=1.00	14.7262	-475.79	557.27	0.854 [1] ✓
T11	60 - 40	#12ZG - 2.50" - 0.875" conn. (Pirod 208335)	20.03	20.03	48.7 K=1.80	14.7262	-516.73	557.27	0.927 [1] ✓
T12	40 - 20	#12ZG - 2.75" - 0.875" conn. (Pirod 208337)	20.03	20.03	48.6 K=1.00	17.8187	-564.59	674.68	0.837 [1] ✓
T13	20 - 0	#12ZG - 2.75" - 0.875" conn. (Pirod 208337)	20.03	20.03	48.6 K=1.00	17.8187	-601.50	674.68	0.892 [1] ✓

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	KL/r	ϕP_n K	A in²	V_u K	ϕV_n K	Stress Ratio
T5	180 - 160	L5	1.40	94.1	324.71	0.1963	2.62	4.63	0.567 ✓
T6	160 - 140	L5	1.40	94.1	324.71	0.1963	1.68	4.63	0.346 ✓
T7	140 - 120	L5	1.39	93.2	424.12	0.1963	1.51	4.67	0.324 ✓
T8	120 - 100	L5	1.38	92.4	536.77	0.1963	1.72	4.71	0.365 ✓
T9	100 - 80	L5	1.38	92.4	536.77	0.1963	1.20	4.71	0.255 ✓
T10	80 - 60	L5	1.36	91.6	662.68	0.1963	1.35	4.75	0.286 ✓
T11	60 - 40	L5	1.36	91.6	662.68	0.1963	1.15	4.75	0.243 ✓
T12	40 - 20	L5	1.35	72.6	881.84	0.3068	1.19	8.74	0.149 ✓
T13	20 - 0	L5	1.35	72.6	881.84	0.3068	0.71	8.74	0.095 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	255 - 240	L2x2x1/8	5.80	2.71	91.4 K=1.12	0.4844	-3.00	9.92	0.302 [1] ✓
T2	240 - 220	L2x2x3/16	7.06	3.34	106.3	0.7150	-11.30	12.78	0.884 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
					K=1.04				✓
T3	220 - 200	L2x2x3/16	8.11	4.07	123.9 K=1.00	0.7158	-8.43	10.32	0.817 [1] ✓
T4	200 - 180	L2 1/2x2 1/2x3/16	9.60	4.80	117.2 K=1.01	0.9020	-9.07	14.17	0.640 [1] ✓
T5	180 - 160	L3x3x3/16	12.65	6.43	129.5 K=1.00	1.0900	-10.37	14.54	0.713 [1] ✓
T6	160 - 140	L3x3x3/16	14.10	7.14	143.8 K=1.00	1.0900	-10.23	11.92	0.859 [1] ✓
T7	140 - 120	2L3x3x3/16	22.66	11.95	132.8 K=1.80	2.1800	-17.71	21.10	0.839 [1] ✓
T8	120 - 100	2L3x3x3/16	23.79	12.45	159.1 K=1.00	2.1800	-15.66	19.45	0.805 [1] ✓
T9	100 - 80	2L3x3x3/16	25.03	13.02	166.4 K=1.00	2.1800	-16.54	17.79	0.930 [1] ✓
T10	80 - 60	2L3x3x3/16	26.36	13.65	174.4 K=1.00	2.1800	-15.81	16.18	0.977 [1] ✓
T11	60 - 40	2L3 1/2x3 1/2x1/4	27.77	14.33	157.5 K=1.00	3.3750	-17.72	30.72	0.577 [1] ✓
T12	40 - 20	2L3 1/2x3 1/2x1/4	29.25	15.04	165.4 K=1.00	3.3750	-16.12	27.86	0.579 [1] ✓
T13	20 - 0	2L3 1/2x3 1/2x1/4	30.78	15.80	173.7 K=1.00	3.3750	-19.68	25.27	0.779 [1] ✓

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	255 - 240	L2x2x3/16	5.00	4.47	136.1 K=1.80	0.7150	-0.55	8.72	0.063 [1] ✓

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	255 - 240	P- 2.50" - 0.75" conn.-15' -C-(Pirod 226169)	15.80	4.86	61.6	1.7040	9.65	76.68	8.126 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	240 - 220	P- 4.00"- 0.75" conn.-20' -C-Trans-6B-4B-(Pirod 226184)	20.00	6.53	51.9	3.1741	65.53	142.83	0.459 [1] ✓
T3	220 - 200	P- 5.00"- 0.75" conn.-Trans-20' -C-(Pirod 226200)	20.03	6.68	42.7	4.2999	135.00	193.49	0.698 [1] ✓
T4	200 - 180	P- 6.00"- 0.75" conn.-HBD-Trans-20' -C-(Pirod 229377)	20.03	6.68	35.7	5.5813	190.67	251.16	0.759 [1] ✓
T5	180 - 160	#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pirod 229588)	20.03	10.02	30.4	7.2158	231.73	324.71	0.714 [1] ✓
T6	160 - 140	#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pirod 229588)	20.03	10.02	30.4	7.2158	279.82	324.71	0.862 [1] ✓
T7	140 - 128	#12ZG -2.00" - 0.875" conn.-HBD-Trans (Pirod 208332)	28.03	20.83	48.8	9.4248	306.80	424.12	0.723 [1] ✓
T8	120 - 100	#12ZG -2.25" - 0.875" conn. (Pirod 208334)	20.03	20.03	48.8	11.9282	355.13	536.77	0.662 [1] ✓
T9	100 - 80	#12ZG -2.25" - 0.875" conn. (Pirod 208334)	20.03	20.03	48.8	11.9282	391.60	536.77	0.730 [1] ✓
T10	80 - 60	#12ZG - 2.50" - 0.875" conn. (Pirod 208335)	20.03	20.03	48.7	14.7262	433.04	662.68	0.653 [1] ✓
T11	60 - 40	#12ZG - 2.50" - 0.875" conn. (Pirod 208335)	28.03	20.03	48.7	14.7262	468.16	662.68	0.706 [1] ✓
T12	40 - 20	#12ZG - 2.75" - 0.875" conn. (Pirod 208337)	20.03	20.03	48.6	17.8187	507.51	801.84	0.633 [1] ✓
T13	20 - 0	#12ZG - 2.75" - 0.875" conn. (Pirod 208337)	28.03	20.03	48.6	17.8187	538.11	801.84	0.671 [1] ✓

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	KL/r	ϕP_n K	A in²	V_u K	ϕV_n K	Stress Ratio
T5	180 - 168	L5	1.40	94.1	324.71	0.1963	2.62	4.63	0.567 ✓
T6	168 - 140	L5	1.40	94.1	324.71	0.1963	1.60	4.63	0.346 ✓
T7	140 - 120	L5	1.39	93.2	424.12	0.1963	1.51	4.67	0.324 ✓
T8	128 - 100	L5	1.38	92.4	536.77	0.1963	1.72	4.71	0.365 ✓
T9	100 - 80	L5	1.30	92.4	536.77	0.1963	1.28	4.71	0.255 ✓
T10	80 - 60	L5	1.36	91.6	662.68	0.1963	1.35	4.75	0.286 ✓
T11	60 - 40	L5	1.36	91.6	662.68	0.1963	1.15	4.75	0.243 ✓
T12	48 - 20	L5	1.35	72.6	881.84	0.3068	1.19	8.74	0.149 ✓

Section No.	Elevation ft	Diagonal Size	L_d ft	KL/r	ϕP_n K	A in²	V_u K	ϕV_n K	Stress Ratio
T13	20 - 0	0.625	1.35	72.6	801.84	0.3068	0.71	8.74	0.095 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	255 - 240	L2x2x1/8	5.80	2.71	55.5	0.2813	3.28	12.23	0.268 [1] ✓
T2	240 - 220	L2x2x3/16	7.06	3.34	68.6	0.4132	10.74	17.97	0.598 [1] ✓
T3	220 - 200	L2x2x3/16	7.66	3.85	78.6	0.4132	8.39	17.97	0.467 [1] ✓
T4	200 - 180	L2 1/2x2 1/2x3/16	9.60	4.80	76.9	0.5535	8.98	24.08	0.373 [1] ✓
T5	180 - 160	L3x3x3/16	12.65	6.43	84.7	0.6593	9.30	28.68	0.324 [1] ✓
T6	160 - 140	L3x3x3/16	14.10	7.14	93.7	0.6593	10.17	28.68	0.354 [1] ✓
T7	140 - 120	2L3x3x3/16	22.66	11.95	155.2	1.3537	15.80	58.89	0.268 [1] ✓
T8	120 - 100	2L3x3x3/16	23.79	12.45	161.5	1.3537	14.64	58.89	0.249 [1] ✓
T9	100 - 80	2L3x3x3/16	25.03	13.02	168.8	1.3537	14.89	58.89	0.253 [1] ✓
T10	80 - 60	2L3x3x3/16	26.36	13.65	176.8	1.3537	14.69	58.89	0.249 [1] ✓
T11	60 - 40	2L3 1/2x3 1/2x1/4	27.77	14.33	159.6	2.1563	15.80	93.80	0.168 [1] ✓
T12	40 - 20	2L3 1/2x3 1/2x1/4	29.25	15.04	167.5	2.1563	16.22	93.80	0.173 [1] ✓
T13	20 - 0	2L3 1/2x3 1/2x1/4	30.78	15.80	175.8	2.1563	17.49	93.80	0.186 [1] ✓

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	255 - 240	L2x2x3/16	5.00	4.47	92.6	0.4132	0.45	17.97	0.025 [1] ✓

Program Version 6.0.0.8 - 9/7/2011 File://plystrfile01/FileRoom/Documents/240/240826 ATC, #281318 Jake Horsley, KY V29 x 255'/02 Tower Calcs/240826.eri

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	255 - 240	Leg	P- 2.50" - 0.75" conn.-15' -C-(Pired 226169)	3	-11.99	58.12	20.6	Pass
T2	240 - 220	Leg	P- 4.08"- 0.75" conn.-20' -C-Trans-6B-4B-(Pired 226184)	27	-71.67	117.31	61.1	Pass
T3	220 - 200	Leg	P- 5.00"- 0.75" conn.-Trans-20' -C-(Pired 226200)	48	-145.55	169.37	85.9	Pass
T4	200 - 180	Leg	P- 6.00"- 0.75" conn.-HBD-Trans-20' -C-(Pired 229377)	69	-205.12	228.83	89.6	Pass
T5	180 - 160	Leg	#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pired 229588)	90	-248.96	303.46	82.0	Pass
T6	160 - 140	Leg	#12ZG -1.75" - 1.00" conn.-HBD-Trans (Pired 229588)	105	-302.38	303.46	99.6	Pass
T7	140 - 120	Leg	#12ZG -2.00" - 0.875" conn.-HBD-Trans (Pired 208332)	120	-330.64	356.29	92.8	Pass
T8	120 -100	Leg	#12ZG -2.25" - 0.875" conn. (Pired 208334)	129	-385.49	451.15	85.4	Pass
T9	100 - 80	Leg	#12ZG -2.25" - 0.875" conn. (Pired 208334)	138	-427.61	451.15	94.8	Pass
T10	80 - 60	Leg	#12ZG - 2.50" - 0.875" conn. (Pired 208335)	147	-473.79	557.27	85.4	Pass
T11	60 - 40	Leg	#12ZG - 2.50" - 0.875" conn. (Pired 208335)	156	-516.73	557.27	92.7	Pass
T12	40 - 20	Leg	#12ZG - 2.75" - 0.875" conn. (Pired 208337)	165	-564.59	674.68	83.7	Pass
T13	20 - 0	Leg	#12ZG - 2.75" - 0.875" conn. (Pired 208337)	174	-601.50	674.68	89.2	Pass
T1	255 - 240	Diagonal	L2x2x1/8	9	-3.00	9.92	30.2 31.4 (b)	Pass
T2	240 - 220	Diagonal	L2x2x3/16	31	-11.30	12.78	88.4	Pass
T3	220 - 200	Diagonal	L2x2x3/16	51	-8.43	10.32	81.7	Pass
T4	200 - 180	Diagonal	L2 1/2x2 1/2x3/16	72	-9.07	14.17	64.0	Pass
T5	180 - 160	Diagonal	L3x3x3/16	93	-10.37	14.54	71.3	Pass
T6	160 - 140	Diagonal	L3x3x3/16	109	-10.23	11.92	85.9	Pass
T7	140 - 120	Diagonal	2L3x3x3/16	123	-17.71	21.10	83.9	Pass
T8	120 - 100	Diagonal	2L3x3x3/16	132	-15.66	19.45	80.5	Pass
T9	100 - 80	Diagonal	2L3x3x3/16	141	-16.54	17.79	93.0	Pass
T10	80 - 60	Diagonal	2L3x3x3/16	150	-15.81	16.18	97.7	Pass
T11	60 - 40	Diagonal	2L3 1/2x3 1/2x1/4	159	-17.72	30.72	57.7	Pass
T12	40 - 20	Diagonal	2L3 1/2x3 1/2x1/4	168	-16.12	27.86	57.9	Pass
T13	20 - 0	Diagonal	2L3 1/2x3 1/2x1/4	178	-19.68	25.27	77.9	Pass
T1	255 - 240	Top Girt	L2x2x3/16	4	-0.55	8.72	6.3	Pass
							Summary	
							Leg (T6) 99.6	Pass
							Diagonal (T10) 97.7	Pass
							Top Girt (T1) 6.3	Pass
							Bolt Checks 88.0	Pass
							RATING = 99.6	Pass

JAK0

DRILLED PIER FOUNDATION SUMMARY

American Tower Corp.
#281318 Jake Horsley, KY

V- 27.0 255 v 0.0
A- 240826

Pier Dimensions		
Pier diameter, d_i:	3.50	ft
Depth, D:	24.5	ft
Ext. above grade, E:	0.50	ft
Bell diameter, b_d:	none	ft
Volume, V_o:	8.91	CY (per leg)

Reinforcement Design			
Rebar	m_c:	20	verticals
	size, s_c:	9	equally spaced in 3' cage
Ties	size, s_t:	4	w/ overlaps
	spacing:	17.29	" OC

Anchor Bolts		
P/N:	123653	72" long, 1" diameter

Soil Information Per:
FStan, Dated:11/25/13 (Project#13-8633)

Site Parameters		
Ultimate Bearing, B_c:	40.000	ksf
Ultimate Pp:	6.786	kcf
Ult. Skin Friction, SF:	2.714	ksf
Seismic Zone:	1	
Depth neglected, N:	3.50	ft
Neglect bottom, N_b:	none	ft

Additional Notes:

* No foundation modifications listed.
* See attached "Foundation Notes" for further information.

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	3000	psi
Conc. Density, δ:	150.0	pcf
Clear cover, cc:	3.00	in

Backfill Compaction		
Lift thickness:	8	in
Compaction:	98	%
Standard Proctor:	ASTM	D698

Tower design conforms to the following:

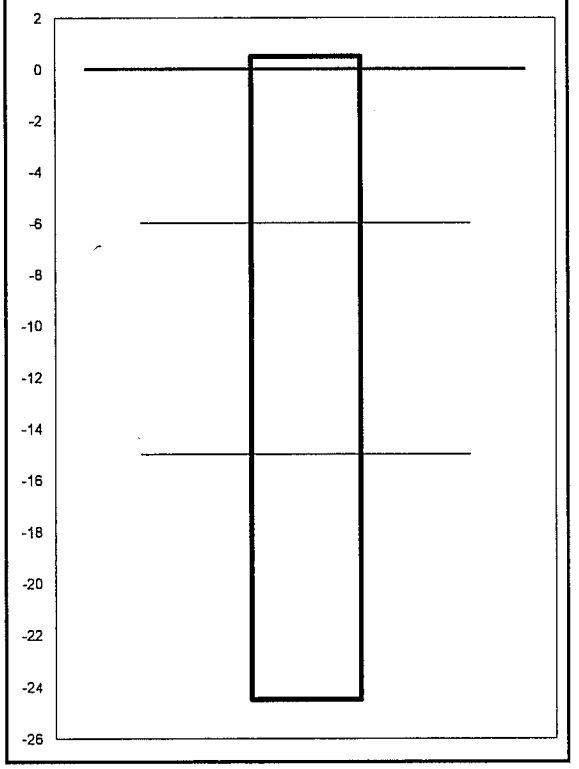
* *1997 Uniform Building Code (UBC)*
* *2000 & 2003 International Building Code (IBC)*
* *ANSI TIA-222-G*
* *Building Code Requirements for Reinforced Concrete (ACI 318-05)*

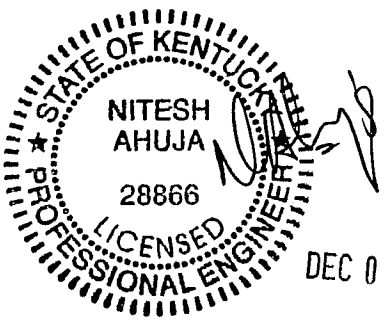
Foundation Loading

Load Case 1			
Load Case 2	stress ratio: 99.6%		mark up: 0.4%
Shear/Leg, S:	62.00 kips	x 1.004 =	62.25 kips
Moment/Leg, M:	0.00 ft-kips	x 1.004 =	0.00 ft-kips
Compression/Leg, C:	625.00 kips	x 1.004 =	627.50 kips
Uplift/Leg, U:	556.00 kips	x 1.004 =	558.22 kips
Load Case 3			
Load Case 4			
Load Case 5			

View of Foundation

(not to scale)





DEC 0 4 2013

FOUNDATION NOTES

1. THE ON-SITE GEOTECHNICAL ENGINEER SHALL CONFIRM THAT THE INSITU SOIL STRENGTHS MEET OR EXCEED THOSE PARAMETERS GIVEN IN THE SOIL REPORT.
2. A TEMPORARY, FULL LENGTH STEEL CASING MAY BE REQUIRED DURING INSTALLATION.
3. DRILLING SLURRY AND TREMIE METHODS OF CONCRETE PLACEMENT MAY BE REQUIRED DURING INSTALLATION.
4. DIFFICULT DRILLING AND/OR ROCK CORING IS TO BE EXPECTED BELOW A DEPTH OF 15 FT. THE DRILLING CONTRACTOR SHOULD BE PREPARED TO REMOVE ROCK AND/OR ROCK CORES FROM THE EXCAVATION.
5. THE CAISSON MUST PENETRATE A MINIMUM OF 9.5' INTO THE HARD AND HIGHLY WEATHERED SHALE BEDROCK LAYER.

DRILLED PIER FOUNDATION

American Tower Corp.
#281318 Jake Horsley, KY

V- 27.0 255 V 0.0
A- 240826

Design Summary		
Pier diameter:	3.50	ft
Design depth:	24.5	ft
Concrete volume:	8.91	cu.yd. each

Use #4 circular ties.
Min. concrete compressive strength to be 3000 psi.
Use anchor bolt p/n 123653

Maximum Loading			
Max. Uplift, U_{max}:	558.22	kips/leg	per LC 2
Max. Comp., C_{max}:	627.50	kips/leg	per LC 2
Max. Shear, S_{max}:	62.25	kips/leg	

Soil per: FStan, Dated:11/25/13 (Project#13-8633)

Ultimate bearing: 40.000 ksf
Ultimate S F (uplift): 2.714 ksf
Ultimate S F (comp.): 2.714 ksf

Uplift Resistance:

Skin friction by: Given

Layer #	From (ft)	To (ft)	Cont. layer length (ft)	Pier diameter (ft)	Cohesion (ksf)	Phi (deg)	Unit weight of soil (pcf)	Overburden pressure (ksf)	Average overburden pressure (ksf)	Factored skin friction (ksf)	Factored friction force (kips)	Concrete unit weight (pcf)	Factored concrete weight (kips)	Uplift Rasist. (kips)
1	0.00	3.50	3.50	3.50	1.000	0.000	120.0	0.420	0.210	0.000	0.00	150.0	3.79	3.79
2	3.50	6.00	2.50	3.50	1.000	0.000	120.0	0.720	0.570	0.300	8.25	150.0	2.71	10.95
3	6.00	15.00	9.00	3.50	5.000	0.000	130.0	1.890	1.305	1.500	148.44	150.0	9.74	158.18
4	15.00	24.50	9.50	3.50	10.000	0.000	135.0	3.173	2.531	3.750	391.72	150.0	10.28	402.00
	Lateral pressure coefficient =			0.7						UPLIFT CAPACITY =		574.92 kips		OK

Weighted Average Skin Friction (ultimate) = 2.714 ksf

Compression Resistance:

Layer #	From (ft)	To (ft)	Cont. layer length (ft)	Diameter (ft)	Factored skin friction (ksf)	Friction force (kips)	Factored bearing capacity (ksf)	Factored tip capacity (kips)	
1	0.00	3.50	3.50	3.50	0.000	0.00	-	-	
2	3.50	6.00	2.50	3.50	0.300	8.25	-	-	
3	6.00	15.00	9.00	3.50	1.500	148.44	-	-	
4	15.00	24.50	9.50	3.50	3.750	391.72	-	-	
Tip	at 24.5 ft		-	3.50	-	-	30.000	288.63	46.0%
				Total friction capacity =		548.40 kips		2.714 ksf	
				COMPRESSION CAPACITY =		837.04 kips		OK	

Reinforcement Design:

Concrete Clear Covar (in) = 3.00

# of bars	Bar size #	Area per ber (sq.in.)	Clear spacing (in.)	Bar area (sq.in.)	Steel required (sq.in.)	Ultimate Lateral Resist. (kcf) *	Minimum length (ft) **
20	9	1.00	4.53	20.00	6.93	6.786	5.80

* see Passive (attached)
* see Broms method (attached)
*** see Maximum Factored Moment of a Circular Section (attached).

Minimum area of steel is OK
Minimum pier length is OK
Rebar spacing is OK

Moment Check:

	Load Case 1 (ft-k)	Load Case 2 (ft-k)	Load Case 3 (ft-k)	Load Case 4 (ft-k)	Load Case 5 (ft-k)
Induced **	89.42	260.32	26.53	89.42	89.42
φ Capacity ***	0.00	337.50	0.00	0.00	0.00
	OK	OK	OK	OK	OK

Equivalent Weighted Average Cohesion

Layer	From (ft)	To (ft)	Layer Length (ft)	Neglect?	Cohesion (ksf)	Weighted Cohesion (ksf)
1	0.00	3.50	0.00	y	1.000	0.00
2	3.50	6.00	2.50	n	1.000	2.50
3	6.00	15.00	9.00	n	5.000	45.00
4	15.00	24.50	9.50	n	10.000	95.00
5	24.50	24.50	0.00	n	10.000	0.00
6	24.50	24.50	0.00	n	10.000	0.00
7	24.50	24.50	0.00	n	10.000	0.00
8	24.50	24.50	0.00	n	10.000	0.00
9	24.50	24.50	0.00	n	10.000	0.00
10	24.50	24.50	0.00	n	10.000	0.00
Bell	24.50	24.50	0.00	n	10.000	0.00
		Total =	21.00		Total =	142.50

Weighted Average Equivalent Cohesion =	6.79	(ksf)

Broms Method for Laterally Loaded Caissons ,Piles,or Piers in Clay

(Reference "Drilled Shafts: Construction Procedures and Design Methods", ADSC No. ADSC-TL-4, August 1988

revised for LRFD

Diameter of pier, di:	**3.50**	ft
Extension above grade, E:	**0.50**	ft
Neglect at ground surface, N:	**3.50**	ft
Ultimate Passive Pressure, P_p:	**6.786**	kcf
Reduction Factor, φ:	**0.75**	
Nominal Passive Pressure (P_p*φ), P_{pa}:	5.089	kcf
# of pier dia. P_p acts over, N_d:	**3.00**	

	S/leg (kips)	M/leg (k-ft)
LC1	22.00	0
LC2	62.25	0
LC3	6.60	0
LC4	22.00	0
LC5	22.00	0

Depth to Max. M, F (ft) $F = S / ((N_d / 3) * 9 * P_p * d_i)$

LC1	LC2	LC3	LC4	LC5
0.10	0.29	0.03	0.10	0.10

Solved Brom's Equation for G_a (ft) $G_a = \sqrt{((S * (E + N + F / 2) + M) / ((N_d / 3) * 2.25 * P_{pa} * d_i))}$

LC1	LC2	LC3	LC4	LC5
1.49	1.51	1.48	1.49	1.49

Minimum length of pier, L (ft) $L = E + N + F + G_a$

LC1	LC2	LC3	LC4	LC5
5.59	5.80	5.52	5.59	5.59

Minimum length req'd, **L**: **5.80** ft

Max induced moment, M_u (k-ft) $M_u = S * (E + N + F) + M - (N_d / 3 * 9 * P_{pa} * d_i * F^2 / 2)$

LC1	LC2	LC3	LC4	LC5
89.42	260.32	26.53	89.42	89.42

THIS SPREADSHEET IS SET UP FOR A MAXIMUM OF 56 BARS.
MAXIMUM FACTORED MOMENT OF A CIRCULAR SECTION

Loading (negative for compression)		
Axial load =	558.22	kips

Foundation		
Concrete		
Pier diameter =	3.50	ft
Pier area =	1385.4	in^2
Reinforcement		
Clear cover =	3.00	in
Cage diameter =	2.91	ft
Bar size =	9	
Bar diameter =	1.128	in
Bar area =	0.999	in^2
Number of bars =	20	

Material Strengths		
Concrete compressive strength =	3000	psi
Reinforcement yield strength =	60000	psi
Modulus of elasticity =	29000	ksi
Reinforcement yield strain =	0.00207	(per ACI 10.3.5 - N/A)
Limiting compressive strain =	0.003	

Seismic	
Seismic Zone =	1
Are hooks required?	no

Minimum Area of Steel

Required area of steel =	6.93	in^2	
Actual area of steel =	19.99	in^2	OK
Bar spacing =	4.53	in	

Axial Loading

Load factor =	1.00	
Reduction factor =	0.65575	(per ACI 9.3.1 & 2)
Factored axial load =	851.28	kips

Neutral Axis

Distance from extreme edge to neutral axis =	4.27	in	
Equivalent compression zone factor =	0.85		(per ACI 10.2.7.3)
Distance from extreme edge to Equivalent compression zone factor =	3.63	in	
Distance from centroid to neutral axis =	16.73	in	

Compression Zone

Area of steel in compression zone =	1.00	in^2	
Angle from centroid of pier to intersection of equivalent compression zone and edge of pier =	34.21	deg	
Area of concrete in compression =	57.27	in^2	
Force in concrete = 0.85 * f'c * Acc =	146.03	kips	(per ACI 10.3.6.2)
Total reinforcement forces =	-997.31	kips	
Factored axial load =	851.28	kips	
Force in concrete =	-146.03	kips	
Sum of the forces in concrete =	0.00	kips	OK

Maximum Moment

First moment of the concrete area in compression about the centoid =			1097.24	in^3
Distance between centroid of concrete in compression and centroid of pier =			19.16	in
Moment of concrete in compression =	2797.95	in-kips		
Total reinforcement moment =	3378.16	in-kips		
Nominal moment strength of column =	6176.11	in-kips		
Factored moment strength of column =	4049.97	in-kips	337.50	ft-kips

Maximum allowable moment of the pier =	337.50	ft-kips

Individual Bars

Bar #	Angle from first bar (deg)	Distance to centroid (in)	Distance to neutral axis (in)	Distance to equivalent comp. zone (in)	Strain	Area of steel in compression (in^2)	Axial force (kips)	Moment (in-kips)
1	0.00	0.00	-16.73	-17.37	-0.01174	0.00	-59.96	0.00
2	18.00	5.39	-11.34	-11.98	-0.00796	0.00	-59.96	-323.06
3	36.00	10.25	-6.48	-7.12	-0.00455	0.00	-59.96	-614.50
4	54.00	14.11	-2.62	-3.26	-0.00184	0.00	-53.28	-751.54
5	72.00	16.58	-0.14	-0.78	-0.0001	0.00	-2.91	-48.18
6	90.00	17.44	0.71	0.07	0.0005	1.00	14.45	251.98
7	108.00	16.58	-0.14	-0.78	-0.0001	0.00	-2.91	-48.18
8	126.00	14.11	-2.62	-3.26	-0.00184	0.00	-53.28	-751.54
9	144.00	10.25	-6.48	-7.12	-0.00455	0.00	-59.96	-614.50
10	162.00	5.39	-11.34	-11.98	-0.00796	0.00	-59.96	-323.06
11	180.00	0.00	-16.73	-17.37	-0.01174	0.00	-59.96	0.00
12	198.00	-5.39	-22.11	-22.75	-0.01552	0.00	-59.96	323.06
13	216.00	-10.25	-26.97	-27.62	-0.01893	0.00	-59.96	614.50
14	234.00	-14.11	-30.83	-31.47	-0.02164	0.00	-59.96	845.79
15	252.00	-16.58	-33.31	-33.95	-0.02338	0.00	-59.96	994.29
16	270.00	-17.44	-34.16	-34.80	-0.02398	0.00	-59.96	1045.46
17	288.00	-16.58	-33.31	-33.95	-0.02338	0.00	-59.96	994.29
18	306.00	-14.11	-30.83	-31.47	-0.02164	0.00	-59.96	845.79
19	324.00	-10.25	-26.97	-27.62	-0.01893	0.00	-59.96	614.50
20	342.00	-5.39	-22.11	-22.75	-0.01552	0.00	-59.96	323.06

DEVELOPMENT LENGTH CHECK OF PIER REINFORCEMENT

Foundation:	Pier diameter =	3.5	ft	Cover between side of pier and cage =	3.00	in.
	Cage diameter =	3	ft	Cover between top of pier and cage =	3.00	in.
	Rebar size =	9		Compressive strength of concrete =	3000	psi
	Number of bars =	20		Rebar yield strength =	60000	psi
	Clear spacing =	4.53	in.			
	Are there hooks?	n				
	Check Compression?	n				
Anchor Steel:	Part number:	123653				
	Embedment length =	63.5	in.			
	Bolt Diameter =	1"				
Anchor Plate:	Part number:	212008				
	Plate width =	21.375	in.			
	Required development length (compression) =	999.00	in.			
	Required development length (tension) =	48.19	in.			
	Available development length =	53.188	in.			

OK

The length available in the pier for the development of the vertical reinforcement exceeds the required length (ACI 318-02, section 12.2).

CHECK EMBEDMENT PLATE CLEARANCE IN THE PIER

Foundation:	Pier diameter =	3.5	ft	Cover between side of pier and cage =	3.00	in.
	Cage diameter =	3	ft	Minimum cover between A/S and cage =	3.00	in.
Anchor Steel:	Part number:	123653		Angle of anchor steel in foundation =	3.3	degrees
	Embedment length =	63.5	in.			
Anchor Plate:	Part number:	212008				
	Largest plate width =	21.38	in.			
	Bolt Diameter =	1	in.			
	Minimum cage diameter =	34.65	in.			
	Actual cage diameter =	36	in.			

OK

The available space exceeds the minimum cage diameter required for anchor steel installed in the pier at an angle.

FOUNDATION NOTES

1. THE ON-SITE GEOTECHNICAL ENGINEER SHALL CONFIRM THAT THE INSITU SOIL STRENGTHS MEET OR EXCEED THOSE PARAMETERS GIVEN IN THE SOIL REPORT.
2. A TEMPORARY, FULL LENGTH STEEL CASING MAY BE REQUIRED DURING INSTALLATION.
3. DRILLING SLURRY AND TREMIE METHODS OF CONCRETE PLACEMENT MAY BE REQUIRED DURING INSTALLATION.
4. DIFFICULT DRILLING AND/OR ROCK CORING IS TO BE EXPECTED BELOW A DEPTH OF 15 FT. THE DRILLING CONTRACTOR SHOULD BE PREPARED TO REMOVE ROCK AND/OR ROCK CORES FROM THE EXCAVATION.
5. THE CAISSON MUST PENETRATE A MINIMUM OF 9.5' INTO THE HARD AND HIGHLY WEATHERED SHALE BEDROCK LAYER.

Equivalent Weighted Average Cohesion

Layer	From (ft)	To (ft)	Layer Length (ft)	Neglect?	Cohesion (ksf)	Weighted Cohesion (ksf)
1	0.00	3.50	0.00	y	1.000	0.00
2	3.50	6.00	2.50	n	1.000	2.50
3	6.00	15.00	9.00	n	5.000	45.00
4	15.00	24.50	9.50	n	10.000	95.00
5	24.50	24.50	0.00	n	10.000	0.00
6	24.50	24.50	0.00	n	10.000	0.00
7	24.50	24.50	0.00	n	10.000	0.00
8	24.50	24.50	0.00	n	10.000	0.00
9	24.50	24.50	0.00	n	10.000	0.00
10	24.50	24.50	0.00	n	10.000	0.00
Bell	24.50	24.50	0.00	n	10.000	0.00
		Total =	21.00		Total =	142.50

Weighted Average Equivalent Cohesion =	6.79	(ksf)

THIS SPREADSHEET IS SET UP FOR A MAXIMUM OF 56 BARS.
MAXIMUM FACTORED MOMENT OF A CIRCULAR SECTION

Loading (negative for compression)		
Axial load =	558.22	kips

Foundation		
Concrete		
Pier diameter =	3.50	ft
Pier area =	1385.4	in^2
Reinforcement		
Clear cover =	3.00	in
Cage diameter =	2.91	ft
Bar size =	9	
Bar diameter =	1.128	in
Bar area =	0.999	in^2
Number of bars =	20	

Material Strengths		
Concrete compressive strength =	3000	psi
Reinforcement yield strength =	60000	psi
Modulus of elasticity =	29000	ksi
Reinforcement yield strain =	0.00207	(per ACI 10.3.5 - N/A)
Limiting compressive strain =	0.003	

Seismic	
Seismic Zone =	1
Are hooks required?	no

Minimum Area of Steel

Required area of steel =	6.93	in^2	
Actual area of steel =	19.99	in^2	OK
Bar spacing =	4.53	in	

Axial Loading

Load factor =	1.00	
Reduction factor =	0.65575	(per ACI 9.3.1 & 2)
Factored axial load =	851.28	kips

Neutral Axis

Distance from extreme edge to neutral axis =	4.27	in	
Equivalent compression zone factor =	0.85		(per ACI 10.2.7.3)
Distance from extreme edge to Equivalent compression zone factor =	3.63	in	
Distance from centroid to neutral axis =	16.73	in	

Compression Zone

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Sum of the forces in concrete =	0.00	kips	OK

Maximum Moment

First moment of the concrete area in compression about the centoid =			1097.24	in^3
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Factored moment strength of column =	4049.97	in-kips	337.50	ft-kips

Maximum allowable moment of the pier =	**337.50**	**ft-kips**

DEVELOPMENT LENGTH CHECK OF PIER REINFORCEMENT

Foundation:	Pier diameter =	3.5	ft	Cover between side of pier and cage =	3.00	in.
	Cage diameter =	3	ft	Cover between top of pier and cage =	3.00	in.
	Rebar size =	9		Compressive strength of concrete =	3000	psi
	Number of bars =	20		Rebar yield strength =	60000	psi
	Clear spacing =	4.53	in.			
	Are there hooks?	n				
	Check Compression?	n				
Anchor Steel:	Part number:	123653				
	Embedment length =	63.5	in.			
	Bolt Diameter =	1"				
Anchor Plate:	Part number:	212008				
	Plate width =	21.375	in.			
	Required development length (compression) =	999.00	in.			
	Required development length (tension) =	48.19	in.			
	Available development length =	53.188	in.			

OK

The length available in the pier for the development of the vertical reinforcement exceeds the required length (ACI 318-02, section 12.2).

CHECK EMBEDMENT PLATE CLEARANCE IN THE PIER

Foundation:	Pier diameter =	3.5	ft	Cover between side of pier and cage =	3.00	in.
	Cage diameter =	3	ft	Minimum cover between A/S and cage =	3.00	in.
Anchor Steel:	Part number:	123653		Angle of anchor steel in foundation =	3.3	degrees
	Embedment length =	63.5	in.			
Anchor Plate:	Part number:	212008				
	Largest plate width =	21.38	in.			
	Bolt Diameter =	1	in.			
	Minimum cage diameter =	34.65	in.			
	Actual cage diameter =	36	in.			

OK

The available space exceeds the minimum cage diameter required for anchor steel installed in the pier at an angle.

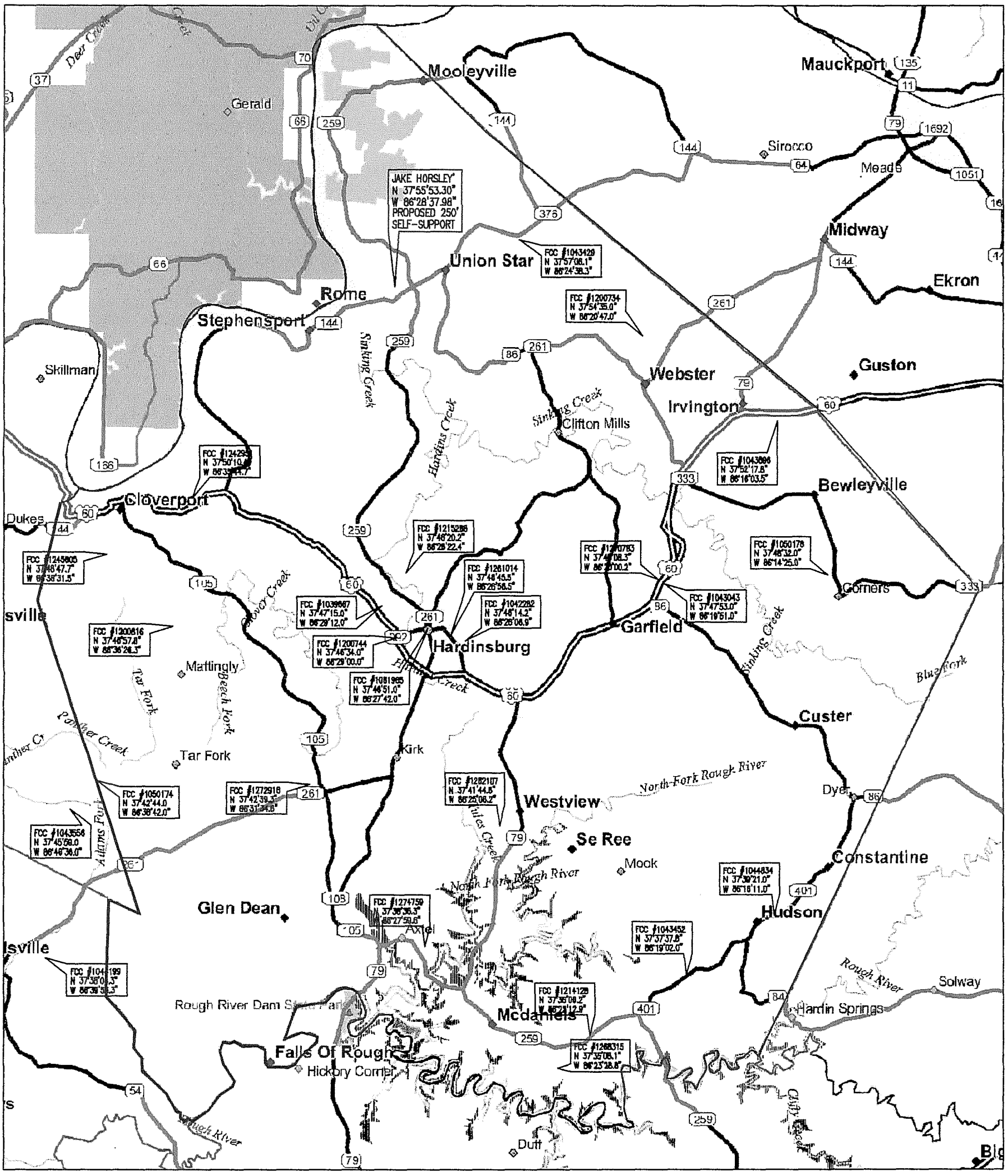
EXHIBIT D
COMPETING UTILITIES, CORPORATIONS, OR PERSONS LIST AND MAP OF LIKE FACILITIES IN VICINITY

BRECKINRIDGE COUNTY, KENTUCKY

AT&T SITE NAME: JAKE HORSLEY

TOWER LOCATION EXHIBIT

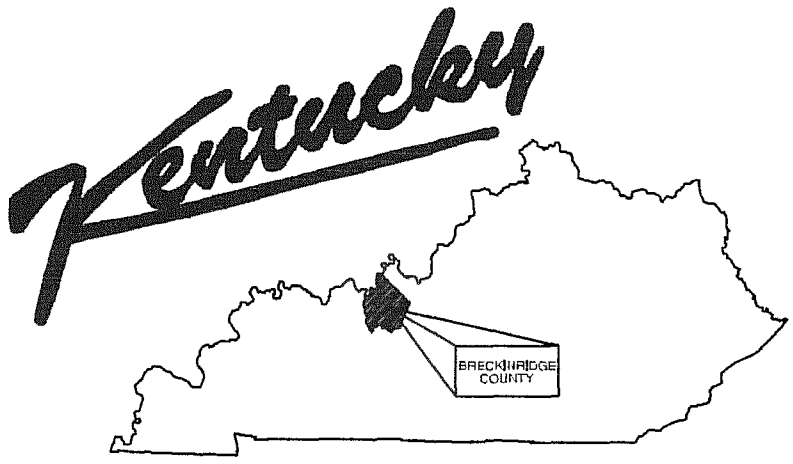
TOWERS DEPICTED ARE ALL KNOWN CONSTRUCTED TOWER SITES REGISTERED WITH THE FEDERAL COMMUNICATIONS COMMISSION IN BRECKINRIDGE COUNTY, KENTUCKY



7.5 MINUTE U.S.G.S. QUADRANGLE MAP (NOT TO SCALE)

OCTOBER 30, 2013
FSTAN PROJECT NO. 13-8710

Registration #	Status	File #	Owner Name
1039667	Constructed	A0333592	Texas Gas Transmission, LLC
1042282	Constructed	A0194905	BRECKINRIDGE BROADCASTING CO INC
1043043	Constructed	A0656614	KENTUCKY RSA 3 CELLULAR GENERAL PARTNERSHIP DBA = BLUEGRASS CELLULAR
1043429	Constructed	A0796256	New Cingular Wireless PCS, LLC
1043452	Constructed	A0859223	Global Tower, LLC
1043896	Constructed	A0640139	Skytower Communications-94.3, LLC
1044834	Constructed	A0547374	KENTUCKY, COMMONWEALTH OF DBA = KY EMERGENCY WARNING SYSTEM KEWS
1050174	Constructed	A0514371	TELAVA WIRELESS INC
1050176	Constructed	A0523720	Telava Wireless, Inc.
1061965	Constructed	A0072475	BRECKINRIDGE, COUNTY OF



FStan
F.S. Land Company
T. Alan Neal Company
Land Surveyors and Consulting Engineers
P.O. Box 17546 2313/2315 Crittenden Drive, Louisville, KY. 40217
Phone: (502) 635-5866 (502) 636-5111 Fax: (502) 636-5263

License Search

Search Results

Specified Search

State = **Kentucky**
County = **BRECKINRIDGE**
Radio Service = **CL, CW**
Status = **Active**

Matches 1 - 11 (of 11)

PA = Pending Application(s)
TP = Termination Pending
L = Lease

	Call Sign/Lease ID	Name	FRN	Radio Service	Status	Expiration Date
1 PA	KNKN748	NEW CINGULAR WIRELESS PCS, LLC	0003291192	CL	Active	10/01/2021
2	KNKN867	Kentucky RSA #3 Cellular General Partnership	0001786706	CL	Active	10/01/2020
3	KNLF252	WIRELESSCO, L.P.	0002316545	CW	Active	06/23/2015
4	KNLG209	Powertel Memphis Licenses, Inc.	0001832807	CW	Active	04/28/2017
5	KNLG923	NEW CINGULAR WIRELESS PCS, LLC	0003291192	CW	Active	08/21/2017
6	KNLH397	Powertel Memphis Licenses, Inc.	0001832807	CW	Active	04/28/2017
7	WPOI255	NEW CINGULAR WIRELESS PCS, LLC	0003291192	CW	Active	06/23/2015
8	WPZV471	Bluegrass Wireless LLC	0010698868	CW	Active	06/23/2015
9	WQCS429	Cellco Partnership	0003290673	CW	Active	05/13/2015
10	WQCX684	T-Mobile License LLC	0001565449	CW	Active	06/20/2015
11 PA	WQDI528	Cricket License Company, LLC	0018402123	CW	Active	09/06/2015

Call Sign/Lease ID	Name	FRN	Radio Service	Status	Expiration Date

EXHIBIT E
CO-LOCATION REPORT

10/29/13

Kentucky Public Service Commission
P.O. Box 615
211 Sower Boulevard
Frankfort, Kentucky 40602-0615

RE: Alternate Site Analysis Report
Uniform Application for a Communications Facility
Applicant: AT&T Mobility
Site Location: 218 Williams Lane, Stephensport, KY 40170
Site Name: Jake Horsley

Dear Commissioners:

This report is provided to explain the site development process used by the Applicant to identify the site selected for the new wireless communications facility proposed in the accompanying Application.

AT&T Mobility Site Development Process

Step 1: Problem Identification. AT&T Mobility radio frequency engineers first identified a growing coverage and/or capacity gap in an area of Breckinridge County near Stephensport, Kentucky.

Step 2: Search Ring. To help guide the site development team's task of identifying a suitable location for a new wireless communications facility site, AT&T Mobility's radio frequency engineers identified the geographic area where the antenna site must be located in order to close the gap and issued a map (called a Search Ring) that identified the general area in which a new site must be located. In this instance, the search ring has a 0.3 mile search radius from the search ring center coordinates (37.931583 N, -86.47908 W). A copy of the Search Ring for this site is attached as Exhibit A. The area contains large rural residential/farmland parcels with large variations in elevation (see attached Exhibit B).

Step 3: Co-location Review. The site development team first reviewed the area within the Search Ring for a suitable tall structure for co-location. In this case, there are no existing FCC-registered structures within the search ring, and there are no other existing structures within the search ring that are suitable to support AT&T Mobility's proposed antennas.

Step 4: Review of the Area's Zoning Classification. Once the site development team determined that there are no available existing tall structures which are technically feasible and suitable for co-location, the team next reviewed local zoning requirements to identify parcels located within the search area that might be suitable from a land use perspective to host an antenna site. In this case, the selected site is located in an unincorporated portion of Breckinridge County, and there is no applicable zoning district.

Step 5: Preliminary Inspection and Assessment of Suitable Parcels. Once suitably zoned parcels are identified, the site development team visits the parcels and performs a preliminary inspection. The purpose of the preliminary inspection is: (1) to confirm the availability of sufficient land space for the proposed facility; (2) to identify a specific location for the facility on the parcel; (3) to identify any recognized environmental conditions that would disqualify the parcel from consideration; (4) to identify any construction issues that would disqualify the candidate; and, (5) to assess the potential impact of the facility on neighboring properties. In this case, the properties within the search ring have large elevation changes throughout the area. Locations providing higher elevations (to support the radio frequency service objective), ready access to public roads and utilities, and accommodating separation distance from homes in the area were identified for further evaluation.

Step 6: Candidate Evaluation and Selection. After the preliminary site assessments were performed, the site development team ranked the candidates based on the availability of ground space, topography, applicable environmental conditions, construction feasibility and the potential impact of the facility on neighboring properties. In this case, 4 candidates were identified as potential site locations (see Exhibit B). Of these, the landowner for Candidate A was not interested in leasing ground space for the tower. Candidates B and C were eliminated by AT&T Mobility's Radio Frequency Engineer because they would not adequately meet the service objective for the site. Candidate D (Parcel ID Numbers 54-1N and 54-1F-4) was chosen by the Radio Frequency Engineer as the location that best meets the radio frequency service objective for the site.

Step 7: Leasing and Due Diligence. Once a suitable candidate was selected, lease negotiations were commenced and site due diligence steps were performed, as described below.

Leasehold Due Diligence:

- A Title Report was obtained and reviewed to ensure that there are no limitations on the landowner's capacity to lease and to address any title issues.
- A site survey was obtained to identify the location of parcel features, boundaries, easements and other encumbrances revealed by the title search.

Engineering Due Diligence:

- Utility access identified.
- Grounding plan designed.
- Geotechnical soil analysis performed to determine foundation requirements.
- Foundations designed to meet the Kentucky Building Code lateral and subjacent support requirements.
- Site plan developed.

Environmental Due Diligence:

A Phase I Environmental Site Assessment ("ESA") investigation was performed to establish the pre-existing types and amounts of contamination at a site, and to establish that the leaseholder is innocent of liability for the costs of performing environmental cleanup work that might arise from pollution or contamination of the site caused by a third party.

In addition to performing a Phase 1 ESA, the site was also evaluated for potential impacts under the National Environmental Policy Act (NEPA), submitted to the State Historic Preservation Office for review of potential impacts to historic structures or districts, and submitted to the registered Tribal Historic Preservation Office so that registered Native American nations had the opportunity to review potential impacts on native religious, ceremonial, or cultural resources.

Federal Regulatory Approvals

- Federal Aviation Administration ("FAA") compliance.
- Federal Communication Commission ("FCC") compliance.

Step 8: Application. Once a lease is obtained and all site due diligence is completed, AT&T Mobility prepared and filed the accompanying uniform application to construct, maintain and operate a communications facility.

Conclusion

Applicant's site identification and selection process aims to identify the least intrusive of all the technically feasible parcels in a service need area. In this case, the property meets the radio frequency site design objective, is constructible and provides appropriate separation from homes in the area.

Sincerely,

Brian K Ramirez

Brian Ramirez
Site Acquisition Agent
PBM Wireless Services
13714 Smokey Ridge Overlook
Carmel, Indiana 46033
(317) 225-6075

Exhibit A

Aerial Map

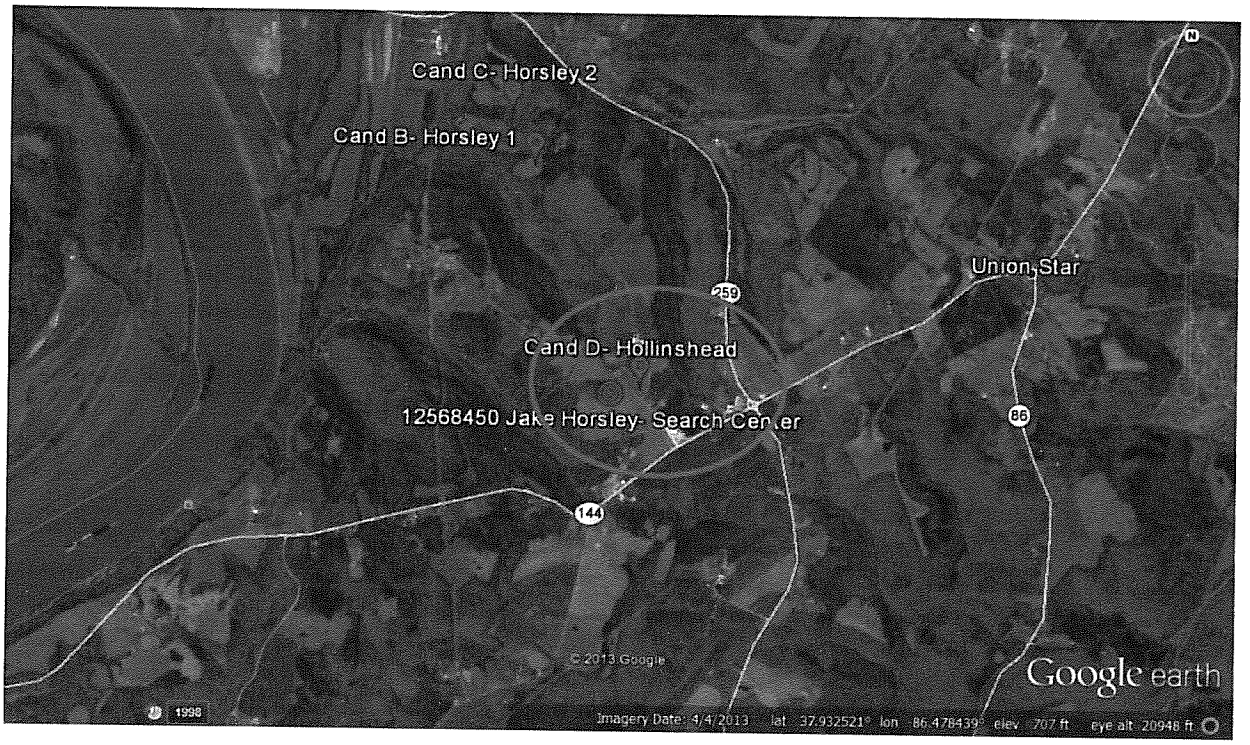
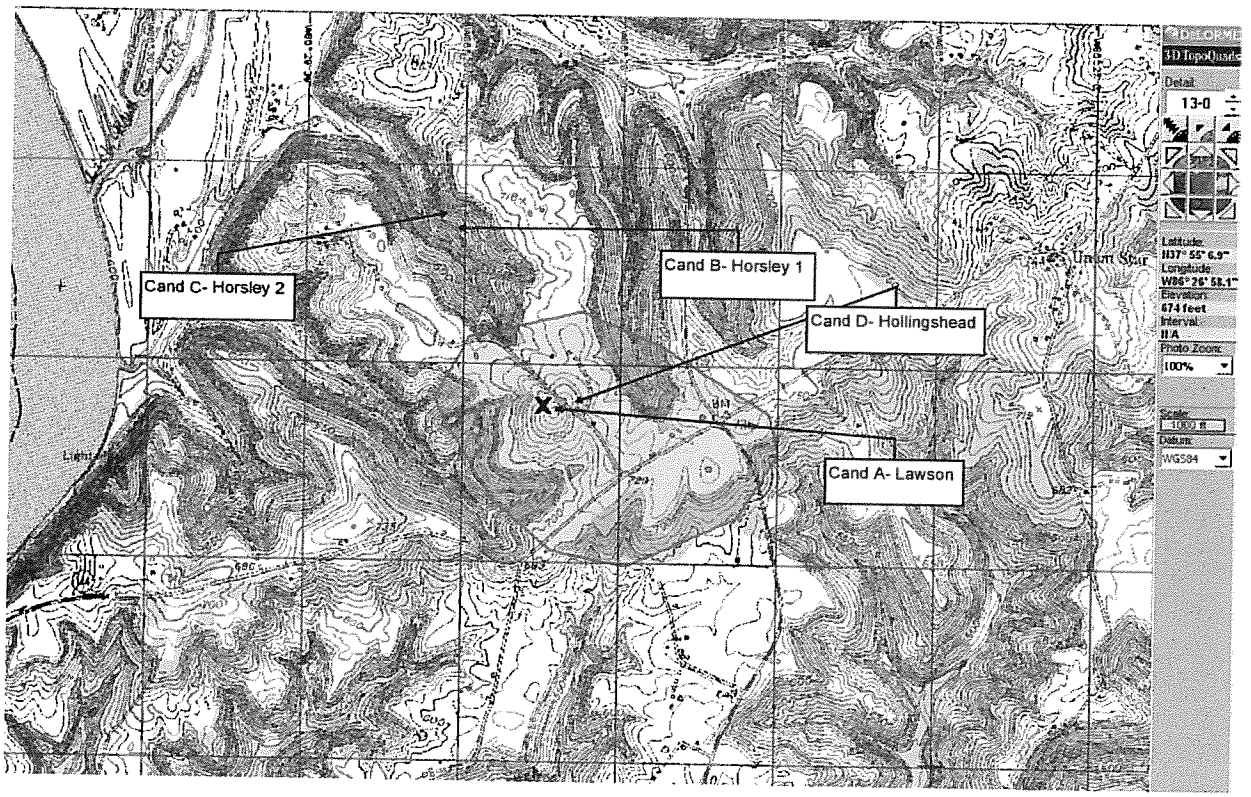


EXHIBIT B

Topographical Map



Jake Horsley: 37.931583 -86.47908

EXHIBIT F
FAA

Federal Aviation Administration

« OE/AAA

Obstruction Evaluation Version 2013.3.2

Home
FAA OE/AAA Offices
View Determined Cases
View Interim Cases
View Proposed Cases
View Supplemental Notices (Form 7460-2)
View Circularized Cases
Search Archives
Download Archives
Circle Search for Cases
Circle Search for Airports
General FAQs
Wind Turbine FAQs
Discretionary Review FAQs
Notice Criteria Tool
DoD Preliminary Screening Tool
Wind Turbine Build Out
Distance Calculation Tool

OE/AAA Account

Portal Page
My Cases (Off Airport)
My Cases (On Airport)
My Sponsors
My Circ Comments
Add New Case (Off Airport)
Add New Case (On Airport)
Add Supplemental Notice (7460-2 Form)
My Case Transfer History
Update User Account
What's New
Change Password
Logout

Information Resources

FAA Acronyms
Forms
Regulatory Policy
Relevant Advisory Circulars
Survey Accuracy
Light Outage Reporting
Useful Links
State Aviation Contacts
On Airport Contacts
Off Airport Contacts

Notice of Proposed Construction or Alteration - Off Airport

faa.gov Tools: Print this page

Project Name: AMERI-000261674-14 **Sponsor:** American Towers, LLC

Details for Case : JAKE HORSLEY KY (281318)

Show Project Summary

Case Status

ASN:	2014-ASO-168-OE	**Date Accepted:**	01/08/2014
Status:	Accepted	**Date Determined:**	
		Letters:	None
		Documents:	01/08/2014 281318_TOC_101413...
Public Comments:	None		
			Project Documents: None

Construction / Alteration Information

Notice Of:	Construction
Duration:	Permanent
if Temporary :	Months: Days:
Work Schedule - Start:	
Work Schedule - End:	

For temporary cranes-Does the permanent structure require separate notice to the FAA? To find out, use the Notice Criteria Tool. If separate notice is required, please ensure it is filed. If it is not filed, please state the reason in the Description of Proposal.

State Filing:

Structure Summary

Structure Type:	Antenna Tower
Structure Name:	JAKE HORSLEY KY (281318)
NOTAM Number:	
FCC Number:	
Prior ASN:	

Structure Details

Latitude:	37° 55' 53.15" N
Longitude:	86° 28' 37.73" W
Horizontal Datum:	NAD83
Site Elevation (SE):	747 (nearest foot)
Structure Height (AGL):	265 (nearest foot)
Current Height (AGL): ** For notice of alteration or existing provide the current AGL height of the existing structure. Include details in the Description of Proposal*	(nearest foot)
Nacelle Height (AGL): ** For Wind Turbines 500ft AGL or greater*	(nearest foot)
Requested Marking/Lighting:	Dual-red and medium intensity
Other :	
Recommended Marking/Lighting:	
Current Marking/Lighting:	N/A Proposed Structure
Other :	
Nearest City:	STEPHENSPORT
Nearest State:	Kentucky
Description of Location: *On the Project Summary page upload any certified survey.*	Please see attached survey
Description of Proposal:	Proposed height increase to proposed tower. Supercedes ASN 2014-ASO-128-OE.

Common Frequency Bands

Low Freq	High Freq	Freq Unit	ERP	ERP Unit
698	806	MHz	1000	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1850	1910	MHz	1640	W
1930	1990	MHz	1640	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W

Specific Frequencies

Close

ATC

1A Letter

Date: October 14, 2013 (Rev2 11-06-13)
FSTAN Project No: 13-8576

Site Name: **JAKE HORSLEY**
Site ID: **156458**

For Aeronautical Study No.

Location:	City	Stephensport, KY.
	County	Breckinridge
U.S.G.S. Quadrangle:		Lodiburg, KY.
(NAD 27)	LATITUDE	37° 55' 52.92"
	LONGITUDE	86° 28' 37.81"
(NAD 83)	LATITUDE	37° 55' 53.15"
	LONGITUDE	86° 28' 37.73"

SITE ELEVATION (NAVD 88) 747' ± AMSL

I Certify, to the best of my knowledge and belief, that the horizontal and vertical datum as established from the referenced U.S.G.S. Quadrangle, is accurate to 1A Reporting requirements of ± 20 feet horizontally and ± 3 vertically.

The horizontal datum (coordinates) are in terms of the North American Datum of 1927 (NAD 27) and 1983 (NAD 83) and expressed as degrees, minutes and seconds.

The vertical datum (heights) are in terms of the National Geodetic Vertical Datum of 1988 and are determined to the nearest foot.

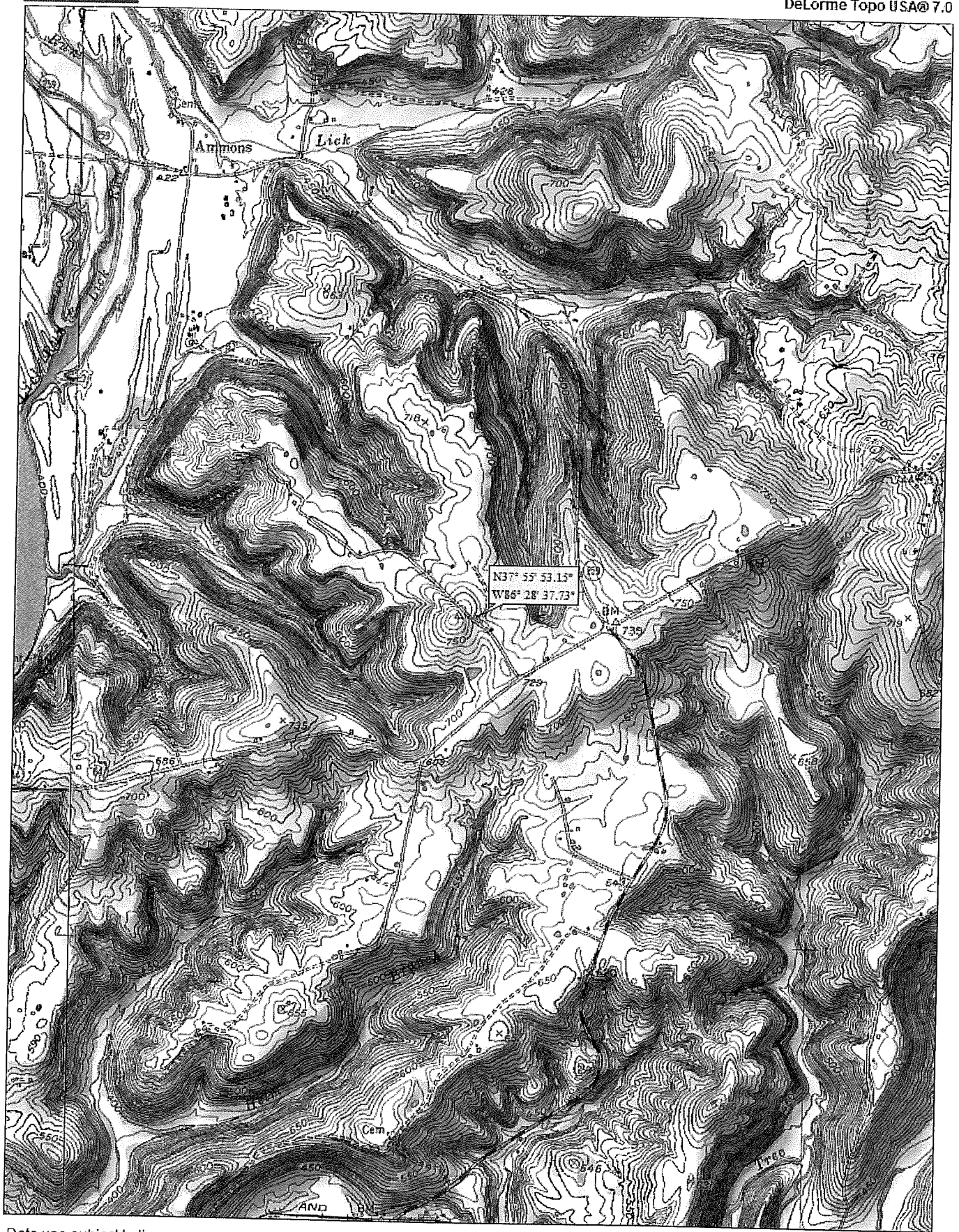
Kentucky State Plane Coordinates (Single Zone) were established with Trimble Global Positioning Systems (GPS) receivers. This site has ties to the National Geodetic Reference System established by the National Geodetic Survey, formerly the U.S. Coast & Geodetic Survey by measurements to PID Station "DK7559", designated as "ROUGH RIVER SRP CORS ARP".

CONSULTANT

Frank L. Sellinger II, P.L.S. No. 3282
FSTAN Land Surveyors and Consulting Engineers
426 E Warnock St, Louisville, KY 40217
Phone: 502-635-5866 Fax: 502-636-5263

DELORME

DeLorme Topo USA® 7.0



MN (3.9° W)

0 800 1600 2400 3200 4000 ft

Data Zoom 13-0

EXHIBIT G
KENTUCKY AIRPORT ZONING COMMISSION

KENTUCKY TRANSPORTATION CABINET

KENTUCKY AIRPORT ZONING COMMISSION

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

APPLICANT (*name*) American Towers, Inc	**PHONE** (781) 926-7126	**FAX**	**KY AERONAUTICAL STUDY #**	
ADDRESS (*street*) 10 Presidential Way	**CITY** Woburn		**STATE** MA	**ZIP** 01801
APPLICANT'S REPRESENTATIVE (*name*)	**PHONE**	**FAX**		
ADDRESS (*street*)	**CITY**		**STATE**	**ZIP**
APPLICATION FOR ☒ New Construction ☐ Alteration ☐ Existing **DURATION** ☐ Permanent ☐ Temporary (*months* *days*)			**WORK SCHEDULE** Start End	
TYPE ☐ Crane ☐ Building ☒ Antenna Tower ☐ Power Line ☐ Water Tank ☐ Landfill ☐ Other	**MARKING/ PAINTING/ LIGHTING PREFERRED** ☐ Red Lights & Paint ☐ White- medium intensity ☐ White- high intensity ☒ Dual- red & medium intensity white ☐ Dual- red & high intensity white ☐ Other			
LATITUDE 37°55'53.15"	**LONGITUDE** 86°28'37.73"		**DATUM** ☒ NAD83 ☐ NAD27 ☐ Other	
NEAREST KENTUCKY City Stephensport County Breckinridge	**NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT**			
SITE ELEVATION (AMSL, *feet*) 747	**TOTAL STRUCTURE HEIGHT** (AGL, *feet*) 265		**CURRENT** (*FAA aeronautical study #*) 2014-ASO-168-OE	
OVERALL HEIGHT (*site elevation plus total structure height, feet*) 1012			**PREVIOUS** (*FAA aeronautical study #*)	
DISTANCE (*from nearest Kentucky public use or Military airport to structure*)			**PREVIOUS** (*KY aeronautical study #*)	
DIRECTION (*from nearest Kentucky public use or Military airport to structure*)				

DESCRIPTION OF LOCATION (*Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.*)
Please see attached map

DESCRIPTION OF PROPOSAL
Proposed tower

FAA Form 7460-1 (*Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?*)
☐ No ☒ Yes, when? 01/08/2014

CERTIFICATION (*I hereby certify that all the above entries, made by me, are true, complete, and correct to the best of my knowledge and belief.*)
PENALITIES (*Persons failing to comply with KRS 183.861 to 183.990 and 602 KAR 050 are liable for fines and/or imprisonment as set forth in KRS 183.990(3). Noncompliance with FAA regulations may result in further penalties.*)

NAME	**TITLE**	**SIGNATURE**	**DATE**
Katie Miller	Compliance	Katie Miller	01/08/2014

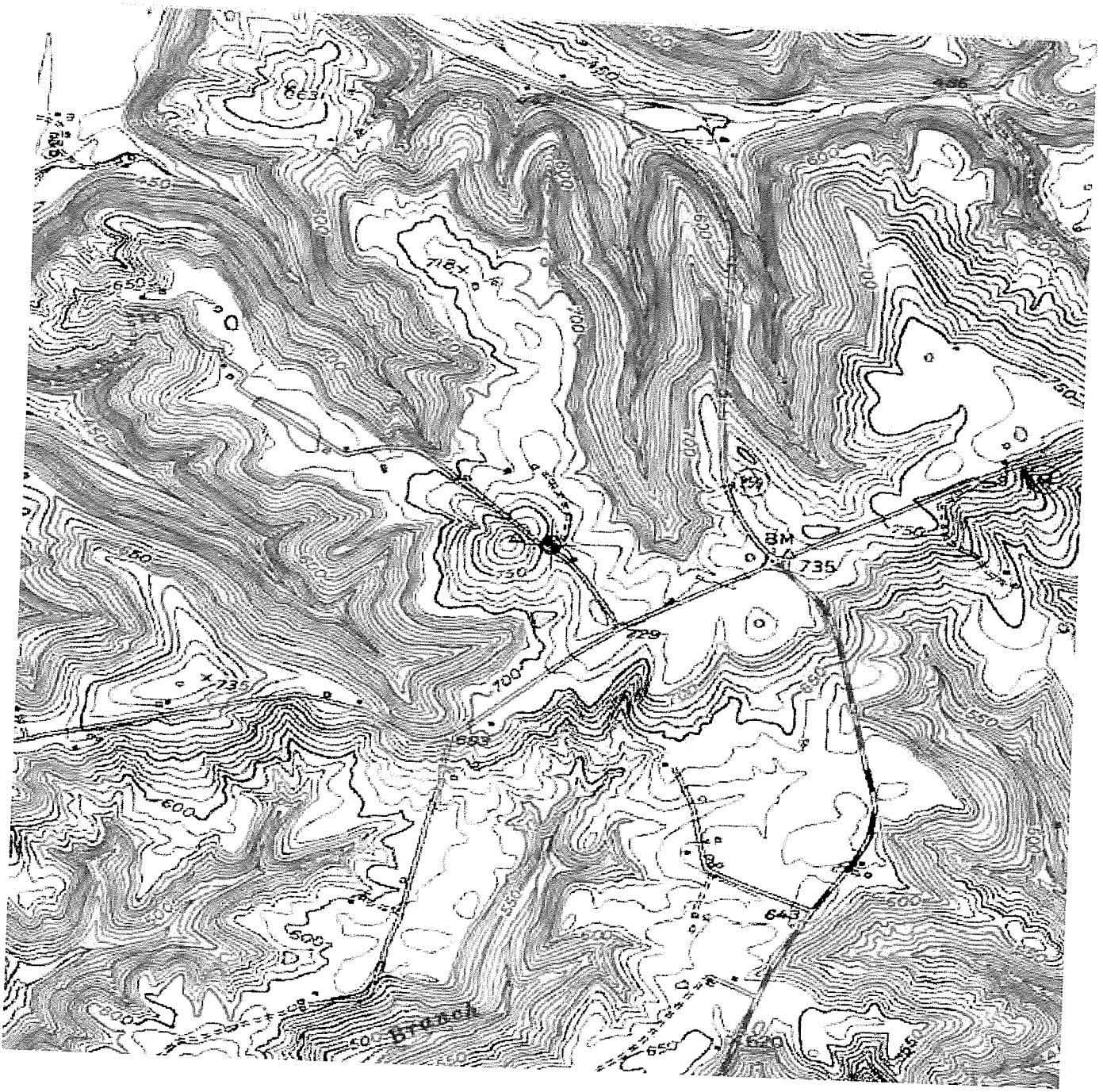
COMMISSION ACTION

☐ Chairperson, KAZC
☐ Administrator, KAZC

☐ Approved
☐ Disapproved

SIGNATURE

DATE


BM
735
729
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718
643
620
Brook

EXHIBIT H
GEOTECHNICAL REPORT

FStan

Land Surveyors & Consulting Engineers

GEOTECHNICAL ENGINEERING STUDY

Proposed Jake Horsley Tower
N37° 55' 53.15" W86° 28' 37.73"
218 Williams Lane,
Stephensport, Breckinridge County, Kentucky
Project No. 13-8633

FStan Land Surveyors &
Consulting Engineers
426 East Warnock Street
Louisville, KY 40217
Phone: (502) 636-5111
Fax: (502) 636-5263

Prepared For:

Ms. Vicki Hollis
American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Date: November 25, 2013

Land Surveyors and Consulting Engineers
Formerly F.S. Land & T. Alan Neal Companies

November 25, 2013

Ms. Vicki Hollis
American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Re: Geotechnical Engineering Study
Proposed 255-foot Self Support Tower with 10 foot Lighting Arrestor
American Tower Corporation Site Name: Jake Horsley
N37° 55' 53.15" W86° 28' 37.73"
218 Williams Lane, Stephensport, Breckinridge County, Kentucky
FStan Project No. 13-8633; AT&T NSB No. 156458; ATC No. 281318

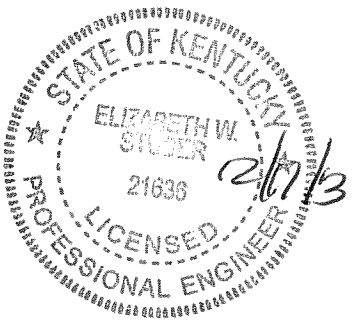
Dear Ms. Hollis:

Transmitted herewith is our geotechnical engineering report for the referenced project. This report contains our findings, an engineering interpretation of these findings with respect to the available project characteristics, and recommendations to aid design and construction of the tower foundations.

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding this report, please contact our office.

Cordially,

Elizabeth W. Stuber, P.E.
Geotechnical Engineer
Kentucky License No.: 21636



Copies submitted: (3) Ms. Vicki Hollis

426 E Warnock St PO Box 17546 Louisville, KY 40217
Phone: (502) 636-5111 (502) 635-5866 Fax: (502) 636-5263

LETTER OF TRANSMITTAL

TABLE OF CONTENTS

APPENDIX

BORING LOCATION PLAN
GEOTECHNICAL BORING LOG
SOIL SAMPLE CLASSIFICATION

GEOTECHNICAL ENGINEERING INVESTIGATION
Proposed 255-foot Self-Support Tower with 10 foot Lighting Arrestor
American Tower Corporation Site Name: Jake Horsely
N37° 55' 53.15" W86° 28' 37.73"
218 Williams Lane, Stephensport, Breckenridge County, Kentucky
FStan Project No. 13-8633; AT&T NSB No. 156458; ATC No. 281318

1. PURPOSE AND SCOPE

The purpose of this study was to determine the general subsurface conditions at the site of the proposed tower by drilling two soil test borings and to evaluate this data with respect to foundation concept and design for the proposed tower. Also included is an evaluation of the site with respect to potential construction problems and recommendations dealing with quality control during construction.

2. PROJECT CHARACTERISTICS

American Tower Corporation is proposing to construct a 255 feet tall self support communications tower with a 10 foot lighting arrestor on property owned by Cornelius Hollngshead, located at N37° 55' 53.15" / W86° 28' 37.73", 218 Williams Lane, Stephensport, Breckenridge County, Kentucky. The proposed lease area will be 100 feet x 100 feet with a short access road from the site running south to Williams Road. The site is located on a slope and is currently an undeveloped field within the town. The topographical site relief within the lease area is about 8 feet. The elevation of the site is approximately 747 feet msl. Surface water runoff is directed by the topography toward the northeast. A detailed evaluation of long-term slope stability was beyond the scope of this study. The proposed tower location is shown on the Boring Location Plan in the Appendix.

Preliminary information provided us indicates that this project will consist of constructing a self support communications tower 255 feet tall with a 10 foot lightning arrestor. We have assumed the following structural information:

- Compression = 400 kips
- Uplift = 300 kips
- Total shear = 40 kips

The development will also include a small equipment shelter near the base of the tower. The wall and floor loads for the shelter are assumed to be less than 4 kip/ln.ft. and 200 lbs/sq.ft., respectively.

3. SUBSURFACE CONDITIONS

The subsurface conditions were explored by drilling three test borings at the base of the proposed tower that was staked in the field by the project surveyor. The Geotechnical Soil Test Boring Logs, which are included in the Appendix, describes the materials and conditions encountered. A sheet defining the terms and symbols used on the boring log is also included in the Appendix. The general subsurface conditions disclosed by the test borings are discussed in the following paragraphs.

Only a thin veneer of topsoil was encountered at the existing ground surface. Below the topsoil, the borings encountered silty clay (CL-CH) of medium to high plasticity. The SPT N-values in the clayey soils ranged from 10 to 17 blows per foot indicating a medium stiff to very stiff consistency. Highly weathered clay shale was encountered between 6 and 7 feet that turned to weathered shale at about 13.5 feet. The borings were terminated in the shale at the scheduled depths of 15 and 40 feet.

Observations made at the completion of soil drilling operations indicated the borings to be dry. It must be noted, however, that short-term water readings in test borings are not necessarily a reliable indication of the actual groundwater level. Furthermore, it must be emphasized that the groundwater level is not stationary, but will fluctuate seasonally.

Based on the limited subsurface conditions encountered at the site and using Table 1615.1.1 of the 2002 Kentucky Building Code, the site class is considered "B". Seismic design requirements for telecommunication towers are given in section 1622 of the code. A detailed seismic study was beyond the scope of this report.

4. FOUNDATION DESIGN RECOMMENDATIONS

The following design recommendations are based on the previously described project information, the subsurface conditions encountered in our borings, the results of our laboratory testing, empirical correlations for the soil types encountered, our analyses, and our experience. If there is any change in the project criteria or structure location, you should retain us to review our recommendations so that we can determine if any modifications are required. The findings of such a review can then be presented in a supplemental report or addendum.

We recommend FStan be retained to review the near-final project plans and specifications, pertaining to the geotechnical aspects of the project, prior to bidding and construction. We recommend this review to check that our assumptions and evaluations are appropriate based on the current project information provided to us, and to check that our foundation and earthwork recommendations were properly interpreted and implemented.

4.1 Tower

Our findings indicate that the proposed self-support tower can be supported on drilled piers or on a common mat foundation.

4.1.1. Drilled Piers

Drilled piers that bear in the hard shale below a depth of about 15 feet can be designed for a net allowable end bearing pressure of 20,000 pounds per square foot (psf). The following table summarizes the recommended values for use in analyzing lateral and frictional resistance for the various strata encountered at the test boring. It is important to note that these values are estimated based on the standard penetration test results and soil types, and were not directly measured. The values provided for undrained shear strength and total unit weight are ultimate values and appropriate factors of safety should be used in conjunction with these values. If the piers will bear deeper than about 38 feet, a deeper boring should be drilled to determine the nature of the deeper material.

Depth Below Ground Surface, feet	Undrained Shear Strength, psf	Angle of Internal Friction, Ø, degrees	Total Unit Weight, pcf	Allowable Passive Soil Pressure, psf/one foot of depth	Allowable Side Friction, psf
0 – 6	1,000	0	120	750 + 40D	200
6 - 15	5,000	0	130	3,000 + 42(D-6)	1000
15 - 40	10,000	0	135	6,000 + 45(D-15)	2500

Note: D = Depth below ground surface (in feet) to point at which the passive pressure is calculated.

It is important that the drilled piers be installed by an experienced, competent drilled pier contractor who will be responsible for properly installing the piers in accordance with industry standards and generally accepted methods, without causing deterioration of the subgrade. The recommendations contained herein relate only to the soil-pier interaction and do not account for the structural design of the piers.

4.1.2. Mat Foundation

As an alternative, the tower could be supported on a common mat foundation bearing at a depth of at least 3.5 feet in the clay soil. A net allowable bearing pressure of up to 3,000 pounds per square foot may be used. These values may be increased by 30 percent for the maximum edge pressure under transient loads. A friction value of 0.30 may be used between the concrete and the underlying clay soil. The passive pressures given for the drilled pier foundation may be used to resist lateral forces.

It is important that the mat be designed with an adequate factor of safety with regard to overturning under the maximum design wind load.

4.2. Equipment Building

The equipment building may be supported on shallow spread footings bearing in the shallow clay and designed for a net allowable soil pressure of 2,000 pounds per square foot. The footings should be at least ten inches wide. If the footings bear on soil they should bear at a depth of at

least 36 inches to minimize the effects of frost action. All existing topsoil or soft natural soil should be removed beneath footings.

The floor slab for the new equipment building may be subgrade supported on a properly prepared subgrade. The slab should be designed and adequately reinforced to resist the loads proposed. The exposed subgrade should be carefully inspected by probing and testing as needed. Any organic material still in place, frozen or excessively soft soil and other undesirable materials should be removed.

Once the subgrade has been properly prepared and evaluated, fill may be placed to attain the desired final grade. Any non-organic, naturally occurring, non-expansive soils can be used for structural fill, including those encountered on this site, pending evaluation by the geotechnical engineer.

All engineered fill should be compacted to a dry density of at least 98 percent of the standard Proctor maximum dry density (ASTM D698). The compaction should be accomplished by placing the fill in about eight inch loose lifts and mechanically compacting each lift to at least the specified density. Field tests should be performed on each lift as necessary to insure that adequate compaction is being achieved.

4.3. Drainage and Groundwater Considerations

Good site drainage must be provided. Surface run-off water should be drained away from the shelter building and not allowed to pond. It is recommended that all foundation concrete be placed the same day the excavation is made.

At the time of this investigation, groundwater was not encountered. Therefore, no special provisions regarding groundwater control are considered necessary for the proposed structures.

5. GENERAL CONSTRUCTION PROCEDURES AND RECOMMENDATIONS

It is possible that variations in subsurface conditions will be encountered during construction. Although only minor variations that can be readily evaluated and adjusted for during construction are anticipated, it is recommended the geotechnical engineer or a qualified representative be retained to perform continuous inspection and review during construction of the soils-related phases of the work. This will permit correlation between the test boring data and the actual soil conditions encountered during construction.

5.1. Foundation Excavation Inspection

5.1.1 Drilled Piers

The following recommendations are recommended for drilled pier construction:

- Clean the foundation bearing area so it is nearly level or suitably benched and is free of ponded water or loose material.

- Make provisions for ground water removal from the drilled shaft excavation. While the borings were dry prior to rock coring and significant seepage is not anticipated, the drilled pier contractor should have pumps on hand to remove water in the event seepage into the drilled pier is encountered.

- Specify concrete slumps ranging from 4 to 7 inches for the drilled shaft construction. These slumps are recommended to fill irregularities along the sides and bottom of the drilled hole, displace water as it is placed, and permit placement of reinforcing cages into the fluid concrete.

- Retain the geotechnical engineer to observe foundation excavations after the bottom of the hole is leveled, cleaned of any mud or extraneous material, and dewatered.

- Install a temporary protective steel casing to prevent sidewall collapse, prevent excessive mud and water intrusion, and to allow workers to safely enter, clean and inspect the drilled shaft.

- Clean the socket "face" prior to concrete placements. Cleaning will require hand cleaning or washing if a mud smear forms on the face of the rock. The geotechnical engineer should approve the rock socket surface prior to concrete placement.

- The protective steel casing may be extracted as the concrete is placed provided a sufficient head of concrete is maintained inside the steel casing to prevent soil or water intrusion into the newly placed concrete.

- Direct the concrete placement into the drilled hole through a centering chute to reduce side flow or segregation.

5.2 Fill Compaction

All engineered fill placed adjacent to and above the tower foundation should be compacted to a dry density of at least 95 percent of the standard Proctor maximum dry density (ASTM D-698). This minimum compaction requirement should be increased to 98 percent for any fill placed below the tower foundation bearing elevation. Any fill placed beneath the tower foundation should be limited to well-graded sand and gravel or crushed stone. The compaction should be accomplished by placing the fill in about 8 inch (or less) loose lifts and mechanically compacting each lift to at least the specified minimum dry density. Field density tests should be performed on each lift as necessary to insure that adequate moisture conditioning and compaction is being achieved.

Compaction by flooding is not considered acceptable. This method will generally not achieve the desired compaction and the large quantities of water will tend to soften the foundation soils.

5.3 Construction Dewatering

Groundwater may be encountered during drilled pier excavation. It is anticipated that any such seepage can be handled by conventional dewatering methods such as pumping from sumps. Dewatering of drilled pier excavations that extend below the groundwater level may be more difficult since pumping directly from the excavations could cause a deterioration of the bottom of the excavation. If the pier excavations are not dewatered, concrete should be placed by the tremie method.

6 FIELD INVESTIGATION

Three soil test borings were drilled based on the tower center location established in the field by the project surveyor. Split-spoon samples were obtained by the Standard Penetration Test (SPT) procedure (ASTM D1586) in the test boring. The borings were terminated in the shale at the scheduled depths of 15 and 40 feet. The split-spoon samples were inspected and visually classified by a geotechnical engineer. Representative portions of the soil samples were sealed in glass jars and returned to our laboratory.

The boring logs are included in the Appendix along with a sheet defining the terms and symbols used on the logs and an explanation of the Standard Penetration Test (SPT) procedure. The logs present visual descriptions of the soil strata encountered, Unified System soil classifications, groundwater observations, sampling information, laboratory test results, and other pertinent field data and observations.

7 WARRANTY AND LIMITATIONS OF STUDY

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties, either express or implied. FStan is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

A geotechnical study is inherently limited since the engineering recommendations are developed from information obtained from test borings, which depict subsurface conditions only at the specific locations, times and depths shown on the log. Soil conditions at other locations may differ from those encountered in the test borings, and the passage of time may cause the soil conditions to change from those described in this report.

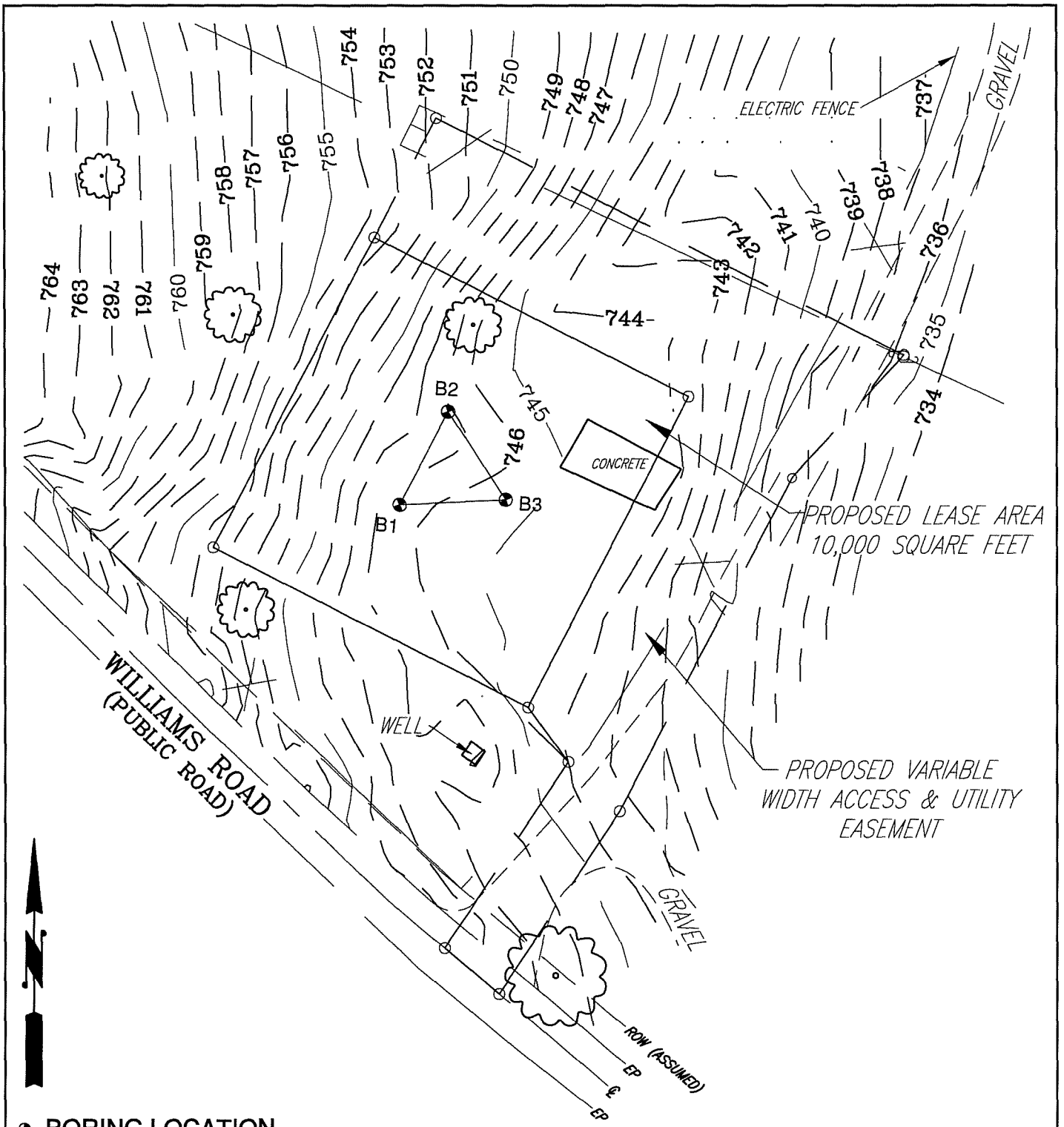
The nature and extent of variation and change in the subsurface conditions at the site may not become evident until the course of construction. Construction monitoring by the geotechnical engineer or a representative is therefore considered necessary to verify the subsurface conditions and to check that the soils connected construction phases are properly completed. If significant variations or changes are in evidence, it may then be necessary to reevaluate the recommendations of this report. Furthermore, if the project characteristics are altered significantly from those discussed in this report, if the project information contained in this report is incorrect, or if additional information becomes available, a review must be made by this office to determine if any modification in the recommendations will be required.

APPENDIX

BORING LOCATION PLAN

GEOTECHNICAL BORING LOG

SOIL SAMPLE CLASSIFICATION



● BORING LOCATION

BORING LOCATION PLAN

SITE NAME: JAKE HORSLEY
PROPOSED 255' SELF-SUPPORT TOWER
WITH A 10' LIGHTNING ARRESTOR

NOT TO SCALE

FSTAN PROJECT #:
13-8633

DATE:
11.25.13

FS-tan
Formerly F.S. Land &
T. Alan Neal Company
Land Surveyors and Consulting Engineers
428 E WARNOCK STREET
Louisville, KY 40217
Phone: (502) 635-5888 (502) 636-5111
Fax: (502) 636-5283

F.S. Tan Land Consulting Engineers
P.O. Box 17546
Louisville, KY 40217
502-636-5111
502-636-5263

Geotechnical Boring Log

Boring No: **B-1**

Client: American Tower Corporation	Project Number: 13-8633
Project: Proposed Jake Horsley Tower	Drilling Firm: Hoosier Drilling
Location: N37° 55' 53.15"/ W86° 28' 37.73"	Project Manager: Beth Stuber
Date Started: 11/12/2013	Total Depth of Boring: 40 ft
Date Completed: 11/12/2013	NA on rods
Boring Method: HSA-Manual Hammer	DRY at completion
Surface Elevation: NA	NA NA hours after completion

Layer Depth ft	Material Description	Depth Scale ft	Sample Data No.	Type	Blows	Rec. %	PP tsf	W %	Remarks
	SILTY CLAY (CL-CH) - very stiff, brown with black nodes		1	SS	5-8-9	100			
	- stiff, tan-brown mottled	5	2	SS	6-7-7	100			
6.0	CLAY SHALE - highly weathered, tan-brown		3	SS	6-10-13	100			
			4	SS	6-9-14	100			
		10							
13.5	SHALE - highly weathered, light gray		5	SS	17-50	44			
		15							
			6	SS	50	17			
		20							
			7	SS	50	11			
		25							
			8	SS	50	28			
		30							
	- dark brown		9	SS	50	28			
		35							
			10	SS	50	28			
40.0	Bottom of Boring at 40 ft	40							

GEOTECHNICAL BORING LOG 13-8633.GPJ FSTAN.GDT 12/18/13

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P.O. Box 17546
Louisville, KY 40217
502-636-5111
502-636-5263

Geotechnical Boring Log

Boring No: **B-2**

Client: American Tower Corporation	Project Number: 13-8633
Project: Proposed Jake Horsley Tower	Drilling Firm: Hoosier Drilling
Location: N37° 55' 53.15"/ W86° 28' 37.73"	Project Manager: Beth Stuber
Date Started: 11/12/2013	Total Depth of Boring: 15 ft
Date Completed: 11/12/2013	NA on rods
Boring Method: HSA-Manual Hammer	DRY at completion
Surface Elevation: NA	NA NA hours after completion

Layer Depth ft	Material Description	Depth Scale ft	Sample Data No.	Type	Blows	Rec. %	PP tsf	W %	Remarks
	SILTY CLAY (CL) - stiff, brown		1	SS	5-5-5	100			
			2	SS	7-6-5	0			
7.0	CLAY SHALE - highly weathered, tan-brown	5	3	SS	7-8-9	22			
			4	SS	13-14-12	100			
13.5	SHALE - highly weathered, gray	10							
			5	SS	14-16-19	44			
15.0	Bottom of Boring at 15 ft	15							
		20							
		25							
		30							
		35							
		40							

GEOTECHNICAL BORING LOG 13-8633.GPJ FSTAN.GDT 12/18/13

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502-636-5111
502-636-5263

Geotechnical Boring Log

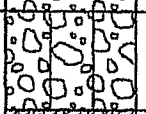
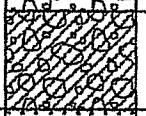
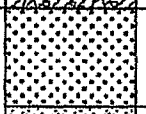
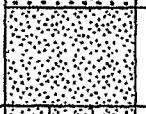
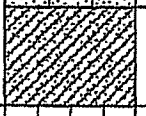
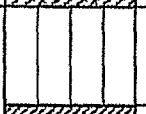
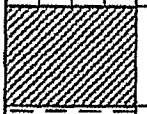
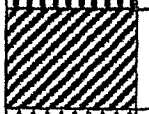
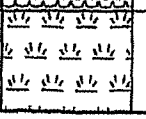
Boring No: **B-3**

Client: American Tower Corporation	Project Number: 13-8633
Project: Proposed Jake Horsley Tower	Drilling Firm: Hoosier Drilling
Location: N37° 55' 53.15"/ W86° 28' 37.73"	Project Manager: Beth Stuber
Date Started: 11/12/2013	Total Depth of Boring: 15 ft
Date Completed: 11/12/2013	NA on rods
Boring Method: HSA-Manual Hammer	DRY at completion
Surface Elevation: NA	NA NA hours after completion

Layer Depth ft	Material Description	Depth Scale ft	Sample Data No.	Type	Blows	Rec. %	PP tsf	W %	Remarks
	SILTY CLAY (CL) - stiff, brown		1	SS	6-6-7	100			
			2	SS	6-5-6	100			
6.0	CLAY SHALE - highly weathered, tan-brown	5	3	SS	8-8-8	100			
			4	SS	10-11-12	100			
13.5	SHALE - highly weathered, gray	10							
			5	SS	21-27-30	89			
15.0	Bottom of Boring at 15 ft	15							
		20							
		25							
		30							
		35							
		40							

GEOTECHNICAL BORING LOG 13-8633.GPJ FSTAN.GDT 12/18/13

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

EXHIBIT I
DIRECTIONS TO WCF SITE

Driving Directions to Proposed Tower Site at Jake Horsley

1. Beginning at the Breckinridge County Courthouse, located at 111 West 2nd Street in Hardinsburg, Kentucky, travel east on 2nd street to Ky-259 N / S. Main Street.
2. Turn left onto Ky-259 N / S. Main Street and travel approximately 12.7 miles.
3. Turn left onto Ky-144 W and travel approximately 0.3 miles.
4. Turn right onto Countiss Williams Road and travel approximately 0.2 miles.
5. The proposed site is on the left at 218 Williams Lane, Stephensport, Kentucky 40170.
6. The site coordinates are
    a. North 37 deg 55' 53.15"
    b. West 86 deg 28' 37.73"

Prepared by:
Aaron L. Roof
Pike Legal Group PLLC
1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-3069
Telephone: 502-955-4400 or 800-516-4293

EXHIBIT J
COPY OF REAL ESTATE AGREEMENT

Site Name: Jake Horsley KY
Site Number: 281318

LEASE AGREEMENT

THIS LEASE AGREEMENT ("***Agreement***") is made effective as of the date of the latter signature hereof (the "***Execution Date***") and is by and between Landlord and American Tower.

RECITALS

A. WHEREAS, Landlord is the owner of that certain parcel of land (the "***Property***") located in the County of Breckinridge, State of Kentucky, as more particularly described on Exhibit A;

B. WHEREAS, Landlord desires to grant to American Tower an option to lease from Landlord a portion of the Property (the "***Compound***"), together with easements for ingress and egress and the installation and maintenance of utilities (the "***Easement***" and together with the Compound, the "***Site***") both being approximately located as shown on Exhibit B; and

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and other good and valuable consideration, the receipt, adequacy and sufficiency of all of which are hereby acknowledged, the parties hereto hereby agree as follows:

1. **Business and Defined Terms**. For the purposes of this Agreement, the following capitalized terms have the meanings set forth in this paragraph 1.

(a) ***American Tower***: American Towers LLC, a Delaware limited liability company d/b/a Delaware American Towers LLC

(b) ***Notice Address of American Tower***: American Towers LLC
c/o American Tower
10 Presidential Way
Woburn, MA 01801
Attn: Land Management

with a copy to: American Towers LLC
c/o American Tower
116 Huntington Ave.
Boston, MA 02116
Attn: Law Department

(c) ***Landlord:*** Cornelius Hollingshead and Adina K. Hollingshead, his wife

(d) ***Notice Address of Landlord:*** 226 Williams Lane
Stephensport, KY 40170

(e) ***Initial Option Period***: One (1) year

(f) ***Renewal Option Period(s)***: One (1) period of One (1) year each.

(g) ***Option Period***: The Initial Option Period and any Renewal Option Period(s)

(h) ***Option Consideration (Initial Option Period):*** [redacted]

(i) ***Option Extension Consideration (Renewal Option Period(s)):*** [redacted]

(j) ***Commencement Date***: The date specified in the written notice by American Tower to Landlord exercising the Option constitutes the Commencement Date of the Term.

(k) ***Initial Term:*** Five (5) years, commencing on the Commencement Date and continuing until midnight of the day immediately prior to the fifth (5) anniversary of the Commencement Date.

(l) ***Renewal Terms:*** Each of the Five (5) successive periods of five (5) years each, with the first Renewal Term commencing upon the expiration of the Initial Term and each subsequent Renewal Term commencing upon the expiration of the immediately preceding Renewal Term.

(m) ***Term***: The Initial Term with any and all Renewal Terms

(n) ***Rent:*** The monthly amount of [redacted]

(o) ***Increase Amount:*** Rent will increase at the commencement of each Renewal Term by an amount equal to [redacted] of Rent for the previous five year period.

(p) ***Increase Date***: The first date of each Renewal Term.

2. Option to Lease.

(a) Grant of Option. Landlord hereby gives and grants to American Tower and its assigns, an exclusive and irrevocable option to lease the Site during the Initial Option Period (the "***Option***").

(b) Extension of Option. The Initial Option Period will automatically be extended for each Renewal Option Period unless American Tower provides Landlord written notice of its intent not to extend the Option.

(c) Consideration for Option. Option Consideration is due and payable in full within 30 days of the Execution Date and American Tower will pay Landlord any Option Extension Consideration within 30 days of the commencement of any Renewal Option Period.

(d) Option Period Inspections and Investigations.

(i) During the Option Period, Landlord will provide American Tower with any keys or access codes necessary for access to the Property.

(ii) During the Option Period, American Tower and its officers, agents, employees and independent contractors may enter upon the Property to perform or cause to be performed test borings of the soil, environmental audits, engineering studies and to conduct a metes and bounds survey of the Site and/or the Property (the "***Survey***"), provided that American Tower will not unreasonably interfere with Landlord's use of the Property in conducting these activities. At American Tower's discretion, the legal description of the Site as shown on the Survey may replace Exhibit B of this Agreement and be added as Exhibit B of the Memorandum of Lease.

(iii) American Tower may not begin any construction activities on the Site during the Option Period other than those activities described in, or related to, this paragraph 2(d).

(e) Exercise of Option. American Tower may, in its sole discretion, exercise the Option by delivery of written notice to Landlord at any time during the Option Period. If American Tower exercises the Option then Landlord will lease the Site to American Tower subject to the terms and conditions of this Agreement. If American Tower does not exercise the Option, this Agreement will terminate.

3. **Term.**

(a) Initial Term. The Initial Term is as provided in paragraph 1(k).

(b) Renewal Terms. American Tower will have the right to extend this Agreement for each of the Renewal Terms. Each Renewal Term will be on the same terms and conditions provided in this Agreement except that Rent will escalate as provided in paragraph 4(b). This Agreement will automatically be renewed for each successive Renewal Term unless American Tower notifies Landlord in writing of American Tower's intention not to renew the Agreement at any time prior to the expiration of the Initial Term or the Renewal Term which is then in effect.

4. **Consideration.**

(a) American Tower will pay its first installment of Rent within thirty (30) days of the Commencement Date. Thereafter, Rent is due and payable in advance on the first day of each calendar month to Landlord at Landlord's Notice Address. Rent will be prorated for any partial months, including, the month in which the Commencement Date occurs.

(b) On the Increase Date, the Rent will increase by the Increase Amount.

(c) In the event American Tower makes an overpayment of Rent or any other fees or charges to Landlord during the Term of this Agreement, American Tower may, but will not be required, to treat any such overpayment amount as prepaid Rent and apply such amount as a credit against future Rent due to Landlord.

(d) American Tower will not be required to remit the payment of Rent to more than two recipients at any given time.

5. **Use.**

(a) American Tower will be permitted to use the Site for the purpose of constructing, maintaining, removing, replacing, securing and operating a communications facility, including, but not limited to, the construction or installation and maintenance of a telecommunications tower (the "***Tower***"), structural tower base(s), communications equipment, one or more buildings or equipment cabinets, radio transmitting and receiving antennas, personal property and related improvements and facilities on the Compound (collectively, the "***Tower Facilities***"), to facilitate the use of the Site as a site for the transmission and receipt of communication signals including, but not limited to, voice, data and internet transmissions and for any other uses which are incidental to the transmission and receipt of communication signals (the "***Intended Use***").

(b) American Tower, at its sole discretion, will have the right, without prior notice or the consent of Landlord, to license or sublease all or a portion of the Site or the Tower Facilities to other parties (each, a "***Collocator***" and collectively, the "***Collocators***"). The Collocators will be entitled to modify the Tower Facilities and to erect additional improvements on the Compound including but not limited to antennas, dishes, cabling, additional buildings or shelters ancillary to the Intended Use. The Collocators will be entitled to all rights of ingress and egress to the Site and the right to install utilities on the Site that American Tower has under this Agreement.

6. **Tower Facilities.**

(a) American Tower will have the right, at American Tower's sole cost and expense, to erect the Tower Facilities which will be the exclusive property of American Tower throughout the Term as well as upon the expiration or termination of this Agreement.

(b) Landlord grants American Tower a non-exclusive easement in, over, across and through the Property and other real property owned by Landlord contiguous to the Site as may be reasonably required for construction, installation, maintenance, and operation of the Tower Facilities including: (i) access to the Site for construction machinery and equipment, (ii) storage of construction materials and equipment during construction of the Tower Facilities, and (iii) use of a staging area for construction, installation and removal of equipment.

(c) American Tower may, at its sole expense, use any and all appropriate means of restricting access to the Compound or the Tower Facilities, including, without limitation, construction of a fence and may install and maintain identifying signs or other signs required by any governmental authority on or about the Site, including any access road to the Site.

(d) American Tower will maintain the Compound, including the Tower Facilities, in a reasonable condition throughout the Term. American Tower is not responsible for reasonable wear and tear or damage from casualty and condemnation. Landlord grants American Tower the right to clear all trees, undergrowth, or other obstructions and to trim, cut, and keep trimmed all tree limbs which may interfere with or fall upon the Tower Facilities or the Site.

(e) American Tower will remove all of the above-ground portions of the Tower Facilities within 180 days following the expiration or termination of this Agreement.

7. **Utilities.**

(a) American Tower will have the right to install utilities, at American Tower's expense, and to improve present utilities on the Property and the Site. American Tower will have the right to permanently place utilities on (or to bring utilities across or under) the Site to service the Compound and the Tower Facilities.

(b) If utilities necessary to serve the equipment of American Tower or the equipment of any Collocator cannot be located within the Site, Landlord agrees to allow the installation of utilities on the Property or other real property owned by Landlord without requiring additional compensation from American Tower or any Collocator. Landlord will, upon American Tower's request, execute a separate recordable written easement or lease to the utility company providing such service evidencing this right.

(c) American Tower and the Collocators each may install backup generator(s).

8. **Access**

(a) In the event that the Site loses access to a public right of way during the Term, Landlord and American Tower will amend this Agreement, at no imposed cost to either party, to provide access to a public way by: (i) amending the location of the Easement; or (ii) granting an additional easement to American Tower.

(b) To the extent damage (including wear and tear caused by normal usage) to the Easement or any other route contemplated hereunder intended to provide American Tower with access to the Site and the Tower Facilities is caused by Landlord or Landlord's tenants, licensees, invites or agents, Landlord will repair the damage at its own expense.

(c) Landlord will maintain access to the Compound from a public way in a free and open condition so that no interference is caused to American Tower by Landlord or lessees, licensees, invitees or agents of Landlord. In the event that American Tower's or any Collocator's access to the Compound is impeded or denied by Landlord or Landlord's lessees, licensees, invitees or agents, without waiving any other rights that it may have at law or in equity, American Tower may at its sole discretion deduct from Rent due under this Agreement an amount equal to [redacted] per day for each day that such access is impeded or denied.

9. **Representations and Warranties of Landlord.** Landlord represents and warrants to American Tower and American Tower's successors and assigns:

(a) Landlord has the full right, power, and authority to execute this Agreement;

(b) There are no pending or threatened administrative actions, including bankruptcy or insolvency proceedings under state or federal law, suits, claims or causes of action against Landlord or which may otherwise affect the Property;

(c) The Property is not presently subject to an option, lease or other contract which may adversely affect Landlord's ability to fulfill its obligations under this Agreement, and the execution of this Agreement by Landlord will not cause a breach or an event of default of any other agreement to which Landlord is a party. Landlord agrees that it will not grant an option or enter into any contract or agreement which will have any adverse effect on the Intended Use or American Tower's rights under this Agreement;

(d) No licenses, rights of use, covenants, restrictions, easements, servitudes, subdivision rules or regulations, or any other encumbrances relating to the Property prohibit or will interfere with the Intended Use;

(e) Landlord has good and marketable fee simple title to the Site, the Property and any other property across which Landlord may grant an easement to American Tower or any Collocator, free and clear of all liens and encumbrances. Landlord covenants that American Tower will have the quiet enjoyment of the Compound during the term of this Agreement. If Landlord fails to keep the Site free and clear of any liens and encumbrances, American Tower will have the right, but not the obligation, to satisfy any such lien or encumbrance and to deduct the full amount paid by American Tower on Landlord's behalf from future installments of Rent;

(f) American Tower will at all times during this Agreement enjoy ingress, egress, and access from the Site 24 hours a day, 7 days a week, to an open and improved public road which is adequate to service the Site and the Tower Facilities; and

(g) These representations and warranties of Landlord survive the termination or expiration of this Agreement.

10. **Interference.** Landlord will not use, nor will Landlord permit its tenants, licensees, invitees or agents to use any portion of the Property in any way which interferes with the Intended Use, including, but not limited to, any use on the Property or surrounding property that causes electronic or physical obstruction or degradation of the communications signals from the Tower Facilities (***"Interference"***). Interference will be deemed a material breach of this Agreement by Landlord and Landlord will have the responsibility to terminate Interference immediately upon written notice from American Tower. Notwithstanding anything in this Agreement to the contrary, if the Interference does not cease or is not rectified as soon as possible, but in no event longer than 24 hours after American Tower's written notice to Landlord, Landlord acknowledges that continuing Interference will cause irreparable injury to

American Tower, and American Tower will have the right, in addition to any other rights that it may have at law or in equity, to bring action to enjoin the Interference.

11. Termination. This Agreement may be terminated, without any penalty or further liability upon written notice as follows:

(a) By either party upon a default of any covenant or term of this Agreement by the other party which is not cured within 60 days of receipt of written notice of default (without, however, limiting any other rights available to the parties in law or equity); provided, that if the defaulting party commences efforts to cure the default within such period and diligently pursues such cure, the non-defaulting party may not terminate this Agreement as a result of that default.

(b) Upon 30 days' written notice by American Tower to Landlord if American Tower is unable to obtain, maintain, renew or reinstate any agreement, easement, permit, certificates, license, variance, zoning approval, or any other approval which may be required from any federal, state or local authority necessary to the construction and operation of the Tower Facilities or to the Intended Use (collectively, the "***Approvals***"); or

(c) Upon 30 days' written notice from American Tower to Landlord if the Site is or becomes unsuitable, in American Tower's sole, but reasonable judgment for use as a wireless communications facility by American Tower or by American Tower's licensee(s) or sublessee(s).

(d) In the event of termination by American Tower or Landlord pursuant to this provision, American Tower shall be relieved of all further liability hereunder.

12. Taxes.

(a) American Tower will pay any personal property taxes assessed on or attributable to the Tower Facilities. American Tower will reimburse Landlord for any increase to Landlord's real property taxes that are directly attributable to American Tower's Site and/or Tower Facilities upon receipt of the following: (1) a copy of Landlord's tax bill; (2) proof of payment; and (3) written documentation from the assessor of the amount attributable to American Tower. American Tower shall have no obligation to reimburse Landlord for any taxes paid by Landlord unless Landlord requests reimbursement within 12 months of the date said taxes were originally due. Additionally, as a condition precedent to Landlord having the right to receive reimbursement, Landlord shall, within 3 days of receipt of any notice from the taxing authority of any assessment or reassessment, provide American Tower with a copy of said notice. American Tower shall have the right to appeal any assessment or reassessment relating to the Site or Tower Facilities and Landlord shall either (i) designate American Tower as its attorney-in-fact as required to effect standing with the taxing authority, or (ii) join American Tower in its appeal.

(b) Landlord will pay when due all real property taxes and all other fees and assessments attributable to the Property, Compound and Easement. If Landlord fails to pay when due any taxes affecting the Property or the Site, American Tower will have the right, but not the obligation, to pay such taxes and either: (i) deduct the full amount of the taxes paid by American Tower on Landlord's behalf from future installments of Rent, or (ii) collect such taxes by any lawful means.

13. Environmental Compliance.

(a) Landlord represents and warrants that:

(i) No Hazardous Materials have been used, generated, stored or disposed of, on, under or about the Property in violation of any applicable law, regulation or administrative order (collectively, "***Environmental Laws***") by either Landlord or to Landlord's knowledge, any third party; and

(ii) To Landlord's knowledge, no third party been permitted to use, generate, store or dispose of any Hazardous Materials on, under, about or within the Property in violation of any Environmental Laws.

(b) Landlord will not, and will not permit any third party to use, generate, store or dispose of any Hazardous Materials on, under, about or within the Property in violation of any Environmental Laws.

(c) American Tower agrees that it will not use, generate, store or dispose of any Hazardous Material on, under, about or within the Site in violation of any applicable laws, regulations or administrative orders.

(d) The term "***Hazardous Materials***" means any: contaminants, oils, asbestos, PCBs, hazardous substances or wastes as defined by federal, state or local environmental laws, regulations or administrative orders or other materials the removal of which is required or the maintenance of which is prohibited or regulated by any federal, state or local government authority having jurisdiction over the Property.

14. Indemnification.

(a) General.

(i) Landlord, its heirs, grantees, successors, and assigns will exonerate, hold harmless, indemnify, and defend American Tower from any claims, obligations, liabilities, costs, demands, damages, expenses, suits or causes of action, including costs and reasonable attorney's fees, which may arise out of: (A) any injury to or death of any person; (B) any damage to property, if such injury, death or damage arises out of or is attributable to or results from the acts or omissions of Landlord, or Landlord's principals, employees, invitees, agents or independent contractors; or (C) any breach of any representation or warranty made by Landlord in this Agreement.

(ii) American Tower, its grantees, successors, and assigns will exonerate, hold harmless, indemnify, and defend Landlord from any claims, obligations, liabilities, costs, demands, damages, expenses, suits or causes of action, including costs and reasonable attorney's fees, which may arise out of: (A) any injury to or death of any person; (B) any damage to property, if such injury, death or damage arises out of or is attributable to or results from the negligent acts or omissions of American Tower, or American Tower's employees, agents or independent contractors; or (C) any breach of any representation or warranty made by American Tower in this Agreement.

(b) Environmental Matters.

(i) Landlord, its heirs, grantees, successors, and assigns will indemnify, defend, reimburse and hold harmless American Tower from and against any and all damages arising from the presence of Hazardous Materials upon, about or beneath the Property or migrating to or from the Property or arising in any manner whatsoever out of the violation of any Environmental Laws, which conditions exist or existed prior to or at the time of the execution of this Agreement or which may occur at any time in the future through no fault of American Tower. Notwithstanding

the obligation of Landlord to indemnify American Tower pursuant to this Agreement, Landlord will, upon demand of American Tower, and at Landlord's sole cost and expense, promptly take all actions to remediate the Property which are required by any federal, state or local governmental agency or political subdivision or which are reasonably necessary to mitigate environmental damages or to allow full economic use of the Site, which remediation is necessitated from the presence upon, about or beneath the Property of a Hazardous Material. Such actions include but not be limited to the investigation of the environmental condition of the Property, the preparation of any feasibility studies, reports or remedial plans, and the performance of any cleanup, remediation, containment, operation, maintenance, monitoring or actions necessary to restore the Property to the condition existing prior to the introduction of such Hazardous Material upon, about or beneath the Property notwithstanding any lesser standard of remediation allowable under applicable law or governmental policies.

(ii) American Tower, its grantees, successors, and assigns will indemnify, defend, reimburse and hold harmless Landlord from and against environmental damages caused by the presence of Hazardous Materials on the Compound in violation of any Environmental Laws and arising solely as the result of American Tower's activities after the execution of this Agreement.

15. Right of First Refusal; Sale of Property.

(a) During the Term, prior to selling the Site or any portion of or interest in the Property or the Site, including but not limited to a leasehold interest or easement, or otherwise transfer Landlord's interest in Rent, and prior to assigning the Rent or any portion of Rent to a third party, Landlord shall notify American Tower in writing of the sale price and terms offered by a third party (the "***Offer***"), together with a copy of the Offer. American Tower will have the right of first refusal to purchase the real property interest or Rent or portion of Rent being sold by Landlord to such third party on the same financial terms of the Offer. American Tower will exercise its right of first refusal within 30 days of receipt of Landlord's notice and if American Tower does not provide notice within 30 days, American Tower will be deemed to have not exercised its right of first refusal. If American Tower does not exercise its right of first refusal, section 15(b) of this Agreement will control the terms of the sale.

(b) Landlord may sell the Property or a portion thereof to a third party, provided: (i) the sale is made subject to the terms of this Agreement; and (ii) if the sale does not include the assignment of Landlord's full interest in this Agreement the purchaser must agree to perform, without requiring compensation from American Tower or any Collocator, any obligation of the Landlord under this Agreement, including Landlord's obligation to cooperate with American Tower as provided hereunder, which obligation Landlord would no longer have the legal right or ability to perform following the sale without requiring compensation from American Tower or any Collocator to be paid to such purchaser.

16. Assignment.

(a) Any sublease, license or assignment of this Agreement that is entered into by Landlord or American Tower is subject to the provisions of this Agreement.

(b) Landlord may assign this Agreement in its entirety to any third party in conjunction with a sale of the Property in accordance with Paragraph 15 of this Agreement. Landlord will not otherwise assign less than Landlord's full interest in this Agreement without the prior written consent of American Tower.

(c) American Tower may assign this Agreement without prior notice to or the consent of Landlord. Upon assignment, American Tower shall be relieved of all liabilities and obligations

hereunder and Landlord shall look solely to the assignee for performance under this Agreement and all obligations hereunder.

(d) American Tower may mortgage or grant a security interest in this Agreement and the Tower Facilities, and may assign this Agreement and the Tower Facilities to any such mortgagees or holders of security interests including their successors and assigns (collectively, "***Secured Parties***"). If requested by American Tower, Landlord will execute such consent to such financing as may reasonably be required by Secured Parties. In addition, if requested by American Tower, Landlord agrees to notify American Tower and American Tower's Secured Parties simultaneously of any default by American Tower and to give Secured Parties the same right to cure any default as American Tower. If a termination, disaffirmance or rejection of the Agreement by American Tower pursuant to any laws (including any bankruptcy or insolvency laws) occurs, or if Landlord will terminate this Agreement for any reason, Landlord will give to Secured Parties prompt notice thereof and Secured Parties will have the right to enter upon the Compound during a 30-day period commencing upon Secured Parties' receipt of such notice for the purpose of removing any Tower Facilities. Landlord acknowledges that Secured Parties are third-party beneficiaries of this Agreement.

17. **Condemnation.** If a condemning authority takes all of the Site, or a portion sufficient in American Tower's sole judgment, to render the Site unsuitable for the Intended Use, this Agreement will terminate as of the date the title vests in the condemning authority. Landlord and American Tower will share in the condemnation proceeds in proportion to the values of their respective interests in the Site (which for American Tower includes, where applicable, the value of the Tower Facilities, moving expenses, prepaid rent and business dislocation expenses). If a condemning authority takes less than the entire Site such that the Site remains suitable for American Tower's Intended Use, the Rent payable under this Agreement will be reduced automatically by such percentage as the area so condemned bears to the Site as of the date the title vests in the condemning authority. A sale of all or part of the Site to a purchaser with the power of eminent domain in the face of the exercise of eminent domain power will be treated as a taking by condemnation for the purposes of this paragraph.

18. **Insurance.** American Tower will purchase and maintain in full force and effect throughout the Option Period and the Term such general liability and property damage policies as American Tower may deem necessary. Said policy of general liability insurance will at a minimum provide a combined single limit of $1,000,000.

19. **Waiver of Damages.**

(a) In the event that American Tower does not exercise its Option: (i) Landlord's sole compensation and damages will be fixed and liquidated to the sums paid by American Tower to Landlord as consideration for the Option; and (ii) Landlord expressly waives any other remedies it may have for a breach of this Agreement including specific performance and damages for breach of contract.

(b) Neither Landlord nor American Tower will be responsible or liable to the other party for any loss or damage arising from any claim to the extent attributable to any acts of omissions of other licensees or tower users occupying the Tower Facilities or vandalism or for any structural or power failures or destruction or damage to the Tower Facilities except to the extent caused by the negligence or willful misconduct of such party.

(c) EXCEPT AS SPECIFICALLY PROVIDED IN THIS AGREEMENT, IN NO EVENT WILL LANDLORD OR AMERICAN TOWER BE LIABLE TO THE OTHER FOR, AND AMERICAN TOWER AND LANDLORD EACH HEREBY WAIVE THE RIGHT TO RECOVER INCIDENTAL,

CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, LOSS OF USE OR LOSS OF BUSINESS OPPORTUNITY), PUNITIVE, EXEMPLARY AND SIMILAR DAMAGES.

20. Confidentiality. Landlord will not disclose to any third party the Rent payable by American Tower under this Agreement and will treat such information as confidential, except that Landlord may disclose such information to prospective buyers, prospective or existing lenders, Landlord's affiliates and attorneys, or as may be required by law or as may be necessary for the enforcement of Landlord's rights under the Agreement.

21. Subordination Agreements.

(a) If the Site is encumbered by a mortgage or deed of trust, within 30 days of receipt of a written request from American Tower, Landlord agrees to execute and obtain the execution by its lender of a non-disturbance and attornment agreement in the form provided by American Tower, to the effect that American Tower and American Tower's sublessees and licensees will not be disturbed in their occupancy and use of the Site by any foreclosure or to provide information regarding the mortgage to American Tower.

(b) Should a subordination, non-disturbance and attornment agreement be requested by Landlord or a lender working with Landlord on a loan to be secured by the Property and entered into subsequent to the Execution Date, American Tower will use good faith efforts to provide Landlord or Landlord's lender with American Tower's form subordination, non-disturbance and attornment agreement executed by American Tower within 30 days of such request.

22. Notices. All notices or demands by or from American Tower to Landlord, or Landlord to American Tower, required under this Agreement will be in writing and sent (United States mail postage pre-paid, certified with return receipt requested or by reputable national overnight carrier service, transmit prepaid) to the other party at the addresses set forth in paragraph 1 of this Agreement or to such other addresses as the parties may, from time to time, designate consistent with this paragraph 22, with such new notice address being effective 30 days after receipt by the other party. Notices will be deemed to have been given upon either receipt or rejection.

23. Further Acts.

(a) Within 15 days after receipt of a written request from American Tower, Landlord will execute any document necessary or useful to protect American Tower's rights under this Agreement or to facilitate the Intended Use including documents related to title, zoning and other Approvals, and will otherwise cooperate with American Tower in its exercise of its rights under this Agreement.

(b) American Tower will be entitled to liquidated damages for the revenue lost by American Tower as a result of any delay caused by Landlord's unwillingness to execute a document or to take any other action deemed necessary by American Tower to protect American Tower's leasehold rights or to facilitate the Intended Use. As the actual amount of such lost revenue is difficult to determine, the parties agree that American Tower may deduct the amount of [redacted] per day from future installments of Rent for any delay to American Tower caused by Landlord's failure or unwillingness to act, such amount being an estimate of American Tower's lost revenue. American Tower's right to collect such liquidated damages will in no way affect American Tower's right to pursue any and all other legal and equitable rights and remedies permitted under applicable laws.

24. Memorandum of Lease. Simultaneously with the execution of this Agreement, the parties will enter into the Memorandum of Lease attached to this Agreement as Exhibit C which American Tower

may record in the public records of the county of the Property. Landlord acknowledges and agrees that after Landlord signs the Memorandum of Lease but before American Tower records it, American Tower may add both: (a) a reference to the recording granting Landlord its interest in the Property; and (b) a legal description of the Site as Exhibit B. Landlord agrees to execute and return to American Tower a recordable Amended Memorandum of Lease in form supplied by American Tower if: (i) the information included in the Memorandum of Lease changes, or (ii) if it becomes clear that such information is incorrect or incomplete or if this Agreement is amended.

25. **Miscellaneous.**

(a) This Agreement runs with the Property and is binding upon and will inure to the benefit of the parties, their respective heirs, successors, personal representatives and assigns.

(b) American Tower may at American Tower's sole cost and expense procure an abstract of title or a commitment to issue a policy of title insurance (collectively "***Title***") on the Property.

(c) Landlord hereby waives any and all lien rights it may have, statutory or otherwise, in and to the Tower Facilities or any portion thereof, regardless of whether or not same is deemed real or personal property under applicable laws.

(d) The substantially prevailing party in any litigation arising hereunder is entitled to its reasonable attorney's fees and court costs, including appeals, if any.

(e) Each party agrees to furnish to the other, within 30 days after request, such estoppel information as the other may reasonably request.

(f) This Agreement constitutes the entire agreement and understanding of Landlord and American Tower with respect to the subject matter of this Agreement, and supersedes all offers, negotiations and other agreements. There are no representations or understandings of any kind not stated in this Agreement. Any amendments to this Agreement must be in writing and executed and delivered by Landlord and American Tower.

(g) If either Landlord or American Tower is represented by a real estate broker in this transaction, that party is fully responsible for any fees due such broker and will hold the other party harmless from any claims for commission by such broker.

(h) The Agreement will be construed in accordance with the laws of the state in which the Site is situated.

(i) If any term of the Agreement is found to be void or invalid, the remainder of this Agreement will continue in full force and effect.

(j) American Tower may obtain title insurance on its interest in the Site, and Landlord will cooperate by executing any documentation required by the title insurance company.

(k) This Agreement may be executed in two or more counterparts, all of which are considered one and the same agreement and become effective when one or more counterparts have been signed by each of the parties, it being understood that all parties need not sign the same counterpart.

(l) Landlord will not, during the Option Period or the Term, enter into any other lease, license, or other agreement for the same or similar purpose as the Intended Use, on or adjacent to the Property.

(m) Failure or delay on the part of either party to exercise any right, power or privilege hereunder will not operate as a waiver thereof and waiver of breach of any provision hereof under any circumstances will not constitute a waiver of any subsequent breach.

(n) The parties agree that irreparable damage would occur if any of the provisions of this Agreement were not performed in accordance with their specified terms or were otherwise breached. Therefore, the parties agree the parties will be entitled to an injunction(s) in any court in the state in which the Site is located to prevent breaches of the provisions of this Agreement and to enforce specifically the terms and provisions of the Agreement, this being in addition to any other remedy to which the parties are entitled at law or in equity.

(o) Each party executing this Agreement acknowledges that it has full power and authority to do so and that the person executing on its behalf has the authority to bind the party.

(p) The parties agree that a scanned or electronically reproduced copy or image of this Agreement will be deemed an original and may be introduced or submitted in any action or proceeding as competent evidence of the execution, terms and existence hereof notwithstanding the failure or inability to produce or tender an original, executed counterpart of this Agreement and without the requirement that the unavailability of such original, executed counterpart of this Agreement first be proven.

[SIGNATURES APPEAR ON NEXT PAGE]

Site Name: Jake Horsley KY
Site Number: 281318

IN WITNESS WHEREOF, Landlord and American Tower have each executed this Agreement as of the respective dates written below.

LANDLORD:
Cornelius Hollingshead and Adina K. Hollingshead, his wife

Cornelius Hollingshead
Name: Cornelius Hollingshead

Date: 12-05-13

Adina K. Hollingshead
Name: Adina K. Hollingshead

Date: 12-05-13

Acknowledgement

STATE OF ND
COUNTY OF Pembina

I, a Notary Public of the County and State aforesaid, certify that Cornelius Hollingshead and Adina K. Hollingshead, his wife came before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 5th day of Dec., 2013.

[Affix Notary Seal]

SARAH WINKLER
Notary Public
State of North Dakota
My Commission Expires April 9, 2016

Sarah Winkler
Notary Public
My commission expires:

Site Name: Jake Horsley KY
Site Number: 281318

AMERICAN TOWER:

American Towers LLC, a Delaware limited liability company d/b/a Delaware American Towers LLC

By: _____
Name: Richard Rossi
Title: Vice President Legal
Date: 12/26/13

Acknowledgement

COMMONWEALTH OF MASSACHUSETTS)
) ss:
COUNTY OF MIDDLESEX)

On the 26th day of December, 2013, the undersigned notary public, personally appeared Richard Rossi, proved to me through satisfactory evidence of identification, which were ***personally known***, to be the person who name is signed on the preceding or attached document, and acknowledged that he/she signed it voluntarily for its stated purpose, as Vice President, of American Towers LLC, d/b/a Delaware American Towers LLC, before me.

PHILLIP COTTO
NOTARY PUBLIC
MY COMM. EXPIRES
AUGUST 31, 2018

_____
Notary Public
My Commission Expires:

Site Name: Jake Horsley KY
Site Number: 281318

The following exhibits are attached to this Agreement and incorporated into this Agreement:

Exhibit A	Description or Depiction of Property
Exhibit B	Description or Depiction of Site
Exhibit C	Memorandum of Lease

Site Name: Jake Horsley KY
Site Number: 281318

EXHIBIT A

DESCRIPTION OR DEPICTION OF PROPERTY

The Property is described and/or depicted as follows:

Beginning at a stake on northeast side of Williams Road, corner of Countis-Williams drive and being 1177 feet northwest of Hqwy 144; thence with Williams Road right of way N-45-w-336' to a tree; thence N 46-W-238.6 ft. to a stake; thence, leaving road, N-20-46-E 10 ft to a fence post in the old William-Bates line; thence with fence S-56-46 1/2-E 200 ft; thence S 62-37-E 217.22 ft; thence S-76-29-E-56.44 ft; thence S-28-54-W 76.53 ft; thence S-47-47-E 77.56 ft. to fence post on northwest side of Countiss-Williams drive; thence with drive S-20-46-W 48.5 ft to point of beginning and containing .8 of acre more or less.

BEING the same property conveyed to Joseph Bauman, single, by deed from Kenneth Heavrin and Patricia Heavrin, his wife, and Mac Frazier and Sue Frazier, his wife, dated June 19, 2001 and recorded in Deed Book 275, page 148, Breckinridge County Clerk's Office.

AND

Three certain tracts or parcels of land lying and being in Breckinridge County, Kentucky, and more particularly described as follows:

Being Tract 9, consisting of 29.819 acres, Tract 10 consisting of 25.208 acres, and Tract 14, consisting of 17.212 acres, as set forth on the plat of the Melvin Martin property recorded in Plat Cabinet Slide A-318 in the Breckinridge County Clerk's Office, to which plat reference is hereby made for a more particular description of said property.

There is further conveyed with Tracts 9, 10, 14, and 15, the right of ingress and egress over a 40 foot right of way easement as shown on the plat of the Melvin Martin Property recorded in Plat Cabinet, Slide A-318, said Clerk's Office.

Tracts 9, 10, 14, and 15 are subject to a 40 foot right of way easement as shown on the plat of the Melvin Martin Property recorded in Plat Cabinet, Slide A-318, said Clerk's office.

SUBJECT HOWEVER, to the easements and restrictions as shown on the plat of the Melvin Martin Property recorded in Plat Cabinet Slide A-318 said Clerk's Office.

BEING a part of the same property conveyed to Isaac B. Martin and Lena M. Martin, his wife, by deed from Melvin B. Martin and Ruth E. Martin, his wife, dated February 25, 1999 and recorded in Deed Book 258, page 49, Breckinridge County Clerk's Office.

Site Name: Jake Horsley KY
Site Number: 281318

EXHIBIT B

DESCRIPTION OR DEPICTION OF SITE

Locations are approximate. American Tower may, at its option, replace this exhibit with a copy of the survey of the Site.

Compound:

Beginning at an existing iron rod found at the southwest corner of a Lot 6 found in Plat Cabinet A, Slide 318 of the Office of the Clerk, Breckinridge County Kentucky; said Plat being the property conveyed to Cornelius Hollingshead in Deed Book 298, Page 681 and Deed Book 256, Page 774 in the aforesaid clerk's office; thence traversing said Property S61°50'18"E – 342.83' to a set #5 iron rod with cap #3282 and the True Point Of Beginning of the proposed Lease Area; thence S62°48'31"E – 100.00' to a set #5 iron rod with cap #3282; thence S27°11'29"W – 100.00' to a set #5 iron rod with cap #3282; thence N62°48'31W – 100.00' to a set #5 iron rod with cap #3282; thence N27°11'29"E – 100.00' to the point of beginning, containing 10,000 square feet as per survey by FStan Land Surveyors & Consulting Engineers, Frank L Sellinger, II, surveyor, dated October 21, 2013.

Access and Utility Easements:

Beginning at an existing iron rod found at the southwest corner of a Lot 6 found in Plat Cabinet A, Slide 318 of the Office of the Clerk, Breckinridge County Kentucky; said Plat being the property conveyed to Cornelius Hollingshead in Deed Book 298, Page 681 and Deed Book 256, Page 774 in the aforesaid clerk's office; thence traversing said Property S61°50'18"E – 342.83' to a set #5 iron rod with cap #3282 and the True Point Of Beginning of the proposed Access & Utility Easement; thence N27°11'29"E – 38.47' to a set #5 iron rod with cap #3282; thence S62°48'31"E – 148.75' to a set #5 iron rod with cap #3282 and being on the east line of Lot 6 in said Plat; thence with said line for two calls S41°53'00"W – 47.27' to a set #5 iron rod with cap #3282; thence S27°12'06"W – 107.26' to a set #5 iron rod with cap #3282; thence S33°20'01"W – 62.26' to a set mag nail in the center line of Williams Road; thence with said center line N49°54'33"W – 20.14' to a set mag nail; thence leaving said center line N33°20'01"E – 63.75' to a set #5 iron rod with cap #3282; thence N36°30'22"W – 19.27' to a set #5 iron rod with cap #3282; thence N27°11'29"E – 100.00' to a set #5 iron rod with cap #3282; thence N62°48'31"W – 100.00' to the point of beginning, containing 10,769.6 square feet as per survey by FStan Land Surveyors & Consulting Engineers, Frank L Sellinger, II, surveyor, dated October 21, 2013.

Site Name: Jake Horsley KY
Site Number: 281318

EXHIBIT C

MEMORANDUM OF LEASE

[see following pages]

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THIS DEED OF CONVEYANCE, made and entered into this the 15 day of June, 2004, by and between **JOSEPH BAUMAN, single**, of 346 Williams Lane, Stephensport, Kentucky 40170, hereinafter referred to as the Grantor(s), and **CORNELIUS HOLLINGSHEAD and ADINA HOLLINGSHEAD, his wife**, of 226 Williams Lane, Stephensport, Kentucky 40170, hereinafter referred to as the Grantee(s).

WITNESSETH: That the Grantor(s), for and in consideration of the sum of ONE THOUSAND FIVE HUNDRED ($1,500.00) DOLLAR(S), cash in hand paid, the receipt of which is hereby acknowledged, do hereby grant, sell and convey unto the Grantee(s), husband and wife, for their joint lives, with remainder in fee simple to the survivor of them, the following described property, to-wit:

Beginning at a stake on northeast side of Williams Road, corner of Countis-Williams drive and being 1177 feet northwest of Hgwy 144; thence with Williams Road right of way N-45-w-336' to a tree; thence N 46-W-238.6 ft. to a stake; thence, leaving road, N-20-46-E 10 ft to a fence post in the old William-Bates line; thence with fence S-56-46 1/2-E 200 ft; thence S 62-37-E 217.22 ft; thence S-76-29-E-56.44 ft; thence S-28-54-W 76.53 ft; thence S-47-47-E 77.56 ft. to fence post on northwest side of Countiss-Williams drive; thence with drive S-20-46-W 48.5 ft to point of beginning and containing .8 of acre more or less.

BEING the same property conveyed to Joseph Bauman, single, by deed from Kenneth Heavrin and Patricia Heavrin, his wife, and Mac Frazier and Sue Frazier, his wife, dated June 19, 2001 and recorded in Deed Book 275, page 148, Breckinridge County Clerk's Office.

TO HAVE AND TO HOLD the above described property, together with the appurtenances thereunto belonging, unto the Grantee(s), husband and wife, for their joint lives, with remainder in fee simple to the survivor of them, with Covenant of GENERAL WARRANTY, except as to the 2004 real estate taxes which shall be paid by Grantees.

SUBJECT, HOWEVER, to any restrictions, stipulations, and easements of record affecting said property.

The parties hereto state the consideration reflected in this deed is the full consideration paid for the property. The Grantee(s) join this deed for the sole purpose of certifying the consideration pursuant to Chapter 382 of KRS.

JUN 15 8 90

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IN TESTIMONY WHEREOF, witness the signature(s) of the Grantor(s) and the Grantee(s), this the day and year first above written.

JOSEPH BAUMAN (Grantor)

CORNELIUS HOLLINGSHEAD (Grantee) ADINA HOLLINGSHEAD (Grantee)

STATE OF KENTUCKY

COUNTY OF BRECKINRIDGE . . . SS

The foregoing Deed of Conveyance and Consideration Certificate was acknowledged and ~~sworn~~ affirm to before me this 15th day of June, 2004 by Joseph Bauman, single, Grantor(s).

My commission expires May 20 2007.

NOTARY PUBLIC
BRECKINRIDGE COUNTY, KENTUCKY

STATE OF KENTUCKY

COUNTY OF BRECKINRIDGE . . . SS

The foregoing Consideration Certificate was acknowledged and sworn to before me this 15th day of June, 2004 by Cornelius Hollingshead and Adina Hollingshead, his wife, Grantee(s).

My commission expires May 20 2007.

NOTARY PUBLIC
BRECKINRIDGE COUNTY, KENTUCKY

THIS INSTRUMENT PREPARED BY:
BRITE & BUTLER, PLLC
ATTORNEYS AT LAW
HARDINSBURG, KENTUCKY

RECEIVED 6-15-04
RECORDING FEE $12.00
EXTRA PAGES
TAX $1.50

STATE OF KENTUCKY, COUNTY OF BRECKINRIDGE, SCT.
I, CHARLES ALLEN WILSON, Clerk of the County and State aforesaid, do certify that the foregoing instrument was on the 15 day of June 2004 at 3:40P M., lodged for record, whereupon the same with the foregoing and this certificate have been duly recorded in my said office in Deed Book 242 Page 682
Given under my hand this 21 day of June 2004
CHARLES ALLEN WILSON, CLERK
BY: Connie Tolle D.C.

C:Current 2004\Bauman, Joseph to Hollingshead.ded.docsw

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THIS DEED OF CONVEYANCE, made and entered into this the 19th day of December, 1998, by and between MELVIN B. MARTIN and RUTH E. MARTIN, his wife, of HC 72 Box 39, Stephensport, Breckinridge County, Kentucky 40170, hereinafter referred to as Grantors, and CORNELIUS HOLLINGSHEAD and ADINA HOLLINGSHEAD, his wife, of HC 72 Box 180 Stephensport, Breckinridge County, Kentucky 40170, hereinafter referred to as Grantees.

WITNESSETH: That the Grantors, for and in consideration of the sum of $20,270.25 (TWENTY THOUSAND TWO HUNDRED SEVENTY DOLLARS AND TWENTY FIVE CENTS), cash in hand paid, the receipt of which is hereby acknowledged, do hereby sell, grant and convey to the Grantees for and during their joint lives with remeinder in fee simple to the survivor of them, the following described property, to-wit:

Three certain tracts or parcels of land lying and being in Breckinridge County, Kentucky, and more particularly described as follows:

Being Tract 6, consisting of 3.785 acres, Tract 7 consisting of 4.474 acres, and Tract 8, consisting of 11.822 acres, as set forth on the plat of the Melvin Martin property recorded in Plat Cabinet Slide A-318 in the Breckinridge County Clerk's Office, to which plat reference is hereby made for a more particular description of said property.

Being a part of the same property conveyed to Melvin B. Martin and Ruth E. Martin, his wife, from H. T. Williams, III and Coral Williams, his wife, by deed dated April 16, 1996, and recorded in Deed Book 238 at page 684 in the Breckinridge County Clerk's Office.

There is further conveyed with the above described property the right of ingress and egress over the 40 foot right of way easement as shown on the plat of the Melvin Martin Property recorded in Plat Cabinet, Slide A-318, said Clerk's office.

775

SUBJECT to a 40 foot right of way easement as shown on the plat of the Melvin Martin Property recorded in Plat Cabinet, Slide A-318, said Clerk's office.

SUBJECT HOWEVER, to the easements and restrictions as shown on the plat of the Melvin Martin Property recorded in Plat Cabinet Slide A-318 said Clerk's Office.

THE SAID MELVIN MARTIN REFERRED TO IN THE SAID PLAT OF THE MELVIN MARTIN PROPERTY IS ONE AND THE SAME PERSON AS MELVIN B. MARTIN, GRANTOR HEREIN.

TO HAVE AND TO HOLD the same in fee simple with all the appurtenances thereon, to the Grantees, for and during their joint lives, with remainder in fee simple to the survivor of them, with a Covenant of GENERAL WARRANTY.

Grantors covenant that they are lawfully seized in fee simple of the real estate hereby conveyed; with full right and power to convey the same and that said estate is free and clear of all encumbrances except State, County and School taxes for the year 1998, which shall be paid by the Grantors. Provided further, however, this conveyance is made subject to easements, restrictions, stipulations, and conditions either implied or of record.

The parties hereto state the consideration reflected in this deed is the full consideration paid for the property. The Grantees join in this deed for the sole purpose of certifying the consideration pursuant to Chapter 382 of the Kentucky Revised Statutes.

IN TESTIMONY WHEREOF, witness the signatures of the Grantors and Grantees herein, this the day, month and year first above written.

Melvin B. Martin
MELVIN B. MARTIN, GRANTOR

Ruth E. Martin
RUTH E. MARTIN, GRANTOR

776

Cornelius Hollingshead
CORNELIUS HOLLINGSHEAD,
GRANTEE

Adina Hollingshead
ADINA HOLLINGSHEAD,
GRANTEE

STATE OF KENTUCKY
COUNTY OF BRECKINRIDGE

I, the undersigned, a Notary Public, in and for the state and county aforesaid, do hereby certify that on this day the foregoing Deed of Conveyance from Melvin B. Martin and Ruth E. Martin, his wife, to Cornelius Hollingshead and Adina Hollingshead, his wife, and Consideration Certificate was produced before me in my said state and county by the Grantors and said Deed of Conveyance was signed and acknowledged and said Consideration Certificate was acknowledged and sworn to before me by Melvin B. Martin and Ruth E. Martin, his wife, to be their free act and deed and the free act and deed of each of them.

Given under my hand this 15th day of December, 1998.
My commission expires May 6, 1999.

Stephana Basham Kennedy
NOTARY PUBLIC
STATE-AT-LARGE, KENTUCKY

STATE OF KENTUCKY
COUNTY OF Breckinridge

The foregoing Consideration Certificate was acknowledged and sworn to before me by Cornelius Hollingshead and Adina Hollingshead, his wife, this 19th day of December, 1998.
My commission expires 4-19-2000.

NOTARY PUBLIC
STATE-AT-LARGE, KENTUCKY

NO TITLE EXAMINATION REQUESTED.

THIS INSTRUMENT PREPARED BY:
HERBERT M. O'REILLY
ATTORNEY AT LAW
P. O. BOX 539
HARDINSBURG, KY 40143

Herbert M. O'Reilly

RECEIVED 12-21-98
RECORDING FEE $12.00
EXTRA PAGES —
TAX $20.50

STATE OF KENTUCKY, COUNTY OF BRECKINRIDGE, SCT.
I, CHARLES ALLEN WILSON, Clerk of the County and State aforesaid, do certify that the foregoing instrument was on the 21st day of December 1998 at 2:48 PM., lodged for record, whereupon the same with the foregoing and this certificate have been duly recorded in my said office in Deed Book 256 Page 774.
Given under my hand this 24th day of Dec 1998
CHARLES ALLEN WILSON, CLERK
BY: Linda Tedesco DC

Pat Burger

EXHIBIT K
NOTIFICATION LISTING

Jake Horsley Landowner Notice Listing

Cornelius & Adina Hollingshead
226 Williams Lane
Stephensport, KY 40170

Titus & Ruth S. Bauman
346 Williams Lane
Stephensport, KY 40170

Paul E. & Donna S. Freadreacea
4874 Brenda Dr.
Louisville, KY 40219

Briar Patch Farms LLC
T. Darren Brown, President
6640 Hwy 79
Guston, KY 40142

Bennie W. Keith &
Daniel R. Keith
212 Sandstone Rd.
Shepherdsville, KY 40165

Jonathan & Marion & H. Rosalie Whelan
4300 Old St. Rd.
Brandenburg, KY 40108

Nathan H. & Violet G. Huber
13233 E. Hwy 144
Stephensport, KY 40170

Conroy Lee & Bonita K. Smith
12915 N. Hwy 259
Stephensport, KY 40170

Lonnie R. & Dorothy L. Lawson
636 Old State Road
Brandenburg, KY 40108

George & Helen Brown
519 Williams Ln.
Stephensport, KY 40170

Ernest & Susan Rutherford
686 Williams Ln.
Stephensport, KY 40170

Gary R. & Patricia Simmons
752 Williams Ln.
Stephensport, KY 40170

B.J. Espy Sr. Living Trust
BJ Espy Sr. Trustee
PO Box 549
Brandenburg, KY 40108

Milton Jr. & Connie Horsley
101 Jays Ln.
Stephensport, KY 40170

Paul D. Miller & WM H. Powers
120 Circle Dr.
Hardinsburg, KY 40143

EXHIBIT L
COPY OF PROPERTY OWNER NOTIFICATION

PIKE
LEGAL

1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-0369
Phone (502) 955-4400 or (800) 516-4293
Fax (502) 543-4410 or (800) 541-4410

Notice of Proposed Construction of
Wireless Communications Facility
Site Name: Jake Horsley

Dear Landowner:

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility and American Towers LLC, a Delaware limited liability company d/b/a Delaware American Towers have filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 218 Williams Lane, Stephensport, Kentucky 40170 (37°55'53.15" North latitude, 86°28'37.73" West longitude). The proposed facility will include a 255-foot tall antenna tower, plus a 10-foot lightning arrestor and related ground facilities. This facility is needed to provide improved coverage for wireless communications in the area.

This notice is being sent to you because the Breckinridge County Property Valuation Administrator's records indicate that you may own property that is within a 500' radius of the proposed tower site or contiguous to the property on which the tower is to be constructed. You have a right to submit testimony to the Kentucky Public Service Commission ("PSC"), either in writing or to request intervention in the PSC's proceedings on the application. You may contact the PSC for additional information concerning this matter at: Kentucky Public Service Commission, Executive Director, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2014-00017 in any correspondence sent in connection with this matter.

We have attached a map showing the site location for the proposed tower. AT&T Mobility's radio frequency engineers assisted in selecting the proposed site for the facility, and they have determined it is the proper location and elevation needed to provide quality service to wireless customers in the area. Please feel free to contact us toll free at (800) 516-4293 if you have any comments or questions about this proposal.

Sincerely,
David A. Pike
Attorney for AT&T Mobility

enclosure

Driving Directions to Proposed Tower Site at Jake Horsley

1. Beginning at the Breckinridge County Courthouse, located at 111 West 2nd Street in Hardinsburg, Kentucky, travel east on 2nd street to Ky-259 N / S. Main Street.
2. Turn left onto Ky-259 N / S. Main Street and travel approximately 12.7 miles.
3. Turn left onto Ky-144 W and travel approximately 0.3 miles.
4. Turn right onto Countiss Williams Road and travel approximately 0.2 miles.
5. The proposed site is on the left at 218 Williams Lane, Stephensport, Kentucky 40170.
6. The site coordinates are
    a. North 37 deg 55' 53.15"
    b. West 86 deg 28' 37.73"

Prepared by:
Aaron L. Roof
Pike Legal Group PLLC
1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-3069
Telephone: 502-955-4400 or 800-516-4293

SHEET 1

S1/1 – VICINITY AND 500' STRUCTURAL MAP

S1/2 – ABUTTING PROPERTY OWNERS

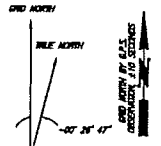
S1/3 – U.S.G.S. QUAD MAP

SHEET 2

S2/1 – LEASE AREA

S2/2 – LEGAL DESCRIPTIONS

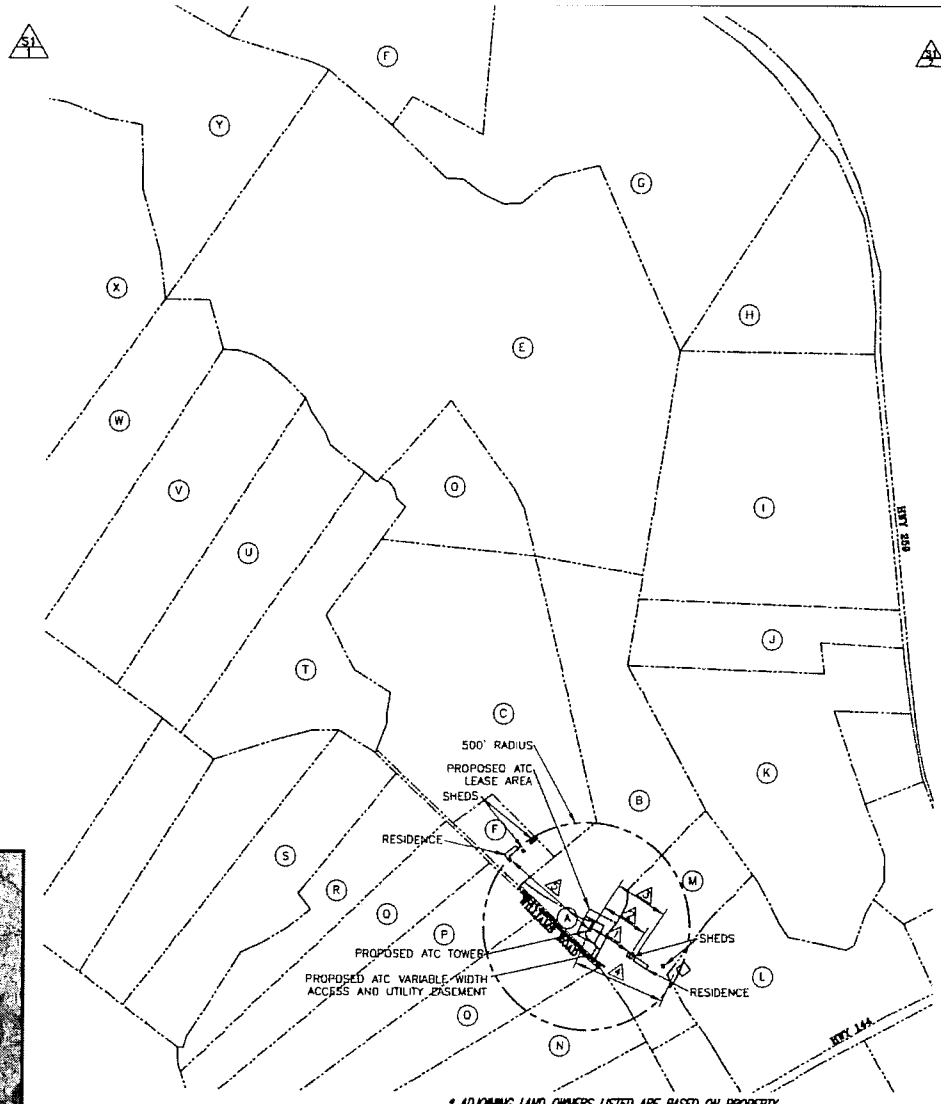
S2/3 – FLOOD ZONE DATA



NORTH IS BASED ON THE KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE AND WAS DETERMINED BY OBSERVATION FROM G.P.S. OBSERVATION ON OCTOBER 11, 2013

S1/3 QUAD MAP
SCALE: 1"=2000'

U.S.G.S. 7 1/2 MINUTE QUAD MAP OF (QUAD MAP NAME)



0' 300' 1800'
(IN FEET)
SCALE: 1" = 300'

S1/2

A. 54-1N
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

B. 54-1F-4
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

C. 54-1F-1
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

D. 54-1F-2 CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

E. 54-1G
HOLLINGSHEAD CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

F. 54-1F-5
HOLLINGSHEAD CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

G. 54-17
BRIAR PATCH FARMS LLC
T DARREN BROWN PRESIDENT
6640 HWY 79
GUSTON, KY 40142
ZONING: NO ZONING

H. 54-1F-6
KEITH BENNIE W & DANIEL R KEITH
212 SANDSTONE RD
SHEPHERDSVILLE, KY 40165
ZONING: NO ZONING

I. 54-1M
WHELAN JONATHAN & MARION & H ROSALIE
4300 OLD ST RD
BRANDENBURG, KY 4010
ZONING: NO ZONING

J. 54-1L
HUBER NATHAN H & VIOLET G
13233 E HWY 144
STEPHENSPORT, KY 40170
ZONING: NO ZONING

K. 54-1F-8
SMITH CONROY LEE & BONITA K
12915 N HWY 259
STEPHENSPORT, KY 40170
ZONING: NO ZONING

L. 54-1H
HUBER NATHAN H & VIOLET G
13233 E HWY 144
STEPHENSPORT, KY 40170
ZONING: NO ZONING

M. 54-1J
HUBER NATHAN H & VIDLET G
13233 E HWY 144
STEPHENSPORT, KY 40170
ZONING: NO ZONING

N. 54-1B5
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

D. 54-1B4
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

P 54-1B3
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

Q 54-1B2 DUKES DEREK S
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

R. 54-1B1
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

S. 54-5R
BROWN GEORGE AND HELEN
519 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

T. 54-5B
RUTHERFORD ERNEST & SUSAN
686 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

U. 54-5N
SIMMONS GARY R & PATRICIA
752 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

V. 54-5J
SIMMONS GARY R & PATRICIA
752 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

W. 54-5-0
ESPY B J SR LIVING TRUST
BJ ESPY SR TRUSTEE
PO BOX 549
BRANDENBURG, KY 40108
ZONING: NO ZONING

X. 54-4
MILLER PAUL O & WM H POWERS
12D CIRCLE DR.
HARDINSBURG, KY 40143
ZONING: NO ZONING

Y. 54-1F-9
HORSLEY MILTON JR & CONNIE
1D1 JAYS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

TOWER TO STRUCTURE DIST.
1 215'±
2 229'±
3 212'±
4 456'±
5 484'±

* ADJOINING LAND OWNERS LISTED ARE BASED ON PROPERTY VALUATION ADMINISTRATION ("PVA") RECORDS ISSUED BY A REPRESENTATIVE FROM BRECKINRIDGE COUNTY, TO BE IN COMPLIANCE WITH ALL STATUTORY AND REGULATORY REQUIREMENTS BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION AND FOR TELECOMMUNICATION USE ONLY.

AMERICAN TOWER CORPORATION

FSTan
Formerly F.S. Land & T. Alan Neal Company
Land Surveyors and Consulting Engineers
420 E Warnock Street
Louisville, KY 40217
Phone: (502) 636-8866 (502) 636-8111
Fax: (502) 636-8363

SITE NUMBER:
AT&T# 143741 / ATC# 281318

SITE NAME:
JAKE HORSLEY

SITE ADDRESS:
218 WILLIAMS LANE
STEPHENSPORT, KY 40170

LEASE AREA:
10,000 SQ. FT.

PROPERTY OWNER:
CORNELIUS HOLLINGSHEAD
226 WILLIAMS LANE
STEPHENSPORT, KY 40170

MAP NUMBER:
54

PARCEL NUMBER:
1N & 1F-4

SOURCE OF TITLE:
DEED 298, PAGE 681
DEED 256, PAGE 774

DWG BY:	CHKD BY:	DATE:
SMF	FSH	10.24.13

FSTAN PROJECT NO.:
13-6576

SHEET 1 OF 2

REVISIONS:
MOVED LEASE AREA – 11.06.13
ADD TITLE NOTES – 12.20.13
UPDATE PRO. OWN. – 01.16.14

DATE COMPILED: 06-21-13

JAKE HORSLEY
AT&T # 143741 / ATC # 281318
SITE ADDRESS: 218 WILLIAMS LANE
STEPHENSPORT, KY 40170
OWNER ADDRESS: 226 WILLIAMS LANE
STEPHENSPORT, KY 40170

EXHIBIT M
COPY OF COUNTY JUDGE/EXECUTIVE NOTICE

PIKE
LEGAL

1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-0369
Phone (502) 955-4400 or (800) 516-4293
Fax (502) 543-4410 or (800) 541-4410

VIA CERTIFIED MAIL

Hon. Maurice Lucas
Breckinridge County Judge Executive
Breckinridge County Courthouse Annex
P.O. Box 227
Hardinsburg, KY 40143

RE: Notice of Proposal to Construct Wireless Communications Facility
Kentucky Public Service Commission Docket No. 201-00017
Site Name: Jake Horsley

Dear Judge Lucas:

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility and American Towers LLC, a Delaware limited liability company d/b/a Delaware American Towers have filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 218 Williams Lane, Stephensport, Kentucky 40170 (37°55'53.15" North latitude, 86°28'37.73" West longitude). The proposed facility will include a 255-foot tall antenna tower, plus a 10-foot lightning arrestor and related ground facilities. This facility is needed to provide improved coverage for wireless communications in the area.

You have a right to submit comments to the PSC or to request intervention in the PSC's proceedings on the application. You may contact the PSC at: Executive Director, Public Service Commission, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2014-00017 in any correspondence sent in connection with this matter.

We have attached a map showing the site location for the proposed tower. AT&T Mobility's radio frequency engineers assisted in selecting the proposed site for the facility, and they have determined it is the proper location and elevation needed to provide quality service to wireless customers in the area. Please feel free to contact us with any comments or questions you may have.

Sincerely,

David A. Pike
Attorney for AT&T Mobility
enclosures

Driving Directions to Proposed Tower Site at Jake Horsley

1. Beginning at the Breckinridge County Courthouse, located at 111 West 2nd Street in Hardinsburg, Kentucky, travel east on 2nd street to Ky-259 N / S. Main Street.
2. Turn left onto Ky-259 N / S. Main Street and travel approximately 12.7 miles.
3. Turn left onto Ky-144 W and travel approximately 0.3 miles.
4. Turn right onto Countiss Williams Road and travel approximately 0.2 miles.
5. The proposed site is on the left at 218 Williams Lane, Stephensport, Kentucky 40170.
6. The site coordinates are
    a. North 37 deg 55' 53.15"
    b. West 86 deg 28' 37.73"

Prepared by:
Aaron L. Roof
Pike Legal Group PLLC
1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-3069
Telephone: 502-955-4400 or 800-516-4293

SHEET 1

S1/1 – VICINITY AND 500' STRUCTURAL MAP

S1/2 – ABUTTING PROPERTY OWNERS

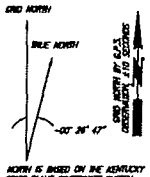
S1/3 – U.S.G.S. QUAD MAP

SHEET 2

S2/1 – LEASE AREA

S2/2 – LEGAL DESCRIPTIONS

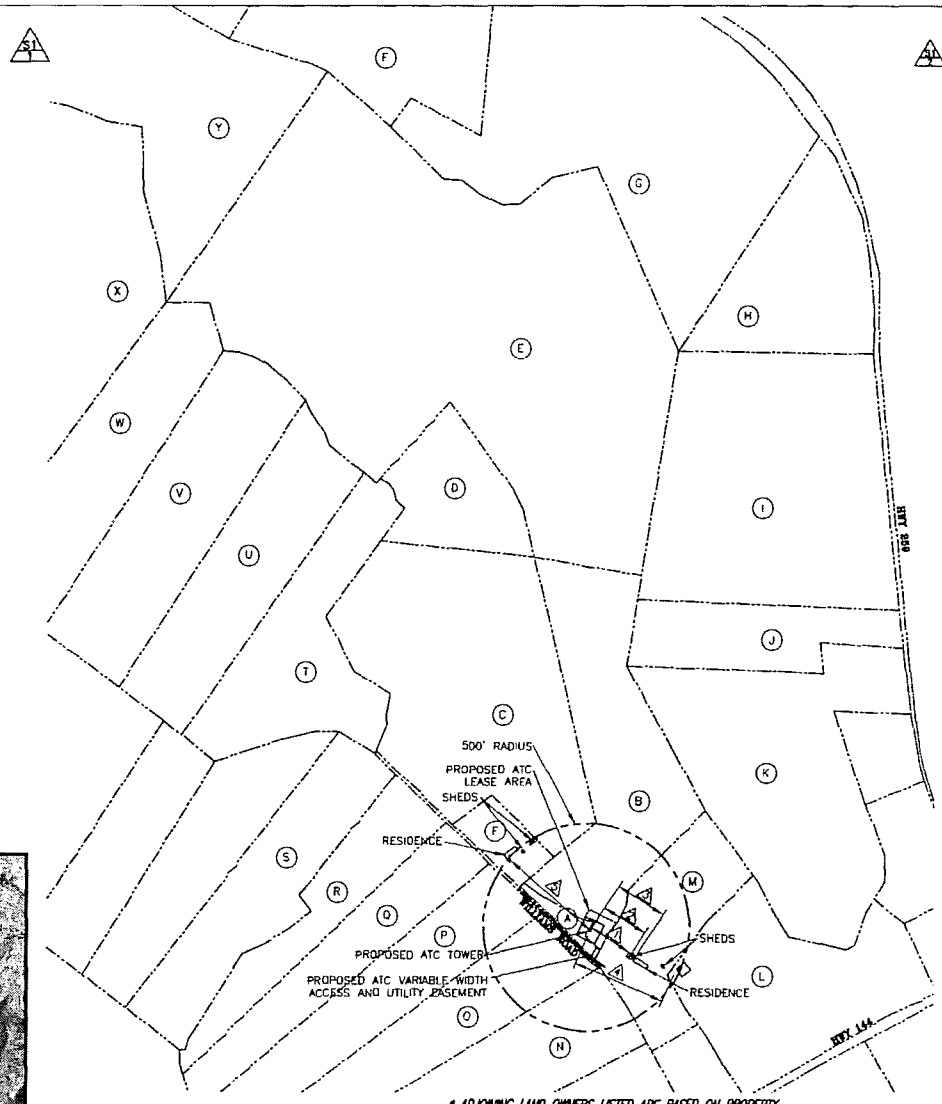
S2/3 – FLOOD ZONE DATA



NORTH IS BASED ON THE KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE AND WAS DETERMINED BY CONVERSION FROM G.P.S. OBSERVATION ON OCTOBER 11, 2013

S3/1 QUAD MAP
SCALE: 1"=2000'

U.S.G.S. 7 1/2 MINUTE QUAD MAP OF (QUAD MAP NAME)



0' 200' 1"=400'

(IN FEET)
SCALE: 1" = 400'

* ADJOINING LAND OWNERS LISTED ARE BASED ON PROPERTY VALUATION ADMINISTRATION ("PVA") RECORDS ISSUED BY A REPRESENTATIVE FROM BRECKINRIDGE COUNTY, TO BE IN COMPLIANCE WITH ALL STATUTORY AND REGULATORY REQUIREMENTS BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION AND FOR TELECOMMUNICATION USE ONLY.

S1/2

A. 54-1N
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

B. 54-1F-4
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

C. 54-1F-1
CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

D. 54-1F-2 CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

E. 54-1G
HOLLINGSHEAD CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

F. 54-1F-5
HOLLINGSHEAD CORNELIUS & ADINA
226 WILLIAMS LANE
STEPHENSPORT, KY 40170
ZONING: NO ZONING

G. 54-17
BRIAR PATCH FARMS LLC
T DARREN BROWN PRESIDENT
6640 HWY 79
GUSTON, KY 40142
ZONING: NO ZONING

H. 54-1F-6
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212 SANDSTONE RD
SHEPHERDSVILLE, KY 40165
ZONING: NO ZONING

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ZONING: NO ZONING

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HUBER NATHAN H & VIOLET G
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ZONING: NO ZONING

K. 54-1F-8
SMITH CONROY LEE & BONITA K
12915 N HWY 259
STEPHENSPORT, KY 40170
ZONING: NO ZONING

L. 54-1H
HUBER NATHAN H & VIOLET G
13233 E HWY 144
STEPHENSPORT, KY 40170
ZONING: NO ZONING

M. 54-1J
HUBER NATHAN H & VIOLET G
13233 E HWY 144
STEPHENSPORT, KY 40170
ZONING: NO ZONING

N. 54-1B5
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

O. 54-1B4
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

P 54-1B3
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

Q 54-1B2 DUKES DEREK S
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

R. 54-1B1
LAWSON LONNIE R & DOROTHY L
636 OLD STATE ROAD
BRANDENBURG, KY 40108
ZONING: NO ZONING

S. 54-5R
BROWN GEORGE AND HELEN
519 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

T. 54-5B
RUTHERFORD ERNEST & SUSAN
686 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

U. 54-5N
SIMMONS GARY R & PATRICIA
752 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

V. 54-5J
SIMMONS GARY R & PATRICIA
752 WILLIAMS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

W. 54-5-O
ESPY B J SR LIVING TRUST
BJ ESPY SR TRUSTEE
PO BOX 549
BRANDENBURG, KY 40108
ZONING: NO ZONING

X. 54-4
MILLER PAUL D & WM H POWERS
120 CIRCLE DR.
HARDINSBURG, KY 40143
ZONING: NO ZONING

Y. 54-1F-9
HORSLEY WILTON JR & CONNIE
101 JAYS LN
STEPHENSPORT, KY 40170
ZONING: NO ZONING

TOWER TO STRUCTURE DIST.
1 215'±
2 229'±
3 212'±
4 456'±
5 484'±

AMERICAN TOWER CORPORATION

FStan
Formerly F.S. Land & T. Alan Neal Company
Land Surveyors and Consulting Engineers
436 E Warnock Street
Louisville, KY 40217
Phone: (502) 636-0666 (502) 634-8111
Fax: (502) 636-6383

SITE NUMBER:
AT&T# 143741 / ATC# 281318

SITE NAME:
JAKE HORSLEY

SITE ADDRESS:
218 WILLIAMS LANE
STEPHENSPORT, KY 40170

LEASE AREA:
10,000 SQ. FT.

PROPERTY OWNER:
CORNELIUS HOLLINGSHEAD
226 WILLIAMS LANE
STEPHENSPORT, KY 40170

MAP NUMBER:
54

PARCEL NUMBER:
1N & 1F-4

SOURCE OF TITLE:
DEED 298, PAGE 681
DEED 256, PAGE 774

DWG BY:	CHKD BY:	DATE:
SMF	FSH	10.24.13

FSTAN PROJECT NO.:
13-8576

SHEET 1 OF 2

REVISIONS:
MOVED LEASE AREA - 11.06.13
ADD TITLE NOTES - 12.20.13
UPDATE PRO. OWN. - 01.16.14

DATE COMPILED: 08-21-13

JAKE HORSLEY
AT&T # 143741 / ATC # 281318
SITE ADDRESS: 218 WILLIAMS LANE
STEPHENSPORT, KY 40170
OWNER ADDRESS: 226 WILLIAMS LANE
STEPHENSPORT, KY 40170

EXHIBIT N
COPY OF POSTED NOTICES

SITE NAME: JAKE HORSLEY
NOTICE SIGNS

The signs are at least (2) feet by four (4) feet in size, of durable material, with the text printed in black letters at least one (1) inch in height against a white background, except for the word "**tower**," which is at least four (4) inches in height.

New Cingular Wireless PCS, LLC d/b/a AT&T Mobility proposes to construct a telecommunications **tower** on this site. If you have questions, please contact Pike Legal Group, PLLC, P.O. Box 369, Shepherdsville, KY 40165 (800) 516-4293, or the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to docket number Case No. 2014-00017 in your correspondence.

New Cingular Wireless PCS, LLC d/b/a AT&T Mobility proposes to construct a telecommunications **tower** near this site. If you have questions, please contact Pike Legal Group, PLLC, P.O. Box 369, Shepherdsville, KY 40165 (800) 516-4293, or the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to docket number Case No. 2014-00017 in your correspondence.

PIKE
LEGAL

1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-0369
Phone (502) 955-4400 or (800) 516-4293
Fax (502) 543-4410 or (800) 541-4410

VIA TELEFAX: 270-756-1003

The Breckinridge Herald-News
Attn: Carol Fennerty or Angie Wheatley
120 Old Highway 60
P.O. Box 6
Hardinsburg, KY 40143

RE: Legal Notice Advertisement
Site Name: Jake Horsley

Dear Ms. Fennerty or Wheatley:

Please publish the following legal notice advertisement in the next edition of *The Breckinridge Herald-News*:

NOTICE

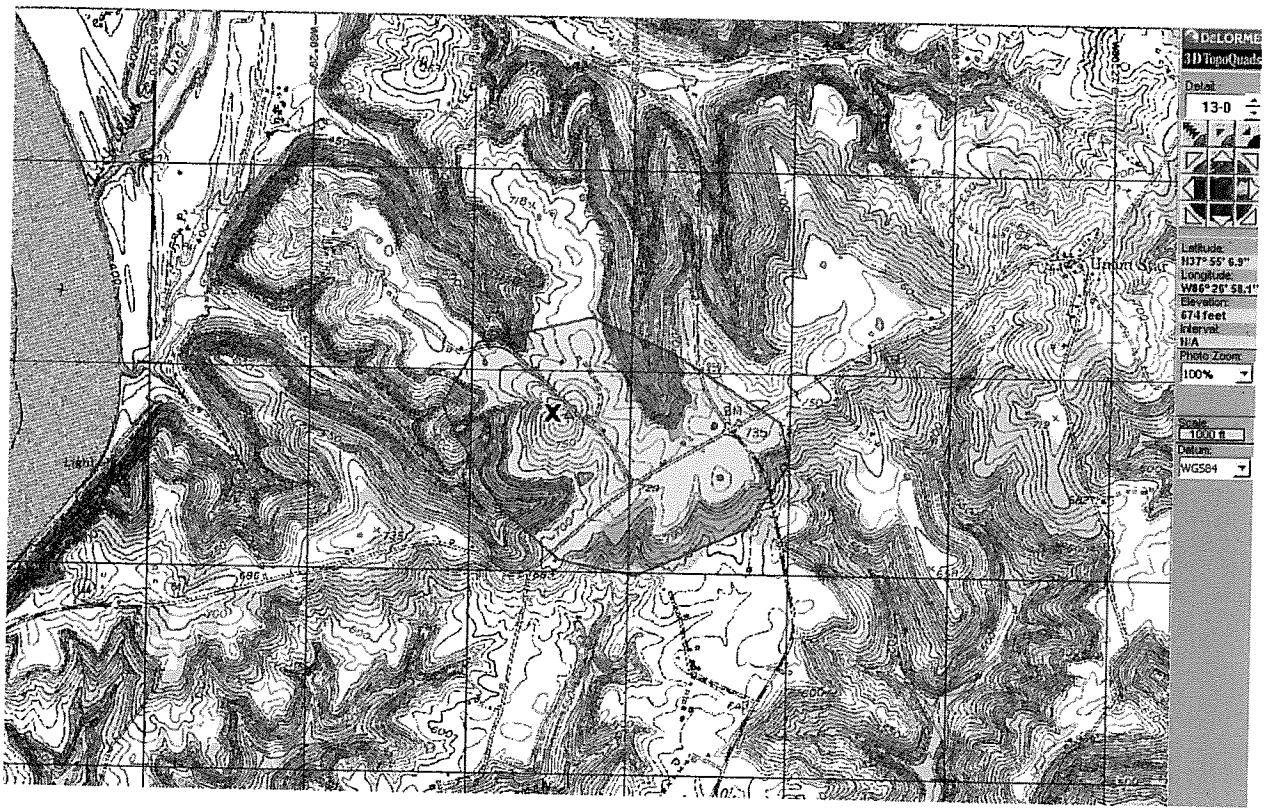
New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility and American Towers LLC, a Delaware limited liability company d/b/a Delaware American Towers have filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 218 Williams Lane, Stephensport, Kentucky 40170 (37°55'53.15" North latitude, 86°28'37.73" West longitude). You may contact the PSC for additional information concerning this matter at: Kentucky Public Service Commission, Executive Director, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2014-00017 in any correspondence sent in connection with this matter.

After this advertisement has been published, please forward a tearsheet copy, affidavit of publication, and invoice to Pike Legal Group, PLLC, P. O. Box 369, Shepherdsville, KY 40165. Please call me at (800) 516-4293 if you have any questions. Thank you for your assistance.

Sincerely,

Aaron L. Roof
Pike Legal Group, PLLC

EXHIBIT O
COPY OF RADIO FREQUENCY DESIGN SEARCH AREA



Jake Horsley: 37.931583 -86.47908