COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF	)	
CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS	)	
FOR ISSUANCE OF A CERTIFICATE OF PUBLIC	)	CASE NO. 2023-00139
CONVENIENCE AND NECESSITY TO CONSTRUCT	)	
A WIRELESS COMMUNICATIONS FACILITY	)	
IN THE COMMONWEALTH OF KENTUCKY	)	
IN THE COUNTY OF GRAYSON	)	

SITE NAME: SHREWSBURY

* * * * * * *

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

Cellco Partnership, d/b/a Verizon Wireless ("Applicant"), 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 submits 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 the Applicant with wireless communications services.

In support of this Application, Applicant respectfully provides and states the following information:

1. The complete name and address of the Applicant: Cellco Partnership, d/b/a Verizon Wireless, having a local address of 2902 Ring Road, Elizabethtown, KY, 42701.

2. Applicant is a Delaware general partnership and a copy of the Statement of Good Standing from Delaware, and the Certificate of Assumed Name is on file with the Secretary of State of Commonwealth of Kentucky and included as part of **Exhibit A**.

3. Applicant proposes construction of an antenna tower for communications services, which is to be located in an area outside the jurisdiction of a planning commission, and Applicant submits 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.

4. The Applicant operates on frequencies licensed by the Federal Communications Commission ("FCC") pursuant to applicable FCC requirements. A copy of the Co-Applicant's FCC Registration and Licenses with Authorization to provide wireless services are attached to this Application or described as part of **Exhibit B**, and the facility will be constructed and operated in accordance with applicable FCC regulations.

5. The public convenience and necessity require the construction of the proposed WCF. The construction of the WCF will bring or improve the Applicant's services to an area currently not served or not adequately served by the Applicant by increasing coverage or capacity and thereby enhancing the public's access to innovative and competitive wireless communications services. A statement from Applicant's RF Design Engineer outlining said need is attached as **Exhibit R** along with Propagation Maps attached as **Exhibit Ra**. The WCF is an integral link in the Applicant's network design that must be in place to provide adequate coverage to the service area.

6. To address the above-described service needs, Applicant proposes to construct a WCF on Gray Road, Leitchfield, KY 40701 (37° 22' 03.84" North latitude, 86° 22' 25.86" 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 Darrell and Sandy Roof pursuant to a Deed recorded at Deed Book 482, Page 291 in the office of the County Clerk. The proposed WCF will consist of a 230-foot tall tower, with an approximately 5-foot tall lightning arrestor attached at the top, for a total height of 235-feet. The WCF will also include concrete foundations and a shelter or cabinets to accommodate the placement of the Applicant's radio electronics equipment and appurtenant equipment. The Applicant's 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 C** and **Exhibit D**.

7. A list of utilities, corporations, or persons with whom the proposed WCF is likely to compete along with a map showing the proposed location as well as the identified like facilities is attached as **Exhibit E**.

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 of the Applicant has also been included as part of **Exhibit C**.

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 D**.

10. Applicant has considered the likely effects of the installation of the proposed WCF on nearby land uses and values and has 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 Applicant's antennas on an existing structure. When suitable towers or

structures exist, Applicant attempts to co-locate on existing structures such as communications towers or other structures capable of supporting Applicant's facilities; however, no other suitable or available co-location site was found to be located in the vicinity of the site. A statement from Applicant, Cellco Partnership, d/b/a Verizon Wireless's RF Design Engineer outlining exploration of co-location opportunities is attached as **Exhibit R**.

11. A copy of the Application for Federal Aviation Administration's ("FAA") and the FAA Determination of No Hazard to Air Navigation is attached as **Exhibit F**.

12. A copy of the Kentucky Airport Zoning Commission ("KAZC") Application to construct the tower is attached as **Exhibit G**. The Approval will be submitted when received.

13. A geotechnical engineering report was performed at the WCF site by Power of Design, 11490 Bluegrass Parkway, Louisville, KY 40299, dated May 20. 2022, and is attached as **Exhibit H**. The name and address of the geotechnical engineering firm and the professional engineer registered in Kentucky who prepared the report are included as part of **Exhibit H and Exhibit S**.

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. Applicant, pursuant to a written agreement, has acquired the right to use the WCF site and associated property rights. A copy of the agreement or an abbreviated agreement recorded with the County Clerk is attached as **Exhibit J**.

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 D** 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. The identity and qualifications of each person directly responsible for design and construction of the proposed tower are contained in **Exhibit S**.

17. The Construction Manager for the proposed facility is Vince Caprino and the identity and qualifications of each person directly responsible for design and construction of the proposed tower are contained in **Exhibit S**.

18. As noted on the Survey attached as part of **Exhibit C**, the surveyor has determined that the tower site and access easement are not within any flood hazard area per Flood Hazard Boundary Map, Community Panel Number 21085C0375C, Dated September 19, 2012.

19. **Exhibit K** 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). This map and the associated Notice List is accompanied by a certificate signed and stamped by the registered surveyor that said information is from the PVA records, dated March 2, 23022. In addition, our office verified and updated the notification list with the Grayson County PVA on May 22, 2023 at https://graysoncountypva.com/ , attached as **Exhibit L**. **Exhibit K** also identifies 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.

20. Applicant has sent certified notices 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 PSC docket number for this application, the address of

the PSC, and will be informed of his or her right to request intervention. A list of the notified property owners, verified on May 22, 2023, using the Grayson County Kentucky Property Valuation Administration records and a copy of the form of the notice to be sent by certified mail to each landowner are attached as **Exhibit L** and **Exhibit M**, respectively. Nine (9) notices were sent to surrounding property owners; to date six (6) notice green cards have been returned. USPS tracking indicates that 2 of the 3 notices are still moving through the system and one is being returned. Copies of the mailed envelopes, returned green cards and USPS tracking are included in **Exhibit M**.

21. Applicant has 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 N**.

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 O**.

23. A legal notice advertisement regarding the location of the proposed facility has been published in a newspaper of general circulation in the county in which the WCF is proposed to be located. A copy of the newspaper legal notice advertisement is attached as **Exhibit P**.

24. The area of the proposed facility is in the unincorporated area of Grayson County, Kentucky. The site is approximately 7.8 miles southwest of Leitchfield, KY. The area is largely agricultural with a scattering of residential properties. The terrain in this area is relatively flat.

There is no zoning or Plan Commission in Grayson County. The general area where the proposed facility is to be located is in a tilled field and, removed a significant distance from any residential structures. The nearest residential structure is 345 feet from the proposed tower site.

25. The process that was used by the Applicant's 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. Applicant'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 by the Applicant when searching for sites for its antennas that would provide the coverage deemed necessary by the Applicant. 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 Q**.

26. The tower must be located at the proposed location and proposed height to provide necessary service to wireless communications users in the subject area, as set out and documented in the RF Design Engineer's Statement of Need and Propagation Maps attached as **Exhibit R** and **Exhibit Ra,** respectively. The proposed tower will expand and improve voice and data service for Verizon Wireless customers.

27. Attached hereto as **Exhibit T** please find an Affidavit of Certification for all information contained in this application.

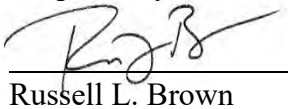
28. All Exhibits to this Application are hereby incorporated by reference as if fully set out as part of the Application.

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

Russell L. Brown
Clark, Quinn, Moses, Scott & Grahn, LLP
320 North Meridian Street, Suite 1100
Indianapolis, IN 46204
Phone: (317) 637-1321
FAX: (317) 687-2344
Email: rbrown@clarkquinnlaw.com

WHEREFORE, Applicant 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,



Russell L. Brown
Clark, Quinn, Moses, Scott & Grahn, LLP
320 North Meridian Street, Suite 1100
Indianapolis, IN 46204
Phone: (317) 637-1321 / FAX: (317) 687-2344
Email: rbrown@clarkquinnlaw.com
Attorney for Cellco Partnership d/b/a Verizon Wireless

LIST OF EXHIBITS

A	Applicant Entity
B	FCC Registration and License Documentation
C	Site Development Plan: 500' Vicinity Map Legal Descriptions Flood Plain Certification Site Plan Vertical Tower Profile
D	Tower and Foundation Design
E	Competing Utilities, Corporations, or Persons List And Map of Like Facilities in Vicinity
F	FAA Application and Determination of No Hazard
G	KAZC Application
H	Geotechnical Report
I	Directions to WCF Site
J	Copy of Real Estate Agreement
K	500’ Radius and Abutters Map with Surveyor Certification
L	Notification Listing
M	Copy of Property Owner Notification
N	Copy of County Judge/Executive notice
O	Copy of Posted Notices
P	Copy of Newspaper Legal Notice Advertisement
Q	Copy of Radio Frequency Design Search Area
R	Copy of RF Design Engineer State of Need
Ra	Propagation Maps
S	List of Qualified Professionals
T	Affidavit of Certification

COMMONWEALTH OF KENTUCKY

Michael G. Adams
Secretary of State

Certificate

I, Michael G. Adams, Secretary of State for the Commonwealth of Kentucky, do hereby certify that the foregoing writing has been carefully compared by me with the original thereof, now in my official custody as Secretary of State and remaining on file in my office, and found to be a true and correct copy of

CERTIFICATE OF ASSUMED NAME OF VERIZON WIRELESS ADOPTED BY GENERAL PARTNERS OF CELLCO PARTNERSHIP FILED JUNE 21, 2006.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 10th day of May, 2023.

COMMONWEALTH OF KENTUCKY
OFFICE OF SECRETARY OF STATE

Michael G. Adams
Secretary of State
Commonwealth of Kentucky
kdcoleman/0641227 - Certificate ID: 290787

COMMONWEALTH OF KENTUCKY
TREY GRAYSON
SECRETARY OF STATE

0641227.07 Dcornish C226
Trey Grayson
Secretary of State
Received and Filed
06/21/2006 12:06:09 PM
Fee Receipt: $20.00

CERTIFICATE OF ASSUMED NAME

This certifies that the assumed name of

Verizon Wireless

[Name under which the business will be conducted]

has been adopted by See Addendum

[Real name - KRS 365.015(1)]

which is the "real name" of [YOU MUST CHECK ONE]

- [ ] a Domestic General Partnership
- [ ] a Domestic Registered Limited Liability Partnership
- [ ] a Domestic Limited Partnership
- [ ] a Domestic Business Trust
- [ ] a Domestic Corporation
- [ ] a Domestic Limited Liability Company
- [ ] a Joint Venture
- [✓] a Foreign General Partnership
- [ ] a Foreign Registered Limited Liability Partnership
- [ ] a Foreign Limited Partnership
- [ ] a Foreign Business Trust
- [ ] a Foreign Corporation
- [ ] a Foreign Limited Liability Company

organized and existing in the state or country of Delaware, and whose address is

One Verizon Way	Basking Ridge	NJ	07920
Street address, if any	City	State	Zip Code

The certificate of assumed name is executed by

NYNEX PCS Inc.

Jane A. Schapker-Assistant Secretary
Print or type name and title

June 15, 2006
Date

Signature

Print or type name and title

Date

SSC-225 (7/96) (See attached sheet for instructions)

Addendum

The full name of the Partnership is Cellco Partnership; a Delaware general partnership with its headquarters located One Verizon Way, Basking Ridge NJ 07920-1097.

General Partners of Cellco Partnership	**Address**
Bell Atlantic Cellular Holdings, L.P.	One Verizon Way Basking Ridge, NJ 07920
NYNEX PCS Inc.	One Verizon Way Basking Ridge, NJ 07920
PCSCO Partnership	One Verizon Way Basking Ridge, NJ 07920
GTE Wireless Incorporated	One Verizon Way Basking Ridge, NJ 07920
GTE Wireless of Ohio Incorporated	One Verizon Way Basking Ridge, NJ 07920
PCS Nucleus, L.P.	2999 Oak Road, 7th Floor Walnut Creek, CA 94597
JV PartnerCo, LLC	2999 Oak Road, 7th Floor Walnut Creek, CA 94597

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "CELLCO PARTNERSHIP" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE TWENTY-SEVENTH DAY OF APRIL, A.D. 2023.

AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL TAXES HAVE BEEN PAID TO DATE.

3341134 8300

Authentication: 203227418

SR# 20231665976

Date: 04-27-23

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

Antenna Structure Registration

ASR Registration Search

Registration 1323679

Registration Detail

Reg Number	1323679	Status	Granted
File Number	A1206646	Constructed	
EMI	No	Dismantled	
NEPA			

Antenna Structure

Structure Type LTOWER - Lattice Tower

Location (in NAD83 Coordinates - Convert to NAD27)

Lat/Long	37-22-03.8 N 086-22-25.8 W	Address	Near 369 Gray Road
City, State	Leitchfield , KY		
Zip	42574	County	GRAYSON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
213.1	71.7
Overall Height Above Mean Sea Level	**Overall Height Above Ground w/o Appurtenances**
284.8	70.1

Painting and Lighting Specifications

FAA Chapters 4, 8, 15
Paint and Light in Accordance with FAA Circular Number 70/7460-1M

FAA Notification

FAA Study	2021-ASO-50778-OE	FAA Issue Date	11/29/2022

Owner & Contact Information

FRN	0003290673	Owner Entity Type	General Partnership

Owner

Cellco Partnership
Attention To: Network Regulatory
5055 North Point Pkwy
NP2NE Network Engineering
Alpharetta , GA 30022

P: (770)797-1070
F:
E: Network.Regulatory@verizonwireless.com

Contact

Attention To: Network Regulatory
5055 North Point Pkwy

P: (770)797-1070
F:
E: Network.Regulatory@verizonwireless.com

NP2NE Network Engineering
Alpharetta , GA 30022

Last Action Status

Status	Granted	Received	01/03/2023
Purpose	Amendment	Entered	01/03/2023
Mode	Interactive		

Related Applications

01/03/2023 A1206646 - Amendment (AM)

Comments

Comments

None

History

Date	Event
None	

Pleadings

Pleading Type	Filer Name	Description	Date Entered
None			

Automated Letters

None

ASR Help ASR License Glossary - FAQ - Online Help - Documentation - Technical Support
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Help | Tech Support

Federal Communications Commission
45 L Street NE
Washington, DC 20554

Phone: 1-877-480-3201
TTY: 1-717-338-2824
Submit Help Request

Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
KNKN867	0009262184
Radio Service CL - Cellular	
Market Numer CMA445	**Channel Block** B
Sub-Market Designator 0	

FCC Registration Number (FRN): 0003290673

Market Name
Kentucky 3 - Meade

Grant Date	Effective Date	Expiration Date	Five Yr Build-Out Date	Print Date
09-01-2020	01-13-2021	10-01-2030		

Site Information:

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
1	36-50-41.0 N	086-51-27.0 W	243.8	82.3	1043225

Address: 1.3 KM EAST OF SR-100 & JEFF DAVIS HIGHWAY
City: RUSSELLVILLE **County:** LOGAN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	133.200	104.800	100.900	107.400	123.200	117.300	105.900	123.700
Transmitting ERP (watts)	153.310	72.160	9.790	0.510	0.420	0.540	11.230	75.590

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	133.200	104.800	100.900	107.400	123.200	117.300	105.900	123.700
Transmitting ERP (watts)	0.870	21.280	113.650	147.250	38.070	3.570	0.330	0.410

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	133.200	104.800	100.900	107.400	123.200	117.300	105.900	123.700
Transmitting ERP (watts)	1.480	0.400	0.430	2.930	40.950	143.640	111.910	19.230

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

FCC 601-C
March 2018

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
2	36-58-11.0 N	086-31-15.0 W	205.4	117.3	1043045

Address: Bowling Green Main, 3.4 KM southwest of
City: BOWLING GREEN **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	108.200	135.100	135.400	118.600	102.700	103.000	111.100	110.800
Transmitting ERP (watts)	186.450	83.280	10.010	0.510	0.420	0.490	10.730	87.210

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	47.300	74.100	74.500	57.600	41.800	42.100	50.200	49.900
Transmitting ERP (watts)	0.270	2.540	54.390	78.620	9.450	0.350	0.270	0.270

Antenna: 4
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	108.200	135.100	135.400	118.600	102.700	103.000	111.100	110.800
Transmitting ERP (watts)	1.020	0.240	0.310	2.130	24.000	70.020	56.310	11.460

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
3	37-08-47.0 N	086-39-02.0 W	189.0	128.0	1043044

Address: 9.7 KM SOUTH SOUTHEAST OF
City: MORGANTOWN **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	126.200	118.800	110.000	116.600	100.700	122.200	119.800	131.300
Transmitting ERP (watts)	0.330	0.690	16.910	90.270	116.960	30.240	2.840	0.260

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	126.200	118.800	110.000	116.600	100.700	122.200	119.800	131.300
Transmitting ERP (watts)	2.100	0.260	0.330	1.050	21.320	101.470	108.950	23.430

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	126.200	118.800	110.000	116.600	100.700	122.200	119.800	131.300
Transmitting ERP (watts)	90.270	14.390	1.070	0.260	0.340	2.530	33.930	116.960

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
4	37-47-53.0 N	086-19-51.0 W	257.3	125.0	1043043

Address: WITHIN THE CITY LIMITS OF

City: GARFIELD **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	164.300	145.800	148.800	118.100	136.500	132.100	154.800	164.500
Transmitting ERP (watts)	104.850	46.830	5.630	0.290	0.240	0.280	6.030	49.040

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	164.300	145.800	148.800	118.100	136.500	132.100	154.800	164.500
Transmitting ERP (watts)	0.560	13.820	74.230	95.620	25.740	2.460	0.240	0.270

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	164.300	145.800	148.800	118.100	136.500	132.100	154.800	164.500
Transmitting ERP (watts)	0.930	0.240	0.280	2.040	27.580	95.620	74.230	12.320

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
6	36-46-32.1 N	086-33-56.0 W	206.3	91.1	1043041

Address: 2.4 KM NORTH OF

City: FRANKLIN **County:** SIMPSON **State:** KY C**onstruction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	78.700	81.100	68.500	56.000	56.400	56.600	64.300	64.200
Transmitting ERP (watts)	144.730	63.540	7.340	0.360	0.300	0.380	8.420	66.540

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	78.700	81.100	68.500	56.000	56.400	56.600	64.300	64.200
Transmitting ERP (watts)	0.710	17.400	93.440	120.380	32.400	3.090	0.300	0.340

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	78.700	81.100	68.500	56.000	56.400	56.600	64.300	64.200
Transmitting ERP (watts)	1.280	0.300	0.390	2.690	30.220	88.150	70.900	14.430

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
7	37-03-33.7 N	087-01-50.4 W	200.0	77.7	1266950

Address: Lake Malone, 1038 Heltsley Road
City: Lewisburg **County:** LOGAN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	120.200	116.000	119.100	120.900	103.100	89.400	78.300	104.000
Transmitting ERP (watts)	102.840	191.490	71.150	7.980	0.430	0.450	0.570	14.860

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	120.200	116.000	119.100	120.900	103.100	89.400	78.300	104.000
Transmitting ERP (watts)	0.570	14.860	102.840	191.490	71.150	7.980	0.430	0.450

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	120.200	116.000	119.100	120.900	103.100	89.400	78.300	104.000
Transmitting ERP (watts)	3.330	0.430	0.500	1.560	31.780	148.650	162.990	36.490

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
8	36-47-11.0 N	086-08-35.3 W	253.3	91.1	1043039

Address: 4.8 KM NORTHEAST OF
City: SCOTTSVILLE **County:** ALLEN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	151.400	124.900	113.700	118.200	77.200	108.300	128.800	139.000
Transmitting ERP (watts)	117.640	52.550	6.320	0.320	0.260	0.310	6.770	55.020

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	151.400	124.900	113.700	118.200	77.200	108.300	128.800	139.000
Transmitting ERP (watts)	0.630	15.510	83.280	107.290	28.880	2.760	0.260	0.300

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	151.400	124.900	113.700	118.200	77.200	108.300	128.800	139.000
Transmitting ERP (watts)	1.050	0.260	0.310	2.290	30.940	107.290	83.280	13.820

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
9	37-53-45.0 N	086-49-51.0 W	164.5	65.6	1043711

Address: OLD LEWISPORT OWENSBORO RD, 7.6 KM WEST OF
City: HAWESVILLE **County:** HANCOCK **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.600	79.800	95.100	59.500	72.200	82.700	89.400	93.100
Transmitting ERP (watts)	7.600	61.740	131.990	58.960	7.090	0.360	0.300	0.350

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.600	79.800	95.100	59.500	72.200	82.700	89.400	93.100
Transmitting ERP (watts)	0.300	0.340	0.710	17.400	93.440	120.380	32.400	3.090

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.600	79.800	95.100	59.500	72.200	82.700	89.400	93.100
Transmitting ERP (watts)	93.440	15.510	1.180	0.300	0.350	2.570	34.720	120.380

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
10	37-16-52.0 N	087-06-06.0 W	150.0	128.0	1043038

Address: 0.4 MI. EAST OF INTERCHANGE OF 58 & W. KY PKWY; IMMED. ESE OF
City: CENTRAL CITY **County:** MUHLENBERG **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	126.500	101.500	105.400	104.300	100.200	87.900	94.300	112.900
Transmitting ERP (watts)	50.380	128.750	66.660	8.640	0.500	0.260	0.330	5.430

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	126.500	101.500	105.400	104.300	100.200	87.900	94.300	112.900
Transmitting ERP (watts)	0.300	0.480	13.100	80.300	122.700	38.140	3.840	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	126.500	101.500	105.400	104.300	100.200	87.900	94.300	112.900
Transmitting ERP (watts)	18.570	1.520	0.260	0.340	1.630	26.900	108.950	99.160

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
11	37-27-33.0 N	086-17-41.0 W	220.7	128.0	1043037

Address: 0.8 KM SSE OF INT OF W KY PKWY & SR-259
City: LEITCHFIELD **County:** GRAYSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	136.500	139.400	136.800	139.500	172.500	127.300	136.600	156.800
Transmitting ERP (watts)	92.370	12.750	0.300	0.450	0.200	0.420	3.510	48.480

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	136.500	139.400	136.800	139.500	172.500	127.300	136.600	156.800
Transmitting ERP (watts)	3.700	26.630	74.790	73.070	22.660	3.610	0.490	0.490

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	136.500	139.400	136.800	139.500	172.500	127.300	136.600	156.800
Transmitting ERP (watts)	2.080	0.820	0.770	7.520	42.060	84.790	55.750	12.610

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
12	37-59-17.0 N	086-08-53.0 W	202.4	61.0	1043036

Address: 1.6 km ESE of
City: BRANDENBURG **County:** MEADE **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	82.800	58.900	109.700	63.200	40.600	55.600	61.600	100.400
Transmitting ERP (watts)	0.480	12.480	87.870	162.090	56.190	6.380	0.330	0.360

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	82.800	58.900	109.700	63.200	40.600	55.600	61.600	100.400
Transmitting ERP (watts)	5.570	0.500	0.330	0.330	4.740	24.940	42.710	26.730

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
13	37-24-41.0 N	086-32-12.0 W	233.5	128.0	1043035

Address: 3.2 KM WEST SOUTHWEST OF
City: CANEYVILLE **County:** GRAYSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	136.900	135.600	147.900	125.100	152.900	161.200	146.000	164.600
Transmitting ERP (watts)	202.510	94.240	14.690	1.160	1.000	8.520	44.320	169.340

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
13	37-24-41.0 N	086-32-12.0 W	233.5	128.0	1043035

Address: 3.2 KM WEST SOUTHWEST OF
City: CANEYVILLE **County:** GRAYSON **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	136.900	135.600	147.900	125.100	152.900	161.200	146.000	164.600
Transmitting ERP (watts)	20.040	101.220	204.390	162.460	34.720	3.620	0.410	2.990

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	136.900	135.600	147.900	125.100	152.900	161.200	146.000	164.600
Transmitting ERP (watts)	4.910	0.410	2.960	14.520	88.120	204.810	176.590	43.820

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
14	36-55-48.0 N	086-56-27.0 W	207.9	60.7	

Address: 6.4 KM SOUTH OF
City: LEWISBURG **County:** LOGAN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	116.400	93.400	82.400	74.500	68.800	70.800	79.200	98.300
Transmitting ERP (watts)	113.650	147.250	38.070	3.570	0.330	0.410	0.870	21.280

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	116.400	93.400	82.400	74.500	68.800	70.800	79.200	98.300
Transmitting ERP (watts)	0.430	3.180	42.710	147.250	113.650	18.120	1.350	0.330

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	116.400	93.400	82.400	74.500	68.800	70.800	79.200	98.300
Transmitting ERP (watts)	8.230	0.410	0.330	0.420	9.450	74.650	162.390	71.290

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
15	36-59-27.0 N	086-26-29.0 W	160.9	79.3	1201033

Address: 537 10th Street at Chestnut Street
City: BOWLING GREEN **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	60.100	54.500	67.300	54.300	51.400	51.700	45.400	61.600
Transmitting ERP (watts)	162.390	71.290	8.230	0.410	0.330	0.420	9.450	74.650

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
15	36-59-27.0 N	086-26-29.0 W	160.9	79.3	1201033

Address: 537 10th Street at Chestnut Street
City: BOWLING GREEN **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	60.100	54.500	67.300	54.300	51.400	51.700	45.400	61.600
Transmitting ERP (watts)	0.310	2.780	58.870	89.730	12.030	0.400	0.310	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	60.100	54.500	67.300	54.300	51.400	51.700	45.400	61.600
Transmitting ERP (watts)	0.310	0.310	0.310	0.460	21.160	106.060	35.940	1.760

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
16	36-50-40.2 N	087-12-42.0 W	256.6	60.7	

Address: 5.8 KM NW OF
City: ELKTON **County:** TODD **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	102.100	95.500	91.800	117.800	119.100	128.800	118.300	103.200
Transmitting ERP (watts)	112.350	104.850	19.980	1.660	0.300	0.350	1.660	27.580

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	102.100	95.500	91.800	117.800	119.100	128.800	118.300	103.200
Transmitting ERP (watts)	0.940	15.530	144.900	372.460	200.020	26.370	1.550	0.840

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	102.100	95.500	91.800	117.800	119.100	128.800	118.300	103.200
Transmitting ERP (watts)	4.170	0.300	0.320	0.500	13.510	83.280	126.050	39.860

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
17	37-32-55.4 N	087-16-05.4 W	140.2	93.0	1244911

Address: 235 WEST KY 136
City: CALHOUN **County:** MCLEAN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.300	91.000	88.000	100.800	95.300	104.000	105.400	89.700
Transmitting ERP (watts)	30.940	106.670	82.330	13.120	0.980	0.240	0.310	2.310

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
17	37-32-55.4 N	087-16-05.4 W	140.2	93.0	1244911

Address: 235 WEST KY 136
City: CALHOUN **County:** MCLEAN **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.300	91.000	88.000	100.800	95.300	104.000	105.400	89.700
Transmitting ERP (watts)	0.240	0.310	6.850	54.080	117.640	51.650	5.960	0.290

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.300	91.000	88.000	100.800	95.300	104.000	105.400	89.700
Transmitting ERP (watts)	27.580	2.590	0.240	0.300	0.630	15.420	82.330	106.670

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
18	37-38-33.2 N	086-42-46.0 W	210.3	60.7	

Address: 6 KM EAST OF
City: FORDSVILLE **County:** OHIO **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.000	65.700	96.800	89.400	105.200	118.300	113.200	109.900
Transmitting ERP (watts)	144.730	63.540	7.340	0.360	0.300	0.380	8.420	66.540

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.000	65.700	96.800	89.400	105.200	118.300	113.200	109.900
Transmitting ERP (watts)	0.780	18.970	101.290	131.240	33.930	3.180	0.300	0.370

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.000	65.700	96.800	89.400	105.200	118.300	113.200	109.900
Transmitting ERP (watts)	1.200	0.300	0.390	2.840	38.070	131.240	101.290	16.150

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
19	38-00-08.4 N	086-19-20.3 W	237.4	103.9	1049227

Address: 1.2 km Northwest of
City: PAYNEVILLE **County:** MEADE **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	115.700	125.400	135.500	103.300	111.300	123.300	141.900	137.900
Transmitting ERP (watts)	172.880	116.290	19.640	1.990	0.530	4.460	28.140	120.910

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
19	38-00-08.4 N	086-19-20.3 W	237.4	103.9	1049227

Address: 1.2 km Northwest of
City: PAYNEVILLE **County:** MEADE **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	115.700	125.400	135.500	103.300	111.300	123.300	141.900	137.900
Transmitting ERP (watts)	8.740	48.710	165.560	182.540	70.320	9.950	0.770	1.160

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	115.700	125.400	135.500	103.300	111.300	123.300	141.900	137.900
Transmitting ERP (watts)	4.430	0.370	2.670	13.090	79.440	184.650	159.200	39.500

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
20	37-11-25.0 N	087-11-51.0 W	182.9	66.4	1065886

Address: 701 BASS LANE
City: GREENVILLE **County:** MUHLENBERG **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	103.800	96.500	95.100	84.500	77.800	98.000	117.300	91.200
Transmitting ERP (watts)	155.980	120.380	19.190	1.430	0.350	0.460	3.370	45.240

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	103.800	96.500	95.100	84.500	77.800	98.000	117.300	91.200
Transmitting ERP (watts)	0.510	13.220	93.080	171.700	62.700	6.760	0.350	0.380

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	103.800	96.500	95.100	84.500	77.800	98.000	117.300	91.200
Transmitting ERP (watts)	2.800	0.350	0.450	1.400	28.440	135.320	145.300	31.240

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
21	37-11-39.2 N	086-15-53.9 W	213.4	52.0	

Address: WATER TOWER ROAD
City: BROWNSVILLE **County:** EDMONSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.000	44.100	63.000	60.300	76.600	76.200	93.300	97.400
Transmitting ERP (watts)	331.960	148.280	17.830	0.910	0.740	0.870	19.100	155.270

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
21	37-11-39.2 N	086-15-53.9 W	213.4	52.0	

Address: WATER TOWER ROAD
City: BROWNSVILLE **County:** EDMONSON **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.000	44.100	63.000	60.300	76.600	76.200	93.300	97.400
Transmitting ERP (watts)	1.780	43.760	235.010	302.750	81.490	7.780	0.740	0.850

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.000	44.100	63.000	60.300	76.600	76.200	93.300	97.400
Transmitting ERP (watts)	2.960	0.740	0.870	6.470	87.310	302.750	235.010	39.000

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
22	36-40-28.0 N	086-51-30.0 W	192.9	38.1	

Address: WITHIN THE TOWN OF
City: ADAIRVILLE **County:** LOGAN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	37.000	29.900	34.100	29.900	40.700	57.000	48.700
Transmitting ERP (watts)	148.100	65.400	7.600	0.390	0.300	0.430	8.720	70.070

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	37.000	29.900	34.100	29.900	40.700	57.000	48.700
Transmitting ERP (watts)	1.830	30.180	122.250	111.260	20.840	1.700	0.300	0.380

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	37.000	29.900	34.100	29.900	40.700	57.000	48.700
Transmitting ERP (watts)	2.360	0.300	0.370	1.180	23.930	113.860	122.250	26.290

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
23	37-13-17.0 N	086-42-02.0 W	190.8	57.9	

Address: Morgantown Downtown, Approx 1.5 KM (1.0 MI) ENE OF
City: MORGANTOWN **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	102.300	72.100	81.900	88.300	85.600	94.300	111.800	102.700
Transmitting ERP (watts)	42.710	147.250	113.650	18.120	1.350	0.330	0.430	3.180

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
23	37-13-17.0 N	086-42-02.0 W	190.8	57.9	

Address: Morgantown Downtown, Approx 1.5 KM (1.0 MI) ENE OF
City: MORGANTOWN **County:** BUTLER **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	102.300	72.100	81.900	88.300	85.600	94.300	111.800	102.700
Transmitting ERP (watts)	0.330	0.420	9.450	74.650	162.390	71.290	8.230	0.410

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	102.300	72.100	81.900	88.300	85.600	94.300	111.800	102.700
Transmitting ERP (watts)	38.070	3.570	0.330	0.410	0.870	21.280	113.650	147.250

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
24	37-38-30.2 N	086-28-14.9 W	202.7	50.2	

Address: Rough River, 9.5KM (6.0 MI) SW OF
City: KINGSWOOD **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	43.600	58.600	57.500	57.700	60.100	89.000	70.700	65.400
Transmitting ERP (watts)	264.330	116.050	13.400	0.660	0.540	0.690	15.390	121.520

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	43.600	58.600	57.500	57.700	60.100	89.000	70.700	65.400
Transmitting ERP (watts)	1.420	34.650	184.990	239.690	61.970	5.820	0.540	0.670

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	43.600	58.600	57.500	57.700	60.100	89.000	70.700	65.400
Transmitting ERP (watts)	2.200	0.540	0.700	5.180	69.530	239.690	184.990	29.490

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
25	36-51-02.0 N	086-42-26.0 W	198.1	59.4	

Address: JCT. SR-103 & SR-603, APPROX. 3.2 KM SW OF
City: AUBURN **County:** LOGAN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	61.200	65.800	54.700	38.200	54.400	60.300	51.100	56.100
Transmitting ERP (watts)	124.760	162.210	90.940	14.810	1.300	0.640	5.680	30.740

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
25	36-51-02.0 N	086-42-26.0 W	198.1	59.4	

Address: JCT. SR-103 & SR-603, APPROX. 3.2 KM SW OF
City: AUBURN **County:** LOGAN **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	61.200	65.800	54.700	38.200	54.400	60.300	51.100	56.100
Transmitting ERP (watts)	1.480	8.260	53.490	159.390	161.650	53.380	6.730	0.530

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	61.200	65.800	54.700	38.200	54.400	30.300	51.100	56.100
Transmitting ERP (watts)	41.260	4.310	0.490	3.550	23.820	120.300	242.920	193.090

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
26	37-23-00.0 N	086-52-28.0 W	163.4	125.3	1043042

Address: 1.6 KM SSE
City: BEAVER DAM **County:** OHIO **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	127.600	102.300	92.500	117.700	113.600	112.400	112.300	132.200
Transmitting ERP (watts)	3.020	33.930	100.130	64.650	9.650	0.650	0.240	0.270

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	127.600	102.300	92.500	117.700	113.600	112.400	112.300	132.200
Transmitting ERP (watts)	0.240	0.250	0.310	8.140	56.310	104.850	38.950	4.370

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	127.600	102.300	92.500	117.700	113.600	112.400	112.300	132.200
Transmitting ERP (watts)	100.130	31.660	3.320	0.240	0.260	0.400	10.730	66.150

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
27	37-02-39.4 N	086-10-59.9 W	212.8	106.4	1213318

Address: 470 Hayes Road
City: Smiths Grove **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	101.300	97.700	91.800	90.100	117.500	131.500	124.400	116.400
Transmitting ERP (watts)	96.880	58.040	4.690	0.270	0.190	0.360	4.280	56.720

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
27	37-02-39.4 N	086-10-59.9 W	212.8	106.4	1213318

Address: 470 Hayes Road

City: Smiths Grove **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	101.600	97.700	91.800	90.100	117.500	131.500	124.400	116.400
Transmitting ERP (watts)	0.970	16.520	117.640	131.230	43.210	2.250	0.300	0.270

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	101.600	97.700	91.800	90.100	117.500	131.500	124.400	116.400
Transmitting ERP (watts)	0.570	0.190	0.210	1.560	29.210	92.910	81.390	12.800

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
28	36-44-52.5 N	086-11-51.7 W	219.4	77.7	1219613

Address: Downtown

City: Scottsville **County:** ALLEN **State:** KY **Construction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	85.000	66.900	61.300	43.400	61.400	63.100	73.600	85.500
Transmitting ERP (watts)	148.300	99.760	16.850	1.700	0.460	3.820	24.140	103.720

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	85.000	66.900	61.300	43.400	61.400	63.100	73.600	85.500
Transmitting ERP (watts)	7.500	41.790	142.020	156.580	60.320	8.540	0.660	0.990

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	85.000	66.900	61.300	43.400	61.400	63.100	73.600	85.500
Transmitting ERP (watts)	3.800	0.320	2.290	11.230	68.150	158.400	136.570	33.890

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
29	37-52-14.6 N	086-16-43.1 W	243.8	39.6	

Address: Irvington WT, 1.0 km ESE of

City: Irvington **County:** BRECKINRIDGE **State:** KY **Construction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	72.800	71.900	56.800	59.600	69.700	80.000	110.200	67.900
Transmitting ERP (watts)	47.930	165.220	127.520	20.330	1.520	0.370	0.480	3.570

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
29	37-52-14.6 N	086-16-43.1 W	243.8	39.6	

Address: Irvington WT, 1.0 km ESE of
City: Irvington **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	72.800	71.900	56.800	59.600	69.700	80.000	110.200	67.900
Transmitting ERP (watts)	0.370	0.480	10.610	83.760	182.210	79.990	9.240	0.460

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	72.800	71.900	56.800	59.600	69.700	80.000	110.200	67.900
Transmitting ERP (watts)	42.710	4.010	0.370	0.460	0.980	23.880	127.520	165.220

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
30	37-56-31.2 N	086-03-37.8 W	193.5	77.7	1221515

Address: 0.8 km North Northwest of
City: Lickskillet **County:** MEADE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	63.900	127.200	65.800	54.400	36.100	30.500	59.300	102.600
Transmitting ERP (watts)	61.740	82.330	23.470	2.370	0.260	0.260	0.510	11.360

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	63.900	127.200	65.800	54.400	36.100	30.500	59.300	102.600
Transmitting ERP (watts)	0.380	3.220	20.310	87.270	124.780	83.940	14.180	1.430

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	63.900	127.200	65.800	54.400	36.100	30.500	59.300	102.600
Transmitting ERP (watts)	14.180	1.430	0.380	3.220	20.310	87.270	124.780	83.940

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
31	36-57-06.0 N	086-26-12.0 W	166.1	16.8	

Address: Downtown
City: Bowling Green **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	29.900	29.900	29.900	29.900	29.900	29.900
Transmitting ERP (watts)	124.780	83.940	14.180	1.430	0.380	3.220	20.310	87.270

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
31	36-57-06.0 N	086-26-12.0 W	166.1	16.8	

Address: Downtown
City: Bowling Green **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	29.900	29.900	29.900	29.900	29.900	29.900
Transmitting ERP (watts)	6.310	35.160	119.490	131.750	50.750	7.180	0.550	0.830

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	29.900	29.900	29.900	29.900	29.900	29.900
Transmitting ERP (watts)	3.200	0.270	1.930	9.450	57.340	133.270	114.910	28.510

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
32	37-59-31.1 N	086-11-44.3 W	187.7	77.7	1232593

Address: 1.6 km West of
City: Brandenburg **County:** MEADE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	58.400	56.600	82.400	34.400	36.100	41.000	40.100	67.700
Transmitting ERP (watts)	9.710	60.570	96.350	32.270	3.500	0.300	0.300	0.420

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	58.400	56.600	82.400	34.400	36.100	41.000	40.100	67.700
Transmitting ERP (watts)	0.300	0.380	8.420	66.540	144.730	63.540	7.340	0.360

Antenna: 4
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	58.400	56.600	82.400	34.400	36.100	41.000	40.100	67.700
Transmitting ERP (watts)	28.390	3.310	0.300	0.380	0.830	17.510	70.860	87.550

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
33	37-56-46.1 N	085-59-38.4 W	222.8	57.3	1200354

Address: 115 Timber Ct.
City: Muldraugh **County:** MEADE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.500	85.900	93.700	56.800	54.600	40.300	67.400	81.700
Transmitting ERP (watts)	57.050	54.960	17.180	1.960	0.330	0.430	1.840	21.320

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
33	37-56-46.1 N	085-59-38.4 W	222.8	57.3	1200354

Address: 115 Timber Ct.
City: Muldraugh **County:** MEADE **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.500	85.900	93.700	56.800	54.600	40.300	67.400	81.700
Transmitting ERP (watts)	0.380	0.800	19.520	104.850	135.070	36.350	3.470	0.330

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.500	85.900	93.700	56.800	54.600	40.300	67.400	81.700
Transmitting ERP (watts)	2.570	0.330	0.390	1.200	24.580	114.960	156.050	28.220

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
34	37-46-03.7 N	086-26-10.4 W	219.5	45.7	

Address: Hardinsburg Water Tank, 3.0 km SE of
City: Hardinsburg **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	77.900	54.500	36.600	52.000	74.200	60.600	78.300	83.900
Transmitting ERP (watts)	182.210	79.990	9.240	0.460	0.370	0.480	10.610	83.760

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	77.900	54.500	36.600	52.000	74.200	60.600	78.300	83.900
Transmitting ERP (watts)	0.980	23.880	127.520	165.220	42.710	4.010	0.370	0.460

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	77.900	54.500	36.600	52.000	74.200	60.600	78.300	83.900
Transmitting ERP (watts)	1.520	0.370	0.480	3.570	47.930	165.220	127.520	20.330

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
35	36-42-08.6 N	086-33-19.0 W	217.0	114.3	1200032

Address: Franklin South, Turners Ford Road
City: Franklin **County:** SIMPSON **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	75.500	67.800	58.900	47.700	34.900	56.000	62.700	57.000
Transmitting ERP (watts)	8.520	69.270	148.100	66.150	7.950	0.410	0.330	0.390

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
35	36-42-08.6 N	086-33-19.0 W	217.0	114.3	1200032

Address: Franklin South, Turners Ford Road
City: Franklin **County:** SIMPSON **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	75.500	67.800	58.900	47.700	34.900	56.000	62.700	57.000
Transmitting ERP (watts)	0.620	0.330	0.370	6.170	57.620	148.100	79.530	10.480

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	75.500	67.800	58.900	47.700	34.900	56.000	62.700	57.000
Transmitting ERP (watts)	126.050	28.220	2.570	0.330	0.390	1.200	24.580	114.960

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
36	36-44-58.7 N	087-01-10.9 W	179.8	37.5	

Address: Russellville Southwest, 0.8 km SW of
City: Olmstead **County:** LOGAN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	31.500	45.900	38.200	39.100	29.900	29.900
Transmitting ERP (watts)	124.780	83.940	14.180	1.430	0.380	3.220	20.310	87.270

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	31.500	45.900	38.200	39.100	29.900	29.900
Transmitting ERP (watts)	6.310	35.160	119.490	131.750	50.750	7.180	0.550	0.830

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	31.500	45.900	38.200	39.100	29.900	29.900
Transmitting ERP (watts)	3.200	0.270	1.930	9.450	57.340	133.270	114.910	28.510

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
37	36-49-37.9 N	086-18-51.3 W	192.0	77.7	1232590

Address: Allen Northwest cell, 13.7 km Northwest of
City: Scottsville **County:** ALLEN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	91.800	102.800	60.100	49.200	58.900	71.000	89.900	100.000
Transmitting ERP (watts)	0.540	4.010	53.770	185.380	143.070	22.810	1.700	0.420

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
37	36-49-37.9 N	086-18-51.3 W	192.0	77.7	1232590

Address: Allen Northwest cell, 13.7 km Northwest of
City: Scottsville **County:** ALLEN **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	91.800	102.800	60.100	49.200	58.900	71.000	89.900	100.000
Transmitting ERP (watts)	0.400	0.290	0.290	0.290	5.380	93.450	104.850	10.250

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	91.800	102.800	60.100	49.200	58.900	71.000	89.900	100.000
Transmitting ERP (watts)	211.380	60.790	7.140	0.540	2.800	11.880	85.700	226.550

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
38	36-55-15.1 N	086-25-38.5 W	171.0	62.5	1210120

Address: 1140 Three Springs Road
City: Bowling Green **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	62.400	67.900	45.500	40.600	40.900	36.000	40.900	56.100
Transmitting ERP (watts)	41.740	24.340	4.420	0.400	0.330	0.330	3.510	21.690

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	62.400	67.900	45.500	40.600	40.900	36.000	40.900	56.100
Transmitting ERP (watts)	0.870	21.280	113.650	147.250	38.070	3.570	0.330	0.410

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	62.400	67.900	45.500	40.600	40.900	36.000	40.900	56.100
Transmitting ERP (watts)	1.130	0.260	0.370	2.600	30.680	93.270	73.680	13.650

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
39	36-49-54.5 N	086-29-39.3 W	192.6	66.1	1202759

Address: Warren South, 3184 Woodburn-Allen Springs Road
City: Woodburn **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	58.500	58.500	57.100	39.300	32.800	33.900	35.000	49.400
Transmitting ERP (watts)	157.120	103.520	17.130	1.570	0.350	3.440	23.000	104.220

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
39	36-49-54.5 N	086-29-39.3 W	192.6	66.1	1202759

Address: Warren South, 3184 Woodburn-Allen Springs Road
City: Woodburn **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	58.500	58.500	57.100	39.300	32.800	33.900	35.000	49.400
Transmitting ERP (watts)	6.890	41.510	144.360	164.760	61.880	8.540	0.570	0.780

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	58.500	58.500	57.100	39.300	32.800	33.900	35.000	49.400
Transmitting ERP (watts)	0.610	0.310	0.310	0.310	2.120	58.290	121.780	19.300

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
40	37-03-19.5 N	086-35-24.6 W	184.4	67.1	1219414

Address: Warren Northwest cell, Old Morgantown Road
City: Bowling Green **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	91.800	71.100	64.500	67.200	57.900	67.700	67.900	70.300
Transmitting ERP (watts)	0.430	11.130	78.320	144.460	52.750	5.690	0.300	0.320

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	91.800	71.100	64.500	67.200	57.900	67.700	67.900	70.300
Transmitting ERP (watts)	0.560	0.300	0.370	6.090	56.530	144.460	74.790	9.690

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	91.800	71.100	64.500	67.200	57.900	67.700	67.900	70.300
Transmitting ERP (watts)	101.290	16.150	1.200	0.300	0.390	2.840	38.070	131.240

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
41	37-08-05.9 N	087-01-05.2 W	187.8	77.7	1278320

Address: Muhlenberg South, 21 Myers Chapel Road
City: Belton **County:** MUHLENBERG **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	110.500	126.100	111.400	114.500	86.400	73.900	100.200	112.200
Transmitting ERP (watts)	124.780	83.940	14.180	1.430	0.380	3.220	20.310	87.270

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
41	37-08-05.9 N	087-01-05.2 W	187.8	77.7	1278320

Address: Muhlenberg South, 21 Myers Chapel Road
City: Belton **County:** MUHLENBERG **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	110.500	126.100	111.400	114.500	86.400	73.900	100.200	112.200
Transmitting ERP (watts)	6.310	35.160	119.490	131.750	50.750	7.180	0.550	0.830

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	110.500	126.100	111.400	114.500	86.400	73.900	100.200	112.200
Transmitting ERP (watts)	3.200	0.270	1.930	9.450	57.340	133.270	114.910	28.510

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
42	37-00-06.1 N	086-19-52.5 W	161.2	77.4	1207196

Address: Bowling Green Corvette site, 1188 Red Pond Road
City: Bowling Green **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	48.300	48.300	47.300	66.500	54.700	68.100	79.200	59.700
Transmitting ERP (watts)	149.820	65.780	7.600	0.370	0.310	0.390	8.720	68.880

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	48.300	48.300	47.300	66.500	54.700	68.100	79.200	59.700
Transmitting ERP (watts)	0.850	18.620	85.580	108.340	31.760	3.380	0.310	0.410

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	48.300	48.300	47.300	66.500	54.700	68.100	79.200	59.700
Transmitting ERP (watts)	1.320	0.310	0.430	3.020	35.640	108.340	85.580	15.850

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
43	37-50-10.4 N	086-35-44.7 W	225.6	77.7	1242951

Address: Breckinridge West, 1.6 km ENE of
City: Cloverport **County:** BRECKINRIDGE **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	138.300	128.300	120.400	132.900	123.200	133.200	139.400	156.600
Transmitting ERP (watts)	63.170	117.640	43.710	4.900	0.260	0.280	0.350	9.130

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
43	37-50-10.4 N	086-35-44.7 W	225.6	77.7	1242951

Address: Breckinridge West, 1.6 km ENE of
City: Cloverport **County:** BRECKINRIDGE **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	138.300	128.300	120.400	132.900	123.200	133.200	139.400	156.600
Transmitting ERP (watts)	0.310	2.290	30.940	107.290	83.280	13.820	1.050	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	138.300	128.300	120.400	132.900	123.200	133.200	139.400	156.600
Transmitting ERP (watts)	4.400	0.370	0.370	0.530	12.230	76.250	121.300	40.630

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
44	37-51-15.4 N	086-06-03.2 W	303.9	67.4	1042711

Address: Garrett, State Road 44 (092010 / Fort Knox)
City: FORT KNOX **County:** MEADE **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	153.600	154.600	149.600	132.900	121.400	131.200	143.100	146.300
Transmitting ERP (watts)	79.530	54.370	13.580	1.630	0.410	3.580	18.240	54.730

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	153.600	154.600	149.600	132.900	121.400	131.200	143.100	146.300
Transmitting ERP (watts)	5.460	32.920	114.480	130.660	49.070	6.770	0.450	0.620

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	153.600	154.600	149.600	132.900	121.400	131.200	143.100	146.300
Transmitting ERP (watts)	2.950	0.270	1.500	8.200	53.810	130.660	112.910	27.380

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
45	37-52-54.4 N	086-12-42.9 W	274.3	29.0	

Address: Meade South, 1.4 km southeast of
City: Guston **County:** MEADE **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	109.800	103.800	82.400	63.100	79.200	105.900	114.800	76.100
Transmitting ERP (watts)	4.970	37.720	85.280	49.710	8.130	0.540	0.260	0.330

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
45	37-52-54.4 N	086-12-42.9 W	274.3	29.0	

Address: Meade South, 1.4 km southeast of
City: Guston **County:** MEADE **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	109.800	103.800	82.400	63.100	79.200	105.900	114.800	76.100
Transmitting ERP (watts)	1.870	0.260	0.280	0.860	17.310	81.910	91.780	21.270

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	109.800	103.800	82.400	63.100	79.200	105.900	114.800	76.100
Transmitting ERP (watts)	67.960	31.280	4.680	0.260	0.300	0.380	7.690	41.430

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
46	36-54-15.9 N	086-36-29.1 W	202.7	83.8	1200363

Address: Warren-Logan cell, 11372 Russellville Road
City: Rockfield **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	105.100	84.600	84.000	77.200	66.700	61.500	67.700	81.100
Transmitting ERP (watts)	19.380	98.240	108.110	44.550	2.720	0.270	0.230	1.010

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	105.100	84.600	84.000	77.200	66.700	61.500	67.700	81.100
Transmitting ERP (watts)	0.270	0.270	5.300	90.270	100.820	9.580	0.400	0.270

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	105.100	84.600	84.000	77.200	66.700	61.500	67.700	81.100
Transmitting ERP (watts)	0.880	0.230	0.310	2.530	42.550	110.630	96.000	20.290

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
47	37-24-19.0 N	086-42-17.0 W	199.9	94.5	1213965

Address: Ohio West, 3893 State Route 505 South
City: Horse Branch **County:** OHIO **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	112.900	104.700	91.700	117.300	127.400	134.600	135.400	100.900
Transmitting ERP (watts)	117.640	63.170	8.330	0.490	0.260	0.300	4.900	45.770

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
47	37-24-19.0 N	086-42-17.0 W	199.9	94.5	1213965

Address: Ohio West, 3893 State Route 505 South
City: Horse Branch **County:** OHIO **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	112.900	104.700	91.700	117.300	127.400	134.600	135.400	100.900
Transmitting ERP (watts)	1.260	33.960	209.410	316.960	100.230	10.500	0.740	0.810

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	112.900	104.700	91.700	117.300	127.400	134.600	135.400	100.900
Transmitting ERP (watts)	1.480	0.260	0.310	1.480	24.580	100.120	93.440	17.800

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
48	36-57-24.8 N	086-28-42.2 W	167.0	84.1	1056469

Address: 3090 Fitzgerald Industrial Drive
City: Bowling Green **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	71.400	63.700	65.900	62.600	44.100	41.900	36.500	59.500
Transmitting ERP (watts)	61.180	69.730	7.330	0.310	0.310	0.310	0.310	3.930

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	71.400	63.700	65.900	62.600	44.100	41.900	36.500	59.500
Transmitting ERP (watts)	0.310	2.460	45.980	65.510	8.220	0.390	0.310	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	71.400	63.700	65.900	62.600	44.100	41.900	36.500	59.500
Transmitting ERP (watts)	1.080	0.260	0.280	1.840	17.800	47.490	39.840	10.320

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
49	36-49-53.1 N	086-54-51.9 W	253.9	78.6	1043422

Address: RUSSELLVILLE WEST, 0.64 KM NORTH OF HWY 79, 0.16 KM WEST OF HWY 68 BYPASS
City: LEWISBURG **County:** LOGAN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.500	100.000	79.700	100.100	113.000	110.200	90.700	106.900
Transmitting ERP (watts)	151.070	101.210	20.030	2.250	0.630	5.060	28.690	105.230

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
49	36-49-53.1 N	086-54-51.9 W	253.9	78.6	1043422

Address: RUSSELLVILLE WEST, 0.64 KM NORTH OF HWY 79, 0.16 KM WEST OF HWY 68 BYPASS

City: LEWISBURG **County:** LOGAN **State:** KY **Construction Deadline:**

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.500	100.000	79.700	100.100	113.000	110.200	90.700	106.900
Transmitting ERP (watts)	9.170	55.270	192.200	219.360	82.390	11.370	0.760	1.030

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.500	100.000	79.700	100.100	113.000	110.200	90.700	106.900
Transmitting ERP (watts)	4.520	0.380	2.720	13.340	81.000	188.260	162.320	40.280

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
50	37-05-38.9 N	086-25-49.5 W	217.6	103.6	1232131

Address: Richardsville, 604 Scroggins Road

City: Bowling Green **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	108.300	97.200	74.500	103.300	110.500	127.000	127.000	111.000
Transmitting ERP (watts)	144.730	63.540	7.340	0.360	0.300	0.380	8.420	66.540

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	108.300	97.200	74.500	103.300	110.500	100.500	127.000	111.000
Transmitting ERP (watts)	0.780	18.970	101.290	131.240	33.930	3.180	0.300	0.370

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	108.300	97.200	74.500	103.300	110.500	100.500	127.000	111.000
Transmitting ERP (watts)	1.200	0.300	0.390	2.840	38.070	131.240	101.290	16.150

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
51	37-31-30.4 N	086-55-04.2 W	195.7	97.8	1214609

Address: Beda, 729 Sherwood Drive

City: Hartford **County:** OHIO **State:** KY **Construction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.800	100.300	110.100	108.400	122.200	117.000	103.100	107.200
Transmitting ERP (watts)	38.070	131.240	101.290	16.150	1.200	0.300	0.390	2.840

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
51	37-31-30.4 N	086-55-04.2 W	195.7	97.8	1214609

Address: Beda, 729 Sherwood Drive
City: Hartford **County:** OHIO **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.800	100.300	110.100	108.400	122.200	117.000	103.100	107.200
Transmitting ERP (watts)	0.340	0.540	14.700	90.110	137.670	42.790	4.300	0.300

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.800	100.300	110.100	108.400	122.200	117.000	103.100	107.200
Transmitting ERP (watts)	52.750	5.690	0.300	0.320	0.430	11.130	78.320	144.460

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
52	37-29-36.0 N	086-11-16.5 W	221.9	83.8	1217206

Address: Braton Road
City: Clarkson **County:** GRAYSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	80.100	57.600	68.100	71.000	82.900	101.700	77.300	93.100
Transmitting ERP (watts)	23.930	113.860	122.250	26.290	2.360	0.300	0.370	1.180

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	80.100	57.600	68.100	71.000	82.900	101.700	77.300	93.100
Transmitting ERP (watts)	2.360	0.300	0.370	1.180	23.930	113.860	122.250	26.290

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	80.100	57.600	68.100	71.000	82.900	101.700	77.300	93.100
Transmitting ERP (watts)	103.640	9.240	0.340	0.270	0.270	0.270	5.700	92.370

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
53	37-31-11.9 N	087-09-13.7 W	141.7	95.4	1018270

Address: 550 SCHNEIDER TANNER ROAD
City: LIVERMORE **County:** MCLEAN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	86.400	69.100	70.300	81.600	92.100	93.900	102.600	85.400
Transmitting ERP (watts)	73.900	149.230	118.620	25.350	2.650	0.300	2.180	14.630

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
53	37-31-11.9 N	087-09-13.7 W	141.7	95.4	1018270

Address: 550 SCHNEIDER TANNER ROAD
City: LIVERMORE **County:** MCLEAN **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	86.400	69.100	70.300	81.600	92.100	93.900	102.600	85.400
Transmitting ERP (watts)	0.570	5.060	27.400	111.190	144.570	81.050	13.200	1.160

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	86.400	69.100	70.300	81.600	92.100	93.900	102.600	85.400
Transmitting ERP (watts)	47.570	6.000	0.480	1.320	7.360	47.670	142.060	144.070

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
54	37-19-05.4 N	086-12-12.3 W	231.6	83.8	1235514

Address: Nolin Lake North, 1900 Dickey's Mill Road
City: Mammoth Cave **County:** EDMONSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.200	91.500	87.800	91.400	103.800	115.800	129.600	104.400
Transmitting ERP (watts)	117.640	54.390	6.620	0.360	0.300	0.330	6.460	54.390

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.200	91.500	87.800	91.400	103.800	115.800	129.600	104.400
Transmitting ERP (watts)	3.300	11.570	54.260	67.250	19.880	3.340	0.340	0.490

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.200	91.500	87.800	91.400	103.800	115.800	129.600	104.400
Transmitting ERP (watts)	1.110	0.300	0.320	2.200	30.710	107.710	83.920	14.420

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
55	36-40-20.5 N	086-15-11.1 W	239.6	60.7	

Address: Allen South, 371 Andrew Jackson Highway
City: Adolphus **County:** ALLEN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	87.000	70.200	64.700	57.200	44.500	66.500	82.700	88.700
Transmitting ERP (watts)	117.640	63.170	8.330	0.490	0.260	0.300	4.900	45.770

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
55	36-40-20.5 N	086-15-11.1 W	239.6	60.7	

Address: Allen South, 371 Andrew Jackson Highway
City: Adolphus **County:** ALLEN **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	87.000	70.200	64.700	57.200	44.500	66.500	82.700	88.700
Transmitting ERP (watts)	0.490	8.150	38.780	44.150	11.680	1.200	0.260	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	87.000	70.200	64.700	57.200	44.500	66.500	82.700	88.700
Transmitting ERP (watts)	4.900	0.260	0.280	0.350	9.130	63.170	117.640	43.710

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
56	36-42-03.8 N	086-23-15.8 W	226.2	77.7	1263047

Address: Alonzo, 4651 Perrytown Road
City: Franklin **County:** ALLEN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.500	97.300	87.900	75.000	66.000	77.000	88.300	100.400
Transmitting ERP (watts)	111.060	68.480	3.430	0.250	0.370	0.250	1.220	16.430

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.500	97.300	87.900	75.000	66.000	77.000	88.300	100.400
Transmitting ERP (watts)	1.480	24.580	100.120	93.440	17.800	1.480	0.260	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.500	97.300	87.900	75.000	66.000	77.000	88.300	100.400
Transmitting ERP (watts)	10.730	0.730	0.260	0.300	3.390	38.070	112.340	72.530

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
57	36-53-20.1 N	086-12-48.7 W	203.9	77.7	1264536

Address: Allen North, 173 Ray Vernon Lane
City: Scottsville **County:** ALLEN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.400	87.800	105.100	69.200	68.400	92.400	105.300	118.000
Transmitting ERP (watts)	12.040	74.220	112.340	35.530	3.720	0.260	0.290	0.450

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
57	36-53-20.1 N	086-12-48.7 W	203.9	77.7	1264536

Address: Allen North, 173 Ray Vernon Lane
City: Scottsville **County:** ALLEN **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.400	87.800	105.100	69.200	68.400	92.400	105.300	118.000
Transmitting ERP (watts)	0.260	0.310	1.480	24.580	100.120	93.440	17.800	1.480

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.400	87.800	105.100	69.200	68.400	92.400	105.300	118.000
Transmitting ERP (watts)	63.170	8.330	0.490	0.260	0.300	4.900	45.770	117.640

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
58	37-07-58.9 N	086-13-12.8 W	197.8	77.7	1263384

Address: Edmonson South, 466 Rhea Road
City: Smiths Grove **County:** EDMONSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	70.900	74.500	47.600	73.500	83.900	88.000	89.200	76.800
Transmitting ERP (watts)	128.990	56.630	6.540	0.320	0.260	0.340	7.510	59.300

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	70.900	74.500	47.600	73.500	83.900	88.000	89.200	76.800
Transmitting ERP (watts)	0.690	16.910	90.270	116.960	30.240	2.840	0.260	0.330

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	70.900	74.500	47.600	73.500	83.900	88.000	89.200	76.800
Transmitting ERP (watts)	1.070	0.260	0.340	2.530	33.930	116.960	90.270	14.390

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
59	37-13-31.0 N	086-07-40.6 W	262.1	58.0	

Address: Near entrance to Mammoth Cave Park
City: Mammoth Cave **County:** EDMONSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.200	91.300	119.200	86.600	117.300	116.700	135.200	124.600
Transmitting ERP (watts)	170.670	78.910	9.600	0.520	0.430	0.480	9.380	78.910

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
59	37-13-31.0 N	086-07-40.6 W	262.1	58.0	

Address: Near entrance to Mammoth Cave Park
City: Mammoth Cave **County:** EDMONSON **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.200	91.300	119.200	86.600	117.300	116.700	135.200	124.600
Transmitting ERP (watts)	0.920	21.900	118.970	156.260	43.540	4.210	0.430	0.450

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.200	91.300	119.200	86.600	117.300	116.700	135.200	124.600
Transmitting ERP (watts)	1.600	0.430	0.470	3.190	44.550	156.260	121.750	20.910

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
60	37-23-49.1 N	087-08-43.7 W	135.0	94.2	1244765

Address: Bremen, 12849 Kentucky Highway
City: CENTRAL CITY **County:** MUHLENBERG **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	90.200	93.400	74.900	83.100	73.300	66.600	87.200	92.000
Transmitting ERP (watts)	122.700	78.480	11.150	0.740	0.260	0.340	3.750	40.860

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	90.200	93.400	74.900	83.100	73.300	66.600	87.200	92.000
Transmitting ERP (watts)	0.330	5.430	50.380	128.750	66.660	8.640	0.500	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	90.200	93.400	74.900	83.100	73.300	66.600	87.200	92.000
Transmitting ERP (watts)	3.840	0.260	0.300	0.480	13.100	80.300	122.700	38.140

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
61	37-57-06.1 N	086-24-38.3 W	260.0	96.3	1043429

Address: HWY 144, 4.8 KM (3 MILES) EAST OF
City: UNION STAR **County:** BRECKINRIDGE **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	155.100	133.800	120.800	135.100	151.300	176.200	170.600	164.100
Transmitting ERP (watts)	100.130	64.650	9.560	0.650	0.240	0.270	3.020	33.930

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
61	37-57-06.1 N	086-24-38.3 W	260.0	96.3	1043429

Address: HWY 144, 4.8 KM (3 MILES) EAST OF
City: UNION STAR **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	155.100	133.800	120.800	135.100	151.300	176.200	170.600	164.100
Transmitting ERP (watts)	0.310	8.140	56.310	104.850	38.950	4.370	0.240	0.250

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	155.100	133.800	120.800	135.100	151.300	176.200	170.600	164.100
Transmitting ERP (watts)	1.820	0.240	0.280	0.850	17.400	81.390	89.240	19.980

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
62	37-32-44.1 N	086-18-58.4 W	200.9	77.7	1258451

Address: 2408 Hanging Rock Road
City: Leitchfield **County:** GRAYSON **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	75.500	84.400	70.100	67.400	67.900	86.700	82.300	95.400
Transmitting ERP (watts)	97.150	35.730	4.550	0.310	0.380	0.580	13.630	68.070

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	75.500	84.400	70.100	67.400	67.900	86.700	82.300	95.400
Transmitting ERP (watts)	0.630	15.510	83.280	107.290	28.880	2.760	0.260	0.300

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	75.500	84.400	70.100	67.400	67.900	86.700	82.300	95.400
Transmitting ERP (watts)	1.050	0.260	0.310	2.290	30.940	107.290	83.280	13.820

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
63	36-41-48.4 N	087-07-44.2 W	176.5	60.7	1274279

Address: 4799 Russellville Road
City: Allensville **County:** TODD **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	39.500	56.100	59.000	64.900	64.800	67.600	57.500	49.800
Transmitting ERP (watts)	19.520	91.310	100.120	22.420	2.040	0.260	0.310	0.960

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
63	36-41-48.4 N	087-07-44.2 W	176.5	60.7	1274279

Address: 4799 Russellville Road
City: Allensville **County:** TODD **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	39.500	56.100	59.000	64.900	64.800	67.600	57.500	49.800
Transmitting ERP (watts)	0.260	0.290	0.450	12.040	74.220	112.340	35.530	3.720

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	39.500	56.100	59.000	64.900	64.800	67.600	57.500	49.800
Transmitting ERP (watts)	72.530	10.730	0.730	0.260	0.300	3.390	38.070	112.340

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
64	37-14-00.7 N	086-28-02.1 W	183.2	103.6	1231934

Address: 109 Peach Road North
City: Roundhill **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.400	90.500	87.200	101.000	93.800	118.600	91.600	91.500
Transmitting ERP (watts)	363.980	159.800	18.450	0.910	0.740	0.950	21.190	167.330

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.400	90.500	87.200	101.000	93.800	118.600	91.600	91.500
Transmitting ERP (watts)	1.950	47.700	254.680	329.990	85.310	8.010	0.740	0.920

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.400	90.500	87.200	101.000	93.800	118.600	91.600	91.500
Transmitting ERP (watts)	3.030	0.740	0.970	7.140	95.740	330.050	254.730	40.610

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
65	37-52-03.2 N	086-41-39.8 W	149.0	60.7	

Address: Hancock South, 4586 Midway Lane
City: Hawesville **County:** HANCOCK **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	42.800	44.700	66.200	57.400	29.900	51.200	52.700	89.200
Transmitting ERP (watts)	115.500	73.040	10.410	0.540	0.280	0.490	4.480	36.360

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
65	37-52-03.2 N	086-41-39.8 W	149.0	60.7	

Address: Hancock South, 4586 Midway Lane
City: Hawesville **County:** HANCOCK **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	42.800	44.700	66.200	57.400	29.900	51.200	52.700	89.200
Transmitting ERP (watts)	3.060	20.470	92.740	139.820	92.120	15.240	1.400	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	42.800	44.700	66.200	57.400	29.900	51.200	52.700	89.200
Transmitting ERP (watts)	14.390	1.320	0.300	2.890	19.320	87.550	132.000	86.970

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
66	37-48-20.2 N	086-28-22.4 W	213.7	98.8	1215268

Address: Hardinsburg North, West side of Finley/Dowell Road
City: Hardinsburg **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	117.700	128.800	92.100	83.000	91.500	112.900	146.900	129.700
Transmitting ERP (watts)	65.140	85.560	23.840	2.300	0.240	0.240	0.510	11.990

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	117.700	128.800	92.100	83.000	91.500	112.900	146.900	129.700
Transmitting ERP (watts)	0.260	1.750	24.390	85.560	66.660	11.450	0.880	0.240

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	117.700	128.800	92.100	83.000	91.500	112.900	146.900	129.700
Transmitting ERP (watts)	5.250	0.290	0.240	0.260	5.140	43.210	93.440	43.210

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
67	37-31-51.2 N	086-28-23.9 W	192.0	123.4	1244902

Address: 3690 FALLS OF ROUGH ROAD
City: SHORT CREEK **County:** GRAYSON **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.800	72.500	68.000	60.600	85.600	82.500	104.300	89.800
Transmitting ERP (watts)	30.940	107.290	83.280	13.820	1.050	0.260	0.310	2.290

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
67	37-31-51.2 N	086-28-23.9 W	192.0	123.4	1244902

Address: 3690 FALLS OF ROUGH ROAD
City: SHORT CREEK **County:** GRAYSON **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.800	72.500	68.000	60.600	85.600	82.500	104.300	89.800
Transmitting ERP (watts)	0.260	0.310	6.770	55.020	117.640	52.550	6.320	0.320

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	81.800	72.500	68.000	60.600	85.600	82.500	104.300	89.800
Transmitting ERP (watts)	28.880	2.760	0.260	0.300	0.630	15.510	83.280	107.290

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
68	37-19-34.6 N	086-57-44.7 W	167.0	83.8	1217201

Address: Western KY Parkway, 256 Pond Run Church Road
City: Beaver Dam **County:** OHIO **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.000	93.500	89.600	96.400	94.000	100.700	102.100	97.600
Transmitting ERP (watts)	33.930	116.960	90.270	14.390	1.070	0.260	0.340	2.530

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.000	93.500	89.600	96.400	94.000	100.700	102.100	97.600
Transmitting ERP (watts)	3.840	0.260	0.300	0.480	13.100	80.300	122.700	38.140

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.000	93.500	89.600	96.400	94.000	100.700	102.100	97.600
Transmitting ERP (watts)	88.210	8.620	0.340	0.240	0.240	0.240	4.520	78.620

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
69	37-16-08.2 N	086-40-27.4 W	175.0	77.7	1268018

Address: Welcome, 224 Cook Road
City: Morgantown **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.800	67.500	90.400	96.600	102.900	98.300	116.100	103.600
Transmitting ERP (watts)	117.640	52.550	6.320	0.320	0.260	0.310	6.770	55.020

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
69	37-16-08.2 N	086-40-27.4 W	175.0	77.7	1268018

Address: Welcome, 224 Cook Road
City: Morgantown **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.800	67.500	90.400	96.600	102.900	98.300	116.100	103.600
Transmitting ERP (watts)	0.630	15.510	83.280	107.290	28.880	2.760	0.260	0.300

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.800	67.500	90.400	96.600	102.900	98.300	116.100	103.600
Transmitting ERP (watts)	1.050	0.260	0.310	2.290	30.940	107.290	83.280	13.820

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
70	37-12-05.9 N	087-02-26.4 W	153.0	111.3	1231935

Address: 1317 US HWY 431
City: DRAKESBORO **County:** MUHLENBERG **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	106.300	109.400	98.200	89.900	81.000	80.100	89.600	94.400
Transmitting ERP (watts)	102.460	44.990	5.190	0.260	0.210	0.270	5.960	47.110

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	106.300	109.400	98.200	89.900	81.000	80.100	89.600	94.400
Transmitting ERP (watts)	0.550	13.430	71.710	92.910	24.020	2.250	0.210	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	106.300	109.400	98.200	89.900	81.000	80.100	89.600	94.400
Transmitting ERP (watts)	0.850	0.210	0.270	2.010	26.950	92.910	71.710	11.430

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
71	36-58-34.3 N	086-57-59.8 W	190.2	93.0	1246006

Address: Lewinsburg Downtown, Spa Road
City: LEWISBURG **County:** LOGAN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.500	103.300	93.900	90.700	82.900	85.300	84.200	89.200
Transmitting ERP (watts)	100.120	93.440	17.800	1.480	0.260	0.310	1.480	24.580

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
71	36-58-34.3 N	086-57-59.8 W	190.2	93.0	1246006

Address: Lewinsburg Downtown, Spa Road
City: LEWISBURG **County:** LOGAN **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.500	103.300	93.900	90.700	82.900	85.300	84.200	89.200
Transmitting ERP (watts)	0.300	4.900	45.770	117.640	63.170	8.330	0.490	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	107.500	103.300	93.900	90.700	82.900	85.300	84.200	89.200
Transmitting ERP (watts)	2.040	0.260	0.310	0.960	19.520	91.310	100.120	22.420

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
72	37-02-45.0 N	086-21-53.0 W	167.6	102.7	1046177

Address: Bristow, KY Hwy 526, 5.9 MI (9.5 km) NE of
City: BOWLING GREEN **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	48.600	42.800	42.800	67.000	66.800	77.800	53.600	55.000
Transmitting ERP (watts)	144.730	63.540	7.340	0.360	0.300	0.380	8.420	66.540

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	48.600	42.800	42.800	67.000	66.800	77.800	53.600	55.000
Transmitting ERP (watts)	0.640	15.100	82.010	107.710	30.010	2.900	0.300	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	48.600	42.800	42.800	67.000	66.800	77.800	53.600	55.000
Transmitting ERP (watts)	1.180	0.300	0.350	2.570	34.720	120.380	93.440	15.510

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
73	36-48-17.7 N	087-09-29.0 W	195.1	37.0	

Address: Elkton Downtown, Water Tank within the Town of
City: Elkton **County:** TODD **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	36.400	49.400	47.700	51.300	46.600	29.900
Transmitting ERP (watts)	0.330	0.390	2.890	38.950	135.070	104.850	17.400	1.320

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
73	36-48-17.7 N	087-09-29.0 W	195.1	37.0	

Address: Elkton Downtown, Water Tank within the Town of
City: Elkton **County:** TODD **State:** KY **Construction Deadline:**

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	36.400	49.400	47.700	51.300	46.600	29.900
Transmitting ERP (watts)	186.670	22.440	1.150	0.940	1.100	24.050	195.470	417.910

Antenna: 4
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	29.900	36.400	49.400	47.700	51.300	46.600	29.900
Transmitting ERP (watts)	69.360	324.400	355.700	79.630	7.260	0.940	1.100	3.400

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
74	36-45-37.5 N	086-43-02.9 W	197.2	77.7	1268208

Address: Middleton, 2514 Neely Road
City: Franklin **County:** SIMPSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	65.100	67.700	65.900	61.000	73.500	89.900	84.400	76.100
Transmitting ERP (watts)	108.950	99.160	18.570	1.520	0.260	0.340	1.630	26.900

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	65.100	67.700	65.900	61.000	73.500	89.900	84.400	76.100
Transmitting ERP (watts)	0.340	7.510	59.300	128.990	56.630	6.540	0.320	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	65.100	67.700	65.900	61.000	73.500	89.900	84.400	76.100
Transmitting ERP (watts)	6.540	0.320	0.260	0.340	7.510	59.300	128.990	56.630

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
75	36-44-33.6 N	086-30-05.7 W	209.4	74.7	1057217

Address: Simpson I-65, 680 Phillips Lane
City: Franklin **County:** SIMPSON **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	74.500	60.400	58.100	45.300	43.900	54.700	56.900	65.000
Transmitting ERP (watts)	113.860	122.250	26.290	2.360	0.300	0.370	1.180	23.930

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
75	36-44-33.6 N	086-30-05.7 W	209.4	74.7	1057217

Address: Simpson I-65, 680 Phillips Lane
City: Franklin **County:** SIMPSON **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	74.500	60.400	58.100	45.300	43.900	54.700	56.900	65.000
Transmitting ERP (watts)	0.430	11.130	78.320	144.460	52.750	5.690	0.300	0.320

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	74.500	60.400	58.100	45.300	43.900	54.700	56.900	65.000
Transmitting ERP (watts)	0.830	0.300	0.380	4.210	45.850	137.670	88.060	12.510

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
76	36-41-45.2 N	086-08-55.9 W	299.9	42.7	

Address: Allen Southeast, 7.0 km southeast of
City: Scottsville **County:** ALLEN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	108.900	124.900	127.700	96.400	75.800	97.900	122.100	116.000
Transmitting ERP (watts)	156.880	103.360	17.100	1.570	0.350	3.430	22.970	104.060

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	108.900	124.900	127.700	96.400	75.800	97.900	122.100	116.000
Transmitting ERP (watts)	6.870	41.440	144.130	164.500	61.780	8.520	0.570	0.770

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	108.900	124.900	127.700	96.400	75.800	97.900	122.100	116.000
Transmitting ERP (watts)	1.120	0.240	0.870	3.340	18.280	65.860	50.650	9.530

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
77	37-41-44.8 N	086-25-06.2 W	210.6	77.7	1262107

Address: Kingswood, 1065 Stinnett-Taul Lane
City: Harned **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	78.900	76.900	78.500	81.600	105.100	108.200	91.500	108.400
Transmitting ERP (watts)	6.770	55.020	117.640	52.550	6.320	0.320	0.260	0.310

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
77	37-41-44.8 N	086-25-06.2 W	210.6	77.7	1262107

Address: Kingswood, 1065 Stinnett-Taul Lane
City: Harned **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	78.900	76.900	78.500	81.600	105.100	108.200	91.500	108.400
Transmitting ERP (watts)	0.260	0.300	3.390	38.070	112.340	72.530	10.730	0.730

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	78.900	76.900	78.500	81.600	105.100	108.200	91.500	108.400
Transmitting ERP (watts)	112.340	35.530	3.720	0.260	0.290	0.450	12.040	74.220

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
78	36-54-24.5 N	086-19-35.4 W	172.8	77.7	1275463

Address: Claypool, 2818 Alvaton-Greenhill Road
City: Bowling Green **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	82.200	76.200	79.200	52.800	60.600	78.000	69.500	86.500
Transmitting ERP (watts)	18.240	82.650	124.610	82.100	13.580	1.250	0.280	2.730

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	82.200	76.200	79.200	52.800	60.600	78.000	69.500	86.500
Transmitting ERP (watts)	0.450	0.620	5.460	32.920	114.480	130.660	49.070	6.770

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	82.200	76.200	79.200	52.800	60.600	78.000	69.500	86.500
Transmitting ERP (watts)	112.910	27.380	2.950	0.270	1.500	8.200	53.810	130.660

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
79	37-54-07.2 N	086-31-56.1 W	185.9	30.3	

Address: 1.0 km SSW of
City: Stephensports **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.900	29.900	49.700	43.700	40.700	48.900	79.700	37.400
Transmitting ERP (watts)	20.210	136.640	63.910	3.510	0.310	0.310	0.310	0.340

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
79	37-54-07.2 N	086-31-56.1 W	185.9	30.3	

Address: 1.0 km SSW of
City: Stephensports **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.900	29.900	49.700	43.700	40.700	48.900	79.700	37.400
Transmitting ERP (watts)	0.310	0.310	3.510	82.330	124.620	15.330	0.570	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.900	29.900	49.700	43.700	40.700	48.900	79.700	37.400
Transmitting ERP (watts)	5.190	0.310	0.310	0.310	0.310	13.660	127.520	78.630

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
80	37-42-39.3 N	086-31-34.6 W	218.5	77.7	1272916

Address: 245 Dejarnette Lane
City: McQuady **County:** BRECKINRIDGE **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.000	93.600	90.700	109.100	120.100	106.500	93.000	113.900
Transmitting ERP (watts)	128.360	93.210	17.180	1.520	0.270	1.720	14.250	71.470

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.000	93.600	90.700	109.100	120.100	106.500	93.000	113.900
Transmitting ERP (watts)	4.860	26.750	105.570	130.690	59.850	9.030	0.640	0.460

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.000	93.600	90.700	109.100	120.100	106.500	93.000	113.900
Transmitting ERP (watts)	3.780	0.270	1.280	5.690	46.750	127.920	120.460	33.780

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
81	37-29-16.7 N	086-16-14.7 W	231.6	44.2	

Address: Leitchfield WT, 1.5 km East of
City: Leitchfield **County:** GRAYSON **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.200	71.900	49.000	65.200	69.200	59.900	55.400	68.100
Transmitting ERP (watts)	127.520	78.630	5.190	0.310	0.310	0.310	0.310	13.660

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
81	37-29-16.7 N	086-16-14.7 W	231.6	44.2	

Address: Leitchfield WT, 1.5 km East of
City: Leitchfield **County:** GRAYSON **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.200	71.900	49.000	65.200	69.200	59.900	55.400	68.100
Transmitting ERP (watts)	0.310	0.790	40.320	146.410	38.510	1.570	0.310	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	84.200	71.900	49.000	65.200	69.200	59.900	55.400	68.100
Transmitting ERP (watts)	0.570	0.310	0.310	0.310	3.510	82.330	124.620	15.330

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
82	37-12-13.0 N	086-52-35.7 W	161.2	77.7	1263383

Address: 354 New Cut Road North
City: Rochester **County:** BUTLER **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	92.200	104.300	79.800	74.100	80.300	95.900	89.700	112.900
Transmitting ERP (watts)	63.170	117.640	43.710	4.900	0.260	0.280	0.350	9.130

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	92.200	104.300	79.800	74.100	80.300	95.900	89.700	112.900
Transmitting ERP (watts)	0.310	0.960	19.520	91.310	100.120	22.420	2.040	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	92.200	104.300	79.800	74.100	80.300	95.900	89.700	112.900
Transmitting ERP (watts)	10.730	0.730	0.260	0.300	3.390	38.070	112.340	72.530

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
83	36-45-39.5 N	086-51-51.6 W	186.6	77.7	1256442

Address: Logan South, 75 Hall Store Road
City: Russellville **County:** LOGAN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	70.500	51.300	69.000	75.700	80.000	87.100	81.800	59.200
Transmitting ERP (watts)	128.990	56.630	6.540	0.320	0.260	0.340	7.510	59.300

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
83	36-45-39.5 N	086-51-51.6 W	186.6	77.7	1256442

Address: Logan South, 75 Hall Store Road
City: Russellville **County:** LOGAN **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	70.500	51.300	69.000	75.700	80.000	87.100	81.800	59.200
Transmitting ERP (watts)	0.340	2.530	33.930	116.960	90.270	14.390	1.070	0.260

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	70.500	51.300	69.000	75.700	80.000	87.100	81.800	59.200
Transmitting ERP (watts)	3.840	0.260	0.300	0.480	13.100	80.300	122.700	38.140

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
84	36-58-47.9 N	086-23-20.0 W	155.1	56.4	1241356

Address: Bowling Green Cemetery Road, 3700 Cumberland Trace Cell
City: Bowling Green **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	35.000	33.800	29.900	39.200	29.900	29.900	54.700
Transmitting ERP (watts)	129.890	61.320	3.430	0.310	0.310	0.310	0.450	18.690

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	35.000	33.800	29.900	39.200	29.900	29.900	54.700
Transmitting ERP (watts)	0.310	3.260	77.190	119.560	14.880	0.420	0.310	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	29.900	35.000	33.800	29.900	39.200	29.900	29.900	54.700
Transmitting ERP (watts)	0.310	0.310	0.310	0.570	26.700	136.640	48.150	2.270

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
85	36-53-34.0 N	086-24-38.0 W	184.4	46.7	

Address: Plano Water Tank, 9.0 SSE of
City: Bowling Green **County:** WARREN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	61.200	49.800	45.800	33.400	35.100	33.600	34.800	46.200
Transmitting ERP (watts)	1.340	39.400	76.830	11.900	0.480	0.240	0.240	0.240

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
85	36-53-34.0 N	086-24-38.0 W	184.4	46.7	

Address: Plano Water Tank, 9.0 SSE of
City: Bowling Green **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	61.200	49.800	45.800	33.400	35.100	33.600	34.800	46.200
Transmitting ERP (watts)	0.240	0.240	0.240	5.320	66.920	53.150	4.220	0.240

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	61.200	49.800	45.800	33.400	35.100	33.600	34.800	46.200
Transmitting ERP (watts)	28.550	1.400	0.240	0.240	0.240	0.370	16.810	84.240

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
86	36-53-16.1 N	086-30-48.3 W	183.8	60.6	

Address: Richpond, 608 Skeek Road
City: Bowling Green **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.900	78.100	67.600	58.700	47.300	43.600	56.900	73.400
Transmitting ERP (watts)	87.200	42.220	5.380	0.310	0.260	0.260	4.790	40.320

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.900	78.100	67.600	58.700	47.300	43.600	56.900	73.400
Transmitting ERP (watts)	1.480	24.580	100.120	93.440	17.800	1.480	0.260	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.900	78.100	67.600	58.700	47.300	43.600	56.900	73.400
Transmitting ERP (watts)	0.490	0.260	0.300	4.900	45.770	117.640	63.170	8.330

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
87	36-44-23.3 N	086-34-22.4 W	211.2	93.6	1007990

Address: Franklin Downtown, Ogles Road (Franklin #9142)
City: Franklin **County:** SIMPSON **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	82.400	91.500	77.000	60.200	57.000	65.400	75.500	64.400
Transmitting ERP (watts)	1.890	59.640	119.000	18.430	0.750	0.270	0.270	0.270

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
87	36-44-23.3 N	086-34-22.4 W	211.2	93.6	1007990

Address: Franklin Downtown, Ogles Road (Franklin #9142)
City: Franklin **County:** SIMPSON **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	82.400	91.500	77.000	60.200	57.000	65.400	75.500	64.400
Transmitting ERP (watts)	0.270	0.270	0.270	8.050	101.290	84.250	6.540	0.310

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	82.400	91.500	77.000	60.200	57.000	65.400	75.500	64.400
Transmitting ERP (watts)	44.210	2.120	0.270	0.270	0.270	0.400	25.440	127.510

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
88	36-50-51.7 N	086-46-11.1 W	198.4	82.3	1237175

Address: Rockcastle, 1365 Echo Valley Road
City: Auburn **County:** LOGAN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.000	66.400	63.200	58.100	74.800	70.400	71.300	75.200
Transmitting ERP (watts)	122.700	78.480	11.150	0.740	0.260	0.340	3.750	40.860

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.000	66.400	63.200	58.100	74.800	70.400	71.300	75.200
Transmitting ERP (watts)	0.380	9.920	69.800	128.750	47.020	5.070	0.260	0.280

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.000	66.400	63.200	58.100	74.800	70.400	71.300	75.200
Transmitting ERP (watts)	2.100	0.260	0.330	1.050	21.320	101.470	108.950	23.430

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
89	37-25-24.5 N	086-24-14.9 W	197.8	83.8	1217214

Address: Millwood, 1006 Pleasant View Road
City: Millwood **County:** GRAYSON **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	62.400	41.800	60.100	71.500	58.400	67.600	87.100	76.500
Transmitting ERP (watts)	39.870	122.420	126.750	40.620	4.930	0.330	0.900	5.470

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
89	37-25-24.5 N	086-24-14.9 W	197.8	83.8	1217214

Address: Millwood, 1006 Pleasant View Road
City: Millwood **County:** GRAYSON **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	62.400	41.800	60.100	71.500	58.400	67.600	87.100	76.500
Transmitting ERP (watts)	0.890	0.350	3.940	22.290	94.500	128.360	70.660	11.140

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	62.400	41.800	60.100	71.500	58.400	67.600	87.100	76.500
Transmitting ERP (watts)	103.880	21.640	2.140	0.270	1.490	11.530	61.810	130.990

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
90	37-17-38.2 N	086-44-29.7 W	129.8	83.8	1217204

Address: Natcher Parkway, 1 C. Beck Rd.
City: Morgantown **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	37.600	36.200	41.100	50.200	36.800	52.200	53.300	52.700
Transmitting ERP (watts)	7.510	59.300	128.990	56.630	6.540	0.320	0.260	0.340

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	37.600	36.200	41.100	50.200	36.800	52.200	53.300	52.700
Transmitting ERP (watts)	0.260	0.340	3.750	40.860	122.700	78.480	11.150	0.740

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	37.600	36.200	41.100	50.200	36.800	52.200	53.300	52.700
Transmitting ERP (watts)	122.700	38.140	3.840	0.260	0.300	0.480	13.100	30.300

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
91	37-10-17.8 N	086-46-48.7 W	157.3	90.0	1273826

Address: South Hill, 231 Freeman Staples Road
City: Morgantown **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.500	84.600	81.200	73.600	93.700	70.900	96.300	102.200
Transmitting ERP (watts)	71.470	128.360	93.210	17.180	1.520	0.270	1.720	14.250

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
91	37-10-17.8 N	086-46-48.7 W	157.3	90.0	1273826

Address: South Hill, 231 Freeman Staples Road
City: Morgantown **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.500	84.600	81.200	73.600	93.700	70.900	96.300	102.200
Transmitting ERP (watts)	0.620	5.460	32.920	114.480	130.660	49.070	6.770	0.450

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.500	84.600	81.200	73.600	93.700	70.900	96.300	102.200
Transmitting ERP (watts)	21.640	2.140	0.270	1.490	11.530	61.810	130.990	103.880

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
92	36-57-07.6 N	086-47-36.4 W	210.0	77.7	1261473

Address: Chandler, 8773 Morgantown Road
City: Russellville **County:** LOGAN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.500	88.200	98.600	86.200	75.500	96.400	126.200	114.800
Transmitting ERP (watts)	122.700	78.480	11.150	0.740	0.260	0.340	3.750	40.860

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.500	88.200	98.600	86.200	75.500	96.400	126.200	114.800
Transmitting ERP (watts)	0.480	13.100	80.300	122.700	38.140	3.840	0.260	0.300

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	122.500	88.200	98.600	86.200	75.500	96.400	126.200	114.800
Transmitting ERP (watts)	0.500	0.260	0.330	5.430	50.380	128.750	66.660	8.640

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
93	37-03-12.4 N	086-44-45.3 W	184.4	77.7	1273825

Address: Davis Crossroads, 63 Fire Station Lane
City: Morgantown **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	90.300	104.500	88.100	79.900	67.600	85.300	105.100	96.800
Transmitting ERP (watts)	94.500	128.360	70.660	11.140	0.890	0.350	3.940	22.290

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
93	37-03-12.4 N	086-44-45.3 W	184.4	77.7	1273825

Address: Davis Crossroads, 63 Fire Station Lane
City: Morgantown **County:** BUTLER **State:** KY **Construction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	90.300	104.500	88.100	79.900	67.600	85.300	105.100	96.800
Transmitting ERP (watts)	0.350	3.940	22.290	94.500	128.360	70.660	11.140	0.890

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	90.300	104.500	88.100	79.900	67.600	85.300	105.100	96.800
Transmitting ERP (watts)	17.180	1.520	0.270	1.720	14.250	71.470	128.360	93.210

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
94	36-49-14.6 N	087-02-42.8 W	198.7	77.7	1261471

Address: Daysville, 1270 Daysville Road
City: Russellville **County:** LOGAN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	80.600	79.200	75.600	95.700	90.500	86.800	61.000	55.000
Transmitting ERP (watts)	2.290	30.940	107.290	83.280	13.820	1.050	0.260	0.310

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	80.600	79.200	75.600	95.700	90.500	86.800	61.000	55.000
Transmitting ERP (watts)	0.490	0.260	0.300	4.900	45.770	117.640	63.170	8.330

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	80.600	79.200	75.600	95.700	90.500	86.800	61.000	55.000
Transmitting ERP (watts)	112.340	35.530	3.720	0.260	0.290	0.450	12.040	74.220

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
95	36-41-25.9 N	086-04-02.1 W	237.1	77.7	1278967

Address: Holland, 359 Lafayette Road
City: Scottsville **County:** ALLEN **State:** KY **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.100	88.200	100.700	73.600	49.300	69.400	81.800	87.800
Transmitting ERP (watts)	12.260	67.850	91.320	22.470	1.930	0.240	0.240	1.460

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
95	36-41-25.9 N	086-04-02.1 W	237.1	77.7	1278967

Address: Holland, 359 Lafayette Road
City: Scottsville **County:** ALLEN **State:** KY C**onstruction Deadline:**

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.100	88.200	100.700	73.600	49.300	69.400	81.800	87.800
Transmitting ERP (watts)	0.230	1.100	4.900	40.250	110.140	103.720	29.080	3.250

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	114.100	88.200	100.700	73.600	49.300	69.400	81.800	87.800
Transmitting ERP (watts)	93.210	17.180	1.520	0.270	1.720	14.250	71.470	128.360

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
96	36-59-23.5 N	086-28-21.6 W	146.6	76.2	1277050

Address: Lampkin Park, Behind Dept of Hwys Dist. Office on Old Morgantown Rd. off Hwy 231
City: Bowling Green **County:** WARREN **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.300	29.900	37.300	29.900	29.900	29.900	29.900	29.900
Transmitting ERP (watts)	111.310	29.890	1.180	0.240	0.240	0.240	0.710	29.750

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.300	29.900	37.300	29.900	29.900	29.900	29.900	29.900
Transmitting ERP (watts)	0.240	2.330	51.180	79.740	9.900	0.320	0.240	0.240

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.300	29.900	37.300	29.900	29.900	29.900	29.900	29.900
Transmitting ERP (watts)	0.240	0.240	0.240	0.280	10.010	96.730	60.750	3.910

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
97	37-25-27.1 N	086-13-46.7 W	252.1	41.1	1280487

Address: Johnson Crossroads, 2601 St. Augustine Road
City: Clarkson **County:** GRAYSON **State:** KY C**onstruction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	97.900	73.900	78.500	96.700	106.000	108.500	99.600	95.600
Transmitting ERP (watts)	157.100	105.670	17.850	1.800	0.480	4.050	25.570	109.870

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKN867 **File Number:** 0009262184 **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
97	37-25-27.1 N	086-13-46.7 W	252.1	41.1	1280487

Address: Johnson Crossroads, 2601 St. Augustine Road

City: Clarkson **County:** GRAYSON **State:** KY **Construction Deadline:**

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	97.900	73.900	78.500	96.700	106.000	108.500	99.600	95.600
Transmitting ERP (watts)	7.940	44.270	150.440	165.870	63.900	9.040	0.700	1.050

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	97.900	73.900	78.500	96.700	106.000	108.500	99.600	95.600
Transmitting ERP (watts)	4.030	0.340	2.430	11.890	72.190	167.790	144.670	35.900

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
98	37-54-31.9 N	085-59-25.9 W	236.2	35.0	

Address: Fort Knox IV, 5800 Block of Adams Street

City: Fort Knox **County:** MEADE **State:** KY **Construction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.000	74.300	90.800	60.900	57.100	53.800	55.700	114.300
Transmitting ERP (watts)	36.310	138.730	165.910	77.210	12.030	0.950	0.820	6.980

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.000	74.300	90.800	60.900	57.100	53.800	55.700	114.300
Transmitting ERP (watts)	1.300	0.640	5.680	30.740	124.760	162.210	90.940	14.810

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	94.000	74.300	90.800	60.900	57.100	53.800	55.700	114.300
Transmitting ERP (watts)	117.350	21.640	1.920	0.340	2.170	17.950	89.980	161.610

Control Points:

Control Pt. No. 1

Address: 216 W LINCOLN TRAIL

City: RADCLIFF **County:** **State:** KY **Telephone Number:**

Waivers/Conditions:

NONE

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WQCS429	0010160221

Radio Service
CW - PCS Broadband

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
04-23-2015	09-23-2022	05-13-2025	02-15-2023

Market Number	Channel Block	Sub-Market Designator
BTA263	C	5

Market Name
Louisville, KY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
05-13-2010			

Waivers/Conditions:

NONE

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQCS429 **File Number:** 0010160221 **Print Date:** 02-15-2023

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WQGA718	0009793647
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
02-22-2022	02-22-2022	11-29-2036	02-23-2022

Market Number	Channel Block	Sub-Market Designator
REA004	F	15

Market Name
Mississippi Valley

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQGA718 **File Number:** 0009793647 **Print Date:** 02-23-2022

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WQGA958	0009775568
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
01-03-2022	01-03-2022	11-29-2036	01-05-2022

Market Number	Channel Block	Sub-Market Designator
BEA070	B	0

Market Name
Louisville, KY-IN

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQGA958 **File Number:** 0009775568 **Print Date:** 01-05-2022

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WQGD757	0010160394
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
01-10-2022	09-23-2022	12-18-2036	02-10-2023

Market Number	Channel Block	Sub-Market Designator
BEA070	C	0

Market Name
Louisville, KY-IN

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

Special Condition for AU/name change (6/4/2016): Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQGD757 **File Number:** 0010160394 **Print Date:** 02-10-2023

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WQJQ692	

Radio Service
WU - 700 MHz Upper Band (Block C)

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
01-10-2020	02-11-2021	06-13-2029	

Market Number	Channel Block	Sub-Market Designator
REA004	C	0

Market Name
Mississippi Valley

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-13-2013	06-13-2019		

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

This authorization is conditioned upon compliance with section 27.16 of the Commission's rules

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQJQ692 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WRAM748	0009262187
Radio Service	
WT - 600 MHz Band	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
01-09-2018	01-13-2021	01-09-2030	03-11-2021

Market Number	Channel Block	Sub-Market Designator
PEA162	G	0

Market Name
Elizabethtown, KY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
01-09-2024			

Waivers/Conditions:

NONE

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WRAM748 **File Number:** 0009262187 **Print Date:** 03-11-2021

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WRAY773	
Radio Service UU - Upper Microwave Flexible Use Service	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
07-25-2018	02-27-2019	06-17-2028	

Market Number	Channel Block	Sub-Market Designator
BTA263	L1	0

Market Name
Louisville, KY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-01-2024			

Waivers/Conditions:

Special Condition for AU/name change (6/4/2016): Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WRAY773 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WREV455	0009262187
Radio Service UU - Upper Microwave Flexible Use Service	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
12-11-2019	01-13-2021	12-11-2029	03-11-2021

Market Number	Channel Block	Sub-Market Designator
PEA162	A	0

Market Name
Elizabethtown, KY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

NONE

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WREV455 **File Number:** 0009262187 **Print Date:** 03-11-2021

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: STRAIGHT PATH SPECTRUM, LLC

ATTN: REGULATORY
STRAIGHT PATH SPECTRUM, LLC
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WRHF800	

Radio Service
UU - Upper Microwave Flexible Use Service

FCC Registration Number (FRN): 0012576435

Grant Date	Effective Date	Expiration Date	Print Date
06-04-2020	06-04-2020	06-04-2030	

Market Number	Channel Block	Sub-Market Designator
PEA162	M1	0

Market Name
Elizabethtown, KY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

NONE

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: STRAIGHT PATH SPECTRUM, LLC

Call Sign: WRHF800 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WRNG302	

Radio Service
PM - 3.7 GHz Service

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
07-23-2021	07-23-2021	07-23-2036	

Market Number	Channel Block	Sub-Market Designator
PEA162	A1	0

Market Name
Elizabethtown, KY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
07-23-2029	07-23-2033		

Waivers/Conditions:

This final license provides authorization during the full 15-year license term. Operation under this final license may begin on the earlier of (1) 12/5/2025 or (2) the date that the certification for accelerated relocation for this PEA is validated by the FCC pursuant to 47 CFR § 27.1412(g).

License is conditioned on compliance with all applicable FCC rules and regulations, including licensee making payments required by 47 C.F.R. §§ 27.1401- 27.1424 as described in FCC 20-22. See FCC 20-22, paras. 178-331.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WRNG302 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WRNG307	
Radio Service PM - 3.7 GHz Service	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
07-23-2021	07-23-2021	07-23-2036	

Market Number	Channel Block	Sub-Market Designator
PEA162	B1	0

Market Name
Elizabethtown, KY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
07-23-2029	07-23-2033		

Waivers/Conditions:

This final license provides authorization during the full 15-year license term. Operation under this final license may begin on the earlier of (1) 12/5/2025 or (2) the date that the certification for accelerated relocation for this PEA is validated by the FCC pursuant to 47 CFR § 27.1412(g).

License is conditioned on compliance with all applicable FCC rules and regulations, including licensee making payments required by 47 C.F.R. §§ 27.1401- 27.1424 as described in FCC 20-22. See FCC 20-22, paras. 178-331.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WRNG307 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE ENGINEERING
ALPHARETTA, GA 30022

Call Sign	File Number
WRWD815	
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
09-23-2022	09-23-2022	09-06-2025	

Market Number	Channel Block	Sub-Market Designator
BTA263	C	8

Market Name
Louisville, KY

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

NONE

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WRWD815 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

CELLCO PARTNERSHIP
D/B/A
verizon

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

NEW 230'-0" SELF SUPPORT TOWER w/5'-0" LIGHTNING ARRESTOR -TOTAL TOWER HEIGHT 235'-0"

FROM GRAYSON COUNTY JUDGE EXECUTIVE: 130 E MARKET ST, LEITCHFIELD, KY 42754: HEAD WEST ON E MARKET ST TOWARD S HEYSER DR (459 FT). TURN LEFT AT THE 2ND CROSS STREET ONTO S MAIN ST (499 FT). TURN RIGHT AT THE 1ST CROSS STREET ONTO W WHITE OAK ST (1.6 MI). CONTINUE ONTO BEAVER DAM RD (0.3 MI). TURN LEFT ONTO KY-187 S/SHREWSBURY RD (7.8 MI). TURN LEFT ONTO GRAY RD (0.5 MI). SITE WILL BE LOCATED ON LEFT (NORTH EAST) SIDE OF ROAD.

FROM LOUISVILLE MTSO: 2421 HOLLOWAY ROAD LOUISVILLE, KY 40299: HEAD SOUTH ON HOLLOWAY RD TOWARD PLANTSIDE DR (0.1 MI). TURN RIGHT AT THE 1ST CROSS STREET ONTO PLANTSIDE DR (0.3 MI). TURN LEFT ONTO WATTERSON TRAIL (0.7 MI). TURN RIGHT TO STAY ON WATTERSON TRAIL (0.7 MI). TURN LEFT ONTO BILLTOWN RD (3.7 MI). TAKE THE RAMP ONTO I-265 W/KY-841 W (0.5 MI). MERGE ONTO I-265 W/KY-841 W (8.2 MI). CONTINUE ONTO KY-841 W (0.5 MI). TAKE EXIT 10B TO MERGE ONTO I-65 S TOWARD NASHVILLE (33.9 MI). TAKE EXIT 91C-A FOR US-31W TOWARD ELIZABETHTOWN/ PADUCAH (0.4 MI). KEEP LEFT, FOLLOW SIGNS FOR OWENSBORO/PADUCAH/WESTERN KENTUCKY PKWY AND MERGE ONTO WESTERN KENTUCKY PKWY (29.2 MI). TAKE EXIT 107 FOR KY-259 TOWARD LEITCHFIELD/BROWNSVILLE (0.3 MI). TURN RIGHT ONTO KY-259 N/S MAIN ST (0.7 MI). TURN LEFT ONTO W WHITE OAK ST (1.6 MI). CONTINUE ONTO BEAVER DAM RD (0.3 MI). TURN LEFT ONTO KY-187 S/SHREWSBURY RD (7.8 MI). TURN LEFT ONTO GRAY RD (0.5 MI). SITE WILL BE LOCATED ON LEFT (NORTH EAST) SIDE OF ROAD.

PREPARED BY: POWER OF DESIGN GROUP, LLC - (502) 437-5252

PROJECT SUMMARY

VERIZON SITE
CK SHREWSBURY
FUZE ID: 16505537
LOCATION CODE: 689716

SITE ADDRESS
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY
E911 ADDRESS: TBD

TOWER OWNER
VERIZON
2902 RING ROAD
ELIZABETHTOWN, KY 42701
CONTACT: JACKIE STRAIGHT
PHONE: (290) 750-0023
E-MAIL: JACKIE.STRAIGHT@VERIZONWIRELESS.COM

PROPERTY OWNER
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574
CONTACT: DARRELL ROOF
PHONE: (270) 230-3184
E-MAIL: DARRELLDROOF@GMAIL.COM

POLICE
LEITCHFIELD POLICE DEPT.
117 S MAIN ST
LEITCHFIELD, KY 42754
PHONE: (270) 259-3850

FIRE
CANEYVILLE VOLUNTEER FIRE DEPT.
210 E MAPLE ST
CANEYVILLE, KY 42721
PHONE: (270) 879-3333

GENERAL INFORMATION
LATITUDE : 37° 22' 03.840164" N
LONGITUDE : 86° 22' 25.859306" W
1983 (NAD83)
ELEVATION : 699'± AMSL
1988 (NAVD88)

VERIZON LEASE AREA
60'-0" x 100'-0"
(6,000 SF)

PROJECTED TOTAL DISTURBED AREA

COMPOUND:	(4,020 SF) = (0.09 ACRE)
ACCESS DRIVE:	(9,386 SF) = (0.22 ACRE)
GROSS AREA:	(13,406 SF) = (0.31 ACRE)

PROJECT DESCRIPTION

NOTE: ALL ITEMS WITHIN THESE CONSTRUCTION DOCUMENTS ARE BY TOWER OWNER'S GENERAL CONTRACTOR AND HIS SUB-CONTRACTORS UNLESS NOTED AS (VZW GC) WHICH SHALL INCLUDE VERIZON GENERAL CONTRACTOR AND HIS SUB-CONTRACTORS. GENERALLY DESCRIBED BELOW:

VERIZON SCOPE:

- INSTALL A NEW 230'-0" SELF SUPPORT TOWER w/ 5'-0" LIGHTNING ROD (TOTAL 235'-0")
- INSTALL A NEW TOWER FOUNDATION SYSTEM
- INSTALL A NEW 58'-0"x65'-0" FENCED GRAVEL COMPOUND
- INSTALL A NEW SITE H-FRAME
- INSTALL A NEW ELECTRICAL SERVICE RUN TO SITE H-FRAME
- INSTALL A NEW GRAVEL ACCESS DRIVE
- NO WATER OR SEWAGE SERVICES RUN TO SITE
- INSTALL NEW TOWER & SITE GROUNDING SYSTEM
- INSTALL NEW VZW SUBSURFACE GROUNDING SYSTEM
- INSTALL A NEW 11'-6"x19'-6" CONCRETE EQUIPMENT / GENERATOR PAD
- INSTALL ELECTRICAL SERVICE CONDUIT WITH PULL TAPES FROM ILC ENCLOSURE STUB-UP WITHIN VZW EQUIPMENT PAD TO UTILITY H-FRAME
- INSTALL NEW CONDUITS WITH PULL TAPES FROM VZW ILC ENCLOSURE STUB-UPS TO EQUIPMENT ENCLOSURE STUB-UPS WITHIN VZW EQUIPMENT PAD
- INSTALL NEW CONDUITS WITH PULL TAPES FROM VZW ILC & EQUIPMENT ENCLOSURE STUB-UP LOCATIONS TO THE GENERATOR LOCATION WITHIN VZW EQUIPMENT PAD
- INSTALL NEW CONDUITS WITH PULL TAPES FROM RF CABINET TO OVP H-FRAME UT FIBER LOCATION
- INSTALL (1) NEW "VERIZON ONLY" FIBER OPTIC CONDUIT WITH PULL TAPE AND TRACER WIRE FROM VZW EQUIPMENT TO NEW "VERIZON ONLY" 24" x 36" HAND HOLE OUTSIDE COMPOUND
- INSTALL (1) NEW "VERIZON ONLY" FIBER OPTIC CONDUIT WITH PULL TAPE AND TRACER WIRE FROM NEW "VERIZON ONLY" 24" x 36" HAND HOLE OUTSIDE COMPOUND TO NEW "VERIZON ONLY" 36" x 60" HAND HOLE AT ROW
- INSTALL (1) NEW "VERIZON ONLY" FIBER OPTIC CONDUIT WITH PULL TAPE FROM NEW "VERIZON ONLY" 24" x 36" HAND HOLE OUTSIDE COMPOUND AND STUB UP AT FUTURE FIBER PEDESTAL LOCATION
- INSTALL (2) 1-1/4" & (1) 1" INNERDUCTS WITH PULL TAPES AND TRACER WIRE WITHIN "VERIZON ONLY" FIBER OPTIC CONDUITS
- PERMANENT ELECTRIC POWER MUST BE AVAILABLE FOR VERIZON AT THE METER BASE PRIOR TO THE SITE BEING RELEASED AS TENANT READY.
- INSTALL A NEW 11'-6"x14'-9" PREFABRICATED CANOPY ON EXISTING CONCRETE PAD FOUNDATION
- INSTALL NEW 30KW DIESEL GENERATOR ON EXISTING CONCRETE FOUNDATION
- INSTALL VZW ICE BRIDGE AND FOUNDATIONS
- INSTALL VZW ANTENNA MOUNTING SUPPORT STRUCTURE ON TOWER
- INSTALL VZW ANTENNAS, LINES, COAX, GPS ANTENNA AND RADIO EQUIPMENT
- INSTALL EXISTING SUBSURFACE GROUND LEADS TO VZW EQUIPMENT & FACILITIES
- INSTALL VZW ELECTRIC SERVICE CONDUCTORS FROM UTILITY H-FRAME TO VZW ILC ENCLOSURE
- INSTALL VZW GENERATOR CIRCUITS FROM VZW ILC & EQUIPMENT ENCLOSURES TO VZW GENERATOR
- INSTALL CIRCUITS FROM VZW ILC TO VZW EQUIPMENT ENCLOSURES
- INSTALL NEW OUTDOOR OVP AND CABLING H-FRAME SUPPORT

APPLICABLE CODES

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

BUILDING CODE	2018 KENTUCKY BUILDING CODE
STRUCTURAL CODE	TIA/EIA-222 - REVISION G (INCLUDES ADDENDUM #2)
MECHANICAL CODE	2012 INTERNATIONAL MECHANICAL CODE (IMC 2012)
PLUMBING CODE	KENTUCKY STATE PLUMBING CODE (815 KAR CHAP. 20)
ELECTRICAL CODE	2017 NATIONAL ELECTRICAL CODE (NEC) - NFPA 70
FIRE/LIFE SAFETY CODE	2012 INTERNATIONAL FIRE CODE (2012 IFC)
ENERGY CODE	2012 INTERNATIONAL ENERGY CODE (COMMERCIAL)
GAS CODE	2009 NATIONAL FUEL GAS CODE (NFPA 54)

ACCESSIBILITY REQUIREMENTS:

FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH THE 2009 IBC BUILDING CODE.

CONSULTANT TEAM

SURVEYOR
POWER OF DESIGN GROUP, LLC
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
PHONE: (502) 437-5252

ARCHITECTURAL
POWER OF DESIGN GROUP, LLC
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
PHONE: (502) 437-5252

ELECTRICAL
WARREN RECC
ADDRESS: 113 S LEE ST
LEITCHFIELD, KY 42754
CONTACT: TBD
PHONE: (270) 842-6541
EMAIL: TBD

ELECTRICAL UTILITY COORDINATION IS NOT FINALIZED. DO NOT PROCEED WITH CONSTRUCTION.

SHEET NUMBER	DESCRIPTION
T-1	PROJECT INFORMATION, SITE MAPS, SHEET INDEX
B-1 TO B-1.1	SITE SURVEY
B-2 TO B-2.1	500' RADIUS AND ABUTTERS MAP
R-1	REVISION LOG
TOWER ELEVATION	
TE-1	TOWER ELEVATION
CIVIL	
C-1	OVERALL SITE PLAN W/ AERIAL OVERLAY
C-1A	OVERALL SITE PLAN W/ DISTANCE TO PROPERTY LINES
C-1B	DISTANCE TO RESIDENTIAL STRUCTURE
C-3	DETAILED SITE PLAN
C-4	DIMENSIONED SITE PLAN

VICINITY MAP

LOCATION MAP

AERIAL

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

03/11/2022

STATE OF KENTUCKY
MARK E. PATTERSON
16,300
LICENSED
PROFESSIONAL ENGINEER

EN PERMIT: 3594

ZONING DRAWINGS

REV.	DATE	DESCRIPTION
A	2.21.22	ISSUED FOR REVIEW
0	3.11.22	ISSUED AS FINAL

SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

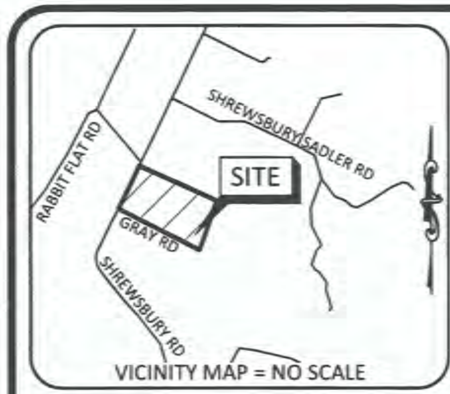
POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	02.21.22

SHEET TITLE:

PROJECT INFORMATION, SITE MAPS, SHEET INDEX

SHEET NUMBER:

T-1



FAA COORDINATE POINT
NAD 83
LATITUDE: 37°22'03.840164"
LONGITUDE: -86°22'25.859306"
NAVD 88
ELEVATION: 699'± AMSL
NORTHING: 3,658,083.070
EASTING: 4,739,958.200

TEMPORARY BENCHMARK
NORTHING: 3,658,053.252
EASTING: 4,740,031.361
ELEVATION: 690.06'
LOCATION: SET 60D NAIL S21°29'W 43.0'± FROM THE EASTERNMOST CORNER OF THE PROPOSED LEASE AREA.

GLOBAL POSITIONING SYSTEMS NOTE

1. RANDOM CONTROL POINTS AND A PORTION OF THE TOPOGRAPHY WAS LOCATED USING GPS.
2. THE TYPE OF GPS UTILIZED WAS NETWORK ADJUSTED REAL TIME KINEMATIC (KDOT VRS NETWORK), NAD 83 KENTUCKY SINGLE ZONE WITH THE ORTHOMETRIC HEIGHT COMPUTED USING GEOID18. RELATIVE POSITIONAL ACCURACY VARIED FROM 0.04' TO 0.08' HORIZONTALLY.
3. SPECTRA PRECISION EPOCH 50 DUAL FREQUENCY RECEIVERS WERE USED TO PERFORM THE SURVEY.

GENERAL NOTES

NO SEARCH OF PUBLIC RECORDS HAS BEEN COMPLETED BY POD GROUP TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE SUBJECT PROPERTY.

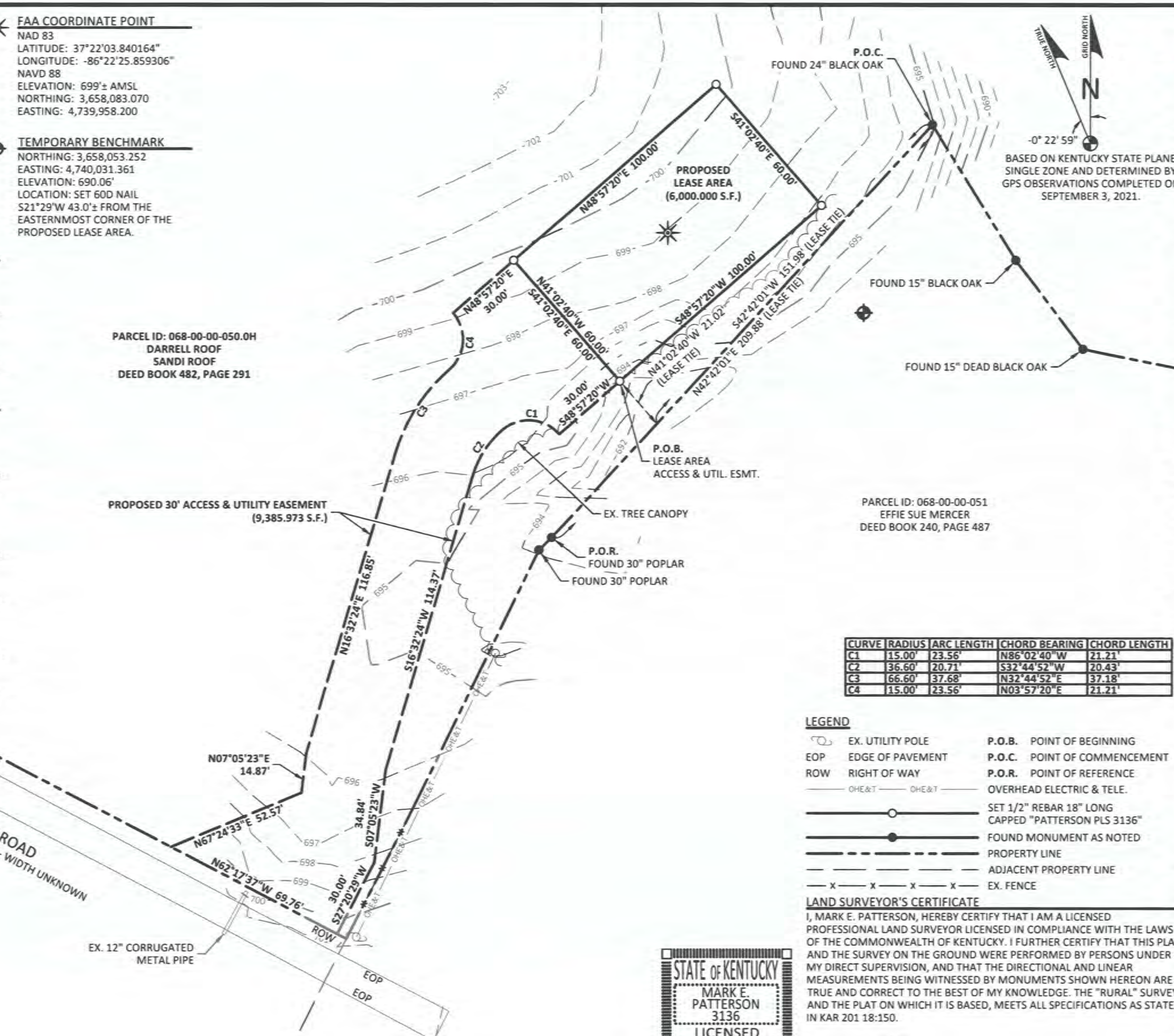
THIS DRAWING IS FOR THE PROPOSED LEASE AREA AND THE PROPOSED ACCESS & UTILITY EASEMENT, AND ONLY A PARTIAL BOUNDARY SURVEY OF THE PARENT PARCEL HAS BEEN PERFORMED.

A PORTION OF THIS SURVEY WAS CONDUCTED BY METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. UNADJUSTED CLOSURE EQUALS 0.06', FOR A PRECISION OF 1:33,621 AND HAS NOT BEEN ADJUSTED.

THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

THIS PLAT IS NOT INTENDED FOR LAND TRANSFER.

THE PARENT PARCEL, THE PROPOSED LEASE AREA AND THE PROPOSED ACCESS & UTILITY EASEMENT SHOWN HEREON ARE NOT LOCATED IN A 100-YEAR FLOOD PLAIN (ZONE X) PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER 21085C0375C, DATED SEPTEMBER 19, 2012.



Know what's below. Call before you dig.
1-800-752-6007

0' 40' 80'
1 INCH = 40 FEET

CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	15.00'	23.56'	N86°02'40"W	21.21'
C2	36.60'	20.71'	S32°44'52"W	20.43'
C3	66.60'	37.68'	N32°44'52"E	37.18'
C4	15.00'	23.56'	N03°57'20"E	21.21'

LEGEND

EX. UTILITY POLE	P.O.B. POINT OF BEGINNING
EOP EDGE OF PAVEMENT	P.O.C. POINT OF COMMENCEMENT
ROW RIGHT OF WAY	P.O.R. POINT OF REFERENCE
OHE&T	OVERHEAD ELECTRIC & TELE.
	SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136"
	FOUND MONUMENT AS NOTED
	PROPERTY LINE
	ADJACENT PROPERTY LINE
x x x	EX. FENCE

LAND SURVEYOR'S CERTIFICATE

I, MARK E. PATTERSON, HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL LAND SURVEYOR LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF KENTUCKY. I FURTHER CERTIFY THAT THIS PLAT AND THE SURVEY ON THE GROUND WERE PERFORMED BY PERSONS UNDER MY DIRECT SUPERVISION, AND THAT THE DIRECTIONAL AND LINEAR MEASUREMENTS BEING WITNESSED BY MONUMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. THE "RURAL" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATIONS AS STATED IN KAR 201 18:150.

STATE OF KENTUCKY
MARK E. PATTERSON
3136
LICENSED PROFESSIONAL LAND SURVEYOR

Mark Patterson

03/02/2022

MARK PATTERSON, PLS #3136 — DATE

PREPARED BY:
POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
CELLCO PARTNERSHIP D/B/A verizon

SITE SURVEY

REV.	DATE	DESCRIPTION
A	10.20.21	PRELIM ISSUE
0	3.2.22	FINAL

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER:	21-102886
DRAWN BY:	AJW
CHECKED BY:	MEP
SURVEY DATE:	9.3.21
PLAT DATE:	10.20.21

SHEET TITLE:
SITE SURVEY
THIS DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL

SHEET NUMBER: (2 pages)
B-1

LEGAL DESCRIPTIONS

PARENT PARCEL - LEGAL DESCRIPTION - DEED BOOK 482, PAGE 291 (NOT FIELD SURVEYED)

PROPERTY LOCATED IN GRAYSON COUNTY, KENTUCKY

A CERTAIN TRACT OR PARCEL OF LAND ON THE HEADWATERS OF CLAY LICK CREEK (NEAR SHREWSBURY) IN GRAYSON COUNTY, KENTUCKY, AND BOUNDED AS FOLLOWS:

BEGINNING AT A POINT IN THE EAST RIGHT OF WAY OF KENTUCKY HIGHWAY 187, CORNER TO BILLY ROOF (SEE DEED BOOK 164, PAGE 611); THENCE NORTHEAST 350 FEET TO A POINT IN THE EAST RIGHT OF WAY OF SAID HIGHWAY AND CORNER TO PROPERTY CONVEYED TO TONY ROOF; THENCE SOUTHEAST, AT A RIGHT ANGLE TO SAID RIGHT OF WAY, SEVERING THE PARENT TRACT AND WITH LAND CONVEYED TO TONY ROOF APPROXIMATELY 3,100 FEET TO THE ORIGINAL LINE; THENCE SOUTHWEST WITH THE ORIGINAL LINE TO AN ORIGINAL CORNER IN GRAY ROAD; THENCE NORTHWEST WITH THE ORIGINAL LINE AND GRAY ROAD TO CORNER OF BILLY ROOF; THENCE CONTINUING NORTHEAST WITH SAID BILLY ROOF LINE 770 FEET TO BILLY ROOF'S EASTERNMOST CORNER; THENCE NORTHWEST WITH SAID BILLY ROOF LINE TO THE RIGHT OF WAY OF KENTUCKY HIGHWAY 187, THE BEGINNING CORNER.

AND BEING A PORTION OF THE SAME PROPERTY CONVEYED TO DARRELL ROOF AND SANDI ROOF FROM BILLY ROOF (A/K/A BILLY GEAN ROOF) AND CLYDIA ROOF BY DEED DATED AUGUST 6, 2019 AND RECORDED AUGUST 7, 2019 IN DEED BOOK 482, PAGE 291.

TAX PARCEL NO. 068-00-00-050.0D

PROPOSED LEASE AREA

THE FOLLOWING IS A DESCRIPTION OF THE PROPOSED LEASE AREA ON THE PROPERTY CONVEYED TO DARRELL ROOF & SANDI ROOF AS RECORDED IN THE OFFICE OF THE CLERK OF GRAYSON COUNTY, KENTUCKY IN DEED BOOK 482, PAGE 291, PARCEL ID: 068-00-00-050.0H, WHICH IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARING DATUM USED HEREIN IS BASED UPON KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE, NAD 83, FROM A REAL TIME KINEMATIC GLOBAL POSITIONING SYSTEM OBSERVATION USING THE KENTUCKY TRANSPORTATION CABINET REAL TIME GPS NETWORK COMPLETED ON SEPTEMBER 3, 2021.

COMMENCING AT A FOUND 24" BLACK OAK IN THE EAST LINE OF THE PROPERTY CONVEYED TO DARRELL ROOF & SANDI ROOF AS RECORDED IN DEED BOOK 482, PAGE 291, PARCEL ID: 068-00-00-050.0H, FOR REFERENCE, SAID 24" BLACK OAK BEING N42°42'01"E 209.88' FROM A FOUND 30" POPLAR ALSO IN THE EAST LINE OF SAID PROPERTY CONVEYED TO ROOF; THENCE ALONG SAID EAST LINE OF PROPERTY CONVEYED TO ROOF S42°42'01"W 151.98' TO A POINT; THENCE LEAVING SAID EAST LINE AND TRAVERSING SAID PROPERTY N41°02'40"W 21.02' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136" HEREAFTER REFERRED TO AS A "SET IPC", IN THE SOUTHERNMOST CORNER OF THE PROPOSED LEASE AREA AND BEING **THE TRUE POINT OF BEGINNING**; THENCE N41°02'40"W 60.00' TO A "SET IPC"; THENCE N48°57'20"E 100.00' TO A "SET IPC"; THENCE S41°02'40"E 60.00' TO A "SET IPC"; THENCE S48°57'20"W 100.00' TO **THE POINT OF BEGINNING** CONTAINING 6,000.000 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED SEPTEMBER 3, 2021.

PROPOSED 30' ACCESS & UTILITY EASEMENT

THE FOLLOWING IS A DESCRIPTION OF THE PROPOSED 30' ACCESS & UTILITY EASEMENT ON THE PROPERTY CONVEYED TO DARRELL ROOF & SANDI ROOF AS RECORDED IN THE OFFICE OF THE CLERK OF GRAYSON COUNTY, KENTUCKY IN DEED BOOK 482, PAGE 291, PARCEL ID: 068-00-00-050.0H, WHICH IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARING DATUM USED HEREIN IS BASED UPON KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE, NAD 83, FROM A REAL TIME KINEMATIC GLOBAL POSITIONING SYSTEM OBSERVATION USING THE KENTUCKY TRANSPORTATION CABINET REAL TIME GPS NETWORK COMPLETED ON SEPTEMBER 3, 2021.

COMMENCING AT A FOUND 24" BLACK OAK IN THE EAST LINE OF THE PROPERTY CONVEYED TO DARRELL ROOF & SANDI ROOF AS RECORDED IN DEED BOOK 482, PAGE 291, PARCEL ID: 068-00-00-050.0H, FOR REFERENCE, SAID 24" BLACK OAK BEING N42°42'01"E 209.88' FROM A FOUND 30" POPLAR ALSO IN THE EAST LINE OF SAID PROPERTY CONVEYED TO ROOF; THENCE ALONG SAID EAST LINE OF PROPERTY CONVEYED TO ROOF S42°42'01"W 151.98' TO A POINT; THENCE LEAVING SAID EAST LINE AND TRAVERSING SAID PROPERTY N41°02'40"W 21.02' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136" HEREAFTER REFERRED TO AS A "SET IPC", IN THE SOUTHERNMOST CORNER OF THE PROPOSED LEASE AREA AND BEING **THE TRUE POINT OF BEGINNING**; THENCE S48°57'20"W 30.00'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING A RADIUS OF 15.00', ARC LENGTH OF 23.56', THE CHORD OF WHICH BEARS N86°02'40"W 21.21'; THENCE ALONG THE ARC OF A COMPOUND CURVE TO THE LEFT HAVING A RADIUS OF 36.60', ARC LENGTH OF 20.71', THE CHORD OF WHICH BEARS S32°44'52"W 20.43'; THENCE S16°32'24"W 114.37'; THENCE S07°05'23"W 34.84'; THENCE S27°20'29"W 30.00' TO A POINT IN THE SOUTH LINE OF AFOREMENTIONED PROPERTY CONVEYED TO ROOF, ALSO BEING THE NORTH RIGHT OF WAY LINE OF GRAY ROAD; THENCE ALONG SAID SOUTH LINE OF PROPERTY CONVEYED TO ROOF AND NORTH RIGHT OF WAY LINE OF GRAY ROAD N62°17'37"W 69.76' TO A POINT; THENCE LEAVING SAID SOUTH LINE AND SAID NORTH RIGHT OF WAY LINE AND TRAVERSING SAID PROPERTY CONVEYED TO ROOF N67°24'33"E 52.57'; THENCE N07°05'23"E 14.87'; THENCE N16°32'24"E 116.85'; THENCE ALONG THE ARC OF A CURVE TO THE RIGHT HAVING A RADIUS OF 66.60', ARC LENGTH OF 37.68', THE CHORD OF WHICH BEARS N32°44'52"E 37.18'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE LEFT HAVING A RADIUS OF 15.00', ARC LENGTH OF 23.56', THE CHORD OF WHICH BEARS N03°57'20"E 21.21'; THENCE N48°57'20"E 30.00' TO A "SET IPC" IN THE WESTERNMOST CORNER OF THE PROPOSED LEASE AREA; THENCE S41°02'40"E 60.00' TO **THE POINT OF BEGINNING** CONTAINING 9,385.973 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED SEPTEMBER 3, 2021.

REPORT OF SEARCH

THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY POD GROUP, LLC AND AS SUCH WE ARE NOT RESPONSIBLE FOR THE INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP TITLE EVIDENCE, UNRECORDED EASEMENTS, AUGMENTING EASEMENTS, IMPLIED OR PRESCRIPTIVE EASEMENTS, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE. INFORMATION REGARDING THESE MATTERS WERE GAINED FROM FIDELITY NATIONAL TITLE, ORDER NO. 35208095, PREPARED FOR VERIZON WIRELESS, PERIOD OF SEARCH: APRIL 16, 1965 TO JULY 23, 2021 AT 8:00 AM. DATED: AUGUST 25, 2021, THE FOLLOWING COMMENTS ARE IN REGARD TO SAID SEARCH AND THE NUMBERS IN THE COMMENTS CORRESPOND TO THE NUMBERING SYSTEM IN SAID REPORT.

SEARCH DISCLOSED THE FOLLOWING:

1. TAXES
   TYPE OF TAX: COUNTY
   CALENDAR YEAR: 2020
   AMOUNT: $190.47 ANNUALLY
   PARCEL ID #: 068-00-00-050.0H (COMBINED WITH AND TAXED UNDER 068-00-00-050.0D)
   PAID THROUGH: 2020
   ASSESSMENT: $20,394.00 (TOTAL = LAND AND IMPROVEMENTS, IF ANY) **(NOT A LAND SURVEYING MATTER, THEREFORE, POD GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)**

2. RIGHT OF WAY AGREEMENT IN FAVOR OF L.M. OIL & GAS COMPANY, INCORPORATED, A KENTUCKY CORPORATION SET FORTH IN INSTRUMENT RECORDED ON APRIL 27, 1977 IN DEED BOOK 18, PAGE 496. **(THE RIGHT OF WAY AGREEMENT AS RECORDED IN BOOK 18, PAGE 496 DOES AFFECT THE PARENT PARCEL BUT COULD NOT BE PLOTTED, AND THEREFORE POD GROUP, LLC COULD NOT DETERMINE ITS AFFECT ON THE PROPOSED LEASE AREA OR THE PROPOSED ACCESS & UTILITY EASEMENT.)**

3. TERMS AND CONDITIONS OF OIL AND GAS LEASE DATED DECEMBER 22, 1977 BY AND BETWEEN HERSHEL ROOF AND NADINE ROOF, AND LANGFORD OIL & GAS CO., RECORDED ON DECEMBER 23, 1977 IN DEED BOOK 35, PAGE 315.

   ADDENDUM TO OIL & GAS LEASE RECORDED ON DECEMBER 23, 1977 IN DEED BOOK 35, PAGE 315. **(OIL AND GAS LEASE RECORDED IN DEED BOO 35, PAGE 315 AND ADDENDUM RECORDED IN DEED BOOK 35, PAGE 315 ARE BLANKET IN NATURE AND AFFECT THE PARENT PARCEL, THE PROPOSED LEASE AREA, AND THE PROPOSED ACCESS & UTILITY EASEMENT.)**

4. COVENANTS, CONDITIONS AND RESTRICTIONS BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, SOURCE OF INCOME, GENDER, GENDER IDENTITY, GENDER EXPRESSION, MEDICAL CONDITION OR GENETIC INFORMATION, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH IN THE DOCUMENT RECORDED ON APRIL 29, 2005, AS DOCUMENT NO. DEED BOOK 354, PAGE 202. **(DOCUMENT RECORDED IN DEED BOOK 354, PAGE 202 IS BLANKET IN NATURE AND AFFECTS THE PARENT PARCEL, THE PROPOSED LEASE AREA, AND THE PROPOSED ACCESS & UTILITY EASEMENT.)**

STATE OF KENTUCKY
MARK E. PATTERSON
3136
LICENSED PROFESSIONAL LAND SURVEYOR

LAND SURVEYOR'S CERTIFICATE

I, MARK E. PATTERSON, HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL LAND SURVEYOR LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF KENTUCKY. I FURTHER CERTIFY THAT THIS PLAT AND THE SURVEY ON THE GROUND WERE PERFORMED BY PERSONS UNDER MY DIRECT SUPERVISION, AND THAT THE DIRECTIONAL AND LINEAR MEASUREMENTS BEING WITNESSED BY MONUMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. THE "RURAL" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATIONS AS STATED IN KAR 201 18:150.

Mark Patterson — 03/02/2022

MARK PATTERSON, PLS #3136 — DATE

PREPARED BY:
POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
CELLCO PARTNERSHIP D/B/A verizon

SITE SURVEY

REV.	DATE	DESCRIPTION
A	10.20.21	PRELIM ISSUE
0	3.2.22	FINAL

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

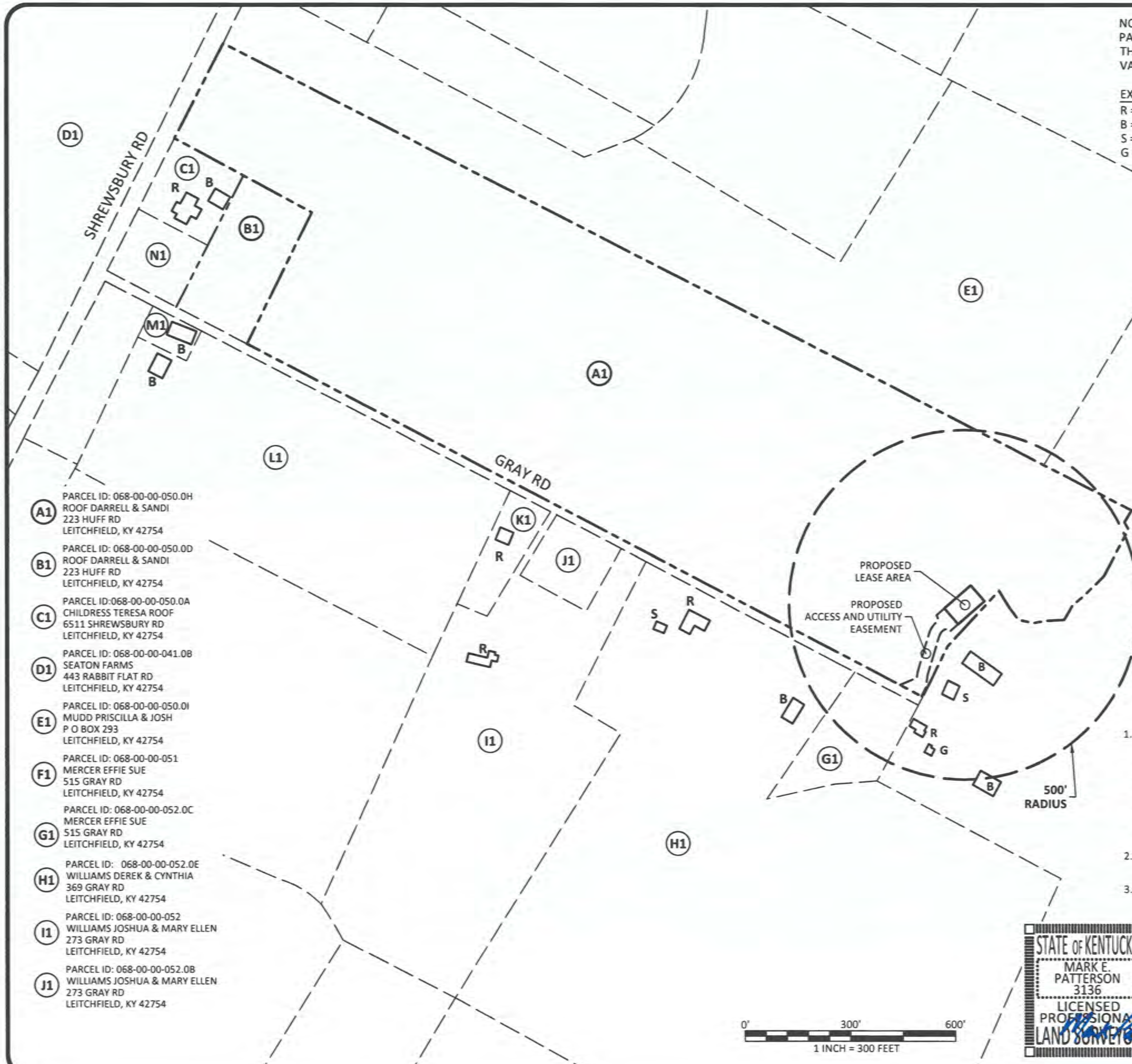
PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER:	21-102886
DRAWN BY:	AJW
CHECKED BY:	MEP
SURVEY DATE:	9.3.21
PLAT DATE:	10.20.21

SHEET TITLE:
SITE SURVEY
THIS DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL

SHEET NUMBER: (2 pages)
B-1.1



NOTE:
PARCEL NUMBERS ARE OF RECORD IN THE GRAYSON COUNTY PROPERTY VALUATION ADMINISTRATOR OFFICE.

EXISTING BUILDINGS
R = RESIDENCE
B = BARN
S = SHED
G = GARAGE

(A1) PARCEL ID: 068-00-00-050.0H
ROOF DARRELL & SANDI
223 HUFF RD
LEITCHFIELD, KY 42754

(B1) PARCEL ID: 068-00-00-050.0D
ROOF DARRELL & SANDI
223 HUFF RD
LEITCHFIELD, KY 42754

(C1) PARCEL ID:068-00-00-050.0A
CHILDRESS TERESA ROOF
6511 SHREWSBURY RD
LEITCHFIELD, KY 42754

(D1) PARCEL ID: 068-00-00-041.0B
SEATON FARMS
443 RABBIT FLAT RD
LEITCHFIELD, KY 42754

(E1) PARCEL ID: 068-00-00-050.0I
MUDD PRISCILLA & JOSH
P O BOX 293
LEITCHFIELD, KY 42754

(F1) PARCEL ID: 068-00-00-051
MERCER EFFIE SUE
515 GRAY RD
LEITCHFIELD, KY 42754

(G1) PARCEL ID: 068-00-00-052.0C
MERCER EFFIE SUE
515 GRAY RD
LEITCHFIELD, KY 42754

(H1) PARCEL ID: 068-00-00-052.0E
WILLIAMS DEREK & CYNTHIA
369 GRAY RD
LEITCHFIELD, KY 42754

(I1) PARCEL ID: 068-00-00-052
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(J1) PARCEL ID: 068-00-00-052.0B
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(K1) PARCEL ID: 068-00-00-052.0A
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(L1) PARCEL ID: 068-00-00-053
ROOF DAVID
629 SHREWSBURY SADLER RD
LEITCHFIELD, KY 42754

(M1) PARCEL ID: 068-00-00-053.0C
ROOF DAVID
629 SHREWSBURY SADLER RD
LEITCHFIELD, KY 42754

(N1) PARCEL ID: 068-00-00-053. 0A
CHILDRESS TERESA ROOF
6511 SHREWSBURY RD
LEITCHFIELD, KY 42754

GENERAL NOTE:

1. ALL INFORMATION SHOWN HEREON WAS OBTAINED FROM THE RECORDS OF THE GRAYSON COUNTY KENTUCKY PROPERTY VALUATION ADMINISTRATION OFFICE ON OCTOBER 20, 2021 AND RE-VERIFIED ON FEBRUARY 16, 2022. THE PROPERTY VALUATION ADMINISTRATION RECORDS MAY NOT REFLECT THE CURRENT OWNERS AND ADDRESSES DUE TO THE INACCURACIES AND TIME LAPSE IN UPDATING FILES. POD AND THE COUNTY PROPERTY VALUATION ADMINISTRATION EXPRESSLY DISCLAIMS ANY WARRANTY FOR THE CONTENT AND ANY ERRORS CONTAINED IN THEIR FILES
2. THIS MAP IS FOR GENERAL INFORMATIONAL PURPOSES ONLY AND IS NOT A BOUNDARY SURVEY
3. NOT FOR RECORDING OR PROPERTY TRANSFER.

STATE OF KENTUCKY
MARK E. PATTERSON
3136
LICENSED PROFESSIONAL LAND SURVEYOR

CERTIFICATE
I HEREBY CERTIFY THAT THIS EXHIBIT PERTAINING TO THE ADJOINING PROPERTY OWNERS PER PVA RECORDS WAS PREPARED UNDER MY DIRECT SUPERVISION. NO BOUNDARY SURVEYING OF ANY KIND HAS BEEN PERFORMED FOR THIS EXHIBIT.

03/02/2022
MARK PATTERSON, PLS #3136 — DATE

PREPARED BY:
POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
CELLCO PARTNERSHIP
D/B/A
verizon

EXHIBIT

REV.	DATE	DESCRIPTION
A	2.17.22	ISSUED FOR REVIEW
0	3.2.22	FINAL

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER: 21-102884
DRAWN BY: AIM
CHECKED BY: MEP
PLAT DATE: 2.17.22

SHEET TITLE:
500' RADIUS AND ABUTTERS MAP

SHEET NUMBER: (1 page)
B-2

ADJACENT PROPERTY OWNERS

(A1) PARCEL ID: 068-00-00-050.0H
ROOF DARRELL & SANDI
223 HUFF RD
LEITCHFIELD, KY 42754

(B1) PARCEL ID: 068-00-00-050.0D
ROOF DARRELL & SANDI
223 HUFF RD
LEITCHFIELD, KY 42754

(C1) PARCEL ID:068-00-00-050.0A
CHILDRESS TERESA ROOF
6511 SHREWSBURY RD
LEITCHFIELD, KY 42754

(D1) PARCEL ID: 068-00-00-041.0B
SEATON FARMS
443 RABBIT FLAT RD
LEITCHFIELD, KY 42754

(E1) PARCEL ID: 068-00-00-050.0I
MUDD PRISCILLA & JOSH
P O BOX 293
LEITCHFIELD, KY 42754

(F1) PARCEL ID: 068-00-00-051
MERCER EFFIE SUE
515 GRAY RD
LEITCHFIELD, KY 42754

(G1) PARCEL ID: 068-00-00-052.0C
MERCER EFFIE SUE
515 GRAY RD
LEITCHFIELD, KY 42754

(H1) PARCEL ID: 068-00-00-052.0E
WILLIAMS DEREK & CYNTHIA
369 GRAY RD
LEITCHFIELD, KY 42754

(I1) PARCEL ID: 068-00-00-052
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(J1) PARCEL ID: 068-00-00-052.0B
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(K1) PARCEL ID: 068-00-00-052.0A
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(L1) PARCEL ID: 068-00-00-053
ROOF DAVID
629 SHREWSBURY SADLER RD
LEITCHFIELD, KY 42754

GENERAL NOTE:

1. ALL INFORMATION SHOWN HEREON WAS OBTAINED FROM THE RECORDS OF THE ADAIR COUNTY KENTUCKY PROPERTY VALUATION ADMINISTRATION OFFICE ON SEPTEMBER 1, 2021 AND RE-VERIFIED ON FEBRUARY 16, 2022. THE PROPERTY VALUATION ADMINISTRATION RECORDS MAY NOT REFLECT THE CURRENT OWNERS AND ADDRESSES DUE TO THE INACCURACIES AND TIME LAPSE IN UPDATING FILES. POD AND THE COUNTY PROPERTY VALUATION ADMINISTRATION EXPRESSLY DISCLAIMS ANY WARRANTY FOR THE CONTENT AND ANY ERRORS CONTAINED IN THEIR FILES
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NOTE:
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STATE OF KENTUCKY
MARK E. PATTERSON
3136
LICENSED PROFESSIONAL LAND SURVEYOR

CERTIFICATE
I HEREBY CERTIFY THAT THIS EXHIBIT PERTAINING TO THE ADJOINING PROPERTY OWNERS PER PVA RECORDS WAS PREPARED UNDER MY DIRECT SUPERVISION. NO BOUNDARY SURVEYING OF ANY KIND HAS BEEN PERFORMED FOR THIS EXHIBIT.

Mark Patterson 03/02/2022
MARK PATTERSON, PLS #3136 DATE

PREPARED BY:
POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
CELLCO PARTNERSHIP
D/B/A
verizon

EXHIBIT

REV.	DATE	DESCRIPTION
A	2.17.22	ISSUED FOR REVIEW
0	3.2.22	FINAL

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER: 21-102884
DRAWN BY: AIM
CHECKED BY: MEP
PLAT DATE: 2.17.22

SHEET TITLE:
500' RADIUS AND ABUTTERS MAP

SHEET NUMBER: (1 page)
B-2.1

REVISION LOG

REV *	MM/DD/YY	SHEET NUMBER	DESCRIPTION OF REVISION
A	2/21/2022	ALL SHEETS	ISSUED FOR REVIEW
0	3/11/2022	ALL SHEETS	ISSUED AS FINAL

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

03/11/2022

STATE OF KENTUCKY
MARK E. PATTERSON
16300
LICENSED
PROFESSIONAL ENGINEER

EN PERMIT: 3594

ZONING DRAWINGS

REV.	DATE	DESCRIPTION
A	2.21.22	ISSUED FOR REVIEW
0	3.11.22	ISSUED AS FINAL

SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

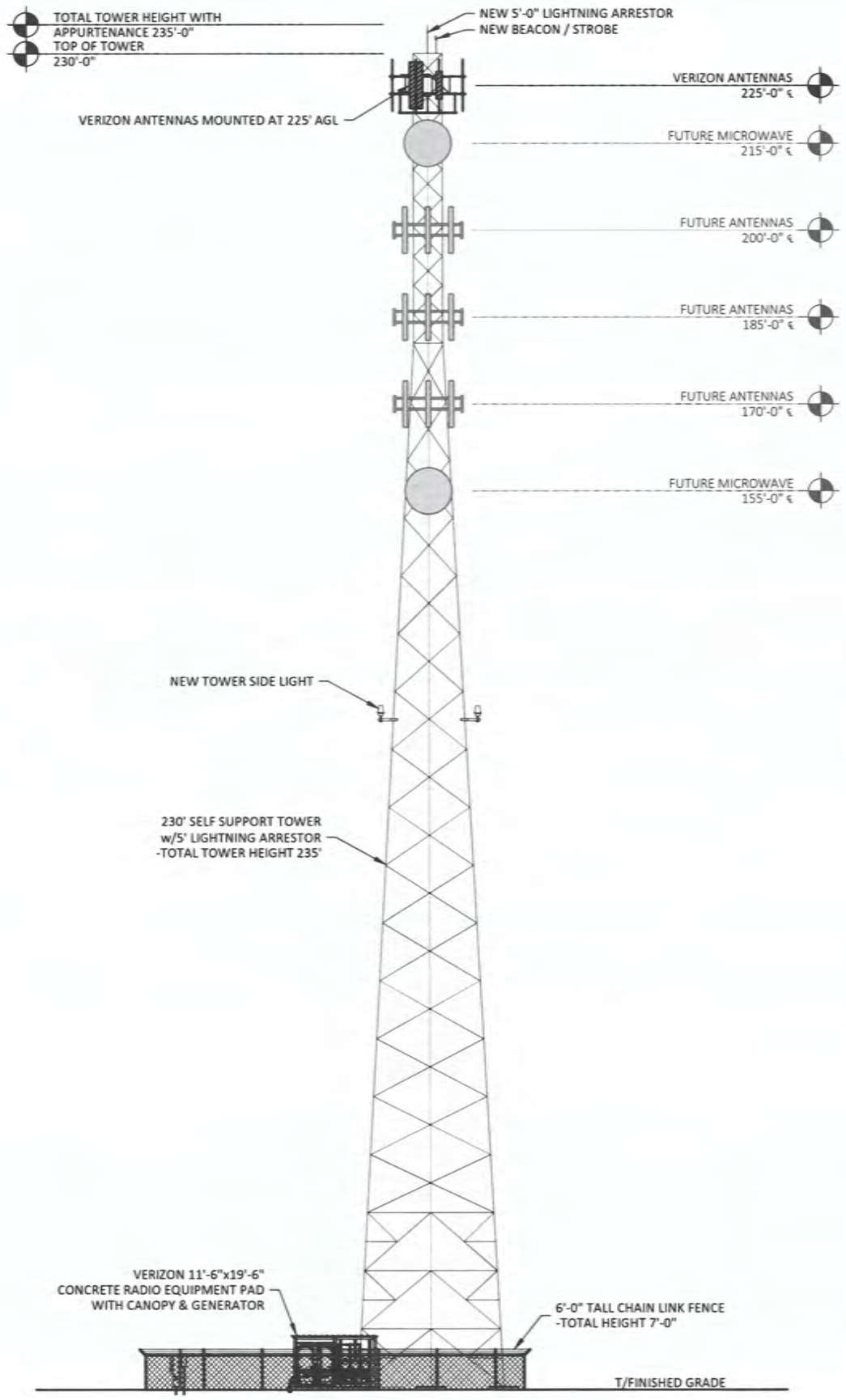
POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	02.21.22

SHEET TITLE:

REVISION LOG

SHEET NUMBER:

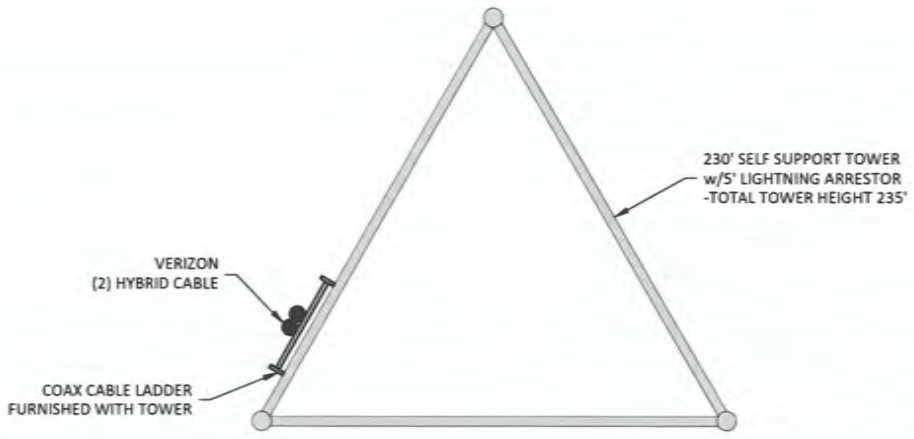
R-1



TOWER ELEVATION 1 / TE-1
SCALE: N.T.S.

NOTE:

1. IT IS THE INSTALLING CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL ANTENNA INFORMATION AGAINST FINAL RADIO ENGINEERING PLAN PROVIDED BY CELLCO PARTNERSHIP d/b/a VERIZON (VZW GC)
2. ALL TOWER LIGHTING SHALL BE INSTALLED AS REQUIRED BY THE FEDERAL AVIATION ADMINISTRATION AND RECOMMENDED BY THE USFWS INTERIM GUIDELINES (2000) FOR LIGHTING OF TOWERS OVER 200' IN HEIGHT.



COAX PLAN
SCALE: N.T.S.

N

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

03/11/2022

STATE OF KENTUCKY
MARK E. PATTERSON
16,300
LICENSED
PROFESSIONAL ENGINEER

EN PERMIT: 3594

ZONING DRAWINGS

REV.	DATE	DESCRIPTION
A	2.21.22	ISSUED FOR REVIEW
0	3.11.22	ISSUED AS FINAL

SITE INFORMATION:

CK SHREWSBURY

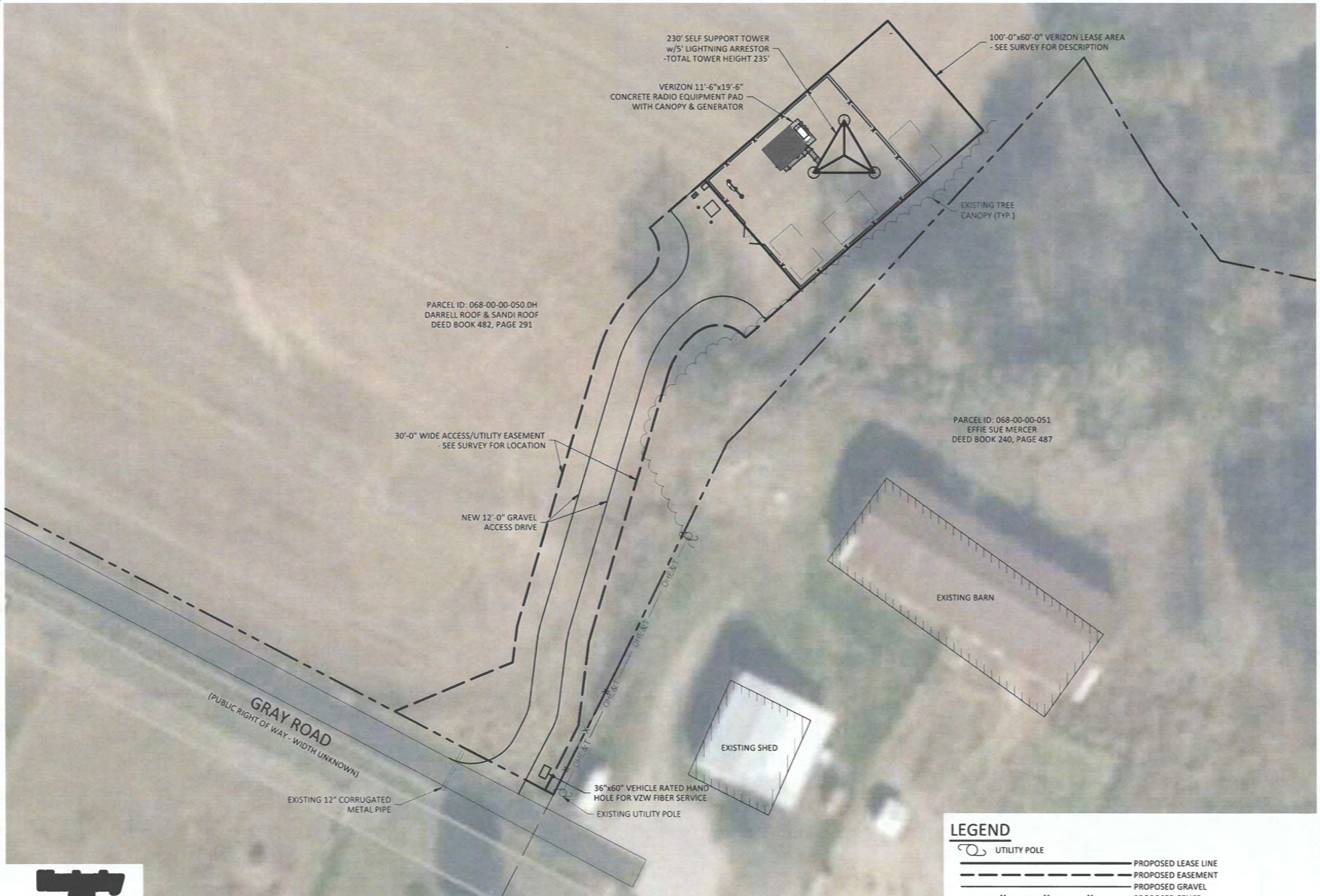
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	02.21.22

SHEET TITLE:

TOWER ELEVATION

SHEET NUMBER:
TE-1



POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

03/11/2022

STATE OF KENTUCKY
MARK E. PATTERSON
16,300
LICENSED
PROFESSIONAL ENGINEER

EN PERMIT: 3594

ZONING DRAWINGS

REV.	DATE	DESCRIPTION
A	2.21.22	ISSUED FOR REVIEW
0	3.11.22	ISSUED AS FINAL

SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	02.21.22

SHEET TITLE:

OVERALL SITE PLAN W/AERIAL OVERLAY

SHEET NUMBER:

C-1

LEGEND

- UTILITY POLE
- PROPOSED LEASE LINE
- PROPOSED EASEMENT
- PROPOSED GRAVEL
- PROPOSED FENCE
- EXISTING GRAVEL
- EXISTING FENCE
- EXISTING OVERHEAD ELECTRIC & TELEPHONE
- EXISTING PAVEMENT
- PROPERTY LINE
- ADJACENT PROPERTY LINE

N

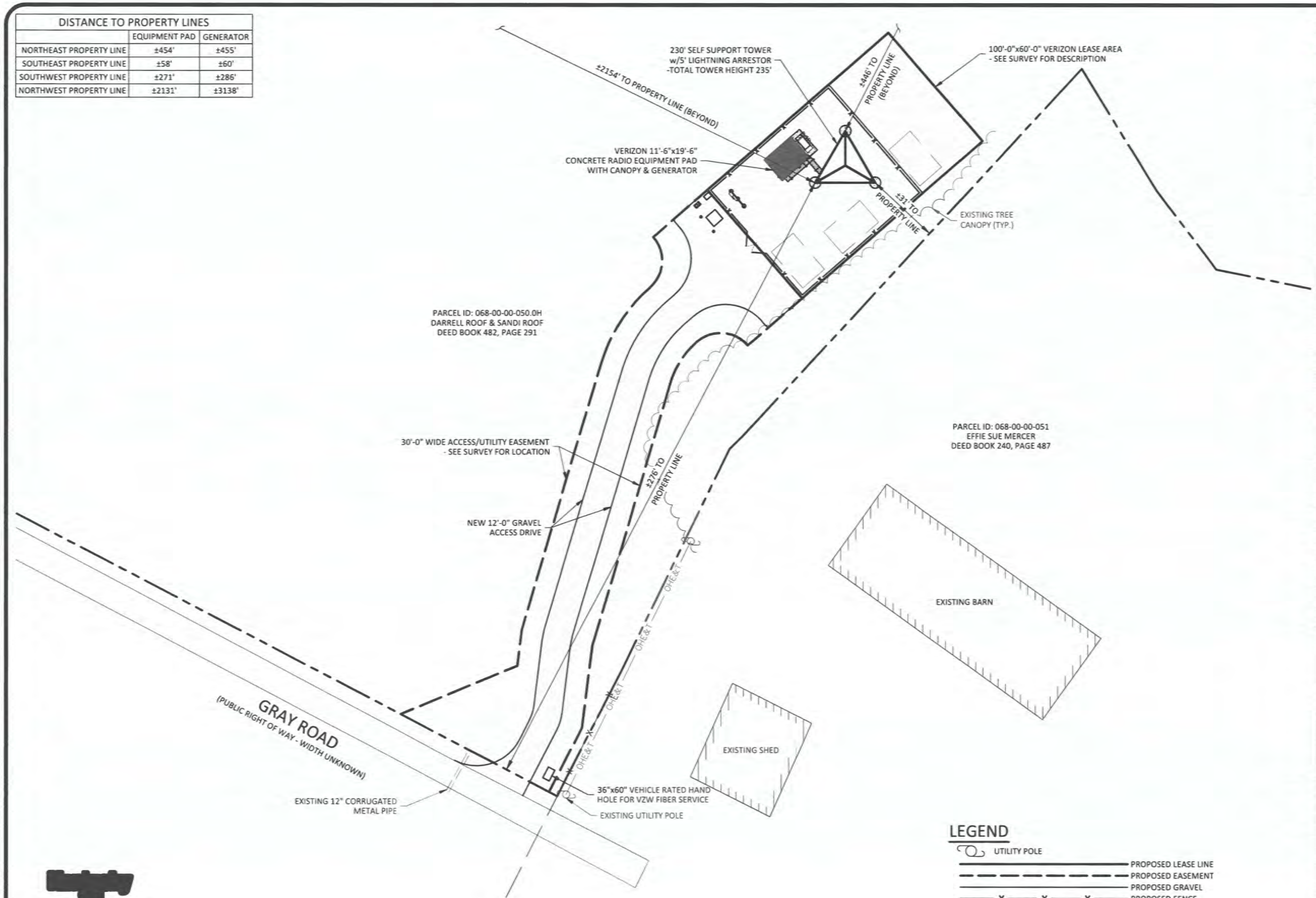
0' 40' 80'
1"=40'

OVERALL SITE PLAN W/AERIAL OVERLAY
SCALE: 1" = 40'

Know what's below.
Call before you dig.
Call Monday thru Friday - 7 am. to 6 pm.
1-800-752-6007
PER KENTUCKY STATE LAW, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

DigiSigner Document ID: 8ba548a0-8704-42ee-aa01-69c8e2665ab4

DISTANCE TO PROPERTY LINES		
	EQUIPMENT PAD	GENERATOR
NORTHEAST PROPERTY LINE	±454'	±455'
SOUTHEAST PROPERTY LINE	±58'	±60'
SOUTHWEST PROPERTY LINE	±271'	±286'
NORTHWEST PROPERTY LINE	±2131'	±3138'



OVERALL SITE PLAN W/DISTANCE TO PROPERTY LINES

SCALE: 1" = 40'

0' 40' 80'
1"=40'

N

LEGEND

- UTILITY POLE
- PROPOSED LEASE LINE
- PROPOSED EASEMENT
- PROPOSED GRAVEL
- PROPOSED FENCE
- EXISTING GRAVEL
- EXISTING FENCE
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POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

03/11/2022

STATE OF KENTUCKY
MARK E. PATTERSON
16.300
LICENSED
PROFESSIONAL ENGINEER

EN PERMIT: 3594

ZONING DRAWINGS

REV.	DATE	DESCRIPTION
A	2.21.22	ISSUED FOR REVIEW
0	3.11.22	ISSUED AS FINAL

SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	02.21.22

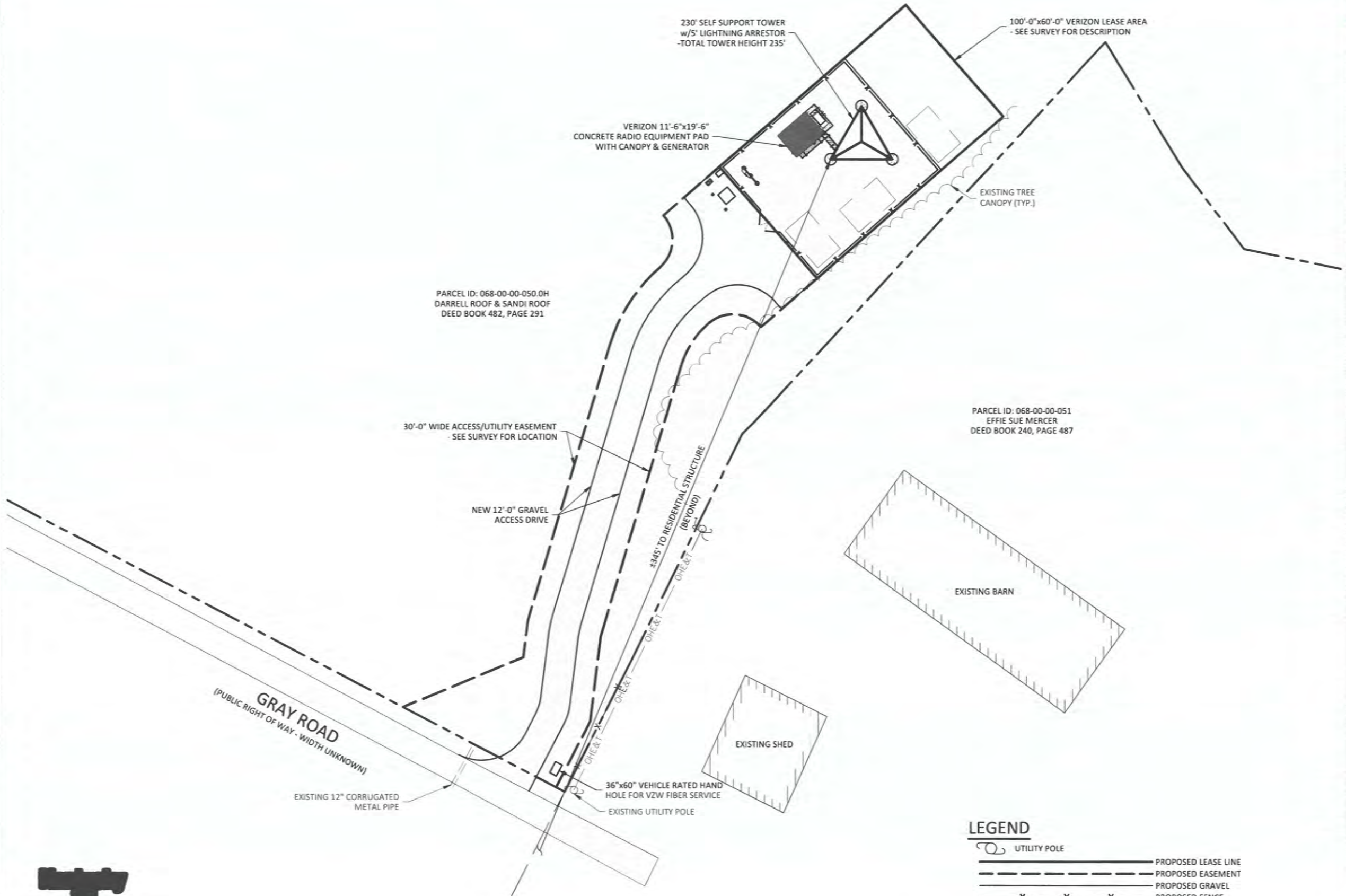
SHEET TITLE:

OVERALL SITE PLAN W/DISTANCE TO PROPERTY LINES

SHEET NUMBER:

C-1A

DigiSigner Document ID: 8ba548a0-8704-42ee-aa01-69c8e2665ab4



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0' 40' 80'
1"=40'

DISTANCE TO RESIDENTIAL STRUCTURES

SCALE: 1" = 40'

N

LEGEND

- UTILITY POLE
- PROPOSED LEASE LINE
- PROPOSED EASEMENT
- PROPOSED GRAVEL
- PROPOSED FENCE
- EXISTING GRAVEL
- EXISTING FENCE
- EXISTING OVERHEAD ELECTRIC & TELEPHONE
- EXISTING PAVEMENT
- PROPERTY LINE
- ADJACENT PROPERTY LINE

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

03/11/2022

STATE OF KENTUCKY
MARK E. PATTERSON
16,308
LICENSED
PROFESSIONAL ENGINEER

EN PERMIT: 3594

ZONING DRAWINGS

REV.	DATE	DESCRIPTION
A	2.21.22	ISSUED FOR REVIEW
0	3.11.22	ISSUED AS FINAL

SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

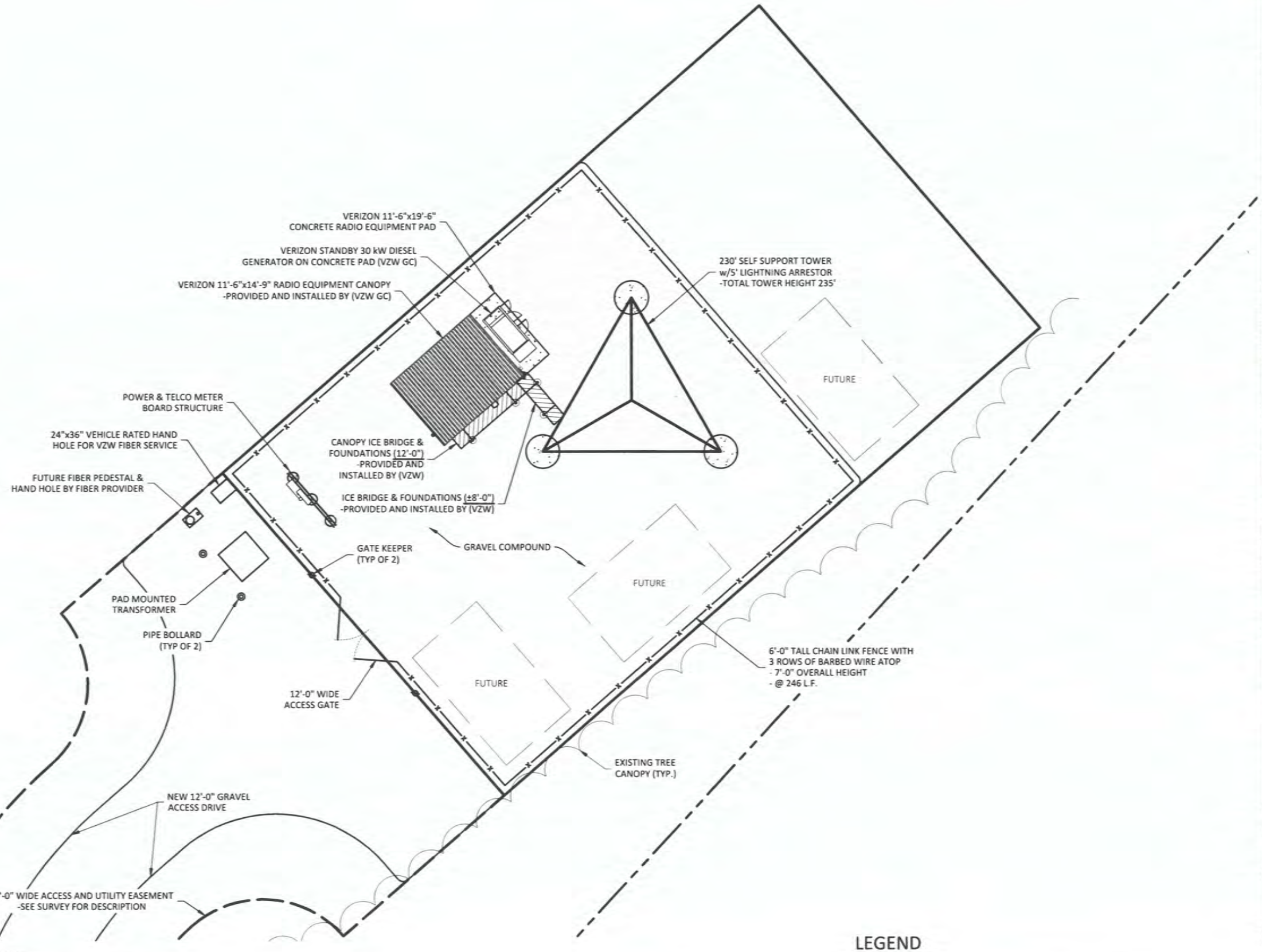
POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	02.21.22

SHEET TITLE:

DISTANCE TO RESIDENTIAL STRUCTURES

SHEET NUMBER:

C-1B



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PER KENTUCKY STATE LAW, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

*NOTE:
GENERAL CONTRACTOR IS TO ENSURE THERE IS NO DISTURBANCE OF PROPERTY, SOIL, ETC. OUTSIDE OF THE STAKED LEASE AREA WITHOUT APPROVAL FROM VERIZON CONSTRUCTION MANAGER

0' 15' 30'
1"=15'

DETAILED SITE PLAN
SCALE: 1" = 15'

N

LEGEND
- PROPOSED LEASE LINE
- PROPOSED EASEMENT
- PROPOSED GRAVEL
- PROPOSED FENCE
- PROPERTY LINE

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

03/11/2022

STATE OF KENTUCKY
MARK E. PATTERSON
16,300
LICENSED
PROFESSIONAL ENGINEER

EN PERMIT: 3594

ZONING DRAWINGS

REV.	DATE	DESCRIPTION
A	2.21.22	ISSUED FOR REVIEW
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SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

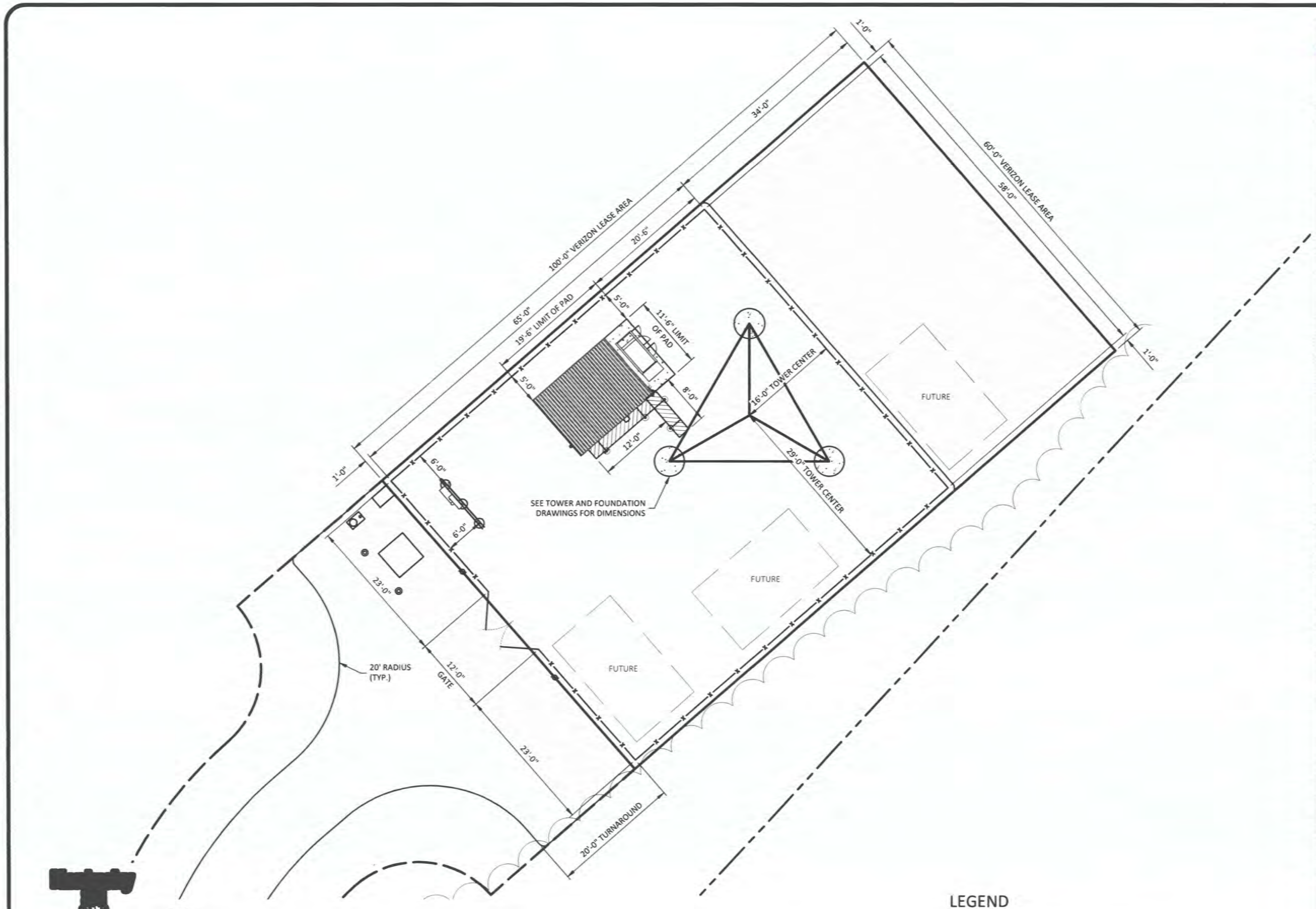
POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	02.21.22

SHEET TITLE:

DETAILED SITE PLAN

SHEET NUMBER:

C-3



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0' 15' 30'
1"=15'

DIMENSIONED SITE PLAN
SCALE: 1" = 15'

N

LEGEND
- PROPOSED LEASE LINE
- PROPOSED EASEMENT
- PROPOSED GRAVEL
- PROPOSED FENCE
- PROPERTY LINE

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

03/11/2022

STATE OF KENTUCKY
MARK E. PATTERSON
16300
LICENSED
PROFESSIONAL ENGINEER

EN PERMIT: 3594

ZONING DRAWINGS

REV.	DATE	DESCRIPTION
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SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
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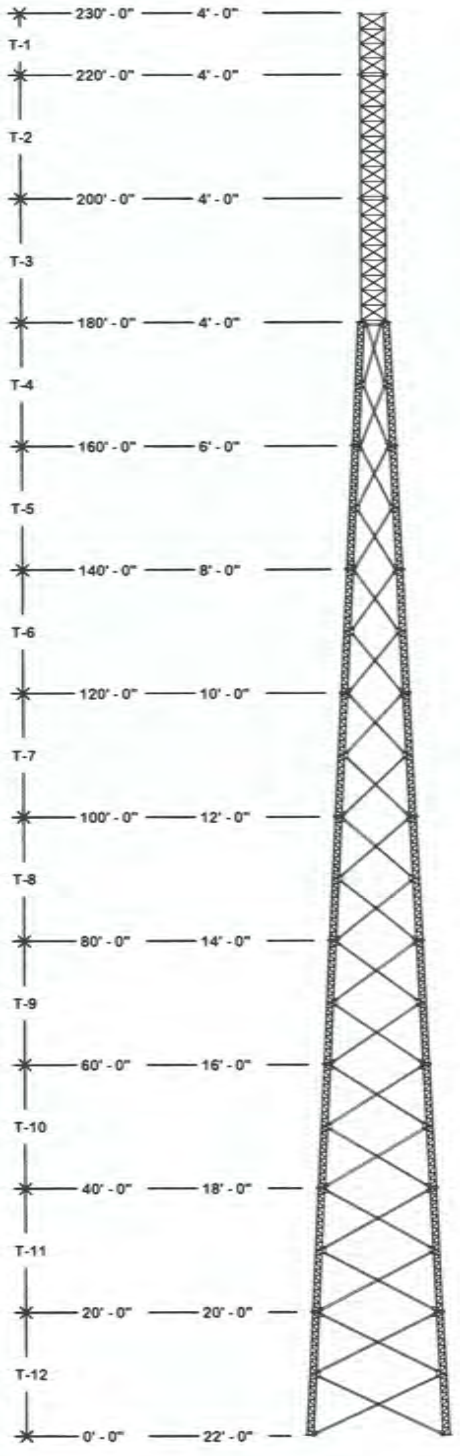
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	02.21.22

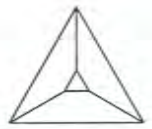
SHEET TITLE:

DIMENSIONED SITE PLAN

SHEET NUMBER:

C-4





SEE PAGE 2 FOR
APPURTENANCES

TOWER DESIGN CRITERIA

Design Standard:	TIA-222-G*
Design Wind Speeds:	105 mph (3-second gust) basic wind speed per ASCE 7-16
	30 mph (0.75" ice)
Service Wind Speed:	60 mph (deflection only)
Risk Category:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft.

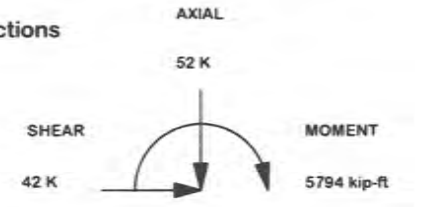
MATERIAL STRENGTHS

Solid Rod	A36	(rod dia. <3/4")
	A572 Gr.50	(3/4" thru 1" dia.)
	A572 Gr.58	(>1" dia.)
Pipe	A500 Gr.B	(antenna pipes)
	A500 Gr.B/C	(tower legs min. Fy 50 ksi)
Angle	A572 Gr.50	
Plate	A572 Gr.50	
Bolts	A-325/A-449	(leg & angle)
AnchorBolt	F1554 Grade 105 or A687	

Finish: Tower & Hardware are hot dip galvanized

1. ALL STRUCTURAL HARDWARE IS GALVANIZED IN ACCORDANCE WITH ASTM A-153 (HDG). TOWER SECTIONS & ASSOCIATED STRUCTURAL COMPONENTS ARE GALVANIZED IN ACCORDANCE WITH ASTM A-123 (HDG).
2. ALL BOLTS & NUTS MUST BE IN PLACE BEFORE ADJOINING SECTION(S) ARE INSTALLED.
3. ALL STRUCTURAL BOLTS ARE TO BE TIGHTENED TO A SNUG TIGHT CONDITION AS DEFINED BY AISC & RCSC SPECIFICATION FOR STRUCTURAL JOINTS UNLESS NOTED OTHERWISE.
4. ALL WELDING TO CONFORM TO AWS D1.1 SPECIFICATION. 5/16" MINIMUM WELD SIZE UNLESS NOTED OTHERWISE.
5. MATERIAL LABELED AS ASTM A-572 GR. 58 OR 58 KSI YIELD STRENGTH ALSO CONFORMS TO ASTM A-572 GR. 50.
6. ANALYSIS PERFORMED USING STEEL GRADES LISTED UNDER MATERIALS STRENGTHS SHOWN ON THIS PAGE.
7. 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.
8. (VIBRATION DISCLAIMER) ALTHOUGH RARE,VIBRATIONS SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN STRUCTURES OF ALL TYPES, BECAUSE THEY ARE INFLUENCED BY MANY INTERACTING VARIABLES. VIBRATIONS ARE GENERALLY UNPREDICTABLE.THE USER'S MAINTENANCE PROGRAM SHOULD INCLUDE OBSERVATION FOR ECCESSIVE VIBRATION AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING. THE VALMONT WARRANTY SPECIFICALLY EXCLUDES FATIGUE FAILURE OR SIMILAR PHENOMENA RESULTING FROM INDUCED VIBRATION, HARMONIC OSCILLATION OR RESONANCE ASSOCIATED WITH MOVEMENT OF AIR CURRENTS AROUND THE PRODUCT.

Maximum Base Reactions



MAX. LEG REACTIONS:

DOWN:	321 K
UPLIFT:	-285 K
SHEAR:	29 K
TORQUE	16 kip-ft
REACTIONS	105 mph WIND (no ice)

*Factored Reactions provided per ANSI/TIA-222 Design Criteria & Load Combinations

TOWER COLUMN

SECTION	ELEVATION	FACE WIDTH	PANELS	LEG SIZE	LEG STYLE	LEG BOLT QTY & DIA	DIAGONAL BRACING SIZE	HORIZONAL BRACING SIZE	BRACING BOLT QTY & DIA	SECTION WEIGHT
T1	220' - 230'	4.0'	4	1.25"	SHFAB	2 x 1"	3/4" ROUND	7/8" ROUND		458.17
T2	200' - 220'	4.0'	8	1.75"	SHFAB	2 x 1 1/4"	3/4" ROUND	7/8" ROUND		1067.09
T3	180' - 200'	4.0'	8	2.25"	SHFAB	4 x 1"	7/8" ROUND	1" ROUND		1848.44
T4	160' - 180'	6.0'	2	1.25"	12BDFH	6 x 1"	1/4" x 2-1/2" x 2-1/2"	3/16" x 3" x 3"	1 x 1 "	2084.28
T5	140' - 160'	8.0'	2	1.50"	12BDFH	6 x 1"	3/16" x 2-1/2" x 2-1/2"		1 x 1 "	2306.97
T6	120' - 140'	10.0'	2	1.50"	12BDFH	6 x 1"	3/16" x 2-1/2" x 2-1/2"		1 x 1 "	2350.71
T7	100' - 120'	12.0'	2	1.50"	12BDFH	6 x 1"	3/16" x 2-1/2" x 2-1/2"		1 x 1 "	2402.91
T8	80' - 100'	14.0'	2	1.50"	12BDFH	6 x 1"	3/16" x 2-1/2" x 2-1/2"		1 x 1 "	2461.17
T9	60' - 80'	16.0'	2	1.75"	12BDFH	6 x 1 1/4"	1/4" x 2-1/2" x 2-1/2"		1 x 1 "	3162.63
T10	40' - 60'	18.0'	2	1.75"	12BDFH	6 x 1 1/4"	1/4" x 2-1/2" x 2-1/2"		1 x 1 "	3269.55
T11	20' - 40'	20.0'	2	1.75"	12BDFH	6 x 1 1/4"	3/16" x 3" x 3"		1 x 1 "	3276.45
T12	0' - 20'	22.0'	2	1.75"	12BDFH	4 x 1 1/4"	5/16" x 3" x 3"		1 x 1 "	4173.39

Digitally signed by
Joseph P Jacobs
Date: 2022-08-22
08:56-04:00

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
Tower View Page 1

ENG. FILE NO.
553967

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DWG. NO.
293562T

DESIGNED APPURTENANCE LOADING	
TYPE	ELEVATION
(1) 5/8" X 10' LIGHTNING ROD	230.0000'
(1) BEACON	230.0000'
(1) 208 SQ.FT. EPA	225.0000'
(1) 130 SQ.FT. EPA	210.0000'
(1) 130 SQ.FT. EPA	195.0000'
(3) OB LIGHT	115.0000'

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

SITE

HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION

Tower View Page 2

ENG. FILE NO.

553967

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

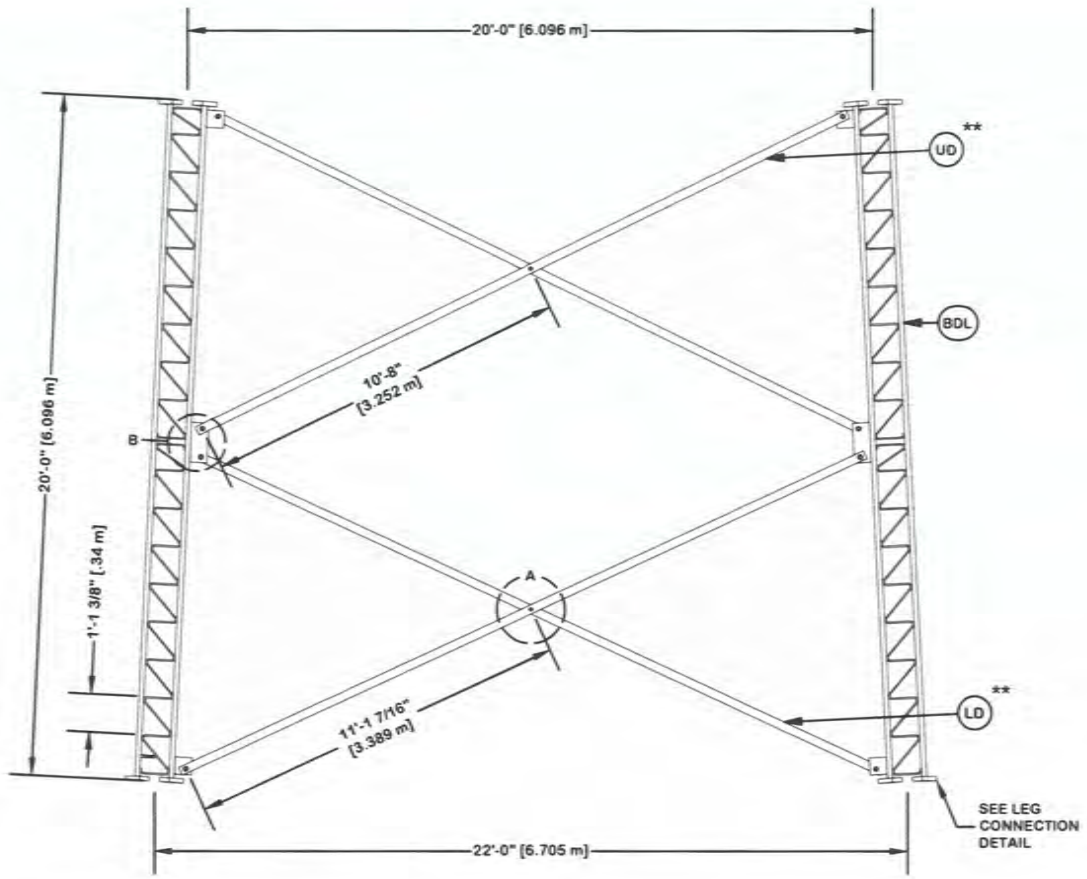
DWG. NO.

293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

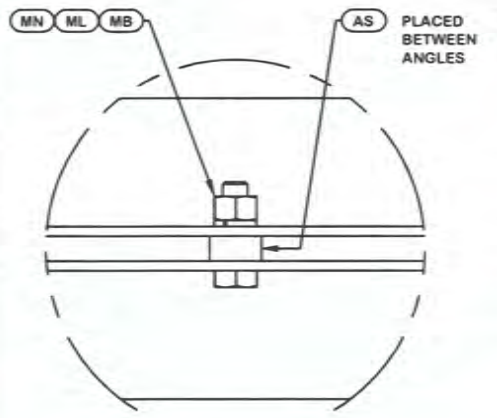
** DIAGONAL ANGLES MUST BE INSTALLED WITH THE NON-BOLTED FACE UP, THIS MAY BE ON THE OPPOSITE SIDE OF THE SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



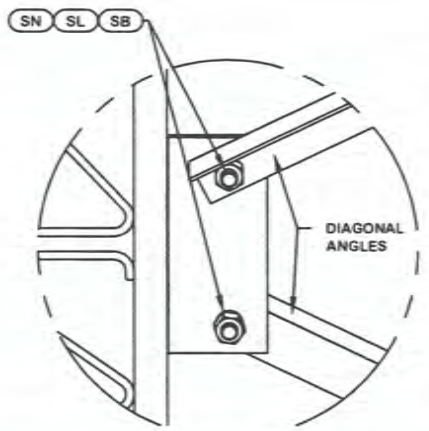
PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	281212	#12 BASE SECTION - 1 3/4" LEG - 1/2" BRACE W/ (1)	826.450	2479.350
LD	6	279421	U-22 LOWER DIAGONAL - 3" x 3" x 5/16" ANGLE (A572	140.980	845.880
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	279420	U-22 UPPER DIAGONAL - 3" x 3" x 5/16" ANGLE (A572	135.200	811.200
			Total Wt	4173.39 lb [1894.76 kg]	

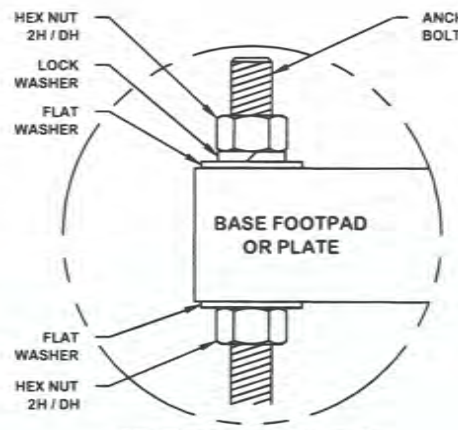
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



ANCHOR BOLT ASSY. (TYP)
SEE FOUNDATION DRAWING FOR DETAILS

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION U-22.0 (0' - 20' ELEVATION)

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

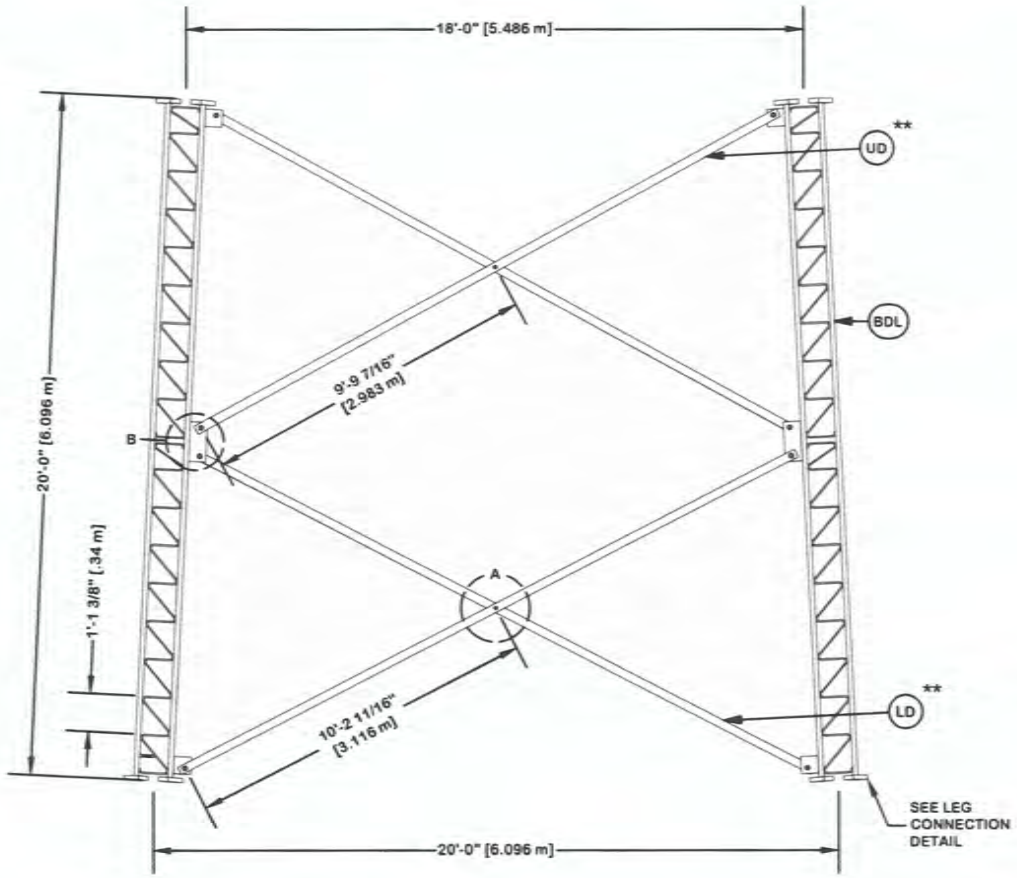
ENG. FILE NO.
553967

DWG. NO.
293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

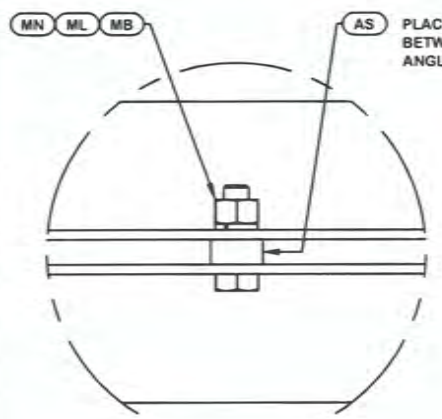
** DIAGONAL ANGLES MUST BE INSTALLED WITH THE NON-BOLTED FACE UP, ⊤ THIS MAY BE ON THE OPPOSITE SIDE OF THE SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



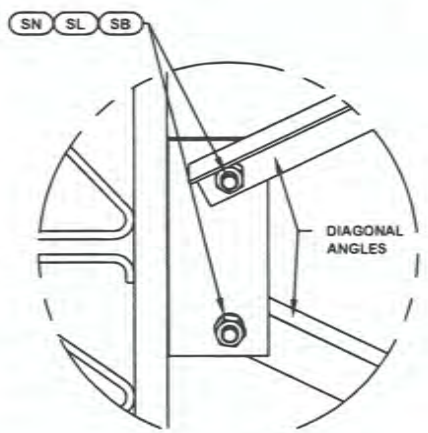
PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	195217	#12 LEG SECTION - 1-3/4" LEG - 1/2" BRACE - 1" BOL	746.710	2240.130
LD	6	279282	U-20 LOWER DIAGONAL - 3" x 3" x 3/16" ANGLE (A572	79.710	478.260
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	279281	U-20 UPPER DIAGONAL - 3" x 3" x 3/16" ANGLE (A572	76.230	457.380
LCB	18	222022	1-1/4"-7 X 5-1/2" A-325 BOLT WITH 2" THREAD	2.530	45.540
LCF	18	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	2.340
LCL	18	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	2.700
LCN	18	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	13.140
			Total Wt	3276.45 lb [1487.54 kg]	

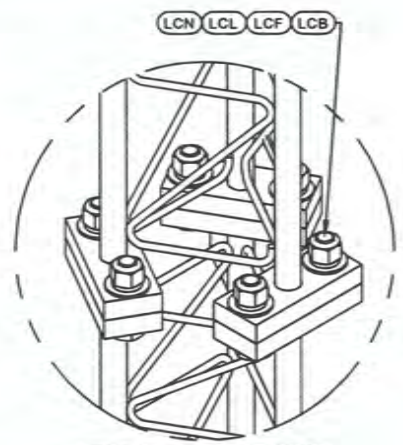
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW. PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION U-20.0 (20' - 40' ELEVATION)

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

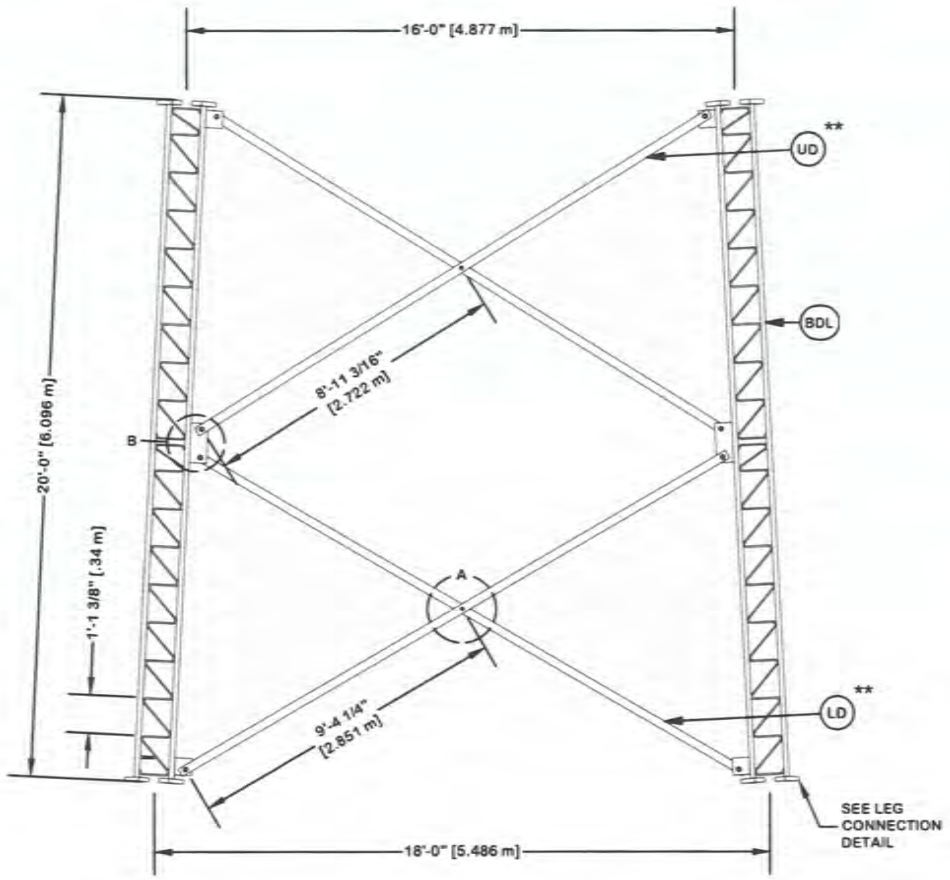
ENG. FILE NO.
553967

DWG. NO.
293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

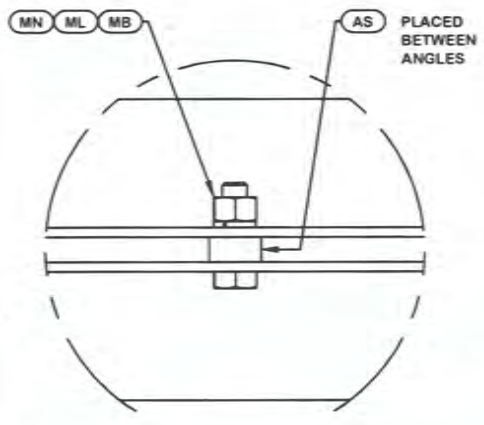
** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP,
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



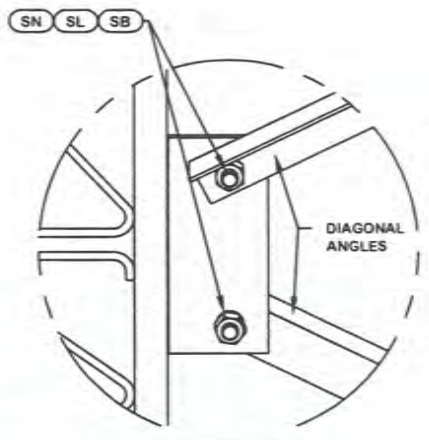
PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	195217	#12 LEG SECTION - 1-3/4" LEG - 1/2" BRACE - 1" BOL	746.710	2240.130
LD	6	279263	U-18 LOWER DIAGONAL - 2 1/2" x 2 1/2" x 1/4" ANGLE	79.230	475.380
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	279262	U-18 UPPER DIAGONAL - 2 1/2" x 2 1/2" x 1/4" ANGLE	75.560	453.360
LCB	18	222022	1-1/4"-7 X 5-1/2" A-325 BOLT WITH 2" THREAD	2.530	45.540
LCF	18	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	2.340
LCL	18	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	2.700
LCN	18	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	13.140
			Total Wt	3269.55 lb [1484.40 kg]	

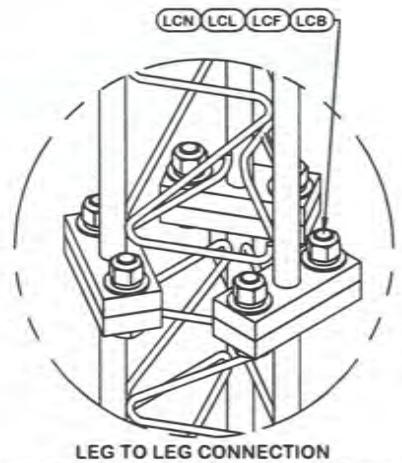
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE

REVISION HISTORY

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION U-18.0 (40' - 60' ELEVATION)

ENG. FILE NO.
553967

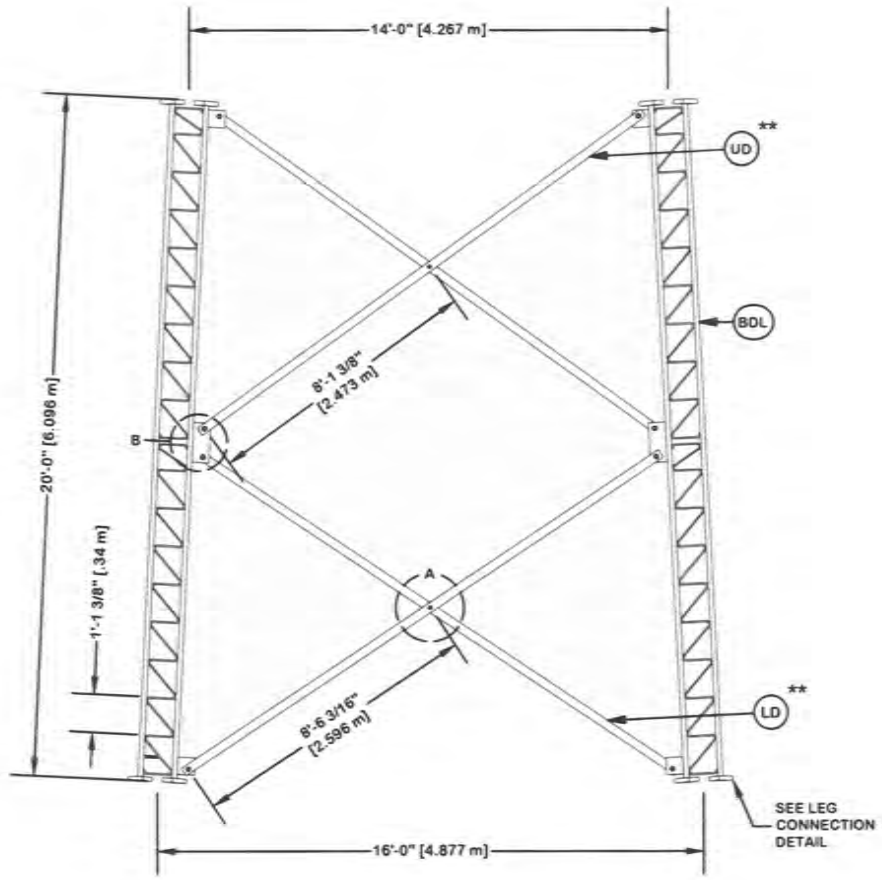
valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DWG. NO.
293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP, ⊤
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	195213	#12 LEG SECT - 1-3/4" TO 1-1/2" TRANS LEG - 1/2" B	739.890	2219.670
LD	6	279251	U-16 LOWER DIAGONAL - 2 1/2" x 2 1/2" x 1/4" ANGLE	71.950	431.700
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	279250	U-16 UPPER DIAGONAL - 2 1/2" x 2 1/2" x 1/4" ANGLE	68.430	410.580
LCB	18	222022	1-1/4"-7 X 5-1/2" A-325 BOLT WITH 2" THREAD	2.530	45.540
LCF	18	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	2.340
LCL	18	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	2.700
LCN	18	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	13.140
			Total Wt	3162.63 lb [1435.86 kg]	

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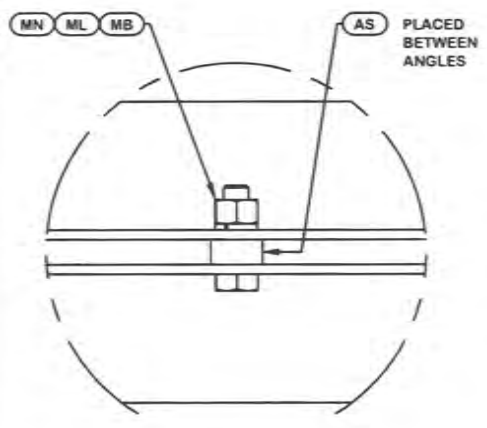
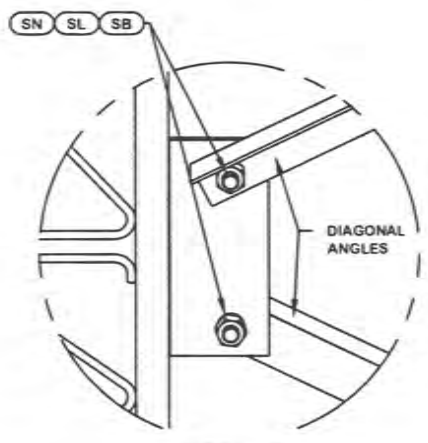
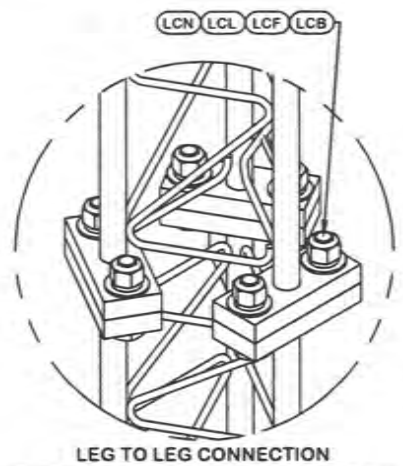
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION U-16.0 (60' - 80' ELEVATION)

ENG. FILE NO.
553967

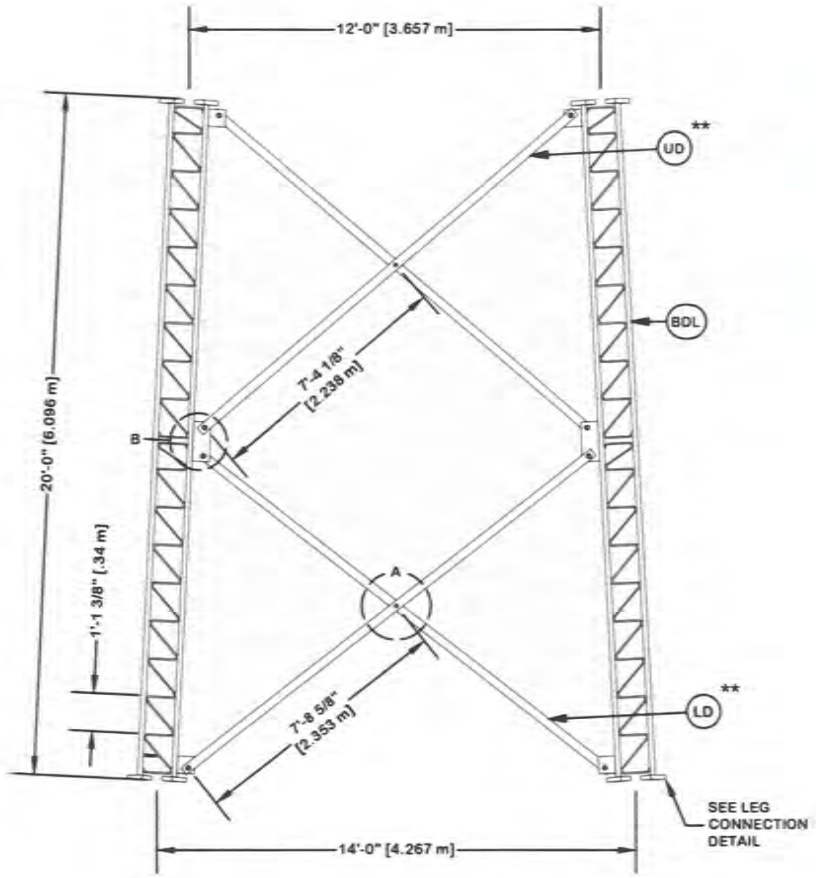
valmont
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR
STRUCTURES

DWG. NO.
293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

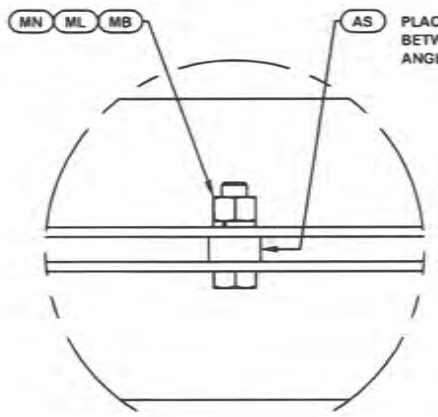
** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP,
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



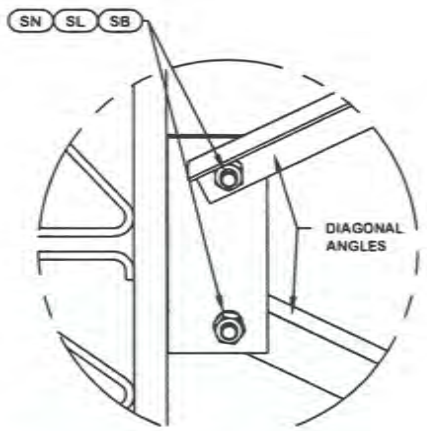
PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	194651	#12 LEG SECTION - 1-1/2" LEG - 1/2" BRACE - 1" BOL	602.830	1808.490
LD	6	279225	U-14 LOWER DIAGONAL - 2 1/2" x 2 1/2" x 3/16" ANGL	49.530	297.180
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	279224	U-14 UPPER DIAGONAL - 2 1/2" x 2 1/2" x 3/16" ANGL	47.000	282.000
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
			Total Wt	2461.17 lb [1117.39 kg]	

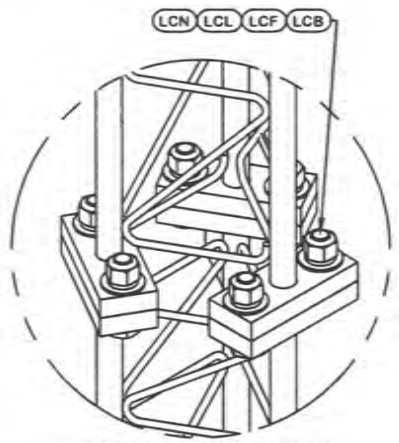
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION U-14.0 (80' - 100' ELEVATION)

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

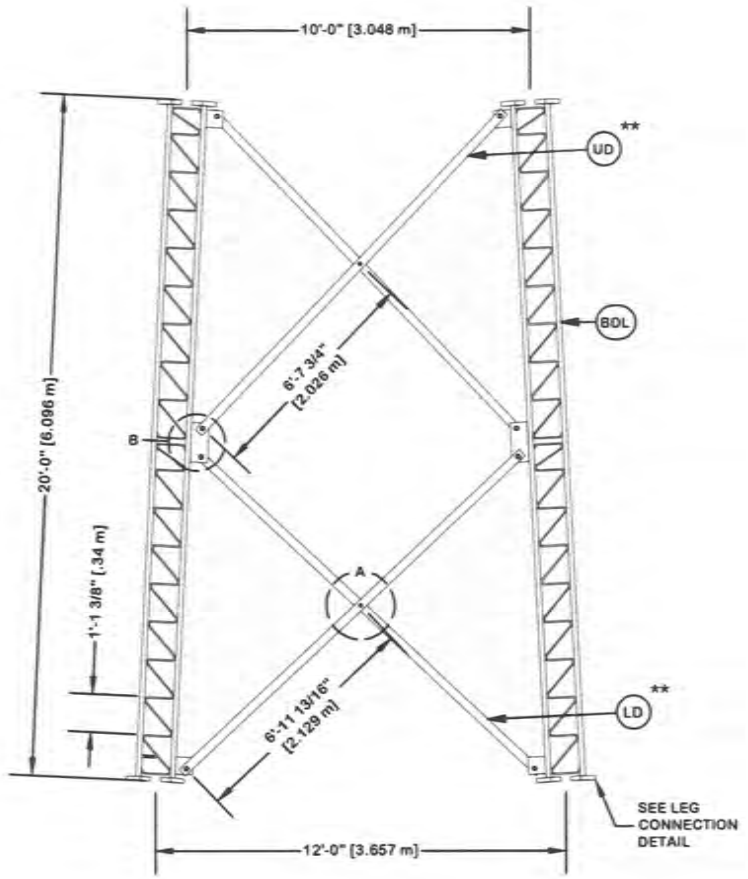
ENG. FILE NO. 553967

DWG. NO. 293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

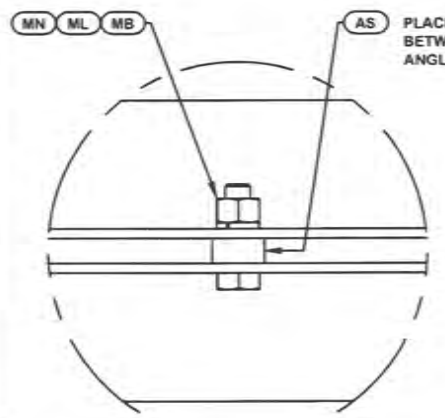
** DIAGONAL ANGLES MUST BE INSTALLED WITH THE NON-BOLTED FACE UP, ⌐| THIS MAY BE ON THE OPPOSITE SIDE OF THE SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



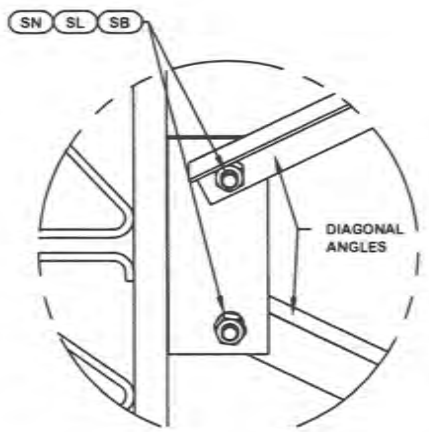
PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	194651	#12 LEG SECTION - 1-1/2" LEG - 1/2" BRACE - 1" BOL	602.830	1808.490
LD	6	126805	U-12 LOWER DIAGONAL - 2 1/2" x 2 1/2" x 3/16" ANGL	44.570	267.420
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	126801	U-12 UPPER DIAGONAL - 2 1/2" x 2 1/2" x 3/16" ANGL	42.250	253.500
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
			Total Wt	2402.91 lb [1090.94 kg]	

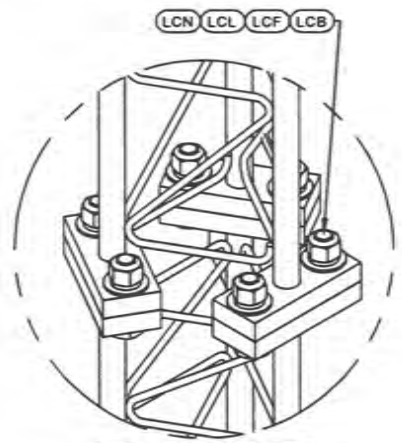
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW. PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION U-12.0 (100' - 120' ELEVATION)

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

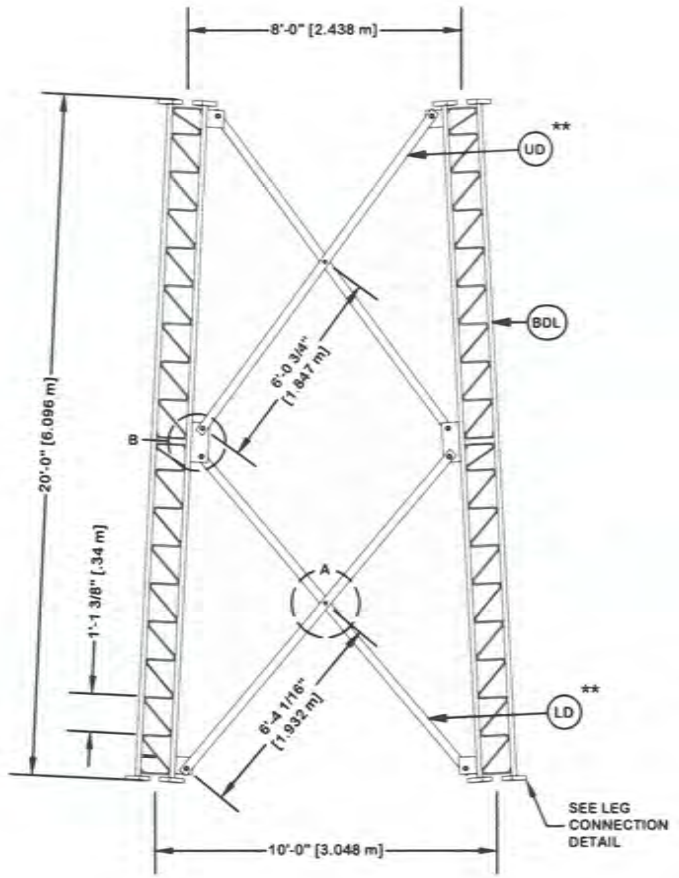
ENG. FILE NO. 553967

DWG. NO. 293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP,
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	194651	#12 LEG SECTION - 1-1/2" LEG - 1/2" BRACE - 1" BOL	602.830	1808.490
LD	6	126797	U-10 LOWER DIAGONAL - 2 1/2" x 2 1/2" x 3/16" ANGL	40.070	240.420
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	126793	U-10 UPPER DIAGONAL - 2 1/2" x 2 1/2" x 3/16" ANGL	38.050	228.300
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
			Total Wt	2350.71 lb [1067.24 kg]	

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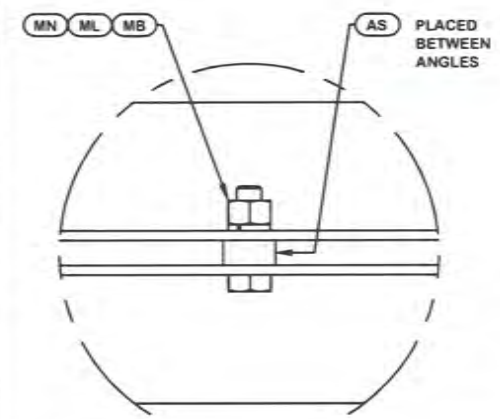
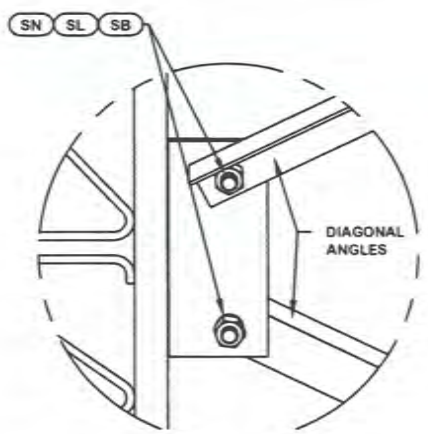
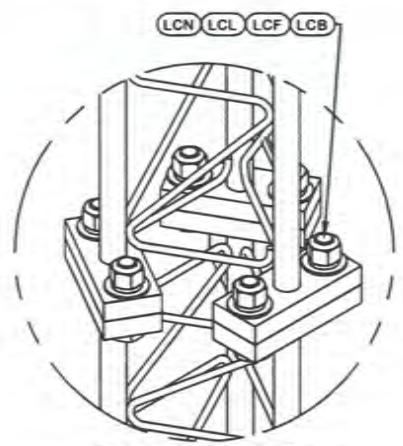
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION U-10.0 (120' - 140' ELEVATION)

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

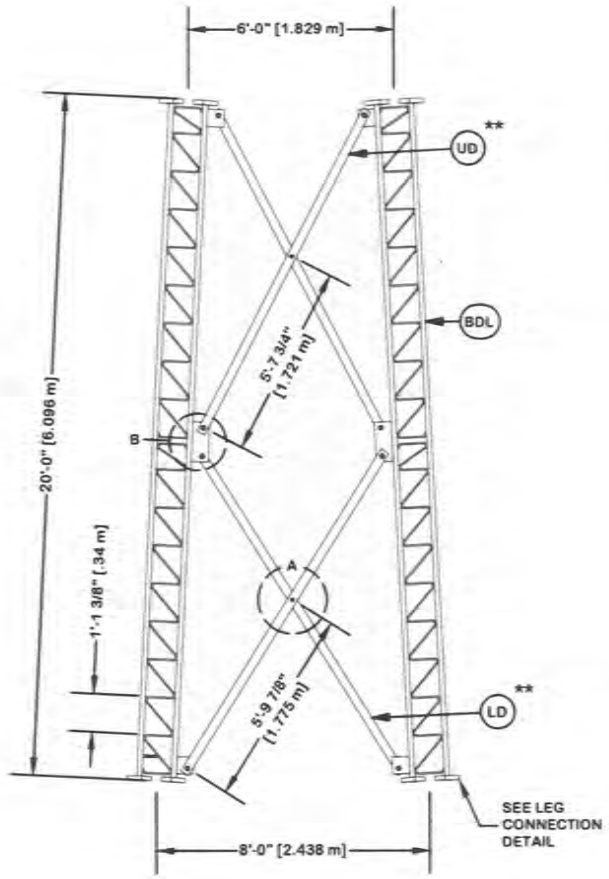
ENG. FILE NO.
553967

DWG. NO.
293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

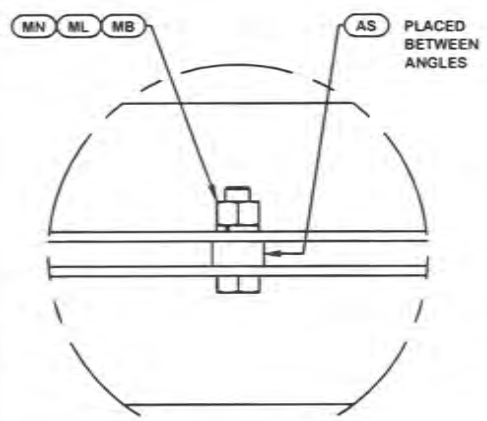
** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP,
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.



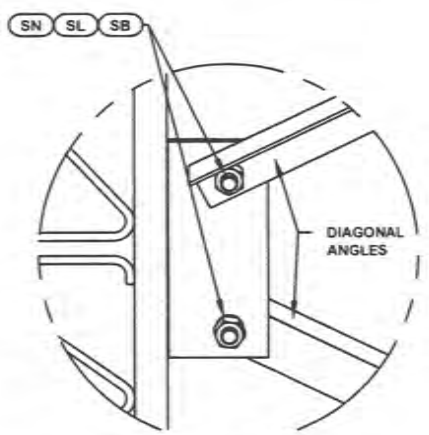
PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	194651	#12 LEG SECTION - 1-1/2" LEG - 1/2" BRACE - 1" BOL	602.830	1808.490
LD	6	126789	U-8 LOWER DIAGONAL - 2 1/2" x 2 1/2" x 3/16" ANGLE	36.220	217.320
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	24	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	20.160
UD	6	126785	U-8 UPPER DIAGONAL - 2 1/2" x 2 1/2" x 3/16" ANGLE	34.610	207.660
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
			Total Wt	2306.97 lb [1047.38 kg]	

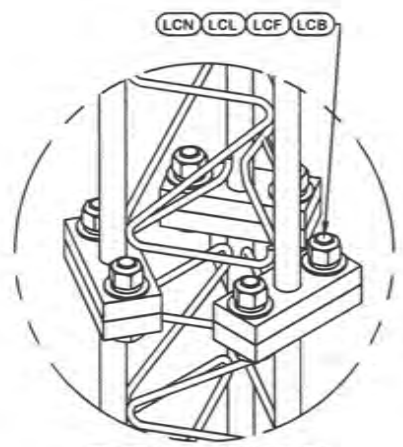
NOTE: THE VIEWS SHOWN BELOW ARE FOR PART IDENTIFICATION ONLY. THE ACTUAL PART STYLE MAY VARY FROM WHAT IS DEPICTED BELOW.
PLEASE SEE ASSEMBLY INFORMATION IN THE UPPER LEFT CORNER FOR FURTHER INSTALLATION INSTRUCTIONS.



DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION U-8.0 (140' - 160' ELEVATION)

ENG. FILE NO.
553967

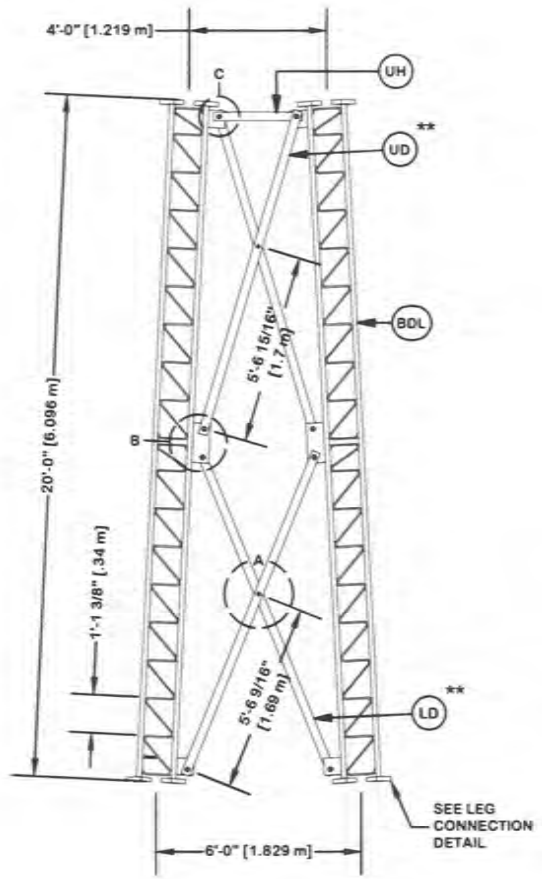
valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DWG. NO.
293562T

ORIENT LEGS WITH P/N STAMP
TOWARD BOTTOM OF SECTION

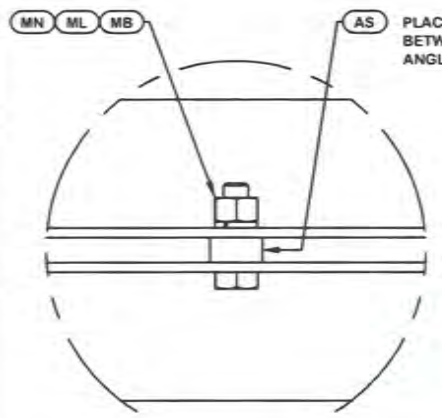
ORIENT ANGLES WITH STAMPED
END TOWARD TOP OF SECTION

** DIAGONAL ANGLES MUST BE INSTALLED
WITH THE NON-BOLTED FACE UP,
THIS MAY BE ON THE OPPOSITE SIDE OF THE
SIDE PLATE THAN WHAT IS SHOWN IN THE DETAIL.

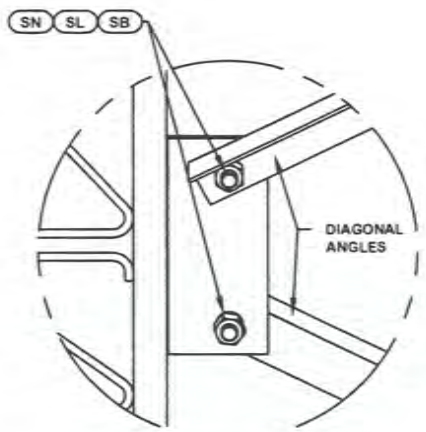


PARTS LIST

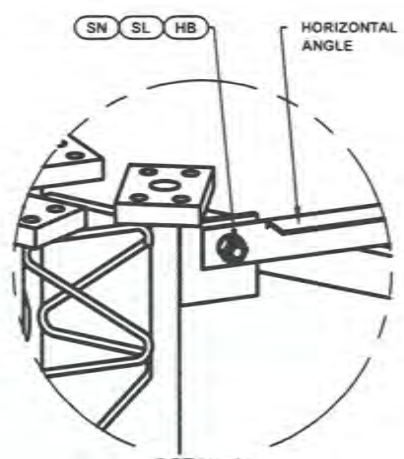
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
BDL	3	194434	#12 LEG SECT - 1-1/4" LEG - 1/2" BRACE - 1" BOLT -	489.830	1469.490
LD	6	278572	U-6 LOWER DIAGONAL - 2 1/2" x 2 1/2" x 1/4" ANGLE	43.620	261.720
AS	6	104291	RING FILL SPACER 1/2" THICK 1.049" HOLE	0.070	0.420
MN	6	312502	3/4"-10 HOT DIPPED GALVANIZED NUT	0.190	1.140
ML	6	312153	3/4" GALVANIZED LOCKWASHER	0.030	0.180
MB	6	160427	3/4"-10 X 3" A-325T BOLT WITH FULL THREAD	0.470	2.820
SL	24	312223	1" GALVANIZED LOCKWASHER	0.080	1.920
SN	24	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	10.320
SB	18	172265	1"-8 X 2-1/4" A-325 BOLT WITH 1-3/4" THREAD	0.840	15.120
UD	6	278571	U-6 UPPER DIAGONAL - 2 1/2" x 2 1/2" x 1/4" ANGLE	42.200	253.200
UH	3	268778	U-6 TAPERED UPPER HORIZONTAL ANGLE (TYPE 1) - 3" x	8.290	24.870
HB	6	225017	1"-8 X 3-1/2" A-325T BOLT WITH FULL THREAD	1.090	6.540
LCB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
LCF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
LCL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
LCN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
			Total Wt	2084.28 lb [946.28 kg]	



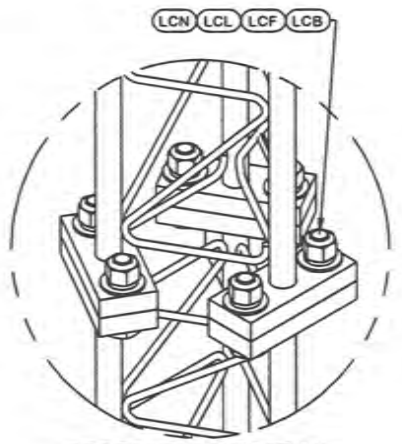
DETAIL A
ANGLE INTERSECTION CONNECTION



DETAIL B
MID SIDE PLATE ANGLE CONNECTION



DETAIL C
HORIZONTAL CONNECTION



LEG TO LEG CONNECTION
(SIDE PLATES NOT SHOWN FOR CLARITY)

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

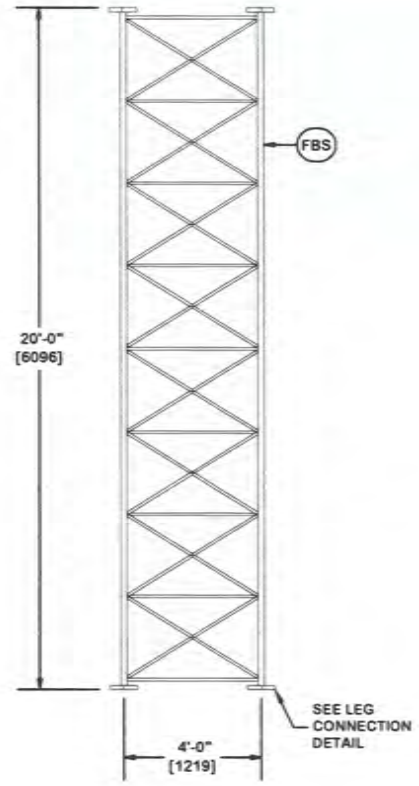
DESCRIPTION
SECTION U-6.0 (160' - 180' ELEVATION)

ENG. FILE NO.
553967

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

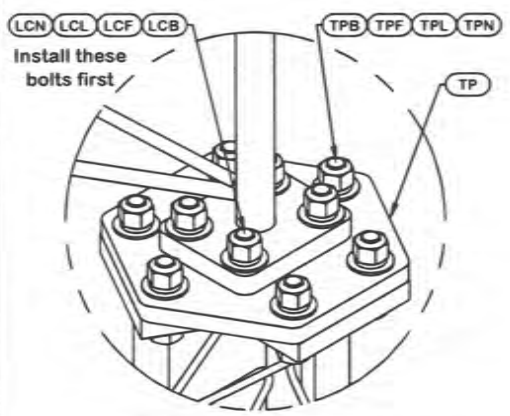
DWG. NO.
293562T

ORIENT SECTION WITH P/N STAMP
TOWARD BOTTOM OF TOWER



PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
FBS	1	215044	#48 SECT W/FOOTPADS - 2-1/4" TO 1-3/4" TRANS - 20'	1536.200	1536.200
TP	3	209573	TRANSITION PLATE (6) 1" BOLTS TO (4) 1" BOLTS	83.780	251.340
TPB	18	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	24.840
TPF	18	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	2.520
TPL	18	312223	1" GALVANIZED LOCKWASHER	0.080	1.440
TPN	18	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	7.740
LCB	12	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	16.560
LCF	12	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	1.680
LCL	12	312223	1" GALVANIZED LOCKWASHER	0.080	0.960
LCN	12	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	5.160
			Total Wt	1848.44 lb [839.21 kg]	



LEG TO LEG CONNECTION
The Transition Plate MUST be attached to the
upper section before installing onto lower section

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION V-4.0 (180' - 200' ELEVATION)

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

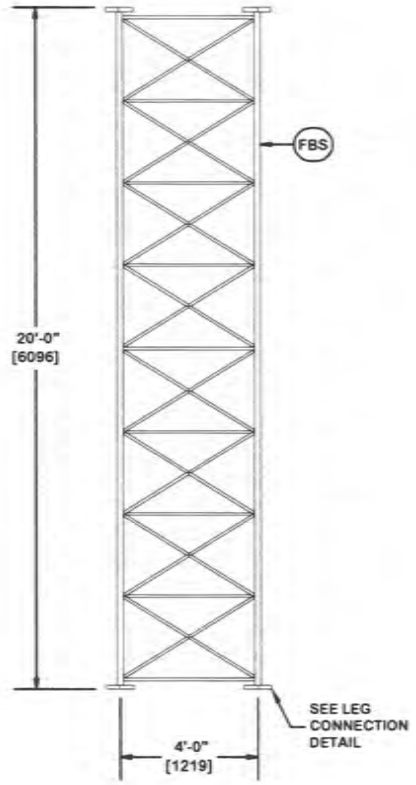
ENG. FILE NO.
553967

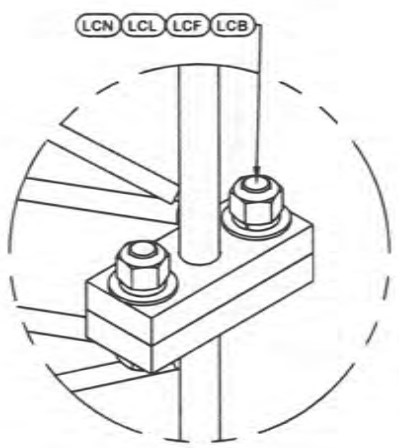
DWG. NO.
293562T

ORIENT SECTION WITH P/N STAMP
TOWARD BOTTOM OF TOWER

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
FBS	1	246636	#48 SECT W/ FOOTPADS 1 3/4" - 1 1/2" LEG 3/4" BRAC	1045.850	1045.850
LCB	6	222022	1-1/4"-7 X 5-1/2" A-325 BOLT WITH 2" THREAD	2.530	15.180
LCF	6	312282	1-1/4" GALVANIZED FLAT WASHER (F436)	0.130	0.780
LCL	6	312283	1-1/4" GALVANIZED LOCKWASHER	0.150	0.900
LCN	6	312507	1-1/4"-7 HOT DIPPED GALVANIZED NUT	0.730	4.380
			Total Wt	1067.09 lb [484.47 kg]	





LEG TO LEG CONNECTION

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE

REVISION HISTORY

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
SECTION V-4.0 (200' - 220' ELEVATION)

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

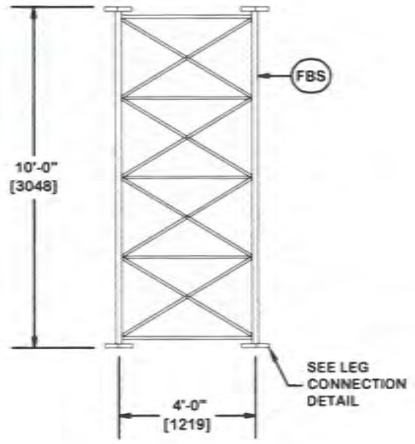
ENG. FILE NO. 553967

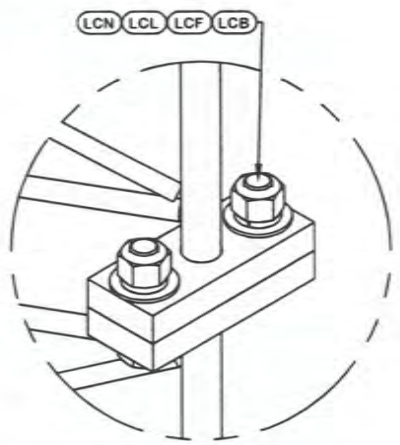
DWG. NO. 293562T

ORIENT SECTION WITH P/N STAMP
TOWARD BOTTOM OF TOWER

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.	NET WT.
FBS	1	233466	#48 SECT W/ FOOTPADS 1 1/4" LEG 3/4" BRACE 10'-0"	445.990	445.990
LCB	6	222016	1"-8 X 4-3/4" A-325 BOLT WITH 1-3/4" THREAD	1.380	8.280
LCF	6	312222	1" GALVANIZED FLAT WASHER (F436)	0.140	0.840
LCL	6	312223	1" GALVANIZED LOCKWASHER	0.080	0.480
LCN	6	312504	1"-8 HOT DIPPED GALVANIZED NUT	0.430	2.580
			Total Wt	458.17 lb [208.01 kg]	





LEG TO LEG CONNECTION

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

SITE

HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION

SECTION V-4.0 (220' - 230' ELEVATION)

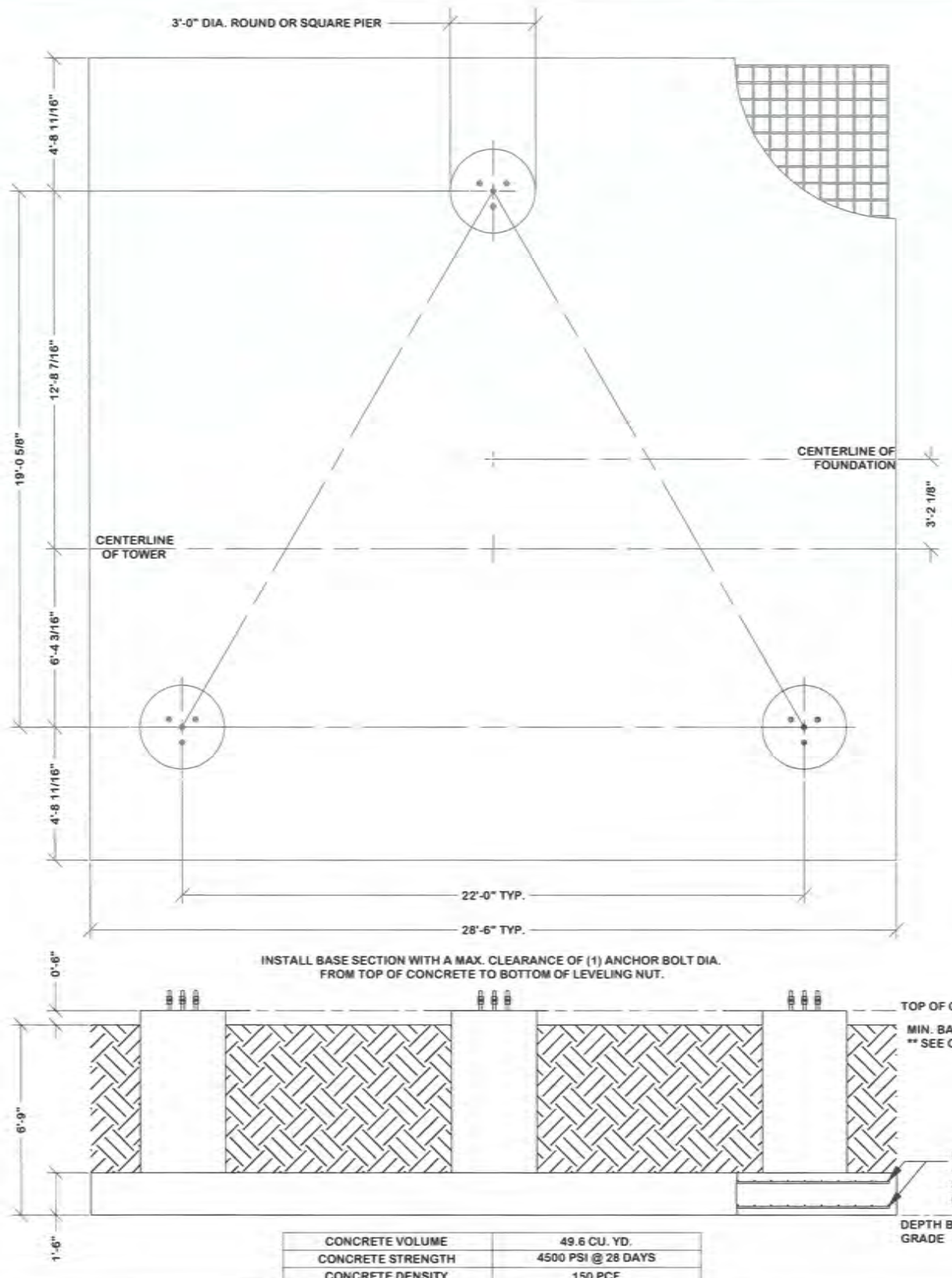
ENG. FILE NO.

553967

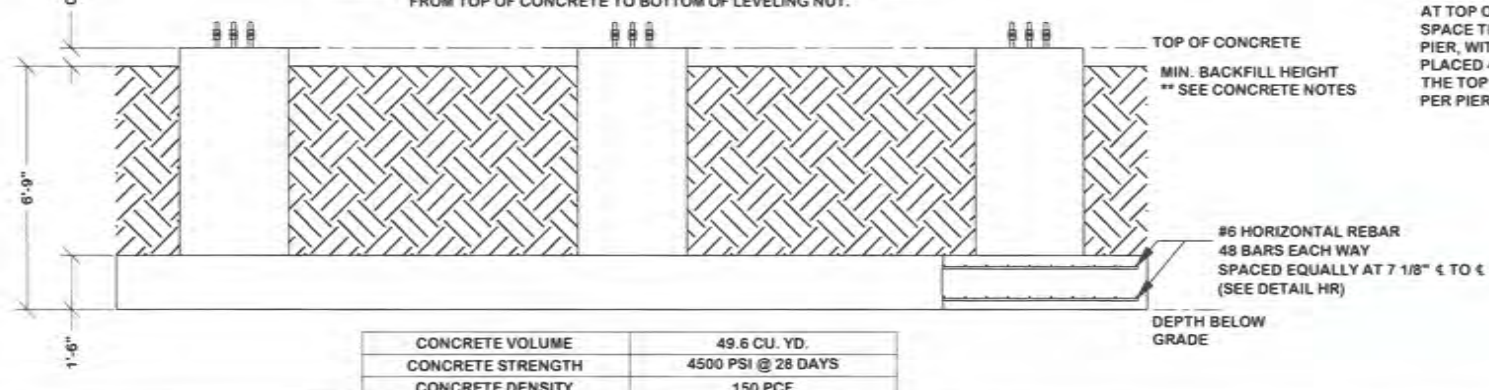
valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DWG. NO.

293562T



INSTALL BASE SECTION WITH A MAX. CLEARANCE OF (1) ANCHOR BOLT DIA. FROM TOP OF CONCRETE TO BOTTOM OF LEVELING NUT.



CONCRETE VOLUME	49.6 CU. YD.
CONCRETE STRENGTH	4500 PSI @ 28 DAYS
CONCRETE DENSITY	150 PCF

ATTENTION CONTRACTOR INSTALLING ANCHOR BOLTS!
USE 1 1/4" DIA. ANCHOR BOLTS SUPPLIED BY VALMONT.
INSTALL ALL ANCHOR BOLTS WITH LONGER THREADED ENDS EXPOSED
VERIFY THE PART NUMBER AND SIZES FOR ALL COMPONENTS ON THIS PAGE.
IF THERE ARE ANY DISCREPANCIES, PLEASE NOTIFIY VALMONT/PIROD, INC
PRIOR TO INSTALLATION!!

TEMPLATE INSTALLATION NOTES:
1. THE PROVIDED TEMPLATE ASSEMBLY MUST BE USED TO ENSURE ACCURATE ANCHOR BOLT LOCATION & INSTALLATION ANGLE (BASE LEG REFERENCE ANGLE 0.00°.)
2. USING THE TEMPLATE ASSEMBLY, THE CENTER OF EACH ANCHOR BOLT GROUP MUST BE LOCATED WITHIN (+/- 3") OF THE CENTER OF THE REBAR CAGE SHOWN ON THIS PLAN. FAILURE TO USE THE FULLY ASSEMBLED ANCHOR BOLT TEMPLATE WILL CAUSE MISS-LOCATION OF THE ANCHOR BOLT GROUPS. INCORRECTLY LOCATED ANCHOR BOLT GROUPS WILL CAUSE DIFFICULTY OR ALIGNMENT ISSUES DURING TOWER CONSTRUCTION. IN MORE SEVERE CASES, THIS CAN MAKE IT IMPOSSIBLE TO ERECT THE TOWER.
3. THE ENTIRE TEMPLATE ASSEMBLY MUST BE LEVEL +/- 1°.
4. INSTALLED TEMPLATE CLEARANCE 2" MIN - 4" MAX T.O.C. TO BOTTOM OF LEVELING NUT.
5. MUST USE TEMPLATE ASSEMBLY# 281374

****CONCRETE NOTES**
1. BACKFILL MAY NOT BE SLOPED
2. BACKFILL MUST NOT EXCEED THE TOP OF THE CONCRETE
3. CONTRACTOR MUST VERIFY THAT THE MINIMUM FILL HEIGHT CAN BE ACHIEVED PRIOR TO INSTALLING REBAR OR CONCRETE.
4. IF MINIMUM FILL HEIGHT CANNOT BE ACHIEVED THE CONTRACTOR MUST CONTACT VALMONT PRIOR TO REBAR OR CONCRETE PLACEMENT.

PARTS LIST

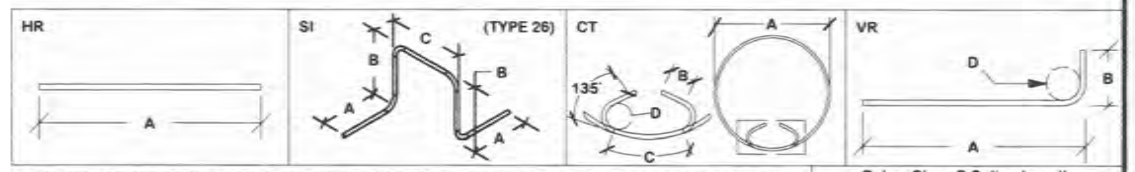
ITEM	QTY	PART DESCRIPTION	UNIT WT.	NET WT.
1	12	1 1/4" DIA. x 80" LONG ANCHOR BOLT - 109881	31.65	379.80
2	3	EMBEDMENT PLATE - 281259	19.88	59.63

FOUNDATION NOTES:

1. SOIL AS PER REPORT BY POWER OF DESIGN GROUP, LLC PROJECT NO 22-125392, DATED: MAY 20, 2022
2. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 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 VALMONT. ALL COLD JOINTS SHALL BE COATED WITH BONDING AGENTS PRIOR TO SECOND POUR.
4. ALL FILL SHOULD BE PLACED IN LOOSE LEVEL LIFTS OF NO MORE THAN 8" THICK. FILL MATERIALS SHOULD BE CLEAN AND FREE OF ORGANIC AND FROZEN MATERIALS OR ANY OTHER DELETERIOUS MATERIALS. COMPACT FILL TO 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698. MIN. BACKFILL DENSITY = 110 PCF.
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. SEE GEOTECHNICAL REPORT FOR ADDITIONAL CONSTRUCTION RECOMMENDATIONS, BACKFILL COMPACTION DETAIL, SUBGRADE PREPARATION, ETC.
9. 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 OR DRILLED THROUGH.

REBAR DETAIL

BAR	QTY	SIZE	UNBENT LENGTH	A	B	C	D DIAMETER	UNIT WT. (LBS)	NET WT. (LBS)
HR	192	#6	28'	28'				42.15	8093.02
SI	81	#4	4'-11 1/2"	1'-3 1/8"	9"	1'-5 1/8"		3.31	268.20
CT	21	#4	9'-6 1/4"	2'-6"	3"	7 1/4"	3"	6.36	133.53
VR	39	#7	7'-7 5/16"	6'-7 1/2"	1'-2"		5 1/4"	15.55	606.40

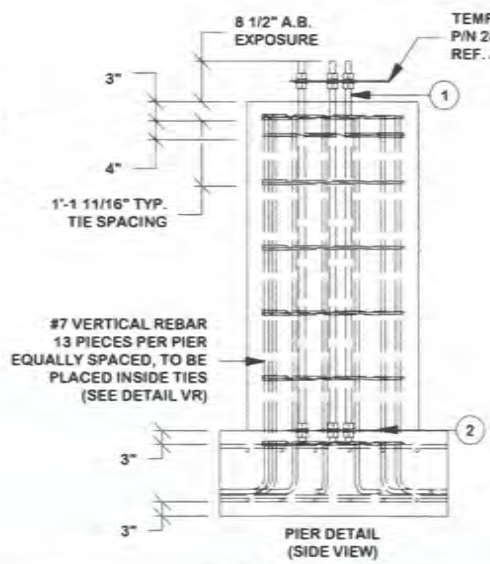


REBAR NOTES: ALL REINFORCING BARS MUST CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS
STANDEES TO BE EQUALLY SPACED BETWEEN GRIDS - 3'-3 7/8" (TYP)

Rebar Class B Splice Length

Bar Size	(in)	Bar Size	(in)
3	19	8	61
4	25	9	69
5	31	10	77
6	37	11	86
7	53		

CIRCULAR TIE NOTES:
PLACE CIRCULAR TIES SO HOOKS ON ADJACENT TIES ARE APPROX. 180° APART. PLACE ONE TIE AT TOP OF REBAR GRID AND ONE TIE AT TOP OF PIER. EQUALLY SPACE TIES ALONG THE PIER, WITH ONE BAR PLACED 4" DOWN FROM THE TOP TIE. 7 TIES PER PIER (SEE DETAIL CT)



PIER DETAIL
(SIDE VIEW)

08-22-2022

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
	REVISION HISTORY			

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

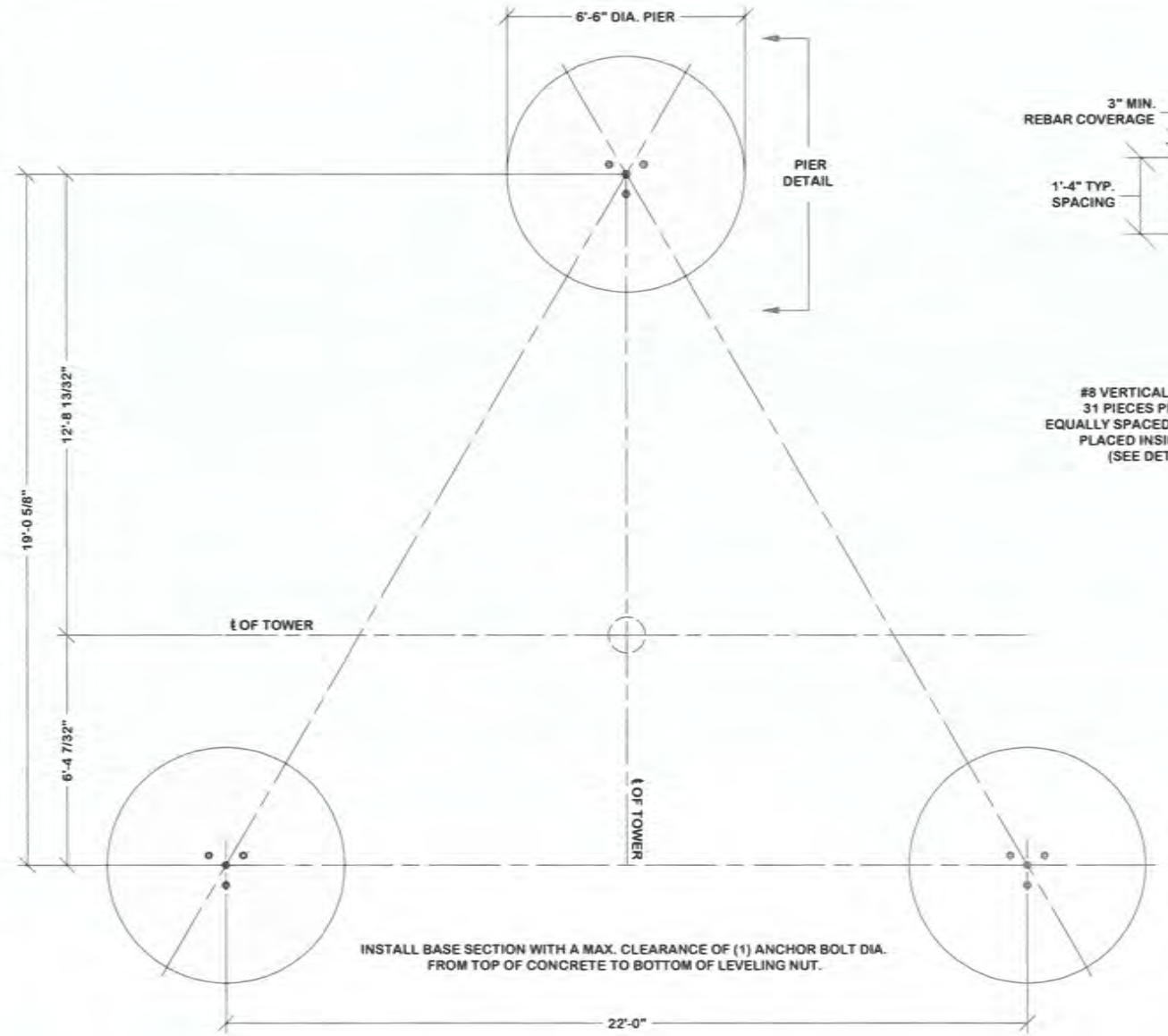
DESCRIPTION
SHALLOW MAT WITH RAISED PIERS
TOWER FOUNDATION #1

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

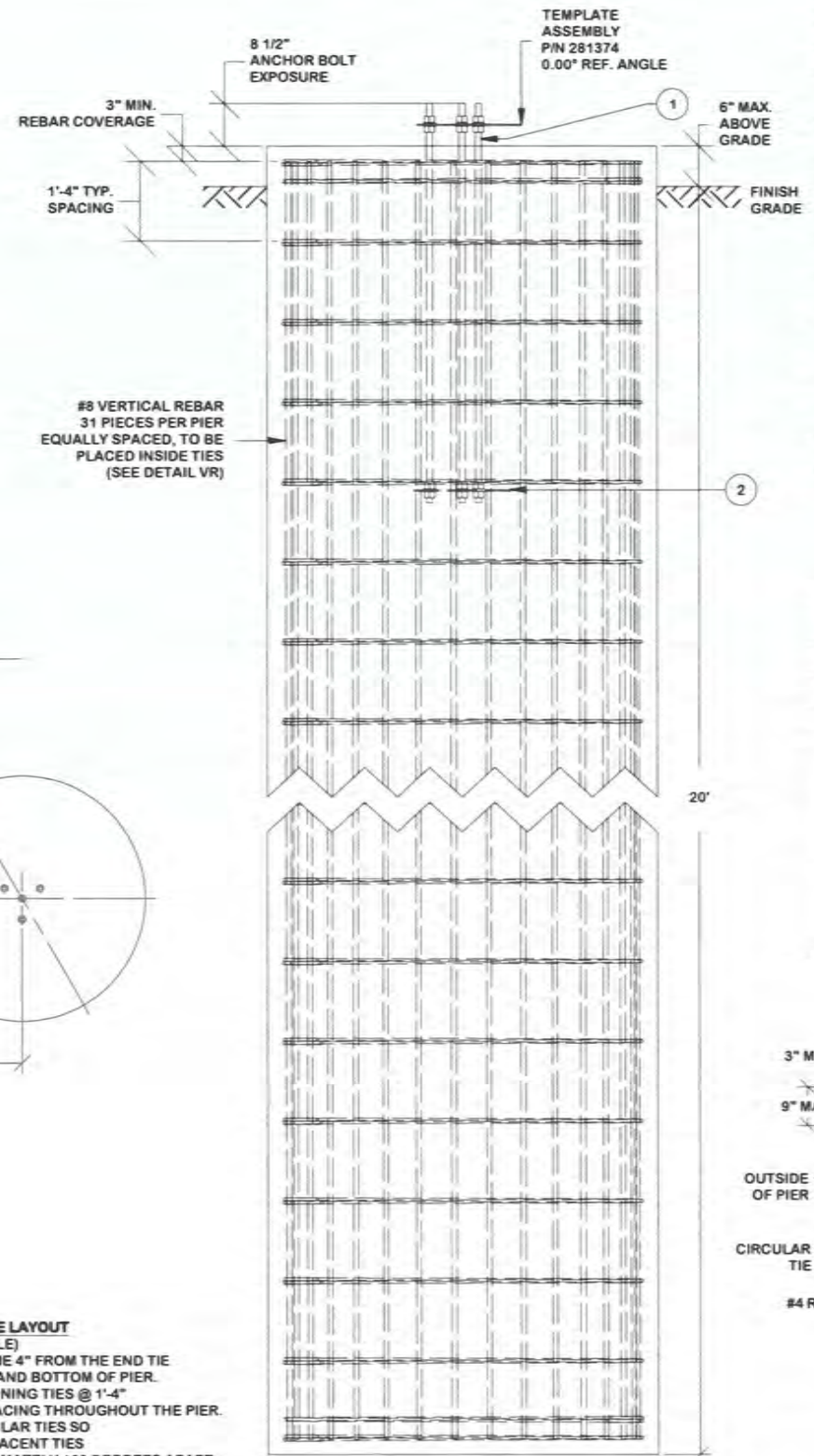
DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

ENG. FILE NO. 553967

DWG. NO. 293562F



INSTALL BASE SECTION WITH A MAX. CLEARANCE OF (1) ANCHOR BOLT DIA. FROM TOP OF CONCRETE TO BOTTOM OF LEVELING NUT.



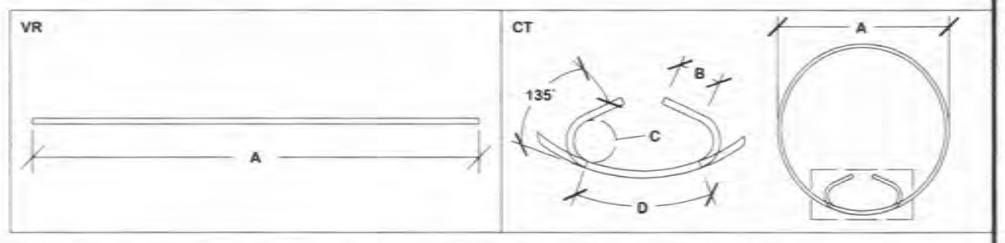
PIER DETAIL (SIDE VIEW)

REBAR/ANCHOR STEEL TABLE				
ITEM	QTY	PART DESCRIPTION	UNIT WT.	NET WT.
1	12	1 1/4" DIA. x 80" LONG ANCHOR BOLT - 109881	31.65	379.80
2	3	EMBEDMENT PLATE - 281259	19.88	59.63

FOUNDATION NOTES:

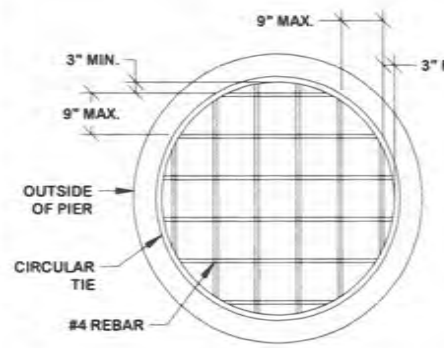
1. SOIL AS PER REPORT BY POWER OF DESIGN GROUP, LLC PROJECT NO 22-125392, DATED: MAY 20, 2022
2. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH 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 VALMONT. 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. SEE GEOTECHNICAL REPORT FOR ADDITIONAL CONSTRUCTION RECOMMENDATIONS, BACKFILL COMPACTION DETAIL, SUBGRADE PREPARATION, ETC.
10. DIFFICULT DRILLING AND/OR ROCK CORING IS TO BE EXPECTED BEFORE A DEPTH OF 11 FT. THE DRILLING CONTRACTOR SHOULD BE PREPARED TO REMOVE ROCK AND/OR ROCK CORES FROM THE EXCAVATION.
11. A TEMPORARY, FULL LENGTH STEEL CASING MAY BE REQUIRED DURING INSTALLATION.

REBAR DETAIL									
BAR	QTY	SIZE	UNBENT LENGTH	A	B	C DIAMETER	D	UNIT WT.	NET WT.
CT	54	#5	20'-9 7/8"	6'	3 3/4"	3 3/4"	7 5/16"	21.72	1172.67
VR	93	#8	20'	20'				53.53	4977.85



REBAR NOTES: ALL REINFORCING BARS MUST CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS

Rebar Class B Splice Length			
Bar Size	(in)	Bar Size	(in)
3	16	8	47
4	19	9	53
5	24	10	60
6	28	11	66
7	41		



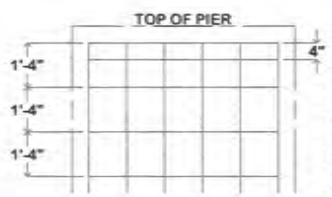
TOP OF PIER REBAR DETAIL
HORIZONTAL BARS TO BE PLACED WITHIN 6" FROM TOP OF PIER. QTY WILL VARY BASED ON PIER DIAMETER. CUT TO FIT. ANCHOR BOLTS, VERITICAL BARS NOT SHOWN FOR CLARITY

CONCRETE VOLUME	25.2 CU.YD. PER PIER (75.6 CU.YD. TOTAL)
CONCRETE STRENGTH	4500 PSI @ 28 DAYS
CONCRETE DENSITY	150 PCF

ATTENTION CONTRACTOR INSTALLING ANCHOR BOLTS!
USE 1 1/4" DIA. ANCHOR BOLTS SUPPLIED BY VALMONT.
INSTALL ALL ANCHOR BOLTS WITH LONGER THREADED ENDS EXPOSED.
VERIFY THE PART NUMBER AND SIZES FOR ALL COMPONENTS ON THIS PAGE.
IF THERE ARE ANY DISCREPANCIES, PLEASE NOTIFY VALMONT/PIROD, INC
PRIOR TO INSTALLATION!

TEMPLATE INSTALLATION NOTES:

1. THE PROVIDED TEMPLATE ASSEMBLY MUST BE USED TO ENSURE ACCURATE ANCHOR BOLT LOCATION & INSTALLATION ANGLE (BASE LEG REFERENCE ANGLE 0.00°.)
2. USING THE TEMPLATE ASSEMBLY, THE CENTER OF EACH ANCHOR BOLT GROUP MUST BE LOCATED WITHIN (+/- 3") OF THE CENTER OF THE REBAR CAGE SHOWN ON THIS PLAN. FAILURE TO USE THE FULLY ASSEMBLED ANCHOR BOLT TEMPLATE WILL CAUSE MISS-LOCATION OF THE ANCHOR BOLT GROUPS. INCORRECTLY LOCATED ANCHOR BOLT GROUPS WILL CAUSE DIFFICULTY OR ALIGNMENT ISSUES DURING TOWER CONSTRUCTION. IN MORE SEVERE CASES, THIS CAN MAKE IT IMPOSSIBLE TO ERECT THE TOWER.
3. THE ENTIRE TEMPLATE ASSEMBLY MUST BE LEVEL +/- 1°.
4. INSTALLED TEMPLATE CLEARANCE 2" MIN - 4" MAX T.O.C. TO BOTTOM OF LEVELING NUT.
5. MUST USE TEMPLATE ASSEMBLY# 281374



CIRCULAR TIE LAYOUT
(NOT TO SCALE)
PLACE ONE TIE 4" FROM THE END TIE AT THE TOP AND BOTTOM OF PIER.
PLACE REMAINING TIES @ 1'-4" NOMINAL SPACING THROUGHOUT THE PIER.
PLACE CIRCULAR TIES SO LAPS ON ADJACENT TIES ARE APPROXIMATELY 180 DEGREES APART.
18 TIES PER PIER
SEE REBAR DETAIL (CT)

STATE OF KENTUCKY
JOSEPH PACHICARAH JACOBS
22177
LICENSED PROFESSIONAL ENGINEER

08-22-2022

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
REVISION HISTORY				

DRAWN BY	APPROVED BY	DESIGNED BY	APPROVED BY	RELEASE DATE
SAN	SAN	JOSEPH	JPJ	8/22/2022

SITE
HV1574 SHREWSBERRY, KY
HORVATH TOWERS
U 22 X 230'

DESCRIPTION
DRILLED PIERS
TOWER FOUNDATION #2

ENG. FILE NO.
553967

valmont STRUCTURES
1-877-467-4763 Plymouth, IN
1-800-547-2151 Salem, OR

DWG. NO.
293562F

UNIT BASE FOUNDATION SUMMARY

Horvath Towers
HV1574 Shrewsberry, KY

U- 22.0 230
A- 553967

V 4.7

Foundation Dimensions

Pad width, W:	28.50	ft
Depth, D:	6.75	ft
Ext. above grade, E:	0.50	ft
Pier diameter, d_i:	3.00	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	6.75	ft
Volume, V_o:	49.64	cy

Reinforcement Design

pad rebar qty., m_p:	48	bars *
size, s_p:	6	
pier vertical qty, m_c:	13	verticals/pier
size, s_c:	7	2.5' cage
pier tie qty., m_t:	7	ties/pier
size, s_t:	4	default hook

* Rebar to be equally spaced, both ways, top & bottom, for a total of 192 bars
* Use standees to support top rebar above bottom rebar in mat

Soil Information Per:

POWER OF DESIGN GROUP, LLC Project NO 22-125392, Dated: May 20, 2022

Soil Parameters

Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	12.000	ksf
Cohesion, C_u:	1.000	ksf
Friction angle, φ:	0.0	degrees
Ult. Passive P., P_p:	0.406	pcf
Base sliding, μ:	0.40	
Seismic Design Cat.:	A	
Water at:	none	ft

Anchor Steel Selection

Part Number, P/N:	109881	Dia = 1.25 Length = 80"

Material Properties

Steel tensile str., F_y:	60000	psi
Conc. Comp. str., F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

Backfill Compaction

Lift thickness:	8	in
Compaction:	95	%
Standard Proctor:	ASTM	D698

Tower design conforms to the following:

* *International Building Code (IBC)*
* *ANSI TIA-222-G*
* *Building Code Requirements for Reinforced Concrete (ACI 318-14)*

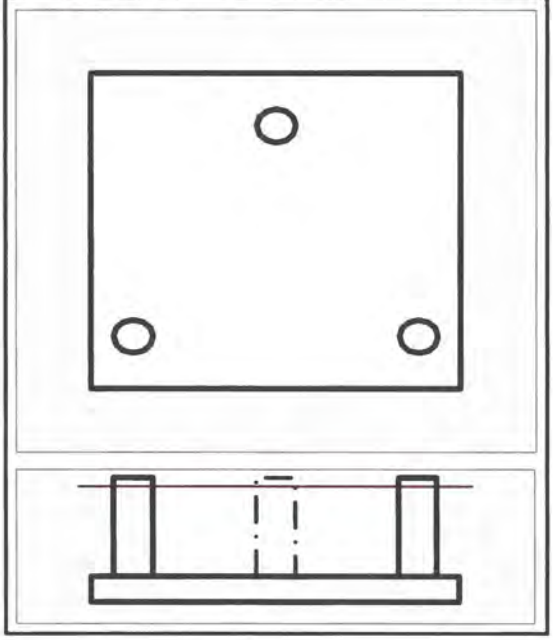
Note: The centroid of the tower is offset from the centroid of the foundation

Foundation Loading

		stress ratio: 97.7%	mark up: 2.4%
Shear (Per Leg), S_i:	29.00 kips	x 1.02 =	29.70 kips
Shear (total), S:	42.00 kips	x 1.02 =	43.01 kips
Moment, M:	5794.00 ft-kips	x 1.02 =	5933.06 ft-kips
Compression/Leg, C:	321.00 kips	x 1.02 =	328.70 kips
Uplift/Leg, U:	285.00 kips	x 1.02 =	291.84 kips
Tower Weight, W_t:	52.00 kips	=	52.00 kips

Views of Foundation

(not to scale)



STATE OF KENTUCKY
JOSEPH PACHICARAH JACOBS
22177
LICENSED PROFESSIONAL ENGINEER

Digitally signed by Joseph P Jacobs
Date: 2022-08-22 08:54-04:00

Additional Notes:

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

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. SEE GEOTECHNICAL REPORT FOR ADDITIONAL CONSTRUCTION RECOMMENDATIONS, BACKFILL COMPACTION DETAIL, SUBGRADE PREPARATION, ETC.
3. 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 OR DRILLED THROUGH.

UNIT BASE FOUNDATION (DL - 0.9)

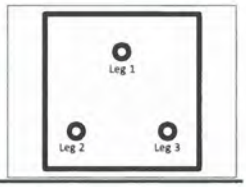
Horvath Towers
HV1574 Shrewsberry, KY

U- 22.0 230
A- 553967

V 4.7

Reactions		stress ratio	97.7%	mark up:	2.4%
Shear (Per Leg), S_l:	29.00 kips	x 1.02 =	29.70 kips		
Shear (total), S:	42.00 kips	x 1.02 =	43.01 kips		
Moment, M:	5794.00 ft-kips	x 1.02 =	5933.06 ft-kips		
Compression / leg, C:	321.00 kips	x 1.02 =	328.70 kips		
Uplift / leg, U:	285.00 kips	x 1.02 =	291.84 kips		
Tower weight, W_t:	52.00 kips	=	52.00 kips		

Soil per: POWER OF DESIGN GROUP, LLC Project NO 22-125392, Dated: May 20, 2022



Physical Parameters:

Concrete volume:	$V = T * W^2 + 3 * (di^2 / 4 * \pi) * (D + E - T)$	$V =$	49.6	cy
Concrete weight:	$W_c = V * \delta$	$W_c =$	201.0	kips
Soil weight:	$W_s = (D - T) * (W^2 - 3 * (di^2 / 4 * \pi)) * \gamma$	$W_s =$	456.8	kips
Total weight:	$P = Wc + Ws + Wt$	$P =$	709.87	kips

Passive Pressure:

Pp coefficient:	$K_p = TAN(45 + \varphi / 2)^2$	$K_p =$	1.000	
	$P_{pn} = Kp * \gamma * N + 2 * Co * \sqrt{(Kp)}$	$P_{pn} =$	2.743	ksf
	$P_{pt} = Kp * \gamma * (D - T) + 2 * Co * \sqrt{(Kp)}$	$P_{pt} =$	2.578	ksf
	$P_{pb} = Kp * \gamma * D + 2 * Co * \sqrt{(Kp)}$	$P_{pb} =$	2.743	ksf
	$P_{ptop} = IF(N < (D - T), Ppt, Ppn)$	$P_{ptop} =$	2.7	ksf
	$Pp' = (Pptop + Ppb) / 2$	$Pp' =$	2.743	ksf
Shear area:	$T_{pp} = 0$	$T_{pp} =$	0.0	ft
	$A_{pp} = Tpp * W$	$A_{pp} =$	0.00	ft^2
Shear Capacity: $\varphi r = 0.75$	$S_{actual} = (Pp' * App + \mu * P) * \varphi r$	$S_{actual} =$	212.962	kips

Check						
$S_{actual} =$	212.96 kips	>=	$S =$	43.01	kips	OK

Overturning Moment Resistance at Toe:

Wt of soil wedge:	$W_{sw} = D * (D * TAN(\varphi)) / 2 * W * \gamma$	$W_{sw} =$	0.0	kips
Dist. from leg to edge:	$O = (W - 0.866 * w') / 2$	$O =$	4.724	ft
Additional offset of Wt:	$O_a = W / 2 - (1 / 3 * 0.866 * w' + O)$	$O_a =$	3.175	ft
Resisting moments:	$M_{rwt} = P * W / 2 - Wt * Oa$	$M_{rwt} =$	9950.59	ft-kips
	$M_{rp} = Pp' * App * (D - N) / 3$	$M_{rp} =$	0.00	ft-kips
	$M_{rsw} = Wsw * (W + D * TAN(\varphi) / 3)$	$M_{rsw} =$	0.00	ft-kips
Total resisting: $\varphi r = 0.75$	$M_{rt} = (Mrwt + Mrp + Mrsw) * \varphi r$	$M_{rt} =$	7462.94	ft-kips
Total overturning:	$M_o = M + S * (D + E)$	$M_o =$	6244.86	ft-kips

Check						
$M_{rt} =$	7462.94 ft-kips	>=	$M_o =$	6244.86	ft-kips	OK

Bearing Resistance due to Pressure Distribution

Area of mat:	$area = W^2$	$area =$	812.3	ft^2
Section modulus:	$SM = W^3 / 6$	$SM =$	3858.2	ft^3
Factored total weight:	$P' = (Wt / 1.2 + Wc + Ws) * 0.9$	$P' =$	631.1	kip
Pressure exerted:	$P_{pos} = P' / area + Mo / SM$	$P_{max} =$	2.396	ksf
	$P_{neg} = P' / area - Mo / SM$	$P_{min} =$	-0.842	ksf

Note: The stress resultant is NOT within the kern. Bearing area has been adjusted below.

Load eccentricity:	$e_c = Mo / P'$	$e_c =$	9.90	ft
In Parallel Direction	$P_{adj} = 2 * P' / (3 * W * (W / 2 - ec))$	$P_{adj} =$	3.390	ksf
In Diagonal Direction	P_{adj_diag} see Diagonal Bearing Sheet (attached)	$P_{adj\_diag} =$	3.756	ksf
Adj. applied pressure:	$q_a = IF(Pneg >= 0, Ppos, Padj)$	$q_a =$	3.390	ksf
Overburden Pressure: (factored)	$q_{obp} = D * \gamma$	$q_{obp} =$	0.743	ksf
$\varphi r = 0.75$				

Check						
$q_a - q_{obp} =$	2.648 ksf	<=	$B_c * \varphi r =$	9.000	ksf	OK

Concrete Shear Strength:

One way beam action at d_c from tower

Effective depth:	$d_c = T - cc - db\_p / 2$	$d_c =$	14.625	in
Distance from edge of pad to pier face:	$d' = O - di / 2$	$d' =$	3.224	ft
Distance from edge of pad to dc:	$d'' = d' - dc$	$d'' =$	2.005	ft
Bearing Pressure Slop:	$q_s = qa / Weff$	$q_s =$	0.2595	kcf
Required shear:	$V_{n1} = [(qa - d'' * qs) + (d'' * qs / 2)] * d'' * W - [0.9 * (D - T) * \gamma * d'' * W]$	$V_{n1} =$	149.17	kips
Available shear: [ACI 22.5.5.1] $\varphi s = 0.75$ [ACI 21.2.1]	$V_{c1} = \varphi s * 2 * \lambda * \sqrt{(F'c)} * W * dc$	$V_{c1} =$	503.29	kips

Check						
$V_{c1} =$	503.29 kips	>=	$V_{n1} =$	149.17	kips	OK

Two way beam action at d_i / 2 from tower (ACI 22.6.5)

Eq. Square Column (ACI 8.10.1.3 & 22.6.4.1.2)	d_{eq} =di / 2 * √π	deq =	31.90	in	
Mat effective width in bearing	W_{eff} = Min (W, 3 * (W / 2 - ec))	W_{eff} =	13.063765	ft	
Ratio of long side to short side of Pier	β = 1 (for square or round piers)	β =	1.00		
Critical Section — Length:	b_1 = dc / 2 + deq / 2 + (W - w\) / 2	b_1 =	62.26	in	
Critical Section — Width:	b_2 = (dc + deq + W - SIN(60) * w\) / 2	b_2 =	79.95	in	
Critical Section — Perimeter:	b_o = b1 + b2	b_o =	142.21	in	
Critical Section — Centroid	c = (b1 * dc * b1 / 2) / (b1* dc + b2 * dc)	c =	13.630	ft	
Critical Section — Eccentricity:	e_c = (deq + dc) / 2 - c	e_c =	9.63412803	in	
Critical Section — Polar MOI	J_c = [(dc * b1^3 / 12) + (b1 * dc^3 / 12) + (b1 * dc * (b1 / 2 - c)^2] + (b1	J_c =	8.066E+05	in^4	
Moment Fraction transferred by — flexure:	γ_f = 1 / (1 + 2 / 3 * √ (b1 / b2))	γ_f =	0.63		
Moment Fraction transferred by — eccentricity of shear:	γ_v = 1 - γf	γ_v =	0.37		
Bearing Pressure Slope:	q_s = qa / Weff	q_s =	0.260	kcf	
Average Bearing Pressure:	$q_{a.pl}$ = ((Weff - b1) * qs + qa) / 2	$q_{a.pl}$ =	2.717	ksf	
Shear Force at Section:	V_{n_pier} = C - qa.pl * (b1 * b2)	V_{n_pier} =	234.785	kips	
Slab Moment:	M_{sc} = Sl * (D - T + E) + Vn_pier * e	M_{sc} =	359.25	ft-kips	
Required shear: φs = 0.75 [ACI 21.2.1]	= (Vn_pier / b0 * dc) + (γv * Msc* c / Jc)		139.87	psi	
Available shear: [ACI 22.6.5.2]	= φs * MIN(4*λ*√(Fc) , (2+(4/β))*λ*√(Fc) , (2+(αs*dc/bo))*λ*√(Fc))		201.246	psi	
	Check V_{c2} = 201.25 psi >=	V_{n2} =	139.87	psi	**OK**
Moment transfered: (Pier 1)	M_{n1} = γf * Msc	M_{n1} =	157.755	ft-kips	
Effective Beam Width:	w_{eff1} = deq + 1.5 * T + MIN(1.5 * T , (W - w\ * SIN(60) - deq) / 2)	w_{eff1} =	7.159	ft	
	A_{st_p1}' = Mn1 / (0.9 * Fy * dc)	A_{st_p1}' =	2.397	in^2	
	a_{p1} = Ast_p1' * Fy / (β * F'c * weff1)	a_{p1} =	0.451	in	
Required steel:	$A_{st\_p\_st1}$ = Mn1 / (Fy * (dc - ap1 / 2))	$A_{st\_p\_st1}$ =	2.191	in^2	
Required steel in entire mat:	$A_{st\_p\_ste1}$ = Ast_p_st1 * W / weff1	$A_{st\_p\_ste1}$ =	8.723	in^2	
Moment transfered: (Pier 2 or 3)	M_{n2} = γf * Msc (Controlling Case: Corner.)	M_{n2} =	226.179	ft-kips	
Effective Beam Width:	w_{eff2} = deq + 1.5 * T + MIN(1.5 * T , (W - w\ - deq) / 2)	w_{eff2} =	6.829	ft	
	A_{st_p2}' = Mn2 / (0.9 * Fy * dc)	A_{st_p2}' =	3.437	in^2	
	a_{p2} = Ast_p2' * Fy / (β * F'c * weff2)	a_{p2} =	0.678	in	
Required steel:	$A_{st\_p\_st2}$ = Mn2 / (Fy * (dc - ap2 / 2))	$A_{st\_p\_st2}$ =	3.166	in^2	
Required steel in entire mat:	$A_{st\_p\_ste2}$ = Ast_p_st2 * W / weff2	$A_{st\_p\_ste2}$ =	13.214	in^2	
			Controlling Case		*Pier 2: Corner*

Two way beam action at d_i / 2 from tower (ACI 22.6.5)- Uplift

Pier Reinforcement Dia	di_T =di -2*cc-2*db_t - 1*db_c	di_T =	28.125	in	
Eq. Square Column (ACI 8.10.1.3 & 22.6.4.1.2)	d_{eq_T} =dprebar / 2 * √π	d_{eq_T} =	24.93	in	
Critical Section Length:	b_{1_T} = deq_T + dc	b_{1_T} =	39.550	in	
Critical Section Perimeter:	b_{o_T} = 4 * (deq + dc)	b_{o_T} =	158.20	in	
Polar MOI	J_{c_T} = (b1_T^3 * dc / 6)+ (b1_T * d ^3 / 6)+(dc * b1_T * b2_T^2 / 2)	J_{c_T} =	623801.882	in^4	
Shear Force at Section:	$V_{n\_pier\_T}$ = U	$V_{n\_pier\_T}$ =	291.84	kips	
Required shear: φs = 0.75 [ACI 21.2.1]	= (Vn_pier_T / b1_T * dc) + (γv * Msc* c_T / Jc_T)		152.119	psi	
Available shear: [ACI 22.6.5.2]	' = φs * MIN(4*λ*√(Fc) , (2+(4/β))*λ*√(Fc) , (2+(αs*dc/bo))*λ*√(Fc))		201.25	psi	
	Check V_{t2} = 201.25 psi >=	V_{nt2} =	152.12	psi	**OK**

Column Compression Capacity:

Compression reaction: φc = 0.65 [ACI 21.2.2.2]	P_c = φc * 0.85 * F'c * (di^2 / 4 * π)	P_c =	2530.7	kips	
	Check P_c = 2530.69 kips >=	C =	328.70	kips	**OK**

Pier Reinforcement:

Cross-sectional area:	A_g = di^2 * π / 4	A_g =	1017.88	in^2	
Min. area of steel (pier): [ACI 10.6.1.1] & [ACI 10.3.1.2]	A_{st_c} =Ag * 0.005	A_{st_c} =	5.09	in^2	
Cage circle:	d_o = di - 2 * cc - db_c - 2 * db_t	d_o =	28.13	in	
Rebar:	s_c = 7 ; d_{b_c} = 0.875 in				
	m_c = 13 ; A_{b_c} = 0.6 in^2				
	A_{s_c} = Ab_c * m_c	A_{s_c} =	7.80	in^2	
	Check A_{s_c} = 7.80 in^2 >=	A_{st_c} =	5.09	in^2	**OK**
Actual moment:	M_{max} = (D - T + E) * S / 2	M_{max} =	123.65	ft-kips	
Pier moment capacity:	M_{allow} per Maxmomnt.xls (see attached)	M_{allow} =	152.60	ft-kips	
	Check M_{allow} = 152.60 ft-kips >=	M_{max} =	123.65	ft-kips	**OK**
Bar separation:	B_{s_c} = (do * π) / m_c - db_c	B_{s_c} =	5.92	in	
	Check 17.13 >= B_{s_c} = 5.92 in	>=	4"		**OK**

Vertical Rebar Development Length:

Reinforcement location: *[ACI 25.4.2.4]*	ψ_{t_c} = if the space under the rebar > 12 in, use 1.3, else use 1.0					ψ_{t_c} =	1.3	
Epoxy coating: *[ACI 25.4.2.4]*	ψ_{e_c} = if epoxy-coated bars are not used, use 1.0; but if epoxy-coated bars are used, then if Bs < 6 * db or cc < 3 * db, use 1.5, else 1.2					ψ_{e_c} =	1.0	
Max term: *[ACI 25.4.2.4]*	$\psi_t\psi_{e\_c}$ = the product of ψt & ψe, need not be taken larger than 1.7					$\psi_t\psi_{e\_c}$ =	1.3	
Reinforcement size: *[ACI 25.4.2.4]*	ψ_{s_c} = if the bar size is 6 or less, then use 0.8, else use 1.0					ψ_{s_c} =	1	
Light weight concrete: *[ACI 25.4.2.4]*	$\lambda_{\_c}$ = if lightwieght concrete is used, 0.75, else use 1.0					$\lambda_{\_c}$ =	1.0	
Spacing/cover: *[ACI 25.4.2.4]*	$c_{\_c}$ the smaller of: half the bar spacing or the concrete edge distace					$c_{\_c}$ =	3.40	in
Transverse bars: *[ACI 25.4.2.3]*	k_{tr_c} = 0 in (per simplification)					k_{tr_c} =	0	in
Max term: *[ACI 25.4.2.3]*	$c_{\_c}'$ = MIN(2.5, (c_c + ktr_c) / db_c)					$c_{\_c}'$ =	2.500	
Excess reinforcement: *[ACI 25.4.10.1]*	R_c = Mmax / Mallow					$R_{\_c}$ =	0.81	
Development (tensile): [ACI 25.4.2.2]	$L_{dt}'_{\_c}$ = (3 / 40) * (Fy / λ_c * √(F'c)) * (ψtψe_c * ψs_c * R_c / c_c') * db_c					$L_{dt}'_{\_c}$ =	24.73	in
Minimum length: *[ACI 25.4.2.1]*	L_{d_min} = 12 inches					L_{d_min} =	12.0	in
Development length:	L_{dt_c} = MAX(Ld_min, Ldt'_c)					L_{dt_c} =	24.73	in
Confining Reinforcement: *[ACI 25.4.9.3]*	ψ_{r_c} = 1					ψ_{r_c} =	1.00	
Development (comp.): [ACI 25.4.9.2]	$L_{dc}'_{\_c}$ = Fy *ψr_c * db_c * R_c / (50 * λ_c * √(F'c))					$L_{dc}'_{\_c}$ =	12.68	in
	$L_{dc}"_{\_c}$ = 0.0003 * db_c * Fy * ψr_c * R_c					$L_{dc}"_{\_c}$ =	12.76	in
Development length:	L_{dc_c} = MAX(8, Ldc'_c, Ldc"_c)					L_{dc_c} =	12.76	in
Length available in pier:	L_{vc} = D - T + E - cc					L_{vc} =	66.0	in
	Check	L_{vc} =	66.0	in	>=	L_{dt_c} =	24.7	in **OK**
	Check	L_{vc} =	66.0	in	>=	L_{dc_c} =	12.8	in **OK**
Length available in pad:	L_{vp} = T - cc					L_{vp} =	15.0	in
	Check	L_{vp} =	15.0	in	>=	L_{dt_c} =	24.7	in **HOOKS**
	Check	L_{vp} =	15.0	in	>=	L_{dc_c} =	12.8	in **OK**

Vertical Rebar Hook Ending:

Bar size & clear cover: [ACI 25.4.3.2]	ψ_{t_h} = if the bar size <= 11 and side cc >= 2.5", use 0.7, else use 1.0					ψ_{t_h} =	0.7	
Epoxy coating: [ACI 25.4.3.1]	ψ_{e_h} = if epoxy-coated bars are used, use 1.2, else use 1.0					ψ_{e_h} =	1.0	
Light weight concrete: [ACI 25.4.3.1]	λ_h if lightwieght concrete is used, 0.75, else use 1.0					$\lambda_{\_h}$ =	1.0	
Confining Reinforcement: *[ACI 25.4.3.2]*	ψ_{r_h} = 1					ψ_{r_h} =	1.00	
Development (hook): [ACI 25.4.3.1]	L_{dh}' = (Fy * ψt_h * ψe_h * ψr_h * R_c / (50 * λ_h * √(F'c))) * db_c					L_{dh}' =	8.9	in
Minimum length: [ACI 25.4.3.1]	L_{dh_min} the larger of: 8 * db or 6 in					L_{dh_min} =	7.0	in
Development length:	L_{dh} = MAX(Ldh_min, Ldh')					L_{dh} =	8.9	in
	Check	L_{vp} =	15.0	in	>=	L_{dh} =	8.9	in **OK**
Hook tail length:	L_{h_tail} 12 * db beyond the bend radius					L_{h_tail} =	14.0	in
Length available in pad:	L_{h_pad} = (W - w' - di) / 2					L_{h_pad} =	21	in
	Check	L_{h_pad} =	21.0	in	>=	L_{dh_tail} =	14.0	in **OK**

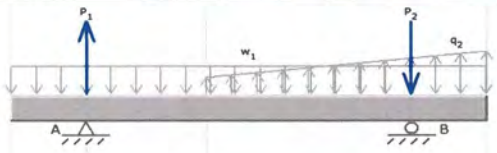
Pier Ties:

Minimum size: [ACI 25.7.2.2]	s_{t_min} =IF(s_c <= 10, 3, 4)			s_{t_min} =	3	
z factor:	z = 0.5 if the seismic zone is less than 2, else 1.0			z =	0.5	
Tie parameters:	s_t = 4	d_{b_t} =	0.5 in			
	m_t = 7	A_{b_t} =	0.2 in^2			
Allowable tie spacing:						
per vertical rebar [ACI 25.7.2.1] & [ACI 18.4.3.3]	$B_{s\_t\_max1}$ = 16 * db_c			$B_{s\_t\_max1}$ =	14	in
per tie size [ACI 25.7.2.1] & [ACI 18.4.3.3]	$B_{s\_t\_max2}$ = 48 * db_t			$B_{s\_t\_max2}$ =	24	in
per pier diameter [ACI 25.7.2.1] & [ACI 18.4.3.3]	$B_{s\_t\_max3}$ = di			$B_{s\_t\_max3}$ =	36	in
per seismic zone [ACI 25.7.2.1] & [ACI 18.4.3.3]	$B_{s\_t\_max4}$ = 12" in active seismic zones, else 18"			$B_{s\_t\_max4}$ =	18	in
	$B_{s\_t\_max}$ = MIN(Bs_t_max1, Bs_t_max2, Bs_t_max3, Bs_t_max4)			$B_{s\_t\_max}$ =	14	in
	m_{t_min} = (D - T + E) / Bs_t_max + 2			m_{t_min} =	6.9	
	Check m_t = 7.0		>=	m_{t_min} =	6.9	**OK**

Anchor Steel:

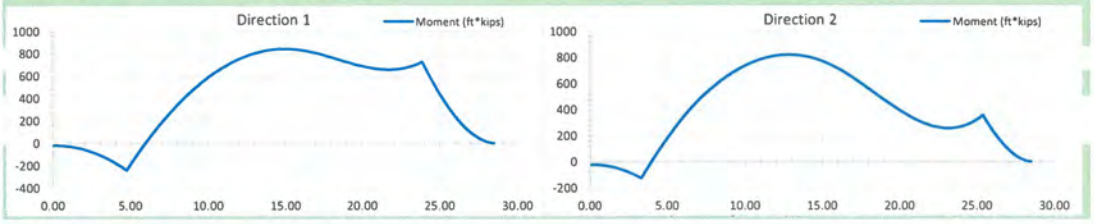
A/S parameters:	P_{as} = 109881		L_{as} = 80 in				
	d_{as} = 1.25 in		E_{as} = 71.50 in				
Development available:	L_{das} *per Anchor Bolts (see attached)*			L_{das} =	61.31	in	
Required development:	L_{das_min} *per Anchor Bolts (see attached)*			L_{das_min} =	24.73	in	
	Check L_{das} = 61.31 in		>=	L_{das_min} =	24.73	in	**OK**
To bottom rebar grid:	E_{as_max} =D + E - cc - 2 * db_p			E_{as_max} =	82.5	in	
	Check E_{as} = 71.50 in		<=	E_{as_max} =	82.50	in	**OK**
To top rebar grid:	rebar @ = D + E - T + cc			rebar @	72.00	in	
	Check 72 + 6 in >=	E_{as} = 71.50 in	or	<=	72 in		**OK**
Min. cage dia:	d_{o_min} *per ancsteel.xls (see attached)*			d_{o_min} =	23.75	in	
	Check d_o = 28.13 in		>=	d_{o_min} =	23.75	in	**OK**

Pad Reactions:



Effective length in bearing: 13.06 ft
Effective length not bearing: 15.44 ft

Total Beam Length:	B_{L2_1} =W	B_{L2_1}=	28.5	ft
Location of Left Support:	S_{L2_1} =O	S_{L2_1}=	4.724	ft
Location of Right Support:	S_{R2_1} =W-O	S_{R2_1}=	23.78	ft
MDSolids Geometry Input (Option 2)				
Total Beam Length:	B_{L2_2} =W	B_{L2_2}=	28.5	ft
Location of Left Support:	S_{L2_2} =(W - w\) / 2	S_{L2_2}=	3.25	ft
Location of Right Support:	S_{R2_2} =S_{L1_2} + w\	S_{R2_2}=	25.25	ft



MDSolids Design Result

Direction 1:	M_{max2_1} =M_{max2_1}	M_{max2_1}=	843.21	ft*kips
Direction 2:	M_{max2_2} =M_{max2_2}	M_{max2_2}=	819.48	ft*kips
Diagonal :	M_{max2_diag} =M_{max1_diag}	M_{max2_diag}=	1317.68	ft*kips
Max moment:	M_{maxp} =Max(Mmax2_1,Mmax2_2, Mmax2_diag)	M_{maxp}=	1317.68	ft*kips
Required moment: *φt = 0.9 [ACI 21.2.2.2]*	M_n = Mmaxp / φt	M_n =	1464.08	ft*kips

Pad Reinforcement:

	β = IF(F'c <= 4000, 0.85, IF(F'c >= 8000, 0.65, 0.85 - (F'c - 4000) * 0.05))					β =	0.825	
Effective width:	W_e = W					W_e =	28.500	ft
	A_{st_p}' = Mn / (0.9 * Fy * dc)					A_{st_p}' =	22.246	in^2
	a_p = Ast_p' * Fy / (β * F'c * We)					a_p =	1.05	in
Required steel:	$A_{st\_p\_st}$ = Mn / (Fy * (dc - ap / 2)) * (W / We)					$A_{st\_p\_st}$ =	20.768	in^2
Shrinkage:	ρ_{sh} = IF(Fy >= 60000, 0.0018, 0.002)					ρ_{sh} =	0.0018	
	$A_{st\_p\_sh}$ = psh * W * T / 2					$A_{st\_p\_sh}$ =	5.540	in^2
	A_{st_p} = MAX(Ast_p_st, Ast_p_sh, Ast_p_ste1, Ast_p_ste2)					A_{st_p} =	20.768	in^2
Rebar:	s_p = 6	*Equally spaced, top and*		d_{b_p} =	0.75 in			
	m_p = 48	*bottom, both directions.*		A_{b_p} =	0.44 in^2			
	A_{s_p} = Ab_p * m_p					A_{s_p} =	21.12	in^2
	Check	A_{s_p} = 21.12 in^2	>=	A_{st_p} =	20.77 in^2			**OK**
Bar separation:	B_{s_p} = (W - 2 * cc - db_p) / (m_p - 1) - db_p					B_{s_p} =	6.38	in
	Check	17.25 >=	B_{s_p} =	6.38 in		>=	4"	**OK**

Pad Development Length:

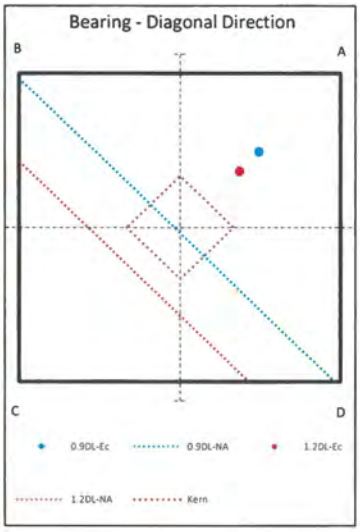
Reinforcement location: *[ACI 25.4.2.4]*	ψ_{t_p} = if the space under the rebar > 12 in, use 1.3, else use 1.0	ψ_{t_p} =	1
Epoxy coating: *[ACI 25.4.2.4]*	ψ_{e_p} = if epoxy-coated bars are not used, use 1.0; but if epoxy-coated bars are used, then if Bs < 6 * db or cc < 3 * db, use 1.5, else 1.2	ψ_{e_p} =	1.0
Max term: *[ACI 25.4.2.4]*	$\psi_t\psi_{e\_p}$ = the product of ψt & ψe, need not be taken larger than 1.7	$\psi_t\psi_{e\_p}$ =	1
Reinforcement size: *[ACI 25.4.2.4]*	ψ_{s_p} = if the bar size is 6 or less, then use 0.8, else use 1.0	ψ_{s_p} =	0.8
Light weight concrete: *[ACI 25.4.2.4]*	λ_p = if lightwieght concrete is used, 0.75, else use 1.0	λ_p =	1.0
Spacing/cover: *[ACI 25.4.2.4]*	c_p = the smaller of: half the bar spacing or the concrete edge distace	c_p =	3.38 in
Transverse bars: *[ACI 25.4.2.3]*	k_{tr_p} = 0 in (per simplification)	k_{tr_p} =	0 in
Max term: *[ACI 25.4.2.3]*	c_p' = MIN(2.5, (c_p + ktr_p) / db_p)	c_p' =	2.500
Excess reinforcement: *[ACI 25.4.10.1]*	R_p = Ast_p / As_p	R_p =	0.98
Development (tensile): *[ACI 25.4.2.2]*	L_d = (3 / 40) * (Fy / λ_p * √(F'c)) * ψtψe_p * ψs_p * R_p * db_p / c_p'_u	L_{dp}' =	15.8 in
Minimum length: *[ACI 25.4.2.1]*	L_{d_min} = 12 inches	L_{d_min} =	12.0 in
Development length:	L_{dp} = MAX(Ld_min, Ldp')	L_{dp} =	15.8 in
Length available in pad:	L_{pad} = (W / 2 - w' / 2) - cc	L_{pad} =	36.0 in
	Check L_{pad} = 36.00 in	>=	L_{dp} = 15.83 in **OK**

UNIT BASE FOUNDATION DIAGONAL BEARING CHECK

Horvath Towers **U- 22.0 230**

HV1574 Shrewsberry, KY **A- 553967**

		Load Case - DL 1.2	Load Case - DL 0.9	
Moment of Inertia of Mat	MOI	54979.17	54979.17	ft^4
Total Factored Weight	P'	841.45	631.09	kips
Load Eccentricity	e	7.42	9.90	ft
Bearing at Corner A	B_{c_a}	3.32	3.07	ksf
Bearing at Corner B	B_{c_b}	1.04	0.78	ksf
Bearing at Corner C	B_{c_c}	-1.25	-1.51	ksf
Bearing at Corner D	B_{c_d}	1.04	0.78	ksf
Initial Location of Neutral Axis from C	NA_{c_ini}	11.03	13.31	ft
Calculated Location of Neutral Axis from C	NA_{c_cal}	14.39	19.79	ft
MOI for Effective Bearing Area	MOI	74804.86	29518.14	ft^4
Distance to Point Load from NA	L_p	13.18	10.26	ft
Effective Length in Bearing along AB & AD	W_{eff}	28.50	28.50	ft
Total Vol.	Vol_{tot}	841.45	631.09	kips
Difference		0.0000	-0.0008	kips
		ok	ok	
Adjusted Bearing at A	$B_{c\_a\_adj}$	3.8433	4.4988	ksf
Adjusted Bearing at B & D	$B_{c\_bd\_adj}$	0.85	0.08	ksf
Overburden Pressure	q_{lobp}	0.7425	0.7425	ksf
Maximum Diagonal Bearing Pressure	$B_{c\_dia\_max}$	3.1008	3.7563	ksf
Bearing Available	$B_c * \varphi r$	9.0000	9.0000	ksf
Check		**OK**	**OK**	



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

Loading (negative for compression)		
Axial load =	291.84	kips

Foundation		
Concrete		
Pier diameter =	3.00	ft
Pier area =	1017.9	in^2
Reinforcement		
Clear cover =	3.00	in
Cage diameter =	2.34	ft
Bar size =	7	
Bar diameter =	0.875	in
Bar area =	0.601	in^2
Number of bars =	13	

Material Strengths			
Concrete compressive strength =	4500	psi	
Reinforcement yield strength =	60000	psi	
Modulus of elasticity =	29000	ksi	
Reinforcement yield strain =	0.00207		(per ACI 10.3.5 - OK)
Limiting compressive strain =	0.003		

Seismic	
SDC =	A
Are hooks required?	no

Minimum Area of Steel

Required area of steel =	5.09	in^2	
Actual area of steel =	7.82	in^2	OK
Bar spacing =	6.37	in	

Axial Loading

Load factor =	1.00		
Reduction factor =	0.65575	(per ACI 9.3.1 & 2)	0.6557471
Factored axial load =	291.84	kips	

Neutral Axis

Distance from extreme edge to neutral axis =	3.37	in	
Equivalent compression zone factor =	0.825	(per ACI 10.2.7.3)	
Distance from extreme edge to Equivalent compression zone factor =	2.78	in	
Distance from centroid to neutral axis =	14.63	in	

Compression Zone

Area of steel in compression zone =	0.00	in^2	
Angle from centroid of pier to intersection of equivalent compression zone and edge of pier =	32.27	deg	
Area of concrete in compression =	36.20	in^2	36.200389
Force in concrete = 0.85 * f'c * (Acc - steel in comp zone) =	138.47	kips	(per ACI 10.3.6.2)
Total reinforcement forces =	-430.31	kips	
Factored axial load =	291.84	kips	
Force in concrete =	-138.47	kips	
Sum of the forces in concrete =	0.00	kips	OK

Maximum Moment

First moment of the concrete area in compression about the centoid =			591.51	in^3
Distance between centroid of concrete in compression and centroid of pier =			16.34	in
Moment of concrete in compression =	2262.54	in-kips		
Total reinforcement moment =	529.98	in-kips		
Nominal moment strength of column =	2792.52	in-kips		
Factored moment strength of column =	1831.19	in-kips	152.60	ft-kips

Maximum allowable moment of the pier =	152.60	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	-14.63	-15.22	-0.01303	0.00	-36.08	0.00
2	27.69	6.54	-8.10	-8.69	-0.00721	0.00	-36.08	-235.78
3	55.38	11.57	-3.06	-3.65	-0.00272	0.00	-36.08	-417.55
4	83.08	13.96	-0.67	-1.26	-0.0006	0.00	-10.42	-145.44
5	110.77	13.15	-1.48	-2.07	-0.00132	0.00	-23.02	-302.64
6	138.46	9.33	-5.31	-5.90	-0.00472	0.00	-36.08	-336.44
7	166.15	3.37	-11.27	-11.86	-0.01003	0.00	-36.08	-121.42
8	193.85	-3.37	-18.00	-18.59	-0.01602	0.00	-36.08	121.42
9	221.54	-9.33	-23.96	-24.55	-0.02133	0.00	-36.08	336.44
10	249.23	-13.15	-27.78	-28.37	-0.02474	0.00	-36.08	474.39
11	276.92	-13.96	-28.59	-29.18	-0.02546	0.00	-36.08	503.66
12	304.62	-11.57	-26.20	-26.79	-0.02333	0.00	-36.08	417.55
13	332.31	-6.54	-21.17	-21.76	-0.01885	0.00	-36.08	235.78

DEVELOPMENT LENGTH CHECK OF PIER REINFORCEMENT

Foundation:	Pier diameter =	3.0	ft	Cover between side of pier and cage =	3.00	in.
	Cage diameter =	2.34	ft	Cover between top of pier and cage =	3.00	in.
	Rebar size =	7		Compressive strength of concrete =	4500	psi
	Number of bars =	13		Rebar yield strength =	60000	psi
	Clear spacing =	5.92	in.			
	Are there hooks?	n				
	Check Compression?	n				
Anchor Steel:	Part number:	109881		Actual Bending Moment =	123.65	ft-kips
	Embedment length =	71.5	in.	Allowable Bending Moment =	152.60	ft-kips
	Bolt Diameter =	1.25		Excess Reinforcement Ratio =	0.810	
Anchor Plate:	Part number:	281259				
	Plate width =	17.75	in.			
	Required development length (compression) =	999.00	in.			
	Required development length (tension) =	30.52	in.			
	Required development length (tension) =	24.73	in.	(reduced)		
	Available development length =	61.313	in.			

OK

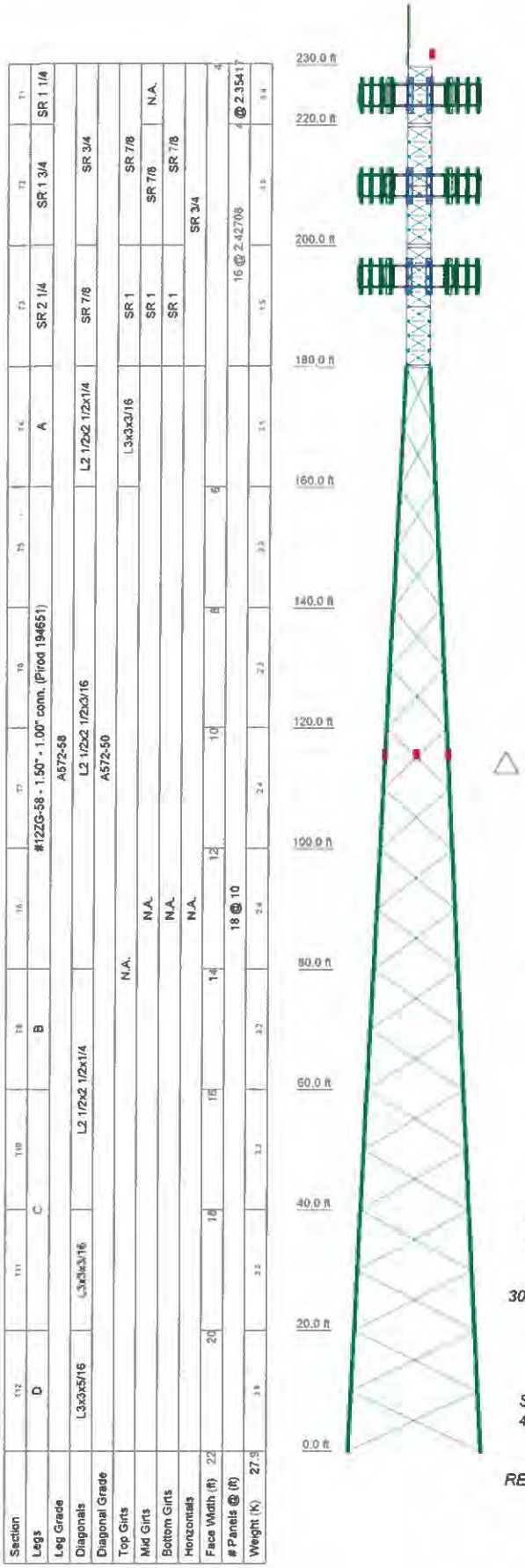
The length available in the pier for the development of the vertical reinforcement exceeds the required length (ACI 318-14, section 25.4).

CHECK EMBEDMENT PLATE CLEARANCE IN THE PIER

Foundation:	Pier diameter =	3.0	ft	Cover between side of pier and cage =	3.00	in.
	Cage diameter =	2.34375	ft	Minimum cover between A/S and cage =	3.00	in.
Anchor Steel:	Part number:	109881		Angle of anchor steel in foundation =	0	degrees
	Embedment length =	71.5	in.			
Anchor Plate:	Part number:	281259				
	Largest plate width =	17.75	in.			
	Bolt Diameter =	1.25	in.			
	Minimum cage diameter =	23.75	in.			
	Actual cage diameter =	28.125	in.			

OK

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



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5/8" x 10' lightning rod	230	130 sq.ft. EPA	195
Beacon	230	OB light	115
208 sq.ft. EPA	225	OB light	115
130 sq.ft. EPA	210	OB light	115

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	C	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)
B	#12ZG-58 - 1.75" - 1.00" conn.-TR1-(Pirod 195213)	D	#12ZG-58 BASE - 1.75" - 1.00" conn.(Pirod 281212)

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-58	58 ksi	75 ksi	A572-50	50 ksi	65 ksi

TOWER DESIGN NOTES

1. Tower is located in Grayson County, Kentucky.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 105 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 Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. A Ka factor of 0.80 has been applied to the Future EPA loading provided for shielding. Ka = 1 for top load
9. TOWER RATING: 97.7%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE
DOWN: 321 K
SHEAR: 29 K

UPLIFT: 285 K
SHEAR: 25 K

AXIAL 137 K
SHEAR 6 K
MOMENT 966 kip-ft
TORQUE 1 kip-ft
30 mph WIND - 0.7500 in ICE

AXIAL 52 K
SHEAR 42 K
MOMENT 5794 kip-ft
TORQUE 16 kip-ft
REACTIONS - 105 mph WIND

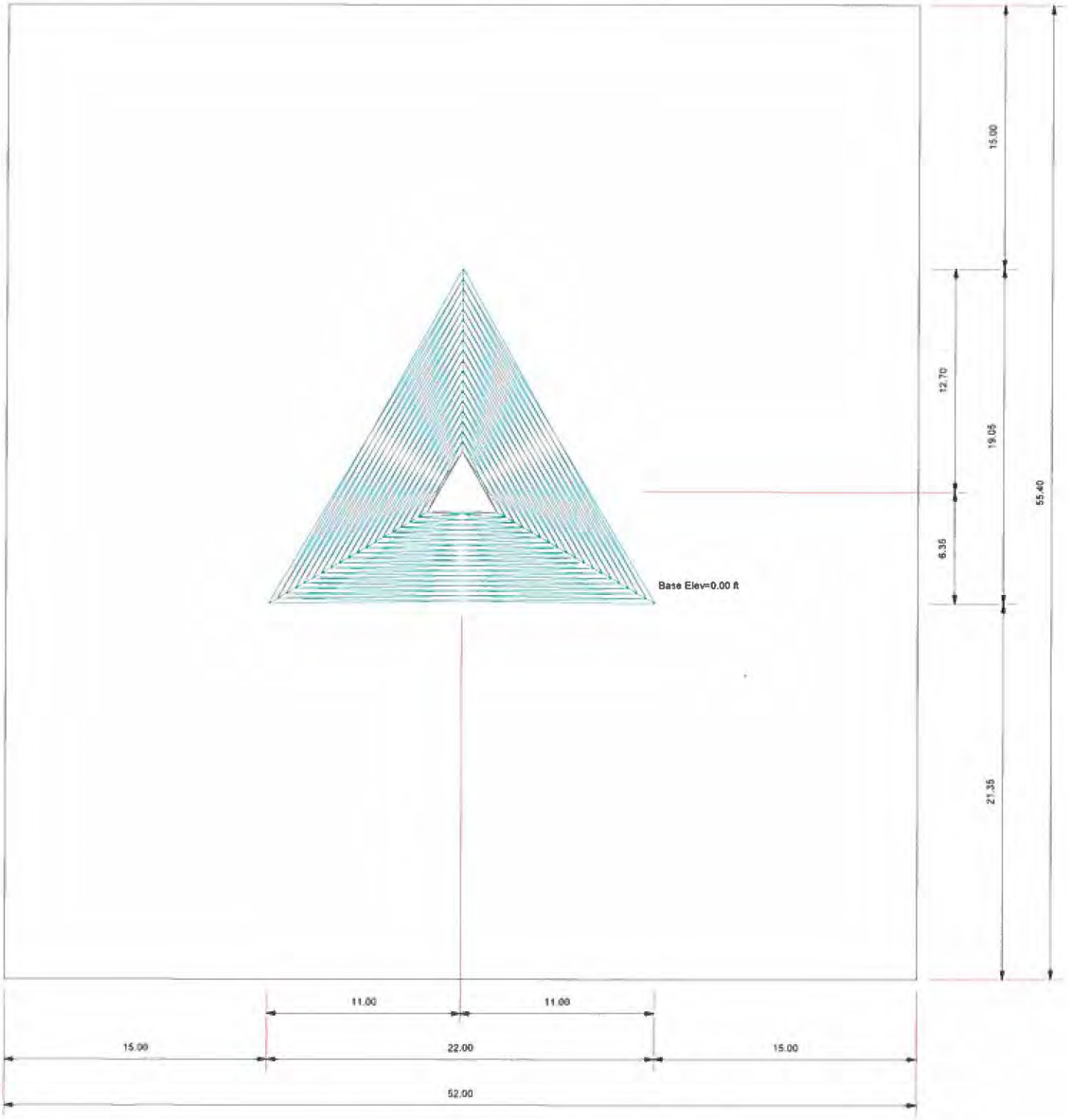
STATE OF KENTUCKY
JOSEPH PACHICARAH JACOBS
22177
LICENSED PROFESSIONAL ENGINEER

Digitally signed by Joseph P Jacobs
Date: 2022-08-22 08:56-04:00

valmont STRUCTURES
Valmont Industries, Inc. - Global Telecom
1545 Pidco Dr
Plymouth, IN
Phone: (574)936-4221
FAX: (574) 936-6458

Job: 553967			
Project: U-22 x 230' - HV1574 Shrewsberry, KY			
Client: Horvath Towers	Drawn by: Joseph	App'd:	
Code: TIA-222-G	Date: 08/19/22	Scale: NTS	
Path:		Dwg No. E-1	

Plot Plan
Total Area - 0.07 Acres



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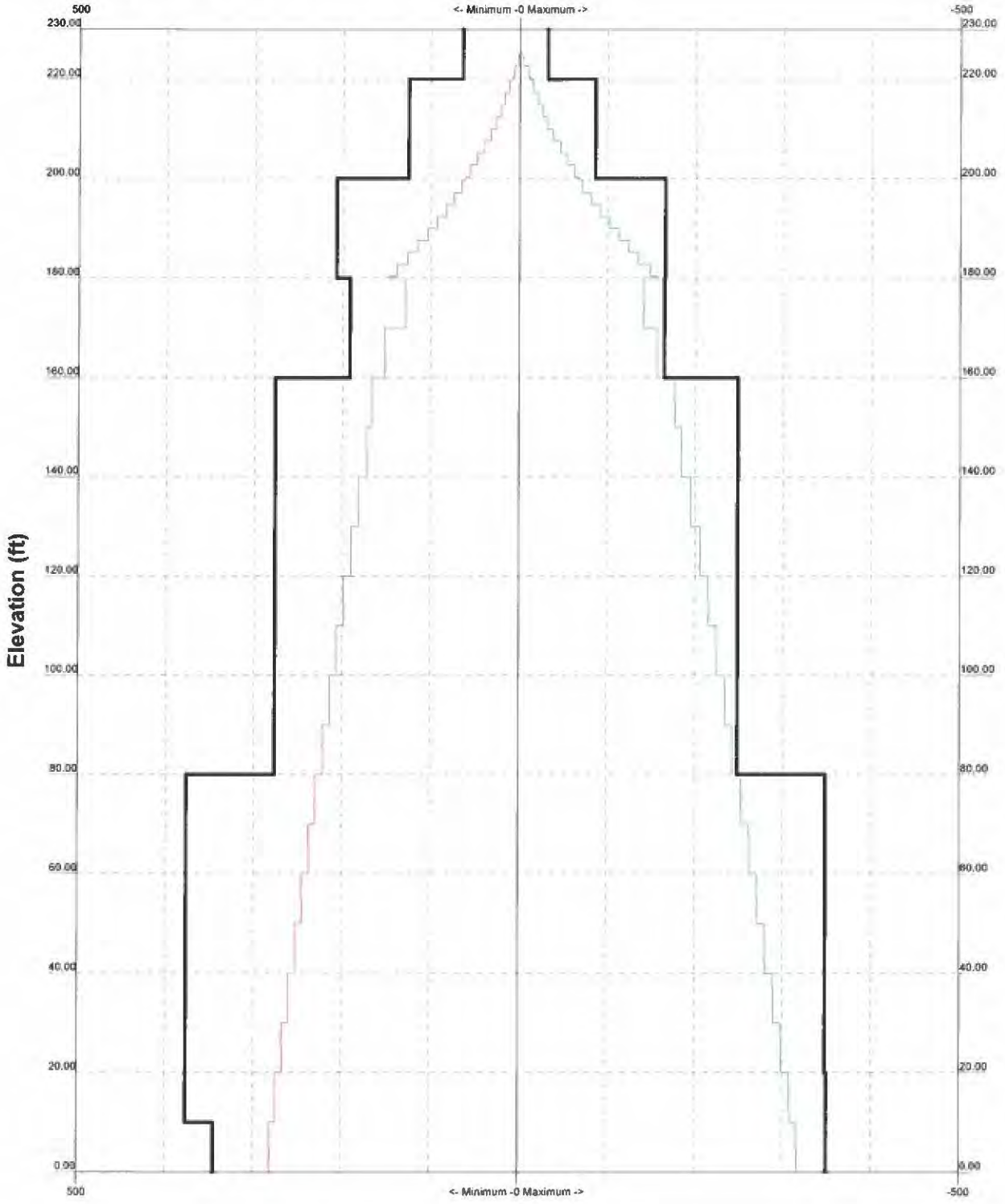
Client: Horvath Towers	Drawn by: Joseph	App'd:	
Code: TIA-222-G	Date: 08/19/22	Scale: NTS	
Path:		Dwg No. E-2	

TIA-222-G - 105 mph/30 mph 0.7500 in Ice Exposure C

Leg Capacity ——— Leg Compression (K)



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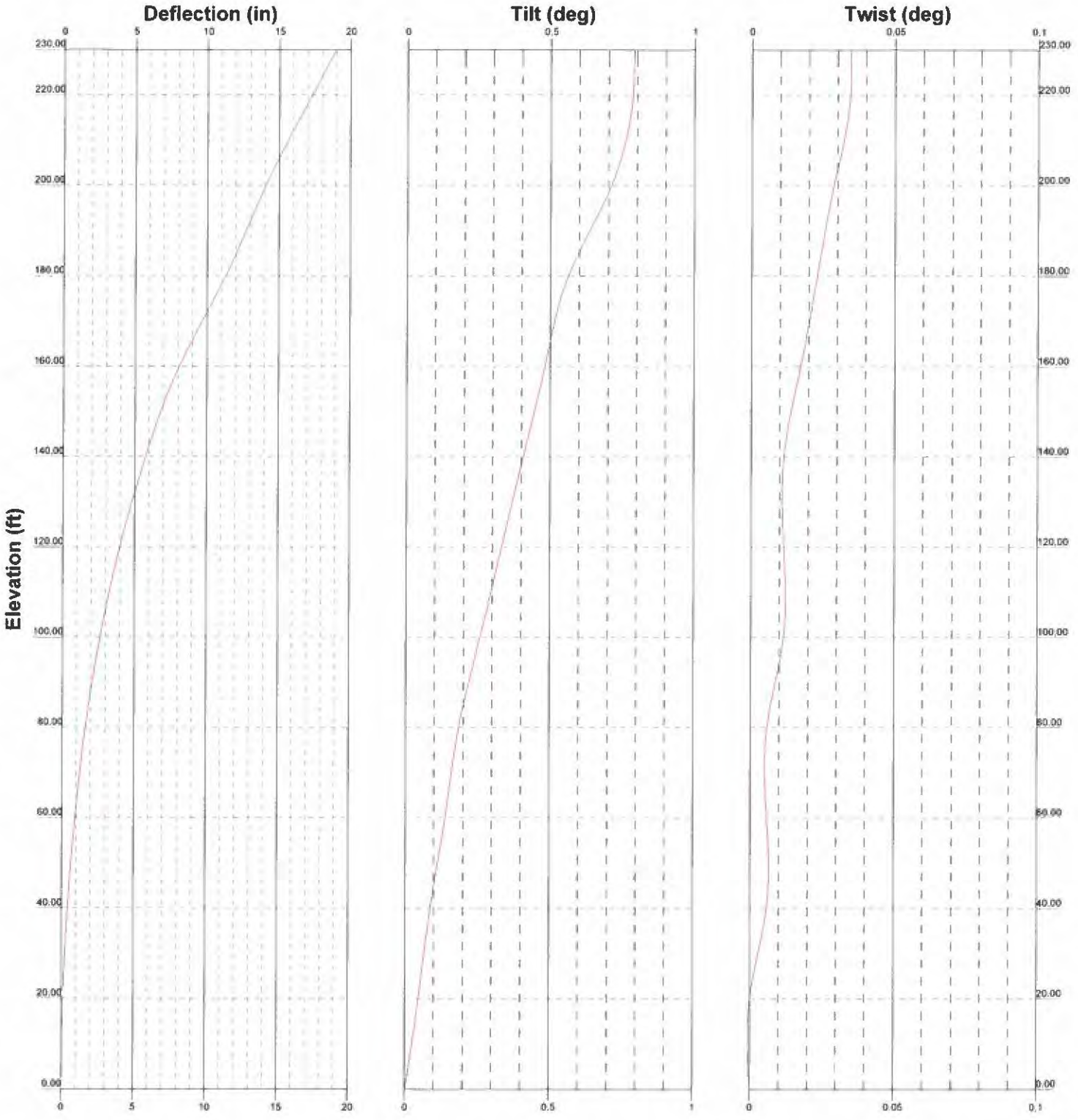
Project: *U-22 x 230' - HV1574 Shrewsberry, KY*			
Client: Horvath Towers	Drawn by: Joseph	App'd:	
Code: TIA-222-G	Date: 08/19/22	Scale: NTS	
Path:		Dwg No. E-3	

TIA-222-G - Service - 60 mph

Maximum Values



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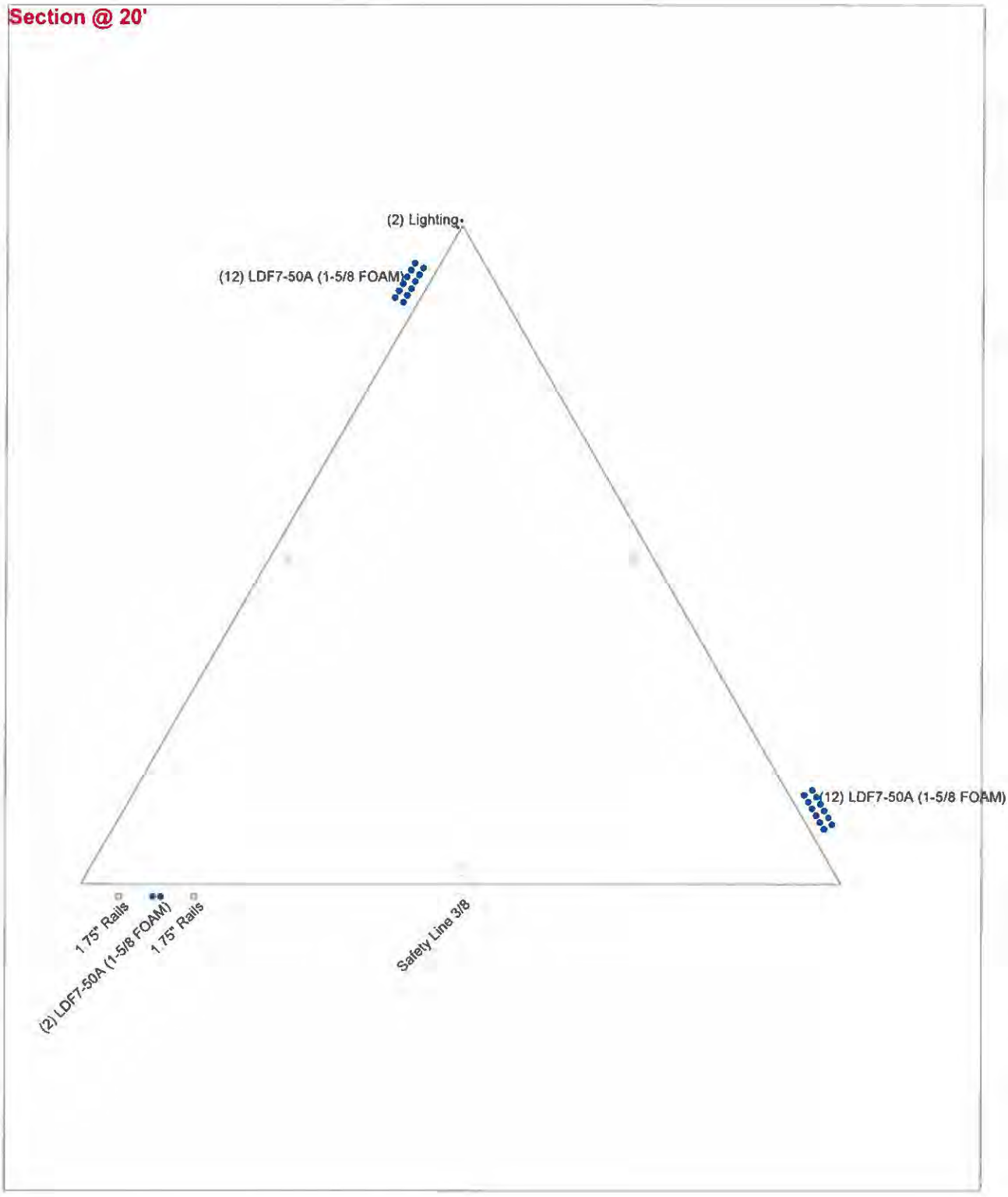
Job: 553967			
Project: U-22 x 230' - HV1574 Shrewsberry, KY			
Client: Horvath Towers	Drawn by: Joseph		App'd:
Code: TIA-222-G	Date: 08/19/22		Scale: NTS
Path:			Dwg No. E-5

Feed Line Plan
20'

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

Section @ 20'



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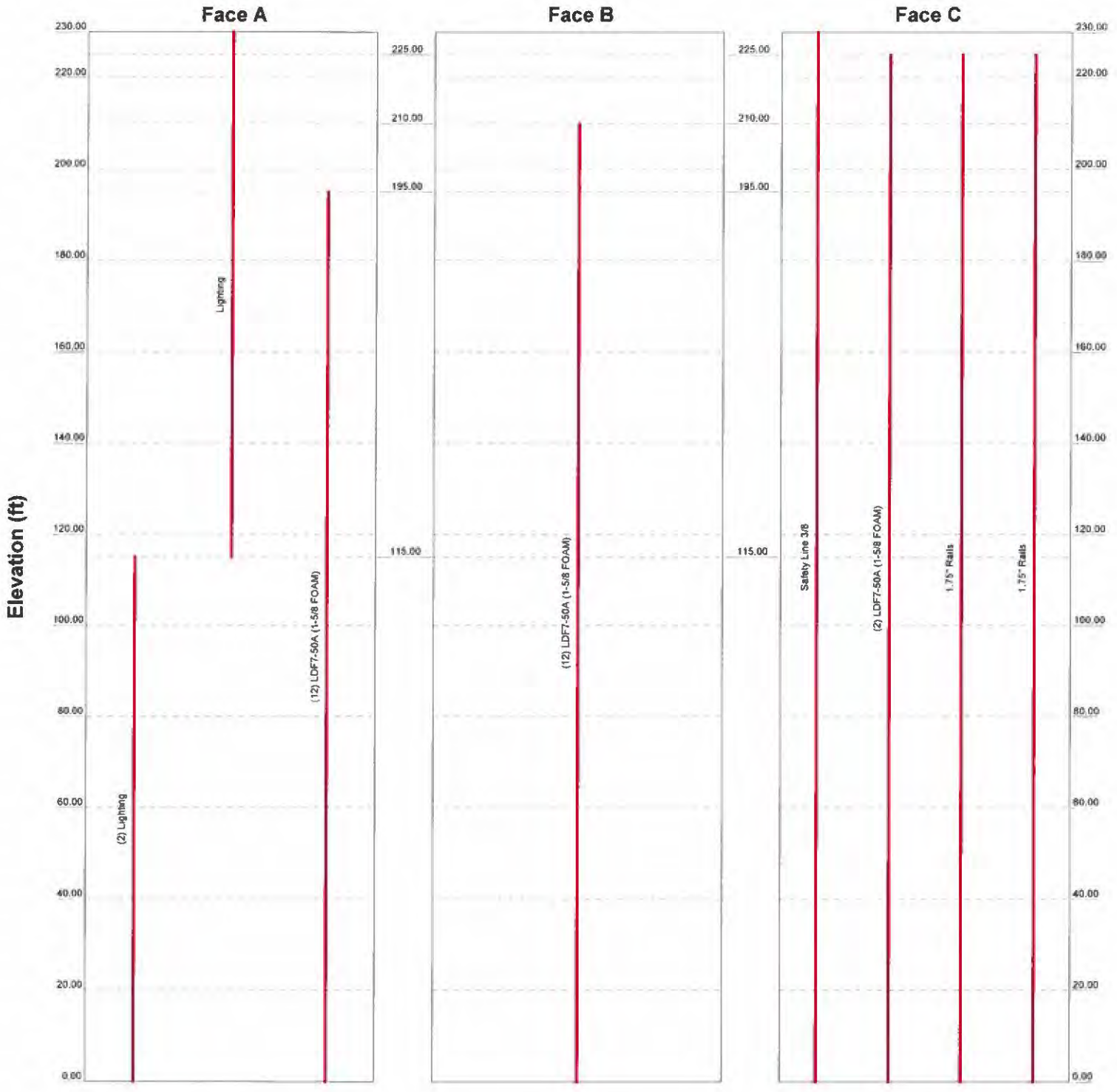
Job: 553967			
Project: U-22 x 230' - HV1574 Shrewsberry, KY			
Client: Horvath Towers	Drawn by: Joseph	App'd:	
Code: TIA-222-G	Date: 08/19/22	Scale: NTS	
Path:		Dwg No. E-7	

Feed Line Distribution Chart
0' - 230'

Round | Flat | App In Face | App Out Face | Truss Leg



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Plymouth, IN
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FAX: (574) 936-6458

Job: 553967			
Project: U-22 x 230' - HV1574 Shrewsberry, KY			
Client: Horvath Towers	Drawn by: Joseph	App'd:	
Code: TIA-222-G	Date: 08/19/22	Scale: NTS	
Path:		Dwg No. E-7	

valmont

1545 Pidco Dr

Plymouth, IN
Phone (574)936-4221
FAX: (574) 936-6458

Job	Page
553967	1 of 63
Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

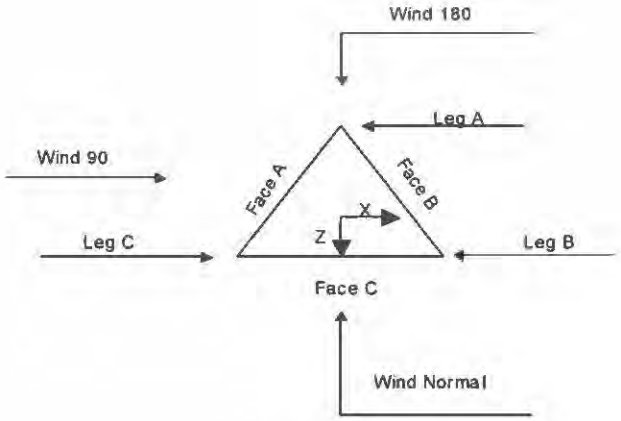
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 230.00 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 4.00 ft at the top and 22.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Grayson County, Kentucky.
ASCE 7-10 Wind Data is used.
Basic wind speed of 105 mph.
Risk Category 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.
A Ka factor of 0.80 has been applied to the Future EPA loading provided for shielding. Ka = 1 for top load.
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, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt	Use TIA-222-G Bracing Resist Exemption
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC 6D+W Combination	Poles
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	√ Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	230.00-220.00		#48 SST-58 1.25"Lx0.750"D-10'-FP-(233466)	4.00	1	10.00
T2	220.00-200.00		#48 SST-58 1.75"Lx0.750"D-20'-(246636)-TR1-FP	4.00	1	20.00
T3	200.00-180.00		#48 SST-58 2.25"Lx0.875"D-20'-(215044)-TR3-FP	4.00	1	20.00
T4	180.00-160.00		PiRod 12BDFH Truss Leg	4.00	1	20.00
T5	160.00-140.00		PiRod 12BDFH Truss Leg	6.00	1	20.00
T6	140.00-120.00		PiRod 12BDFH Truss Leg	8.00	1	20.00
T7	120.00-100.00		PiRod 12BDFH Truss Leg	10.00	1	20.00
T8	100.00-80.00		PiRod 12BDFH Truss Leg	12.00	1	20.00
T9	80.00-60.00		PiRod 12BDFH Truss Leg	14.00	1	20.00
T10	60.00-40.00		PiRod 12BDFH Truss Leg	16.00	1	20.00
T11	40.00-20.00		PiRod 12BDFH Truss Leg	18.00	1	20.00
T12	20.00-0.00		PiRod 12BDFH Truss Leg	20.00	1	20.00

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	230.00-220.00	2.35	X Brace	No	Steps	3.5000	3.5000
T2	220.00-200.00	2.43	X Brace	No	Steps	3.5000	3.5000
T3	200.00-180.00	2.43	X Brace	No	Steps	3.5000	3.5000
T4	180.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T5	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T6	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T7	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T8	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T9	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T10	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T11	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T12	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 230.00-220.00	Solid Round	1 1/4	A572-58 (58 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 220.00-200.00	Solid Round	1 3/4	A572-58 (58 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T3 200.00-180.00	Solid Round	2 1/4	A572-58 (58 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T4 180.00-160.00	Truss Leg	#12ZG-58 - 1.25" - 1.00" conn (Pirod 194434)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A572-50 (50 ksi)
T5 160.00-140.00	Truss Leg	#12ZG-58 - 1.50" - 1.00" conn (Pirod 194651)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A572-50 (50 ksi)
T6 140.00-120.00	Truss Leg	#12ZG-58 - 1.50" - 1.00" conn (Pirod 194651)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A572-50 (50 ksi)
T7 120.00-100.00	Truss Leg	#12ZG-58 - 1.50" - 1.00" conn (Pirod 194651)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A572-50 (50 ksi)
T8 100.00-80.00	Truss Leg	#12ZG-58 - 1.50" - 1.00" conn (Pirod 194651)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A572-50 (50 ksi)
T9 80.00-60.00	Truss Leg	#12ZG-58 - 1.75" - 1.00" conn -TR1-(Pirod 195213)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A572-50 (50 ksi)
T10 60.00-40.00	Truss Leg	#12ZG-58 - 1.75" - 1.00" conn (Pirod 195217)	A572-58 (58 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A572-50 (50 ksi)
T11 40.00-20.00	Truss Leg	#12ZG-58 - 1.75" - 1.00" conn (Pirod 195217)	A572-58 (58 ksi)	Equal Angle	L3x3x3/16	A572-50 (50 ksi)
T12 20.00-0.00	Truss Leg	#12ZG-58 BASE - 1.75" - 1.00" conn (Pirod 281212)	A572-58 (58 ksi)	Equal Angle	L3x3x5/16	A572-50 (50 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 230.00-220.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 220.00-200.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T3 200.00-180.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 180.00-160.00	Equal Angle	L3x3x3/16	A572-50 (50 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 230.00-220.00	None	Solid Round		A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 220.00-200.00	1	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T3 200.00-180.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 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	Double Angle Stitch Bolt Spacing Redundants in
T1 230.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T2 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T3 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T4 180.00-160.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T5 160.00-140.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T6 140.00-120.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T7 120.00-100.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T8 100.00-80.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T9 80.00-60.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T10 60.00-40.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T11 40.00-20.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T12 20.00-0.00	0.00	0.5000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

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
T1	Yes	Yes	1	1	1	1	1	1	1	1
230.00-220.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

[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
T4	1	0.5	0.7	1	0.5	0.7
180.00-160.00						
T5	1	0.5	0.7	1	0.5	0.7
160.00-140.00						
T6	1	0.5	0.7	1	0.5	0.7
140.00-120.00						
T7	1	0.5	0.7	1	0.5	0.7
120.00-100.00						
T8	1	0.5	0.7	1	0.5	0.7
100.00-80.00						
T9	1	0.5	0.7	1	0.5	0.7
80.00-60.00						
T10	1	0.5	0.7	1	0.5	0.7
60.00-40.00						

T11 40.00-20.00	1	0.5	0.7	1	0.5	0.7
T12 20.00-0.00	1	0.5	0.7	1	0.5	0.7

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 230.00-220.00	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
T2 220.00-200.00	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
T3 200.00-180.00	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
T4 180.00-160.00	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
T5 160.00-140.00	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
T6 140.00-120.00	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
T7 120.00-100.00	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
T8 100.00-80.00	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
T9 80.00-60.00	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
T10 60.00-40.00	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
T11 40.00-20.00	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
T12 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 Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 230.00-220.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 220.00-200.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 200.00-180.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 180.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 120.00-100.00	0.0000	0.75	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 Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T8 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 20.00-0.00	0.0000	0.75	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				K-Bracing			
	Vert Top	Horiz Top	Vert Bot.	Horiz Bot.	Vert Top	Horiz Top	Vert Bot.	Horiz Bot.
ft	in	in	in	in	in	in	in	in
T1 230.00-220.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T2 220.00-200.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 200.00-180.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T4 180.00-160.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T5 160.00-140.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T6 140.00-120.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T7 120.00-100.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T8 100.00-80.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T9 80.00-60.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T10 60.00-40.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T11 40.00-20.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T12 20.00-0.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	1 0000	2	0 6250	0	0 6250	0	0 6250	0	0 6250	0	0 6250	0	0 6250	0
230 00-220 00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2	Flange	1 2500	2	0 6250	0	0 6250	0	0 6250	0	0 6250	0	0 6250	0	0 6250	0
220 00-200 00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	1 0000	4	0 6250	0	0 6250	0	0 6250	0	0 6250	0	0 6250	0	0 6250	0
200 00-180 00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4	Flange	1 0000	6	1 0000	1	1 0000	1	1 0000	0	1 0000	0	1 0000	0	1 0000	0
180 00-160 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	0	1 0000	0
160 00-140 00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	1 0000	6	1 0000	1	0 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	
T7	Flange	1 0000	6	1 0000	1	0 0000	0	1 0000	0	1 0000	0	1 0000	0	1 0000	0
120 00-100 00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8	Flange	1 0000	6	1 0000	1	0 0000	0	1 0000	0	1 0000	0	1 0000	0	1 0000	0
100 00-80 00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9 80 00-60 00	Flange	1 2500	6	1 0000	1	0 0000	0	1 0000	0	1 0000	0	1 0000	0	1 0000	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	1 2500	6	1 0000	1	0 0000	0	1 0000	0	1 0000	0	1 0000	0	1 0000	0
60 00-40 00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11	Flange	1 2500	6	1 0000	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	
T12 20 00-0 00	Flange	1 2500	4	1 0000	1	0 0000	0	1 0000	0	1 0000	0	1 0000	0	1 0000	0
		F1554-105		A325N		A325N		A325N		A325N		A325N		A325N	

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	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	No	Ar (CaAa)	230 00 - 0 00	3 0000	0	1	1	0 0000	0 3750		0 22
Lighting	A	No	No	Ar (CaAa)	115 00 - 0 00	0 4900	0 5	2	2	1 6300 0 0000	0 8700		0 15
Lighting ***	A	No	No	Ar (CaAa)	230 00 - 115 00	0 4900	0 5	1	1	1 6300 0 0000	0 8700		0 15
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	225 00 - 0 00	3 0000	0 4	2	2	0 5200 1 0000	1 9800		0 82
LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	210 00 - 0 00	3 0000	0 4	12	6	0 5200 1 0000	1 9800		0 82
LDF7-50A (1-5/8 FOAM) ***	A	No	No	Ar (CaAa)	195 00 - 0 00	3 0000	0 4	12	6	0 5200 1 0000	1 9800		0 82
1 75" Rails	C	No	No	Af (CaAa)	225 00 - 0 00	3 0000	0 35	1	1	24 0000 1 0000	1 7500		2 85
1 75" Rails ***	C	No	No	Af (CaAa)	225 00 - 0 00	3 0000	0 45	1	1	24 0000 1 0000	1 7500		2 85

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***								

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	230.00-220.00	A	0.000	0.000	0.870	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	5.272	0.000	0.04
T2	220.00-200.00	A	0.000	0.000	1.740	0.000	0.00
		B	0.000	0.000	23.760	0.000	0.10
		C	0.000	0.000	20.337	0.000	0.15
T3	200.00-180.00	A	0.000	0.000	37.380	0.000	0.15
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T4	180.00-160.00	A	0.000	0.000	49.260	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T5	160.00-140.00	A	0.000	0.000	49.260	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T6	140.00-120.00	A	0.000	0.000	49.260	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T7	120.00-100.00	A	0.000	0.000	50.565	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T8	100.00-80.00	A	0.000	0.000	51.000	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T9	80.00-60.00	A	0.000	0.000	51.000	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T10	60.00-40.00	A	0.000	0.000	51.000	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T11	40.00-20.00	A	0.000	0.000	51.000	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15
T12	20.00-0.00	A	0.000	0.000	51.000	0.000	0.20
		B	0.000	0.000	47.520	0.000	0.20
		C	0.000	0.000	20.337	0.000	0.15

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	230.00-220.00	A	1.817	0.000	0.000	4.505	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	16.729	0.000	0.25
T2	220.00-200.00	A	1.805	0.000	0.000	8.960	0.000	0.12
		B		0.000	0.000	25.021	0.000	0.53
		C		0.000	0.000	58.659	0.000	0.89
T3	200.00-180.00	A	1.787	0.000	0.000	46.330	0.000	0.91
		B		0.000	0.000	49.923	0.000	1.06
		C		0.000	0.000	58.318	0.000	0.88
T4	180.00-160.00	A	1.767	0.000	0.000	58.600	0.000	1.17
		B		0.000	0.000	49.792	0.000	1.05
		C		0.000	0.000	57.944	0.000	0.87
T5	160.00-140.00	A	1.745	0.000	0.000	58.366	0.000	1.16
		B		0.000	0.000	49.645	0.000	1.04
		C		0.000	0.000	57.527	0.000	0.85
T6	140.00-120.00	A	1.720	0.000	0.000	58.102	0.000	1.14
		B		0.000	0.000	49.480	0.000	1.03
		C		0.000	0.000	57.057	0.000	0.84
T7	120.00-100.00	A	1.692	0.000	0.000	66.384	0.000	1.19
		B		0.000	0.000	49.291	0.000	1.02
		C		0.000	0.000	56.517	0.000	0.82
T8	100.00-80.00	A	1.658	0.000	0.000	68.790	0.000	1.19
		B		0.000	0.000	49.068	0.000	1.01
		C		0.000	0.000	55.880	0.000	0.80
T9	80.00-60.00	A	1.617	0.000	0.000	68.234	0.000	1.17
		B		0.000	0.000	48.794	0.000	0.99
		C		0.000	0.000	55.101	0.000	0.78
T10	60.00-40.00	A	1.564	0.000	0.000	67.510	0.000	1.15
		B		0.000	0.000	48.439	0.000	0.97
		C		0.000	0.000	54.087	0.000	0.75
T11	40.00-20.00	A	1.486	0.000	0.000	66.459	0.000	1.11
		B		0.000	0.000	47.923	0.000	0.95
		C		0.000	0.000	52.613	0.000	0.71
T12	20.00-0.00	A	1.331	0.000	0.000	64.378	0.000	1.03
		B		0.000	0.000	46.902	0.000	0.89
		C		0.000	0.000	49.687	0.000	0.63

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	230.00-220.00	-3.9522	2.1724	-2.1001	1.1296
T2	220.00-200.00	-1.2995	4.8574	-2.1622	2.9572
T3	200.00-180.00	0.7108	-1.6651	-1.0847	0.2983
T4	180.00-160.00	0.2710	-2.7939	-0.9154	-0.3930
T5	160.00-140.00	0.3619	-3.4569	-1.7468	-0.7170
T6	140.00-120.00	0.4443	-4.0798	-2.4257	-0.9845
T7	120.00-100.00	0.5087	-5.1828	-2.8915	-2.3274
T8	100.00-80.00	0.5728	-5.9696	-3.2422	-3.0464
T9	80.00-60.00	0.6316	-6.5291	-3.4137	-3.2841
T10	60.00-40.00	0.6871	-7.0674	-3.6725	-3.6432
T11	40.00-20.00	0.6893	-7.1604	-3.7665	-3.9326
T12	20.00-0.00	0.7211	-7.4836	-3.8351	-4.5272

valmont
1545 Pidco Dr
Plymouth, IN
Phone (574)936-4221
FAX (574) 936-6458

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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

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	220.00 - 230.00	0.6000	0.4490
T1	3	Lighting	220.00 - 230.00	0.6000	0.4490
T1	5	LDF7-50A (1-5/8 FOAM)	220.00 - 225.00	0.6000	0.4490
T1	9	1.75" Rails	220.00 - 225.00	0.6000	0.4490
T1	10	1.75" Rails	220.00 - 225.00	0.6000	0.4490
T2	1	Safety Line 3/8	200.00 - 220.00	0.6000	0.4558
T2	3	Lighting	200.00 - 220.00	0.6000	0.4558
T2	5	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.4558
T2	6	LDF7-50A (1-5/8 FOAM)	200.00 - 210.00	0.6000	0.4558
T2	9	1.75" Rails	200.00 - 220.00	0.6000	0.4558
T2	10	1.75" Rails	200.00 - 220.00	0.6000	0.4558
T3	1	Safety Line 3/8	180.00 - 200.00	0.6000	0.4401
T3	3	Lighting	180.00 - 200.00	0.6000	0.4401
T3	5	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4401
T3	6	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4401
T3	7	LDF7-50A (1-5/8 FOAM)	180.00 - 195.00	0.6000	0.4401
T3	9	1.75" Rails	180.00 - 200.00	0.6000	0.4401
T3	10	1.75" Rails	180.00 - 200.00	0.6000	0.4401
T4	1	Safety Line 3/8	160.00 - 180.00	0.6000	0.3274
T4	3	Lighting	160.00 - 180.00	0.6000	0.3274
T4	5	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.3274
T4	6	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.3274
T4	7	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.3274
T4	9	1.75" Rails	160.00 - 180.00	0.6000	0.3274
T4	10	1.75" Rails	160.00 - 180.00	0.6000	0.3274
T5	1	Safety Line 3/8	140.00 - 160.00	0.6000	0.4853
T5	3	Lighting	140.00 - 160.00	0.6000	0.4853
T5	5	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4853

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1545 Pidco Dr

Plymouth, IN
Phone (574)936-4221
FAX (574) 936-6458

Job	Page
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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev	K_a No Ice	K_a Ice
T5	6	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4853
T5	7	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4853
T5	9	1.75" Rails	140.00 - 160.00	0.6000	0.4853
T5	10	1.75" Rails	140.00 - 160.00	0.6000	0.4853
T6	1	Safety Line 3/8	120.00 - 140.00	0.6000	0.5750
T6	3	Lighting	120.00 - 140.00	0.6000	0.5750
T6	5	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.5750
T6	6	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.5750
T6	7	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.5750
T6	9	1.75" Rails	120.00 - 140.00	0.6000	0.5750
T6	10	1.75" Rails	120.00 - 140.00	0.6000	0.5750
T7	1	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T7	2	Lighting	100.00 - 115.00	0.6000	0.6000
T7	3	Lighting	115.00 - 120.00	0.6000	0.6000
T7	5	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T7	6	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T7	7	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T7	9	1.75" Rails	100.00 - 120.00	0.6000	0.6000
T7	10	1.75" Rails	100.00 - 120.00	0.6000	0.6000
T8	1	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T8	2	Lighting	80.00 - 100.00	0.6000	0.6000
T8	5	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T8	6	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T8	7	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T8	9	1.75" Rails	80.00 - 100.00	0.6000	0.6000
T8	10	1.75" Rails	80.00 - 100.00	0.6000	0.6000
T9	1	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T9	2	Lighting	60.00 - 80.00	0.6000	0.6000
T9	5	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T9	6	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T9	7	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T9	9	1.75" Rails	60.00 - 80.00	0.6000	0.6000
T9	10	1.75" Rails	60.00 - 80.00	0.6000	0.6000
T10	1	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T10	2	Lighting	40.00 - 60.00	0.6000	0.6000
T10	5	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T10	6	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T10	7	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T10	9	1.75" Rails	40.00 - 60.00	0.6000	0.6000
T10	10	1.75" Rails	40.00 - 60.00	0.6000	0.6000
T11	1	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T11	2	Lighting	20.00 - 40.00	0.6000	0.6000
T11	5	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev	K_a No Ice	K_a Ice
T11	6	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T11	7	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T11	9	1.75" Rails	20.00 - 40.00	0.6000	0.6000
T11	10	1.75" Rails	20.00 - 40.00	0.6000	0.6000
T12	1	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T12	2	Lighting	0.00 - 20.00	0.6000	0.6000
T12	5	LDF7-50A (1-5/8 FOAM)	0.00 - 20.00	0.6000	0.6000
T12	6	LDF7-50A (1-5/8 FOAM)	0.00 - 20.00	0.6000	0.6000
T12	7	LDF7-50A (1-5/8 FOAM)	0.00 - 20.00	0.6000	0.6000
T12	9	1.75" Rails	0.00 - 20.00	0.6000	0.6000
T12	10	1.75" Rails	0.00 - 20.00	0.6000	0.6000

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
5/8" x 10' lightning rod	C	From Leg	0.00	0.0000	230.00	No Ice	0.63	0.63	0.02
			0.00			1/2" Ice	1.63	1.63	0.03
			5.00			1" Ice	2.63	2.63	0.04
Beacon	B	From Leg	0.00	0.0000	230.00	No Ice	2.40	2.40	0.07
			0.00			1/2" Ice	2.67	2.67	0.10
			1.00			1" Ice	2.96	2.96	0.12
OB light	C	From Leg	0.00	0.0000	115.00	No Ice	0.50	0.50	0.03
			0.00			1/2" Ice	0.60	0.60	0.04
			0.00			1" Ice	0.70	0.70	0.04
OB light	B	From Leg	0.00	0.0000	115.00	No Ice	0.50	0.50	0.03
			0.00			1/2" Ice	0.60	0.60	0.04
			0.00			1" Ice	0.70	0.70	0.04
OB light	A	From Leg	0.00	0.0000	115.00	No Ice	0.50	0.50	0.03
			0.00			1/2" Ice	0.60	0.60	0.04
			0.00			1" Ice	0.70	0.70	0.04
***									
208 sq ft EPA	C	None		0.0000	225.00	No Ice	208.00	208.00	4.16
						1/2" Ice	260.00	260.00	5.20
						1" Ice	312.00	312.00	6.24
***									
130 sq ft EPA	B	None		0.0000	210.00	No Ice	130.00	130.00	2.60
						1/2" Ice	162.50	162.50	3.25
						1" Ice	195.00	195.00	3.90
***									
130 sq ft EPA	A	None		0.0000	195.00	No Ice	130.00	130.00	2.60
						1/2" Ice	162.50	162.50	3.25
						1" Ice	195.00	195.00	3.90
***									

Truss-Leg Properties

Section Designation	Area	Area Ice	Self Weight	Ice Weight	Equiv Diameter	Equiv Diameter Ice	Leg Area
	in^2	in^2	K	K	in	in	in^2
#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	1884.8315	5597.5352	0.50	1.21	6.5446	19.4359	3.6816
#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	2010.3106	5655.4560	0.62	1.20	6.9802	19.6370	5.3014
#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	2010.3106	5641.5205	0.62	1.17	6.9802	19.5886	5.3014
#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	2010.3106	5625.5026	0.62	1.14	6.9802	19.5330	5.3014
#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	2010.3106	5606.6118	0.62	1.10	6.9802	19.4674	5.3014
#12ZG-58 - 1.75" - 1.00" conn.-TR1-(Pirod 195213)	2035.9652	6282.1507	0.79	1.12	7.0693	21.8130	7.2158
#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	2035.9652	6199.5676	0.79	1.06	7.0693	21.5263	7.2158
#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	2035.9652	6079.3846	0.79	0.98	7.0693	21.1090	7.2158
#12ZG-58 BASE - 1.75" - 1.00" conn.(Pirod 281212)	2139.9906	5497.1099	0.75	0.79	7.4305	19.0872	7.2158

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation	z	K_z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
T1	225.00	1.501	36	41.042	A	0.000	4.912	2.083	42.42	0.870	0.000
230.00-220.00					B	0.000	4.912		42.42	0.000	0.000
					C	0.000	5.642		36.92	5.272	0.000
T2	210.00	1.48	35	82.917	A	0.000	11.185	5.833	52.16	1.740	0.000
220.00-200.00					B	0.000	11.185		52.16	23.760	0.000
					C	0.000	12.630		46.19	20.337	0.000
T3	190.00	1.449	35	83.750	A	0.000	13.656	7.500	54.92	37.380	0.000
200.00-180.00					B	0.000	13.656		54.92	47.520	0.000
					C	0.000	15.085		49.72	20.337	0.000
T4	170.00	1.415	34	122.110	A	8.856	21.852	21.852	71.16	49.260	0.000
180.00-160.00					B	8.856	21.852		71.16	47.520	0.000
					C	8.856	21.852		71.16	20.337	0.000
T5	150.00	1.378	33	162.527	A	8.796	23.306	23.306	72.60	49.260	0.000
160.00-140.00					B	8.796	23.306		72.60	47.520	0.000
					C	8.796	23.306		72.60	20.337	0.000
T6	130.00	1.337	32	202.527	A	9.726	23.306	23.306	70.56	49.260	0.000

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{Leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
140.00-120.00					B	9.726	23.306		70.56	47.520	0.000
					C	9.726	23.306		70.56	20.337	0.000
T7	110.00	1.291	31	242.527	A	10.834	23.306	23.306	68.27	50.565	0.000
120.00-100.00					B	10.834	23.306		68.27	47.520	0.000
					C	10.834	23.306		68.27	20.337	0.000
T8	90.00	1.238	30	282.527	A	12.071	23.306	23.306	65.88	51.000	0.000
100.00-80.00					B	12.071	23.306		65.88	47.520	0.000
					C	12.071	23.306		65.88	20.337	0.000
T9 80.00-60.00	70.00	1.174	28	322.944	A	13.402	23.604	23.604	63.78	51.000	0.000
					B	13.402	23.604		63.78	47.520	0.000
					C	13.402	23.604		63.78	20.337	0.000
T10	50.00	1.094	26	362.944	A	14.801	23.604	23.604	61.46	51.000	0.000
60.00-40.00					B	14.801	23.604		61.46	47.520	0.000
					C	14.801	23.604		61.46	20.337	0.000
T11	30.00	0.982	24	402.944	A	19.501	23.604	23.604	54.76	51.000	0.000
40.00-20.00					B	19.501	23.604		54.76	47.520	0.000
					C	19.501	23.604		54.76	20.337	0.000
T12 20.00-0.00	10.00	0.85	20	442.944	A	21.286	24.810	24.810	53.82	51.000	0.000
					B	21.286	24.810		53.82	47.520	0.000
					C	21.286	24.810		53.82	20.337	0.000

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_{Leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	225.00	1.501	3	1.8174	44.071	A	0.000	24.284	8.141	33.53	4.505	0.000
230.00-220.00						B	0.000	24.284		33.53	0.000	0.000
						C	0.000	28.555		28.51	16.729	0.000
T2	210.00	1.48	3	1.8049	88.933	A	0.000	48.394	17.866	36.92	8.960	0.000
220.00-200.00						B	0.000	48.394		36.92	25.021	0.000
						C	0.000	56.796		31.46	58.659	0.000
T3	190.00	1.449	3	1.7870	89.707	A	0.000	50.226	19.413	38.65	46.330	0.000
200.00-180.00						B	0.000	50.226		38.65	49.923	0.000
						C	0.000	58.468		33.20	58.318	0.000
T4	170.00	1.415	3	1.7672	128.008	A	8.856	77.238	64.894	75.38	58.600	0.000
180.00-160.00						B	8.856	77.238		75.38	49.792	0.000
						C	8.856	77.238		75.38	57.944	0.000
T5	150.00	1.378	3	1.7452	168.352	A	8.796	77.847	65.566	75.67	58.366	0.000
160.00-140.00						B	8.796	77.847		75.67	49.645	0.000
						C	8.796	77.847		75.67	57.527	0.000
T6	130.00	1.337	3	1.7204	208.269	A	9.726	78.790	65.404	73.89	58.102	0.000
140.00-120.00						B	9.726	78.790		73.89	49.480	0.000
						C	9.726	78.790		73.89	57.057	0.000
T7	110.00	1.291	3	1.6919	248.174	A	10.834	79.883	65.218	71.89	66.384	0.000
120.00-100.00						B	10.834	79.883		71.89	49.291	0.000
						C	10.834	79.883		71.89	56.517	0.000
T8 100.00-80.00	90.00	1.238	2	1.6583	288.062	A	12.071	81.014	64.999	69.83	68.790	0.000
						B	12.071	81.014		69.83	49.068	0.000
						C	12.071	81.014		69.83	55.880	0.000
T9 80.00-60.00	70.00	1.174	2	1.6171	328.341	A	13.402	90.170	72.831	70.32	68.234	0.000
						B	13.402	90.170		70.32	48.794	0.000
						C	13.402	90.170		70.32	55.101	0.000

Section Elevation ft	z ft	K_z	q_z psf	t_s in	A_{sf} ft²	Face	A_R ft²	A_B ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T10 60.00-40.00	50.00	1.094	2	1.5636	368.163	A	14.801	90.389	71.874	68.33	67.510	0.000
						B	14.801	90.389		68.33	48.439	0.000
						C	14.801	90.389		68.33	54.087	0.000
T11 40.00-20.00	30.00	0.982	2	1.4858	407.903	A	19.501	89.796	70.480	64.49	66.459	0.000
						B	19.501	89.796		64.49	47.923	0.000
						C	19.501	89.796		64.49	52.613	0.000
T12 20.00-0.00	10.00	0.85	2	1.3312	447.387	A	21.286	82.621	63.730	61.33	64.378	0.000
						B	21.286	82.621		61.33	46.902	0.000
						C	21.286	82.621		61.33	49.687	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_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	225.00	1.501	12	41.042	A	0.000	4.912	2.083	42.42	0.870	0.000
230.00-220.00					B	0.000	4.912		42.42	0.000	0.000
					C	0.000	5.642		36.92	5.272	0.000
T2	210.00	1.48	12	82.917	A	0.000	11.185	5.833	52.16	1.740	0.000
220.00-200.00					B	0.000	11.185		52.16	23.760	0.000
					C	0.000	12.630		46.19	20.337	0.000
T3	190.00	1.449	11	83.750	A	0.000	13.656	7.500	54.92	37.380	0.000
200.00-180.00					B	0.000	13.656		54.92	47.520	0.000
					C	0.000	15.085		49.72	20.337	0.000
T4	170.00	1.415	11	122.110	A	8.856	21.852	21.852	71.16	49.260	0.000
180.00-160.00					B	8.856	21.852		71.16	47.520	0.000
					C	8.856	21.852		71.16	20.337	0.000
T5	150.00	1.378	11	162.527	A	8.796	23.306	23.306	72.60	49.260	0.000
160.00-140.00					B	8.796	23.306		72.60	47.520	0.000
					C	8.796	23.306		72.60	20.337	0.000
T6	130.00	1.337	10	202.527	A	9.726	23.306	23.306	70.56	49.260	0.000
140.00-120.00					B	9.726	23.306		70.56	47.520	0.000
					C	9.726	23.306		70.56	20.337	0.000
T7	110.00	1.291	10	242.527	A	10.834	23.306	23.306	68.27	50.565	0.000
120.00-100.00					B	10.834	23.306		68.27	47.520	0.000
					C	10.834	23.306		68.27	20.337	0.000
T8	90.00	1.238	10	282.527	A	12.071	23.306	23.306	65.88	51.000	0.000
100.00-80.00					B	12.071	23.306		65.88	47.520	0.000
					C	12.071	23.306		65.88	20.337	0.000
T9 80.00-60.00	70.00	1.174	9	322.944	A	13.402	23.604	23.604	63.78	51.000	0.000
					B	13.402	23.604		63.78	47.520	0.000
					C	13.402	23.604		63.78	20.337	0.000
T10	50.00	1.094	9	362.944	A	14.801	23.604	23.604	61.46	51.000	0.000
60.00-40.00					B	14.801	23.604		61.46	47.520	0.000
					C	14.801	23.604		61.46	20.337	0.000
T11	30.00	0.982	8	402.944	A	19.501	23.604	23.604	54.76	51.000	0.000
40.00-20.00					B	19.501	23.604		54.76	47.520	0.000
					C	19.501	23.604		54.76	20.337	0.000
T12 20.00-0.00	10.00	0.85	7	442.944	A	21.286	24.810	24.810	53.82	51.000	0.000
					B	21.286	24.810		53.82	47.520	0.000
					C	21.286	24.810		53.82	20.337	0.000

valmont
1545 Pidco Dr
Plymouth, IN
Phone: (574)936-4221
FAX: (574) 936-6458

Job	Page
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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

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_z	D_h	A_E ft²	F K	w plf	Ctrl Face
T1	0.04	0.38	A	0.12	2.886	36	1	1	2.776	0.38	37.51	C
230.00-220.00			B	0.12	2.886		1	1	2.776			
			C	0.137	2.818		1	1	3.196			
T2	0.25	0.99	A	0.135	2.828	35	1	1	6.332	1.19	59.47	B
220.00-200.00			B	0.135	2.828		1	1	6.332			
			C	0.152	2.763		1	1	7.171			
T3	0.50	1.47	A	0.163	2.724	35	1	1	7.770	1.83	91.28	B
200.00-180.00			B	0.163	2.724		1	1	7.770			
			C	0.18	2.664		1	1	8.618			
T4	0.55	2.06	A	0.251	2.433	34	1	1	21.647	2.77	138.59	B
180.00-160.00			B	0.251	2.433		1	1	21.647			
			C	0.251	2.433		1	1	21.647			
T5	0.55	2.26	A	0.198	2.604	33	1	1	22.175	2.84	142.13	B
160.00-140.00			B	0.198	2.604		1	1	22.175			
			C	0.198	2.604		1	1	22.175			
T6	0.55	2.31	A	0.163	2.724	32	1	1	22.987	2.89	144.55	B
140.00-120.00			B	0.163	2.724		1	1	22.987			
			C	0.163	2.724		1	1	22.987			
T7	0.55	2.36	A	0.141	2.806	31	1	1	24.041	2.94	146.95	B
120.00-100.00			B	0.141	2.806		1	1	24.041			
			C	0.141	2.806		1	1	24.041			
T8	0.55	2.42	A	0.125	2.865	30	1	1	25.251	2.95	147.37	B
100.00-80.00			B	0.125	2.865		1	1	25.251			
			C	0.125	2.865		1	1	25.251			
T9	0.55	3.19	A	0.115	2.906	28	1	1	26.735	2.92	146.19	B
80.00-60.00			B	0.115	2.906		1	1	26.735			
			C	0.115	2.906		1	1	26.735			
T10	0.55	3.27	A	0.106	2.941	26	1	1	28.126	2.84	141.78	B
60.00-40.00			B	0.106	2.941		1	1	28.126			
			C	0.106	2.941		1	1	28.126			
T11	0.55	3.28	A	0.107	2.936	24	1	1	32.827	2.82	141.02	B
40.00-20.00			B	0.107	2.936		1	1	32.827			
			C	0.107	2.936		1	1	32.827			
T12	0.55	3.89	A	0.104	2.948	20	1	1	35.291	2.57	128.66	B
20.00-0.00			B	0.104	2.948		1	1	35.291			
			C	0.104	2.948		1	1	35.291			
Sum Weight	5.74	27.87						OTM	2999.80 kip-ft	28.93		

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_z	D_h	A_E ft²	F K	w plf	Ctrl Face
T1	0.04	0.38	A	0.12	2.886	36	0.8	1	2.776	0.37	36.86	C
230.00-220.00			B	0.12	2.886		0.8	1	2.776			
			C	0.137	2.818		0.8	1	3.196			
T2	0.25	0.99	A	0.135	2.828	35	0.8	1	6.332	1.25	62.34	C
220.00-200.00			B	0.135	2.828		0.8	1	6.332			

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
			C	0.152	2.763		0.8	1	7.171			
T3	0.50	1.47	A	0.163	2.724	35	0.8	1	7.770	1.88	93.92	C
200.00-180.00			B	0.163	2.724		0.8	1	7.770			
			C	0.18	2.664		0.8	1	8.618			
T4	0.55	2.06	A	0.251	2.433	34	0.8	1	19.876	2.65	132.38	C
180.00-160.00			B	0.251	2.433		0.8	1	19.876			
			C	0.251	2.433		0.8	1	19.876			
T5	0.55	2.26	A	0.198	2.604	33	0.8	1	20.416	2.71	135.69	C
160.00-140.00			B	0.198	2.604		0.8	1	20.416			
			C	0.198	2.604		0.8	1	20.416			
T6	0.55	2.31	A	0.163	2.724	32	0.8	1	21.042	2.75	137.32	C
140.00-120.00			B	0.163	2.724		0.8	1	21.042			
			C	0.163	2.724		0.8	1	21.042			
T7	0.55	2.36	A	0.141	2.806	31	0.8	1	21.874	2.78	138.95	C
120.00-100.00			B	0.141	2.806		0.8	1	21.874			
			C	0.141	2.806		0.8	1	21.874			
T8	0.55	2.42	A	0.125	2.865	30	0.8	1	22.836	2.77	138.64	C
100.00-80.00			B	0.125	2.865		0.8	1	22.836			
			C	0.125	2.865		0.8	1	22.836			
T9	0.55	3.19	A	0.115	2.906	28	0.8	1	24.055	2.74	136.86	C
80.00-60.00			B	0.115	2.906		0.8	1	24.055			
			C	0.115	2.906		0.8	1	24.055			
T10	0.55	3.27	A	0.106	2.941	26	0.8	1	25.166	2.64	132.08	C
60.00-40.00			B	0.106	2.941		0.8	1	25.166			
			C	0.106	2.941		0.8	1	25.166			
T11	0.55	3.28	A	0.107	2.936	24	0.8	1	28.927	2.59	129.55	C
40.00-20.00			B	0.107	2.936		0.8	1	28.927			
			C	0.107	2.936		0.8	1	28.927			
T12	0.55	3.89	A	0.104	2.948	20	0.8	1	31.033	2.36	117.78	C
20.00-0.00			B	0.104	2.948		0.8	1	31.033			
			C	0.104	2.948		0.8	1	31.033			
Sum Weight	5.74	27.87						OTM	2896.08 kip-ft	27.48		

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_R	A_E ft²	F K	w plf	Ctrl Face
T1	0.04	0.38	A	0.12	2.886	36	0.85	1	2.776	0.36	36.15	C
230.00-220.00			B	0.12	2.886		0.85	1	2.776			
			C	0.137	2.818		0.85	1	3.196			
T2	0.25	0.99	A	0.135	2.828	35	0.85	1	6.332	1.16	58.23	C
220.00-200.00			B	0.135	2.828		0.85	1	6.332			
			C	0.152	2.763		0.85	1	7.171			
T3	0.50	1.47	A	0.163	2.724	35	0.85	1	7.770	1.90	95.17	C
200.00-180.00			B	0.163	2.724		0.85	1	7.770			
			C	0.18	2.664		0.85	1	8.618			
T4	0.55	2.06	A	0.251	2.433	34	0.85	1	20.319	2.75	137.73	C
180.00-160.00			B	0.251	2.433		0.85	1	20.319			
			C	0.251	2.433		0.85	1	20.319			
T5	0.55	2.26	A	0.198	2.604	33	0.85	1	20.856	2.82	141.00	C
160.00-140.00			B	0.198	2.604		0.85	1	20.856			

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
			C	0.198	2.604		0.85	1	20.856			
T6	0.55	2.31	A	0.163	2.724	32	0.85	1	21.528	2.85	142.72	C
140.00-120.00			B	0.163	2.724		0.85	1	21.528			
			C	0.163	2.724		0.85	1	21.528			
T7	0.55	2.36	A	0.141	2.806	31	0.85	1	22.416	2.89	144.41	C
120.00-100.00			B	0.141	2.806		0.85	1	22.416			
			C	0.141	2.806		0.85	1	22.416			
T8	0.55	2.42	A	0.125	2.865	30	0.85	1	23.440	2.88	144.14	C
100.00-80.00			B	0.125	2.865		0.85	1	23.440			
			C	0.125	2.865		0.85	1	23.440			
T9	0.55	3.19	A	0.115	2.906	28	0.85	1	24.725	2.85	142.34	C
80.00-60.00			B	0.115	2.906		0.85	1	24.725			
			C	0.115	2.906		0.85	1	24.725			
T10	0.55	3.27	A	0.106	2.941	26	0.85	1	25.906	2.75	137.44	C
60.00-40.00			B	0.106	2.941		0.85	1	25.906			
			C	0.106	2.941		0.85	1	25.906			
T11	0.55	3.28	A	0.107	2.936	24	0.85	1	29.902	2.70	135.06	C
40.00-20.00			B	0.107	2.936		0.85	1	29.902			
			C	0.107	2.936		0.85	1	29.902			
T12	0.55	3.89	A	0.104	2.948	20	0.85	1	32.098	2.46	122.78	C
20.00-0.00			B	0.104	2.948		0.85	1	32.098			
			C	0.104	2.948		0.85	1	32.098			
Sum Weight	5.74	27.87						OTM	2969.41 kip-ft	28.38		

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_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.31	1.43	A	0.551	1.843	3	1	1	17.335	0.12	12.12	C
230.00-220.00			B	0.551	1.843		1	1	17.335			
			C	0.648	1.782		1	1	22.131			
T2	1.54	3.07	A	0.544	1.849	3	1	1	34.351	0.28	13.92	C
220.00-200.00			B	0.544	1.849		1	1	34.351			
			C	0.639	1.785		1	1	43.667			
T3	2.84	3.66	A	0.56	1.834	3	1	1	36.116	0.31	15.64	C
200.00-180.00			B	0.56	1.834		1	1	36.116			
			C	0.652	1.781		1	1	45.467			
T4	3.08	7.17	A	0.673	1.777	3	1	1	70.016	0.39	19.67	B
180.00-160.00			B	0.673	1.777		1	1	70.016			
			C	0.673	1.777		1	1	70.016			
T5	3.05	7.30	A	0.515	1.882	3	1	1	62.746	0.41	20.75	B
160.00-140.00			B	0.515	1.882		1	1	62.746			
			C	0.515	1.882		1	1	62.746			
T6	3.01	7.38	A	0.425	2.017	3	1	1	60.736	0.44	21.86	B
140.00-120.00			B	0.425	2.017		1	1	60.736			
			C	0.425	2.017		1	1	60.736			
T7	3.03	7.47	A	0.366	2.136	3	1	1	60.522	0.45	22.53	A
120.00-100.00			B	0.366	2.136		1	1	60.522			
			C	0.366	2.136		1	1	60.522			
T8	3.00	7.56	A	0.323	2.236	2	1	1	61.203	0.45	22.44	A
100.00-80.00			B	0.323	2.236		1	1	61.203			

valmont

1545 Pidco Dr

Plymouth, IN
Phone: (574)936-4221
FAX: (574) 936-6458

Job	Page
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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

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
			C	0.323	2.236		1	1	61.203			
T9	2.95	8.51	A	0.315	2.256	2	1	1	67.853	0.46	22.79	A
80.00-60.00			B	0.315	2.256		1	1	67.853			
			C	0.315	2.256		1	1	67.853			
T10	2.87	8.54	A	0.286	2.335	2	1	1	68.547	0.44	21.78	A
60.00-40.00			B	0.286	2.335		1	1	68.547			
			C	0.286	2.335		1	1	68.547			
T11	2.76	8.67	A	0.268	2.385	2	1	1	72.446	0.41	20.47	A
40.00-20.00			B	0.268	2.385		1	1	72.446			
			C	0.268	2.385		1	1	72.446			
T12	2.55	8.57	A	0.232	2.492	2	1	1	69.278	0.35	17.49	A
20.00-0.00			B	0.232	2.492		1	1	69.278			
			C	0.232	2.492		1	1	69.278			
Sum Weight	31.00	79.33						OTM	490.53 kip-ft	4.51		

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_R	A_E ft²	F K	w plf	Ctrl Face
T1	0.31	1.43	A	0.551	1.843	3	0.8	1	17.335	0.12	11.98	C
230.00-220.00			B	0.551	1.843		0.8	1	17.335			
			C	0.648	1.782		0.8	1	22.131			
T2	1.54	3.07	A	0.544	1.849	3	0.8	1	34.351	0.28	14.16	C
220.00-200.00			B	0.544	1.849		0.8	1	34.351			
			C	0.639	1.785		0.8	1	43.667			
T3	2.84	3.66	A	0.56	1.834	3	0.8	1	36.116	0.33	16.33	C
200.00-180.00			B	0.56	1.834		0.8	1	36.116			
			C	0.652	1.781		0.8	1	45.467			
T4	3.08	7.17	A	0.673	1.777	3	0.8	1	68.245	0.39	19.30	C
180.00-160.00			B	0.673	1.777		0.8	1	68.245			
			C	0.673	1.777		0.8	1	68.245			
T5	3.05	7.30	A	0.515	1.882	3	0.8	1	60.986	0.41	20.37	C
160.00-140.00			B	0.515	1.882		0.8	1	60.986			
			C	0.515	1.882		0.8	1	60.986			
T6	3.01	7.38	A	0.425	2.017	3	0.8	1	58.791	0.43	21.43	C
140.00-120.00			B	0.425	2.017		0.8	1	58.791			
			C	0.425	2.017		0.8	1	58.791			
T7	3.03	7.47	A	0.366	2.136	3	0.8	1	58.355	0.44	22.04	B
120.00-100.00			B	0.366	2.136		0.8	1	58.355			
			C	0.366	2.136		0.8	1	58.355			
T8	3.00	7.56	A	0.323	2.236	2	0.8	1	58.789	0.44	21.89	B
100.00-80.00			B	0.323	2.236		0.8	1	58.789			
			C	0.323	2.236		0.8	1	58.789			
T9	2.95	8.51	A	0.315	2.256	2	0.8	1	65.173	0.44	22.20	B
80.00-60.00			B	0.315	2.256		0.8	1	65.173			
			C	0.315	2.256		0.8	1	65.173			
T10	2.87	8.54	A	0.286	2.335	2	0.8	1	65.586	0.42	21.15	B
60.00-40.00			B	0.286	2.335		0.8	1	65.586			
			C	0.286	2.335		0.8	1	65.586			
T11	2.76	8.67	A	0.268	2.385	2	0.8	1	68.546	0.39	19.71	B
40.00-20.00			B	0.268	2.385		0.8	1	68.546			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_R ft²	F K	w plf	Ctrl Face
			C	0.268	2.385		0.8	1	68.546			
T12	2.55	8.57	A	0.232	2.492	2	0.8	1	65.021	0.33	16.74	B
20.00-0.00			B	0.232	2.492		0.8	1	65.021			
			C	0.232	2.492		0.8	1	65.021			
Sum Weight	31.00	79.33						OTM	486.20 kip-ft	4.43		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_R ft²	F K	w plf	Ctrl Face
T1	0.31	1.43	A	0.551	1.843	3	0.85	1	17.335	0.12	11.94	C
230.00-220.00			B	0.551	1.843		0.85	1	17.335			
			C	0.648	1.782		0.85	1	22.131			
T2	1.54	3.07	A	0.544	1.849	3	0.85	1	34.351	0.28	13.90	C
220.00-200.00			B	0.544	1.849		0.85	1	34.351			
			C	0.639	1.785		0.85	1	43.667			
T3	2.84	3.66	A	0.56	1.834	3	0.85	1	36.116	0.33	16.41	C
200.00-180.00			B	0.56	1.834		0.85	1	36.116			
			C	0.652	1.781		0.85	1	45.467			
T4	3.08	7.17	A	0.673	1.777	3	0.85	1	68.688	0.39	19.56	C
180.00-160.00			B	0.673	1.777		0.85	1	68.688			
			C	0.673	1.777		0.85	1	68.688			
T5	3.05	7.30	A	0.515	1.882	3	0.85	1	61.426	0.41	20.71	C
160.00-140.00			B	0.515	1.882		0.85	1	61.426			
			C	0.515	1.882		0.85	1	61.426			
T6	3.01	7.38	A	0.425	2.017	3	0.85	1	59.278	0.44	21.82	C
140.00-120.00			B	0.425	2.017		0.85	1	59.278			
			C	0.425	2.017		0.85	1	59.278			
T7	3.03	7.47	A	0.366	2.136	3	0.85	1	58.897	0.45	22.37	C
120.00-100.00			B	0.366	2.136		0.85	1	58.897			
			C	0.366	2.136		0.85	1	58.897			
T8	3.00	7.56	A	0.323	2.236	2	0.85	1	59.392	0.44	22.20	C
100.00-80.00			B	0.323	2.236		0.85	1	59.392			
			C	0.323	2.236		0.85	1	59.392			
T9	2.95	8.51	A	0.315	2.256	2	0.85	1	65.843	0.45	22.52	C
80.00-60.00			B	0.315	2.256		0.85	1	65.843			
			C	0.315	2.256		0.85	1	65.843			
T10	2.87	8.54	A	0.286	2.335	2	0.85	1	66.327	0.43	21.46	C
60.00-40.00			B	0.286	2.335		0.85	1	66.327			
			C	0.286	2.335		0.85	1	66.327			
T11	2.76	8.67	A	0.268	2.385	2	0.85	1	69.521	0.40	20.04	C
40.00-20.00			B	0.268	2.385		0.85	1	69.521			
			C	0.268	2.385		0.85	1	69.521			
T12	2.55	8.57	A	0.232	2.492	2	0.85	1	66.085	0.34	17.04	C
20.00-0.00			B	0.232	2.492		0.85	1	66.085			
			C	0.232	2.492		0.85	1	66.085			
Sum Weight	31.00	79.33						OTM	490.54 kip-ft	4.48		

Tower Forces - Service - 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	0.04	0.38	A	0.12	2.886	12	1	1	2.776	0.12	12.25	C
230.00-220.00			B	0.12	2.886		1	1	2.776			
			C	0.137	2.818		1	1	3.196			
T2	0.25	0.99	A	0.135	2.828	12	1	1	6.332	0.39	19.42	B
220.00-200.00			B	0.135	2.828		1	1	6.332			
			C	0.152	2.763		1	1	7.171			
T3	0.50	1.47	A	0.163	2.724	11	1	1	7.770	0.60	29.81	B
200.00-180.00			B	0.163	2.724		1	1	7.770			
			C	0.18	2.664		1	1	8.618			
T4	0.55	2.06	A	0.251	2.433	11	1	1	21.647	0.91	45.26	B
180.00-160.00			B	0.251	2.433		1	1	21.647			
			C	0.251	2.433		1	1	21.647			
T5	0.55	2.26	A	0.198	2.604	11	1	1	22.175	0.93	46.41	B
160.00-140.00			B	0.198	2.604		1	1	22.175			
			C	0.198	2.604		1	1	22.175			
T6	0.55	2.31	A	0.163	2.724	10	1	1	22.987	0.94	47.20	B
140.00-120.00			B	0.163	2.724		1	1	22.987			
			C	0.163	2.724		1	1	22.987			
T7	0.55	2.36	A	0.141	2.806	10	1	1	24.041	0.96	47.98	B
120.00-100.00			B	0.141	2.806		1	1	24.041			
			C	0.141	2.806		1	1	24.041			
T8	0.55	2.42	A	0.125	2.865	10	1	1	25.251	0.96	48.12	B
100.00-80.00			B	0.125	2.865		1	1	25.251			
			C	0.125	2.865		1	1	25.251			
T9	0.55	3.19	A	0.115	2.906	9	1	1	26.735	0.95	47.73	B
80.00-60.00			B	0.115	2.906		1	1	26.735			
			C	0.115	2.906		1	1	26.735			
T10	0.55	3.27	A	0.106	2.941	9	1	1	28.126	0.93	46.30	B
60.00-40.00			B	0.106	2.941		1	1	28.126			
			C	0.106	2.941		1	1	28.126			
T11	0.55	3.28	A	0.107	2.936	8	1	1	32.827	0.92	46.05	B
40.00-20.00			B	0.107	2.936		1	1	32.827			
			C	0.107	2.936		1	1	32.827			
T12	0.55	3.89	A	0.104	2.948	7	1	1	35.291	0.84	42.01	B
20.00-0.00			B	0.104	2.948		1	1	35.291			
			C	0.104	2.948		1	1	35.291			
Sum Weight:	5.74	27.87						OTM	979.53 kip-ft	9.45		

Tower Forces - Service - Wind 60 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	0.04	0.38	A	0.12	2.886	12	0.8	1	2.776	0.12	12.04	C
230.00-220.00			B	0.12	2.886		0.8	1	2.776			
			C	0.137	2.818		0.8	1	3.196			
T2	0.25	0.99	A	0.135	2.828	12	0.8	1	6.332	0.41	20.36	C

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
220.00-200.00			B	0.135	2.828		0.8	1	6.332			
			C	0.152	2.763		0.8	1	7.171			
T3	0.50	1.47	A	0.163	2.724	11	0.8	1	7.770	0.61	30.67	C
200.00-180.00			B	0.163	2.724		0.8	1	7.770			
			C	0.18	2.664		0.8	1	8.618			
T4	0.55	2.06	A	0.251	2.433	11	0.8	1	19.876	0.86	43.22	C
180.00-160.00			B	0.251	2.433		0.8	1	19.876			
			C	0.251	2.433		0.8	1	19.876			
T5	0.55	2.26	A	0.198	2.604	11	0.8	1	20.416	0.89	44.31	C
160.00-140.00			B	0.198	2.604		0.8	1	20.416			
			C	0.198	2.604		0.8	1	20.416			
T6	0.55	2.31	A	0.163	2.724	10	0.8	1	21.042	0.90	44.84	C
140.00-120.00			B	0.163	2.724		0.8	1	21.042			
			C	0.163	2.724		0.8	1	21.042			
T7	0.55	2.36	A	0.141	2.806	10	0.8	1	21.874	0.91	45.37	C
120.00-100.00			B	0.141	2.806		0.8	1	21.874			
			C	0.141	2.806		0.8	1	21.874			
T8	0.55	2.42	A	0.125	2.865	10	0.8	1	22.836	0.91	45.27	C
100.00-80.00			B	0.125	2.865		0.8	1	22.836			
			C	0.125	2.865		0.8	1	22.836			
T9	0.55	3.19	A	0.115	2.906	9	0.8	1	24.055	0.89	44.69	C
80.00-60.00			B	0.115	2.906		0.8	1	24.055			
			C	0.115	2.906		0.8	1	24.055			
T10	0.55	3.27	A	0.106	2.941	9	0.8	1	25.166	0.86	43.13	C
60.00-40.00			B	0.106	2.941		0.8	1	25.166			
			C	0.106	2.941		0.8	1	25.166			
T11	0.55	3.28	A	0.107	2.936	8	0.8	1	28.927	0.85	42.30	C
40.00-20.00			B	0.107	2.936		0.8	1	28.927			
			C	0.107	2.936		0.8	1	28.927			
T12	0.55	3.89	A	0.104	2.948	7	0.8	1	31.033	0.77	38.46	C
20.00-0.00			B	0.104	2.948		0.8	1	31.033			
			C	0.104	2.948		0.8	1	31.033			
Sum Weight	5.74	27.87						OTM	945.66 kip-ft	8.97		

Tower Forces - Service - Wind 90 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	0.04	0.38	A	0.12	2.886	12	0.85	1	2.776	0.12	11.80	C
230.00-220.00			B	0.12	2.886		0.85	1	2.776			
			C	0.137	2.818		0.85	1	3.196			
T2	0.25	0.99	A	0.135	2.828	12	0.85	1	6.332	0.38	19.02	C
220.00-200.00			B	0.135	2.828		0.85	1	6.332			
			C	0.152	2.763		0.85	1	7.171			
T3	0.50	1.47	A	0.163	2.724	11	0.85	1	7.770	0.62	31.08	C
200.00-180.00			B	0.163	2.724		0.85	1	7.770			
			C	0.18	2.664		0.85	1	8.618			
T4	0.55	2.06	A	0.251	2.433	11	0.85	1	20.319	0.90	44.97	C
180.00-160.00			B	0.251	2.433		0.85	1	20.319			
			C	0.251	2.433		0.85	1	20.319			
T5	0.55	2.26	A	0.198	2.604	11	0.85	1	20.856	0.92	46.04	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_I	D_R	A_E ft²	F K	w plf	Ctrl. Face
160.00-140.00			B	0.198	2.604		0.85	1	20.856			
			C	0.198	2.604		0.85	1	20.856			
T6	0.55	2.31	A	0.163	2.724	10	0.85	1	21.528	0.93	46.60	C
140.00-120.00			B	0.163	2.724		0.85	1	21.528			
			C	0.163	2.724		0.85	1	21.528			
T7	0.55	2.36	A	0.141	2.806	10	0.85	1	22.416	0.94	47.16	C
120.00-100.00			B	0.141	2.806		0.85	1	22.416			
			C	0.141	2.806		0.85	1	22.416			
T8	0.55	2.42	A	0.125	2.865	10	0.85	1	23.440	0.94	47.07	C
100.00-80.00			B	0.125	2.865		0.85	1	23.440			
			C	0.125	2.865		0.85	1	23.440			
T9	0.55	3.19	A	0.115	2.906	9	0.85	1	24.725	0.93	46.48	C
80.00-60.00			B	0.115	2.906		0.85	1	24.725			
			C	0.115	2.906		0.85	1	24.725			
T10	0.55	3.27	A	0.106	2.941	9	0.85	1	25.906	0.90	44.88	C
60.00-40.00			B	0.106	2.941		0.85	1	25.906			
			C	0.106	2.941		0.85	1	25.906			
T11	0.55	3.28	A	0.107	2.936	8	0.85	1	29.902	0.88	44.10	C
40.00-20.00			B	0.107	2.936		0.85	1	29.902			
			C	0.107	2.936		0.85	1	29.902			
T12	0.55	3.89	A	0.104	2.948	7	0.85	1	32.098	0.80	40.09	C
20.00-0.00			B	0.104	2.948		0.85	1	32.098			
			C	0.104	2.948		0.85	1	32.098			
Sum Weight	5.74	27.87						OTM	969.60 kip-ft	9.27		

Mast Vectors - No 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	230.00-220.00	0	Wind Normal	0.38	0.00	-0.38	-84.34	0.06	-0.12
		30	Wind 90	0.38	0.19	-0.32	-73.04	-42.14	-0.06
		60	Wind 60	0.37	0.32	-0.18	-41.42	-71.77	0.01
		90	Wind 90	0.36	0.36	0.00	0.05	-81.27	0.07
		120	Wind Normal	0.34	0.29	0.17	38.10	-65.84	0.12
		150	Wind 90	0.34	0.17	0.30	67.22	-38.72	0.15
		180	Wind 60	0.34	0.00	0.34	77.61	0.06	0.12
		210	Wind 90	0.34	-0.17	0.30	67.22	38.83	0.06
		240	Wind Normal	0.34	-0.29	0.17	38.10	65.96	-0.01
		270	Wind 90	0.33	-0.33	0.00	0.05	74.54	-0.07
		300	Wind 60	0.34	-0.29	-0.17	-38.00	65.96	-0.12
		330	Wind 90	0.34	-0.17	-0.30	-67.11	38.83	-0.15
T2	220.00-200.00	0	Wind Normal	1.11	0.00	-1.11	-232.98	0.02	-0.12
		30	Wind 90	1.22	0.61	-1.06	-221.32	-127.92	0.38
		60	Wind 60	1.25	1.08	-0.62	-130.64	-226.74	0.61
		90	Wind 90	1.16	1.16	0.00	0.27	-244.57	0.47
		120	Wind Normal	1.03	0.89	0.51	108.19	-186.89	0.43
		150	Wind 90	1.00	0.50	0.87	182.03	-104.92	0.44
		180	Wind 60	1.05	0.00	1.05	221.45	0.02	0.12
		210	Wind 90	1.16	-0.58	1.01	211.41	121.92	-0.38
		240	Wind Normal	1.19	-1.03	0.59	125.15	216.32	-0.61
		270	Wind 90	1.11	-1.11	0.00	0.27	232.53	-0.47
		300	Wind 60	1.03	-0.89	-0.51	-107.64	186.93	-0.43

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	1.00	-0.50	-0.87	-181.48	104.95	-0.44
T3	200.00-180.00	0	Wind Normal	1.59	0.00	-1.59	-301.52	-0.11	0.09
		30	Wind 90	1.72	0.86	-1.49	-282.82	-163.40	0.69
		60	Wind 60	1.88	1.63	-0.94	-178.45	-309.20	0.57
		90	Wind 90	1.90	1.90	0.00	0.01	-361.77	-0.26
		120	Wind Normal	1.75	1.51	0.87	165.92	-287.48	-0.45
		150	Wind 90	1.59	0.79	1.37	261.12	-150.86	0.02
		180	Wind 60	1.53	0.00	1.53	291.49	-0.11	-0.09
		210	Wind 90	1.67	-0.83	1.44	274.13	158.16	-0.69
		240	Wind Normal	1.83	-1.58	0.91	173.44	300.28	-0.57
		270	Wind 90	1.85	-1.85	0.00	0.01	351.51	0.26
		300	Wind 60	1.75	-1.51	-0.87	-165.91	287.26	0.45
		330	Wind 90	1.59	-0.79	-1.37	-261.10	150.64	-0.02
T4	180.00-160.00	0	Wind Normal	2.49	0.00	-2.49	-422.94	-0.10	0.06
		30	Wind 90	2.50	1.25	-2.16	-367.73	-212.34	0.72
		60	Wind 60	2.65	2.29	-1.32	-225.16	-389.88	0.50
		90	Wind 90	2.75	2.75	0.00	-0.12	-468.38	-0.64
		120	Wind Normal	2.77	2.40	1.39	235.50	-408.19	-0.85
		150	Wind 90	2.50	1.25	2.16	367.49	-212.34	-0.09
		180	Wind 60	2.36	0.00	2.36	401.56	-0.10	-0.06
		210	Wind 90	2.50	-1.25	2.16	367.49	212.14	-0.72
		240	Wind Normal	2.77	-2.40	1.39	235.50	407.99	-0.50
		270	Wind 90	2.75	-2.75	0.00	-0.12	468.18	0.64
		300	Wind 60	2.65	-2.29	-1.32	-225.16	389.68	0.85
		330	Wind 90	2.50	-1.25	-2.16	-367.73	212.14	0.09
T5	160.00-140.00	0	Wind Normal	2.57	0.00	-2.57	-384.95	-0.14	0.08
		30	Wind 90	2.57	1.28	-2.22	-333.88	-192.82	0.95
		60	Wind 60	2.71	2.35	-1.36	-203.68	-352.68	0.70
		90	Wind 90	2.82	2.82	0.00	-0.15	-423.15	-0.81
		120	Wind Normal	2.84	2.46	1.42	213.05	-369.41	-1.13
		150	Wind 90	2.57	1.28	2.22	333.59	-192.82	-0.16
		180	Wind 60	2.44	0.00	2.44	365.34	-0.14	-0.08
		210	Wind 90	2.57	-1.28	2.22	333.59	192.54	-0.95
		240	Wind Normal	2.84	-2.46	1.42	213.05	369.13	-0.70
		270	Wind 90	2.82	-2.82	0.00	-0.15	422.87	0.81
		300	Wind 60	2.71	-2.35	-1.36	-203.68	352.40	1.13
		330	Wind 90	2.57	-1.28	-2.22	-333.88	192.54	0.16
T6	140.00-120.00	0	Wind Normal	2.62	0.00	-2.62	-341.02	-0.18	0.10
		30	Wind 90	2.61	1.31	-2.26	-294.11	-169.88	1.17
		60	Wind 60	2.75	2.38	-1.37	-178.69	-309.38	0.88
		90	Wind 90	2.85	2.85	0.00	-0.18	-371.24	-0.97
		120	Wind Normal	2.89	2.50	1.45	187.74	-325.65	-1.40
		150	Wind 90	2.61	1.31	2.26	293.76	-169.88	-0.21
		180	Wind 60	2.48	0.00	2.48	321.88	-0.18	-0.10
		210	Wind 90	2.61	-1.31	2.26	293.76	169.52	-1.17
		240	Wind Normal	2.89	-2.50	1.45	187.74	325.29	-0.88
		270	Wind 90	2.85	-2.85	0.00	-0.18	370.88	0.97
		300	Wind 60	2.75	-2.38	-1.37	-178.69	309.02	1.40
		330	Wind 90	2.61	-1.31	-2.26	-294.11	169.52	0.21
T7	120.00-100.00	0	Wind Normal	2.68	0.00	-2.68	-294.94	-0.22	0.11
		30	Wind 90	2.64	1.32	-2.28	-251.50	-145.30	1.35
		60	Wind 60	2.78	2.41	-1.39	-153.06	-264.95	0.93
		90	Wind 90	2.89	2.89	0.00	-0.22	-317.93	-1.25
		120	Wind Normal	2.94	2.55	1.47	161.43	-280.20	-1.76
		150	Wind 90	2.65	1.33	2.30	252.53	-146.15	-0.33
		180	Wind 60	2.52	0.00	2.52	276.89	-0.22	-0.11
		210	Wind 90	2.64	-1.32	2.28	251.06	144.86	-1.35
		240	Wind Normal	2.94	-2.55	1.47	161.43	279.76	-0.93
		270	Wind 90	2.89	-2.89	0.00	-0.22	317.49	1.25
		300	Wind 60	2.78	-2.41	-1.39	-153.06	264.51	1.76
		330	Wind 90	2.65	-1.33	-2.30	-252.97	145.71	0.33

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Plymouth, IN
Phone: (574)936-4221
FAX: (574) 936-6458

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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

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
T8	100.00-80.00	0	Wind Normal	2.70	0.00	-2.70	-243.11	-0.26	0.13
		30	Wind 90	2.64	1.32	-2.28	-205.85	-118.96	1.51
		60	Wind 60	2.77	2.40	-1.39	-125.03	-216.37	1.02
		90	Wind 90	2.88	2.88	0.00	-0.26	-259.72	-1.43
		120	Wind Normal	2.95	2.55	1.47	132.37	-229.98	-2.03
		150	Wind 90	2.66	1.33	2.30	206.87	-119.85	-0.41
		180	Wind 60	2.52	0.00	2.52	226.88	-0.26	-0.13
		210	Wind 90	2.64	-1.32	2.28	205.33	118.44	-1.51
		240	Wind Normal	2.95	-2.55	1.47	132.37	229.46	-1.02
		270	Wind 90	2.88	-2.88	0.00	-0.26	259.20	1.43
		300	Wind 60	2.77	-2.40	-1.39	-125.03	215.86	2.03
		330	Wind 90	2.66	-1.33	-2.30	-207.39	119.33	0.41
T9	80.00-60.00	0	Wind Normal	2.69	0.00	-2.69	-188.42	-0.30	0.14
		30	Wind 90	2.61	1.31	-2.26	-158.78	-91.80	1.65
		60	Wind 60	2.74	2.37	-1.37	-96.09	-166.24	1.13
		90	Wind 90	2.85	2.85	0.00	-0.29	-199.58	-1.55
		120	Wind Normal	2.92	2.53	1.46	102.04	-177.54	-2.21
		150	Wind 90	2.63	1.32	2.28	159.34	-92.46	-0.46
		180	Wind 60	2.50	0.00	2.50	174.78	-0.30	-0.14
		210	Wind 90	2.61	-1.31	2.26	158.20	91.20	-1.65
		240	Wind Normal	2.92	-2.53	1.46	102.04	176.94	-1.13
		270	Wind 90	2.85	-2.85	0.00	-0.29	198.98	1.55
		300	Wind 60	2.74	-2.37	-1.37	-96.09	165.64	2.21
		330	Wind 90	2.63	-1.32	-2.28	-159.92	91.86	0.46
T10	60.00-40.00	0	Wind Normal	2.62	0.00	-2.62	-131.11	-0.34	0.15
		30	Wind 90	2.53	1.27	-2.19	-109.97	-63.64	1.73
		60	Wind 60	2.64	2.29	-1.32	-66.36	-114.72	1.20
		90	Wind 90	2.75	2.75	0.00	-0.32	-137.78	-1.62
		120	Wind Normal	2.84	2.46	1.42	70.57	-123.13	-2.33
		150	Wind 90	2.55	1.27	2.21	110.08	-64.08	-0.49
		180	Wind 60	2.42	0.00	2.42	120.75	-0.34	-0.15
		210	Wind 90	2.53	-1.27	2.19	109.32	62.96	-1.73
		240	Wind Normal	2.84	-2.46	1.42	70.57	122.45	-1.20
		270	Wind 90	2.75	-2.75	0.00	-0.32	137.10	1.62
		300	Wind 60	2.64	-2.29	-1.32	-66.36	114.04	2.33
		330	Wind 90	2.55	-1.27	-2.21	-110.73	63.40	0.49
T11	40.00-20.00	0	Wind Normal	2.62	0.00	-2.62	-79.04	-0.38	0.15
		30	Wind 90	2.51	1.25	-2.17	-65.48	-37.98	1.73
		60	Wind 60	2.59	2.24	-1.30	-39.22	-67.70	1.20
		90	Wind 90	2.70	2.70	0.00	-0.36	-81.41	-1.61
		120	Wind Normal	2.82	2.44	1.41	41.95	-73.66	-2.34
		150	Wind 90	2.52	1.26	2.18	65.17	-38.21	-0.50
		180	Wind 60	2.39	0.00	2.39	71.45	-0.38	-0.15
		210	Wind 90	2.51	-1.25	2.17	64.77	37.22	-1.73
		240	Wind Normal	2.82	-2.44	1.41	41.95	72.90	-1.20
		270	Wind 90	2.70	-2.70	0.00	-0.36	80.65	1.61
		300	Wind 60	2.59	-2.24	-1.30	-39.22	66.94	2.34
		330	Wind 90	2.52	-1.26	-2.18	-65.89	37.45	0.50
T12	20.00-0.00	0	Wind Normal	2.40	0.00	-2.40	-24.41	-0.42	0.14
		30	Wind 90	2.29	1.14	-1.98	-20.20	-11.86	1.65
		60	Wind 60	2.36	2.04	-1.18	-12.17	-20.82	1.16
		90	Wind 90	2.46	2.46	0.00	-0.39	-24.98	-1.53
		120	Wind Normal	2.57	2.23	1.29	12.48	-22.70	-2.23
		150	Wind 90	2.30	1.15	1.99	19.54	-11.92	-0.48
		180	Wind 60	2.18	0.00	2.18	21.46	-0.42	-0.14
		210	Wind 90	2.29	-1.14	1.98	19.42	11.02	-1.65
		240	Wind Normal	2.57	-2.23	1.29	12.48	21.86	-1.16
		270	Wind 90	2.46	-2.46	0.00	-0.39	24.14	1.53
		300	Wind 60	2.36	-2.04	-1.18	-12.17	19.98	2.23
		330	Wind 90	2.30	-1.15	-1.99	-20.32	11.08	0.48

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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

Mast Totals - No Ice

Wind Azimuth °	V_x K	V_z K	OTM_r kip-ft	OTM_t kip-ft	Torque kip-ft
0	0 00	-26 45	-2728 77	-2 37	0 91
30	13 10	-22 69	-2384 67	-1378 04	13 46
60	23 80	-13 74	-1449 98	-2510 45	9 91
90	28 38	0 00	-1 94	-2971 78	-11 14
120	24 82	14 33	1469 33	-2550 68	-16 17
150	12 96	22 45	2318 73	-1342 21	-2 53
180	0 00	24 75	2571 53	-2 37	-0 91
210	-13 03	22 57	2355 70	1358 82	-13 46
240	-25 03	14 45	1493 81	2588 34	-9 91
270	-28 24	0 00	-1 94	2938 07	11 14
300	-23 47	-13 55	-1411 02	2438 22	16 17
330	-12 96	-22 45	-2322 61	1337 47	2 53

Mast Vectors - With Ice

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_x K	V_z K	OTM_r kip-ft	OTM_t kip-ft	Torque kip-ft
T1	230.00-220.00	0	Wind Normal	0 12	0 00	-0 12	-27 04	0 32	-0 02
		30	Wind 90	0 12	0 06	-0 10	-23 30	-13 26	-0 01
		60	Wind 60	0 12	0 10	-0 06	-13 26	-23 03	0 00
		90	Wind 90	0 12	0 12	0 00	0 22	-26 54	0 01
		120	Wind Normal	0 10	0 09	0 05	11 60	-19 38	0 02
		150	Wind 90	0 10	0 05	0 09	20 09	-11 15	0 02
		180	Wind 60	0 10	0.00	0 10	23 26	0 32	0.02
		210	Wind 90	0 10	-0.05	0 09	20 09	11 79	0 01
		240	Wind Normal	0 10	-0 09	0 05	11 60	20 02	-0 00
		270	Wind 90	0 10	-0 10	0 00	0.22	22 97	-0 01
		300	Wind 60	0 10	-0 09	-0 05	-11 15	20 02	-0 02
		330	Wind 90	0 10	-0 05	-0 09	-19.65	11 79	-0 02
T2	220 00-200 00	0	Wind Normal	0 28	0 00	-0 28	-57 13	0 10	-0 05
		30	Wind 90	0 28	0 14	-0 25	-50 19	-29 65	0.01
		60	Wind 60	0 28	0 25	-0 14	-28 40	-51 39	0.05
		90	Wind 90	0 28	0 28	0 00	1 33	-58 29	0.07
		120	Wind Normal	0 24	0 21	0 12	26 28	-43 11	0.08
		150	Wind 90	0 24	0 12	0 21	44 57	-24 86	0.08
		180	Wind 60	0 24	0 00	0 24	52 33	0 10	0.05
		210	Wind 90	0 25	-0 12	0 21	46 39	26 12	-0 01
		240	Wind Normal	0 25	-0 21	0 12	27 33	45 13	-0.05
		270	Wind 90	0 24	-0 24	0 00	1 33	51 03	-0 07
		300	Wind 60	0 24	-0 21	-0 12	-23 61	43 31	-0 08
		330	Wind 90	0 24	-0 12	-0 21	-41 91	25 06	-0 08
T3	200.00-180.00	0	Wind Normal	0 31	0 00	-0 31	-59 52	-0 59	-0.03
		30	Wind 90	0.32	0 16	-0 28	-52.59	-30 89	0.03
		60	Wind 60	0 33	0 28	-0 16	-31 14	-54 35	0.04
		90	Wind 90	0 33	0 33	0 00	-0 11	-62 95	0 01
		120	Wind Normal	0 29	0 25	0 14	27 10	-47 72	0.01
		150	Wind 90	0 28	0 14	0 24	45 75	-27 07	0.04
		180	Wind 60	0 28	0 00	0 28	52 56	-0 59	0 03
		210	Wind 90	0 28	-0 14	0 25	46.53	26 33	-0 03

valmont
1545 Pidco Dr
Plymouth, IN
Phone: (574)936-4221
FAX: (574) 936-6458

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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

Section No.	Section Elevation ft	Wind Azimuth °	Directionality	F K	V_c K	V_s K	OTM_c kip-ft	OTM_s kip-ft	Torque kip-ft
		240	Wind Normal	0.29	-0.25	0.15	27.55	47.31	-0.04
		270	Wind 90	0.29	-0.29	0.00	-0.11	55.01	-0.01
		300	Wind 60	0.29	-0.25	-0.14	-27.32	46.54	-0.01
		330	Wind 90	0.28	-0.14	-0.24	-45.97	25.88	-0.04
T4	180.00-160.00	0	Wind Normal	0.38	0.00	-0.38	-65.96	-0.55	-0.03
		30	Wind 90	0.38	0.19	-0.33	-56.91	-32.94	0.02
		60	Wind 60	0.39	0.33	-0.19	-33.62	-57.38	0.02
		90	Wind 90	0.39	0.39	0.00	-0.81	-67.06	-0.01
		120	Wind Normal	0.39	0.34	0.20	32.63	-58.47	-0.01
		150	Wind 90	0.38	0.19	0.33	55.29	-32.94	0.03
		180	Wind 60	0.38	0.00	0.38	63.08	-0.55	0.03
		210	Wind 90	0.38	-0.19	0.33	55.29	31.84	-0.02
		240	Wind Normal	0.39	-0.34	0.20	32.63	57.36	-0.02
		270	Wind 90	0.39	-0.39	0.00	-0.81	65.95	0.01
		300	Wind 60	0.39	-0.33	-0.19	-33.62	56.27	0.01
		330	Wind 90	0.38	-0.19	-0.33	-56.91	31.84	-0.03
T5	160.00-140.00	0	Wind Normal	0.40	0.00	-0.40	-61.09	-0.79	-0.06
		30	Wind 90	0.40	0.20	-0.35	-52.94	-30.74	0.03
		60	Wind 60	0.41	0.35	-0.20	-31.60	-53.70	0.04
		90	Wind 90	0.41	0.41	0.00	-1.05	-62.90	-0.02
		120	Wind Normal	0.41	0.36	0.21	30.07	-54.69	-0.02
		150	Wind 90	0.40	0.20	0.35	50.84	-30.74	0.06
		180	Wind 60	0.39	0.00	0.39	57.85	-0.79	0.06
		210	Wind 90	0.40	-0.20	0.35	50.84	29.17	-0.03
		240	Wind Normal	0.41	-0.36	0.21	30.07	53.12	-0.04
		270	Wind 90	0.41	-0.41	0.00	-1.05	61.33	0.02
		300	Wind 60	0.41	-0.35	-0.20	-31.60	52.13	0.02
		330	Wind 90	0.40	-0.20	-0.35	-52.94	29.17	-0.06
T6	140.00-120.00	0	Wind Normal	0.42	0.00	-0.42	-55.95	-1.02	-0.08
		30	Wind 90	0.42	0.21	-0.36	-48.52	-28.29	0.04
		60	Wind 60	0.43	0.37	-0.21	-29.15	-49.27	0.06
		90	Wind 90	0.44	0.44	0.00	-1.29	-57.75	-0.04
		120	Wind Normal	0.44	0.38	0.22	27.13	-50.25	-0.04
		150	Wind 90	0.42	0.21	0.36	45.94	-28.29	0.08
		180	Wind 60	0.41	0.00	0.41	52.23	-1.02	0.08
		210	Wind 90	0.42	-0.21	0.36	45.94	26.24	-0.04
		240	Wind Normal	0.44	-0.38	0.22	27.13	48.21	-0.06
		270	Wind 90	0.44	-0.44	0.00	-1.29	55.70	0.04
		300	Wind 60	0.43	-0.37	-0.21	-29.15	47.22	0.04
		330	Wind 90	0.42	-0.21	-0.36	-48.52	26.24	-0.08
T7	120.00-100.00	0	Wind Normal	0.43	0.00	-0.43	-49.14	-1.26	-0.10
		30	Wind 90	0.43	0.21	-0.37	-42.50	-24.68	0.04
		60	Wind 60	0.44	0.38	-0.22	-25.92	-42.81	0.06
		90	Wind 90	0.45	0.45	0.00	-1.93	-50.47	-0.09
		120	Wind Normal	0.45	0.39	0.23	22.86	-44.19	-0.09
		150	Wind 90	0.43	0.22	0.37	39.07	-24.93	0.07
		180	Wind 60	0.42	0.00	0.42	44.18	-1.26	0.10
		210	Wind 90	0.43	-0.21	0.37	38.64	22.16	-0.04
		240	Wind Normal	0.45	-0.39	0.22	22.61	41.24	-0.06
		270	Wind 90	0.45	-0.45	0.00	-1.93	47.95	0.09
		300	Wind 60	0.44	-0.38	-0.22	-26.17	40.72	0.09
		330	Wind 90	0.43	-0.22	-0.37	-42.93	22.41	-0.07
T8	100.00-80.00	0	Wind Normal	0.43	0.00	-0.43	-40.79	-1.51	-0.12
		30	Wind 90	0.42	0.21	-0.37	-35.26	-20.50	0.05
		60	Wind 60	0.43	0.37	-0.22	-21.81	-35.18	0.06
		90	Wind 90	0.44	0.44	0.00	-2.37	-41.47	-0.11
		120	Wind Normal	0.45	0.39	0.22	17.83	-36.50	-0.12
		150	Wind 90	0.43	0.21	0.37	30.97	-20.76	0.07
		180	Wind 60	0.42	0.00	0.42	35.04	-1.51	0.12
		210	Wind 90	0.42	-0.21	0.37	30.52	17.48	-0.05
		240	Wind Normal	0.44	-0.38	0.22	17.57	33.03	-0.06

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1545 Pidco Dr

Plymouth, IN
Phone: (574)936-4221
FAX: (574) 936-6458

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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

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
		270	Wind 90	0.44	-0.44	0.00	-2.37	38.46	0.11
		300	Wind 60	0.44	-0.38	-0.22	-22.07	32.61	0.12
		330	Wind 90	0.43	-0.21	-0.37	-35.71	17.74	-0.07
T9	80.00-60.00	0	Wind Normal	0.43	0.00	-0.43	-33.13	-1.77	-0.12
		30	Wind 90	0.43	0.21	-0.37	-28.72	-16.80	0.05
		60	Wind 60	0.44	0.38	-0.22	-18.04	-28.35	0.07
		90	Wind 90	0.45	0.45	0.00	-2.69	-33.29	-0.12
		120	Wind Normal	0.46	0.39	0.23	13.27	-29.40	-0.14
		150	Wind 90	0.43	0.22	0.38	23.67	-16.99	0.08
		180	Wind 60	0.42	0.00	0.42	26.93	-1.77	0.12
		210	Wind 90	0.43	-0.21	0.37	23.34	13.26	-0.05
		240	Wind Normal	0.45	-0.39	0.23	13.07	25.53	-0.07
		270	Wind 90	0.45	-0.45	0.00	-2.69	29.75	0.12
		300	Wind 60	0.44	-0.38	-0.22	-18.23	25.15	0.14
		330	Wind 90	0.43	-0.22	-0.38	-29.05	13.45	-0.08
T10	60.00-40.00	0	Wind Normal	0.42	0.00	-0.42	-23.80	-2.04	-0.13
		30	Wind 90	0.41	0.20	-0.35	-20.73	-12.28	0.05
		60	Wind 60	0.42	0.36	-0.21	-13.44	-20.13	0.07
		90	Wind 90	0.43	0.43	0.00	-3.00	-23.50	-0.13
		120	Wind Normal	0.44	0.38	0.22	7.89	-20.90	-0.15
		150	Wind 90	0.41	0.21	0.36	14.97	-12.41	0.08
		180	Wind 60	0.40	0.00	0.40	17.18	-2.04	0.13
		210	Wind 90	0.41	-0.20	0.35	14.74	8.20	-0.05
		240	Wind Normal	0.43	-0.37	0.22	7.76	16.60	-0.07
		270	Wind 90	0.43	-0.43	0.00	-3.00	19.42	0.13
		300	Wind 60	0.42	-0.37	-0.21	-13.57	16.27	0.15
		330	Wind 90	0.41	-0.21	-0.36	-20.96	8.33	-0.08
T11	40.00-20.00	0	Wind Normal	0.39	0.00	-0.39	-15.04	-2.33	-0.12
		30	Wind 90	0.38	0.19	-0.33	-13.24	-8.08	0.06
		60	Wind 60	0.39	0.34	-0.19	-9.13	-12.46	0.07
		90	Wind 90	0.40	0.40	0.00	-3.28	-14.36	-0.13
		120	Wind Normal	0.41	0.35	0.20	2.86	-12.97	-0.15
		150	Wind 90	0.39	0.19	0.34	6.80	-8.15	0.07
		180	Wind 60	0.38	0.00	0.38	8.02	-2.33	0.12
		210	Wind 90	0.38	-0.19	0.33	6.68	3.42	-0.06
		240	Wind Normal	0.40	-0.35	0.20	2.79	8.19	-0.07
		270	Wind 90	0.40	-0.40	0.00	-3.28	9.69	0.13
		300	Wind 60	0.39	-0.34	-0.20	-9.19	7.91	0.15
		330	Wind 90	0.39	-0.19	-0.34	-13.36	3.49	-0.07
T12	20.00-0.00	0	Wind Normal	0.33	0.00	-0.33	-6.85	-2.68	-0.11
		30	Wind 90	0.33	0.16	-0.28	-6.32	-4.30	0.06
		60	Wind 60	0.33	0.29	-0.17	-5.16	-5.54	0.07
		90	Wind 90	0.34	0.34	0.00	-3.50	-6.08	-0.13
		120	Wind Normal	0.35	0.30	0.17	-1.75	-5.70	-0.15
		150	Wind 90	0.33	0.16	0.29	-0.65	-4.32	0.06
		180	Wind 60	0.32	0.00	0.32	-0.31	-2.68	0.11
		210	Wind 90	0.33	-0.16	0.28	-0.68	-1.05	-0.06
		240	Wind Normal	0.35	-0.30	0.17	-1.77	0.32	-0.07
		270	Wind 90	0.34	-0.34	0.00	-3.50	0.73	0.13
		300	Wind 60	0.33	-0.29	-0.17	-5.18	0.22	0.15
		330	Wind 90	0.33	-0.16	-0.29	-6.36	-1.03	-0.06

Mast Totals - With Ice

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	-4.35	-495.42	-14.12	-0.97
30	2.16	-3.74	-431.22	-252.42	0.42
60	3.81	-2.20	-260.65	-433.58	0.63
90	4.48	0.00	-18.48	-504.66	-0.70
120	3.83	2.21	217.75	-423.28	-0.76
150	2.12	3.68	377.31	-242.62	0.75
180	0.00	4.16	432.35	-14.12	0.97
210	-2.11	3.66	378.31	214.97	-0.42
240	-3.82	2.20	218.34	396.05	-0.63
270	-4.39	0.00	-18.48	457.99	0.70
300	-3.74	-2.16	-250.86	388.38	0.76
330	-2.12	-3.68	-414.26	214.39	-0.75

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	230.00-220.00	0	Wind Normal	0.12	0.00	-0.12	-27.50	0.06	-0.04
		30	Wind 90	0.12	0.06	-0.11	-23.81	-13.72	-0.02
		60	Wind 60	0.12	0.10	-0.06	-13.49	-23.40	0.00
		90	Wind 90	0.12	0.12	0.00	0.05	-26.50	0.02
		120	Wind Normal	0.11	0.10	0.06	12.48	-21.46	0.04
		150	Wind 90	0.11	0.06	0.10	21.98	-12.60	0.05
		180	Wind 60	0.11	0.00	0.11	25.38	0.06	0.04
		210	Wind 90	0.11	-0.06	0.10	21.98	12.72	0.02
		240	Wind Normal	0.11	-0.10	0.06	12.48	21.58	-0.00
		270	Wind 90	0.11	-0.11	0.00	0.05	24.38	-0.02
		300	Wind 60	0.11	-0.10	-0.06	-12.37	21.58	-0.04
		330	Wind 90	0.11	-0.06	-0.10	-21.88	12.72	-0.05
T2	220.00-200.00	0	Wind Normal	0.36	0.00	-0.36	-75.89	0.02	-0.04
		30	Wind 90	0.40	0.20	-0.34	-72.08	-41.76	0.12
		60	Wind 60	0.41	0.35	-0.20	-42.47	-74.02	0.20
		90	Wind 90	0.38	0.38	0.00	0.27	-79.85	0.15
		120	Wind Normal	0.34	0.29	0.17	35.51	-61.01	0.14
		150	Wind 90	0.33	0.16	0.28	59.62	-34.25	0.14
		180	Wind 60	0.34	0.00	0.34	72.50	0.02	0.04
		210	Wind 90	0.38	-0.19	0.33	69.22	39.82	-0.12
		240	Wind Normal	0.39	-0.34	0.19	41.05	70.65	-0.20
		270	Wind 90	0.36	-0.36	0.00	0.27	75.94	-0.15
		300	Wind 60	0.34	-0.29	-0.17	-34.96	61.05	-0.14
		330	Wind 90	0.33	-0.16	-0.28	-59.07	34.28	-0.14
T3	200.00-180.00	0	Wind Normal	0.52	0.00	-0.52	-98.45	-0.11	0.03
		30	Wind 90	0.56	0.28	-0.49	-92.34	-53.43	0.23
		60	Wind 60	0.61	0.53	-0.31	-58.26	-101.04	0.19
		90	Wind 90	0.62	0.62	0.00	0.01	-118.20	-0.09
		120	Wind Normal	0.57	0.49	0.29	54.18	-93.94	-0.15
		150	Wind 90	0.52	0.26	0.45	85.27	-49.33	0.01
		180	Wind 60	0.50	0.00	0.50	95.19	-0.11	-0.03
		210	Wind 90	0.54	-0.27	0.47	89.52	51.57	-0.23
		240	Wind Normal	0.60	-0.52	0.30	56.64	97.98	-0.19
		270	Wind 90	0.60	-0.60	0.00	0.01	114.70	0.09
		300	Wind 60	0.57	-0.49	-0.29	-54.17	93.73	0.15
		330	Wind 90	0.52	-0.26	-0.45	-85.25	49.12	-0.01
T4	180.00-160.00	0	Wind Normal	0.81	0.00	-0.81	-138.18	-0.10	0.02
		30	Wind 90	0.82	0.41	-0.71	-120.15	-69.40	0.23
		60	Wind 60	0.86	0.75	-0.43	-73.60	-127.37	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
		90	Wind 90	0.90	0.90	0.00	-0.12	-153.01	-0.21
		120	Wind Normal	0.91	0.78	0.45	76.82	-133.35	-0.28
		150	Wind 90	0.82	0.41	0.71	119.92	-69.40	-0.03
		180	Wind 60	0.77	0.00	0.77	131.04	-0.10	-0.02
		210	Wind 90	0.82	-0.41	0.71	119.92	69.20	-0.23
		240	Wind Normal	0.91	-0.78	0.45	76.82	133.15	-0.16
		270	Wind 90	0.90	-0.90	0.00	-0.12	152.81	0.21
		300	Wind 60	0.86	-0.75	-0.43	-73.60	127.18	0.28
		330	Wind 90	0.82	-0.41	-0.71	-120.15	69.20	0.03
T5	160.00-140.00	0	Wind Normal	0.84	0.00	-0.84	-125.79	-0.14	0.03
		30	Wind 90	0.84	0.42	-0.73	-109.12	-63.06	0.31
		60	Wind 60	0.89	0.77	-0.44	-66.61	-115.26	0.23
		90	Wind 90	0.92	0.92	0.00	-0.15	-138.26	-0.27
		120	Wind Normal	0.93	0.80	0.46	69.47	-120.72	-0.37
		150	Wind 90	0.84	0.42	0.73	108.83	-63.06	-0.05
		180	Wind 60	0.80	0.00	0.80	119.20	-0.14	-0.03
		210	Wind 90	0.84	-0.42	0.73	108.83	62.78	-0.31
		240	Wind Normal	0.93	-0.80	0.46	69.47	120.44	-0.23
		270	Wind 90	0.92	-0.92	0.00	-0.15	137.98	0.27
		300	Wind 60	0.89	-0.77	-0.44	-66.61	114.98	0.37
		330	Wind 90	0.84	-0.42	-0.73	-109.12	62.78	0.05
T6	140.00-120.00	0	Wind Normal	0.86	0.00	-0.86	-111.47	-0.18	0.03
		30	Wind 90	0.85	0.43	-0.74	-96.15	-55.59	0.38
		60	Wind 60	0.90	0.78	-0.45	-58.47	-101.14	0.29
		90	Wind 90	0.93	0.93	0.00	-0.18	-121.34	-0.32
		120	Wind Normal	0.94	0.82	0.47	61.18	-106.46	-0.46
		150	Wind 90	0.85	0.43	0.74	95.80	-55.59	-0.07
		180	Wind 60	0.81	0.00	0.81	104.99	-0.18	-0.03
		210	Wind 90	0.85	-0.43	0.74	95.80	55.23	-0.38
		240	Wind Normal	0.94	-0.82	0.47	61.18	106.10	-0.29
		270	Wind 90	0.93	-0.93	0.00	-0.18	120.98	0.32
		300	Wind 60	0.90	-0.78	-0.45	-58.47	100.78	0.46
		330	Wind 90	0.85	-0.43	-0.74	-96.15	55.23	0.07
T7	120.00-100.00	0	Wind Normal	0.87	0.00	-0.87	-96.45	-0.22	0.04
		30	Wind 90	0.86	0.43	-0.75	-82.27	-47.59	0.44
		60	Wind 60	0.91	0.79	-0.45	-50.13	-86.66	0.30
		90	Wind 90	0.94	0.94	0.00	-0.22	-103.96	-0.41
		120	Wind Normal	0.96	0.83	0.48	52.56	-91.64	-0.57
		150	Wind 90	0.87	0.43	0.75	82.31	-47.87	-0.11
		180	Wind 60	0.82	0.00	0.82	90.27	-0.22	-0.04
		210	Wind 90	0.86	-0.43	0.75	81.83	47.15	-0.44
		240	Wind Normal	0.96	-0.83	0.48	52.56	91.20	-0.30
		270	Wind 90	0.94	-0.94	0.00	-0.22	103.52	0.41
		300	Wind 60	0.91	-0.79	-0.45	-50.13	86.22	0.57
		330	Wind 90	0.87	-0.43	-0.75	-82.75	47.43	0.11
T8	100.00-80.00	0	Wind Normal	0.88	0.00	-0.88	-79.55	-0.26	0.04
		30	Wind 90	0.86	0.43	-0.75	-67.39	-39.02	0.49
		60	Wind 60	0.91	0.78	-0.45	-41.00	-70.83	0.33
		90	Wind 90	0.94	0.94	0.00	-0.26	-84.98	-0.47
		120	Wind Normal	0.96	0.83	0.48	43.05	-75.27	-0.66
		150	Wind 90	0.87	0.43	0.75	67.38	-39.31	-0.13
		180	Wind 60	0.82	0.00	0.82	73.91	-0.26	-0.04
		210	Wind 90	0.86	-0.43	0.75	66.87	38.50	-0.49
		240	Wind Normal	0.96	-0.83	0.48	43.05	74.75	-0.33
		270	Wind 90	0.94	-0.94	0.00	-0.26	84.46	0.47
		300	Wind 60	0.91	-0.78	-0.45	-41.00	70.31	0.66
		330	Wind 90	0.87	-0.43	-0.75	-67.89	38.79	0.13
T9	80.00-60.00	0	Wind Normal	0.88	0.00	-0.88	-61.72	-0.30	0.05
		30	Wind 90	0.85	0.43	-0.74	-52.04	-30.18	0.54
		60	Wind 60	0.89	0.77	-0.45	-31.57	-54.48	0.37
		90	Wind 90	0.93	0.93	0.00	-0.29	-65.37	-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
		120	Wind Normal	0 95	0 83	0 48	33 12	-58 17	-0 72
		150	Wind 90	0 86	0 43	0 74	51 83	-30 39	-0 15
		180	Wind 60	0 82	0 00	0 82	56 88	-0 30	-0 05
		210	Wind 90	0 85	-0 43	0 74	51 46	29 58	-0 54
		240	Wind Normal	0 95	-0 83	0 48	33 12	57 58	-0 37
		270	Wind 90	0 93	-0 93	0 00	-0 29	64 77	0 51
		300	Wind 60	0 89	-0 77	-0 45	-31 57	53 88	0 72
		330	Wind 90	0 86	-0 43	-0 74	-52 41	29 79	0 15
T10	60 00-40 00	0	Wind Normal	0 85	0 00	-0 85	-43 03	-0 34	0 05
		30	Wind 90	0 83	0 41	-0 72	-36 13	-21 01	0 57
		60	Wind 60	0 86	0 75	-0 43	-21 89	-37 69	0 39
		90	Wind 90	0 90	0 90	0 00	-0 32	-45 22	-0 53
		120	Wind Normal	0 93	0 80	0 46	22 82	-40 43	-0 76
		150	Wind 90	0 83	0 42	0 72	35 73	-21 15	-0 16
		180	Wind 60	0 79	0 00	0 79	39 21	-0 34	-0 05
		210	Wind 90	0 83	-0 41	0 72	35 48	20 33	-0 57
		240	Wind Normal	0 93	-0 80	0 46	22 82	39 75	-0 39
		270	Wind 90	0 90	-0 90	0 00	-0 32	44 54	0 53
		300	Wind 60	0 86	-0 75	-0 43	-21 89	37 01	0 76
		330	Wind 90	0 83	-0 42	-0 72	-36 37	20 47	0 16
T11	40 00-20 00	0	Wind Normal	0 86	0 00	-0 86	-26 05	-0 38	0 05
		30	Wind 90	0 82	0 41	-0 71	-21 62	-12 66	0 57
		60	Wind 60	0 85	0 73	-0 42	-13 05	-22 36	0 39
		90	Wind 90	0 88	0 88	0 00	-0 36	-26 84	-0 53
		120	Wind Normal	0 92	0 80	0 46	13 46	-24 31	-0 76
		150	Wind 90	0 82	0 41	0 71	21 04	-12 73	-0 16
		180	Wind 60	0 78	0 00	0 78	23 09	-0 38	-0 05
		210	Wind 90	0 82	-0 41	0 71	20 91	11 90	-0 57
		240	Wind Normal	0 92	-0 80	0 46	13 46	23 55	-0 39
		270	Wind 90	0 88	-0 88	0 00	-0 36	26 08	0 53
		300	Wind 60	0 85	-0 73	-0 42	-13 05	21 60	0 76
		330	Wind 90	0 82	-0 41	-0 71	-21 75	11 97	0 16
T12	20 00-0 00	0	Wind Normal	0 78	0 00	-0 78	-8 23	-0 42	0 05
		30	Wind 90	0 75	0 37	-0 65	-6 86	-4 15	0 54
		60	Wind 60	0 77	0 67	-0 38	-4 24	-7 08	0 38
		90	Wind 90	0 80	0 80	0 00	-0 39	-8 44	-0 50
		120	Wind Normal	0 84	0 73	0 42	3 81	-7 70	-0 73
		150	Wind 90	0 75	0 38	0 65	6 12	-4 18	-0 16
		180	Wind 60	0 71	0 00	0 71	6 74	-0 42	-0 05
		210	Wind 90	0 75	-0 37	0 65	6 08	3 31	-0 54
		240	Wind Normal	0 84	-0 73	0 42	3 81	6 86	-0 38
		270	Wind 90	0 80	-0 80	0 00	-0 39	7 60	0 50
		300	Wind 60	0 77	-0 67	-0 38	-4 24	6 24	0 73
		330	Wind 90	0 75	-0 38	-0 65	-6 90	3 34	0 16

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	-8.64	-892 33	-2 37	0 30
30	4.28	-7 41	-779 98	-451 57	4 40
60	7 77	-4 49	-474 77	-821 33	3 23
90	9 27	0.00	-1 94	-971 97	-3 64
120	8.10	4 68	478 47	-834 47	-5 28
150	4.23	7 33	755 83	-439 87	-0 83
180	0.00	8.08	838 38	-2 37	-0 30

Wind Azimuth °	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
210	-4 26	7.37	767 90	442 10	-4 40
240	-8 17	4 72	486.47	843 58	-3 23
270	-9 22	0.00	-1 94	957 77	3 64
300	-7 66	-4 42	-462.05	794 56	5 28
330	-4 23	-7 33	-759.71	435 13	0 83

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_fA_f Front ft^2	C_fA_f Side ft^2
5/8" x 10' lightning rod	240 0000	0.02	-2.00	1 15	235 00	1 515	36	0 63	0 63
Beacon	120 0000	0.07	2.00	1 15	231.00	1 510	36	2 40	2 40
OB light	240 0000	0.03	-5 25	3.03	115 00	1 303	31	0 50	0 50
OB light	120 0000	0.03	5.25	3.03	115 00	1 303	31	0 50	0 50
OB light	0 0000	0.03	0.00	-6.06	115 00	1 303	31	0 50	0 50
208 sq ft EPA	0.0000	4 16	0.00	0.00	225 00	1 501	36	208 00	208 00
130 sq ft EPA	0.0000	2 60	0.00	0.00	210 00	1 480	35	130 00	130.00
130 sq ft EPA	0.0000	2 60	0 00	0.00	195 00	1 457	35	130 00	130.00
	Sum Weight	9 55							

Discrete Appurtenance Vectors - No Ice

5 8" x 10' lightning rod - Elevation 235 - From Leg C

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0 01	0.02	0.00	-0.02	-4 51	0 05	-0 04
30	0 02	0.01	0 01	-0.02	-3 90	-2 22	-0 02
60	0 02	0.00	0 02	-0 01	-2 24	-3 88	0.00
90	0 02	0.01	0 02	0.00	0 03	-4 49	0 02
120	0 01	0.02	0 02	0.01	2 30	-3 88	0 04
150	0 00	0.02	0 01	0.02	3 96	-2 22	0 04
180	0 01	0 02	0.00	0 02	4 56	0 05	0 04
210	0 02	0.01	-0 01	0 02	3 96	2 31	0 02
240	0 02	0.00	-0 02	0 01	2 30	3 98	0 00
270	0 02	0 01	-0 02	0 00	0 03	4 58	-0 02
300	0 01	0 02	-0 02	-0 01	-2 24	3 98	-0 04
330	0 00	0.02	-0.01	-0.02	-3 90	2 31	-0 04

Beacon - Elevation 231 - From Leg B

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0 04	0 06	0 00	-0 07	-16 98	-0 15	0 15
30	0 00	0 07	0 04	-0 06	-14 70	-8 68	0 17
60	0 04	0 06	0 06	-0 04	-8 45	-14 93	0 15
90	0 06	0 04	0 07	0 00	0 08	-17 21	0 09
120	0 07	0 00	0 06	0 04	8 62	-14 93	0 00
150	0 06	0 04	0 04	0 06	14 86	-8 68	-0 09
180	0 04	0 06	0 00	0 07	17 15	-0 15	-0 15

Beacon - Elevation 231 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
210	0 00	0.07	-0 04	0 06	14 86	8 39	-0 17
240	0.04	0.06	-0 06	0.04	8 62	14 63	-0 15
270	0.06	0.04	-0 07	0 00	0 08	16.92	-0 09
300	0.07	0.00	-0 06	-0.04	-8 45	14 63	0 00
330	0.06	0.04	-0 04	-0.06	-14 70	8 39	0 09

OB light - Elevation 115 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0 01	0 01	0 00	-0 01	-1 44	0 16	-0 07
30	0 01	0 01	0 01	-0 01	-1 23	-0 61	-0 04
60	0 01	0 00	0 01	-0 01	-0 67	-1 17	0 00
90	0 01	0 01	0 01	0 00	0 09	-1 37	0 04
120	0 01	0 01	0 01	0 01	0 86	-1 17	0 07
150	0 00	0 01	0 01	0 01	1 41	-0 61	0 08
180	0 01	0 01	0 00	0 01	1 62	0 16	0 07
210	0 01	0 01	-0 01	0 01	1 41	0 92	0 04
240	0 01	0 00	-0 01	0 01	0 86	1 48	0 00
270	0 01	0 01	-0 01	0 00	0 09	1 69	-0 04
300	0 01	0 01	-0 01	-0 01	-0 67	1 48	-0 07
330	0 00	0 01	-0 01	-0 01	-1 23	0 92	-0 08

OB light - Elevation 115 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0 01	0 01	0 00	-0 01	-1 44	-0 16	0 07
30	0 00	0 01	0 01	-0 01	-1 23	-0 92	0 08
60	0 01	0 01	0 01	-0 01	-0 67	-1 48	0 07
90	0 01	0 01	0 01	0 00	0 09	-1 69	0 04
120	0 01	0 00	0 01	0 01	0 86	-1 48	0 00
150	0 01	0 01	0 01	0 01	1 41	-0 92	-0 04
180	0 01	0 01	0 00	0 01	1 62	-0 16	-0 07
210	0 00	0 01	-0 01	0 01	1 41	0 61	-0 08
240	0 01	0 01	-0 01	0 01	0 86	1 17	-0 07
270	0 01	0 01	-0 01	0 00	0 09	1 37	-0 04
300	0 01	0 00	-0 01	-0 01	-0 67	1 17	0 00
330	0 01	0 01	-0 01	-0 01	-1 23	0 61	0 04

OB light - Elevation 115 - From Leg A							
Wind Azimuth °	F_a K	F_s 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	-1 71	0 00	0 00
30	0 01	0 01	0 01	-0 01	-1 51	-0 76	-0 04
60	0 01	0 01	0 01	-0 01	-0 95	-1 32	-0 07
90	0 00	0 01	0 01	0 00	-0 18	-1 53	-0 08
120	0 01	0 01	0 01	0 01	0 58	-1 32	-0 07
150	0 01	0 01	0 01	0 01	1 14	-0 76	-0 04
180	0 01	0 00	0 00	0 01	1 35	0 00	0 00
210	0 01	0 01	-0 01	0 01	1 14	0 76	0 04
240	0 01	0 01	-0 01	0 01	0 58	1 32	0 07
270	0 00	0 01	-0 01	0 00	-0 18	1 53	0 08

OB light - Elevation 115 - From Leg A

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
300	0.01	0.01	-0.01	-0.01	-0.95	1.32	0.07
330	0.01	0.01	-0.01	-0.01	-1.51	0.76	0.04

208 sq.ft. EPA - Elevation 225 - None C

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	6.37	0.00	0.00	-6.37	-1432.68	0.00	0.00
30	6.37	0.00	3.18	-5.51	-1240.74	-716.34	0.00
60	6.37	0.00	5.51	-3.18	-716.34	-1240.74	0.00
90	6.37	0.00	6.37	0.00	0.00	-1432.68	0.00
120	6.37	0.00	5.51	3.18	716.34	-1240.74	0.00
150	6.37	0.00	3.18	5.51	1240.74	-716.34	0.00
180	6.37	0.00	0.00	6.37	1432.68	0.00	0.00
210	6.37	0.00	-3.18	5.51	1240.74	716.34	0.00
240	6.37	0.00	-5.51	3.18	716.34	1240.74	0.00
270	6.37	0.00	-6.37	0.00	0.00	1432.68	0.00
300	6.37	0.00	-5.51	-3.18	-716.34	1240.74	0.00
330	6.37	0.00	-3.18	-5.51	-1240.74	716.34	0.00

130 sq.ft. EPA - Elevation 210 - None B

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	3.14	0.00	0.00	-3.14	-658.94	0.00	0.00
30	3.14	0.00	1.57	-2.72	-570.66	-329.47	0.00
60	3.14	0.00	2.72	-1.57	-329.47	-570.66	0.00
90	3.14	0.00	3.14	0.00	0.00	-658.94	0.00
120	3.14	0.00	2.72	1.57	329.47	-570.66	0.00
150	3.14	0.00	1.57	2.72	570.66	-329.47	0.00
180	3.14	0.00	0.00	3.14	658.94	0.00	0.00
210	3.14	0.00	-1.57	2.72	570.66	329.47	0.00
240	3.14	0.00	-2.72	1.57	329.47	570.66	0.00
270	3.14	0.00	-3.14	0.00	0.00	658.94	0.00
300	3.14	0.00	-2.72	-1.57	-329.47	570.66	0.00
330	3.14	0.00	-1.57	-2.72	-570.66	329.47	0.00

130 sq.ft. EPA - Elevation 195 - None A

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	3.09	0.00	0.00	-3.09	-602.40	0.00	0.00
30	3.09	0.00	1.54	-2.68	-521.70	-301.20	0.00
60	3.09	0.00	2.68	-1.54	-301.20	-521.70	0.00
90	3.09	0.00	3.09	0.00	0.00	-602.40	0.00
120	3.09	0.00	2.68	1.54	301.20	-521.70	0.00
150	3.09	0.00	1.54	2.68	521.70	-301.20	0.00
180	3.09	0.00	0.00	3.09	602.40	0.00	0.00
210	3.09	0.00	-1.54	2.68	521.70	301.20	0.00
240	3.09	0.00	-2.68	1.54	301.20	521.70	0.00
270	3.09	0.00	-3.09	0.00	0.00	602.40	0.00
300	3.09	0.00	-2.68	-1.54	-301.20	521.70	0.00
330	3.09	0.00	-1.54	-2.68	-521.70	301.20	0.00

valmont

1545 Pidco Dr

Plymouth, IN
Phone: (574)936-4221
FAX: (574) 936-6458

Job	Page
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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

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	-12.73	-2720.10	-0.10	0.11
30	6.36	-11.02	-2355.66	-1360.21	0.15
60	11.02	-6.36	-1360.00	-2355.87	0.15
90	12.73	0.00	0.11	-2720.31	0.11
120	11.02	6.36	1360.22	-2355.87	0.04
150	6.36	11.02	2355.88	-1360.21	-0.04
180	0.00	12.73	2720.32	-0.10	-0.11
210	-6.36	11.02	2355.88	1360.01	-0.15
240	-11.02	6.36	1360.22	2355.67	-0.15
270	-12.73	0.00	0.11	2720.11	-0.11
300	-11.02	-6.36	-1360.00	2355.67	-0.04
330	-6.36	-11.02	-2355.66	1360.01	0.04

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 ft^2	C_AA_C Side ft^2	t_z in
5/8" x 10' lightning rod	240.0000	0.08	-2.00	1.15	235.00	1.515	3	4.28	4.28	1.8254
Beacon	120.0000	0.16	2.00	1.15	231.00	1.510	3	3.39	3.39	1.8222
OB light	240.0000	0.05	-5.25	3.03	115.00	1.303	3	0.84	0.84	1.6995
OB light	120.0000	0.05	5.25	3.03	115.00	1.303	3	0.84	0.84	1.6995
OB light	0.0000	0.05	0.00	-6.06	115.00	1.303	3	0.84	0.84	1.6995
208 sq.ft. EPA	0.0000	7.94	0.00	0.00	225.00	1.501	3	397.01	397.01	1.8174
130 sq.ft. EPA	0.0000	4.95	0.00	0.00	210.00	1.480	3	247.32	247.32	1.8049
130 sq.ft. EPA	0.0000	4.93	0.00	0.00	195.00	1.457	3	246.45	246.45	1.7916
	Sum Weight:	18.20								

Discrete Appurtenance Vectors - With Ice

5/8" x 10' lightning rod - Elevation 235 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.01	0.00	-0.01	-2.44	0.16	-0.02
30	0.01	0.01	0.01	-0.01	-2.10	-1.10	-0.01
60	0.01	0.00	0.01	-0.01	-1.17	-2.03	0.00
90	0.01	0.01	0.01	0.00	0.09	-2.37	0.01
120	0.01	0.01	0.01	0.01	1.36	-2.03	0.02
150	0.00	0.01	0.01	0.01	2.29	-1.10	0.02
180	0.01	0.01	0.00	0.01	2.63	0.16	0.02
210	0.01	0.01	-0.01	0.01	2.29	1.43	0.01
240	0.01	0.00	-0.01	0.01	1.36	2.36	0.00
270	0.01	0.01	-0.01	0.00	0.09	2.70	-0.01
300	0.01	0.01	-0.01	-0.01	-1.17	2.36	-0.02
330	0.00	0.01	-0.01	-0.01	-2.10	1.43	-0.02

Beacon - Elevation 231 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.00	0.01	0.00	-0.01	-1.78	-0.32	0.02
30	0.00	0.01	0.00	-0.01	-1.52	-1.30	0.02
60	0.00	0.01	0.01	-0.00	-0.80	-2.02	0.02
90	0.01	0.00	0.01	0.00	0.19	-2.29	0.01
120	0.01	0.00	0.01	0.00	1.17	-2.02	0.00
150	0.01	0.00	0.00	0.01	1.89	-1.30	-0.01
180	0.00	0.01	0.00	0.01	2.15	-0.32	-0.02
210	0.00	0.01	-0.00	0.01	1.89	0.66	-0.02
240	0.00	0.01	-0.01	0.00	1.17	1.38	-0.02
270	0.01	0.00	-0.01	0.00	0.19	1.64	-0.01
300	0.01	0.00	-0.01	-0.00	-0.80	1.38	0.00
330	0.01	0.00	-0.00	-0.01	-1.52	0.66	0.01

OB light - Elevation 115 - From Leg C							
Wind Azimuth °	F_a K	F_s 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	-0.07	0.25	-0.01
30	0.00	0.00	0.00	-0.00	-0.04	0.14	-0.01
60	0.00	0.00	0.00	-0.00	0.04	0.07	0.00
90	0.00	0.00	0.00	0.00	0.14	0.04	0.01
120	0.00	0.00	0.00	0.00	0.25	0.07	0.01
150	0.00	0.00	0.00	0.00	0.32	0.14	0.01
180	0.00	0.00	0.00	0.00	0.35	0.25	0.01
210	0.00	0.00	-0.00	0.00	0.32	0.35	0.01
240	0.00	0.00	-0.00	0.00	0.25	0.43	0.00
270	0.00	0.00	-0.00	0.00	0.14	0.46	-0.01
300	0.00	0.00	-0.00	-0.00	0.04	0.43	-0.01
330	0.00	0.00	-0.00	-0.00	-0.04	0.35	-0.01

OB light - Elevation 115 - From Leg B							
Wind Azimuth °	F_a K	F_s 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	-0.07	-0.25	0.01
30	0.00	0.00	0.00	-0.00	-0.04	-0.35	0.01
60	0.00	0.00	0.00	-0.00	0.04	-0.43	0.01
90	0.00	0.00	0.00	0.00	0.14	-0.46	0.01
120	0.00	0.00	0.00	0.00	0.25	-0.43	0.00
150	0.00	0.00	0.00	0.00	0.32	-0.35	-0.01
180	0.00	0.00	0.00	0.00	0.35	-0.25	-0.01
210	0.00	0.00	-0.00	0.00	0.32	-0.14	-0.01
240	0.00	0.00	-0.00	0.00	0.25	-0.07	-0.01
270	0.00	0.00	-0.00	0.00	0.14	-0.04	-0.01
300	0.00	0.00	-0.00	-0.00	0.04	-0.07	0.00
330	0.00	0.00	-0.00	-0.00	-0.04	-0.14	0.01

OB light - Elevation 115 - From Leg A							
Wind Azimuth °	F_a K	F_s 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	-0.49	0.00	0.00
30	0.00	0.00	0.00	-0.00	-0.47	-0.10	-0.01

valmont

1545 Pidco Dr

Plymouth IN
Phone (574)936-4221
FAX (574) 936-6458

Job	Page
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Project	**Date**
U-22 x 230' - HV1574 Shrewsberry, KY	12:33:09 08/19/22
Client	**Designed by**
Horvath Towers	Joseph

OB light - Elevation 115 - From Leg A

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
60	0.00	0.00	0.00	-0.00	-0.39	-0.18	-0.01
90	0.00	0.00	0.00	0.00	-0.28	-0.21	-0.01
120	0.00	0.00	0.00	0.00	-0.18	-0.18	-0.01
150	0.00	0.00	0.00	0.00	-0.10	-0.10	-0.01
180	0.00	0.00	0.00	0.00	-0.08	0.00	0.00
210	0.00	0.00	-0.00	0.00	-0.10	0.10	0.01
240	0.00	0.00	-0.00	0.00	-0.18	0.18	0.01
270	0.00	0.00	-0.00	0.00	-0.28	0.21	0.01
300	0.00	0.00	-0.00	-0.00	-0.39	0.18	0.01
330	0.00	0.00	-0.00	-0.00	-0.47	0.10	0.01

208 sq.ft. EPA - Elevation 225 - None C

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.99	0.00	0.00	-0.99	-223.23	0.00	0.00
30	0.99	0.00	0.50	-0.86	-193.32	-111.62	0.00
60	0.99	0.00	0.86	-0.50	-111.62	-193.32	0.00
90	0.99	0.00	0.99	0.00	0.00	-223.23	0.00
120	0.99	0.00	0.86	0.50	111.62	-193.32	0.00
150	0.99	0.00	0.50	0.86	193.32	-111.62	0.00
180	0.99	0.00	0.00	0.99	223.23	0.00	0.00
210	0.99	0.00	-0.50	0.86	193.32	111.62	0.00
240	0.99	0.00	-0.86	0.50	111.62	193.32	0.00
270	0.99	0.00	-0.99	0.00	0.00	223.23	0.00
300	0.99	0.00	-0.86	-0.50	-111.62	193.32	0.00
330	0.99	0.00	-0.50	-0.86	-193.32	111.62	0.00

130 sq.ft. EPA - Elevation 210 - None B

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.49	0.00	0.00	-0.49	-102.34	0.00	0.00
30	0.49	0.00	0.24	-0.42	-88.63	-51.17	0.00
60	0.49	0.00	0.42	-0.24	-51.17	-88.63	0.00
90	0.49	0.00	0.49	0.00	0.00	-102.34	0.00
120	0.49	0.00	0.42	0.24	51.17	-88.63	0.00
150	0.49	0.00	0.24	0.42	88.63	-51.17	0.00
180	0.49	0.00	0.00	0.49	102.34	0.00	0.00
210	0.49	0.00	-0.24	0.42	88.63	51.17	0.00
240	0.49	0.00	-0.42	0.24	51.17	88.63	0.00
270	0.49	0.00	-0.49	0.00	0.00	102.34	0.00
300	0.49	0.00	-0.42	-0.24	-51.17	88.63	0.00
330	0.49	0.00	-0.24	-0.42	-88.63	51.17	0.00

130 sq.ft. EPA - Elevation 195 - None A

Wind Azimuth °	F_a K	F_s 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	-93.23	0.00	0.00
30	0.48	0.00	0.24	-0.41	-80.74	-46.61	0.00
60	0.48	0.00	0.41	-0.24	-46.61	-80.74	0.00
90	0.48	0.00	0.48	0.00	0.00	-93.23	0.00
120	0.48	0.00	0.41	0.24	46.61	-80.74	0.00

130 sq ft. EPA - Elevation 195 - None A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
150	0.48	0.00	0 24	0 41	80 74	-46.61	0 00
180	0.48	0.00	0 00	0 48	93 23	0 00	0 00
210	0.48	0.00	-0 24	0 41	80 74	46 61	0 00
240	0.48	0.00	-0 41	0 24	46 61	80 74	0 00
270	0.48	0.00	-0 48	0.00	0.00	93.23	0 00
300	0 48	0.00	-0 41	-0 24	-46 61	80.74	0 00
330	0 48	0.00	-0 24	-0 41	-80 74	46.61	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 98	-423 64	-0 16	-0 00
30	0 99	-1 72	-366 85	-212 12	0 01
60	1 72	-0 99	-211 68	-367 29	0 02
90	1 98	0.00	0 28	-424 08	0 02
120	1 72	0.99	212 24	-367 29	0 02
150	0 99	1 72	367 41	-212 12	0 02
180	0 00	1 98	424 20	-0 16	0 00
210	-0 99	1 72	367.41	211 80	-0 01
240	-1 72	0 99	212.24	366 97	-0 02
270	-1 98	0 00	0.28	423 76	-0 02
300	-1 72	-0 99	-211 68	366.97	-0 02
330	-0 99	-1 72	-366.85	211 80	-0 02

Discrete Appurtenance Pressures - Service $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_A Front ft^2	C_AA_A Side ft^2
5/8" x 10' lightning rod	240 0000	0 02	-2 00	1 15	235 00	1 515	12	0 63	0 63
Beacon	120 0000	0 07	2 00	1 15	231 00	1 510	12	2 40	2 40
OB light	240 0000	0 03	-5 25	3 03	115 00	1 303	10	0 50	0 50
OB light	120 0000	0 03	5 25	3 03	115 00	1 303	10	0 50	0 50
OB light	0 0000	0 03	0 00	-6 06	115 00	1 303	10	0 50	0 50
208 sq ft EPA	0.0000	4 16	0 00	0.00	225 00	1 501	12	208 00	208 00
130 sq ft EPA	0.0000	2 60	0 00	0.00	210 00	1 480	12	130 00	130 00
130 sq ft EPA	0.0000	2 60	0 00	0.00	195 00	1 457	11	130 00	130 00
	Sum Weight:	9 55							

Discrete Appurtenance Vectors - Service

5 8" x 10' lightning rod - Elevation 235 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0 00	0 01	0.00	-0 01	-1 46	0 05	-0 01

5/8" x 10' lightning rod - Elevation 235 - From Leg C							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
30	0.01	0.00	0.00	-0.01	-1.26	-0.69	-0.01
60	0.01	0.00	0.01	-0.00	-0.71	-1.24	0.00
90	0.01	0.00	0.01	0.00	0.03	-1.44	0.01
120	0.00	0.01	0.01	0.00	0.77	-1.24	0.01
150	0.00	0.01	0.00	0.01	1.31	-0.69	0.01
180	0.00	0.01	0.00	0.01	1.51	0.05	0.01
210	0.01	0.00	-0.00	0.01	1.31	0.79	0.01
240	0.01	0.00	-0.01	0.00	0.77	1.33	0.00
270	0.01	0.00	-0.01	0.00	0.03	1.53	-0.01
300	0.00	0.01	-0.01	-0.00	-0.71	1.33	-0.01
330	0.00	0.01	-0.00	-0.01	-1.26	0.79	-0.01

Beacon - Elevation 231 - From Leg B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	0.01	0.02	0.00	-0.02	-5.49	-0.15	0.05
30	0.00	0.02	0.01	-0.02	-4.74	-2.93	0.06
60	0.01	0.02	0.02	-0.01	-2.70	-4.97	0.05
90	0.02	0.01	0.02	0.00	0.08	-5.72	0.03
120	0.02	0.00	0.02	0.01	2.87	-4.97	0.00
150	0.02	0.01	0.01	0.02	4.91	-2.93	-0.03
180	0.01	0.02	0.00	0.02	5.66	-0.15	-0.05
210	0.00	0.02	-0.01	0.02	4.91	2.64	-0.06
240	0.01	0.02	-0.02	0.01	2.87	4.68	-0.05
270	0.02	0.01	-0.02	0.00	0.08	5.43	-0.03
300	0.02	0.00	-0.02	-0.01	-2.70	4.68	0.00
330	0.02	0.01	-0.01	-0.02	-4.74	2.64	0.03

OB light - Elevation 115 - From Leg C							
Wind Azimuth °	F_a K	F_s 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	-0.41	0.16	-0.02
30	0.00	0.00	0.00	-0.00	-0.34	-0.09	-0.01
60	0.00	0.00	0.00	-0.00	-0.16	-0.27	0.00
90	0.00	0.00	0.00	0.00	0.09	-0.34	0.01
120	0.00	0.00	0.00	0.00	0.34	-0.27	0.02
150	0.00	0.00	0.00	0.00	0.52	-0.09	0.03
180	0.00	0.00	0.00	0.00	0.59	0.16	0.02
210	0.00	0.00	-0.00	0.00	0.52	0.41	0.01
240	0.00	0.00	-0.00	0.00	0.34	0.59	0.00
270	0.00	0.00	-0.00	0.00	0.09	0.66	-0.01
300	0.00	0.00	-0.00	-0.00	-0.16	0.59	-0.02
330	0.00	0.00	-0.00	-0.00	-0.34	0.41	-0.03

OB light - Elevation 115 - From Leg B							
Wind Azimuth °	F_a K	F_s 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	-0.41	-0.16	0.02
30	0.00	0.00	0.00	-0.00	-0.34	-0.41	0.03
60	0.00	0.00	0.00	-0.00	-0.16	-0.59	0.02
90	0.00	0.00	0.00	0.00	0.09	-0.66	0.01

OB light - Elevation 115 - From Leg B

Wind Azimuth °	F_a K	F_s 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 34	-0 59	0.00
150	0.00	0.00	0 00	0.00	0 52	-0.41	-0 01
180	0.00	0.00	0 00	0.00	0 59	-0 16	-0 02
210	0.00	0.00	-0 00	0.00	0 52	0.09	-0 03
240	0.00	0.00	-0 00	0.00	0 34	0 27	-0 02
270	0.00	0.00	-0 00	0.00	0 09	0 34	-0 01
300	0.00	0.00	-0 00	-0.00	-0 16	0 27	0 00
330	0.00	0.00	-0 00	-0.00	-0 34	0 09	0 01

OB light - Elevation 115 - From Leg A

Wind Azimuth °	F_a K	F_s 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 68	0 00	0.00
30	0.00	0.00	0.00	-0 00	-0 61	-0 25	-0 01
60	0.00	0.00	0.00	-0.00	-0 43	-0 43	-0 02
90	0 00	0.00	0.00	0.00	-0 18	-0 50	-0 03
120	0.00	0.00	0.00	0.00	0 07	-0 43	-0 02
150	0.00	0.00	0.00	0 00	0 25	-0 25	-0 01
180	0.00	0.00	0.00	0.00	0 32	0 00	0 00
210	0.00	0 00	-0.00	0.00	0 25	0 25	0 01
240	0.00	0.00	-0.00	0.00	0 07	0 43	0 02
270	0 00	0.00	-0.00	0 00	-0 18	0 50	0 03
300	0 00	0.00	-0.00	-0 00	-0.43	0 43	0 02
330	0 00	0.00	-0.00	-0 00	-0.61	0.25	0 01

208 sq ft. EPA - Elevation 225 - None C

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	2.08	0 00	0.00	-2 08	-467 81	0 00	0 00
30	2.08	0 00	1.04	-1.80	-405 14	-233 91	0 00
60	2 08	0 00	1.80	-1 04	-233 91	-405 14	0 00
90	2.08	0 00	2 08	0 00	0 00	-467 81	0 00
120	2.08	0 00	1.80	1 04	233 91	-405 14	0 00
150	2.08	0 00	1.04	1.80	405 14	-233 91	0 00
180	2.08	0 00	0.00	2.08	467 81	0 00	0 00
210	2 08	0 00	-1.04	1 80	405 14	233 91	0 00
240	2.08	0 00	-1 80	1 04	233 91	405 14	0 00
270	2 08	0 00	-2.08	0 00	0 00	467 81	0 00
300	2 08	0 00	-1.80	-1 04	-233 91	405 14	0 00
330	2 08	0 00	-1 04	-1 80	-405 14	233 91	0 00

130 sq ft. EPA - Elevation 210 - None B

Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1 02	0 00	0 00	-1.02	-215 16	0 00	0 00
30	1 02	0 00	0 51	-0.89	-186 34	-107 58	0 00
60	1 02	0 00	0 89	-0 51	-107 58	-186 34	0 00
90	1 02	0 00	1 02	0.00	0 00	-215 16	0 00
120	1 02	0 00	0 89	0.51	107 58	-186 34	0 00
150	1 02	0.00	0 51	0 89	186 34	-107 58	0 00
180	1 02	0 00	0 00	1 02	215 16	0 00	0 00

130 sq ft EPA - Elevation 210 - None B							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
210	1.02	0.00	-0.51	0.89	186.34	107.58	0.00
240	1.02	0.00	-0.89	0.51	107.58	186.34	0.00
270	1.02	0.00	-1.02	0.00	0.00	215.16	0.00
300	1.02	0.00	-0.89	-0.51	-107.58	186.34	0.00
330	1.02	0.00	-0.51	-0.89	-186.34	107.58	0.00

130 sq ft EPA - Elevation 195 - None A							
Wind Azimuth °	F_a K	F_s K	V_x K	V_z K	OTM_x kip-ft	OTM_z kip-ft	Torque kip-ft
0	1.01	0.00	0.00	-1.01	-196.70	0.00	0.00
30	1.01	0.00	0.50	-0.87	-170.35	-98.35	0.00
60	1.01	0.00	0.87	-0.50	-98.35	-170.35	0.00
90	1.01	0.00	1.01	0.00	0.00	-196.70	0.00
120	1.01	0.00	0.87	0.50	98.35	-170.35	0.00
150	1.01	0.00	0.50	0.87	170.35	-98.35	0.00
180	1.01	0.00	0.00	1.01	196.70	0.00	0.00
210	1.01	0.00	-0.50	0.87	170.35	98.35	0.00
240	1.01	0.00	-0.87	0.50	98.35	170.35	0.00
270	1.01	0.00	-1.01	0.00	0.00	196.70	0.00
300	1.01	0.00	-0.87	-0.50	-98.35	170.35	0.00
330	1.01	0.00	-0.50	-0.87	-170.35	98.35	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	-4.16	-888.12	-0.10	0.04
30	2.08	-3.60	-769.12	-444.22	0.05
60	3.60	-2.08	-444.01	-769.33	0.05
90	4.16	0.00	0.11	-888.33	0.04
120	3.60	2.08	444.23	-769.33	0.01
150	2.08	3.60	769.34	-444.22	-0.01
180	0.00	4.16	888.34	-0.10	-0.04
210	-2.08	3.60	769.34	444.02	-0.05
240	-3.60	2.08	444.23	769.13	-0.05
270	-4.16	0.00	0.11	888.13	-0.04
300	-3.60	-2.08	-444.01	769.13	-0.01
330	-2.08	-3.60	-769.12	444.02	0.01

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	19.80					
Bracing Weight	8.07					
Total Member Self-Weight	27.87			-1.83	-2.47	

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
Total Weight	43.16			-1.83	-2.47	
Wind 0 deg - No Ice		0.00	-39.18	-5448.87	-2.47	1.02
Wind 30 deg - No Ice		19.47	-33.72	-4740.33	-2738.25	13.61
Wind 60 deg - No Ice		34.82	-20.10	-2809.98	-4866.32	10.05
Wind 90 deg - No Ice		41.11	0.00	-1.83	-5692.09	-11.04
Wind 120 deg - No Ice		35.84	20.69	2829.55	-4906.55	-16.13
Wind 150 deg - No Ice		19.33	33.47	4674.62	-2702.42	-2.57
Wind 180 deg - No Ice		0.00	37.48	5291.86	-2.47	-1.02
Wind 210 deg - No Ice		-19.40	33.59	4711.59	2718.82	-13.61
Wind 240 deg - No Ice		-36.05	20.81	2854.02	4944.02	-10.05
Wind 270 deg - No Ice		-40.97	0.00	-1.83	5658.18	11.04
Wind 300 deg - No Ice		-34.49	-19.91	-2771.01	4793.90	16.13
Wind 330 deg - No Ice		-19.33	-33.47	-4678.28	2697.48	2.57
Member Ice	51.46					
Total Weight Ice	128.53			-18.20	-14.28	
Wind 0 deg - Ice		0.00	-6.33	-919.07	-14.28	-0.98
Wind 30 deg - Ice		3.15	-5.46	-798.07	-464.54	0.43
Wind 60 deg - Ice		5.52	-3.19	-472.34	-800.87	0.64
Wind 90 deg - Ice		6.46	0.00	-18.20	-928.74	-0.68
Wind 120 deg - Ice		5.55	3.20	430.00	-790.57	-0.74
Wind 150 deg - Ice		3.11	5.39	744.71	-454.74	0.76
Wind 180 deg - Ice		0.00	6.14	856.55	-14.28	0.98
Wind 210 deg - Ice		-3.11	5.38	745.72	426.77	-0.43
Wind 240 deg - Ice		-5.53	3.19	430.58	763.02	-0.64
Wind 270 deg - Ice		-6.37	0.00	-18.20	881.76	0.68
Wind 300 deg - Ice		-5.46	-3.15	-462.54	755.35	0.74
Wind 330 deg - Ice		-3.11	-5.39	-781.10	426.19	-0.76
Total Weight	43.16			-1.83	-2.47	
Wind 0 deg - Service		0.00	-12.79	-1778.52	-0.10	0.33
Wind 30 deg - Service		6.36	-11.01	-1547.16	-893.41	4.44
Wind 60 deg - Service		11.37	-6.56	-916.83	-1588.30	3.28
Wind 90 deg - Service		13.42	0.00	0.11	-1857.94	-3.60
Wind 120 deg - Service		11.70	6.76	924.64	-1601.43	-5.27
Wind 150 deg - Service		6.31	10.93	1527.11	-881.72	-0.84
Wind 180 deg - Service		0.00	12.24	1728.66	-0.10	-0.33
Wind 210 deg - Service		-6.33	10.97	1539.19	888.48	-4.44
Wind 240 deg - Service		-11.77	6.80	932.63	1615.08	-3.28
Wind 270 deg - Service		-13.38	0.00	0.11	1848.28	3.60
Wind 300 deg - Service		-11.26	-6.50	-904.11	1566.06	5.27
Wind 330 deg - Service		-6.31	-10.93	-1526.89	881.52	0.84

Load Combinations

Comb No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	1.2D+1.0W (pattern 1) 0 deg - No Ice
4	1.2D+1.0W (pattern 2) 0 deg - No Ice
5	0.9 Dead+1.0 Wind 0 deg - No Ice
6	1.2 Dead+1.0 Wind 30 deg - No Ice
7	1.2D+1.0W (pattern 1) 30 deg - No Ice
8	1.2D+1.0W (pattern 2) 30 deg - No Ice
9	0.9 Dead+1.0 Wind 30 deg - No Ice
10	1.2 Dead+1.0 Wind 60 deg - No Ice
11	1.2D+1.0W (pattern 1) 60 deg - No Ice

Comb. No.	Description
12	1.2D+1.0W (pattern 2) 60 deg - No Ice
13	0.9 Dead+1.0 Wind 60 deg - No Ice
14	1.2 Dead+1.0 Wind 90 deg - No Ice
15	1.2D+1.0W (pattern 1) 90 deg - No Ice
16	1.2D+1.0W (pattern 2) 90 deg - No Ice
17	0.9 Dead+1.0 Wind 90 deg - No Ice
18	1.2 Dead+1.0 Wind 120 deg - No Ice
19	1.2D+1.0W (pattern 1) 120 deg - No Ice
20	1.2D+1.0W (pattern 2) 120 deg - No Ice
21	0.9 Dead+1.0 Wind 120 deg - No Ice
22	1.2 Dead+1.0 Wind 150 deg - No Ice
23	1.2D+1.0W (pattern 1) 150 deg - No Ice
24	1.2D+1.0W (pattern 2) 150 deg - No Ice
25	0.9 Dead+1.0 Wind 150 deg - No Ice
26	1.2 Dead+1.0 Wind 180 deg - No Ice
27	1.2D+1.0W (pattern 1) 180 deg - No Ice
28	1.2D+1.0W (pattern 2) 180 deg - No Ice
29	0.9 Dead+1.0 Wind 180 deg - No Ice
30	1.2 Dead+1.0 Wind 210 deg - No Ice
31	1.2D+1.0W (pattern 1) 210 deg - No Ice
32	1.2D+1.0W (pattern 2) 210 deg - No Ice
33	0.9 Dead+1.0 Wind 210 deg - No Ice
34	1.2 Dead+1.0 Wind 240 deg - No Ice
35	1.2D+1.0W (pattern 1) 240 deg - No Ice
36	1.2D+1.0W (pattern 2) 240 deg - No Ice
37	0.9 Dead+1.0 Wind 240 deg - No Ice
38	1.2 Dead+1.0 Wind 270 deg - No Ice
39	1.2D+1.0W (pattern 1) 270 deg - No Ice
40	1.2D+1.0W (pattern 2) 270 deg - No Ice
41	0.9 Dead+1.0 Wind 270 deg - No Ice
42	1.2 Dead+1.0 Wind 300 deg - No Ice
43	1.2D+1.0W (pattern 1) 300 deg - No Ice
44	1.2D+1.0W (pattern 2) 300 deg - No Ice
45	0.9 Dead+1.0 Wind 300 deg - No Ice
46	1.2 Dead+1.0 Wind 330 deg - No Ice
47	1.2D+1.0W (pattern 1) 330 deg - No Ice
48	1.2D+1.0W (pattern 2) 330 deg - No Ice
49	0.9 Dead+1.0 Wind 330 deg - No Ice
50	1.2 Dead+1.0 Ice+1.0 Temp
51	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
52	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
53	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
54	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
55	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
56	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
57	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
58	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
59	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
60	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
61	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
62	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
63	Dead+Wind 0 deg - Service
64	Dead+Wind 30 deg - Service
65	Dead+Wind 60 deg - Service
66	Dead+Wind 90 deg - Service
67	Dead+Wind 120 deg - Service
68	Dead+Wind 150 deg - Service
69	Dead+Wind 180 deg - Service
70	Dead+Wind 210 deg - Service
71	Dead+Wind 240 deg - Service
72	Dead+Wind 270 deg - Service
73	Dead+Wind 300 deg - Service

Comb. No.	Description
74	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	230 - 220	Leg	Max Tension	29	8.74	0.00	0.36
			Max. Compression	18	-11.84	-0.32	-0.19
			Max. Mx	14	-10.52	0.37	0.01
			Max. My	2	-11.78	-0.00	0.38
			Max. Vy	14	2.49	-0.36	-0.03
			Max. Vx	2	-2.58	-0.00	0.38
		Diagonal	Max Tension	6	2.94	0.00	0.00
			Max. Compression	14	-3.05	0.00	0.00
			Max. Mx	59	0.47	-0.00	0.00
			Max. My	14	-2.71	-0.00	0.00
			Max. Vy	59	0.01	-0.00	0.00
			Max. Vx	14	-0.00	-0.00	0.00
		Horizontal	Max Tension	2	0.79	0.00	0.00
			Max. Compression	29	-0.68	0.00	0.00
			Max. Mx	50	0.29	0.02	0.00
			Max. My	34	-0.30	0.00	0.00
			Max. Vy	50	-0.02	0.00	0.00
			Max. Vx	34	-0.00	0.00	0.00
		Top Girt	Max Tension	34	0.51	0.00	0.00
			Max. Compression	10	-0.52	0.00	0.00
			Max. Mx	50	-0.02	0.02	0.00
			Max. My	34	-0.03	0.00	0.00
			Max. Vy	50	-0.02	0.00	0.00
			Max. Vx	34	-0.00	0.00	0.00
		Bottom Girt	Max Tension	26	1.28	0.00	0.00
			Max. Compression	5	-1.17	0.00	0.00
			Max. Mx	50	0.02	0.02	0.00
			Max. My	10	-0.34	0.00	-0.00
			Max. Vy	50	-0.02	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
T2	220 - 200	Leg	Max Tension	13	60.89	0.63	-0.34
			Max. Compression	34	-66.80	0.53	-0.31
			Max. Mx	14	-10.53	-1.08	-0.07
			Max. My	2	-11.78	-0.00	1.13
			Max. Vy	14	4.36	-0.56	-0.11
			Max. Vx	2	-4.69	-0.00	0.63
		Diagonal	Max Tension	14	4.95	0.00	0.00
			Max. Compression	14	-5.06	0.00	0.00
			Max. Mx	59	0.67	-0.01	0.00
			Max. My	14	-3.49	-0.00	0.00
			Max. Vy	59	0.01	-0.01	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	26	1.04	0.00	0.00
			Max. Compression	5	-0.83	0.00	0.00
			Max. Mx	50	0.30	0.02	0.00
			Max. My	34	0.20	0.00	0.00
			Max. Vy	50	-0.02	0.00	0.00
			Max. Vx	34	-0.00	0.00	0.00
		Top Girt	Max Tension	34	1.52	0.00	0.00
			Max. Compression	10	-1.51	0.00	0.00
			Max. Mx	50	0.00	0.02	0.00
			Max. My	34	-0.56	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. Vy	50	-0.02	0.00	0.00
			Max. Vx	34	-0.00	0.00	0.00
		Bottom Girt	Max Tension	26	2.15	0.00	0.00
			Max. Compression	2	-2.07	0.00	0.00
			Max. Mx	50	0.04	0.02	0.00
			Max. My	10	-0.72	0.00	-0.00
			Max. Vy	50	-0.02	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Mid Girt	Max Tension	28	0.47	0.00	0.00
			Max. Compression	43	-0.39	0.00	0.00
			Max. Mx	50	0.05	0.02	0.00
			Max. My	10	0.18	0.00	-0.00
			Max. Vy	50	-0.02	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
T3	200 - 180	Leg	Max Tension	13	147.59	3.59	-2.09
			Max. Compression	34	-156.41	-1.71	1.07
			Max. Mx	14	-136.48	4.13	0.20
			Max. My	2	-155.12	0.00	-4.11
			Max. Vy	14	7.04	2.08	-0.07
			Max. Vx	2	-7.34	0.00	-1.97
		Diagonal	Max Tension	14	8.97	0.00	0.00
			Max. Compression	14	-8.88	0.00	0.00
			Max. Mx	6	5.51	-0.01	-0.00
			Max. My	14	-5.67	0.00	0.00
			Max. Vy	59	0.01	-0.01	0.00
			Max. Vx	14	0.00	0.00	0.00
		Horizontal	Max Tension	26	2.02	0.00	0.00
			Max. Compression	5	-1.76	0.00	0.00
			Max. Mx	50	0.31	0.01	0.00
			Max. My	34	0.39	0.00	0.00
			Max. Vy	50	-0.01	0.00	0.00
			Max. Vx	34	-0.00	0.00	0.00
		Top Girt	Max Tension	34	1.59	0.00	0.00
			Max. Compression	10	-1.57	0.00	0.00
			Max. Mx	50	0.03	0.02	0.00
			Max. My	34	-0.58	0.00	0.00
			Max. Vy	50	0.02	0.00	0.00
			Max. Vx	34	-0.00	0.00	0.00
		Bottom Girt	Max Tension	26	3.80	0.00	0.00
			Max. Compression	34	-4.75	0.00	0.00
			Max. Mx	50	0.37	0.02	0.00
			Max. My	6	0.73	0.00	-0.00
			Max. Vy	50	0.02	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Mid Girt	Max Tension	26	1.79	0.00	0.00
			Max. Compression	5	-1.53	0.00	0.00
			Max. Mx	50	0.12	0.02	0.00
			Max. My	10	-0.43	0.00	-0.00
			Max. Vy	50	0.02	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
T4	180 - 160	Leg	Max Tension	13	152.17	-3.46	0.18
			Max. Compression	34	-156.41	16.42	0.22
			Max. Mx	10	129.03	-18.75	-0.39
			Max. My	14	-5.72	1.15	26.32
			Max. Vy	13	1.45	-17.04	-0.21
			Max. Vx	6	3.14	-0.02	-19.05
		Diagonal	Max Tension	37	16.40	0.00	0.00
			Max. Compression	10	-14.69	0.00	0.00
			Max. Mx	13	-4.77	-0.28	-0.01
			Max. My	10	7.34	0.11	-0.07
			Max. Vy	10	0.07	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	0.02	0.11	-0.07
		Top Girt	Max Tension	26	1.88	0.00	0.00
			Max. Compression	34	-2.63	0.00	0.00
			Max. Mx	50	0.11	-0.04	0.00
			Max. My	51	-0.23	0.00	0.00
			Max. Vy	50	0.04	0.00	0.00
			Max. Vx	51	-0.00	0.00	0.00
T5	160 - 140	Leg	Max Tension	13	172.43	-10.86	0.13
			Max. Compression	34	-184.19	11.04	0.17
			Max. Mx	34	-176.60	14.13	0.22
			Max. My	14	-6.56	-0.36	10.91
			Max. Vy	34	-1.09	14.13	0.22
			Max. Vx	6	0.63	0.02	-10.23
		Diagonal	Max Tension	6	4.55	0.01	0.01
			Max. Compression	10	-5.24	0.00	0.00
			Max. Mx	17	-4.31	-0.18	-0.02
			Max. My	6	-3.63	-0.10	-0.04
			Max. Vy	14	0.04	0.00	0.00
			Max. Vx	6	0.01	-0.10	-0.04
T6	140 - 120	Leg	Max Tension	13	191.00	-5.89	0.09
			Max. Compression	34	-205.25	9.36	0.13
			Max. Mx	10	181.72	-10.40	-0.15
			Max. My	14	-7.55	0.05	8.89
			Max. Vy	13	0.61	-10.34	-0.15
			Max. Vx	31	-0.18	0.02	6.47
		Diagonal	Max Tension	35	3.08	0.00	0.00
			Max. Compression	14	-3.77	0.00	0.00
			Max. Mx	34	2.03	0.10	0.00
			Max. My	54	0.23	0.05	-0.01
			Max. Vy	51	-0.04	0.07	0.01
			Max. Vx	51	-0.00	0.00	0.00
T7	120 - 100	Leg	Max Tension	13	207.04	-4.80	0.07
			Max. Compression	34	-224.30	8.04	0.09
			Max. Mx	34	-214.78	8.43	0.11
			Max. My	14	-9.17	-0.02	7.36
			Max. Vy	35	-0.44	7.14	0.09
			Max. Vx	7	0.25	-0.02	-6.22
		Diagonal	Max Tension	43	3.35	0.00	0.00
			Max. Compression	18	-3.87	0.00	0.00
			Max. Mx	34	2.41	0.09	0.00
			Max. My	51	-0.01	0.06	0.01
			Max. Vy	53	0.05	0.07	-0.01
			Max. Vx	51	0.00	0.00	0.00
T8	100 - 80	Leg	Max Tension	13	222.56	-4.20	0.05
			Max. Compression	34	-242.76	7.06	0.10
			Max. Mx	34	-242.76	7.06	0.10
			Max. My	14	-10.39	-0.06	6.90
			Max. Vy	35	-0.40	6.33	0.10
			Max. Vx	14	-0.27	-0.06	6.90
		Diagonal	Max Tension	43	3.78	0.00	0.00
			Max. Compression	18	-4.35	0.00	0.00
			Max. Mx	51	0.38	0.09	0.01
			Max. My	51	-0.00	0.08	0.01
			Max. Vy	53	0.05	0.09	-0.01
			Max. Vx	51	0.00	0.00	0.00
T9	80 - 60	Leg	Max Tension	13	237.95	-4.43	0.04
			Max. Compression	34	-261.68	5.83	0.05
			Max. Mx	34	-252.67	6.55	0.05
			Max. My	14	-12.40	-0.01	5.58
			Max. Vy	35	-0.32	5.85	0.05
			Max. Vx	14	-0.24	-0.01	5.58

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	43	4.10	0.00	0.00
			Max. Compression	18	-4.54	0.00	0.00
			Max. Mx	53	0.34	0.12	-0.02
			Max. My	51	0.01	0.10	0.02
			Max. Vy	53	0.07	0.12	-0.02
			Max. Vx	51	0.00	0.00	0.00
T10	60 - 40	Leg	Max Tension	13	253.04	-4.15	0.02
			Max. Compression	34	-280.30	5.15	0.01
			Max. Mx	34	-271.05	5.67	0.04
			Max. My	14	-13.19	0.02	4.94
			Max. Vy	35	-0.26	5.08	0.04
			Max. Vx	39	0.13	0.06	-4.07
		Diagonal	Max Tension	19	4.51	0.00	0.00
			Max. Compression	19	-4.86	0.00	0.00
			Max. Mx	53	0.43	0.14	-0.02
			Max. My	51	-0.16	0.14	0.02
			Max. Vy	53	0.07	0.14	-0.02
			Max. Vx	51	0.00	0.00	0.00
T11	40 - 20	Leg	Max Tension	13	267.62	-3.80	0.02
			Max. Compression	34	-298.40	6.19	0.10
			Max. Mx	34	-298.40	6.19	0.10
			Max. My	14	-14.76	-0.15	4.88
			Max. Vy	57	0.59	-4.49	-0.00
			Max. Vx	14	0.22	-0.21	4.58
		Diagonal	Max Tension	43	4.77	0.00	0.00
			Max. Compression	18	-5.38	0.00	0.00
			Max. Mx	53	1.13	0.17	-0.02
			Max. My	51	-0.18	0.15	0.02
			Max. Vy	53	0.08	0.17	-0.02
			Max. Vx	51	0.00	0.00	0.00
T12	20 - 0	Leg	Max Tension	13	281.27	-3.97	0.01
			Max. Compression	34	-315.96	0.06	0.00
			Max. Mx	51	-90.22	5.60	0.02
			Max. My	14	-16.42	-0.35	8.04
			Max. Vy	57	-0.92	-4.52	-0.00
			Max. Vx	14	0.88	-0.45	7.96
		Diagonal	Max Tension	45	6.43	0.00	0.00
			Max. Compression	18	-7.29	0.00	0.00
			Max. Mx	53	-1.26	0.24	0.03
			Max. My	54	-2.29	0.23	0.04
			Max. Vy	53	0.10	0.24	0.03
			Max. Vx	54	-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	34	321.36	24.91	-14.08
	Max. H_x	34	321.36	24.91	-14.08
	Max. H_z	13	-285.30	-22.15	12.47
	Min. Vert	13	-285.30	-22.15	12.47
	Min. H_x	13	-285.30	-22.15	12.47
	Min. H_z	34	321.36	24.91	-14.08
Leg B	Max. Vert	18	319.02	-24.42	-14.58
	Max. H_x	45	-280.95	21.55	12.94
	Max. H_z	45	-280.95	21.55	12.94

Location	Condition	Gov. Load Comb	Vertical K	Horizontal, X K	Horizontal, Z K
Leg A	Min. Vert	45	-280.95	21.55	12.94
	Min. H_x	18	319.02	-24.42	-14.58
	Min. H_z	18	319.02	-24.42	-14.58
	Max. Vert	2	307.62	0.03	27.11
	Max. H_x	39	17.39	0.98	1.41
	Max. H_z	2	307.62	0.03	27.11
	Min. Vert	29	-268.00	-0.03	-23.68
	Min. H_x	19	-117.30	-1.09	-11.12
	Min. H_z	29	-268.00	-0.03	-23.68

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	43.16	-0.00	-0.00	-1.72	-2.44	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	51.79	-0.00	-39.18	-5532.05	-3.00	1.05
1.2D+1.0W (pattern 1) 0 deg - No Ice	51.79	-0.00	-36.48	-4912.81	-3.00	1.05
1.2D+1.0W (pattern 2) 0 deg - No Ice	51.79	-0.00	-26.24	-3948.77	-3.00	1.04
0.9 Dead+1.0 Wind 0 deg - No Ice	38.84	-0.00	-39.18	-5509.71	-2.25	1.04
1.2 Dead+1.0 Wind 30 deg - No Ice	51.79	19.46	-33.71	-4812.70	-2781.38	13.84
1.2D+1.0W (pattern 1) 30 deg - No Ice	51.79	18.12	-31.38	-4276.55	-2471.46	13.74
1.2D+1.0W (pattern 2) 30 deg - No Ice	51.79	13.05	-22.60	-3433.03	-1984.25	13.73
0.9 Dead+1.0 Wind 30 deg - No Ice	38.84	19.46	-33.71	-4793.45	-2769.73	13.81
1.2 Dead+1.0 Wind 60 deg - No Ice	51.79	34.82	-20.10	-2852.77	-4940.97	10.08
1.2D+1.0W (pattern 1) 60 deg - No Ice	51.79	32.48	-18.75	-2543.47	-4405.10	10.07
1.2D+1.0W (pattern 2) 60 deg - No Ice	51.79	23.25	-13.43	-2026.57	-3509.77	10.07
0.9 Dead+1.0 Wind 60 deg - No Ice	38.84	34.82	-20.10	-2841.19	-4921.04	10.07
1.2 Dead+1.0 Wind 90 deg - No Ice	51.79	41.11	0.00	-2.83	-5778.45	-11.23
1.2D+1.0W (pattern 1) 90 deg - No Ice	51.79	38.41	0.00	-2.53	-5160.44	-11.14
1.2D+1.0W (pattern 2) 90 deg - No Ice	51.79	27.39	0.00	-2.33	-4095.76	-11.13
0.9 Dead+1.0 Wind 90 deg - No Ice	38.84	41.11	0.00	-2.25	-5755.48	-11.21
1.2 Dead+1.0 Wind 120 deg - No Ice	51.79	35.84	20.69	2871.60	-4980.65	-16.15
1.2D+1.0W (pattern 1) 120 deg - No Ice	51.79	33.51	19.35	2563.72	-4447.29	-16.15
1.2D+1.0W (pattern 2) 120 deg - No Ice	51.79	23.86	13.77	2034.81	-3531.16	-16.14
0.9 Dead+1.0 Wind 120 deg - No Ice	38.84	35.84	20.69	2860.95	-4960.55	-16.15
1.2 Dead+1.0 Wind 150 deg -	51.79	19.32	33.47	4746.06	-2743.65	-2.43

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
No Ice						
1.2D+1.0W (pattern 1) 150 deg - No Ice	51.79	17.98	31.15	4212.02	-2435.62	-2.50
1.2D+1.0W (pattern 2) 150 deg - No Ice	51.79	12.96	22.44	3388.79	-1960.49	-2.51
0.9 Dead+1.0 Wind 150 deg - No Ice	38.84	19.32	33.47	4728.08	-2732.29	-2.44
1.2 Dead+1.0 Wind 180 deg - No Ice	51.79	-0.00	37.48	5373.26	-3.01	-1.05
1.2D+1.0W (pattern 1) 180 deg - No Ice	51.79	-0.00	34.79	4756.70	-3.01	-1.05
1.2D+1.0W (pattern 2) 180 deg - No Ice	51.79	-0.00	25.21	3849.04	-3.01	-1.05
0.9 Dead+1.0 Wind 180 deg - No Ice	38.84	-0.00	37.48	5352.65	-2.25	-1.04
1.2 Dead+1.0 Wind 210 deg - No Ice	51.79	-19.39	33.59	4783.85	2759.22	-13.82
1.2D+1.0W (pattern 1) 210 deg - No Ice	51.79	-18.05	31.27	4249.79	2451.25	-13.74
1.2D+1.0W (pattern 2) 210 deg - No Ice	51.79	-13.00	22.51	3411.48	1967.44	-13.72
0.9 Dead+1.0 Wind 210 deg - No Ice	38.84	-19.39	33.59	4765.69	2749.27	-13.80
1.2 Dead+1.0 Wind 240 deg - No Ice	51.79	-36.05	20.81	2896.83	5017.61	-10.08
1.2D+1.0W (pattern 1) 240 deg - No Ice	51.79	-33.72	19.47	2588.85	4484.33	-10.07
1.2D+1.0W (pattern 2) 240 deg - No Ice	51.79	-23.98	13.85	2049.94	3550.95	-10.07
0.9 Dead+1.0 Wind 240 deg - No Ice	38.84	-36.04	20.81	2886.05	4998.83	-10.07
1.2 Dead+1.0 Wind 270 deg - No Ice	51.79	-40.96	0.00	-2.81	5742.96	11.22
1.2D+1.0W (pattern 1) 270 deg - No Ice	51.79	-38.29	0.00	-2.52	5127.74	11.14
1.2D+1.0W (pattern 2) 270 deg - No Ice	51.79	-27.29	0.00	-2.33	4069.27	11.13
0.9 Dead+1.0 Wind 270 deg - No Ice	38.84	-40.97	0.00	-2.24	5721.65	11.21
1.2 Dead+1.0 Wind 300 deg - No Ice	51.79	-34.49	-19.91	-2813.40	4866.12	16.14
1.2D+1.0W (pattern 1) 300 deg - No Ice	51.79	-32.16	-18.57	-2505.40	4332.70	16.14
1.2D+1.0W (pattern 2) 300 deg - No Ice	51.79	-23.05	-13.31	-2001.54	3460.03	16.14
0.9 Dead+1.0 Wind 300 deg - No Ice	38.84	-34.49	-19.91	-2802.01	4848.02	16.13
1.2 Dead+1.0 Wind 330 deg - No Ice	51.79	-19.32	-33.47	-4749.60	2738.68	2.42
1.2D+1.0W (pattern 1) 330 deg - No Ice	51.79	-17.98	-31.15	-4215.81	2430.21	2.50
1.2D+1.0W (pattern 2) 330 deg - No Ice	51.79	-12.95	-22.44	-3392.72	1954.84	2.50
0.9 Dead+1.0 Wind 330 deg - No Ice	38.84	-19.32	-33.47	-4730.65	2728.73	2.43
1.2 Dead+1.0 Ice+1.0 Temp	137.16	-0.00	0.00	-17.99	-14.65	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	137.16	-0.00	-6.33	-954.34	-15.18	-0.95
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	137.16	3.15	-5.46	-828.69	-483.06	0.45
1.2 Dead+1.0 Wind 60 deg+1.0	137.16	5.52	-3.19	-490.17	-832.45	0.65

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
Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	137.16	6.46	0.00	-18.33	-965.15	-0.69
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	137.16	5.54	3.20	447.17	-821.43	-0.76
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	137.16	3.11	5.39	774.26	-472.76	0.73
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	137.16	-0.00	6.14	890.59	-15.18	0.95
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	137.16	-3.11	5.38	775.36	443.04	-0.45
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	137.16	-5.53	3.19	447.81	792.17	-0.64
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	137.16	-6.37	0.00	-18.33	915.51	0.69
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	137.16	-5.46	-3.15	-479.89	784.28	0.76
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	137.16	-3.11	-5.39	-810.88	442.42	-0.73
Dead+Wind 0 deg - Service	43.16	-0.00	-12.79	-1803.08	-2.49	0.34
Dead+Wind 30 deg - Service	43.16	6.36	-11.01	-1568.84	-907.30	4.46
Dead+Wind 60 deg - Service	43.16	11.37	-6.56	-930.35	-1610.95	3.29
Dead+Wind 90 deg - Service	43.16	13.42	0.00	-1.74	-1883.84	-3.61
Dead+Wind 120 deg - Service	43.16	11.70	6.76	934.44	-1623.98	-5.27
Dead+Wind 150 deg - Service	43.16	6.31	10.93	1544.83	-895.38	-0.84
Dead+Wind 180 deg - Service	43.16	-0.00	12.24	1749.15	-2.49	-0.34
Dead+Wind 210 deg - Service	43.16	-6.33	10.97	1557.11	897.47	-4.46
Dead+Wind 240 deg - Service	43.16	-11.77	6.80	942.56	1633.04	-3.29
Dead+Wind 270 deg - Service	43.16	-13.38	0.00	-1.74	1869.25	3.61
Dead+Wind 300 deg - Service	43.16	-11.26	-6.50	-917.45	1583.58	5.27
Dead+Wind 330 deg - Service	43.16	-6.31	-10.93	-1548.26	890.41	0.84

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	-43.16	0.00	0.00	43.16	0.00	0.000%
2	0.00	-51.79	-39.18	0.00	51.79	39.18	0.006%
3	0.00	-51.79	-36.48	0.00	51.79	36.48	0.005%
4	0.00	-51.79	-26.24	0.00	51.79	26.24	0.005%
5	0.00	-38.84	-39.18	0.00	38.84	39.18	0.009%
6	19.47	-51.79	-33.72	-19.46	51.79	33.71	0.007%
7	18.12	-51.79	-31.38	-18.12	51.79	31.38	0.006%
8	13.05	-51.79	-22.60	-13.05	51.79	22.60	0.006%
9	19.47	-38.84	-33.72	-19.46	38.84	33.71	0.007%
10	34.82	-51.79	-20.10	-34.82	51.79	20.10	0.007%
11	32.49	-51.79	-18.76	-32.48	51.79	18.75	0.006%
12	23.26	-51.79	-13.43	-23.25	51.79	13.43	0.006%
13	34.82	-38.84	-20.10	-34.82	38.84	20.10	0.007%
14	41.11	-51.79	0.00	-41.11	51.79	-0.00	0.007%
15	38.42	-51.79	0.00	-38.41	51.79	-0.00	0.006%
16	27.39	-51.79	0.00	-27.39	51.79	-0.00	0.006%
17	41.11	-38.84	0.00	-41.11	38.84	-0.00	0.007%
18	35.84	-51.79	20.69	-35.84	51.79	-20.69	0.006%
19	33.52	-51.79	19.35	-33.51	51.79	-19.35	0.005%
20	23.86	-51.79	13.78	-23.86	51.79	-13.77	0.005%
21	35.84	-38.84	20.69	-35.84	38.84	-20.69	0.009%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
22	19.33	-51.79	33.47	-19.32	51.79	-33.47	0.007%
23	17.98	-51.79	31.15	-17.98	51.79	-31.15	0.006%
24	12.96	-51.79	22.44	-12.96	51.79	-22.44	0.006%
25	19.33	-38.84	33.47	-19.32	38.84	-33.47	0.007%
26	-0.00	-51.79	37.48	0.00	51.79	-37.48	0.007%
27	-0.00	-51.79	34.79	0.00	51.79	-34.79	0.006%
28	-0.00	-51.79	25.21	0.00	51.79	-25.21	0.006%
29	-0.00	-38.84	37.48	0.00	38.84	-37.48	0.007%
30	-19.40	-51.79	33.59	19.39	51.79	-33.59	0.007%
31	-18.05	-51.79	31.27	18.05	51.79	-31.27	0.006%
32	-13.00	-51.79	22.51	13.00	51.79	-22.51	0.006%
33	-19.40	-38.84	33.59	19.39	38.84	-33.59	0.007%
34	-36.05	-51.79	20.81	36.05	51.79	-20.81	0.006%
35	-33.73	-51.79	19.47	33.72	51.79	-19.47	0.005%
36	-23.98	-51.79	13.85	23.98	51.79	-13.85	0.005%
37	-36.05	-38.84	20.81	36.04	38.84	-20.81	0.009%
38	-40.97	-51.79	0.00	40.96	51.79	-0.00	0.007%
39	-38.29	-51.79	0.00	38.29	51.79	-0.00	0.006%
40	-27.30	-51.79	0.00	27.29	51.79	-0.00	0.006%
41	-40.97	-38.84	0.00	40.97	38.84	-0.00	0.007%
42	-34.49	-51.79	-19.91	34.49	51.79	19.91	0.007%
43	-32.17	-51.79	-18.57	32.16	51.79	18.57	0.006%
44	-23.05	-51.79	-13.31	23.05	51.79	13.31	0.006%
45	-34.49	-38.84	-19.91	34.49	38.84	19.91	0.007%
46	-19.33	-51.79	-33.47	19.32	51.79	33.47	0.007%
47	-17.98	-51.79	-31.15	17.98	51.79	31.15	0.006%
48	-12.96	-51.79	-22.44	12.95	51.79	22.44	0.006%
49	-19.33	-38.84	-33.47	19.32	38.84	33.47	0.007%
50	0.00	-137.16	0.00	0.00	137.16	-0.00	0.001%
51	0.00	-137.16	-6.33	0.00	137.16	6.33	0.001%
52	3.15	-137.16	-5.46	-3.15	137.16	5.46	0.001%
53	5.52	-137.16	-3.19	-5.52	137.16	3.19	0.001%
54	6.46	-137.16	0.00	-6.46	137.16	-0.00	0.001%
55	5.55	-137.16	3.20	-5.54	137.16	-3.20	0.001%
56	3.11	-137.16	5.39	-3.11	137.16	-5.39	0.001%
57	0.00	-137.16	6.14	0.00	137.16	-6.14	0.001%
58	-3.11	-137.16	5.38	3.11	137.16	-5.38	0.001%
59	-5.53	-137.16	3.19	5.53	137.16	-3.19	0.001%
60	-6.37	-137.16	0.00	6.37	137.16	-0.00	0.001%
61	-5.46	-137.16	-3.15	5.46	137.16	3.15	0.001%
62	-3.11	-137.16	-5.39	3.11	137.16	5.39	0.001%
63	0.00	-43.16	-12.79	0.00	43.16	12.79	0.003%
64	6.36	-43.16	-11.01	-6.36	43.16	11.01	0.003%
65	11.37	-43.16	-6.56	-11.37	43.16	6.56	0.003%
66	13.42	-43.16	0.00	-13.42	43.16	-0.00	0.003%
67	11.70	-43.16	6.76	-11.70	43.16	-6.76	0.003%
68	6.31	-43.16	10.93	-6.31	43.16	-10.93	0.003%
69	0.00	-43.16	12.24	0.00	43.16	-12.24	0.003%
70	-6.33	-43.16	10.97	6.33	43.16	-10.97	0.003%
71	-11.77	-43.16	6.80	11.77	43.16	-6.80	0.003%
72	-13.38	-43.16	0.00	13.38	43.16	-0.00	0.003%
73	-11.26	-43.16	-6.50	11.26	43.16	6.50	0.003%
74	-6.31	-43.16	-10.93	6.31	43.16	10.93	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00012408
2	Yes	21	0.00006616	0.00010734
3	Yes	21	0.00006680	0.00010831
4	Yes	21	0.00006743	0.00010889
5	Yes	20	0.00008618	0.00013941
6	Yes	21	0.00007199	0.00011638
7	Yes	21	0.00007139	0.00011533
8	Yes	21	0.00007214	0.00011603
9	Yes	21	0.00006035	0.00009814
10	Yes	21	0.00007734	0.00012437
11	Yes	21	0.00007558	0.00012164
12	Yes	21	0.00007645	0.00012259
13	Yes	21	0.00006519	0.00010548
14	Yes	21	0.00007189	0.00011610
15	Yes	21	0.00007126	0.00011493
16	Yes	21	0.00007206	0.00011589
17	Yes	21	0.00006028	0.00009792
18	Yes	21	0.00006613	0.00010710
19	Yes	21	0.00006669	0.00010789
20	Yes	21	0.00006742	0.00010881
21	Yes	20	0.00008614	0.00013910
22	Yes	21	0.00007205	0.00011630
23	Yes	21	0.00007139	0.00011518
24	Yes	21	0.00007222	0.00011599
25	Yes	21	0.00006039	0.00009807
26	Yes	21	0.00007743	0.00012446
27	Yes	21	0.00007563	0.00012175
28	Yes	21	0.00007660	0.00012261
29	Yes	21	0.00006524	0.00010553
30	Yes	21	0.00007213	0.00011647
31	Yes	21	0.00007147	0.00011537
32	Yes	21	0.00007227	0.00011611
33	Yes	21	0.00006046	0.00009822
34	Yes	21	0.00006618	0.00010706
35	Yes	21	0.00006665	0.00010790
36	Yes	21	0.00006740	0.00010881
37	Yes	20	0.00008627	0.00013912
38	Yes	21	0.00007187	0.00011605
39	Yes	21	0.00007124	0.00011486
40	Yes	21	0.00007205	0.00011585
41	Yes	21	0.00006026	0.00009788
42	Yes	21	0.00007716	0.00012406
43	Yes	21	0.00007542	0.00012129
44	Yes	21	0.00007635	0.00012236
45	Yes	21	0.00006503	0.00010520
46	Yes	21	0.00007189	0.00011616
47	Yes	21	0.00007129	0.00011508
48	Yes	21	0.00007207	0.00011587
49	Yes	21	0.00006026	0.00009795
50	Yes	8	0.00000001	0.00008220
51	Yes	22	0.00000001	0.00010258
52	Yes	22	0.00000001	0.00010398
53	Yes	22	0.00000001	0.00010531
54	Yes	22	0.00000001	0.00010433
55	Yes	22	0.00000001	0.00010163
56	Yes	22	0.00000001	0.00010191
57	Yes	22	0.00000001	0.00010249
58	Yes	22	0.00000001	0.00010155
59	Yes	22	0.00000001	0.00010081
60	Yes	22	0.00000001	0.00010170
61	Yes	22	0.00000001	0.00010256
62	Yes	22	0.00000001	0.00010167

63	Yes	21	0.00006187	0.00009923
64	Yes	21	0.00006360	0.00010193
65	Yes	21	0.00006522	0.00010441
66	Yes	21	0.00006350	0.00010175
67	Yes	21	0.00006177	0.00009902
68	Yes	21	0.00006360	0.00010179
69	Yes	21	0.00006530	0.00010439
70	Yes	21	0.00006363	0.00010191
71	Yes	21	0.00006177	0.00009908
72	Yes	21	0.00006349	0.00010169
73	Yes	21	0.00006515	0.00010420
74	Yes	21	0.00006356	0.00010175

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	230 - 220	18.995	66	0.7930	0.0359
T2	220 - 200	17.314	66	0.7867	0.0344
T3	200 - 180	14.073	66	0.7076	0.0291
T4	180 - 160	11.287	66	0.5618	0.0228
T5	160 - 140	8.076	66	0.4811	0.0176
T6	140 - 120	5.763	66	0.4080	0.0138
T7	120 - 100	3.975	66	0.3304	0.0113
T8	100 - 80	2.614	66	0.2554	0.0092
T9	80 - 60	1.619	71	0.1841	0.0070
T10	60 - 40	0.908	71	0.1348	0.0052
T11	40 - 20	0.410	71	0.0878	0.0033
T12	20 - 0	0.106	71	0.0431	0.0013

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
230.00	5/8" x 10' lightning rod	66	18.995	0.7930	0.0359	92696
225.00	208 sq ft EPA	66	18.156	0.7914	0.0352	92696
210.00	130 sq ft EPA	66	15.635	0.7600	0.0322	10307
195.00	130 sq ft EPA	66	13.370	0.6720	0.0274	10595
115.00	OB light	66	3.594	0.3115	0.0108	10582

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	230 - 220	58.389	14	2.4465	0.1111
T2	220 - 200	53.217	14	2.4274	0.1063
T3	200 - 180	43.247	14	2.1838	0.0900
T4	180 - 160	34.678	14	1.7336	0.0707

Section No.	Elevation ft	Horz. Deflection in	Gov Load Comb.	Tilt °	Twist °
T5	160 - 140	24.803	14	1.4788	0.0559
T6	140 - 120	17.694	14	1.2538	0.0435
T7	120 - 100	12.201	14	1.0151	0.0346
T8	100 - 80	8.029	34	0.7842	0.0281
T9	80 - 60	4.973	34	0.5652	0.0213
T10	60 - 40	2.788	34	0.4138	0.0159
T11	40 - 20	1.258	34	0.2697	0.0102
T12	20 - 0	0.326	34	0.1323	0.0040

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
230.00	5/8" x 10' lightning rod	14	58.389	2.4465	0.1111	27113
225.00	208 sq ft. EPA	14	55.808	2.4417	0.1088	27113
210.00	130 sq ft. EPA	14	48.053	2.3450	0.0995	3355
195.00	130 sq ft. EPA	14	41.087	2.0744	0.0850	3452
115.00	OB light	34	11.033	0.9570	0.0330	3433

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	230	Leg	A325N	1.0000	2	4.37	53.01	0.082 ✔	1	Bolt Tension
T2	220	Leg	A325N	1.2500	2	30.45	82.83	0.368 ✔	1	Bolt Tension
T3	200	Leg	A325N	1.0000	4	36.90	53.01	0.696 ✔	1	Bolt Tension
T4	180	Leg	A325N	1.0000	6	25.36	53.01	0.478 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	16.40	17.37	0.944 ✔	1	Member Block Shear
		Top Girt	A325N	1.0000	1	2.71	13.06	0.208 ✔	1	Member Block Shear
T5	160	Leg	A325N	1.0000	6	28.74	53.01	0.542 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	4.55	13.03	0.349 ✔	1	Member Block Shear
T6	140	Leg	A325N	1.0000	6	31.83	53.01	0.600 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	3.08	13.03	0.237 ✔	1	Member Block Shear
T7	120	Leg	A325N	1.0000	6	34.51	53.01	0.651 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	3.35	13.03	0.257 ✔	1	Member Block Shear
T8	100	Leg	A325N	1.0000	6	37.09	53.01	0.700 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	3.78	13.03	0.290 ✔	1	Member Block Shear
T9	80	Leg	A325N	1.2500	6	39.66	82.83	0.479 ✔	1	Bolt Tension

Section No	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	1.0000	1	4.10	17.37	0.236 ✔	1	Member Block Shear
T10	60	Leg	A325N	1.2500	6	42.17	82.83	0.509 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	4.51	17.37	0.260 ✔	1	Member Block Shear
T11	40	Leg	A325N	1.2500	6	44.60	82.83	0.538 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	4.77	14.17	0.337 ✔	1	Member Block Shear
T12	20	Leg	F1554-105	1.2500	4	70.32	86.29	0.815 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	6.43	23.61	0.272 ✔	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $P_u / \phi P_n$
T1	230 - 220	1 1/4	10.00	2.35	90.4 K=1.00	1.2272	-11.84	32.03	0.370 [1] ✔
T2	220 - 200	1 3/4	20.00	2.43	66.6 K=1.00	2.4053	-66.80	86.22	0.775 [1] ✔
T3	200 - 180	2 1/4	20.00	2.43	51.8 K=1.00	3.9761	-156.41	165.34	0.946 [1] ✔
T4	180 - 160	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	20.03	10.02	42.8 K=1.00	3.6816	-156.41	164.52	0.951 [1] ✔
T5	160 - 140	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7 K=1.00	5.3014	-184.19	248.43	0.741 [1] ✔
T6	140 - 120	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7 K=1.00	5.3014	-205.25	248.43	0.826 [1] ✔
T7	120 - 100	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7 K=1.00	5.3014	-224.30	248.43	0.903 [1] ✔
T8	100 - 80	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7 K=1.00	5.3014	-242.76	248.43	0.977 [1] ✔
T9	80 - 60	#12ZG-58 - 1.75" - 1.00" conn -TR1-(Pirod 195213)	20.03	10.02	30.6 K=1.00	7.2158	-261.69	347.96	0.752 [1] ✔
T10	60 - 40	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	20.03	10.02	30.6 K=1.00	7.2158	-280.30	347.96	0.806 [1] ✔
T11	40 - 20	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	20.03	10.02	30.6 K=1.00	7.2158	-298.40	347.96	0.858 [1] ✔
T12	20 - 0	#12ZG-58 BASE - 1.75" - 1.00" conn (Pirod 281212)	20.03	10.02	29.7 K=1.00	7.2158	-315.96	349.49	0.904 [1] ✔

[1] $P_u / \phi P_n$ 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
T4	180 - 160	0.5	1.43	96.1	192.18	0.1963	3.14	4.53	0.694 ✓
T5	160 - 140	0.5	1.42	95.2	276.74	0.1963	1.09	4.57	0.239 ✓
T6	140 - 120	0.5	1.42	95.2	276.74	0.1963	0.61	4.57	0.135 ✓
T7	120 - 100	0.5	1.42	95.2	276.74	0.1963	0.44	4.57	0.098 ✓
T8	100 - 80	0.5	1.42	95.2	276.74	0.1963	0.40	4.57	0.089 ✓
T9	80 - 60	0.5	1.40	94.4	376.67	0.1963	0.32	4.61	0.070 ✓
T10	60 - 40	0.5	1.40	94.4	376.67	0.1963	0.26	4.61	0.058 ✓
T11	40 - 20	0.5	1.40	94.4	376.67	0.1963	0.59	4.61	0.128 ✓
T12	20 - 0	0.5	1.38	92.7	376.67	0.1963	0.92	4.76	0.194 ✓

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	230 - 220	3/4	4.64	2.26	130.2 K=0.90	0.4418	-3.05	5.89	0.517 [1] ✓
T2	220 - 200	3/4	4.68	2.25	129.8 K=0.90	0.4418	-5.06	5.92	0.854 [1] ✓
T3	200 - 180	7/8	4.68	2.23	110.1 K=0.90	0.6013	-8.88	11.16	0.796 [1] ✓
T4	180 - 160	L2 1/2x2 1/2x1/4	9.56	5.10	124.7 K=1.00	1.1900	-14.69	17.28	0.850 [1] ✓
T5	160 - 140	L2 1/2x2 1/2x3/16	10.31	5.34	129.5 K=1.00	0.9020	-5.24	12.15	0.431 [1] ✓
T6	140 - 120	L2 1/2x2 1/2x3/16	11.98	6.10	147.8 K=1.00	0.9020	-3.74	9.33	0.401 [1] ✓
T7	120 - 100	L2 1/2x2 1/2x3/16	13.35	6.76	163.9 K=1.00	0.9020	-3.87	7.59	0.510 [1] ✓
T8	100 - 80	L2 1/2x2 1/2x3/16	14.87	7.50	181.9 K=1.00	0.9020	-4.35	6.16	0.706 [1] ✓
T9	80 - 60	L2 1/2x2 1/2x1/4	16.49	8.30	203.0 K=1.00	1.1900	-4.54	6.53	0.695 [1] ✓
T10	60 - 40	KL/R > 200 (C) - 252 L2 1/2x2 1/2x1/4 KL/R > 200 (C) - 267	18.19	9.15	223.5 K=1.00	1.1900	-4.86	5.38	0.903 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	40 - 20	L3x3x3/16	19.94	10.02	201.7 K=1.00	1.0900	-5.38	6.05	0.889 [1] ✔
T12	20 - 0	KL/R > 200 (C) - 282 L3x3x5/16 KL/R > 200 (C) - 297	21.74	10.91	222.3 K=1.00	1.7800	-7.29	8.13	0.896 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	230 - 220	3/4	4.00	3.90	174.5 K=0.70	0.4418	-0.68	3.28	0.206 [1] ✔
T2	220 - 200	3/4	4.00	3.85	172.7 K=0.70	0.4418	-1.15	3.35	0.343 [1] ✔
T3	200 - 180	3/4	4.00	3.81	170.8 K=0.70	0.4418	-2.68	3.42	0.784 [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 in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	230 - 220	7/8	4.00	3.90	149.6 K=0.70	0.6013	-0.52	6.07	0.085 [1] ✔
T2	220 - 200	7/8	4.00	3.85	148.0 K=0.70	0.6013	-1.51	6.20	0.243 [1] ✔
T3	200 - 180	1	4.00	3.81	128.1 K=0.70	0.7854	-2.71	10.81	0.251 [1] ✔
T4	180 - 160	L3x3x3/16	4.00	2.62	86.3 K=1.64	1.0900	-2.71	26.05	0.104 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	230 - 220	7/8	4.00	3.90	149.6 K=0.70	0.6013	-1.17	6.07	0.193 [1] ✔
T2	220 - 200	7/8	4.00	3.85	148.0 K=0.70	0.6013	-2.07	6.20	0.333 [1] ✔
T3	200 - 180	1	4.00	3.81	128.1 K=0.70	0.7854	-4.75	10.81	0.439 [1] ✔

[1] $P_u / \phi P_n$ controls

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	220 - 200	7/8	4.00	3.85	148.0 K=0.70	0.6013	-0.39	6.20	0.063 [1] ✔
T3	200 - 180	1	4.00	3.81	128.1 K=0.70	0.7854	-1.53	10.81	0.141 [1] ✔

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	230 - 220	1 1/4	10.00	2.35	90.4	1.2272	8.74	64.06	0.136 [1] ✔
T2	220 - 200	1 3/4	20.00	2.43	66.6	2.4053	60.89	125.56	0.485 [1] ✔
T3	200 - 180	2 1/4	20.00	2.43	51.8	3.9761	147.59	207.55	0.711 [1] ✔
T4	180 - 160	#12ZG-58 - 1.25" - 1.00" conn. (Pirod 194434)	20.03	10.02	42.8	3.6816	152.17	192.18	0.792 [1] ✔
T5	160 - 140	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7	5.3014	172.43	276.74	0.623 [1] ✔
T6	140 - 120	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7	5.3014	191.00	276.74	0.690 [1] ✔
T7	120 - 100	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7	5.3014	207.04	276.74	0.748 [1] ✔
T8	100 - 80	#12ZG-58 - 1.50" - 1.00" conn. (Pirod 194651)	20.03	10.02	35.7	5.3014	222.56	276.74	0.804 [1] ✔
T9	80 - 60	#12ZG-58 - 1.75" - 1.00"	20.03	10.02	30.6	7.2158	237.96	376.67	0.632 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
		conn.-TR1-(Pirod 195213)							✔
T10	60 - 40	#12ZG-58 - 1.75" - 1.00" conn (Pirod 195217)	20.03	10.02	30.6	7.2158	253.04	376.67	0.672 [1] ✔
T11	40 - 20	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	20.03	10.02	30.6	7.2158	267.62	376.67	0.710 [1] ✔
T12	20 - 0	#12ZG-58 BASE - 1.75" - 1.00" conn (Pirod 281212)	20.03	10.02	29.7	7.2158	281.27	376.67	0.747 [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 in^2	V_u K	ϕV_n K	Stress Ratio
T4	180 - 160	0.5	1.43	96.1	192.18	0.1963	3.14	4.53	0.694 ✔
T5	160 - 140	0.5	1.42	95.2	276.74	0.1963	1.09	4.57	0.239 ✔
T6	140 - 120	0.5	1.42	95.2	276.74	0.1963	0.61	4.57	0.135 ✔
T7	120 - 100	0.5	1.42	95.2	276.74	0.1963	0.44	4.57	0.098 ✔
T8	100 - 80	0.5	1.42	95.2	276.74	0.1963	0.40	4.57	0.089 ✔
T9	80 - 60	0.5	1.40	94.4	376.67	0.1963	0.32	4.61	0.070 ✔
T10	60 - 40	0.5	1.40	94.4	376.67	0.1963	0.26	4.61	0.058 ✔
T11	40 - 20	0.5	1.40	94.4	376.67	0.1963	0.59	4.61	0.128 ✔
T12	20 - 0	0.5	1.38	92.7	376.67	0.1963	0.92	4.76	0.194 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	230 - 220	3/4	4.64	2.26	144.7	0.4418	2.94	19.88	0.148 [1] ✔
T2	220 - 200	3/4	4.68	2.25	144.3	0.4418	4.95	19.88	0.249 [1] ✔
T3	200 - 180	7/8	4.68	2.23	122.3	0.6013	8.97	27.06	0.331 [1] ✔
T4	180 - 160	L2 1/2x2 1/2x1/4	9.56	5.10	82.9	0.6816	16.40	33.23	0.493 [1] ✔
T5	160 - 140	L2 1/2x2 1/2x3/16	10.31	5.34	85.6	0.5183	4.55	25.27	0.180 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	140 - 120	L2 1/2x2 1/2x3/16	11.98	6.10	97.3	0.5183	3.08	25.27	0.122 [1]
T7	120 - 100	L2 1/2x2 1/2x3/16	13.35	6.76	107.5	0.5183	3.35	25.27	0.133 [1]
T8	100 - 80	L2 1/2x2 1/2x3/16	14.87	7.50	118.9	0.5183	3.78	25.27	0.150 [1]
T9	80 - 60	L2 1/2x2 1/2x1/4	16.49	8.30	132.8	0.6816	4.10	33.23	0.123 [1]
T10	60 - 40	L2 1/2x2 1/2x1/4	18.19	9.15	146.0	0.6816	4.51	33.23	0.136 [1]
T11	40 - 20	L3x3x3/16	19.94	10.02	130.7	0.6593	4.77	32.14	0.148 [1]
T12	20 - 0	L3x3x5/16	21.74	10.91	144.7	1.0713	6.43	52.23	0.123 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	230 - 220	3/4	4.00	3.90	249.3	0.4418	0.79	19.88	0.040 [1]
T2	220 - 200	3/4	4.00	3.85	246.7	0.4418	1.15	19.88	0.058 [1]
T3	200 - 180	3/4	4.00	3.81	244.0	0.4418	2.68	19.88	0.135 [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 in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	230 - 220	7/8	4.00	3.90	213.7	0.6013	0.51	27.06	0.019 [1]
T2	220 - 200	7/8	4.00	3.85	211.4	0.6013	1.52	27.06	0.056 [1]
T3	200 - 180	1	4.00	3.81	183.0	0.7854	2.71	35.34	0.077 [1]
T4	180 - 160	L3x3x3/16	4.00	2.62	38.3	0.6593	2.71	32.14	0.084 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	230 - 220	7/8	4.00	3.90	213.7	0.6013	1.28	27.06	0.047 [1] ✔
T2	220 - 200	7/8	4.00	3.85	211.4	0.6013	2.15	27.06	0.079 [1] ✔
T3	200 - 180	1	4.00	3.81	183.0	0.7854	3.80	35.34	0.107 [1] ✔

[1] P_u / ϕP_n controls

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	220 - 200	7/8	4.00	3.85	211.4	0.6013	0.47	27.06	0.017 [1] ✔
T3	200 - 180	1	4.00	3.81	183.0	0.7854	1.79	35.34	0.051 [1] ✔

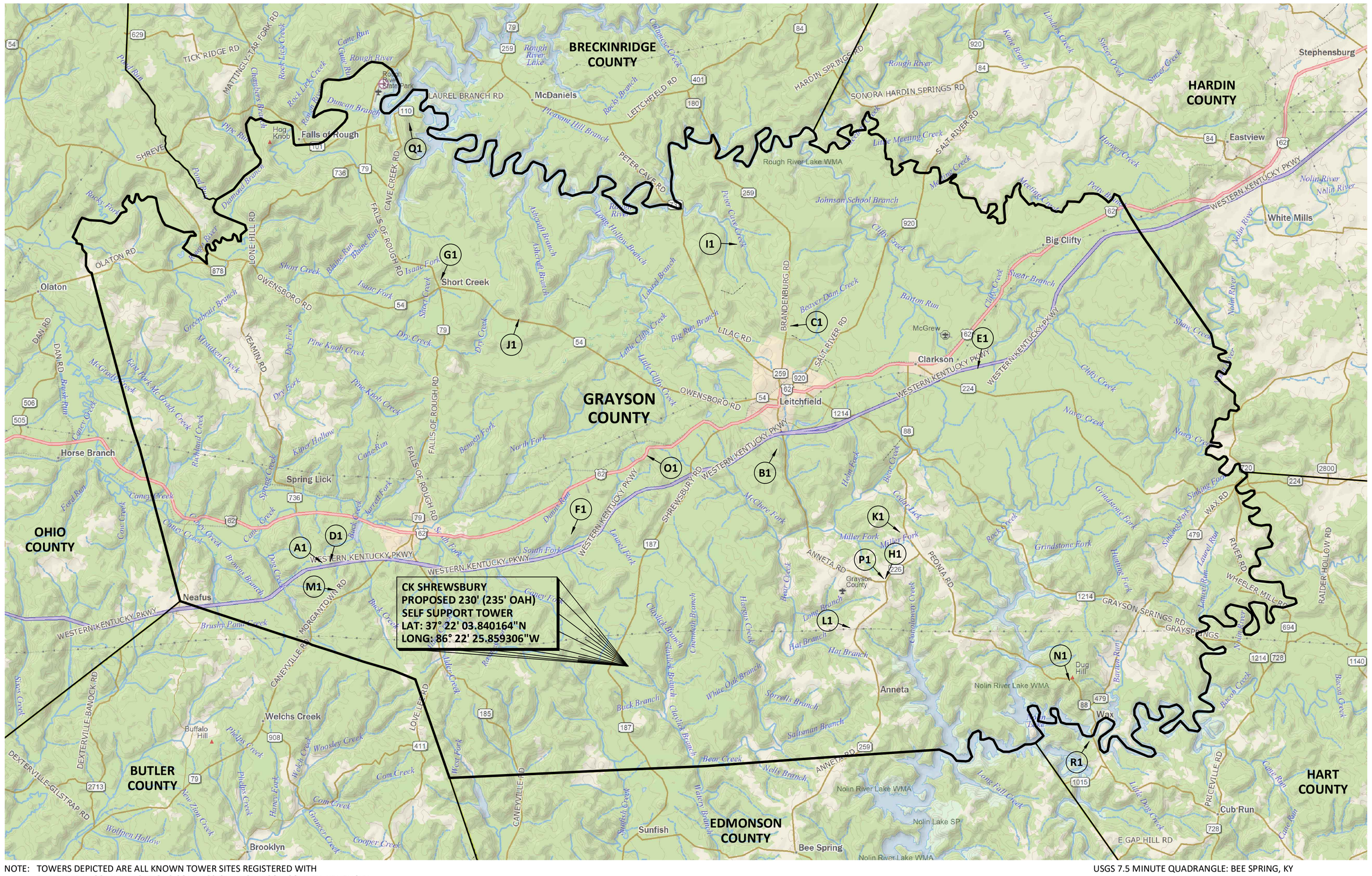
[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	230 - 220	Leg	1 1/4	2	-11.84	32.03	37.0	Pass
T2	220 - 200	Leg	1 3/4	37	-66.80	86.22	77.5	Pass
T3	200 - 180	Leg	2 1/4	103	-156.41	165.34	94.6	Pass
T4	180 - 160	Leg	#12ZG-58 - 1.25" - 1.00" conn (Pirod 194434)	169	-156.41	164.52	95.1	Pass
T5	160 - 140	Leg	#12ZG-58 - 1.50" - 1.00" conn (Pirod 194651)	187	-184.19	248.43	74.1	Pass
T6	140 - 120	Leg	#12ZG-58 - 1.50" - 1.00" conn (Pirod 194651)	202	-205.25	248.43	82.6	Pass
T7	120 - 100	Leg	#12ZG-58 - 1.50" - 1.00" conn (Pirod 194651)	217	-224.30	248.43	90.3	Pass
T8	100 - 80	Leg	#12ZG-58 - 1.50" - 1.00" conn (Pirod 194651)	232	-242.76	248.43	97.7	Pass
T9	80 - 60	Leg	#12ZG-58 - 1.75" - 1.00" conn -TR1-(Pirod 195213)	247	-261.69	347.96	75.2	Pass
T10	60 - 40	Leg	#12ZG-58 - 1.75" - 1.00" conn (Pirod 195217)	262	-280.30	347.96	80.6	Pass

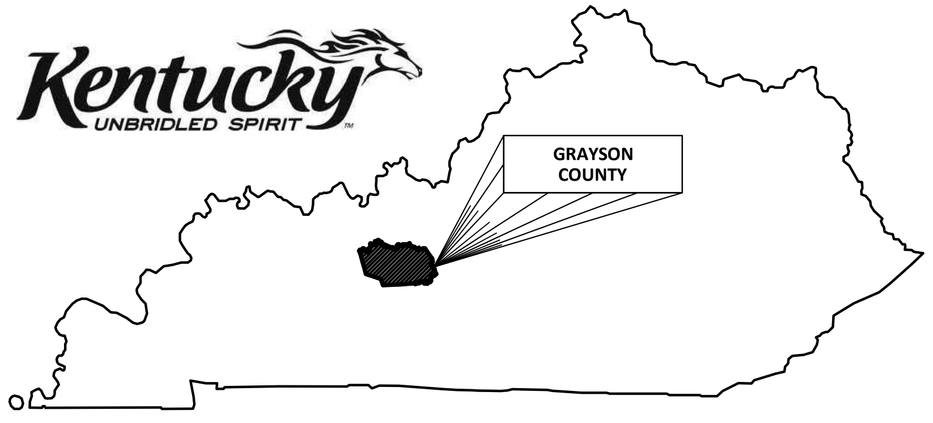
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T11	40 - 20	Leg	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)	277	-298.40	347.96	85.8	Pass
T12	20 - 0	Leg	#12ZG-58 BASE - 1.75" - 1.00" conn (Pirod 281212)	292	-315.96	349.49	90.4	Pass
T1	230 - 220	Diagonal	3/4	11	-3.05	5.89	51.7	Pass
T2	220 - 200	Diagonal	3/4	50	-5.06	5.92	85.4	Pass
T3	200 - 180	Diagonal	7/8	116	-8.88	11.16	79.6	Pass
T4	180 - 160	Diagonal	L2 1/2x2 1/2x1/4	184	-14.69	17.28	85.0 94.4 (b)	Pass
T5	160 - 140	Diagonal	L2 1/2x2 1/2x3/16	197	-5.24	12.15	43.1	Pass
T6	140 - 120	Diagonal	L2 1/2x2 1/2x3/16	206	-3.74	9.33	40.1	Pass
T7	120 - 100	Diagonal	L2 1/2x2 1/2x3/16	222	-3.87	7.59	51.0	Pass
T8	100 - 80	Diagonal	L2 1/2x2 1/2x3/16	237	-4.35	6.16	70.6	Pass
T9	80 - 60	Diagonal	L2 1/2x2 1/2x1/4	252	-4.54	6.53	69.5	Pass
T10	60 - 40	Diagonal	L2 1/2x2 1/2x1/4	267	-4.86	5.38	90.3	Pass
T11	40 - 20	Diagonal	L3x3x3/16	282	-5.38	6.05	88.9	Pass
T12	20 - 0	Diagonal	L3x3x5/16	297	-7.29	8.13	89.6	Pass
T1	230 - 220	Horizontal	3/4	23	-0.68	3.28	20.6	Pass
T2	220 - 200	Horizontal	3/4	55	-1.15	3.35	34.3	Pass
T3	200 - 180	Horizontal	3/4	121	-2.68	3.42	78.4	Pass
T1	230 - 220	Top Girt	7/8	5	-0.52	6.07	8.5	Pass
T2	220 - 200	Top Girt	7/8	41	-1.51	6.20	24.3	Pass
T3	200 - 180	Top Girt	1	108	-2.71	10.81	25.1	Pass
T4	180 - 160	Top Girt	L3x3x3/16	174	-2.71	26.05	10.4 20.8 (b)	Pass
T1	230 - 220	Bottom Girt	7/8	7	-1.17	6.07	19.3	Pass
T2	220 - 200	Bottom Girt	7/8	43	-2.07	6.20	33.3	Pass
T3	200 - 180	Bottom Girt	1	110	-4.75	10.81	43.9	Pass
T2	220 - 200	Mid Girt	7/8	48	-0.39	6.20	6.3	Pass
T3	200 - 180	Mid Girt	1	112	-1.53	10.81	14.1	Pass
							Summary	
						Leg (T8)	97.7	Pass
						Diagonal (T4)	94.4	Pass
						Horizontal (T3)	78.4	Pass
						Top Girt (T3)	25.1	Pass
						Bottom Girt (T3)	43.9	Pass
						Mid Girt (T3)	14.1	Pass
						Bolt Checks	94.4	Pass
						RATING =	**97.7**	**Pass**

GRAYSON COUNTY, KENTUCKY
VERIZON WIRELESS SITE NAME: CK SHREWSBURY



NOTE: TOWERS DEPICTED ARE ALL KNOWN TOWER SITES REGISTERED WITH THE FEDERAL COMMUNICATIONS COMMISSION IN GRAYSON COUNTY, KENTUCKY.

USGS 7.5 MINUTE QUADRANGLE: BEE SPRING, KY



EXISTING TOWER LEGEND

A1
FCC REGISTRATION #: 1043035
CELLCO PARTNERSHIP
LAT: 37° 24' 41.0"N
LONG: 86° 32' 12.0"W

B1
FCC REGISTRATION #: 1043037
CELLCO PARTNERSHIP
LAT: 37° 27' 33.0"N
LONG: 86° 17' 41.0"W

C1
FCC REGISTRATION #: 1043268
HERITAGE MEDIA OF KENTUCKY INC
LAT: 37° 30' 40.0"N
LONG: 86° 17' 15.0"W

D1
FCC REGISTRATION #: 1043431
CROWN CASTLE SOUTH LLC
LAT: 37° 24' 42.6"N
LONG: 86° 31' 56.6"W

E1
FCC REGISTRATION #: 1217206
CROWN COMMUNICATIONS LLC
LAT: 37° 29' 36.0"N
LONG: 86° 11' 16.5"W

F1
FCC REGISTRATION #: 1217214
CROWN COMMUNICATIONS LLC
LAT: 37° 25' 24.5"N
LONG: 86° 24' 14.9"W

G1
FCC REGISTRATION #: 1244902
CCATT LLC
LAT: 37° 31' 51.2"N
LONG: 86° 28' 23.9"W

H1
FCC REGISTRATION #: 1250554
TENNESSEE VALLEY AUTHORITY
LAT: 37° 24' 17.9"N
LONG: 86° 14' 14.4"W

I1
FCC REGISTRATION #: 1258451
CELLCO PARTNERSHIP
LAT: 37° 32' 44.1"N
LONG: 86° 18' 58.4"W

J1
FCC REGISTRATION #: 1268314
SBA MONARCH TOWERS III, LLC
LAT: 37° 30' 50.0"N
LONG: 86° 25' 54.6"W

K1
FCC REGISTRATION #: 1280487
CELLCO PARTNERSHIP
LAT: 37° 25' 27.1"N
LONG: 86° 13' 46.7"W

L1
FCC REGISTRATION #: 1281698
KENTUCKY UTILITIES COMPANY
LAT: 37° 23' 01.9"N
LONG: 86° 15' 21.7"W

M1
FCC REGISTRATION #: 1284809
KENTUCKY UTILITIES COMPANY
LAT: 37° 23' 58.9"N
LONG: 86° 31' 46.8"W

N1
FCC REGISTRATION #: 1310238
CELLCO PARTNERSHIP
LAT: 37° 21' 41.7"N
LONG: 86° 08' 22.0"W

O1
FCC REGISTRATION #: 1313734
CTI TOWERS ASSETS II, LLC
LAT: 37° 27' 22.6"N
LONG: 86° 21' 49.0"W

P1
FCC REGISTRATION #: 1315842
VERTICAL BRIDGE DEVELOPMENT, LLC
LAT: 37° 24' 17.8"N
LONG: 86° 14' 17.1"W

Q1
(GRANTED)
FCC REGISTRATION #: 1319716
TILLMAN INFRASTRUCTURE, LLC
LAT: 37° 35' 48.0"N
LONG: 86° 29' 24.5"W

R1
(GRANTED)
FCC REGISTRATION #: 1321066
TILLMAN INFRASTRUCTURE, LLC
LAT: 37° 20' 09.4"N
LONG: 86° 07' 44.2"W

PREPARED BY:
POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
CELLCO PARTNERSHIP D/B/A verizon

REVISIONS

REV.	DATE	DESCRIPTION
A	2.16.22	ISSUED FOR REVIEW

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER:	22-121716
DRAWN BY:	DAP
CHECKED BY:	MEP
SURVEY DATE:	9.3.21
PLAT DATE:	2.16.22

SHEET TITLE:
TOWER GRID MAP

SHEET NUMBER: (1 page)
C-1

Federal Aviation Administration

« OE/AAA

Proposed Case for : 2021-ASO-50778-OE

For information only.
This proposal has not yet been studied. Study outcomes will be posted at a later date.
Public comments are not requested, and will not be considered at this time.

Overview

Study (ASN): 2021-ASO-50778-OE
Prior Study:
Status: Work In Progress

Received Date: 12/17/2021
Entered Date: 12/17/2021
Map: View Map

Construction Info

Notice Of: CONSTR
Duration: PERM (Months: 0 Days: 0)
Work Schedule:

Structure Summary

Structure Type: Antenna Tower
Structure Name: CK SHREWSBURY (616995577)
FCC Number:

Structure Details

Latitude (NAD 83): 37° 22' 03.84" N
Longitude (NAD 83): 86° 22' 25.86" W
Datum: NAD 83
City: Leitchfield
State: KY
Nearest County: Grayson

Height and Elevation

	Proposed
Site Elevation:	699
Structure Height:	235
Total Height (AMSL):	934

Frequencies

Low Freq	High Freq	Unit	ERP	Unit
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	2000	W
614	698	MHz	1000	W
698	806	MHz	1000	W
806	824	MHz	500	W
806	901	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
929	932	MHz	3500	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
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2310	MHz	2000	W
2305	2360	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W
3550	3700	MHz	47	dBm
3700	3980	MHz	3280	W

27500	28350	MHz	75	dBm
29100	29250	MHz	75	dBm
31000	31300	MHz	75	dBm
38600	40000	MHz	75	dBm

Previous Back to Search Result Next

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ASO-50778-OE

Issued Date: 11/29/2022

Network Regulatory
Cellco Partnership
5055 North Point Pkwy
NP2NE Network Engineering
Alpharetta, GA 30022

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower CK SHREWSBURY (616995577)
Location:	Leitchfield, KY
Latitude:	37-22-03.84N NAD 83
Longitude:	86-22-25.86W
Heights:	699 feet site elevation (SE)
	235 feet above ground level (AGL)
	934 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Emissions from this site must be in compliance with the parameters set by collaboration between the FAA and telecommunications companies and reflected in the FAA 5G C band compatibility evaluation process (such as power, frequencies, and tilt angle). Operational use of this frequency band is not objectionable provided the Wireless Providers (WP) obtain and adhere to the parameters established by the FAA 5G C band compatibility evaluation process. **Failure to comply with this condition will void this determination of no hazard.**

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, a med-dual system-Chapters 4,8(M-Dual),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.
This determination expires on 05/29/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (718) 553-2611, or angelique.eersteling@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ASO-50778-OE.

Signature Control No: 505007022-562909244 (DNE)
Angelique Eersteling
Technician

Attachment(s)
Additional Information
Case Description
Frequency Data
Map(s)

cc: FCC

BASIS FOR DECISION

Part 77 authorizes the FAA to evaluate a structure or object's potential electromagnetic effects on air navigation, communication facilities, and other surveillance systems. It also authorizes study of impact on arrival, departure, and en route procedures for aircraft operating under visual or instrument flight rules, as well as the impact on airport traffic capacity at existing public use airports. Broadcast in the 3.7 to 3.98 GHz frequency (5G C band) currently causes errors in certain aircraft radio altimeters and the FAA has determined they cannot be relied upon to perform their intended function when experiencing interference from wireless broadband operations in the 5G C band. The FAA has adopted Airworthiness Directives for all transport and commuter category aircraft equipped with radio altimeters that prohibit certain operations when in the presence of 5G C band

This determination of no hazard is based upon those mitigations implemented by the FAA and operators of transport and commuter category aircraft, and helicopters operating in the vicinity of your proposed location. It is also based on telecommunication industry and FAA collaboration on acceptable power levels and other parameters as reflected in the FAA 5G C band evaluation process.

The FAA 5G C band compatibility evaluation is a data analytics system used by FAA to evaluate operational hazards related to aircraft design. The FAA 5G C band compatibility evaluation process refers to the process in which the telecommunication companies and the FAA have set parameters, such as power output, locations, frequencies, and tilt angles for antenna that mitigate the hazard to aviation. As the telecommunication companies and FAA refine the tools and methodology, the allowable frequencies and power levels may change in the FAA 5G C band compatibility evaluation process. Therefore, your proposal will not have a substantial adverse effect on the safe and efficient use of the navigable airspace by aircraft provided the equipment and emissions are in compliance with the parameters established through the FAA 5G C band compatibility evaluation process.

Any future changes that are not consistent with the parameters listed in the FAA 5G C band compatibility evaluation process will void this determination of no hazard.

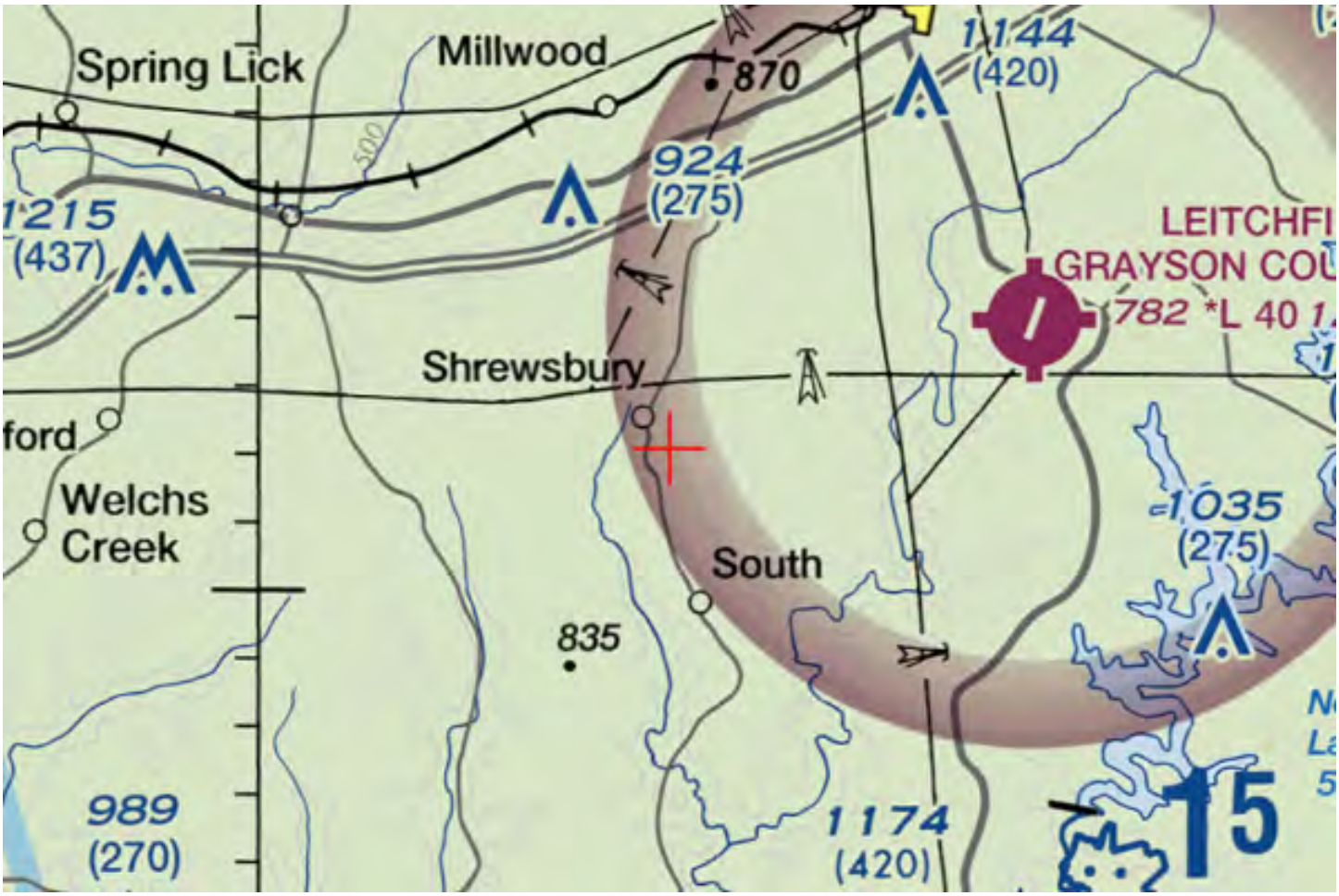
Proposing new, lattice self-support antenna tower. If M&L will be req'd, prefer dual red & med intensity. Questions to juliane.madsen@verizon.com

Frequency Data for ASN 2021-ASO-50778-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	2000	W
614	698	MHz	1000	W
698	806	MHz	1000	W
806	824	MHz	500	W
806	901	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
929	932	MHz	3500	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
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2310	MHz	2000	W
2305	2360	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W
3550	3700	MHz	47	dBm
3700	3980	MHz	3280	W
27500	28350	MHz	75	dBm
29100	29250	MHz	75	dBm
31000	31300	MHz	75	dBm
38600	40000	MHz	75	dBm

TOPO Map for ASN 2021-ASO-50778-OE

Sectional Map for ASN 2021-ASO-50778-OE



KENTUCKY AIRPORT ZONING COMMISSION

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

JURISDICTION

602 KAR 50:030

Section 1. The commission has zoning jurisdiction over that airspace over and around the public use and military airports within the Commonwealth which lies above the imaginary surface that extends outward and upward at one (1) of the following slopes:

(1) 100 to one (1) for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each public use airport and military airport with at least one (1) runway 3,200 feet or more in length; or

(2) fifty (50) to one (1) for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each public use and military airport with its longest runway less than 3,200 feet in length.

Section 2. The commission has zoning jurisdiction over the use of land and structures within public use airports within the state.

Section 3. The commission has jurisdiction from the ground upward within the limits of the primary and approach surfaces of each public use airport and military airport as depicted on airport zoning maps approved by the Kentucky Airport Zoning Commission.

Section 4. The Commission has jurisdiction over the airspace of the Commonwealth that exceeds 200 feet in height above the ground.

Section 5. The owner or person who has control over a structure which penetrates or will penetrate the airspace over which the Commission has Jurisdiction shall apply for a permit from the Commission in accordance with 602 KAR 50:090.

INSTRUCTIONS

1. "Alteration" means to increase or decrease the height of a structure or change the obstruction marking and lighting.
2. "Applicant" means the person who will own or have control over the completed structure.
3. "Certification by Applicant" shall be made by the individual who will own or control the completed structure; or a partner in a partnership; or the president or authorized officer of a corporation company, or association; or the authorized official of a body politic; or the legally designated representative of a trustee, receiver, or assignee.
4. Prepare the application and forward to the Kentucky Dept. of Aviation, ATTN: Airport Zoning Commission, 90 Airport Drive, Frankfort KY 40601. For questions, telephone 502-782-4043.
5. The statutes applicable to the Kentucky Airport Commission are KRS 183.861 to 183.990 and the administrative regulations are 602 KAR Chapter 50.
6. When applicable, attach the following appendices to the application:

Appendix A. A 7.5 minute quadrangle topographical map prepared by the U.S. Geological Survey and the Kentucky Geological Survey with the exact location of the structure which is the subject of the application indicated thereon. (*The 7.5 minute quadrangle map may be obtained from the Kentucky Geological Survey, Department of Mines and Minerals, Lexington, KY 40506.*)

Appendix B. For structures on or very near to property of a public use airport, a copy of the airport layout drawing (ALP) with the exact location of the structure which is the subject of this application indicated thereon. (*The ALP may be obtained from the Chairperson of the local airport board or the Kentucky Airport Zoning Commission.*)

Appendix C. Copies of Federal Aviation Administration Applications (*FFA Form 7460-1*) or any orders issued by the manager, Air Traffic Division, FAA regional office.

Appendix D. If the applicant has indicated in item number 7 of the application that the structure will not be marked or lighted in accordance with the regulations of the Commission, the applicant shall attach a written request for a determination by the commission that the marking and lighting are not necessary. The applicant shall specifically state the reasons that the absence of marking and lighting will not impair the safety of air navigation.

Appendix E. The overall height in feet of the overhead transmission line or static wire above ground level or mean water level with span length 1,000 feet and over shall be depicted on a blueprint profile map.

PENALTIES

1. Persons failing to comply with the Airport Zoning Commission statutes and regulations are liable for a fine or imprisonment as set forth in KRS 183.990(3).
2. Applicants are cautioned: Noncompliance with Federal Aviation Administration Regulations may provide for further penalties.

KENTUCKY TRANSPORTATION CABINET

KENTUCKY AIRPORT ZONING COMMISSION

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

APPLICANT (*name*) Verizon	**PHONE** 303-829-0076	**FAX**	**KY AERONAUTICAL STUDY #**	
ADDRESS (*street*) 5055 North Point Pkway	**CITY** Alpharetta		**STATE** GA	**ZIP** 30022
APPLICANT'S REPRESENTATIVE (*name*) Maureen Ramdath	**PHONE** 303-829-0076	**FAX**		
ADDRESS (*street*) 5055 North Point Pkway	**CITY** Alpharetta		**STATE** GA	**ZIP** 30222
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°22'03.84"	**LONGITUDE** 86°22'25.86"		**DATUM** ☒ NAD83 ☐ NAD27 ☐ Other	
NEAREST KENTUCKY City Leitchfield County Grayson	**NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT** LEITCHFIELD-GRAYSON COUNTY			
SITE ELEVATION (AMSL, *feet*) 699.0	**TOTAL STRUCTURE HEIGHT** (AGL, *feet*) 934		**CURRENT** (*FAA aeronautical study #*) 2021 ASO 50778 OE	
OVERALL HEIGHT (*site elevation plus total structure height, feet*) 235			**PREVIOUS** (*FAA aeronautical study #*) n/a	
DISTANCE (*from nearest Kentucky public use or Military airport to structure*) 5.7			**PREVIOUS** (*KY aeronautical study #*)	
DIRECTION (*from nearest Kentucky public use or Military airport to structure*) Near 369 Gray Road, Leitchfield				

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

DESCRIPTION OF PROPOSAL
Proposed 235ft antenna Tower (1Near 369 Gray Road) CK SHREWSBURY # 16505537

FAA Form 7460-1 (*Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?*)
☐ No ☒ Yes, when? 11/29/22

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**
Maureen Ramdath	Reg Engineer	MaureenRamdath	04/06/2023

COMMISSION ACTION

☐ Chairperson, KAZC
☐ Administrator, KAZC

☐ Approved
☐ Disapproved

SIGNATURE

DATE

Date: May 20, 2022

POD Job Number: 22-125392

GEOTECHNICAL REPORT

CK SHREWSBURY

37° 22' 03.840164" N
86° 22' 25.859306" W

Gray Road,
Leitchfield, KY 42574

Prepared For:

verizon

Prepared By:

POD
POWER OF DESIGN

11490 Bluegrass Parkway | Louisville, Kentucky 40299 | 502.437.5252
POWER OF DESIGN GROUP, LLC

POD
POWER OF DESIGN

May 20, 2022

Ms. Jackie Straight
Verizon Wireless
2902 Ring Road
Elizabethtown, KY 42701

Re: Geotechnical Report – **PROPOSED 230' SELF-SUPPORT TOWER w/ 5' LIGHTNING ARRESTOR**
Site Name: **CK SHREWSBURY**
Site Address: Gray Road, Leitchfield, Grayson County, Kentucky
Coordinates: N37° 22' 03.840164", W86° 22' 25.859306"
POD Project No. 22-125392

Dear Ms. Straight:

Attached 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 and equipment support 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,

Mark Patterson, P.E.
Project Engineer
License No.: KY 16300

STATE OF KENTUCKY
MARK E. PATTERSON
16,300
LICENSED
PROFESSIONAL ENGINEER

Copies submitted: (3) Ms. Jackie Straight

LETTER OF TRANSMITTAL

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BORING LOGS
SOIL SAMPLE CLASSIFICATION

Geotechnical Report
PROPOSED 230' SELF-SUPPORT TOWER w/ 5' LIGHTNING ARRESTOR
Site Name: **CK SHREWSBURY**
Gray Road, Leitchfield, Grayson County, Kentucky
N37° 22' 03.840164", W86° 22' 25.859306"

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 three 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

Verizon is proposing to construct a self-support tower and either an equipment shelter, slab, or platform at N37° 22' 03.840164", W86° 22' 25.859306", Gray Road, Leitchfield, Grayson County, Kentucky. The site is located in a rolling farm field south of Shrewsbury in a rural area of Grayson County. The proposed lease area will be 6,000 square feet and will be accessed by a new access road off Gray Road running north to the site. The proposed elevation at the tower location is about EL 699 and there is about 7-feet of change in elevation across the proposed lease area. The proposed tower location is shown on the Boring Location Plan in the Appendix.

3. SUBSURFACE CONDITIONS

The subsurface conditions were explored by drilling three test borings near the base of the proposed tower. 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 logs is also included in the Appendix. The general subsurface conditions disclosed by the test boring is discussed in the following paragraphs.

According to the Kentucky Geological Survey, Kentucky Geologic Map Information Services, the site is underlain by the Tradewater and Caseyville Formations. These formations are made up of sandstone, siltstone, shale, and coal and have undefined karst potential. No sinkholes were noted on site or mapped with one-half mile of the site.

The borings encountered only a thin veneer of topsoil at the existing ground surface. Below the topsoil, the borings encountered silty clay (CL) of low to medium plasticity to auger refusal depths between 11.1 to 12.1 feet. Auger refusal is defined as the depth at which the boring can no longer be advanced using the current drilling method. The SPT N-values in the silty clay were between 11 to over 50 blows per foot (bpf) generally indicating stiff to hard consistency. Between 3.5 and 6 feet, the borings encountered very highly weathered siltstone, sandstone, and shale that could be

augered through but had refusal of the sampling spoon. This resulted in limited recovery of the very highly weathered siltstone.

The refusal material was cored in Boring 1 from 11.8 to 21.8 feet below the ground surface. Siltstone with Shale that was hard, weathered, dark brown, thin bedded with a few thin clay partings was encountered. The recoveries of the rock cores were 88 to 83 percent and the RQD values were 40 and 7 percent. These values generally represent poor to fair quality rock from a foundation support viewpoint. The core run from 21.8 to 23.8 feet was not recovered due to an issue with the core barrel.

Observations made at the completion of soil drilling operations indicated the boring 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 2018 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 that the geotechnical engineer 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. Proposed Tower

Our findings indicate that the proposed self-support tower can be supported on drilled piers or on a common mat foundation. Please note that auger refusal was between 11.1 and 12.1 but that the sample spoon refused within 3 feet of the surface. The contractor should plan to deal with bedrock that may not be able to be excavated by soil methods before 11 feet.

4.1.1. Drilled Piers

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 all values provided are ultimate values and appropriate factors of safety should be used in conjunction with these values. If the piers will bear deeper than about 21 feet, a deeper boring should be drilled to determine the nature of the deeper material.

Depth Below Ground Surface, feet	0 - 2	2 – 6	6 – 21
Ultimate Bearing Pressure (psf)		13,800	44,250
C Undrained Shear Strength, psf	500	2,500	8,000
Ø Angle of Internal Friction degrees	0	0	0
Total Unit Weight, pcf	110	120	135
Soil Modulus Parameter k, pci	30	500	1000
Passive Soil Pressure, psf/one foot of depth		1,675 + 40(D-2)	10,000 + 45(D-6)
Side Friction, psf	100	600	1000

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

The tower could be supported on a common mat foundation bearing on the limestone bedrock at least 6 feet in depth can be designed using a net allowable bearing pressure of 6,000 pounds per square foot may be used. This value may be increased by 30 percent for the maximum edge pressure under transient loads. The friction value can be increased to 0.40 between the concrete and bedrock. 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.

The mat must found on either soil or bedrock but not both. Soil pockets can be removed and replaced with KY #57 feet if a foundation on rock is chosen.

4.2. Equipment Platform

An equipment platform may be supported on shallow piers bearing in the very highly weathered rock and designed for a net allowable soil pressure of 3,000 pounds per square foot. The piers should bear at a depth of at least 30 inches to minimize the effects of frost action. All existing topsoil or clay soil should be removed beneath footings.

4.3. Equipment Slab

A concrete slab supporting the equipment must be supported on at least 6-inch layer of relatively clean granular material such as gravel or crushed stone containing not more than 10 percent material that passes through a No. 4 sieve. This is to help distribute concentrated loads and equalize moisture conditions beneath the slab. Provided that a minimum of 6 in. of granular material is placed below the slab, a modulus of subgrade reaction (k) of 120 lbs/cu.in. can be used for design of the slab. All existing topsoil or soft natural soil should be removed beneath crushed stone layer.

4.4. Equipment Building

If an equipment building support on a slab is chosen in place of the equipment platform, it may be supported on shallow spread footings bearing in the highly weathered siltstone and designed for a net allowable soil pressure of 3,000 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 30 inches to minimize the effects of frost action. All existing topsoil or clay natural soil should be removed beneath footings.

Floor slabs must be supported on at least 4-inch layer of relatively clean granular material such as gravel or crushed stone containing not more than 10 percent material that passes through a No. 4 sieve. This is to help distribute concentrated loads and equalize moisture conditions beneath the slab. Provided that a minimum of 4 in. of granular material is placed below the slab, a modulus of subgrade reaction (k) of 120 lbs/cu.in. can be used for design of the floor slabs.

4.5. Drainage and Groundwater Considerations

Good site drainage must be provided. Surface run-off water should be drained away from the tower and platform 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 shallow foundations. Any seepage should be able to be pumped with sumps.

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 Drilled Piers

Please note that auger refusal was between 11.1 and 12.1 but that the sample spoon refused within 3 feet of the surface. The contractor should plan to deal with bedrock that may not be able to be excavated by soil methods before 11 feet.

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 groundwater was not encountered during the soil drilling, some significant seepage may be encountered. The drilled pier contractor should have pumps on hand to remove water from the drilled pier.
- 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 side wall collapse, prevent excessive mud and water intrusion in the drilled shaft.
- 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 ensure 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

At the time of this investigation, groundwater was not encountered. Therefore, no special provisions regarding groundwater control are considered necessary for shallow foundations. Any seepage should be able to be pumped with sumps.

If groundwater is encountered in the drilled pier excavations, it may be difficult to dewater 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 termie method.

6 FIELD INVESTIGATION

Three soil test borings were drilled near the base of the proposed tower. Split-spoon samples were obtained by the Standard Penetration Test (SPT) procedure (ASTM D1586) in all test borings. The borings encountered auger refusal from about 11.1 to 12.1 feet. A rock core of the refusal material was taken in Boring 1 from 11.8 to 23.8 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. POD Group 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 logs. 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.

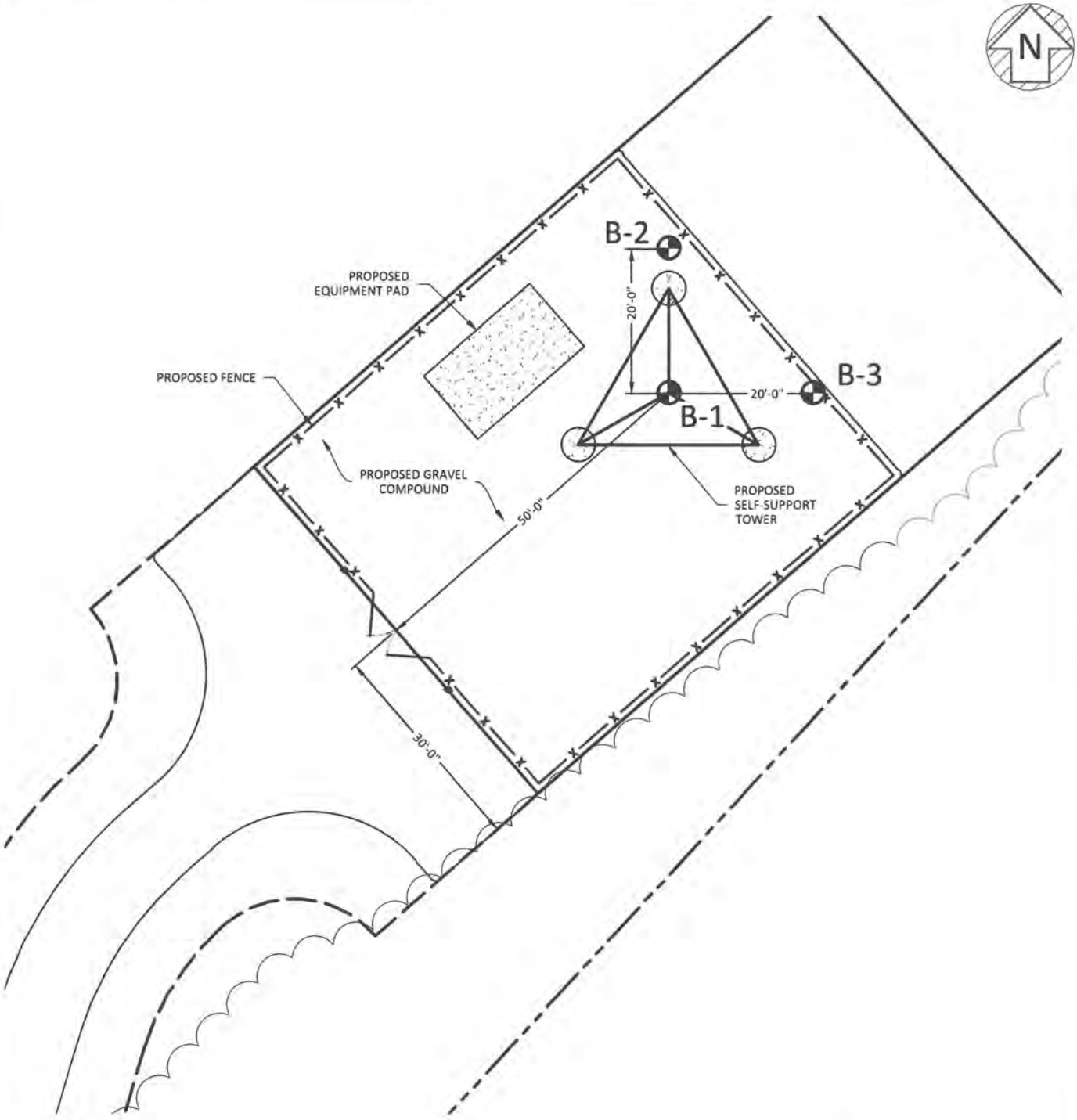
The nature and extent of variation and change in the subsurface conditions at the site may not become evident until the course of construction. Construction monitoring by the geotechnical engineer or a representative is therefore considered necessary to verify the subsurface conditions and to check that 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

BORING LOGS

SOIL SAMPLE CLASSIFICATION



LEGEND

B-1 BORING LOCATION

0' 20' 40'

1"= 20'

SHEET TITLE: **BORING LOCATION PLAN**	LATITUDE: 37° 22' 03.840164" N LONGITUDE: 86° 22' 25.859306" W PARCEL #: 068-00-00-050.0H DB 482, PG 291	SITE INFORMATION: **CK SHREWSBURY** GRAY ROAD LEITCHFIELD, KY 42574 GRAYSON COUNTY	POD POWER OF DESIGN 11490 BLUEGRASS PKWY LOUISVILLE, KY 40299 502-437-5252
SHEET NUMBER: 1	POD NUMBER: 22-125392 DRAWN BY: POD CHECKED BY: MEP DATE: 5.12.2022	OWNER INFORMATION: DARRELL & SANDI ROOF 223 HUFF ROAD LEITCHFIELD, KY 42574	verizon

POD
POWER OF DESIGN

Boring Log

Boring: B-1

Project: CK Shrewsbury **City, State** Leitchfield, KY

Method: H.S.A.	**Boring Date:** 9-May-22	**Location:** Proposed Tower Center
Inside Diameter: 3 1/4"	**Drill Rig Type:** D-25	**Hammer Type:** Auto
Groundwater: DRY		**Weather:**
Driller: Greenbaum Associates	**Note:**	

From (ft)	To (ft)	Material Description	Sample Depth (ft)	Sample Type	Blows per 6-inch increment	Recovery (in)	SPT-N value	Rock Quality (RQD,%)	Atterberg Limits	Moisture Content (%)	% Fines (clay & silt)	Unconfined Compressive Strength, (ksf)
0.0	6.0	SILTY CLAY (CL) - very stiff,. Dry light brown	1 - 2.5	SS	6, 8, 8	16	16,			16%		6.0
			3.5 - 5	SS	50,	2	50,			15%		
6.0	11.8	SANDSTONE and SILTSTONE - very highly weathered, tan	6 - 7.5	SS	50,	2	50,					
			8.5 - 10	SS	50,	1	50,					
11.8	23.8	SILTSTONE with SHALE - weathered, hard, dark brown, thin bedded with a few thin clay partings.	11.8 -16.8	RC		53		40%				
			16.8-21.8	RC		50		7%				
	21.0	- a core barrel malfunction resulted in zero recovery	21.8-23.8	RC		0		0%				
		Boring Terminated at 23.8 feet										

POD
POWER OF DESIGN

Boring Log

Boring: B-2

Project: CK Shrewsbury | **City, State** Leitchfield, KY

Method: H.S.A.	**Boring Date:** 9-May-22	**Location:** 20' North of Proposed Tower Center
Inside Diameter: 3 1/4"	**Drill Rig Type:** D-25	**Hammer Type:** Auto
Groundwater: DRY		**Weather:**
Driller: Greenbaum Associates	**Note:**	

From (ft)	To (ft)	Material Description	Sample Depth (ft)	Sample Type	Blows per 6-inch increment	Recovery (in)	SPT-N value	Rock Quality (RQD,%)	Atterberg Limits	Moisture Content (%)	% Fines (clay & silt)	Unconfined Compressive Strength, (ksf)
0.0	3.5	CLAYSHALE - hard, very highly weathered, brown to dark brown.	1 - 2.5	SS	4, 9, 50	9	59,			15%		
3.5	12.1	SANDSTONE and SILTSTONE - very highly weathered, tan	3.5 - 5	SS	50,	1	50,					
			6 - 7.5	SS	50,	3	50,					
	8.5	- dark brown	8.5 - 10	SS	50,	3	50,					
		Auger Refusal at 12.1 feet										

POD
POWER OF DESIGN

Boring Log

Boring: B-3

Project: CK Shrewsbury | **City, State** Leitchfield, KY

Method: H.S.A.	**Boring Date:** 9-May-22	**Location:** 20' East of Proposed Tower Center
Inside Diameter: 3 1/4"	**Drill Rig Type:** D-25	**Hammer Type:** Auto
Groundwater: DRY		**Weather:**
Driller: Greenbaum Associates	**Note:**	

From (ft)	To (ft)	Material Description	Sample Depth (ft)	Sample Type	Blows per 6-inch increment	Recovery (in)	SPT-N value	Rock Quality (RQD,%)	Atterberg Limits	Moisture Content (%)	% Fines (clay & silt)	Unconfined Compressive Strength, (ksf)
0.0	3.5	CLAY (CL) - stiff, light brown	1 - 2.5	SS	2, 3, 8	18	11,			16%		3.2
3.5	11.1	SANDSTONE and SILTSTONE - highly weathered, brown-light gray to tan with trace clay	3.5 - 5	SS	50,	3	50,					
			6 - 7.5	SS	50,	2	50,					
			8.5 - 10	SS	50,	3	50,					
		Auger Refusal at 11.1 feet										

SOIL SAMPLE CLASSIFICATION

FINE AND COARSE GRAINED SOIL INFORMATION

COARSE GRAINED SOILS (SANDS & GRAVELS)

N	Relative Density
0-4	Very Loose
5-10	Loose
11-20	Firm
21-30	Very Firm
31-50	Dense
Over 50	Very Dense

FINE GRAINED SOILS (SILTS & CLAYS)

N	Consistency	Qu, KSF Estimated
0-1	Very Soft	0-0.5
2-4	Soft	0.5-1
5-8	Firm	1-2
9-15	Stiff	2-4
16-30	Very Stiff	4-8
Over 31	Hard	8+

PARTICLE SIZE

Boulders	Greater than 300 mm (12 in)
Cobbles	75 mm to 300 mm (3 to 12 in)
Gravel	4.74 mm to 75 mm (3/16 to 3 in)
Coarse Sand	2 mm to 4.75 mm
Medium Sand	0.425 mm to 2 mm
Fine Sand	0.075 mm to 0.425 mm
Silts & Clays	Less than 0.075 mm

The **STANDARD PENETRATION TEST** as defined by ASTM D 1586 is a method to obtain a disturbed soil sample for examination and testing and to obtain relative density and consistency information. A standard 1.4-inch I.D./2-inch O.D. split-barrel sampler is driven three 6-inch increments with a 140 lb. hammer falling 30 inches. The hammer can either be of a trip, free-fall design, or actuated by a rope and cathead. The blow counts required to drive the sampler the final two increments are added together and designate the N-value defined in the above tables.

ROCK PROPERTIES

ROCK QUALITY DESIGNATION (RQD)

Percent RQD	Quality
0-25	Very Poor
25-50	Poor
50-75	Fair
75-90	Good
90-100	Excellent

ROCK HARDNESS

Very Hard:	Rock can be broken by heavy hammer blows.
Hard:	Rock cannot be broken by thumb pressure, but can be broken by moderate hammer blows.
Moderately Hard:	Small pieces can be broken off along sharp edges by considerable hard thumb pressure; can be broken with light hammer blows.
Soft:	Rock is coherent but breaks very easily with thumb pressure at sharp edges and crumbles with firm hand pressure.
Very Soft:	Rock disintegrates or easily compresses when touched; can be hard to very hard soil.

$$\text{Recovery} = \frac{\text{Length of Rock Core Recovered}}{\text{Length of Core Run}} \times 100$$

63 REC

$$\text{RQD} = \frac{\text{Sum of 4 in. and longer Rock Pieces Recovered}}{\text{Length of Core Run}} \times 100$$

NQ

43 RQD

Core Diameter	Inches
BQ	1-7/16
NQ	1-7/8
HQ	2-1/2

SYMBOLS

KEY TO MATERIAL TYPES

SOILS		
Group Symbols		Typical Names
GW		Well graded gravel - sand mixture, little or no fines
GP		Poorly graded gravels or gravel - sand mixture, little or no fines
GM		Silty gravels, gravel - sand silt mixtures
GC		Clayey gravels, gravel - sand - clay mixtures
SW		Well graded sands, gravelly sands, little or no fines
SP		Poorly graded sands or gravelly sands, little or no fines
SM		Silty sands, sand - silt mixtures
SC		Clayey sands, sand - clay mixtures
ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts
OL		Organic silts and organic silty clays of low plasticity
CL		Inorganic clays of low range plasticity, gravelly clays, sandy clays, silty clays, lean clays
MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
CH		Inorganic clays of high range plasticity, fat clays

ROCKS	
Symbols	Typical Names
	Limestone or Dolomite
	Shale
	Sandstone

SOIL PROPERTY SYMBOLS

N:	Standard Penetration, BPF
M:	Moisture Content, %
LL:	Liquid Limit, %
PI:	Plasticity Index, %
Qp:	Pocket Penetrometer Value, TSF
Qu:	Unconfined Compressive Strength Estimated Qu, TSF
γ_D:	Dry Unit Weight, PCF
F:	Fines Content

SAMPLING SYMBOLS

SS	Split Spoon Sample
UD	Relatively Undisturbed Sample
Core 1	Rock Core Sample

Directions to Site

FROM GRAYSON COUNTY JUDGE EXECUTIVE: 130 E MARKET ST, LEITCHFIELD, KY 42754: HEAD WEST ON E MARKET ST TOWARD S HEYSER DR (459 FT). TURN LEFT AT THE 2ND CROSS STREET ONTO S MAIN ST (499 FT). TURN RIGHT AT THE 1ST CROSS STREET ONTO W WHITE OAK ST (1.6 MI). CONTINUE ONTO BEAVER DAM RD (0.3 MI). TURN LEFT ONTO KY-187 S/SHREWSBURY RD (7.8 MI). TURN LEFT ONTO GRAY RD (0.5 MI). SITE WILL BE LOCATED ON LEFT (NORTH EAST) SIDE OF ROAD.

VzW Site Name: CK Shrewsbury
Location Code: 689716
Atty: Coots Henke & Wheeler, P.C.: Daniel E. Coots

LAND LEASE AGREEMENT

This Land Lease Agreement (the "Agreement") made this 13 day of March, 20 22 between **Darrell and Sandi Roof,** Husband and Wife, and both Kentucky residents with a mailing address of 223 Huff Road, Leitchfield, Kentucky 42574, hereinafter collectively designated LESSOR and **Cellco Partnership d/b/a Verizon Wireless** with its principal offices at One Verizon Way, Mail Stop 4AW100, Basking Ridge, New Jersey 07920 (telephone number 866-862-4404), hereinafter designated LESSEE. LESSOR and LESSEE are at times collectively referred to hereinafter as the "Parties" or individually as the "Party."

WITNESSETH

In consideration of the mutual covenants contained herein and intending to be legally bound hereby, the Parties hereto agree as follows:

1. GRANT. In accordance with this Agreement, LESSOR hereby grants to LESSEE the right to install, maintain and operate a telecommunications tower, facility, and equipment ("Use") upon the Premises (as hereinafter defined), which are a part of that real property owned, leased or controlled by LESSOR at approximately 369 Gray Road, Leitchfield, Kentucky 42574 (the "Property"). The Property is legally described on Exhibit "A" attached hereto and made a part hereof. The Premises are a portion of the Property including a portion of the parcel of land space (the "Land Space") consisting of approximately 100' x 60', or 6,000 square feet of land, as shown in detail on Exhibit "B" attached hereto and made a part hereof. LESSOR hereby grants permission to LESSEE to install, maintain and operate the telecommunications tower, facility, equipment, antennas and appurtenances described in Exhibit "B" attached hereto. LESSEE reserves the right to replace the aforementioned equipment with similar and comparable equipment. In addition, LESSOR hereby grants to LESSEE a non-exclusive right (the "Easements") over the Property for access, ingress and egress, seven (7) days a week twenty-four (24) hours a day, on foot or motor vehicle, including trucks over or along a thirty foot (30') wide right-of-way extending from the nearest public right-of-way, Gray Road, to the Land Space, and for the installation and maintenance of utility wires, poles, cables, conduits, fiber, and pipes over, under, or along one or more rights of way from the Land Space, said Land Space and Rights of Way (hereinafter collectively referred to as the "Premises") being substantially as described herein in Exhibit "B" attached hereto and made a part hereof. The Property is also shown on the Tax Map of the City of Leitchfield, Grayson County, as Tax Map ID Number 068-00-00-050.0H.

In the event any public utility is unable to use the Easements, the LESSOR hereby agrees to grant an additional right-of-way either to the LESSEE or to the public utility at no cost to the LESSEE.

LESSEE may survey the Premises and said survey shall then become Exhibit "C" which shall be attached hereto and made a part hereof, and shall control in the event of boundary and access discrepancies between it and Exhibit "B". Cost for such work shall be borne by the LESSEE.

2. INITIAL TERM. This Agreement shall be effective as of the date of execution by both Parties ("Effective Date"). The initial term of the Agreement shall be for five (5) years beginning on the Commencement Date (as hereinafter defined). The " Commencement Date" shall be the first (1st) day of the month after LESSEE begins construction of the

telecommunications facility. LESSOR and LESSEE agree that they shall acknowledge, in writing, the Commencement Date once construction of the telecommunications facility has commenced.

3. EXTENSIONS. This Agreement shall automatically be extended for 4 additional five (5) year terms unless LESSEE terminates it at the end of the then current term by giving LESSOR written notice of the intent to terminate at least three (3) months prior to the end of the then current term. The initial term and all extensions shall be collectively referred to herein as the "Term".

4. RENTAL.

(a). Rental payments shall begin on the Commencement Date and be due at a total annual rental of to be paid in equal monthly installments of on the first (1st) day of the month, in advance, to LESSOR at 223 Huff Road, Leitchfield, Kentucky 42574 or to such other person, firm, or place as LESSOR may, from time to time, designate in writing at least thirty (30) days in advance of any rental payment date by notice given in accordance with Paragraph 20 below. LESSOR and LESSEE acknowledge and agree that the initial rental payment shall not be delivered by LESSEE until sixty (60) days after the Commencement Date. Upon agreement of the Parties, LESSEE may pay rent by electronic funds transfer and in such event, LESSOR agrees to provide to LESSEE bank routing information for such purpose upon request of LESSEE.

(b). For any party to whom rental payments are to be made, LESSOR or any successor in interest of LESSOR hereby agrees to provide to LESSEE (i) a completed, current version of Internal Revenue Service Form W-9, or equivalent; (ii) complete and fully executed state and local withholding forms if required; and (iii) other documentation to verify LESSOR's or such other party's right to receive rental as is reasonably requested by LESSEE. Rental shall accrue in accordance with this Agreement, but LESSEE shall have no obligation to deliver rental payments until the requested documentation has been received by LESSEE. Upon receipt of the requested documentation, LESSEE shall deliver the accrued rental payments as directed by LESSOR.

(c). The rental amount shall increase by at the beginning of each from the Commencement Date, as defined herein.

(d). ADDITIONAL EXTENSIONS. If at the end of the fourth (4th) five (5) year extension term this Agreement has not been terminated by either Party by giving to the other written notice of an intention to terminate it at least three (3) months prior to the end of such term, this Agreement shall continue in force upon the same covenants, terms and conditions for a further term of five (5) years and for five (5) year terms thereafter until terminated by either Party by giving to the other written notice of its intention to so terminate at least three (3) months prior to the end of such term. Annual rental for each such additional five (5) year term shall be equal to the annual rental payable with respect to the immediately preceding five (5) year term. The initial term and all extensions shall be collectively referred to herein as the "Term".

5. ACCESS. LESSEE shall have the non-exclusive right of ingress and egress from a public right-of-way, 7 days a week, 24 hours a day, over the Property to and from the Premises for the purpose of installation, operation and maintenance of LESSEE's communications equipment over or along a thirty foot (30') right-of-way ("Easement"), which shall be depicted on Exhibit "B". LESSEE may use the Easement for the installation, operation and maintenance of wires, cables,

conduits and pipes for all necessary electrical, telephone, fiber and other similar support services. In the event it is necessary, LESSOR agrees to grant LESSEE or the provider the right to install such services on, through, over and/or under the Property, provided the location of such services shall be reasonably approved by LESSOR. Notwithstanding anything to the contrary, the Premises shall include such additional space sufficient for LESSEE's radio frequency signage and/or barricades as are necessary to ensure LESSEE's compliance with Laws (as defined in Paragraph 27).

6. CONDITION OF PROPERTY. LESSOR shall deliver the Premises to LESSEE in a condition ready for LESSEE's Use and clean and free of debris. Notwithstanding the foregoing, LESSEE shall be responsible for any tree clearing/site preparation associated with the Land Space and/or Easement areas. LESSOR represents and warrants to LESSEE that as of the Effective Date, the Premises is (a) in compliance with all Laws; and (b) in compliance with all EH&S Laws (as defined in Paragraph 24).

7. IMPROVEMENTS. The communications equipment including, without limitation, the tower, equipment shelters/platforms, antenna mounts, antennas, conduits, and other improvements shall be at LESSEE's expense and installation shall be at the discretion and option of LESSEE. LESSEE shall have the right to replace, repair, add or otherwise modify its communications equipment, antennas, conduits, fencing and other screening, or other improvements or any portion thereof and the frequencies over which the communications equipment operates, whether or not any of the communications equipment, antennas, conduits or other improvements are listed on any exhibit.

8. GOVERNMENT APPROVALS. LESSEE's Use is contingent upon LESSEE obtaining all of the certificates, permits and other approvals (collectively the "Government Approvals") that may be required by any Federal, State or Local authorities (collectively, the "Government Entities") as well as a satisfactory soil boring test, environmental studies, or any other due diligence LESSEE chooses that will permit LESSEE's Use. By signing this Agreement, LESSOR consents to LESSEE making all necessary applications with the appropriate zoning authority and shall cooperate with LESSEE in its effort to obtain such approvals. LESSOR shall take no action which would adversely affect the status of the Property with respect to LESSEE's Use.

9. TERMINATION. LESSEE may, unless otherwise stated, immediately terminate this Agreement upon written notice to LESSOR in the event that (i) any applications for such Government Approvals should be finally rejected; (ii) any Government Approval issued to LESSEE is canceled, expires, lapses or is otherwise withdrawn or terminated by any Government Entity; (iii) LESSEE determines that such Government Approvals may not be obtained in a timely manner; (iv) LESSEE determines any structural analysis is unsatisfactory; (v) LESSEE, in its sole discretion, determines the Use of the Premises is obsolete or unnecessary; (vi) with 3 months prior notice to LESSOR, upon the annual anniversary of the Commencement Date; or (vii) at any time before the Commencement Date for any reason or no reason in LESSEE's sole discretion.

10. INDEMNIFICATION. Subject to Paragraphs 11 and 12, each Party shall indemnify and hold the other harmless against any claim of liability or loss from personal injury or property damage resulting from or arising out of the negligence or willful misconduct of the indemnifying Party, its employees, contractors or agents, except to the extent such claims or damages may be due to or caused by the negligence or willful misconduct of the other Party, or its employees, contractors or agents. The indemnified Party will provide the indemnifying Party with prompt, written notice

of any claim covered by this indemnification; provided that any failure of the Indemnified Party to provide any such notice, or to provide it promptly, shall not relieve the Indemnifying Party from its indemnification obligation in respect of such claim, except to the extent the Indemnifying Party can establish actual prejudice and direct damages as a result thereof. The Indemnified Party will cooperate appropriately with the Indemnifying Party in connection with the Indemnifying Party's defense of such claim. The Indemnifying Party shall defend any Indemnified Party, at the Indemnified Party's request, against any claim with counsel reasonably satisfactory to the Indemnified Party. The Indemnifying Party shall not settle or compromise any such claim or consent to the entry of any judgment without the prior written consent of each Indemnified Party and without an unconditional release of all claims by each claimant or plaintiff in favor of each Indemnified Party.

11. INSURANCE. The LESSOR agrees that at its own cost and expense, LESSOR will maintain commercial liability insurance with limits not less than $1,000,000 for injury to or death of one or more persons in any one occurrence and $1,000,000 for damage or destruction in any one occurrence. The LESSEE agrees that at its own cost and expense, it will maintain commercial general liability insurance with limits not less than $2,000,000 for injury to or death of one or more persons in any one occurrence and $2,000,000 for damage or destruction in any one occurrence. The Parties agree to include the other Party as an additional insured. The Parties hereby waive and release any and all rights of action for negligence against the other which may hereafter arise on account of damage to the Premises or the Property, resulting from any fire, or other casualty which is insurable under "Causes of Loss – Special Form" property damage insurance or for the kind covered by standard fire insurance policies with extended coverage, regardless of whether or not, or in what amounts, such insurance is now or hereafter carried by the Parties, even if any such fire or other casualty shall have been caused by the fault or negligence of the other Party. These waivers and releases shall apply between the Parties and they shall also apply to any claims under or through either Party as a result of any asserted right of subrogation. All such policies of insurance obtained by either Party concerning the Premises or the Property shall waive the insurer's right of subrogation against the other Party.

12. LIMITATION OF LIABILITY. Except for indemnification pursuant to Paragraphs 10 and 24, a violation of Paragraph 30, or a violation of law, neither Party shall be liable to the other, or any of their respective agents, representatives, or employees for any lost revenue, lost profits, loss of technology, rights or services, incidental, punitive, indirect, special or consequential damages, loss of data, or interruption or loss of use of service, even if advised of the possibility of such damages, whether under theory of contract, tort (including negligence), strict liability or otherwise.

13. INTERFERENCE.

(a). LESSOR agrees that LESSOR and other occupants of the Property will not cause interference to LESSEE's equipment (that is measurable in accordance with industry standards to the then existing equipment of LESSEE).

(b). Without limiting any other rights or remedies, if interference occurs and continues for a period in excess of 48 hours following notice to the interfering party via telephone to LESSEE'S Network Operations Center (at (800) 224-6620/(800) 621-2622) or to LESSOR at (270) 230-3184, the interfering party shall or shall require any other user to reduce power or cease operations of the interfering equipment until the interference is cured.

(c). The Parties acknowledge that there will not be an adequate remedy at law for noncompliance with the provisions of this Paragraph and therefore the Parties shall have the right to equitable remedies such as, without limitation, injunctive relief and specific performance.

14. REMOVAL AT END OF TERM. Upon expiration or within ninety (90) days of earlier termination, LESSEE shall remove LESSEE's Communications Equipment (except footings) and restore the Premises to its original condition, reasonable wear and tear and casualty damage excepted. LESSOR agrees and acknowledges that the communications equipment shall remain the personal property of LESSEE and LESSEE shall have the right to remove the same at any time during the Term, whether or not said items are considered fixtures and attachments to real property under applicable laws. If such time for removal causes LESSEE to remain on the Premises after termination of the Agreement, LESSEE shall pay rent at the then existing monthly rate or on the existing monthly pro-rata basis if based upon a longer payment term, until the removal of the communications equipment is completed.

15. HOLDOVER. If upon expiration of the Term the Parties are negotiating a new lease or a lease extension, then this Agreement shall continue during such negotiations on a month to month basis at the rental in effect as of the date of the expiration of the Term. In the event that the Parties are not in the process of negotiating a new lease or lease extension and LESSEE holds over after the expiration or earlier termination of the Term, then LESSEE shall pay rent at the then existing monthly rate or on the existing monthly pro-rata basis if based upon a longer payment term, until the removal of the communications equipment is completed.

16. RIGHT OF FIRST REFUSAL. If at any time after the Effective Date, LESSOR receives an offer or letter of intent from any person or entity that is in the business of owning, managing or operating communications facilities or is in the business of acquiring landlord interests in agreements relating to communications facilities, to purchase fee title, an easement, a lease, a license, or any other interest in the Premises or any portion thereof or to acquire any interest in this Agreement, or an option for any of the foregoing, LESSOR shall provide written notice to LESSEE of said offer ("LESSOR's Notice"). LESSOR's Notice shall include the prospective buyer's name, the purchase price being offered, any other consideration being offered, the other terms and conditions of the offer, a description of the portion of and interest in the Premises and/or this Agreement which will be conveyed in the proposed transaction, and a copy of any letters of intent or form agreements presented to LESSOR by the third party offeror. LESSEE shall have the right of first refusal to meet any bona fide offer of sale or transfer on the terms and conditions of such offer or by effectuating a transaction with substantially equivalent financial terms. If LESSEE fails to provide written notice to LESSOR that LESSEE intends to meet such bona fide offer within thirty (30) days after receipt of LESSOR's Notice, LESSOR may proceed with the proposed transaction in accordance with the terms and conditions of such third party offer, in which event this Agreement shall continue in full force and effect and the right of first refusal described in this Paragraph shall survive any such conveyance to a third party. If LESSEE provides LESSOR with notice of LESSEE's intention to meet the third party offer within thirty (30) days after receipt of LESSOR's Notice, then if LESSOR's Notice describes a transaction involving greater space than the Premises, LESSEE may elect to proceed with a transaction covering only the Premises and the purchase price shall be pro-rated on a square footage basis. Further, LESSOR acknowledges and agrees that if LESSEE exercises this right of first refusal, LESSEE may require a reasonable period of time to conduct due diligence and effectuate the closing of a transaction on substantially equivalent financial terms of

the third party offer. For purposes of this Paragraph, any transfer, bequest or devise of LESSOR's interest in the Property as a result of the death of LESSOR, whether by will or intestate succession, or any conveyance to LESSOR's family members by direct conveyance or by conveyance to a trust for the benefit of family members shall not be considered a sale for which LESSEE has any right of first refusal.

17. RIGHTS UPON SALE. Should LESSOR, at any time during the Term, decide (i) to sell or otherwise transfer all or any part of the Property, or (ii) to grant to a third party by easement or other legal instrument an interest in and to any portion of the Premises, such sale, transfer, or grant of an easement or interest therein shall be under and subject to this Agreement and any such purchaser or transferee shall recognize LESSEE's rights hereunder. In the event that LESSOR completes any such sale, transfer, or grant described in this Paragraph without executing an assignment of the Agreement whereby the third party agrees in writing to assume all obligations of LESSOR under this Agreement, then LESSOR shall not be released from its obligations to LESSEE under this Agreement, and LESSEE shall have the right to look to LESSOR and the third party for the full performance of the Agreement.

18. LESSOR'S TITLE. LESSOR covenants that LESSEE, on paying the rent and performing the covenants herein, shall peaceably and quietly have, hold and enjoy the Premises. LESSOR represents and warrants to LESSEE as of the Effective Date and covenants during the Term that LESSOR has full authority to enter into and execute this Agreement and that there are no liens, judgments, covenants, easements, restrictions or other impediments of title that will adversely affect LESSEE's Use.

19. ASSIGNMENT. Without any approval or consent of the other Party, this Agreement may be sold, assigned or transferred by either Party to (i) any entity in which the Party directly or indirectly holds an equity or similar interest; (ii) any entity which directly or indirectly holds an equity or similar interest in the Party; or (iii) any entity directly or indirectly under common control with the Party. LESSEE may unilaterally assign this Agreement without the approval or consent of LESSOR to any third party tower company that agrees to construct and develop the Premises. LESSEE may also assign this Agreement to any entity which acquires all or substantially all of LESSEE's assets in the market defined by the FCC in which the Property is located by reason of a merger, acquisition or other business reorganization without approval or consent of LESSOR. As to other parties, this Agreement may not be sold, assigned or transferred without the written consent of the other Party, which such consent will not be unreasonably withheld, delayed or conditioned. No change of stock ownership, partnership interest or control of LESSEE or transfer upon partnership or corporate dissolution of either Party shall constitute an assignment hereunder. LESSEE may sublet the Premises in LESSEE's sole discretion.

20. NOTICES. Except for notices permitted via telephone in accordance with Paragraph 13, all notices hereunder must be in writing and shall be deemed validly given if sent by certified mail, return receipt requested or by commercial courier, provided the courier's regular business is delivery service and provided further that it guarantees delivery to the addressee by the end of the next business day following the courier's receipt from the sender, addressed as follows (or any other address that the Party to be notified may have designated to the sender by like notice):

LESSOR: Darrell and Sandi Roof
223 Huff Road
Leitchfield, Kentucky 42574

LESSEE: Cellco Partnership
d/b/a Verizon Wireless
180 Washington Valley Road
Bedminster, New Jersey 07921
Attention: Network Real Estate

Notice shall be effective upon actual receipt or refusal as shown on the receipt obtained pursuant to the foregoing.

21. SUBORDINATION AND NON-DISTURBANCE. If applicable and within fifteen (15) days of the Effective Date, LESSOR shall obtain a Non-Disturbance Agreement, as defined below, from its existing mortgagee(s), ground lessors and master lessors, if any, of the Property. At LESSOR's option, this Agreement shall be subordinate to any future master lease, ground lease, mortgage, deed of trust or other security interest (a "Mortgage") by LESSOR which from time to time may encumber all or part of the Property; provided, however, as a condition precedent to LESSEE being required to subordinate its interest in this Agreement to any future Mortgage covering the Property, LESSOR shall obtain for LESSEE's benefit a non-disturbance and attornment agreement for LESSEE's benefit in the form reasonably satisfactory to LESSEE, and containing the terms described below (the "Non-Disturbance Agreement"), and shall recognize LESSEE's rights under this Agreement. The Non-Disturbance Agreement shall include the encumbering party's ("Lender's") agreement that, if Lender or its successor-in-interest or any purchaser of Lender's or its successor's interest (a "Purchaser") acquires an ownership interest in the Property, Lender or such successor-in-interest or Purchaser will honor all of the terms of the Agreement. Such Non-Disturbance Agreement must be binding on all of Lender's participants in the subject loan (if any) and on all successors and assigns of Lender and/or its participants and on all Purchasers. In return for such Non-Disturbance Agreement, LESSEE will execute an agreement for Lender's benefit in which LESSEE (1) confirms that the Agreement is subordinate to the Mortgage or other real property interest in favor of Lender, (2) agrees to attorn to Lender if Lender becomes the owner of the Property and (3) agrees to accept a cure by Lender of any of LESSOR's defaults, provided such cure is completed within the deadline applicable to LESSOR. In the event LESSOR defaults in the payment and/or other performance of any mortgage or other real property interest encumbering the Property, LESSEE, may, at its sole option and without obligation, cure or correct LESSOR's default and upon doing so, LESSEE shall be subrogated to any and all rights, titles, liens and equities of the holders of such mortgage or other real property interest and LESSEE shall be entitled to deduct and setoff against all rents that may otherwise become due under this Agreement the sums paid by LESSEE to cure or correct such defaults.

22. DEFAULT. It is a "Default" if (i) either Party fails to comply with this Agreement and does not remedy the failure within thirty (30) days after written notice by the other Party or, if the failure cannot reasonably be remedied in such time, if the failing Party does not commence a remedy within the allotted thirty (30) days and diligently pursue the cure to completion within ninety (90) days after the initial written notice, or (ii) LESSOR fails to comply with this Agreement

and the failure substantially interferes with LESSEE's Use, in LESSEE's reasonable discretion, and LESSOR does not remedy the failure within five (5) days after written notice from LESSEE or, if the failure cannot reasonably be remedied in such time, if LESSOR does not commence a remedy within the allotted five (5) days and diligently pursue the cure to completion within fifteen (15) days after the initial written notice. The cure periods set forth in this Paragraph 22 do not extend the period of time in which either Party has to cure interference pursuant to Paragraph 13 of this Agreement.

23. REMEDIES. In the event of a Default, without limiting the non-defaulting Party in the exercise of any right or remedy which the non-defaulting Party may have by reason of such default, the non-defaulting Party may terminate this Agreement and/or pursue any remedy now or hereafter available to the non-defaulting Party under the Laws or judicial decisions of the state in which the Property is located. Further, upon a Default, the non-defaulting Party may at its option (but without obligation to do so), perform the defaulting Party's duty or obligation. The costs and expenses of any such performance by the non-defaulting Party shall be due and payable by the defaulting Party upon invoice therefor. If LESSEE undertakes any such performance on LESSOR's behalf and LESSOR does not pay LESSEE the full undisputed amount within thirty (30) days of its receipt of an invoice setting forth the amount due, LESSEE may offset the full undisputed amount due against all fees due and owing to LESSOR under this Agreement until the full undisputed amount is fully reimbursed to LESSEE.

24. ENVIRONMENTAL. LESSEE shall conduct its business in compliance with all applicable laws governing the protection of the environment or employee health and safety ("EH&S Laws"). LESSEE shall indemnify and hold harmless the LESSOR from claims to the extent resulting from LESSEE's violation of any applicable EH&S Laws or to the extent that LESSEE causes a release of any regulated substance to the environment. LESSOR shall indemnify and hold harmless LESSEE from all claims resulting from the violation of any applicable EH&S Laws by LESSOR or its employees, contractors or agents, or a release of any regulated substance to the environment caused by LESSOR, its employees, contractors or agents, except to the extent resulting from the activities of LESSEE. The Parties recognize that LESSEE is only leasing a small portion of LESSOR's property and that LESSEE shall not be responsible for any environmental condition or issue except to the extent resulting from LESSEE's specific activities and responsibilities. In the event that LESSEE encounters any hazardous substances that do not result from its activities, LESSEE may relocate its facilities to avoid such hazardous substances to a mutually agreeable location or, if LESSEE desires to remove at its own cost all or some the hazardous substances or materials (such as soil) containing those hazardous substances, LESSOR agrees to sign any necessary waste manifest associated with the removal, transportation and/or disposal of such substances.

25. CASUALTY. If a fire or other casualty damages the Property or the Premises and substantially impairs LESSEE's Use, in LESSEE's reasonable discretion, rent shall abate until LESSEE'S Use is restored. If LESSEE's Use is not restored within forty-five (45) days, LESSEE may terminate this Agreement.

26. CONDEMNATION. If a condemnation of any portion of the Property or Premises substantially impairs LESSEE's Use, in LESSEE's reasonable discretion, LESSEE may terminate this Agreement LESSEE may on its own behalf make a claim in any condemnation proceeding involving the Premises for losses related to LESSEE's communications equipment, relocation costs

and, specifically excluding loss of LESSEE's leasehold interest, any other damages LESSEE may incur as a result of any such condemnation.

27. APPLICABLE LAWS. During the Term, LESSOR shall maintain the Property in compliance with all applicable laws, EH&S Laws, rules, regulations, ordinances, directives, covenants, easements, consent decrees, zoning and land use regulations, and restrictions of record, permits, building codes, and the requirements of any applicable fire insurance underwriter or rating bureau, now in effect or which may hereafter come into effect (including, without limitation, the Americans with Disabilities Act and laws regulating hazardous substances) (collectively "Laws"). LESSEE shall, in respect to the condition of the Premises and at LESSEE's sole cost and expense, comply with (i) all Laws relating solely to LESSEE's specific and unique nature of use of the Premises; and (ii) all building codes requiring modifications to the Premises due to the Improvements being made by LESSEE in the Premises. It shall be LESSOR's obligation to comply with all Laws relating to the Property, without regard to specific use (including, without limitation, modifications required to enable LESSEE to obtain all necessary building permits).

28. TAXES.

(a). LESSOR shall invoice and LESSEE shall pay any applicable transaction tax (including sales, use, gross receipts, or excise tax) imposed on the LESSEE and required to be collected by the LESSOR based on any service, rental space, or equipment provided by the LESSOR to the LESSEE. LESSEE shall pay all personal property taxes, fees, assessments, or other taxes and charges imposed by any Government Entity that are imposed on the LESSEE and required to be paid by the LESSEE that are directly attributable to the LESSEE's equipment or LESSEE's use and occupancy of the Premises. Payment shall be made by LESSEE within sixty (60) days after presentation of a receipted bill and/or assessment notice which is the basis for such taxes or charges. LESSOR shall pay all ad valorem, personal property, real estate, sales and use taxes, fees, assessments or other taxes or charges that are attributable to LESSOR's Property or any portion thereof imposed by any Government Entity.

(b). LESSEE shall have the right, at its sole option and at its sole cost and expense, to appeal, challenge or seek modification of any tax assessment or billing for which LESSEE is wholly or partly responsible for payment. LESSOR shall reasonably cooperate with LESSEE at LESSEE's expense in filing, prosecuting and perfecting any appeal or challenge to taxes as set forth in the preceding sentence, including but not limited to, executing any consent, appeal or other similar document. In the event that as a result of any appeal or challenge by LESSEE, there is a reduction, credit or repayment received by the LESSOR for any taxes previously paid by LESSEE, LESSOR agrees to promptly reimburse to LESSEE the amount of said reduction, credit or repayment. In the event that LESSEE does not have the standing rights to pursue a good faith and reasonable dispute of any taxes under this paragraph, LESSOR will pursue such dispute at LESSEE's sole cost and expense upon written request of LESSEE.

29. ACCESS TO TOWER. LESSOR agrees the LESSEE shall have free access to the Tower at all times for the purpose of installing and maintaining the said equipment. LESSOR shall furnish LESSEE with necessary means of access for the purpose of ingress and egress to this site and Tower location. It is agreed, however, that only authorized engineers, employees or properly authorized contractors of LESSEE or persons under their direct supervision will be permitted to enter said premises.

30. NON-DISCLOSURE. The Parties agree this Agreement and any information exchanged between the Parties regarding the Agreement are confidential. The Parties agree not to provide copies of this Agreement or any other confidential information to any third party without the prior written consent of the other or as required by law. If a disclosure is required by law, prior to disclosure, the Party shall notify the other Party and cooperate to take lawful steps to resist, narrow, or eliminate the need for that disclosure.

31. MOST FAVORED LESSEE. LESSOR represents and warrants that the rent, benefits and terms and conditions granted to LESSEE by LESSOR hereunder are now and shall be, during the Term, no less favorable than the rent, benefits and terms and conditions for substantially the same or similar tenancies or licenses granted by LESSOR to other parties. If at any time during the Term LESSOR shall offer more favorable rent, benefits or terms and conditions for substantially the same or similar tenancies or licenses as those granted hereunder, then LESSOR shall, within thirty (30) days after the effective date of such offering, notify LESSEE of such fact and offer LESSEE the more favorable offering. If LESSEE chooses, the parties shall then enter into an amendment that shall be effective retroactively to the effective date of the more favorable offering, and shall provide the same rent, benefits or terms and conditions to LESSEE. LESSEE shall have the right to decline to accept the offering. LESSOR's compliance with this requirement shall be subject, at LESSEE's option, to independent verification.

32. MISCELLANEOUS. This Agreement contains all agreements, promises and understandings between the LESSOR and the LESSEE regarding this transaction, and no oral agreement, promises or understandings shall be binding upon either the LESSOR or the LESSEE in any dispute, controversy or proceeding. This Agreement may not be amended or varied except in a writing signed by all Parties. This Agreement shall extend to and bind the heirs, personal representatives, successors and assigns hereto. The failure of either party to insist upon strict performance of any of the terms or conditions of this Agreement or to exercise any of its rights hereunder shall not waive such rights and such party shall have the right to enforce such rights at any time. The performance of this Agreement shall be governed, interpreted, construed and regulated by the laws of the state in which the Premises is located without reference to its choice of law rules. Except as expressly set forth in this Agreement, nothing in this Agreement shall grant, suggest or imply any authority for one Party to use the name, trademarks, service marks or trade names of the other for any purpose whatsoever. LESSOR agrees to execute a Memorandum of this Agreement, which LESSEE may record with the appropriate recording officer. The provisions of the Agreement relating to indemnification from one Party to the other Party shall survive any termination or expiration of this Agreement.

[Signature page follows. The remainder of this page is intentionally blank.]

IN WITNESS WHEREOF, the Parties hereto have set their hands and affixed their respective seals the day and year first above written.

LESSOR:

WITNESS

By: _____

Darrell Roof

Date: 2/25/22

WITNESS

By: _____

Sandi Roof

Date: 2/25/22

LESSEE:

CELLCO PARTNERSHIP

d/b/a Verizon Wireless

WITNESS
Abigail Ball

By: _____

Printed: Ed Maher

Its: Director - Network Field Engineering

Date: 3/13/22

VzW Site Name: CK Shrewsbury
Location Code: 689716
Atty: Coots Henke & Wheeler, P.C.: Daniel E. Coots

EXHIBIT "A"

DESCRIPTION OF PROPERTY

Property located in Grayson County, Kentucky

A certain tract or parcel of land on the headwaters of Clay Lick Creek (near Shrewsbury) in Grayson County, Kentucky, and bounded as follows:

Beginning at a point in the East right of way of Kentucky Highway 187, corner to Billy Roof (see Deed Book 164, Page 611); thence northeast 350 feet to a point in the East right of way of said highway and corner to property conveyed to Tony Roof; thence southeast, at a right angle to said right of way, severing the parent tract and with land conveyed to Tony Roof approximately 3,100 feet to the original line; thence southwest with the original line to an original corner in Gray Road; thence northwest with the original line and Gray Road to corner of Billy Roof; thence continuing northeast with said Billy Roof line 770 feet to Billy Roof's easternmost corner; thence northwest with said Billy Roof line to the right of way of Kentucky Highway 187, the beginning corner.

AND BEING a portion of the same property conveyed to Darrell Roof and Sandi Roof from Billy Roof (a/k/a Billy Gean Roof) and Clydia Roof by Deed dated August 6, 2019 and recorded August 7, 2019 in Deed Book 482, Page 291.

Tax Parcel No. 068-00-00-050.0D

VzW Site Name: CK Shrewsbury
Location Code: 689716
Atty: Coots Henke & Wheeler, P.C.: Daniel E. Coots

EXHIBIT "B"

SITE PLAN OF THE PREMISES AND DESCRIPTION OF TOWER EQUIPMENT

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TOWER OWNER: VERIZON

CELLCO PARTNERSHIP
D/B/A
verizon

NEW 230'-0" SELF SUPPORT TOWER w/5'-0" LIGHTNING ARRESTOR -TOTAL TOWER HEIGHT 235'-0"

FROM LOUISVILLE MTSO: 2421 HOLLOWAY ROAD LOUISVILLE, KY 40299: HEAD SOUTH ON HOLLOWAY RD TOWARD PLANTSIDE DR (0.1 MI). TURN RIGHT AT THE 1ST CROSS STREET ONTO PLANTSIDE DR (0.3 MI). TURN LEFT ONTO WATTERSON TRAIL (0.7 MI). TURN RIGHT TO STAY ON WATTERSON TRAIL (0.7 MI). TURN LEFT ONTO BILLTOWN RD (3.7 MI). TAKE THE RAMP ONTO I-265 W/KY-841 W (0.5 MI). MERGE ONTO I-265 W/KY-841 W (8.2 MI). CONTINUE ONTO KY-841 W (0.5 MI). TAKE EXIT 100 TO MERGE ONTO I-65 S TOWARD NASHVILLE (33.9 MI). TAKE EXIT 91C-A FOR US-31W TOWARD ELIZABETHTOWN/PADUCAH (0.4 MI). KEEP LEFT, FOLLOW SIGNS FOR OWENSBORO/PADUCAH/WESTERN KENTUCKY PKWY AND MERGE ONTO WESTERN KENTUCKY PKWY (29.2 MI). TAKE EXIT 107 FOR KY-259 TOWARD LEITCHFIELD/BROWNSVILLE (0.3 MI). TURN RIGHT ONTO KY-259 N/S MAIN ST (0.7 MI). TURN LEFT ONTO W WHITE OAK ST (1.6 MI). CONTINUE ONTO BEAVER DAM RD (0.3 MI). TURN LEFT ONTO KY-187 S/SHREWSBURY RD (7.8 MI). TURN LEFT ONTO GRAY RD (0.5 MI). SITE WILL BE LOCATED ON LEFT (NORTH EAST) SIDE OF ROAD.

PROJECT SUMMARY

VERIZON SITE
CK SHREWSBURY
FUZE ID: 16505337
LOCATION CODE: 689716

SITE ADDRESS
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY
E911 ADDRESS: TBD

TOWER OWNER
VERIZON
CONTACT: ANNA PALANIAN
MOBILE: (248) 314-3404
E-MAIL: ANNA.PALANIAN@VERIZONWIRELESS.COM

PROPERTY OWNER
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574
CONTACT: DARRELL ROOF
PHONE: (270) 230-3184
E-MAIL: DARRELLDROOF@GMAIL.COM

POLICE
LEITCHFIELD POLICE DEPT.
137 S MAIN ST
LEITCHFIELD, KY 42754
PHONE: (270) 259-3850

FIRE
CANEYVILLE VOLUNTEER FIRE DEPT.
210 E MAPLE ST
CANEYVILLE, KY 42721
PHONE: (270) 879-3333

GENERAL INFORMATION
LATITUDE: 37° 22' 03.840164" N
LONGITUDE: 86° 22' 35.859906" W
1983 (NAD83)
ELEVATION: 699'± AMSL
1988 (NAVD88)

VERIZON LEASE AREA
60'-0" x 100'-0"
(6,000 SF)

PROJECT DESCRIPTION

NOTE: ALL ITEMS WITHIN THESE CONSTRUCTION DOCUMENTS ARE BY TOWER OWNER'S [illegible]

VERIZON SCOPE:
- INSTALL A NEW 230'-0" SELF SUPPORT TOWER w/ 5'-0" LIGHTNING ROD (TOTAL 235'-0")
- INSTALL A NEW TOWER FOUNDATION SYSTEM
- INSTALL A NEW [illegible] FENCED GRAVEL COMPOUND
- INSTALL A NEW SITE H-FRAME
- INSTALL A NEW ELECTRICAL SERVICE RUN TO SITE H-FRAME
- INSTALL A NEW GRAVEL ACCESS DRIVE
- NO WATER OR SEWAGE SERVICES RUN TO SITE
- [illegible]

APPLICABLE CODES

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

BUILDING CODE	2018 KENTUCKY BUILDING CODE
STRUCTURAL CODE	TIA/EIA-222 - REVISION G (INCLUDES ADDENDUM #2)
MECHANICAL CODE	2012 INTERNATIONAL MECHANICAL CODE (IMC 2012)
PLUMBING CODE	KENTUCKY STATE PLUMBING CODE (815 KAR CHAP. 20)
ELECTRICAL CODE	2017 NATIONAL ELECTRICAL CODE (NEC) - NFPA 70
FIRE/LIFE SAFETY CODE	2012 INTERNATIONAL FIRE CODE (2012 IFC)
ENERGY CODE	2012 INTERNATIONAL ENERGY CODE (COMMERCIAL)
GAS CODE	2009 NATIONAL FUEL GAS CODE (NFPA 54)

ACCESSIBILITY REQUIREMENTS:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH THE 2009 IBC BUILDING CODE.

CONSULTANT TEAM

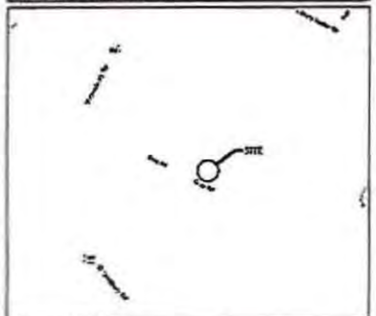
SURVEYOR
POWER OF DESIGN GROUP, LLC
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
PHONE: (502) 437-5252

ARCHITECTURAL
POWER OF DESIGN GROUP, LLC
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
PHONE: (502) 437-5252

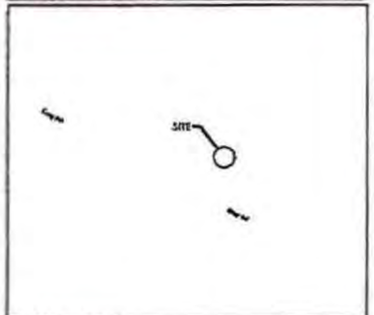
ELECTRICAL
WARREN RECC
ADDRESS: 113 S LEE ST
LEITCHFIELD, KY 42754
CONTACT: TBD
PHONE: (270) 842-6541
EMAIL: TBD

ELECTRICAL UTILITY COORDINATION IS NOT FINALIZED. DO NOT PROCEED WITH CONSTRUCTION.

SHEET NUMBER	DESCRIPTION
T-1	PROJECT INFORMATION, SITE MAPS, SHEET INDEX
B-1 TO B-1.1	SITE SURVEY
R-1	REVISION LOG
TOWER ELEVATION	
TE-1	TOWER ELEVATION
CIVIL	
C-2A	OVERALL SITE PLAN
C-3	DETAILED SITE PLAN
C-4	DIMENSIONED SITE PLAN
ELECTRICAL	
E-0	OVERALL SITE UTILITY PLAN



VICINITY MAP



LOCATION MAP

AERIAL

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

CELLCO PARTNERSHIP
D/B/A
verizon

PRELIMINARY NOT FOR CONSTRUCTION

LEASE EXHIBIT

REV.	DATE	DESCRIPTION
A	10.26.21	ISSUED FOR REVIEW

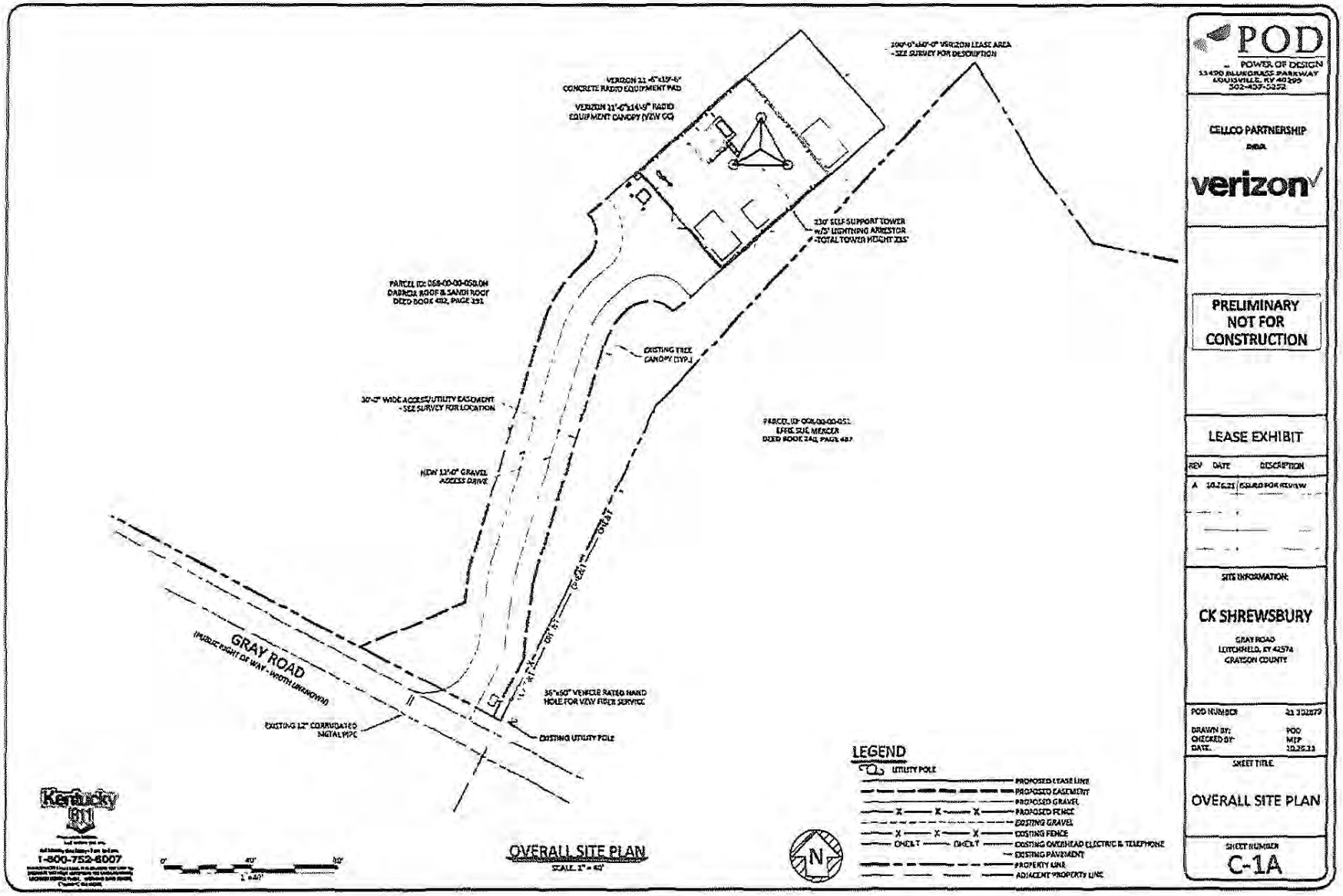
SITE INFORMATION:

CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	10.26.21

SHEET TITLE:
PROJECT INFORMATION, SITE MAPS, SHEET INDEX

SHEET NUMBER:
T-1



OVERALL SITE PLAN
SCALE: 1" = 40'

Kentucky 811
1-800-752-6007

POD
POWER OF DESIGN
13400 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-409-5252

CELLCO PARTNERSHIP
D/B/A
verizon

PRELIMINARY NOT FOR CONSTRUCTION

LEASE EXHIBIT

REV	DATE	DESCRIPTION
A	10.26.22	ISSUED FOR REVIEW

SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42754
GRAYSON COUNTY

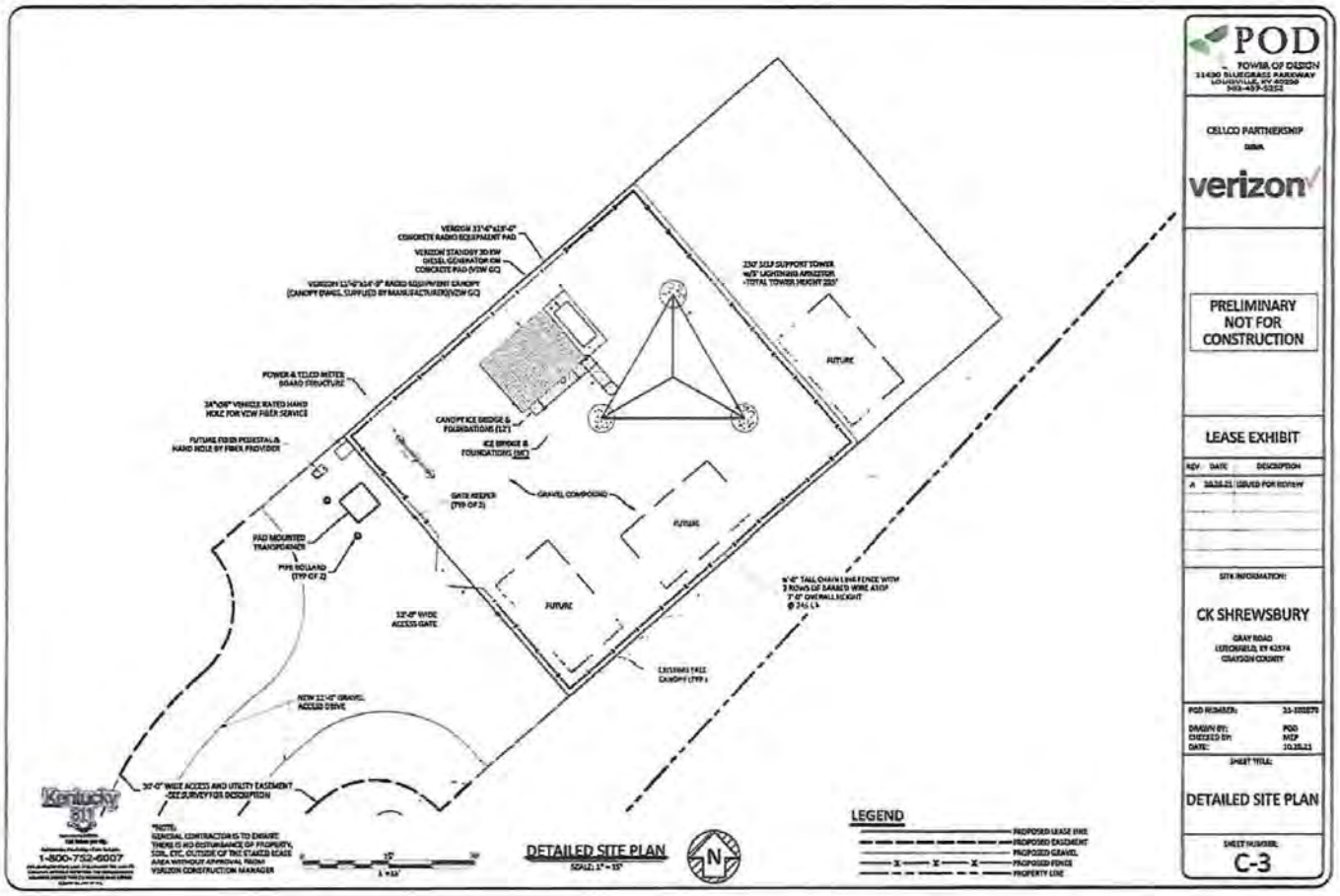
POD NUMBER	22 102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	10.26.22

SHEET TITLE:

OVERALL SITE PLAN

SHEET NUMBER

C-1A



POD
POWER OF DESIGN
11400 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-459-5252

CELLCO PARTNERSHIP
DBA
verizon

PRELIMINARY NOT FOR CONSTRUCTION

LEASE EXHIBIT

REV:	DATE:	DESCRIPTION
A	10.26.21	ISSUED FOR REVIEW

SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42754
GRAYSON COUNTY

POD NUMBER:	21-101879
DRAWN BY:	POD
CHECKED BY:	MCP
DATE:	10.26.21

SHEET TITLE:

DETAILED SITE PLAN

SHEET NUMBER:

C-3

*NOTE:
GENERAL CONTRACTOR IS TO ENSURE THERE IS NO DISTURBANCE OF PROPERTY, SOIL, ETC. OUTSIDE OF THE STAKED LEASE AREA WITHOUT APPROVAL FROM VERIZON CONSTRUCTION MANAGER

DIMENSIONED SITE PLAN

SCALE: 1" = 15'

LEGEND

- PROPOSED LEASE LINE
- PROPOSED EASEMENT
- PROPOSED GRAVEL
- PROPOSED FENCE
- PROPERTY LINE

POD
POWER OF DESIGN

CELLCO PARTNERSHIP
d/b/a
verizon

PRELIMINARY
NOT FOR
CONSTRUCTION

LEASE EXHIBIT

REV	DATE	DESCRIPTION
A	10.25.21	ISSUED FOR REVIEW

SITE INFORMATION

CK SHREWSBURY

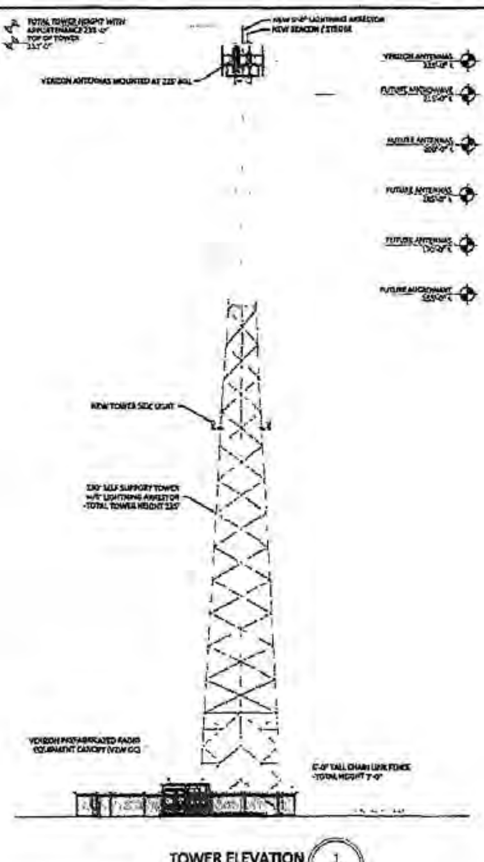
GRAY ROAD
LEITCHFIELD, KY 42754
GRAYSON COUNTY

POD NUMBER: 21-10209

DRAWN BY: POD
CHECKED BY: MEP
DATE: 10.26.21

SHEET TITLE:
DIMENSIONED SITE PLAN

SHEET NUMBER:
C-4

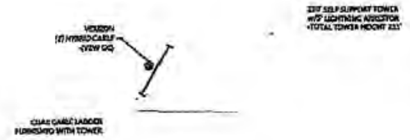


TOWER ELEVATION
SCALE: N.T.S.

1
TE-1

NOTE:

1. IT IS THE INSTALLING CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL ANTENNA INFORMATION AGAINST FINAL RADIO ENGINEERING PLAN PROVIDED BY CELLCO PARTNERSHIP d/b/a VERIZON (VZW GC)
2. ALL TOWER LIGHTING SHALL BE INSTALLED AS REQUIRED BY THE FEDERAL AVIATION ADMINISTRATION AND RECOMMENDED BY THE USFWS (GUIDELINES) FOR LIGHTING OF TOWERS OVER 200' IN HEIGHT



COAX PLAN
SCALE: N.T.S.

POD
POWER OF DESIGN

CELLCO PARTNERSHIP
d/b/a
verizon

PRELIMINARY
NOT FOR
CONSTRUCTION

LEASE EXHIBIT

REV	DATE	DESCRIPTION
A		ISSUED FOR REVIEW

SITE INFORMATION

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42754
GRAYSON COUNTY

POD NUMBER:

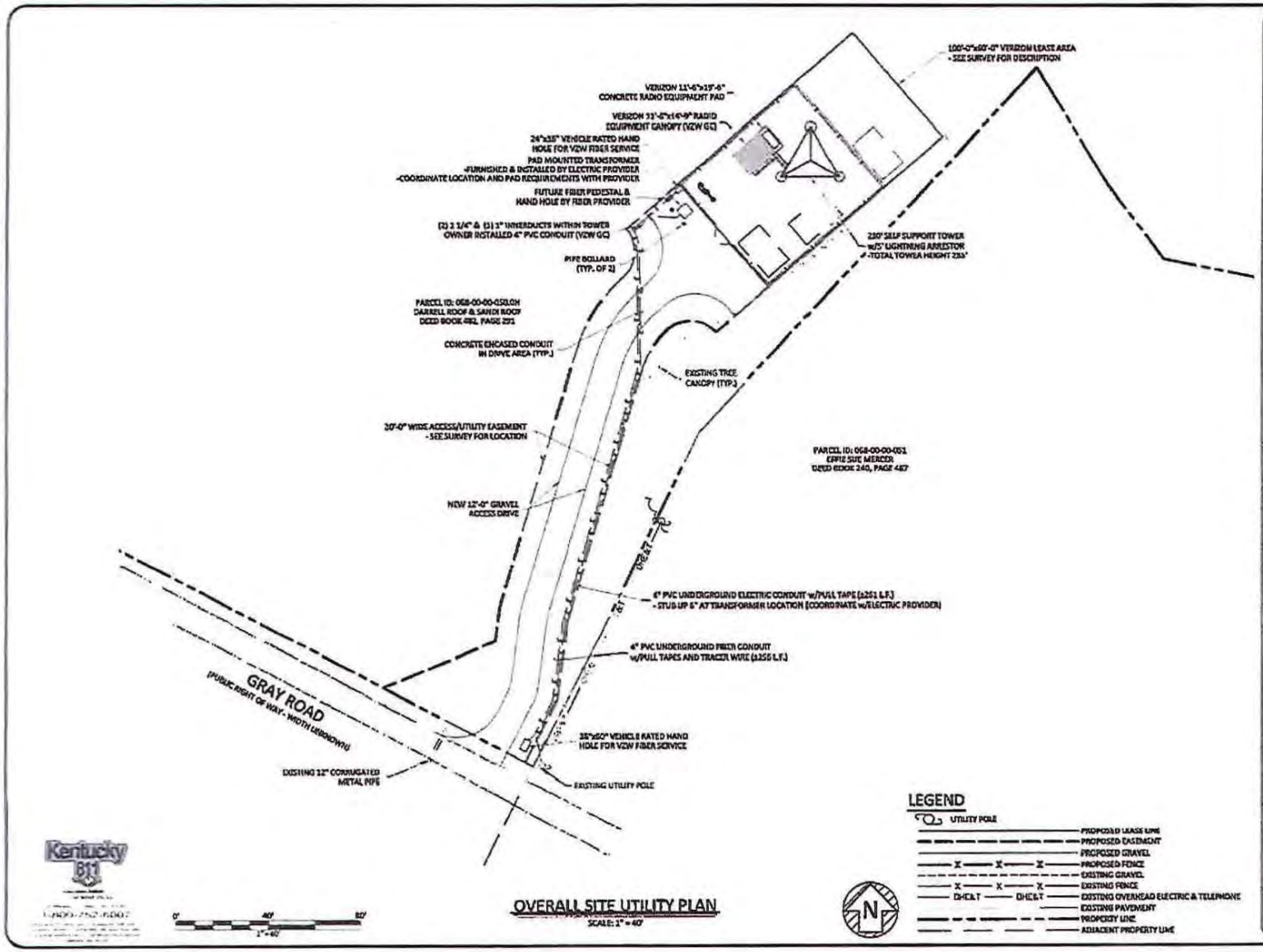
DRAWN BY: POD
CHECKED BY: MEP
DATE:

SHEET TITLE:

TOWER ELEVATION

SHEET NUMBER:

TE-1



OVERALL SITE UTILITY PLAN
SCALE: 1" = 40'

POD
POWER OF DESIGN
13490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-487-5252

CELLCO PARTNERSHIP
D/B/A
verizon

PRELIMINARY
NOT FOR
CONSTRUCTION

LEASE EXHIBIT

REV.	DATE	DESCRIPTION
A	10.26.21	ISSUED FOR REVIEW

SITE INFORMATION:

CK SHREWSBURY

GRAY ROAD
LEITCHFIELD, KY 42754
GRAYSON COUNTY

POD NUMBER:	21-102879
DRAWN BY:	POD
CHECKED BY:	MEP
DATE:	10.26.21

SHEET TITLE:

OVERALL SITE
UTILITY PLAN

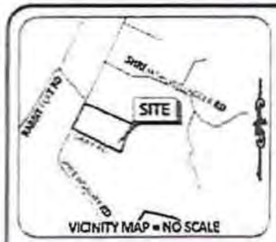
SHEET NUMBER:

E-0

VzW Site Name: CK Shrewsbury
Location Code: 689716
Atty: Coots Henke & Wheeler, P.C.: Daniel E. Coots

EXHIBIT "C"

SURVEY



FAA COORDINATE POINT
NAD 83
LATITUDE: 37°22'03.840164"
LONGITUDE: -86°22'25.859306"
NAVD 88
ELEVATION: 695'± AMSL
NORTHING: 3,658,083.070
EASTING: 4,739,958.200

TEMPORARY BENCHMARK
NORTHING: 3,658,053.252
EASTING: 4,740,031.361
ELEVATION: 600.06'
LOCATION: SET 60D NAIL
S21°29'W 43.0'± FROM THE EASTERNMOST CORNER OF THE PROPOSED LEASE AREA.

GLOBAL POSITIONING SYSTEMS NOTE

1. RANDOM CONTROL POINTS AND A PORTION OF THE TOPOGRAPHY WAS LOCATED USING GPS.
2. THE TYPE OF GPS UTILIZED WAS NETWORK ADJUSTED REAL TIME KINEMATIC (KDOT VRS NETWORK). NAD 83 KENTUCKY SINGLE ZONE WITH THE ORTHOMETRIC HEIGHT COMPUTED USING GEOID18. RELATIVE POSITIONAL ACCURACY VARIED FROM 0.04' TO 0.08' HORIZONTALLY.
3. SPECTRA PRECISION EPOCH 50 DUAL FREQUENCY RECEIVERS WERE USED TO PERFORM THE SURVEY.

GENERAL NOTES

NO SEARCH OF PUBLIC RECORDS HAS BEEN COMPLETED BY POD GROUP TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE SUBJECT PROPERTY.

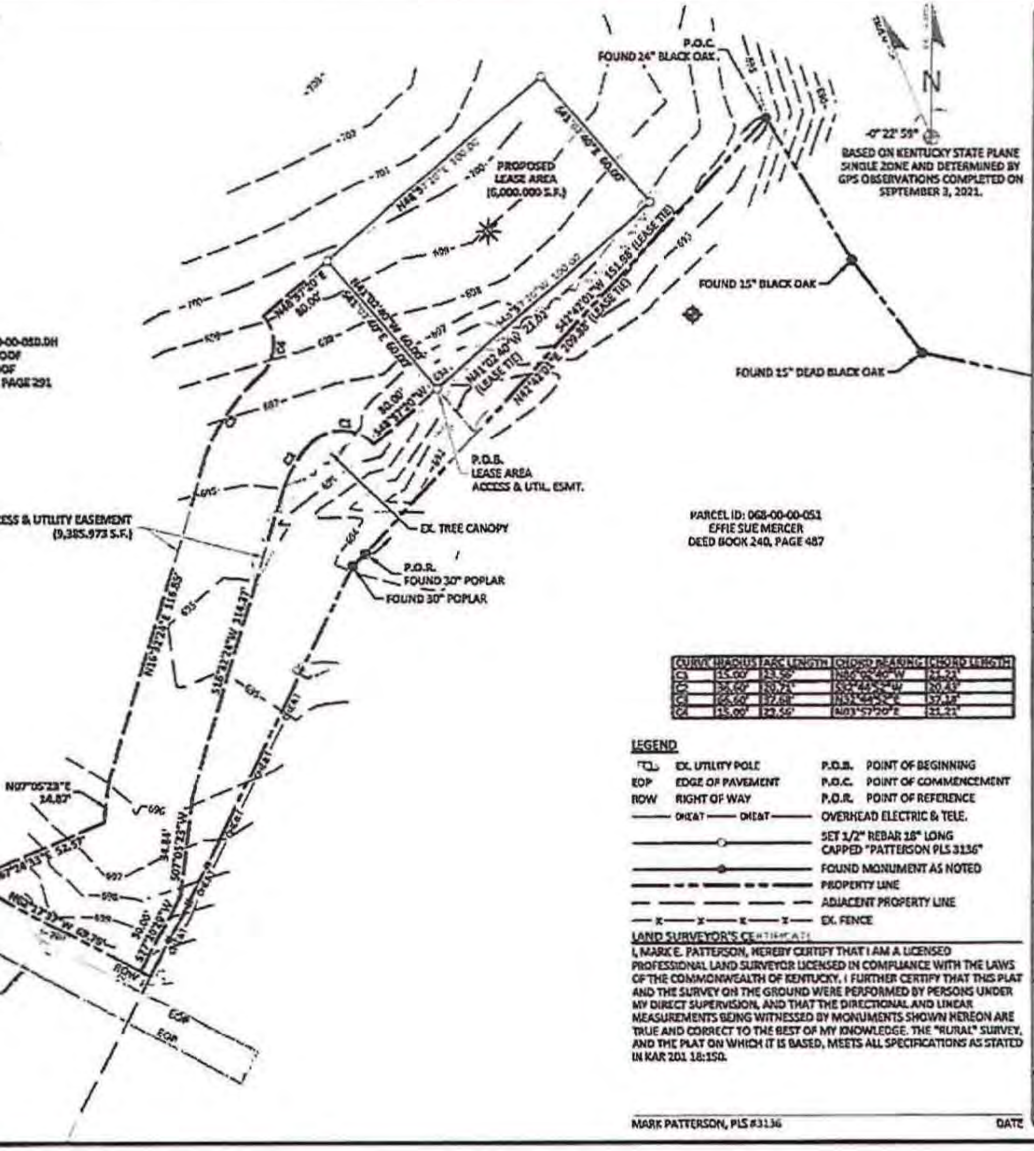
THIS DRAWING IS FOR THE PROPOSED LEASE AREA AND THE PROPOSED ACCESS & UTILITY EASEMENT, AND ONLY A PARTIAL BOUNDARY SURVEY OF THE PARENT PARCEL HAS BEEN PERFORMED.

A PORTION OF THIS SURVEY WAS CONDUCTED BY METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. UNADJUSTED CLOSURE EQUALS 0.06', FOR A PRECISION OF 1:33,521 AND HAS NOT BEEN ADJUSTED.

THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

THIS PLAT IS NOT INTENDED FOR LAND TRANSFER.

THE PARENT PARCEL, THE PROPOSED LEASE AREA AND THE PROPOSED ACCESS & UTILITY EASEMENT SHOWN HEREON ARE NOT LOCATED IN A 100-YEAR FLOOD PLAIN (ZONE X) PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER 21085C0375C, DATED SEPTEMBER 19, 2012.



CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	15.00'	23.56'	N86°02'40"W	21.21'
C2	36.60'	20.72'	S62°44'52"W	20.43'
C3	65.60'	37.68'	N32°44'52"E	37.18'
C4	15.00'	23.56'	N03°57'20"E	21.21'

LEGEND

(pole symbol)	EX. UTILITY POLE	P.O.B.	POINT OF BEGINNING
EOP	EDGE OF PAVEMENT	P.O.C.	POINT OF COMMENCEMENT
ROW	RIGHT OF WAY	P.O.R.	POINT OF REFERENCE

— OHE&T — OHE&T — OVERHEAD ELECTRIC & TELE.
SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136"
FOUND MONUMENT AS NOTED
PROPERTY LINE
ADJACENT PROPERTY LINE
— x — x — x — x — EX. FENCE

LAND SURVEYOR'S CERTIFICATE

I, MARK E. PATTERSON, HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL LAND SURVEYOR LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF KENTUCKY. I FURTHER CERTIFY THAT THIS PLAT AND THE SURVEY ON THE GROUND WERE PERFORMED BY PERSONS UNDER MY DIRECT SUPERVISION, AND THAT THE DIRECTIONAL AND LINEAR MEASUREMENTS BEING WITNESSED BY MONUMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. THE "RURAL" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATIONS AS STATED IN KAR 201 18:150.

MARK PATTERSON, PLS #3136 DATE

Kentucky 811
1-800-752-6007

0' 40' 80'
1 INCH = 40 FEET

PREPARED BY:
POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
CELLCO PARTNERSHIP D/B/A verizon

SITE SURVEY

REV.	DATE	DESCRIPTION
A	10.20.21	PRELIM ISSUE

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER:	21-102884
DRAWN BY:	AJW
CHECKED BY:	MEP
SURVEY DATE:	9.3.21
PLAT DATE:	10.20.21

SHEET TITLE:
SITE SURVEY
THIS DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL

SHEET NUMBER: (2 pages)
B-1

LEGAL DESCRIPTIONS

PARENT PARCEL - LEGAL DESCRIPTION - DEED BOOK 482, PAGE 291 (NOT FIELD SURVEYED)

PROPERTY LOCATED IN GRAYSON COUNTY, KENTUCKY

A CERTAIN TRACT OR PARCEL OF LAND ON THE HEADWATERS OF CLAY LICK CREEK (NEAR SHREWSBURY) IN GRAYSON COUNTY, KENTUCKY, AND BOUNDED AS FOLLOWS:

BEGINNING AT A POINT IN THE EAST RIGHT OF WAY OF KENTUCKY HIGHWAY 187, CORNER TO BILLY ROOF (SEE DEED BOOK 164, PAGE 613); THENCE NORTHEAST 230 FEET TO A POINT IN THE EAST RIGHT OF WAY OF SAID HIGHWAY AND CORNER TO PROPERTY CONVEYED TO TONY ROOF; THENCE SOUTHEAST, AT A RIGHT ANGLE TO SAID RIGHT OF WAY, SEVERING THE PARENT TRACT AND WITH LAND CONVEYED TO TONY ROOF APPROXIMATELY 1,100 FEET TO THE ORIGINAL LINE; THENCE SOUTHWEST WITH THE ORIGINAL LINE TO AN ORIGINAL CORNER IN GRAY ROAD; THENCE NORTHWEST WITH THE ORIGINAL LINE AND GRAY ROAD TO CORNER OF BILLY ROOF; THENCE CONTINUING NORTHEAST WITH SAID BILLY ROOF LINE 770 FEET TO BILLY ROOF'S EASTERNMOST CORNER; THENCE NORTHWEST WITH SAID BILLY ROOF LINE TO THE RIGHT OF WAY OF KENTUCKY HIGHWAY 187, THE BEGINNING CORNER.

AND BEING A PORTION OF THE SAME PROPERTY CONVEYED TO DARRELL ROOF AND SANDI ROOF FROM BILLY ROOF (A/K/A BILLY GEAN ROOF) AND CLYDIA ROOF BY DEED DATED AUGUST 6, 2019 AND RECORDED AUGUST 7, 2019 IN DEED BOOK 482, PAGE 291

TAX PARCEL NO. 068-00-00-050.00

PROPOSED LEASE AREA

THE FOLLOWING IS A DESCRIPTION OF THE PROPOSED LEASE AREA ON THE PROPERTY CONVEYED TO DARRELL ROOF & SANDI ROOF AS RECORDED IN THE OFFICE OF THE CLERK OF GRAYSON COUNTY, KENTUCKY IN DEED BOOK 482, PAGE 291, PARCEL ID: 068-00-00-050.0H, WHICH IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARING DATUM USED HEREIN IS BASED UPON KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE, NAD 83, FROM A REAL TIME KINEMATIC GLOBAL POSITIONING SYSTEM OBSERVATION USING THE KENTUCKY TRANSPORTATION CABINET REAL TIME GPS NETWORK COMPLETED ON SEPTEMBER 3, 2021.

COMMENCING AT A FOUND 24" BLACK OAK IN THE EAST LINE OF THE PROPERTY CONVEYED TO DARRELL ROOF & SANDI ROOF AS RECORDED IN DEED BOOK 482, PAGE 291, PARCEL ID 068-00-00-050.0H, FOR REFERENCE, SAID 24" BLACK OAK BEING N42°42'01"E 299.82' FROM A FOUND 30" POPLAR ALSO IN THE EAST LINE OF SAID PROPERTY CONVEYED TO ROOF; THENCE ALONG SAID EAST LINE OF PROPERTY CONVEYED TO ROOF S42°42'01"W 152.08' TO A POINT; THENCE LEAVING SAID EAST LINE AND TRAVERSING SAID PROPERTY N41°02'40"W 21.02' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136" HEREAFTER REFERRED TO AS A "SET IPC", IN THE SOUTHERNMOST CORNER OF THE PROPOSED LEASE AREA AND BEING THE TRUE POINT OF BEGINNING: THENCE N41°02'40"W 60.00' TO A "SET IPC"; THENCE N48°57'20"E 100.00' TO A "SET IPC"; THENCE S41°02'40"E 60.00' TO A "SET IPC"; THENCE S48°57'20"W 100.00' TO THE POINT OF BEGINNING CONTAINING 6,000.000 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED SEPTEMBER 3, 2021.

PROPOSED 30' ACCESS & UTILITY EASEMENT

THE FOLLOWING IS A DESCRIPTION OF THE PROPOSED 30' ACCESS & UTILITY EASEMENT ON THE PROPERTY CONVEYED TO DARRELL ROOF & SANDI ROOF AS RECORDED IN THE OFFICE OF THE CLERK OF GRAYSON COUNTY, KENTUCKY IN DEED BOOK 482, PAGE 291, PARCEL ID: 068-00-00-050.0H, WHICH IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARING DATUM USED HEREIN IS BASED UPON KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE, NAD 83, FROM A REAL TIME KINEMATIC GLOBAL POSITIONING SYSTEM OBSERVATION USING THE KENTUCKY TRANSPORTATION CABINET REAL TIME GPS NETWORK COMPLETED ON SEPTEMBER 3, 2021.

COMMENCING AT A FOUND 24" BLACK OAK IN THE EAST LINE OF THE PROPERTY CONVEYED TO DARRELL ROOF & SANDI ROOF AS RECORDED IN DEED BOOK 482, PAGE 291, PARCEL ID 068-00-00-050.0H, FOR REFERENCE, SAID 24" BLACK OAK BEING N42°42'01"E 299.82' FROM A FOUND 30" POPLAR ALSO IN THE EAST LINE OF SAID PROPERTY CONVEYED TO ROOF; THENCE ALONG SAID EAST LINE OF PROPERTY CONVEYED TO ROOF S42°42'01"W 152.08' TO A POINT; THENCE LEAVING SAID EAST LINE AND TRAVERSING SAID PROPERTY N41°02'40"W 21.02' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136" HEREAFTER REFERRED TO AS A "SET IPC", IN THE SOUTHERNMOST CORNER OF THE PROPOSED LEASE AREA AND BEING THE TRUE POINT OF BEGINNING; THENCE S48°57'20"W 30.00'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING A RADIUS OF 15.00', ARC LENGTH OF 23.56', THE CHORD OF WHICH BEARS N86°02'40"W 21.21'; THENCE ALONG THE ARC OF A COMPOUND CURVE TO THE LEFT HAVING A RADIUS OF 36.60', ARC LENGTH OF 20.71', THE CHORD OF WHICH BEARS S32°44'52"W 20.43'; THENCE S16°32'24"W 124.37'; THENCE S07°05'23"W 34.84'; THENCE S27°20'29"W 30.00' TO A POINT IN THE SOUTH LINE OF AFOREMENTIONED PROPERTY CONVEYED TO ROOF, ALSO BEING THE NORTH RIGHT OF WAY LINE OF GRAY ROAD; THENCE ALONG SAID SOUTH LINE OF PROPERTY CONVEYED TO ROOF AND NORTH RIGHT OF WAY LINE OF GRAY ROAD N62°37'37"W 66.76' TO A POINT; THENCE LEAVING SAID SOUTH LINE AND SAID NORTH RIGHT OF WAY LINE AND TRAVERSING SAID PROPERTY CONVEYED TO ROOF N07°26'23"E 32.57'; THENCE N07°05'23"E 14.87'; THENCE N16°32'24"E 116.85'; THENCE ALONG THE ARC OF A CURVE TO THE RIGHT HAVING A RADIUS OF 66.60', ARC LENGTH OF 37.68', THE CHORD OF WHICH BEARS N32°44'52"E 37.18'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE LEFT HAVING A RADIUS OF 15.00', ARC LENGTH OF 23.56', THE CHORD OF WHICH BEARS N03°57'20"E 21.21'; THENCE N48°57'20"E 30.00' TO A "SET IPC" IN THE WESTERNMOST CORNER OF THE PROPOSED LEASE AREA; THENCE S41°02'40"E 60.00' TO THE POINT OF BEGINNING CONTAINING 9,365.973 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED SEPTEMBER 3, 2021.

REPORT OF SEARCH

THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY POD GROUP, LLC AND AS SUCH WE ARE NOT RESPONSIBLE FOR THE INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP TITLE EVIDENCE, UNRECORDED EASEMENTS, AUGMENTING EASEMENTS, IMPLIED OR PRESCRIPTIVE EASEMENTS, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE. INFORMATION REGARDING THESE MATTERS WERE GAINED FROM FIDELITY NATIONAL TITLE, ORDER NO. 23208935, PREPARED FOR VERIZON WIRELESS, PERIOD OF SEARCH: APRIL 16, 1965 TO JULY 22, 2021 AT 8:00 AM, DATED: AUGUST 25, 2021. THE FOLLOWING COMMENTS ARE IN REGARD TO SAID SEARCH AND THE NUMBERS IN THE COMMENTS CORRESPOND TO THE NUMBERING SYSTEM IN SAID REPORT.

SEARCH DISCLOSED THE FOLLOWING:

1. TAXES:
   TYPE OF TAX: COUNTY
   CALENDAR YEAR: 2020
   AMOUNT: $200.47 ANNUALLY
   PARCEL ID #: 068-00-00-050.0H (COMBINED WITH AND TAXED UNDER 068-00-00-050.00)
   PAID THROUGH: 2020
   ASSESSMENT: $20,394.00 (TOTAL = LAND AND IMPROVEMENTS, IF ANY) (NOT A LAND SURVEYING MATTER, THEREFORE, POD GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
2. RIGHT OF WAY AGREEMENT IN FAVOR OF L.M. OIL & GAS COMPANY, INCORPORATED, A KENTUCKY CORPORATION SET FORTH IN INSTRUMENT RECORDED ON APRIL 27, 1977 IN DEED BOOK 18, PAGE 456. (THE RIGHT OF WAY AGREEMENT AS RECORDED IN BOOK 18, PAGE 456 DOES AFFECT THE PARENT PARCEL BUT COULD NOT BE PLOTTED, AND THEREFORE POD GROUP, LLC COULD NOT DETERMINE ITS AFFECT ON THE PROPOSED LEASE AREA OR THE PROPOSED ACCESS & UTILITY EASEMENT.)
3. TERMS AND CONDITIONS OF OIL AND GAS LEASE DATED DECEMBER 21, 1977 BY AND BETWEEN HERSHEL ROOF AND NADINE ROOF, AND LANGFORD OIL & GAS CO., RECORDED ON DECEMBER 23, 1977 IN DEED BOOK 35, PAGE 315.

   ADDENDUM TO OIL & GAS LEASE RECORDED ON DECEMBER 23, 1977 IN DEED BOOK 35, PAGE 315. (OIL AND GAS LEASE RECORDED IN DEED BOOK 35, PAGE 315 AND ADDENDUM RECORDED IN DEED BOOK 35, PAGE 315 ARE BLANKET IN NATURE AND AFFECT THE PARENT PARCEL, THE PROPOSED LEASE AREA, AND THE PROPOSED ACCESS & UTILITY EASEMENT.)
4. COVENANTS, CONDITIONS AND RESTRICTIONS BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, SOURCE OF INCOME, GENDER, GENDER IDENTITY, GENDER EXPRESSION, MEDICAL CONDITION OR GENETIC INFORMATION, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH IN THE DOCUMENT RECORDED ON APRIL 21, 2005, AS DOCUMENT NO. DEED BOOK 354, PAGE 202. (DOCUMENT RECORDED IN DEED BOOK 354, PAGE 202 IS BLANKET IN NATURE AND AFFECTS THE PARENT PARCEL, THE PROPOSED LEASE AREA, AND THE PROPOSED ACCESS & UTILITY EASEMENT.)

LAND SURVEYOR'S CERTIFICATE

I, MARK E. PATTERSON, HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL LAND SURVEYOR LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF KENTUCKY. I FURTHER CERTIFY THAT THIS PLAT AND THE SURVEY ON THE GROUND WERE PERFORMED BY PERSONS UNDER MY DIRECT SUPERVISION, AND THAT THE DIRECTIONAL AND LINEAR MEASUREMENTS BEING WITNESSED BY MONUMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. THE "RURAL" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATIONS AS STATED IN KAR 201 18:150.

MARK PATTERSON, PLS #3136   DATE

PREPARED BY:
POD
POWER OF DESIGN

PREPARED FOR:
CELLCO PARTNERSHIP
D/B/A
verizon

SITE SURVEY

REV.	DATE	DESCRIPTION
A	10.20.21	PRELIM ISSUE

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

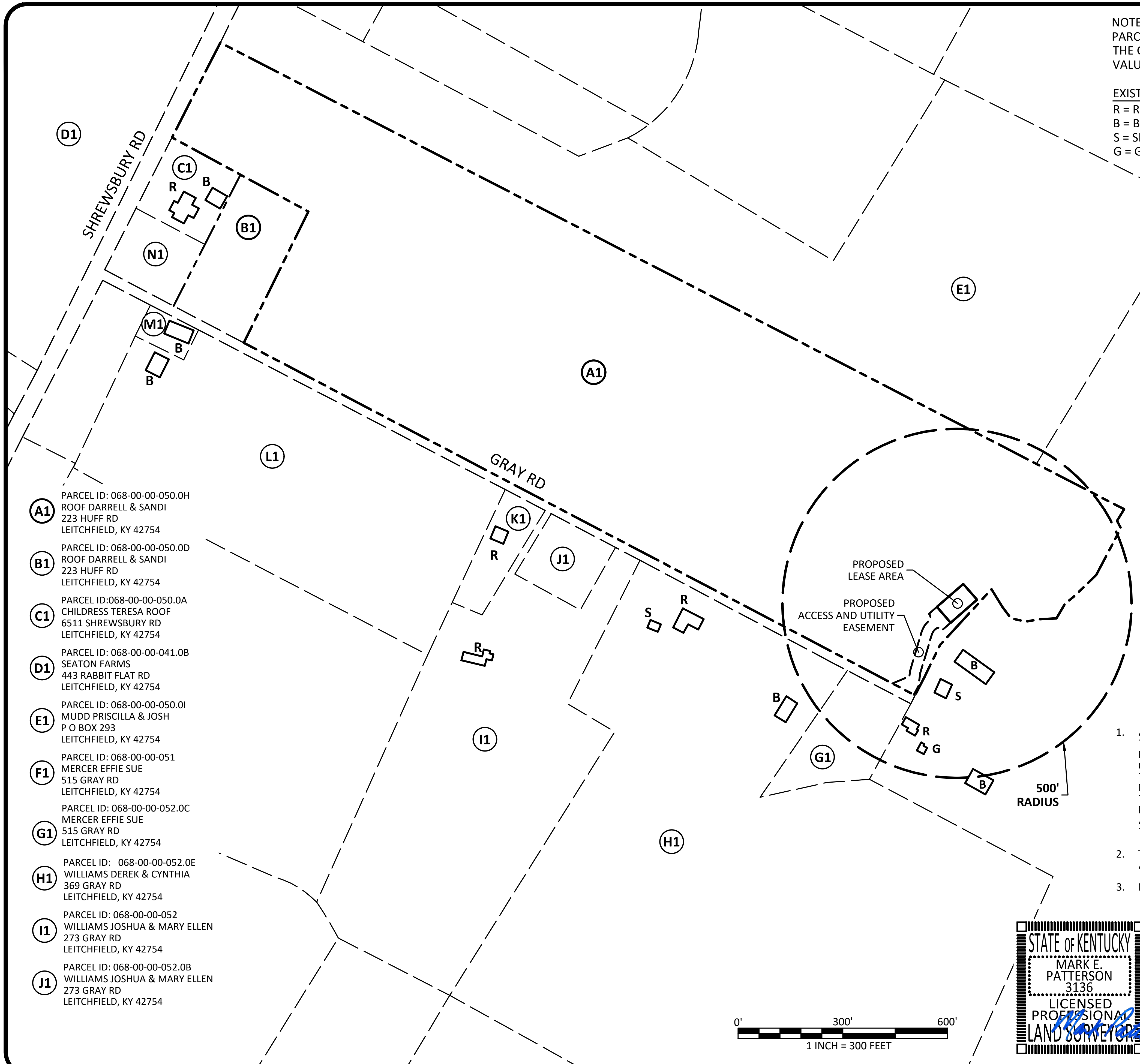
PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER:	21-1028
DRAWN BY:	AJW
CHECKED BY:	MEP
SURVEY DATE:	9.3.21
PLAT DATE:	10.20.21

SHEET TITLE:
SITE SURVEY
THIS DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL

SHEET NUMBER: (2 pages)
B-1.1



NOTE:
PARCEL NUMBERS ARE OF RECORD IN THE GRAYSON COUNTY PROPERTY VALUATION ADMINISTRATOR OFFICE.

EXISTING BUILDINGS
R = RESIDENCE
B = BARN
S = SHED
G = GARAGE

- (A1) PARCEL ID: 068-00-00-050.0H
  ROOF DARRELL & SANDI
  223 HUFF RD
  LEITCHFIELD, KY 42754
- (B1) PARCEL ID: 068-00-00-050.0D
  ROOF DARRELL & SANDI
  223 HUFF RD
  LEITCHFIELD, KY 42754
- (C1) PARCEL ID:068-00-00-050.0A
  CHILDRESS TERESA ROOF
  6511 SHREWSBURY RD
  LEITCHFIELD, KY 42754
- (D1) PARCEL ID: 068-00-00-041.0B
  SEATON FARMS
  443 RABBIT FLAT RD
  LEITCHFIELD, KY 42754
- (E1) PARCEL ID: 068-00-00-050.0I
  MUDD PRISCILLA & JOSH
  P O BOX 293
  LEITCHFIELD, KY 42754
- (F1) PARCEL ID: 068-00-00-051
  MERCER EFFIE SUE
  515 GRAY RD
  LEITCHFIELD, KY 42754
- (G1) PARCEL ID: 068-00-00-052.0C
  MERCER EFFIE SUE
  515 GRAY RD
  LEITCHFIELD, KY 42754
- (H1) PARCEL ID: 068-00-00-052.0E
  WILLIAMS DEREK & CYNTHIA
  369 GRAY RD
  LEITCHFIELD, KY 42754
- (I1) PARCEL ID: 068-00-00-052
  WILLIAMS JOSHUA & MARY ELLEN
  273 GRAY RD
  LEITCHFIELD, KY 42754
- (J1) PARCEL ID: 068-00-00-052.0B
  WILLIAMS JOSHUA & MARY ELLEN
  273 GRAY RD
  LEITCHFIELD, KY 42754
- (K1) PARCEL ID: 068-00-00-052.0A
  WILLIAMS JOSHUA & MARY ELLEN
  273 GRAY RD
  LEITCHFIELD, KY 42754
- (L1) PARCEL ID: 068-00-00-053
  ROOF DAVID
  629 SHREWSBURY SADLER RD
  LEITCHFIELD, KY 42754
- (M1) PARCEL ID: 068-00-00-053.0C
  ROOF DAVID
  629 SHREWSBURY SADLER RD
  LEITCHFIELD, KY 42754
- (N1) PARCEL ID: 068-00-00-053. 0A
  CHILDRESS TERESA ROOF
  6511 SHREWSBURY RD
  LEITCHFIELD, KY 42754

GENERAL NOTE:

1. ALL INFORMATION SHOWN HEREON WAS OBTAINED FROM THE RECORDS OF THE GRAYSON COUNTY KENTUCKY PROPERTY VALUATION ADMINISTRATION OFFICE ON OCTOBER 20, 2021 AND RE-VERIFIED ON FEBRUARY 16, 2022. THE PROPERTY VALUATION ADMINISTRATION RECORDS MAY NOT REFLECT THE CURRENT OWNERS AND ADDRESSES DUE TO THE INACCURACIES AND TIME LAPSE IN UPDATING FILES. POD AND THE COUNTY PROPERTY VALUATION ADMINISTRATION EXPRESSLY DISCLAIMS ANY WARRANTY FOR THE CONTENT AND ANY ERRORS CONTAINED IN THEIR FILES
2. THIS MAP IS FOR GENERAL INFORMATIONAL PURPOSES ONLY AND IS NOT A BOUNDARY SURVEY
3. NOT FOR RECORDING OR PROPERTY TRANSFER.

STATE OF KENTUCKY
MARK E. PATTERSON
3136
LICENSED PROFESSIONAL LAND SURVEYOR

CERTIFICATE

I HEREBY CERTIFY THAT THIS EXHIBIT PERTAINING TO THE ADJOINING PROPERTY OWNERS PER PVA RECORDS WAS PREPARED UNDER MY DIRECT SUPERVISION. NO BOUNDARY SURVEYING OF ANY KIND HAS BEEN PERFORMED FOR THIS EXHIBIT.

Mark Patterson 03/02/2022

MARK PATTERSON, PLS #3136 DATE

PREPARED BY:

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:

CELLCO PARTNERSHIP
D/B/A
verizon

EXHIBIT

REV.	DATE	DESCRIPTION
A	2.17.22	ISSUED FOR REVIEW
0	3.2.22	FINAL

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER: 21-102884
DRAWN BY: AIM
CHECKED BY: MEP
PLAT DATE: 2.17.22

SHEET TITLE:
500' RADIUS AND ABUTTERS MAP

SHEET NUMBER: (1 page)
B-2

ADJACENT PROPERTY OWNERS

(A1) PARCEL ID: 068-00-00-050.0H
ROOF DARRELL & SANDI
223 HUFF RD
LEITCHFIELD, KY 42754

(B1) PARCEL ID: 068-00-00-050.0D
ROOF DARRELL & SANDI
223 HUFF RD
LEITCHFIELD, KY 42754

(C1) PARCEL ID:068-00-00-050.0A
CHILDRESS TERESA ROOF
6511 SHREWSBURY RD
LEITCHFIELD, KY 42754

(D1) PARCEL ID: 068-00-00-041.0B
SEATON FARMS
443 RABBIT FLAT RD
LEITCHFIELD, KY 42754

(E1) PARCEL ID: 068-00-00-050.0I
MUDD PRISCILLA & JOSH
P O BOX 293
LEITCHFIELD, KY 42754

(F1) PARCEL ID: 068-00-00-051
MERCER EFFIE SUE
515 GRAY RD
LEITCHFIELD, KY 42754

(G1) PARCEL ID: 068-00-00-052.0C
MERCER EFFIE SUE
515 GRAY RD
LEITCHFIELD, KY 42754

(H1) PARCEL ID: 068-00-00-052.0E
WILLIAMS DEREK & CYNTHIA
369 GRAY RD
LEITCHFIELD, KY 42754

(I1) PARCEL ID: 068-00-00-052
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(J1) PARCEL ID: 068-00-00-052.0B
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(K1) PARCEL ID: 068-00-00-052.0A
WILLIAMS JOSHUA & MARY ELLEN
273 GRAY RD
LEITCHFIELD, KY 42754

(L1) PARCEL ID: 068-00-00-053
ROOF DAVID
629 SHREWSBURY SADLER RD
LEITCHFIELD, KY 42754

GENERAL NOTE:

1. ALL INFORMATION SHOWN HEREON WAS OBTAINED FROM THE RECORDS OF THE ADAIR COUNTY KENTUCKY PROPERTY VALUATION ADMINISTRATION OFFICE ON SEPTEMBER 1, 2021 AND RE-VERIFIED ON FEBRUARY 16, 2022. THE PROPERTY VALUATION ADMINISTRATION RECORDS MAY NOT REFLECT THE CURRENT OWNERS AND ADDRESSES DUE TO THE INACCURACIES AND TIME LAPSE IN UPDATING FILES. POD AND THE COUNTY PROPERTY VALUATION ADMINISTRATION EXPRESSLY DISCLAIMS ANY WARRANTY FOR THE CONTENT AND ANY ERRORS CONTAINED IN THEIR FILES
2. THIS MAP IS FOR GENERAL INFORMATIONAL PURPOSES ONLY AND IS NOT A BOUNDARY SURVEY
3. NOT FOR RECORDING OR PROPERTY TRANSFER.

NOTE:
PARCEL NUMBERS ARE OF RECORD IN THE GRAYSON COUNTY PROPERTY VALUATION ADMINISTRATOR OFFICE.

STATE OF KENTUCKY
MARK E. PATTERSON
3136
LICENSED PROFESSIONAL LAND SURVEYOR

CERTIFICATE
I HEREBY CERTIFY THAT THIS EXHIBIT PERTAINING TO THE ADJOINING PROPERTY OWNERS PER PVA RECORDS WAS PREPARED UNDER MY DIRECT SUPERVISION. NO BOUNDARY SURVEYING OF ANY KIND HAS BEEN PERFORMED FOR THIS EXHIBIT.

Mark Patterson 03/02/2022
MARK PATTERSON, PLS #3136 DATE

PREPARED BY:
POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
CELLCO PARTNERSHIP D/B/A verizon

EXHIBIT

REV.	DATE	DESCRIPTION
A	2.17.22	ISSUED FOR REVIEW
0	3.2.22	FINAL

SITE INFORMATION:
CK SHREWSBURY
GRAY ROAD
LEITCHFIELD, KY 42574
GRAYSON COUNTY

TAX PARCEL NUMBER:
068-00-00-050.0H

PROPERTY OWNER:
DARRELL & SANDI ROOF
223 HUFF ROAD
LEITCHFIELD, KY 42574

SOURCE OF TITLE:
DEED BOOK 482, PAGE 291

POD NUMBER: 21-102884
DRAWN BY: AIM
CHECKED BY: MEP
PLAT DATE: 2.17.22

SHEET TITLE:
500' RADIUS AND ABUTTERS MAP

SHEET NUMBER: (1 page)
B-2.1

Notification Listing

Roof, Darrell & Sandi
223 Huff Road
Leitchfield, KY 42754

Childress, Teresa Roof
6511 Shrewbury Road
Leitchfield, KY 42754

Seaton Farms
443 Rabbit Flat Road
Leitchfield, KY 42754

Mudd, Priscilla & Josh
P.O. Box 293
Leitchfield, KY 42754

Mercer, Effie Sue
515 Gray Road
Leitchfield, KY 42754

Williams, Derek & Cynthia
369 Gray Road
Leitchfield, KY 42754

Williams, Joshua & Mary Ellen
273 Gray Road
Leitchfield, KY 42754

Roof, David
629 Shrewsbury Sadler Road
Leitchfield, KY 42754

Horvath Towers VI, LLC
312 West Colfax Avenue
South Bend, IN 46601

Kevin Henderson
Judge Executive
130 E. Market Street
Leitchfield, KY 42754

ClarkQuinn

www.clarkquinnlaw.com

Russell L. Brown
Attorney at Law
rbrown@clarkquinnlaw.com

320 N. Meridian St., Ste. 1100
Indianapolis, IN 46204
(317) 637-1321 main
(317) 687-2344 fax

May 23, 2023

Notice of Proposed Construction of
Wireless Communications Facility
Site Name: Shrewsbury

Cellco Partnership, d/b/a Verizon Wireless is filing an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located on the north side of Gray Road east of Shrewsbury Road, Leitchfield, KY 42574 (North Latitude: (37° 22' 03.84", West Longitude 86° 22' 25.86"). The proposed facility will include a 230-foot tall antenna tower, plus a 5-foot lightning arrestor, for a total height of 235 feet with 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 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 2023-00139 in any correspondence sent in connection with this matter.

We have attached a map showing the site location for the proposed tower. Applicant'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 at 317-637-1321 if you have any comments or questions about this proposal.

Sincerely,
Russell L. Brown

Attorney for Applicant
RLB/mnw
enclosure

Location Map

ClarkQuinn
Clark, Quinn, Moses, Scott & Grahn, LLP

Roof, Darrell & Sandi
223 Huff Road
Leitchfield, KY 42754

ClarkQuinn
Clark, Quinn, Moses, Scott & Grahn, LLP

CERTIFIED MAIL®

Childress, Teresa Roof
6511 Shrewbury Road
Leitchfield, KY 42754

ClarkQuinn
Clark, Quinn, Moses, Scott & Grahn, LLP

CERTIFIED MAIL®

Seaton Farms
443 Rabbit Flat Road
Leitchfield, KY 42754

ClarkQuinn
lark, Quinn, Moses, Scott & Grahn, LLP

CERTIFIED MAIL®

9589 0710 5270 0167 3918 02

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 46204
02 7H
0006035028

$ 008.10⁰

MAY 23 2023

Mudd, Priscilla & Josh
P.O. Box 293
Leitchfield, KY 42754

ClarkQuinn
lark, Quinn, Moses, Scott & Grahn, LLP

CERTIFIED MAIL®

9589 0710 5270 0167 3917 96

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 46204
02 7H
0006035028

$ 008.10⁰

MAY 23 2023

Mercer, Effie Sue
515 Gray Road
Leitchfield, KY 42754

ClarkQuinn
lark, Quinn, Moses, Scott & Grahn, LLP

CERTIFIED MAIL®

9589 0710 5270 0167 3917 89

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 46204
02 7H
0006035028

$ 008.10⁰

MAY 23 2023

Williams, Derek & Cynthia
369 Gray Road
Leitchfield, KY 42754

ClarkQuinn
Clark, Quinn, Moses, Scott & Grahn, LLP

Williams, Joshua & Mary Ellen
273 Gray Road
Leitchfield, KY 42754

ClarkQuinn
Clark, Quinn, Moses, Scott & Grahn, LLP

CERTIFIED MAIL®

Roof, David
629 Shrewsbury Sadler Poad
Leitchfield, KY 42754

ClarkQuinn
Clark, Quinn, Moses, Scott & Grahn, LLP

CERTIFIED MAIL®

Horvath Towers VI, LLC
312 West Colfax Avenue
South Bend, IN 46601

SENDER: *COMPLETE THIS SECTION*

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

1. Article Addressed to:

Williams, Derek & Cynthia
369 Gray Road
Leitchfield, KY 42754

9590 9402 8129 2349 7939 24

2. Article Number *(Transfer from service label)*

9589 0710 5270 0167 3917 89

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Cynthia Williams

C. Date of Delivery 5-26-23

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

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

---

SENDER: *COMPLETE THIS SECTION*

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

1. Article Addressed to:

Mudd, Priscilla & Josh
P.O. Box 293
Leitchfield, KY 42754

9590 9402 8129 2349 7939 48

2. Article Number *(Transfer from service label)*

9589 0710 5270 0167 3918 02

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Josh Mudd

C. Date of Delivery 5-27-23

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

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Mercer, Effie Sue
515 Gray Road
Leitchfield, KY 42754

9590 9402 8129 2349 7939 31

2. Article Number *(Transfer from service label)*

9589 0710 5270 0167 3917 96

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Joanna Mercer ☑ Agent ☐ Addressee

B. Received by *(Printed Name)* Joanna Mercer
C. Date of Delivery 5/25/23

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

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receip

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Roof, Darrell & Sandi
223 Huff Road
Leitchfield, KY 42754

9590 9402 8129 2349 7939 79

2. Article Number *(Transfer from service label)*

9589 0710 5270 0167 3918 33

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE

A. Signat
X Sandi Roof ☐ Agent ☑ Addresse

B. Received by *(Printed Name)* Sandi Roof
C. Date of Deliver 5/25/23

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

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receip

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Childress, Teresa Roof
6511 Shrewbury Road
Leitchfield, KY 42754

9590 9402 8129 2349 7939 62

2. Article Number *(Transfer from service label)*

9589 0710 5270 0167 3918 26

PS Form 3811, July 2020 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Teresa Childress ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Teresa Childress
C. Date of Deliver 5/25/23

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

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receip

SENDER: *COMPLETE THIS SECTION*

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

1. Article Addressed to:

Horvath Towers VI, LLC
312 West Colfax Avenue
South Bend, IN 46601

9590 9402 9129 2349 7959 80

2. Article Number *(Transfer from service label)*

9589 0710 5270 0167 3920 07

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by *(Printed Name)*: Kennedy Hunt

C. Date of Delivery: 8/31/2023

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

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☑ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

USPS Tracking®

FAQs >

Remove ✕

Tracking Number:

9589071052700167392014

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

Latest Update

Your package is moving within the USPS network and is on track to be delivered to its final destination. It is currently in transit to the next facility.

Get More Out of USPS Tracking:

USPS Tracking Plus®

Feedback

Moving Through Network

In Transit to Next Facility

June 5, 2023

Departed USPS Regional Facility

LOUISVILLE KY DISTRIBUTION CENTER
June 1, 2023, 10:30 am

See All Tracking History

Text & Email Updates ⌄

USPS Tracking Plus® ⌄

Product Information ⌄

See Less ^

Track Another Package

Enter tracking or barcode numbers

Need More Help?

Contact USPS Tracking support for further assistance.

FAQs

USPS Tracking®

FAQs >

Remove ×

Tracking Number:

9589071052700167391819

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

Latest Update

Your item departed our USPS facility in LOUISVILLE KY DISTRIBUTION CENTER on June 6, 2023 at 10:30 pm. The item is currently in transit to the destination.

Get More Out of USPS Tracking:

USPS Tracking Plus®

Feedback

Moving Through Network

Departed USPS Regional Facility

LOUISVILLE KY DISTRIBUTION CENTER
June 6, 2023, 10:30 pm

In Transit to Next Facility

June 6, 2023

See All Tracking History

Text & Email Updates

USPS Tracking Plus®

Product Information

See Less ^

Track Another Package

Enter tracking or barcode numbers

Need More Help?

Contact USPS Tracking support for further assistance.

FAQs

USPS Tracking®

FAQs >

Remove ✕

Tracking Number:

9589071052700167392021

Copy Schedule a Redelivery (https://tools.usps.com/redelivery.htm)

Latest Update

This is a reminder to arrange for redelivery of your item before June 8, 2023 or your item will be returned on June 9, 2023. You may arrange redelivery by using the Schedule a Redelivery feature on this page or may pick up the item at the Post Office indicated on the notice.

Get More Out of USPS Tracking:

USPS Tracking Plus®

Delivery Attempt: Action Needed
Reminder to Schedule Redelivery of your item before June 8, 2023
May 30, 2023

Notice Left (No Authorized Recipient Available)
LEITCHFIELD, KY 42754
May 25, 2023, 12:58 pm

See All Tracking History

Feedback

Text & Email Updates ⌄

Schedule Redelivery ⌄

USPS Tracking Plus® ⌄

Product Information

See Less

Track Another Package

Enter tracking or barcode numbers

Need More Help?

Contact USPS Tracking support for further assistance.

FAQs

ClarkQuinn

www.clarkquinnlaw.com

Russell L. Brown
Attorney at Law
rbrown@clarkquinnlaw.com

320 N. Meridian St., Ste. 1100
Indianapolis, IN 46204
(317) 637-1321 main
(317) 687-2344 fax

May 30, 2023

Via Certified Mail, Return Receipt Requested

Kevin Henderson
Judge Executive
130 E. Market Street
Leitchfield, KY 42754

RE: Notice of Proposal to Construct Wireless Communications Facility
Kentucky Public Service Commission Docket No. 2023-00139
Site Name: Shrewsbury

Dear Judge Henderson:

Cellco Partnership, d/b/a Verizon Wireless is filing an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located on the north side of Gray Road east of Shrewsbury Road, Leitchfield, KY 42574 (North Latitude: (37° 22' 03.84", West Longitude 86° 22' 25.86"). The proposed facility will include a 230-foot tall antenna tower, plus a 5-foot lightning arrestor, for a total height of 235 feet with 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 2023-00139 in any correspondence sent in connection with this matter.

We have attached a map showing the site location for the proposed tower. Verizon Wireless' 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,
Russell L. Brown

Attorney for Applicant
RLB/mnw
Enclosures

Location Map

ClarkQuinn
lark, Quinn, Moses, Scott & Grahn, LLP

CERTIFIED MAIL®

9589 0710 5270 0167 3919 87

FIRST-CLASS

US POSTAGE PITNEY BOWES

ZIP 46204
02 7H
0006035028

$ 008.10⁰

MAY 30 2023

Kevin Henderson
Judge Executive
130 E. Market Street
Leitchfield, KY 42754

SENDER: *COMPLETE THIS SECTION*

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

1. Article Addressed to:

Kevin Henderson
Judge Executive
130 E. Market Street
Leitchfield, KY 42754

9590 9402 8129 2349 7942 11

2. Article Number *(Transfer from service label)*
9589 0710 5270 0167 3919 87

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* MARIANNE DOWNS

C. Date of Delivery

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

130 E MARKET ST.
Leitchfield, KY 42754

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Mail
☐ Mail Restricted Delivery
(over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

SITE NAME: Shrewsbury
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.

Cellco Partnership, d/b/a Verizon Wireless proposes to construct a telecommunications **tower** on this site. If you have questions, please contact Clark, Quinn, Moses, Scott & Grahn, LLP, 320 N. Meridian Street, Indianapolis, IN 46204; 317-637-1321, or the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2023-00139 in your correspondence.

Cellco Partnership, d/b/a Verizon Wireless proposes to construct a telecommunications **tower** on this site. If you have questions, please contact Clark, Quinn, Moses, Scott & Grahn, LLP, 320 N. Meridian Street, Indianapolis, IN 46204; 317-637-1321, or the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2023-00139 in your correspondence.

ClarkQuinn
Clark, Quinn, Moses, Scott & Grahn, LLP

VIA EMAIL: classifieds@messenger-inquirer.com

Mayfield Mmessenger
86A Commerce Blvd.
Benton, KY 42025

RE: Legal Notice Advertisement
Site Name: Shrewbury

To Whom It May Concern,

Please publish the following legal notice advertisement in the next available edition of the Mayfield Messenger Publication:

NOTICE

Cellco Partnership, d/b/a Verizon Wireless is filing an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located on the north side of Gray Road east of Shrewsbury Road, Leitchfield, KY 42574 (North Latitude: (37° 22' 03.84", West Longitude 86° 22' 25.86"). The proposed facility will include a 230-foot tall antenna tower, plus a 5-foot lightning arrestor, for a total height of 235 feet with related ground facilities. 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 2023-00139 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 Clark, Quinn, Moses, Scott & Grahn, LLC, 320 N. Meridian Street, Indianapolis, IN 46204 or by email to ebw@clarkquinnlaw.com. Please call me on my cell with any questions at 317-902-2187 if you have any questions. Thank you for your assistance.

Sincerely,

Elizabeth Bentz Williams, AICP

Design Search Area

May 19, 2022

RE: Proposed Verizon Wireless Communications Facility
Site Name: CK Shrewsbury

To Whom It May Concern:

As a radio frequency engineer for Verizon Wireless, I am providing this letter to state the need for the Verizon Wireless site called Shrewsbury and its compliance to RF emission standards as set by FCC. The Shrewsbury cell site is necessary to achieve coverage and capacity needs in the Shrewsbury area, along Shrewsbury Rd, Phelps Johnson Rd and to the surrounding residential areas. This site is necessary to provide this coverage and capacity that cannot be established in any other manner. This new tower is required as there is no other means of providing this service in this area.

Whenever possible, Verizon Wireless seeks out colocation opportunities. Colocation allows Verizon Wireless to increase capacity, coverage and services in a targeted area in a more timely manner and at less cost than building a new raw land site.

The height for the Shrewsbury site was determined through in-depth terrain modeling as well as signal propagation modeling. Due to the rising and falling terrain combine with the dense wooded area, it was determined that a centerline height of 225 feet was necessary to provide adequate coverage in the area. A lower height would greatly reduce coverage and result in the inability of the Shrewsbury site to operate properly in the Verizon Network.

The site will provide the quality coverage our customers expect and rely on; Customers will experience access to mobile voice and wireless data services previously unavailable, and support Homeland Security through enhanced 911 services.

This cell site has been designed, and will be constructed and operated in a manner that satisfies regulations and requirements of all applicable governmental agencies that have been charged with regulating tower specifications, operation, construction, and placement, including the FAA and FCC.

RF emission readings at this site in the accessible areas would be well below the applicable limits for FCC Uncontrolled/General Population and FCC Controlled/Occupational environments as outlined in 47 CFR 1.1301 through 1.1319. The site would carry appropriate RF emission signage to the public entering the site area.

This site would transit frequencies within the licensed frequency bands and the power limitations set by FCC regulatory authority. The site would go through the complete rigorous regulatory process before it comes on-air to provide service to our customers.

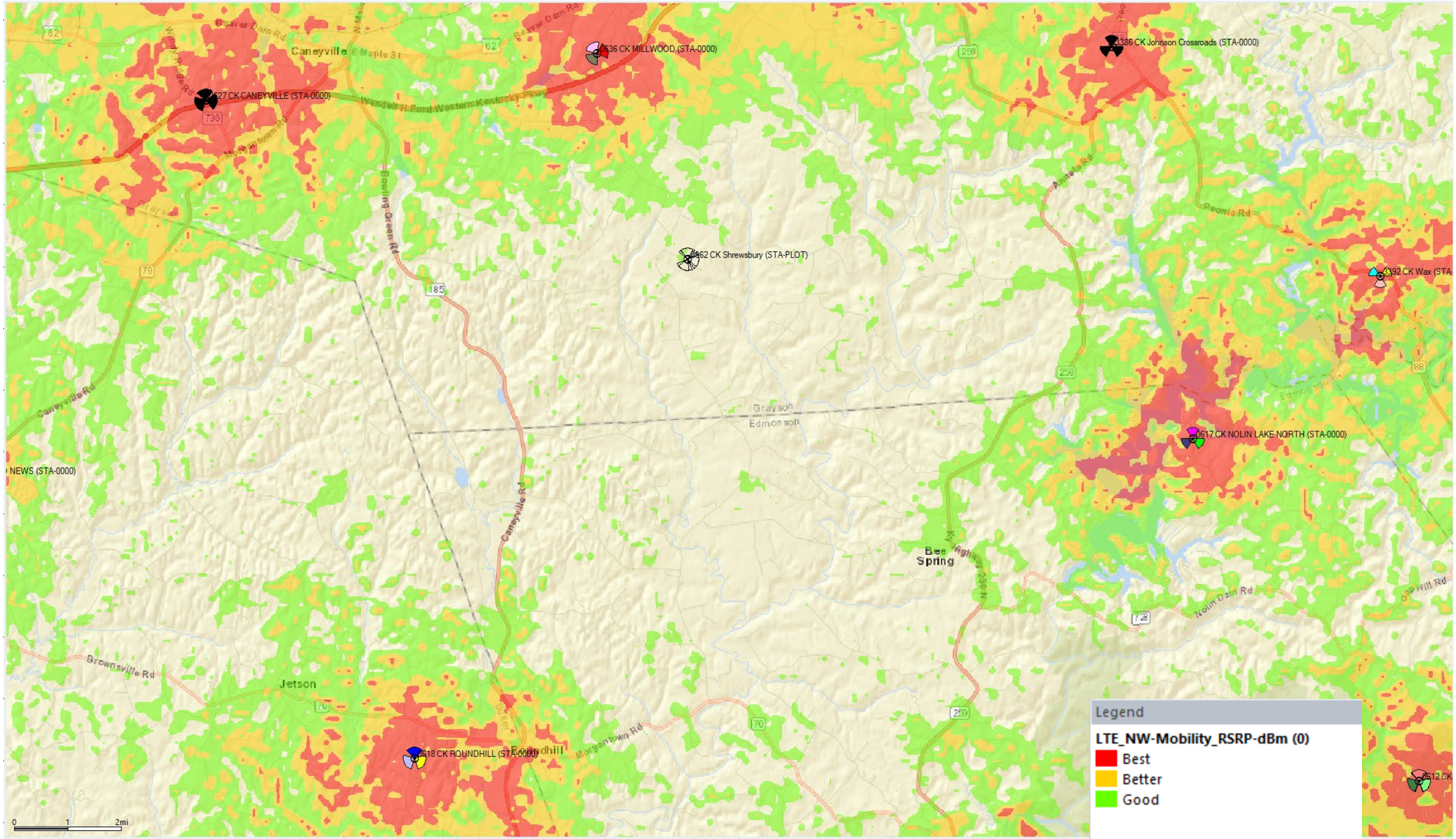
Sincerely,

Gordon Snyder
RF Engineer, Verizon Wireless

CK Shrewsbury

Coverage Plots

Current Coverage without the CK Shrewsbury Site



Coverage with the proposed CK Shrewsbury Site

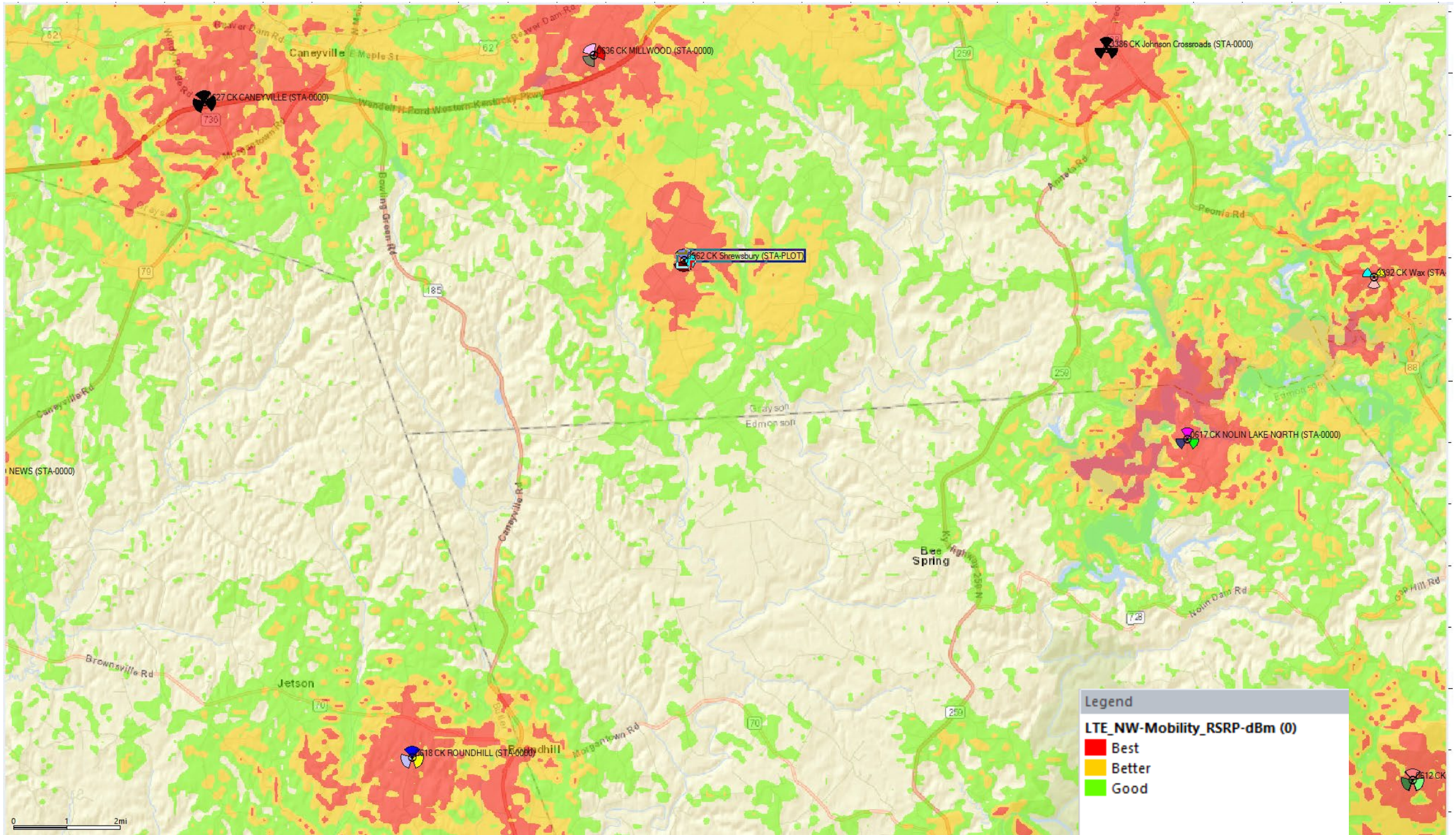


Exhibit S
List and Identity and Qualifications of Professionals

Mark E. Patterson
Professional Land Surveyor
Kentucky License 3136
Power of Design Group, LLC
11490 Bluegrass Parkway
Louisville, KY 40299

Mark E. Patterson
Professional Engineer
Kentucky License 16300
Power of Design Group, LLC
11490 Bluegrass Parkway
Louisville, KY 40299

Joseph Pachicarah
Professional Engineer
Kentucky License 22177
Valmont
1545 Pidco Dr.
Plymouth, IN 46563

Vince Caprino
Construction Manager
Verizon Wireless
2421 Holloway Road
Louisville, KY 40299

Gordan Snyder
RF Engineer
Verizon Wireless
2421 Holloway Road
Louisville, KY 40299

STATE OF INDIANA)
) SS:
COUNTY OF MARION)

AFFIDAVIT OF CERTIFICATION
COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

I Russell L. Brown, attorney for Cellco Partnership, d/b/a Verizon Wireless do hereby certify that as the person supervising the preparation of this application that the all statements and information contained herein are true and accurate to the best of that person's knowledge, information, and belief formed after a reasonable inquiry for all information within this application.

Russell L. Brown
Attorney, for Cellco Partnership, d/b/a Verizon Wireless

STATE OF INDIANA,
COUNTY OF MARION, SS:
Subscribed and sworn to before me this 6th day of June, 2023.

Notary Public
Printed Name of Notary: Elizabeth Bentz Williams
My commission expires: November 18, 2028
My County of Residence: Marion
Commission #: 0639620