

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

TODD R. BRIGGS
also admitted in Colorado

October 22, 2019

RECEIVED

OCT 25 2019

Via FedEx Overnight Delivery

PUBLIC SERVICE
COMMISSION

Gwen R. Pinson
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, KY 40602

RE: Application to Construct Wireless Communications Facility - Case Number: 2019-00358

Dear Ms. Pinson,

On behalf of my client(s), Vertical Bridge Development, LLC and Powertel/Memphis, Inc., we are hereby submitting an original and five (5) copies of an Application for Certificate of Public Convenience and Necessity to Construct a Wireless Communications Facility.

Please contact me if you require any further documentation or have any questions concerning this application.

Sincerely,



Todd R. Briggs

Enclosures

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

RECEIVED

OCT 25 2019

PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF VERTICAL BRIDGE DEVELOPMENT, LLC)	
AND POWERTEL/MEMPHIS, INC.)	
FOR ISSUANCE OF A CERTIFICATE OF PUBLIC)	
CONVENIENCE AND NECESSITY TO CONSTRUCT)	CASE NO:
A WIRELESS COMMUNICATIONS FACILITY AT)	2019-00358
KY HWY 15, BETHANY, 42166 BREATHITT COUNTY)	

SITE NAME: US-KY-5052 / BETHANY

**APPLICATION FOR CERTIFICATE
OF PUBLIC CONVENIENCE AND NECESSITY
TO CONSTRUCT A WIRELESS COMMUNICATIONS FACILITY**

Vertical Bridge Development, LLC, a Delaware limited liability company, and Powertel/Memphis, Inc. a Delaware corporation ("Applicant"), by counsel, pursuant to (i) KRS §§ 278.020, 278.040, 278.665 and the rules and regulations applicable thereto, and (ii) the Telecommunications Act of 1996, respectfully submits this Application requesting the 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 telecommunication services. In support of this Application, Applicant respectfully provides and states the following:

1. The complete name and addresses of the Applicant are: Vertical Bridge Development, LLC, a Delaware limited liability company, 750 Park of Commerce Drive, Suite 200, Boca Raton, FL 33487 and Powertel/Memphis, Inc. a Delaware corporation, 11509 Commonwealth Drive, Louisville, KY 40299.

2. A copy of the Certificate of Authorization for Powertel/Memphis, Inc. is attached as **Exhibit A**. A copy of the Certificate of Authority filed with the Kentucky Secretary of State for Vertical Bridge Development, LLC is also included as part of **Exhibit A**.

3. Applicant proposes construction of an antenna tower in Breathitt County, Kentucky, in an area which is outside the jurisdiction of a planning commission and Applicant submits the Application to the PSC for a CPCN pursuant to KRS §§ 278.020(1), 278.040, 278.650, and 278.665, and other statutory authority.

4. 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 enhancing coverage and/or capacity and thereby increasing the public's access to wireless communication services. A statement from Applicant's RF Deployment Engineer outlining said need is attached as **Exhibit N**. 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.

5. To address the above-described service needs, Applicant proposes to construct a WCF at KY Hwy 15, Bethany, Kentucky (37° 39' 02.84" North Latitude, 83° 26' 17.49" West Longitude (NAD 83)), in an area entirely within Breathitt County. The property in which the WCF will be located is currently owned by Larry T. Henson and Darrell Miller, pursuant to Deed of record in Deed Book 171, Page 594 in the Office of the Breathitt County Clerk and subject to the Option and Agreement of Sale found in **Exhibit I**. The proposed WCF will consist of a 265-foot self-support tower with an approximately 10-foot tall lightning arrestor attached to the top of the tower for a total height of 275 feet. The WCF will also include concrete foundations to accommodate the placement of a prefabricated equipment platform. The WCF compound will be fenced and all

access gates will be secured. A detailed site development plan and survey, signed and sealed by a professional land surveyor registered in Kentucky is attached as **Exhibit B**.

6. A detailed description of the manner in which the WCF will be constructed is included in the site plan and a vertical tower profile signed and sealed by a professional engineer registered in Kentucky is attached as **Exhibit C**. Foundation design plans and a description of the standards according to which the tower was designed which have been signed and sealed by a professional engineer registered in Kentucky are attached as **Exhibit D**.

7. A geotechnical engineering report was performed at the WCF site by EGSci Consulting, Inc. of Atlanta, Georgia, dated October 11, 2019 and is attached as **Exhibit E**. 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 E**.

8. A list of public utilities, corporations, and/or persons with whom the proposed WCF is likely to compete is attached as **Exhibit F**.

9. The Federal Aviation Administration Determination of No Hazard dated August 26, 2019 is attached as **Exhibit G**. The Kentucky Airport Zoning Commission application is also attached as **Exhibit G**. The Kentucky Airport Zoning Commission recommended approval at their October 10, 2019 meeting. Documentation of the approval will be submitted to the PSC when available.

10. The Applicant operates on frequencies licensed by the Federal Communications Commission ("FCC") pursuant to applicable federal requirements. Copies of the license(s) are attached as **Exhibit H**. The WCF has been designed, and will be built and operated in accordance with all applicable FCC and FAA regulations as indicated in the statement from Applicant's RF

Deployment Engineer included as **Exhibit N**. Appropriate FCC required signage will be posted on the site.

11. Based on the review of Federal Emergency Management Agency Flood Insurance Rate Map, the licensed, professional land surveyor has noted in **Exhibit B** that the Flood Insurance Rate Map (FIRM) No. 21025C0050C dated April 2, 2008, indicates that the proposed WCF is not located within any flood hazard area.

12. Personnel directly responsible for the design and construction of the proposed WCF are well qualified and experienced. The Construction Manager for the WCF is Andy Smith and his credentials are included in **Exhibit D**.

13. Clear directions to the proposed WCF site from the county seat are attached as **Exhibit B**, including the name and telephone number of the preparer. A copy of the Option and Agreement of Sale for the property on which the tower is proposed to be located is attached as **Exhibit I**.

14. Applicant has notified, by certified mail, return receipt requested, every person of the proposed construction who, according to the records of the Breathitt and Wolfe County Property Valuation Administrators, owns property which is within 500 feet of the proposed tower or is contiguous to the site property as shown on scaled drawing attached as **Exhibit J**. Applicant included in said notices the docket number under which the Application will be processed and informed each person of his or her right to request intervention. A list of the property owners who received notices along with the notices are attached as **Exhibit J**. The drawing found in **Exhibit J** also depicts every structure and easement within 500' of the proposed tower and/or 200' within the access road including the intersection with the public right of way.

15. Applicant has notified the Breathitt County Judge Executive by certified mail, return receipt requested, of the proposed construction. The notice included the docket number under which the Application will be processed and informed the Breathitt County Judge Executive of his right to request intervention. A copy of the notice is attached as **Exhibit K**.

16. Pursuant to 807 KAR 5:063, Applicant affirms that two notice signs measuring at least two feet by four feet in size with all required language in letters of required height have been posted in a visible location on the proposed site and on the nearest road. A copy of the posted text found on the signs is attached as **Exhibit L**. Such signs shall remain posted for at least two weeks after filing the Application. Notice of the proposed construction has been posted in a newspaper of general circulation in the county in which the construction is proposed (*The Jackson-Breathitt County Times-Voice*)

17. The site of the proposed WCF is located in a forested area near Bethany, Kentucky. The current use of the property is mixed use.

18. Applicant has considered the likely effects of the proposed construction on nearby land uses and values and has concluded that there is no more suitable location reasonably available from which adequate service to the area can be provided. Applicant carefully evaluated locations within the search area for co-location opportunities and found no suitable towers or other existing structures that met the requirements necessary in providing adequate service to the area. A statement from Applicant's RF Deployment Engineer is attached as **Exhibit N**. When suitable towers or structures exist, Applicant has attempted to co-locate on towers designed to host multiple wireless service providers' facilities or existing structures, such as a telecommunications tower or another suitable structure capable of supporting the Applicant's facilities. Note: an Eastern Kentucky Network, Inc. aka Appalachian Wireless tower is adjacent to the WCF

site and was evaluated for colocation. The Appalachian Wireless tower is not structurally sufficient for Powertel/Memphis Inc's proposed loading.

19. A map of the area in which the proposed WCF is located, that is drawn to scale and that clearly depicts the search area in which a site should, pursuant to radio frequency requirements, be located is attached as **Exhibit M**.

20. Correspondence and communication regarding this Application should be directed to:

Todd R. Briggs
Briggs Law Office, PSC
10200 Forest Green Blvd
Suite 112
Louisville, KY 40223
(844) 331-3402
todd@briggslawoffice.net

WHEREFORE, Applicant respectfully requests that the PSC accept the foregoing application for filing and enter an order granting a Certificate of Public Convenience and Necessity to Applicant for construction and operation of the proposed WCF and providing for such other relief as is necessary and appropriate.

Respectfully submitted,



Todd R. Briggs
Briggs Law Office, PSC
10200 Forest Green Blvd
Suite 112
Louisville, KY 40223
Telephone (844) 331-3402
Counsel for Applicant

LIST OF EXHIBITS

Exhibit A	Certificate of Authorization Certificate of Authority
Exhibit B	Site Development Plan and Survey Directions to Site
Exhibit C	Vertical Tower Profile
Exhibit D	Tower and Foundation Design Report Construction Manager Qualification Letter
Exhibit E	Geotechnical Engineering Report
Exhibit F	Competing Utilities List
Exhibit G	FAA Determination of No Hazard KAZC Application
Exhibit H	FCC Documentation
Exhibit I	Copy of Purchase Agreement
Exhibit J	Notification Listing Abutter's Map Copy of Property Owner Notices
Exhibit K	Copy of County Judge Executive Notice
Exhibit L	Copy of Posted Notices
Exhibit M	Map of Search Area
Exhibit N	RF Deployment Engineer Statement

Exhibit A

Commonwealth of Kentucky
Alison Lundergan Grimes, Secretary of State

Alison Lundergan Grimes
Secretary of State
P. O. Box 718
Frankfort, KY 40602-0718
(502) 564-3490
<http://www.sos.ky.gov>

Certificate of Authorization

Authentication number: 213503
Visit <https://app.sos.ky.gov/ftshow/certvalidate.aspx> to authenticate this certificate.

I, Alison Lundergan Grimes, Secretary of State of the Commonwealth of Kentucky, do hereby certify that according to the records in the Office of the Secretary of State,


POWERTEL/MEMPHIS, INC.

, a corporation organized under the laws of the state of Delaware, is authorized to transact business in the Commonwealth of Kentucky, and received the authority to transact business in Kentucky on February 23, 1996.

I further certify that all fees and penalties owed to the Secretary of State have been paid; that an application for certificate of withdrawal has not been filed; and that the most recent annual report required by KRS 14A.6-010 has been delivered to the Secretary of State.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 12th day of March, 2019, in the 227th year of the Commonwealth.




Alison Lundergan Grimes
Secretary of State
Commonwealth of Kentucky
213503/0412295

1061433.06

amcray
ADDAllison Lundergan Grimes
Kentucky Secretary of State
Received and Filed:
6/10/2019 2:25 PM
Fee Receipt: \$90.00COMMONWEALTH OF KENTUCKY
ALISON LUNDERGAN GRIMES, SECRETARY OF STATEDivision of Business Filings
Business Filings
PO Box 718, Frankfort, KY 40602
(502) 564-3490
www.sos.ky.govCertificate of Authority
(Foreign Business Entity)

FBE

Pursuant to the provisions of KRS 14A and KRS 271B, 273, 274, 275, 382 and 386 the undersigned hereby applies for authority to transact business in Kentucky on behalf of the entity named below and, for that purpose, submits the following statements:

- 1 The entity is a: ☐ profit corporation (KRS 271B) ☐ nonprofit corporation (KRS 273) ☐ professional service corporation (KRS 274)
☐ business trust (KRS 386) ☐ limited liability company (KRS 275) ☐ professional limited liability company (KRS 275)
☐ limited partnership (KRS 362) ☐ ltd cooperative assn. (KRS) ☐ statutory trust
☐ non-profit llc (KRS 275) ☐ cooperative assn. (KRS)

2 The name of the entity is Vertical Bridge Development, LLC

(The name must be identical to the name on record with the Secretary of State.)

3 The name of the entity to be used in Kentucky is (if applicable): Vertical Bridge Development, LLC

(Only provide if "real name" is unavailable for use; otherwise, leave blank.)

4 The state or country under whose law the entity is organized is Delaware5 The date of organization is January 28, 2014 and the period of duration is Perpetual
(If left blank, the period of duration is considered perpetual.)6 The mailing address of the entity's principal office is
750 Park of Commerce Drive, Suite 200Boca Raton FL 33487

Street Address City State Zip Code

7 The street address of the entity's registered office in Kentucky is
828 Lane Allen Road, Suite 218Lexington KY 40504

Street Address (No P.O. Box Numbers) City State Zip Code

and the name of the registered agent at that office is COGENCY GLOBAL INC.

8. The names and business addresses of the entity's representatives (secretary, officers and directors, managers, trustees or general partners)

Alex Gelman-CEO 750 Park of Commerce Drive Suite 200 Boca Raton FL 33487

Name Street or P.O. Box City State Zip Code

Daniel Marinberg, Esq.-SVP 750 Park of Commerce Drive Suite 200 Boca Raton FL 33487

Name Street or P.O. Box City State Zip Code

Michael Romaniw-CFO 750 Park of Commerce Drive, Suite 200 Boca Raton FL 33487

Name Street or P.O. Box City State Zip Code

9 If a professional service corporation all the individual shareholders, not less than one half (1/2) of the directors, and all of the officers other than the secretary and treasurer are licensed in one or more states or territories of the United States or District of Columbia to render a professional service described in the statement of purposes of the corporation

10. I certify that, as of the date of filing this application, the above-named entity validly exists under the laws of the jurisdiction of its formation.

11. If a limited partnership, it elects to be a limited liability limited partnership. Check the box if applicable: ☐

12. If a limited liability company, check box if manager-managed

13. This application will be effective upon filing, unless a delayed effective date and/or time is provided.

The effective date or the delayed effective date cannot be prior to the date the application is filed. The date and/or time is Upon Filing

Please indicate the Kentucky county in which your business operates: County <u>Jefferson</u>	
To complete the following, please shade the box completely.	
Please indicate the size of your business: <input type="checkbox"/> Small (Fewer than 50 employees) <input type="checkbox"/> Large (50 or more employees)	Please indicate whether any of the following make up more than fifty percent (50%) of your business ownership: <input type="checkbox"/> Women-Owned <input type="checkbox"/> Veteran Owned <input type="checkbox"/> Minority Owned
Please indicate which of the following best describes your business:	
<input type="checkbox"/> Agriculture <input type="checkbox"/> Mining <input type="checkbox"/> Services <input type="checkbox"/> Construction	<input type="checkbox"/> Wholesale Trade <input type="checkbox"/> Retail Trade <input type="checkbox"/> Manufacturing <input type="checkbox"/> Finance, Insurance, Real Estate
<input type="checkbox"/> Public Administration <input type="checkbox"/> Transportation, Communications, Electric, Gas, Sanitary Services	<input type="checkbox"/> Other

Signature of Authorized Representative Daniel Marinberg SVP and General Counsel 6/7/2019I, Merritt Walker, consent to serve as the registered agent on behalf of the business entity.Signature of Registered Agent Merritt Walker Asst. Secretary 6/10/2019

(05/17)

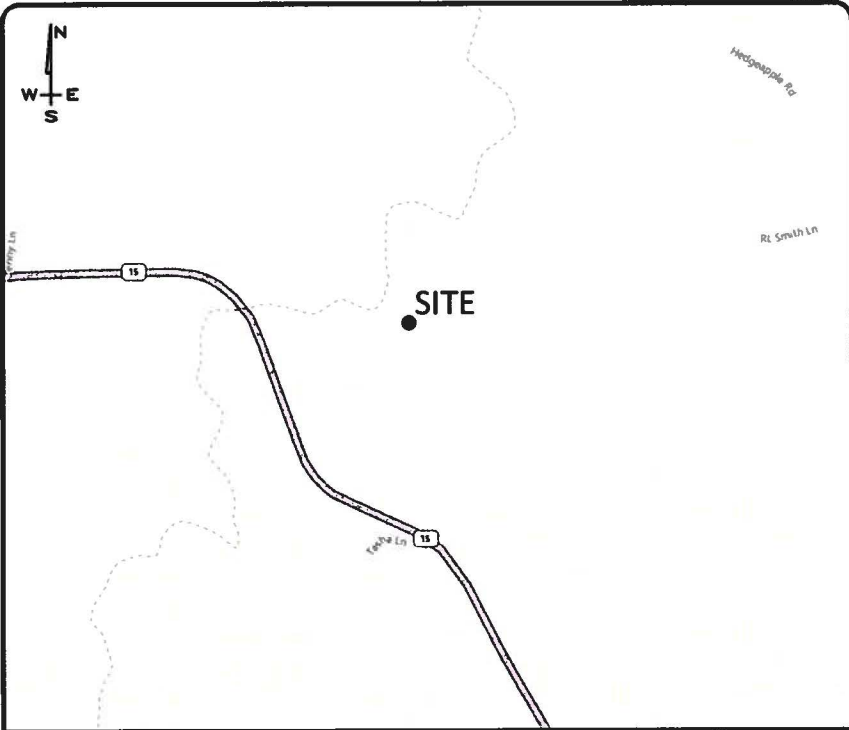
Exhibit B

T-Mobile

SITE NAME: **BETHANY** SITE NUMBER: **US-KY-5052**

T-MOBILE SITE NUMBER: 9LV3239B

PROPOSED RAW LAND SITE WITH 265' SELF-SUPPORT
TOWER WITH A 10' LIGHTNING ARRESTOR AND
INSTALLATION OF AN 8'-0" X 8'-0" PLATFORM



VICINITY MAP

SCALE: NONE

DRIVE DIRECTIONS

STARTING AT THE NASHVILLE T-MOBILE OFFICE, 5209 LINBAR DR, NASHVILLE, TN 37211

GET ON I-64 E FROM BLANKENBAKER PKWY 1.0 MILES
MERGE ONTO I-64 E 63.6 MILES
KEEP LEFT AT THE FORK TO STAY ON I-64 E, FOLLOW SIGNS FOR WINCHESTER/ASHLAND 16.4 MILES
USE THE RIGHT 2 LANES TO TAKE EXIT 98 TOWARD MOUNTAIN PKWY 0.3 MILES
CONTINUE ONTO BERT T COMBS MOUNTAIN PKWY E 37.5 MILES
CONTINUE ONTO BERT T COMBS MOUNTAIN PKWY W 0.7 MILES
CONTINUE ONTO BERT T COMBS MOUNTAIN PKWY E 4.0 MILES
TAKE EXIT 43 TOWARD KY-15/CAMPTON/HAZARD 0.3 MILES
CONTINUE ONTO MOUNTAIN PARKWAY SPUR 0.9 MILES
CONTINUE ONTO KY-15 S 10.2 MILES
TURN LEFT 0.4 MILES

ARRIVE AT SITE ON THE LEFT

STARTING AT BREATHITT COUNTY CLERK, 1137 MAIN ST #202, JACKSON, KY 41339;

TAKE MAIN ST AND WASHINGTON AVE TO KY-15 N/KY-30 W 0.5 MILES
TURN LEFT ONTO KY-15 N/KY-30 W 0.4 MILES
TURN RIGHT ONTO KY-15 2.4 MILES
CONTINUE STRAIGHT ONTO KY-15 N 4.6 MILES

ARRIVE AT SITE ENTRANCE ON LEFT

SCOPE OF WORK:

CONSTRUCTION DRAWINGS FOR:
CONSTRUCTION OF A NEW UNMANNED TELECOMMUNICATIONS FACILITY.

SITE WORK: NEW TOWER, UNMANNED EQUIPMENT PLATFORM, AND UTILITY INSTALLATIONS.

PROJECT INFORMATION

COUNTY: BREATHITT

SITE ADDRESS: KY HIGHWAY 15
BETHANY, KY 41301

APPLICANT: T-MOBILE
5209 LINBAR DRIVE
SUITE 625
NASHVILLE, TN 37211

LATITUDE: 37° 39' 02.84"N
LONGITUDE: 83° 26' 17.49"W

EMERGENCY: CALL 911
E911 ADDRESS NOT VERIFIED



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.

SHEET INDEX

T-1	TITLE SHEET & PROJECT INFORMATION
SURVEY: B-1 TO B-1.3	SITE SURVEY
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G-2	PLATFORM GROUNDING PLAN & NOTES
G-3	GROUNDING DETAILS
G-4	GROUNDING DETAILS
G-5	GROUNDING NOTES

PREPARED BY:

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

PREPARED FOR:

verticalbridge

PREPARED FOR:

T-Mobile



EN PERMIT: 3594

CONSTRUCTION DRAWINGS

REV	DATE	DESCRIPTION
A	7.31.19	ISSUED FOR REVIEW
0	9.3.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY

KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

SITE NUMBER:

US-KY-5052

T-MOBILE SITE NUMBER:

9LV3239B

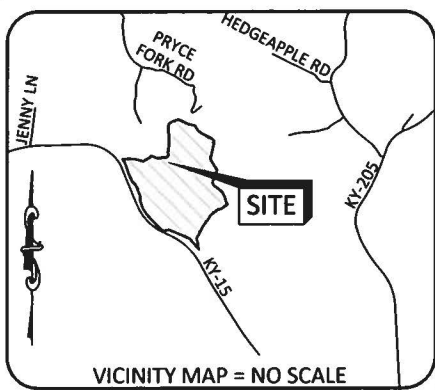
POD NUMBER: 18-27347
DRAWN BY: KDP
CHECKED BY: MEP
DATE: 7.31.19

SHEET TITLE:

**TITLE SHEET
& PROJECT
INFORMATION**

SHEET NUMBER:

T-1



VICINITY MAP = NO SCALE

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.

EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS PLAT, THIS SURVEY DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE; EASEMENTS, OTHER THAN POSSIBLE EASEMENTS THAT WERE VISIBLE AT THE TIME OF MAKING THIS SURVEY; BUILDING SETBACK LINES; RESTRICTIVE COVENANTS; SUBDIVISION RESTRICTIONS; ZONING OR OTHER LAND USE REGULATIONS, AND ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

THE WORD "CERTIFY" OR "CERTIFICATION" AS SHOWN AND USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THE FACTS OF THE SURVEY AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED.

FEE PURCHASE PARCEL IS CONTIGUOUS WITH THE ACCESS AND UTILITY EASEMENT, WHICH IS CONTIGUOUS WITH KY STATE HIGHWAY 15, WHICH IS A VARIABLE WIDTH PUBLIC RIGHT OF WAY.

FEE PURCHASE PARCEL AND THE ACCESS & UTILITY EASEMENT LAY ENTIRELY WITHIN THE PARENT PARCEL AS DESCRIBED IN DEED BOOK 171, PAGE 594.

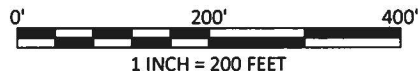
A PORTION OF THIS SURVEY WAS CONDUCTED BY METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. UNADJUSTED CLOSURE EQUALS 0.10', FOR A PRECISION OF 1:65,300 AND HAS NOT BEEN ADJUSTED.

THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

THE PARENT PARCEL, FEE PURCHASE PARCEL AND THE ACCESS & UTILITY EASEMENT SHOWN HEREON ARE NOT LOCATED IN A 100-YEAR FLOOD PLAIN (ZONE X) PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER 21025C0050C, DATED APRIL 2, 2008.

LEGEND

- EX. UTILITY POLE
EOP EX. EDGE OF PAVEMENT
EX. EXISTING
- OHT OHT OHT
OHE OHE OHE
OHE&T OHE&T
- EX. OVERHEAD TELEPHONE
EX. OVERHEAD ELECTRIC
EX. OVERHEAD ELEC. & TELE.
- SET 1/2" REBAR 18" LONG W/ A YELLOW PLASTIC CAP STAMPED "PATTERSON PLS 3136"
- FOUND MONUMENT AS NOTED
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- P.O.C. POINT OF COMMENCEMENT
P.O.R. POINT OF REFERENCE
P.O.B. POINT OF BEGINNING
ROW RIGHT OF WAY



KY STATE HIGHWAY 15
VARIABLE-WIDTH PUBLIC
RIGHT OF WAY PER
COMMONWEALTH OF
KENTUCKY DEPARTMENT OF
HIGHWAY PLANS PROJECT NO.
SP 19-503 & SP 13-237

STA. 553+00.00
LEFT 150.00'

STA. 555+17.17
LEFT 150.00'

STA. 556+00.00
LEFT 150.00'

STA. 557+00.00
LEFT 120.00'

STA. 558+50.00
N:3,768,470.1276
E:5,588,869.4759

EX. 24 INCH REINFORCED
CONCRETE PIPE

STA. 559+17.27
LEFT 120.00'

STA. 562+00.00
LEFT 120.00'

STA. 563+00.00
LEFT 190.00'

EX. 24 INCH REINFORCED
CONCRETE PIPE

EX. 36 INCH REINFORCED
CONCRETE PIPE

STA. 567+00.00
LEFT 190.00'

STA. 568+00.00
LEFT 130.00'

STA. 567+50.00
N:3,767,638.6996
E:5,589,203.6137

EX. EDGE OF SHOULDER

STA. 570+89.72
LEFT 130.00'

(WOLFE COUNTY)
PARCEL ID: 085-00-00-011.00
ANGELA M. RALEIGH
DEED BOOK 117, PAGE 460

(WOLFE COUNTY)
PARCEL ID: 085-00-00-008.00
COLIN HALCOMB
DEED BOOK 87, PAGE 61

MOUNTAINEER CELLULAR
GENERAL PARTNERSHIP
DEED BOOK 187, PAGE 309

VARIABLE WIDTH UTILITY EASEMENT
(TO BE GRANTED)
(27,181.728 S.F.)
SEE SHEET B-1.6 FOR DETAIL

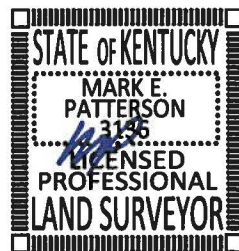
30' ACCESS & UTILITY EASEMENT
(TO BE GRANTED)
(76,864.313 S.F.)
SEE SHEETS B-1.1 TO B-1.5 FOR DETAIL

PARCEL ID: 050-00-00-001.000
LARRY T HENSON & DARRELL MILLER
TRACT #1 OF DEED BOOK 171, PAGE 594
(RESIDUAL ACREAGE 175± PER DEED)



Know what you dig.
Call before you dig.
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.



CERTIFICATE OF ACCURACY (SURVEYOR'S CERTIFICATE)

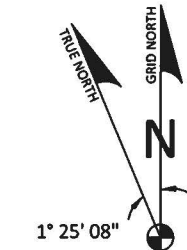
I HEREBY CERTIFY TO: VERTICAL BRIDGE REIT, LLC A DELAWARE LIMITED LIABILITY COMPANY, ITS SUBSIDIARIES, AND THEIR RESPECTIVE SUCCESSORS AND/OR ASSIGNS; TORONTO DOMINION (TEXAS LLC, AS ADMINISTRATIVE AGENT, FOR ITSELF AND ON BEHALF OF THE LENDERS PARTIES FROM TIME TO THAT CERTAIN SECOND AMENDED AND RESTATED LOAN AGREEMENT DATED JUNE 17, 2016 WITH VERTICAL BRIDGE HOLDCO, LLC, AS BORROWER, AND VERTICAL BRIDGE HOLDCO PARENT, LLC, AS PARENT, AS MAY BE AMENDED, RESTATED, MODIFIED OR RENEWED, THEIR SUCCESSORS AND ASSIGNS AS THEIR INTERESTS MAY APPEAR; AND STEWART TITLE GUARANTY COMPANY.

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 "URBAN" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATIONS AS STATED IN KAR 201 18:150.

Mark E. Patterson
MARK E. PATTERSON, PLS #3136

9/6/2019

DATE



1° 25' 08"
BASED ON KENTUCKY STATE PLANE
SINGLE ZONE AND DETERMINED BY
GPS OBSERVATIONS COMPLETED
ON JUNE 17, 2019.

FAA COORDINATE POINT

NAD 83
LATITUDE: 37°39'02.84"
LONGITUDE: -83°26'17.49"
NAVD 88
ELEVATION: 1264± AMSL
NORTHING: 3,768,828.1360
EASTING: 5,590,449.0220

TEMPORARY BENCHMARK

NORTHING: 3,768,737.2380
EASTING: 5,590,343.8500
ELEVATION: 1254.56'
LOCATION: A SET 60-D NAIL
N69°34'09"W 87.8± FROM THE
SOUTHERNMOST CORNER OF
PARCEL #1.

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 GEOID12A. RELATIVE POSITIONAL ACCURACY VARIED FROM 0.04' TO 0.06' HORIZONTALLY.
3. SPECTRA PRECISION EPOCH 50 DUAL FREQUENCY RECEIVERS WERE USED TO PERFORM THE SURVEY.

PREPARED BY:



11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:



SURVEY

REV.	DATE	DESCRIPTION
A	7.23.19	PRELIMINARY ISSUE
B	8.12.19	UTILITY EASEMENT
0	9.5.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY
KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

TAX PARCEL NUMBER:
050-00-00-001.00

TITLE HOLDER:
LARRY T HENSON &
DARRELL MILLER
710 LAKESIDE DRIVE
JACKSON, KY 41339

SOURCE OF TITLE:
DEED BOOK 171, PAGE 594

SITE NUMBER:
US-KY-5052

POD NUMBER: 18-27345

DRAWN BY: JRS
CHECKED BY: MEP
SURVEY DATE: 6.17.19
PLAT DATE: 7.22.19

SHEET TITLE:
BOUNDARY
SURVEY

PLAT REPRESENTS A PARTIAL
BOUNDARY SURVEY OF THE
PARENT PARCEL AND COMPLIES
WITH 201 KAR 18:150

SHEET NUMBER: (9 pages)

B-1

1° 25' 08" N
GRD NORTH
TRUE NORTH

BASED ON KENTUCKY STATE PLANE SINGLE ZONE AND DETERMINED BY GPS OBSERVATIONS COMPLETED ON JUNE 17, 2019.



PER KENTUCKY STATE LAW, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

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.

EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS PLAT, THIS SURVEY DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE; EASEMENTS, OTHER THAN POSSIBLE EASEMENTS THAT WERE VISIBLE AT THE TIME OF MAKING THIS SURVEY; BUILDING SETBACK LINES; RESTRICTIVE COVENANTS; SUBDIVISION RESTRICTIONS; ZONING OR OTHER LAND USE REGULATIONS, AND ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

THE WORD "CERTIFY" OR "CERTIFICATION" AS SHOWN AND USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THE FACTS OF THE SURVEY AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED.

FEE PURCHASE PARCEL IS CONTIGUOUS WITH THE ACCESS AND UTILITY EASEMENT, WHICH IS CONTIGUOUS WITH KY STATE HIGHWAY 15, WHICH IS A VARIABLE WIDTH PUBLIC RIGHT OF WAY.

FEE PURCHASE PARCEL AND THE ACCESS & UTILITY EASEMENT LAY ENTIRELY WITHIN THE PARENT PARCEL AS DESCRIBED IN DEED BOOK 171, PAGE 594.

A PORTION OF THIS SURVEY WAS CONDUCTED BY METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. UNADJUSTED CLOSURE EQUALS 0.10', FOR A PRECISION OF 1:65,300 AND HAS NOT BEEN ADJUSTED.

THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

THE PARENT PARCEL, FEE PURCHASE PARCEL AND THE ACCESS & UTILITY EASEMENT SHOWN HEREON ARE NOT LOCATED IN A 100-YEAR FLOOD PLAIN (ZONE X) PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER 21025C0050C, DATED APRIL 2, 2008.

LEGEND

EX. UTILITY POLE
EX. EXISTING

OHT OHT OHT
OHE OHE OHE

SET 1/2" REBAR 18" LONG W/ A YELLOW PLASTIC CAP STAMPED "PATTERSON PLS 3136"

FOUND MONUMENT AS NOTED

PROPERTY LINE
ADJACENT PROPERTY LINE

P.O.R. POINT OF REFERENCE
P.O.B. POINT OF BEGINNING
P.O.C. POINT OF COMMENCEMENT

EX. OVERHEAD TELEPHONE

EX. OVERHEAD ELECTRIC

SET 1/2" REBAR 18" LONG W/ A YELLOW PLASTIC CAP STAMPED "PATTERSON PLS 3136"

FOUND MONUMENT AS NOTED

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PREPARED BY:



PREPARED FOR:

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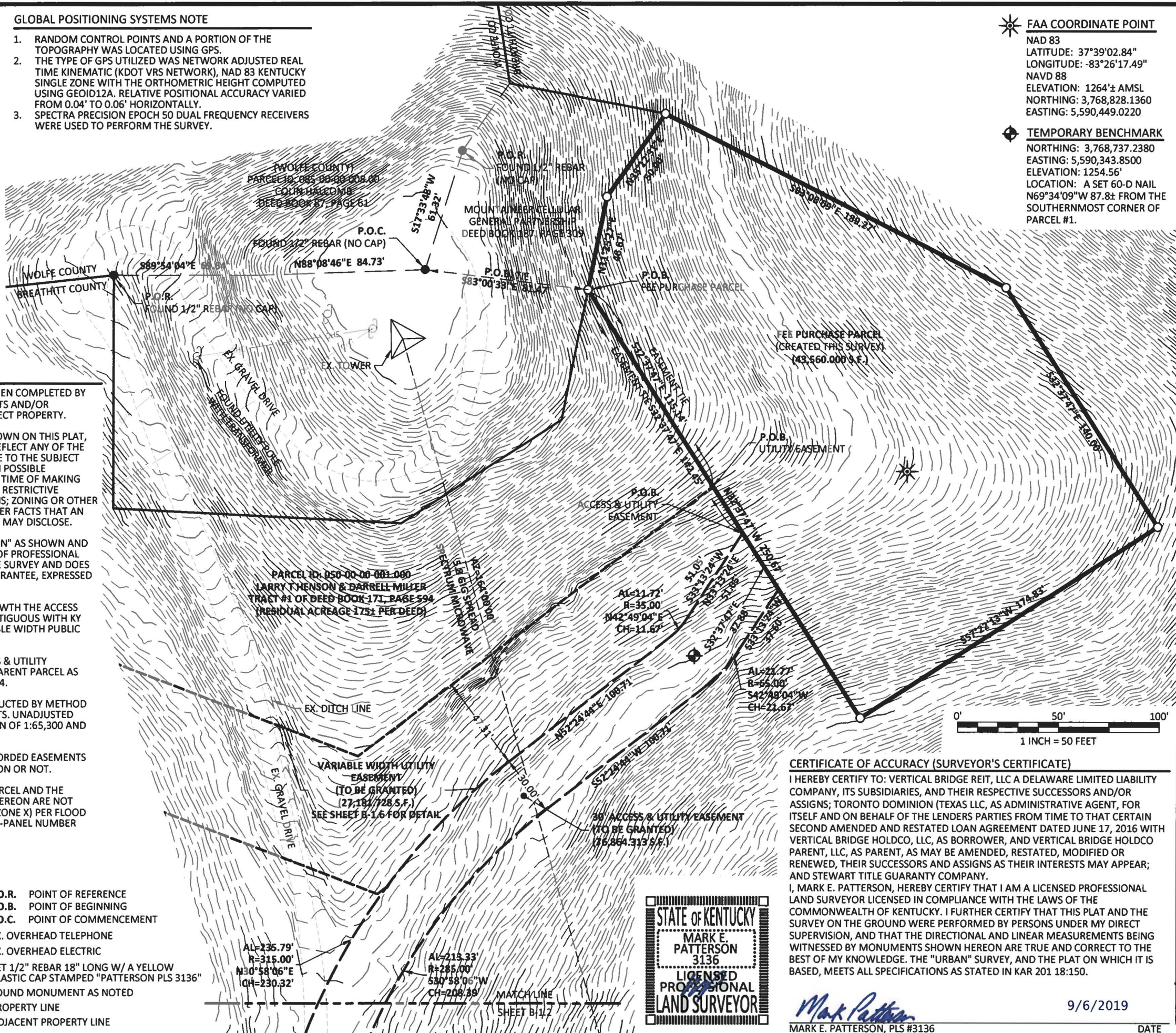
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BOUNDARY SURVEY

PLAT REPRESENTS A PARTIAL BOUNDARY SURVEY OF THE PARENT PARCEL AND COMPLIES WITH 201 KAR 18:150

SHEET NUMBER: (9 pages)

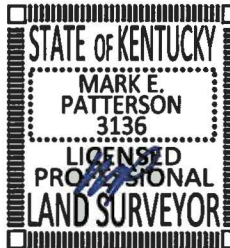
B-1.1



CERTIFICATE OF ACCURACY (SURVEYOR'S CERTIFICATE)

I HEREBY CERTIFY TO: VERTICAL BRIDGE REIT, LLC A DELAWARE LIMITED LIABILITY COMPANY, ITS SUBSIDIARIES, AND THEIR RESPECTIVE SUCCESSORS AND/OR ASSIGNS; TORONTO DOMINION (TEXAS LLC, AS ADMINISTRATIVE AGENT, FOR ITSELF AND ON BEHALF OF THE LENDERS PARTIES FROM TIME TO THAT CERTAIN SECOND AMENDED AND RESTATED LOAN AGREEMENT DATED JUNE 17, 2016 WITH VERTICAL BRIDGE HOLDCO, LLC, AS BORROWER, AND VERTICAL BRIDGE HOLDCO PARENT, LLC, AS PARENT, AS MAY BE AMENDED, RESTATED, MODIFIED OR RENEWED, THEIR SUCCESSORS AND ASSIGNS AS THEIR INTERESTS MAY APPEAR; AND STEWART TITLE GUARANTY COMPANY.

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 "URBAN" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATIONS AS STATED IN KAR 201 18:150.



Max Patterson
MARK E. PATTERSON, PLS #3136

9/6/2019

DATE

TRUE NORTH
GRID NORTH
N
1° 25' 08"
BASED ON KENTUCKY STATE PLANE
SINGLE ZONE AND DETERMINED BY
GPS OBSERVATIONS COMPLETED
ON JUNE 17, 2019.

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HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER
2102SC0050C, DATED APRIL 2, 2008.

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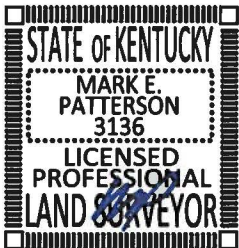
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MEASUREMENTS BEING WITNESSED BY MONUMENTS SHOWN HEREON ARE
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AS STATED IN KAR 201 18:150.

Mark E. Patterson

MARK E. PATTERSON, PLS #3136

9/6/2019

DATE



AL=197.13'
R=155.00'
S47°55'27"E
CH=184.11'

AL=158.98'
R=125.00'
N47°55'27"W
CH=148.48'

SHEET B-1.4
MATCH LINE

S11°29'21"E 159.50'
N11°29'21"W 159.50'

30' ACCESS & UTILITY EASEMENT
(TO BE GRANTED)
(76,864.313 S.F.)

PARCEL ID: 050-00-00-001.000
LARRY T HENSON & DARRELL MILLER
TRACT #1 OF DEED BOOK 171, PAGE 594
(RESIDUAL ACREAGE 175± PER DEED)

AL=105.25'
R=265.00'
N22°52'01"W
CH=104.56'

AL=93.33'
R=235.00'
S22°52'01"E
CH=92.72'

AL=58.40'
R=265.00'
N13°17'55"E
CH=58.28'

N19°36'42"E 58.49'
S19°36'42"W 58.49'

AL=51.75'
R=235.00'
S13°17'55"W
CH=51.88'

AL=165.73'
R=1485.00'
N10°10'58"E
CH=165.64'

AL=181.28'
R=280.00'
S15°41'53"E
CH=178.13'

AL=161.85'
R=250.00'
N15°41'53"W
CH=159.04'

SHEET B-1.3
MATCH LINE

N30°58'06"E
CH=230.32'

R=285.00'
S80°58'06"W
CH=208.38'

FAA COORDINATE POINT
NAD 83
LATITUDE: 37°39'02.84"
LONGITUDE: -83°26'17.49"
NAVD 88
ELEVATION: 1264± AMSL
NORTHING: 3,768,828.1360
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TEMPORARY BENCHMARK
NORTHING: 3,768,737.2380
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N69°34'09"W 87.8± FROM THE
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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.

0' 50' 100'
1 INCH = 50 FEET

GLOBAL POSITIONING SYSTEMS NOTE

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HORIZONTALLY.
3. SPECTRA PRECISION EPOCH 50 DUAL
FREQUENCY RECEIVERS WERE USED TO
PERFORM THE SURVEY.

LEGEND

EX. EXISTING

PREPARED BY:



PREPARED FOR:

verticalbridge
750 PARK OF COMMERCE DRIVE
BOCA RATON, FLORIDA 33487
(561) 948-6367

SURVEY

REV.	DATE	DESCRIPTION
A	7.23.19	PRELIMINARY ISSUE
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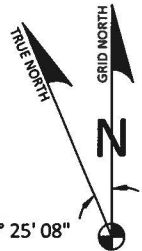
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PARENT PARCEL AND COMPLIES
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SHEET NUMBER: (9 pages)

B-1.2



BASED ON KENTUCKY STATE PLANE
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TRACT #1 OF DEED BOOK 171, PAGE 594
(RESIDUAL ACREAGE 175± PER DEED)

SHEET B-1.2
MATCH LINE

AL=161.85'
R=250.00'
N15°41'53"W
CH=159.04'

EX. DITCH LINE

N02°50'56"E 139.88'

S02°50'56"W 139.88'

AL=116.95'
R=37.26'
N87°03'59"W
CH=74.52'

AL=93.33'
R=235.00'
S22°52'01"E
CH=92.72'

AL=105.25'
R=265.00'
N22°52'01"W
CH=104.56'

EX. DITCH LINE

AL=165.73'
R=1485.00'
N10°10'58"E
CH=165.64'

AL=181.28'
R=280.00'
S15°41'53"E
CH=178.13'

AL=169.98'
R=1518.00'
S10°10'58"W
CH=168.99'

AL=51.79'
R=138.00'
S13°17'55"W
CH=51.68'

N13°17'55"E
CH=58.28'

30' ACCESS & UTILITY EASEMENT
(TO BE GRANTED)
(76,864.313 S.F.)

AL=178.14'
R=985.00'
S08°11'56"W
CH=177.90'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	22.79'	7.26'	S87°03'59"E	14.52'
C2	183.57'	1015.00'	N08°11'56"E	183.32'

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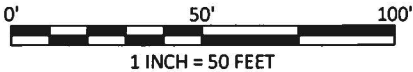
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SHEET NUMBER: (9 pages)

B-1.3



Know what's below.
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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.

GENERAL NOTES

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EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS PLAT, THIS SURVEY DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE; EASEMENTS, OTHER THAN POSSIBLE EASEMENTS THAT WERE VISIBLE AT THE TIME OF MAKING THIS SURVEY; BUILDING SETBACK LINES; RESTRICTIVE COVENANTS; SUBDIVISION RESTRICTIONS; ZONING OR OTHER LAND USE REGULATIONS, AND ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

THE WORD "CERTIFY" OR "CERTIFICATION" AS SHOWN AND USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THE FACTS OF THE SURVEY AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED.

FEE PURCHASE PARCEL IS CONTIGUOUS WITH THE ACCESS AND UTILITY EASEMENT, WHICH IS CONTIGUOUS WITH KY STATE HIGHWAY 15, WHICH IS A VARIABLE WIDTH PUBLIC RIGHT OF WAY.

FEE PURCHASE PARCEL AND THE ACCESS & UTILITY EASEMENT LAY ENTIRELY WITHIN THE PARENT PARCEL AS DESCRIBED IN DEED BOOK 171, PAGE 594.

A PORTION OF THIS SURVEY WAS CONDUCTED BY METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. UNADJUSTED CLOSURE EQUALS 0.10', FOR A PRECISION OF 1:65,300 AND HAS NOT BEEN ADJUSTED.

THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

THE PARENT PARCEL, FEE PURCHASE PARCEL AND THE ACCESS & UTILITY EASEMENT SHOWN HEREON ARE NOT LOCATED IN A 100-YEAR FLOOD PLAIN (ZONE X) PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER 21025C0050C, DATED APRIL 2, 2008.

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 GEOID12A. RELATIVE POSITIONAL ACCURACY VARIED FROM 0.04' TO 0.06' HORIZONTALLY.
3. SPECTRA PRECISION EPOCH 50 DUAL FREQUENCY RECEIVERS WERE USED TO PERFORM THE SURVEY.

FAA COORDINATE POINT

NAD 83
LATITUDE: 37°39'02.84"
LONGITUDE: -83°26'17.49"
NAVD 88
ELEVATION: 1264'± AMSL
NORTHING: 3,768,828.1360
EASTING: 5,590,449.0220

TEMPORARY BENCHMARK

NORTHING: 3,768,737.2380
EASTING: 5,590,343.8500
ELEVATION: 1254.56'
LOCATION: A SET 60-D NAIL
N69°34'09"W 87.8± FROM THE
SOUTHERNMOST CORNER OF
PARCEL #1.

PREPARED BY:



PREPARED FOR:

SURVEY

REV.	DATE	DESCRIPTION
A	7.23.19	PRELIMINARY ISSUE
B	8.12.19	UTILITY EASEMENT
0	9.5.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY
KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

TAX PARCEL NUMBER:
050-00-00-001.00

TITLE HOLDER:
LARRY T HENSON &
DARRELL MILLER
710 LAKESIDE DRIVE
JACKSON, KY 41339

SOURCE OF TITLE:
DEED BOOK 171, PAGE 594

SITE NUMBER:
US-KY-5052

POD NUMBER: 18-27345

DRAWN BY: JRS
CHECKED BY: MEP
SURVEY DATE: 6.17.19
PLAT DATE: 7.22.19

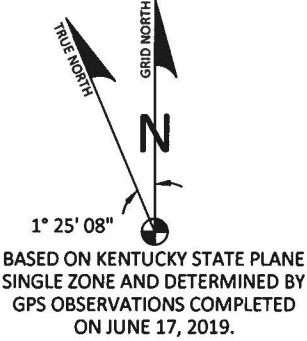
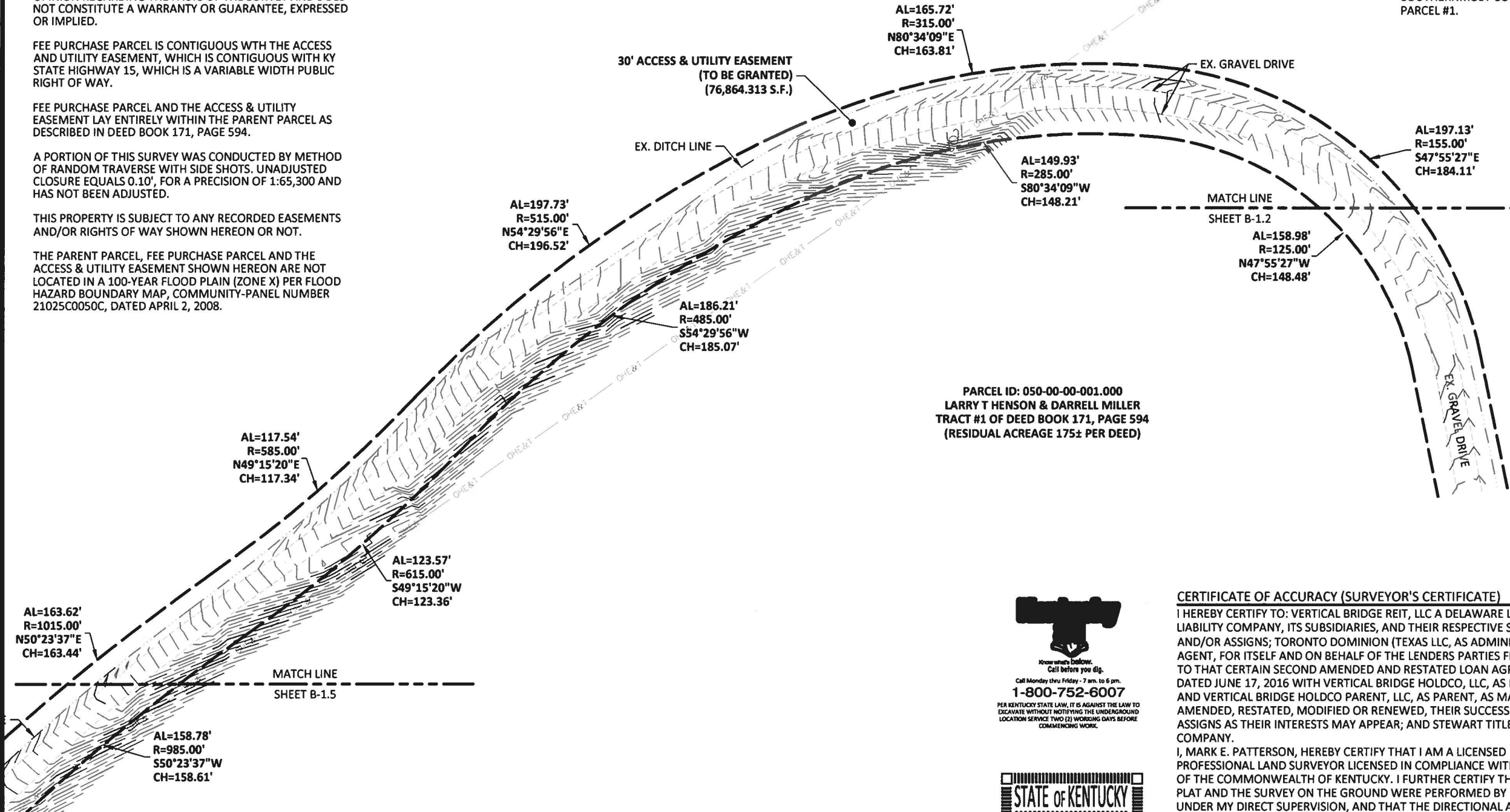
SHEET TITLE:

**BOUNDARY
SURVEY**

PLAT REPRESENTS A PARTIAL
BOUNDARY SURVEY OF THE
PARENT PARCEL AND COMPLIES
WITH 201 KAR 18:150

SHEET NUMBER: (9 pages)

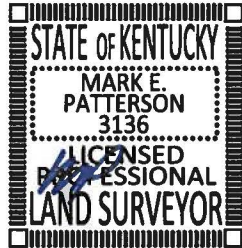
B-1.4



PARCEL ID: 050-00-00-001.000
LARRY T HENSON & DARRELL MILLER
TRACT #1 OF DEED BOOK 171, PAGE 594
(RESIDUAL ACREAGE 175± PER DEED)



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CERTIFICATE OF ACCURACY (SURVEYOR'S CERTIFICATE)

I HEREBY CERTIFY TO: VERTICAL BRIDGE REIT, LLC A DELAWARE LIMITED LIABILITY COMPANY, ITS SUBSIDIARIES, AND THEIR RESPECTIVE SUCCESSORS AND/OR ASSIGNS; TORONTO DOMINION (TEXAS LLC, AS ADMINISTRATIVE AGENT, FOR ITSELF AND ON BEHALF OF THE LENDERS PARTIES FROM TIME TO THAT CERTAIN SECOND AMENDED AND RESTATED LOAN AGREEMENT DATED JUNE 17, 2016 WITH VERTICAL BRIDGE HOLDCO, LLC, AS BORROWER, AND VERTICAL BRIDGE HOLDCO PARENT, LLC, AS PARENT, AS MAY BE AMENDED, RESTATED, MODIFIED OR RENEWED, THEIR SUCCESSORS AND ASSIGNS AS THEIR INTERESTS MAY APPEAR; AND STEWART TITLE GUARANTY COMPANY.

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 "URBAN" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATIONS AS STATED IN KAR 201 18:150.

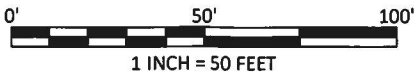
Mark E. Patterson
MARK E. PATTERSON, PLS #3136

9/6/2019

DATE

LEGEND

- EX. UTILITY POLE
- EX. EXISTING
- OHE OHE OHE EX. OVERHEAD ELECTRIC
- OHT OHT OHT EX. OVERHEAD TELEPHONE
- OHE&T OHE&T EX. OVERHEAD ELECTRIC & TELEPHONE



TRUE NORTH
GRID NORTH
1° 25' 08"
BASED ON KENTUCKY STATE PLANE
SINGLE ZONE AND DETERMINED BY
GPS OBSERVATIONS COMPLETED
ON JUNE 17, 2019.

GLOBAL POSITIONING SYSTEMS NOTE

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LEGEND

EX. UTILITY POLE
ROW RIGHT OF WAY
EOP EDGE OF PAVEMENT
EX. EXISTING

PROPERTY LINE
ADJACENT PROPERTY LINE
EX. OVERHEAD ELECTRIC & TELEPHONE
EX. OVERHEAD ELECTRIC
EX. OVERHEAD TELEPHONE

PARCEL ID: 050-00-00-001.000
LARRY T HENSON & DARRELL MILLER
TRACT #1 OF DEED BOOK 171, PAGE 594
(RESIDUAL ACREAGE 175± PER DEED)

30' ACCESS & UTILITY EASEMENT
(TO BE GRANTED)
(76,864.313 S.F.)

AL=99.46'
R=235.00'
N57°54'02"E
CH=98.72'

AL=163.62'
R=1015.00'
N50°23'37"E
CH=163.44'

AL=158.78'
R=985.00'
S50°23'37"W
CH=158.61'

EX. DITCH LINE

EX. GRAVEL DRIVE

N21°43'24"W
19.97'
STA. 562+00.00
LEFT 120.00

43.06'
N70°01'32"E

AL=112.16'
R=265.00'
S57°54'02"W
CH=111.32'

S70°01'32"W
34.96'
N56°42'55"W
12.52'

STA. 563+00.00
LEFT 190.00

EX. GUARDRAIL

EX. EDGE OF
SHOULDER

EX. 24 INCH REINFORCED
CONCRETE PIPE

KY STATE HIGHWAY 15
VARIABLE WIDTH PUBLIC RIGHT OF WAY PER
COMMONWEALTH OF KENTUCKY DEPARTMENT OF
HIGHWAY PLANS PROJECT NO. SP 119-503 & SP 13-237

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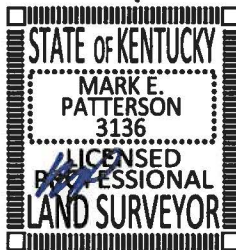
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MARK E. PATTERSON, PLS #3136

FAA COORDINATE POINT
NAD 83
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LONGITUDE: -83°26'17.49"
NAVD 88
ELEVATION: 1264± AMSL
NORTHING: 3,768,828.1360
EASTING: 5,590,449.0220

TEMPORARY BENCHMARK
NORTHING: 3,768,737.2380
EASTING: 5,590,343.8500
ELEVATION: 1254.56'
LOCATION: A SET 60-D NAIL
N69°34'09"W 87.8± FROM THE
SOUTHERNMOST CORNER OF
PARCEL #1.

PREPARED BY:



SURVEY

REV.	DATE	DESCRIPTION
A	7.23.19	PRELIMINARY ISSUE
B	8.12.19	UTILITY EASEMENT
0	9.5.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY
KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

TAX PARCEL NUMBER:
050-00-00-001.00

TITLE HOLDER:
LARRY T HENSON &
DARRELL MILLER
710 LAKESIDE DRIVE
JACKSON, KY 41339

SOURCE OF TITLE:
DEED BOOK 171, PAGE 594

SITE NUMBER:
US-KY-5052

POD NUMBER: 18-27345

DRAWN BY: JRS
CHECKED BY: MEP
SURVEY DATE: 6.17.19
PLAT DATE: 7.22.19

SHEET TITLE:
BOUNDARY
SURVEY

PLAT REPRESENTS A PARTIAL
BOUNDARY SURVEY OF THE
PARENT PARCEL AND COMPLIES
WITH 201 KAR 18:150


SHEET NUMBER: (9 pages)

B-1.5

9/6/2019

DATE

B-1.6

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ELEVATION: 1264± AMSL
NORTHING: 3,768,828.1360
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TEMPORARY BENCHMARK
NORTHING: 3,768,737.2380
EASTING: 5,590,343.8500
ELEVATION: 1254.56'
LOCATION: A SET 60-D NAIL
N69°34'09"W 87.8± FROM THE
SOUTHERNMOST CORNER OF
PARCEL #1.

**FEE PURCHASE PARCEL
(CREATED THIS SURVEY
(43,560.000 S.F.)
SEE B-1.1 FOR ENTIRE**

P.O.B.
UTILITY EASEMENT

P.O.B.
ACCESS & UTILITY

8 GIG SPREAD

NS2
VARIABLE WIDTH
(10 BE
127

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C8	11.72'	35.00'	N42°49'04"E	11.67'

CERTIFICATE OF ACCURACY (SURVEYOR'S CERTIFICATE)

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Mark E. Patterson
MARK E. PATTERSON, PLS #3136

9/6/2019

DATE _____

LEGAL DESCRIPTIONS

FEE PURCHASE PARCEL

THE FOLLOWING IS A DESCRIPTION OF THE FEE PURCHASE PARCEL, BEING A PART OF TRACT #1 AS DESCRIBED IN THE DEED CONVEYED TO LARRY T. HENSON AND DARRELL MILLER AS RECORDED IN DEED BOOK 171, PAGE 594, PARCEL ID: 050-00-00-001.00, RECORDS OF THE BREATHITT COUNTY, KENTUCKY CLERKS OFFICE, 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 JUNE 17, 2019.

COMMENCING AT A FOUND 1/2" REBAR WITH NO CAP ON THE BREATHITT AND WOLFE COUNTY LINE, BEING THE POINT OF BEGINNING OF THE PARCEL CONVEYED TO MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AS DESCRIBED IN DEED BOOK 187, PAGE 309 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK, SAID POINT ALSO BEING BEING A COMMON CORNER OF THE PROPERTY CONVEYED TO COLIN HALCOMB AS RECORDED IN DEED BOOK 87, PAGE 61, OF RECORD IN THE OFFICE OF THE WOLFE COUNTY, KENTUCKY CLERK, FOR REFERENCE, SAID POINT OF COMMENCEMENT IS S89°54'04"E 69.64' FROM A FOUND 1/2" REBAR WITH NO CAP IN THE CORNER OF THE PROPERTY CONVEYED TO LARRY T. HENSON AND DARRELL MILLER AS RECORDED IN DEED BOOK 171, PAGE 594 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK, BEING THE NORTHWEST CORNER OF THE PARCEL CONVEYED TO MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AS DESCRIBED IN DEED BOOK 187, PAGE 309 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK AND BEING A CORNER OF SAID HALCOMB PROPERTY AS RECORDED IN DEED BOOK 87, PAGE 61, OF RECORD IN THE OFFICE OF THE WOLFE COUNTY, KENTUCKY CLERK AND N88°08'46"E 84.73', ALSO FOR REFERENCE, SAID POINT OF COMMENCEMENT IS S17°33'48"W 61.32' FROM A FOUND 1/2" REBAR WITH NO CAP IN THE COMMON LINE OF SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AND SAID HALCOMB; THENCE LEAVING SAID COMMON LINE, TRAVERSING ACROSS SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP PROPERTY, S83°00'33"E 81.47' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136", HEREAFTER REFERRED TO AS A "SET IPC", IN THE EAST LINE OF SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AND BEING THE POINT OF BEGINNING OF THE HEREAFTER DESCRIBED FEE PURCHASE PARCEL; THENCE ALONG THE EAST LINE OF MOUNTAINEER CELLULAR GENERAL PARTNERSHIP, N11°25'27"E 46.67' TO A SET IPC; THENCE N35°12'31"E 50.00' TO A SET IPC AT THE NORTHEAST CORNER OF SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP; THENCE LEAVING SAID EAST LINE, SEVERING TRACT #1 AS DESCRIBED IN THE AFOREMENTIONED PARCEL CONVEYED TO LARRY T. HENSON AND DARRELL MILLER AS RECORDED IN DEED BOOK 171, PAGE 594 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK, S63°08'09"E 189.27' TO A SET IPC; THENCE S32°37'47"E 140.00' TO A SET IPC; THENCE S57°22'13"W 174.83' TO A SET IPC; THENCE N32°37'47"W 250.67' TO THE POINT OF BEGINNING CONTAINING 1.00 ACRES OR 43,560.000 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED JUNE 17, 2019.

30' ACCESS & UTILITY EASEMENT

THE FOLLOWING IS A DESCRIPTION OF THE 30' ACCESS AND UTILITY EASEMENT TO BE GRANTED, BEING A PART OF TRACT #1 AS DESCRIBED IN THE DEED CONVEYED TO LARRY T. HENSON AND DARRELL MILLER AS RECORDED IN DEED BOOK 171, PAGE 594, PARCEL ID: 050-00-00-001.00, RECORDS OF THE BREATHITT COUNTY, KENTUCKY CLERKS OFFICE, 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 JUNE 17, 2019.

COMMENCING AT A FOUND 1/2" REBAR WITH NO CAP ON THE BREATHITT AND WOLFE COUNTY LINE, BEING THE POINT OF BEGINNING OF THE PARCEL CONVEYED TO MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AS DESCRIBED IN DEED BOOK 187, PAGE 309 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK, SAID POINT ALSO BEING BEING A COMMON CORNER OF THE PROPERTY CONVEYED TO COLIN HALCOMB AS RECORDED IN DEED BOOK 87, PAGE 61, OF RECORD IN THE OFFICE OF THE WOLFE COUNTY, KENTUCKY CLERK, FOR REFERENCE, SAID POINT OF COMMENCEMENT IS S89°54'04"E 69.64' FROM A FOUND 1/2" REBAR WITH NO CAP IN THE CORNER OF THE PROPERTY CONVEYED TO LARRY T. HENSON AND DARRELL MILLER AS RECORDED IN DEED BOOK 171, PAGE 594 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK, BEING THE NORTHWEST CORNER OF THE PARCEL CONVEYED TO MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AS DESCRIBED IN DEED BOOK 187, PAGE 309 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK AND BEING A CORNER OF SAID HALCOMB PROPERTY AS RECORDED IN DEED BOOK 87, PAGE 61, OF RECORD IN THE OFFICE OF THE WOLFE COUNTY, KENTUCKY CLERK AND N88°08'46"E 84.73', ALSO FOR REFERENCE, SAID POINT OF COMMENCEMENT IS S17°33'48"W 61.32' FROM A FOUND 1/2" REBAR WITH NO CAP IN THE COMMON LINE OF SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AND SAID HALCOMB; THENCE LEAVING SAID COMMON LINE, TRAVERSING ACROSS SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP PROPERTY, S83°00'33"E 81.47' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136", HEREAFTER REFERRED TO AS A "SET IPC", IN THE EAST LINE OF SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AND BEING THE POINT OF BEGINNING OF FEE PURCHASE PARCEL; THENCE LEAVING SAID EAST LINE, ALONG THE WEST LINE OF FEE PURCHASE PARCEL, S32°37'47"E 142.45' TO THE TRUE POINT OF BEGINNING OF THE 30' ACCESS AND UTILITY EASEMENT; THENCE S32°37'47"E 32.88'; THENCE LEAVING THE WEST LINE OF FEE PURCHASE PARCEL, S33°13'24"W 37.60'; THENCE ALONG THE ARC OF A CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 21.77', A RADIUS OF 65.00', A CHORD BEARING OF S42°49'04"W AND A CHORD LENGTH OF 21.67'; THENCE S52°24'44"W 100.71'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 213.33', A RADIUS OF 285.00', A CHORD BEARING OF S30°58'06"W AND A CHORD LENGTH OF 208.39'; THENCE S09°31'28"W 73.03'; THENCE ALONG THE ARC OF A CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 46.66', A RADIUS OF 265.00', A CHORD BEARING OF S14°34'05"W AND A CHORD LENGTH OF 46.60'; THENCE S19°36'42"W 58.49'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 51.79', A RADIUS OF 235.00', A CHORD BEARING OF S13°17'55"W AND A CHORD LENGTH OF 51.68'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 169.08', A RADIUS OF 1515.00', A CHORD BEARING OF S10°10'58"W AND A CHORD LENGTH OF 168.99'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE LEFT HAVING AN ARC LENGTH OF 178.14', A RADIUS OF 985.00', A CHORD BEARING OF S08°11'56"W AND A CHORD LENGTH OF 177.90'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 116.95', A RADIUS OF 37.26', A CHORD BEARING OF N87°03'59"W AND A CHORD LENGTH OF 74.52'; THENCE N02°50'56"E 139.88'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 161.85', A RADIUS OF 250.00', A CHORD BEARING OF N15°41'53"W AND A CHORD LENGTH OF 159.04'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 105.25', A RADIUS OF 265.00', A CHORD BEARING OF N22°52'01"W AND A CHORD LENGTH OF 104.56'; THENCE N11°29'21"W 159.50'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 158.98', A RADIUS OF 125.00', A CHORD BEARING OF N47°55'27"W AND A CHORD LENGTH OF 148.48'; THENCE ALONG THE ARC OF A COMPOUND CURVE TO THE LEFT HAVING AN ARC LENGTH OF 149.93', A RADIUS OF 285.00', A CHORD BEARING OF S80°34'09"W AND A CHORD LENGTH OF 148.21'; THENCE ALONG THE ARC OF A COMPOUND CURVE TO THE LEFT HAVING AN ARC LENGTH OF 186.21', A RADIUS OF 485.00', A CHORD BEARING OF S54°29'56"W AND A CHORD LENGTH OF 185.07'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 123.57', A RADIUS OF 615.00', A CHORD BEARING OF S49°15'20"W AND A CHORD LENGTH OF 123.36'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE LEFT HAVING AN ARC LENGTH OF 158.78', A RADIUS OF 985.00', A CHORD BEARING OF S50°23'37"W AND A CHORD LENGTH OF 158.61'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 112.16', A RADIUS OF 265.00', A CHORD BEARING OF S57°54'02"W AND A CHORD LENGTH OF 111.32'; THENCE S70°01'32"W 34.96' TO A POINT IN THE EAST RIGHT-OF-WAY LINE OF KY STATE HIGHWAY 15 PER COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAY PLANS PROJECT NO. SP 119-503 & SP 13-237; THENCE ALONG SAID EAST RIGHT-OF-WAY LINE, N56°42'55"W 12.52' TO A POINT 120.00' LEFT OF CENTERLINE STATION 562+00.00; THENCE CONTINUING ALONG SAID RIGHT-OF-WAY LINE, N21°43'24"W 19.97'; THENCE LEAVING SAID RIGHT-OF-WAY LINE, TRAVERSING ACROSS THE LAND OF LARRY T. HENSON & DARRELL MILLER AFOREMENTIONED, N70°01'32"E 43.06'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 99.46', A RADIUS OF 235.00', A CHORD BEARING OF N57°54'02"E AND A CHORD LENGTH OF 98.72'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 163.62', A RADIUS OF 1015.00', A CHORD BEARING OF N50°23'37"E AND A CHORD LENGTH OF 163.44'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE LEFT HAVING AN ARC LENGTH OF 117.54', A RADIUS OF 585.00', A CHORD BEARING OF N49°15'20"E AND A CHORD LENGTH OF 117.34'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 197.73', A RADIUS OF 515.00', A CHORD BEARING OF N54°29'56"E AND A CHORD LENGTH OF 196.52'; THENCE ALONG THE ARC OF A COMPOUND CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 165.72', A RADIUS OF 315.00', A CHORD BEARING OF N80°34'09"E AND A CHORD LENGTH OF 163.81'; THENCE ALONG THE ARC OF A COMPOUND CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 197.13', A RADIUS OF 155.00', A CHORD BEARING OF S47°55'27"E AND A CHORD LENGTH OF 184.11'; THENCE S11°29'21"E 159.50'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 93.33', A RADIUS OF 235.00', A CHORD BEARING OF S22°52'01"E AND A CHORD LENGTH OF 92.72'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 181.28', A RADIUS OF 280.00', A CHORD BEARING OF S15°41'53"E AND A CHORD LENGTH OF 178.13'; THENCE S02°50'56"W 139.88'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 22.79', A RADIUS OF 7.26', A CHORD BEARING OF S87°03'59"E AND A CHORD LENGTH OF 14.52'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 183.57', A RADIUS OF 1015.00', A CHORD BEARING OF N08°11'56"E AND A CHORD LENGTH OF 183.32'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE LEFT HAVING AN ARC LENGTH OF 165.73', A RADIUS OF 1485.00', A CHORD BEARING OF N10°10'58"E AND A CHORD LENGTH OF 165.64'; THENCE ALONG THE ARC OF A REVERSE CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 58.40', A RADIUS OF 265.00', A CHORD BEARING OF N13°17'55"E AND A CHORD LENGTH OF 58.28'; THENCE N19°36'42"E 58.49'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 41.37', A RADIUS OF 235.00', A CHORD BEARING OF N14°34'05"E AND A CHORD LENGTH OF 41.32'; THENCE N09°31'28"E 73.03'; THENCE ALONG THE ARC OF A CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 235.79', A RADIUS OF 315.00', A CHORD BEARING OF N30°58'06"E AND A CHORD LENGTH OF 230.32'; THENCE N52°24'44"E 100.71'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 11.72', A RADIUS OF 35.00', A CHORD BEARING OF N42°49'04"E AND A CHORD LENGTH OF 11.67'; THENCE N33°13'24"E 51.05' TO THE POINT OF BEGINNING CONTAINING 76,864.313 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED JUNE 17, 2019.

VARAIABLE WIDTH UTILITY EASEMENT

THE FOLLOWING IS A DESCRIPTION OF THE VARIABLE WIDTH UTILITY EASEMENT TO BE GRANTED, BEING A PART OF TRACT #1 AS DESCRIBED IN THE DEED CONVEYED TO LARRY T. HENSON AND DARRELL MILLER AS RECORDED IN DEED BOOK 171, PAGE 594, PARCEL ID: 050-00-00-001.00, RECORDS OF THE BREATHITT COUNTY, KENTUCKY CLERKS OFFICE, 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 JUNE 17, 2019.

COMMENCING AT A FOUND 1/2" REBAR WITH NO CAP ON THE BREATHITT AND WOLFE COUNTY LINE, BEING THE POINT OF BEGINNING OF THE PARCEL CONVEYED TO MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AS DESCRIBED IN DEED BOOK 187, PAGE 309 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK, SAID POINT ALSO BEING BEING A COMMON CORNER OF THE PROPERTY CONVEYED TO COLIN HALCOMB AS RECORDED IN DEED BOOK 87, PAGE 61, OF RECORD IN THE OFFICE OF THE WOLFE COUNTY, KENTUCKY CLERK, FOR REFERENCE, SAID POINT OF COMMENCEMENT IS S89°54'04"E 69.64' FROM A FOUND 1/2" REBAR WITH NO CAP IN THE CORNER OF THE PROPERTY CONVEYED TO LARRY T. HENSON AND DARRELL MILLER AS RECORDED IN DEED BOOK 171, PAGE 594 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK, BEING THE NORTHWEST CORNER OF THE PARCEL CONVEYED TO MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AS DESCRIBED IN DEED BOOK 187, PAGE 309 OF RECORD IN THE OFFICE OF THE BREATHITT COUNTY, KENTUCKY CLERK AND BEING A CORNER OF SAID HALCOMB PROPERTY AS RECORDED IN DEED BOOK 87, PAGE 61, OF RECORD IN THE OFFICE OF THE WOLFE COUNTY, KENTUCKY CLERK AND N88°08'46"E 84.73', ALSO FOR REFERENCE, SAID POINT OF COMMENCEMENT IS S17°33'48"W 61.32' FROM A FOUND 1/2" REBAR WITH NO CAP IN THE COMMON LINE OF SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP AND SAID HALCOMB; THENCE LEAVING SAID COMMON LINE, TRAVERSING ACROSS SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP PROPERTY, S83°00'33"E 81.47' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136", HEREAFTER REFERRED TO AS A "SET IPC", IN THE EAST LINE OF SAID MOUNTAINEER CELLULAR GENERAL PARTNERSHIP; THENCE LEAVING SAID EAST LINE, ALONG THE WEST LINE OF FEE PURCHASE PARCEL, S32°37'47"E 115.14' TO THE TRUE POINT OF BEGINNING OF THE VARIABLE WIDTH UTILITY EASEMENT; THENCE CONTINUING, S32°37'47"E 32.88' TO THE NORTH LINE OF THE 30' ACCESS AND UTILITY EASEMENT; THENCE LEAVING THE WEST LINE OF FEE PURCHASE PARCEL, S33°13'24"W 51.05'; THENCE ALONG THE ARC OF A CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 11.72', A RADIUS OF 35.00', A CHORD BEARING OF S42°49'04"W AND A CHORD LENGTH OF 11.67'; THENCE S52°24'44"E 100.71'; THENCE ALONG THE ARC OF A CURVE TO THE LEFT HAVING AN ARC LENGTH OF 87.06', A RADIUS OF 315.00', A CHORD BEARING OF S44°29'41"W AND A CHORD LENGTH OF 86.78'; THENCE LEAVING THE NORTH LINE OF THE 30' ACCESS AND UTILITY EASEMENT, S52°54'03"W 5.39'; THENCE N69°11'02"W 290.33'; THENCE N20°48'58"E 60.00'; THENCE S69°11'02"E 257.13'; THENCE N52°54'03"E 220.43' TO THE POINT OF BEGINNING CONTAINING 27,181.728 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED JUNE 17, 2019.

PREPARED BY:



PREPARED FOR:

SURVEY

REV.	DATE	DESCRIPTION
A	7.23.19	PRELIMINARY ISSUE
B	8.12.19	UTILITY EASEMENT
0	9.5.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY
KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

TAX PARCEL NUMBER:
050-00-00-001.00

TITLE HOLDER:
LARRY T HENSON &
DARRELL MILLER
710 LAKESIDE DRIVE
JACKSON, KY 41339

SOURCE OF TITLE:
DEED BOOK 171 , PAGE 594

SITE NUMBER:
US-KY-5052

POD NUMBER: 18-27345

DRAWN BY: JRS
CHECKED BY: MEP
SURVEY DATE: 6.17.19
PLAT DATE: 7.22.19

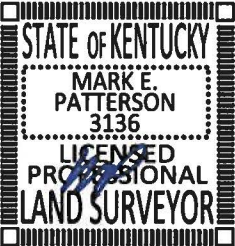
SHEET TITLE:

BOUNDARY
SURVEY

PLAT REPRESENTS A PARTIAL
BOUNDARY SURVEY OF THE
PARENT PARCEL AND COMPLIES
WITH 201 KAR 18:150

SHEET NUMBER: (9 pages)

B-1.7



Max Patterson
MARK E. PATTERSON, PLS #3136

9/6/2019

DATE

TITLE OF COMMITMENT

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 STEWART TITLE GUARANTY COMPANY, FILE NO. 190018KY, DATED AUGUST 1, 2016. THE FOLLOWING COMMENTS ARE IN REGARD TO SAID COMMITMENT AND THE NUMBERS IN THE COMMENTS CORRESPOND TO THE NUMBERING SYSTEM IN SAID COMMITMENT.

POD GROUP, LLC HAS RECEIVED AND REVIEWED THE TITLE COMMITMENT PREPARED BY STEWART GUARANTY COMPANY, DATED EFFECTIVE JUNE 7, 2019 AT 8:00 AM, BEING FILE NO. 190018KY FOR THE PARENT PARCEL, TO DETERMINE THE IMPACTS OF EXISTING TITLE EXCEPTIONS

SCHEDULE B - SECTION II

1. DEFECTS, LIENS, ENCUMBRANCES, ADVERSE CLAIMS OR OTHER MATTERS, IF ANY, CREATED, FIRST APPEARING IN THE PUBLIC RECORDS OR ATTACHING SUBSEQUENT TO THE EFFECTIVE DATE BUT PRIOR TO THE DATE THE PROPOSED INSURED ACQUIRES FOR VALUE OF RECORD THE ESTATE OR INTEREST OR MORTGAGE THEREON COVERED BY THE COMMITMENT. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
2. FACTS WHICH WOULD BE DISCLOSED BY AN ACCURATE AND COMPREHENSIVE SURVEY OF THE PREMISES HEREIN DESCRIBED. (POD GROUP, LLC PERFORMED A PARTIAL BOUNDARY SURVEY OF THE PARENT PARCEL AND NO ENCROACHMENTS, ENCUMBRANCES, VIOLATIONS, VARIATIONS OR ADVERSE CIRCUMSTANCES WERE DISCOVERED WITHIN THE CONFINES OF THE PARTIAL BOUNDARY SURVEY COMPLETED ON JUNE 17, 2019.)
3. RIGHTS OR CLAIMS OF PARTIES IN POSSESSION. (RIGHTS OR CLAIMS ARE NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
4. CONSTRUCTION, MECHANIC'S, CONTRACTORS' OR MATERIALMEN'S LIEN CLAIMS, IF ANY, WHERE NO NOTICE THEREOF APPEARS OF RECORD. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
5. EASEMENTS OR CLAIMS OF EASEMENTS NOT SHOWN BY THE PUBLIC RECORDS. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
6. ANY ADVERSE OWNERSHIP CLAIM BY THE STATE OF KY BY RIGHT OF SOVEREIGNTY TO ANY PORTION OF THE LANDS INSURED HEREUNDER, INCLUDING SUBMERGED, FILLED AND ARTIFICIALLY EXPOSED LANDS AND LANDS ACCREDITED TO SUCH LANDS. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
7. STATE ROAD RIGHT RESERVATION(S), IF ANY. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
8. OIL, GAS AND MINERAL RIGHT RESERVATIONS, IF ANY. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
9. ANY LIEN ARISING, IN FAVOR OF ANY CITY, TOWN, VILLAGE OR PORT AUTHORITY FOR UNPAID SERVICE CHARGES FOR SERVICE BY ANY WATER SYSTEM, SEWER SYSTEM OR GAS SYSTEM SERVICING THE LANDS DESCRIBED HEREIN. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
10. LANDS LIE WITHIN VARIOUS COUNTY SPECIAL ASSESSMENT DISTRICTS AND MUNICIPAL TAXING DISTRICTS AND ARE SUBJECT TO LIENS FOR ANY UNPAID SPECIAL ASSESSMENTS BY VIRTUE OF THE ORDINANCES AND RESOLUTIONS CREATING THESE DISTRICTS. THE SPECIAL ASSESSMENTS ARE PAYABLE WITH THE AD VALOREM TAXES. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
11. COVENANTS, CONDITIONS, RESTRICTIONS, EASEMENTS AND RESERVATIONS OR LEASES OF MINERALS OR MINERAL RIGHTS, IF ANY, APPEARING OF PUBLIC RECORD. THIS POLICY INSURES THAT THE USE OF THE LAND FOR RESIDENTIAL ONE TO FOUR FAMILY DWELLING PURPOSES IS NOT AFFECTED OR IMPAIRED BY REASON OF THE AFOREMENTIONED MATTERS. (NOT A LAND SURVEYING MATTER, THEREFORE POWER OF DESIGN GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
12. SUBJECT TO TIMBER CONTACT BETWEEN LARRY T HENSON AND KATHY HENSON; AND DARRELL MILLER AND BRENDA MILLER (SELLER) TO FREDERICK AND LEWIS TIMBER AND EQUIPMENT COMPANY, INC (PURCHASER) DATED JULY 9, 1993 AND FILED ON JULY 19, 1993 IN (BOOK) 27, (PAGE) 261, OF THE OFFICIAL PROPERTY RECORDS OF BREATHITT COUNTY, KENTUCKY (TIMBER CONTRACT IN BOOK 27, PAGE 261 EXPIRED 3 YEARS AFTER THE DATE OF THE CONTRACT, THEREFORE, IT NO LONGER AFFECTS THE PARENT PARCEL, THE FEE PURCHASE PARCEL, THE 30' ACCESS & UTILITY EASEMENT AND THE VARIABLE WIDTH UTILITY EASEMENT.)

LEGAL DESCRIPTIONS

PARENT PARCEL, LEGAL DESCRIPTION (NOT FIELD SURVEYED) DEED BOOK 171, PAGE 594

BEING TWO TRACTS OF LAND CONTAINING 215 ACRES, MORE OR LESS, LOCATED IN BREATHITT COUNTY, KENTUCKY, AND DESCRIBED AS FOLLOWS:

TRACT NO. 1: BEGINNING AT A STAKE IN THE NORTH RIGHT OF WAY LINE OF STATE HIGHWAY #15, SAID STAKE BEING IN THE CENTER OF BANKS BRANCH; THENCE UP SAID BRANCH N 32 E 35 FEET TO A STAKE; THENCE LEAVING THE BRANCH AND RUNNING UP THE HILL, N 16 W 160 FEET TO A BLACK OAK ON THE POINT; THENCE UP THE POINT N 34 E 200 FEET, N 29 E 217 FEET, N 37 E 115 FEET, N 42 E 150 FEET, N 32 E 157 FEET, N 54 E 131 FEET, N 53 E 167 FEET, N 89 E 90 FEET AND N 60 E 257 FEET TO A STAKE ON TOP OF THE RIDGE; THENCE WITH THE CENTER OF THE RIDGE N 22 W 85 FEET, N 16 W 175 FEET, N 24 W 135 FEET, N 48 W 114 FEET, N 50 100 FEET, N 22 W 100 FEET, N 22 E 268 FEET AND N 25 E 133 FEET TO A HICKORY ON A KNOB; THENCE N 25 W 100 FEET, N 31 W 135 FEET, N 29 W 152 FEET, N 12 E 130 FEET, N 14 E 100 FEET, N 15 E 220 FEET, N 12 E 147 FEET, N 36 W 90 FEET, N 62 W 205 FEET, N 59-30 W 160 FEET, N 51 W 143 FEET AND N 29-30 W 182 FEET TO A BLACK GUM; THENCE N 74 W 80 FEET, N 76 W 136 FEET, N 62 W 337 FEET, N 82 W 37 FEET, S 72 W 215 FEET, S 56 W 54 FEET, S 38 W 72 FEET, S 6 W 90 FEET, S 1-30 W 141 FEET, S 1 E 336 FEET, S 11-30 W 275 FEET, S 5 E 100 FEET AND S 24 W 82 FEET TO A STAKE ON A KNOB; THENCE S 89-30 W 327 FEET AND N 65-30 W 188 FEET TO A BLACK OAK; THENCE S 43 W 60 FEET, S 63 W 250 FEET, N 73 W 275 FEET N 85 W 185 FEET AND S 87-30 W 200 FEET TO A STAKE AT A ROCK CUT AT THE WOLFE AND BREATHITT COUNTY LINE, SAID STAKE BEING IN THE NORTH RIGHT OF WAY LINE OF STATE HIGHWAY #15; THENCE WITH SAID RIGHT OF WAY LINE S 39 E 50 FEET, S 28 E 87 FEET, S 17-30 E 355 FEET, S 20 E 280 FEET, S 52 E 129 FEET, S 19 E 400 FEET, S 10 W 116 FEET, S 17 E 285 FEET, S 32 E 322 FEET, S 43 E 236 FEET, S 44 E 380 FEET, N 85 E 185 FEET, S 66 E 420 FEET, S 62 E 275 FEET; THENCE SAME COURSE CONTINUED S 62 E 40 FEET, S 38 E 430 FEET AND S 32 E 80 FEET TO THE PLACE OF BEGINNING, CONTAINING APPROXIMATELY 175 ACRES AS SHOWN BY SURVEY AND PLAT BY WILLIAM D STEELE, REGISTERED LAND SURVEYOR, DATED 3/31/70.

TRACT NO. 2: BEGINNING AT A STAKE IN BANKS' BRANCH ON THE NORTH SIDE OF KENTUCKY HIGHWAY #15 AND RUNNING UP SAID BRANCH, N 35 E 35 FEET TO A STAKE; THENCE RUNNING N 16 W 160 FEET; N 34 E 200 FEET; N 29 E 217 FEET; N 37 E 115 FEET, N 42 E 150 FEET; N 32 E 157 FEET; N 54 E 131 FEET; N 53 E 167 FEET; N 89 E 90 FEET; AND N 60 E 257 FEET TO A STAKE ON TOP OF THE RIDGE; THENCE S 67 E 161 FEET; S 57-30 E 280 FEET; S 51 E 171 FEET; AND S 36-30 E 53 FEET TO A STAKE; THENCE S 13-30 W 160 FEET; S 8 W 108 FEET; S 2 W 180 FEET; S 18 W 305 FEET; AND S 10 W 353 FEET TO A HICKORY; THENCE N 89 W 162 FEET; S 85 W 200 FEET AND WEST 120 FEET TO A BLACK OAK; THENCE N 49 W 190 FEET; N 59 W 95 FEET; N 89 W 130 FEET; N 85 W 90 FEET; N 81 W 110 FEET; N 81 W 120 FEET; S 89 W 100 FEET; NORTH 19 FEET, AND N 54 W 80 FEET TO THE PLACE OF BEGINNING, CONTAINING APPROXIMATELY FORTY (40) ACRES, MORE OR LESS.

LESS AND EXCEPT (BOOK 187, PAGE 309)

A TRACT OR LAND LYING AND BEING IN BREATHITT COUNTY, KENTUCKY, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING ON A #4 REBAR ON TOP OF A HIGH KNOB IN THE HEAD OF FROZEN CREEK ON THE WOLFE, BREATHITT COUNTY LINE, EAST ON ROUTE 15, LATITUDE IS 37 39 04 AND THE LONGITUDE IS 83 26 20, AND BEING A CORNER TO COLIN AND SHIRLEY HALCOMB, WITNESS A #4 REBAR ON THE CENTER OF THE RIDGE SW 10 42 05, 75.55 FEET; THENCE WITH THE COUNTY LINE AND THE HALCOMB LINE ALONG THE CENTER OF THE RIDGE NE 23 00 00, 61.48 FEET TO A #4 REBAR; THENCE NE 40 32 45, 40.42 FEET TO A #4 REBAR AT THE BASE OF THE TWELVE INCH HICKORY; THENCE DOWN THE HILL SE 73 41 11, 78.42 FEET; THENCE AROUND THE SIDE OF THE HILL SW 40 32 45, 50.00 FEET; THENCE SW 16 45 41, 112.04 FEET; THENCE SW 62 42 27, 94.59 FEET; THENCE NW 81 42 22, 142.97 FEET; THENCE UP THE HILL NE 05 26 10, 115.00 FEET TO A #4 REBAR AT THE BASE OF A THIRTY INCH CHESTNUT OAK ON TOP OF THE RIDGE AT THE HALCOMB LINE, WITNESS A #4 REBAR ON THE CENTER OF THE RIDGE NW 89 46 25, 102.67 FEET; THENCE WITH HALCOMB'S LINE AND THE CENTER OF THE RIDGE SE 84 33 50, 69.64 FEET TO A #4 REBAR; THENCE SE 86 31 00, 84.73 FEET TO THE BEGINNING, CONTAINING 0.75 ACRES.

LESS AND EXCEPT (BOOK 130, PAGE 197)

A CERTAIN TRACT OR PARCEL OF LAND LYING AND BEING IN BREATHITT COUNTY, KENTUCKY, ON HIGHWAY 15 NEAR THE BREATHITT COUNTY WOLFE COUNTY LINE, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS, TO-WIT:BEGINNING AT THE TOWER ROAD AT A SET SURVEY MARKER; THENCE N 59 DEGREES 40 MIN 51 SEC E 220 FEET TO A SURVEY MARKER FORMING A CORNER; THENCE S 348 DEGREES 18 MIN 00 SEC W 190 FEET TO A SURVEY MARKER FORMING A CORNER; THENCE S 242 DEGREES 16 MIN 20 SEC W 220 FEET TO A SURVEY MARKER FORMING A CORNER; THENCE 155 DEGREES 18 MIN 233 SEC E 190 FEET TO A SURVEY MARKER FORMING A CORNER AND BEING THE MARKER CONSTITUTING THE BEGINNING. CONTAINING ONE ACRE MORE OR LESS.

TAX PARCEL NOS. 050-00-00-001.00

CERTIFICATE OF ACCURACY (SURVEYOR'S CERTIFICATE)

I HEREBY CERTIFY TO: VERTICAL BRIDGE REIT, LLC A DELAWARE LIMITED LIABILITY COMPANY, ITS SUBSIDIARIES, AND THEIR RESPECTIVE SUCCESSORS AND/OR ASSIGNS; TORONTO DOMINION (TEXAS LLC, AS ADMINISTRATIVE AGENT, FOR ITSELF AND ON BEHALF OF THE LENDERS PARTIES FROM TIME TO THAT CERTAIN SECOND AMENDED AND RESTATED LOAN AGREEMENT DATED JUNE 17, 2016 WITH VERTICAL BRIDGE HOLDCO, LLC, AS BORROWER, AND VERTICAL BRIDGE HOLDCO PARENT, LLC, AS PARENT, AS MAY BE AMENDED, RESTATED, MODIFIED OR RENEWED, THEIR SUCCESSORS AND ASSIGNS AS THEIR INTERESTS MAY APPEAR; AND STEWART TITLE GUARANTY COMPANY.

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 "URBAN" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATIONS AS STATED IN KAR 201 18:150.


MARK E. PATTERSON, PLS #3136

9/6/2019

DATE

PREPARED BY:



PREPARED FOR:



SURVEY

REV.	DATE	DESCRIPTION
A	7.23.19	PRELIMINARY ISSUE
B	8.12.19	UTILITY EASEMENT
0	9.5.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY
KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

TAX PARCEL NUMBER:
050-00-00-001.00

TITLE HOLDER:
LARRY T HENSON &
DARRELL MILLER
710 LAKESIDE DRIVE
JACKSON, KY 41339

SOURCE OF TITLE:
DEED BOOK 171 , PAGE 594

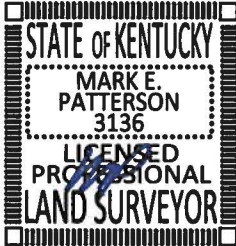
SITE NUMBER:
US-KY-5052

POD NUMBER:	18-27345
DRAWN BY:	JRS
CHECKED BY:	MEP
SURVEY DATE:	6.17.19
PLAT DATE:	7.22.19

SHEET TITLE:
BOUNDARY
SURVEY
PLAT REPRESENTS A PARTIAL
BOUNDARY SURVEY OF THE
PARENT PARCEL AND COMPLIES
WITH 201 KAR 18:150

SHEET NUMBER: (9 pages)

B-1.8



NOTES:

THE CONTRACTOR MUST PROVIDE CLOSE-OUT DOCUMENTS AT THE FINAL INSPECTION WALK BEFORE PAYMENTS WILL BE MADE.

GENERAL REQUIREMENTS:

1.

THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS. ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY. SPECIFICATIONS AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES.
2.

THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS, THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND/OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3.

THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) VERTICAL BRIDGE'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
4.

THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5.

THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK AND FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT.
6.

THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT.
7.

THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS OTHERWISE NOTED OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8.

THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE, UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9.

THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
11.

THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC., DURING SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
12.

THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS/RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY.
13.

THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE APPLICABLE BUILDING CODES AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
14.

THE CONTRACTOR SHALL NOTIFY VERTICAL BRIDGE'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL THAT CONFLICT IS RESOLVED BY VERTICAL BRIDGE'S REPRESENTATIVE.
15.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS.
16.

THE CONTRACTOR SHALL NOTIFY THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO COORDINATING SITE SWEEPING.
17.

THE CONTRACTOR SHALL SUBMIT, AT THE END OF THE PROJECT, A COMPLETE SET OF AS-BUILT DRAWINGS TO VERTICAL BRIDGE'S PROJECT MANAGER.

SITE WORK AND DRAINAGE

EARTHWORK, EXCAVATION AND GRADING

PART 1 GENERAL

- 1.01

WORK INCLUDED: REFER TO SURVEY AND SITE PLAN FOR WORK INCLUDED.
- 1.02

RELATED WORK

A.

CONSTRUCTION OF EQUIPMENT FOUNDATIONS

B.

INSTALLATION OF ANTENNA SYSTEM

C.

SITE PREPARATION
- 1.03

DESCRIPTIONS

A.

ACCESS ROAD, TURNAROUND AREAS AND SITES ARE CONSTRUCTED TO PROVIDE A WELL DRAINED, EASILY MAINTAINED, EVEN SURFACE FOR MATERIAL AND EQUIPMENT DELIVERIES AND MAINTENANCE PERSONNEL ACCESS.
- 1.04

QUALITY ASSURANCE

A.

APPLY SOIL STERILIZER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION (USE AS NEEDED)

B.

VEGETATION LANDSCAPING, IF INCLUDED WITHIN THE CONTRACT WILL BE PLACED AND MAINTAINED AS RECOMMENDED BY NURSERY INDUSTRY STANDARDS.
- 1.05

SEQUENCING

A.

CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND CONSTRUCTION STAKING.

B.

GRUB THE COMPLETE ROAD AND SITE AREA PRIOR TO FOUNDATION CONSTRUCTION OR PLACEMENT OF BACK FILL OR SUB-BASE MATERIAL.

C.

CONSTRUCT TEMPORARY CONSTRUCTION ZONE ALONG ACCESS DRIVE.

D.

THE SITE AREA WILL BE BROUGHT TO SUB-BASE COURSE ELEVATION AND THE ACCESS ROAD TO BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS.

E.

APPLY SILT STERILIZER PRIOR TO PLACING BASE MATERIALS.

F.

IF REQUIRED, GRADE, SEED, FERTILIZE AND MULCH DISTURBED AREAS IMMEDIATELY AFTER BRINGING THE SITE AND ACCESS ROAD TO BASE ELEVATION. WATER TO ENSURE GROWTH.

G.

REMOVE EXCESS GRAVEL FROM TEMPORARY CONSTRUCTION ZONE.

H.

AFTER APPLICATIONS OF FINAL SURFACES, APPLY SOIL STERILIZER TO THE STONE SURFACES.
- 1.06

SUBMITTALS

A.

BEFORE CONSTRUCTION

1.

IF LANDSCAPING IS APPLICABLE TO THE CONTRACT, SUBMIT TWO COPIES OF THE LANDSCAPING PLAN UNDER NURSERY LETTERHEAD. IF A LANDSCAPE ALLOWANCE IS INCLUDED IN THE CONTRACT, PROVIDE AN ITEMIZED LISTING OF PROPOSED COSTS UNDER NURSERY LETTERHEAD (REFER TO SITE PLAN FOR LANDSCAPING REQUIREMENT).

2.

SUBMIT FOR APPROVAL, 1/2 CUBIC FOOT OF THE PROPOSED SURFACE COURSE MATERIAL.

3.

LANDSCAPING WARRANTY STATEMENT, IF REQUIRED.

PART 2 PRODUCTS

- 2.01

MATERIALS

A.

ROAD AND SITE MATERIALS: FILL MATERIAL SHALL BE ACCEPTABLE, SELECT FILL AND SHALL BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS.

B.

SOIL STERILIZER SHALL BE EPA REGISTERED OF LIQUID COMPOSITION AND OF PRE-EMERGENCE DESIGN.

C.

SOIL STABILIZER FABRIC SHALL BE MIRAFI OR EQUAL - 500% AT ACCESS ROAD AND SOAK AT COMPOUND.

D.

GRAVEL FILL: WELL GRADED, HARD, DURABLE, NATURAL SAND AND GRAVEL, FREE FROM ICE AND SNOW, ROOTS, SOD RUBBISH, AND OTHER DELETERIOUS OR ORGANIC MATTER. MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION REQUIREMENTS:
- | U.S. SIEVE NO. | PASSING BY WEIGHT |
|----------------|-------------------|
| 4" | 100 |
| 1/2" | 50-85 |
| #4 | 40-75 |
| #10 | 30-60 |
| #40 | 10-30 |
| #100 | 5-20 |
| #200 | 0-5 |

GRAVEL FILL TO BE PLACED IN LIFTS OF 9" MAXIMUM THICKNESS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

2.02

EQUIPMENT

A.

COMPACTION SHALL BE ACCOMPLISHED BY MECHANICAL MEANS. LARGER AREAS SHALL BE COMPACTED BY SHEEP'S FOOT, VIBRATORY OR RUBBER TIED ROLLERS WEIGHING AT LEAST 5 TONS. SMALLER AREAS SHALL BE COMPACTED BY POWER-DRIVER, HAND-HELD TAMPER.

B.

PRIOR TO OTHER EXCAVATION AND CONSTRUCTION EFFORTS, GRUB ORGANIC MATERIAL TO A MINIMUM OF 6" BELOW ORIGINAL GROUND LEVEL.

C.

UNLESS OTHERWISE INSTRUCTED BY VERTICAL BRIDGE, REMOVE TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED DISPOSAL LOCATION.

D.

PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.

E.

WHERE UNSTABLE CONDITIONS ARE ENCOUNTERED, LINE THE RUBBED AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.

PART 3 EXECUTION

- 3.03

INSTALLATION

A.

THE SITE AND TURNAROUND SHALL BE AT THE SUB-BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS. GRADE OR FILL THE SITE AND ACCESS ROAD AS REQUIRED TO PRODUCE EVEN DISTRIBUTION OF SPOILS RESULTING FROM FOUNDATION EXCAVATIONS. THE RESULTING GRADE SHALL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM FINISHED GRADES OR SLOPES INDICATED.

B.

CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF VERTICAL BRIDGE'S LEASE PROPERTY UNLESS AUTHORIZED BY PROJECT MANAGER.

C.

THE ACCESS ROAD SHALL BE BROUGHT TO BASE COURSE ELEVATION PRIOR TO FOUNDATION CONSTRUCTION.

- D.

DO NOT CREATE DEPRESSIONS WHERE WATER MAY POND.
- E.

THE CONTRACT INCLUDES ALL NECESSARY GRADING, BANKING, DITCHING AND COMPLETE SURFACE COURSE FOR ACCESS ROAD. ALL ROADS OR ROUTES UTILIZED FOR ACCESS TO PUBLIC THOROUGHFARE ARE INCLUDED SCOPE OF WORK UNLESS OTHERWISE INDICATED.
- F.

WHEN IMPROVING AN EXISTING ACCESS ROAD, GRADE THE EXISTING ROAD TO REMOVE ANY ORGANIC MATTER AND THEN SMOOTH SURFACE BEFORE PLACING FILL OR STONE.
- G.

PLACE FILL OR STONE IN 3" MAXIMUM LIFTS AND COMPACT BEFORE PLACING NEXT LIFT.
- H.

THE FINISH GRADE, INCLUDING TOP SURFACE COURSE SHALL EXTEND A MINIMUM OF 12" BEYOND THE SITE FENCE AND SHALL COVER THE AREA AS INDICATED.
- I.

RIPRAP SHALL BE APPLIED TO THE SIDE SLOPES OF ALL FENCED AREAS, PARKING AREAS AND TO ALL OTHER SLOPES GREATER THAN 2:1.
- J.

RIPRAP SHALL BE APPLIED TO THE SIDES OF DITCHES OR DRAINAGE SWALES AS INDICATED ON PLANS.
- K.

RIPRAP ENTIRE DITCH FOR 6'-0" IN ALL DIRECTIONS AT CULVERT OPENINGS.
- L.

SEED, FERTILIZER AND STRAW COVER SHALL BE APPLIED TO ALL OTHER DISTURBED AREAS AND DITCHES, DRAINAGE SWALES, NOT OTHERWISE RIPRAPPED.
- M.

UNDER NO CIRCUMSTANCES SHALL DITCHES, SWALES OR CULVERTS BE PLACED SO THEY DIRECT WATER TOWARDS OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SITE. IF OWNER DESIGNS OR IF DESIGN ELEVATIONS CONFLICT WITH THIS GUIDANCE, ADVISE THE OWNER IMMEDIATELY.
- N.

IF A DITCH LIES WITH SLOPES GREATER THAN TEN PERCENT, MOUNT DIVERSIONARY HEADWALLS IN THE DITCH FOR 6'-0" ABOVE THE CULVERT ENTRANCE.
- O.

SEED AND FERTILIZER SHALL BE APPLIED TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND TO LOOSEN THE SOIL.
- P.

SOW SEEDS IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
- Q.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS BY WATERING TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

- 3.04

FIELD QUALITY CONTROL

A.

COMPACTION SHALL BE 90% STANDARD PROCTOR DENSITY IN ACCORDANCE WITH ASTM D-1557 FOR SITE WORK AND 95% STANDARD PROCTOR DENSITY UNDER SLAB AREAS. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE.

- 3.05

PROTECTION

A.

PROTECT SEEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1"-2". STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.

B.

ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT SHALL BE WRAPPED/TIED WITH HOSE PROTECTED WIRE AND SECURED TO STAKES EXTENDING 2'-0" INTO THE GROUND ON FOUR SIDES OF THE TREE.

C.

ALL EXPOSED AREAS SHALL BE PROTECTED AGAINST WASHOUTS AND SOIL EROSION. STRAW BALES SHALL BE PLACED AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS.

EROSION AND SEDIMENT CONTROL NOTES:

1.

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF METRO NASHVILLE. STORMWATER MANAGEMENT MANUAL, (LATEST EDITION).
2.

ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP OF CLEARING. ADD MEASURES AS NECESSARY AS DISTURBANCES INCREASE AS PART OF THE PHASED CONSTRUCTION.
3.

A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, ALONG WITH THE APPROVED NOTICE OF INTENT AND STORMWATER POLLUTION PREVENTION PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
4.

PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
5.

THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
6.

ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES FINAL STABILIZATION IS ACHIEVED.
7.

DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
8.

CONSTRUCTION SHALL BE SEQUENCED TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREA. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO EARTH MOVING OPERATIONS. ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY, AND AT MAXIMUM 14 CALENDAR DAYS IN DRY PERIODS AND WITHIN 24 HOURS AFTER ANY RAINFALL EXCEEDING 0.5 INCH WITHIN A 24 HOUR PERIOD.
9.

THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE INDIVIDUAL RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS.
10.

PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE REMOVED MORE THAN 20 CALENDAR DAYS PRIOR TO GRADING. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED FOR MORE THAN 30 CALENDAR DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH OR FABRIC MATS. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 15 CALENDAR DAYS OF FINAL GRADING.
11.

THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION CONTROL INSPECTIONS AND REPAIRS FOR A MINIMUM OF 3 YEARS AFTER CONSTRUCTION COMPLETION.
12.

MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT THE RATE OF 2 TONS/ACRE.
13.

THE CONTRACTOR SHALL REMOVE SEDIMENT FROM TRAPS, SILT FENCES, SEDIMENT PONDS, ETC. AS NECESSARY AND WHEN CAPACITY HAS BEEN REDUCED BY 50%.
14.

STOCKPILES SHALL BE STABILIZED AND PROTECTED FROM EROSION.

PREPARED BY:



POWER OF DESIGN

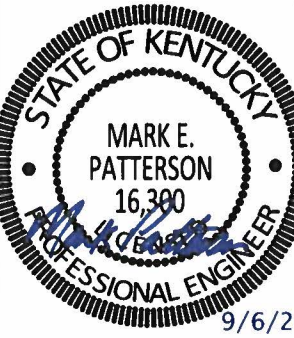
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:



PREPARED FOR:





9/6/2019

EN PERMIT: 3594

CONSTRUCTION DRAWINGS

REV	DATE	DESCRIPTION
A	7.31.19	ISSUED FOR REVIEW
0	9.3.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY

KY HIGHWAY 15
BETHANY, KY 41301

BREATHITT COUNTY

SITE NUMBER:

US-KY-5052

T-MOBILE SITE NUMBER:

9LV3239B

POD NUMBER:

18-27347

DRAWN BY:

KDP

CHECKED BY:

MEP

DATE:

7.31.19

SHEET TITLE:

GENERAL NOTES & SPECIFICATIONS

SHEET NUMBER:

GN-1

NOTE:

CONTRACTOR REQUIRED TO PROVIDE POSITIVE DRAINAGE
"OFF" LEASE AREA.

GRADING NOTES:

1. ALL ELEVATIONS ARE FINISHED GRADE.
2. ENSURE POSITIVE DRAINAGE FROM SITE AT ALL TIMES.
3. PLACE GEOTEXTILE FILTER UNDER COMPOUND.
4. USE MIRAFI (#500X) OR EQUIVALENT.
SLOPES 2:1 OR STEEPER MUST BE LINED WITH GEO FABRIC,
MIRAFI 60 MIL OR EQUIVALENT, AND HEAVY RIP-RAP
STONE PLACED ON TOP OF FABRIC TO STABILIZE SLOPE.
5. ALL AGGREGATE SHALL BE COMPACTED AND PROOF
ROLLED.

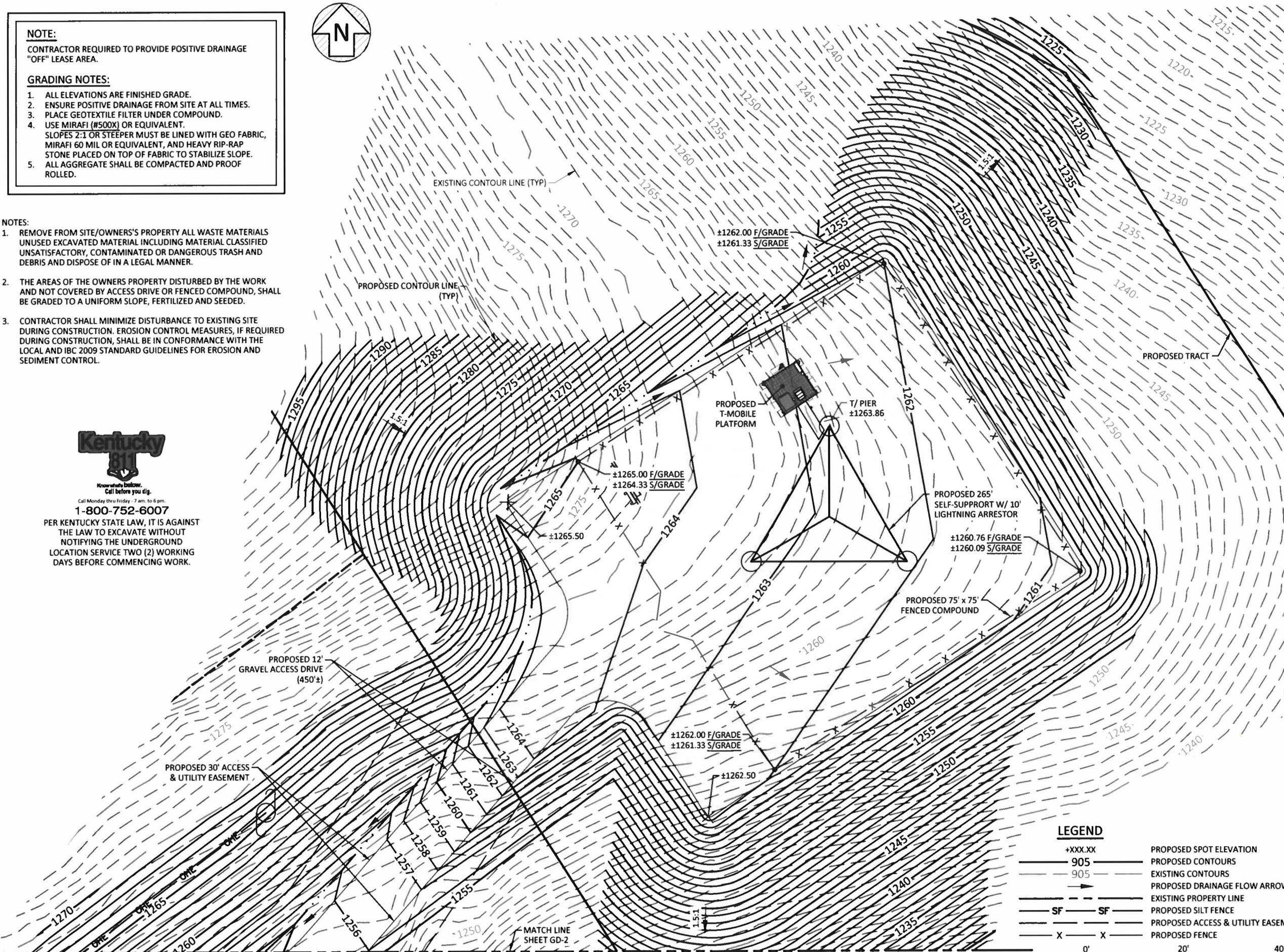
NOTES:

1. REMOVE FROM SITE/OWNERS'S PROPERTY ALL WASTE MATERIALS
UNUSED EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED
UNSATISFACTORY, CONTAMINATED OR DANGEROUS TRASH AND
DEBRIS AND DISPOSE OF IN A LEGAL MANNER.
2. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK
AND NOT COVERED BY ACCESS DRIVE OR FENCED COMPOUND, SHALL
BE GRADED TO A UNIFORM SLOPE, FERTILIZED AND SEEDED.
3. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE
DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED
DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE
LOCAL AND IBC 2009 STANDARD GUIDELINES FOR EROSION AND
SEDIMENT CONTROL.



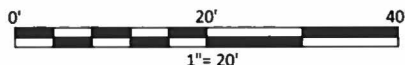
Call Monday thru Friday - 7 am. to 6 pm.
1-800-752-6007

PER KENTUCKY STATE LAW, IT IS AGAINST
THE LAW TO EXCAVATE WITHOUT
NOTIFYING THE UNDERGROUND
LOCATION SERVICE TWO (2) WORKING
DAYS BEFORE COMMENCING WORK.



LEGEND

+xxx.xx	PROPOSED SPOT ELEVATION
905	PROPOSED CONTOURS
905	EXISTING CONTOURS
→	PROPOSED DRAINAGE FLOW ARROWS
---	EXISTING PROPERTY LINE
SF	PROPOSED SILT FENCE
---	PROPOSED ACCESS & UTILITY EASEMENT
X	PROPOSED FENCE



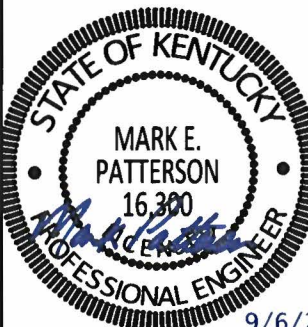
PREPARED BY:



PREPARED FOR:



PREPARED FOR:



EN PERMIT: 3594

**CONSTRUCTION
DRAWINGS**

REV	DATE	DESCRIPTION
A	7.31.19	ISSUED FOR REVIEW
0	9.3.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY
KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

SITE NUMBER:
US-KY-5052

T-MOBILE SITE NUMBER:
9LV3239B

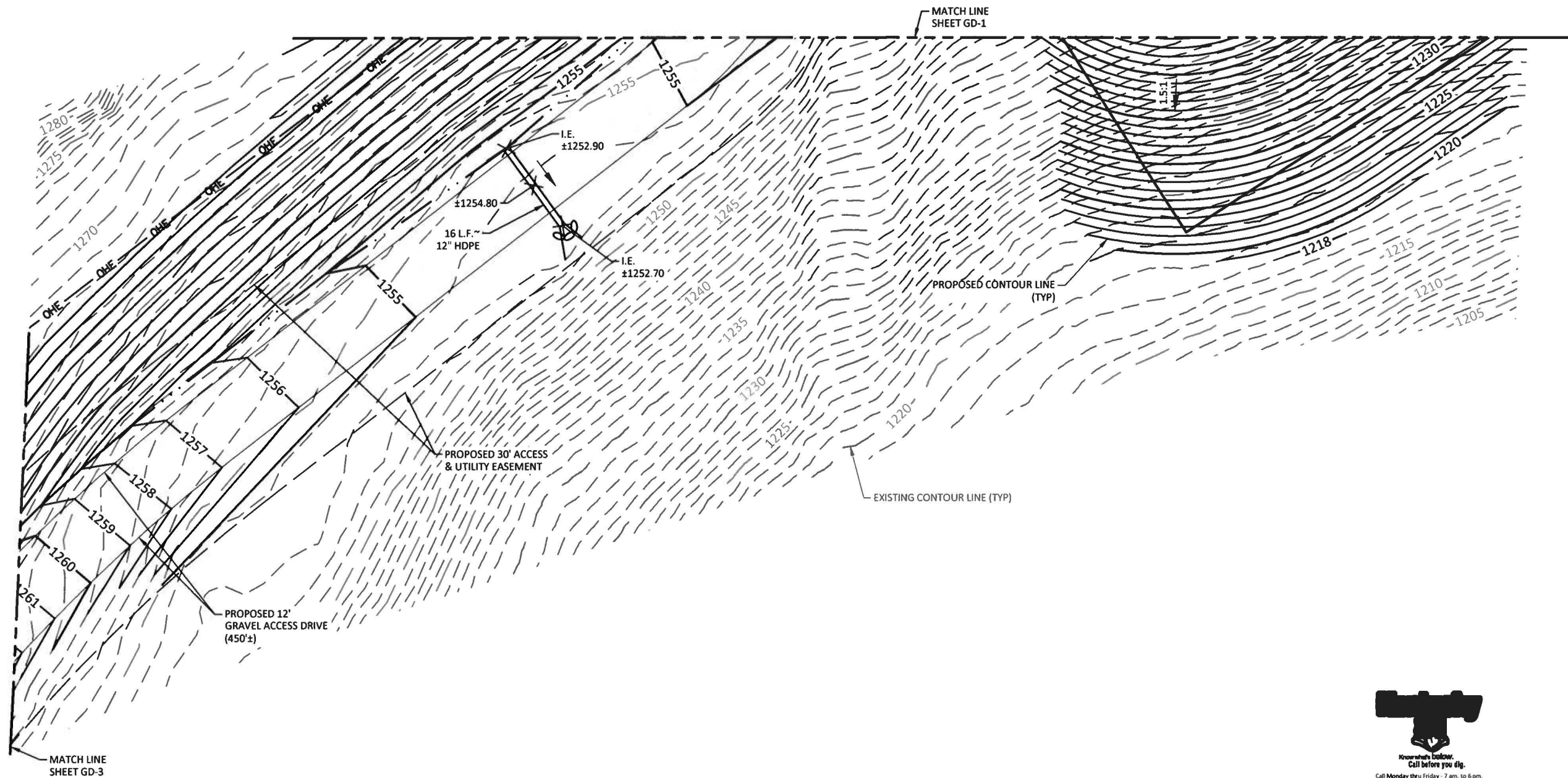
POD NUMBER: 18-27347
DRAWN BY: KDP
CHECKED BY: MEP
DATE: 7.31.19

SHEET TITLE:

**SITE
GRADING
PLAN**

SHEET NUMBER:

GD-1



Call Monday thru Friday : 7 am. to 6 pm.
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PER KENTUCKY STATE LAW, IT IS AGAINST
THE LAW TO EXCAVATE WITHOUT
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LOCATION SERVICE TWO (2) WORKING
DAYS BEFORE COMMENCING WORK.

LEGEND

+XXX.XX	PROPOSED SPOT ELEVATION
905	PROPOSED CONTOURS
905	EXISTING CONTOURS
→	PROPOSED DRAINAGE FLOW ARROWS
---	EXISTING PROPERTY LINE
SF SF	PROPOSED SILT FENCE
---	PROPOSED ACCESS & UTILITY EASEMENT
X X	PROPOSED FENCE

NOTE:
CONTRACTOR REQUIRED TO PROVIDE POSITIVE DRAINAGE
"OFF" LEASE AREA.

GRADING NOTES:

- ALL ELEVATIONS ARE FINISHED GRADE.
- ENSURE POSITIVE DRAINAGE FROM SITE AT ALL TIMES.
- PLACE GEOTEXTILE FILTER UNDER COMPOUND.
- USE MIRAFI (#500X) OR EQUIVALENT.
SLOPES 2:1 OR STEEPER MUST BE LINED WITH GEO FABRIC,
MIRAFI 60 MIL OR EQUIVALENT, AND HEAVY RIP-RAP
STONE PLACED ON TOP OF FABRIC TO STABILIZE SLOPE.
- ALL AGGREGATE SHALL BE COMPACTED AND PROOF
ROLLED.

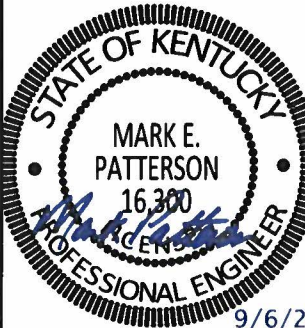
NOTES:

- REMOVE FROM SITE/OWNERS'S PROPERTY ALL WASTE MATERIALS
UNUSED EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED
UNSATISFACTORY, CONTAMINATED OR DANGEROUS TRASH AND
DEBRIS AND DISPOSE OF IN A LEGAL MANNER.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK
AND NOT COVERED BY ACCESS DRIVE OR FENCED COMPOUND, SHALL
BE GRADED TO A UNIFORM SLOPE, FERTILIZED AND SEEDED.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE
DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED
DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE
LOCAL AND IBC 2009 STANDARD GUIDELINES FOR EROSION AND
SEDIMENT CONTROL.

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

PREPARED FOR:
verticalbridge

PREPARED FOR:
T-Mobile



EN PERMIT: 3594

**CONSTRUCTION
DRAWINGS**

REV	DATE	DESCRIPTION
A	7.31.19	ISSUED FOR REVIEW
0	9.3.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY

KY HIGHWAY 15
BETHANY, KY 41301

BREATHITT COUNTY

SITE NUMBER:

US-KY-5052

T-MOBILE SITE NUMBER:

9LV3239B

POD NUMBER: 18-27347

DRAWN BY: KDP

CHECKED BY: MEP

DATE: 7.31.19

SHEET TITLE:

**SITE
GRADING
PLAN**

SHEET NUMBER:

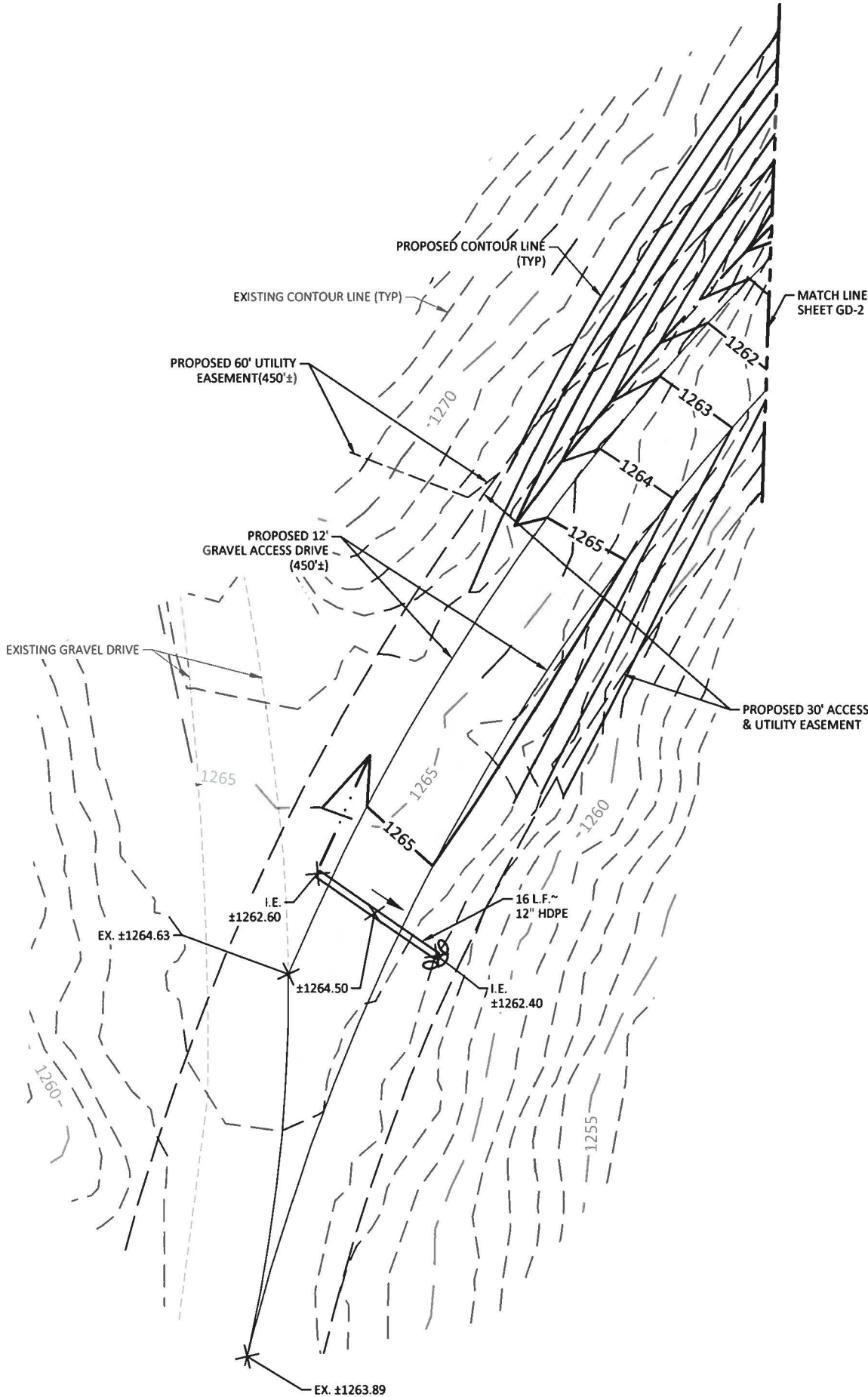
GD-2



NOTE:
CONTRACTOR REQUIRED TO PROVIDE POSITIVE DRAINAGE
"OFF" LEASE AREA.

- GRADING NOTES:**
1. ALL ELEVATIONS ARE FINISHED GRADE.
 2. ENSURE POSITIVE DRAINAGE FROM SITE AT ALL TIMES.
 3. PLACE GEOTEXTILE FILTER UNDER COMPOUND.
 4. USE MIRAFI (#500X) OR EQUIVALENT.
SLOPES 2:1 OR STEEPER MUST BE LINED WITH GEO FABRIC,
MIRAFI 60 MIL OR EQUIVALENT, AND HEAVY RIP-RAP
STONE PLACED ON TOP OF FABRIC TO STABILIZE SLOPE.
 5. ALL AGGREGATE SHALL BE COMPACTED AND PROOF
ROLLED.

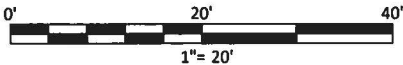
- NOTES:**
1. REMOVE FROM SITE/OWNERS'S PROPERTY ALL WASTE MATERIALS
UNUSED EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED
UNSATISFACTORY, CONTAMINATED OR DANGEROUS TRASH AND
DEBRIS AND DISPOSE OF IN A LEGAL MANNER.
 2. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK
AND NOT COVERED BY ACCESS DRIVE OR FENCED COMPOUND, SHALL
BE GRADED TO A UNIFORM SLOPE, FERTILIZED AND SEEDED.
 3. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE
DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED
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Call Monday thru Friday - 7 am. to 6 pm.
1-800-752-6007
PER KENTUCKY STATE LAW, IT IS AGAINST
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NOTIFYING THE UNDERGROUND
LOCATION SERVICE TWO (2) WORKING
DAYS BEFORE COMMENCING WORK.

LEGEND

- | | |
|-----------------|------------------------------------|
| +XXX.XX | PROPOSED SPOT ELEVATION |
| — 905 — | PROPOSED CONTOURS |
| - - - 905 - - - | EXISTING CONTOURS |
| → | PROPOSED DRAINAGE FLOW ARROWS |
| - - - - - | EXISTING PROPERTY LINE |
| - SF - SF - | PROPOSED SILT FENCE |
| - - - X - - - | PROPOSED ACCESS & UTILITY EASEMENT |
| - - - X - - - | PROPOSED FENCE |



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LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
verticalbridge

PREPARED FOR:
T-Mobile



9/6/2019
EN PERMIT: 3594

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DRAWINGS**

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POD NUMBER: 18-27347

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CHECKED BY: MEP

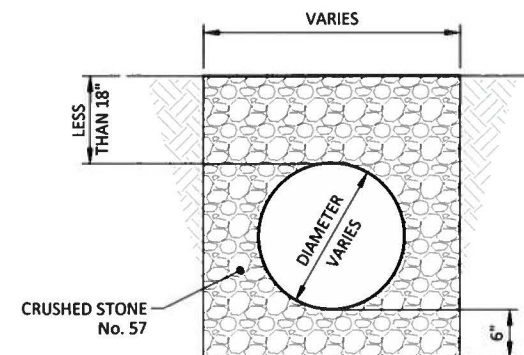
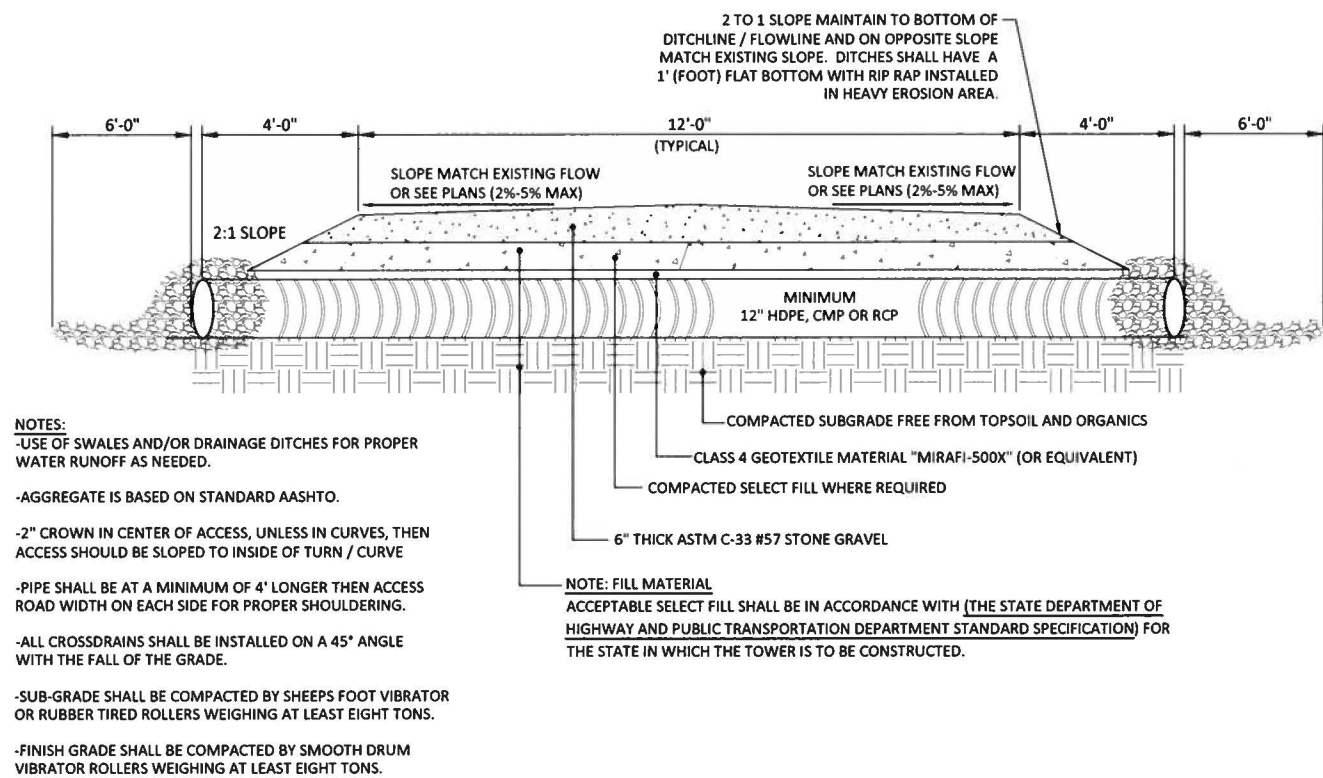
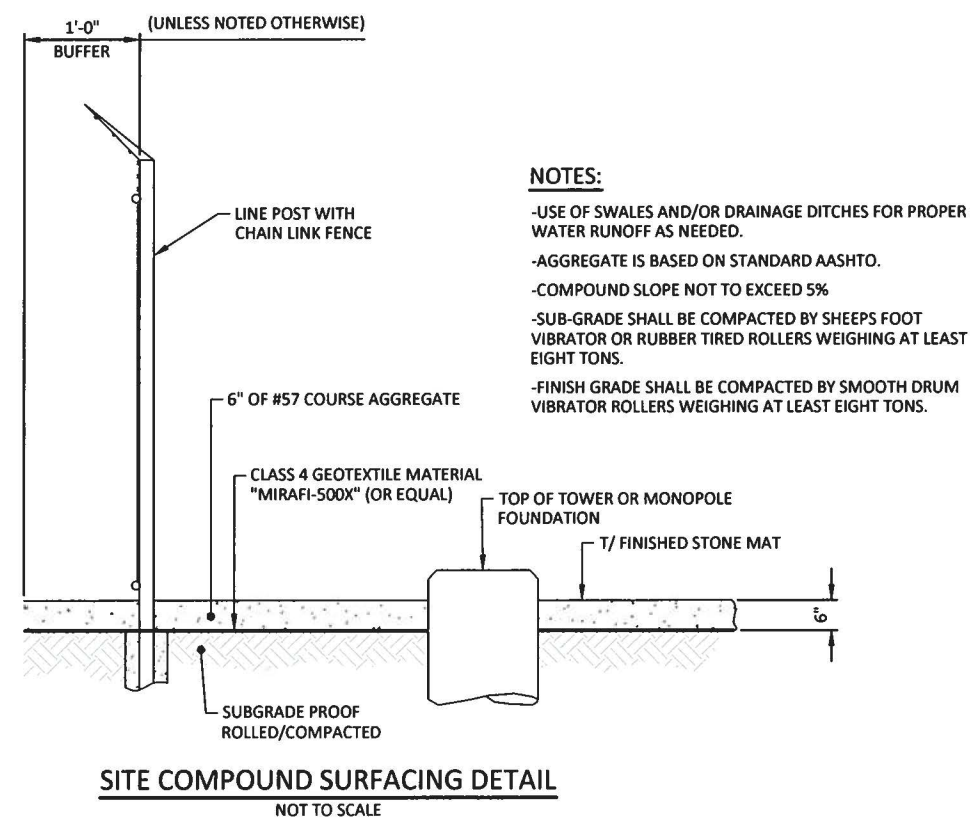
DATE: 7.31.19

SHEET TITLE:

**SITE
GRADING
PLAN**

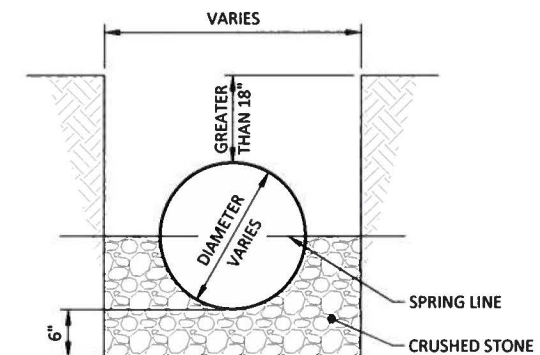
SHEET NUMBER:

GD-3



CRUSHED STONE ENCASEMENT DETAIL
NOT TO SCALE

NOTE:
ENCASEMENT USED WITH 18" OF COVER OR LESS.

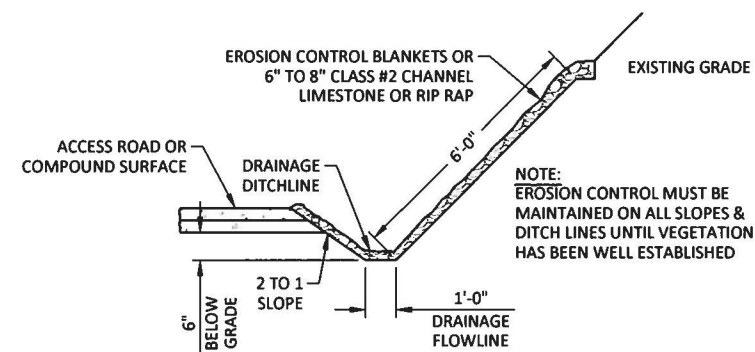


CRUSHED STONE CRADLE DETAIL
NOT TO SCALE

NOTE:
CRADLE USED WITH MORE THAN 18" OF COVER.

CULVERT NOTES

1. INSTALL CULVERTS WITH THE INLETS AT OR BELOW NATURAL GRADE.
2. OUTLET THE CULVERTS AT OR BEYOND THE TOE OF THE SLOPE. EROSION PROTECTION, SUCH AS RIP-RAP IS OFTEN NECESSARY AT THE OUTLET OF CULVERTS. NEVER OUTLET A CULVERT INTO FILL MATERIAL WITHOUT PROTECTIVE MEASURES.



NOTES:

1. WHEN FACED WITH SLOPES LESS THAN 2 TO 1 SLOPES, ALL SLOPES SHOULD BE DOZER TRACKED PRIOR TO SEEDING. ALL SLOPES SHOULD HAVE EROSION CONTROL BLANKETS OR RIP RAP EMBEDDED ON SLOPES SURFACES TO REDUCE EROSION.
2. ALL FLOWLINES MUST BE INSTALLED BELOW SUB-GRADE OF COMPOUND. (AT MINIMUM OF 6" BELOW)

DRAINAGE DITCHLINE DETAIL (SWALE)
NOT TO SCALE

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LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
verticalbridge

PREPARED FOR:
T-Mobile

STATE OF KENTUCKY
MARK E. PATTERSON
16,300
PROFESSIONAL ENGINEER
EN PERMIT: 3394/2019

CONSTRUCTION DRAWINGS

REV	DATE	DESCRIPTION
A	7.31.19	ISSUED FOR REVIEW
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KY HIGHWAY 15
BETHANY, KY 41301

BREATHITT COUNTY

SITE NUMBER:
US-KY-5052

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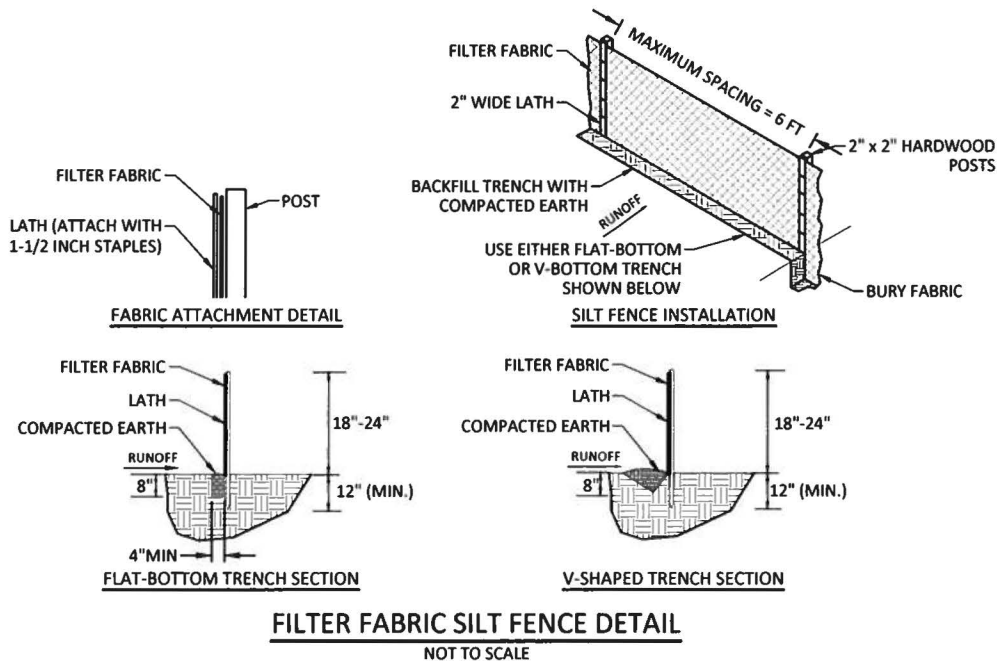
POD NUMBER: 18-27347
DRAWN BY: KDP
CHECKED BY: MEP
DATE: 7.31.19

SHEET TITLE:

**SURFACE &
DRAINAGE
DETAILS**

SHEET NUMBER:

GD-4



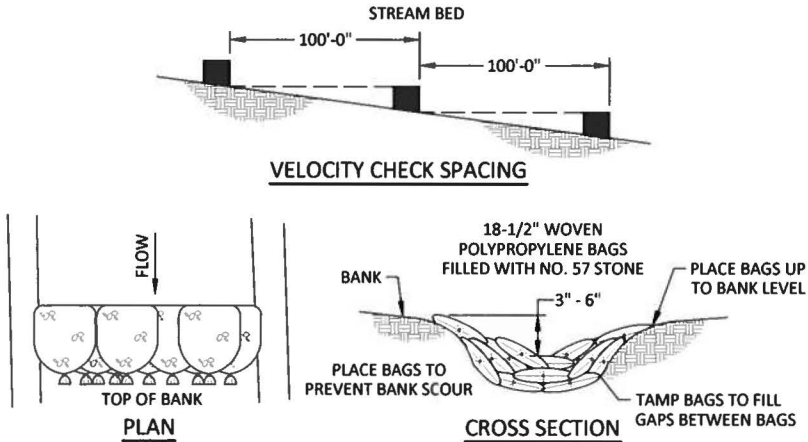
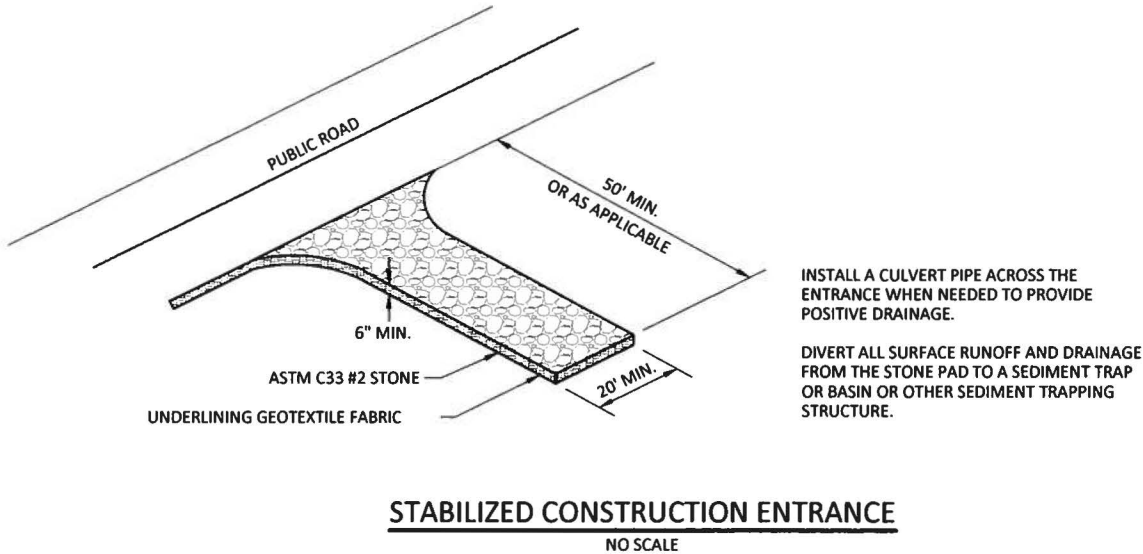
NOTES:

1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. (9" MAX. RECOMMENDED STORAGE HEIGHT).
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

EROSION MAINTENANCE AND CLEAN-OUT

MAINTENANCE AND CLEAN-OUT SHALL BE PERFORMED BY THE SITE CONTRACTOR UNDER THE FOLLOWING GUIDELINES:

1. ROUTINE CHECKS OF THE EROSION CONTROL DEVICES SHALL BE PERFORMED AT A MINIMUM OF 7 DAYS OR AFTER EVERY ONE INCH OF RAINFALL.
2. ANY FAILURES OF EROSION CONTROL DEVICES SHOULD IMMEDIATELY BE ADDRESSED AND THE APPROPRIATE STEPS TAKEN TO REPAIR THE FAILURE.
3. THE CONTRACTOR SHALL MAINTAIN AN ACCURATE LOG OF THE EROSION SITE CONDITIONS.
4. THE CONTRACTOR IS TO REMOVE ANY DIRT OR MUD ON THE PUBLIC STREETS.
5. SILT FENCING SHALL REMAIN IN PLACE DURING ALL CONSTRUCTION ACTIVITIES AND MUST BE CLEANED OUT IF MORE THAN 1/3 FULL.
6. REMOVE THE FENCE AFTER ITS CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED. REMOVE THE FENCE AND SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE, AND STABILIZE IT USING THE APPROPRIATE PERMANENT STABILIZATION METHOD.



*NOTE:
STRAW BALES MAY BE USED IN LIEU OF
STONE BAGS AS APPROVED BY CITY ENGINEER

EROSION PREVENTION & SEDIMENT CONTROL NOTES

TO PREVENT EROSION, ALL SILT CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE FOR THE SITE. ANY MODIFICATIONS TO SILT CONTROLS SHOWN ON THE APPROVED PLANS AS A RESULT OF ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES PER THE EPA'S "STORM WATER MANAGEMENT FOR CONSTRUCTION ACTIVITIES" MANUAL.

ANY SUCH MODIFICATIONS SHALL BE THE RESPONSIBILITY OF THE OWNER AND SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.

ACTIONS MUST BE TAKEN TO MINIMIZE THE TRACKING OF MUD AND SOIL FROM CONSTRUCTION AREAS ONTO PUBLIC ROADWAYS. SOIL TRACKED ONTO THE ROADWAY SHALL BE REMOVED DAILY.

SOIL STOCKPILES SHALL BE LOCATED AWAY FROM STREAMS, PONDS, SWALES AND CATCH BASINS. STOCKPILES SHALL BE SEEDED, MULCHED AND ADEQUATELY CONTAINED THROUGH THE USE OF SILT FENCE.

WHERE CONSTRUCTION OR LAND DISTURBANCE ACTIVITY WILL OR HAS TEMPORARILY CEASED ON ANY PORTION OF A SITE, TEMPORARY SITE STABILIZATION MEASURES SHALL BE REQUIRED AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 DAYS AFTER THE ACTIVITY HAS CEASED.

SEDIMENT-LADEN GROUNDWATER ENCOUNTERED DURING TRENCHING, BORING OR OTHER ACTIVITIES SHALL BE PUMPED TO A SEDIMENT TRAPPING DEVICE PRIOR TO BEING DISCHARGED INTO A STREAM, POND, SWALE OR CATCH BASIN.

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11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:

verticalbridge

PREPARED FOR:

T-Mobile

STATE OF KENTUCKY
MARK E. PATTERSON
16,300
PROFESSIONAL ENGINEER
EN PERMIT: 3594
9/6/2019

CONSTRUCTION
DRAWINGS

REV	DATE	DESCRIPTION
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KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

SITE NUMBER:
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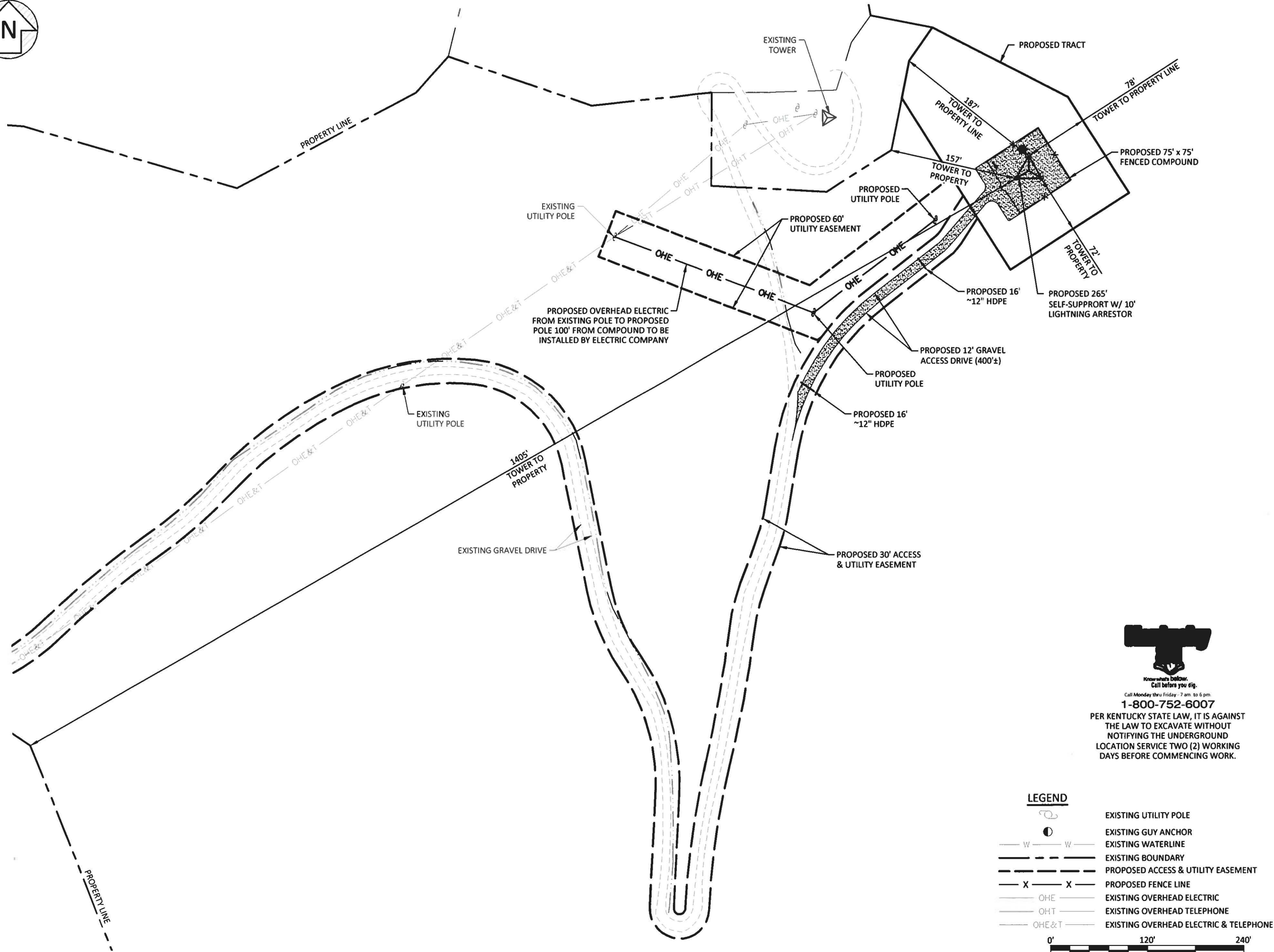
POD NUMBER: 18-27347
DRAWN BY: KDP
CHECKED BY: MEP
DATE: 7.31.19

SHEET TITLE:

**EROSION
CONTROL
DETAILS**

SHEET NUMBER:

GD-5



Know what's below.
Call before you dig.

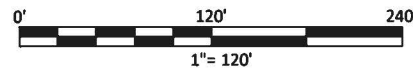
Call Monday thru Friday - 7 am to 6 pm.

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.

LEGEND

	EXISTING UTILITY POLE
	EXISTING GUY ANCHOR
	EXISTING WATERLINE
	EXISTING BOUNDARY
	PROPOSED ACCESS & UTILITY EASEMENT
	PROPOSED FENCE LINE
	EXISTING OVERHEAD ELECTRIC
	EXISTING OVERHEAD TELEPHONE
	EXISTING OVERHEAD ELECTRIC & TELEPHONE



1" = 120'

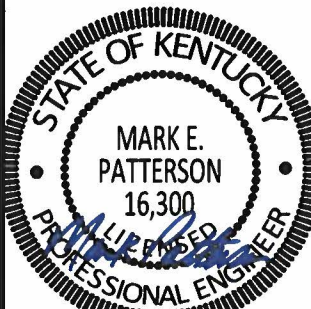
PREPARED BY:



PREPARED FOR:



PREPARED FOR:



9/6/2019
EN PERMIT: 3594

CONSTRUCTION
DRAWINGS

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BETHANY, KY 41301

BREATHITT COUNTY

SITE NUMBER:

US-KY-5052

T-MOBILE SITE NUMBER:

9LV3239B

POD NUMBER: 18-27347

DRAWN BY: KDP

CHECKED BY: MEP

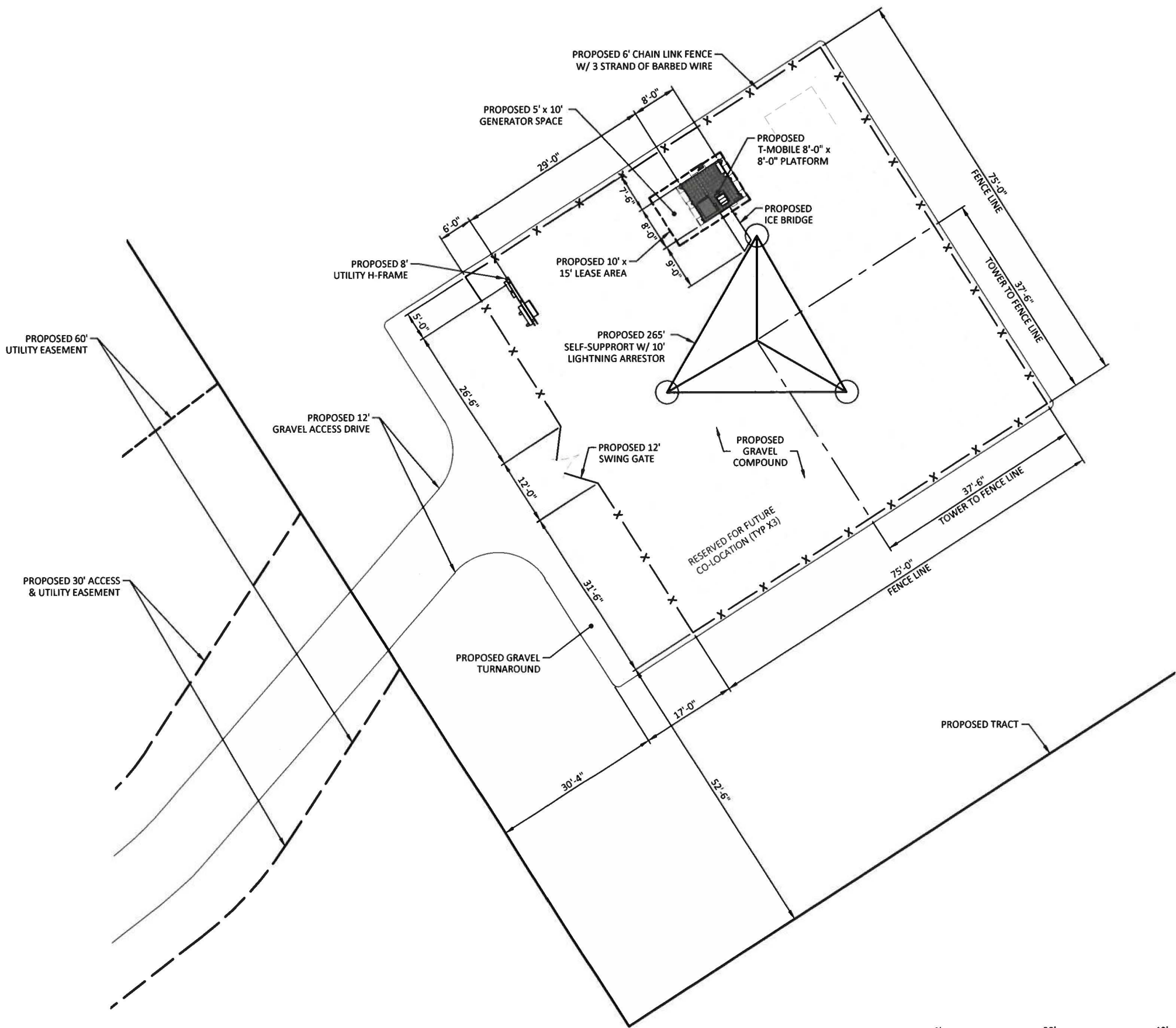
DATE: 7.31.19

SHEET TITLE:

OVERALL
SITE LAYOUT

SHEET NUMBER:

C-1

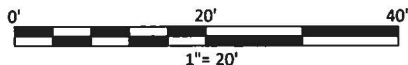


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1-800-752-6007

PER KENTUCKY STATE LAW, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

LEGEND

- PROPOSED ACCESS & UTILITY EASEMENT
- X-X- PROPOSED FENCE



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LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
verticalbridge

PREPARED FOR:
T-Mobile

STATE OF KENTUCKY
MARK E. PATTERSON
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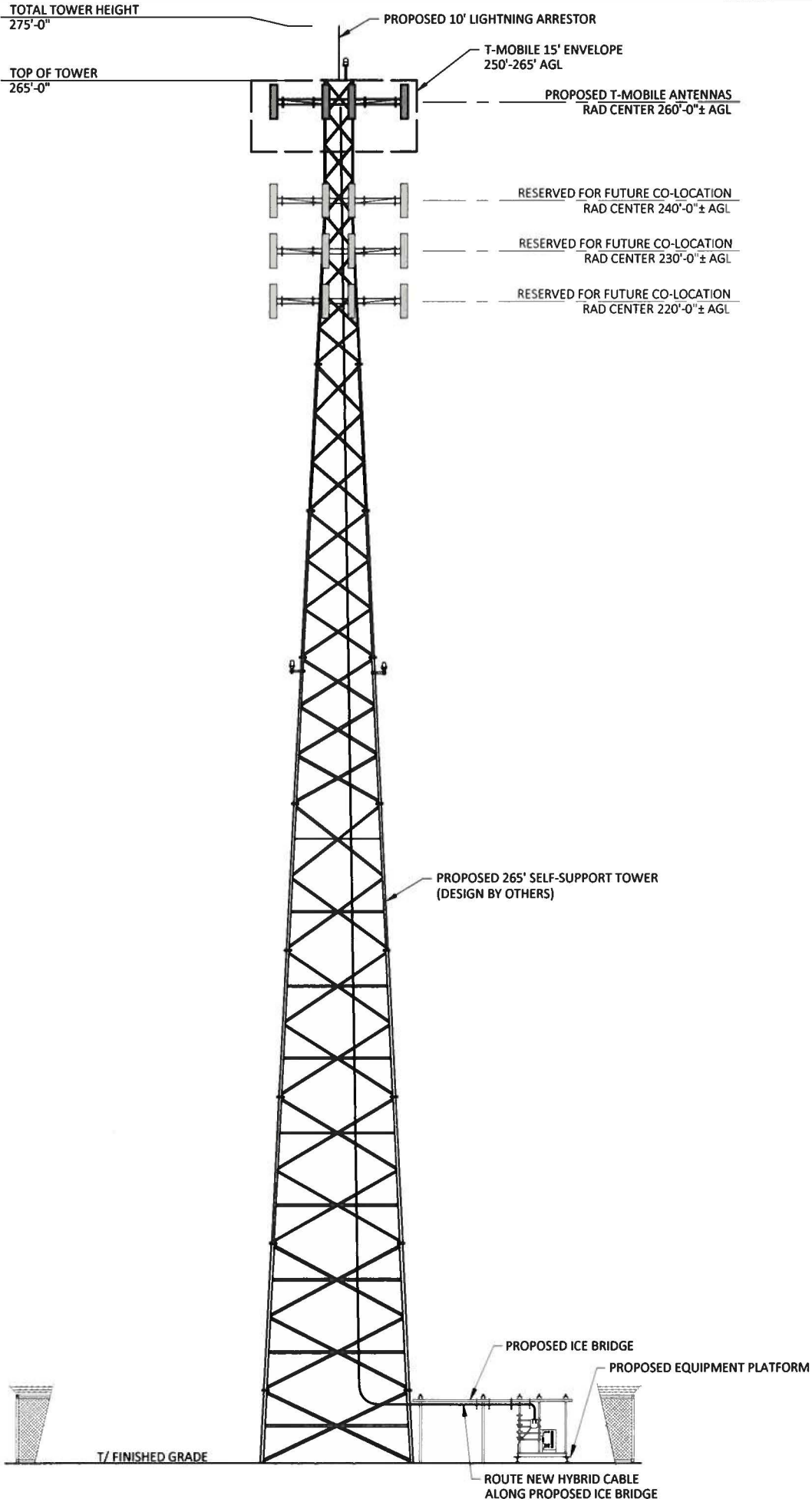
CONSTRUCTION DRAWINGS		
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BETHANY, KY 41301
BREATHITT COUNTY
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US-KY-5052
T-MOBILE SITE NUMBER:
9LV3239B
POD NUMBER: 18-27347
DRAWN BY: KDP
CHECKED BY: MEP
DATE: 7.31.19

SHEET TITLE:
ENLARGED COMPOUND LAYOUT

SHEET NUMBER:
C-2

Exhibit C

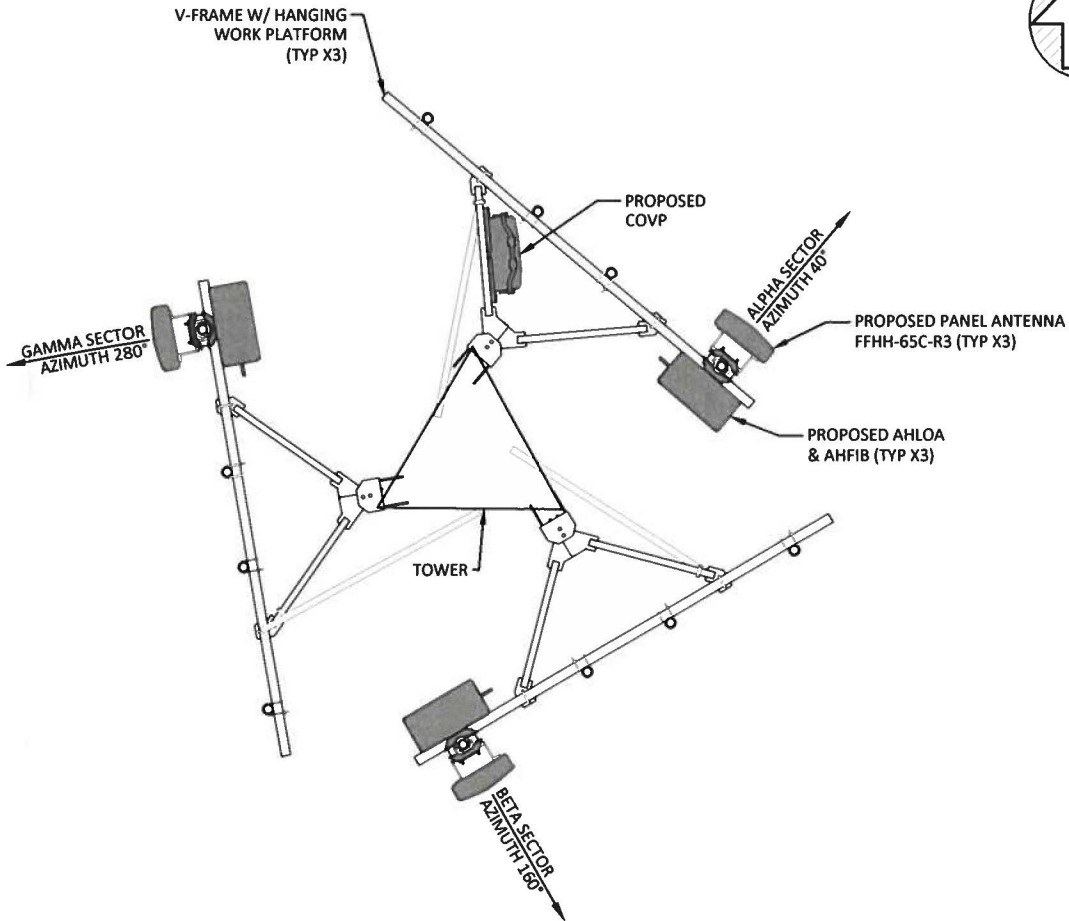


TOWER NOTES:

1. THE PROPOSED TOWER, FOUNDATION, ANTENNA MOUNTS, AND ANTENNAS WERE DESIGNED BY OTHERS.
2. THE TOWER ELEVATION SHOWN IS FOR REFERENCE ONLY.
3. CONTRACTOR TO FIELD VERIFY ANTENNA MOUNT CONFIGURATION WITH T-MOBILE. ALL ANTENNAS AND MOUNTING HARDWARE SHALL CONFORM TO DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE (LATEST EDITION) AND EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES, BASIC WIND SPEED AS LISTED IN TOWER DRAWINGS.
4. SEE TOWER MANUFACTURER'S DRAWINGS FOR TOWER AND FOUNDATION DETAILS & SPECIFICATIONS.
5. MANUFACTURER'S DRAWINGS SUPERCEDE A&E DRAWINGS.
6. SEE RFDS AND PLUMBING DIAGRAMS PROVIDED BY T-MOBILE FOR ANTENNA, CABLING, AND EQUIPMENT INFORMATION.

GENERAL NOTES:

1. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT: THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH IT IS TO BE PERFORMED.
2. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
4. ALL DIMENSIONS SHALL BE VERIFIED WITH THE PLANS (LATEST REVISION) PRIOR TO COMMENCING CONSTRUCTION. NOTIFY THE OWNER IMMEDIATELY IF DISCREPANCIES ARE DISCOVERED.
5. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE.



PROPOSED ANTENNA LAYOUT
NOT TO SCALE

NOTE:
ANTENNA ORIENTATION PER
T-MOBILE RF DATA SHEETS



PREPARED BY:

POD
POWER OF DESIGN

11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:

verticalbridge

PREPARED FOR:

T-Mobile

STATE OF KENTUCKY

MARK E. PATTERSON
16,300
PROFESSIONAL ENGINEER

9/6/2019

EN PERMIT: 3594

**CONSTRUCTION
DRAWINGS**

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9LV3239B

POD NUMBER: 18-27347
DRAWN BY: KDP
CHECKED BY: MEP
DATE: 7.31.19

SHEET TITLE:

**TOWER ELEVATION
& ANTENNA
LAYOUT**

SHEET NUMBER:
C-3

Exhibit D



September 27, 2019

RE: **Case No.: 2019-00358**
Proposed Wireless Communications Facility
37° 39' 02.84" N, 83° 26' 17.49" W
Breathitt County, KY
US-KY-5052 Bethany

Dear Commissioners:

The Project / Construction Manager for the proposed Wireless Communications Facility will be **Andy Smith**. His contact information is:

Andy Smith
Construction Manager
Vertical Bridge Development, LLC
M: 843-412-9109
ASmith@verticalbridge.com

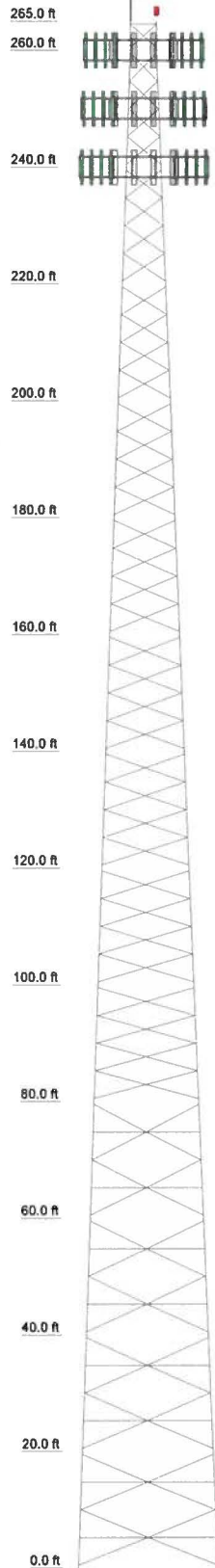
Mr. Smith has been in the industry completing civil construction and tower construction management for NSB projects (New Site Build) since 2004. Mr. Smith has been employed with Vertical Bridge Development since 2015.

Thank you,

Andy Smith

Andy Smith, Construction Manager – TN/KY Market
Vertical Bridge Development, LLC

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	
Legs		SR 1 3/4	SR 2 1/4	SR 2 1/2	SR 2 3/4	SR 3	SR 3 1/4	SR 3 1/2	SR 3 3/4	SR 4					
Leg Grade		L1 3/4x1 3/4x3/16													
Diagonals															
Diagonal Grade															
Top Girts															
Horizontal															
Inner Bracing															
Face Width (ft)															
# Panels @ (ft)															
Weight (K)															



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 1"x10'	265	Sector2(CaAa=10000 Sq.in)No Ice (Carrier 2)	250
Top Beacon	265	Sector3(CaAa=10000 Sq.in)No Ice (Carrier 2)	250
Sector1(CaAa=10000 Sq.in)No Ice (Carrier 1)	260	Sector1(CaAa=10000 Sq.in)No Ice (Carrier 3)	240
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 1)	260	Sector2(CaAa=10000 Sq.in)No Ice (Carrier 3)	240
Sector3(CaAa=10000 Sq.in)No Ice (Carrier 1)	260	Sector3(CaAa=10000 Sq.in)No Ice (Carrier 3)	240
Sector1(CaAa=10000 Sq.in)No Ice (Carrier 2)	250		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L1 3/4x1 3/4x3/16	C	2L2 1/2x2 1/2x3/16x3/8
B	2L1 3/4x1 3/4x3/16x3/8		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A529-50	50 ksi	65 ksi	A36M-50	50 ksi	65 ksi

TOWER DESIGN NOTES

1. Tower is located in Breathitt County, Kentucky.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 81 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. Please see feedline plan for proper feedline placement. Deviation from plan may reduce tower capacity.
9. Tower is also designed for an ultimate windspeed of 105 mph per ASCE 7-16.

ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 427 K
SHEAR: 32 K

UPLIFT: -362 K
SHEAR: 28 K

AXIAL
194 K
SHEAR
8 K
MOMENT
1308 kip-ft
TORQUE 2 kip-ft
30 mph WIND - 0.750 in ICE

AXIAL
72 K
SHEAR
53 K
MOMENT
8385 kip-ft
TORQUE 18 kip-ft
REACTIONS - 81 mph WIND

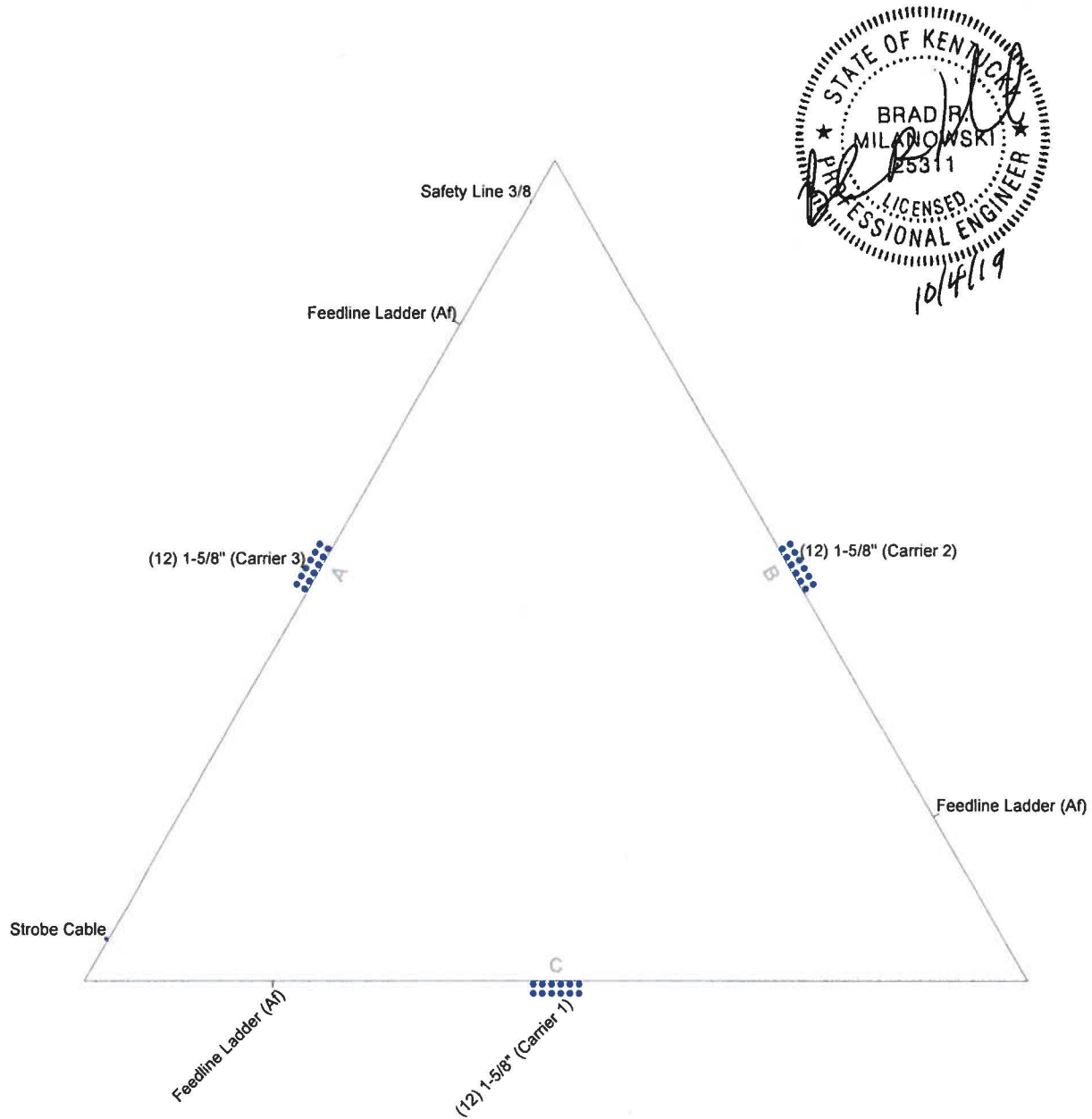


B+T Group
1717 S. Boulder Ave, Ste 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: **EII # 8033 - Bethany (Site# US-KY-5052)**
Project: **265' SST - Breathitt County, KY**
Client: Vertical Bridge
Code: TIA-222-G
Path:
Drawn by: T. Cheriyan
Date: 10/04/19
Scale: NTS
Dwg No. E-1

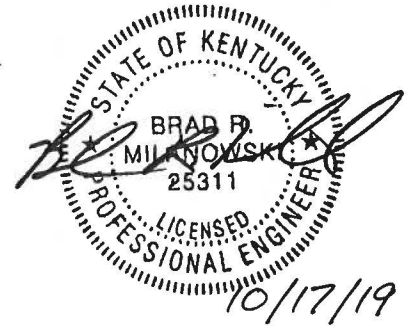
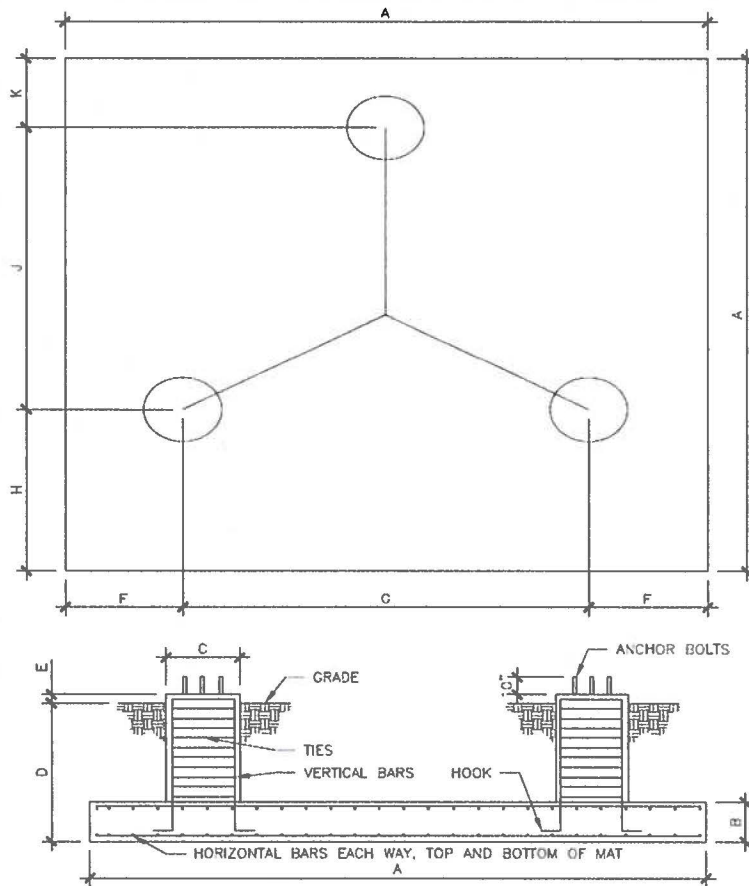
Feed Line Plan

Round Flat App In Face App Out Face



 B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job: EII # 8033 - Bethany (Site# US-KY-5052)		
	Project: 265' SST - Breathitt County, KY		
	Client: Vertical Bridge	Drawn by: T. Cherlyan	App'd:
	Code: TIA-222-G	Date: 10/04/19	Scale: NTS
	Path:	Dwg No. E-7	

COMBINED FOOTING DESIGN





A (ft)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	J (in)	K (in)
34	30	36	72	6	60	288	120 7/8	249 7/16	37 3/4
Rebar Schedule									
Each Pier (3 req'd)		Use (8) #9 vertical bars w/ 16" hook w/ #4 ties @ 6" c/c.							
Pad		Use (34) #8 bars equally spaced, each way, top and bottom of mat. (136 bars total)							

General Notes:

- Concrete shall be placed in accordance with ACI 318-14 Latest Revision.
- Concrete shall have a minimum 28 day compressive strength of 4,000 PSI, in accordance with ACI 318-14.
- Rebar to conform to ASTM specification A615 grade 60, except ties may be grade 40.
- All rebar to have a minimum of 4" clear cover.
- Bottom and front surfaces shall rest on undisturbed soil.
- Backfill shall be compacted to 95% of maximum proctor density.
- Contractor shall be responsible to review and follow all recommendations of the geotechnical report.
- Concrete mixtures shall meet the durability requirements of Chapter 19 of the ACI 318-14.
- Total estimated concrete volume: 110.18 cubic yards.

Supplemental Notes:

Soil values obtained from EGSci Consulting Inc., Project No. 19-US-KY-5052, Dated: October 11, 2019
Anchor bolts provided by others

 B+T GRP	B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74159 (918) 587-4630		Date:	10/17/2019		 Eastpointe Industries	Eastpointe Industries 4020 Tull Ave. Muskogee, Ok 74403 (918) 683-2169	
			Site:	8033 - Bethany				
			Project:	265' - Self-Supporter				
			Job:	139038.002				
			Scale:	NTS	Drawn By:		TTC	

tnxTower B+T Group 1717 S. Boulder Ave. Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job EII # 8033 - Bethany (Site# US-KY-5052)	Page 1 of 31
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	Client Vertical Bridge	Designed by T. Cheriyan

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 265.000 ft above the ground line.

The base of the tower is set at an elevation of 0.000 ft above the ground line.

The face width of the tower is 4.500 ft at the top and 24.000 ft at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Breathitt County, Kentucky.

Basic wind speed of 81 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.000 ft.

Nominal ice thickness of 0.750 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 30 mph is used in combination with ice.

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 60 mph.

Please see feedline plan for proper feedline placement. Deviation from plan may reduce tower capacity..

Tower is also designed for an ultimate windspeed of 105 mph per ASCE 7-16..

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

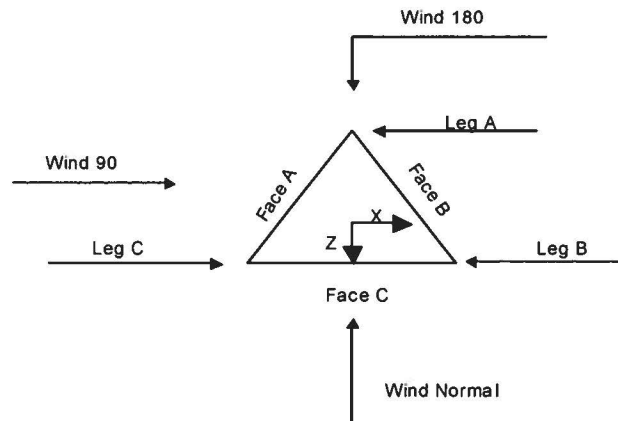
Stress ratio used in tower member design is 1.

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	Retention 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

tnxTower B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job EII # 8033 - Bethany (Site# US-KY-5052)	Page 2 of 31
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	Client Vertical Bridge	Designed by T. Cheriyan



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	265.000-260.000			4.500	1	5.000
T2	260.000-240.000			4.500	1	20.000
T3	240.000-220.000			6.000	1	20.000
T4	220.000-200.000			7.500	1	20.000
T5	200.000-180.000			9.000	1	20.000
T6	180.000-160.000			10.500	1	20.000
T7	160.000-140.000			12.000	1	20.000
T8	140.000-120.000			13.500	1	20.000
T9	120.000-100.000			15.000	1	20.000
T10	100.000-80.000			16.500	1	20.000
T11	80.000-60.000			18.000	1	20.000
T12	60.000-40.000			19.500	1	20.000
T13	40.000-20.000			21.000	1	20.000
T14	20.000-0.000			22.500	1	20.000

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	265.000-260.000	4.000	X Brace	No	No	6.000	6.000

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	Client	Designed by
	Vertical Bridge	T. Cheriyan

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T2	260.000-240.000	4.750	X Brace	No	No	6.000	6.000
T3	240.000-220.000	4.750	X Brace	No	No	6.000	6.000
T4	220.000-200.000	4.750	X Brace	No	No	6.000	6.000
T5	200.000-180.000	4.750	X Brace	No	No	6.000	6.000
T6	180.000-160.000	4.750	X Brace	No	No	6.000	6.000
T7	160.000-140.000	4.750	X Brace	No	No	6.000	6.000
T8	140.000-120.000	4.750	X Brace	No	No	6.000	6.000
T9	120.000-100.000	4.750	X Brace	No	No	6.000	6.000
T10	100.000-80.000	4.750	X Brace	No	No	6.000	6.000
T11	80.000-60.000	4.750	Double K	No	Yes	6.000	6.000
T12	60.000-40.000	4.750	Double K	No	Yes	6.000	6.000
T13	40.000-20.000	4.750	Double K	No	Yes	6.000	6.000
T14	20.000-0.000	4.750	Double K	No	Yes	6.000	6.000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1	Solid Round	1 3/4	A529-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
265.000-260.000						
T2	Solid Round	1 3/4	A529-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
260.000-240.000						
T3	Solid Round	2 1/4	A529-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
240.000-220.000						
T4	Solid Round	2 1/2	A529-50 (50 ksi)	Equal Angle	L2x2x3/16	A36M-50 (50 ksi)
220.000-200.000						
T5	Solid Round	2 3/4	A529-50 (50 ksi)	Equal Angle	L2x2x3/16	A36M-50 (50 ksi)
200.000-180.000						
T6	Solid Round	3	A529-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36M-50 (50 ksi)
180.000-160.000						
T7	Solid Round	3	A529-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36M-50 (50 ksi)
160.000-140.000						
T8	Solid Round	3 1/4	A529-50 (50 ksi)	Equal Angle	L3x3x3/16	A36M-50 (50 ksi)
140.000-120.000						
T9	Solid Round	3 1/2	A529-50 (50 ksi)	Equal Angle	L3x3x3/16	A36M-50 (50 ksi)
120.000-100.000						
T10	Solid Round	3 1/2	A529-50 (50 ksi)	Equal Angle	L3x3x1/4	A36M-50 (50 ksi)
100.000-80.000						
T11	Solid Round	3 3/4	A529-50 (50 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
80.000-60.000						
T12	Solid Round	3 3/4	A529-50 (50 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
60.000-40.000						
T13	Solid Round	4	A529-50 (50 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
40.000-20.000						
T14	Solid Round	4	A529-50 (50 ksi)	Double Angle	2L3x3x3/16x3/8	A36M-50 (50 ksi)
20.000-0.000						

Tower Section Geometry (cont'd)

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	Client	Designed by
	Vertical Bridge	T. Cheriyan

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 265.000-260.000	Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)	Solid Round		A529-50 (50 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
T11 80.000-60.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 3/4x1 3/4x3/16x3/8	A36M-50 (50 ksi)
T12 60.000-40.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2x2x3/16x3/8	A36M-50 (50 ksi)
T13 40.000-20.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2x2x3/16x3/8	A36M-50 (50 ksi)
T14 20.000-0.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T11 80.000-60.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T12 60.000-40.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T13 40.000-20.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T14 20.000-0.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
T1 265.000-260.000	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
T2 260.000-240.000	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
T3	0.000	0.375	A36M-50	1	1	1	36.000	36.000	36.000

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	Client	Designed by
	Vertical Bridge	T. Cheriyan

Tower Elevation	Gusset Area (per face)	Gusset Thickness	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
ft	ft ²	in							
240.000-220.000			(50 ksi)						
T4	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
220.000-200.000			(50 ksi)						
T5	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
200.000-180.000			(50 ksi)						
T6	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
180.000-160.000			(50 ksi)						
T7	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
160.000-140.000			(50 ksi)						
T8	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
140.000-120.000			(50 ksi)						
T9	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
120.000-100.000			(50 ksi)						
T10	0.000	0.375	A36M-50 (50 ksi)	1	1	1	36.000	36.000	36.000
100.000-80.000			(50 ksi)						
T11	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
80.000-60.000			(50 ksi)						
T12	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
60.000-40.000			(50 ksi)						
T13	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
40.000-20.000			(50 ksi)						
T14	0.000	0.375	A36M-50 (50 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.000
20.000-0.000			(50 ksi)						

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1	No	No	1	1	1	1	1	1	1	1
265.000-260.000				1	1	1	1	1	1	1
T2	No	No	1	1	1	1	1	1	1	1
260.000-240.000				1	1	1	1	1	1	1
T3	No	No	1	1	1	1	1	1	1	1
240.000-220.000				1	1	1	1	1	1	1
T4	No	No	1	1	1	1	1	1	1	1
220.000-200.000				1	1	1	1	1	1	1
T5	No	No	1	1	1	1	1	1	1	1
200.000-180.000				1	1	1	1	1	1	1

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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
T7 160.000-140.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 140.000-120.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 120.000-100.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 100.000-80.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 80.000-60.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T12 60.000-40.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T13 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T14 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

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 265.000-260.000	Flange	0.000 A325N	0	0.625 A325X	1	0.625 A325X	1	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T2 260.000-240.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T3 240.000-220.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T4 220.000-200.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T5 200.000-180.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T6 180.000-160.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T7 160.000-140.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T8 140.000-120.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0

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	265' SST - Breathitt County, KY	09:53:16 10/04/19
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	Vertical Bridge	T. Cheriyan

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.
T9 120.000-100.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T10 100.000-80.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T11 80.000-60.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325X	1	0.625 A325N	0
T12 60.000-40.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325X	1	0.625 A325N	0
T13 40.000-20.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325X	1	0.625 A325N	0
T14 20.000-0.000	Flange	1.250 A325N	6	0.625 A325X	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325X	1	0.625 A325N	0

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 klf
1-5/8" (Carrier 1) **	C	No	No	Ar (CaAa)	260.000 - 10.000	0.000	0	12	6	0.750	1.980		0.001
1-5/8" (Carrier 2) **	B	No	No	Ar (CaAa)	250.000 - 10.000	0.000	0	12	6	0.750	1.980		0.001
1-5/8" (Carrier 3) **	A	No	No	Ar (CaAa)	240.000 - 10.000	0.000	0	12	6	0.750	1.980		0.001
Safety Line 3/8	A	No	No	Ar (CaAa)	265.000 - 10.000	0.000	0.45	1	1	0.375	0.375		0.000
Strobe Cable **	A	No	No	Ar (CaAa)	265.000 - 10.000	0.000	-0.45	1	1	1.250	1.250		0.001
Feedline Ladder (Af)	C	No	No	Af (CaAa)	260.000 - 10.000	0.000	0.3	1	1	3.000	0.250		0.008
Feedline Ladder (Af)	B	No	No	Af (CaAa)	250.000 - 10.000	0.000	0.3	1	1	3.000	0.250		0.008
Feedline Ladder (Af)	A	No	No	Af (CaAa)	240.000 - 10.000	0.000	0.3	1	1	3.000	0.250		0.008

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C ₁ A ₁ In Face ft ²	C ₁ A ₁ Out Face ft ²	Weight K
T1	265.000-260.000	A	0.000	0.000	0.813	0.000	0.005
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000

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	Project	Date
	265' SST - Breathitt County, KY	09:53:16 10/04/19
	Client	Designed by
	Vertical Bridge	T. Cheriyan

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{1A_1} In Face ft ²	C_{1A_1} Out Face ft ²	Weight K
T2	260.000-240.000	A	0.000	0.000	3.250	0.000	0.018
		B	0.000	0.000	24.177	0.000	0.170
		C	0.000	0.000	48.353	0.000	0.341
T3	240.000-220.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T4	220.000-200.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T5	200.000-180.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T6	180.000-160.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T7	160.000-140.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T8	140.000-120.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T9	120.000-100.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T10	100.000-80.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T11	80.000-60.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T12	60.000-40.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T13	40.000-20.000	A	0.000	0.000	51.603	0.000	0.359
		B	0.000	0.000	48.353	0.000	0.341
		C	0.000	0.000	48.353	0.000	0.341
T14	20.000-0.000	A	0.000	0.000	25.802	0.000	0.180
		B	0.000	0.000	24.177	0.000	0.170
		C	0.000	0.000	24.177	0.000	0.170

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{1A_1} In Face ft ²	C_{1A_1} Out Face ft ²	Weight K
T1	265.000-260.000	A	1.846	0.000	0.000	4.504	0.000	0.065
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T2	260.000-240.000	A	1.837	0.000	0.000	17.943	0.000	0.256
		B		0.000	0.000	30.397	0.000	0.711
		C		0.000	0.000	60.793	0.000	1.422
T3	240.000-220.000	A	1.821	0.000	0.000	78.453	0.000	1.667
		B		0.000	0.000	60.632	0.000	1.414
		C		0.000	0.000	60.632	0.000	1.414
T4	220.000-200.000	A	1.805	0.000	0.000	78.147	0.000	1.655
		B		0.000	0.000	60.457	0.000	1.405
		C		0.000	0.000	60.457	0.000	1.405
T5	200.000-180.000	A	1.787	0.000	0.000	77.813	0.000	1.641

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{vA_i} In Face ft ²	C_{vA_o} Out Face ft ²	Weight K
T6	180.000-160.000	B	1.767	0.000	0.000	60.267	0.000	1.396
		C		0.000	0.000	60.267	0.000	1.396
		A		0.000	0.000	77.446	0.000	1.627
T7	160.000-140.000	B	1.745	0.000	0.000	60.058	0.000	1.385
		C		0.000	0.000	60.058	0.000	1.385
		A		0.000	0.000	77.038	0.000	1.610
T8	140.000-120.000	B	1.720	0.000	0.000	59.826	0.000	1.374
		C		0.000	0.000	59.826	0.000	1.374
		A		0.000	0.000	76.577	0.000	1.592
T9	120.000-100.000	B	1.692	0.000	0.000	59.564	0.000	1.361
		C		0.000	0.000	59.564	0.000	1.361
		A		0.000	0.000	76.048	0.000	1.571
T10	100.000-80.000	B	1.658	0.000	0.000	59.263	0.000	1.346
		C		0.000	0.000	59.263	0.000	1.346
		A		0.000	0.000	75.425	0.000	1.547
T11	80.000-60.000	B	1.617	0.000	0.000	58.908	0.000	1.328
		C		0.000	0.000	58.908	0.000	1.328
		A		0.000	0.000	74.661	0.000	1.518
T12	60.000-40.000	B	1.564	0.000	0.000	58.474	0.000	1.307
		C		0.000	0.000	58.474	0.000	1.307
		A		0.000	0.000	73.669	0.000	1.480
T13	40.000-20.000	B	1.486	0.000	0.000	57.910	0.000	1.280
		C		0.000	0.000	57.910	0.000	1.280
		A		0.000	0.000	72.226	0.000	1.426
T14	20.000-0.000	B	1.331	0.000	0.000	57.089	0.000	1.241
		C		0.000	0.000	57.089	0.000	1.241
		A		0.000	0.000	34.681	0.000	0.661
		B		0.000	0.000	27.732	0.000	0.583
		C		0.000	0.000	27.732	0.000	0.583

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	265.000-260.000	-1.098	0.196	-1.853	-0.761
T2	260.000-240.000	0.922	1.209	-0.465	1.543
T3	240.000-220.000	-0.640	-3.632	-1.489	-2.600
T4	220.000-200.000	-0.701	-3.955	-1.674	-2.918
T5	200.000-180.000	-0.773	-4.337	-1.851	-3.228
T6	180.000-160.000	-0.768	-4.326	-1.929	-3.388
T7	160.000-140.000	-0.820	-4.616	-2.058	-3.632
T8	140.000-120.000	-0.792	-4.483	-2.075	-3.703
T9	120.000-100.000	-0.822	-4.651	-2.155	-3.875
T10	100.000-80.000	-0.853	-4.829	-2.226	-4.044
T11	80.000-60.000	-1.126	-6.243	-2.688	-4.882
T12	60.000-40.000	-1.154	-6.413	-2.742	-5.069
T13	40.000-20.000	-1.187	-6.595	-2.777	-5.268
T14	20.000-0.000	-0.638	-3.633	-1.514	-3.089

Shielding Factor Ka

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	7	Safety Line 3/8	260.00 - 265.00	0.6000	0.5239
T1	8	Strobe Cable	260.00 - 265.00	0.6000	0.5239
T2	1	1-5/8"	240.00 - 260.00	0.6000	0.6000
T2	3	1-5/8"	240.00 - 250.00	0.6000	0.6000
T2	7	Safety Line 3/8	240.00 - 260.00	0.6000	0.6000
T2	8	Strobe Cable	240.00 - 260.00	0.6000	0.6000
T2	10	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.6000
T2	11	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.6000
T3	1	1-5/8"	220.00 - 240.00	0.6000	0.6000
T3	3	1-5/8"	220.00 - 240.00	0.6000	0.6000
T3	5	1-5/8"	220.00 - 240.00	0.6000	0.6000
T3	7	Safety Line 3/8	220.00 - 240.00	0.6000	0.6000
T3	8	Strobe Cable	220.00 - 240.00	0.6000	0.6000
T3	10	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T3	11	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T3	12	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T4	1	1-5/8"	200.00 - 220.00	0.6000	0.6000
T4	3	1-5/8"	200.00 - 220.00	0.6000	0.6000
T4	5	1-5/8"	200.00 - 220.00	0.6000	0.6000
T4	7	Safety Line 3/8	200.00 - 220.00	0.6000	0.6000
T4	8	Strobe Cable	200.00 - 220.00	0.6000	0.6000
T4	10	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T4	11	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T4	12	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T5	1	1-5/8"	180.00 - 200.00	0.6000	0.6000
T5	3	1-5/8"	180.00 - 200.00	0.6000	0.6000
T5	5	1-5/8"	180.00 - 200.00	0.6000	0.6000
T5	7	Safety Line 3/8	180.00 - 200.00	0.6000	0.6000
T5	8	Strobe Cable	180.00 - 200.00	0.6000	0.6000
T5	10	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T5	11	Feedline Ladder (Af)	180.00 -	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _u No Ice	K _u Ice
T5	12	Feedline Ladder (Af)	200.00 180.00 - 200.00	0.6000	0.6000
T6	1	1-5/8"	160.00 - 180.00	0.6000	0.6000
T6	3	1-5/8"	160.00 - 180.00	0.6000	0.6000
T6	5	1-5/8"	160.00 - 180.00	0.6000	0.6000
T6	7	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T6	8	Strobe Cable	160.00 - 180.00	0.6000	0.6000
T6	10	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T6	11	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T6	12	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T7	1	1-5/8"	140.00 - 160.00	0.6000	0.6000
T7	3	1-5/8"	140.00 - 160.00	0.6000	0.6000
T7	5	1-5/8"	140.00 - 160.00	0.6000	0.6000
T7	7	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T7	8	Strobe Cable	140.00 - 160.00	0.6000	0.6000
T7	10	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T7	11	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T7	12	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	1	1-5/8"	120.00 - 140.00	0.6000	0.6000
T8	3	1-5/8"	120.00 - 140.00	0.6000	0.6000
T8	5	1-5/8"	120.00 - 140.00	0.6000	0.6000
T8	7	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T8	8	Strobe Cable	120.00 - 140.00	0.6000	0.6000
T8	10	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T8	11	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T8	12	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	1	1-5/8"	100.00 - 120.00	0.6000	0.6000
T9	3	1-5/8"	100.00 - 120.00	0.6000	0.6000
T9	5	1-5/8"	100.00 - 120.00	0.6000	0.6000
T9	7	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T9	8	Strobe Cable	100.00 - 120.00	0.6000	0.6000
T9	10	Feedline Ladder (Af)	100.00 -	0.6000	0.6000

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	Project	Date
	265' SST - Breathitt County, KY	09:53:16 10/04/19
	Client	Designed by
	Vertical Bridge	T. Cheriyan

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
			120.00		
T9	11	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
			120.00		
T9	12	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
			120.00		
T10	1	1-5/8"	80.00 - 100.00	0.6000	0.6000
T10	3	1-5/8"	80.00 - 100.00	0.6000	0.6000
T10	5	1-5/8"	80.00 - 100.00	0.6000	0.6000
T10	7	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T10	8	Strobe Cable	80.00 - 100.00	0.6000	0.6000
T10	10	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T10	11	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T10	12	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	1	1-5/8"	60.00 - 80.00	0.6000	0.6000
T11	3	1-5/8"	60.00 - 80.00	0.6000	0.6000
T11	5	1-5/8"	60.00 - 80.00	0.6000	0.6000
T11	7	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T11	8	Strobe Cable	60.00 - 80.00	0.6000	0.6000
T11	10	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T11	11	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T11	12	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	1	1-5/8"	40.00 - 60.00	0.6000	0.6000
T12	3	1-5/8"	40.00 - 60.00	0.6000	0.6000
T12	5	1-5/8"	40.00 - 60.00	0.6000	0.6000
T12	7	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T12	8	Strobe Cable	40.00 - 60.00	0.6000	0.6000
T12	10	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T12	11	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T12	12	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	1	1-5/8"	20.00 - 40.00	0.6000	0.6000
T13	3	1-5/8"	20.00 - 40.00	0.6000	0.6000
T13	5	1-5/8"	20.00 - 40.00	0.6000	0.6000
T13	7	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T13	8	Strobe Cable	20.00 - 40.00	0.6000	0.6000
T13	10	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T13	11	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T13	12	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	1	1-5/8"	10.00 - 20.00	0.6000	0.6000
T14	3	1-5/8"	10.00 - 20.00	0.6000	0.6000
T14	5	1-5/8"	10.00 - 20.00	0.6000	0.6000
T14	7	Safety Line 3/8	10.00 - 20.00	0.6000	0.6000
T14	8	Strobe Cable	10.00 - 20.00	0.6000	0.6000
T14	10	Feedline Ladder (Af)	10.00 - 20.00	0.6000	0.6000
T14	11	Feedline Ladder (Af)	10.00 - 20.00	0.6000	0.6000
T14	12	Feedline Ladder (Af)	10.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horiz Lateral Vert	Azimuth Adjustment	Placement	C _f A _f Front	C _s A _s Side	Weight
			ft	°	ft	ft ²	ft ²	K
			ft					
			ft					

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	Project	Date
	265' SST - Breathitt County, KY	09:53:16 10/04/19
	Client	Designed by
	Vertical Bridge	T. Cheriyan

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C ₁ A ₁ Front ft ²	C ₁ A ₁ Side ft ²	Weight K
Lightning Rod 1"x10'	C	From Leg	0.000 0.000 5.000	0.000	265.000	No Ice 1/2" Ice 1" Ice	1.000 2.017 3.050	1.000 2.017 3.050	0.040 0.049 0.065
Top Beacon	B	From Leg	0.000 0.000 1.000	0.000	265.000	No Ice 1/2" Ice 1" Ice	2.700 3.100 3.500	2.700 3.100 3.500	0.050 0.070 0.090
**									
Sector1(CaAa=10000 Sq.in)No Ice (Carrier 1)	A	From Leg	4.000 0.000 0.000	0.000	260.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 1)	B	From Leg	4.000 0.000 0.000	0.000	260.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
Sector3(CaAa=10000 Sq.in)No Ice (Carrier 1)	C	From Leg	4.000 0.000 0.000	0.000	260.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
**									
Sector1(CaAa=10000 Sq.in)No Ice (Carrier 2)	A	From Leg	4.000 0.000 0.000	0.000	250.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 2)	B	From Leg	4.000 0.000 0.000	0.000	250.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
Sector3(CaAa=10000 Sq.in)No Ice (Carrier 2)	C	From Leg	4.000 0.000 0.000	0.000	250.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
**									
Sector1(CaAa=10000 Sq.in)No Ice (Carrier 3)	A	From Leg	4.000 0.000 0.000	0.000	240.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 3)	B	From Leg	4.000 0.000 0.000	0.000	240.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
Sector3(CaAa=10000 Sq.in)No Ice (Carrier 3)	C	From Leg	4.000 0.000 0.000	0.000	240.000	No Ice 1/2" Ice 1" Ice	69.440 86.800 104.160	46.525 58.156 69.787	0.700 1.400 2.100
**									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice

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Comb. No.	Description
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	265 - 260	Leg	Max Tension	15	0.555	0.007	0.536
			Max. Compression	10	-0.782	0.256	0.149
			Max. Mx	20	0.399	-0.478	-0.104
			Max. My	14	-0.057	0.007	0.537
			Max. Vy	7	0.429	0.256	-0.148
			Max. Vx	15	0.482	0.001	0.296
		Diagonal	Max Tension	6	0.502	0.000	0.000
			Max. Compression	16	-0.506	0.000	0.000
			Max. Mx	37	-0.178	0.011	-0.000
			Max. My	6	0.412	0.002	-0.002
			Max. Vy	37	0.018	0.011	-0.000
			Max. Vx	6	-0.001	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
T2	260 - 240	Top Girt	Max Tension	22	0.255	0.000	0.000			
			Max. Compression	11	-0.201	0.000	0.000			
		Leg	Max. Mx	26	0.040	-0.031	0.000			
			Max. My	12	-0.069	0.000	0.000			
			Max. Vy	26	0.028	0.000	0.000			
			Max. Vx	12	-0.000	0.000	0.000			
			Max Tension	15	27.908	1.156	-0.006			
			Max. Compression	2	-31.974	0.728	-0.006			
			Max. Mx	2	-31.973	-1.423	0.008			
			Max. My	4	-2.374	0.022	0.911			
			Max. Vy	2	-4.300	0.728	-0.006			
			Max. Vx	4	2.137	-0.008	-0.158			
			Diagonal	Max Tension	2	4.394	0.000	0.000		
				Max. Compression	2	-4.309	0.000	0.000		
				Max. Mx	23	-0.692	-0.030	-0.000		
Max. My	8	-2.483		0.007	-0.022					
Max. Vy	32	-0.025		0.029	0.002					
T3	240 - 220	Leg	Max. Vx	8	0.007	0.000	0.000			
			Max Tension	15	70.037	1.942	-0.004			
		Diagonal	Max. Compression	2	-78.000	0.631	-0.000			
			Max. Mx	2	-32.826	3.541	-0.019			
			Max. My	4	-3.207	-0.060	-1.930			
			Max. Vy	2	-6.350	0.631	-0.000			
			Max. Vx	4	3.544	-0.060	-1.930			
			Max Tension	14	6.191	0.000	0.000			
			Max. Compression	2	-6.689	0.000	0.000			
			Max. Mx	2	1.938	0.034	-0.001			
			Max. My	20	-6.356	0.000	0.031			
			Max. Vy	34	0.029	0.027	-0.003			
			Max. Vx	20	-0.008	0.000	0.000			
			T4	220 - 200	Leg	Max Tension	15	104.688	2.127	0.001
						Max. Compression	2	-115.618	0.634	0.001
Diagonal	Max. Mx	2			-78.015	3.784	-0.004			
	Max. My	4			-4.163	-0.068	-1.780			
	Max. Vy	2			-6.892	0.634	0.001			
	Max. Vx	4			3.059	-0.068	-1.780			
	Max Tension	4			5.537	0.000	0.000			
	Max. Compression	2			-5.934	0.000	0.000			
	Max. Mx	34			1.015	0.039	0.003			
	Max. My	20			-5.857	-0.005	0.016			
	Max. Vy	34			0.037	0.038	-0.004			
	Max. Vx	20			-0.004	0.000	0.000			
	T5	200 - 180			Leg	Max Tension	15	135.042	2.324	0.004
						Max. Compression	2	-149.314	0.658	0.002
					Diagonal	Max. Mx	2	-115.633	4.058	0.004
Max. My			4	-5.241		-0.057	-1.732			
Max. Vy			2	-7.433		0.658	0.002			
Max. Vx			24	-2.994		-0.011	0.340			
Max Tension			4	5.575		0.000	0.000			
Max. Compression			4	-5.774		0.000	0.000			
Max. Mx			34	0.312		0.049	-0.005			
Max. My			8	-5.739		-0.002	-0.010			
Max. Vy			32	0.043		0.049	0.005			
Max. Vx			8	0.002		0.000	0.000			
Leg			Max Tension	15		163.148	3.021	0.009		
			Max. Compression	2		-181.312	0.091	0.000		
			Max. Mx	2		-149.331	4.354	0.011		
	Max. My	24	-6.494	-0.048	1.839					
	Max. Vy	2	-8.270	0.091	0.000					
	Max. Vx	24	-3.230	-0.006	0.102					
	Max Tension	4	6.040	0.000	0.000					

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	Vertical Bridge	T. Cheriyan

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T7	160 - 140	Leg	Max. Compression	4	-5.925	0.000	0.000
			Max. Mx	32	0.339	0.073	0.007
			Max. My	10	-5.834	-0.010	-0.009
			Max. Vy	32	0.057	0.073	0.007
			Max. Vx	38	-0.002	0.000	0.000
			Max Tension	15	189.846	2.815	0.010
		Diagonal	Max. Compression	2	-212.187	0.770	0.003
			Max. Mx	2	-181.327	4.226	0.015
			Max. My	24	-7.868	-0.034	1.721
			Max. Vy	2	-9.223	0.770	0.003
			Max. Vx	24	-3.480	-0.008	0.388
			Max Tension	4	6.352	0.000	0.000
			Max. Compression	4	-6.220	0.000	0.000
			Max. Mx	38	0.332	0.090	-0.009
			Max. My	38	-0.397	0.085	0.009
			Max. Vy	38	0.063	0.090	-0.009
			Max. Vx	38	0.002	0.000	0.000
			Max Tension	15	215.973	3.239	0.014
			Max. Compression	2	-243.189	0.773	0.003
T8	140 - 120	Leg	Max. Mx	2	-212.207	5.357	0.022
			Max. My	24	-9.285	-0.028	2.130
			Max. Vy	2	-10.235	0.773	0.003
			Max. Vx	24	-3.768	-0.004	0.354
		Diagonal	Max Tension	4	6.931	0.000	0.000
			Max. Compression	4	-6.807	0.000	0.000
			Max. Mx	38	0.332	0.123	-0.012
			Max. My	38	-0.331	0.117	0.013
			Max. Vy	38	0.079	0.123	-0.012
			Max. Vx	38	0.003	0.000	0.000
		Leg	Max Tension	15	241.950	4.029	0.018
			Max. Compression	2	-274.569	0.225	0.002
			Max. Mx	2	-243.211	5.871	0.025
			Max. My	24	-10.925	-0.008	2.241
			Max. Vy	2	-11.334	0.225	0.002
			Max. Vx	24	-4.147	-0.005	0.280
T9	120 - 100	Diagonal	Max Tension	4	7.624	0.000	0.000
			Max. Compression	4	-7.348	0.000	0.000
			Max. Mx	38	0.369	0.144	-0.013
			Max. My	38	-0.290	0.138	0.014
			Max. Vy	38	0.086	0.144	-0.013
			Max. Vx	38	0.003	0.000	0.000
		Leg	Max Tension	15	267.562	3.920	0.017
			Max. Compression	2	-306.230	0.687	0.006
			Max. Mx	2	-274.589	5.888	0.028
			Max. My	24	-12.715	0.004	2.356
			Max. Vy	2	-12.098	0.687	0.006
			Max. Vx	24	-4.837	-0.023	0.813
		Diagonal	Max Tension	2	8.390	0.000	0.000
			Max. Compression	2	-8.086	0.000	0.000
			Max. Mx	34	0.454	0.186	-0.016
			Max. My	38	-0.027	0.165	0.018
			Max. Vy	38	0.099	0.185	0.017
			Max. Vx	38	0.004	0.000	0.000
T10	100 - 80	Leg	Max Tension	15	292.832	5.077	0.023
			Max. Compression	2	-337.909	-0.392	0.001
			Max. Mx	2	-337.886	-6.781	-0.030
			Max. My	24	-14.654	0.017	3.234
			Max. Vy	2	-12.767	-0.392	0.001
			Max. Vx	24	-4.947	-0.015	0.332
		Diagonal	Max Tension	3	9.383	0.000	0.000
			Max. Compression	2	-9.790	0.000	0.000
T11	80 - 60	Leg					
		Diagonal					

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	Vertical Bridge	T. Cheriyan

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T12	60 - 40	Horizontal	Max. Mx	34	1.408	0.279	0.000
			Max. My	27	-0.077	0.000	0.007
			Max. Vy	34	-0.103	0.000	0.000
			Max. Vx	27	-0.003	0.000	0.000
			Max Tension	2	5.772	0.000	0.000
			Max. Compression	2	-5.772	-0.058	0.000
			Max. Mx	26	0.845	-0.178	0.004
			Max. My	14	2.902	-0.050	0.004
			Max. Vy	37	0.095	-0.178	0.003
			Max. Vx	27	-0.002	-0.178	0.004
		Inner Bracing	Max Tension	1	0.000	0.000	0.000
			Max. Compression	33	-0.010	0.000	0.000
			Max. Mx	26	-0.009	-0.121	0.000
			Max. My	2	-0.004	0.000	-0.000
			Max. Vy	26	-0.051	0.000	0.000
			Max. Vx	2	0.000	0.000	0.000
			Max Tension	15	317.058	4.832	0.022
			Max. Compression	2	-368.646	0.313	0.004
			Max. Mx	2	-368.623	-6.482	-0.030
			Max. My	24	-16.833	0.019	2.809
		Diagonal	Max. Vy	2	-13.581	0.313	0.004
			Max. Vx	24	-5.044	-0.006	0.589
			Max Tension	3	9.461	0.000	0.000
			Max. Compression	3	-9.791	0.000	0.000
			Max. Mx	34	1.452	0.311	0.000
			Max. My	27	-0.007	0.000	0.007
			Max. Vy	34	-0.108	0.000	0.000
			Max. Vx	27	-0.003	0.000	0.000
		Horizontal	Max Tension	2	6.312	0.000	0.000
			Max. Compression	2	-6.312	-0.078	0.001
			Max. Mx	26	0.938	-0.219	0.004
			Max. My	29	1.392	-0.218	0.005
			Max. Vy	26	-0.110	-0.219	0.004
			Max. Vx	27	-0.002	-0.219	0.005
		Inner Bracing	Max Tension	1	0.000	0.000	0.000
			Max. Compression	33	-0.011	0.000	0.000
			Max. Mx	26	-0.010	-0.136	0.000
			Max. My	2	-0.004	0.000	-0.000
			Max. Vy	26	0.053	0.000	0.000
			Max. Vx	2	0.000	0.000	0.000
T13	40 - 20	Leg	Max Tension	15	340.501	5.577	0.026
			Max. Compression	2	-398.924	-0.347	0.002
			Max. Mx	2	-398.898	-7.493	-0.034
			Max. My	24	-19.104	0.026	3.114
			Max. Vy	2	-14.279	-0.347	0.002
			Max. Vx	24	-5.086	-0.008	0.373
		Diagonal	Max Tension	5	9.767	0.000	0.000
			Max. Compression	3	-10.050	0.000	0.000
			Max. Mx	34	1.634	0.339	0.000
			Max. My	27	0.189	0.000	0.008
			Max. Vy	34	0.111	0.000	0.000
			Max. Vx	27	0.003	0.000	0.000
		Horizontal	Max Tension	2	6.776	0.000	0.000
			Max. Compression	2	-6.776	-0.090	0.001
			Max. Mx	27	-0.514	-0.245	0.005
			Max. My	29	1.506	-0.244	0.006
			Max. Vy	37	-0.113	-0.239	0.004
			Max. Vx	27	-0.002	-0.239	0.005
		Inner Bracing	Max Tension	1	0.000	0.000	0.000
			Max. Compression	33	-0.011	0.000	0.000
			Max. Mx	31	-0.010	-0.149	0.000

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	Vertical Bridge	T. Cheriyan

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T14	20 - 0	Leg	Max. My	2	-0.005	0.000	-0.000
			Max. Vy	31	0.054	0.000	0.000
			Max. Vx	2	0.000	0.000	0.000
			Max Tension	15	362.865	5.534	0.027
			Max. Compression	2	-428.253	0.000	-0.000
			Max. Mx	2	-428.227	-7.540	-0.036
		Diagonal	Max. My	24	-21.546	0.029	2.919
			Max. Vy	2	-15.069	0.000	-0.000
			Max. Vx	24	-5.089	0.029	2.919
			Max Tension	5	9.877	0.000	0.000
			Max. Compression	3	-10.088	0.000	0.000
			Max. Mx	27	1.850	0.414	0.000
		Horizontal	Max. My	27	0.606	0.000	0.010
			Max. Vy	27	-0.128	0.000	0.000
			Max. Vx	27	-0.003	0.000	0.000
			Max Tension	2	7.286	0.000	0.000
			Max. Compression	2	-7.286	-0.131	0.002
			Max. Mx	27	-0.577	-0.328	0.007
		Inner Bracing	Max. My	29	1.631	-0.325	0.008
			Max. Vy	27	0.133	-0.328	0.007
			Max. Vx	29	0.003	-0.325	0.008
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	29	-0.012	0.000	0.000
			Max. Mx	35	-0.011	-0.152	0.000
			Max. My	35	-0.011	0.000	-0.000
			Max. Vy	35	0.051	0.000	0.000
			Max. Vx	35	0.000	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal. X K	Horizontal. Z K
Leg C	Max. Vert	18	425.285	27.187	-15.710
	Max. H _x	18	425.285	27.187	-15.710
	Max. H _y	5	-316.109	-20.396	14.084
	Min. Vert	7	-359.633	-24.211	13.993
	Min. H _x	7	-359.633	-24.211	13.993
	Min. H _y	18	425.285	27.187	-15.710
Leg B	Max. Vert	10	422.972	-27.124	-15.594
	Max. H _x	23	-357.520	24.146	13.869
	Max. H _y	25	-314.271	20.363	13.926
	Min. Vert	23	-357.520	24.146	13.869
	Min. H _x	10	422.972	-27.124	-15.594
	Min. H _y	10	422.972	-27.124	-15.594
Leg A	Max. Vert	2	427.358	-0.058	31.509
	Max. H _x	21	17.919	4.750	0.722
	Max. H _y	2	427.358	-0.058	31.509
	Min. Vert	15	-361.926	0.064	-28.085
	Min. H _x	9	17.919	-4.752	0.722
	Min. H _y	15	-361.926	0.064	-28.085

Tower Mast Reaction Summary

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	Client	Designed by
	Vertical Bridge	T. Cheriyan

Load Combination	Vertical K	Shear _x K	Shear _y K	Overturning Moment, M _x kip-ft	Overturning Moment, M _y kip-ft	Torque kip-ft
Dead Only	59.843	-0.000	0.000	0.838	1.100	-0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	71.812	0.000	-53.346	-8384.950	1.337	-2.539
0.9 Dead+1.6 Wind 0 deg - No Ice	53.859	0.000	-53.348	-8367.137	1.003	-2.537
1.2 Dead+1.6 Wind 30 deg - No Ice	71.812	25.173	-43.601	-6958.612	-4016.899	13.353
0.9 Dead+1.6 Wind 30 deg - No Ice	53.859	25.174	-43.602	-6943.750	-4008.517	13.354
1.2 Dead+1.6 Wind 60 deg - No Ice	71.812	42.532	-24.556	-3932.136	-6811.113	-0.519
0.9 Dead+1.6 Wind 60 deg - No Ice	53.859	42.533	-24.557	-3923.844	-6796.636	-0.522
1.2 Dead+1.6 Wind 90 deg - No Ice	71.812	49.980	-0.000	0.966	-7942.519	-13.991
0.9 Dead+1.6 Wind 90 deg - No Ice	53.859	49.981	-0.000	0.695	-7925.647	-13.997
1.2 Dead+1.6 Wind 120 deg - No Ice	71.812	45.886	26.492	4148.252	-7181.849	2.480
0.9 Dead+1.6 Wind 120 deg - No Ice	53.859	45.887	26.493	4139.080	-7166.746	2.474
1.2 Dead+1.6 Wind 150 deg - No Ice	71.812	25.081	43.443	6920.687	-3993.646	18.024
0.9 Dead+1.6 Wind 150 deg - No Ice	53.859	25.082	43.444	6905.426	-3985.305	18.020
1.2 Dead+1.6 Wind 180 deg - No Ice	71.812	0.000	49.293	7913.123	1.338	2.541
0.9 Dead+1.6 Wind 180 deg - No Ice	53.859	0.000	49.294	7895.639	1.004	2.538
1.2 Dead+1.6 Wind 210 deg - No Ice	71.812	-25.173	43.601	6960.726	4019.439	-13.353
0.9 Dead+1.6 Wind 210 deg - No Ice	53.859	-25.173	43.602	6945.358	4010.367	-13.354
1.2 Dead+1.6 Wind 240 deg - No Ice	71.812	-46.042	26.583	4171.128	7224.153	0.519
0.9 Dead+1.6 Wind 240 deg - No Ice	53.859	-46.043	26.583	4161.895	7208.275	0.522
1.2 Dead+1.6 Wind 270 deg - No Ice	71.812	-49.980	-0.000	0.967	7945.177	13.991
0.9 Dead+1.6 Wind 270 deg - No Ice	53.859	-49.981	-0.000	0.695	7927.638	13.997
1.2 Dead+1.6 Wind 300 deg - No Ice	71.812	-42.376	-24.466	-3909.242	6774.135	-2.480
0.9 Dead+1.6 Wind 300 deg - No Ice	53.859	-42.376	-24.466	-3901.011	6759.096	-2.474
1.2 Dead+1.6 Wind 330 deg - No Ice	71.812	-25.082	-43.442	-6918.559	3996.449	-18.025
0.9 Dead+1.6 Wind 330 deg - No Ice	53.859	-25.082	-43.443	-6903.804	3987.460	-18.020
1.2 Dead+1.0 Ice+1.0 Temp	193.898	0.000	-0.000	-0.034	10.816	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	193.898	0.000	-7.761	-1302.042	11.112	-0.979
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	193.898	3.772	-6.533	-1105.915	-627.431	0.323
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	193.898	6.457	-3.728	-632.250	-1084.114	-0.716
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	193.898	7.513	-0.000	0.081	-1257.842	-1.562
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	193.898	6.694	3.865	647.073	-1109.514	0.263

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	Vertical Bridge	T. Cheriyan

Load Combination	Vertical	Shear _x	Shear _y	Overturning Moment, M _x	Overturning Moment, M _y	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	193.898	3.764	6.520	1102.549	-625.401	2.018
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	193.898	0.000	7.472	1268.807	11.112	0.979
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	193.898	-3.772	6.533	1106.071	649.660	-0.323
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	193.898	-6.708	3.873	649.106	1135.258	0.715
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	193.898	-7.513	-0.000	0.082	1280.066	1.562
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	193.898	-6.444	-3.720	-630.215	1102.815	-0.263
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	193.898	-3.764	-6.520	-1102.392	647.622	-2.018
Dead+Wind 0 deg - Service	59.843	0.000	-18.295	-2871.059	1.107	-0.871
Dead+Wind 30 deg - Service	59.843	8.633	-14.953	-2382.556	-1374.962	4.602
Dead+Wind 60 deg - Service	59.843	14.586	-8.421	-1346.092	-2331.866	-0.179
Dead+Wind 90 deg - Service	59.843	17.140	-0.000	0.844	-2719.350	-4.821
Dead+Wind 120 deg - Service	59.843	15.736	9.085	1421.133	-2458.892	0.849
Dead+Wind 150 deg - Service	59.843	8.601	14.898	2370.552	-1367.032	6.203
Dead+Wind 180 deg - Service	59.843	0.000	16.905	2710.407	1.107	0.871
Dead+Wind 210 deg - Service	59.843	-8.633	14.953	2384.263	1377.163	-4.602
Dead+Wind 240 deg - Service	59.843	-15.790	9.116	1428.968	2474.680	0.179
Dead+Wind 270 deg - Service	59.843	-17.140	-0.000	0.844	2721.563	4.821
Dead+Wind 300 deg - Service	59.843	-14.532	-8.390	-1338.254	2320.507	-0.849
Dead+Wind 330 deg - Service	59.843	-8.602	-14.898	-2368.843	1369.260	-6.203

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-59.843	0.000	0.000	59.843	-0.000	0.000%
2	0.000	-71.812	-53.351	-0.000	71.812	53.346	0.005%
3	0.000	-53.859	-53.351	-0.000	53.859	53.348	0.005%
4	25.175	-71.812	-43.605	-25.173	71.812	43.601	0.005%
5	25.175	-53.859	-43.605	-25.174	53.859	43.602	0.004%
6	42.536	-71.812	-24.558	-42.532	71.812	24.556	0.004%
7	42.536	-53.859	-24.558	-42.533	53.859	24.557	0.004%
8	49.984	-71.812	0.000	-49.980	71.812	0.000	0.005%
9	49.984	-53.859	0.000	-49.981	53.859	0.000	0.004%
10	45.890	-71.812	26.494	-45.886	71.812	-26.492	0.005%
11	45.890	-53.859	26.494	-45.887	53.859	-26.493	0.005%
12	25.084	-71.812	43.446	-25.081	71.812	-43.443	0.005%
13	25.084	-53.859	43.446	-25.082	53.859	-43.444	0.004%
14	0.000	-71.812	49.297	-0.000	71.812	-49.293	0.004%
15	0.000	-53.859	49.297	-0.000	53.859	-49.294	0.004%
16	-25.175	-71.812	43.605	25.173	71.812	-43.601	0.005%
17	-25.175	-53.859	43.605	25.173	53.859	-43.602	0.004%
18	-46.046	-71.812	26.585	46.042	71.812	-26.583	0.005%
19	-46.046	-53.859	26.585	46.043	53.859	-26.583	0.005%
20	-49.984	-71.812	0.000	49.980	71.812	0.000	0.005%
21	-49.984	-53.859	0.000	49.981	53.859	0.000	0.004%
22	-42.379	-71.812	-24.467	42.376	71.812	24.466	0.004%
23	-42.379	-53.859	-24.467	42.376	53.859	24.466	0.004%
24	-25.084	-71.812	-43.446	25.082	71.812	43.442	0.005%
25	-25.084	-53.859	-43.446	25.082	53.859	43.443	0.004%
26	0.000	-193.898	0.000	-0.000	193.898	0.000	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
27	0.000	-193.898	-7.762	-0.000	193.898	7.761	0.001%
28	3.773	-193.898	-6.535	-3.772	193.898	6.533	0.001%
29	6.458	-193.898	-3.729	-6.457	193.898	3.728	0.001%
30	7.514	-193.898	0.000	-7.513	193.898	0.000	0.001%
31	6.695	-193.898	3.865	-6.694	193.898	-3.865	0.001%
32	3.765	-193.898	6.521	-3.764	193.898	-6.520	0.001%
33	0.000	-193.898	7.473	-0.000	193.898	-7.472	0.001%
34	-3.773	-193.898	6.535	3.772	193.898	-6.533	0.001%
35	-6.709	-193.898	3.873	6.708	193.898	-3.873	0.001%
36	-7.514	-193.898	0.000	7.513	193.898	0.000	0.001%
37	-6.445	-193.898	-3.721	6.444	193.898	3.720	0.001%
38	-3.765	-193.898	-6.521	3.764	193.898	6.520	0.001%
39	0.000	-59.843	-18.296	-0.000	59.843	18.295	0.002%
40	8.633	-59.843	-14.954	-8.633	59.843	14.953	0.002%
41	14.587	-59.843	-8.422	-14.586	59.843	8.421	0.002%
42	17.141	-59.843	0.000	-17.140	59.843	0.000	0.002%
43	15.737	-59.843	9.086	-15.736	59.843	-9.085	0.002%
44	8.602	-59.843	14.899	-8.601	59.843	-14.898	0.002%
45	0.000	-59.843	16.906	-0.000	59.843	-16.905	0.002%
46	-8.633	-59.843	14.954	8.633	59.843	-14.953	0.002%
47	-15.791	-59.843	9.117	15.790	59.843	-9.116	0.002%
48	-17.141	-59.843	0.000	17.140	59.843	0.000	0.002%
49	-14.533	-59.843	-8.391	14.532	59.843	8.390	0.002%
50	-8.602	-59.843	-14.899	8.602	59.843	14.898	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	14	0.00006466	0.00012490
3	Yes	14	0.00004880	0.00009468
4	Yes	14	0.00006080	0.00011787
5	Yes	14	0.00004512	0.00008785
6	Yes	14	0.00005691	0.00011066
7	Yes	14	0.00004136	0.00008080
8	Yes	14	0.00006073	0.00011767
9	Yes	14	0.00004506	0.00008769
10	Yes	14	0.00006453	0.00012458
11	Yes	14	0.00004868	0.00009441
12	Yes	14	0.00006076	0.00011777
13	Yes	14	0.00004508	0.00008777
14	Yes	14	0.00005692	0.00011072
15	Yes	14	0.00004137	0.00008083
16	Yes	14	0.00006080	0.00011788
17	Yes	14	0.00004512	0.00008786
18	Yes	14	0.00006460	0.00012474
19	Yes	14	0.00004874	0.00009455
20	Yes	14	0.00006073	0.00011766
21	Yes	14	0.00004506	0.00008769
22	Yes	14	0.00005691	0.00011062
23	Yes	14	0.00004137	0.00008077
24	Yes	14	0.00006076	0.00011776
25	Yes	14	0.00004508	0.00008776
26	Yes	6	0.00000001	0.00001638
27	Yes	15	0.00000001	0.00014255

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28	Yes	15	0.00000001	0.00014070
29	Yes	15	0.00000001	0.00013930
30	Yes	15	0.00000001	0.00013986
31	Yes	15	0.00000001	0.00014171
32	Yes	15	0.00000001	0.00014099
33	Yes	15	0.00000001	0.00014097
34	Yes	15	0.00000001	0.00014213
35	Yes	15	0.00000001	0.00014337
36	Yes	15	0.00000001	0.00014135
37	Yes	15	0.00000001	0.00014020
38	Yes	15	0.00000001	0.00014104
39	Yes	14	0.00000001	0.00009674
40	Yes	14	0.00000001	0.00009458
41	Yes	14	0.00000001	0.00009230
42	Yes	14	0.00000001	0.00009443
43	Yes	14	0.00000001	0.00009656
44	Yes	14	0.00000001	0.00009453
45	Yes	14	0.00000001	0.00009239
46	Yes	14	0.00000001	0.00009461
47	Yes	14	0.00000001	0.00009666
48	Yes	14	0.00000001	0.00009442
49	Yes	14	0.00000001	0.00009223
50	Yes	14	0.00000001	0.00009450

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	265 - 260	14.472	39	0.489	0.040
T2	260 - 240	13.952	39	0.489	0.040
T3	240 - 220	11.842	39	0.471	0.038
T4	220 - 200	9.819	39	0.432	0.035
T5	200 - 180	8.017	39	0.382	0.031
T6	180 - 160	6.428	39	0.334	0.027
T7	160 - 140	5.043	39	0.290	0.023
T8	140 - 120	3.842	39	0.243	0.018
T9	120 - 100	2.829	39	0.202	0.015
T10	100 - 80	1.969	39	0.166	0.011
T11	80 - 60	1.270	39	0.129	0.007
T12	60 - 40	0.747	39	0.095	0.005
T13	40 - 20	0.364	39	0.061	0.003
T14	20 - 0	0.115	39	0.031	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
265.000	Lightning Rod 1"x10'	39	14.472	0.489	0.040	56876
260.000	Sector I (CaAa=10000 Sq.in) No Ice	39	13.952	0.489	0.040	56876
250.000	Sector I (CaAa=10000 Sq.in) No Ice	39	12.898	0.483	0.040	572287
240.000	Sector I (CaAa=10000 Sq.in) No Ice	39	11.842	0.471	0.038	50185

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	Vertical Bridge	T. Cheriyan

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	265 - 260	42.338	2	1.431	0.116
T2	260 - 240	40.816	2	1.431	0.117
T3	240 - 220	34.636	2	1.378	0.112
T4	220 - 200	28.716	2	1.263	0.102
T5	200 - 180	23.443	2	1.118	0.091
T6	180 - 160	18.796	2	0.977	0.078
T7	160 - 140	14.747	2	0.848	0.066
T8	140 - 120	11.234	2	0.711	0.054
T9	120 - 100	8.271	2	0.591	0.042
T10	100 - 80	5.756	2	0.485	0.031
T11	80 - 60	3.714	2	0.376	0.021
T12	60 - 40	2.184	2	0.277	0.016
T13	40 - 20	1.066	2	0.177	0.010
T14	20 - 0	0.338	2	0.089	0.005

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
265.000	Lightning Rod 1"x10'	2	42.338	1.431	0.116	19297
260.000	Sector I (CaAa=10000 Sq.in) No Ice	2	40.816	1.431	0.117	19297
250.000	Sector I (CaAa=10000 Sq.in) No Ice	2	37.729	1.414	0.116	208988
240.000	Sector I (CaAa=10000 Sq.in) No Ice	2	34.636	1.378	0.112	17263

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	265	Diagonal	A325X	0.625	1	0.502	9.598	0.052 ✓	1	Member Block Shear
		Top Girt	A325X	0.625	1	0.255	9.598	0.027 ✓	1	Member Block Shear
T2	260	Leg	A325N	0.750	6	0.224	29.821	0.008 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	4.394	9.598	0.458 ✓	1	Member Block Shear
T3	240	Leg	A325N	0.750	6	4.650	29.821	0.156 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	6.191	9.598	0.645 ✓	1	Member Block Shear
T4	220	Leg	A325N	0.750	6	11.671	29.821	0.391 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	5.537	10.740	0.516 ✓	1	Member Block Shear
T5	200	Leg	A325N	0.750	6	17.447	29.821	0.585 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	5.575	10.740	0.519 ✓	1	Member Block

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	Vertical Bridge	T. Cheriyan

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
T6	180	Leg	A325N	0.750	6	22.505	29.821	0.755 ✓	1	Shear Bolt Tension
		Diagonal	A325X	0.625	1	6.040	13.025	0.464 ✓	1	Member Block Shear
T7	160	Leg	A325N	0.750	6	27.189	29.821	0.912 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	6.352	13.025	0.488 ✓	1	Member Block Shear
T8	140	Leg	A325N	1.000	6	31.639	53.014	0.597 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	6.931	14.168	0.489 ✓	1	Member Block Shear
T9	120	Leg	A325N	1.000	6	35.993	53.014	0.679 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	7.624	14.168	0.538 ✓	1	Member Block Shear
T10	100	Leg	A325N	1.000	6	40.323	53.014	0.761 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	8.390	15.186	0.552 ✓	1	Bolt Shear
T11	80	Leg	A325N	1.000	6	44.591	53.014	0.841 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	9.383	26.051	0.360 ✓	1	Member Block Shear
		Horizontal	A325X	0.625	1	5.772	19.195	0.301 ✓	1	Member Block Shear
T12	60	Leg	A325N	1.000	6	48.803	53.014	0.921 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	9.461	26.051	0.363 ✓	1	Member Block Shear
		Horizontal	A325X	0.625	1	6.312	21.480	0.294 ✓	1	Member Block Shear
T13	40	Leg	A325N	1.000	6	52.840	53.014	0.997 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	9.767	26.051	0.375 ✓	1	Member Block Shear
		Horizontal	A325X	0.625	1	6.776	21.480	0.315 ✓	1	Member Block Shear
T14	20	Leg	A325N	1.250	6	56.747	82.835	0.685 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	9.877	28.336	0.349 ✓	1	Member Block Shear
		Horizontal	A325X	0.625	1	7.286	26.051	0.280 ✓	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 $\frac{P_u}{\phi P_n}$
T1	265 - 260	1 3/4	5.000	0.500	13.7 K=1.00	2.405	-0.782	106.759	0.007 ¹ ✓
T2	260 - 240	1 3/4	20.019	4.754	130.4 K=1.00	2.405	-28.069	31.952	0.878 ¹

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	Vertical Bridge	T. Cheriyan

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	240 - 220	2 1/4	20.019	4.754	101.4 K=1.00	3.976	-73.339	84.331	0.870 ¹
T4	220 - 200	2 1/2	20.019	4.754	91.3 K=1.00	4.909	-111.345	120.108	0.927 ¹
T5	200 - 180	2 3/4	20.019	4.754	83.0 K=1.00	5.940	-145.232	161.540	0.899 ¹
T6	180 - 160	3	20.019	4.754	76.1 K=1.00	7.069	-177.233	208.347	0.851 ¹
T7	160 - 140	3	20.019	4.754	76.1 K=1.00	7.069	-208.189	208.347	0.999 ¹
T8	140 - 120	3 1/4	20.019	4.754	70.2 K=1.00	8.296	-239.036	260.312	0.918 ¹
T9	120 - 100	3 1/2	20.019	4.754	65.2 K=1.00	9.621	-270.259	317.273	0.852 ¹
T10	100 - 80	3 1/2	20.019	4.754	65.2 K=1.00	9.621	-302.008	317.273	0.952 ¹
T11	80 - 60	3 3/4	20.019	4.754	60.9 K=1.00	11.045	-329.864	379.106	0.870 ¹
T12	60 - 40	3 3/4	20.019	4.754	60.9 K=1.00	11.045	-360.733	379.106	0.952 ¹
T13	40 - 20	4	20.019	4.754	57.1 K=1.00	12.566	-390.933	445.717	0.877 ¹
T14	20 - 0	4	20.019	4.754	57.1 K=1.00	12.566	-420.385	445.717	0.943 ¹

¹ P_u / φP_n controls

Diagonal 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	265 - 260	L1 3/4x1 3/4x3/16	6.021	2.913	101.8 K=1.00	0.621	-0.506	13.106	0.039 ¹
T2	260 - 240	L1 3/4x1 3/4x3/16	7.214	3.631	126.9 K=1.00	0.621	-4.309	8.718	0.494 ¹
T3	240 - 220	L1 3/4x1 3/4x3/16	7.823	3.912	136.7 K=1.00	0.621	-6.689	7.511	0.891 ¹
T4	220 - 200	L2x2x3/16	9.987	4.976	151.6 K=1.00	0.715	-5.016	7.032	0.713 ¹
T5	200 - 180	L2x2x3/16	11.329	5.636	171.7 K=1.00	0.715	-5.173	5.481	0.944 ¹
T6	180 - 160	L2 1/2x2 1/2x3/16	12.706	6.314	153.1 K=1.00	0.902	-5.604	8.696	0.644 ¹
T7	160 - 140	L2 1/2x2 1/2x3/16	14.108	7.016	170.1 K=1.00	0.902	-5.944	7.044	0.844 ¹
T8	140 - 120	L3x3x3/16	15.529	7.716	155.4 K=1.00	1.090	-6.585	10.203	0.645 ¹

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	Vertical Bridge	T. Cheriyan

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T9	120 - 100	L3x3x3/16	16.963	8.422	169.6 K=1.00	1.090	-7.330	8.563	0.856 ¹ ✓
T10	100 - 80	L3x3x1/4	18.408	9.145	185.4 K=1.00	1.440	-7.848	9.466	0.829 ¹ ✓
T11	80 - 60	2L2 1/2x2 1/2x3/16x3/8	10.829	10.655	168.6 K=1.00	1.800	-9.078	14.307	0.635 ¹ ✓
T12	60 - 40	2L 'a' > 61.014 in - 266 2L2 1/2x2 1/2x3/16x3/8	11.508	11.336	179.4 K=1.00	1.800	-9.324	12.640	0.738 ¹ ✓
T13	40 - 20	2L 'a' > 64.914 in - 305 2L2 1/2x2 1/2x3/16x3/8	12.195	12.014	190.1 K=1.00	1.800	-9.777	11.254	0.869 ¹ ✓
T14	20 - 0	2L 'a' > 68.794 in - 344 2L3x3x3/16x3/8	12.889	12.710	169.1 K=1.00	2.180	-10.026	17.229	0.582 ¹ ✓
		2L 'a' > 72.603 in - 383							

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 $\frac{P_u}{\phi P_n}$
T11	80 - 60	2L1 3/4x1 3/4x3/16x3/8	19.106	9.397	210.0 K=1.00	1.242	-5.772	6.363	0.907 ¹ ✓
T12	60 - 40	2L 'a' > 54.095 in - 262 2L2x2x3/16x3/8	20.606	10.147	198.5 K=1.00	1.430	-6.312	8.197	0.770 ¹ ✓
T13	40 - 20	2L 'a' > 58.316 in - 301 2L2x2x3/16x3/8	22.106	10.886	213.0 K=1.00	1.430	-6.776	7.121	0.951 ¹ ✓
T14	20 - 0	2L 'a' > 62.566 in - 340 2L2 1/2x2 1/2x3/16x3/8	23.606	11.636	184.1 K=1.00	1.800	-7.286	11.996	0.607 ¹ ✓
		2L 'a' > 66.633 in - 379							

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	265 - 260	L1 3/4x1 3/4x3/16	4.500	4.354	152.1 K=1.00	0.621	-0.201	6.062	0.033 ¹ ✓

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¹ $P_u / \phi P_n$ controls

Inner Bracing 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 $\frac{P_u}{\phi P_n}$
T11	80 - 60	L1 3/4x1 3/4x3/16	9.553	9.553	333.8 K=1.00	0.621	-0.010	1.259	0.008 ¹ ✓
T12	60 - 40	KL/R > 250 (C) - 269 L1 3/4x1 3/4x3/16	10.303	10.303	360.0 K=1.00	0.621	-0.011	1.083	0.010 ¹ ✓
T13	40 - 20	KL/R > 250 (C) - 308 L1 3/4x1 3/4x3/16	11.053	11.053	386.2 K=1.00	0.621	-0.011	0.941	0.011 ¹ ✓
T14	20 - 0	KL/R > 250 (C) - 347 L1 3/4x1 3/4x3/16 KL/R > 250 (C) - 387	11.803	11.803	412.4 K=1.00	0.621	-0.012	0.825	0.014 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	265 - 260	1 3/4	5.000	0.500	13.7	2.405	0.555	108.238	0.005 ¹ ✓
T2	260 - 240	1 3/4	20.019	0.500	13.7	2.405	27.908	108.238	0.258 ¹ ✓
T3	240 - 220	2 1/4	20.019	0.500	10.7	3.976	70.037	178.924	0.391 ¹ ✓
T4	220 - 200	2 1/2	20.019	0.500	9.6	4.909	104.688	220.893	0.474 ¹ ✓
T5	200 - 180	2 3/4	20.019	0.500	8.7	5.940	135.042	267.281	0.505 ¹ ✓
T6	180 - 160	3	20.019	0.500	8.0	7.069	163.148	318.086	0.513 ¹ ✓
T7	160 - 140	3	20.019	0.500	8.0	7.069	189.846	318.086	0.597 ¹ ✓
T8	140 - 120	3 1/4	20.019	0.500	7.4	8.296	215.973	373.310	0.579 ¹ ✓
T9	120 - 100	3 1/2	20.019	0.500	6.9	9.621	241.950	432.951	0.559 ¹ ✓
T10	100 - 80	3 1/2	20.019	0.500	6.9	9.621	267.562	432.951	0.618 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _u K	Ratio $\frac{P_u}{\phi P_u}$
T11	80 - 60	3 3/4	20.019	0.500	6.4	11.045	292.832	497.010	0.589 ¹
T12	60 - 40	3 3/4	20.019	0.500	6.4	11.045	317.058	497.010	0.638 ¹
T13	40 - 20	4	20.019	0.500	6.0	12.566	340.501	565.487	0.602 ¹
T14	20 - 0	4	20.019	0.500	6.0	12.566	362.865	565.487	0.642 ¹

¹ P_u / φP_u controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _u K	Ratio $\frac{P_u}{\phi P_u}$
T1	265 - 260	L1 3/4x1 3/4x3/16	6.021	2.913	65.1	0.360	0.502	17.567	0.029 ¹
T2	260 - 240	L1 3/4x1 3/4x3/16	7.485	3.764	84.1	0.360	4.394	17.567	0.250 ¹
T3	240 - 220	L1 3/4x1 3/4x3/16	7.823	3.912	87.4	0.360	6.191	17.567	0.352 ¹
T4	220 - 200	L2x2x3/16	9.987	4.976	96.8	0.431	5.537	21.001	0.264 ¹
T5	200 - 180	L2x2x3/16	11.329	5.636	109.6	0.431	5.575	21.001	0.265 ¹
T6	180 - 160	L2 1/2x2 1/2x3/16	12.706	6.314	97.4	0.571	6.040	27.838	0.217 ¹
T7	160 - 140	L2 1/2x2 1/2x3/16	14.108	7.016	108.2	0.571	6.352	27.838	0.228 ¹
T8	140 - 120	L3x3x3/16	15.529	7.716	98.6	0.712	6.931	34.712	0.200 ¹
T9	120 - 100	L3x3x3/16	16.963	8.422	107.6	0.712	7.624	34.712	0.220 ¹
T10	100 - 80	L3x3x1/4	18.408	9.145	118.0	0.939	8.390	45.794	0.183 ¹
T11	80 - 60	2L2 1/2x2 1/2x3/16x3/8	10.829	10.655	164.3	1.139	9.383	55.529	0.169 ¹
T12	60 - 40	2L 'a' > 61.014 in - 267 2L2 1/2x2 1/2x3/16x3/8	11.508	11.336	174.9	1.139	9.461	55.529	0.170 ¹
T13	40 - 20	2L 'a' > 64.914 in - 306 2L2 1/2x2 1/2x3/16x3/8	12.195	12.014	185.3	1.139	9.767	55.529	0.176 ¹
T14	20 - 0	2L 'a' > 68.794 in - 345 2L3x3x3/16x3/8	12.889	12.710	162.4	1.424	9.877	69.423	0.142 ¹
		2L 'a' > 72.603 in - 384							

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¹ $P_u / \phi P_n$ 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 $\frac{P_u}{\phi P_n}$
T11	80 - 60	2L1 3/4x1 3/4x3/16x3/8	19.106	9.397	210.0	0.721	5.772	35.134	0.164 ¹ ✓
T12	60 - 40	2L 'a' > 54.095 in - 265 2L2x2x3/16x3/8	20.606	10.147	197.3	0.862	6.312	42.001	0.150 ¹ ✓
T13	40 - 20	2L 'a' > 58.316 in - 301 2L2x2x3/16x3/8	22.106	10.886	211.7	0.862	6.776	42.001	0.161 ¹ ✓
T14	20 - 0	2L 'a' > 62.566 in - 340 2L2 1/2x2 1/2x3/16x3/8 2L 'a' > 66.633 in - 382	23.606	11.636	179.5	1.139	7.286	55.529	0.131 ¹ ✓

¹ $P_u / \phi P_n$ 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	265 - 260	L1 3/4x1 3/4x3/16	4.500	4.354	97.3	0.360	0.255	17.567	0.014 ¹ ✓

¹ $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	265 - 260	Leg	1 3/4	2	-0.782	106.759	0.7	Pass
T2	260 - 240	Leg	1 3/4	15	-28.069	31.952	87.8	Pass
T3	240 - 220	Leg	2 1/4	42	-73.339	84.331	87.0	Pass
T4	220 - 200	Leg	2 1/2	69	-111.345	120.108	92.7	Pass
T5	200 - 180	Leg	2 3/4	96	-145.232	161.540	89.9	Pass
T6	180 - 160	Leg	3	123	-177.233	208.347	85.1	Pass
T7	160 - 140	Leg	3	150	-208.189	208.347	99.9	Pass
T8	140 - 120	Leg	3 1/4	177	-239.036	260.312	91.8	Pass
T9	120 - 100	Leg	3 1/2	204	-270.259	317.273	85.2	Pass
T10	100 - 80	Leg	3 1/2	231	-302.008	317.273	95.2	Pass
T11	80 - 60	Leg	3 3/4	258	-329.864	379.106	87.0	Pass
T12	60 - 40	Leg	3 3/4	297	-360.733	379.106	95.2	Pass
T13	40 - 20	Leg	4	336	-390.933	445.717	87.7	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T14	20 - 0	Leg	4	375	-420.385	445.717	99.7 (b)	Pass
T1	265 - 260	Diagonal	L1 3/4x1 3/4x3/16	7	-0.506	13.106	94.3	Pass
							3.9	Pass
							5.2 (b)	
T2	260 - 240	Diagonal	L1 3/4x1 3/4x3/16	25	-4.309	8.718	49.4	Pass
T3	240 - 220	Diagonal	L1 3/4x1 3/4x3/16	64	-6.689	7.511	89.1	Pass
T4	220 - 200	Diagonal	L2x2x3/16	74	-5.016	7.032	71.3	Pass
T5	200 - 180	Diagonal	L2x2x3/16	101	-5.173	5.481	94.4	Pass
T6	180 - 160	Diagonal	L2 1/2x2 1/2x3/16	128	-5.604	8.696	64.4	Pass
T7	160 - 140	Diagonal	L2 1/2x2 1/2x3/16	155	-5.944	7.044	84.4	Pass
T8	140 - 120	Diagonal	L3x3x3/16	182	-6.585	10.203	64.5	Pass
T9	120 - 100	Diagonal	L3x3x3/16	209	-7.330	8.563	85.6	Pass
T10	100 - 80	Diagonal	L3x3x1/4	236	-7.848	9.466	82.9	Pass
T11	80 - 60	Diagonal	2L2 1/2x2 1/2x3/16x3/8	266	-9.078	14.307	63.5	Pass
T12	60 - 40	Diagonal	2L2 1/2x2 1/2x3/16x3/8	305	-9.324	12.640	73.8	Pass
T13	40 - 20	Diagonal	2L2 1/2x2 1/2x3/16x3/8	344	-9.777	11.254	86.9	Pass
T14	20 - 0	Diagonal	2L3x3x3/16x3/8	383	-10.026	17.229	58.2	Pass
T11	80 - 60	Horizontal	2L1 3/4x1 3/4x3/16x3/8	262	-5.772	6.363	90.7	Pass
T12	60 - 40	Horizontal	2L2x2x3/16x3/8	301	-6.312	8.197	77.0	Pass
T13	40 - 20	Horizontal	2L2x2x3/16x3/8	340	-6.776	7.121	95.1	Pass
T14	20 - 0	Horizontal	2L2 1/2x2 1/2x3/16x3/8	379	-7.286	11.996	60.7	Pass
T1	265 - 260	Top Girt	L1 3/4x1 3/4x3/16	6	-0.201	6.062	3.3	Pass
T11	80 - 60	Inner Bracing	L1 3/4x1 3/4x3/16	269	-0.010	1.259	0.8	Pass
T12	60 - 40	Inner Bracing	L1 3/4x1 3/4x3/16	308	-0.011	1.083	1.0	Pass
T13	40 - 20	Inner Bracing	L1 3/4x1 3/4x3/16	347	-0.011	0.941	1.1	Pass
T14	20 - 0	Inner Bracing	L1 3/4x1 3/4x3/16	387	-0.012	0.825	1.4	Pass
							Summary	
							Leg (T7)	99.9 Pass
							Diagonal (T5)	94.4 Pass
							Horizontal (T13)	95.1 Pass
							Top Girt (T1)	3.3 Pass
							Inner Bracing (T14)	1.4 Pass
							Bolt Checks	99.7 Pass
							RATING =	99.9 Pass

Exhibit E



Engineering, Geophysics & Geosciences

1455 LINCOLN PARKWAY, SUITE 500
ATLANTA, GEORGIA 30346
PHONE: (770) 379-8590
FAX: (770) 379-8594
WWW.EGSCI.COM

October 11, 2019

EGSci Project #: 19-US-KY-5052

Vertical Bridge Development, LLC
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

Re: Geotechnical Investigation
Site: US-KY-5052 Bethany
Kentucky Highway 15
Bethany, KY 41301

Type of Tower: Proposed Self-Support

EGSci Consulting Inc. (EGSci) is pleased to submit to Vertical Bridge Development, LLC (Vertical Bridge) this letter report summarizing our geotechnical investigation near a proposed telecommunications site (referenced herein as project site) in Breathitt County, Kentucky. Vertical Bridge requested this subsurface exploration for design purposes of the proposed telecommunications tower site.

PROJECT AND SITE DESCRIPTION

The project site is located east of Kentucky Highway 15, approximately 1.9 miles east of the intersection of Kentucky Highway 15 and Bethany Link Road, in Bethany, Breathitt County, Kentucky. At the time of this investigation, the project site consisted of a heavily wooded lot approximately 300 feet east-southeast of an existing telecommunications tower. Figure 1 shows the project site location, as indicated on the U.S. Geological Survey's (USGS) 1996 Landsaw, Kentucky 7.5-minute topographic quadrangle map.

GEOTECHNICAL INVESTIGATION

The geotechnical investigation was performed on September 30, 2019 and consisted of one soil test boring; the center of tower position was staked, by others, prior to our investigation, as shown on the attached figure.

The soil test boring (PB-1) was advanced using a CME 550 drill rig to auger refusal, which was encountered at a depth of 5.9 feet below ground surface (BGS). Groundwater conditions were observed in the borehole during drilling. Soil samples were collected and transported to EGSci's facility for further examination and are discarded thirty days after completion of fieldwork. The approximate soil boring location is shown in Figure 1, with the detailed boring log attached to this report.

EGSci Consulting Inc.

Field and Laboratory Procedures

Standard Penetration Test (SPT) Boring: The SPT boring was performed in accordance with the American Society for Testing and Materials (ASTM) Standard D1586: Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils. This sampling technique involves driving a split spoon (split-barrel) sampler into the soil using a 140-pound hammer, free falling 30 inches. The number of hammer blows required to drive the sampler one foot (after an initial seating of six inches) is termed the N-value or penetration resistance. The penetration resistance provides a general indication of soil density and/or consistency. The boring was advanced using solid flight augers. An automatic hammer was utilized for the Standard Penetration Tests at the project site.

Soil Classification: The samples retrieved from the split spoon sampler were visually examined and classified in general accordance with the guidelines of ASTM D2487: Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

Subsurface Conditions

The subsurface conditions encountered in the boring drilled at the project site are shown in detail on the boring log attached to this report. Soil boundaries indicated have been inferred from the results of non-continuous sampling and observations of drilling resistance, which can typically represent transitions from one soil type to another, rather than exact planes of stratigraphic change. The conditions summarized in a boring log are location-specific and conditions may differ beyond the boring location.

Groundwater was not encountered during the drilling of Boring PB-1. However, seasonal precipitation may affect the groundwater levels at the project site, and conditions may vary beyond the boring location. A groundwater monitoring program would be required to establish long-term groundwater conditions at the project site, which is beyond the scope of this investigation.

Regional Geology

According to the USGS digital geologic map of the State of Kentucky, the geology of the project site area is characterized by the Pennsylvanian Breathitt Formation, lower part. This geology is generally comprised of siltstone and shale, with minor sandstone and incidental conglomerate and coal.

GEOTECHNICAL RECOMMENDATIONS

The geotechnical design parameters presented below are to assist in the conceptual design and analysis of the proposed tower foundation system. These values are solely based on in-situ conditions observed in the test boring and evaluation of subsurface samples.

Geotechnical Recommendations for the Tower Foundation

Based on the geotechnical investigation performed by EGSci, a shallow foundation system is feasible for supporting the proposed tower at the boring location completed as part of this study. The tower may be constructed on shallow foundations bearing at or below the frost depth on suitable natural materials or new structural fill. A net ultimate bearing resistance of 9,000 pounds per square foot (psf) may be utilized for the tower foundation design analysis. A total unit weight

of 105 pounds per cubic foot (pcf), friction angle of zero (0) degrees, and undrained shear strength of 1,500 psf may also be utilized for purposes of the tower foundation design analysis. Note that other potential foundation options may be feasible. *The selected foundation system should be designed and constructed in accordance with the various applicable codes. These recommendations should be considered applicable for the conditions encountered at PB-1 at the location shown on the attached figure.*

Construction Inspection and Considerations

In general, foundation recommendations contained in this report are contingent upon inspection by a geotechnical engineer or experienced designated inspector at the time of construction on a full-time basis. Inspections should include observations for compliance with recommendations and/or testing (e.g. in-place density tests), as required. Based on the field observations of the geotechnical engineer or inspector, additional recommendations may be required.

The foundation excavations should be inspected and approved by a qualified geotechnical engineer or geotechnical inspector immediately prior to placing reinforcement steel or concrete. Foundation areas should be level and free of loose soil, standing water, and debris. Loose or soft soils should be removed and replaced with suitable fill material. If the foundation excavations are kept open for a long time, the bearing soils may be softened by water intrusion or exposure. If bearing soils are softened, they must be removed and replaced before placement of concrete. If the bottom of the foundation excavation is not level, a structural concrete leveling pad (similar to the structural concrete required for the foundation) may be used; open-graded stone, such as gravel, are not recommended for use as a leveling pad below the foundation due to the potential for water to be retained (i.e., not drain) and cause degradation to the bearing materials and foundation. *Prior to installing a concrete leveling pad, if required, the foundation bearing surface should be inspected and approved by a geotechnical inspector.*

Additional construction considerations are as follows:

- *Based on the survey information (by others) provided for the project site, the elevation change across the proposed lease area is approximately $90 \pm$ feet (not including the proposed access easement). Therefore, subsurface conditions at the project site should be expected to vary (due to the change in ground surface elevation) within the proposed lease area relative to the boring location.*
- *At the time of this investigation, a final site layout and grading plan were not available; therefore, geotechnical recommendations relating to earth retention structures and slope stability (if applicable) are beyond the scope of this report and should be addressed by others (including any additional geotechnical investigation, if appropriate) based on the final site layout and grading plan.*
- General site fill necessary for site grading or backfill material or structural fill should be placed in 8-inch thick layers, moisture conditioned, and compacted to a minimum of 98% of the Standard Proctor Maximum Density (the standard proctor test for the imported fill is to be completed by the contractor's geotechnical/material testing engineer). All imported fill should be clean soil (free of roots and debris and should contain less than 10% by dry weight passing #200).

- A representative sample of the imported fill should be collected by the geotechnical engineering inspector *at the time of construction* for laboratory testing to evaluate the grain size distribution and Atterberg limit characteristics to determine if the imported fill is suitable for use as structural fill. A standard proctor test must be performed on the representative sample of material (imported fill *or* on-site material deemed suitable for structural fill) to be used in the engineered (or structural) fill operations.

Frost Depth

The regional design frost depth at the project site is 30 inches, which is based on values from the Naval Facilities Engineering Command Soil Mechanics Design Manual (NAVFAC DM 7.01), as reported by the Telecommunications Industry Association Structural Standard for Antenna Supporting Structures and Antennas (ANSI/TIA-222-G).

QUALIFICATION OF RECOMMENDATIONS

This report is for the exclusive use of Vertical Bridge and the designers of the project described herein and is applicable to this project. These recommendations have been prepared by the generally accepted standards of Geotechnical Engineering practice in the State of Kentucky practicing under similar conditions subject to the time limits, and financial and physical constraints applicable to the services. No other warranty is expressed or implied. EGSci is not responsible for the conclusions, opinions and recommendations of others. Any re-use of this document, particularly by third parties, without our express written permission is solely at their own risk.

Environmental services and/or concerns were not included in our scope of work and have not been addressed in this report.

The recommendations presented in this report are based on the data obtained from the soil boring, exploration and testing program performed at the location shown in Figure 1, and past experience. Subsurface conditions may differ beyond those at the boring location and are not reflected in this report.

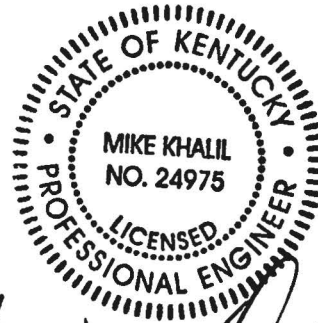
EGSci Consulting Inc. appreciates the opportunity to work with Vertical Bridge on this project. If you have any questions or require additional information regarding this report, please do not hesitate to contact us.

Very truly yours,

EGSci Consulting Inc.



Shelly Keary, M.Sc.
Project Geotechnical Engineer



10/11/2019



Mike Khalil, M.Sc., P.E. (KY #24975)
Principal Engineer

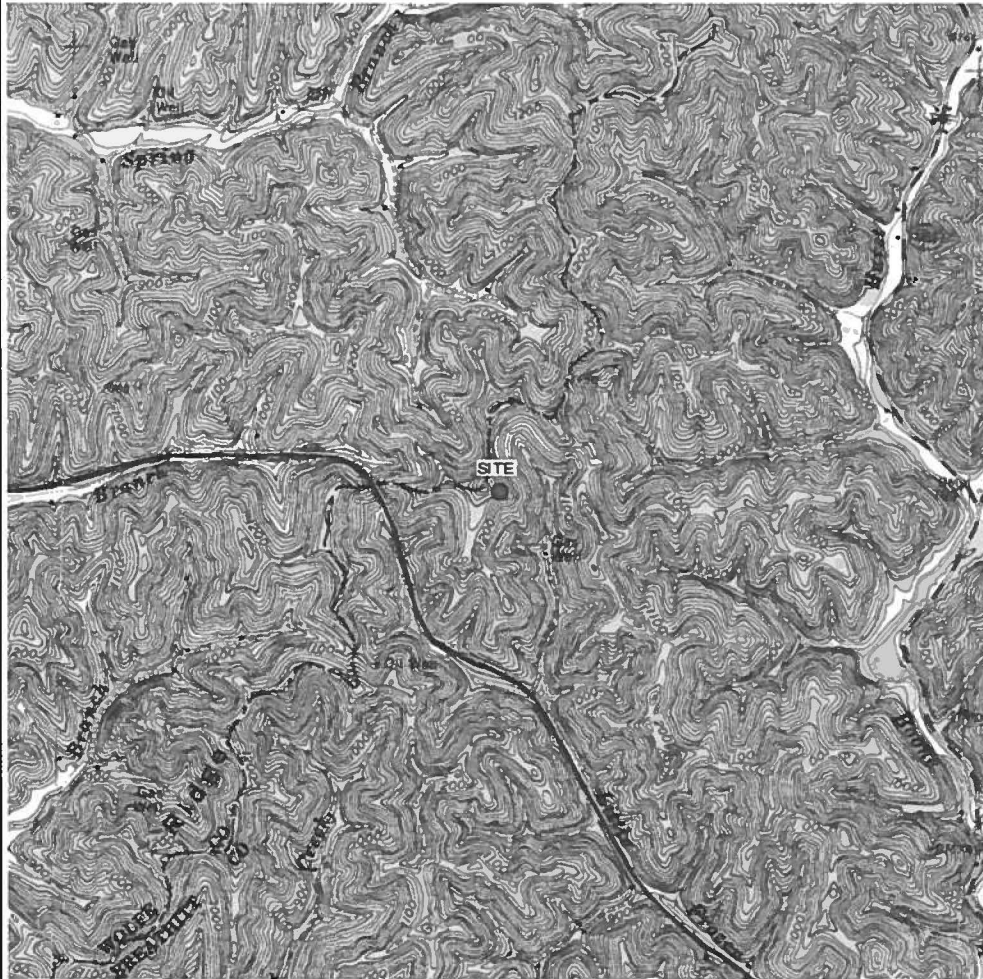
Attachments

Site Figures

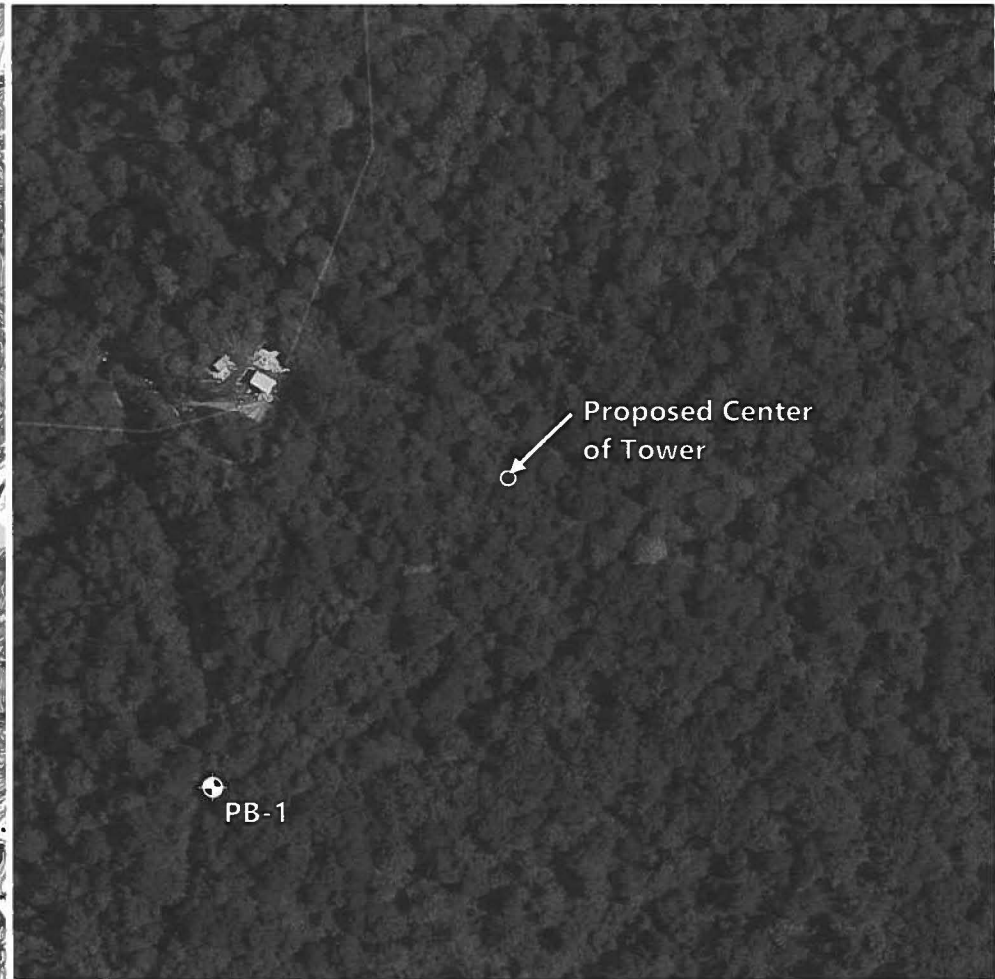
Key to Soil Classification

Log of Boring

Note: Site features below are for reference only and have not been surveyed by EGSci. The boring location should be considered approximate.



Source: USGS Topographic Map
 Landsaw, Kentucky; Year: 1996
 Scale: Not to Scale



Source: Google Earth Imagery
 Scale: Not to Scale
 ⊕ Approximate Boring Location

CONSULTANT

EGSci
 consulting inc.
 1455 Lincoln Parkway – Suite 500
 Atlanta, GA 30346

CLIENT

verticalbridge
 750 Park of Commerce Drive; Suite 200
 Boca Raton, Florida 33487

**Geotechnical
 Investigation**

FIGURE 1

SITE: US-KY-5052 Bethany
**Site Location Map and
 Boring Location Plan**

KEY TO SOIL CLASSIFICATION

TERMS AND DESCRIPTIONS

Soil Description	Range of Proportion
Trace	0 – 5 %
Little	5 – 12 %
Some	12 - 30 %
And	30 – 50 %

Relative Density of Cohesionless Soils	SPT N-value
Very Loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	Over 50

Consistency of Cohesive Soils	Undrained Shear Strength (psf)
Very soft	Less than 250
Soft	250 to 500
Firm	500 to 1,000
Stiff	1,000 to 2,000
Very stiff	2,000 to 4,000
Hard	Over 4,000

SAMPLE TYPES

AS	Auger Sample
DO	Drive Open
DS	Denison sample
PS	Pitcher sample
RC	Rock core
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

SOIL TESTS

Moisture Content	M
Atterberg Limits	A
Grain Size	G
Unconfined Compression	U
Triaxial Shear (UU,CU,CD)	T
Direct Shear	D
Organic	O
pH	PH
Permeability	P
Consolidation	C
Specific Gravity	SG
Compaction	Com
Pinhole Dispersion	PD

PENETRATION RESISTANCE

Standard Penetration Resistance (ASTM D1586) "N" = the number of blows required to drive a 2 inch OD split spoon sampler one foot using a 140 lb. hammer falling 30 inches.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Names			Soil Classification Generalized Group Descriptions	
COARSE-GRAINED SOILS More than 50% retained on the No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 Sieve	CLEAN GRAVELS Less than 5% fines	GW	Well-graded Gravels
		GRAVELS WITH FINES More than 12% fines	GP	Poorly-graded Gravels
			GM	Gravel and Silt Mixtures
			GC	Gravel and Clay Mixtures
	SANDS 50% or more of coarse fraction passes No. 4 Sieve	CLEAN SANDS Less than 5% fines	SW	Well-graded Sands
		SANDS WITH FINES More than 12% fines	SP	Poorly-graded Sands
			SM	Sand and Silt Mixtures
			SC	Sand and Clay Mixtures
FINE-GRAINED SOILS 50% or more passes the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50	INORGANIC	CL	Low-plasticity Clays
			ML	Non-plastic and Low-Plasticity Silts
		ORGANIC	OL	Non-plastic and Low-Plasticity Organic Clays
				Non-plastic and Low-Plasticity Organic Silts
	SILTS AND CLAYS Liquid limit greater than 50	INORGANIC	CH	High-plasticity Clays
			MH	High-plasticity Silts
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor	ORGANIC	OH	High-plasticity Organic Silts and Clays
			PT	Peat

PROJECT: US-KY-5052 Bethany

PROJECT LOCATION: Kentucky Highway 15; Bethany, KY 41301

CLIENT: Veritcal Bridge

LOG OF BORING PB-1

SHEET 1 of 1

DRILLING DATE: 9/30/2019

DRILL RIG: CME 550 with Automatic Hammer

DRILLING METHOD: 4-inch Solid Flight Auger



DEPTH (feet)	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	NUMBER	TYPE	SPT BLOWS per 6 inches or ROCK CORE REC. and RQD	N-VALUE (bpf) (uncorrected)	NOTES
0	Dry, hard, brown, low plasticity Silty CLAY, with little fine to coarse Sand, little fine Gravel, and little Organics (Highly Weathered Shale).	CL		1	DO	10-13-15	28	Groundwater was not encountered during drilling.
1.5	S2: slightly moist, brown and gray			2	DO	12-16-23	39	
4	Weathered Sandy Shale with interbedded Silty Sandstone, sampled as: Slightly moist, very dense, light gray, fine to coarse GRAVEL-size pieces of Sandstone and Shale, with some fine to medium Sandy, low plasticity Silty Clay.	GC		3	DO	21-50/3"	50/3"	
5.9	Auger Refusal encountered at 5.9 ft BGS. Boring Terminated at 5.9 ft BGS.							
10								

Exhibit F

KY Public Service Commission

Master Utility Search

- Search for the utility of interest by using any single or combination of criteria.
- Enter Partial names to return the closest match for Utility Name and Address/City/Contact entries.

Utility ID	Utility Name	Address/City/Contact	Utility Type	Status
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Active <input type="text"/>
<input type="button" value="Search"/>				

	Utility ID	Utility Name	Utility Type	Class	City	State
View	4111300	2600Hz, Inc. dba ZSWITCH	Cellular	D	San Francisco	CA
View	4108300	Air Voice Wireless, LLC	Cellular	B	Bloomfield Hill	MI
View	4110650	Alliant Technologies of KY, L.L.C.	Cellular	D	Morristown	NJ
View	44451184	Alltel Corporation d/b/a Verizon Wireless	Cellular	A	Lisle	IL
View	4110850	AltaWorx, LLC	Cellular	D	Fairhope	AL
View	4107800	American Broadband and Telecommunications Company	Cellular	D	Toledo	OH
View	4108650	AmeriMex Communications Corp.	Cellular	D	Dunedin	FL
View	4105100	AmeriVision Communications, Inc. d/b/a Affinity 4	Cellular	D	Virginia Beach	VA
View	4110700	Andrew David Balholm dba Norcell	Cellular	D	Clayton	WA
View	4108600	BCN Telecom, Inc.	Cellular	D	Morristown	NJ
View	4110550	Blue Casa Mobile, LLC	Cellular	D	Santa Barbara	CA
View	4111050	BlueBird Communications, LLC	Cellular	D	New York	NY
View	4202300	Bluegrass Wireless, LLC	Cellular	A	Elizabethtown	KY
View	4107600	Boomerang Wireless, LLC	Cellular	B	Hiawatha	IA
View	4105500	BullsEye Telecom, Inc.	Cellular	D	Southfield	MI
View	4100700	Cellco Partnership dba Verizon Wireless	Cellular	A	Basking Ridge	NJ

View	4106600	Cintex Wireless, LLC	Cellular	D	Rockville	MD
View	4111150	Comcast OTR1, LLC	Cellular	D	Philadelphia	PA
View	4101900	Consumer Cellular, Incorporated	Cellular	A	Portland	OR
View	4106400	Credo Mobile, Inc.	Cellular	A	San Francisco	CA
View	4108850	Cricket Wireless, LLC	Cellular	A	San Antonio	TX
View	4111500	CSC Wireless, LLC d/b/a Altice Wireless	Cellular	C	Long Island City	NY
View	10640	Cumberland Cellular Partnership	Cellular	A	Elizabethtown	KY
View	4111650	DataBytes, Inc.	Cellular	C	Rogers	AR
View	4111200	Dynalink Communications, Inc.	Cellular	C	Brooklyn	NY
View	4101000	East Kentucky Network, LLC dba Appalachian Wireless	Cellular	A	Ivel	KY
View	4002300	Easy Telephone Service Company dba Easy Wireless	Cellular	D	Ocala	FL
View	4109500	Enhanced Communications Group, LLC	Cellular	D	Bartlesville	OK
View	4110450	Excellus Communications, LLC	Cellular	D	Chattanooga	TN
View	4105900	Flash Wireless, LLC	Cellular	C	Concord	NC
View	4104800	France Telecom Corporate Solutions L.L.C.	Cellular	D	Oak Hill	VA
View	4109350	Global Connection Inc. of America	Cellular	D	Norcross	GA
View	4102200	Globalstar USA, LLC	Cellular	B	Covington	LA
View	4109600	Google North America Inc.	Cellular	A	Mountain View	CA
View	33350363	Granite Telecommunications, LLC	Cellular	D	Quincy	MA
View	4106000	GreatCall, Inc. d/b/a Jitterbug	Cellular	A	San Diego	CA
View	10630	GTE Wireless of the Midwest dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
View	4111350	HELLO MOBILE TELECOM LLC	Cellular	D	Dania Beach	FL
View	4103100	i-Wireless, LLC	Cellular	B	Newport	KY
View	4109800	IM Telecom, LLC d/b/a Infiniti Mobile	Cellular	D	Tulsa	OK
View	22215360	KDDI America, Inc.	Cellular	D	New York	NY
View	10872	Kentucky RSA #1 Partnership	Cellular	A	Basking Ridge	NJ
View	10680	Kentucky RSA #3 Cellular General	Cellular	A	Elizabethtown	KY
View	10681	Kentucky RSA #4 Cellular General	Cellular	A	Elizabethtown	KY
View	4111250	Liberty Mobile Wireless, LLC	Cellular	D	Sunny Isles Beach	FL
View	4111550	Lingo Telecom of the South, LLC	Cellular	C	Atlanta	GA
View	4111400	Locus Telecommunications, LLC	Cellular	A	Fort Lee	NJ
View	4110900	Lunar Labs, Inc.	Cellular	D	Detroit	MI
View	4107300	Lycamobile USA, Inc.	Cellular	D	Newark	NJ

View	4108800	MetroPCS Michigan, LLC	Cellular	A	Bellevue	WA
View	4111700	Mint Mobile, LLC	Cellular	C	Costa Mesa	CA
View	4109650	Mitel Cloud Services, Inc.	Cellular	D	Mesa	AZ
View	4202400	New Cingular Wireless PCS, LLC dba AT&T Mobility, PCS	Cellular	A	San Antonio	TX
View	10900	New Par dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
View	4000800	Nextel West Corporation	Cellular	D	Overland Park	KS
View	4001300	NPCR, Inc. dba Nextel Partners	Cellular	D	Overland Park	KS
View	4001800	OnStar, LLC	Cellular	A	Detroit	MI
View	4110750	Onvoy Spectrum, LLC	Cellular	D	Chicago	IL
View	4109050	Patriot Mobile LLC	Cellular	D	Irving	TX
View	4110250	Plintron Technologies USA LLC	Cellular	D	Bellevue	WA
View	33351182	PNG Telecommunications, Inc. dba PowerNet Global Communications	Cellular	D	Cincinnati	OH
View	4202100	Powertel/Memphis, Inc. dba T- Mobile	Cellular	A	Bellevue	WA
View	4107700	Puretalk Holdings, LLC	Cellular	A	Covington	GA
View	4106700	Q Link Wireless, LLC	Cellular	B	Dania	FL
View	4108700	Ready Wireless, LLC	Cellular	B	Hiawatha	IA
View	4110500	Republic Wireless, Inc.	Cellular	B	Raleigh	NC
View	4111100	ROK Mobile, Inc.	Cellular	D	Culver City	CA
View	4106200	Rural Cellular Corporation	Cellular	A	Basking Ridge	NJ
View	4108550	Sage Telecom Communications, LLC dba TruConnect	Cellular	D	Los Angeles	CA
View	4109150	SelecTel, Inc. d/b/a SelecTel Wireless	Cellular	D	Freemont	NE
View	4110150	Spectrotel, Inc. d/b/a Touch Base Communications	Cellular	D	Neptune	NJ
View	4111450	Spectrum Mobile, LLC	Cellular	C	St. Louis	MO
View	4200100	Sprint Spectrum, L.P.	Cellular	A	Atlanta	GA
View	4200500	SprintCom, Inc.	Cellular	A	Atlanta	GA
View	4109550	Stream Communications, LLC	Cellular	D	Dallas	TX
View	4111600	STX Group LLC dba Twigby	Cellular	C	Murfreesboro	TN
View	4110200	T C Telephone LLC d/b/a Horizon Cellular	Cellular	D	Red Bluff	CA
View	4202200	T-Mobile Central, LLC dba T- Mobile	Cellular	A	Bellevue	WA
View	4002500	TAG Mobile, LLC	Cellular	D	Carrollton	TX
View	4109700	Telecom Management, Inc. dba Pioneer Telephone	Cellular	D	Portland	ME
View	4107200	Telefonica USA, Inc.	Cellular	D	Miami	FL
View	4108900	Telrite Corporation	Cellular	D	Covington	GA
View	4108450	Tempo Telecom, LLC	Cellular	B	Atlanta	GA

View	4109000	Ting, Inc.	Cellular	A	Toronto	ON
View	4110400	Torch Wireless Corp.	Cellular	D	Jacksonville	FL
View	4103300	Touchtone Communications, Inc.	Cellular	D	Whippany	NJ
View	4104200	TracFone Wireless, Inc.	Cellular	D	Miami	FL
View	4002000	Truphone, Inc.	Cellular	D	Durham	NC
View	4110300	UVNV, Inc. d/b/a Mint Mobile	Cellular	D	Costa Mesa	CA
View	4105700	Virgin Mobile USA, L.P.	Cellular	A	Atlanta	GA
View	4110800	Visible Service LLC	Cellular	D	Basking Ridge	NJ
View	4106500	WiMacTel, Inc.	Cellular	D	Palo Alto	CA
View	4110950	Wing Tel Inc.	Cellular	D	New York	NY

Exhibit G



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-ASO-24040-OE

Issued Date: 08/26/2019

Richard Hickey
Vertical Bridge Development, LLC
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

**** 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 US-KY-5052 Bethany
Location:	Bethany, KY
Latitude:	37-39-02.84N NAD 83
Longitude:	83-26-17.49W
Heights:	1264 feet site elevation (SE) 275 feet above ground level (AGL) 1539 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:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, a med-dual system - Chapters 4,8(M-Dual),&12.

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)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

This determination expires on 02/26/2021 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 2019-ASO-24040-OE.

Signature Control No: 413044356-415341177

(DNE)

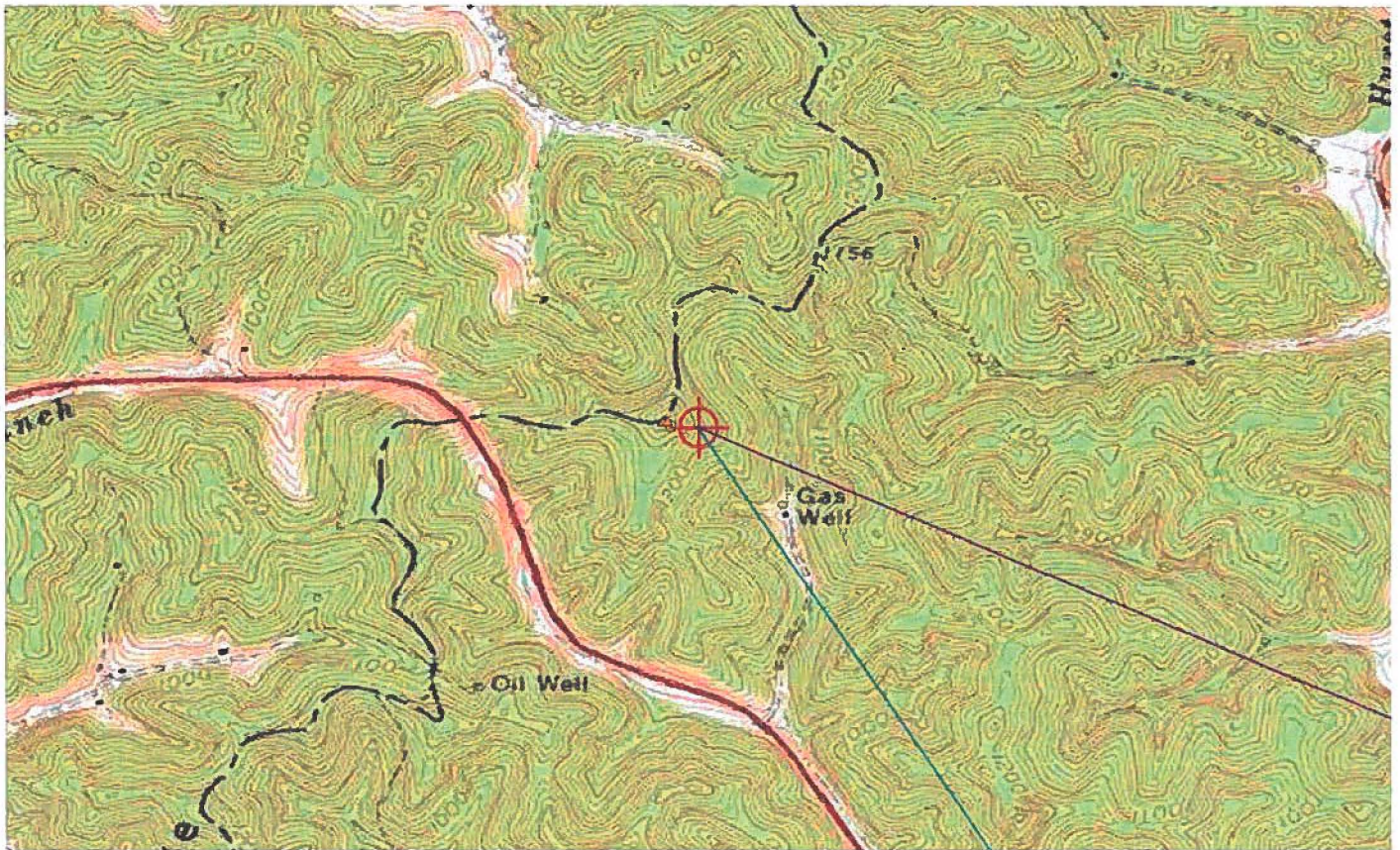
Angelique Eersteling
Technician

Attachment(s)
Frequency Data
Map(s)

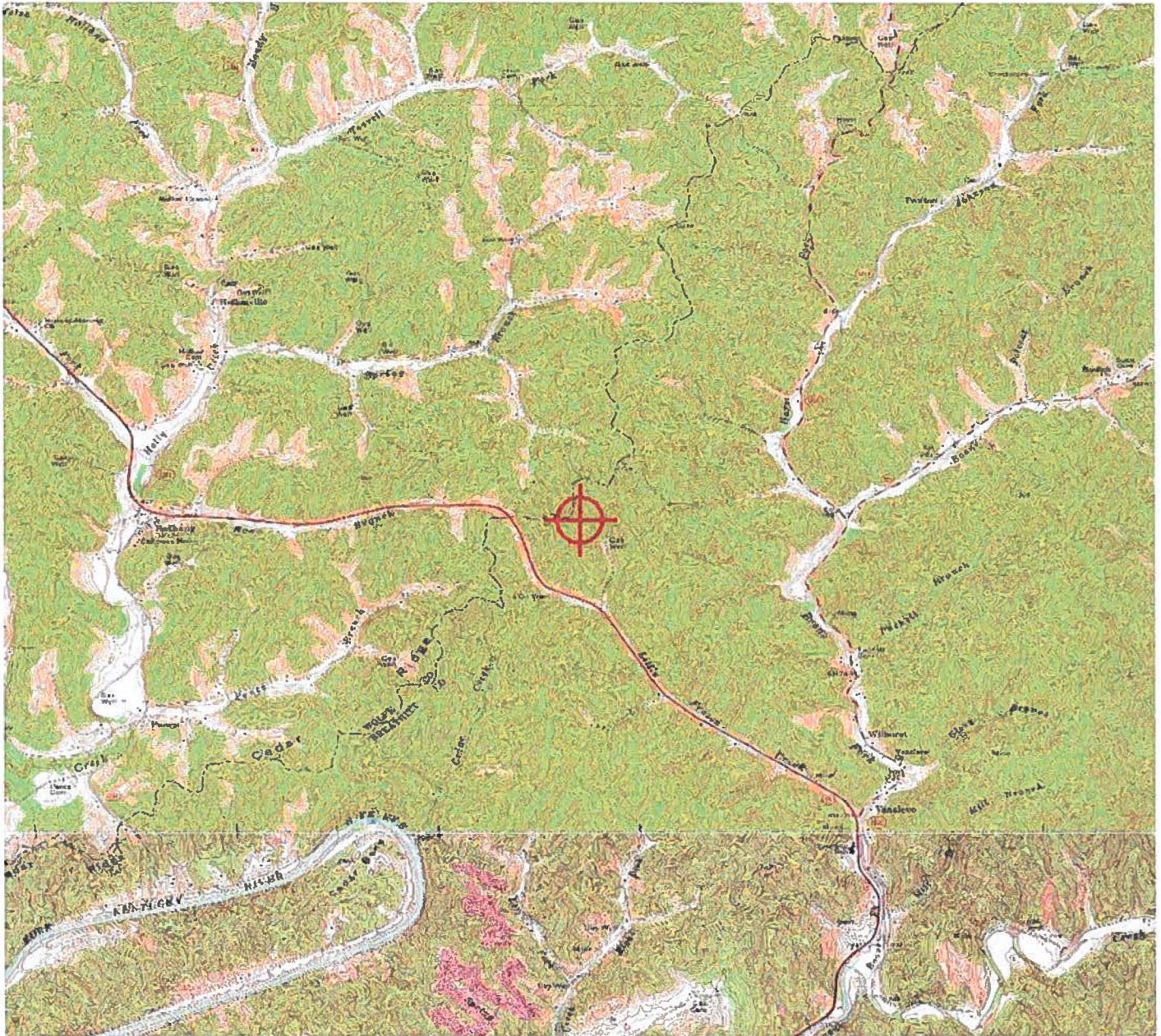
cc: FCC

Frequency Data for ASN 2019-ASO-24040-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	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
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	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W



TOPO Map for ASN 2019-ASO-24040-OE





KENTUCKY TRANSPORTATION CABINET
KENTUCKY AIRPORT ZONING COMMISSION

TC 55-2
Rev. 05/2017
Page 2 of 2

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

APPLICANT (name) Vertical Bridge Development, LLC		PHONE 615-636-9495	FAX	KY AERONAUTICAL STUDY # 2019-ASO-24040-OE	
ADDRESS (street) 750 Park of Commerce Dr.		CITY Boca Raton		STATE FL	ZIP 33487
APPLICANT'S REPRESENTATIVE (name) Todd Briggs		PHONE 844-331-3402	FAX		
ADDRESS (street) 10200 Forest Green Blvd, Suite 112		CITY Louisville		STATE KY	ZIP 40223
APPLICATION FOR <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Alteration <input type="checkbox"/> Existing DURATION <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary (months days)				WORK SCHEDULE Start 11/2019 End 3/2020	
TYPE <input type="checkbox"/> Crane <input type="checkbox"/> Building <input checked="" type="checkbox"/> Antenna Tower <input type="checkbox"/> Power Line <input type="checkbox"/> Water Tank <input type="checkbox"/> Landfill <input type="checkbox"/> Other		MARKING/PAINTING/LIGHTING PREFERRED <input type="checkbox"/> Red Lights & Paint <input type="checkbox"/> White- medium intensity <input type="checkbox"/> White- high intensity <input checked="" type="checkbox"/> Dual- red & medium intensity white <input type="checkbox"/> Dual- red & high intensity white <input type="checkbox"/> Other			
LATITUDE 37 ° 39 ' 02 . 84 ''		LONGITUDE 83 ° 26 ' 17 . 49 ''		DATUM <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> NAD27 <input type="checkbox"/> Other	
NEAREST KENTUCKY City Bethany County Breathitt		NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT Julian Carroll Airport			
SITE ELEVATION (AMSL, feet) 1264'		TOTAL STRUCTURE HEIGHT (AGL, feet) 275'		CURRENT (FAA aeronautical study #) 2019-ASO-24040-OE	
OVERALL HEIGHT (site elevation plus total structure height, feet) 1539'				PREVIOUS (FAA aeronautical study #)	
DISTANCE (from nearest Kentucky public use or Military airport to structure) 6.57 NM				PREVIOUS (KY aeronautical study #)	
DIRECTION (from nearest Kentucky public use or Military airport to structure) Northwest					
DESCRIPTION OF LOCATION (Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.) KY-15, Jackson, KY 41339					
DESCRIPTION OF PROPOSAL 265' Self-Support Tower with a 10 lightning Rod (total 275') Carrier is T-Mobile					
FAA Form 7460-1 (Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?) <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, when?					
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.)					
PENALTIES (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 Todd Briggs	TITLE VB Representative	SIGNATURE Todd R Briggs <small>Digitally signed by Todd R Briggs DN: cn=Todd R Briggs, ou=Vertical Law Office, P, email=mod@verticalbridge.com, c=US Date: 2019.08.27 13:14:59 -0500</small>		DATE 8-27-2019	
COMMISSION ACTION <input type="checkbox"/> Chairperson, KAZC <input type="checkbox"/> Administrator, KAZC					
<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		SIGNATURE		DATE	

Exhibit H



Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign WQZK769	File Number
Radio Service WT - 600 MHz Band	

FCC Registration Number (FRN): 0001565449

Grant Date 06-14-2017	Effective Date 06-15-2017	Expiration Date 06-14-2029	Print Date
Market Number PEA095	Channel Block B	Sub-Market Designator 0	
Market Name Bluefield, WV			
1st Build-out Date 06-14-2023	2nd Build-out Date 06-14-2029	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.

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign WQZK770	File Number
Radio Service WT - 600 MHz Band	

FCC Registration Number (FRN): 0001565449

Grant Date 06-14-2017	Effective Date 06-15-2017	Expiration Date 06-14-2029	Print Date
Market Number PEA095	Channel Block C	Sub-Market Designator 0	
Market Name Bluefield, WV			
1st Build-out Date 06-14-2023	2nd Build-out Date 06-14-2029	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.

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign WQZK771	File Number
Radio Service WT - 600 MHz Band	

FCC Registration Number (FRN): 0001565449

Grant Date 06-14-2017	Effective Date 06-15-2017	Expiration Date 06-14-2029	Print Date
Market Number PEA095	Channel Block D	Sub-Market Designator 0	
Market Name Bluefield, WV			
1st Build-out Date 06-14-2023	2nd Build-out Date 06-14-2029	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.

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REGULATORY COMPLIANCE
T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign WQIZ403	File Number 0008665839
Radio Service WY - 700 MHz Lower Band (Blocks A, B & E)	

FCC Registration Number (FRN): 0001565449

Grant Date 07-23-2019	Effective Date 07-23-2019	Expiration Date 06-13-2029	Print Date 07-25-2019
Market Number BEA047	Channel Block A	Sub-Market Designator 0	
Market Name Lexington, KY-TN-VA-WV			
1st Build-out Date	2nd Build-out Date 06-13-2019	3rd Build-out Date	4th Build-out Date

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).

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

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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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: DAN MENSER
T-MOBILE LICENSE LLC
12920 SE 38TH ST.
BELLEVUE, WA 98006

Call Sign WQGB377	File Number 0006341062
Radio Service AW - AWS, 1710-1755/2110-2155 MHz bands	

FCC Registration Number (FRN): 0001565449

Grant Date 11-29-2006	Effective Date 09-26-2014	Expiration Date 11-29-2021	Print Date 12-02-2014
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Market Number RLA001	Channel Block D	Sub-Market Designator 9
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Market Name Mississippi Valley
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1st Build-Out Date	2nd Build-Out Date	3rd Build-Out Date	4th Build-Out Date
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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.

The license is subject to compliance with the provisions of the January 12, 2001 Agreement between Deutsche Telekom AG, VoiceStream Wireless Corporation, VoiceStream Wireless Holding Corporation and the Department of Justice (DOJ) and the Federal Bureau of Investigation (FBI), which addresses national security, law enforcement, and public safety issues of the FBI and the DOJ regarding the authority granted by this license. Nothing in the Agreement is intended to limit any obligation imposed by Federal law or regulation including, but not limited to, 47 U.S.C. Section

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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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

**ATTN: DAN MENSER
T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006**

Call Sign WQSL582	File Number 0006223274
Radio Service AW - AWS, 1710-1755/2110-2155 MHz bands	

FCC Registration Number (FRN): 0001565449

Grant Date 09-27-2013	Effective Date 09-27-2013	Expiration Date 04-30-2022	Print Date 04-02-2014
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Market Number REA004	Channel Block E	Sub-Market Designator 2
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Market Name Mississippi Valley
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1st Build-Out Date	2nd Build-Out Date	3rd Build-Out Date	4th Build-Out Date
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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.

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.

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REGULATORY COMPLIANCE
T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign	File Number
WQVP317	
Radio Service	
AT - AWS-3 (1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz)	

FCC Registration Number (FRN): 0001565449

Grant Date 04-08-2015	Effective Date 04-08-2015	Expiration Date 04-08-2027	Print Date
Market Number BEA047	Channel Block H	Sub-Market Designator 0	
Market Name Lexington, KY-TN-VA-WV			
1st Build-out Date 04-08-2021	2nd Build-out Date 04-08-2027	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.

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REG COMP CONTACT
T-MOBILE LICENSE LLC
12920 SE 38TH ST.
BELLEVUE, WA 98006

Call Sign WQCX683	File Number 0006751849
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0001865449

Grant Date 06-29-2015	Effective Date 06-29-2015	Expiration Date 06-20-2025	Print Date 06-30-2015
Market Number BTA252	Channel Block C		Sub-Market Designator 3
Market Name Lexington, KY			
1st Build-out Date 06-20-2010	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

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.



Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: POWERTEL MEMPHIS LICENSES, INC.

ATTN: FCC REGULATORY COMPLIANCE
POWERTEL MEMPHIS LICENSES, INC.
12920 SE 38TH ST.
BELLEVUE, WA 98006

Call Sign KNLH399	File Number 0007644208
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0001832807

Grant Date 04-24-2017	Effective Date 04-24-2017	Expiration Date 04-28-2027	Print Date 04-25-2017
Market Number BTA252	Channel Block E		Sub-Market Designator 3
Market Name Lexington, KY			
1st Build-out Date 04-28-2002	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

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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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REGULATORY COMPLIANCE
T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign KNLH256	File Number 0007643729
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0001565449

Grant Date 04-17-2017	Effective Date 04-17-2017	Expiration Date 04-28-2027	Print Date 04-18-2017
Market Number BTA252	Channel Block F		Sub-Market Designator 0
Market Name Lexington, KY			
1st Build-out Date 04-28-2002	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is conditioned upon the full and timely payment of all monies due pursuant to Sections 1.2110 and 24.716 of the Commission's Rules and the terms of the Commission's installment plan as set forth in the Note and Security Agreement executed by the licensee. Failure to comply with this condition will result in the automatic cancellation of this authorization.

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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Exhibit I

OPTION AND AGREEMENT OF SALE

This OPTION AND AGREEMENT OF SALE (this "Agreement") is made as of the 2nd day of July, 2019, by **Larry T Henson**, a single man, and **Darrell Miller and Brenda J. Miller**, husband and wife (collectively, "Seller") and **Vertical Bridge Development, LLC**, a Delaware limited liability company ("Buyer").

BACKGROUND

Seller is the owner of certain land located in the County of Breathitt, State of Kentucky together with any easements, rights-of-way, appurtenances, and hereditaments belonging or in any way appertaining thereto, including all improvements and fixtures located thereon (collectively, the "Premises"). The Premises is more fully described on **Exhibit A** attached hereto.

Buyer desires an option to purchase the Premises and Seller desires to grant an option to purchase (and if exercised, to sell) the Premises to Buyer on the terms and conditions set forth in this Agreement.

NOW, THEREFORE, the undersigned, with the intention to be legally bound hereby, and in consideration of the mutual promises herein, agree as follows:

1. Option. In consideration of [REDACTED] ("Option Fee"), to be paid by Buyer to Seller within ten (10) days following the Effective Date (defined below), Seller hereby grants to Buyer the exclusive, irrevocable option (the "Option") to purchase the Premises for a period of one (1) year beginning on the Effective Date (the "Option Period"). The Option Fee shall be considered non-refundable if Buyer does not exercise the Option prior to expiration of the Option Period, and the Option hereunder shall lapse and be of no further force or effect, and neither party shall have any further liability or obligation to the other hereunder. Until expiration of the Option Period, Seller shall not grant or permit any third party to use or occupy the Premises.

2. Sale of the Premises, Effective Date. In the event Buyer exercises the Option, Seller agrees to sell and convey to Buyer, and Buyer agrees to purchase, the Premises. The effective date ("Effective Date") of this Agreement shall be the later of (i) the date this Agreement is signed by Buyer, or (ii) if this Agreement is signed by Buyer first, then the date this Agreement is signed by Seller and delivered to Buyer, by hand delivery or in the manner provided for giving notices, or by telecopy. A telecopied or other electronic signature shall be deemed to be an original signature.

3. Purchase Price. The total consideration or purchase price for the Premises shall be [REDACTED] ("Purchase Price") less the Option Fee paid by Buyer to Seller.

4. Survey. If Buyer causes a survey of the Premises to be made prior to Closing (defined below), the deed to be delivered by Seller at Closing shall describe the Premises in accordance therewith.

5. Quality of Title. Title to the Premises shall be good and marketable and free and clear of all liens, restrictions, easements and other encumbrances and title objections and shall be insurable as such at ordinary rates by any reputable title insurance company selected by Buyer.

6. Conditions Precedent to Buyer's Obligation.

(a) Conditions. Notwithstanding anything else herein contained, Buyer's obligation to consummate Closing hereunder is contingent upon the following:

(i) In accordance with the rules and requirements of the jurisdiction in which the Premises is located, Seller shall cause to have Seller's parent parcel (described in Exhibit A) subdivided in order to carve out the approximately one (1) acre area comprising the Premises, and Seller shall provide sufficient documentation acceptable to Buyer to demonstrate the subdivision as well as the non-exclusive access and utility easements to be granted to Buyer from Seller from a public right of way to the Premises.

(ii) Seller's warranties and representations herein being true and correct in all material respects as of the Closing Date, and Seller having complied with all of Seller's obligations under this Agreement.

(b) Failure of Condition. Upon failure of any such condition(s) set forth above, Buyer may terminate this Agreement and neither party shall have any further liability or obligation to the other hereunder. Buyer may waive any condition in writing.

7. Time and Place of Settlement. Consummation of this Agreement for the purchase and sale of the Premises ("**Closing**") shall be held at the offices of either party's counsel or title company or wherever or however the parties may mutually agree within thirty (30) days of exercise of the Option by Buyer (the "**Closing Date**"). Time shall be of the essence of this Agreement.

8. Possession. Possession shall be given by delivery of Seller's special warranty deed at Closing, at which time the Premises shall be entirely vacant and subject to no rights of possession in any third party other than broadband carrier tenant leases on the communications tower to be constructed on the Premises.

9. Inspection; Right of Entry.

(a) Inspection. During the Option Period Seller hereby grants Buyer and its agents, employees and contractors permission to go upon the Premises between the Effective Date and the time of Closing to conduct such inspections, test borings, surveys, percolation tests, and other engineering studies and site analyses as Buyer may require, including environmental investigations (the "**Tests**"). Seller will cooperate with Buyer in making such Tests. The Tests shall be made solely at Buyer's expense. If the Tests indicate, in Buyer's sole opinion, that the Premises is not suitable for Buyer's intended use of the Premises, Buyer may, at its option, cancel this Agreement and neither party shall have any further liability or obligation hereunder.

(b) Right-of-Entry. Seller grants to Buyer, its agents, employees, and contractors, the right to enter upon the Premises during the term of this Agreement in order to prepare surveys and other plans, and to visit the Premises with potential lenders, tenants or other occupants, and taxing authorities.

10. Taxes - Apportionments.

(a) In the event of Buyer's purchase of the Premises, Real estate taxes, and water and sewer rents, if any, for the Premises shall be paid by Buyer. Transfer taxes associated with the sale of the Premises shall be paid by Buyer. So-called "Roll Back Taxes," if any, shall be paid by Buyer.

(b) If Seller is a "foreign person" as defined in Section 1445(f)(3) of the Internal Revenue Code of 1986, as amended (the "**Code**"), Buyer shall deduct and withhold from the proceeds of the sale such amounts as are required by Section 1445 of the Code.

11. **Seller's Warranties.** As a material inducement to cause Buyer to enter into this Agreement, Seller hereby represents, warrants and agrees as follows:

(a) **Authority.** Seller represents and warrants that this Agreement and all agreements, instruments and documents to be executed and delivered by Seller are duly authorized; Seller has the capacity and authority to consummate the transactions herein provided; and nothing prohibits or restricts the right or ability of Seller to close the transactions contemplated hereunder and carry out the terms hereof.

(b) **Assessments.** No assessments for public improvements have been made against the Premises which remain unpaid and no such assessments will be made for any street paving, curbing, water or sewer lines or other public improvements which might have been installed prior to the Effective Date.

(c) **Litigation.** There is no litigation or proceeding pending (or to Seller's knowledge threatened) against or relating to the Premises, nor does Seller know or have reasonable grounds to know of any basis for any such action other than possible personal injury claims adequately covered by insurance.

(d) **Condemnation.** Seller has no knowledge of any pending or threatened condemnation or eminent domain proceedings which would affect the Premises or any part thereof.

(e) **Environment.** At Closing, the Premises shall not be in violation of any Environmental Law (defined below). No complaints, citations, claims, notices, information requests, orders (including but not limited to clean-up orders) or directives regarding Environmental Laws have been delivered to, served on Seller, or to Seller's knowledge, made or pending relating to the Premises; to Seller's knowledge, the Premises has not been used as a dump, and no underground storage tanks are in or on the Premises; to Seller's knowledge, no material or reportable omissions, spills, seepage, releases, or discharges of any Hazardous Substance (defined below) have occurred into or upon the air, soils, or improvements or any sewer or septic system located on the Premises; to Seller's knowledge, no asbestos or asbestos containing materials are installed, used or incorporated into the Premises, and no asbestos or asbestos containing materials have been disposed of on the Premises; and to Seller's knowledge, no PCBs are located on or in the Premises, in the form of electrical transformers, fluorescent light fixtures with ballast, cooling oils, or in any other device. For this purpose, the following definitions apply:

(i) The term "**Environmental Law**" shall mean any federal, state or local, statute, act, law, ordinance, rule, regulation or order pertaining to the environment and public health whether now or hereafter enacted.

(ii) "**Hazardous Substance**" shall mean any hazardous or toxic substance, pollutants, contaminant, solid waste or hazardous waste, as defined in any Environmental Law or in any rule, regulation or order issued pursuant to an Environmental Law, including asbestos, asbestos containing material, and petroleum products.

(f) **Foreign Person.** Seller represents and warrants that it is not a foreign person as defined in Section 1445(f)(3) of the Code. Seller will deliver to Buyer at Closing a Certificate of Non-Foreign Status certifying the correctness of this paragraph.

(g) **Documentary Rights or Possession.** There are no unrecorded mortgages, contracts, purchase agreements, options, permits, leases, easements or other agreements or interest relating to the Premises, and as of the Closing Date there will be no persons or parties in possession of any portion of the

Premises other than broadband carrier tenant leases on the communications tower to be constructed on the Premises.

(h) Moratorium. Seller has no knowledge of the imposition or applicability of a moratorium on any utility service that may affect the development of the Premises.

12. Operations Prior to Settlement.

(a) Leasing. Seller shall not rent, license, or grant occupancy rights in or to any portion of the Premises other than broadband carrier tenant leases on the communications tower to be constructed on the Premises.

(b) Management. Seller shall continue to operate and manage the Premises in the same manner as it has done in the past. Seller shall not perform any work in or on the Premises which might give rise to any mechanics' liens on the Premises.

(c) Encumbrances. From and after the date of this Agreement until Closing, Seller will not convey or encumber the Premises or take any action which materially adversely affects any portion of the Premises.

13. Documents to be Delivered at Settlement. At Closing, Seller will deliver to Buyer the following, executed, acknowledged and in recordable form, as appropriate:

(a) Deed. The special warranty deed to the Premises;

(b) Title Company Documents. Such affidavits or letters of indemnity as may be required by Buyer's title insurer to enable such title insurer to insure Buyer's title to the Premises without exception for unfilled mechanics' or materialmen's liens, without payment of any special or additional premium;

(c) FIRPTA. The Certificate of Non-foreign Status;

(d) Certification. A certificate of Seller stating that the representations and warranties of Seller remain true and correct as of the Closing Date; and

(e) Miscellaneous. Such other documents as may be required to effectuate this Agreement.

At Closing, Buyer shall deliver the balance of the Purchase Price and such other documents as may be required to effectuate this Agreement.

14. Eminent Domain.

(a) Notice of Taking. In the event Seller receives any notice of any condemnation proceedings, or other proceedings in the nature of eminent domain, it will forthwith send a copy of such notice to Buyer. If all or any part of the Premises is taken by eminent domain, Buyer may, upon written notice to Seller, elect to cancel this Agreement, and neither party shall have any further liability or obligation hereunder.

(b) Effect of Taking. If all or any portion of the Premises has been or is hereafter taken or condemned and this Agreement is not cancelled, Buyer shall have the right to negotiate, settle, or litigate the condemnation award related to the Premises. The proceeds of any such award collected prior to Closing shall be paid or credited to Buyer at Closing, and Seller shall, at Closing, credit or assign to Buyer all of Seller's right, title and interest in and to any awards in condemnation, or damages of any kind, to which Seller may have become entitled or may thereafter be entitled by reason of any exercise of the power of eminent domain with respect to or for the taking of the Premises or any portion thereof.

15. Default. In the event Seller is in default under this Agreement after notice and a reasonable opportunity to cure, in addition to any rights given to Buyer under this Agreement, Buyer shall have all remedies available at law or in equity, including specific performance, and to recoup reasonable attorneys' fees and costs in connection with enforcing this Agreement.

16. Survival of Warranties.

(a) Survival. Notwithstanding any legal presumption to the contrary, all covenants, conditions, representations and warranties contained in this Agreement shall survive Closing. This provision shall be effective as to all such covenants, conditions and representations, notwithstanding that as to some of them it is expressly provided that they survive. Any inspection of the Premises or records pertaining thereto, or of Seller's records, by Buyer or its representatives shall not be construed as a waiver of any warranty contained herein.

(b) Indemnity. In the event of the breach, in any material respect, of any representation or warranty by Seller in this Agreement, Seller will indemnify Buyer and save Buyer harmless from any and all liabilities, losses, costs or expenses (including reasonable attorneys' fees) arising out of such breach, and without limitation, this indemnity and hold harmless shall include any and all claims, fines, costs of investigation and remediation, and legal fees and expenses arising by reason of or in connection with any violation by Seller of the representations and warranties contained in this Agreement, and this indemnity and hold harmless clause shall survive the Closing.

17. Assignment. This Agreement may not be assigned by Buyer, except to an entity controlled by or affiliated with Buyer, without Seller's prior written consent, which consent shall not be unreasonably withheld.

18. Notices. All notices required or permitted to be given hereunder shall be in writing and sent by overnight carrier service by a nationally recognized service, such as UPS or Federal Express, customarily obtaining proof of delivery, postage paid by the sender, addressed as follows:

If to Seller: Larry T. Henson
120 Thom Henson Road
Campton, KY 41301

If to Buyer: Vertical Bridge Development, LLC
750 Park of Commerce Drive, Suite 200
Boca Raton, FL 33487
Attention: General Counsel
Site #: US-KY-5052
Site Name: Bethany

or to such other person or address as the party to be charged with such notice may designate by notice given in the aforesaid manner. Notice may be given by counsel for any party to this Agreement. If the last or appointed day for taking of any action required or permitted hereby shall be a Saturday, Sunday or legal holiday in Boca Raton, Florida, or a day on which banking institutions in such city are authorized by law or executive order to close, then such action may be taken on the next succeeding business day for banking institutions in such city.

19. Brokerage. Buyer and Seller each represents and warrants to the other that it has had no dealings, negotiations or consultations with respect to the Premises or this transaction with any broker or intermediary, and that no other broker or intermediary is entitled to a fee or commission in connection with this Agreement. In the event that any other broker or intermediary claims a fee or commission in connection with this Agreement based upon the acts of Buyer or Seller, that party will be responsible for and will indemnify and save the other harmless from and against all costs, damages, fees (including, without limitation, reasonable attorneys' fees), expenses, liabilities, and claims incurred or suffered by the other as a result thereof. This Section shall survive Closing.

20. Parties Bound. This Agreement shall be binding upon the parties hereto and their respective heirs, administrators, executors, successors, and assigns.

21. Captions. The captions contained herein are not a part of this Agreement. They are only for the convenience of the parties and do not in any way modify, amplify, or give full notice of any of the terms, covenants or conditions of this Agreement.

22. Number and Gender. For purpose of this Agreement, the masculine shall be deemed to include the feminine and the neuter, and the singular shall be deemed to include the plural, and the plural the singular, as the context may require.

23. Recording. Buyer may, at its election, record a notice of the existence of the Option hereunder, and Seller shall join in any such notice for recording.

24. Entire Agreement - Amendment. This Agreement (including any exhibits attached hereto) contains the entire agreement between Seller and Buyer with respect to the transaction discussed herein and the Premises; there are no other terms, covenants, obligations or representations, oral or written, of any kind whatsoever related to the subject matter of this transaction. This Agreement may be amended only by a written instrument executed by the party against whom the amendment is being enforced.

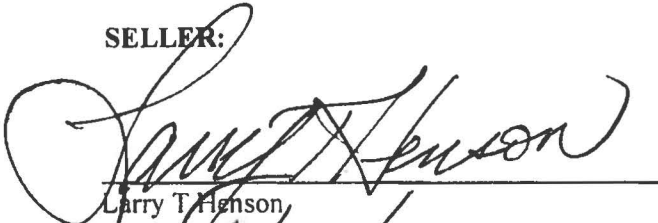
25. Governing Law. The substantive laws of the State of Florida will govern the validity, construction and enforcement of this Agreement. The parties consent to the venue and jurisdiction of any federal or state courts of Palm Beach County, Florida, in any action brought to enforce the terms of this Agreement. The parties irrevocably and unconditionally submit to the jurisdiction (both subject matter and personal) of any such court and irrevocably and unconditionally waive: (a) any objection any party might now or hereafter have to the venue in any such court; and (b) any claim that any action or proceeding brought in any such court has been brought in an inconvenient forum.

26. Construction. The parties acknowledge that each party and each party's counsel have reviewed and revised this Agreement and that the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party will not be employed in the interpretation of this Agreement or any exhibits or amendments hereto.

27. Counterparts. This Agreement may be executed in counterparts, each of which shall be binding against the party whose signature appears thereon. All such counterparts, together, shall consist of one and the same document.

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound hereby, have caused this Agreement to be signed the day and year first above written.

SELLER:


Larry T. Henson

Date:

6/10/19


Darrell Miller

Darrell Miller

Date:

6-11-19


Brenda J. Miller

Brenda J. Miller

Date:

~~6-11-19~~ 6-11-19

BUYER:

Vertical Bridge Development, LLC
a Delaware limited liability company

By:

Name:

Title:

Date:



Alex Gellman
CEO
7-2-2019



EXHIBIT A

Premises (legal description)

[may be updated by Buyer with the final legal description of the approximately 1 acre parcel and access and utility easements]

A portion of the following parent parcel (Parcel ID #050-00-00-001.00):

Being two tracts of land containing 215 acres located in Breathitt County, Ky. and described as follows:

TRACT NO.1: Beginning at a stake in the north right of way line of State Highway #15, said stake being in the center of Banks Branch; thence up said branch N 35 E 35 feet to a stake; thence leaving the branch and running up the hill, N 16 W 160 feet to a Black Oak on the point; thence up the point N 34 E 200 feet, N 29 E 217 feet, N 37 E 115 feet, N 42 E 150 feet, N 32 E 157 feet, N 54 E 131 feet, N 53 E 167 feet, N 89 E 90 feet and N 60 E 257 feet to a stake on top of the ridge; thence with the center of the ridge N 22 W 85 feet, N 16 W 175 feet, N 24 W 158 feet, N 44 W 135 feet, N 48 W 114 feet, N 50 W 100 feet, N 22 W 100 feet, N 22 E 268 feet and N 25 E 133 feet to a hickory on a knob; thence N 25 W 100 feet, N 31 W 135 feet, N 29 W 152 feet, N 12 E 130 feet, N 14 E 100 feet, N 15 E 220 feet, N 12 E 147 feet, N 36 W 90 feet, N 62 W 205 feet N 59-30 W 160 feet, N 51 W 143 feet and N 29-30 W 182 feet to a Black Gum; thence N 74 W 80 feet, N 76 W 136 feet, N 62 W 337 feet, N 82 W 37 feet, S 72 W 215 feet, S 56 W 54 feet, S 38 W 72 feet, S 6 W 90 feet, S 1-30 W 141 feet, S 1 E 336 feet, S 11-30 W 275 feet, S 5 E

100 feet and S 24 W 82 feet to a stake on a knob; thence S 89-30 W 327 feet and N 65-30 W 188 feet to a Black Oak; thence S 43 W 60 feet, S 63 W 250 feet, N 73 W 275 feet N 85 W 185 feet and S 87-30 W 200 feet to a stake at a rock cut at the Wolfe and Breathitt County line, said stake being in the North right of way line of State Highway #15; thence with said right of way line S 39 E 50 feet, S 28 E 87 feet, S 17-30 E 355 feet, S 20 E 280 feet, S 52 E 129 feet, S 19 E 400 feet, S 10 W 116 feet, S 17 E 285 feet, S 32 E 322 feet, S 43 E 236 feet, S 44 E 380 feet, N 85 E 185 feet, S 66 E 420 feet, S 62 E 275 feet; thence same course continued S 62 E 40 feet, S 38 E 430 feet and S 32 E 80 feet to the place of beginning, containing approximately 175 acres as shown by survey and plat by William D. Steele, Registered Land Surveyor, dated 3/31/70.

[Continued on following page]

TRACT NO. 2: Beginning at a stake in Banks' Branch on the North side of Kentucky Highway #15 and running up said branch, N 35 E 35 feet to a stake; thence N 16 W 160 feet; N 34 E 200 feet; N 29 E 217 feet; N 37 E 115 feet, N 42 E 150 feet; N 32 E 157 feet; N 54 E 131 feet; N 53 E 167 feet; N 89 E 90 feet; and N 60 E 257 feet to a stake on top of the ridge; thence S 67 E 161 feet; S 57-30 E 280 feet; S 51 E 171 feet; and S 36-30 E 53 feet to a stake; thence S 13-30 W 160 feet; S 8 W 108 feet, S 2 W 180 feet; S 18 W 305 feet; and S 10 W 353 feet to a hickory; thence N 89 W 162 feet; S 85 W 200 feet and west 120 feet to a black oak; thence N 49 W 190 feet; N 59 W 95 feet; N 89 W 130 feet; N 82 W 90 feet; N 81 W 110 feet; N 81 W 120 feet; S 89 W 100 feet; North 19 feet, and N 54 W 80 feet to the place of beginning, containing approximately forty (40) acres, more or less.

Being the same property conveyed to Grantors from Willie Dixon, et al, by Deed dated February 24, 1972 and of record in Deed Book 122 page 469 Breathitt County Court Clerk's Office. Reference is also made to Deed dated February 9, 1988 between Thomas F. Harlin, et ux, and George W. Mills, Trustee to Thomas F. Harlin, et ux, of record in Deed Book 159, Page 11 records of the Breathitt County Court Clerk's Office.

This conveyance includes any and all mineral rights owned by the Grantors and is subject to any and all easements and reservations that may or may not be of record.

Premises (approximately 1 acre parcel) is the area outlined in purple below:

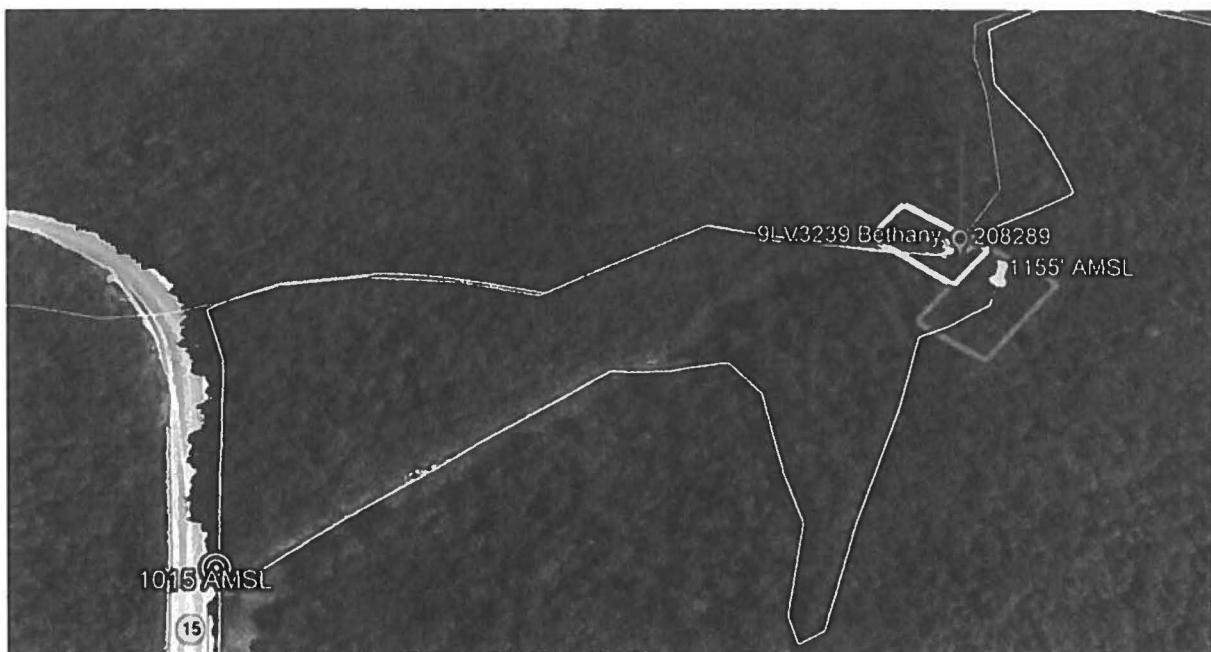
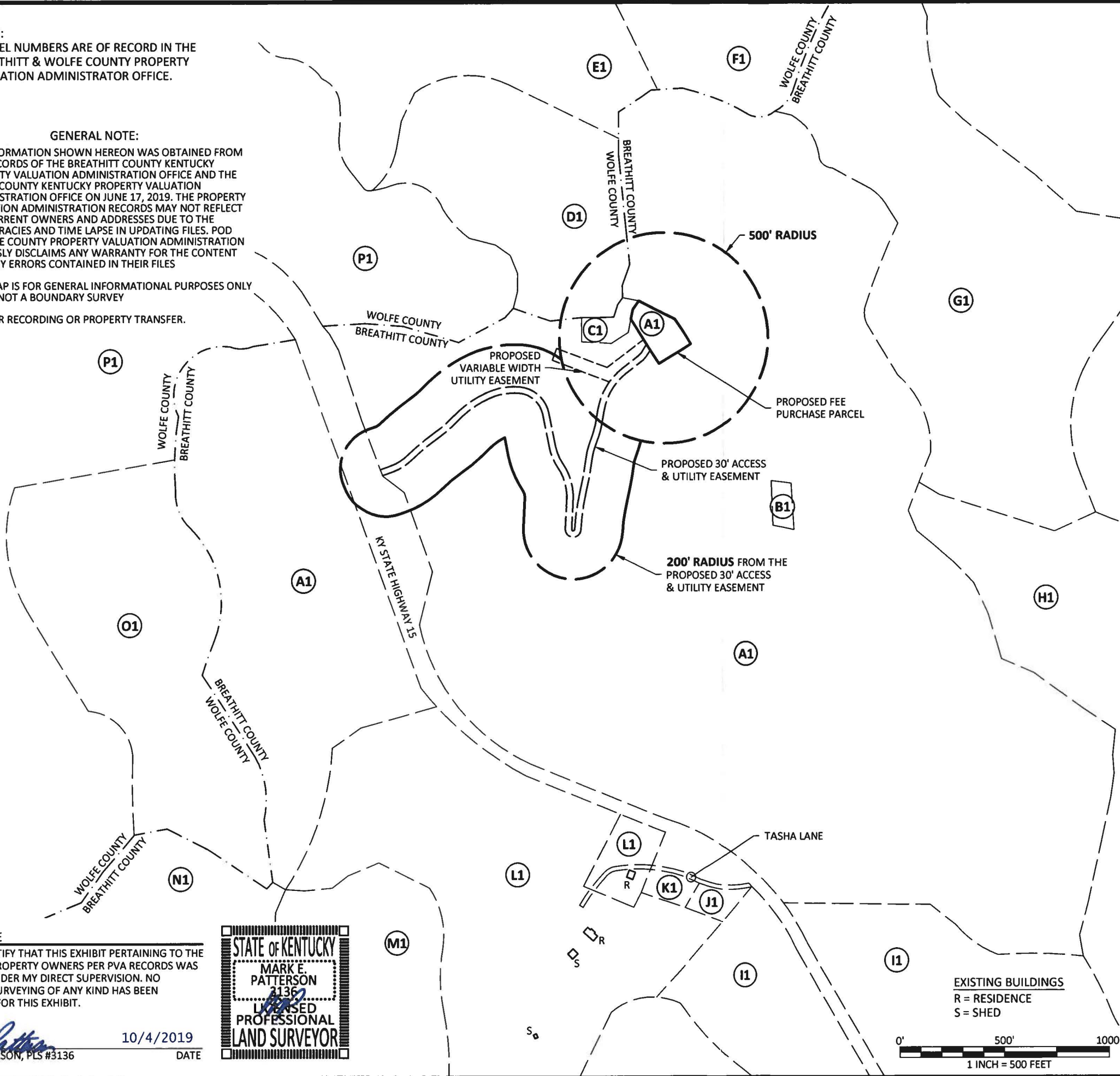


Exhibit J

NOTE:
PARCEL NUMBERS ARE OF RECORD IN THE
BREATHITT & WOLFE COUNTY PROPERTY
VALUATION ADMINISTRATOR OFFICE.

GENERAL NOTE:

1. ALL INFORMATION SHOWN HEREON WAS OBTAINED FROM THE RECORDS OF THE BREATHITT COUNTY KENTUCKY PROPERTY VALUATION ADMINISTRATION OFFICE AND THE WOLFE COUNTY KENTUCKY PROPERTY VALUATION ADMINISTRATION OFFICE ON JUNE 17, 2019. 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.

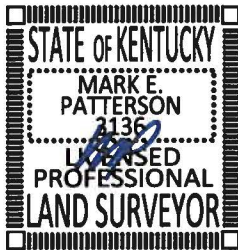


CERTIFICATE

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
MARK PATTERSON, PLS #3136

10/4/2019
DATE



- PARCEL ID:050-00-00-001.00
HENSON LARRY T
MILLER DARRELL
710 LAKESIDE DRIVE
JACKSON, KY, 41339
- PARCEL ID:065-00-00-001.03
HAMILTON REGGIE & MARLENE
136 TURNIP RD
CAMPTON, KY 41301
- PARCEL ID:065-00-00-001.02
MOUNTAINEER CELLULAR
GENERAL PARTNERSHIP
PO BOX 1148
JACKSON, KY 41339
- PARCEL ID: 085-00-00-008.00
COLIN HALCOMB
SHIRLEY HALCOMB
P.O. BOC 312
CAMPTON, KY, 41301
- PARCEL ID: 085-00-00-007.00
SHORT ELISHA
351 QUICKSAND RD
JACKSON, KY 41339
- PARCEL ID: 085-00-00-009.00
JOHNSON JANE C
806 BETHLEHAM RD
PARIS, KY 40361
- PARCEL ID: 064-00-00-017.01
SMITH DONALD
1287 HWY 1812
VANCLEVE, KY 41385
- PARCEL ID: 065-00-00-023.00
LITTERAL JM & BESSIE
241 LITTERAL LANE
VANLEVE, KY, 41385
- PARCEL ID: 050-00-00-004.01
TROUBLESOME CREEK GAS CORP
PO BOX 934
PRESTONBURG, KY 41653
- PARCEL ID: 050-00-00-002.02
MILLER, DAVID & PAMELA
PO BOX 274
CAMPTON, KY 41301
- PARCEL ID: 050-00-00-002.02
PRINCE HOLLOW LTD
1544 MEADE CT
LEXINGTON, KY, 40505
- PARCEL ID: 050-00-00-002.00 &
050-00-00-003.00
FUGATE FRANKIE
PO BOX 993
JACKSON, KY, 41339
- PARCEL ID: 050-00-00-005.01
ZACK ROBERT
811 SECOND AVE
WEST WILLISTON, ND 58801
- PARCEL ID: 050-00-00-005.00
JONES KELLY
3591 TWIN POND RD
VERNON, FL 32462
- PARCEL ID: 086-00-00-006.00
GRAHAM ANDY
8432 KY 15 S
CAMPTON, KY, 41301
- PARCEL ID: 085-00-00-011.00
RALEIGH ANGELA M
PO BOX 329
JACKSON, KY, 41339

PREPARED BY:



PREPARED FOR:

REVISION

REV.	DATE	DESCRIPTION
A	8.21.19	PRELIMINARY ISSUE
O	10.4.19	ISSUED AS FINAL

SITE INFORMATION:

BETHANY
KY HIGHWAY 15
BETHANY, KY 41301
BREATHITT COUNTY

TAX PARCEL NUMBER:
050-00-00-001.00

TITLE HOLDER:
LARRY T HENSON &
DARRELL MILLER
710 LAKESIDE DRIVE
JACKSON, KY 41339

SOURCE OF TITLE:
DEED BOOK 171 , PAGE 594

SITE NUMBER:
US-KY-5052

POD NUMBER: 18-27349
DRAWN BY: JRS
CHECKED BY: MEP
SURVEY DATE: 6.17.19
PLAT DATE: 8.21.19

SHEET TITLE:

**500' RADIUS AND
ABUTTERS MAP**

SHEET NUMBER: (1 page)

B-2

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

TODD R. BRIGGS
also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Kelly Jones
3591 Twin Pond Road
Vernon, FL 32462

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

This notice is being sent to you because the Breathitt County Property Valuation Administrator's records indicate that you own property that is within a 500' radius of the proposed tower site OR is contiguous to the property on which the tower is to be constructed.

The Commission invites your comments regarding the proposed construction and wants you to be aware of your right to intervene in the Commission's proceedings on this application. Your comments and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to Case Number: **2019-00358** in any correspondence.

Sincerely,



Todd R. Briggs

Enclosure

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

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also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Andy Graham
8432 KY 15 S
Campton, KY 41301

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Sincerely,



Todd R. Briggs

Enclosure

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also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Robert Zack
811 Second Ave
West Williston, ND 58801

Dear Landowner:

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Sincerely,



Todd R. Briggs

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also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Frankie Fugate
P.O. Box 993
Jackson, KY 41339

Dear Landowner:

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Todd R. Briggs

Enclosure

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TODD R. BRIGGS
also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

David & Pamela Miller
P.O. Box 274
Campton, KY 41301

Dear Landowner:

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The Commission invites your comments regarding the proposed construction and wants you to be aware of your right to intervene in the Commission's proceedings on this application. Your comments and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to Case Number: **2019-00358** in any correspondence.

Sincerely,



Todd R. Briggs

Enclosure

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

TODD R. BRIGGS
also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Troublesome Creek Gas Co
P.O. Box 934
Prestonsburg, KY 41653

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Notice of Proposed Construction - Wireless Communications Facility

Jim & Bessie Litteral
241 Litteral lane
Vancleve, KY 41385

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Notice of Proposed Construction - Wireless Communications Facility

Donald Smith
1287 Hwy 1812
Vancleve, KY 41385

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Notice of Proposed Construction - Wireless Communications Facility

Mountaineer Cellular GP
P.O. Box 1148
Jackson, KY 41339

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Notice of Proposed Construction - Wireless Communications Facility

Reggie & Marlene Hamilton
136 Turnip Road
Campton, KY 41301

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Sincerely,



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Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Prince Hollow Ltd
1544 Meade Ct
Lexington, KY 40505

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Sincerely,



Todd R. Briggs

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Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Angela M Raleigh
P.O. Box 329
Jackson, KY 41339

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Sincerely,



Todd R. Briggs

Enclosure

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TODD R. BRIGGS
also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Colin and Shirley Holcomb
P.O. Box 312
Campton, KY 41301

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Sincerely,



Todd R. Briggs

Enclosure

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Elisha Short
351 Quicksand Road
Jackson, KY 41339

Dear Landowner:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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The Commission invites your comments regarding the proposed construction and wants you to be aware of your right to intervene in the Commission's proceedings on this application. Your comments and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to Case Number: 2019-00358 in any correspondence.

Sincerely,



Todd R. Briggs

Enclosure

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TODD R. BRIGGS

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Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Jane C Johnson
806 Bethlehem Road
Paris, KY 40361

Dear Landowner:

Vertical Bridge Development, LLC and PowerTel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County, Kentucky 41301 (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

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Sincerely,



Todd R. Briggs

Enclosure

Exhibit K

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

TODD R. BRIGGS

also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Honorable Jeffrey Noble
Breathitt County Judge Executive
1137 Main Street
Jackson, KY 41339

**RE: Notice of Proposal to Construct Wireless Communications Facility -
Kentucky Public Service Commission--Case No. 2019-00358**

Dear Judge Noble:

Vertical Bridge Development, LLC and Powertel/Memphis, Inc. ("Applicant") is applying to the Kentucky Public Service Commission (the "Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a self-support tower plus related ground facilities to be located near KY Hwy 15, Bethany, Breathitt County (Latitude 37° 39' 02.84" / Longitude 83° 26' 17.49"). A map showing the location is enclosed.

You have a right to submit comments regarding the proposed construction to the Commission or to request intervention in the Commission's proceedings on this application.

Your comments and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to case number 2019-00358 in any correspondence.

Sincerely,



Todd R. Briggs

Enclosure

Exhibit L

PUBLIC NOTICE

Vertical Bridge Development, LLC
& Powertel/Memphis Inc. proposes
to construct a telecommunications

TOWER

on this site. If you have
any questions please contact:

Briggs Law Office, PSC
10200 Forest Green Blvd. or
Suite 112
Louisville, KY 40223
(844) 331-3402

Executive Director
Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602

Please refer to Commission's
Case #2019-00358
in your correspondence.

PUBLIC NOTICE

Vertical Bridge Development, LLC
& Powertel/Memphis Inc. proposes
to construct a telecommunications

TOWER

near this site. If you have
any questions please contact:

Briggs Law Office, PSC
10200 Forest Green Blvd. or
Suite 112
Louisville, KY 40223
(844) 331-3402

Executive Director
Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602

Please refer to Commission's
Case #2019-00358
in your correspondence.

Exhibit M

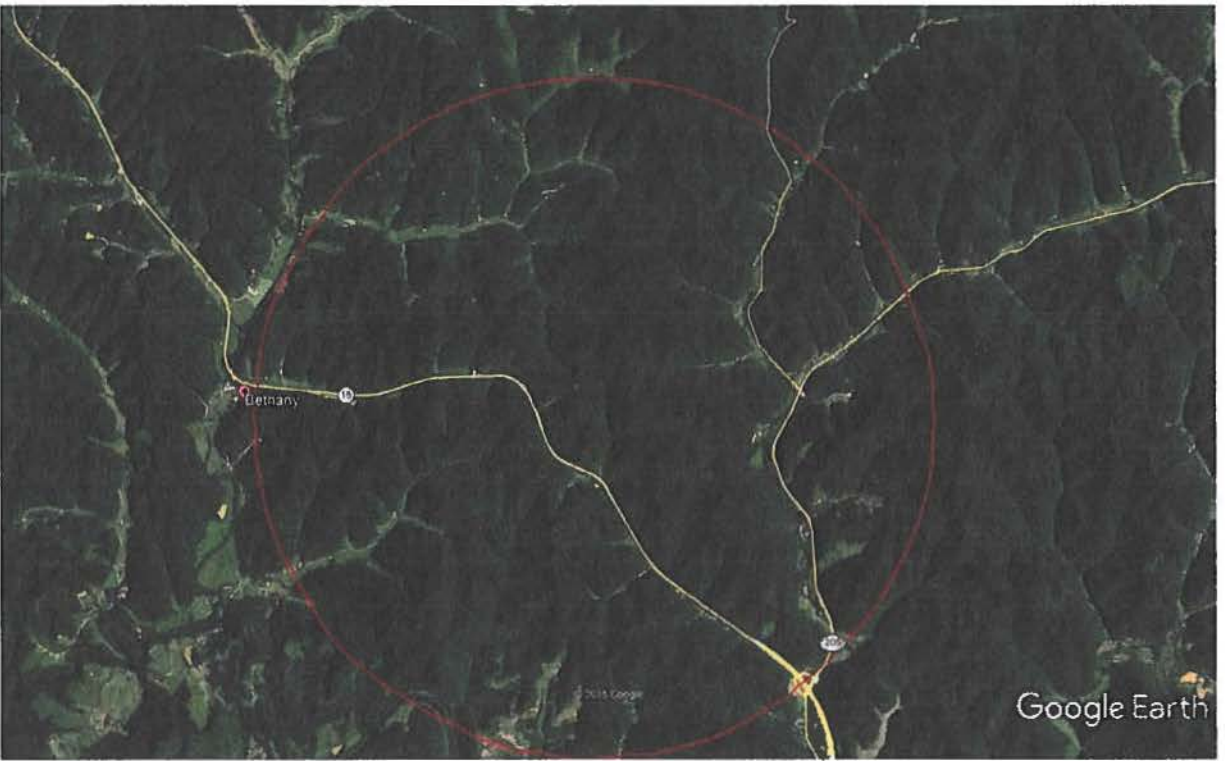


Exhibit N



October 10, 2019

Re: Proposed T-Mobile Wireless Communications Facility
Site Name: 9LV3239B

To Whom It May Concern:

The purpose of this letter is to state the need for a new T-Mobile Wireless Communications Facility to be built on the property of Larry T Henson and Darrell Miller 710 Lakeside Drive Jackson, KY 41339. This site will provide coverage to improve the wireless voice and data experience that T-Mobile customers rely on. It will also provide critical safety support through enhanced 911 services.

This site has been designed and will be constructed and operated in accordance with all applicable requirements and regulations set forth by the various agencies that manage them including the FAA and the FCC. This site will transmit within the licensed frequency bands owned by T-Mobile and will adhere to FCC regulated power limitations. RF emission readings in the accessible areas will be below the FCC limits for exposure. Appropriate RF emission signage will be placed at the entrance to the site.

Sincerely,

Tracy Sours
RF Deployment Engineer
T-Mobile USA