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PUBLIC SERVICE COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the matter of:

THE APPLICATION OF EAST KENTUCKY NETWORK,)
LLC FOR THE ISSUANCE OF A CERTIFICATE OF)
PUBLIC CONVENIENCE AND NECESSITY TO) CASE NO. 2016-00412
CONSTRUCT A TOWER IN MORGAN COUNTY,)
KENTUCKY.)

East Kentucky Network, LLC d/b/a Appalachian Wireless, was granted authorization to provide cellular service in the KY-9 Cellular Market Area (CMA451) by the Federal Communications Commission (FCC). The FCC license is included as Exhibit 1. East Kentucky Network, LLC merger documents were filed with the Commission on February 2, 2001 in Case No. 2001-022. East Kentucky Network, LLC is a Kentucky Limited Liability Company that was organized on June 16, 1998. East Kentucky Network, LLC is in good standing with the state of Kentucky.

East Kentucky Network, LLC currently co-locates on an existing tower located near the proposed tower site. However, due to advancing technology, load capacity, and in an effort to improve service in Morgan County, pursuant to KRS 278.020 Subsection 1 and 807 KAR 5:001, East Kentucky Network, LLC is seeking the Commission’s approval to construct a 300 foot self-supporting tower on a tract of land located near 15240 Highway 460 W, Ezel, Morgan County, Kentucky (37°54’00.88”N 83°27’13.77”W) to replace the existing tower. Upon completion of the proposed tower site, the existing tower and all corresponding structures will be removed, excepting electronic communications equipment, which will be moved to the proposed tower site. A map and detailed directions to the site can be found in Exhibit 7.

Exhibit 2 is a list of all Property owners according to the Property Valuation Administrator’s record who own property within 500 feet of the proposed Tower and all property owners that own

property contiguous to the property upon which construction is proposed in accordance with the Property Valuation Administrator's record.

Pursuant to 807 KAR 5:063 Section 1(1)(l), Section 1(m) and Section 2, all affected property owners according to the Property Valuation Administrator's record who own property within 500 feet of the proposed Tower or contiguous to the property upon which construction is proposed were notified by certified mail return receipt requested of East Kentucky Network, LLC's proposed construction and informed of their right to intervene. They were given the docket number under which this application is filed. Enclosed in Exhibit 2 is a copy of that notification.

Morgan County has no formal local planning unit. In absence of this unit, the Morgan County Judge Executive's office was notified by certified mail, return receipt requested of East Kentucky Network, LLC's proposal and informed of their right to intervene. They were given the docket number under which this application is filed. Enclosed in Exhibit 3 is a copy of that notification.

Notice of the location of the proposed construction was published in The Licking Valley Courier, December 8, 2016, edition. Enclosed is a copy of that notice in Exhibit 3. The Licking Valley Courier is the newspaper with the largest circulation in Morgan County.

A geologist was employed to determine soil and rock types and to ascertain the distance to solid bedrock. The geotechnical report is enclosed as Exhibit 4.

A copy of the tower design information is enclosed as Exhibit 5. The proposed tower has been designed by engineers at World Tower and will be constructed under their supervision. Their qualifications are evidenced in Exhibit 5 by the seal and signature of the registered professional engineer responsible for this project.

The tower will be erected by S & S Tower Services of St. Albans, West Virginia. S & S Tower Services has vast experience in the erection of communications towers.

FAA and Kentucky Airport Zoning Commission approvals are included as Exhibit 6.

No Federal Communications Commission approval is required prior to construction of this facility. Once service is established from this tower we must immediately notify the Federal Communications Commission of its operation. Prior approval is needed only if the proposed facility increases the size of the cellular geographic service area. This cell site will not expand the cellular geographic service area.

East Kentucky Network, LLC will finance the subject Construction with earned surplus in its General Fund.

Estimated Cost of Construction	\$ 350,000.00
Annual Operation Expense of Tower	\$ 12,500.00

Two notice signs meeting the requirements prescribed by 807 KAR 5:063, Section 1(2), measuring at least two (2) feet in height and four (4) feet in width and containing all required language in letters of required height, have been posted, one at a visible location on the proposed site and one on the nearest public road. The two signs were posted on November 29, 2016, and will remain posted for at least two weeks after filing of this application as specified.

Enclosed in Exhibit 8 is a copy of East Kentucky Network, LLC's Memorandum of Lease for the site location along with a lot description.

The proposed construction site is on a previously developed piece of land some feet from the nearest structure.

East Kentucky Network, LLC's operation will not affect the use of nearby land nor its value. No more suitable site exists in the area. A copy of the search area map is enclosed in Exhibit 7. No other tower capable of supporting East Kentucky Network, LLC's load exists in the general area; therefore, there is no opportunity for co-location of our facilities with anyone else.

Enclosed, and filed as Exhibit 9 is a survey of the proposed tower site signed by a Kentucky registered professional engineer.

Exhibit 11 contains a vertical sketch of the tower supplied by James W. Caudill, Kentucky registered professional engineer.

WHEREFORE, Applicant, having met the requirements of KRS 278.020(1), 278.650, 278.665, and all applicable rules and regulations of the PSC, respectfully requests that the PSC accept the foregoing Application for filing and grant a Certificate of Public Convenience and Necessity to construct and operate the proposed tower.

The foregoing document was prepared by Cindy McCarty, Staff Attorney for East Kentucky Network, LLC d/b/a Appalachian Wireless. All related questions or correspondence concerning this filing should be mailed to East Kentucky Network, LLC d/b/a/ Appalachian Wireless, 101 Technology Trail, Ivel, KY 41642.

SUBMITTED BY: Lynn Haney DATE: 12/5/16
Lynn Haney, Regulatory Compliance Director

APPROVED BY: W.A. Gillum DATE: 12/5/2016
W.A. Gillum, General Manager

ATTORNEY: Cindy McCarty DATE: 12/5/2016
Hon. Cindy McCarty, Attorney

CONTACT INFORMATION:

W.A. Gillum, General Manager
Phone: (606) 477-2355, Ext. 111
Email: wagillum@ekn.com

Lynn Haney, Regulatory Compliance Director
Phone: (606) 477-2355, Ext. 1007
Email: lhaney@ekn.com

Cindy McCarty, Attorney
Phone: (606) 477-2355, Ext. 1006
Email: cmccarty@ekn.com

Mailing Address:

**East Kentucky Network, LLC
d/b/a Appalachian Wireless
101 Technology Trail
Ivel, KY 41642**

1	FCC License
2	Copies of Cell Site Notices to Land Owners
3	Notification of County Judge Executive and Newspaper Advertisement
4	Universal Soil Bearing Analysis
5	Tower Design
6	FAA and KAZC Approvals
7	Driving Directions from County Court House and Map to Suitable Scale
8	Memorandum of Lease for Proposed Site with Legal Description
9	Survey of Site Signed/Sealed by Professional Engineer Registered in State of Kentucky
10	Site Survey Map with Property Owners Identified in Accordance with PVA of County
11	Vertical Profile Sketch of Proposed Tower
12	

Uls License

Cellular License - KNKN880 - East Kentucky Network, LLC d/b/a Appalachian Wireless

Call Sign KNKN880 Radio Service CL - Cellular
Status Active Auth Type Regular

Market

Market CMA451 - Kentucky 9 - Elliott Channel Block B
Submarket 0 Phase 2

Dates

Grant 08/30/2011 Expiration 10/01/2021
Effective 08/30/2011 Cancellation

Five Year Buildout Date

10/23/1996

Control Points

1 U.S. 23, HAROLD, KY

Licensee

FRN 0001786607 Type Limited Liability Company

Licensee

East Kentucky Network, LLC d/b/a Appalachian
Wireless P:(606)477-2355
101 Technology Trail F:(606)874-7551
Ivel, KY 41642
ATTN Gerald Robinette, Manager

Contact

Lukas, Nace, Gutierrez & Sachs, LLP
Pamela L Gist Esq P:(703)584-8665
8300 Greensboro Drive F:(703)584-8695
McLean, VA 22102 E:pgist@fcclaw.com

Ownership and Qualifications

Radio Service Mobile
Type
Regulatory Status Common Carrier Interconnected Yes

Alien Ownership

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

Basic Qualifications

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

EXHIBIT II: LIST OF PROPERTY OWNERS:

Statement Pursuant to Section 1 (1) (I) 807 KAR 5:063

Section 1 (1)(I) 1. The following is a list of every property owner who according to property valuation administrator's records, owns property within 500 feet of the proposed tower and each have been: notified by certified mail, return receipt requested, of the proposed construction,

Section 1 (1)(I) 2. Every person listed below who, according to the property valuation administrator's records, owns property within 500 feet of the proposed tower has been: Given the Commission docket number under which the application will be processed: and

Section 1 (1)(I) 3. Every person listed below who, according to property valuation administrator's records owns property within 500 feet of the proposed tower has been: Informed of his right to request intervention.

Section 2. If the construction is proposed for an area outside the incorporated boundaries of a city, the application shall state that public notices required by Section 1(1)(L) have been sent to every person who, according to the property valuation administrator, owns property contiguous to the property upon which the construction is proposed

LIST OF PROPERTY OWNERS

Mountain Rural Telephone Cooperative Corporation, Inc.
PO Box 108
West Liberty , KY 41425

Paul and Dorothy Howell
15244 Hwy 460
Ezel, KY 41425

Thomas and Jessica Peak
667 Sawmill Rd.
Ezel, KY 41425

Michael and Sheila Murphy
11500 Hwy 460 W
Ezel, KY 41425

Johnny Guy and Beverly Mays
690 Meeting House Branch

Ezel, KY 41425

Jerry and Patricia Murphy
Box 178
Ezel, KY 41425

Earnest Watkins
PO Box 108
Ezel, KY 41425



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

December 8, 2016

Mountain Rural Telephone Cooperative Corporation, Inc.
PO Box 108
West Liberty, KY 41425

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2016-00412)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Morgan County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 15240 Highway 460 W, Ezel, Morgan County, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you may own property within a 500' radius of the proposed tower or own property contiguous to the property upon which construction is proposed.

The Commission invites your comments regarding the proposed construction. You also have the right to intervene in this matter. The Commission must receive your initial communication within 20 days of the date of this letter as shown above.

Your comments and request for intervention should be addressed to: Executive Director's Office, Public Service Commission of Kentucky, P.O. Box 615, Frankfort, KY 40602. Please refer to Case No. 2016-00412 in your correspondence.

If you have any questions for East Kentucky Network, LLC, please direct them to my attention at the following address: East Kentucky Network, LLC, 101 Technology Trail, Ivel, KY 41642 or call me at 606-477-2355, Ext. 1007.

Sincerely,

A handwritten signature in blue ink that reads "Lynn Haney".

Lynn Haney, CPA
Regulatory Compliance Director
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

December 8, 2016

Paul and Dorothy Howell
15244 Hwy 460
Ezel, KY 41425

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Sincerely,

A handwritten signature in blue ink that reads "Lynn Haney".

Lynn Haney, CPA
Regulatory Compliance Director
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

December 8, 2016

Thomas and Jessica Peak
667 Sawmill Rd.
Ezel, KY 41425

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Lynn Haney, CPA
Regulatory Compliance Director
Enclosure 1



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December 8, 2016

Michael and Sheila Murphy
11500 Hwy 460 W
Ezel, KY 41425

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Lynn Haney, CPA
Regulatory Compliance Director
Enclosure 1



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PUBLIC NOTICE

December 8, 2016

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Regulatory Compliance Director
Enclosure 1



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December 8, 2016

Jerry and Patricia Murphy
Box 178
Ezel, KY 41425

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Sincerely,

Lynn Haney, CPA
Regulatory Compliance Director
Enclosure 1



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PUBLIC NOTICE

December 8, 2016

Earnest Watkins
PO Box 108
Ezel, KY 41425

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Sincerely,

Lynn Haney, CPA
Regulatory Compliance Director
Enclosure 1

Appalachian Wireless Location Map



Site Name

Ezel Site

Location

15240 HWY. 460 W Ezel, KY. 41425

GPS Location

N 37 54 00.8802

W 83 27 13.7704

dba Appalachian Wireless
101 Technology Trail
Ivel, KY 41642
Phone: 606-477-2355
Fax: 606-791-2225

EAST KENTUCKY
NETWORK



To: The Licking Valley Courier
Attn: Classifieds

From: Raina Helton
Regulatory Compliance Assistant

Email: courier@mrtc.com

Date: November 1, 2016

Re: PUBLIC NOTICE ADVERTISEMENT

Pages: 1

Please place the following Public Notice Advertisement in The Licking Valley Courier to be ran on December 8, 2016.

PUBLIC NOTICE:

RE: Public Service Commission of Kentucky (CASE NO. 2016-00412)

Public Notice is hereby given that East Kentucky Network, LLC, dba Appalachian Wireless has applied to the Kentucky Public Service Commission to construct a cellular telecommunications tower on a tract of land located near 15240 Highway 460 W, Ezel, Morgan County, Kentucky. The proposed tower will be a 300 foot self-supporting tower with attached antennas. If you would like to respond to this notice, please contact the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to Case No. 2016-00412.

If you have any questions about the placement of the above mentioned notice, please call me at 606-477-2375, ext. 1005.

Thank you,

Raina Helton
Regulatory Compliance Assistant

The message above and the information contained in the documents transmitted are confidential and intended only for the person(s) named above. Dissemination, distribution or copying of this communication by anyone other than the person(s) named above is prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us at the address listed above via regular mail. Thank you.



VIA: U.S. CERTIFIED MAIL

December 8, 2016

Stanley Franklin, Judge Executive
450 Prestonsburg Street
West Liberty, KY 41472

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2016-00412)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Morgan County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 15240 Highway 460 W, Ezel, Morgan County, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you are the County Judge Executive of Morgan County.

The Commission invites your comments regarding the proposed construction. You also have the right to intervene in this matter. The Commission must receive your initial communication within 20 days of the date of this letter as shown above.

Your comments and request for intervention should be addressed to: Executive Director's Office, Public Service Commission of Kentucky, P.O. Box 615, Frankfort, KY 40602. Please refer to Case No. 2016-00412 in your correspondence.

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Lynn Haney
Regulatory Compliance Director
Enclosure

Appalachian Wireless Location Map



Site Name

Ezel Site

Location

15240 HWY. 460 W Ezel, KY. 41425

GPS Location

N 37 54 00.8802

W 83 27 13.7704

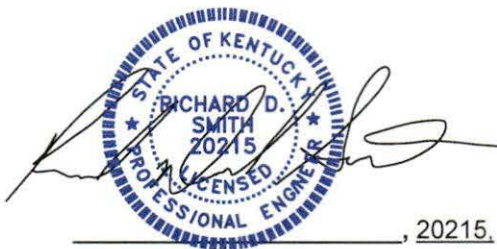
**APPALACHIAN WIRELESS
Geotechnical Investigation on the
Ezel Site
Morgan County, Kentucky
ERMC² Project No. 165-000-0029**

PREPARED FOR:

Appalachian Wireless.
101 Technology Trail
Ivel, Kentucky 41642

PREPARED BY:

Richard Dirk Smith PE, PLS
General Manager Appalachian Region
**ENVIRONMENTAL RESOURCES MANAGEMENT
CONSULTING COMPANY**
230 Swartz Drive
Hazard, Kentucky 41701



, 20215, August 30th, 2016



EXECUTIVE SUMMARY

- 1.0 INTRODUCTION**
- 2.0 PROJECT DESCRIPTION**
- 3.0 SITE DESCRIPTION**
- 4.0 FIELD EXPLORATION**
 - 4.1 SITE INFORMATION
 - 4.2 BORING DATA
 - 4.3 GROUNDWATER
 - 4.4 SEISMIC SITE CLASSIFICATION
- 5.0 DISCUSSION AND RECOMMENDATIONS**
 - 5.1 GENERAL
 - 5.2 FOUNDATIONS
 - 5.3 SHALLOW FOUNDATIONS
 - 5.4 BURIED UTILITIES
- 6.0 DISCUSSION AND RECOMMENDATIONS**
 - 6.1 SUBSURFACE INVESTIGATION
 - 6.2 LABORATORY AND FIELD TESTING
 - 6.3 ANALYSIS AND RECOMMENDATIONS
 - 6.4 CONSTRUCTION MONITORING
 - 6.5 GENERAL

SPECIFICATIONS

- I - GENERAL**
- II – ENGINEERED FILL BENEATH STRUCTURES**
- III – GUIDELINES FOR EXCAVATIONS AND TRENCHING**
- IV – GENERAL CONCRETE SPECIFICATIONS**

- APPENDIX A – BORING DATA AND TESTING**
- APPENDIX B – SEISMIC DATA**
- APPENDIX C – PHOTOGRAPHS**
- APPENDIX D – MAPS**



EXECUTIVE SUMMARY

A geotechnical investigation has been performed on the Ezel tower site, located in Morgan County, Kentucky. This site is readily accessible. A location map is shown in Figure 1 of this report. Four (4) borings were advanced to depths ranging from 9.8 ft. to 27.7 ft. The following geotechnical considerations were identified:

- Borings utilized for this study encountered soil material to a depth of 3 ft. Underlying shales and sandstones were encountered to a depth of 27.7 ft. with two small coal seams and associated fireclays present. The current proposed base elevation of tower foundation is 1095.5 ft.
- This site is on the edge of an existing farm road adjacent to a county road.
- **The allowable bearing capacities of the underlying shales is estimated at 4 tsf.**
- The 2015 International Building Code seismic site classification for this site is "B".
- If during the foundation design it becomes necessary to lower the base of the footer, alternate design recommendations are included in section 5.3 of this report.
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We therefore recommend that ErMC² be retained to monitor this portion of the work.

This executive summary is included to provide a general overview of the project and should not be relied upon except for the purpose it was prepared. Please rely on the complete report for the information on the findings, recommendations and all other concerns.



1. INTRODUCTION

Environmental Resources Management Consulting Company (ErMC²) was retained by Mr. Marty Thacker of Appalachian Wireless to prepare a geotechnical engineering report for the proposed tower site located on the Ezel Property, Morgan County, Kentucky. A site location map is shown in Figure No. 1.

Four (4) borings were advanced to depths ranging from 9.8 ft. to 27.7 ft. Geo-drill Inc. provided drilling services to obtain these borings. Logs of the borings along with a boring location plan are included in Appendix A. The purpose of these services is to provide information and geotechnical engineering recommendations relative to subsurface conditions, earthwork, seismic considerations, groundwater conditions and foundation design.

2.0 PROJECT DESCRIPTION

The proposed communication facility will consist of a self-supporting tower of undetermined height and ancillary support areas. The construction area will be approximately 40.5 ft. x 40.5 ft. with the base of the tower footer elevation at 1095.5 ft. Based upon information provided, we estimate the structural loads will be similar to the following conditions;

CONDITION	LOAD
Total Shear	40 Kips
Axial Load	50 Kips

We anticipate that overturning will govern the structural design. If the loading is significantly different than these expected values, ErMC² should be notified to re-evaluate the recommendations provided in this report.





Drawn:	Date: 8/29/16
Job:	Scale: 1"=2000'
Drawing: USGS SITE LOCATION MAP	

EZEL SITE
APPALACHIAN WIRELESS
USGS LOCATION MAP
FIGURE No. 1



921 Beasley Street, Suite 145
 Lexington, KY 40509
 (859)381-1000
 engineering@ermc2.us

3.0 SITE DESCRIPTION & HISTORICAL MINING

The site location is a relatively flat existing bench cut. The site has fair vegetative cover, with an existing high wall to the northeast. There is some minimal fill material on the existing bench with underlying shale rock beneath.

ErMC² reviewed available historical mine maps from the Kentucky Division of Mine Safety, Kentucky Mine Mapping Information System ("KMMIS"). Based on available data, no historical surface or underground mining has occurred.

4.0 FIELD EXPLORATION

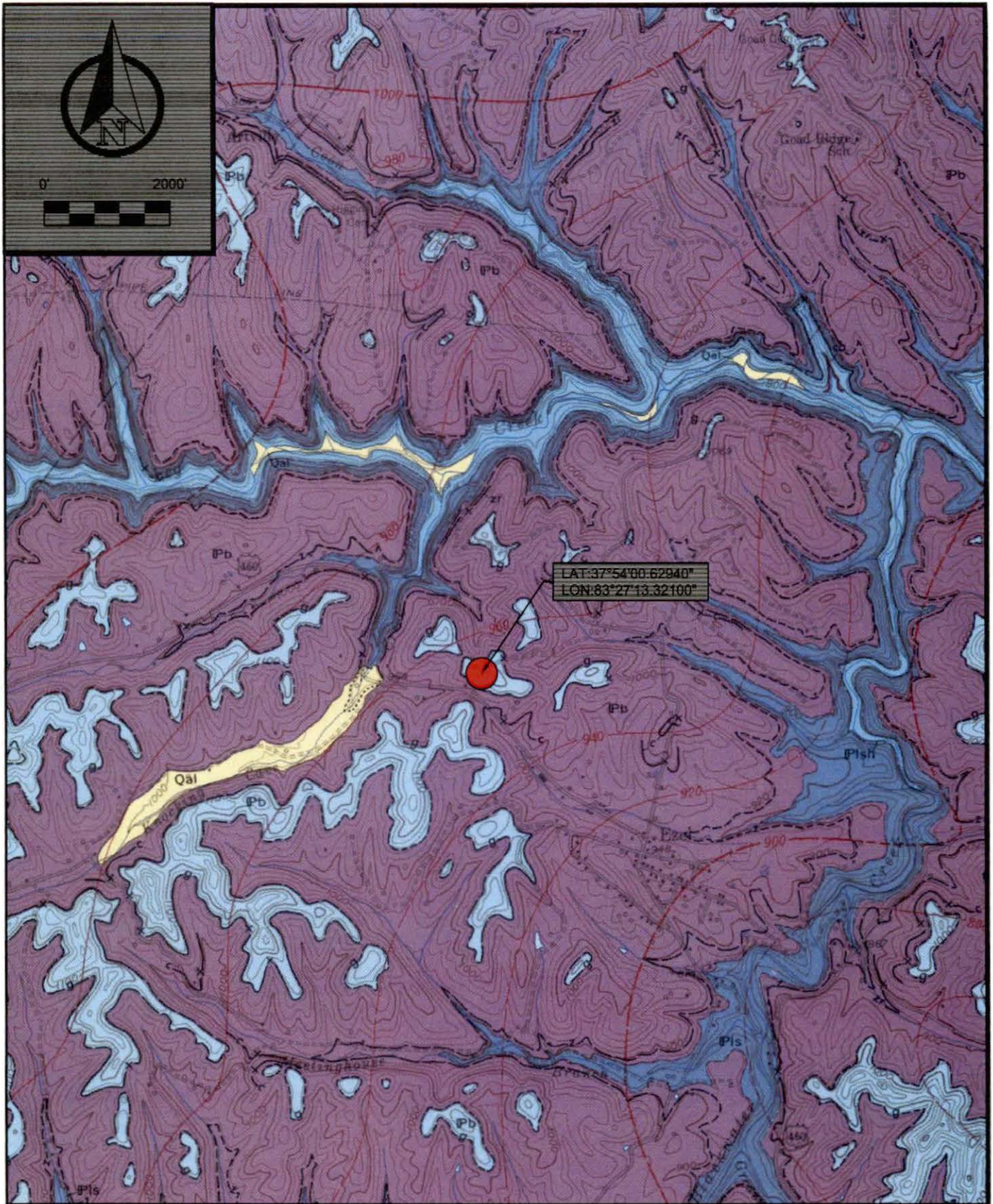
4.1 SITE INFORMATION

A boundary survey was conducted on the Ezel Property and provided to ErMC². A proposed lot drawing is included in the Appendix D of this report. The proposed tower lot was established and tied to the existing boundary. An estimated pad location was determined and boring locations were placed at the corners of proposed foundation for the towers support based upon this information.

4.2 BORING DATA

Four (4) borings were made in the relative positions shown on the Boring Location Map in Appendix A. The boring logs and resulting data are also included in Appendix A. The borings were made with a track mounted boring rig using hollow-stem augers and employing standard penetration resistance methods (ASTM D-1586, which includes 140-pound hammer, 30-inch drop, and two-inch-O.D. split-spoon sampler) at maximum depth intervals of five feet or at major changes in stratum, whichever occurred first. The disturbed split-spoon samples were visually classified, logged, sealed in moisture-proof jars, and taken to the ErMC² laboratory for study. The depths where these "A"-type split-spoon samples were collected are noted on the boring logs. The results of the natural moisture contents by boring and interval are shown in Table 1.





Drawn:	Date: 8/29/16
Job:	Scale: 1"=2000'
Drawing: GQ SITE LOCATION MAP	

EZEL SITE
APPALACHIAN WIRELESS
GQ LOCATION MAP
FIGURE No. 2



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TABLE 1

RESULTS OF NATURAL MOISTURE CONTENT TESTS (ASTM D-4643)

BORING NO.	DEPTH INCREMENT, (FT.)	NATURAL MOISTURE CONTENT, %
B1	0.0-1.5	18.1
B1	1.5-3.0	18.5
B1	4.0-5.5	16.4
B1	6.5-8.0	15.4
B1	9.0-10.5	12.8
B2	0.0-1.5	15.0
B2	1.5-3.0	16.4
B2	4.0-5.5	16.8
B2	6.5-8.0	13.7
B2	9.0-10.5	8.0
B3	0.0-1.5	14.4
B3	1.5-3.0	19.5
B3	4.0-5.5	18.5
B3	6.5-8.0	8.2
B3	9.0-10.5	11.6

The borings encountered shale fill to a maximum depth of 1.5 ft. Two of the 4 borings were extended by "NX" size rock core that were taken to confirm the presence of rock at the site and to determine its physical characteristics. The core was made with "NX" size diamond coring equipment. These borings range in depth from 10.5 ft. to 27.7 ft. The position at which the core was taken are indicated on the boring logs and shown on the boring location map in Appendix A. The corresponding Rock Quality Data Ratings (RQD) are shown in Table No. 2. This boring demonstrates the full geologic column at the site. Rock-quality designation (RQD) is a rough measure of the degree of jointing or fracture in a rock mass, measured as a percentage of the drill core in lengths of 10 cm or more. High-quality rock has an RQD of more than 75%, low quality of less than 50%. Rock quality designation (RQD) has several definitions.



TABLE NO. 2

ROCK QUALITY

Boring	Run Interval	RQD Values %	Description
B1	11.9 – 27.7	37%	Weathered Rock
B3	10.5 - 25.5	22%	Weathered Rock

Photographs of the cores are included in Appendix A of this report.

4.3 GROUNDWATER

Groundwater observations were made during the drilling operations (by noting the depth to water on the drilling tools) and in the open boreholes following withdrawal of the drilling augers. No groundwater levels were noted during drilling activities.

4.4 SEISMIC SITE CLASSIFICATION

Based on the encountered soil conditions at the project site, the site classification was determined to be "Site Class B" per the NEHRP Revisions. In addition, a S_{DS} coefficient of 0.112 g was calculated, and a S_{D1} coefficient of 0.043 g was also calculated for design based on the aforementioned building code.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 GENERAL

The structure will be a self-supporting free standing tri-pole tower. Due to wind loading, lattice tower foundations can experience both vertical loads and horizontal loads. The vertical loads act in both an upward and downward direction as the tower attempts to overturn and can act in any directions.



5.2 FOUNDATIONS

It is our understanding that the foundations for these structures can be designed to bear on low bearing pressure soils. This report demonstrates the different expected bearing capacities based upon the type of material encountered from the boring logs and sampling taken at the site.

Approximately 0.3 to 1.5 feet of soil is present at this proposed location. It consists of a mixture of topsoil and clay soils. Standard penetrations tests were conducted on 2.5 foot intervals in this material. Shale rock was found below the fill to a depth of 27.7 ft. There were two bands of coal within this shale unit at an approximate elevation of 1075.8 and 1086.6 ft.

The approximate elevation of the surface of the site is 1102.5 ft. with an expected base of the footer at 1095.5 ft. in elevation. The standard penetration tests were conducted on 2.5 foot intervals within the first 10.5 feet material. The blow counts (N) ranged from 6 to 50/3" to this depth. This formation exhibited rock quality designations (RQD) that range from 37% to 22%.

5.3 SHALLOW FOUNDATIONS

We recommend a single spread footer foundation on shale rock. The proposed location is adjacent to an existing tower site of fill material present. There is 1 to 3 ft. of clay soils and topsoil below the immediate surface at this location. The lithology below varies from weathered shale, sandstone, fireclays and coal. (see attached section drawing) Some rock excavation will be required in order to obtain a sufficient footing for the foundation and construction area. There are two small coal seams present at approximate elevations of 1086.6 ft. and 1075.8 ft. The upper seam is layered between soft fireclays. The upper coal and fireclays have an approximate thickness of 3 ft. to 3.5 ft. thick. At the proposed location of the footer the shale unit will provided an **allowable bearing capacity of 4.0 tsf**. If the proposed design footer base elevation is lowered, we recommend an excavation through the underlying fireclays and coal seam to an approximate elevation of 1084.6 ft. This again will place the footer on a shale unit that will have an **allowable bearing capacity of 4.0 tsf**.



Care must be exercised to ensure that the foundation is bearing on rock. The thickness of the soils can vary on the outer edge of the bench. If this occurs, the base footer elevation will need to be adjusted to insure that it is on the shale formation.

It is furthermore recommended that the slabs-on-grade be supported on 4 to 6-inch layer of relatively clean granular material such as sand and gravel or crushed stone. This is to help distribute concentrated loads and equalize moisture conditions beneath the slab. Proper drainage must be incorporated into this granular layer to preclude future wet areas in the finished slab-on-grade. However, all topsoil and/or other deleterious materials encountered during site preparation must be removed and replaced with 4000 psi. concrete below the foundation base. Provided that a minimum of 4 inches of granular material is placed below the new slab-on-grade, a modulus of subgrade reaction (k30) of 100 lbs./cu. in. can be used for design of the slabs.

Support structure for this tower can be placed on the bench areas as needed. It is recommended that test pits are preformed to insure that any of these structures are on the rock bench and not on soil pushover that is common near the out slopes of the existing old bench. If pockets of soft, loose or otherwise unsuitable material are encountered in the footing excavations and it is inconvenient to lower the footings, the proposed footing elevations may be re-established by backfilling after the undesirable material has been removed. The undercut excavation beneath each footing should extend to suitable bearing soils and the dimensions of the excavation base should be determined by imaginary planes extending outward and down on a 1 (vertical) to 1 (horizontal) slope from the base perimeter of the footing. The entire excavation should then be refilled with a well-compacted engineered fill, or lean concrete (Please note that the width of the lean concrete zone should be equal or wider than the width of the overlying footing element). Special care should be exercised to remove any sloughed, loose or soft materials near the base of the excavation slopes. In addition, special care should be taken to "tie-in" the compacted fill with the excavation slopes, with benches as necessary, to insure that no pockets of loose or soft materials will be left in place along the excavation slopes below the foundation bearing level. All Federal, State, and Local regulations should be strictly adhered to relative to excavation side-slope geometry.



5.4 BURIED UTILITIES

Excavations for buried utility pipelines should follow the guidelines set forth in this report. Depending on the pipeline material, a minimum thickness of at least 0.5 feet of select fine-grained granular bedding material should be used beneath all below-grade pipes, with a minimum cover thickness of at least 3 feet to afford an "arching" effect and reduce stresses on the pipe. The cover thickness may be reduced if the external loading condition on the pipe is relatively light or if the pipe is designed to withstand the external loading condition. It is not recommended that "pea-gravel" or other "open-work" aggregates be used for trench backfill since these materials are nearly impossible to compact and have a tendency to pond water within their interstices.

6.0 WARRANTY

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. No other warranty, express or implied, is made.

While the services of ErMC² are a valuable and integral part of the design and construction teams, we do not warrant, guarantee, or insure the quality or completeness of services provided by other members of those teams, the quality, completeness, or satisfactory performance of construction plans and specifications which we have not prepared, nor the ultimate performance of building site materials.

6.1 SUBSURFACE EXPLORATION

Subsurface exploration is normally accomplished by test borings, although test pits are sometimes employed. The method of determining the boring location and the surface elevation at the boring is noted in the report, and is presented on the Boring Location Plan or on the boring log. The location and elevation of the boring should be considered accurate only to the degree inherent with the method used.

The boring log includes sampling information, description of the materials recovered, approximate depth of boundaries between soil and rock strata and groundwater data.



The boring log represents conditions specifically at the location and time the boring was made. The boundaries between different soil strata are indicated at specific depths; however, these depths are in fact approximate and are somewhat dependent upon the frequency of sampling (The transition between soil strata is often gradual). Free groundwater level readings are made at the times and under conditions stated on the boring logs (Groundwater levels change with time and season). The borehole does not always remain open sufficiently long enough for the measured water level to coincide with the groundwater table.

6.2 LABORATORY AND FIELD TESTS

Laboratory and field tests are performed in accordance with specific ASTM standards unless otherwise indicated. All determinations included in a given ASTM standard are not always required and performed. Each test report indicates the measurements and determinations actually made.

6.3 ANALYSIS AND RECOMMENDATIONS

The geotechnical report is prepared primarily to aid in the engineering design of site work and structural foundations. Although the information in the report is expected to be sufficient for these purposes, it is not intended to determine the cost of construction or to stand alone as a construction specification.

Our engineering report recommendations are based primarily on data from test borings made at the locations shown on a boring location drawing included. Soil variations may exist between borings and these variations may not become evident until construction. If significant variations are then noted, the geotechnical engineer should be contacted so that field conditions can be examined and recommendations revised if necessary.

The geotechnical engineering report states our understanding as to the location, dimensions and structural features proposed for the site. Any significant changes in the nature, design, or location of the site improvements MUST be communicated to the geotechnical engineer such that the geotechnical analysis, conclusions, and recommendations can be appropriately adjusted. The geotechnical engineer should



be given the opportunity to review all drawings that have been prepared based on their recommendations.

6.4 CONSTRUCTION MONITORING

Construction monitoring is a vital element of complete geotechnical services. The field engineer/inspector is the owner's "representative" observing the work of the contractor, performing tests as required in the specifications, and reporting data developed from such tests and observations. The field engineer or inspector does not direct the contractor's construction means, methods, operations or personnel. The field inspector/engineer does not interfere with the relationship between the owner and the contractor and, except as an observer, does not become a substitute owner on site. The field inspector/engineer is responsible for his own safety but has no responsibility for the safety of other personnel at the site. The field inspector/engineer is an important member of a team whose responsibility is to watch and test the work being done and report to the owner whether that work is being carried out in general conformance with the plans and specifications.

6.5 GENERAL

The scope of our services did not include an environmental assessment for the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater or air, on, within or beyond the site studied. Any statements in the report or on the boring logs regarding odors, staining of soils or other unusual items or conditions observed are strictly for the information of our client.

To evaluate the site for possible environmental liabilities, we recommend an environmental assessment, consisting of a detailed site reconnaissance, a record review, and report of findings. Additional subsurface drilling and samplings, including groundwater sampling, may be required

This report has been prepared for the exclusive use of Appalachian Wireless, for specific application to the proposed cellular tower located on the Ezel Property located in Morgan County, Kentucky. Specific design and construction recommendations have been provided in the various sections of the report. The report shall, therefore, be



) used in its entirety. This report is not a bidding document and shall not be used for that purpose. Anyone reviewing this report must interpret and draw their own conclusions regarding specific construction techniques and methods chosen. ErMC² is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploratory and laboratory test data presented in this report.



SPECIFICATIONS

I – GENERAL

1.0 STANDARDS AND DEFINITIONS

1.1 STANDARDS - All standards refer to latest edition unless otherwise noted.

1.1.1 ASTM D-698-70 (Method C) "Standard Test Methods for Moisture, Density Relations of Soils and Soil Aggregate Mixtures Using 5.5-lb (2.5 kg.) Rammer and 12-inch (305-mm) Drop".

1.1.2 ASTM D-2922 "Standard Test Method for Density of Soil and Soil Aggregate in Place by Nuclear methods (Shallow Depth)".

1.1.3 ASTM D-1556 "Standard Test Method for Density of Soil in place by the Sand-Cone Method".

1.2 DEFINITIONS

1.2.1 Owner - In these specifications the word "Owner" shall mean Appalachian Wireless.

1.2.2 Engineer - In these specifications the word "Engineer" shall mean the Owner designated engineer.

1.2.3 Design Engineer - In these specifications the words "Design Engineer" shall mean the Owner designated design engineer.

1.2.4 Contractor - In these specifications the word "Contractor" shall mean the firm or corporation undertaking the execution of any work under the terms of these specifications.

1.2.5 Approved - In these specifications the word "approved" shall refer to the approval of the Engineer or his designated representative.

1.2.6 As Directed - In these specifications the words "as directed" shall refer to the directions to the Contractor from the Owner or his designated representative.



2.0 GENERAL CONDITIONS

- 2.1** The Contractor shall furnish all labor, material and equipment and perform all work and services except those set out and furnished by the Owner, necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction, grading as shown on the plans and as described therein.

This work shall consist of all mobilization clearing and grading, grubbing, stripping, removal of existing material unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the observation of the Owner or his designated representative.

- 2.2** Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the owner can investigate the condition.

- 2.3** The construction shall be performed under the direction of an experienced engineer who is familiar with the design plan.



II - ENGINEERED FILL BENEATH STRUCTURES

CLEARING AND GRADING SPECIFICATIONS

1.0 GENERAL CONDITIONS

The Contractor shall furnish all labor, materials, and equipment, and perform all work and services necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction and grading as shown on the plans and as described therein.

This work shall consist of all clearing and grading, removal of existing structures unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the constant and continuous supervision of the Owner or his designated representative.

In these specifications the terms "approved" and "as directed" shall refer to directions to the Contractor from the Owner or his designated representative.

2.0 SUBSURFACE CONDITIONS

Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work. Borings and/or soil investigations shall have been made. Results of these borings and studies will be made available by the Owner to the Contractor upon his request, but the Owner is not responsible for any interpretations or conclusions with respect thereto made by the Contractor on the basis of such information, and the Owner further has no responsibility for the accuracy of the borings and the soil investigations.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the Owner can investigate the condition.

3.0 SITE PREPARATION

Within the specified areas, all trees, brush, stumps, logs, tree roots, and structures scheduled for demolition shall be removed and disposed of.

All cut and fill areas shall be properly stripped. Topsoil will be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material shall be disposed of off the site, or as directed by



the Owner or his designated representative if on site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing.

Prior to the addition of fill, the original ground shall be compacted to job specifications as outlined below. Special notice shall be given to the proposed fill area at this time. If wet spots, spongy conditions, or groundwater seepage is found, corrective measures must be taken before the placement of fill.

4.0 FORMATION OF FILL AREAS

Fills shall be formed of satisfactory materials placed in successive horizontal layers of not more than eight (8) inches in loose depth for the full width of the cross-section. The depth of lift may be increased if the Contractor can demonstrate the ability to compact a larger lift. If compaction is accomplished using hand-tamping equipment, lifts will be limited to 4-inch loose lifts. Engineered fill placed below the structure bearing elevation shall be compacted to at least 95% of the maximum dry unit weight with a moisture content within 2% of the optimum moisture content as determined by the modified Proctor test. The top size of the material placed shall not exceed 4 inches.

All material entering the fill shall be free of organic matter such as leaves, grass, roots, and other objectionable material.

The operations on earth work shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions. The Contractor shall keep the work areas graded to provide the drainage at all times.

The fill material shall be of the proper moisture content before compaction efforts are started. Wetting or drying of the material and manipulation to secure a uniform moisture content throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work thus affected shall be delayed until the material has dried to the required moisture content. The moisture content of the fill material should be no more than two (2) percentage points higher or lower than optimum unless otherwise authorized. Sprinkling shall be done with equipment that will satisfactorily distribute the water over the disced area. Any areas inaccessible to a roller shall be consolidated and compacted by mechanical tampers. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of filled areas, starting layers shall be placed in the deepest portion of the fill, and as placement progresses, additional layers shall be constructed in horizontal planes. Original slopes shall be continuously, vertically benched to provide horizontal fill planes. The size of the benches shall be formed so that the base of the bench is horizontal and the back of the bench is vertical. As many benches as are necessary to bring the site to final grade shall be constructed. Filling operations shall



begin on the lowest bench, with the fill being placed in horizontal eight (8) inch thick loose lifts unless otherwise authorized. The filling shall progress in this manner until the entire first bench has been filled, before any fill is placed on the succeeding benches. Proper drainage shall be maintained at all times during benching and filling of the benches, to insure that all water is drained away from the fill area.

Frozen material shall not be placed in the fill nor shall the fill be placed upon frozen material.

The Contractor shall be responsible for the stability of all fills made under the contract, and shall replace any portion, which in the opinion of the Owner or his designated representative, has become displaced due to carelessness or negligence on the part of the Contractor. Fill damaged by inclement weather shall be repaired at the Contractor's expense.

5.0 SLOPE RATIO AND STORM WATER RUN-OFF

Slopes shall not be greater than 2 (horizontal) to 1 (vertical) in both cut and fill, or as illustrated on the construction drawings. Excavations shall be constructed in accordance with all Federal, State and local codes relative to slope geometry.

6.0 GRADING

The Contractor shall furnish, operate, and maintain such equipment as is necessary to construct uniform layers, and control smoothness of grade for maximum compaction and drainage.

7.0 COMPACTING

The compaction equipment shall be approved equipment of such design, weight, and quantity to obtain the required density in accordance with these specifications.

8.0 TESTING AND INSPECTION SERVICES

Testing and inspection services will be provided by the Owner.



III GUIDELINES FOR EXCAVATIONS AND TRENCHES

The following represents some general guidelines relative to the design and construction of excavations and trenches. It must be emphasized that these guidelines are not intended to represent a "safety plan," but rather are presented herein to provide general guidance with regard to the design characteristics and safety measures for excavations and trenches.

1. Check with the following utilities prior to breaking ground:

- Sewer
- Telephone
- Fuel
- Electric
- Water
- Gas
- Cable

When utility companies or owners do not respond to your request within 48 hours, the contractor may only then proceed provided the contractor does so with caution by using detection equipment or other acceptable means to locate utility installations.

Once the excavation is open, the contractor should protect and support the exposed underground utilities or remove installations to safeguard workers and prevent damage to exposed utilities.

2. Access and egress ramps must be designed by a "competent person" and structural ramps used for equipment must be designed by a "competent person" with qualified knowledge in structural design. In addition:

- Ramps must be secured to prevent displacement;
- Ramps used in lieu of steps must have cleats to prevent slipping; and
- Trenching excavations four feet or greater in depth must have a stairway, ladder, ramps or other safe means to egress with lateral travel no more than 25 feet.

3. Workers must be provided with reflector garments, such as warning orange or red vests, when exposed to vehicular traffic.

4. Contractors must not allow workers to work under or near equipment when there is danger of falling debris, spillage or equipment-related injuries.



5. Mobile equipment, operating adjacent to an open excavation or approaching the edge of an excavation, must have one of the following when the operator's view is obstructed:
 - Warning System
 - Mechanical Signals
 - Barricades
 - Stop Logs
 - Hand Signals
6. The contractor must check the atmosphere for hazardous gases and oxygen deficiencies when excavating four feet or greater around landfills, or when hazardous substances are stored nearby, and when the contractor expects there could be any exposure to the workers.
7. When hazardous atmospheric conditions exist, or when conditions could change, the contractor must make emergency rescue equipment readily available including breathing apparatus, safety harnesses with life lines and a basket stretcher.
8. When workers enter bell-bottom pier holes or other deep and confined excavations, the worker must wear (at all times while performing work in the confined space) a separate life line attached to a harness. The line must be attended by someone above while work is being performed. The worker must check for hazardous atmospheric conditions prior to entry.
9. The contractor must ensure that water does not accumulate in open excavations and must inspect the excavation prior to allowing workers to re-enter after heavy rains.
10. Adjacent structures (buildings, walls, etc.) must be supported or secured to prevent worker exposure to unsafe conditions and damage to existing structures.
11. A registered professional engineer must approve operations when a contractor underpins existing structures to ensure worker safety and prevent damage to existing structures.
12. Workers must not be exposed to loose soil and rock or materials in and around excavations. Materials, such as removed soil and rock, must not be stored closer than two feet from the edge of the excavation.
13. Daily inspections of the excavation, the adjacent areas and protective systems must be made by a "competent person" for evidence of possible cave-ins, indications of failure of protective systems, hazardous atmospheres or other



hazardous conditions. The "competent person" must stop work immediately and remove workers from the excavation when conditions change and pose a threat to their safety.

14. Workers must not be exposed to fall hazards associated with excavations. Protective walkways or bridges with standard guard rails must be provided.
15. All wells, pits, shafts etc. must be barricaded or covered. After completion of work, all wells, pits, shafts etc. must be backfilled.



IV - GENERAL CONCRETE SPECIFICATIONS

1.0 GENERAL

It is the intent of this specification to secure, for every part of the work, concrete of homogenous structure which, when hardened, will have the required strength and resistance to weathering. To this end, the limiting values of concrete and the requirements hereinafter specified must be met. Standard tests of the cement, aggregates, concrete and reinforcement will be made by the Owner as it sees fit. The Contractor shall furnish the material for all required samples plus such labor as required to obtain samples. The Contractor shall provide to authorized representatives of the Owner, convenient access to all parts of the work of all concreting operations for the purpose of sampling and inspection.

2.0 SCOPE

Contractor shall furnish all materials, labor, services, transportation, tools, equipment, and related items required to complete work indicated on the drawings and/or specified.

Unless otherwise noted or as modified by more stringent requirements specified herein, all plain and reinforced concrete work shall be performed in full compliance with applicable requirements of the Building Code Requirements for Reinforced Concrete ACI 318.

Contractor shall obtain Owner's approval of all subgrades, footing bottoms, forms, and reinforcement just prior to placing concrete.

Contractor shall coordinate the work specified in this section with that specified in other sections so that all anchors, pipes and other embedded items are properly installed before concrete is placed.

Contractor shall clean all exposed concrete surfaces and obtain approval of Owner for method of cleaning.

3.0 MATERIALS

All materials shall be of the respective quality specified herein, delivered, stored, and handled as to prevent inclusion of foreign matter and damage by dampness or breakage. Packaged material shall be stored in original container until ready for use. Materials showing evidence of dampness or other damage may be rejected.

- A. Fine and Coarse Aggregates: Coarse and fine aggregates shall conform to ASTM Specification C33. The maximum size of aggregate shall not be larger than one-fifth (1/5) of the narrowest dimensions between forms, or larger than three fourths (3/4) of the minimum clear spacing between reinforcement.
 - 1. Fine Aggregate: Sand shall be composed essentially of clean, hard, strong, durable grains free of structurally weak grains,



organic matter, loam, clay, silt, salt, mica or other fine materials that may affect bonding of the cement paste.

2. Coarse Aggregate: Cement concrete shall consist of crushed rock or screened gravel and shall be composed essentially of clean, hard, strong and impermeable particles, resistant to wear and frost and free from deleterious amounts of organic matter, loam, clay, salts, mica, and soft, thin, elongated, laminated or disintegrated stone, and shall be inert to water and cement.
- B. Portland Cement: Portland cement shall conform to ASTM Specification C150. Type I or Type II Portland Cement shall be used provided that they are not intermixed during any one batch. Type II Portland Cement shall not be used unless indicated on the plans.
- C. Water: Water for mixing and curing shall be clean, fresh, and free from deleterious materials.
- D. Metal Reinforcement: Rebar shall be Grade 60 and with deformations conforming to ASTM Specification A305. Welded wire mesh shall conform to W4 x W4 size and be of Grade 60 steel.
- E. Admixtures: Except as herein noted, admixtures shall not be used.
1. Under adverse weather conditions only retarding or accelerating agents containing no chloride may be used.
 2. Air-Entraining Agent shall be used for all concrete will give an entrained air range of not less than 4 percent but no greater than 8 percent in the finished product. Under no circumstances shall the air-entraining be interground with cement.
 3. Approval in writing shall be required from Owner prior to the use of any admixture.

4.0 FORM

Forms shall be constructed with proper shoring and cross-bracing, safeguarding the total structure and specifically lateral stability and sufficiently strong to stand vibrations of concrete and to carry, without appreciable deflection or displacement, all dead and live loads to which they may be subjected.

5.0 INSERTS, ETC.

Anchors, bolts, dowels, conduit, waterstops, vent pipes and other similar built-in or concreted-in items shall be properly located, accurately positioned and secured. The Contractor shall cooperate in placing of such items with other contractors who require a fastening device for their work and he shall maintain them in proper location during the progress of his work.



6.0 REINFORCEMENT

Reinforcement at the time concrete is placed shall be free from rust, scale or other coatings that will destroy or reduce the bond.

+

Reinforcement shall be accurately placed and securely tied at intersections and shall be securely held in position during the placing of concrete by pacers, chairs, or other approved supports.

The reinforcement of foundations, footings and other principal structural members in which the concrete is deposited against the ground shall not have less than three (3) inches of concrete between it and the ground contact surface. If concrete surfaces after removal of the forms are to be exposed to the weather or to be in contact with the ground or rock, reinforcement shall be protected with not less than two (2) inches of concrete,

7.0 CONCRETE

Concrete for the various parts of the work shall be of 4000 pounds per square inch compressive strength with a minimum 28-day cure. Contractor is responsible to provide a mix of not less than 6 bags of cement per yard of concrete and not more than 7 gallons of water per bag of cement, producing a minimum slump of 2-1/2 inches and a maximum slump of 4-1/2 inches. Concrete that exceeds the above range of maximum or minimum slump requirements may be rejected by the Owner. All concrete shall be air-entrained. Contractors are required to furnish the name or names of the company(s) that will be providing the mix. The Owner reserves the right to disapprove any concrete supplier that has been known to supply an undesirable material to the Owner on previous occasions.

8.0 DEPOSITING CONCRETE

4.1. Preparation for Placing Concrete: Before depositing concrete, the Contractor shall:

1. Remove from space to be occupied by concrete all debris, including snow, ice, and water unless otherwise permitted by Owner.
2. Provide diversion, satisfactory to Owner, of any flow of water to an excavation so as to avoid washing the freshly deposited concrete.
3. Coat the forms prior to placing of reinforcing steel as required in form work.
4. Secure firmly in correct position, all reinforcement and other items to be encased and remove therefrom all coating including ice and frost.



- B. Transportation of Concrete from Batch Plant: The concrete shall be delivered to the site of the work and discharge shall be completed within 90 minutes after addition of the cement and water to the aggregates. Each batch of concrete delivered at the job site shall be accompanied by a time slip issued at the batching plant, bearing the time of charging of the mixer drum with the cement and aggregates.
- C. Transporting of Concrete from Mixer to Place of Final Deposit: Transportation shall be done as rapidly as practical by means which shall prevent the separation or loss of the ingredients. If chutes are used, they shall be at a slope not flatter than one vertical to two horizontal. Buggies or carts shall be equipped with pneumatic rubber tires or surfaces of runways shall be sufficiently smooth or both so as not to cause separation or segregation of concrete ingredients. Concrete shall not be allowed to drop freely more than 4 feet. Where greater drops are required, canvas "elephant trunks" or galvanized iron chutes equipped with suitable hopper heads shall be employed and a sufficient number placed to insure that the concrete may be effectively compacted into horizontal layers not exceeding 12 inches in thickness with minimum lateral movements.
- D. Depositing of Concrete: Depositing of concrete shall:
1. Proceed continuously after once starting until reaching the end of a section of construction joint location shown on the drawings, or as approved by the Owner. The operations shall be conducted so that no concrete is deposited on concrete sufficiently hardened to cause formation of seams, and planes of weakness.
 2. Be as near as practical to its final position in the forms.
 3. Proceed so as to maintain constantly a top surface which is approximately level.
 4. Be placed before initial set has occurred, and in no event after it has contained its water content for more than 90 minutes.
 5. Be thoroughly worked and compacted by means of suitable tools to provide impermeability, durability and strength and shall be thoroughly worked around reinforcements and embedded items and into corners of forms and so as to be free from voids, pockets or honeycombing. Particular care shall be taken to provide impermeability.



- E. Vibration Equipment: Vibration equipment shall be of the appropriate type and shall, at all times, be adequate in number of units and power of each unit to properly consolidate all concrete.
- F. Monolithic Pours: Proper delivery of concrete shall be the Contractor's responsibility in order to make a mono-lithic pour without delays and changes of cold joints.

9.0 CURING

All concrete work shall be protected from injurious action by the sun, rain, flowing water, frost and other injury and shall be covered with plastic after application of curing compound for three (3) days on pours located above ground.

Contractor shall not remove any formwork for a minimum period of 24 hours after a concrete pour without written approval of the Owner.

10.0 CONCRETE FINISHES

Finishes of all exposed concrete shall be free of defects which impair its durability or adversely affect its appearance. All such surfaces when stripped, shall be uniform in appearance and any surfaces displaying any deviations from adjacent uniform surfaces shall be rejected and subject to removal.

Finished work shall be level and plumb, true to lines, and dimensions. Finished plane surfaces shall be smooth, and as nearly perfect as practical; however, deviations from a true plane shall not exceed 1/8 inch when measured from a 6-foot straight edge placed against the surface to any point on the surface and under the straight edge.

All exposed surfaces shall have defects corrected, protrusions removed, and holes filled.



APPENDIX A BORING DATA



Environmental Resources Management Consulting Company, LLC
 230 Swartz Drive
 Hazard, KY 41701

CLIENT: Appalachian Wireless		REPORT NO. 165-000-0029			BORING NO: B-1				
PROJECT: EZEL Site		DATE STD: 8/30/2016			DATE FINISHED: 8/30/2016				
LOCATION: As shown on the Location Map		DRILLERS: Sam Anderson			GROUND ELEV: 1103.5 ft.				
		METHOD: Boring							
SCALE, FT	STRATUM DEPTH, FT	CLASSIFICATION OF MATERIAL			SAMPLE NUMBER & SAMPLE TYPE	DEPTH OF SAMPLE, FT		BLOWS ON SAMPLER PER SPT (6" INTERAL) RQD	SPT "n" OR RECOVERY
		Major Soil Components		Minor Component Term		FROM	TO		
0	0.4	TOPSOIL				0	1.5	3-3-5	18"
						1.5	3	7-7-7	18"
0.4	2.8	LT BROWN SILTY CLAY				4	5.5	8-16-23	18"
						6.5	8	20-25-31	18"
2.8	5.3	WEATHER SHALE LT BROWN				9	10.5	20-22-29	16"
5.3	11.9	GRAY WEATHER SHALE							
11.9	13.6	HIGHLY WEATHER SHALE							
13.6	14.7	BROWN SANDSTONE							
14.7	15.0	FIRECLAY							
15.9	16.9	COAL							
16.9	18.9	FIRECLAY							
18.9	26.4	GRAY SHALE							
26.4	27.1	COAL							
27.1	27.7	FIRECLAY							
	0.6		Core Run	Recovery	RQD				
			11.9-27.7	63%	37%				

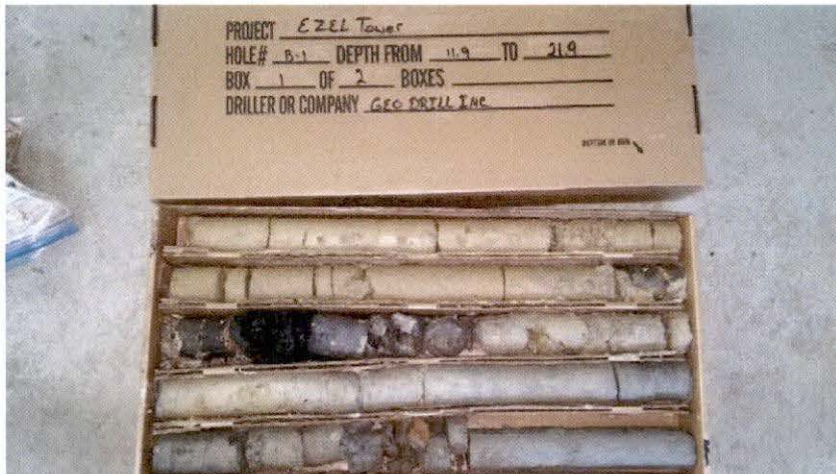
<u>WATER LEVEL OBSERVATIONS</u>	<u>BORING METHOD</u>	<u>TYPE SAMPLE</u>
Noted on rods: N/A	HSA Hollow Stem Auger	A-Split Spoon
At completion: N/A	CFA Continuous Flight Auger	B-Rock Core
After ___ hrs ___ ft	DC Driven casing	C-Shelby Tube
	MD Mud Drilling	D-Grab Sample
	RC Rock Coring	
	CA Casing Advancer	

Environmental Resources Management Consulting Company, LLC
 230 Swartz Drive
 Hazard, KY 41701

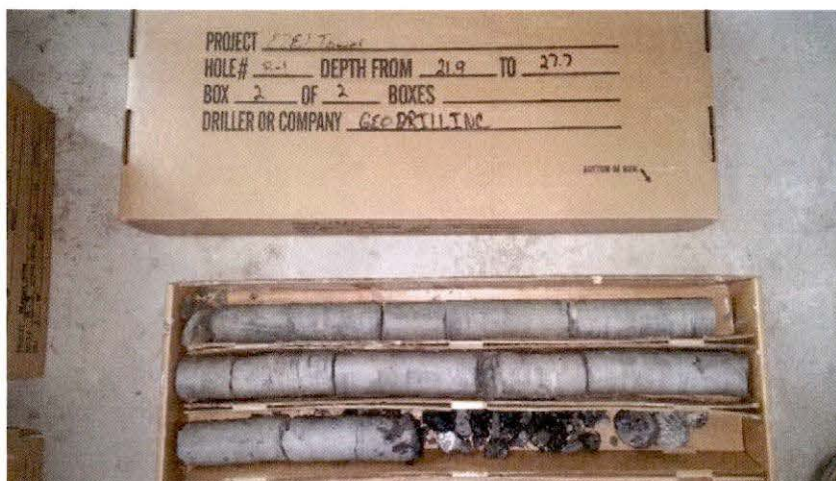
CLIENT: Appalachian Wireless		REPORT NO. 165-000-0029		BORING NO: B-3				
PROJECT: EZEL Site		DATE STD: 8/30/2016		DATE FINISHED: 8/30/2016				
LOCATION: As shown on the Location Map		DRILLERS: Sam Anderson		GROUND ELEV: 1097.1 ft.				
METHOD: Boring								
SCALE, FT	STRATUM DEPTH, FT	CLASSIFICATION OF MATERIAL		SAMPLE NUMBER & SAMPLE TYPE	DEPTH OF SAMPLE, FT		BLOWS ON SAMPLER PER SPT (6" INTERVAL) RQD	SPT "n" OR RECOVERY
		Major Soil Components	Minor Component Term		FROM	TO		
0	0.4	TOPSOIL			0	1.5	3-4-3	15"
0.4	0.9	BROWN SILTY CLAY			1.5	3	6-9-13	17"
0.9	7.8	BROWN WEATHER SHALE			4	5.5	14-20-25	16"
7.8	8.3	BROWN WEATHER SANDSTONE			6.5	8	20-30-50/3	15"
8.3	9.4	WEATHER SHALE / WEATHER SANDSTONE			9	10.5	15-22-25	18"
9.4	9.8	FIRECLAY						
10.3	10.5	COAL						
10.5	13.0	FIRECLAY						
13.0	15.8	WEATHER SHALE						
15.8	20.8	GRAY SHALE						
20.8	21.9	COAL						
21.9	22.5	FIRECLAY						
22.5	25.5	GRAY SANDSTONE						
			Core Run	Recovery	RQD			
			10.5-25.5	54%	22%			

WATER LEVEL OBSERVATIONS		BORING METHOD		TYPE SAMPLE	
Noted on rods: N/A		HSA Hollow Stem Auger	MD Mud Drilling	A-Split Spoon	
At completion: N/A		CFA Continuous Flight Auger	RC Rock Coring	B-Rock Core	
After ___ hrs ___ ft		DC Driven casing	CA Casing Advancer	C-Shelby Tube	
				D-Grab Sample	

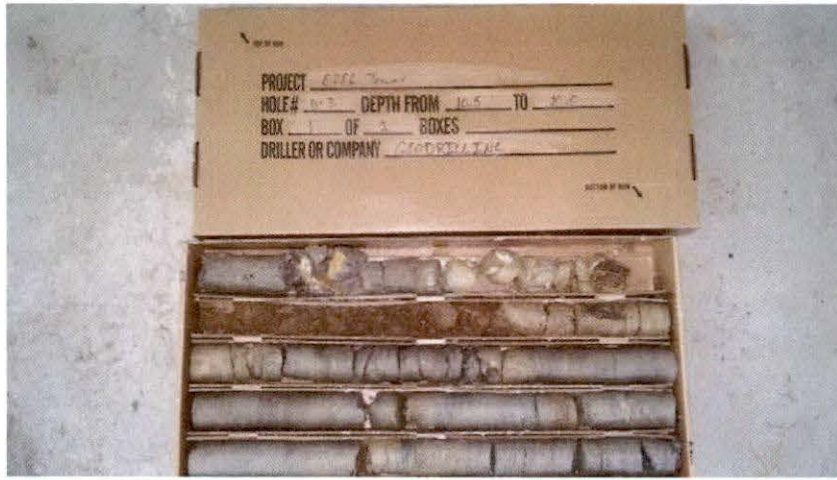
Boring 1: Run 11.9 ft. to 21.9 ft.



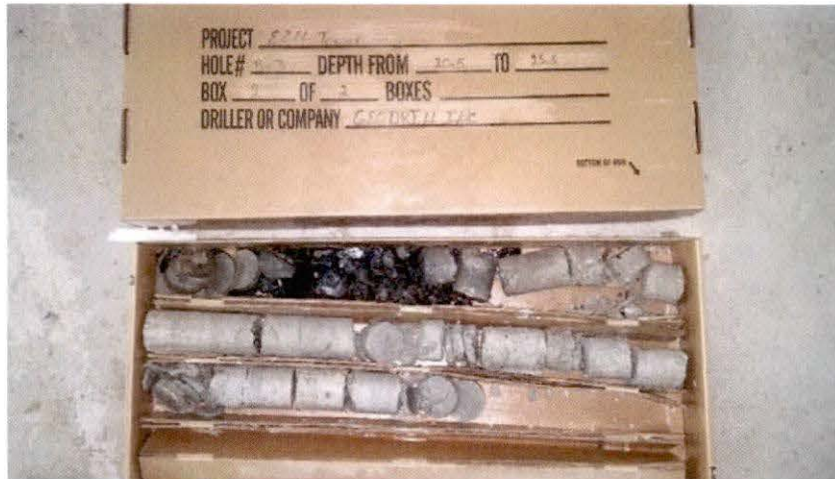
Boring 1: Run 13.5 ft. to 27.7 ft.



Boring 3: Run 10.5 ft. to 20.5 ft.



Boring 4: Run 20.5 ft. to 25.5 ft.



APPENDIX B SEISMIC

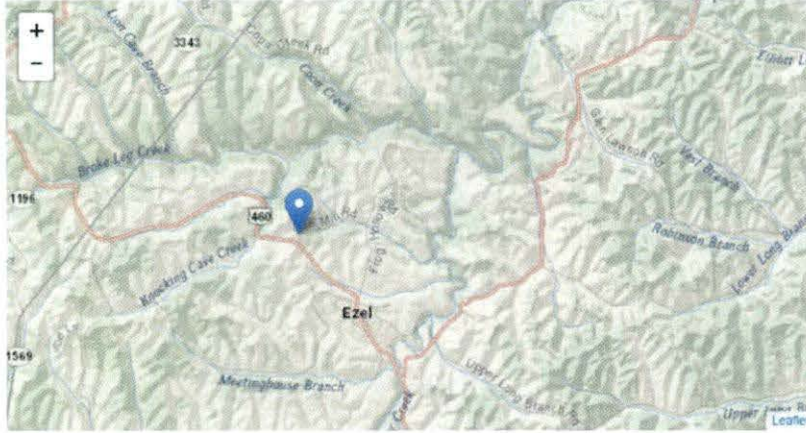


Title

Ezel Tower Site

Latitude = 37.900°N, Longitude = 83.454°W

Location



Reference Document

2015 NEHRP Provisions

Site Class

B (measured): Rock

Risk Category

IV e.g. (Essential Facilities)



Edit



New



Print



Download



Upload

$S_s = 0.187$ g

$S_1 = 0.080$ g

$S_{MS} = 0.168$ g

$S_{M1} = 0.064$ g

$S_{05} = 0.112$ g

$S_{01} = 0.043$ g



APPENDIX C PHOTOS





APPENDIX D MAPS

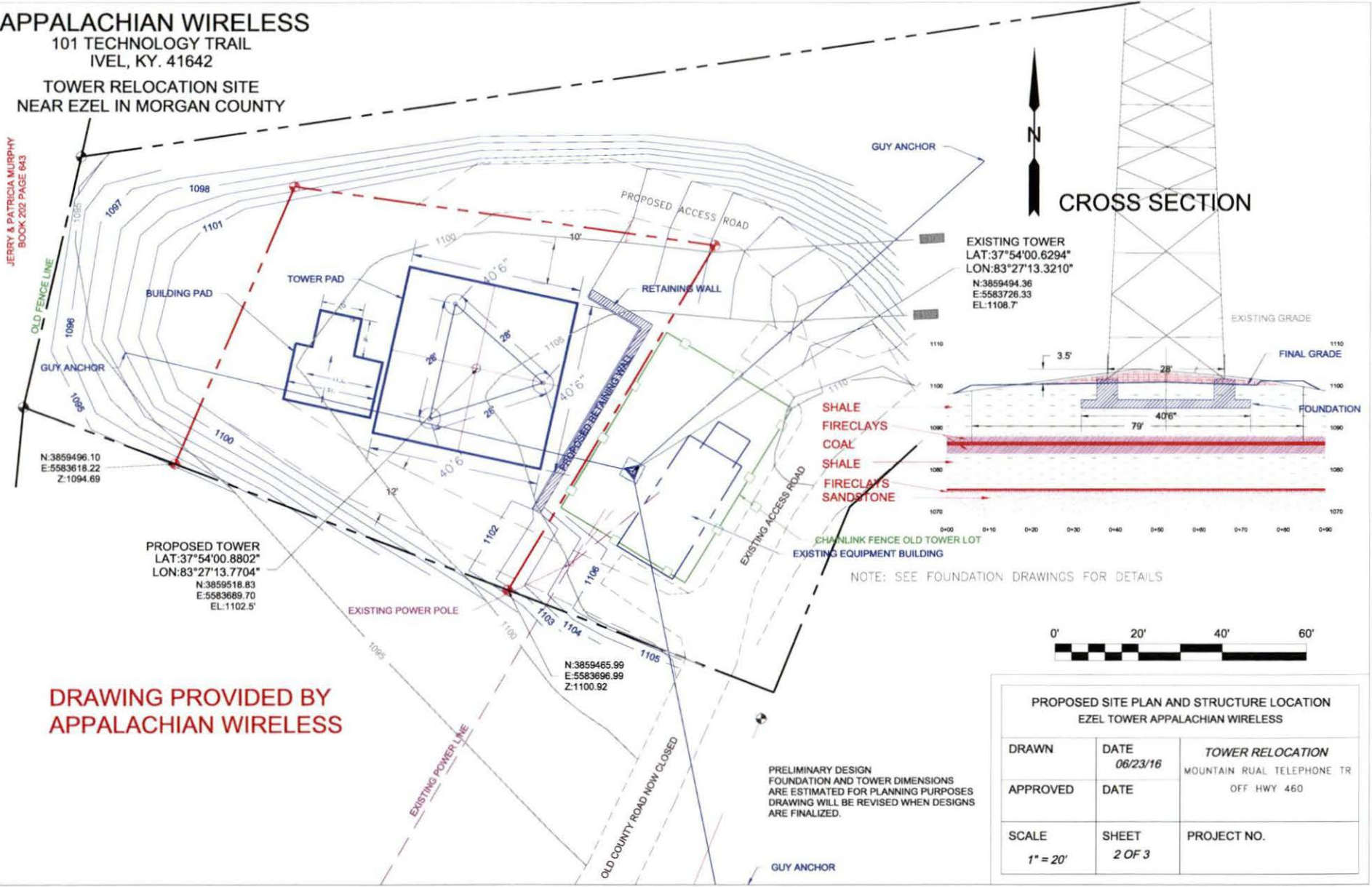


APPALACHIAN WIRELESS

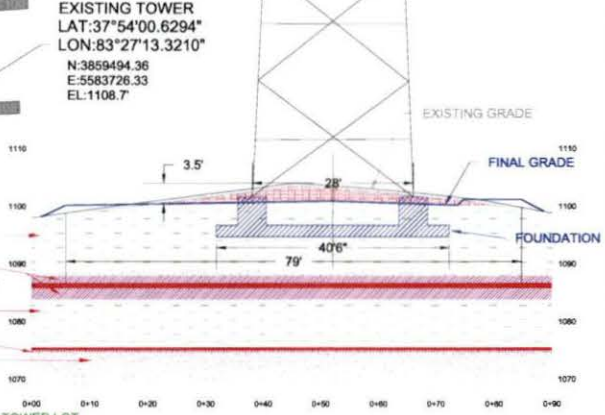
101 TECHNOLOGY TRAIL
IVEL, KY. 41642

TOWER RELOCATION SITE
NEAR EZEL IN MORGAN COUNTY

JERRY & PATRICIA MURPHY
BOOK 202 PAGE 643



CROSS SECTION



**DRAWING PROVIDED BY
APPALACHIAN WIRELESS**

PROPOSED SITE PLAN AND STRUCTURE LOCATION EZEL TOWER APPALACHIAN WIRELESS		
DRAWN	DATE 06/23/16	TOWER RELOCATION
APPROVED	DATE	MOUNTAIN RUAL TELEPHONE TR OFF HWY 460
SCALE 1" = 20'	SHEET 2 OF 3	PROJECT NO.



World Tower
COMPANY, INC.

1213 Compressor Drive
P.O. Box 508
Mayfield, KY 42066
270-247-3642
FAX: 270-247-0909
E-mail: worldtower@worldtower.com
Web: www.worldtower.com

**300' MODEL WSST TOWER
FOR: APPALACHIAN WIRELESS
SITE: EZEL
MORGAN COUNTY, KY
DESIGN PACKAGE**

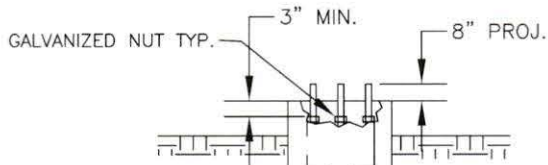
GENERAL NOTES

1. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISION OF THE AMERICAN WELDING SOCIETY AWS. D 1.1.
2. TOWER AND ALL FABRICATED ACCESSORIES ARE HOT-DIP GALVANIZED.
3. ALL BOLTS SHALL BE GALVANIZED ACCORDING TO THE STANDARD SPECIFICATION FOR ZINC COATING OF IRON AND STEEL HARDWARE ASTM A153.
4. LEG STEEL IS 50 KSI MIN YIELD SOLID ROUND OR PIPE AND BRACING STEEL IS 36 KSI MIN YIELD SOLID ROUND OR STRUCTURAL ANGLE.
5. ALL STRUCTURAL BOLTS ARE ASTM A325.
6. TOWER SHOULD BE INSPECTED IN ACCORDANCE WITH TIA-222-G EVERY 5 YEARS.
7. TOWER INSPECTION SHOULD ONLY BE PERFORMED BY EXPERIENCED QUALIFIED PERSONNEL. FOR ASSISTANCE IN PROPER MAINTENANCE OF YOUR TOWER, CALL WORLD TOWER AT 270-247-3642.

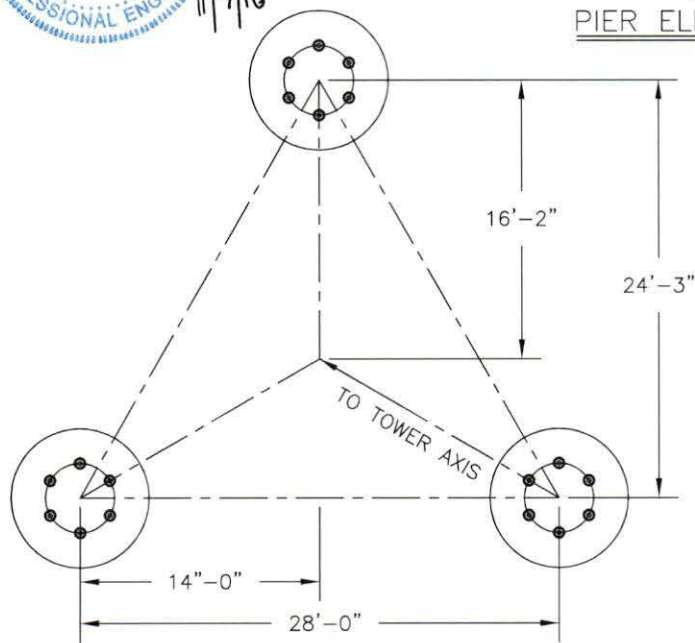


11/7/16

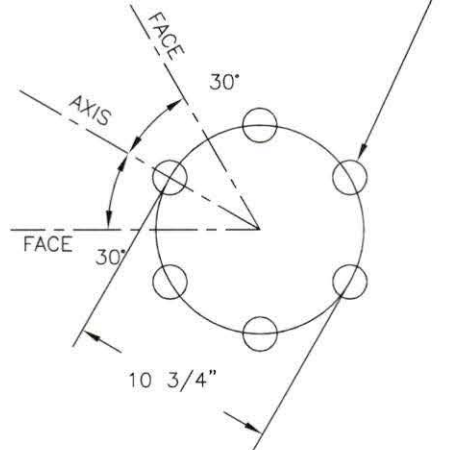
WORLD TOWER			
TITLE:			
300' MODEL WSST TOWER FOR: APPALACHIAN WIRELESS SITE: EZEL MORGAN COUNTY, KY			
SCALE:	DWN.	LKG	CKD.
FILE	DATE 11-7-16		
		DWG. NO.	Q16627N



PIER ELEVATION



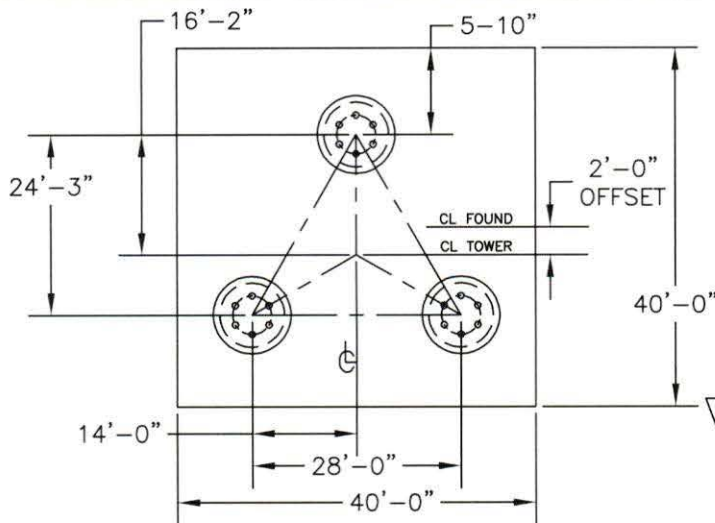
ANCHOR BOLTS
(6) 1 1/2"Ø X 84"
(ASTM A354 GR. BC)
EQUALLY SPACED WITH
TOP TEMPLATE AND
EMBEDDED PLATE



TITLE:
300' MODEL WSST TOWER
FOR: APPALACHIAN WIRELESS
SITE: EZEL
MORGAN COUNTY, KY

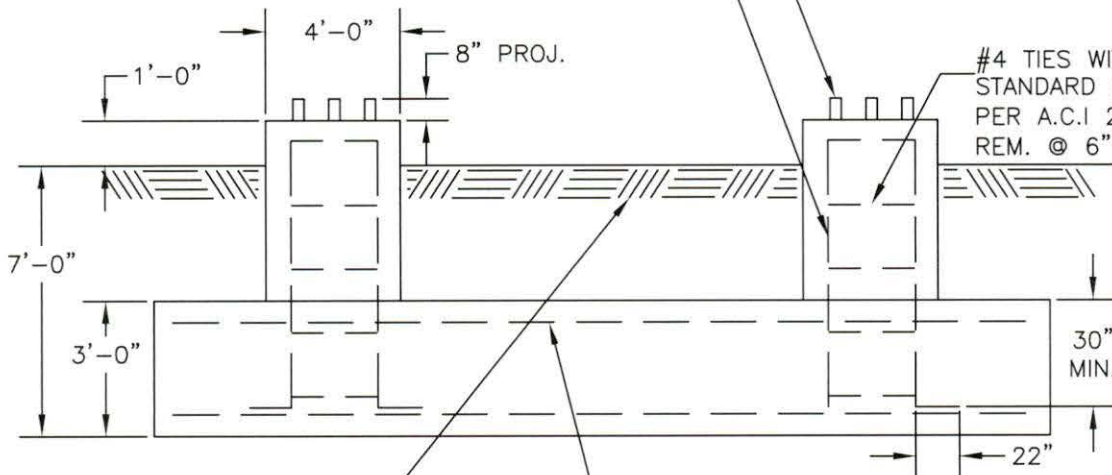
WORLD TOWER

SCALE	NONE	DWN.	LKG	CKD.	DATE	11-7-16
FILE				DWG. NO.	Q16627AB	



184.8 CU. YDS.
CONCRETE REQ'D.

BASE REACTIONS	
OTM:	16345.0 FT. KIPS
COMP.	712.0 KIPS
UPLIFT	617.0 KIPS
SHEAR (3 LEGS)	97.0 KIPS
WT. NO ICE	116.0 KIPS
WT. 3/4" ICE	357.0 KIPS

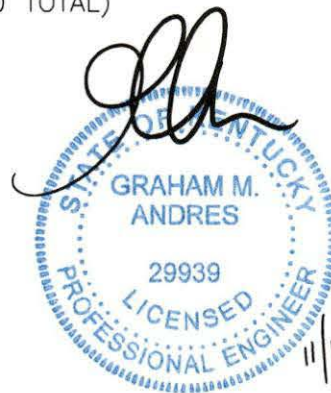


COMPACTED BACKFILL TO
ACHIEVE MIN. DENSITY OF
100 PCF

40-#10 REBARS
EACH WAY TOP AND BOTTOM
(160 TOTAL)

GENERAL NOTES

1. CONCRETE TO HAVE 4000 PSI MIN. COMPRESSIVE STRENGTH AFTER 28 DAYS.
2. ALL REINFORCEMENT STEEL IS DEFORMED AND MEETS THE STRENGTH REQUIREMENTS OF ASTM A615 GRADE 60.
3. EMBEDDED STEEL TO HAVE 3" MIN. CONCRETE COVER.
4. FOUNDATION DESIGN IS BASED ON CUSTOMER SUPPLIED SOIL DATA FROM ERM2. PROJECT NUMBER 165-000-0029 DATED AUGUST 30, 2016.
5. FOUNDATION REVISED FOR UPDATED TOWER REACTIONS



TITLE: FOUNDATION DETAIL
300' WSST TOWER
FOR: APPALACHIAN WIRELESS
SITE: EZEL
MORGAN COUNTY, KY

WORLD TOWER

SCALE NONE	DWN.	LKG	CKD.	DATE 11-16-16
FILE	DWG. NO.			Q16627F



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

Aeronautical Study No.
 2016-ASO-19200-OE

Issued Date: 09/28/2016

Ali Kuzehkanani
 East Kentucky Network, LLC
 8300 Greensboro Drive, Suite 1200
 McLean, VA 22102

**** 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 Ezel
 Location: Ezel, KY
 Latitude: 37-54-00.88N NAD 83
 Longitude: 83-27-13.77W
 Heights: 1103 feet site elevation (SE)
 310 feet above ground level (AGL)
 1413 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 marked/lighted in accordance with FAA Advisory circular 70/7460-1 L, Obstruction Marking and Lighting, a med-dual system - Chapters 4,8(M-Dual),&12.

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 03/28/2018 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 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 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.

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.

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. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-ASO-19200-OE.

Signature Control No: 298994584-305906587

(DNE)

Angelique Eersteling
Technician

Attachment(s)
Frequency Data

cc: FCC

Frequency Data for ASN 2016-ASO-19200-OE

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



KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

200 Mero Street 4th Floor
Frankfort, KY 40622
www.transportation.ky.gov
502-782-4044

September 29, 2016

APPROVAL OF APPLICATION

APPLICANT:

East Kentucky Network, LLC.
East Kentucky Network, LLC.
8300 Greensboro Drive|Suite 1200
McLean, VA 22102

SUBJECT: AS-088-913-2016-058

STRUCTURE: Antenna Tower
LOCATION: Ezel, KY
COORDINATES: 37° 54' 0.88" N / 83° 27' 13.77" W
HEIGHT: 310' AGL/1413' AMSL

The Kentucky Airport Zoning Commission has approved your application for a permit to construct 310' AGL/ 1413' AMSL Antenna Tower near Ezel, KY 37° 54' 0.88" N / 83° 27' 13.77" W.

This permit is valid for a period of 18 Month(s) from its date of issuance. If construction is not completed within said 18-Month period, this permit shall lapse and be void, and no work shall be performed without the issuance of a new permit.

A copy of the approved application is enclosed for your files.

Medium Dual Obstruction Lighting is required in accordance with 602 KAR 50:100.


John Houlihan
Administrator



An Equal Opportunity Employer M/F/D



KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

200 Mero Street 4th Floor
Frankfort, KY 40622
www.transportation.ky.gov
502-782-4044

CONSTRUCTION/ALTERATION STATUS REPORT

September 29, 2016

AERONAUTICAL STUDY NUMBER: AS-088-913-2016-058

East Kentucky Network, LLC.
East Kentucky Network, LLC.
8300 Greensboro Drive Suite 1200
McLean, VA 22102

This concerns the permit which was issued to you by the Kentucky Airport Zoning Commission on September 29, 2016. This permit is valid for a period of 18 Month(s) from its date of issuance. If construction is not completed within the said 18-Month period, this permit shall lapse and be void, and no work shall be performed without the issuance of a new permit. When appropriate, please indicate the status of the project in the place below and return this letter to John Houlihan, Administrator, Kentucky Airport Zoning Commission, 200 Mero Street 4th Floor Office of Audits, Frankfort, KY, 40622. 502-782-4044.

STRUCTURE: Antenna Tower
LOCATION: Ezel, KY
COORDINATES: 37° 54' 0.88" N / 83° 27' 13.77" W
HEIGHT: 310' AGL /1413' AMSL

CONSTRUCTION/ALTERATION STATUS

- The project () is abandoned. () is not abandoned.
- Construction status is as follows:
 Structure reached its greatest height of _____ ft. AGL
 _____ ft. AMSL on _____ (date).
 Date construction was completed. _____
 Type of obstruction marking/painting. _____
 Type of obstruction lighting. _____
 As built coordinates. _____
 Miscellaneous Information. _____
 DATE _____
 SIGNATURE/TITLE _____



An Equal Opportunity Employer M/F/D



KENTUCKY AIRPORT ZONING COMMISSION

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

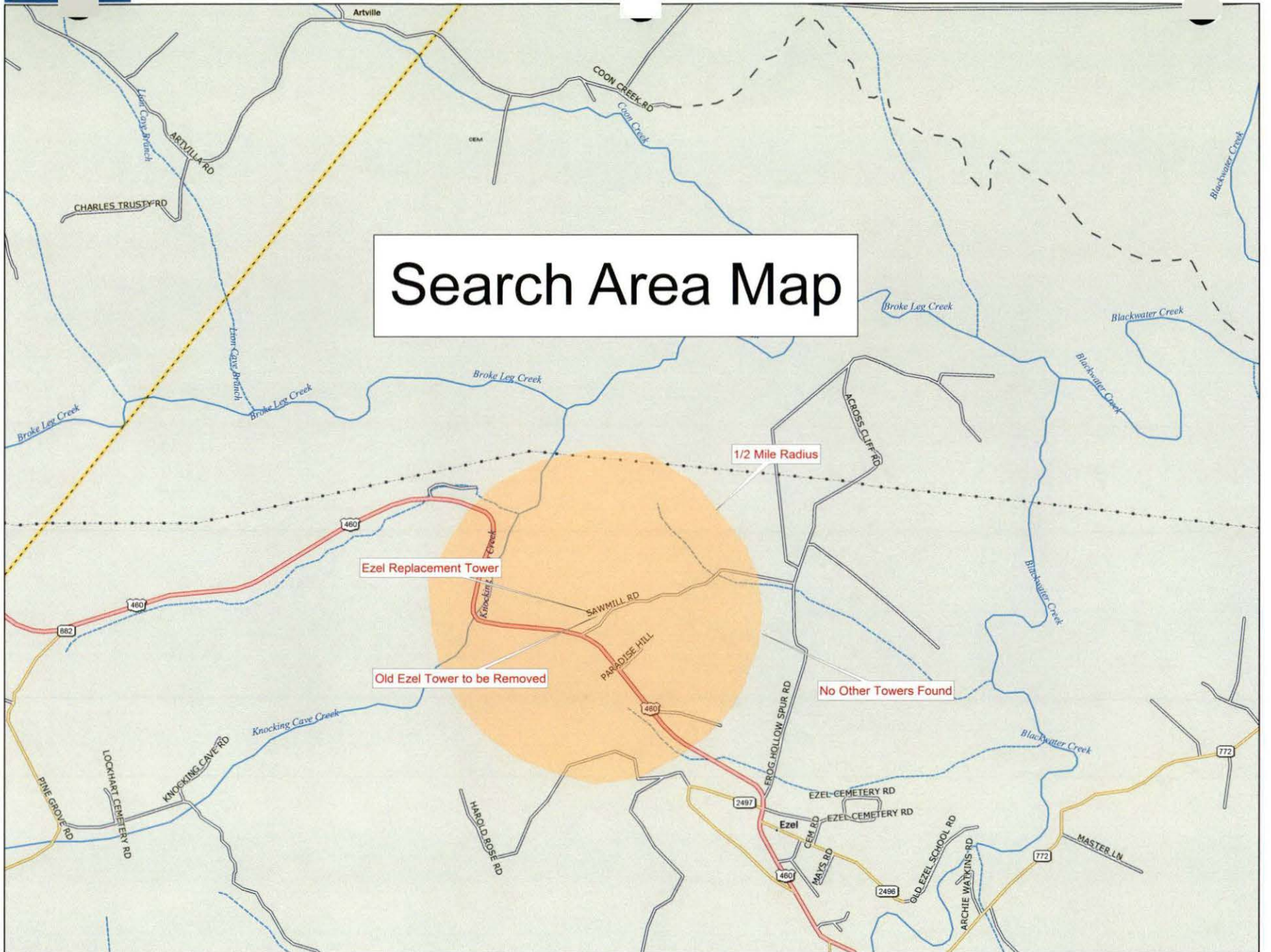
APPLICANT (name) East Kentucky Network, LLC c/o LNGS		PHONE 703-584-8667	FAX 703-584-8692	KY AERONAUTICAL STUDY # AS-088-913-2016-058
ADDRESS (street) 8300 Greensboro Dr, #1200		CITY McLean		STATE VA
ADDRESS (street) 8300 Greensboro Dr, #1200		CITY McLean		STATE VA
APPLICANT'S REPRESENTATIVE (name) Ali Kuzehkanani		PHONE 703-584-8667	FAX 703-584-8692	ZIP 22102
APPLICATION FOR <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Alteration <input type="checkbox"/> Existing		WORK SCHEDULE Start 08/20/16 End 08/25/16		
DURATION <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary (months days)				
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°54'00.88"		LONGITUDE 83°27'13.77"		DATUM <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> NAD27 <input type="checkbox"/> Other
NEAREST KENTUCKY City Ezel County Morgan		NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT West Liberty Airport		
SITE ELEVATION (AMSL, feet) 1103		TOTAL STRUCTURE HEIGHT (AGL, feet) 310		CURRENT (FAA aeronautical study #)
OVERALL HEIGHT (site elevation plus total structure height, feet) 1413				PREVIOUS (FAA aeronautical study #)
DISTANCE (from nearest Kentucky public use or Military airport to structure) 11.0 mi				PREVIOUS (KY aeronautical study #)
DIRECTION (from nearest Kentucky public use or Military airport to structure) East				
DESCRIPTION OF LOCATION (Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.) Approx. 0.7 mi NW of Ezel (Morgan), KY				
DESCRIPTION OF PROPOSAL A new 300' tower with top-mounted antennas (overall height of 310' AGL)				
FAA Form 7460-1 (Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?) <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, when? 07/19/16				
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 Ali Kuzehkanani	TITLE Dir of Engineering	SIGNATURE <i>Ali Kuzehkanani</i>	DATE 07/19/16	
COMMISSION ACTION <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved				
SIGNATURE <i>[Signature]</i>		DATE 9-29-16		

Driving Directions for Ezel

Starting in front of the Morgan County courthouse in West Liberty, KY at the intersection of Court Street and Main Street, turn left onto West Main Street (also US 460 West) and drive 14.9 miles. Saw Mill Road will be located on the right. A sign will be posted here. Turn right onto Saw Mill Road and drive approximately five hundred feet. The site is on the right. A sign will be posted here, as well.

Prepared By:
Daryl Bartley
Appalachian Wireless
606-477-2355

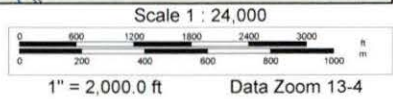
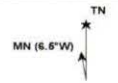
Search Area Map



Data use subject to license.

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www.delorme.com



MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE is made and entered into on this 19th day of May, 2016, with a commencement date of June 1, 2016, by and between Mountain Rural Telephone Cooperative Corporation, Inc., a Kentucky corporation, with a mailing address of P.O. Box 399, West Liberty, Kentucky 41472, hereinafter referred to as "Lessor", and East Kentucky Network, LLC d/b/a Appalachian Wireless, a Kentucky limited liability company, with a mailing address of 101 Technology Trail, Ivel, Kentucky, 41642, hereinafter referred to as "Lessee."

WITNESSETH

1. **Demised Premises.** For good and valuable consideration, Lessor leased to Lessee, and Lessee has leased from Lessor that certain tract of real estate located in Morgan County, Kentucky, and being a portion of the same land conveyed to Lessor by Deed dated March 31, 2016 and recorded on April 1, 2016 in Deed Book 232, Page 929, in the Morgan County Clerk's Office. Said property is more particularly described in the description attached hereto and made a part hereof as Exhibit A and the plat attached hereto and made a part hereof as Exhibit B, prepared by James W. Caudill, Licensed Professional Land Surveyor (hereinafter referred to as the "Premises"). The Lessor has also granted unto Lessee full and complete right of ingress, egress and regress to the Premises over Lessor's property and other associated rights to use and/or construct roads, for operations, for installation of utilities, and for maintenance.

2. **Term.** The initial term of the Lease is for a period of five (5) years from the commencement date set forth above.

3. **Option to Renew.** Lessee has the right and option to renew the Lease for an additional seven (7) terms of five (5) years each.

4. **Binding Effect.** All of the terms, conditions, and covenants hereof shall be binding and inure to the benefit of the parties and their respective heirs, representatives, successors, and assigns.

5. **Purpose.** This Memorandum of Lease is prepared solely for the purpose of recordation, and is not intended to, nor shall it be deemed to, modify any of the terms and conditions set forth in the Lease, nor to construe any of the rights, duties or responsibilities of Lessor and Lessee. In the event of any conflict between the terms and conditions of this Memorandum and the terms and conditions of the Lease, the terms and conditions of the Lease shall supersede and control.

IN WITNESS WHEREOF, Lessor and Lessee have caused their names to be signed hereto, as of the day and year first above written.

LESSOR:

**MOUNTAIN RURAL TELEPHONE
COOPERATIVE CORPORATION, INC.**

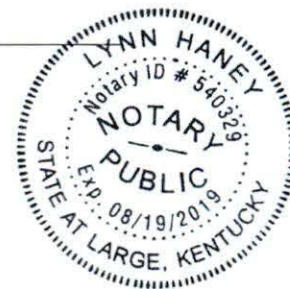
Shayne Ison
By: Shayne Ison
Its: General Manager

COMMONWEALTH OF KENTUCKY
COUNTY OF Floyd:

The foregoing instrument was acknowledged before me on this 17th day of May, 2016,
by Shayne Ison, GM of Mountain Rural Telephone Cooperative
Corporation, Inc., Lessor.

Lynn Haney
Notary Public

My Commission Expires August 19, 2019



LESSEE:

EAST KENTUCKY NETWORK, LLC D/B/A
APPALACHIAN WIRELESS

WA Gillum
By: W.A. Gillum
Its: CEO/ General Manager

COMMONWEALTH OF KENTUCKY
COUNTY OF Floyd:

The foregoing instrument was acknowledged before me on this 19th day of May, 2016,
by W.A. Gillum, CEO/General Manager of East Kentucky Network, LLC d/b/a Appalachian
Wireless, Lessee.

Raina L. Helton
Notary Public

My Commission Expires Feb 6, 2020



This instrument was prepared by:

Lindy D. McCarty
Cindy D. McCarty, Attorney at Law
101 Technology Trail
Ivel, Kentucky 41642

LOT DESCRIPTION

Property of
Mountain Rural Telephone Cooperative Corporation
P.O. Box 399
West Liberty, KY 41472
Near Ezel in Morgan County
May 4, 2016



A portion of the property lying north of Highway 460 in Morgan County of Kentucky, and northwest of Ezel. Being a portion of the Mountain Rural Telephone Cooperative Corporation property on US Hwy 460 in Morgan County, Kentucky. The parent tract is on record in Deed Book 232 page 929 of the Morgan County Court Clerk's Office. This parcel of land is more exactly described as follows:

Unless stated otherwise, any monument referred to herein as "set iron pin with cap" is a set 1/2" diameter rebar, at least eighteen (18") in length, with a plastic cap stamped "LS-2259". All bearings stated herein are referred a prior survey of the parent lot. This survey performed by James W. Caudill, LS2259, on May 4, 2016.

Lot 1A

Beginning on a set iron pin with cap marked ls2259 which bears South 61 deg 21 min 28 sec East, 38.19 feet from a found iron pin with cap on the line between Mountain Rural Telephone and Paul and Dorothy Howell (deed book 219, page 727), said point being located on a line indicated by Paul Howell as what he agreed to; thence severing the property of Mountain Rural Telephone Cooperative Corporation by running North 30 deg 47 min 59 sec East, 71.55 feet to a set iron pin with cap marked ls2259, South 74 deg 18 min 17 sec East, 99.95 feet to a set iron pin with cap marked ls2259, South 38 deg 10 min 48 sec West, 95.21 feet; thence running with the line indicated by Paul Howell North 61 deg 21 min 28 sec West, 84.33 feet to a set iron pin with cap marked ls2259 which is the point of beginning. Containing a calculated area of 7411 sq ft or 0.17 acres.

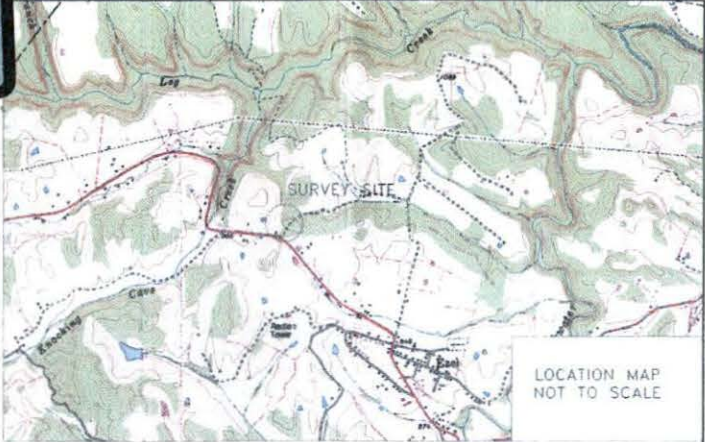
There is included for the above described 0.17 acre tract of land a 20' centerline access easement, 10' each side of centerline, through the Paul and Dorothy Howell property that is more exactly described as follows; Beginning at a point (located North 59 deg 14 min 34 sec West, 17.00 feet from an iron pin set a corner to Ernest Watkins property being the south corner of the parent tract); thence leaving the parent tract and running in a southwesterly direction with the existing road to a point in the right of way line of US Hwy 460. There is also included a 20' centerline access easement, 10' each side of centerline, through the Mountain Rural Telephone Cooperative Corporation property described as follows; Beginning at a point (located North 59 deg 14 min 34 sec West, 17.00 feet from an iron pin set a corner to Ernest Watkins property being the south corner of the parent tract); thence running northeast with the existing road about 85' ; thence leaving the existing road with a proposed new section of access road running northwesterly about 150 feet along the north of the lot to the tower site.

This survey was performed on May 4, 2016 by James W. Caudill, a Kentucky Licensed Professional Land Surveyor No. 2259.



James W. Caudill
James W. Caudill, PLS #2259
5-4-16

EXHIBIT
B



JERRY & PATRICIA MURPHY
BOOK 202 PAGE 643

Beginning at a set ip near the Howell line which bears south 61 deg 21 min 28 sec East, 38.19' from found ipc at Howell cor. thence leaving Howell line N 30° 47' 59" E a distance of 71.55' to a set ipc LS2259; thence S 74° 18' 17" E a distance of 99.95' to a set ipc LS2259; thence S 38° 10' 48" W a distance of 95.21' to a set ipc LS2259; thence with line as indicated by Paul Howell N 61° 21' 28" W a distance of 84.33' to a set ipc LS2259, which is the point of beginning having an area of 7411 square feet 0.17 acres

JERRY & PATRICIA MURPHY
PROPERTY
BOOK 202 PAGE 643

MOUNTAIN RURAL TELEPHONE
COOPERATIVE CORPORATION
BOOK 232 PAGE 929

ERNEST WATKINS
PROPERTY
BOOK 169 PAGE 753

SET IRON PIN WITH ALUMINUM CAP
MARKED LS2259 ON LINE MARKED
BY PAUL HOWELL

PAUL & DOROTHY HOWELL
PROPERTY
BOOK 219 PAGE 727

AREA CLAIMED
BY PAUL HOWELL

IRON PIN MOVED TO THIS POINT BY
PAUL HOWELL. CLAIMS WHERE CORNER SHOULD
HAVE BEEN BY AGREEMENT WITH QUENTEN MURPHY
FOUND IRON PIN WITH CAP
ON TOP OF ROAD CUT BANK (NOW REMOVED BY PAUL HOWELL)

STATE of KENTUCKY
JAMES W. CAUDILL
LS 2259
LICENSED
PROFESSIONAL
LAND SURVEYOR

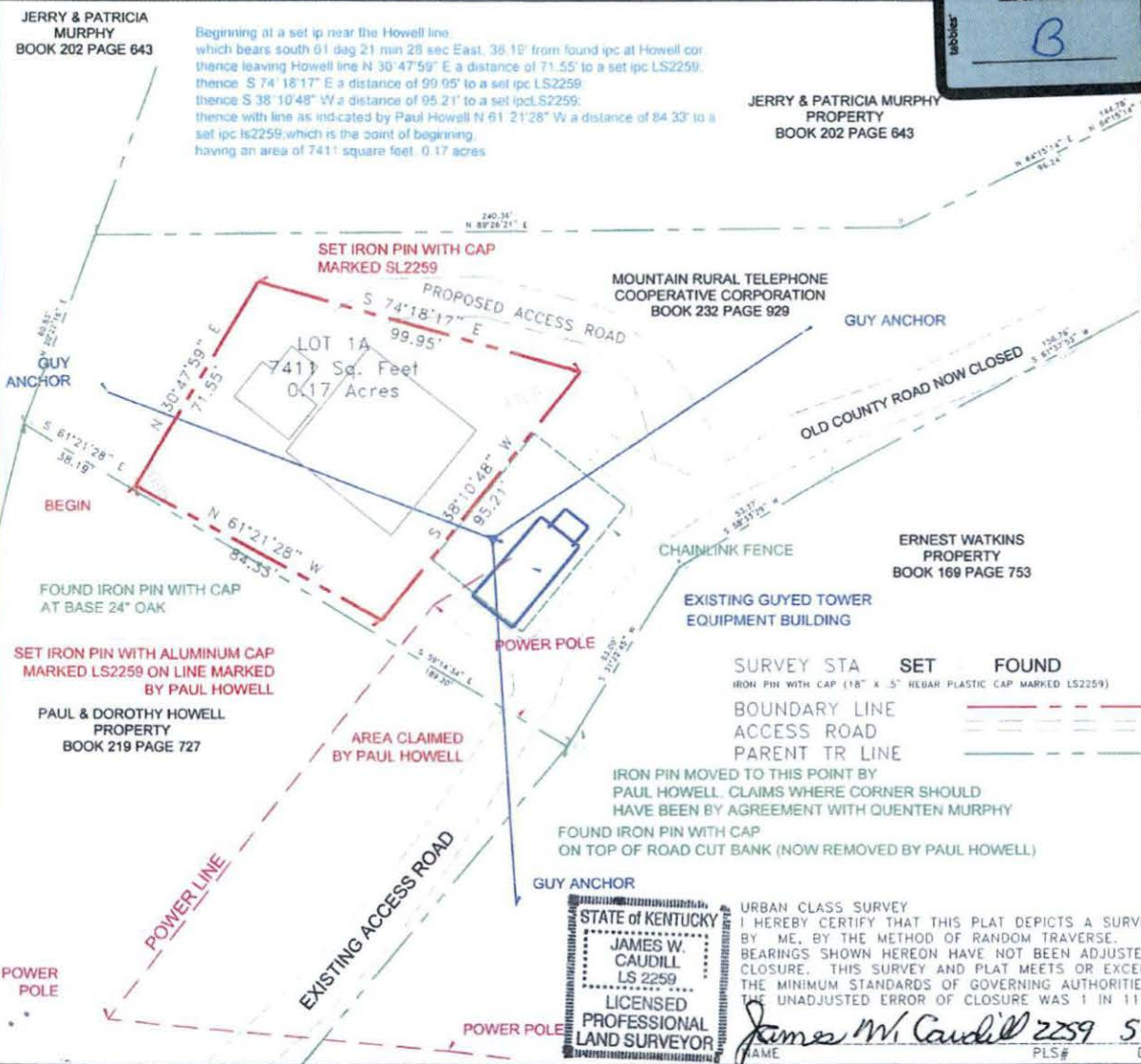
URBAN CLASS SURVEY
I HEREBY CERTIFY THAT THIS PLAT DEPICTS A SURVEY MADE
BY ME, BY THE METHOD OF RANDOM TRAVERSE. THE
BEARINGS SHOWN HEREON HAVE NOT BEEN ADJUSTED FOR
CLOSURE. THIS SURVEY AND PLAT MEETS OR EXCEEDS
THE MINIMUM STANDARDS OF GOVERNING AUTHORITIES.
THE UNADJUSTED ERROR OF CLOSURE WAS 1 IN 11701
James W. Caudill 2259 5-4-16
NAME PLS# DATE

APPALACHIAN WIRELESS
101 TECHNOLOGY TRAIL
IVEL, KY. 41642
EXISTING TOWER SITE
NEAR EZEL IN
MORGAN COUNTY KY



PLAT OF SURVEY

DRAWN BY JWC	SURVEY DATE 05/04/16	SUB DIVISION PROPERTY OF MOUNTAIN RURAL TELEPHONE COOPERATIVE CORPORATION P.O. BOX 399 WEST LIBERTY, KY 41472 DEED BOOK 232 PAGE 929
CHECKED BY JWC	DRAWING DATE 05/04/16	
SCALE 1" = 40'	SHEET 1 OF 1	SURVEYED BY JAMES W. CAUDILL LS2259 2999 PERKINS/MADDEN ROAD AMBURGEY, KY 41773 PHONE 606-642-3217



APPALACHIAN WIRELESS

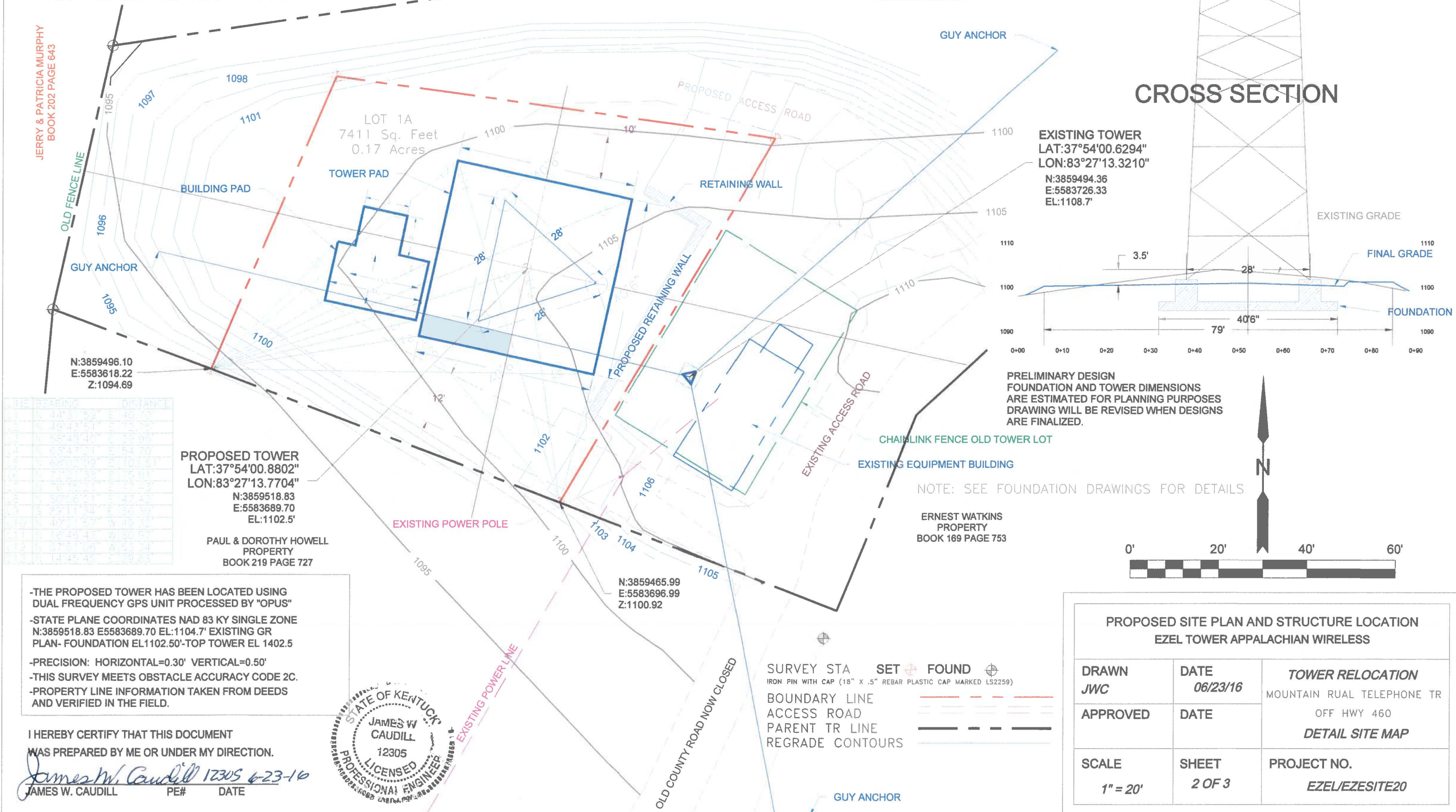
101 TECHNOLOGY TRAIL
IVEL, KY. 41642

JERRY & PATRICIA MURPHY
PROPERTY
BOOK 202 PAGE 643

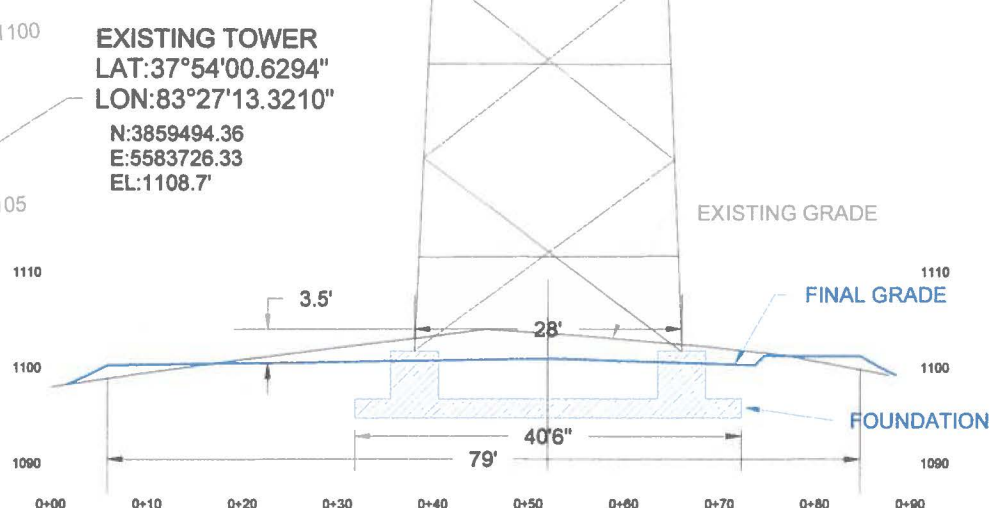
TOWER RELOCATION SITE NEAR EZEL IN MORGAN COUNTY

MOUNTAIN RURAL TELEPHONE
COOPERATIVE CORPORATION
BOOK 232 PAGE 929

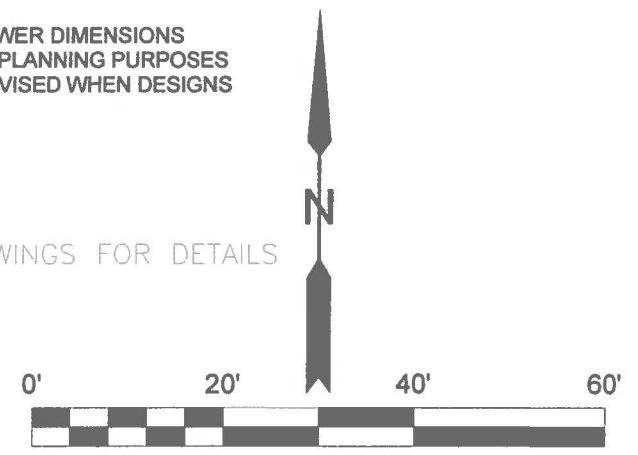
JERRY & PATRICIA MURPHY
BOOK 202 PAGE 643



CROSS SECTION



PRELIMINARY DESIGN
FOUNDATION AND TOWER DIMENSIONS
ARE ESTIMATED FOR PLANNING PURPOSES
DRAWING WILL BE REVISED WHEN DESIGNS
ARE FINALIZED.



PROPOSED TOWER
LAT: 37°54'00.8802"
LON: 83°27'13.7704"
N: 3859518.83
E: 5583689.70
EL: 1102.5'

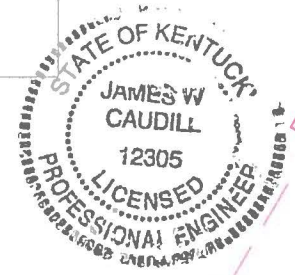
PAUL & DOROTHY HOWELL
PROPERTY
BOOK 219 PAGE 727

NOTE: SEE FOUNDATION DRAWINGS FOR DETAILS

ERNEST WATKINS
PROPERTY
BOOK 169 PAGE 753

-THE PROPOSED TOWER HAS BEEN LOCATED USING DUAL FREQUENCY GPS UNIT PROCESSED BY "OPUS"
-STATE PLANE COORDINATES NAD 83 KY SINGLE ZONE N:3859518.83 E:5583689.70 EL:1104.7' EXISTING GR PLAN- FOUNDATION EL:1102.50'-TOP TOWER EL: 1402.5
-PRECISION: HORIZONTAL=0.30' VERTICAL=0.50'
-THIS SURVEY MEETS OBSTACLE ACCURACY CODE 2C.
-PROPERTY LINE INFORMATION TAKEN FROM DEEDS AND VERIFIED IN THE FIELD.

I HEREBY CERTIFY THAT THIS DOCUMENT
WAS PREPARED BY ME OR UNDER MY DIRECTION.
James W. Caudill 12305 6-23-16
JAMES W. CAUDILL PE# DATE



SURVEY STA **SET** **FOUND**
IRON PIN WITH CAP (18" X .5" REBAR PLASTIC CAP MARKED L52259)
BOUNDARY LINE
ACCESS ROAD
PARENT TR LINE
REGRADE CONTOURS

PROPOSED SITE PLAN AND STRUCTURE LOCATION EZEL TOWER APPALACHIAN WIRELESS		
DRAWN JWC	DATE 06/23/16	TOWER RELOCATION MOUNTAIN RUAL TELEPHONE TR OFF HWY 460
APPROVED	DATE	DETAIL SITE MAP
SCALE 1" = 20'	SHEET 2 OF 3	PROJECT NO. EZEL/EZESITE20

EZEL USGS 7.5' QUADRANGLE

APPALACHIAN WIRELESS
101 TECHNOLOGY TRAIL
EVEL, KY. 41642
PROPOSED TOWER RELOCATION
NEAR EZEL IN
MORGAN COUNTY KY

JERRY & PATRICIA MURPHY
BOX 178, EZEL, KY 41425

PROPOSED TOWER LOCATION
LAT: 37°54'00.8805"
LON: 83°27'13.7698"
N: 3859518.87
E: 5583689.75
Z: 1102.50'

JERRY MURPHY
BOX 178, EZEL, KY 41425

MOUNTAIN RURAL TELEPHONE
COOPERATIVE CORPORATION, INC.
P.O. BOX 399 WEST LIBERTY KY 41472

THOMAS & JESSICA PEAK
667 SAWMILL RD, EZEL, KY 41425

JERRY MURPHY
BOX 178, EZEL, KY 41425

PAUL & DOROTHY HOWELL
15244-HWY 460
EZEL, KY 41425

EXISTING TOWER
EARNEST WATKINS
P.O. BOX 108 EZEL, KY 41425

HIGHWAY 460

AFFECTED AREA

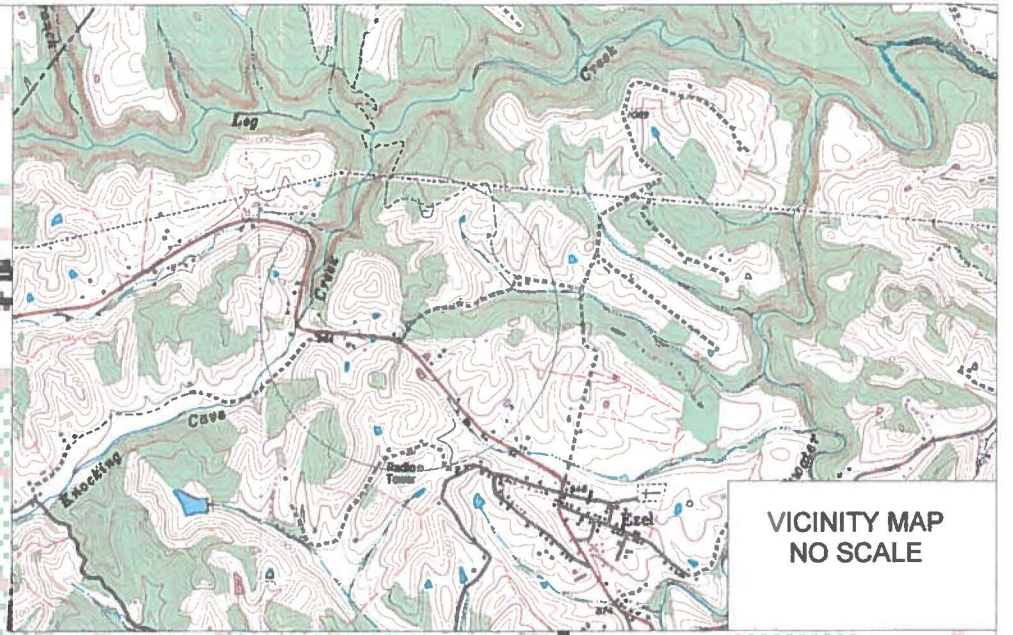
EXISTING ACCESS ROAD

MICHAEL & SHEILA MURPHY
11500 HWY 460 W, EZEL, KY 41425

JERRY & PATRICIA MURPHY
BOX 178, EZEL, KY 41425

JOHNNY GUY & BEVERLY MAYS
690 MEETING HOUSE BRANCH
EZEL, KY 41425

HIGHWAY 460



VICINITY MAP
NO SCALE



LEGEND

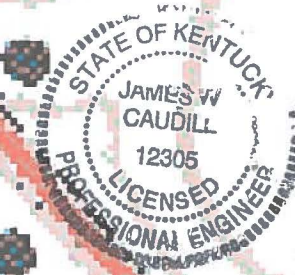
POWER LINE	
PROPERTY LINE	
ACCESS ROAD	
CREEK	
CEMETERY	
TOWER	

J W CAUDILL ENGINEERING

9283 HWY 15 STE. C, ISOM, KY 41824

ENGINEER'S CERTIFICATE: I HEREBY CERTIFY THAT THE INFORMATION SHOWN REFLECTS THE INFORMATION OBTAINED AND PROVIDED BY THE MORGAN COUNTY PROPERTY VALUATION ADMINISTRATION OFFICE IN WEST LIBERTY, KY.

James W. Caudill 12305 6-23-16
JAMES W. CAUDILL P.E.# DATE



PROPOSED SITE PLAN AND STRUCTURE LOCATION EZEL TOWER APPALACHIAN WIRELESS

DRAWN JWC	DATE 06/23/16	TOWER RELOCATION MOUNTAIN RURAL TELEPHONE TR OFF HWY 460
APPROVED	DATE	PROPERTY OWNERS NEARBY
SCALE 1" = 200'	SHEET 1 OF 3	PROJECT NO. EZEL/EZELPVA200

APPALACHIAN WIRELESS

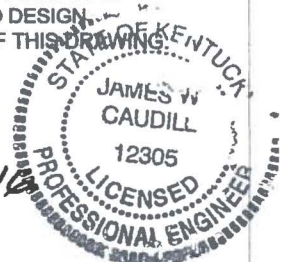
101 TECHNOLOGY TRAIL
IVEL, KY. 41642

PROPOSED TOWER SITE
NEAR EZEL IN MORGAN COUNTY

PROFILE WITH TOWER

THIS IS A VERTICAL PROFILE SKETCH OF THE TOWER INDICATING THE PROPOSED ANTENNA AND DISH ELEVATIONS. NO DESIGN CRITERIA WAS CONSIDERED IN THE PREPARATION OF THIS DRAWING.

James W. Caudill 12305 6-23-16
JAMES W. CAUDILL PE #. DATE



NOTE: SEE FOUNDATION DRAWINGS FOR DETAILS

06/23/16

SCALE 1" = 20'



PROPOSED SITE PLAN AND STRUCTURE LOCATION EZEL TOWER APPALACHIAN WIRELESS

DRAWN JWC	DATE 06/23/16	TOWER RELOCATION MOUNTAIN RUAL TELEPHONE TR OFF HWY 460 NEAR EZEL IN MORGAN CO.
APPROVED	DATE	
SCALE 1" = 20'	SHEET 3 OF 3	PROJECT NO. EZEL/EZEPRO20

