

(McBRAYER)
ATTORNEYS AT LAW

W. BRENT RICE
BRICE@MMLK.COM

201 EAST MAIN STREET, SUITE 900
LEXINGTON, KENTUCKY 40507
(859) 231-8780 EXT. 115
FAX: (859) 231-6518

RECEIVED

MAY 08 2015

PUBLIC SERVICE
COMMISSION

VIA HAND DELIVERY

May 8, 2015

Jeff R. Derouen, Executive Director
Public Service Commission
P.O. Box 615
211 Sower Blvd.
Frankfort, KY 40602-0615

RE: Application of Tower Access Group, LLC, for Issuance of a Certificate of Public Convenience and Necessity to Construct a Wireless Communications Facility On The Campus off Eastern Kentucky University at 320 Madison Avenue, Richmond, Madison County, Kentucky ("Application") PSC Case No. 2015-00145 (Brockton Facility)

Dear Mr. Derouen:

Please be advised that the undersigned represents Tower Access Group, LLC in regard to the above-referenced Application which I am filing on its behalf today with the Commission.

Enclosed please find one original and five copies of the Application. Any comments or questions in regard to the application should be forwarded to the undersigned. Thank you for your assistance in this matter.

Sincerely,



W. Brent Rice
Preston C. Worley
Counsel for Tower Access Group, LLC

WBR/dkw
Enclosures

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

MAY 08 2015

PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF TOWER ACCESS GROUP, LLC)
FOR ISSUANCE OF A CERTIFICATE OF PUBLIC)
CONVENIENCE AND NECESSITY TO CONSTRUCT)
AND OPERATE AN ADDITIONAL WIRELESS)
COMMUNICATIONS FACILITY ON THE CAMPUS)
OF EASTERN KENTUCKY UNIVERSITY AT)
320 MADISON AVENUE, RICHMOND, MADISON)
COUNTY, KENTUCKY)

Case No. 2015-00145

ORIGINAL

(THE BROCKTON FACILITY)

APPLICATION

Pursuant to KRS 278.020, 278.650, 278.665 and 807 KAR 5:063, Tower Access Group, LLC ("TAG"), a Delaware limited liability company applies for a Certificate of Public Convenience and Necessity to construct and operate an additional wireless communication facility on the campus of Eastern Kentucky University to allow for collocation of wireless communications carriers in order to expand cellular and other services on its campus and surrounding areas. In support of this Application, TAG respectfully states that:

1. Its complete name, address and telephone number are: Tower Access Group LLC, 108 Forbes Court, Suite 1, Richmond, Kentucky 40475, (859) 623-5513.

2. Applicant is a Delaware limited liability company engaged in the business of providing infrastructure to wireless carriers including construction and operation of cellular antenna towers, and is authorized to conduct business in the Commonwealth of Kentucky. A copy of the Certificate of Good-standing issued by the Delaware Secretary of State and the Certificate of Authority issued by the Kentucky Secretary of State are

attached as **Exhibit A**.

3. On September 19, 2012, Eastern Kentucky University (“EKU”) issued a Request for Proposal (“RFP”) for the construction of a monopole on its campus. The RFP provided that EKU intended the monopole to expand cellular telephone and other services on its campus and surrounding areas. EKU ultimately awarded the contract from the RFP to TAG on March 7, 2013. TAG and EKU executed a Master Ground Lease Agreement in November of 2013. A copy of the Master Ground Lease Agreement was filed with the Public Service Commission in Case No. 2015-00090.

TAG proposes to construct an additional wireless communications facility, including a monopole and related improvements on the EKU campus at 320 Madison Avenue, Richmond, Kentucky (the “Facility”). The monopole will be 199 feet in height and the Facility will be fenced with a secured access gate. It will allow for the collocation of four (4) wireless communications carriers. A reduced copy of the survey is attached as **Exhibit B** and is signed and sealed by Frank Sellinger, a professional registered surveyor in Kentucky and it depicts the proposed location of the monopole and all easements and existing structures on the property on which the tower will be located. The project drawings are additionally attached which depict the manner in which the monopole will be constructed. (scale: 1” = 200’) The vertical profile and its foundation, each signed and sealed by a professional engineer registered in Kentucky are attached as **Exhibit C**. The monopole design plans include a description of the standard according to which it was designed.

4. A geotechnical investigation report performed by Consulting Services Incorporated of Lexington, Kentucky, dated September 3, 2014 is attached as **Exhibit**

D. The geotechnical investigation report is signed and sealed by Bruce L. Hatcher, a professional engineer registered in Kentucky. The geotechnical investigation report includes boring logs, foundation design recommendations, and a finding as the proximity of the proposed site to flood hazard areas.

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

6. Similarly, the possibility of a strong wind has been considered in the design of this monopole. It has been designed and engineered by professional engineers using computer assistance and the same accepted codes and standards as are typically used for high-rise building construction. The monopole has been designed in accordance with the Electronic Industries Association ("EIA") Standard 222-G, Structure Class II, Exposure Gateway C, Topography Category 1, which has been accepted and approved by ANSI and is a nationally recognized tower design standard. In this case, the design wind speed is 90 mph. Using the appropriate wind speed for each antenna level, the thrust of the antenna and its corresponding waveguide load are applied to the monopole structure for maximum member loads.

7. Personnel directly responsible for the design and construction of the proposed monopole are qualified and experienced. The soil testing and part of the foundation design was performed by Consulting Services Incorporated of Lexington, Kentucky under the supervision of Bruce L. Hatcher, a registered professional engineer in the Commonwealth of Kentucky. His specialty is geotechnical engineering which includes sub-surface exploration and foundation design. Foundation types for these towers have included drilled piers, auger-cast piles, driven piles and spread footings.

Design of the monopole and foundation was performed by Robert E. Beacom of Sable Industries. The applicant uses qualified installation crews and site inspectors for construction of its monopoles. The monopole and foundation drawings are signed and sealed by Robert E. Beacom, a professional engineer registered in Kentucky.

8. The public convenience and necessity require the construction of this additional wireless communications facility on EKU's campus. Wireless communications carriers' antennas and related equipment currently located on buildings on the campus of EKU will relocate them to the Facility upon its completion. TAG and New Cingular Wireless PCS, LLC have entered into a Structure Lease Agreement which provides for the utility to relocate its current wireless facility on the EKU campus and utilize the Facility upon its completion. A copy of a Memorandum of Lease evidencing the Structure Lease Agreement is attached hereto as **Exhibit E**.

10. The Federal Aviation Administration ("FAA") determined on October 28, 2014 that the proposed construction would not exceed FAA obstruction standards and would not be a hazard to air navigation. The determination from the FAA is attached as **Exhibit F**. The Kentucky Airport Zoning Commission ("KAZC") determined on February 26, 2014 that Applicant's application for a permit to construct the proposed facility was approved. A copy of the KAZC determination is attached as **Exhibit G**.

11. The proposed location of the Facility is within a jurisdiction that has adopted planning and zoning regulations in accordance with KRS Chapter 100. The Applicant has notified the Mayor of Richmond, Kentucky, by certified mail, return receipt requested, of the proposed construction. The Applicant included in the notice the Commission case number under which the Application will be processed and informed

said person of his right to request intervention. A copy of the notice is attached as **Exhibit H.**

12. The Facility will be located at 320 Madison Avenue, Richmond, Madison County, Kentucky. Appropriate notices 2' X 4' with the word "TOWER" in letters at least four inches high, have been posted in a visible location on the proposed site and on the nearest public road and shall remain posted for at least two (2) weeks after the Application is filed. The location of the Facility has been published in a newspaper of general circulation in Madison County, Kentucky. The Cell Facility's coordinates are: Latitude: 37° 44' 29"; Longitude: 84° 17' 41".

13. Clear directions to the proposed site from the county seat are:

From 101 W. Main Street, Richmond, Kentucky, head southeast on W. Main towards N. 1st Street for .1 mile; turn right at the second cross street onto S. Madison Avenue; go 2 miles; turn left onto Summit Street; go 95 feet; turn right on Madison Avenue; go 276 feet; turn left and site is located behind Telford Hall

The telephone number for the person preparing the directions is 859-544-5000 and the individual's name is David Ginter. The Survey identifies every structure within 500' of the proposed Monopole, and all easements and existing structures within 200' of the access drive, including the intersection with the Public Street System, drawn to a scale no less than one (1) inch equals 200'.

14. Applicant has notified every person within 500' of the Facility by certified mail, return receipt requested, of the proposed construction. Applicant included in said notice the Commission docket number under which the Application will be processed and informed each person of his or her right to request intervention. A survey depicting adjacent properties and properties that are within 500' of the facility and a list of the

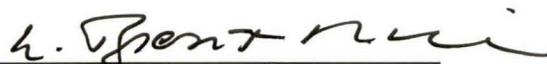
property owners and copies of the certified letters sent to the referenced property owners are attached as **Exhibit I**. Copies of the return receipts will be filed with the Commission when received.

15. The site for the proposed Facility is located inside the incorporated limits of the City of Richmond and is not zoned. The area surrounding the proposed location includes dormitories, University classroom buildings and parking areas.

16. Applicant has considered the likely effects of the installation on nearby land uses and values and in conjunction with EKV, have concluded that there is no more suitable location reasonably available from which adequate service can be provided.

WHEREFORE, Applicant requests that the Commission, pursuant to KRS 278.020, grant a Certificate of Public Convenience and Necessity to Applicant for construction and operation of the proposed Cell Facility and providing for such other relief as is necessary and appropriate.

Respectfully submitted,



W. Brent Rice
Preston C. Worley
McBRAYER, McGINNIS, LESLIE &
KIRKLAND, PLLC
201 East Main Street, Suite 900
Lexington, KY 40507
Phone: 859/231-8780
COUNSEL FOR TOWER ACCESS
GROUP, LLC

LIST OF EXHIBITS

- Exhibit A Applicant Adoption Notices
- Exhibit B Site Plan and Survey
- Exhibit C Tower and Foundation Profile
- Exhibit D Report of Geotechnical Exploration
- Exhibit E TAG and AT&T Sublease Agreement
- Exhibit F FAA Determination
- Exhibit G KAZC Determination
- Exhibit H Correspondence to Richmond Mayor
- Exhibit I Notice to Adjoining Property Owners

Commonwealth of Kentucky
Alison Lundergan Grimes, Secretary of State

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

Certificate of Authorization

Authentication number: 161672
Visit <https://app.sos.ky.gov/ftshow/certvalidate.aspx> to authenticate this certificate.

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

TOWER ACCESS GROUP LLC

, a limited liability company authorized under the laws of the state of Delaware, is authorized to transact business in the Commonwealth of Kentucky, and received the authority to transact business in Kentucky on March 19, 2014.

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

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 18th day of March, 2015, in the 223rd year of the Commonwealth.



Alison Lundergan Grimes

Alison Lundergan Grimes
Secretary of State
Commonwealth of Kentucky
161672/0882459

Delaware

PAGE 1

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "TOWER ACCESS GROUP, LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE EIGHTEENTH DAY OF MARCH, A.D. 2015.

AND I DO HEREBY FURTHER CERTIFY THAT THE SAID "TOWER ACCESS GROUP, LLC" WAS FORMED ON THE SIXTEENTH DAY OF JULY, A.D. 2008.

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

4575757 8300

150374299



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


Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 2210829

DATE: 03-18-15

- LEASE AREA
- LEASE DETAIL
- FLOOD ZONE DATA
- VICINITY MAP

POWER & TEL SOURCE
 UTILITY COMPANY: NOT PROVIDED
 IDENTIFICATION #: NOT PROVIDED
 TELEPHONE COMPANY: NOT PROVIDED
 IDENTIFICATION #: N/A

PROJECT BENCHMARK
 NORTH: 3796840.16
 EAST: 5341973.30
 ELEVATION: 965.56
 LOCATION: BEING A SET IRON ROD 37'
 NORTHEAST OF THE SOUTHEAST
 CORNER OF THE LEASE AREA.

SYMBOL LEGEND

- WOOD POWER POLE
- CONCRETE POWER POLE
- METAL TRAFFIC POLE
- LIGHT POLE
- GUY POLE
- TELEPHONE PEDestal
- GUY ANCHOR
- MANHOLE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- ELECTRIC BOX
- FENCE POST
- SPOT ELEVATION
- SET #5 REBAR (UNLESS OTHERWISE NOTED)
- EXISTING #5 REBAR (UNLESS OTHERWISE NOTED)

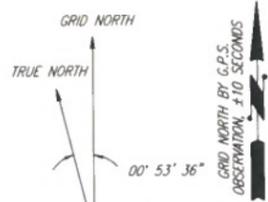
ABBREVIATIONS

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

LINE LEGEND

- OVERHEAD ELECTRIC
- UNDERGROUND GAS LINE
- UNDERGROUND WATER LINE
- OVERHEAD ELECTRIC & TELEPHONE LINE
- OVERHEAD TELEPHONE LINE
- DRAINAGE/STORM SEWER LINE
- EXISTING FENCE
- PROPOSED FENCE
- SUBJECT PROPERTY BOUNDARY
- RIGHT OF WAY CENTERLINE

NOTE: SYMBOLS, ABBREVIATIONS, OR LINESYLES DO NOT NECESSARILY APPEAR ON DRAWING(S). USE ONLY AS APPLICABLE

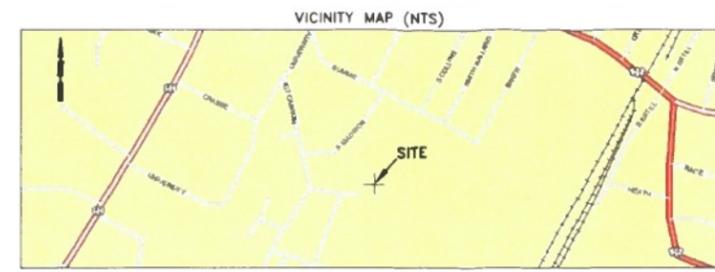
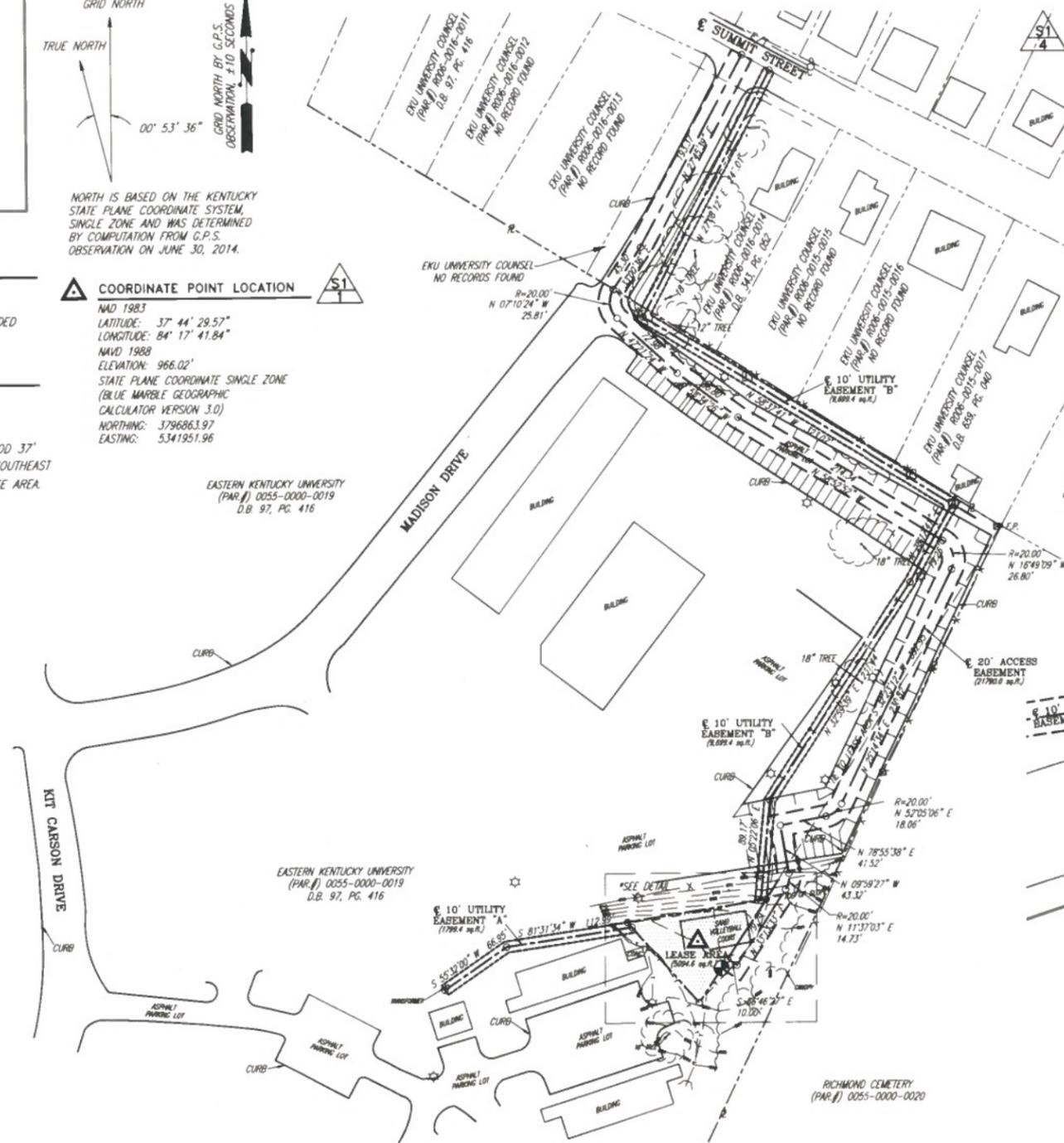


NORTH IS BASED ON THE KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE AND WAS DETERMINED BY COMPUTATION FROM G.P.S. OBSERVATION ON JUNE 30, 2014.

COORDINATE POINT LOCATION

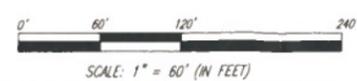
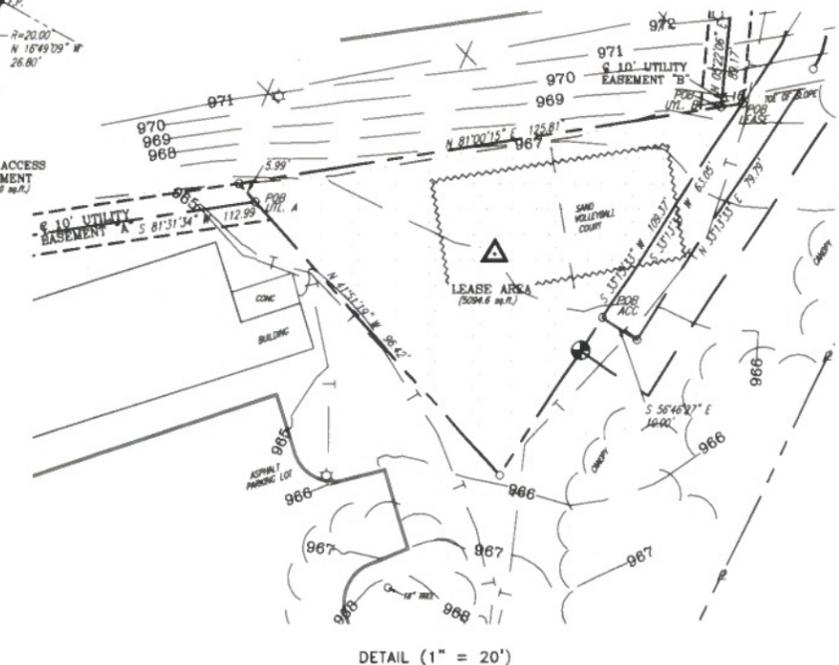
NAD 1983
 LATITUDE: 37° 44' 29.57"
 LONGITUDE: 84° 17' 41.84"
 NAVD 1988
 ELEVATION: 966.02'
 STATE PLANE COORDINATE SINGLE ZONE
 (BLUE MARBLE GEOGRAPHIC CALCULATOR VERSION 3.0)
 NORTHING: 3796863.97
 EASTING: 5341951.96

EASTERN KENTUCKY UNIVERSITY
 (PAR.#) 0055-0000-0019
 D.B. 97, PG. 416



UNDERGROUND UTILITIES
 CALL 7 BEFORE YOU DIG
 BEFORE YOU DIG
 KENTUCKY 1-800-352-5544
 KENTUCKY 1-800-352-5544
 OHIO 1-800-362-2784
 UTILITIES PROTECTION SERVICE
 NON-MEMBERS MUST CALL DIRECTLY

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



STATE OF KENTUCKY LAND SURVEYOR'S CERTIFICATE

TYPE "A" SURVEY: UNADJUSTED TRAVERSE CLOSURE BETTER THAN 1 IN 10,000

AND ALL PARTIES INTERESTED IN TITLE TO PREMISES SURVEYED hereby certify that this plot and survey were made under my supervision, and that the angular and linear measurements, as witnessed by monuments shown hereon, are true and correct to the best of my knowledge and belief.

This survey and plot meets or exceeds the minimum standards of the governing authorities.

This property is subject to any recorded easements or right of ways not shown hereon.

FRANK L. SELLINGER
 3282
 LICENSED PROFESSIONAL LAND SURVEYOR

Frank L. Sellinger, II
 Ky. Reg. No. 3282

SURVEYORS NOTES
 SOURCE OF BEARING IS A G.P.S. OBSERVATION ON JUNE 30, 2014.
 SITE SHOWN SUBJECT TO RIGHT OF WAYS AND EASEMENTS SHOWN HEREON OR NOT.
 NO SEARCH OF PUBLIC RECORDS HAS BEEN PERFORMED BY THIS FIRM TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE PARENT TRACT.
 THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY.
 EXISTING CONTOURS ARE AT ONE FOOT INTERVALS.

"WIRELESS COMMUNICATION SITE SURVEY"

OWNER APPROVAL: _____ DATE: _____

TENANT APPROVAL: _____ DATE: _____

I HAVE REVIEWED THE FLOOD INSURANCE RATE MAPS (FIRM) MAP NO. 21151C0256C DATED 10/02/2014 AND THE LEASE AREA DOES NOT APPEAR TO BE IN A FLOOD PRONE AREA. THE LAND SPACE AREA IS LOCATED IN ZONE X.



Formerly F.S. Land & T. Alan Neal Company
 Land Surveyors and Consulting Engineers
 Surveying License # 358
 933 South 3rd St.
 Louisville, KY 40203
 Phone: (502) 635-5866 (502) 636-5111
 Fax: (502) 636-5263

SITE NUMBER: KY-1002
 SITE NAME: BROCKTON
 SITE ADDRESS: 100 DANIEL BOONE DRIVE RICHMOND, KY 40475
 LEASE AREA: AREA = 5094.6 sq.ft.
 PROPERTY OWNER: EASTERN KENTUCKY UNIVERSITY 521 LANCASTER AVENUE RICHMOND, KY 40475
 TAX ID NUMBER: 0055-0000-0019
 LOT NUMBER: 0055-0000-0019
 SOURCE OF TITLE: D.B. 97, PG. 416

DWG BY: SNS
 CHKD BY: FLS
 DATE: 09.08.14

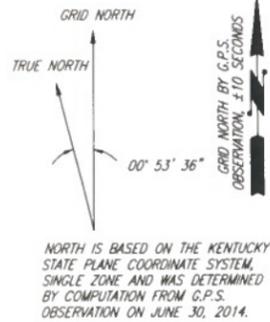
FSTAN PROJECT NO.: 14-9183

SHEET 1 OF 3

REVISIONS:
 SITE ADDRESS - 9.25.14
 REVISE ACCESS - 01.15.15

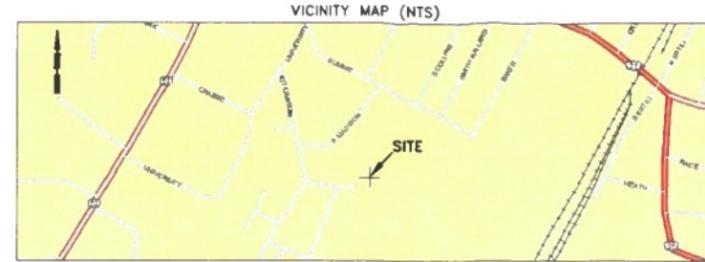
VACANT LAND
 BROCKTON
 KY-1002
 SITE ADDRESS: 100 DANIEL BOONE DRIVE RICHMOND, KY 40475
 OWNER ADDRESS: 521 LANCASTER AVENUE RICHMOND, KY 40475

- LEGAL DESCRIPTION
- FLOOD ZONE DATA
- VICINITY MAP



COORDINATE POINT LOCATION
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UNDERGROUND UTILITIES
 CALL 2 BEFORE YOU DIG
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 KENTUCKY 1-800-753-8037
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 The utility information shown on this plan prepared by FSTan was obtained from existing records and/or field locations. It is the contractor's responsibility to verify that existence and location, and to contact the appropriate utility company for field locations.



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 Phone: (502) 635-5866 (502) 636-5111
 Fax: (502) 636-5263

SITE NUMBER:
KY-1002

SITE NAME:
BROCKTON

SITE ADDRESS:
100 DANIEL BOONE DRIVE
RICHMOND, KY 40475

LEASE AREA:
AREA = 5094.6 sq.ft.

PROPERTY OWNER:
EASTERN KENTUCKY UNIVERSITY
521 LANCASTER AVENUE
RICHMOND, KY 40475

TAX ID NUMBER:
0055-0000-0019

LOT NUMBER:
0055-0000-0019

SOURCE OF TITLE:
D.B. 97, PG. 416

DWG BY: SNS
CHKD BY: FLS
DATE: 09.08.14

FSTAN PROJECT NO.:
14-9183

SHEET 2 OF 3

REVISIONS:
 SITE ADDRESS - 9.25.14
 REVISE ACCESS - 01.15.15

VACANT LAND

BROCKTON KY-1002
 SITE ADDRESS: 100 DANIEL BOONE DRIVE
 RICHMOND, KY 40475
 OWNER ADDRESS: 521 LANCASTER AVENUE
 RICHMOND, KY 40475

POWER & TEL SOURCE
 UTILITY COMPANY: NOT PROVIDED
 IDENTIFICATION #: NOT PROVIDED
 TELEPHONE COMPANY: NOT PROVIDED
 IDENTIFICATION #: N/A

PROJECT BENCHMARK
 NORTH: 3796840.16
 EAST: 5341973.30
 ELEVATION: 965.56
 LOCATION: BEING A SET IRON ROD 37"
 NORTHEAST OF THE SOUTHEAST
 CORNER OF THE LEASE AREA.

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 - XX—XX—XX— PROPOSED FENCE
 - SUBJECT PROPERTY BOUNDARY
 - RIGHT OF WAY CENTERLINE
- NOTE: SYMBOLS, ABBREVIATIONS, OR LINESYLES DO NOT NECESSARILY APPEAR ON DRAWING(S). USE ONLY AS APPLICABLE



LEGAL DESCRIPTIONS:

This is a description for Tower Access Group, of a Lease Area to be located on the property of the Eastern Kentucky University, which is further described as follows:

LEASE AREA
 Land situated in Madison County, Kentucky and being a located on the conveyed to Eastern Kentucky University, and more particularly described as follows:
 Commencing at a found fence corner post on the Northeast corner of the property conveyed to Eastern Kentucky University in Deed Book 97, Page 416 of the Office of the Clerk, Madison County Kentucky; thence thence traversing said Eastern Kentucky University property S 32°23'12" W - 392.95' to set #5 iron rod cap stamped "STAN 3282" and being the True Point of Beginning of the Lease Area; thence S 33°13'31" W - 109.37' to set #5 iron rod cap stamped "STAN 3282"; thence N 41°51'19" W - 96.42' to set #5 iron rod cap stamped "STAN 3282"; thence N 81°00'15" E - 125.81' to the point of beginning, containing 5094.6 square feet as per survey by FSTan Land Surveyors & Consulting Engineers, Frank L. Sellinger, II, surveyor, dated August 08, 2014.

10' UTILITY EASEMENT "A"
 Land situated in Madison County, Kentucky and being a located on the conveyed to Eastern Kentucky University, and more particularly described as follows:
 Commencing at a found fence corner post on the Northeast corner of the property conveyed to Eastern Kentucky University in Deed Book 97, Page 416 of the Office of the Clerk, Madison County Kentucky; thence thence traversing said Eastern Kentucky University property S 32°23'12" W - 392.95' to set #5 iron rod cap stamped "STAN 3282" and being the point of beginning of the Lease Area; thence with the Lease area for the next 2 calls; S 81°00'15" W - 125.81' to set #5 iron rod cap stamped "STAN 3282"; thence S 41°51'19" E - 5.99' to set #5 iron rod cap stamped "STAN 3282"; and being the True Point of Beginning of the 10' Utility Easement "A" Centerline; thence leaving said Lease Area S 81°31'34" W 112.99' to set #5 iron rod cap stamped "STAN 3282"; thence S 55°32'00" W - 66.95' to set #5 iron rod cap stamped "STAN 3282" and being the end point of the said centerline containing 1,799.4 square feet as per survey by FSTan Land Surveyors & Consulting Engineers, Frank L. Sellinger, II, surveyor, dated August 08, 2014.

10' UTILITY EASEMENT "B"
 Land situated in Madison County, Kentucky and being a located on the conveyed to Eastern Kentucky University, and more particularly described as follows:
 Commencing at a found fence corner post on the Northeast corner of the property conveyed to Eastern Kentucky University in Deed Book 97, Page 416 of the Office of the Clerk, Madison County Kentucky; thence thence traversing said Eastern Kentucky University property S 32°23'12" W - 392.95' to set #5 iron rod cap stamped "STAN 3282" and being the point of beginning of the Lease Area; thence with the Lease area; S 81°00'15" W - 5.16' to set #5 iron rod cap stamped "STAN 3282"; and being the True Point of Beginning of the 10' Utility Easement "B" Centerline; thence leaving said Lease Area N 05°22'06" E - 89.17' to set #5 iron rod cap stamped "STAN 3282"; thence N 32°59'39" E - 231.44' to set #5 iron rod cap stamped "STAN 3282"; thence N 28°17'41" E - 79.26' to set #5 iron rod cap stamped "STAN 3282"; thence N 58°37'41" W - 323.07' to set #5 iron rod cap stamped "STAN 3282"; thence N 27°08'12" E - 247.01' to set Mag Nail in the centerline a Summit Street, and being the end point of the said centerline containing 9,699.1 square feet as per survey by FSTan Land Surveyors & Consulting Engineers, Frank L. Sellinger, II, surveyor, dated August 08, 2014.

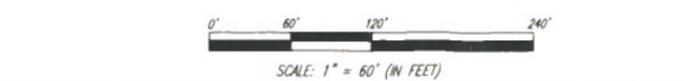
20' ACCESS EASEMENT
 Land situated in Madison County, Kentucky and being a located on the conveyed to Eastern Kentucky University, and more particularly described as follows:
 Commencing at a found fence corner post on the Northeast corner of the property conveyed to Eastern Kentucky University in Deed Book 97, Page 416 of the Office of the Clerk, Madison County Kentucky; thence traversing said Eastern Kentucky University property S 32°23'12" W - 392.95' to set #5 iron rod cap stamped "STAN 3282" and being the point of beginning of the Lease Area; thence with said Lease Area S 33°13'31" W - 63.05' to set #5 iron rod cap stamped "STAN 3282"; and being the True Point of Beginning of the 20' Access Easement Centerline; thence leaving said Lease Area S 56°46'27" E - 10.00' to set #5 iron rod cap stamped "STAN 3282"; thence N 33°13'31" E - 79.79' to set #5 iron rod cap stamped "STAN 3282"; thence along a curve to the left having a radius of 20.00' and a chord of N 11°37'03" E - 14.73' to set #5 iron rod cap stamped "STAN 3282"; thence N 09°59'27" W - 43.32' to set Mag Nail; thence N 78°55'38" E - 41.52' to set Mag Nail; thence along a curve to the left with a radius of 20.00' and a chord of N 52°05'06" E - 18.06' to set Mag Nail; thence N 25°14'34" E - 230.82' to set Mag Nail; thence along a curve to the left with a radius of 20.00' and a chord of N 16°49'09" W - 26.80' to set Mag Nail; thence N 58°52'52" W - 214.34' to set Mag Nail; thence N 53°34'26" W - 66.80' to set Mag Nail; thence N 47°21'24" W - 72.98' to set Mag Nail; thence along a curve to the right with a radius of 20.00' and a chord of N 07°10'24" W - 25.81' to set Mag Nail in the centerline of Madison Drive; thence with said center line N 33°00'36" E - 45.30' to set Mag Nail; thence N 27°45'39" E - 193.37' to set Mag Nail in the centerline of Summit Street and being the ending point of said 20' Access easement centerline, containing 21,790.0 square feet as per survey by FSTan Land Surveyors & Consulting Engineers, Frank L. Sellinger, II, surveyor, dated August 08, 2014.



LAND SURVEYOR'S CERTIFICATE

TYPE "A" SURVEY: UNADJUSTED TRVERSE CLOSURE BETTER THAN 1 IN 10,000
 TO ALL PARTIES INTERESTED IN TITLE TO PREMISES SURVEYED
 I hereby certify that this plot and survey were made under my supervision, and that the angular and linear measurements, as witnessed by monuments shown hereon, are true and correct to the best of my knowledge and belief.
 This survey and plot meets or exceeds the minimum standards of the governing authorities.
 This property is subject to any recorded easements or right of ways not shown hereon.
 Frank L. Sellinger, II, Ky. Reg. No. 3282

SURVEYORS NOTES
 SOURCE OF BEARING IS A G.P.S. OBSERVATION ON JUNE 30, 2014.
 SITE SHOWN SUBJECT TO RIGHT OF WAYS AND EASEMENTS SHOWN HEREON OR NOT.
 NO SEARCH OF PUBLIC RECORDS HAS BEEN PERFORMED BY THIS FIRM TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE PARENT TRACT.
 THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY.
 EXISTING CONTOURS ARE AT ONE FOOT INTERVALS.



"WIRELESS COMMUNICATION SITE SURVEY"

OWNER APPROVAL: _____ DATE: _____
 TENANT APPROVAL: _____ DATE: _____

I HAVE REVIEWED THE FLOOD INSURANCE RATE MAPS (FIRM) MAP NO. 21151C0256C DATED 10/02/2014 AND THE LEASE AREA DOES NOT APPEAR TO BE IN A FLOOD PRONE AREA. THE LAND SPACE AREA IS LOCATED IN ZONE X.



BROCKTON

100 DANIEL BOONE DR
MADISON COUNTY
RICHMOND, KY 40475

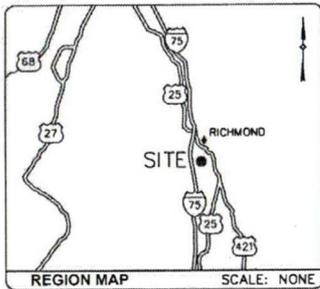
PROPOSED 190' MONOPOLE
WITH MULTIPLE CARRIERS

UTILITY PROTECTION NOTE

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE UTILITY PROTECTION CENTER, WHICH WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER 48 HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. ALL NEW SERVICE AND GROUNDING TRENCHES PROVIDE A WARNING TAPE 12 INCHES ABOVE THE UNDERGROUND INSTALLATION (SEE NEC 300.5).



BTM Engineering, Inc.
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,
PLANNERS & SURVEYORS
100 DANIEL BOONE DRIVE
RICHMOND, KENTUCKY 40220
PHONE: (502) 459-8402
FAX: (502) 459-8427



BTM Engineering, Inc.
Consulting Engineers, Landscape Architects, Planners & Surveyors
"Serving the Bluegrass and Beyond"
3001 TAYLOR SPRINGS DRIVE
LOUISVILLE, KENTUCKY 40220
(502) 459-8402 PHONE (502) 459-8427 FAX

DESIGN ENGINEER

FSton
F.S. Land Company
T. Alan Neal, Company
1200 Reynolds Dr
Louisville, KY 40217
Phone: (502) 623-5086 (502) 626-3111
Fax: (502) 626-3063

SURVEYOR

DIRECTIONS FROM COUNTY SEAT: STARTING IN RICHMOND ON N 2ND ST. HEAD SOUTHWEST TO W MAIN ST. CONTINUE TO UNIVERSITY DRIVE FOR APX. 0.3 MILES, THEN TURN LEFT ONTO KIT CARSON DR. AFTER APX. 0.2 MILES, TURN LEFT ONTO DANIEL BOONE DR. AFTER 350 FEET, KEEP LEFT. THE SITE WILL BE ON THE LEFT, NEAR AN EXISTING VOLLEYBALL COURT.

DIRECTIONS FROM TOWER ACCESS GROUP OFFICE: STARTING IN RICHMOND AT 108 FORBES COURT, HEAD WEST TOWARD PROFESSIONAL DRIVE AND TURN LEFT. AFTER APX. 0.1 MILES, TURN RIGHT TOWARD SR 25/EASTERN BYPASS, THEN TURN LEFT. PROCEED ON SR 25/EASTERN BYPASS FOR APX. 1.0 MILES, AND THEN CONTINUE STRAIGHT TO STAY ON EASTERN BYPASS. AFTER APX. 1.4 MILES, TURN RIGHT ONTO ROY AND SUE KIDD WAY. AFTER APX. 0.2 MILES CONTINUE ONTO KIT CARSON DR. PROCEED APX. 0.3 MILES AND TURN RIGHT ONTO DANIEL BOONE DRIVE. CONTINUE ON DANIEL BOONE DRIVE APX. 0.2 MILES, THEN TURN RIGHT. THE SITE WILL BE ON THE LEFT, NEAR AN EXISTING VOLLEYBALL COURT.

DIRECTIONS TO SITE PREPARED BY TYLER KOCH

SITE NAME
BROCKTON

SITE ADDRESS
100 DANIEL BOONE DR
RICHMOND, KY 40475

COORDINATES
LATITUDE: N 37° 44' 29.57"
LONGITUDE: W 84° 17' 41.84"

PROPERTY OWNER
EASTERN KENTUCKY UNIVERSITY
521 LANCASTER AVE
RICHMOND, KY 40475
CONTACT: FACILITIES DIRECTOR
PHONE: (859) 622-1000
FAX: (859) 622-2196

APPLICANT
TOWER ACCESS GROUP
108 FORBES CT STE # 1
RICHMOND, KY 40475
CONTACT: DAVID GINTER
PHONE: (859) 623-5513
FAX: (859) 623-5213

TOWER TYPE
MONOPOLE

RAD CENTER
185' AGL

TAX MAP
0055-0000-0019

PARCEL NO.
19

SOURCE OF TITLE
DEED BOOK 97, PAGE 416

LEASE AREA
5,094.8 SF

PROJECT INFORMATION

Sheet No.	Description
T-1	COVER SHEET
ARCHITECTURAL	
C-2	OVERALL SITE LAYOUT
C-3	SITE LAYOUT
C-4	TOWER ELEVATIONS
C-6	GRADING & EROSION CONTROL PLAN
C-7	CIVIL DETAILS
C-8	FENCE DETAILS
ELECTRICAL	
E-1	CONDUIT ROUTING PLAN
E-2	GROUNDING PLAN
E-3	UTILITY H-FRAME
E-4	ELECTRICAL DETAILS
E-5	GROUNDING DETAILS
E-6	ELECTRICAL & GROUNDING NOTES
SHEET INDEX	

POLICE DEPARTMENT
RICHMOND PD
PHONE: (859) 623-1162

FIRE DEPARTMENT
RICHMOND FD
PHONE: (859) 623-1164

ELECTRIC COMPANY
LG&E AND KU
PHONE: (859) 626-3372 EXT 26
CONTACT: TAYLOR LOSSON

TELEPHONE COMPANY
AT&T
PHONE: (859) 623-0853
CONTACT: CHESTER HOLBROOK (ENGR)

CONTACT INFORMATION

SHEET NAME: BROCKTON	
SITE NUMBER: KY-1002	
SITE ADDRESS: 100 DANIEL BOONE DR RICHMOND, KY 40475	
AREA: LEASE AREA = 5094.8 SQ. FT	
PROPERTY OWNER: EXU 521 LANCASTER AVE CPO COATES BLDG RICHMOND, KY 40475	
TAX MAP NUMBER: 0055-0000-0019	PARCEL NUMBER: 19
SOURCE OF TITLE: DEED BOOK 97 PAGE 416	
LATITUDE: N 37°44'29.57"	LONGITUDE: W 84°17'41.84"
REVISIONS	PH
1 SBC ISSUE FOR COMMENT	10/07/14
2 SBC ISSUE FOR CONSTRUCTION	11/19/14
TITLE: TITLE SHEET	
SHEET: T-1	

SITE PLAN NOTES

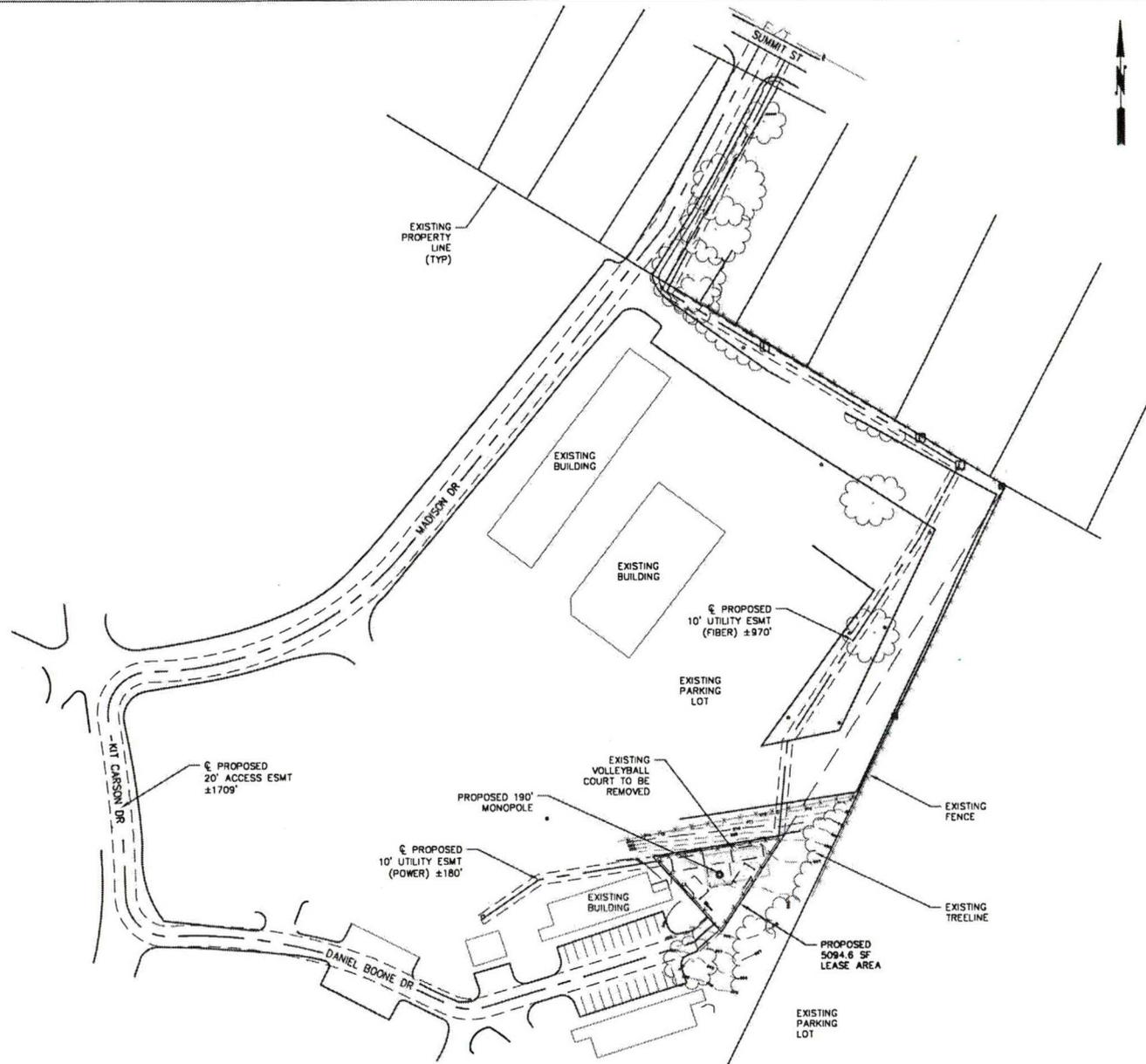
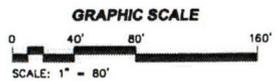
1. THE PROPOSED DEVELOPMENT IS FOR A 190 FOOT MONOPOLE AND MULTIPLE EQUIPMENT LOCATIONS. ITS LOCATION IS AT 100 DANIEL BOONE DR, RICHMOND, KY 40475.
2. THE TOWER WILL BE ACCESSED BY A PROPOSED STABILIZED DRIVE FROM AN EXISTING ASPHALT ROADWAY (SUMMIT ST) WHICH IS A PUBLIC RIGHT-OF-WAY. THE ACCESS ROAD IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL HIGHWAY DEPARTMENT OF TRANSPORTATION STANDARDS. WATER, SANITARY SEWER AND WASTE COLLECTIONS SERVICES ARE NOT REQUIRED FOR THE PROPOSED DEVELOPMENT.
3. CENTERLINE OF PROPOSED TOWER GEOGRAPHIC LOCATIONS
 LATITUDE: 37° 44' 29.57" N
 LONGITUDE: 84° 17' 41.84" W
4. REMOVE ALL VEGETATION & CLEAN LEASE AREA (WHERE REQUIRED)
5. FINISH GRADING TO PROVIDE EFFECTIVE DRAINAGE WITH A SLOPE OF NO LESS THAN ONE EIGHTH INCH (1/8") PER FOOT FLOWING AWAY FROM EQUIPMENT FOR A MINIMUM DISTANCE OF SIX FEET (6') IN ALL DIRECTIONS.
6. LOCATE ALL U.G. UTILITIES PRIOR TO ANY CONSTRUCTION.
7. COMPOUND FINISHED SURFACE TO BE FENCED.

UNDERGROUND UTILITIES

CALL 2 WORKING DAYS
BEFORE YOU DIG
 INDIANA 1-800-382-5544
 KENTUCKY 1-800-752-6007
 OR DIAL 811
 UTILITIES PROTECTION SERVICE
 NON-MEMBERS MUST CALL DIRECTLY

LEGEND

— OHF —	EXISTING OVERHEAD ELECTRIC
— OHT —	EXISTING OVERHEAD TELEPHONE
— UGE —	EXISTING UNDERGROUND ELECTRIC
— UGT —	EXISTING UNDERGROUND TELEPHONE
— PGE —	PROPOSED UNDERGROUND ELECTRIC
— PGT —	PROPOSED UNDERGROUND TELEPHONE
— X — X —	FENCE LINE
⊙	POWER POLE
■ TELE PED	TELEPHONE PEDESTAL
⊕	WATER VALVES
⊕	FIRE HYDRANTS
•	BOLLARDS



TAG
TAG Inc.

BTM Engineering, Inc.
 CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,
 ARCHITECTS, PLANNERS, DESIGNERS
 521 LANCASTER AVE
 COPELAND BLDG
 RICHMOND, KENTUCKY 40475
 PHONE (502) 498-8472
 FAX (502) 498-8477

SITE NAME:	BROCKTON
SITE NUMBER:	KY-1002
SITE ADDRESS:	100 DANIEL BOONE DR RICHMOND, KY 40475
AREA:	LEASE AREA = 5094.6 SQ. FT
PROPERTY OWNER:	EXU 521 LANCASTER AVE CPO COATES BLDG RICHMOND, KY 40475
TAX MAP NUMBER:	0055-0000-0019
PARCEL NUMBER:	19
SOURCE OF TITLE:	DEED BOOK 97 PAGE 416
LATITUDE:	N 37°44'29.57"
LONGITUDE:	W 84°17'41.84"

REVISONS	DATE	DESCRIPTION
1	10/07/14	SBC ISSUE FOR COMMENT
2	11/19/14	SBC ISSUE FOR CONSTRUCTION

TITLE:
OVERALL SITE LAYOUT

SHEET:
C-2

SITE PLAN NOTES

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2. THE TOWER WILL BE ACCESSED BY AN EXISTING PARKING LOT FROM AN EXISTING ASPHALT ROADWAY (SUMMIT ST) WHICH IS A PUBLIC RIGHT-OF-WAY. WATER, SANITARY SEWER AND WASTE COLLECTIONS SERVICES ARE NOT REQUIRED FOR THE PROPOSED DEVELOPMENT.
3. CENTERLINE OF PROPOSED TOWER GEOGRAPHIC LOCATIONS
 LATITUDE: 37° 44' 29.57" N
 LONGITUDE: 84° 17' 41.84" W
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6. LOCATE ALL U.G. UTILITIES PRIOR TO ANY CONSTRUCTION.
7. COMPOUND FINISHED SURFACE TO BE FENCED.

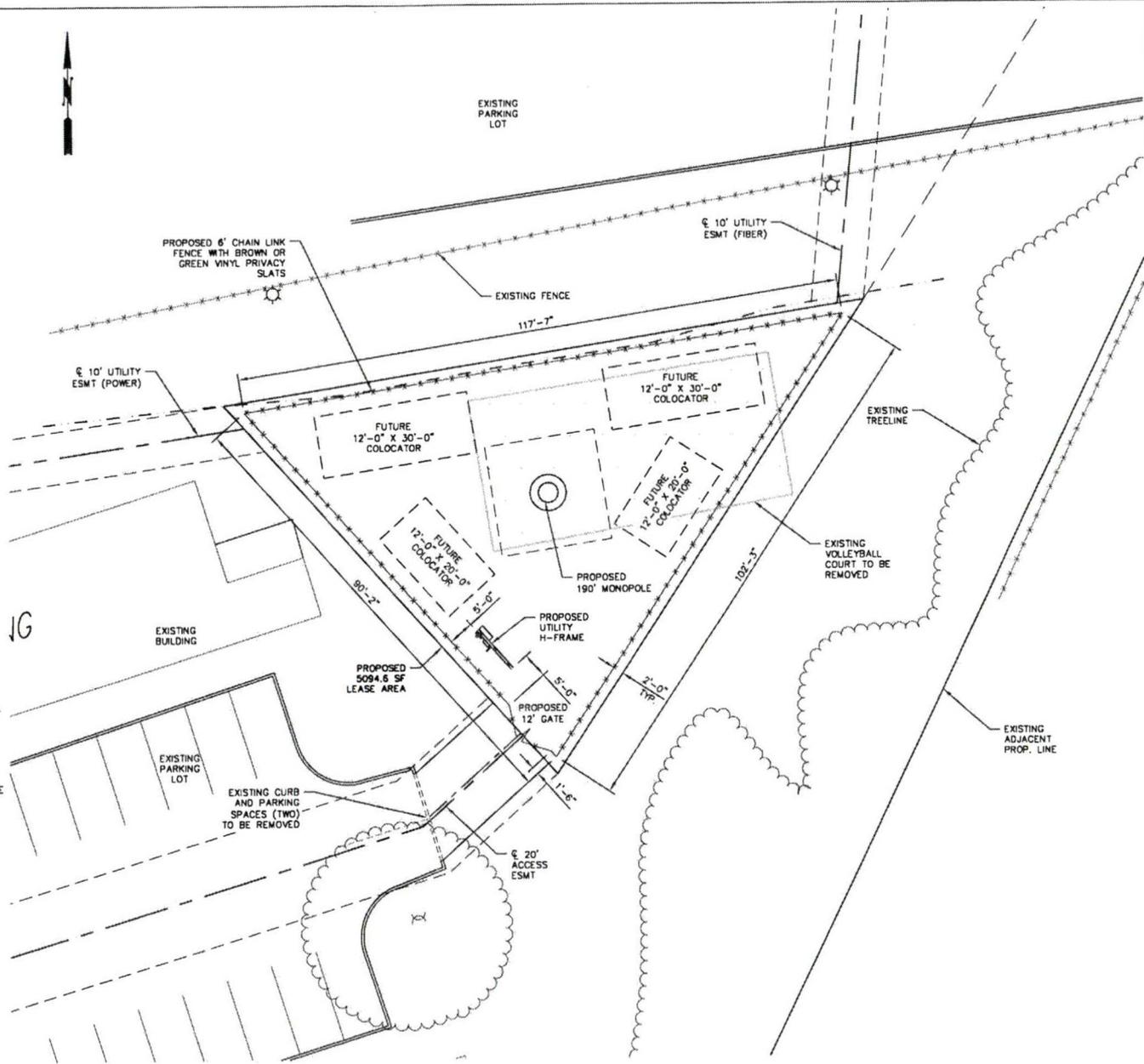
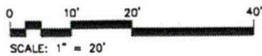
UNDERGROUND UTILITIES

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 INDIANA 1-800-382-5544
 KENTUCKY 1-800-752-6007
 OR DIAL 811
 UTILITIES PROTECTION SERVICE
 NON-MEMBERS MUST CALL DIRECTLY

LEGEND

- OHC — EXISTING OVERHEAD ELECTRIC
- OHT — EXISTING OVERHEAD TELEPHONE
- UGE — EXISTING UNDERGROUND ELECTRIC
- UGT — EXISTING UNDERGROUND TELEPHONE
- VGE — PROPOSED UNDERGROUND ELECTRIC
- VGT — PROPOSED UNDERGROUND TELEPHONE
- X — FENCE LINE
- ⊙ — POWER POLE
- ⊙ — TELEPHONE PEDESTAL
- ⊙ — WATER VALVES
- ⊙ — FIRE HYDRANTS
- — BOLLARDS

GRAPHIC SCALE



TAG
Tower Access Group

BTM Engineering, Inc.
 CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,
 3001 TAYLOR SPRING DRIVE
 LOUISVILLE, KENTUCKY 40220
 PHONE: (502) 459-8427
 FAX: (502) 459-8427

Philip G. Heid

SITE NAME:		BROCKTON	
SITE NUMBER:		KY-1002	
SITE ADDRESS:		100 DANIEL BOONE DR RICHMOND, KY 40475	
AREA:		LEASE AREA = 5094.6 SQ. FT	
PROPERTY OWNER:		EKU 521 LANCASTER AVE CPD COATES BLDG RICHMOND, KY 40475	
TAX MAP NUMBER:	0055-0000-0019	PARCEL NUMBER:	19
SOURCE OF TITLE: DEED BOOK 97 PAGE 416			
LATITUDE:		LONGITUDE:	
N 37°44'29.57"		W 84°17'41.84"	

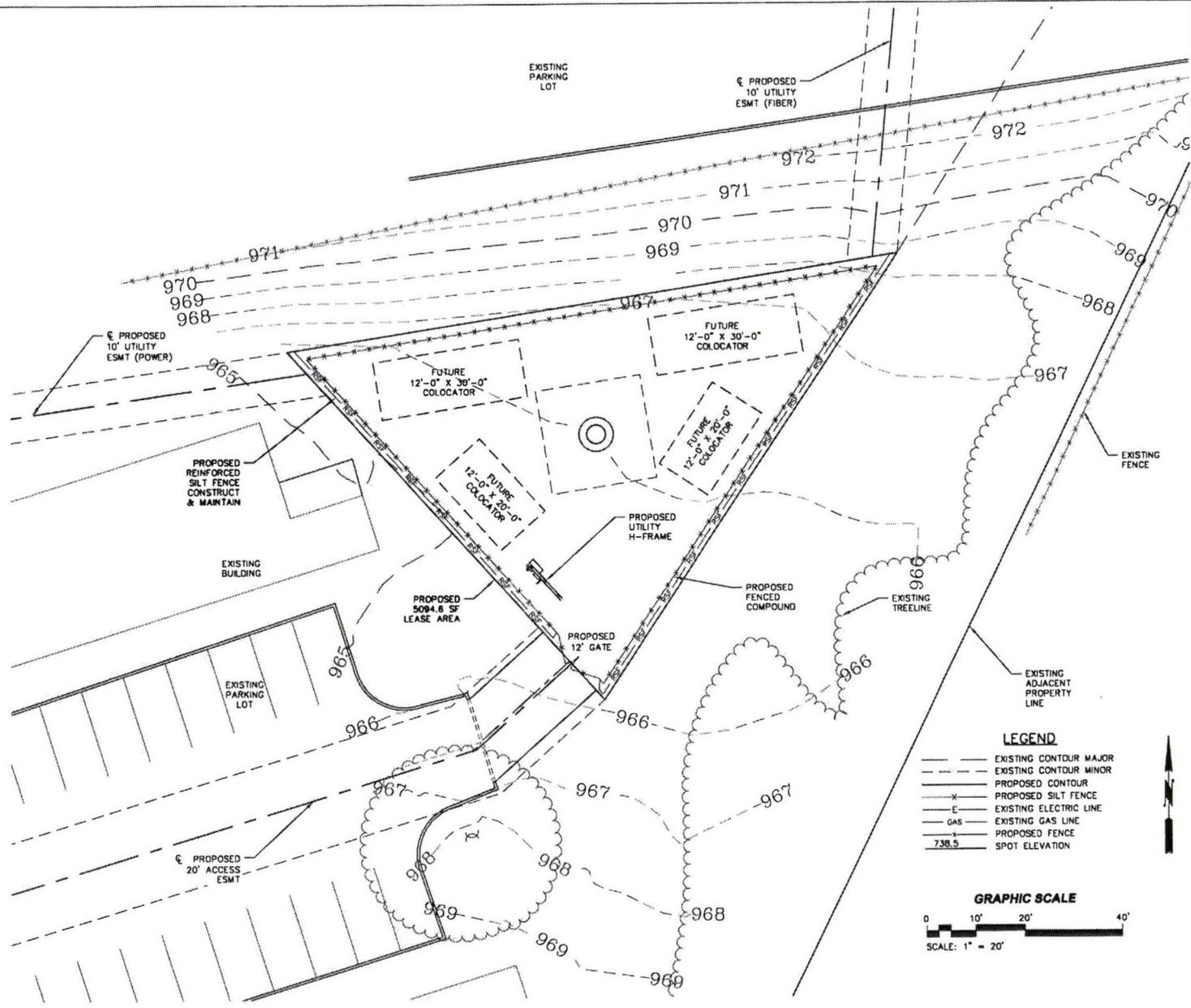
REVISIONS	DATE	BY
	1	10/07/14
2	11/19/14	PH

TITLE: **SITE LAYOUT**

SHEET: **C-3**

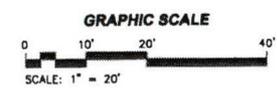
GRADING NOTES:

1. PROPOSED CONTOURS AND SPOT ELEVATIONS ARE SHOWN AT TOP OF CRUSHED STONE, TOP OF FOUNDATION, OR TOP OF TOPSOIL. SEE DETAILS FOR THICKNESS OF CRUSHED STONE, MASS GRADED AREAS AND CRUSHED STONE SHALL BE FINISHED WITHIN 4" OF GRADES SHOWN. FOUNDATIONS SHALL BE FINISHED WITHIN 0.5" OF GRADES SHOWN.
2. ALL TREES, ROOTS, BRUSH, AND ORGANIC MATTER (TOPSOIL) SHALL BE REMOVED BEFORE BEGINNING FILL. FILL MATERIAL SHALL BE CLEAR SOIL CONTAINING NO ROCKS LARGER THAN 6 INCHES.
3. ALL AREAS TO RECEIVE FILL SHALL FIRST BE PROOF ROLLED UNDER THE SUPERVISION OF THE ENGINEER OR TESTING LAB PERSONNEL. ANY AREAS WHICH EXHIBIT "PUMPING" SHALL BE UNDERCUT (OR OTHERWISE STABILIZED) TO A FIRM SOIL BEFORE PLACING FILL. ALSO, ALL FINAL SUBGRADES, WHETHER IN CUT OR FILL, SHALL BE PROOF ROLLED PRIOR TO CONSTRUCTING SLABS OR PAVEMENTS. CONTACT ENGINEER FOR DIRECTION IN SITUATIONS WHERE SOIL COMPACTION OR BEARING CAPACITY MAY BE INADEQUATE.
4. FILLS SHALL BE FORMED OF SATISFACTORY MATERIAL PLACED IN SUCCESSIVE HORIZONTAL LAYERS OF NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR THE FULL WIDTH OF EACH STRIP.
5. FILL SOIL SHALL BE PLACED AT A MOISTURE CONTENT THAT IS WITHIN MINUS 1% OR PLUS 3% POINTS OF THE OPTIMUM MOISTURE CONTENT AND TO 98% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY CURRENT EDITION ASTM 698 (STANDARD PROCTOR). THE UPPER 12 INCHES OF FILL SHALL BE COMPACTED TO 98%.
6. STANDARD PROCTOR TESTS (ASTM 698) SHALL BE DONE BY AN INDEPENDENT TESTING LABORATORY EMPLOYED BY THE CONTRACTOR. IN PLACE DENSITY TESTS SHALL BE PERFORMED ON EACH LIFT TO ENSURE PROPER PLACEMENT OF FILL MATERIAL.
7. ALL DISTURBED AREAS SHALL RECEIVE GROUND COVER. ALL AREAS TO RECEIVE GROUND COVER SHALL HAVE A MINIMUM OF 4 INCHES OF TOPSOIL. ALL FOREIGN DEBRIS SHALL BE REMOVED BEFORE PLACING TOPSOIL. AREAS WITH SLOPES LESS THAN 4:1 SHALL BE SEEDED WITH (4) LBS OF KENTUCKY 31 FESCUE AND (1) LBS OF ANNUAL RYE PER 1,000 SQUARE FEET. SLOPES STEEPER THAN 4:1 SHALL BE SEEDED WITH A MIXTURE OF 1/4 LBS SCARIFIED SERICEA LESPEDEZA, 1/4 LBS CROWN VETCH, AND (1) LBS KENTUCKY 31 FESCUE PER 1,000 SQUARE FEET WITH 30 LBS PER 1,000 SQUARE FEET OF 6-12-12 FERTILIZER. SLOPES 3:1 OR STEEPER SHALL BE COVERED WITH NORTH AMERICAN GREEN EROSION CONTROL BLANKET C350 INSTALLED PER MANUFACTURERS SPECIFICATIONS (OR ENGINEER APPROVED EDJAL) TO PREVENT EROSION. CONTRACTOR SHALL WARRANTY GROUND COVER AND SLOPES FOR A PERIOD OF 1 YEAR.
8. CONFINE ALL CONSTRUCTION ACTIVITY TO PROPERTY OWNER'S PARCEL. DO NOT ENTER ADJACENT PROPERTY WITHOUT OBTAINING APPROVAL THROUGH TOWER ACCESS GROUP.
9. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION AND REMOVAL OF SILT FENCE AND OTHER TEMPORARY EROSION CONTROL MEASURES AFTER GRASS IS ESTABLISHED AND STABILIZED.



LEGEND

- EXISTING CONTOUR MAJOR
- - - EXISTING CONTOUR MINOR
- PROPOSED CONTOUR
- X PROPOSED SILT FENCE
- E EXISTING ELECTRIC LINE
- EXISTING GAS LINE
- - - PROPOSED GAS LINE
- 739.5 SPOT ELEVATION



TAG
TAG Technical Group

BTM Engineering, Inc.
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,
3000 TAYLOR SPRINGS DRIVE
LOUISVILLE, KENTUCKY 40220
PHONE: (502) 459-9427
FAX: (502) 459-9427

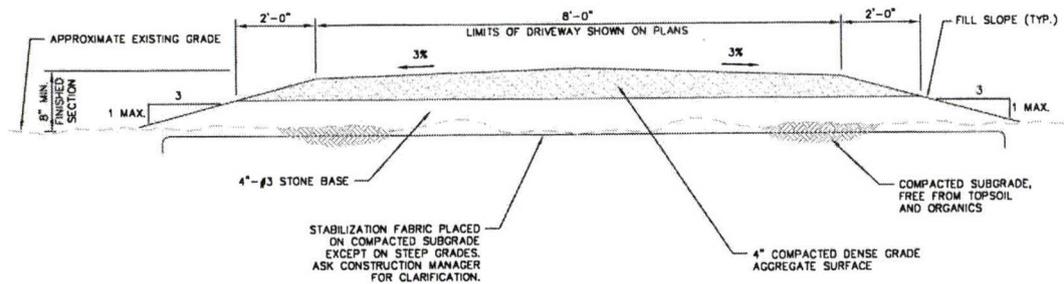
STATE OF KENTUCKY
PHILIP G. HEID
29820
LICENSED PROFESSIONAL ENGINEER
Philip Heid

SITE NAME: BROCKTON
 SITE NUMBER: KY-1002
 SITE ADDRESS: 100 DANIEL BOONE DR RICHMOND, KY 40475
 AREA: LEASE AREA = 5094.6 SQ. FT
 PROPERTY OWNER: EKI 521 LANCASTER AVE CPO COATES BLDG RICHMOND, KY 40475
 TAX MAP NUMBER: 0055-0000-0019 PARCEL NUMBER: 19
 SOURCE OF TITLE: DEED BOOK 97 PAGE 416
 LATITUDE: N 37°44'29.57" LONGITUDE: W 84°17'41.84"

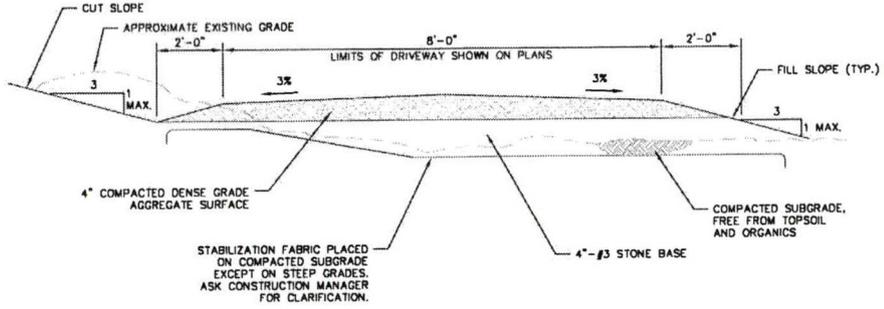
REV	DATE	DESCRIPTION
1	10/07/14	ISSUE FOR COMMENT
2	11/19/14	ISSUE FOR CONSTRUCTION

TITLE: GRADING AND EROSION CONTROL PLAN

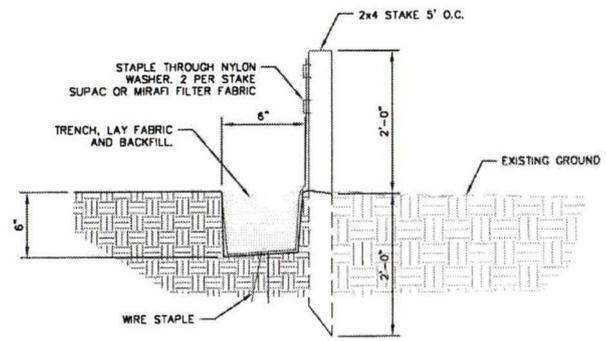
SHEET: C-6



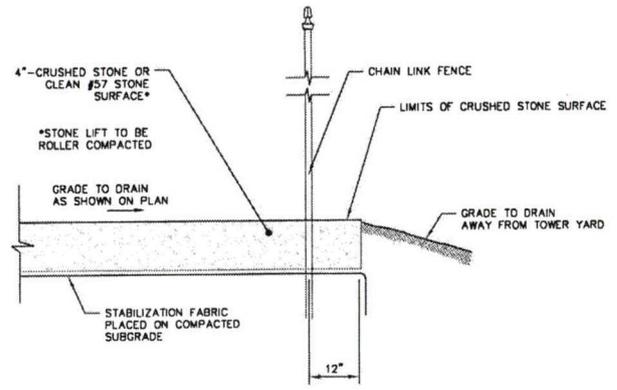
DRIVEWAY SECTION - CROWNED
NOT TO SCALE



DRIVEWAY SECTION - CROSS SLOPED
NOT TO SCALE



REINFORCED SILT FENCE DETAIL
NOT TO SCALE

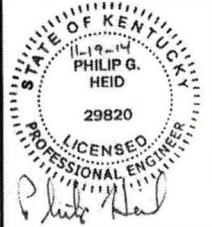


SECTION THROUGH TOWER YARD
NOT TO SCALE



TAG
Taylor Area Group

BTM Engineering, Inc.
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,
PLANNERS & SURVEYORS
1000 W. MAIN ST., SUITE 200
LOUISVILLE, KENTUCKY 40202
PHONE: (502) 459-8402
FAX: (502) 459-9467



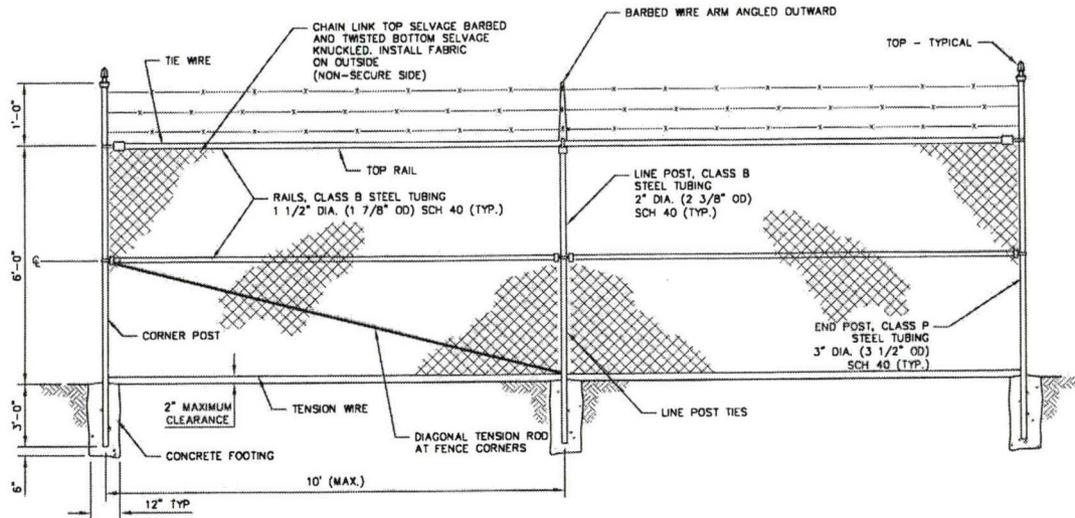
STATE OF KENTUCKY
11-19-14
PHILIP G. HEID
29820
LICENSED PROFESSIONAL ENGINEER
Philip G. Heid

SITE NAME:	BROCKTON
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SITE ADDRESS:	100 DANIEL BOONE DR RICHMOND, KY 40475
AREA:	LEASE AREA = 5094.6 SQ. FT
PROPERTY OWNER:	EKU 521 LANCASTER AVE CPD COATES BLDG RICHMOND, KY 40475
TAX MAP NUMBER:	PARCEL NUMBER: 0055-0000-0019 19
SOURCE OF TITLE:	DEED BOOK 97 PAGE 416
LATITUDE:	LONGITUDE: N 37°44'29.57" W 84°17'41.84"

REVISIONS	DATE	COMMENT
1	10/07/14	PH
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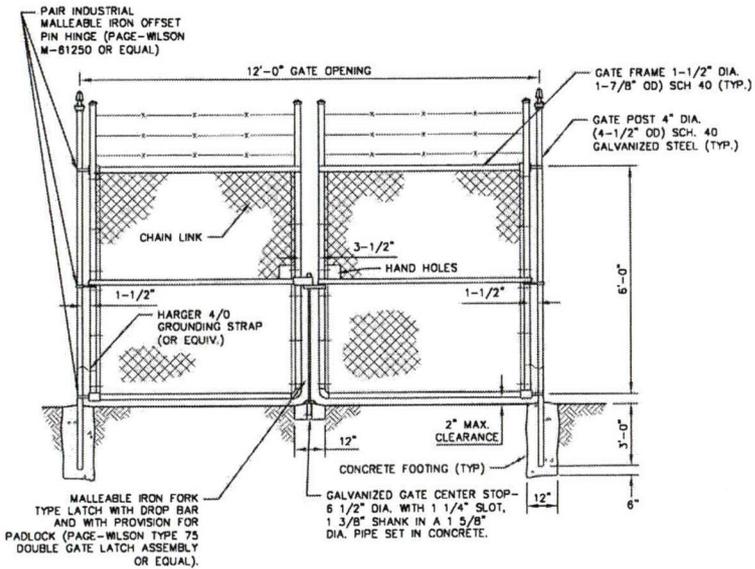
TITLE: CIVIL DETAILS

SHEET: C-7



CHAIN LINK FENCE DETAIL (ELEVATION)
NOT TO SCALE

NOTE: BROWN OR GREEN VINYL PRIVACY SLATS TO BE INSTALLED.



12' WIDE DOUBLE SWING GATE
NOT TO SCALE

TYPICAL WOVEN WIRE FENCING NOTES

- (INSTALL FENCING PER ASTM F-567, SWING GATES PER ASTM F-900)
- GATE POST (4" DIA.), CORNER, TERMINAL OR PULL POST (3" DIA.) SCH. 40 FOR GATE WIDTHS UP THRU 6 FEET OR 12 FEET FOR DOUBLE SWING GATE PER ASTM-F10B3.
 - LINE POST: 2" DIA. (2 3/8" OD) SCH. 40 PIPE PER ASTM-F10B3.
 - GATE FRAME: 1 1/2" DIA. (1 7/8" OD) SCH. 40 PIPE PER ASTM-F10B3.
 - TOP RAIL & BRACE RAIL: 1 1/2" DIA. (1 7/8" OD) SCH. 40 PIPE PER ASTM-F10B3.
 - FABRIC: 9 GA. CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM-A392.
 - TIE WIRE: MINIMUM 11 GA. GALVANIZED STEEL AT POSTS AND RAILS A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOG RINGS SPACED MAX 24" INTERVALS.
 - TENSION WIRE: 7 GA. GALVANIZED STEEL
 - BARBED WIRE: DOUBLE STRAND 12 1/2" OD TWISTED WIRE TO MATCH W/ FABRIC 14 GA., 4 PT. BARBS SPACED ON APPROXIMATELY 4" CENTERS.
 - GATE LATCH: 1 3/8" OD PLUNGER ROD W/ MUSHROOM TYPE CATCH AND LOCK.
 - LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED WITH IF REQUIRED.
 - HEIGHT = 6" VERTICAL + 1' BARBED WIRE VERTICAL DIMENSION.
 - INSTALL GATE STOPS (DUCKHEADS) TO EACH SIDE OF ACCESS DRIVE.
 - CUT HAND HOLES IN GATE FABRIC BY LATCH FOR CHAIN AND LOCKS.

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STATE OF KENTUCKY
PHILIP G. HEID
29820
LICENSED PROFESSIONAL ENGINEER
Philip Heid

SITE NAME:	BROCKTON
SITE NUMBER:	KY-1002
SITE ADDRESS:	100 DANIEL BOONE DR RICHMOND, KY 40475
AREA:	LEASE AREA = 5094.6 SQ. FT
PROPERTY OWNER:	EKU 521 LANCASTER AVE CPD COATES BLDG RICHMOND, KY 40475
TAX MAP NUMBER:	0055-0000-0019
SOURCE OF TITLE:	DEED BOOK 97 PAGE 416
LATITUDE:	N 37°44'29.57"
LONGITUDE:	W 84°17'41.84"

REV	DATE	DESCRIPTION
1	10/07/14	ISSUE FOR COMMENT
2	11/19/14	ISSUE FOR CONSTRUCTION

TITLE: FENCE DETAILS

SHEET: C-8

ELECTRICAL GENERAL NOTES:

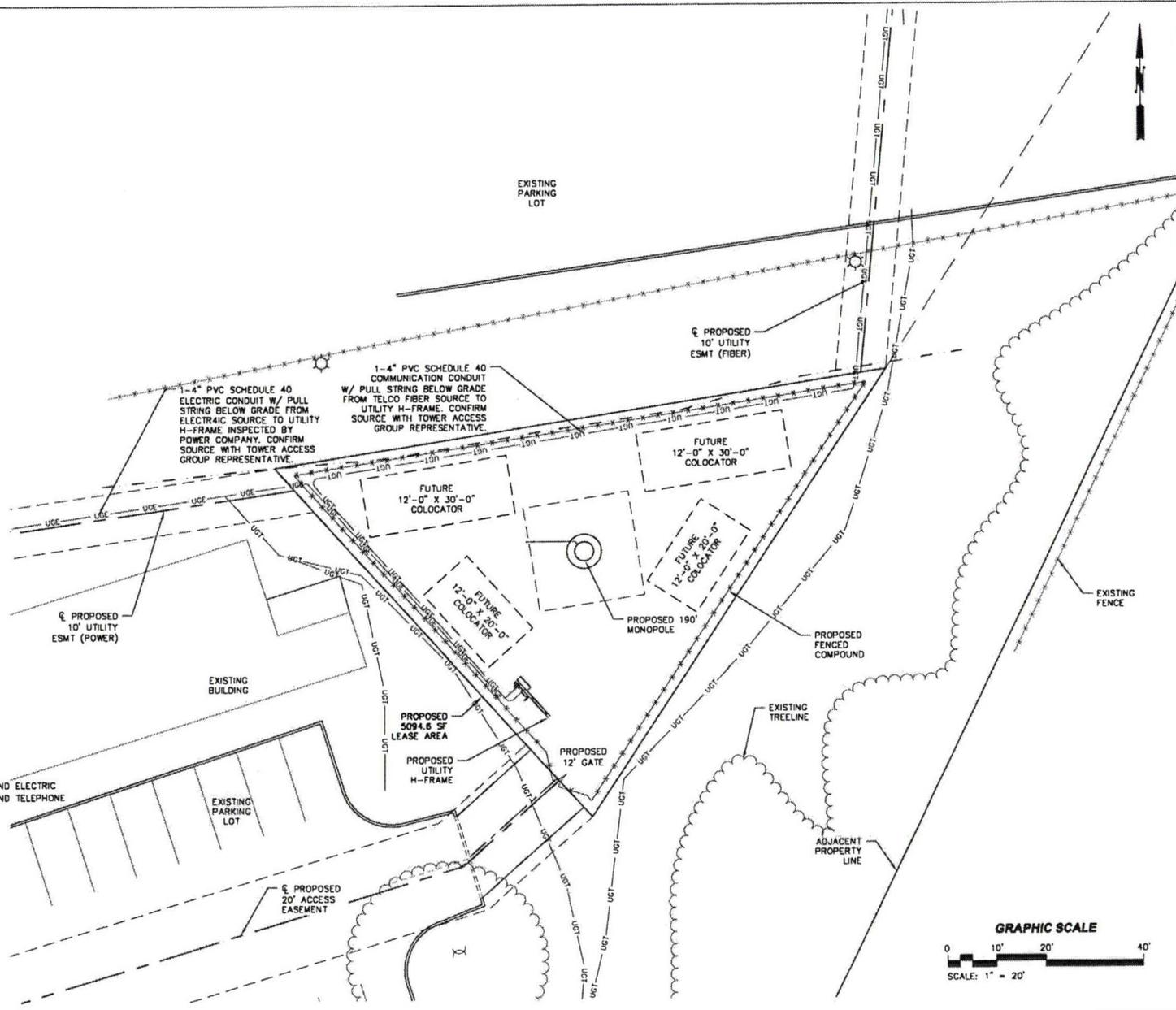
1. PROVIDE AND INSTALL WARNING TAPE FOR ELECTRIC SERVICE CONDUIT @ 12" ABOVE THE UNDERGROUND INSTALLATION (SEE NEC 300.5).
2. CONTRACTOR TO PAY FOR THE SERVICE AS DIRECTED BY THE UTILITY COMPANY.
3. CONTRACTOR SHALL COORDINATE WITH ELECTRIC & TELEPHONE UTILITY COMPANIES FOR SERVICES.
4. CONTRACTOR TO BE ADVISED THAT EXISTING UNDERGROUND CONDUITS, GROUND WIRES EXIST. DIG WITH CAUTION.
5. ALL CONDUITS SHALL BE PVC SCHEDULE 80. RISERS SHALL BE RIGID SCHEDULE 40 OR PVC SCHEDULE 80.
6. THE ELECTRICAL CONTRACTOR, UPON COMPLETION OF HIS WORK, SHALL PROVIDE AS-BUILT INFORMATION ON EXACT LOCATIONS OF UNDERGROUND SERVICES IN ACCORDANCE WITH SCOPE OF WORK AND PROJECT REQUIREMENTS. INFORMATION SHOULD BE GIVEN TO THE GENERAL CONTRACTOR FOR INCLUSION IN FINAL AS-BUILT DOCUMENTS TO BE GIVEN TO TOWER ACCESS GROUP.
7. A CERTIFICATE OF OCCUPANCY IS REQUIRED UPON COMPLETION.

UTILITY NOTES:

1. ELECTRICAL SERVICE SHALL BE INSTALLED IN ONE 4" SCHEDULE 80 CONDUIT WITH 3-#3/0, #2 GRD (OR PER LOCAL UTILITY CODE) FOR THE COMPLETE RUN BETWEEN THE UTILITY H-FRAME AND THE POWER SOURCE ORIGIN.
2. CONTRACTOR SHALL SUPPLY AND INSTALL ONE 4" SCHEDULE 80 CONDUIT WITH (3) 1" INTERDUCT FIBER CONDUITS WITH MULE TAPE FROM THE UTILITY H-FRAME TO THE TELCO FIBER DEMARC. ATTACH SHIELD GROUND TO THE TELCO GROUND POINT AT THE UTILITY H-FRAME.
3. CONTRACTOR OR THEIR SUB-CONTRACTOR SHALL PROVIDE PULL BOXES FOR POWER AND TELCO CONDUIT RUNS AS REQUIRED BY LOCAL, STATE, OR NATIONAL ELECTRICAL CODE, CURRENT VERSION.

LEGEND

- UE---UC--- PROPOSED UNDERGROUND ELECTRIC
- UT---UT--- PROPOSED UNDERGROUND TELEPHONE
- x-x-x- FENCE LINE
- P--- POWER POLE



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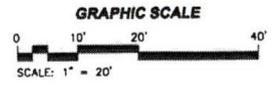
STATE OF KENTUCKY
11-19-14
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SITE NAME: BROCKTON
 SITE NUMBER: KY-1002
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 PROPERTY OWNER: EKLI 521 LANCASTER AVE CPO COATES BLDG RICHMOND, KY 40475
 TAX MAP NUMBER: 0055-0000-0019 PARCEL NUMBER: 19
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 LATITUDE: N 37°44'29.57" LONGITUDE: W 84°17'41.84"

REVISIONS	DATE	BY	FOR
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2	11/19/14	PH	ISSUE FOR CONSTRUCTION

TITLE: CONDUIT ROUTING PLAN

SHEET: E-1



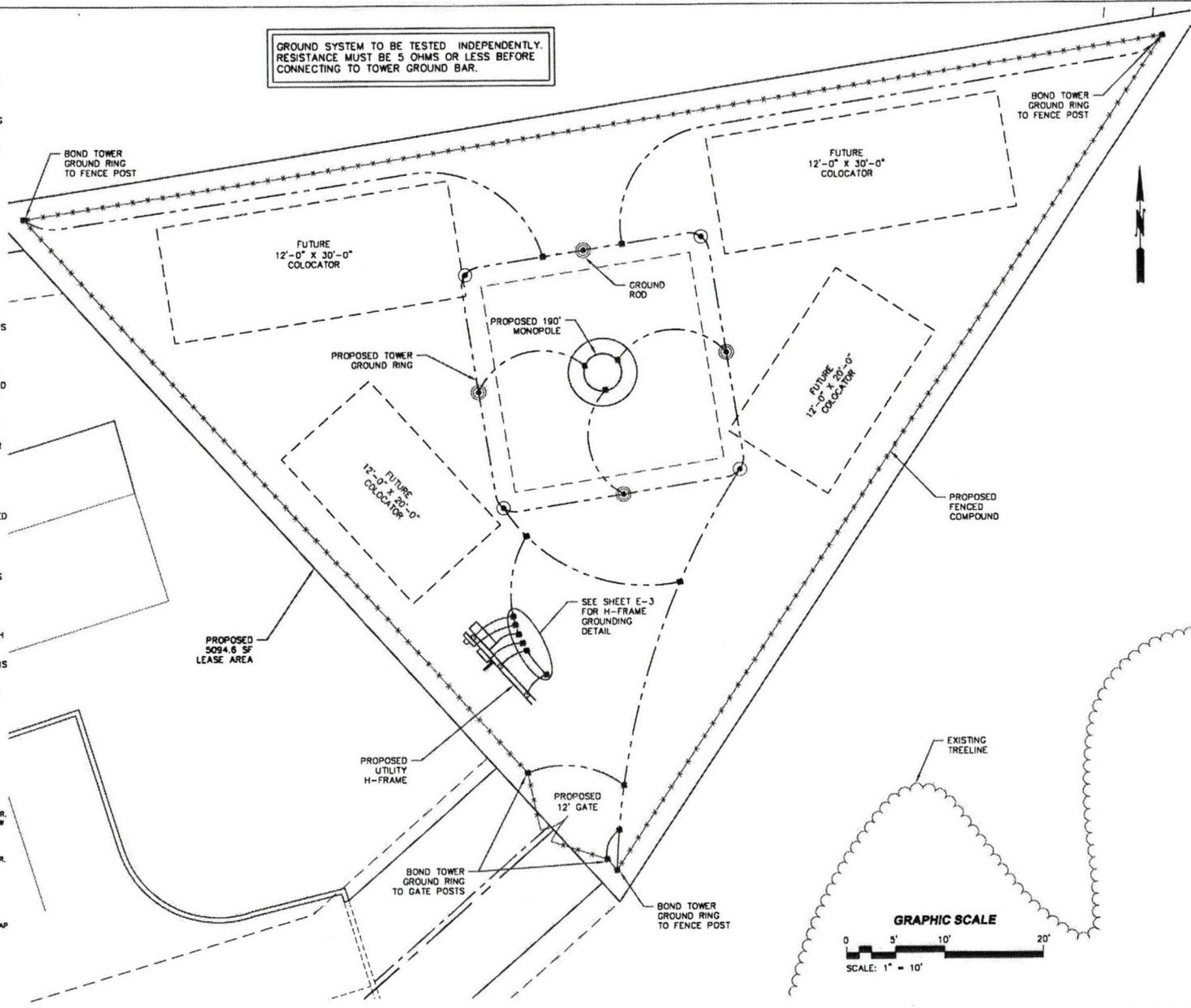
GROUNDING NOTES:

1. INSTALL GROUND RING 2'-0" FEET OUTSIDE OF SHELTER FOUNDATION AND 30" BELOW GRADE OR 6" BELOW FROST LINE WHICHEVER IS GREATER. GROUND RING CONSISTS OF #2 AWG SOLID BARE TINNED COPPER. AN ANTI-OXIDE COMPOUND SHALL BE APPLIED TO ALL EXTERIOR & ABOVE GRADE CONNECTIONS. INSTALL GROUND RING BEFORE FOUNDATION IS SET. GROUNDING INSTALLATION TO BE INSPECTED BY AT&T WIRELESS/TOWER ACCESS GROUP PRIOR TO BACKFILLING.
2. CADWELD ALL CONNECTIONS TO BURIED GROUND RING WITH PARALLEL WELDS. EXCEPTION: USE TEE WELDS FOR CONNECTIONS TO GROUND RODS.
3. GROUND ALL EXTERIOR EXPOSED METAL OBJECTS IN ACCORDANCE WITH SCOPE OF WORK AND PROJECT REQUIREMENTS.
4. MAKE ALL GROUNDING CONNECTIONS AS SHORT AS POSSIBLE. MINIMUM BENDING RADIUS IS 8".
5. CLEAN ALL SURFACES AND BRUSH WITH BRONZE BRUSH PRIOR TO MAKING GROUND CONNECTIONS. PAINT ALL EXOTHERMIC WELDS TO GALVANIZED OBJECTS WITH GALVANIZED PAINT.
6. PROVIDE #2 AWG SOLID TINNED COATED COPPER CONDUCTOR FROM THE TOWER BUS BAR TO THE BURIED GROUND RING. CADWELD TO GROUND RING AND TOWER EXIT GROUND BAR.
7. GROUND RODS SHALL BE 5/8" x 10'-0" COPPER CLAD. TOP OF RODS SHALL BE A MINIMUM OF 30" BELOW FINISHED GRADE OR 6" BELOW FROST LINE WHICHEVER IS GREATER IN LOCATIONS SHOWN ON PLAN. THEY WILL BE DRIVEN 10' MIN./15' MAX. CENTER LINE IN ALL GROUND TRENCHES.
8. ALL METALLIC OBJECTS SHALL BE BONDED TO THE GROUND RING. ALL EXPOSED GROUND LEADS SHALL BE PROTECTED AND SUPPORTED BY 3/4" NON METALLIC FLEX CONDUIT WITH CLICK-STRAP SUPPORTS EVERY 18" AND SEALED WITH SILICONE.
9. IF UNABLE TO ACHIEVE 5 OHMS OR LESS RESISTIVITY, TOWER ACCESS GROUP CONSTRUCTION SUPERVISORS MUST BE CONTACTED FOR RESOLUTION DESIGN APPROVAL.
10. A MAXIMUM OF 2 CONNECTIONS IN EACH INSPECTION SLEEVE.
11. ALL ABOVE GRADE GROUND CONNECTIONS TO BE IN NONMETALLIC CONDUIT.
12. CONTRACTOR TO PROVIDE FORTY-EIGHT (48) HOUR NOTICE FOR GROUND RING INSPECTION AND MEG TEST TO AT&T WIRELESS CONSTRUCTION MANAGER.

GROUND SYSTEM TO BE TESTED INDEPENDENTLY. RESISTANCE MUST BE 5 OHMS OR LESS BEFORE CONNECTING TO TOWER GROUND BAR.

GROUNDING SYMBOLS:

- #2 AWG SOLID TINNED COPPER. GROUND WIRE RUN 30" BELOW GRADE OR 6" BELOW FROST LINE WHICHEVER IS GREATER (SEE FROST LINE TABLE)
- #2 AWG SOLID TINNED COPPER. GROUND CABLE RUN ABOVE GRADE
- CADWELD
- GROUND ROD
- GROUND ROD/TEST LOOP INSPECTION SLEEVE (PAINT CAP ORANGE OR RED)



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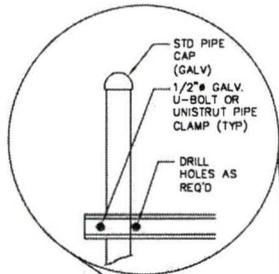
STATE OF KENTUCKY
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PHILIP G. HEID
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LICENSED PROFESSIONAL ENGINEER
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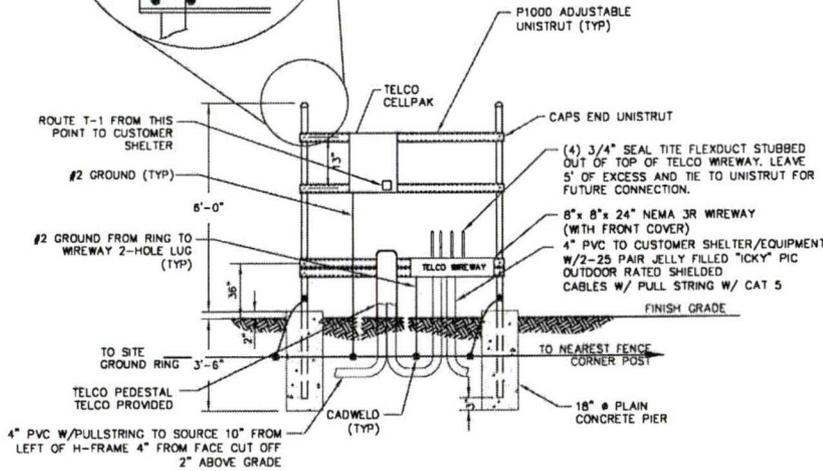
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2					

TITLE: GROUNDING PLAN

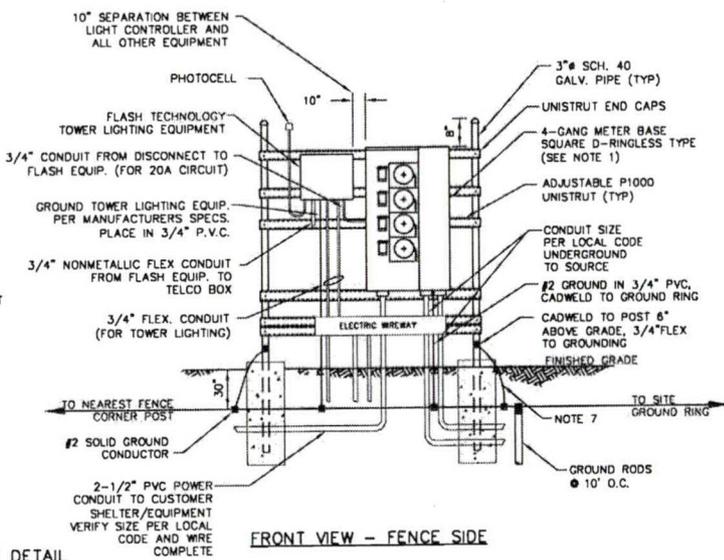
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NOTE: LEAVE 5' SERVICE LOOP EACH S.O. CORD IN WIREWAY.



REAR VIEW - COMPOUND SIDE



FRONT VIEW - FENCE SIDE

UTILITY H-FRAME DETAIL

NOTES:

1. ELECTRICAL SERVICE SHALL BE RATED 200A, 240/120V, 1Ø, 3W. COORDINATE METER CENTER ACCEPTABILITY W/ LOCAL UTILITY COMPANY PRIOR TO ORDERING AND INSTALLATION.
2. CONNECT NEUTRAL TERMINAL IN DISCONNECTING DEVICE TO GROUNDING ELECTRODE. (#6 AWG GROUNDING ELECTRODE IN 3/4" PVC CONDUIT)
3. PROVIDE GROUNDING ELECTRODE AND CONNECT TO METER AND SERVICE DISCONNECT PER NEC AND PER UTILITY COMPANY SPECIFICATIONS.
4. REFER TO ELECTRICAL SITE PLAN FOR CONDUIT AND WIRE REQUIREMENTS.
5. ALL EQUIPMENT SHALL BE GROUNDED PER LATEST EDITION OF NEC AND AS INDICATED ON GROUNDING PLAN.
6. ELECTRICAL EQUIPMENT SHALL BE MIN 3'-0" FROM ANY STRUCTURE AND AS REQUIRED BY LOCAL UTILITY COMPANIES.
7. #2 AWG BARE SOLID TINNED COPPER WIRE BONDED TO GROUNDING SYSTEM (TYP)
8. CONTRACTOR TO PROVIDE GROUND LEAD FOR CELLPAC. (COORDINATE WITH TELCO)
9. ALL ABOVE GRADE GROUND CONNECTIONS SHALL BE IN 3/4" NONMETALLIC FLEX CONDUIT.
10. LABEL ALL EQUIPMENT / BOXES ON H-FRAME WITH UV RATED LABELS.
11. INSTALL 8" x 8" x 24" NEMA 3R WIREWAY (WITH FRONT COVER) ON TELCO SIDE OF UTILITY H-FRAME.

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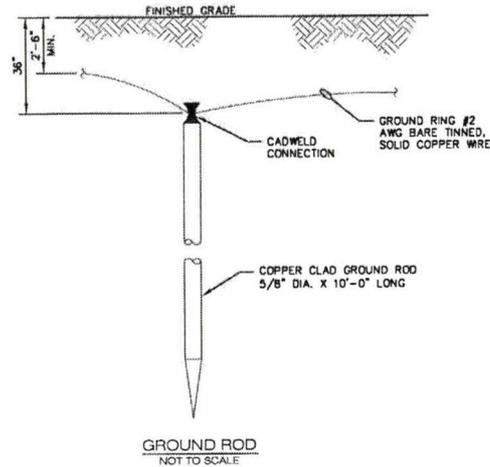
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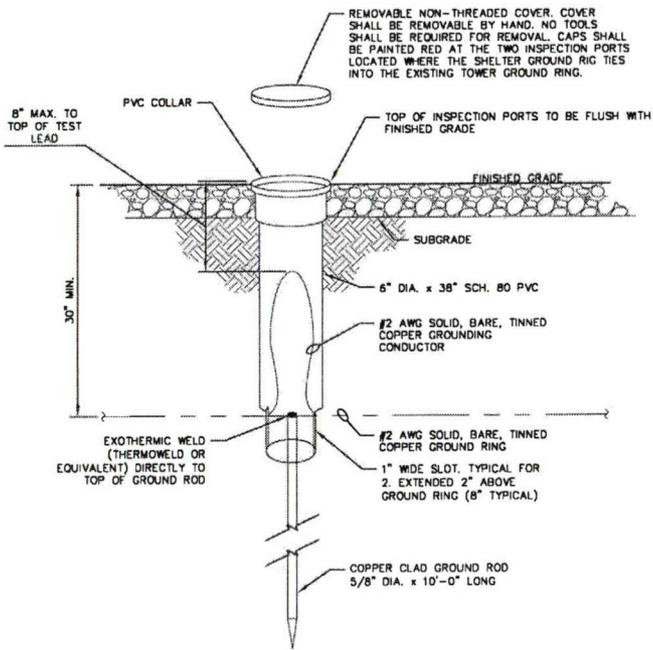
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TITLE: UTILITY H-FRAME

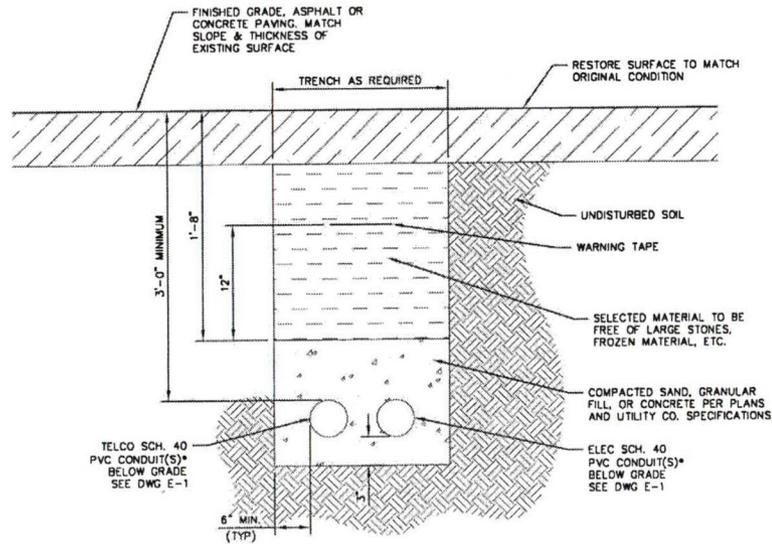
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GROUND ROD
NOT TO SCALE



TYP GROUND ROD WITH ACCESS
NOT TO SCALE



* SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY CO. REQUIREMENTS, SIZE AS REQUIRED

ELECTRIC/TELEPHONE TRENCH
NOT TO SCALE



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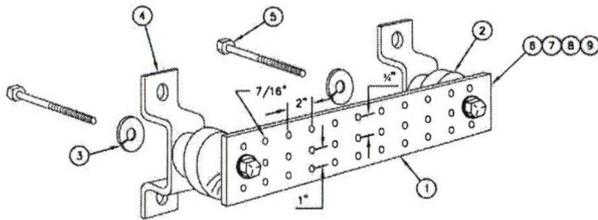


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TITLE: ELECTRICAL DETAILS

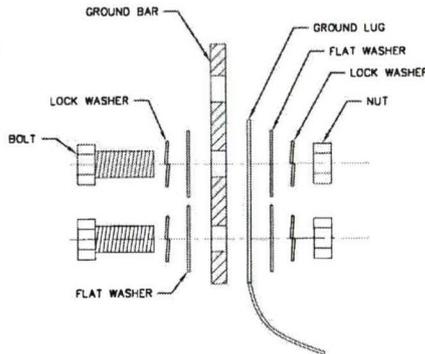
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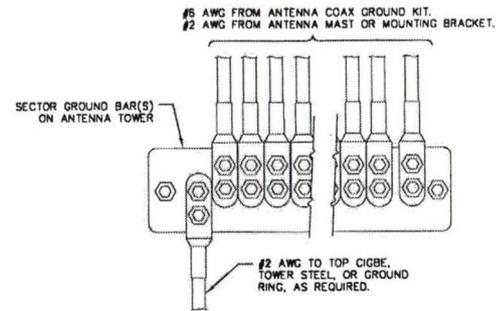
1. TIN COATED COPPER GROUND BAR, 1/4"x2"x20" MIN., NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CO. CAT. NO. 3061-4
3. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056
5. 5/8-11 x 1" H.H.C.S.BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1
6. GROUND BAR SHALL BE SIZED TO ACCOMMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY.
7. ANTI-OXIDATION COMPOUND (KOPR-SHIELD OR EQUAL) TO EXPOSED AREA GROUND BAR BEFORE MATING.
8. ALL HARDWARE SHALL BE 18-8 STAINLESS STEEL INCLUDING WASHERS.
9. DO NOT DRILL OR RE-DRILL HOLES IN TINNED COPPER GROUND BAR.

GROUND BAR
NOT TO SCALE



NOTE:
WHEN CONNECTING A GROUND LEAD TO ANY GROUND BAR, CONTRACTOR SHALL FOLLOW THIS SEQUENCE: BOLT HEAD, LOCK WASHER, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER, LOCK WASHER, AND THE NUT. CONTRACTOR SHALL NOT PLACE LOCK WASHER NEXT TO ANY TINNED SURFACE.

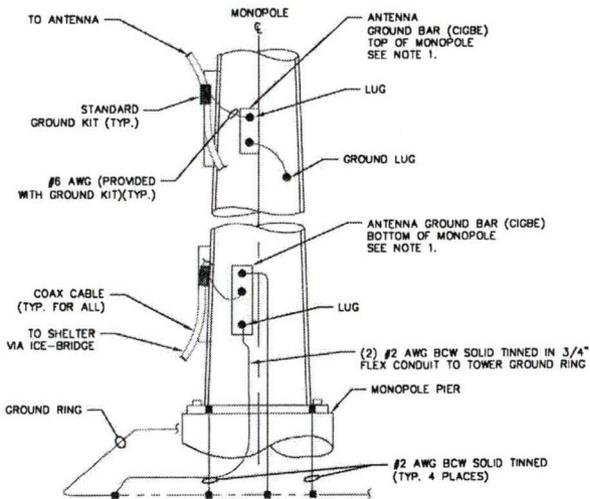
GROUND BAR CONNECTION DETAIL
NOT TO SCALE



NOTE:

1. TIN COATED COPPER GROUND BAR 1/4" x 4" x LENGTH AS REQUIRED TO ACCOMMODATE INSTALLED ANTENNA, PLUS 50% SPARE CAPACITY, NEWTON INSTRUMENT CO. OR EQUIVALENT. 2-HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. SIMILAR INSTALLATION FOR TOP AND BOTTOM TOWER GROUND BARS AND FOR COAX ENTRY PORT GROUND BARS.

GROUND WIRE INSTALLATION TO GROUND BAR
NOT TO SCALE



NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION, PROVIDE AS REQUIRED.
2. SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

ANTENNA CABLE GROUNDING - MONOPOLE
NOT TO SCALE

Big Ideas. Better.

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				10/07/14
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TITLE:

GROUNDING DETAILS

SHEET:

E-5

ELECTRICAL GENERAL NOTES:

1. MOUNT METER CENTER ASSEMBLY ON UTILITY H-FRAME ELECTRIC SIDE.
2. PROVIDE 1 - 4" TYPE "C" PVC TELCO CONDUIT WITH DETECTABLE PULL TAPE FROM TELCO SERVICE DROP AT TELCO PEDESTAL OR POLE TO TELCO BOX ON UTILITY H-FRAME TELCO SIDE.
3. PROVIDE EQUIPMENT WITH HIGHER FAULT CURRENT AS NEEDED TO MATCH AVAILABLE FAULT CURRENT.
4. ALL ELECTRICAL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC); USE EDITION ACCEPTED BY LOCAL JURISDICTION AND APPLICABLE LOCAL CODES.
5. ALL ELECTRICAL ITEMS SHALL BE UL APPROVED OR LISTED.
6. ALL WIRING SHALL BE COPPER THHN/THWN. GROUND WIRES SHALL BE AWG BARE SOLID TINNED COPPER UNLESS NOTED OTHERWISE.
7. CONDUCTORS SHALL BE INSTALLED IN GALVANIZED RIGID STEEL CONDUIT OR FLEXIBLE LIQUID TIGHT CONDUIT AS INDICATED ON DRAWING. SECURE AUTHORIZATION WITH BUILDING REPRESENTATIVE ON CONDUIT ROUTING.
8. CONTRACTOR SHALL OBTAIN ALL PERMITS AND INSPECTIONS, PAY PERMIT FEES AND SCHEDULE INSPECTIONS.
9. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL DESCRIBED ON THIS DRAWING, AND ALL ITEMS INCIDENTAL TO COMPLETING AND PRESENTING THE PROJECT AS FULLY OPERATIONAL.
10. UNDERGROUND GROUNDING CONNECTIONS SHALL BE EXOTHERMIC CAD WELDS. CONNECTIONS TO GROUND BARS/GROUND WELLS SHALL BE AS SHOWN. BOND TO ALL METAL OBJECTS WITHIN 6' OF GROUNDING CONDUCTOR.
11. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. VERIFY THE CONDUCTIVITY. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS. CONTRACTOR TO PROVIDE ALL OFFSETS AND ADDITIONAL SUPPORTS AS REQUIRED AT EQUIPMENT CABINET ENTRY.
12. PROVIDE GROUND WIRES, BARS/WELLS AND CONNECTIONS AS SHOWN ON THE GROUNDING PLAN AND GROUNDING DIAGRAM. TEST AND VERIFY THAT THE IMPEDANCE DOES NOT EXCEED 5 OHMS TO GROUND WITH THE USE OF A BIDDLE-MEGGER TESTER. GROUNDING AND OTHER OPERATIONAL TESTING SHALL BE WITNESSED BY THE OWNER'S REPRESENTATIVE.
13. NO 558 5/8" 10'-0" COPPERCLAD GROUND ROD SPACED AT 10' WITH EXOTHERMIC CAD WELD CONNECTION TYPE "GTC-1860" (MOLD#) AND "C-130" (WELD METAL SIZE ONE PER LOCATION), UNLESS GROUND WELLS SPECIFIED IN DESIGN, THEN REFER TO THE EQUIPMENT GROUNDING PLAN FOR ENGINEERS RECOMMENDATIONS.
14. #2 AWG SOLID TINNED COPPER WIRE BELOW GRADE TO BOND TO EACH TELEPHONE BUSS BAR.
15. #2 AWG SOLID TINNED COPPER WIRE BELOW GRADE TO BOND TO EACH ELECTRICAL SERVICE BUSS BAR.
16. #2 AWG SOLID TINNED COPPER WIRE TO TELEPHONE SERVICE AT UTILITY H-FRAME.
17. #1/0 AWG SOLID TINNED COPPER WIRE TO MAIN DISCONNECT SWITCH AND ELECTRIC BUSS BAR.
18. CAD WELD #2 AWG SOLID TINNED COPPER WIRE TO EACH TOWER LEG.
19. CAD WELD #2 AWG SOLID TINNED COPPER WIRE TO EACH FENCE CORNER POST 3" ABOVE GRADE.
20. BOND (2) #2 AWG SOLID TINNED COPPER WIRES TO GROUND BAR MOUNTED APPROXIMATELY 9'-0" ABOVE FINISHED GRADE ON TOWER LEG.
21. #2 AWG SOLID TINNED COPPER WIRE GROUND CONDUCTOR MUST BE A MINIMUM 30" BELOW GRADE AND A MINIMUM OF 18" FROM ALL OBJECTS UNLESS SPECIFIED OTHERWISE.
22. CONTRACTOR SHALL PROVIDE TWO (2) FLEXIBLE GROUND STRAPS; #2 AWG SOLID TINNED COPPER WIRE, ONE EACH CADWELDED TO EACH GATE SECTION AND THEIR CORRESPONDING GATE POST.

GROUNDING NOTES:

1. APPLY ANTIOXIDANT COMPOUND TO ALL GROUND BARS & GROUND CONNECTIONS. WIPE CLEAN ALL EXCESS.
2. MAKE ALL CONNECTIONS TO GROUND BAR OR METAL EQUIPMENT ENCLOSURES WITH TWO-HOLE COMPRESSION LUGS. (SEE DETAIL)
3. GROUNDING CONNECTORS SHALL BE COPPER. NUTS, BOLTS AND WASHERS SHALL BE STAINLESS STEEL.
4. ALL GROUND WIRE SHALL HAVE A MINIMUM BENDING RADIUS OF AT LEAST 12" OR MORE.

GROUND BAR NOTES:

1. THE SIZE OF THE GROUND BARS INSTALLED ON TOWERS SHALL BE 1/4" THICK, 4" WIDE, LENGTH AS REQUIRED. TOP OF TOWER BARS MAY BE SMALLER, BUT MUST PROVIDE FOR FULL POTENTIAL OF FUTURE CONNECTIONS.
2. THE LOWEST POINT OF THE GROUND BAR AT THE BOTTOM OF THE VERTICAL RUN SHOULD BE APPROXIMATELY ONE TO TWO FEET ABOVE THE WAVEGUIDE BRIDGE ICE SHIELD. TWO FEET IS THE MAXIMUM HEIGHT. THIS GROUND BAR SHOULD EXTEND APPROXIMATELY 6" BEYOND THE TOWER LEG TO FACILITATE WIRE ROUTING.
3. A MIDDLE OR INTERMEDIATE GROUND BAR WILL BE REQUIRED ON TRANSMISSION LINES GREATER THAN 200 FEET IN OVERALL LENGTH OR WHEN MICROWAVE IS PRESENT.
4. ALL TOWER TOP GROUND BARS SHALL BE BOLTED TO THE WAVEGUIDE LADDER OR TOWER LEGS, DEPENDING ON LOCATION WITH APPROVED GROUNDING CLAMPS. NO ANGLE ADAPTERS OR ROUND MEMBER CLAMPS ALLOWED.
5. THE BOTTOM GROUND BAR SHALL BE BONDED WITH TWO (2) #2 AWG SOLID TINNED COPPER WIRE TO THE TOWER GROUND RING USING THE EXOTHERMIC WELD PROCESS. THE LEAD MUST RUN AS DIRECT AND STRAIGHT AS POSSIBLE IN NON-METALLIC FLEX. EXCESSIVE FOUNDATION HEIGHT COULD REQUIRE 3/4" GROUND BAR INSTALLATION ABOVE 10-12 FEET, THIS CONNECTION MAY BE MADE DIRECTLY TO THE TOWER. THE FIELD CONSTRUCTION MANAGER MUST APPROVE THIS ALTERNATIVE.
6. THE MAIN REFERENCE GROUND BAR (MRGB) SHALL BE BONDED 6" IN FROM THE END WITH A #2 AWG SOLID TINNED COPPER WIRE TO THE GROUND RING SYSTEM USING MECHANICAL CRIMP LUGS.
7. THE MAIN REFERENCE GROUND BAR SHALL BE MOUNTED AND SUPPORTED FROM THE WAVEGUIDE ICE BRIDGE APPROXIMATELY 3 FEET FROM EQUIPMENT OR SHELTER AND BELOW THE LOWEST SET OF TRANSMISSION LINES.
8. ALL EXTERIOR TRANSMISSION LINE GROUNDS WILL HAVE INSULATED #6 AWG STRANDED SOLID COPPER CONDUCTORS WITH TWO HOLE COMPRESSION LUGS. GROUND CONDUCTORS MUST ALWAYS FALL DOWNWARD TO THE GROUND BAR CONNECTION.
9. THE GROUND BARS MUST BE CLEANED (ENSURE ANY OXIDATION, PAINT OR OTHER FOREIGN SUBSTANCES ARE REMOVED BEFORE INSTALLATION). THE POINTS OF CONNECTION MUST BE COATED WITH A CONDUCTIVE ANTI-OXIDATION MATERIAL. AFTER THE CONNECTIONS ARE MADE, THE GROUND BARS AND THEIR TERMINATIONS SHALL BE COATED WITH AN ANTIOXIDANT MATERIAL. WIPE CLEAN ALL EXCESS. UNLESS GROUND WELLS SPECIFIED IN DESIGN THEN SEE EQUIPMENT GROUNDING PLAN.
10. TRANSMISSION LINE GROUNDS SHALL HAVE 2 INCHES OF SLACK. THEY ARE NOT TO BE INSTALLED TIGHT TO ACCOMMODATE FOR MOVEMENT. ALL GROUND WIRE SHALL HAVE A MINIMUM BENDING RADIUS OF AT LEAST 12" OR MORE.
11. ALL CONNECTIONS TO GROUND BARS OR EQUIPMENT WITH TWO-HOLE COMPRESSION LUGS. GROUNDING CONNECTORS SHALL BE COPPER. NUTS, BOLTS, AND WASHERS SHALL BE STAINLESS STEEL.



BTM Engineering, Inc.
 CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS
 3000 TAYLOR SPRING DRIVE
 LOUISVILLE, KENTUCKY 40220
 PHONE: (502) 439-8400
 FAX: (502) 439-8427




SITE NAME: BROCKTON
 SITE NUMBER: KY-1002
 SITE ADDRESS: 100 DANIEL BOONE DR RICHMOND, KY 40475
 AREA: LEASE AREA = 5094.6 SQ. FT
 PROPERTY OWNER: EKL 521 LANCASTER AVE CPO COATES BLDG RICHMOND, KY 40475
 TAX MAP NUMBER: 0055-0000-0019 PARCEL NUMBER: 19
 SOURCE OF TITLE: DEED BOOK 97 PAGE 416
 LATITUDE: N 37°44'29.57" LONGITUDE: W 84°17'41.84"

REVISIONS	DATE	PH																		
																				PH
1	10/07/14	PH																		
2	11/19/14	PH																		

TITLE: ELECTRICAL & GROUNDING NOTES

SHEET: E-6



Structural Design Report

190' Monopole

Site: Brockton, KY

Prepared for: TOWER ACCESS GROUP

by: Sabre Towers & Poles™

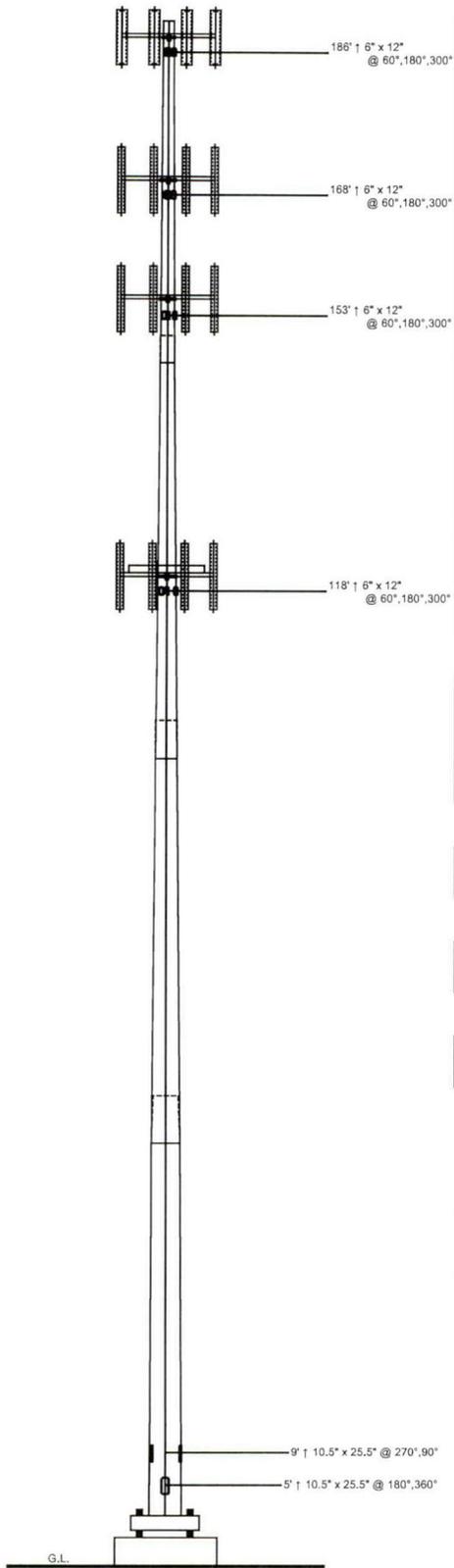
Job Number: 15-7820-JDS

February 11, 2015

Monopole Profile.....	1
Foundation Design Summary.....	2
Pole Calculations.....	3-13
Foundation Calculations.....	14-15



Section	1	2	3	4
Length (ft)	43'-0"	53'-6"	53'-6"	53'-3"
Number Of Sides				
Thickness (in)	1/4"	5/16"	3/8"	6'-0"
Lap Splice (ft)	A	4'-9"	6'-0"	41.27"
Top Diameter (in)	16"	23.4"	32.52"	51.92"
Bottom Diameter (in)	24.6"	34.1"	43.22"	
Taper (in/ft)			0.2	
Grade		A572-65		
Weight (lbs)	2681	5526	8630	12125



Designed Appurtenance Loading

Elev	Description	Tx-Line
190	L.P. Platform (Monopole Only) - 12'	
190	(1) 21in x 20in x 8in	(2) 1 5/8"
190	(1) FRIE	
190	(3) Frig RRUs	
190	(9) CMA-BDHH/6521/E0-6s	
190	(3) FXFBs	
170	L.P. Platform (Monopole Only) - 12'	
170	(9) RRHs	
170	(3) DC6-48-60-18-8Fs	(2) 1 5/8"
170	(12) 8' x 1' x 3in Panels	
155	L.P. Platform (Monopole Only) - 12'	
155	(9) RRHs	
155	(3) DC6-48-60-18-8Fs	(2) 1 5/8"
155	(12) 8' x 1' x 3in Panels	
120	L.P. Platform (Monopole Only) - 12' w/ Handrail	
120	(1) SBNH-1D8585C	
120	(2) RRUS A2 Modules	(2) 3/8"
120	(3) RRUS-32B30s	
120	(1) ATJB200-A01-00x	
120	(2) 72" x 28.5" x 9.6" Panels	
120	(7) SBNHH-1D65Cs	
120	(5) DC6-48-60-18-8Fs	(2) 1/2"
120	(21) RRUS 11s	(10) 7/8"

Load Case Reactions

Description	Axial (kips)	Shear (kips)	Moment (ft-k)	Deflection (ft)	Sway (deg)
3s Gusted Wind	48.9	32.2	4313	21.7	12.38
3s Gusted Wind 0.9 Dead	37	32.2	4215	21	11.96
3s Gusted Wind&Ice	61.3	3.4	433	2.1	1.18
Service Loads	39.7	8.1	1068	5.4	3.06

Base Plate Dimensions

Shape	Width	Thickness	Bolt Circle	Bolt Qty	Bolt Diameter
Square	58"	2.5"	58.5"	16	2.25"

Anchor Bolt Dimensions

Length	Diameter	Hole Diameter	Weight	Type	Finish
84"	2.25"	2.625"	2245	A615-75	Galv-18"

Material List

Display	Value
A	3' - 6"

Notes

- 1) Antenna Feed Lines Run Inside Pole
- 2) All dimensions are above ground level, unless otherwise specified.
- 3) Weights shown are estimates. Final weights may vary.
- 4) The Monopole was designed for a basic wind speed of 90 mph with 0" of radial ice, and 30 mph with 3/4" of radial ice, in accordance with ANSI/TIA-222-G, Structure Class II, Exposure Category C, Topographic Category 1.
- 5) Full Height Step Bolts



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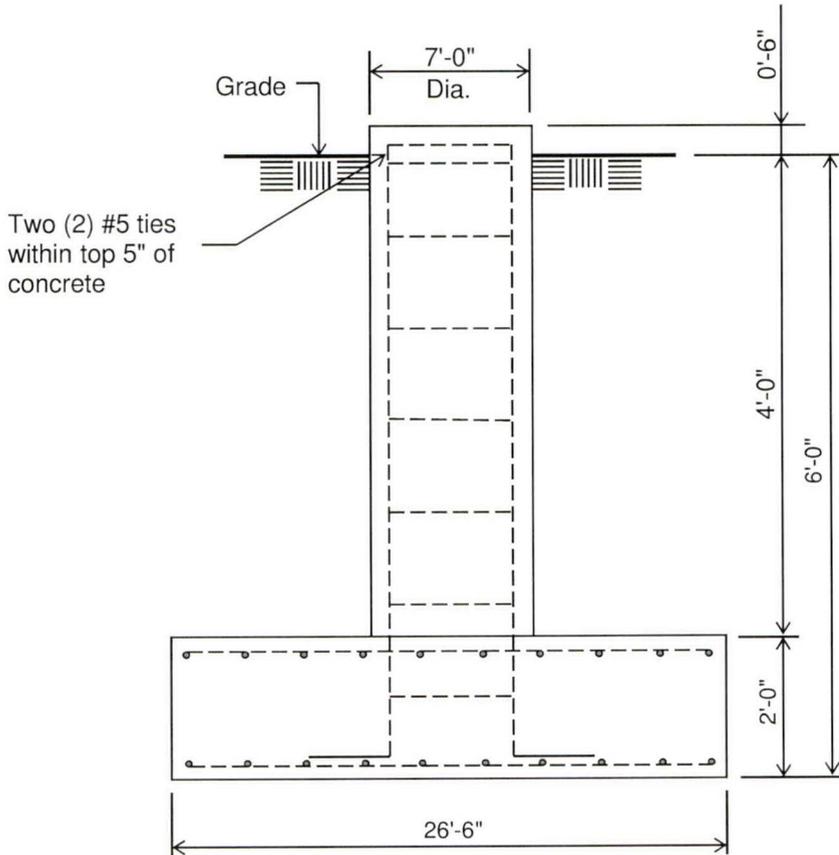
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Job: **15-7820-JDS**
 Customer: TOWER ACCESS GROUP
 Site Name: Brockton, KY
 Description: 190' Monopole
 Date: 2/11/2015 By: TTW

Customer: TOWER ACCESS GROUP

Site: Brockton, KY

190' Monopole at
90 mph Wind with no ice and 30 mph Wind with 0.75 in. Ice per ANSI/TIA-222-G.
Antenna Loading per Page 1



ELEVATION VIEW
(58.43 Cu. Yds. each)
(1 REQUIRED; NOT TO SCALE)

Notes:

- 1). Concrete shall have a minimum 28-day compressive strength of 4000 PSI, in accordance with ACI 318-05
- 2). Rebar to conform to ASTM specification A615 Grade 60.
- 3). All rebar to have a minimum of 3" concrete cover.
- 4). All exposed concrete corners to be chamfered 3/4".
- 5). The foundation design is based on the geotechnical report by Consulting Services Incorporated, Project No. LX140287, dated September 30, 2014.
- 6). See the geotechnical report for compaction requirements, if specified.
- 7). The foundation is based on the following factored loads:
Moment (kip-ft) = 4313.33
Axial (kips) = 48.93
Shear (kips) = 32.16

Rebar Schedule per Pad and Pier	
Pier	(36) #8 vertical rebar w/hooks at bottom w/#5 ties, two within top 5" of top of pier then 12" C/C
Pad	(29) #8 horizontal rebar evenly spaced each way top and bottom (116 Total)

8). This is a design drawing only. Please see final construction drawings for all installation details.

TOP	DIAMETER	16.00 in.	[16.25 in. Point-Point]
BOTTOM	DIAMETER	51.92 in.	[52.73 in. Point-Point]
POLE	HEIGHT	189.00 ft.	18 SIDED FLAT ORIENTATION
BASE	HEIGHT	1.00 ft.	ABOVE GROUND
E-MODULUS		29000 ksi	[12000 ksi SHEAR MODULUS]

APPURTENANCES

ATTACH POINTS:	NO.	X,ft	Qty	Description	Status
	1	187.00	1	User Defined Loading	Future Appurt
	2	186.90	1	User Defined Loading	Future Appurt
	3	169.00	1	User Defined Loading	Future Appurt
	4	154.00	1	User Defined Loading	Future Appurt
	5	119.00	1	User Defined Loading	Future Appurt
	6	118.90	1	User Defined Loading	Future Appurt
	7	118.90	1	User Defined Loading	Future Appurt

Some wind forces may have been derived from full-scale wind tunnel tests.

Pole Section	Bottom X,ft.	Thick in.	Connect Type	LAP in.	Taper in/ft	Length ft.	Weight lbs	Steel Spec	Pole Finish
1	43.00	.25000	SLIP-JNT	42.	.2000	43.00	2327	A572-65	GALVANIZE
2	93.00	.31250	SLIP-JNT	57.	.2000	53.50	5134	A572-65	GALVANIZE
3	141.75	.37500	SLIP-JNT	72.	.2000	53.50	8125	A572-65	GALVANIZE
4	189.00	.37500	C-WELD		.2000	53.25	9968	A572-65	GALVANIZE

SECTION PROPERTIES

X,ft	UP,ft	D,in	T,in	Area in ²	Iz in ⁴	IxIy in ⁴	SxSy in ³	w/t	d/t	F _y (ksi)	
189.00	.00	16.00	.2500	12.50	782	391	48.1	9.52	64.0	65.00	TOP
187.00	2.00	16.40	.2500	12.81	844	422	50.7	9.80	65.6	65.00	P01
186.90	2.10	16.42	.2500	12.83	848	424	50.9	9.82	65.7	65.00	P02
181.90	7.10	17.42	.2500	13.62	1016	508	57.4	10.52	69.7	65.00	
176.90	12.10	18.42	.2500	14.42	1202	601	64.3	11.23	73.7	65.00	
171.90	17.10	19.42	.2500	15.21	1412	706	71.6	11.93	77.7	65.00	
169.00	20.00	20.00	.2500	15.67	1544	772	76.0	12.34	80.0	65.00	P03
164.00	25.00	21.00	.2500	16.46	1790	895	83.9	13.05	84.0	65.00	
159.00	30.00	22.00	.2500	17.26	2062	1031	92.3	13.75	88.0	65.00	
154.00	35.00	23.00	.2500	18.05	2360	1180	101.0	14.46	92.0	65.00	P04
149.50	39.50	23.90	.2500	18.77	2652	1326	109.3	15.09	95.6	65.00	Slip-B01
146.00	43.00	24.10	.3125	23.59	3372	1686	137.8	11.84	77.1	65.00	Slip-T02
141.00	48.00	25.10	.3125	24.59	3816	1908	149.7	12.40	80.3	65.00	
136.00	53.00	26.10	.3125	25.58	4296	2148	162.1	12.96	83.5	65.00	
131.00	58.00	27.10	.3125	26.57	4818	2409	175.1	13.53	86.7	65.00	
126.00	63.00	28.10	.3125	27.56	5376	2688	188.4	14.09	89.9	65.00	
121.00	68.00	29.10	.3125	28.55	5978	2989	202.3	14.66	93.1	65.00	
119.00	70.00	29.50	.3125	28.95	6230	3115	208.0	14.88	94.4	65.00	P05
118.90	70.10	29.52	.3125	28.97	6242	3121	208.2	14.89	94.5	65.00	P06
118.90	70.10	29.52	.3125	28.97	6242	3121	208.2	14.89	94.5	65.00	P07
113.90	75.10	30.52	.3125	29.96	6906	3453	222.8	15.46	97.7	65.00	
108.90	80.10	31.52	.3125	30.95	7614	3807	237.9	16.02	100.9	65.00	
103.90	85.10	32.52	.3125	31.94	8372	4186	253.5	16.59	104.1	65.00	
100.75	88.25	33.15	.3125	32.57	8872	4436	263.6	16.94	106.1	65.00	Slip-B02
96.00	93.00	33.48	.3750	39.40	10904	5452	320.8	13.98	89.3	65.00	Slip-T03
91.00	98.00	34.48	.3750	40.59	11922	5961	340.6	14.45	91.9	65.00	
86.00	103.00	35.48	.3750	41.78	13002	6501	360.9	14.92	94.6	65.00	
81.00	108.00	36.48	.3750	42.97	14146	7073	381.9	15.39	97.3	65.00	
76.00	113.00	37.48	.3750	44.16	15354	7677	403.5	15.86	99.9	65.00	
71.00	118.00	38.48	.3750	45.35	16630	8315	425.7	16.33	102.6	65.00	
66.00	123.00	39.48	.3750	46.54	17974	8987	448.4	16.80	105.3	65.00	
61.00	128.00	40.48	.3750	47.73	19388	9694	471.7	17.27	107.9	65.00	
56.00	133.00	41.48	.3750	48.92	20874	10437	495.6	17.74	110.6	65.00	
53.25	135.75	42.03	.3750	49.57	21722	10861	509.0	18.00	112.1	65.00	Slip-B03
48.25	140.75	42.28	.3750	49.87	22118	11059	515.2	18.11	112.7	65.00	
47.25	141.75	42.48	.3750	50.11	22436	11218	520.2	18.21	113.3	65.00	Slip-T04
42.25	146.75	43.48	.3750	51.30	24072	12036	545.3	18.68	115.9	65.00	
37.25	151.75	44.48	.3750	52.49	25786	12893	571.0	19.15	118.6	65.00	
32.25	156.75	45.48	.3750	53.68	27582	13791	597.3	19.62	121.3	65.00	
27.25	161.75	46.48	.3750	54.87	29454	14727	624.1	20.09	123.9	65.00	
22.25	166.75	47.48	.3750	56.06	31414	15707	651.6	20.56	126.6	65.00	
17.25	171.75	48.48	.3750	57.25	33458	16729	679.7	21.03	129.3	65.00	
12.25	176.75	49.48	.3750	58.44	35588	17794	708.4	21.50	131.9	65.00	
7.25	181.75	50.48	.3750	59.63	37808	18904	737.7	21.97	134.6	65.00	

SABRE COMMUNICATIONS CORP

JOB: 15-07820

11-Feb-15 11:26

2101 Murray Street

TOWER ACCESS GROUP

Ph 712.258.6690

Sioux City, IA 51101

Brockton, KY

Fx 712.258.8250

2.25	186.75	51.48	.3750	60.82	40116	20058	767.5	22.44	137.3	65.00	
.00	189.00	51.93	.3750	61.35	41186	20593	781.1	22.65	138.5	65.00	BASE

SABRE COMMUNICATIONS CORP
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 Sioux City, IA 51101

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CASE - 1: 3s Gusted Wind

ANSI-TIA-222-G

WIND OLF	1.60	GUSTED WIND (3sec)	90.0 mph	144.8 kph
VERTICAL OLF	1.20	EXP-CAT/STRUC_CLASS	C-II	
DESIGN ICE	.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF (Cf)	.65	PRESSURE @ 32.7 ft	34.7 psf	1659.0 Pa
IMPORTANCE FAC (I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC (Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT	1			

APPURTENANCES

Sabre Areas

# Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE		WIND Psf	FORCES		MOM. Lg-X Ft-K
					Type	Qty #/Ft		Tra-Y Kips	Ax-Z Kips	
1	1 User Defined Loading	187.0	1239	90.2			50.1	4.52	-1.5	-.2
9	1 CMA-BDHH/6521/E0-6	189.0	62	.0	None	1	.00	50.2	.00	-.7
3	3 FXFB	189.0	55	.0	None	1	.00	50.2	.00	-.2
3	3 FRIG RRU	189.0	55	.0	None	1	.00	50.2	.00	-.2
2	1 User Defined Loading	186.9	0	.0			50.1	.00	.0	.0
1	1 21IN X 20IN X 8IN	189.0	30	.0	1 5/8"	2	1.04	50.2	.00	-.5
1	1 FRIE	189.0	22	.0	None	1	.00	50.2	.00	.0
3	1 User Defined Loading	169.0	1239	79.0			49.1	3.88	-1.5	-.2
12	12 8' X 1' X 3IN PANEL	169.0	80	.0	None	1	.00	49.1	.00	-1.2
3	3 DC6-48-60-18-8F	169.0	20	.0	1 5/8"	2	1.04	49.1	.00	-.5
9	9 RRH	169.0	44	.0	None	1	.00	49.1	.00	-.5
4	1 User Defined Loading	154.0	1239	79.0			48.1	3.80	-1.5	-.2
12	12 8' X 1' X 3IN PANEL	154.0	80	.0	None	1	.00	48.1	.00	-1.2
3	3 DC6-48-60-18-8F	154.0	20	.0	1 5/8"	2	1.04	48.1	.00	-.5
9	9 RRH	154.0	44	.0	None	1	.00	48.1	.00	-.5
5	1 User Defined Loading	119.0	1491	125.4			45.6	5.72	-1.8	-.3
7	7 SBNHH-1D65C	119.0	49	.0	None	1	.00	45.6	.00	-.4
2	2 72" X 28.5" X 9.6" PANEL	119.0	92	.0	None	1	.00	45.6	.00	-.2
21	21 RRUS 11	119.0	55	.0	7/8"	10	.54	45.6	.00	-2.2
6	1 User Defined Loading	118.9	0	.0			45.6	.00	.0	.0
5	5 DC6-48-60-18-8F	119.0	20	.0	1/2"	2	.40	45.6	.00	-.2
2	2 RRUS A2 MODULE	119.0	22	.0	7/16"	2	.27	45.6	.00	-.1
1	1 SBNH-1D8585C.	119.0	57	.0	None	1	.00	45.6	.00	-.1
7	1 User Defined Loading	118.9	0	.0			45.6	.00	.0	.0
1	1 ATJB200-A01-00X	119.0	4	.0	None	1	.00	45.6	.00	.0
3	3 RRUS-32B30	119.0	77	.0	None	1	.00	45.6	.00	-.3

RESULTS

X, ft	Kzt	WIND psf	ICE in	--- FORCES, kips ---			--- MOMENTS, ft-kips ---			F'y ksi	Inter 4.8.2
				ShearX	ShearY	Axiaz	BendX	BendY	TorqZ		
189.00	1.00	32.65	.00	.0	.01	-.1	.0	.0	.0	82.55	.000
187.00	1.00	32.58	.00	.0	5.03	-1.6	-.3	.0	.0	82.55	.003
186.90	1.00	32.57	.00	.0	5.33	-2.3	-.8	.0	.0	82.55	.005
181.90	1.00	32.39	.00	.0	5.62	-2.5	-27.5	.0	.0	82.55	.080
176.90	1.00	32.20	.00	.0	5.91	-2.8	-55.6	.0	.0	82.55	.142
171.90	1.00	32.01	.00	.0	6.15	-3.1	-85.2	.0	.0	82.55	.195
169.00	1.00	31.89	.00	.0	10.94	-6.1	-103.2	.0	.0	82.55	.225
164.00	1.00	31.69	.00	.0	11.25	-6.5	-157.9	.0	.0	82.55	.309
159.00	1.00	31.49	.00	.0	11.57	-6.9	-214.2	.0	.0	82.55	.380
154.00	1.00	31.28	.00	.0	16.31	-10.1	-272.3	.0	.0	82.55	.443
149.50	1.00	31.09	.00	.0	16.61	-10.8	-345.7	.0	.0	82.55	.519
146.00	1.00	30.93	.00	.0	16.94	-11.5	-403.8	.0	.0	82.55	.480
141.00	1.00	30.71	.00	.0	17.29	-12.2	-488.4	.0	.0	82.55	.534
136.00	1.00	30.48	.00	.0	17.62	-12.9	-574.8	.0	.0	82.55	.580
131.00	1.00	30.24	.00	.0	17.96	-13.5	-663.0	.0	.0	82.55	.619
126.00	1.00	29.99	.00	.0	18.30	-14.2	-752.8	.0	.0	82.55	.653
121.00	1.00	29.74	.00	.0	18.54	-14.7	-844.2	.0	.0	82.55	.681
119.00	1.00	29.64	.00	.0	24.95	-18.5	-881.7	.0	.0	82.55	.694
118.90	1.00	29.63	.00	.0	25.02	-19.0	-884.2	.0	.0	82.55	.695
118.90	1.00	29.63	.00	.0	25.22	-19.6	-884.2	.0	.0	82.55	.695
113.90	1.00	29.37	.00	.0	25.54	-20.4	-1010.0	.0	.0	82.55	.742
108.90	1.00	29.09	.00	.0	25.85	-21.2	-1137.5	.0	.0	82.55	.782
103.90	1.00	28.81	.00	.0	26.11	-22.0	-1267.5	.0	.0	81.87	.824
100.75	1.00	28.63	.00	.0	26.42	-23.2	-1349.2	.0	.0	81.46	.848
96.00	1.00	28.34	.00	.0	26.80	-24.6	-1475.0	.0	.0	82.55	.751
91.00	1.00	28.03	.00	.0	27.15	-25.8	-1609.2	.0	.0	82.55	.772
86.00	1.00	27.70	.00	.0	27.47	-26.9	-1745.0	.0	.0	82.55	.790
81.00	1.00	27.35	.00	.0	27.80	-27.9	-1881.7	.0	.0	82.55	.805
76.00	1.00	26.99	.00	.0	28.12	-29.0	-2020.8	.0	.0	82.55	.818
71.00	1.00	26.62	.00	.0	28.43	-30.1	-2161.7	.0	.0	82.18	.833

SABRE COMMUNICATIONS CORP

JOB: 15-07820

11-Feb-15 11:26

2101 Murray Street

TOWER ACCESS GROUP

Ph 712.258.6690

Sioux City, IA 51101

Brockton, KY

Ex 712.258.8250

66.00	1.00	26.22	.00	.0	28.75	-31.2	-2303.3	.0	.0	81.62	.848
61.00	1.00	25.79	.00	.0	29.06	-32.4	-2447.5	.0	.0	81.07	.863
56.00	1.00	25.34	.00	.0	29.30	-33.4	-2592.5	-.1	.0	80.52	.876
53.25	1.00	25.08	.00	.0	29.55	-34.8	-2673.3	-.1	.0	80.21	.883
48.25	1.00	24.57	.00	.0	29.74	-35.8	-2820.8	-.1	.0	80.08	.922
47.25	1.00	24.47	.00	.0	29.91	-36.8	-2850.8	-.1	.0	79.96	.924
42.25	1.00	23.91	.00	.0	30.18	-38.3	-3000.0	-.1	.0	79.41	.934
37.25	1.00	23.30	.00	.0	30.43	-39.6	-3151.7	-.1	.0	78.86	.944
32.25	1.00	22.62	.00	.0	30.66	-40.8	-3303.3	-.1	.0	78.30	.953
27.25	1.00	21.86	.00	.0	30.90	-42.1	-3456.7	-.1	.0	77.75	.961
22.25	1.00	20.98	.00	.0	31.14	-43.5	-3610.8	-.1	.0	77.20	.968
17.25	1.00	19.94	.00	.0	31.37	-44.8	-3766.7	-.1	.0	76.64	.976
12.25	1.00	19.16	.00	.0	31.61	-46.2	-3924.2	-.1	.0	76.09	.983
7.25	1.00	19.16	.00	.0	31.85	-47.6	-4081.7	-.1	.0	75.54	.989
2.25	1.00	19.16	.00	.0	32.02	-48.6	-4240.8	-.1	.0	74.98	.995
.00	1.00	19.16	.00	.0	32.11	-48.9	4313.3	.1	.0	74.73	.997

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees			
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result
189.00	.00	21.88	-1.73	21.88<11.57%>	-12.49	.00	.00	12.49

SABRE COMMUNICATIONS CORP
 2101 Murray Street
 Sioux City, IA 51101

JOB: 15-07820
TOWER ACCESS GROUP
 Brockton, KY

11-Feb-15 11:26
 Ph 712.258.6690
 Fx 712.258.8250

CASE - 2: 3s Gusted Wind 0.9 Dead

ANSI-TIA-222-G

WIND OLF	1.60	GUSTED WIND (3sec)	90.0 mph	144.8 kph
VERTICAL OLF	.90	EXP-CAT/STRUC_CLASS	C-II	
DESIGN ICE	.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF (Cf)	.65	PRESSURE @ 32.7 ft	34.7 psf	1659.0 Pa
IMPORTANCE FAC (I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC (Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT	1			

APPURTENANCES

Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE		WIND Psf	FORCES		MOM. Lg-X Ft-K
						Type	Qty #/Ft		Tra-Y Kips	Ax-Z Kips	
1	1	User Defined Loading	187.0	1239	90.2			50.1	4.52	-1.1	-.2
	9	CMA-BDHH/6521/E0-6	189.0	62	.0	None	1 .00	50.2	.00	-.5	
	3	FXFB	189.0	55	.0	None	1 .00	50.2	.00	-.1	
	3	FRIG RRU	189.0	55	.0	None	1 .00	50.2	.00	-.1	
2	1	User Defined Loading	186.9	0	.0			50.1	.00	.0	.0
	1	21IN X 20IN X 8IN	189.0	30	.0	1 5/8"	2 1.04	50.2	.00	-.4	
	1	FRIE	189.0	22	.0	None	1 .00	50.2	.00	.0	
3	1	User Defined Loading	169.0	1239	79.0			49.1	3.88	-1.1	-.2
	12	8' X 1' X 3IN PANEL	169.0	80	.0	None	1 .00	49.1	.00	-.9	
	3	DC6-48-60-18-8F	169.0	20	.0	1 5/8"	2 1.04	49.1	.00	-.4	
	9	RRH	169.0	44	.0	None	1 .00	49.1	.00	-.4	
4	1	User Defined Loading	154.0	1239	79.0			48.1	3.80	-1.1	-.2
	12	8' X 1' X 3IN PANEL	154.0	80	.0	None	1 .00	48.1	.00	-.9	
	3	DC6-48-60-18-8F	154.0	20	.0	1 5/8"	2 1.04	48.1	.00	-.3	
	9	RRH	154.0	44	.0	None	1 .00	48.1	.00	-.4	
5	1	User Defined Loading	119.0	1491	125.4			45.6	5.72	-1.3	-.3
	7	SBNHH-1D65C	119.0	49	.0	None	1 .00	45.6	.00	-.3	
	2	72" X 28.5" X 9.6" PANEL	119.0	92	.0	None	1 .00	45.6	.00	-.2	
	21	RRUS 11	119.0	55	.0	7/8"	10 .54	45.6	.00	-1.6	
6	1	User Defined Loading	118.9	0	.0			45.6	.00	.0	.0
	5	DC6-48-60-18-8F	119.0	20	.0	1/2"	2 .40	45.6	.00	-.2	
	2	RRUS A2 MODULE	119.0	22	.0	7/16"	2 .27	45.6	.00	-.1	
	1	SBNH-1D8585C.	119.0	57	.0	None	1 .00	45.6	.00	-.1	
7	1	User Defined Loading	118.9	0	.0			45.6	.00	.0	.0
	1	ATJB200-A01-00X	119.0	4	.0	None	1 .00	45.6	.00	.0	
	3	RRUS-32B30	119.0	77	.0	None	1 .00	45.6	.00	-.2	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES, kips			MOMENTS, ft-kips			F'y ksi	Inter 4.8.2
				ShearX	ShearY	AxialZ	BendX	BendY	TorqZ		
189.00	1.00	32.65	.00	.0	.01	.0	.0	.0	.0	82.55	.000
187.00	1.00	32.58	.00	.0	4.88	-1.0	-.3	.0	.0	82.55	.002
186.90	1.00	32.57	.00	.0	5.14	-1.5	-.8	.0	.0	82.55	.004
181.90	1.00	32.39	.00	.0	5.41	-1.7	-26.5	.0	.0	82.55	.076
176.90	1.00	32.20	.00	.0	5.69	-1.9	-53.6	.0	.0	82.55	.137
171.90	1.00	32.01	.00	.0	5.92	-2.1	-82.1	.0	.0	82.55	.187
169.00	1.00	31.89	.00	.0	10.50	-4.2	-99.4	.0	.0	82.55	.215
164.00	1.00	31.69	.00	.0	10.80	-4.5	-151.9	.0	.0	82.55	.296
159.00	1.00	31.49	.00	.0	11.11	-4.8	-205.9	.0	.0	82.55	.364
154.00	1.00	31.28	.00	.0	15.66	-7.1	-261.8	.0	.0	82.55	.424
149.50	1.00	31.09	.00	.0	15.94	-7.6	-332.2	.0	.0	82.55	.497
146.00	1.00	30.93	.00	.0	16.26	-8.2	-388.0	.0	.0	82.55	.460
141.00	1.00	30.71	.00	.0	16.60	-8.7	-469.3	.0	.0	82.55	.511
136.00	1.00	30.48	.00	.0	16.94	-9.2	-552.3	.0	.0	82.55	.555
131.00	1.00	30.24	.00	.0	17.28	-9.7	-637.0	.0	.0	82.55	.593
126.00	1.00	29.99	.00	.0	17.62	-10.3	-723.3	.0	.0	82.55	.625
121.00	1.00	29.74	.00	.0	17.87	-10.7	-811.5	.0	.0	82.55	.653
119.00	1.00	29.64	.00	.0	24.10	-13.3	-847.5	.0	.0	82.55	.665
118.90	1.00	29.63	.00	.0	24.15	-13.7	-850.0	.0	.0	82.55	.666
118.90	1.00	29.63	.00	.0	24.35	-14.2	-850.0	.0	.0	82.55	.666
113.90	1.00	29.37	.00	.0	24.68	-14.8	-971.7	.0	.0	82.55	.711
108.90	1.00	29.09	.00	.0	25.02	-15.5	-1095.0	.0	.0	82.55	.751
103.90	1.00	28.81	.00	.0	25.30	-16.1	-1220.0	.0	.0	81.87	.791
100.75	1.00	28.63	.00	.0	25.61	-17.0	-1300.0	.0	.0	81.46	.815
96.00	1.00	28.34	.00	.0	26.00	-18.1	-1421.7	.0	.0	82.55	.722
91.00	1.00	28.03	.00	.0	26.37	-19.1	-1551.7	.0	.0	82.55	.743
86.00	1.00	27.70	.00	.0	26.72	-19.9	-1683.3	.0	.0	82.55	.760
81.00	1.00	27.35	.00	.0	27.07	-20.7	-1816.7	.0	.0	82.55	.775
76.00	1.00	26.99	.00	.0	27.42	-21.5	-1952.5	.0	.0	82.55	.788
71.00	1.00	26.62	.00	.0	27.77	-22.4	-2089.2	.0	.0	82.18	.803

SABRE COMMUNICATIONS CORP	JOB: 15-07820	11-Feb-15 11:26
2101 Murray Street	TOWER ACCESS GROUP	Ph 712.258.6690
Sioux City, IA 51101	Brockton, KY	Fx 712.258.8250

66.00	1.00	26.22	.00	.0	28.12	-23.3	-2228.3	.0	.0	81.62	.819
61.00	1.00	25.79	.00	.0	28.46	-24.2	-2369.2	.0	.0	81.07	.833
56.00	1.00	25.34	.00	.0	28.74	-25.0	-2510.8	-.1	.0	80.52	.846
53.25	1.00	25.08	.00	.0	29.01	-26.0	-2590.0	-.1	.0	80.21	.853
48.25	1.00	24.57	.00	.0	29.22	-26.8	-2735.0	-.1	.0	80.08	.892
47.25	1.00	24.47	.00	.0	29.42	-27.6	-2764.2	-.1	.0	79.96	.894
42.25	1.00	23.91	.00	.0	29.73	-28.8	-2911.7	-.1	.0	79.41	.905
37.25	1.00	23.30	.00	.0	30.03	-29.7	-3060.0	-.1	.0	78.86	.914
32.25	1.00	22.62	.00	.0	30.32	-30.7	-3210.0	-.1	.0	78.30	.923
27.25	1.00	21.86	.00	.0	30.61	-31.7	-3361.7	-.1	.0	77.75	.932
22.25	1.00	20.98	.00	.0	30.91	-32.8	-3515.0	-.1	.0	77.20	.940
17.25	1.00	19.94	.00	.0	31.21	-33.8	-3669.2	-.1	.0	76.64	.948
12.25	1.00	19.16	.00	.0	31.51	-34.9	-3825.8	-.1	.0	76.09	.955
7.25	1.00	19.16	.00	.0	31.81	-36.0	-3983.3	-.1	.0	75.54	.962
2.25	1.00	19.16	.00	.0	32.03	-36.7	-4142.5	-.1	.0	74.98	.969
.00	1.00	19.16	.00	.0	32.12	-37.0	4214.2	.1	.0	74.73	.972

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees			
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result
189.00	.00	21.18	-1.62	21.18<11.21%>	-12.07	.00	.00	12.07

SABRE COMMUNICATIONS CORP
 2101 Murray Street
 Sioux City, IA 51101

JOB: 15-07820
TOWER ACCESS GROUP
 Brockton, KY

11-Feb-15 11:26
 Ph 712.258.6690
 Fx 712.258.8250

CASE - 3: 3s Gusted Wind&Ice

ANSI-TIA-222-G

WIND OLF	1.00	GUSTED WIND (3sec)	30.0 mph	48.3 kph
VERTICAL OLF	1.20	EXP-CAT/STRUC_CLASS	C-II	
DESIGN ICE	.75 in	EXP-POWER COEFF.	.2105	
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF (Cf)	1.20	PRESSURE @ 32.7 ft	2.4 psf	115.2 Pa
IMPORTANCE FAC (I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC (Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT	1			

APPURTENANCES

Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE		WIND Psf	FORCES		MOM. Lg-X Ft-K
						Type	Qty #/Ft		Tra-Y Kips	Ax-Z Kips	
1	1	User Defined Loading	187.0	1362	99.2			3.5	.35	-1.6	.0
	9	CMA-BDHH/6521/E0-6	189.0	120	.0	None	1 .00	3.5	.00	-7	
	3	FXFB	189.0	74	.0	None	1 .00	3.5	.00	-2	
	3	FRIG RRU	189.0	74	.0	None	1 .00	3.5	.00	-2	
2	1	User Defined Loading	186.9	0	.0			3.5	.00	.0	.0
	1	21IN X 20IN X 8IN	189.0	55	.0	1 5/8"	2 1.04	3.5	.00	-5	
	1	FRIE	189.0	44	.0	None	1 .00	3.5	.00	.0	
3	1	User Defined Loading	169.0	1362	86.9			3.4	.30	-1.6	.0
	12	8' X 1' X 3IN PANEL	169.0	131	.0	None	1 .00	3.4	.00	-1.2	
	3	DC6-48-60-18-8F	169.0	39	.0	1 5/8"	2 1.04	3.4	.00	-5	
	9	RRH	169.0	50	.0	None	1 .00	3.4	.00	-5	
4	1	User Defined Loading	154.0	1362	86.9			3.3	.29	-1.6	.0
	12	8' X 1' X 3IN PANEL	154.0	131	.0	None	1 .00	3.3	.00	-1.2	
	3	DC6-48-60-18-8F	154.0	39	.0	1 5/8"	2 1.04	3.3	.00	-5	
	9	RRH	154.0	50	.0	None	1 .00	3.3	.00	-5	
5	1	User Defined Loading	119.0	1640	138.0			3.2	.44	-2.0	.0
	7	SBNHH-1D65C	119.0	115	.0	None	1 .00	3.2	.00	-4	
	2	72" X 28.5" X 9.6" PANEL	119.0	192	.0	None	1 .00	3.2	.00	-2	
	21	RRUS 11	119.0	74	.0	7/8"	10 .54	3.2	.00	-2.2	
6	1	User Defined Loading	118.9	0	.0			3.2	.00	.0	.0
	5	DC6-48-60-18-8F	119.0	39	.0	1/2"	2 .40	3.2	.00	-2	
	2	RRUS A2 MODULE	119.0	32	.0	7/16"	2 .27	3.2	.00	-1	
	1	SBNH-1D8585C.	119.0	112	.0	None	1 .00	3.2	.00	-1	
7	1	User Defined Loading	118.9	0	.0			3.2	.00	.0	.0
	1	ATJB200-A01-00X	119.0	6	.0	None	1 .00	3.2	.00	.0	
	3	RRUS-32B30	119.0	104	.0	None	1 .00	3.2	.00	-3	

RESULTS

X, ft	Kzt	WIND psf	ICE in	--- FORCES, kips ---			--- MOMENTS, ft-kips ---			F'y ksi	Inter 4.8.2
				ShearX	ShearY	AxiaZ	BendX	BendY	TorqZ		
189.00	1.00	4.19	1.79	.0	.00	-1	.0	.0	.0	82.55	.000
187.00	1.00	4.18	1.79	.0	.41	-2.9	.0	.0	.0	82.55	.003
186.90	1.00	4.18	1.78	.0	.45	-3.6	-1	.0	.0	82.55	.004
181.90	1.00	4.15	1.78	.0	.50	-4.1	-2.3	.0	.0	82.55	.011
176.90	1.00	4.13	1.78	.0	.55	-4.6	-4.8	.0	.0	82.55	.017
171.90	1.00	4.10	1.77	.0	.59	-5.1	-7.6	.0	.0	82.55	.022
169.00	1.00	4.09	1.77	.0	1.00	-9.3	-9.3	.0	.0	82.55	.028
164.00	1.00	4.06	1.76	.0	1.05	-9.8	-14.3	.0	.0	82.55	.036
159.00	1.00	4.04	1.76	.0	1.10	-10.5	-19.5	.0	.0	82.55	.042
154.00	1.00	4.01	1.75	.0	1.51	-14.8	-25.0	.0	.0	82.55	.051
149.50	1.00	3.99	1.75	.0	1.55	-15.6	-31.8	.0	.0	82.55	.058
146.00	1.00	3.97	1.74	.0	1.60	-16.5	-37.3	.0	.0	82.55	.053
141.00	1.00	3.94	1.74	.0	1.65	-17.4	-45.3	.0	.0	82.55	.058
136.00	1.00	3.91	1.73	.0	1.71	-18.3	-53.5	.0	.0	82.55	.063
131.00	1.00	3.88	1.72	.0	1.76	-19.1	-62.1	.0	.0	82.55	.067
126.00	1.00	3.85	1.72	.0	1.81	-20.0	-70.8	.0	.0	82.55	.070
121.00	1.00	3.81	1.71	.0	1.85	-20.6	-79.9	.0	.0	82.55	.073
119.00	1.00	3.80	1.71	.0	2.36	-25.6	-83.6	.0	.0	82.55	.077
118.90	1.00	3.80	1.71	.0	2.37	-26.0	-83.8	.0	.0	82.55	.077
118.90	1.00	3.80	1.71	.0	2.40	-26.8	-83.8	.0	.0	82.55	.077
113.90	1.00	3.77	1.70	.0	2.45	-27.7	-95.8	.0	.0	82.55	.082
108.90	1.00	3.73	1.69	.0	2.50	-28.7	-108.1	.0	.0	82.55	.086
103.90	1.00	3.69	1.68	.0	2.54	-29.6	-120.5	.0	.0	81.87	.090
100.75	1.00	3.67	1.68	.0	2.58	-30.9	-128.5	.0	.0	81.46	.093
96.00	1.00	3.63	1.67	.0	2.63	-32.6	-140.8	.0	.0	82.55	.082
91.00	1.00	3.59	1.66	.0	2.68	-34.0	-153.9	.0	.0	82.55	.084
86.00	1.00	3.55	1.65	.0	2.73	-35.2	-167.3	.0	.0	82.55	.086
81.00	1.00	3.51	1.64	.0	2.78	-36.5	-181.0	.0	.0	82.55	.088
76.00	1.00	3.46	1.63	.0	2.83	-37.8	-194.9	.0	.0	82.55	.090
71.00	1.00	3.41	1.62	.0	2.88	-39.1	-209.1	.0	.0	82.18	.091

SABRE COMMUNICATIONS CORP

JOB: 15-07820

11-Feb-15 11:26

2101 Murray Street

TOWER ACCESS GROUP

Ph 712.258.6690

Sioux City, IA 51101

Brockton, KY

Fx 712.258.8250

66.00	1.00	3.36	1.61	.0	2.92	-40.4	-223.4	.0	.0	81.62	.093
61.00	1.00	3.31	1.60	.0	2.97	-41.8	-238.1	.0	.0	81.07	.095
56.00	1.00	3.25	1.58	.0	3.00	-43.1	-252.9	.0	.0	80.52	.097
53.25	1.00	3.21	1.58	.0	3.04	-44.6	-261.2	.0	.0	80.21	.098
48.25	1.00	3.15	1.56	.0	3.07	-45.7	-276.3	.0	.0	80.08	.102
47.25	1.00	3.14	1.56	.0	3.09	-46.9	-279.4	.0	.0	79.96	.103
42.25	1.00	3.07	1.54	.0	3.13	-48.7	-294.9	.0	.0	79.41	.104
37.25	1.00	2.99	1.52	.0	3.17	-50.2	-310.6	.0	.0	78.86	.105
32.25	1.00	2.90	1.50	.0	3.20	-51.7	-326.4	.0	.0	78.30	.107
27.25	1.00	2.80	1.48	.0	3.24	-53.3	-342.4	.0	.0	77.75	.108
22.25	1.00	2.69	1.45	.0	3.27	-54.9	-358.6	.0	.0	77.20	.109
17.25	1.00	2.56	1.41	.0	3.31	-56.5	-375.0	.0	.0	76.64	.110
12.25	1.00	2.46	1.37	.0	3.34	-58.1	-391.5	.0	.0	76.09	.111
7.25	1.00	2.46	1.31	.0	3.38	-59.7	-408.3	.0	.0	75.54	.112
2.25	1.00	2.46	1.19	.0	3.40	-60.9	-425.1	.0	.0	74.98	.113
.00	1.00	2.46	1.06	.0	3.41	-61.2	432.8	.0	.0	74.73	.114

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees			
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result
189.00	.00	2.13	-.02	2.13< 1.13%>	-1.19	.00	.00	1.19

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CASE - 4: Service Loads

ANSI-TIA-222-G

WIND OLF	1.00	GUSTED WIND (3sec)	60.0 mph	96.6 kph
VERTICAL OLF	1.00	EXP-CAT/STRUC_CLASS	C-II	
DESIGN ICE	.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF (Cf)	.65	PRESSURE @ 32.7 ft	8.6 psf	412.3 Pa
IMPORTANCE FAC (I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC (Kd)	.85	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT	1			

APPURTENANCES

Sabre Areas

# Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE		WIND Psf	FORCES		MOM. Lg-X Ft-K
					Type	Qty #/Ft		Tra-Y Kips	Ax-Z Kips	
1	1 User Defined Loading	187.0	1239	90.2			12.5	1.12	-1.2	-.1
9	CMA-BDHH/6521/E0-6	189.0	62	.0	None	1	.00	12.5	.00	-.6
3	FXFB	189.0	55	.0	None	1	.00	12.5	.00	-.2
3	FRIG RRU	189.0	55	.0	None	1	.00	12.5	.00	-.2
2	1 User Defined Loading	186.9	0	.0			12.5	.00	.0	.0
1	21IN X 20IN X 8IN	189.0	30	.0	1 5/8"	2	1.04	12.5	.00	-.4
1	FRIE	189.0	22	.0	None	1	.00	12.5	.00	.0
3	1 User Defined Loading	169.0	1239	79.0			12.2	.96	-1.2	.0
12	8' X 1' X 3IN PANEL	169.0	80	.0	None	1	.00	12.2	.00	-1.0
3	DC6-48-60-18-8F	169.0	20	.0	1 5/8"	2	1.04	12.2	.00	-.4
9	RRH	169.0	44	.0	None	1	.00	12.2	.00	-.4
4	1 User Defined Loading	154.0	1239	79.0			12.0	.94	-1.2	.0
12	8' X 1' X 3IN PANEL	154.0	80	.0	None	1	.00	12.0	.00	-1.0
3	DC6-48-60-18-8F	154.0	20	.0	1 5/8"	2	1.04	12.0	.00	-.4
9	RRH	154.0	44	.0	None	1	.00	12.0	.00	-.4
5	1 User Defined Loading	119.0	1491	125.4			11.3	1.42	-1.5	-.1
7	SBNHH-1D65C	119.0	49	.0	None	1	.00	11.3	.00	-.3
2	72" X 28.5" X 9.6" PANEL	119.0	92	.0	None	1	.00	11.3	.00	-.2
21	RRUS 11	119.0	55	.0	7/8"	10	.54	11.3	.00	-1.8
6	1 User Defined Loading	118.9	0	.0			11.3	.00	.0	.0
5	DC6-48-60-18-8F	119.0	20	.0	1/2"	2	.40	11.3	.00	-.2
2	RRUS A2 MODULE	119.0	22	.0	7/16"	2	.27	11.3	.00	-.1
1	SBNH-1D8585C.	119.0	57	.0	None	1	.00	11.3	.00	-.1
7	1 User Defined Loading	118.9	0	.0			11.3	.00	.0	.0
1	ATJB200-A01-00X	119.0	4	.0	None	1	.00	11.3	.00	.0
3	RRUS-32B30	119.0	77	.0	None	1	.00	11.3	.00	-.2

RESULTS

X, ft	Kzt	WIND psf	ICE in	--- FORCES, kips ---			--- MOMENTS, ft-kips ---			F'y ksi	Inter 4.8.2
				ShearX	ShearY	AxiaZ	BendX	BendY	TorqZ		
189.00	1.00	8.11	.00	.0	.00	.0	.0	.0	.0	82.55	.000
187.00	1.00	8.10	.00	.0	1.25	-2.2	-.1	.0	.0	82.55	.003
186.90	1.00	8.10	.00	.0	1.32	-2.7	-.2	.0	.0	82.55	.004
181.90	1.00	8.05	.00	.0	1.39	-2.9	-6.8	.0	.0	82.55	.022
176.90	1.00	8.00	.00	.0	1.47	-3.2	-13.8	.0	.0	82.55	.038
171.90	1.00	7.95	.00	.0	1.53	-3.4	-21.1	.0	.0	82.55	.051
169.00	1.00	7.93	.00	.0	2.71	-6.6	-25.6	.0	.0	82.55	.060
164.00	1.00	7.88	.00	.0	2.78	-6.8	-39.1	.0	.0	82.55	.081
159.00	1.00	7.83	.00	.0	2.86	-7.1	-53.0	.0	.0	82.55	.098
154.00	1.00	7.77	.00	.0	4.03	-10.4	-67.4	.0	.0	82.55	.116
149.50	1.00	7.73	.00	.0	4.10	-10.9	-85.5	.0	.0	82.55	.134
146.00	1.00	7.69	.00	.0	4.18	-11.5	-99.8	.0	.0	82.55	.124
141.00	1.00	7.63	.00	.0	4.26	-12.0	-120.8	.0	.0	82.55	.137
136.00	1.00	7.57	.00	.0	4.34	-12.4	-142.0	.0	.0	82.55	.148
131.00	1.00	7.52	.00	.0	4.43	-12.9	-163.8	.0	.0	82.55	.158
126.00	1.00	7.45	.00	.0	4.51	-13.4	-185.9	.0	.0	82.55	.166
121.00	1.00	7.39	.00	.0	4.57	-13.7	-208.4	.0	.0	82.55	.173
119.00	1.00	7.37	.00	.0	6.15	-17.6	-217.7	.0	.0	82.55	.177
118.90	1.00	7.36	.00	.0	6.17	-17.9	-218.3	.0	.0	82.55	.178
118.90	1.00	7.36	.00	.0	6.21	-18.4	-218.3	.0	.0	82.55	.178
113.90	1.00	7.30	.00	.0	6.29	-19.0	-249.3	.0	.0	82.55	.189
108.90	1.00	7.23	.00	.0	6.37	-19.5	-280.8	.0	.0	82.55	.199
103.90	1.00	7.16	.00	.0	6.44	-20.0	-312.7	.0	.0	81.87	.209
100.75	1.00	7.11	.00	.0	6.51	-20.9	-332.9	.0	.0	81.46	.216
96.00	1.00	7.04	.00	.0	6.61	-22.0	-363.9	.0	.0	82.55	.191
91.00	1.00	6.97	.00	.0	6.70	-22.8	-396.9	.0	.0	82.55	.196
86.00	1.00	6.88	.00	.0	6.78	-23.6	-430.4	.0	.0	82.55	.200
81.00	1.00	6.80	.00	.0	6.86	-24.3	-464.3	.0	.0	82.55	.204
76.00	1.00	6.71	.00	.0	6.95	-25.1	-498.6	.0	.0	82.55	.207
71.00	1.00	6.62	.00	.0	7.03	-25.9	-533.3	.0	.0	82.18	.211

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66.00	1.00	6.52	.00	.0	7.11	-26.7	-568.5	.0	.0	81.62	.215
61.00	1.00	6.41	.00	.0	7.19	-27.5	-604.0	.0	.0	81.07	.218
56.00	1.00	6.30	.00	.0	7.26	-28.2	-640.0	.0	.0	80.52	.222
53.25	1.00	6.23	.00	.0	7.33	-29.2	-659.9	.0	.0	80.21	.224
48.25	1.00	6.11	.00	.0	7.37	-30.0	-696.6	.0	.0	80.08	.233
47.25	1.00	6.08	.00	.0	7.42	-30.8	-703.9	.0	.0	79.96	.234
42.25	1.00	5.94	.00	.0	7.50	-31.9	-741.1	.0	.0	79.41	.237
37.25	1.00	5.79	.00	.0	7.57	-32.8	-778.5	.0	.0	78.86	.239
32.25	1.00	5.62	.00	.0	7.63	-33.7	-816.3	.0	.0	78.30	.242
27.25	1.00	5.43	.00	.0	7.70	-34.7	-854.2	.0	.0	77.75	.244
22.25	1.00	5.21	.00	.0	7.77	-35.6	-893.3	.0	.0	77.20	.246
17.25	1.00	4.96	.00	.0	7.84	-36.6	-931.7	.0	.0	76.64	.248
12.25	1.00	4.76	.00	.0	7.91	-37.6	-970.8	.0	.0	76.09	.250
7.25	1.00	4.76	.00	.0	7.98	-38.6	-1010.8	.0	.0	75.54	.251
2.25	1.00	4.76	.00	.0	8.03	-39.4	-1050.8	.0	.0	74.98	.253
.00	1.00	4.76	.00	.0	8.06	-39.6	1068.3	.0	.0	74.73	.254

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees				MicroW
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result	Allow
189.00	.00	5.43	-.11	5.43 < 2.87% >	-3.09	.00	.00	3.09	

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SHAPE: 18 SIDED POLYGON with FLAT-FLAT ORIENTATION
 BOLTS: QUADRANT SPACED BOLTS 6.00 in. ON CENTER
 LOCATE:

POLE DATA

DIAMETER =	51.92 in.	BASE	AXIAL FORCE=	-48.9 kips	Vert
PLATE =	.3750 in.	ACTIONS	SHEAR X =	20.3 kips	Long
TAPER =	.2000 in/ft		SHEAR Y =	24.9 kips	Tran
POLE Fy =	65.00 ksi		X-AXIS MOM =	3049.5 ft-kips	Tran
			Y-AXIS MOM =	3049.5 ft-kips	Long
			Z-AXIS MOM =	.0 ft-kips	Vert

DESIGN CASE = 1 3s Gusted Wind

Design: ANY Orientation Reactions at 45.00 deg to X-AXIS

BOLT LOADS

	AXIAL - COMPRESSION	=	224.25 kips	
	AXIAL - TENSION	=	218.14 kips	
	SHEAR	=	2.82 kips	
AXIAL	STRESS	=	69.00 ksi	
SHEAR	STRESS	=	.92 ksi	
YIELD	STRENGTH Fy	=	75.00 ksi	
ULT.	STRENGTH Fu	=	100.00 ksi	
ALLOW	STRESS Fa [.80 x 1.00]	=	80.00 ksi	Interaction .885 TIA-G
	SHEAR Fv [.80 x .40]	=	32.00 ksi	
	TENSION AREA REQUIRED	=	2.80 in^2	
	TENSION AREA FURNISHED	=	3.25 in^2	
	ROOT AREA FURNISHED	=	3.07 in^2	

A615 ::: ANCHOR BOLT DESIGN USED

16 Bolts on a	58.500 in. Bolt Circle	SHIP
2.250 in. Diameter	67.13 in. Embedded	(lbs)
12.00 in. Exposed	84.00 in. Total Length	2171

CONCRETE - Fc= 4000 psi

ANCHOR BOLTS are STRAIGHT w\ UPLIFT NUT

BASE PLATE

[Bend Model: Flat- 17]
 YIELD STRENGTH = 50.0 ksi
 BEND LINE WIDTH = 30.2 in.
 PLATE MOMENT = 2096.7 in-k
 THICKNESS REQD = 2.482 in.
 BENDING STRESS = 44.4 ksi
 ALLOWABLE STRESS = 45.0 ksi
 [Fy x .90 x 1.00]

BASE PLATE USED

2.50 in. THICK	SHIP
58.00 in. SQUARE	(lbs)
39.75 in. CENTER HOLE	1231
12.00 in. CORNER CLIP	

LOAD CASE SUMMARY

LC	FORCES- (kips)			MOMENTS- (ft-k)			CSR	ABolt-Str		Plate-Str		Design Code
	Axial	ShearX	ShearY	X-axis	Y-axis	TorQ		Allow	Actual	Allow		
1	48.9	20.3	24.9	2721	3346	0	.885	75.00	44.36	45.00	TIA-G	
2	37.0	20.3	24.9	2658	3269	0	.863	75.00	43.21	45.00	TIA-G	
3	61.2	2.2	2.6	273	335	0	.103	75.00	5.17	45.00	TIA-G	
4	39.6	5.1	6.3	673	828	0	.226	75.00	11.34	45.00	TIA-G	

MAT FOUNDATION DESIGN BY SABRE TOWERS & POLES

190' Monopole TOWER ACCESS GROUP Brockton, KY (15-7820-JDS) 2-11-15 TTW

Overall Loads:

Factored Moment (ft-kips)	4313.33
Factored Axial (kips)	48.93
Factored Shear (kips)	32.16
Bearing Design Strength (ksf)	3
Water Table Below Grade (ft)	999
Width of Mat (ft)	26.5
Thickness of Mat (ft)	2
Depth to Bottom of Slab (ft)	6
Quantity of Bolts in Bolt Circle	16
Bolt Circle Diameter (in)	58.5
Top of Concrete to Top of Bottom Threads (in)	60
Diameter of Pier (ft)	7
Ht. of Pier Above Ground (ft)	0.5
Ht. of Pier Below Ground (ft)	4
Quantity of Bars in Mat	29
Bar Diameter in Mat (in)	1
Area of Bars in Mat (in ²)	22.78
Spacing of Bars in Mat (in)	11.11
Quantity of Bars Pier	36
Bar Diameter in Pier (in)	1
Tie Bar Diameter in Pier (in)	0.625
Spacing of Ties (in)	12
Area of Bars in Pier (in ²)	28.27
Spacing of Bars in Pier (in)	6.61
f _c (ksi)	4
f _y (ksi)	60
Unit Wt. of Soil (kcf)	0.11
Unit Wt. of Concrete (kcf)	0.15

Max. Net Bearing Press. (ksf)	2.75
Allowable Bearing Pressure (ksf)	2.00
Safety Factor	2.00
Ultimate Bearing Pressure (ksf)	4.00
Bearing Φ _s	0.75

Minimum Pier Diameter (ft)	6.38
Equivalent Square b (ft)	6.20

Recommended Spacing (in)	6 to 12
--------------------------	---------

Minimum Pier A _s (in ²)	27.71
Recommended Spacing (in)	6 to 12

Volume of Concrete (yd³) 58.43

Two-Way Shear Action:

Average d (in)	20
φV _c (kips)	1405.1
φV _c = φ(2 + 4/β _c)f _c ^{1/2} b _o d	2107.7
φV _c = φ(α _s d/b _o +2)f _c ^{1/2} b _o d	1562.7
φV _c = φ4f _c ^{1/2} b _o d	1405.1
Shear perimeter, b _o (in)	326.73
β _c	1

V _u (kips)	77.2
-----------------------	------

One-Way Shear:

φV _c (kips)	683.8
------------------------	-------

V _u (kips)	283.2
-----------------------	-------

Stability:

Overturning Design Strength (ft-k)	6791.1
------------------------------------	--------

Total Applied M (ft-k)	4522.4
------------------------	--------

Pier Design:

ϕV_n (kips)	609.6	V_u (kips)	32.2
$\phi V_c = \phi 2(1 + N_u / (2000 A_g)) f'_c{}^{1/2} b_w d$	609.6		
V_s (kips)	0.0	*** $V_s \text{ max} = 4 f'_c{}^{1/2} b_w d$ (kips)	1428.0
Maximum Spacing (in)	8.77	(Only if Shear Ties are Required)	
Actual Hook Development (in)	19.00	Req'd Hook Development l_{dh} (in)	13.28
		*** Ref. To Spacing Requirements ACI 11.5.4.3	

Flexure in Slab:

ϕM_n (ft-kips)	1985.1	M_u (ft-kips)	1954.7
a (in)	1.26		
Steel Ratio	0.00358		
β_1	0.85		
Maximum Steel Ratio (ρ_t)	0.0181		
Minimum Steel Ratio	0.0018		
Rebar Development in Pad (in)	118.78	Required Development in Pad (in)	27.97

Condition	1 is OK, 0 Fails
Maximum Soil Bearing Pressure	1
Pier Area of Steel	1
Pier Shear	1
Interaction Diagram Visual Check	1
Two-Way Shear Action	1
One-Way Shear Action	1
Overturning	1
Flexure	1
Steel Ratio	1
Length of Development in Pad	1
Hook Development	1



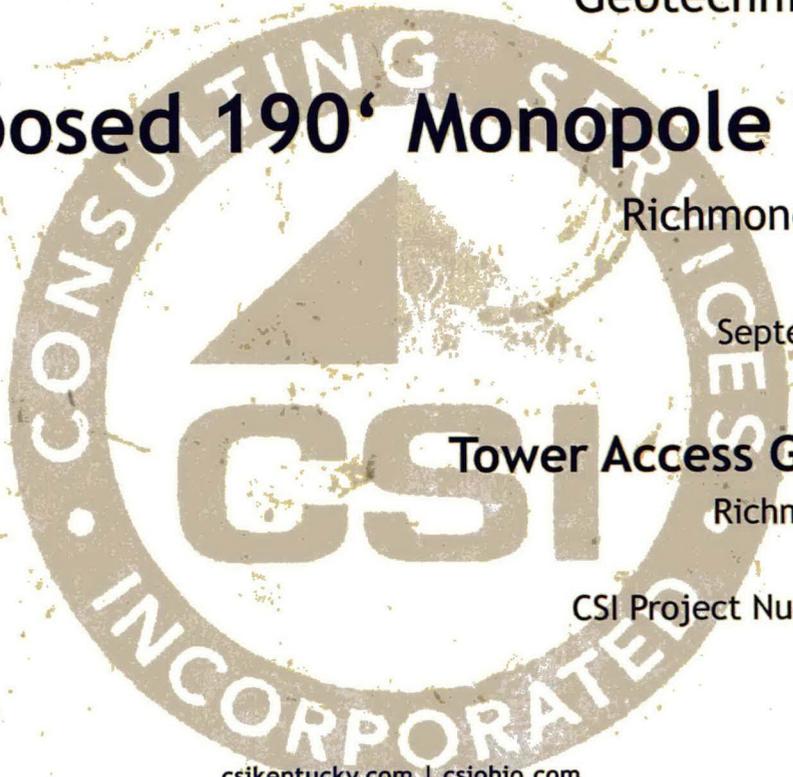
Geotechnical Report
for
Proposed 190' Monopole Tower
Richmond, Kentucky

September 30, 2014

Prepared for

Tower Access Group, Inc.
Richmond, Kentucky

CSI Project Number LX140287



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Consulting Services Incorporated

Lexington 859.309.6021 | Cincinnati 513.252.2059 | Louisville 502.532.8269
Geotechnical & Materials Engineering | IBC Special Inspection | Material Testing

September 30, 2014

Tower Access Group
108 Forbes Court, Suite 1
Richmond, KY 40475

ATTN: Mr. David Ginter, President
E: dginter@toweraccessgroup.com

Subject: Geotechnical Report
Proposed 190' Monopole Tower
Brockton Site
Richmond, Kentucky
CSI Project No. LX140287

Dear Mr. Ginter:

Consulting Services Incorporated of Kentucky (CSI) is pleased to present our report for the geotechnical services completed for above referenced project. We provided our services in general accordance with CSI Proposal Number 3391, dated September 8, 2014 and purchase order TAG 2554, dated September 10, 2014.

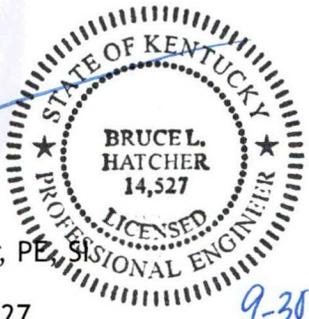
Our report represents information provided to us, readily available published data relevant to the site and site area, our observations and subsurface conditions encountered and provides geotechnical design parameters to design the proposed tower foundations.

We appreciate the opportunity to provide our geotechnical services to you and the design team. Please do not hesitate to contact us for questions or comments about the information contained herein.

Cordially,


Christopher L. Yohe, PE
Senior Engineer


Bruce L. Hatcher, PE
Chief Engineer
Licensed KY 14,527


9-30-14



PROJECT INFORMATION

We understand that the proposed project (and the subject of this report) will consist of one 190-foot tall monopole tower structure (the overall project consists of multiple towers). Project information was provided by Mr. David Ginter with Tower Access Group via email and email correspondence. The Brockton Tower Site is generally located east of Kit Carson Drive, northeast of the New Residence Hall on the campus of Eastern Kentucky University adjacent to the Brockton Resident parking lot (Lat. / Long.: 37.74147 / -84.29496). See the Site Location Plan in the Appendix for details.

The subsurface exploration included one boring located near the tower center which was drilled to auger refusal. Additionally, we obtained 10 feet of rock core to determine bedrock quality.

Structural loading conditions were not provided by the design team, however, we have assumed the following structural conditions based on similar projects:

- Vertical: 35 kips
- Shear: 28 kips
- Moment: 4,700 kip-feet

These structural loading values are assumed for the purposes of this report and should be confirmed by the structural engineer.

SUBSURFACE CONDITIONS

REGIONAL GEOLOGY

A review of the USGS Richmond South Quadrangle (dated 1966) indicates that the project site is underlain by the Ashlock Formation of Upper Ordovician aged rock deposits. It is composed of limestone that is brownish to olive gray, commonly mottled with grayish-bluish-green and dark-olive-gray, with shaly partings. The limestone is micrograined to fine-grained.

According to the Kentucky Geologic Map Information Service, the Ashlock Formation is reported to have a "Low" karst potential. However, there are several sinkholes (closed depressions) reported within a one-mile radius of the project site based on published Karst potential maps prepared by the Kentucky Geological Survey.

Many sinkholes may open over relatively quick time spans thus causing unpredictable failures. Other times, subsidence does not result in sinkholes, but rather in cracks in soil and structures overlying the raveling. The cracks may lead to sinkhole development over a long period of time.



Any construction in Karst topography contains some degree of risk for future internal soil erosion and ground subsidence that could affect the stability of structures situated above the Karst features. The risks associated with Karst geology are common in this geologic setting (vicinity) and not unique to this project site.

Additionally, an unnamed fault is mapped within the immediate project vicinity as shown in Figure 1 below.

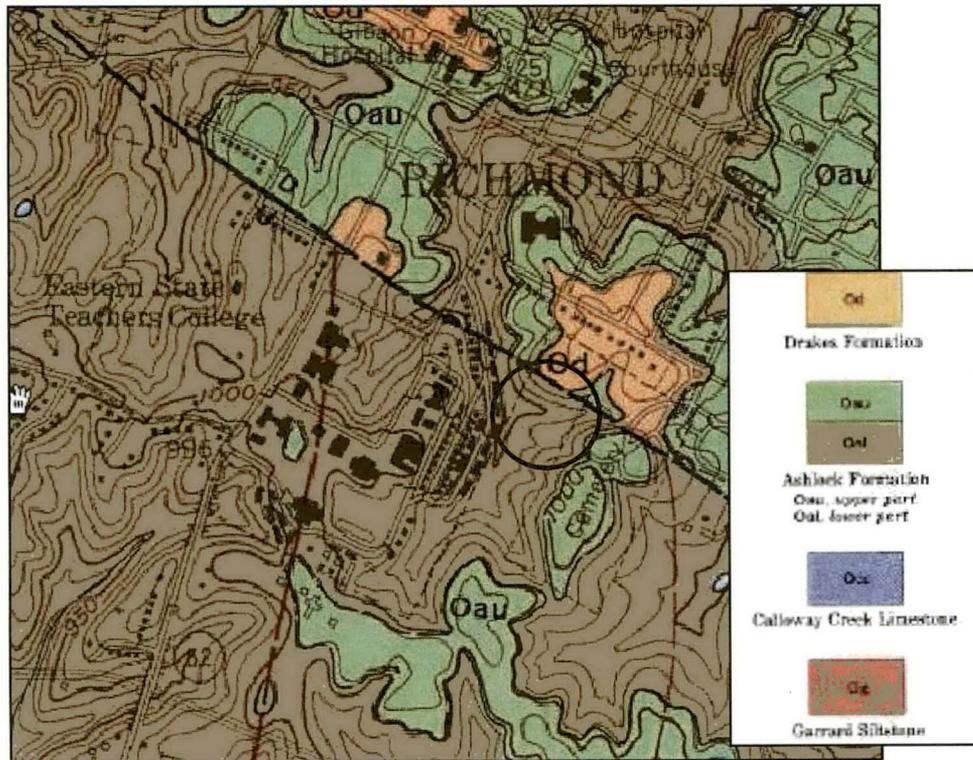


Figure 1. Regional Geology (site vicinity shown in the circle)

SOIL CONDITIONS

We utilized one soil boring (labeled B-1) to explore the subsurface conditions at the site. Boring B-1 was performed at a 15 foot offset west-southwest from the staked tower location due to the presence of a sand volleyball court. Please reference the Boring Location Plan in the Appendix for the approximate boring locations.

Our boring encountered a 1-inch layer of topsoil, overlying previously placed (old) fill, overlying a layer of residual soils, overlying weathered rock, overlying bedrock.

We encountered a layer of previously placed fill material in our soil boring. The fill material was sampled as firm. The fill material consisted of two layers. The first layer encountered consisted of brown clay with trace root hairs and black oxide nodules. The underlying fill



layer consisted of grayish-brown clay with trace sand. The thickness of the fill material was approximately 9 feet.

Residual soils were encountered underlying the previously placed fill materials. The consistency of the residual soils were generally described as stiff (cohesive soils). The residual soils consisted of brown clay with black oxide nodules and oxidation staining. The thickness of the residual soil was approximately 2 feet and extended to a maximum depth of about 11 feet.

Weathered rock was encountered underlying the residual soil in our soil borings. Thickness of the weathered rock was approximately 5-inches.

The subsurface conditions encountered in our boring location is shown on the Boring Log in the Appendix. It should be noted that our boring was drilled and sampled according to the procedures presented in the Appendix. The Boring Log represents our interpretation of the subsurface conditions based on the field logs, visual examination of the field samples by an engineer, and the tests of the samples collected. The letters in the parentheses following the soil descriptions are the soil classifications in general accordance with the Unified Soil Classification System (USCS). It should be noted that stratification lines shown on the Boring Logs represent approximate transitions between material types. In-situ stratum changes could occur gradually or at slightly different depths.

The boring location shown in the Appendix should be considered accurate only to the degree implied by the location method used. The top of boring elevation was provided by the project surveyor and is shown on the Boring Log.

2C GROUNDWATER CONDITIONS

No free water was observed in the soil boring during or upon completion of soil augering. Groundwater level readings were not taken in the core hole since water is used to cool the rock coring bit. Water conditions that usually affect construction and performance of projects consist of trapped/perched water zones which occur in variable areas in the soil mass, at or near existing or former structures, at or near the bedrock bedding planes, or at or near the soil/rock interface. Perched water sources are often not linked to the more continuous relatively stable ground water table that typically occurs at greater depths. Site excavation activities or ground disturbance can expose these features and the resulting seepage can vary greatly. Finally, water issues are also dependent upon recent rainfall activity and surface and subsurface drainage patterns in the area.

2D BEDROCK INFORMATION

Auger refusal was encountered in our boring at a depth of about 11.3 feet below the existing site grade. We have interpreted auger refusal to be the top of the bedrock surface. Refusal material was further explored by rock coring methods where 10 feet of rock core was obtained (one-10 foot run). The recovered rock core consisted of medium-gray limestone with shale partings with a measured recovery of 99 percent. The rock quality designation (RQD) for



our recovered rock core was 67 percent (of fair engineering quality). Core water loss was not observed during coring operations and no voids were observed.

3 LABORATORY TESTING

During the course of our work, we selected representative soil samples for laboratory testing. The tests include obtaining data for soil classification testing. Detailed descriptions of these tests and the results of our testing are included in the Appendix. Tests performed included:

- Natural moisture content
- Atterberg limits
- Percent fines analyses
- Unconfined compression (rock)

GEOTECHNICAL DISCUSSION AND RECOMMENDATIONS

4 GEOTECHNICAL CONSIDERATIONS

Based on the encountered subsurface conditions, the proposed tower can either be founded on a drilled pier or a buried footing foundation. Design parameters for both scenarios are presented in the following paragraphs.

4A DRILLED PIER FOUNDATION

The proposed tower can be founded on a straight shaft drilled pier. Based on the results of our geotechnical analysis of the project data, we present the following drilled pier design parameters.

DESCRIPTION	VALUE	Allowable End Bearing Pressure (psf)	Allowable Passive Pressure (psf)	Cohesion (psf)	Strain (ϵ_{50})	Lateral Modulus (pci)
0 - 3	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore
Lean Clay (Fill) 3 - 9	425	---	1,500	1,000	0.006	120
Lean Clay 9-11	425	---	1,500	2,000	0.007	120
Limestone	5,000	50,000	10,000	100,000	0.00001	3,000



We recommend that drilled pier shaft diameters should be designed to a minimum diameter of 30 inches. The drilled shaft should be inspected to verify the plumbness of the excavation, verify groundwater conditions, and to verify that the sides and bottom of the excavation are undisturbed prior to placement of concrete.

We recommend that the drilled shaft bear on competent limestone and the parameters given on the preceding page assume a minimum rock embedment of 3 feet. Settlements are not expected to exceed 1/2 inch.

Observation of pier installation by a CSI geotechnical engineer is recommended. Pier lengths may need to be adjusted during construction based on any variable soil conditions encountered or if the tower location is adjusted in the field.

4B SHALLOW BURIED FOUNDATION

A shallow buried foundation could also be used to support the monopole tower foundation. The mat foundation could be supported by existing fill soils or engineered fill extending to suitable native soils and sized using a net allowable bearing pressure of 2,000 psf. Subgrade soils should be approved by a CSI geotechnical engineer prior to concrete placement. The shallow mat foundation should be embedded a minimum of 24 inches below the finished grade elevation for frost protection.

If the foundation bears on existing fill soils, total settlements may exceed 1-inch. However, settlement will depend on the quality of the earthwork, the selected bearing stratum, bearing materials, and final structural loading conditions.

5 EARTHWORK

Site Preparation

- The site should be cleared/grubbed removing all brush, trees, and debris. These materials should be wasted off-site.
- All topsoil and organic materials should be removed (stripped) from the construction area and all structural fill areas. These materials should be wasted from the site or stockpiled for use as topsoil in landscape areas.
- Areas ready to receive new fill should be proofrolled with a heavily loaded dump truck or similar equipment judged acceptable by a CSI geotechnical engineer.
- The level of proofroll should be determined by a CSI geotechnical engineer on a case-by-case basis.
- Perform the proofrolling after a suitable period of dry weather to avoid degrading the subgrade.



- Areas which pump, rut, or wave during proofrolling may require undercutting, depending on the location of the area and the use of the area, so a CSI geotechnical engineer should be contacted for guidance. Remediation of the site will likely be required to obtain the desired subgrade elevation.
- Retain CSI to observe the proofrolling operations and make recommendations for any unstable or unsuitable conditions encountered. This can save time on the construction schedule and save unnecessary undercutting.

We recommend that site grading should take place between about late April to early November. Earthwork taking place outside this time period will likely encounter wet conditions and weather conditions that will provide little to no assistance with drying the soils.

New Fill Operations - Soil Fill

- If off-site fill material is imported to the project site, representative samples should be obtained of the proposed fill material to determine the moisture-density relationship and overall classification of the material. Off-site soils with a plasticity index (PI) greater than 30 percent should not be used for new fill.

After the exposed subgrade has been approved to receive new fill, the fill may commence with the following procedures and guidelines recommended:

- Place fill in maximum 8-inch thick loose lifts.
- Fill lifts should be compacted to at least 95 percent of the soil's maximum dry density (ASTM D 698).
- Maintain the moisture content of compacted fill within 3 percent of optimum moisture.
- Fill compaction requirements should extend to at least 5 feet outside the structure perimeter.
- Off-site fill soils with a plasticity index (PI) of greater than 30 should not be used as new fill.
- Maximum particle size of the should should be limited to 4 inches in any one dimension. Additionally, no concentration of large fragments should be permitted.
- Density testing should be performed as a means to verify percent compaction and moisture content of the material as it is being placed and compacted.
- Observation of fill "stability" is also critical, so it is recommended to observe the operation of the filling equipment traversing over the new fill to document movement (similar to proofrolling).



- Soils should not be “overcompacted” and construction traffic should be kept to a minimum to assure compaction is achieved and that the soil is not allowed to “break down”.
- Retain a representative of CSI to observe and document fill placement and compaction operations.

6 NOTES ON THE REPORT AND RECOMMENDATIONS

We recommend that this report be provided to the various design team members, the contractors and the project Owner. Potential contractors should be informed of this report in the "Instructions to Bidders" section of the bid documents. A geotechnical exploration, such as the one we performed, uses widely spaced borings to attempt to model the subsurface conditions at the site. Because no exploration contains complete data or a complete model, there is always a possibility that conditions between borings will be different from those at specific boring locations and that conditions will not be as anticipated by the project team. Thus, it is possible that some subsurface conditions will not be anticipated by the project team or contractor. If this report is included or referenced in the actual contract documents, **it shall be explicitly understood that this report is for informational purposes only.** CSI shall not be responsible for the opinions of, or conclusions drawn by, others.

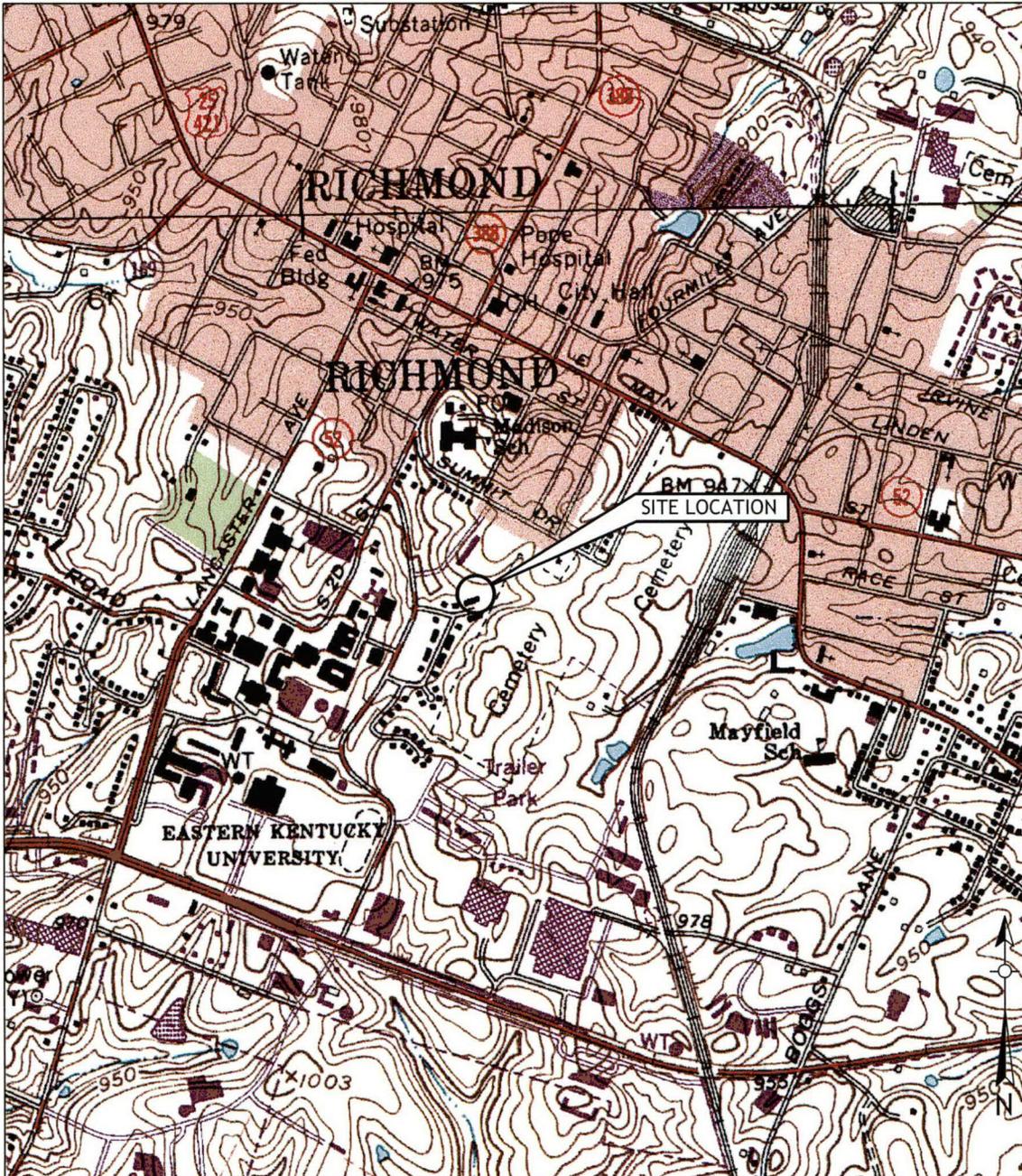
It has been our experience that the construction process often disturbs soil conditions and this process, no matter how much experience we use to anticipate construction methodology, is not completely predictable. Therefore, changes or modifications to our recommendations are likely needed due to these possible variances. Experienced CSI geotechnical personnel should be used to observe and document the construction procedures and the conditions encountered. Unanticipated conditions and inadequate procedures should be reported to the design team along with timely recommendations to solve the problems created. We recommend that the owner retain CSI to provide this service based upon our familiarity with the project, the subsurface conditions and the intent of the recommendations.

This report is based on the provided project information, the subsurface conditions observed at the time of the report, and our experience with similar conditions. As such, it cannot be applied to other project sites, types, or combinations thereof. If the Project Information section in this report contains incorrect information or if additional information is available, you should convey the correct or additional information to us and retain us to review our recommendations. Our recommendations may then require modification.

No section or portion of this report (including Appendix information) can be used as a stand alone article to make distinct changes or assumptions. The entire report and Appendix should be used together as one resource. We wish to remind you that our exploration services include storing the soil and rock samples collected and making them available for inspection for 30 days. The samples are then discarded unless you request otherwise. Please inform us if you wish to keep any of the obtained samples.

APPENDIX

**Site Location Plan
Boring Location Plan
Key to Symbols and Descriptions
Soil Boring Logs
Field Testing Procedures
Summary of Lab Testing Table
Laboratory Testing Procedures**



Site Location Plan adapted from USGS Richmond North (dated 1965, revised 1993) and Richmond South (dated 1965, photorevised 1987) Topographic Quadrangle maps, with further adaptation by CSI personnel.

FOR ILLUSTRATION PURPOSES ONLY



Consulting Services Incorporated of Kentucky
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 Lexington, Kentucky 40505
 859.309.6021 Office | 888.792.3121 Fax
 www.csikentucky.com

TITLE: SITE LOCATION PLAN
 PROJECT: EKU MONOPOLE
 RICHMOND, KENTUCKY

Project No:
 LX140287
 Date:
 September 30, 2014
 Scale: Not To Scale

Drawn By:
 JAC
 Checked By:
 TG
 Drawing No:
 1 of 1

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Boring Location Plan adapted from Aerial Photography, with further adaptation by CSI personnel.
Elevations were supplied by the project surveyor.

FOR ILLUSTRATION PURPOSES ONLY

LEGEND	
	B-XXX BORING LOCATIONS



Consulting Services Incorporated of Kentucky
858 Contract Street
Lexington, Kentucky 40505
859.309.6021 Office | 888.792.3121 Fax
www.csikentucky.com

TITLE: BORING LOCATION PLAN
PROJECT: EKU MONOPOLE
RICHMOND, KENTUCKY

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Geotechnical Boring Information Sheet

Sample Type Symbols	Definitions
Splitspoon (SPT) 	SPT-"Splitspoon" or standard penetration test. Blow counts are number of drops required for a 140 lb hammer dropping 30 inches to drive the sampler 6 inches.
Dynamic Cone Penetrometer (DCP) 	N-value is the addition of the last two intervals of the 18-inch sample.
Shelby Tube 	Shelby tubes are often called "undisturbed samples". They are directly pushed into the ground, twisted, allowed to rest for a small period of time and then pulled out of the ground. Tops and bottoms are cleaned and then sealed.
Grab 	
Bulk 	
Rock Core 	Sample classification is done in general accordance with ASTM D2487 and 2488 using the Unified Soil Classification System (USCS) as a general guide.
Surface Symbols	
Topsoil 	Soil moisture descriptions are based on the recovered sample observations. The descriptors are dry, slightly moist, moist, very moist and wet. These are typically based on relative estimates of the moisture condition of a visual estimation of the soils optimum moisture content (EOMC). Dry is almost in a "dusty" condition usually 6 or more percent below EOMC. Slightly moist is from about 6 to 2 percent below EOMC at a point at which the soil color does not readily change with the addition of water. Moist is usually 2 percent below to 2 percent above EOMC and the point at which the soil will tend to begin forming "balls" under some pressure in the hand. Very moist is usually from about 2 percent to 6 percent above EOMC and also the point at which it's often considered "muddy". Wet soil is usually 6 or more percent above EOMC and often contains free water or the soil is in a saturated state.
Asphalt 	
Concrete 	
Lean Clay 	
Fat Clay 	
Sandy Clay 	
Silt 	
Elastic Silt 	
Lean Clay to Fat Clay 	
Gravelly Clay 	
Sandy Silt 	
Gravelly Silt 	
Sand 	
Gravel 	
Fill 	
Void 	
Limestone 	
Sandstone 	
Shale/Siltstone 	
Weathered Rock 	
	Silt or Clay is defined as material finer than a standard #200 US sieve (<0.075mm) Sand is defined as material between the size of #200 sieve up to #4 sieve. Gravel is from #4 size sieve material to 3". Cobbles are from 3" to 12". Boulders are over 12".
	Rock hardness is classified as follows:
	Very Soft: Easily broken by hand pressure
	Soft: Ends can be broken by hand pressure; easily broken with hammer
	Medium: Ends easily broken with hammer; middle requires moderate blow
	Hard: Ends require moderate hammer blow; middle requires several blows
	Very Hard: Many blows with a hammer required to break core
	Rock Quality Designation (RQD) is defined as total combined length of 4" or longer pieces of core divided by the total core run length; defined in percentage.
Samples Strength Descriptors	
Cohesive Soils:	
Very Soft	0-1
Soft	2-4
Firm	5-8
Stiff	9-15
Very Stiff	16-30
Hard	31+
Non-cohesive Soils:	
Very Loose	0-4
Loose	5-10
Firm	11-20
Very Firm	21-30
Dense	30-50
Very Dense	51+
	Water or cave-in observed in borings is at completion of drilling each boring unless otherwise noted.
	Strata lengths shown on borings represents a rough estimate. Transition may be more abrupt or gradual. Soil borings are representative of that estimated location at that time and are based on recovered samples. Conditions may be different between borings and between sample intervals. Boring information is not to be considered stand alone but should be taken in context with comments and information in the geotechnical report and the means by which the borings are logged, sampled and drilled.



PROJECT: EKU Monopole
 LOCATION: Richmond, Kentucky
 DRILLER: Geo-Drill

PROJECT NUMBER: LX140287
 WEATHER: Cool, 50's
 DATE DRILLED: 09-23-2014

BORING NUMBER: B-1
 DRILL RIG TYPE: Mobile B-80
 DRILLING METHOD: 3-1/4" ID HSA

CSI FIELD REP: T. Greenwell

CLIENT: Tower Access Group

TOP OF GROUND ELEVATION: 966.02

ELEV. (feet)	DEPTH (feet)	Water Level	Strata Description	SOIL TYPE	SAMPLES	SPT Blow Counts	Recovery (in)	RQD (%)	Notes
966.02	0		SAND (SP) - LOOSE, white, dry			1-3-3	12		Dry upon completion of soil augering Offset 15 feet west-southwest to move from volleyball pit
			FILL - sampled as FIRM, brown clay with mottling, with trace root hairs, with black oxide nodules, moist to wet			3-3-4	16		
963.02	3		Encountered pieces of asphalt at 0.6 feet			4-3-5	12		
			Encountered saturated zone from 2.2 to 2.4 feet			2-3-3	15		
960.02	6		FILL - sampled as FIRM, grayish-brown clay, with trace sand, wet			4-4-5	16		
957.02	9		LEAN CLAY (CL) - STIFF, brown, with black oxide nodules, with oxide staining, moist						
			Weathered Rock			Run No.	Recovery (%)	RQD (%)	No core water loss observed
954.02	12		Auger Refusal at 11.3 feet Begin Coring at 11.3 feet			1 (11.3'-21.3')	99	67	
951.02	15								Photo of Approx. Boring Location
948.02	18		LIMESTONE - gray, slight weathering, close joints, thin bedding, open joints, with interbedded shale						
945.02	21		Coring Terminated at 21.3 feet						

Please note: Boring log is for information only. Soil borings only show conditions observed in specific recovered samples at that particular location. Elevations were supplied by the project surveyor.

FIELD TESTING PROCEDURES

Field Operations: The general field procedures employed by CSI are summarized in ASTM D 420 which is entitled "Investigating and Sampling Soils and Rocks for Engineering Purposes." This recommended practice lists recognized methods for determining soil and rock distribution and ground water conditions. These methods include geophysical and in situ methods as well as borings.

Borings are drilled to obtain subsurface samples using one of several alternate techniques depending upon the subsurface conditions. These techniques are:

- a. Continuous 2-1/2 or 3-1/4 inch I.D. hollow stem augers;
- b. Wash borings using roller cone or drag bits (mud or water);
- c. Continuous flight augers (ASTM D 1425).

These drilling methods are not capable of penetrating through material designated as "refusal materials." Refusal, thus indicated, may result from hard cemented soil, soft weathered rock, coarse gravel or boulders, thin rock seams, or the upper surface of sound continuous rock. Core drilling procedures are required to determine the character and continuity of refusal materials.

The subsurface conditions encountered during drilling are reported on a field test boring record by the chief driller. The record contains information concerning the boring method, samples attempted and recovered, indications of the presence of various materials such as coarse gravel, cobbles, etc., and observations between samples. Therefore, these boring records contain both factual and interpretive information. The field boring records are on file in our office.

The soil and rock samples plus the field boring records are reviewed by a geotechnical engineer. The engineer classifies the soils in general accordance with the procedures outlined in ASTM D 2488 and prepares the final boring records which are the basis for all evaluations and recommendations.

The final boring records represent our interpretation of the contents of the field records based on the results of the engineering examinations and tests of the field samples. These records depict subsurface conditions at the specific locations and at the particular time when drilled. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in the subsurface soil and ground water conditions at these boring locations. The lines designating the interface between soil or refusal materials on the records and on profiles represent approximate boundaries. The transition between materials may be gradual. The final boring records are included with this report.

The detailed data collection methods used during this study are discussed on the following pages.

Soil Test Borings: Soil test borings were made at the site at locations shown on the attached Boring Plan. Soil sampling and penetration testing were performed in accordance with ASTM D 1586.

The borings were made by mechanically twisting a hollow stem steel auger into the soil. At regular intervals, the drilling tools were removed and soil samples obtained with a standard 1.4 inch I.D., 2 inch O.D., split tube sampler. The sampler was first seated 6 inches to penetrate any loose cuttings, then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot was recorded and is designated the "penetration resistance". The penetration resistance, when properly evaluated, is an index to the soil strength and foundation supporting capability.

Representative portions of the soil samples, thus obtained, were placed in glass jars and transported to the laboratory. In the laboratory, the samples were examined to verify the driller's field classifications. Test Boring Records are attached which graphically show the soil descriptions and penetration resistances.

Core Drilling: Refusal materials are materials that cannot be penetrated with the soil drilling methods employed. Refusal, thus indicated, may result from hard cemented soil, soft weathered rock, coarse gravel or boulders, thin rock seams or the upper surface of sound continuous rock. Core drilling procedures are required to determine the character and continuity of refusal materials.

Prior to coring, casing is set in the drilled hole through the overburden soils, if necessary, to keep the hole from caving. Refusal materials are then cored according to ASTM D 2113 using a diamond-studded bit fastened to the

end of a hollow double tube core barrel. This device is rotated at high speeds, and the cuttings are brought to the surface by circulating water. Core samples of the material penetrated are protected and retained in the swivel-mounted inner tube. Upon completion of each drill run, the core barrel is brought to the surface, the core recovered is measured, the samples are removed and the core is placed in boxes for storage.

The core samples are returned to our laboratory where the refusal material is identified and the percent core recovery and rock quality designation is determined by a soils engineer or geologist. The percent core recovery is the ratio of the sample length obtained to the depth drilled, expressed as a percent. The rock quality designation (RQD) is obtained by summing up the length of core recovered, including only the pieces of core which are four inches or longer, and dividing by the total length drilled. The percent core recovery and RQD are related to soundness and continuity of the refusal material. Refusal material descriptions, recoveries, and RQDs are shown on the "Test Boring Records".

Hand Auger Borings and Dynamic Cone Penetration Testing: Hand auger borings are performed manually by CSI field personnel. This consists of manually twisting hand auger tools into the subsurface and extracting "grab" or baggie samples at intervals determined by the project engineer. At the sample intervals, dynamic cone penetration (DCP) testing is performed. This testing involves the manual raising and dropping of a 20 pound hammer, 18 inches. This "driver" head drives a solid-1¼ inch diameter cone into the ground. DCP "counts" are the number of drops it takes for the hammer to drive three 1¼ inch increments, recorded as X-Y-Z values.

Test Pits: Test pits are excavated by the equipment available, often a backhoe or trackhoe. The dimensions of the test pits are based on the equipment used and the power capacity of the equipment. Samples are taken from the spoils of typical buckets of the excavator and sealed in jars or "Ziplock" baggies. Dynamic Cone Penetration or hand probe testing is often performed in the upper few feet as OSHA standards allow. Refusal is deemed as the lack of advancement of the equipment with reasonable to full machine effort.

Water Level Readings: Water table readings are normally taken in conjunction with borings and are recorded on the "Test Boring Records". These readings indicate the approximate location of the hydrostatic water table at the time of our field investigation. Where impervious soils are encountered (clayey soils) the amount of water seepage into the boring is small, and it is generally not possible to establish the location of the hydrostatic water table through water level readings. The ground water table may also be dependent upon the amount of precipitation at the site during a particular period of time. Fluctuations in the water table should be expected with variations in precipitation, surface run-off, evaporation and other factors.

The time of boring water level reported on the boring records is determined by field crews as the drilling tools are advanced. The time of boring water level is detected by changes in the drilling rate, soil samples obtained, etc. Additional water table readings are generally obtained at least 24 hours after the borings are completed. The time lag of at least 24 hours is used to permit stabilization of the ground water table which has been disrupted by the drilling operations. The readings are taken by dropping a weighted line down the boring or using an electrical probe to detect the water level surface.

Occasionally the borings will cave-in, preventing water level readings from being obtained or trapping drilling water above the caved-in zone. The cave-in depth is also measured and recorded on the boring records.

LABORATORY TESTING PROCEDURES

Soil Classification: Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply past experience to current problems. In our investigations, samples obtained during drilling operations are examined in our laboratory and visually classified by an engineer. The soils are classified according to consistency (based on number of blows from standard penetration tests), color and texture. These classification descriptions are included on our "Test Boring Records."

The classification system discussed above is primarily qualitative and for detailed soil classification two laboratory tests are necessary: grain size tests and plasticity tests. Using these test results the soil can be classified according to the AASHTO or Unified Classification Systems (ASTM D 2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior. The soil classification and physical properties obtained are presented in this report.

Rock Classification: Rock classifications provide a general guide to the engineering properties of various rock types and enable the engineer to apply past experience to current situations. In our explorations, rock core samples obtained during drilling operations are examined in our laboratory and visually classified by an engineer. The rock cores are classified according to relative hardness and RQD (see Guide to Rock Classification Terminology), color, and texture. These classification descriptions are included on our Test Boring Records.

Atterberg Limits: Portions of the samples are taken for Atterberg Limits testing to determine the plasticity characteristics of the soil. The plasticity index (PI) is the range of moisture content over which the soil deforms as a plastic material. It is bracketed by the liquid limit (LL) and the plastic limit (PL). The liquid limit is the moisture content at which the soil becomes sufficiently "wet" to flow as a heavy viscous fluid. The plastic limit is the lowest moisture content at which the soil is sufficiently plastic to be manually rolled into tiny threads. The liquid limit and plastic limit are determined in accordance with ASTM D 4318.

Moisture Content: The Moisture Content is determined according to ASTM D 2216.

Percent Finer Than 200 Sieve: Selected samples of soils are washed through a number 200 sieve to determine the percentage of material less than 0.074 mm in diameter.

Rock Strength Tests: To obtain strength data for rock materials encountered, unconfined compression tests are performed on selected samples. In the unconfined compression test, a cylindrical portion of the rock core is subjected to increasing axial load until it fails. The pressure required to produce failure is recorded, corrected for the length to diameter ratio of the core and reported.

Compaction Tests: Compaction tests are run on representative soil samples to determine the dry density obtained by a uniform compactive effort at varying moisture contents. The results of the test are used to determine the moisture content and unit weight desired in the field for similar soils. Proper field compaction is necessary to decrease future settlements, increase the shear strength of the soil and decrease the permeability of the soil.

The two most commonly used compaction tests are the Standard Proctor test and the Modified Proctor test. They are performed in accordance with ASTM D 698 and D 1557, respectively. Generally, the Standard Proctor compaction test is run on samples from building or parking areas where small compaction equipment is anticipated. The Modified compaction test is generally performed for heavy structures, highways, and other areas where large compaction equipment is expected. In both tests a representative soil sample is placed in a mold and compacted with a compaction hammer. Both tests have three alternate methods.

Test	Method	Hammer Wt./Fall	Mold Diam.	Run on Material Finer Than	No. of Layers	No. of Blows/ Layer
Standard D 698	A	5.5 lb./12"	4"	No. 4 sieve	3	25
	B	5.5 lb./12"	4"	3/8" sieve	3	25
	C	5.5 lb./12"	6"	3/4" sieve	3	56

Test	Method	Hammer Wt./Fall	Mold Diam.	Run on Material Finer Than	No. of Layers	No. of Blows/ Layer
Modified D 1557	A	10 lb./18"	4"	No. 4 sieve	5	25
	B	10 lb./18"	4"	3/8" sieve	5	25
	C	10 lb./18"	6"	3/4" sieve	5	56

The moisture content and unit weight of each compacted sample is determined. Usually 4 to 5 such tests are run at different moisture contents. Test results are presented in the form of a dry unit weight versus moisture content curve. The compaction method used and any deviations from the recommended procedures are noted in this report.

Laboratory California Bearing Ratio Tests: The California Bearing Ratio, generally abbreviated to CBR, is a punching shear test and is a comparative measure of the shearing resistance of a soil. It provides data that is a semi-empirical index of the strength and deflection characteristics of a soil. The CBR is used with empirical curves to design pavement structures.

A laboratory CBR test is performed according to ASTM D 1883. The results of the compaction tests are utilized in compacting the test sample to the desired density and moisture content for the laboratory California Bearing Ratio test. A representative sample is compacted to a specified density at a specified moisture content. The test is performed on a 6-inch diameter, 4.58-inch-thick disc of compacted soil that is confined in a cylindrical steel mold. The sample is compacted in accordance with Method C of ASTM D 698 or D 1557.

CBR tests may be run on the compacted samples in either soaked or unsoaked conditions. During testing, a piston approximately 2 inches in diameter is forced into the soil sample at the rate of 0.05 inch per minute to a depth of 0.5 inch to determine the resistance to penetration. The CBR is the percentage of the load it takes to penetrate the soil to a 0.1 inch depth compared to the load it takes to penetrate a standard crushed stone to the same depth. Test results are typically shown graphically.

MEMORANDUM OF LEASE

Prepared by:

Jean Jackson

Johnson Project Management

3605 Mattingly Road

Buckner, KY 40010

Return to:

New Cingular Wireless PCS, LLC

Attn: Network Real Estate Administration

Re: Cell Site #: LX5243; Cell Site Name: EKV Relo (KY)

Fixed Asset No: 10552886

Suite 13-F West Tower

575 Morosgo Drive

Atlanta, GA 30324

State: Kentucky

County: Madison

MEMORANDUM OF LEASE

This Memorandum of Lease is entered into on this 2ND day of FEBRUARY, 2015 by and between Tower Access Group, LLC, a Delaware limited liability company, having a mailing address of 108 Forbes Court, Suite 1, Richmond, Kentucky 40475 ("**Landlord**") and New Cingular Wireless PCS, LLC, a Delaware limited liability company, having a mailing address of Suite 13-F West Tower, 575 Morosgo Drive, Atlanta, Georgia 30324 ("**Tenant**").

1. Landlord and Tenant entered into a certain Structure Lease Agreement ("**Agreement**") on the 2ND day of FEBRUARY, 2015 for the purpose of installing, operating and maintaining a communications facility and other improvements. All of the foregoing are set forth in the Agreement.
2. The initial lease term will be ten (10) years ("**Initial Term**") commencing on the effective date of written notification by Tenant to Landlord of Tenant's exercise of the Option, with three (3) successive automatic five (5) year options to renew.
3. The portion of the land being leased to Tenant (the "**Premises**") is described in **Exhibit 1** annexed hereto.
4. This Memorandum of Lease is not intended to amend or modify, and shall not be deemed or construed as amending or modifying, any of the terms, conditions or provisions of the Agreement, all of which are hereby ratified and affirmed. In the event of a conflict between the provisions of this Memorandum of Lease and the provisions of the Agreement, the provisions of the Agreement shall control. The Agreement shall be binding upon and inure to the benefit of the parties and their respective heirs, successors, and assigns, subject to the provisions of the Agreement.

[SIGNATURES APPEAR ON THE NEXT PAGE]

IN WITNESS WHEREOF, the parties have executed this Memorandum of Lease as of the day and year first above written.

"LANDLORD"

Tower Access Group, LLC

By: David L. Ginter

Print Name: David L. Ginter

Its: President

Date: 2/2/15

"TENANT"

New Cingular Wireless PCS, LLC,

By: AT&T Mobility Corporation

Its: Manager

By: Terry R. Kilgore

Print Name: Terry R. Kilgore

Its: Area Manager-Construction & Engineering

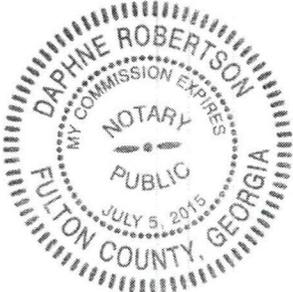
Date: 1/26/15

TENANT ACKNOWLEDGMENT

STATE OF GEORGIA)
) ss:
COUNTY OF FULTON)

On the 26 day of January, 2015, before me personally appeared Terry R. Kilgore, and acknowledged under oath that he is the Area Manager-Real Estate and Construction of AT&T Mobility Corporation, the Manager of New Cingular Wireless PCS, LLC, the Tenant named in the attached instrument, and as such was authorized to execute this instrument on behalf of the Tenant.

Daphne Robertson
Notary Public: DAPHNE ROBERTSON
My Commission Expires: 7/5/15



LANDLORD ACKNOWLEDGMENT

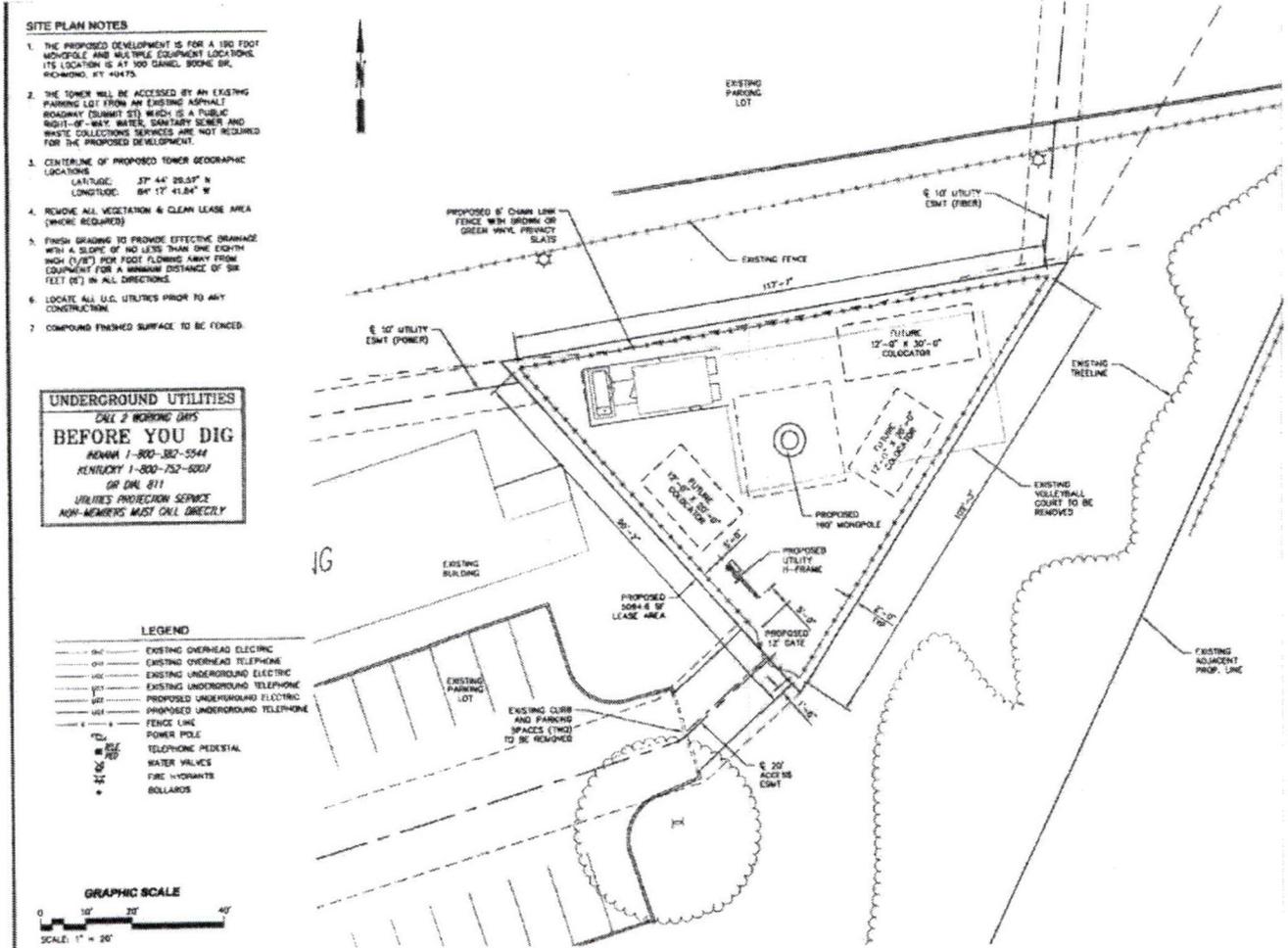
STATE OF KENTUCKY)
) ss:
COUNTY OF MADISON)

On the 2nd day of FEBRUARY, 2015 before me, personally appeared David L. Ginter, who acknowledged under oath, that he is the officer named in the within instrument, and that he executed the same in his stated capacity as the voluntary act and deed of the Landlord for the purposes therein contained.

Richard L. Ginter
Notary Public: 4713016
My Commission Expires: July 23 2016

EXHIBIT 1 - DESCRIPTION OF PREMISES

Page 2 of 2



Tenant's ground level Equipment Space: 360 square feet (12' x 30'), including 10' by 11.5' space for the installation of a diesel generator and 210 gallon fuel tank.



Mail Processing Center
 Federal Aviation Administration
 Southwest Regional Office
 Obstruction Evaluation Group
 2601 Meacham Boulevard
 Fort Worth, TX 76193

Aeronautical Study No.
 2014-ASO-2939-OE
 Prior Study No.
 2014-ASO-2881-OE

Issued Date: 04/15/2014

David Ginter
 Tower Access Group, LLC
 108 Forbes Court
 Suite 1
 Richmond, KY 40475

**** 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:	Monopole McKinney
Location:	Richmond, KY
Latitude:	37-43-52.06N NAD 83
Longitude:	84-17-52.57W
Heights:	988 feet site elevation (SE) 199 feet above ground level (AGL) 1187 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:

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)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

This determination expires on 10/15/2015 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 (404) 305-7082. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2014-ASO-2939-OE.

Signature Control No: 209167069-214017352

(DNE)

Earl Newalu
Specialist

Attachment(s)
Frequency Data

cc: FCC



McKinney

53

**UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
ANTENNA STRUCTURE REGISTRATION**



OWNER: TOWER ACCESS GROUP

FCC Registration Number (FRN): 0023247240

ATTN: DAVID GINTER TOWER ACCESS GROUP 108 FORBES COURT RICHMOND, KY 40475	Antenna Structure Registration Number 1292919	
	Issue Date 08-25-2014	
Location of Antenna Structure Off McKinney Skills Drive Richmond, KY County: MADISON	Ground Elevation (AMSL) 301.1 meters	
	Overall Height Above Ground (AGL) 60.7 meters	
Latitude 37-43-52.1 N	Longitude 084-17-52.6 W	Overall Height Above Mean Sea Level (AMSL) 361.8 meters
Center of Array Coordinates N/A		Type of Structure MTOWER Monopole
Painting and Lighting Requirements: NONE		
Conditions:		

This registration is effective upon completion of the described antenna structure and notification to the Commission. **YOU MUST NOTIFY THE COMMISSION WITHIN 24 HOURS OF COMPLETION OF CONSTRUCTION OR CANCELLATION OF YOUR PROJECT, please file FCC Form 854.** To file electronically, connect to the antenna structure registration system by pointing your web browser to <http://wireless.fcc.gov/antenna>. Electronic filing is recommended. You may also file manually by submitting a paper copy of FCC Form 854. Use purpose code "NT" for notification of completion of construction; use purpose code "CA" to cancel your registration.

The Antenna Structure Registration is not an authorization to construct radio facilities or transmit radio signals. It is necessary that all radio equipment on this structure be covered by a valid FCC license or construction permit.

You must immediately provide a copy of this Registration to all tenant licensees and permittees sited on the structure described on this Registration (although not required, you may want to use Certified Mail to obtain proof of receipt), and *display* your Registration Number at the site. See reverse for important information about the Commission's Antenna Structure Registration rules.

From: Houlihan, John (KYTC) John.Houlihan@ky.gov
Subject: RE: EKU Telecommunications Tower Locations
Date: February 26, 2014 at 10:20 AM
To: David Ginter dginter@toweraccessgroup.com

The above subject does not require a permit from the Kentucky Airport Zoning Commission. The structures does not exceed any of the following criteria:

602 KAR 50:030. Jurisdiction of the Kentucky Airport Zoning Commission.

RELATES TO: KRS 183.861, 183.865, 183.867, 183.870

STATUTORY AUTHORITY: KRS 183.861

NECESSITY, FUNCTION, AND CONFORMITY: KRS 183.867 specifies that the commission has jurisdiction over zoning for all public use and military airports. This administrative regulation defines the areas over which the Kentucky Airport Zoning Commission has jurisdiction for the purpose of zoning in accordance with KRS Chapter 183 and specifics when the owner or person who has control over a structure which encroaches on the jurisdiction of the Kentucky Airport Zoning Commission shall apply for a permit.

Section 1. The commission has zoning jurisdiction over that airspace over and around the public use and military airports within the Commonwealth which lies above the imaginary surface that extends outward and upward at one (1) of the following slopes:

(1) 100 to one (1) for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each public use and military airport with at least one (1) runway 3,200 feet or more in length; or

(2) Fifty (50) to one (1) for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each public use and military airport with its longest runway less than 3,200 feet in actual length.

Section 2. The commission has zoning jurisdiction over the use of land and structures within public use airports within the state.

Section 3. The commission has jurisdiction from the ground upward within the limits of the primary and approach surfaces of each public use and military airport as depicted on Airport Zoning Maps approved by the Kentucky Airport Zoning Commission.

Section 4. The commission has jurisdiction over the airspace of the Commonwealth that exceeds 200 feet in height above ground level.

Section 5. The owner or person who has control over a structure which penetrates or will penetrate the airspace over which the commission has jurisdiction shall apply for a permit from the commission in accordance with 602 KAR 50:090. (KAV-9-1; 1 Ky.R. 807; eff. 5-14-75; Am. 2 Ky.R. 306; eff. 3-10-76; 5 Ky.R. 599; eff. 3-7-79; 10 Ky.R. 445; eff. 1-4-84; 14 Ky.R. 267; eff. 9-10-87; 19 Ky.R. 800; eff. 11-4-92; 27 Ky.R. 2228; 2774; eff. 4-9-2001.)

Please keep this email for your records. Thank you.

Kentucky Airport Zoning Commission (KAZC)

John Houlihan, Administrator

90 Airport Road, Building 400

Frankfort, KY 40601

Direct Line 502-564-0310, Cell 502-330-3955, Office 502-564-4480, Fax 502-564-7953

KAZC webpage: <http://transportation.ky.gov/Aviation/Pages/Zoning-Commission.aspx>

CONFIDENTIALITY NOTICE: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail or call (502) 564-0310 and destroy all copies of the original message.

From: David Ginter [mailto:dginter@toweraccessgroup.com]
Sent: Wednesday, February 26, 2014 10:03 AM
To: Houlihan, John (KYTC)
Subject: EKU Telecommunications Tower Locations

(MCBRAYER)
ATTORNEYS AT LAW

W. BRENT RICE
BRICE@MMLK.COM

201 EAST MAIN STREET, SUITE 900
LEXINGTON, KENTUCKY 40507
(859) 231-8780 EXT. 115
FAX: (859) 231-6518

May 8, 2015

Hon. Jim Barnes
Mayor
City of Richmond
239 W Main St
Richmond, Kentucky 40475

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

RE: **Public Notice – Public Service Commission of Kentucky**
Case No. 2015-00145
Brockton Site

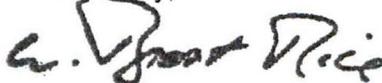
Dear Mayor Barnes:

Tower Access Group, LLC (“TAG”) has applied to the Kentucky Public Service Commission (the “Commission”) for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility located on the campus of Eastern Kentucky University (“EKU”) at 320 Madison Avenue, Richmond, Madison County, Kentucky. The Commission has jurisdiction over this matter because the facility will be located on property owned by the Commonwealth and is, by law, outside the jurisdiction of the local planning commission. TAG was awarded a contract by EKU to construct and operate monopoles on its campus for the purpose of expanding cellular telephone service. A map showing the location of the facility is attached. The proposed facility will include a 199’ monopole, plus related ground facilities.

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

Your comment and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, 211 Sower Blvd., PO Box 615, Frankfort, Kentucky 40602. Please refer to **Case No. 2015-00145** in any correspondence.

Sincerely,



W. Brent Rice
Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure

(MCBRAYER)

ATTORNEYS AT LAW

W. BRENT RICE
brice@mmlk.com

201 E. Main Street, Suite 900
Lexington, Kentucky 40507
(859) 231-8780
FAX (859) 231-6518

May 8, 2015

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Eastern Kentucky University
Madison Road
Richmond, KY 40475

RE: **Public Notice – Public Service Commission of Kentucky
Case No. 2015- 00145
Brockton Site**

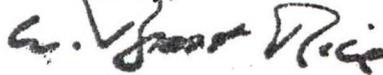
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Sincerely,



W. Brent Rice
Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure

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ATTORNEYS AT LAW

W. BRENT RICE
brice@mmlk.com

201 E. Main Street, Suite 900
Lexington, Kentucky 40507
(859) 231-8780
FAX (859) 231-6518

May 8, 2015

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

EKU University Counsel
521 Lancaster Avenue
Richmond, KY 40475

**RE: Public Notice – Public Service Commission of Kentucky
Case No. 2015- 00145
Brockton Site**

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Sincerely,



W. Brent Rice
Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure

(MCBRAYER)

ATTORNEYS AT LAW

W. BRENT RICE
brice@mmlk.com

201 E. Main Street, Suite 900
Lexington, Kentucky 40507
(859) 231-8780
FAX (859) 231-6518

May 8, 2015

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Jack L. and Barbara Ball Adams
239 Summit Street
Richmond, KY 40475

**RE: Public Notice – Public Service Commission of Kentucky
Case No. 2015- 00145
Brockton Site**

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Sincerely,



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Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure

(MCBRAYER)

ATTORNEYS AT LAW

W. BRENT RICE
brice@mmlk.com

201 E. Main Street, Suite 900
Lexington, Kentucky 40507
(859) 231-8780
FAX (859) 231-6518

May 8, 2015

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Harry Moberly, Jr.
119 Jacks Trace
Richmond, KY 40475

RE: **Public Notice – Public Service Commission of Kentucky
Case No. 2015- 00145
Brockton Site**

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Sincerely,



W. Brent Rice
Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure

(MCBRAYER)
ATTORNEYS AT LAW

W. BRENT RICE
brice@mmlk.com

201 E. Main Street, Suite 900
Lexington, Kentucky 40507
(859) 231-8780
FAX (859) 231-6518

May 8, 2015

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Summit at Madison LLC
230 North Second Street
Richmond, KY 40475

RE: **Public Notice – Public Service Commission of Kentucky
Case No. 2015- 00145
Brockton Site**

Dear Property Owner:

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Sincerely,



W. Brent Rice
Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure

(MCBRAYER)

ATTORNEYS AT LAW

W. BRENT RICE
brice@mmlk.com

201 E. Main Street, Suite 900
Lexington, Kentucky 40507
(859) 231-8780
FAX (859) 231-6518

May 8, 2015

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Beverly K. Perkins
235 Summit Street
Richmond, KY 40475

RE: **Public Notice – Public Service Commission of Kentucky
Case No. 2015- 00145
Brockton Site**

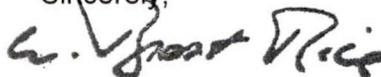
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Sincerely,



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Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure

(MCBRAYER)
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brice@mmlk.com

201 E. Main Street, Suite 900
Lexington, Kentucky 40507
(859) 231-8780
FAX (859) 231-6518

May 8, 2015

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Richmond City School
221 South Second Street
Richmond, KY 40475

RE: **Public Notice – Public Service Commission of Kentucky
Case No. 2015- 00145
Brockton Site**

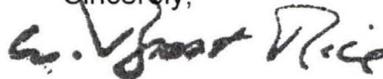
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Sincerely,



W. Brent Rice
Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure

(MCBRAYER)

ATTORNEYS AT LAW

W. BRENT RICE
brice@mmlk.com

201 E. Main Street, Suite 900
Lexington, Kentucky 40507
(859) 231-8780
FAX (859) 231-6518

May 8, 2015

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Richmond Cemetery
Big Hill Avenue
Richmond, KY 40475

RE: **Public Notice – Public Service Commission of Kentucky
Case No. 2015- 00145
Brockton Site**

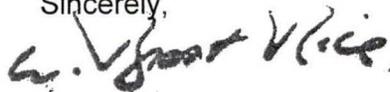
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W. Brent Rice
Counsel for Tower Access Group, LLC

WBR/dkw
Enclosure