

# Loudon County Planning Department

101 Mulberry Street, Suite 101  
Loudon, Tennessee 37774  
Office: 865-458-2055  
Fax: 865-458-3598  
[www.loudoncounty-tn.gov](http://www.loudoncounty-tn.gov)

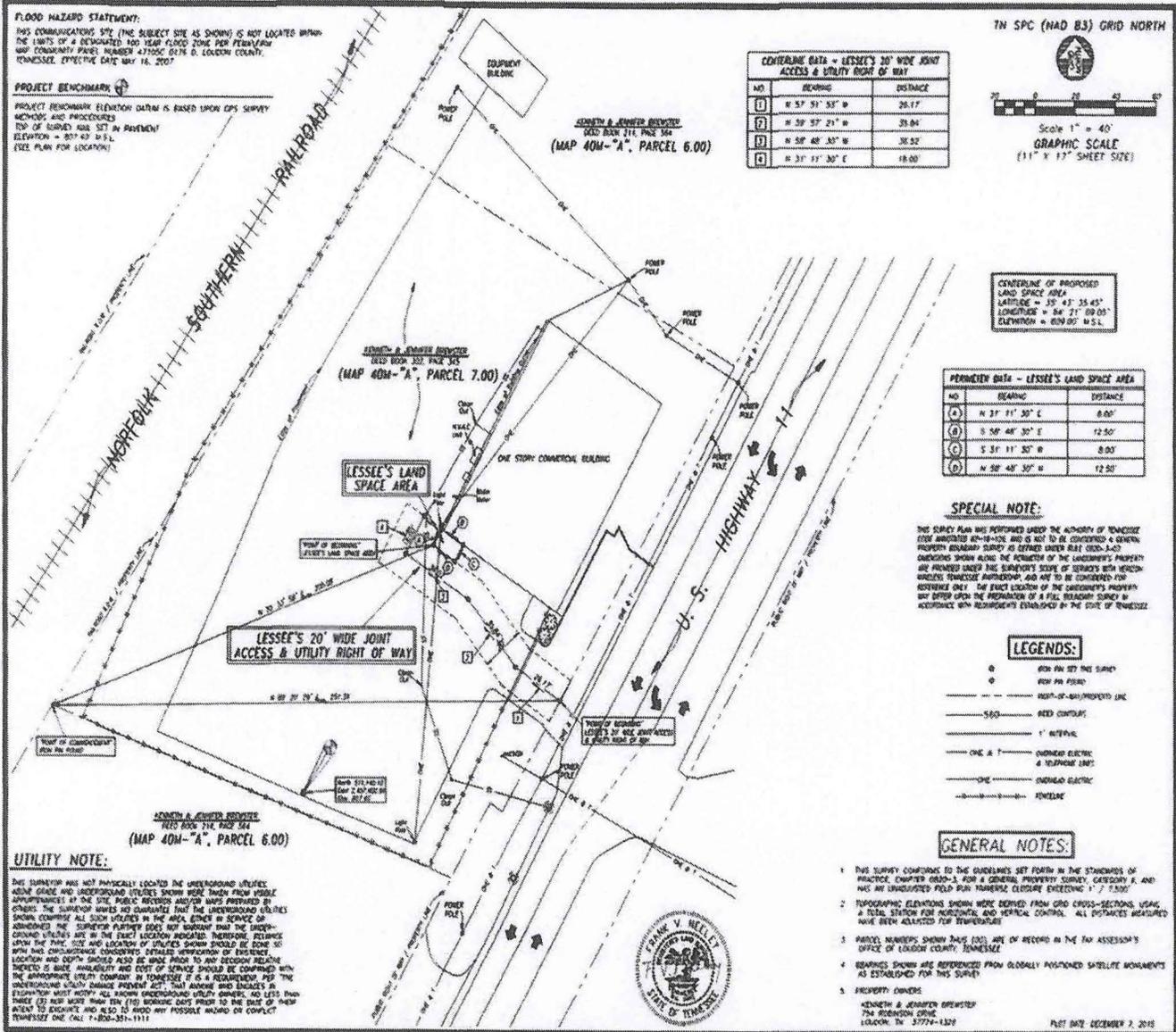
## AGENDA

LOUDON REGIONAL PLANNING COMMISSION  
LOUDON CITY HALL

WEDNESDAY, APRIL 6, 2016

*Immediately following the Planning Commission Meeting*

1. Call To Order
2. Pledge of Allegiance
3. Roll Call
4. Approval of Minutes for March 2, 2016 meeting
5. New Business
  - A. Site Plan, Verizon Wireless cell tower, 1042 Mulberry Street, Tax Map 40M, Group A, Parcel 007.00, C-2, Highway Business District, Kenneth and Jennifer Brewster, property owners;
  - B. Reminder of Plain Talk Conference;
6. Additional Public Comments
7. Announcements and/or Comments from the Board/Commission
8. Adjournment



**VERTIZON WIRELESS**

SHARONDA SURVEYING INC.  
1000 W. MAIN ST. SUITE 100  
LOUDON, TN 37774-1320  
TEL: 615-963-1111  
FAX: 615-963-1112

VERTIZON WIRELESS TENNESSEE PARTNERSHIP SITE SURVEY  
D/B/A/ VERTIZON WIRELESS  
"KNOXVILLE / KEENE STREET" EQUIPMENT SITE  
LOCATED IN: LOUDON, LOUDON COUNTY, TENNESSEE  
"LAND SPACE" AREA SURVEY  
VERTIZON WIRELESS TENNESSEE PARTNERSHIP SITE NO.: 266358

SHEET NUMBER  
**1 OF 2**

PROJECT NUMBER  
**215.097.20**

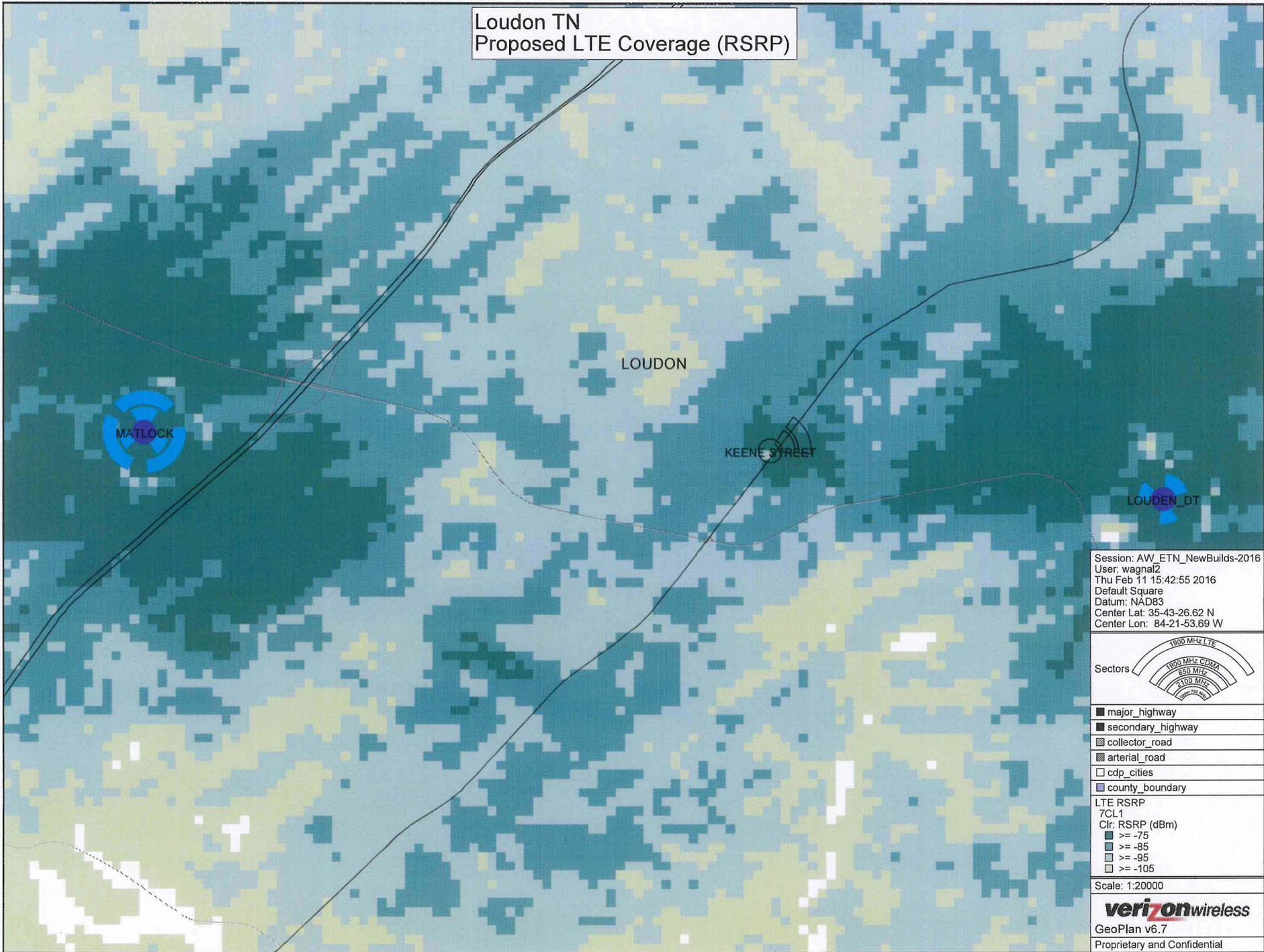
SURVEY OF PREMISES

Exhibit "B"

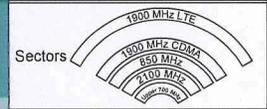


PLAT DATE: DECEMBER 7, 2010

Loudon TN  
Proposed LTE Coverage (RSRP)



Session: AW\_ETN\_NewBuilds-2016  
User: wagnal2  
Thu Feb 11 15:42:55 2016  
Default Square  
Datum: NAD83  
Center Lat: 35-43-26.62 N  
Center Lon: 84-21-53.69 W



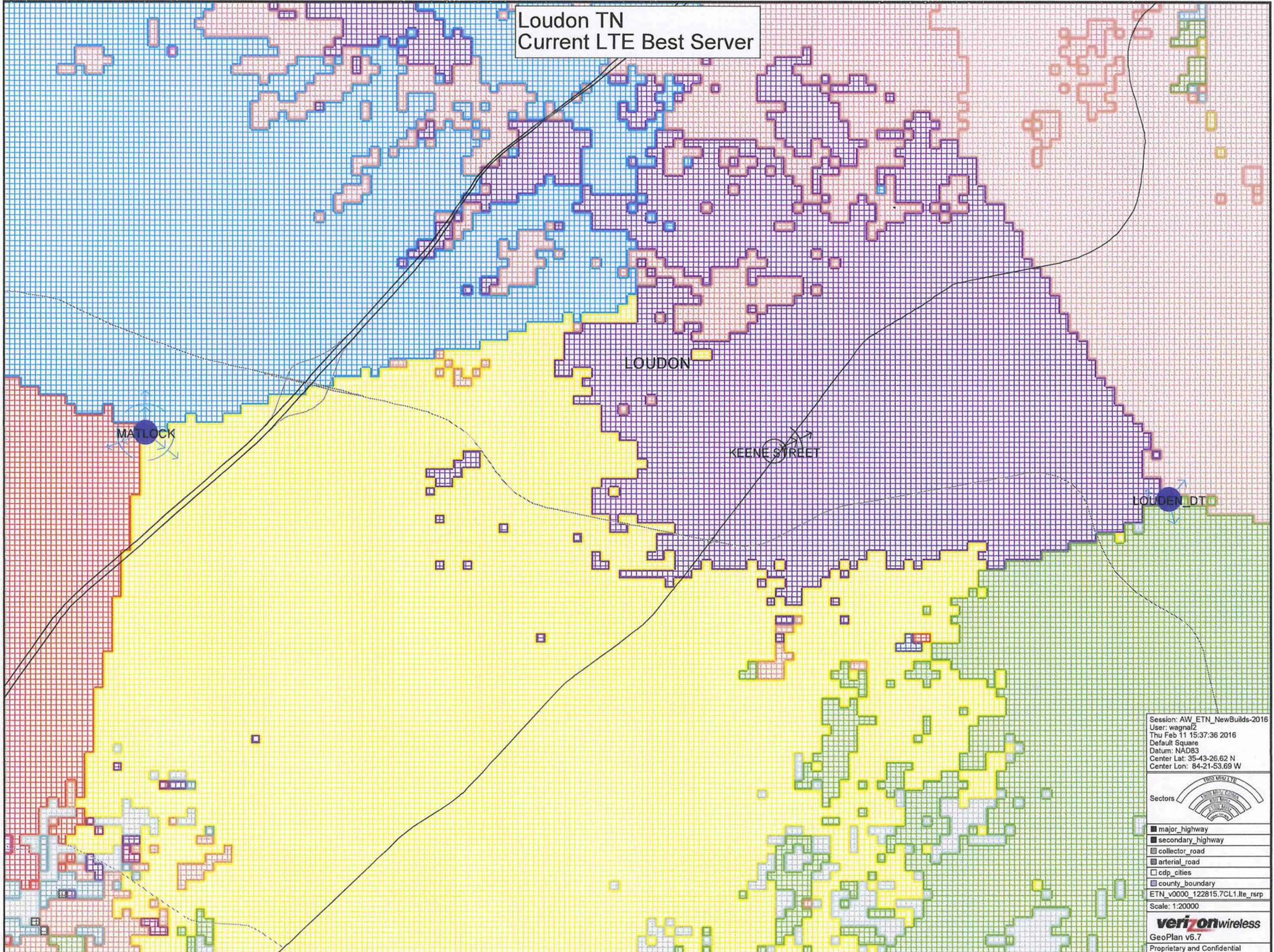
- major\_highway
- secondary\_highway
- collector\_road
- arterial\_road
- cdp\_cities
- county\_boundary

LTE RSRP  
7CL1  
Clr: RSRP (dBm)  
■ >= -75  
■ >= -85  
■ >= -95  
■ >= -105

Scale: 1:20000

**verizon**wireless  
GeoPlan v6.7  
Proprietary and Confidential

Loudon TN  
Current LTE Best Server



MAINLOCK

LOUDON

KEENE STREET

LOUDON, TN

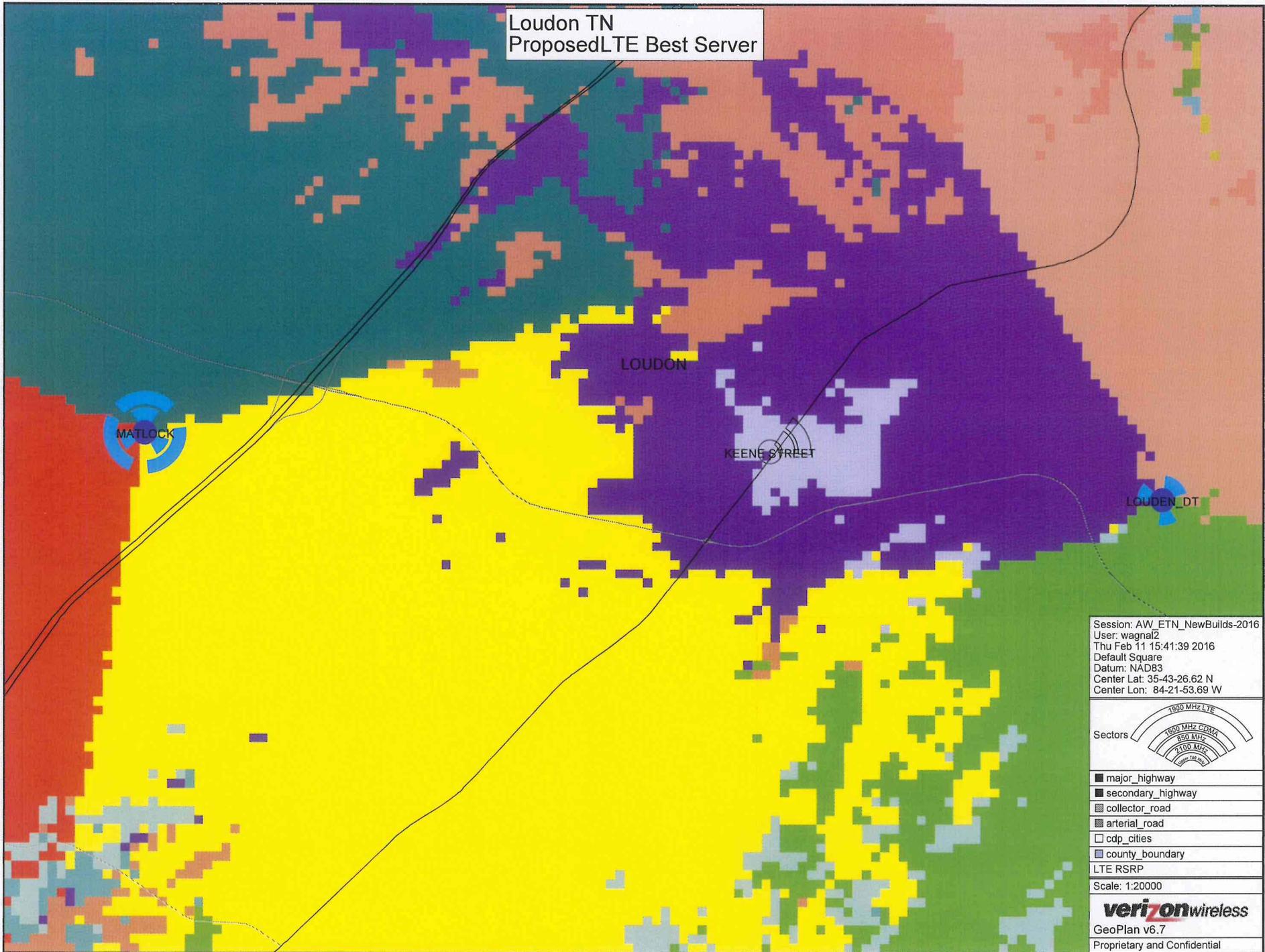
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Center Lon: -84-21-53.69 W



- major\_highway
  - secondary\_highway
  - collector\_road
  - arterial\_road
  - cdp\_cities
  - county\_boundary
- ETN\_y0000\_122815.7CL1.ite\_rsrp  
Scale: 1:20000

verizon wireless  
GeoPlan v5.7  
Proprietary and Confidential

Loudon TN  
Proposed LTE Best Server



Session: AW\_ETN\_NewBuilds-2016  
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Center Lon: 84-21-53.69 W



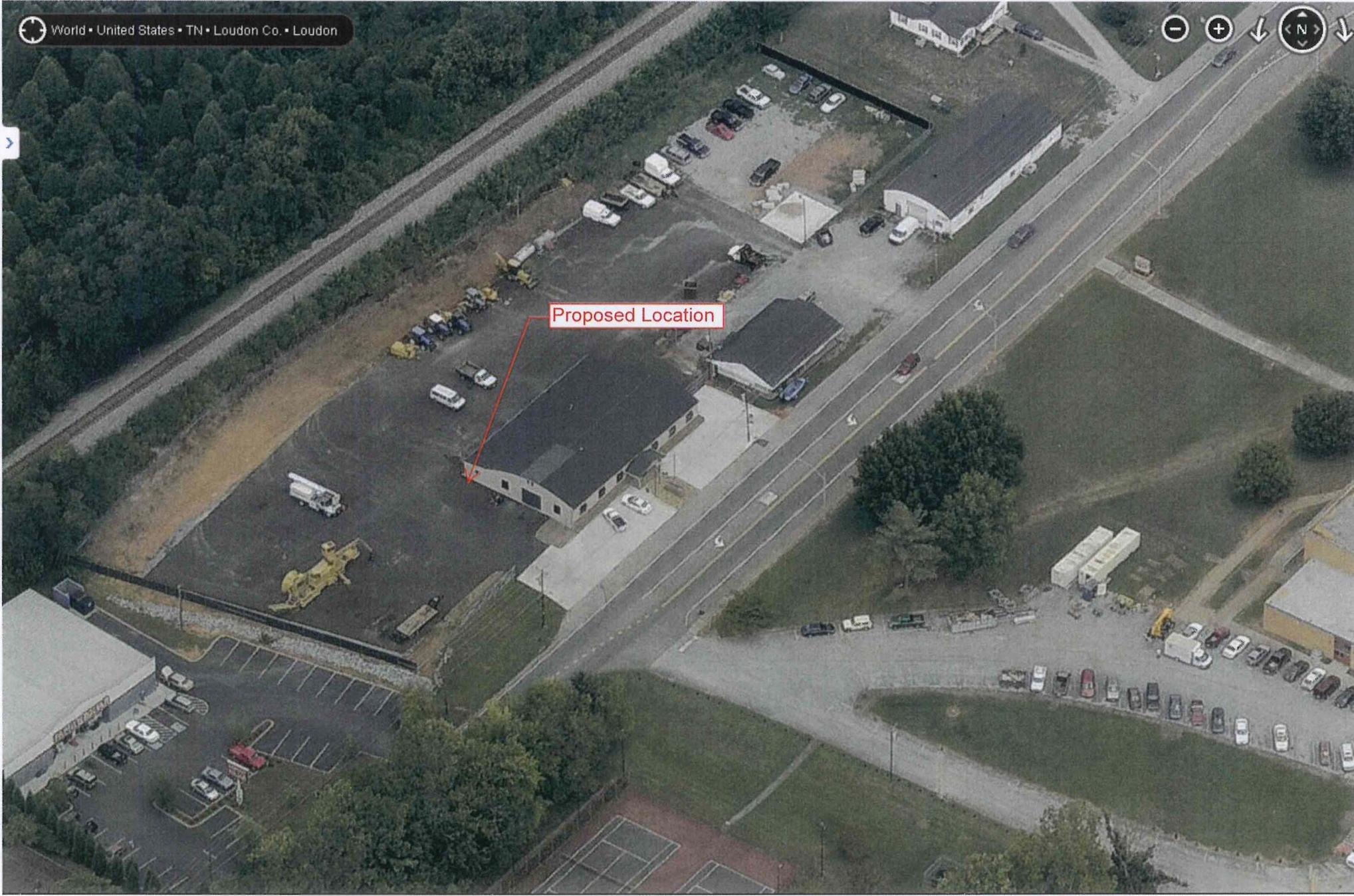
- major\_highway
- secondary\_highway
- collector\_road
- arterial\_road
- cdp\_cities
- county\_boundary

LTE RSRP  
Scale: 1:20000

**verizon**wireless  
GeoPlan v6.7  
Proprietary and Confidential



Proposed Location



# verizon wireless

## Tennessee Partnership

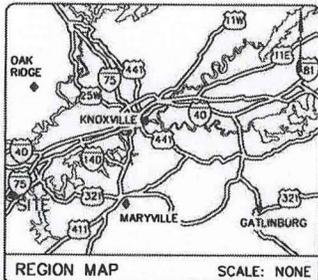
### KEENE STREET

### SITE NO. 266358

### PROJECT NO. 21030887094

1042 MULBERRY ST  
LOUDON COUNTY  
LOUDON, TN 37774

PROPOSED 50' MONOPOLE TOWER  
WITH MULTIPLE CARRIERS



#### POWER COMPANY

LOUDON UTILITIES  
CONTACT: -  
PHONE: (865) 458-2091

#### TELEPHONE COMPANY

BELL SOUTH  
CONTACT: TBD  
PHONE: (865) 458-1039

#### LAW ENFORCEMENT

LOUDON COUNTY SHERIFF OFFICE  
PHONE: (865) 986-4823

#### FIRE DEPARTMENT

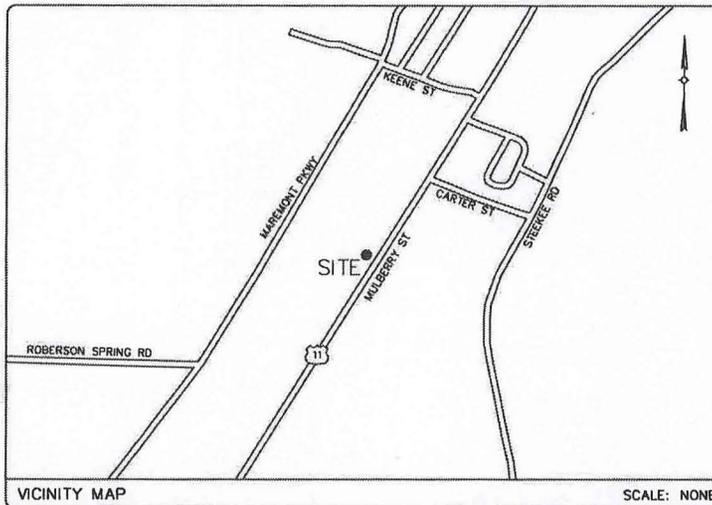
LOUDON COUNTY FIRE DEPARTMENT  
PHONE: (865) 986-2882

#### CONTACTS

ARCHITECTURAL DESIGN  
ENGINEER



3001 TAYLOR SPRINGS DRIVE  
LOUISVILLE, KENTUCKY 40220  
(502) 459-8402 PHONE  
(502) 459-8427 FAX



FROM VERIZON WIRELESS MTSO: STARTING FROM 575 HICKORY HILLS BLVD WHITE CREEK, TN, HEAD SOUTH TOWARD HICKORY HILLS CT. TURN RIGHT ONTO W OLD HICKORY BLVD (0.3 MI.). TURN LEFT TO MERGE ONTO I-24 TOWARD NASHVILLE (14.3 MI.). TAKE EXIT 6A-6B TO MERGE ONTO I-40 E TOWARD KNOXVILLE (15.3 MI.). TAKE EXIT 368 TO MERGE ONTO I-75 S TOWARD CHATTANOOGA (12.3 MI.). TAKE EXIT 72 FOR TN-72 TOWARD LOUDON. (0.4 MI.). TURN LEFT ONTO TN-72 E/LOUDON HWY (2.5 MI.). TURN LEFT ONTO MULBERRY ST (0.7 MI.). SITE WILL BE ON THE LEFT.

DIRECTIONS TO SITE

**SITE NAME**  
KEENE STREET  
**SITE NUMBER**  
266358

**SITE ADDRESS**  
1042 MULBERRY ST  
LOUDON, TN 37774

**PROPERTY OWNER**  
KENNETH N. & JENNIFER F. BREWSTER  
754 ROBINSON DR  
LOUDON, TN 37774  
CONTACT: KENNETH N. BREWSTER  
PHONE: (865) 458-8887

**APPLICANT**  
VERIZON WIRELESS  
575 HICKORY HILLS BLVD  
WHITE CREEK, TN 37189  
CONTACT: JANUSZ MAKOWSKI  
PHONE: (704) 510-8542

**STRUCTURE TYPE**  
MONOPOLE  
**STRUCTURE HEIGHT**  
50' AGL  
**RAD CENTER**  
40' AGL

**LATITUDE /LONGITUDE**  
35° 43' 35.45" N  
84° 21' 09.05" W

**SITE ELEVATION**  
809' AMSL  
**AREA OF PARCEL**  
LEASE AREA = 100 SF

PROJECT INFORMATION

#### VERIZON CONSTRUCTION

N/A  
**SITE ACQUISITION**  
CHUCK BURTON  
**CONSTRUCTION MANAGEMENT**  
JACK SADLER  
**SURVEYOR**  
FRANK NEELY  
**ARCHITECTURE/ENGINEERING**  
PHIL HEID  
**SITE VISIT ATTENDEES**

**SHEET NUMBER**      **DESCRIPTION**  
T-1      TITLE SHEET, SITE INFO AND SHEET INDEX  
**SURVEY**  
S-1 OF 2      SURVEY PLAN  
S-2 OF 2      LEGAL DESCRIPTION AND EXHIBIT  
**ARCHITECTURAL**  
C-2      OVERALL SITE PLAN  
C-3      DETAILED SITE PLAN  
C-4      TOWER ELEVATIONS  
C-5      NOT USED  
C-6      CONCRETE PAD DETAILS  
C-7      NOT USED  
C-8      FENCE DETAILS  
C-9      NOT USED  
C-10      ANTENNA AND COAX DETAILS  
C-11      CANOPY DETAILS  
**ELECTRICAL**  
E-1 - 1A      CONDUIT ROUTING PLAN  
E-2      GROUNDING PLAN  
E-3      EQUIPMENT GROUNDING PLAN  
E-4      ELECTRICAL AND GROUND NOTES  
E-5      UTILITY H-FRAME  
E-6      ELECTRICAL DETAILS  
E-7      GROUNDING DETAILS

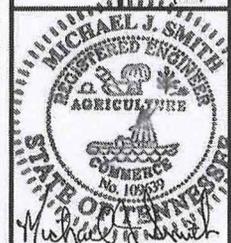
**SHEET INDEX**

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE TENNESSEE ONE CALL SYSTEM, PHONE 1-800-351-1111, WHICH WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER 72 HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. ALL NEW SERVICE AND GROUNDING TRENCHES PROVIDE A WARNING TAPE AT 12 INCHES ABOVE BURIED UTILITIES.

UTILITY PROTECTION NOTE

verizon wireless  
TENNESSEE PARTNERSHIP  
575 HICKORY HILLS BLVD  
WHITE CREEK, TENNESSEE 37189  
PHONE: (615) 714-7114  
FAX: (615) 831-9411

BTM Engineering, Inc.  
PLANNERS & SURVEYORS  
LANDSCAPE ARCHITECTS  
3001 TAYLOR SPRINGS DRIVE  
LOUISVILLE, KY 40220  
PHONE: (502) 459-8402  
FAX: (502) 459-8427



**SITE NAME:** KEENE STREET  
**SITE NUMBER:** 266358  
**SITE ADDRESS:** 1042 MULBERRY ST  
LOUDON, TN 37774  
**AREA:** LEASE AREA = 100 SF  
**PROPERTY OWNER:** KENNETH N. & JENNIFER BREWSTER  
754 ROBINSON DRIVE  
LOUDON, TN 37774  
**TAX MAP NUMBER:** 040M      **PARCEL NUMBER:** A-00.700-000  
**SOURCE OF TITLE:** DEED BOOK D302 PAGE 345  
**LATITUDE:** N 35° 43' 35.45"  
**LONGITUDE:** W 84° 21' 09.05"

NO.	DESCRIPTION	DATE	CHK
1	K/L ISSUE FOR COMMENT	08/23/15	PHI
2	N/R ISSUE FOR COMMENT	08/24/15	PHI
3	N/R ISSUE FOR COMMENT	09/28/15	PHI
4	N/R ISSUE FOR COMMENT	11/05/15	PHI
5	K/L ISSUE FOR COMMENT	11/10/15	PHI
6	K/L ISSUE FOR COMMENT	01/18/16	PHI
7	K/L ISSUE FOR COMMENT	01/20/16	PHI
8	K/L CONSTRUCTION ISSUE		

**TITLE:** TITLE SHEET, SITE INFO AND SHEET INDEX

**SHEET:** T-1

**FLOOD HAZARD STATEMENT:**

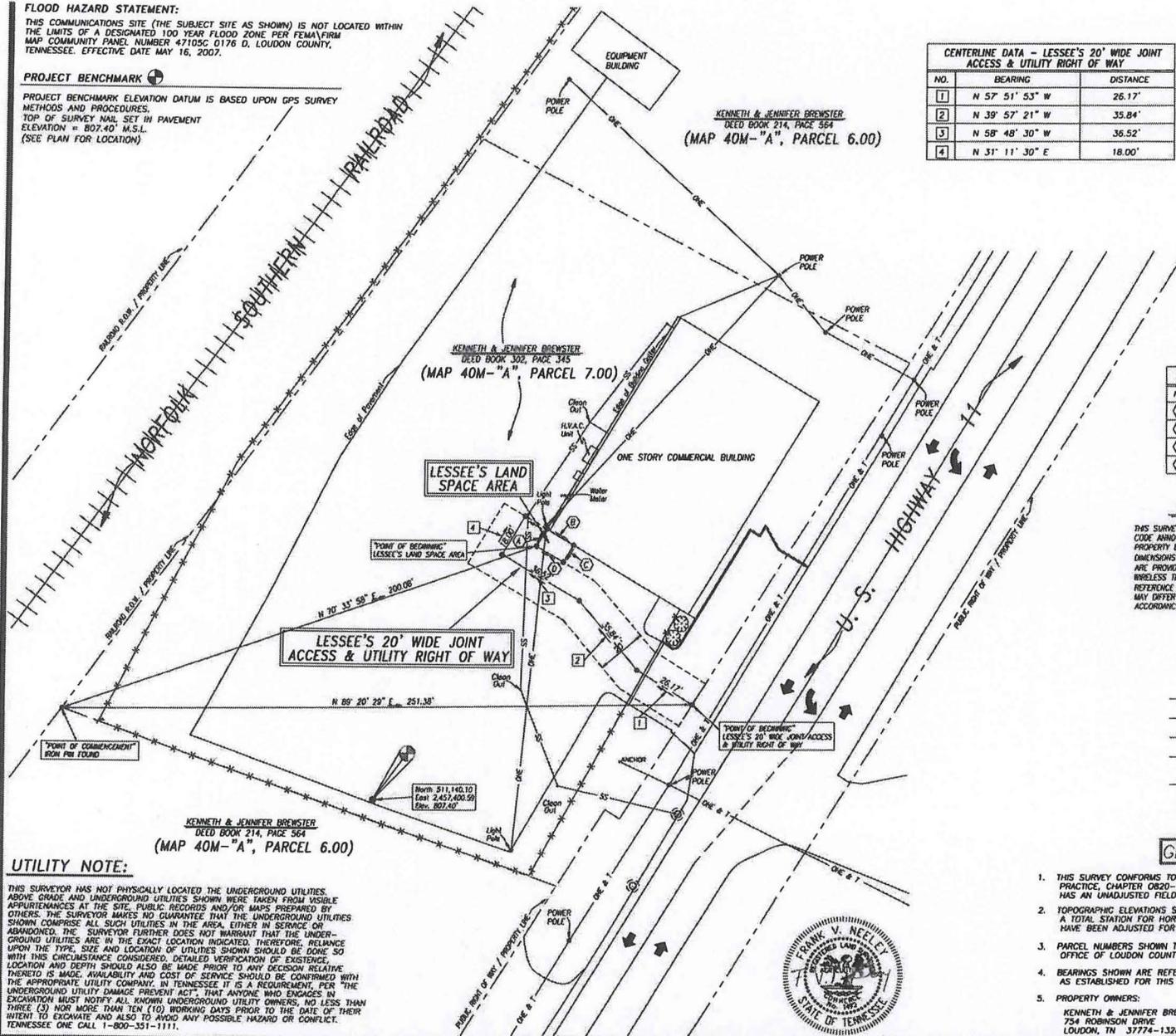
THIS COMMUNICATIONS SITE (THE SUBJECT SITE AS SHOWN) IS NOT LOCATED WITHIN THE LIMITS OF A DESIGNATED 100 YEAR FLOOD ZONE PER FEMA/FIRM MAP COMMUNITY PANEL NUMBER 4710SC 0176 D, LOUDON COUNTY, TENNESSEE. EFFECTIVE DATE MAY 16, 2007.

**PROJECT BENCHMARK**

PROJECT BENCHMARK ELEVATION DATUM IS BASED UPON GPS SURVEY METHODS AND PROCEDURES. TOP OF SURVEY NAIL SET IN PAVEMENT ELEVATION = 807.40' M.S.L. (SEE PLAN FOR LOCATION)

**UTILITY NOTE:**

THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES AT THE SITE, PUBLIC RECORDS AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF UTILITIES SHOWN SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY. IN TENNESSEE IT IS A REQUIREMENT, PER THE UNDERGROUND UTILITY DAMAGE PREVENT ACT THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNERS, NO LESS THAN THREE (3) NOR MORE THAN TEN (10) WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD OR CONFLICT. TENNESSEE ONE CALL 1-800-351-1111.



**CENTERLINE DATA - LESSEE'S 20' WIDE JOINT ACCESS & UTILITY RIGHT OF WAY**

NO.	BEARING	DISTANCE
1	N 57° 51' 53" W	26.17'
2	N 39° 57' 21" W	35.84'
3	N 58° 48' 30" W	36.52'
4	N 31° 11' 30" E	18.00'

TN SPC (NAD 83) GRID NORTH



Scale 1" = 40'  
GRAPHIC SCALE  
(11" X 17" SHEET SIZE)

CENTERLINE OF PROPOSED LAND SPACE AREA  
LATITUDE = 35° 43' 35.45"  
LONGITUDE = 84° 21' 09.05"  
ELEVATION = 809.00' M.S.L.

**PERIMETER DATA - LESSEE'S LAND SPACE AREA**

NO.	BEARING	DISTANCE
(A)	N 31° 11' 30" E	8.00'
(B)	S 58° 48' 30" E	12.50'
(C)	S 31° 11' 30" W	8.00'
(D)	N 58° 48' 30" W	12.50'

**SPECIAL NOTE:**

THIS SURVEY PLAN WAS PERFORMED UNDER THE AUTHORITY OF TENNESSEE CODE ANNOTATED 22-10-125, AND IS NOT TO BE CONSIDERED A GENERAL PROPERTY BOUNDARY SURVEY AS DEFINED UNDER RULE 0820-3-07. DIMENSIONS SHOWN ALONG THE PERIMETER OF THE LANDOWNER'S PROPERTY ARE PROVIDED UNDER THIS SURVEYOR'S SCOPE OF SERVICES WITH VERIZON WIRELESS TENNESSEE PARTNERSHIP, AND ARE TO BE CONSIDERED FOR REFERENCE ONLY. THE EXACT LOCATION OF THE LANDOWNER'S PROPERTY MAY DIFFER UPON THE PREPARATION OF A FULL BOUNDARY SURVEY IN ACCORDANCE WITH REQUIREMENTS ESTABLISHED BY THE STATE OF TENNESSEE.

**LEGENDS:**

- IRON PIN SET THIS SURVEY
- IRON PIN FOUND
- RIGHT-OF-WAY/PROPERTY LINE
- INDEX CONTOURS
- 1' INTERVAL
- OHE & T OVERHEAD ELECTRIC & TELEPHONE LINES
- OHE OVERHEAD ELECTRIC
- x-x-x-x- FENCELINE

**GENERAL NOTES:**

- THIS SURVEY CONFORMS TO THE GUIDELINES SET FORTH IN THE STANDARDS OF PRACTICE, CHAPTER 0820-3, FOR A GENERAL PROPERTY SURVEY, CATEGORY B, AND HAS AN UNADJUSTED FIELD RUN TRAVERSE CLOSURE EXCEEDING 1' / 7,500'.
- TOPOGRAPHIC ELEVATIONS SHOWN WERE DERIVED FROM GRID CROSS-SECTIONS, USING A TOTAL STATION FOR HORIZONTAL AND VERTICAL CONTROL. ALL DISTANCES MEASURED HAVE BEEN ADJUSTED FOR TEMPERATURE.
- PARCEL NUMBERS SHOWN THUS (00), ARE OF RECORD IN THE TAX ASSESSOR'S OFFICE OF LOUDON COUNTY, TENNESSEE.
- BEARINGS SHOWN ARE REFERENCED FROM GLOBALLY POSITIONED SATELLITE MONUMENTS AS ESTABLISHED FOR THIS SURVEY.
- PROPERTY OWNERS:

KENNETH & JENNIFER BREWSTER  
754 ROBINSON DRIVE  
LOUDON, TN 37774-1328

PLOT DATE: DECEMBER 7, 2015



SHARONDALE SURVEYING INC.  
4205 HILLSBORO PLACE  
KNOXVILLE, TENNESSEE 37603  
PHONE: 615-585-8870  
FAX: 615-585-8870  
Email: sharon@sdasurvey.com

VERIZON WIRELESS TENNESSEE PARTNERSHIP SITE SURVEY  
D/B/A/ VERIZON WIRELESS  
"KNOXVILLE / KEENE STREET" EQUIPMENT SITE  
LOCATED IN: LOUDON, LOUDON COUNTY, TENNESSEE  
"LAND SPACE" AREA SURVEY  
VERIZON WIRELESS TENNESSEE PARTNERSHIP SITE NO.: 266358

SHEET NUMBER:  
**1 OF 2**  
PROJECT NUMBER:  
**215.097.20**

**LESSEE'S LAND SPACE AREA DESCRIPTION**

Beginning of a survey nail set at the west corner of Lessee's land space area located at Tennessee State Plane (NAD 83) Grid Coordinate North 511,242.26, East 2,457,465.16, said iron pin being North 67 degrees 21 minutes 19 seconds East, 201.48 feet from an iron pin found in the south margin of the Norfolk Southern Railroad representing the southwest corner of the property conveyed to Kenneth N. Brewster and wife, Jennifer F. Brewster, of record in Deed Book 302, Page 345, of the Register's Office of Loudon County, Tennessee;

- Thence, North 31 degrees 11 minutes 30 seconds East, 8.00 feet to a survey nail set at the north corner of Lessee's land space area;
- Thence, South 58 degrees 48 minutes 30 seconds East, 12.50 feet to a survey nail set at the east corner of Lessee's land space area;
- Thence, South 31 degrees 11 minutes 30 seconds West, 8.00 feet to a survey nail set at the south corner of Lessee's land space area;
- Thence, North 58 degrees 48 minutes 30 seconds West, 12.50 feet to the point of beginning, containing 100 square feet, (0.002 acres);

Being a portion of the property conveyed to Kenneth N. Brewster and wife, Jennifer F. Brewster, of record in Deed Book 302, Page 345, of the Register's Office of Loudon County, Tennessee.

**LESSEE'S TWENTY FOOT WIDE JOINT ACCESS & UTILITY RIGHT OF WAY AREA DESCRIPTION**

Being a twenty foot wide joint access and utility right of way extending from the northwest margin of U.S. Highway 11 to Lessee's land space area, of all lines being ten feet wide each side of and parallel with the following described centerline:

Beginning of a survey nail set in the northeast corner of U. S. Highway 11 located at Tennessee State Plane (NAD 83) Grid Coordinate North 511,176.56, East 2,457,527.84, said survey nail being North 89 degrees 20 minutes 29 seconds East, 251.39 feet from an iron pin found in the south margin of the Norfolk Southern Railroad representing the southeast corner of the property conveyed to Kenneth N. Brewster and wife, Jennifer F. Brewster, of record in Deed Book 302, Page 345, of the Register's Office of Loudon County, Tennessee;

- Thence, leaving the northeast corner of U. S. Highway 11, North 57 degrees 51 minutes 53 seconds West, 26.17 feet to a survey nail set;
- Thence, North 39 degrees 57 minutes 21 seconds West, 35.84 feet to a survey nail;
- Thence, North 58 degrees 48 minutes 30 seconds West, 36.52 feet to a survey nail set;
- Thence, North 31 degrees 11 minutes 30 seconds East, 18.00 feet to the point of termination, containing 2,331 square feet, (0.054 acres);

Being a portion of the property conveyed to Kenneth N. Brewster and wife, Jennifer F. Brewster, of record in Deed Book 302, Page 345, of the Register's Office of Loudon County, Tennessee.

**UNDERLYING LANDOWNER'S PROPERTY AREA DESCRIPTION**

SITUATED in the First Civil District of Loudon County, Tennessee, identified on Tax Map 40M Group A as Parcel 7.00 in the Office of the Property Assessor for said county, within the corporate limits of the City of Loudon, Tennessee, and being more particularly described as follows:

BEGINNING at a point in the right-of-way line of Highway 11, corner with J.O.T. Development property; thence leaving the road and with J.O.T. Development property, North 58 degrees 16 minutes 59 seconds West, 209.37 feet to a point in the right-of-way of Southern Railway; thence with the right-of-way of Southern Railway, North 34 degrees 11 minutes 36 seconds East, 203.07 feet to a 40 inch Hackberry Tree, corner with Parcel 6.00; thence leaving the right-of-way of Southern Railway and with Parcel 6.00, South 58 degrees 05 minutes East, 193.52 feet to a point in the right-of-way line of Highway 11; thence with the right-of-way line of Highway 11, South 30 degrees 01 minute 17 seconds West, 216.60 feet to a point; thence North 30 degrees 50 minutes 30 seconds West, 7.00 feet to a point; thence South 30 degrees 01 minute 00 seconds West, 36.30 feet to the point of BEGINNING, containing 1.242 acres and being improved with a building according to survey of James A. Blair, TN RLS No. 878 dated 9/26/05 to which survey reference is here made.

BEING the same property conveyed to Richard Broyles and wife, Nancy Broyles by warranty deed dated July 25, 1995, from Edward R. Seiter (an unmarried man) of record in Deed Book 220 at Page 670, in the Register's Office of Loudon County, Tennessee.

**SURVEYOR'S STATEMENTS:**

I hereby state to Verizon Wireless Tennessee Partnership, D/B/A Verizon Wireless, "Lessee", Baker, O'nehan, Barrman, Colwell and Gotschalt, PC, and Kenneth N. Brewster and wife, Jennifer F. Brewster, that (i) the site survey prepared for the benefit of Lessee, dated September 14, 2015, last revised December 7, 2015, and labeled Project No. 215.097.20 was actually made in the field by me or under my supervision; (ii) this survey is a Category "Y" Survey under the standards established by the Tennessee Board of Land Surveyors; (iii) the ratio of precision of the unadjusted survey is 1:7,500+ as shown herein; (iv) this survey is a true and correct survey of the property shown hereon (the "Property"); (v) this survey correctly shows the location of all rights-of-way, easements and any other encumbrances affecting the property, and all such encumbrances and if any of said encumbrances are not shown on this survey, the location of these encumbrances is such that they do not affect the "KNOXVILLE / KEENE STREET" Equipment Site, nor the access or utilities thereto; (vi) except as expressly shown on this survey in an enlarged depiction separated from the drawing of the Property, no improvements encroach across the boundaries of the Property or any easement, right-of-way or other encumbrances located thereon; (vii) the boundary lines of the Property form a mathematically closed figure within ± 0.01 ft; (viii) this survey shows all improvements located on the Property; (ix) all streets shown hereon have been publicly dedicated and accepted, and (x) no part of the Property lies within any designated 100 year flood plain, flood prone area, special flood hazard area or flood way, as shown on the most recent Flood Hazard Boundary Maps prepared by the U.S. Department of Housing and Urban Development, which maps indicate that the Property is located in Flood Zone "X".

*F. V. Nealey*

Frank V. Nealey, Registered Land Surveyor  
State of Tennessee RLS # 1493.



PLOT DATE: DECEMBER 7, 2015



SHARONDALE  
SURVEYING  
INC.  
4005 HILLSBORO WISE  
RD  
KNOXVILLE, TN 37918  
615-585-7070  
www.sharondale.com

VERIZON WIRELESS TENNESSEE PARTNERSHIP SITE SURVEY  
D/B/A VERIZON WIRELESS  
"KNOXVILLE / KEENE STREET" EQUIPMENT SITE  
LOCATED IN: LOUDON, LOUDON COUNTY, TENNESSEE  
"LAND SPACE" AREA SURVEY  
VERIZON WIRELESS TENNESSEE PARTNERSHIP SITE NO.: 266358

SHEET NUMBER:  
**2 OF 2**  
PROJECT NUMBER:  
215.097.20

**SITE PLAN NOTES:**

THE PROPOSED DEVELOPMENT IS FOR A 50 FOOT MONOPOLE TOWER WITH MULTIPLE CARRIERS. ITS LOCATION IS AT 1042 MULBERRY STREET LOUDON, TN 37774.

THE TOWER WILL BE ACCESSED BY AN EXISTING STABILIZED DRIVE FROM AN EXISTING ASPHALT ROADWAY (MULBERRY ST). 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.

CENTERLINE OF PROPOSED TOWER GEOGRAPHIC LOCATIONS:  
 LATITUDE: 35° 43' 35.45" N  
 LONGITUDE: 84° 21' 09.05" W

**NOTE:**

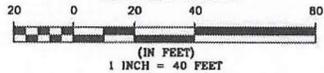
1. REMOVE ALL VEGETATION AND CLEAN AREA WITHIN LEASE AREA (CLEAR AND GRUB ENTIRE LEASE AREA).
2. FINISH GRADING TO PROVIDE EFFECTIVE DRAINAGE WITH A SLOPE OF NO LESS THAN ONE EIGHT INCH (1/8") PER FOOT FLOWING AWAY FROM EQUIPMENT FOR A MINIMUM DISTANCE OF SIX FEET (6') IN ALL DIRECTIONS.
3. LOCATE ALL UNDERGROUND UTILITIES PRIOR TO ANY CONSTRUCTION.
4. ALL REFERENCES TO THE TOWER AND ITS FOUNDATION ARE DIRECTED TO THE DESIGN AND DETAIL DRAWINGS BY THE TOWER SUPPLIER WHICH SHALL BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF TENNESSEE.
5. CONTRACTOR TO PLACE CULVERTS, DRAINAGE DITCHES, DIVERTERS, ETC. AS REQUIRED TO CONTROL DRAINAGE ACROSS ACCESS DRIVE AND TO MINIMIZE EROSION.
6. CONTRACTOR TO ORIENT TOWER SUCH THAT AN OPEN COAX PORT FACES FRONT GATE AND LESSEE'S PROPOSED ICE-BRIDGE AS DEPICTED. LESSEE TO RECEIVE A HIGH PORT (±10' AGL).

**BENCHMARK**  
 ELEVATION: 807.40' M.S.L.  
 TOP OF SURVEY NAIL SET IN PAVEMENT  
 (SEE PLAN FOR LOCATION)

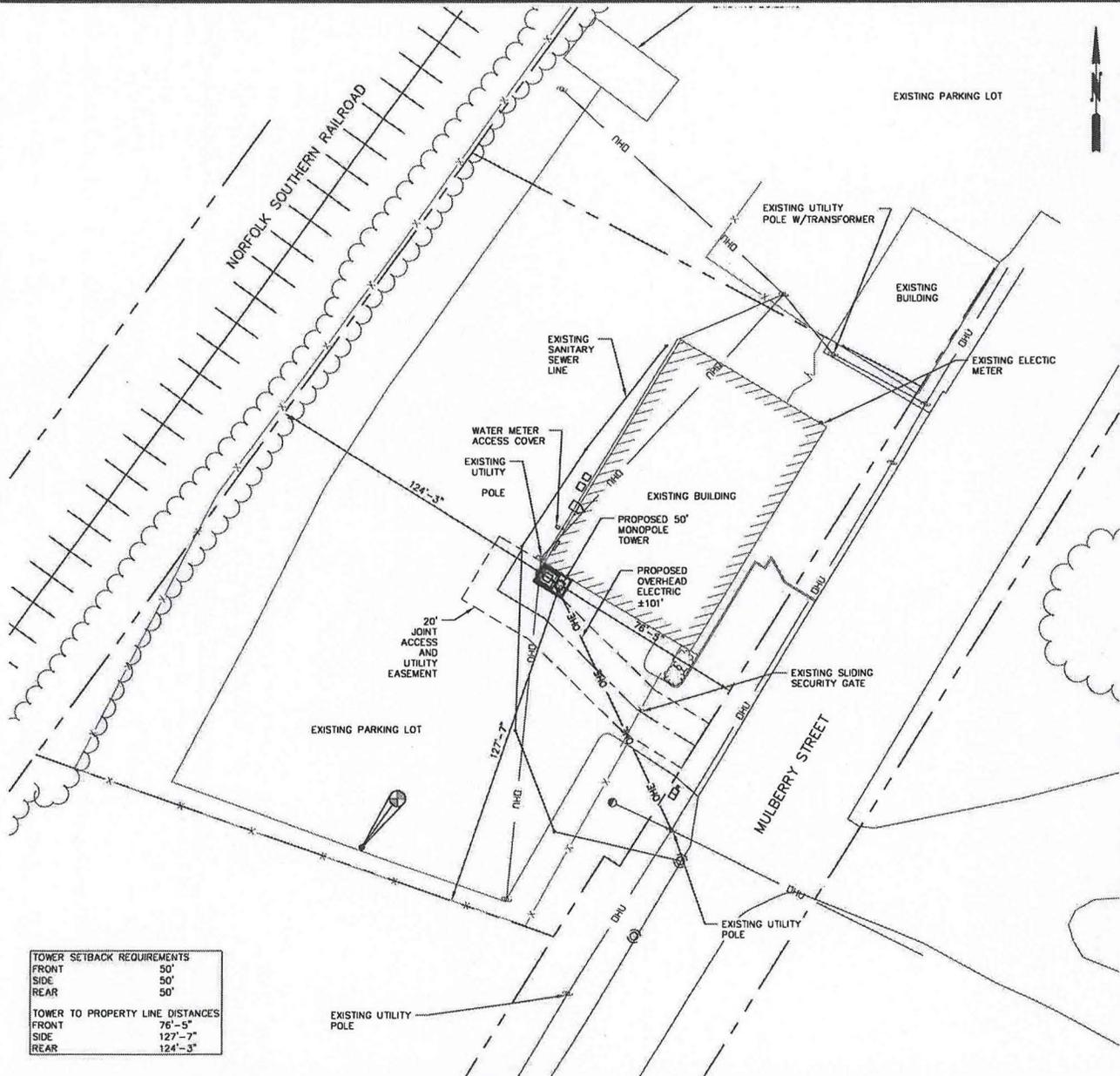
**LEGEND**

- E — EXISTING OVERHEAD ELECTRIC
- T — EXISTING OVERHEAD TELEPHONE
- UE — EXISTING UNDERGROUND ELECTRIC
- UT — EXISTING UNDERGROUND TELEPHONE
- - - FENCE LINE
- - - LEASE LINE
- - - APPROXIMATE PROPERTY LINE
- POWER POLE
- TELEPHONE PEDESTAL
- WATER VALVES
- FIRE HYDRANTS
- SET 5/8" IRON PIN WITH CAP
- BENCHMARK
- FOUND #5 REBAR
- UTILITY POLE GUY WIRE

**GRAPHIC SCALE**



TOWER SETBACK REQUIREMENTS	
FRONT	50'
SIDE	50'
REAR	50'
TOWER TO PROPERTY LINE DISTANCES	
FRONT	76'-5"
SIDE	127'-7"
REAR	124'-3"



**verizon wireless**  
 575 HICKORY HILLS BOULEVARD  
 WINDYBROOK PARK  
 TENNESSEE PARTNERSHIP  
 PARK 633 714-2114  
 FAX (615) 831-7111

01/20/16

**BTM Engineering, Inc.**  
 CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
 3001 VAN DYKE DRIVE  
 LOUISVILLE, KENTUCKY 40220  
 PHONE (502) 458-9007  
 FAX (502) 458-9427

SITE NAME:		KEENE STREET	
SITE NUMBER:		286358	
SITE ADDRESS:		1042 MULBERRY ST LOUDON, TN 37774	
AREA:		LEASE AREA = 100 SF	
PROPERTY OWNER: KENNETH N. & JENNIFER BREWSTER 764 ROBINSON DRIVE LOUDON, TN 37774			
TAX MAP NUMBER:	040M	PARCEL NUMBER:	A-00.700-000
SOURCE OF TITLE: DEED BOOK D302 PAGE 345			
LATITUDE: N 35° 43' 35.45"		LONGITUDE: W 84° 21' 09.05"	

NO.	BY	DESCRIPTION	CHK	DATE	REVISIONS									
					1	2	3	4	5	6	7	8		
1	KL	ISSUE FOR COMMENT		09/23/15	PCH									
2	NLP	ISSUE FOR COMMENT		09/24/15	PCH									
3	NLP	ISSUE FOR COMMENT		09/28/15	PCH									
4	NLP	ISSUE FOR COMMENT		11/05/15	PCH									
5	NLP	ISSUE FOR COMMENT		11/13/15	PCH									
6	KTL	ISSUE FOR COMMENT		12/07/15	PCH									
7	KTL	ISSUE FOR COMMENT		07/19/16	PCH									
8	KTL	CONSTRUCTION ISSUE		07/20/16	PCH									

TITLE: **OVERALL SITE PLAN**

SHEET: **C-2**

**SITE PLAN NOTES:**

THE PROPOSED DEVELOPMENT IS FOR A 50 FOOT MONOPOLE TOWER WITH MULTIPLE CARRIERS. ITS LOCATION IS AT 1042 MULBERRY STREET LOUDON, TN 37774

THE TOWER WILL BE ACCESSED BY AN EXISTING STABILIZED DRIVE FROM AN EXISTING ASPHALT ROADWAY (MULBERRY ST). 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.

CENTERLINE OF PROPOSED TOWER GEOGRAPHIC LOCATIONS:  
 LATITUDE: 35° 43' 35.45" N  
 LONGITUDE: 84° 21' 09.05" W

**NOTE:**

1. REMOVE ALL VEGETATION AND CLEAN AREA WITHIN LEASE AREA (CLEAR AND GRUB ENTIRE LEASE AREA).
2. FINISH GRADING TO PROVIDE EFFECTIVE DRAINAGE WITH A SLOPE OF NO LESS THAN ONE EIGHT INCH (1/8") PER FOOT FLOWING AWAY FROM EQUIPMENT FOR A MINIMUM DISTANCE OF SIX FEET (6') IN ALL DIRECTIONS.
3. LOCATE ALL UNDERGROUND UTILITIES PRIOR TO ANY CONSTRUCTION.
4. ALL REFERENCES TO THE TOWER AND ITS FOUNDATION ARE DIRECTED TO THE DESIGN AND DETAIL DRAWINGS BY THE TOWER SUPPLIER WHICH SHALL BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF TENNESSEE.
5. CONTRACTOR TO ORIENT TOWER SUCH THAT AN OPEN COAX PORT FACES FRONT GATE AND LESSEE'S PROPOSED ICE-BRIDGE AS DEPICTED. LESSEE TO RECEIVE A HIGH PORT (±10' AGL).

**CONSTRUCTION KEYNOTES:**

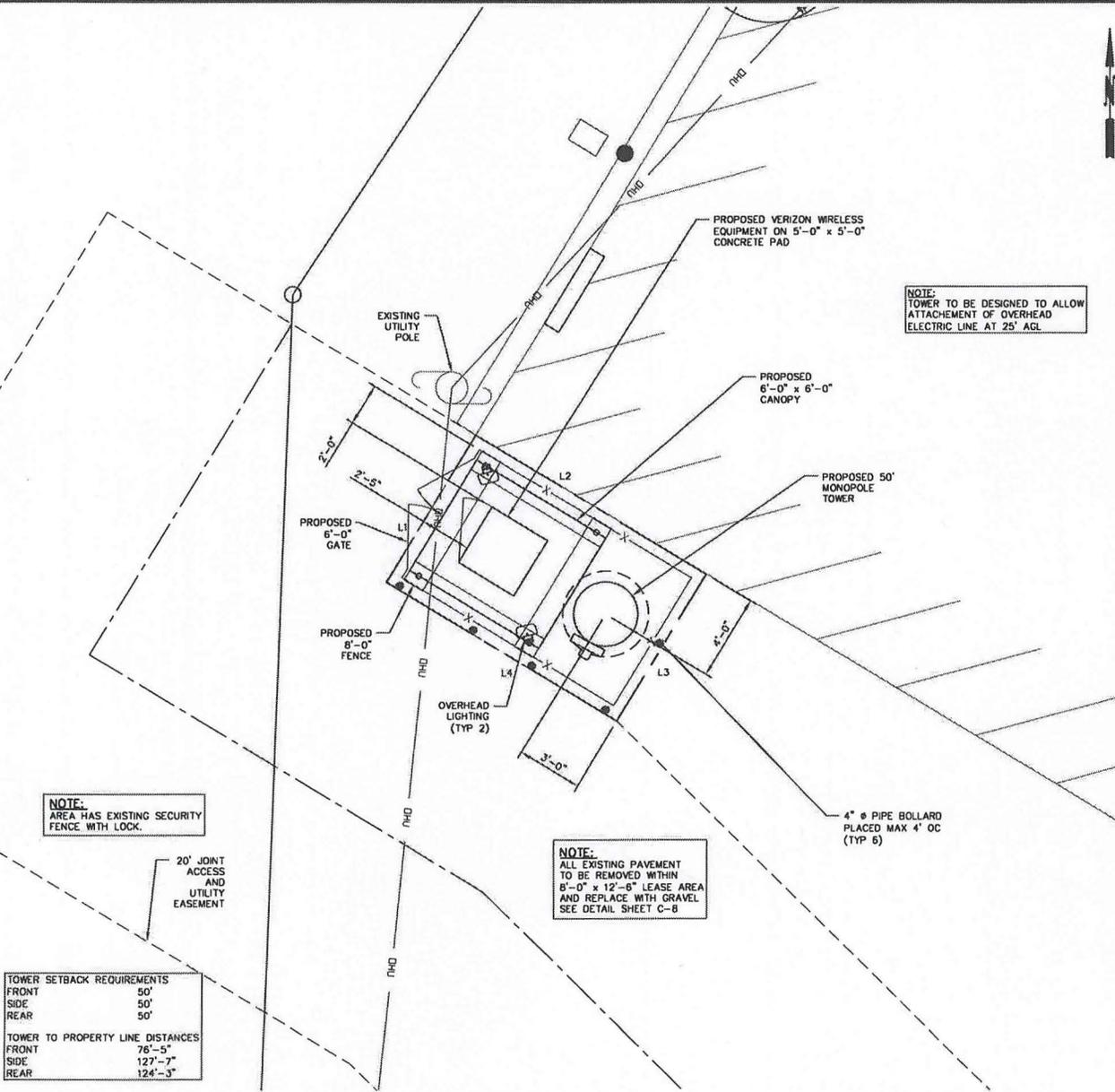
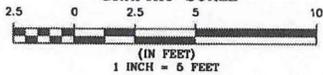
1. PROPOSED LESSEE METER AND DISCONNECT INSTALLED ON POLE.

LINE	ANGLE	DISTANCE
L1	N 31° 11' 30" E	8.00'
L2	S 58° 48' 30" E	12.50'
L3	S 31° 11' 30" W	8.00'
L4	N 58° 48' 30" W	12.50'

**LEGEND**

- E — EXISTING OVERHEAD ELECTRIC
- T — EXISTING OVERHEAD TELEPHONE
- UE — EXISTING UNDERGROUND ELECTRIC
- UT — EXISTING UNDERGROUND TELEPHONE
- - - - FENCE LINE
- - - - LEASE LINE
- - - - APPROXIMATE PROPERTY LINE
- POWER POLE
- TEL PED
- TELEPHONE PEDESTAL
- WATER VALVES
- FIRE HYDRANTS
- SET 5/8" IRON PIN WITH CAP
- BENCHMARK
- FOUND #5 REBAR
- UTILITY POLE GUY WIRE

**GRAPHIC SCALE**



**NOTE:**  
 AREA HAS EXISTING SECURITY FENCE WITH LOCK.

TOWER SETBACK REQUIREMENTS	
FRONT	50'
SIDE	50'
REAR	50'

TOWER TO PROPERTY LINE DISTANCES	
FRONT	76'-5"
SIDE	127'-7"
REAR	124'-3"

**NOTE:**  
 ALL EXISTING PAVEMENT TO BE REMOVED WITHIN 8'-0" x 12'-6" LEASE AREA AND REPLACE WITH GRAVEL. SEE DETAIL SHEET C-8

**NOTE:**  
 TOWER TO BE DESIGNED TO ALLOW ATTACHMENT OF OVERHEAD ELECTRIC LINE AT 25' AGL

**verizon wireless**  
 TENNESSEE PARTNERSHIP  
 575 HICKORY HILLS BOLLINGWOOD  
 WHITE OAK BLVD #103  
 LOUDON, TN 37774  
 TEL: (615) 714-7111  
 FAX: (615) 831-7411

**BTM Engineering, Inc.**  
 CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
 PLANNERS & SURVEYORS  
 754 ROBINSON DRIVE  
 LOUDONVILLE, KENTUCKY 40320  
 PHONE: (502) 494-8402  
 FAX: (502) 499-8477



SITE NAME:	KEENE STREET
SITE NUMBER:	268358
SITE ADDRESS:	1042 MULBERRY ST LOUDON, TN 37774
AREA:	LEASE AREA = 100 SF
PROPERTY OWNER:	KENNETH N. & JENNIFER BREWSTER 754 ROBINSON DRIVE LOUDON, TN 37774
TAX MAP NUMBER:	040M
PARCEL NUMBER:	A-00.700-000
SOURCE OF TITLE:	DEED BOOK D302 PAGE 345
LATITUDE:	N 35° 43' 35.45"
LONGITUDE:	W 84° 21' 09.05"

NO.	BY	DESCRIPTION	DATE	CHK
1	KL	ISSUE FOR COMMENT	08/23/15	PKH
2	NAR	ISSUE FOR COMMENT	08/24/15	PKH
3	NAR	ISSUE FOR COMMENT	08/28/15	PKH
4	NAR	ISSUE FOR COMMENT	11/05/15	PKH
5	NAR	ISSUE FOR COMMENT	11/13/15	PKH
6	KTL	ISSUE FOR COMMENT	12/10/15	PKH
7	KTL	ISSUE FOR COMMENT	01/19/16	PKH
8	KTL	CONSTRUCTION ISSUE	01/20/16	PKH

TITLE: DETAILED SITE PLAN

SHEET: C-3

TOP OF PROPOSED TOWER (50'-0")

PROPOSED LESSEE ANTENNA CENTER (40'-0")

OVERHEAD ELECTRIC (25'-0")

PROPOSED LESSEE EQUIPMENT

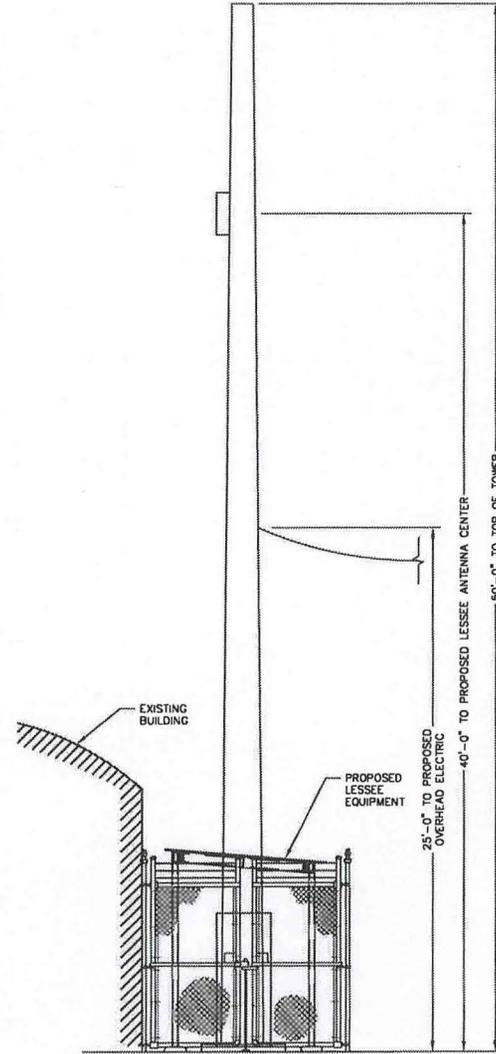
**NOTE:**  
THE ELEVATIONS SHOWN ON THIS SHEET ARE FOR PICTORIAL PURPOSES ONLY. REFER TO TOWER PLANS FOR TOWER DESIGN.

ROUTE PROPOSED COAXIAL LINES INTERNALLY THROUGH MONOPOLE USING TOP AND BOTTOM COAX PORTS IN TOWER SHELL.

GENERAL CONTRACTOR TO SET ICE-BRIDGE TO FACE AN OPEN COAX PORT. VERIZON TO RECEIVE A HIGH PORT (±7'-6" AGL).

EXISTING BUILDING

**SOUTH WEST ELEVATION**  
NOT TO SCALE



**NORTH WEST ELEVATION**  
NOT TO SCALE

**Verizon wireless**  
325 N. CORY WELLS BUILDING  
MEMPHIS, TN 38103  
PHONE: 651-714-2714  
FAX: (901) 811-7411

**TENNESSEE PARTNERSHIP**

**BTM Engineering, Inc.**  
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
3001 TAYLOR SPRINGS DRIVE  
LOUISVILLE, KENTUCKY 40220  
PHONE: (502) 459-4427  
FAX: (502) 459-4427



**SITE NAME:** KEENE STREET

**SITE NUMBER:** 266358

**SITE ADDRESS:** 1042 MULBERRY ST  
LOUDDON, TN 37774

**AREA:** LEASE AREA = 100 SF

**PROPERTY OWNER:**  
KENNETH N. & JENNIFER BREWSTER  
754 ROBINSON DRIVE  
LOUDDON, TN 37774

**TAX MAP NUMBER:** 040M    **PARCEL NUMBER:** A-00,700-000

**SOURCE OF TITLE:** DEED BOOK D302 PAGE 345

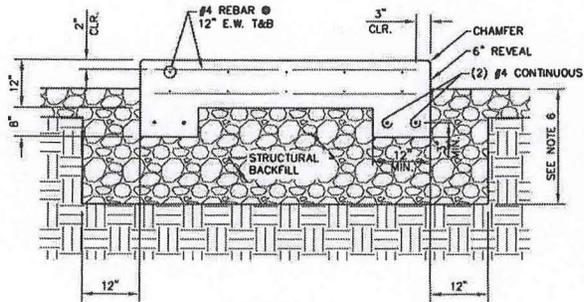
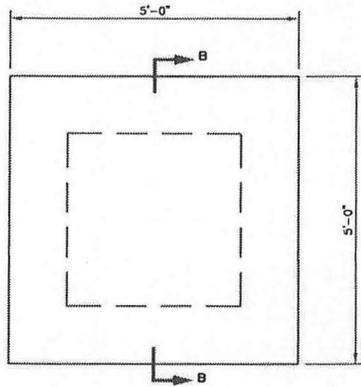
**LATITUDE:** N 35° 43' 35.45"    **LONGITUDE:** W 84° 21' 09.05"

NO.	BY	DESCRIPTION	DATE	CHK
1	KL	ISSUE FOR COMMENT	09/23/15	PKH
2	KL	ISSUE FOR COMMENT	09/24/15	PKH
3	KL	ISSUE FOR COMMENT	09/28/15	PKH
4	KL	ISSUE FOR COMMENT	11/05/15	PKH
5	KL	ISSUE FOR COMMENT	11/13/15	PKH
6	KL	ISSUE FOR COMMENT	12/07/15	PKH
7	KL	ISSUE FOR COMMENT	01/18/16	PKH
8	KL	CONSTRUCTION ISSUE	01/20/16	PKH

**TITLE:** TOWER ELEVATIONS

**SHEET:** C-4

EQUIPMENT FOUNDATION & PAD DETAIL (NTS)



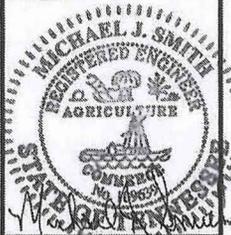
SECTION B - B

NOTES:

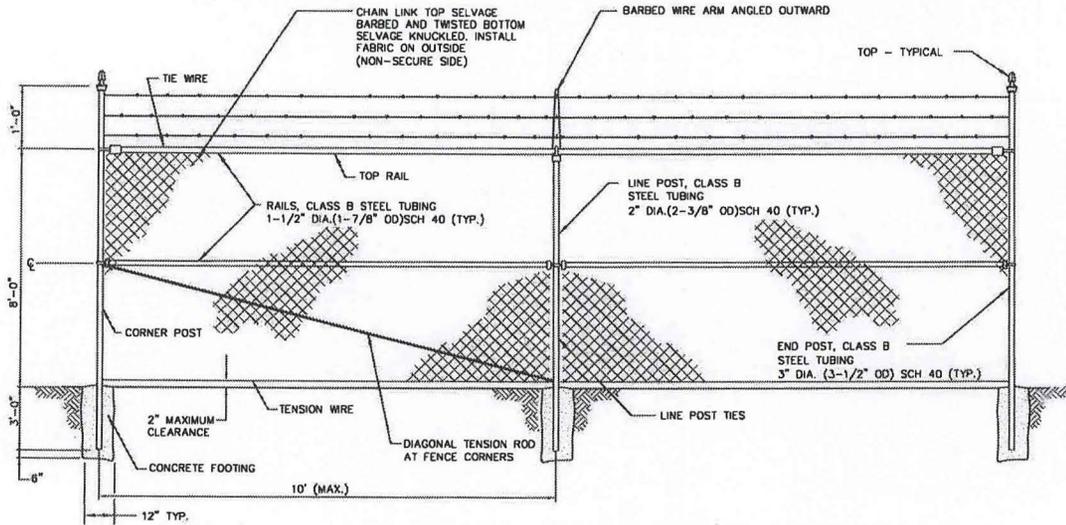
1. FIELD LOCATE EQUIPMENT CABINET ANCHORS AND INSTALL PER MANUFACTURER'S RECOMMENDATION.
2. SLAB TOLERANCE INCLUDING LEVEL IS 1/4".
3. ADDITIONAL ENGINEERING IS REQUIRED IF THE GENERATOR FOUNDATION IS PLACED ON SOIL WITH A BEARING CAPACITY OF LESS THAN 2000 PSF.
4. ALL REBAR SHALL BE GRADE 60 MINIMUM.
5. OVERLAP SPLICES ARE ALLOWED FOR REINFORCING BARS. USE 24" MINIMUM LAP.
6. 30" MINIMUM, BUT MAY VARY AS REQUIRED PER LOCAL CODE, FROST LINE AND/OR SOIL BEARING CAPACITY.
7. ORIENT GENERATOR WITH EXHAUST AWAY FROM SHELTER AIR CONDITIONING UNITS.
8. FOUNDATION DESIGNS PROVIDED BY OTHERS. BTM ENGINEERING HAS NOT CONDUCTED AN ANALYSIS OF THESE FOUNDATIONS AND ACCEPTS NO LIABILITY FOR USE. ALL LIABILITY FOR USE OF THESE FOUNDATIONS IS ASSUMED BY VERIZON.

**verizon wireless**  
 TENNESSEE PARTNERSHIP  
 575 HICKORY HILLS BOULEVARD  
 MEMPHIS, TN 38119  
 PHONE: (913) 714-7114  
 FAX: (913) 811-7111

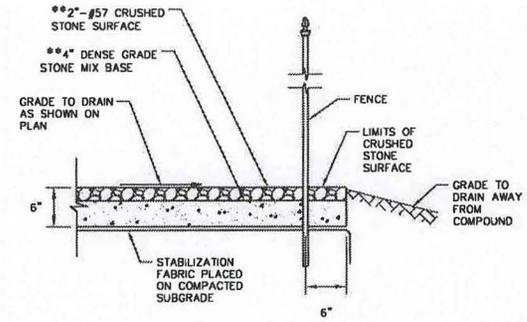
**BTM Engineering, Inc.**  
 CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
 3001 TAYLOR SPRINGS DRIVE  
 LOUISVILLE, KENTUCKY 40260  
 PHONE: (502) 439-8422  
 FAX: (502) 439-8427



SITE NAME:		KEENE STREET		
SITE NUMBER:		266358		
SITE ADDRESS:		1042 MULBERRY ST LOUDDON, TN 37774		
AREA:		LEASE AREA = 100 SF		
PROPERTY OWNER: KENNETH N. & JENNIFER BREWSTER 754 ROBINSON DRIVE LOUDDON, TN 37774				
TAX MAP NUMBER:		PARCEL NUMBER: 040M A-00.700-000		
SOURCE OF TITLE: DEED BOOK D302 PAGE 345				
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4	MR	ISSUE FOR COMMENT	11/05/15	PCH
5	MR	ISSUE FOR COMMENT	11/23/15	PCH
6	KL	ISSUE FOR COMMENT	12/10/15	PCH
7	KL	ISSUE FOR COMMENT	01/18/16	PCH
8	KL	CONSTRUCTION ISSUE	01/20/16	PCH
TITLE: CONCRETE PAD DETAILS				
SHEET: C-6				

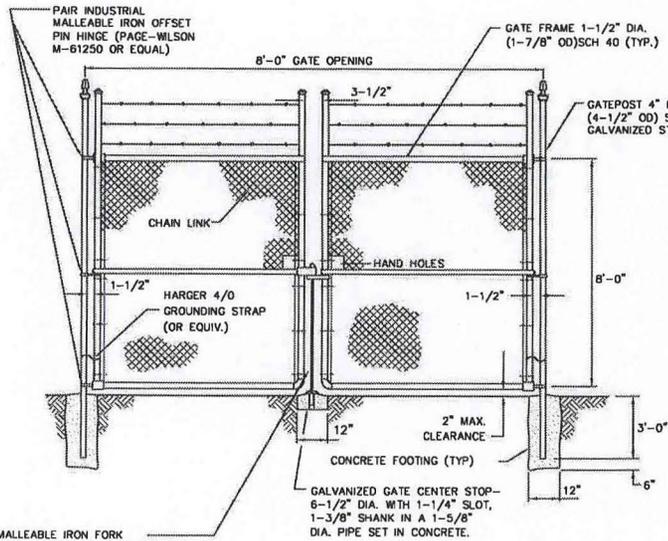


CHAIN LINK FENCE DETAIL (ELEVATION)  
NTS



SITE AREA SURFACING  
NTS

\*\*BOTH STONE LIFTS TO BE ROLLER COMPACTED

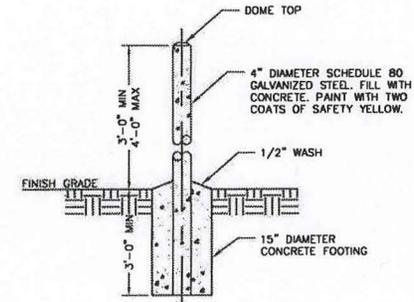


12' WIDE DOUBLE SWING GATE  
NTS

TYPICAL WOVEN WIRE FENCING NOTES

(INSTALL FENCING PER ASTM F-567, SWING GATES PER ASTM F-900)

- GATE POST (4") CORNER, TERMINAL OR PULL POST (3") SCHEDULE 40 FOR GATE WIDTHS UP THRU 8 FEET OR 12 FEET FOR DOUBLE SWING GATE PER ASTM-F10B3.
- LINE POST: 2" (2-3/8" OD) SCHEDULE 40 PIPE PER ASTM-F10B3.
- GATE FRAME: 1-1/2" (1-7/8" OD) SCHEDULE 40 PIPE PER ASTM-F10B3.
- TOP RAIL & BRACE RAIL: 1-1/2" (1-7/8" OD) SCHEDULE 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" O.D. TWISTED WIRE TO MATCH WITH FABRIC 14 GA., 4 PT. BARBS SPACED ON APPROXIMATELY 4" CENTERS.
- GATE LATCH: 1-3/8" O.D. PLUNGER ROD WITH MUSHROOM TYPE CATCH AND LOCK.
- LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED IF REQUIRED.
- HEIGHT = 8' VERTICAL + 1' BARBED WIRE VERTICAL DIMENSION.
- PROVIDE MASTER LOCK FOR GATE AND SET COMBINATION TO 6288.
- INSTALL GATE STOPS (DUCKHEADS) TO EACH SIDE OF ACCESS DRIVE.
- CUT HAND HOLES IN GATE FABRIC BY LATCH FOR CHAIN AND LOCKS.



BOLLARD DETAIL  
NTS

**verizon wireless**  
375 HOOVER HILLS BOWLING  
WAY  
MEMPHIS, TN 38119  
PHONE (901) 714-7114  
FAX (901) 831-7411

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TENNESSEE  
PARTNERSHIP

**BTM Engineering, Inc.**  
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
LOUISVILLE, KENTUCKY 40220  
2001 TAYLOR SPRINGS DRIVE  
LOUISVILLE, KENTUCKY 40220  
PHONE (502) 499-8427  
FAX (502) 499-8427

**MICHAEL J. SMITH**  
REGISTERED ENGINEER  
AGRICULTURE  
NO. 10490  
STATE OF TENNESSEE

SITE NAME:		KEENE STREET		
SITE NUMBER:		268358		
SITE ADDRESS:		1042 MULBERRY ST LOUDDON, TN 37774		
AREA:		LEASE AREA = 100 SF		
PROPERTY OWNER:		KENNETH N. & JENNIFER BREWSTER 754 ROBINSON DRIVE LOUDDON, TN 37774		
TAX MAP NUMBER:	040M	PARCEL NUMBER:	A-00.700-00D	
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6	KL	ISSUE FOR COMMENT	12/02/15	PCH
7	KL	ISSUE FOR COMMENT	01/19/16	PCH
8	KL	CONSTRUCTION ISSUE	01/20/16	PCH

TITLE: FENCE AND BOLLARD DETAILS

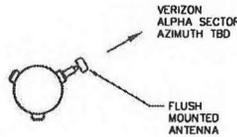
SHEET: C-8

**SITE DATA**

SITE NUMBER	266358	LATITUDE	35° 43' 35.68" N
PROJECT NUMBER	20130887094	LONGITUDE	84° 21' 09.14" W
SITE NAME	KEENE STREET	GPS VERIFIED	YES
SITE ADDRESS	1042 MULBERRY ST	SURVEYED	YES
CITY, STATE, ZIP	LOUJON, TN 37774	PROPERTY OWNER	KENNETH N. & JENNIFER F. BREWSTER
COUNTY	LOUJON	CONTACT STREET	754 ROBINSON DR
GROUND ELEV., AMSL	816'	CITY, STATE, ZIP	LOUJON, TN 37774
STRUCTURE TYPE	MONOPOLE	OWNER CONTACT	KENNETH N. BREWSTER
FCC TOWER REG #	--	CONTACT TEL NO.	(865) 458-8887

**TECHNICAL DATA**

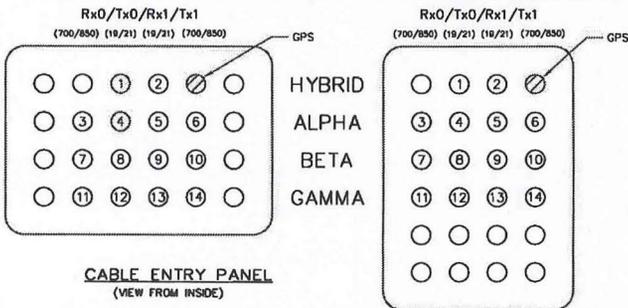
NUMBER OF SECTORS	1	REQUESTED SERVICE TYPE	LTE-C, AWS
DESIRED RAD CENTER, AGL	40 FT	STRUCTURE HEIGHT, AGL	50 FT



AT ELEVATION 40'  
ANTENNA ORIENTATION  
NTS

**NOTE:**  
CONTRACTOR SHALL CONTACT  
VERIZON RF ENGINEER FOR ALL  
ANTENNA INFORMATION.  
ANTENNAS AND AZIMUTHS SHOWN  
FOR REFERENCE ONLY.

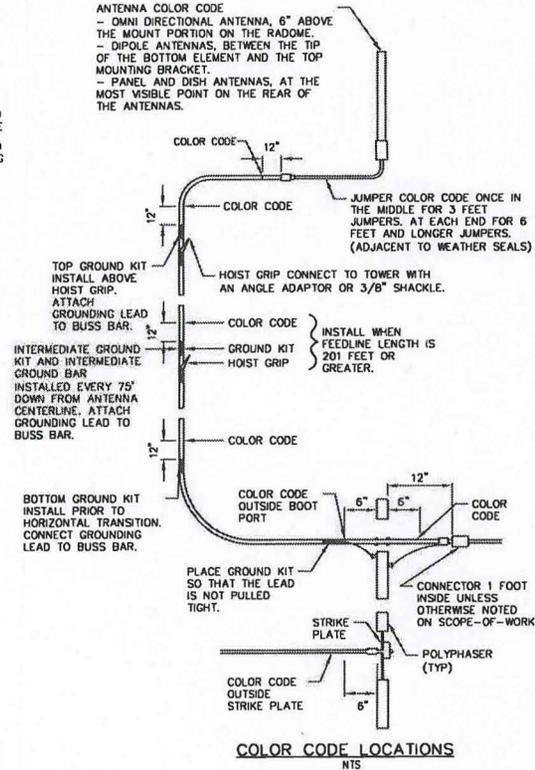
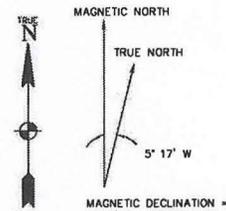
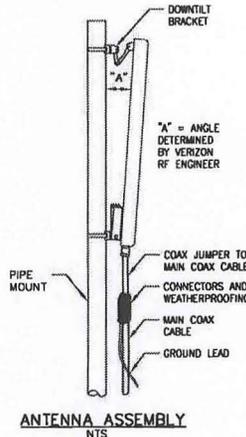
CONTACTS	NAME	PHONE - OFFICE	PHONE - MOBILE	E-MAIL
VZW PROJECT MANAGER	KEVIN CALDWELL	--	(615) 714-7114	kevin.caldwell@verizonwireless.com
VZW RF ENGINEER	ALEX WAGNER	(615) 306-3788	--	alex.wagner@verizonwireless.com
CONSTRUCTION CONTACT	DUSTIN CROSS	(423) 202-2258	--	dcross@integritymgt.com
SITE ACQUISITION CONTACT	SHARLA BATES	(816) 678-2184	--	sharla.bates@oukandofoster.com
VZW REAL ESTATE SPECIALIST	JANUSZ MAKOWSKI	(704) 510-8542	(704) 698-5019	janusz.makowski@verizonwireless.com



**NOTE:**  
(1) 1.43 HYBRID CABLE REQUIRED  
(2) 7/8" COAX REQUIRED

**ANTENNA NOTES:**

- ALL ANTENNAS TO BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR TO COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH VERIZON RF ENGINEER.
- ANTENNA CENTERLINE HEIGHT IS ABOVE GROUND LEVEL (AGL).
- CONTRACTOR SHALL VERIFY ANTENNA TYPE, AZIMUTH, DOWNTILT AND ANTENNA NUMBER PER SECTOR WITH CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
- ALL PERSONNEL WORKING ON THE TOWER MUST COMPLY WITH VERIZON'S RF EMISSIONS GUIDELINE POLICY.
- CHECK WITH RF ENGINEER FOR LATEST ANTENNA TYPE AND AZIMUTH.
- CONTRACTOR SHALL NOT INSTALL SHRINK WRAP UNTIL AFTER CABLES HAVE BEEN SWEPT. THE USE OF ALTERNATE GROUNDING MEANS (SUCH AS LYNCOLE XIT) SHALL COMPLY WITH O.C.E.I. CONSTRUCTION SPECIFICATIONS AND BUILDING PRACTICES.



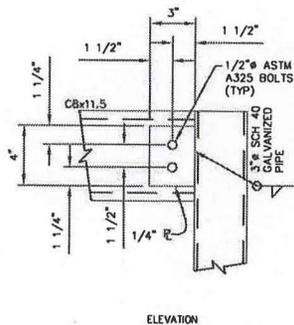
**verizon wireless**  
PARTNERSHIP

**BTM Engineering, Inc.**  
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
2001 TAYLOR SPRINGS DRIVE  
LOUISVILLE, KY 40220  
PHONE (502) 441-1600  
FAX (502) 491-9427

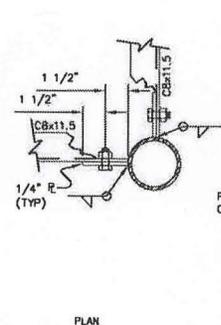
**MICHAEL J. SMITH**  
REGISTERED ENGINEER  
AGRICULTURE  
STATE OF TENNESSEE  
No. 10899

SITE NAME:		KEENE STREET	
SITE NUMBER:		266358	
SITE ADDRESS:		1042 MULBERRY ST LOUJON, TN 37774	
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5	NLR ISSUE FOR COMMENT	11/13/15	PCH
6	NLR ISSUE FOR COMMENT	12/10/15	PCH
7	NLR ISSUE FOR COMMENT	01/08/16	PCH
8	NLR CONSTRUCTION ISSUE	01/20/16	PCH

TITLE: ANTENNA AND COAX DETAILS  
NOTES

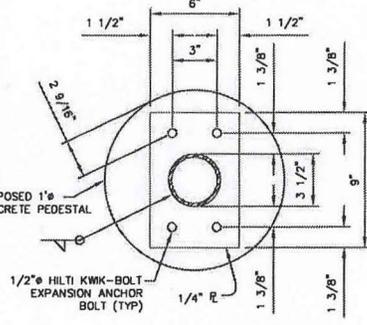


ELEVATION

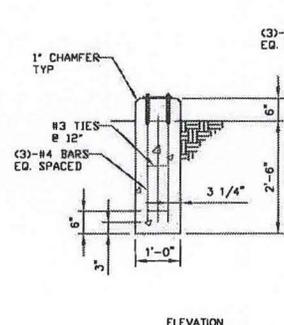


PLAN

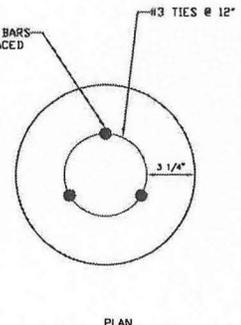
CHANNEL-COLUMN CONNECTION  
SCALE: 1 1/2" = 1'-0"



BASE PLATE DETAIL  
SCALE: 1 1/2" = 1'-0"

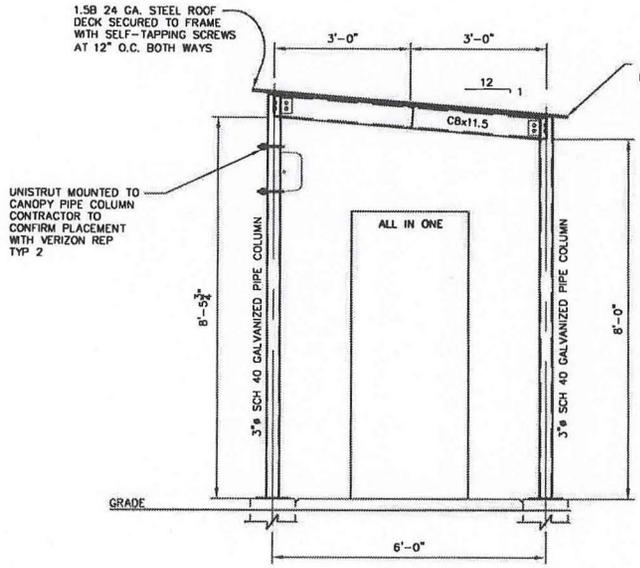


ELEVATION

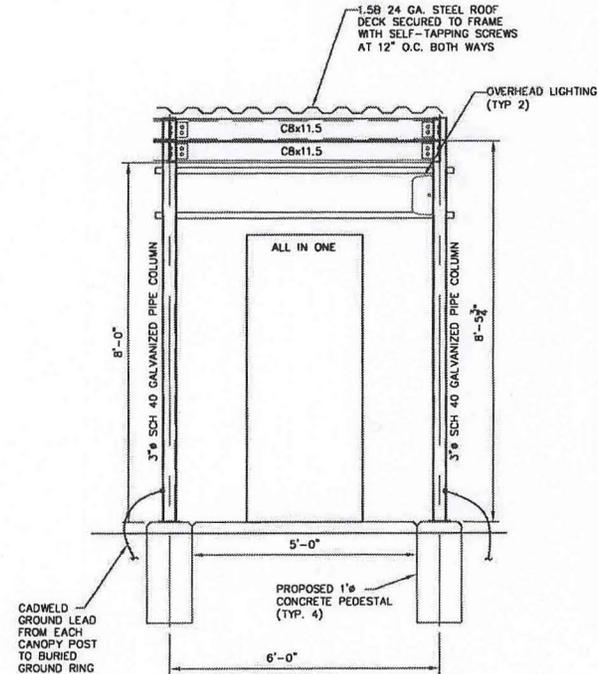


PLAN

PEDESTAL DETAIL  
SCALE: NTS



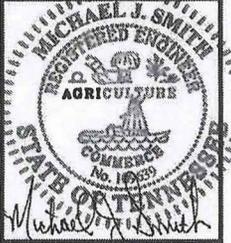
FRONT VIEW  
SCALE: 3/8" = 1'-0"



SIDE VIEW  
SCALE: 3/8" = 1'-0"

**verizon wireless**  
575 HICKORY HILLS BOULEVARD  
LOUISVILLE, KY 40258  
PHONE (502) 714-7114  
FAX (502) 831-2111

012010



**BTM Engineering, Inc.**  
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
PLANNERS  
3001 TAYLOR SPRINGS DRIVE  
LOUISVILLE, KENTUCKY 40220  
PHONE (502) 439-8427  
FAX (502) 439-8427

SITE NAME: KEENE STREET  
SITE NUMBER: 266358  
SITE ADDRESS: 1042 MULBERRY ST LOUDON, TN 37774  
AREA: LEASE AREA = 100 SF  
PROPERTY OWNER: KENNETH N. & JENNIFER BREWSTER 754 ROBINSON DRIVE LOUDON, TN 37774  
TAX MAP NUMBER: 040M PARCEL NUMBER: A-00.700-000  
SOURCE OF TITLE: DEED BOOK D.302 PAGE 345  
LATITUDE: N 35° 43' 35.45" LONGITUDE: W 84° 21' 09.05"

REVISIONS	
NO.	DESCRIPTION
1	KL ISSUE FOR COMMENT
2	NLR ISSUE FOR COMMENT
3	NLR ISSUE FOR COMMENT
4	NLR ISSUE FOR COMMENT
5	NLR ISSUE FOR COMMENT
6	KTL ISSUE FOR COMMENT
7	KTL ISSUE FOR COMMENT
8	KTL CONSTRUCTION ISSUE

TITLE: CANOPY DETAILS

SHEET: C-11

**CODED DRAWING NOTES:**

- 1 PROPOSED FIBER DISTRIBUTION PEDESTAL AND/OR FIBER VAULT. CONSULT WITH FIBER PROVIDER FOR SPECIFIC REQUIREMENTS.
- 2 NOT USED.
- 3 NOT USED.
- 4 SEE E-1A.
- 5 NOT USED.
- 6 PROPOSED VERIZON ELECTRIC METER AND DISCONNECT SWITCH (200 AMP CIRCUIT BREAKER). SOCKET BY THIS CONTRACT. METER BY ELECTRIC UTILITY COMPANY.
- 7 COORDINATE EXACT LOCATION OF CONDUIT IN FIELD.
- 8 PROPOSED 50' MONOPOLE TOWER.
- 9 NOT USED.
- 10 NOT USED.
- 11 NOT USED.
- 12 PROPOSED OVERHEAD ELECTRIC SERVICE TO VERIZON LEASE AREA FROM EXISTING UTILITY POLE. ACTUAL SERVICE LOCATION AND SOURCE TO BE COORDINATED WITH ELECTRIC COMPANY. CONTRACTOR TO SUPPLY WEATHERHEAD AT MONOPOLE.
- 13 PROPOSED UNDERGROUND TELEPHONE SERVICE TO VERIZON LEASE AREA. ACTUAL SERVICE LOCATION AND SOURCE TO BE COORDINATED WITH FIBER PROVIDER.
- 14 CUT ASPHALT AND TRENCH FOR THE CONDUIT. ENCASE THE CONDUIT IN A MINIMUM OF 8" 3000 PSI CONCRETE. DETAIL SHEET E-6. ±114'

**ELECTRICAL SYMBOLS**

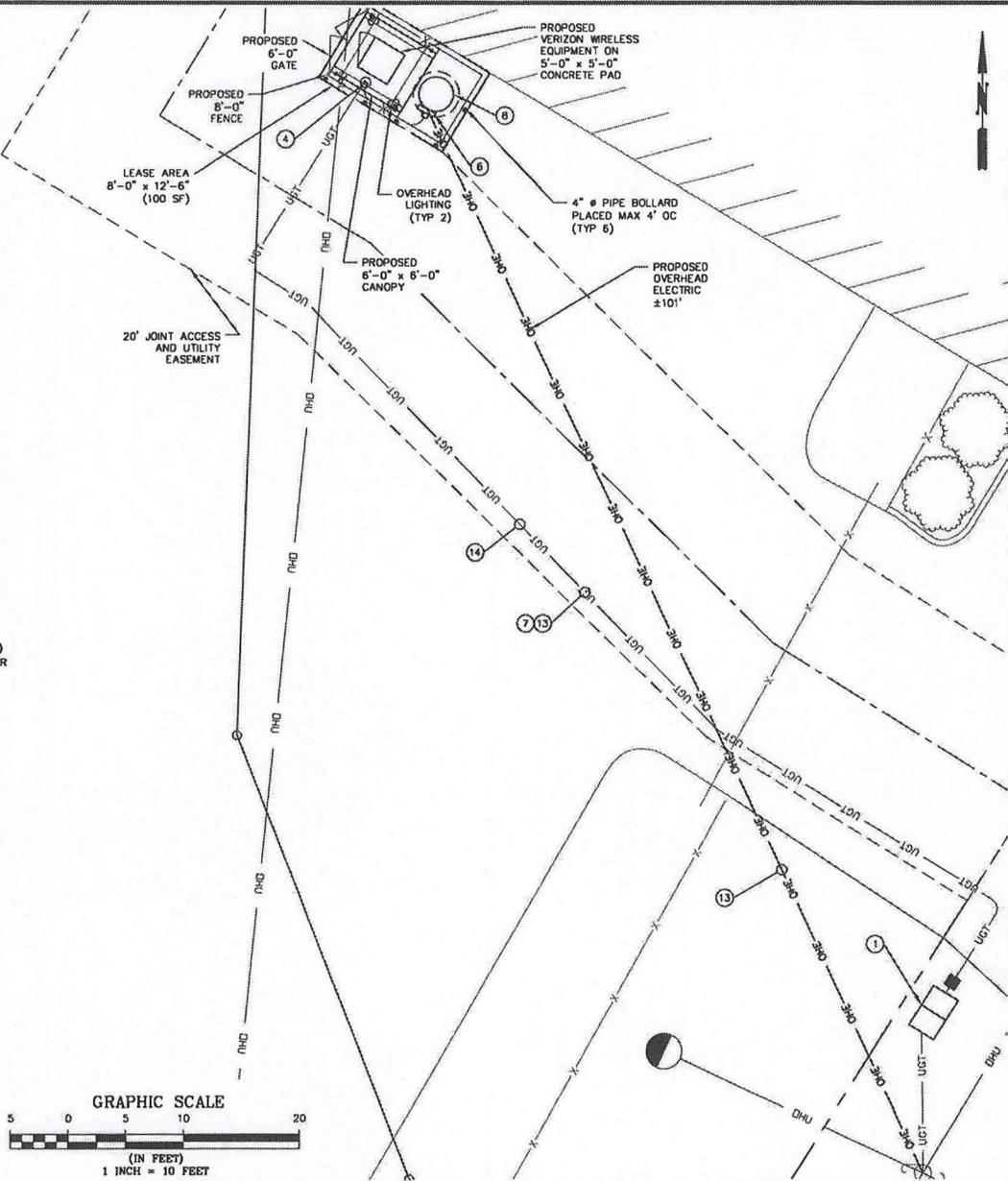
- ⊙ CHEMICAL GROUND ROD
- ⊠ INSPECTION GROUND PLATE WITH TEST LOOP
- ⊡ GROUND PLATE
- CADWELD TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- MIGB/CIGBE - GROUND BAR
- ⊞ DISCONNECT SWITCH
- ⊞ METER
- ⊞ CIRCUIT BREAKER
- ⊞ GENERATOR
- ⊞ GENERATOR RECEPTACLE
- ⊞ AUTOMATIC TRANSFER SWITCH
- ⊞ MANUAL TRANSFER SWITCH
- GROUNDING WIRE
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE
- ⊙ INDICATES CODED NUMBER

**ABBREVIATIONS**

- AWG AMERICAN WIRE GAUGE
- BCW BARE COPPER WIRE
- BTS BASE TRANSMISSION SYSTEM
- CIGBE COAX ISOLATED GROUND
- BAR EXTERNAL
- DIA DIAMETER
- DWG DRAWING
- EMT ELECTRICAL METALLIC TUBING
- GEN GENERATOR
- GPS GLOBAL POSITIONING SYSTEM
- I WALKING BEAM INTERLOCK
- IGR INTERIOR GROUND RING (HALO)
- MIGB MASTER ISOLATED GROUND BAR
- RGS RIGID GALVANIZED STEEL
- RWY RACEWAY
- SS STAINLESS STEEL
- TYP TYPICAL
- VZW VERIZON WIRELESS

**UTILITY NOTES:**

1. POWER COMPANY SHALL TERMINATE THE LOAD SIDE POWER CABLES (SUPPLIED UNDER THIS CONTRACT AND INSTALLED BY POWER COMPANY) AT THE UTILITY METER MOUNTED ON THE METER BOARD. EXACT LOCATION OF UTILITY METER SHALL BE VERIFIED BY THE CONTRACTOR. GENERAL CONTRACTOR SHALL CONSTRUCT TRENCH AND SUPPLY AND INSTALL (2) 2 1/2" SCHEDULE 40 PVC CONDUIT WITH PULL STRING AND 4" SWEEPS (36" RADIUS) FOR BURIED ELECTRIC SERVICE FROM THE PROPOSED UTILITY POLE TO THE METER CENTER IN THE COMPOUND. CONTRACTOR SHALL STUB CONDUIT UP AT THE POLE (RGS ABOVE GRADE) AND PROVIDE TEMPORARY CAP. GLEP SHALL INSTALL TRANSFORMER AND PULL POWER CABLES IN COORDINATION WITH GENERAL CONTRACTOR.
2. CONTRACTOR SHALL PROVIDE AND INSTALL A 4" SCHEDULE 80 PVC CONDUIT WITH SWEEPS AND STUB-UPS FROM THE FIBER DISTRIBUTION PEDESTAL TO THE JUNCTION BOX ON THE SHELTER. TELCO COMPANY WILL PULL FIBER TELCO SERVICE FROM THE RIGHT-OF-WAY TO A FIBER DISTRIBUTION PEDESTAL (TO BE PLACED BY TELCO COMPANY) NEAR THE COMPOUND IN THE UTILITY EASEMENT. TELCO DEMARC TO BE PLACED INSIDE THE SHELTER.
3. ALL UNDERGROUND CONDUITS SHALL BE SCHEDULE 80 PVC. ALL SWEEPS AND RISERS SHALL BE RIGID GALVANIZED STEEL (RGS).
4. CONDUIT LINES SHALL HAVE A CONTINUOUS SLOPE DOWNWARD AND AWAY FROM THE METER BOARD SO THAT WATER WILL FLOW FROM THE EQUIPMENT. TRENCHES SHALL BE EXCAVATED ALONG STRAIGHT LINES BEFORE CONDUITS ARE LAID SO THE ELEVATION CAN BE ADJUSTED IF NECESSARY TO AVOID UNSEEN OBSTRUCTIONS. MANUFACTURED BENDS SHALL HAVE A MINIMUM RADIUS OF 36" FOR CONDUITS.
5. EACH CONDUIT SHALL BE SEALED WITH A NON-GLUED CAP AND TAPE AT EACH END, MARKED AND LABELED APPROPRIATELY. CONTRACTOR TO PROVIDE 200 LB TEST POLYETHYLENE PULL STRINGS FOR EACH CONDUIT.
6. ALL CONDUITS ENTERING THE SHELTER SHALL BE SEALED WITH SEALANTS THAT ARE IDENTIFIED FOR USE WITH THE CABLE INSULATION SHIELD OR OTHER COMPONENTS.
7. ALL CONDUITS NOT STUBBED INTO AN ENCLOSURE, SHALL BE CAPPED TO PROVIDE A WEATHER TIGHT SEAL.
8. COORDINATE EXACT SOURCE AND INSTALLATION REQUIREMENTS WITH UTILITY COMPANIES.



**verizon wireless**  
 3000 TAYLOR SPRINGS DRIVE  
 LOUDON, TN 37043  
 PHONE 615 714-7114  
 FAX (615) 801-7411

**BTM Engineering, Inc.**  
 CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
 3000 TAYLOR SPRINGS DRIVE  
 LOUDON, TN 37043  
 PHONE (615) 498-8427  
 FAX (615) 498-8427

01/20/16

**MICHAEL J. SMITH**  
 REGISTERED ENGINEER  
 AGRICULTURE  
 No. 108359  
 STATE OF TENNESSEE

SITE NAME:	KEENE STREET
SITE NUMBER:	266358
SITE ADDRESS:	1042 MULBERRY ST LOUDON, TN 37774
AREA:	LEASE AREA = 100 SF
PROPERTY OWNER:	KENNETH N. & JENNIFER BREWSTER 754 ROBINSON DRIVE LOUDON, TN 37774
TAX MAP NUMBER:	040M
PARCEL NUMBER:	A-00.700-000
SOURCE OF TITLE:	DEED BOOK D302 PAGE 345
LATITUDE:	N 35° 43' 35.45"
LONGITUDE:	W 84° 21' 09.05"

NO.	BY	DESCRIPTION	DATE	CHK
1	KL	ISSUE FOR COMMENT	09/23/15	PCH
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4	NJR	ISSUE FOR COMMENT	11/05/15	PCH
5	NJR	ISSUE FOR COMMENT	11/13/15	PCH
6	KTL	ISSUE FOR COMMENT	12/10/15	PCH
7	KTL	ISSUE FOR COMMENT	01/18/16	PCH
8	KTL	CONSTRUCTION ISSUE	01/20/16	PCH

TITLE: CONDUIT ROUTING PLAN

SHEET: E-1

**CODED DRAWING NOTES:**

- 1 PROPOSED FIBER DISTRIBUTION PEDESTAL AND/OR FIBER VAULT. CONSULT WITH FIBER PROVIDER FOR SPECIFIC REQUIREMENTS.
- 2 4" SCHEDULE 80 PVC CONDUIT WITH PULL STRING FURNISHED AND INSTALLED BY CONTRACTOR. (TELCO)
- 3 2-1/2" SCHEDULE 80 PVC CONDUIT WITH (3) #3/0 PLUS #4 GROUND. (POWER)
- 4 NOT USED.
- 5 NOT USED.
- 6 PROPOSED VERIZON ELECTRIC METER AND DISCONNECT SWITCH (200 AMP CIRCUIT BREAKER). SOCKET BY THIS CONTRACT. METER BY ELECTRIC UTILITY COMPANY.
- 7 COORDINATE EXACT LOCATION OF CONDUIT IN FIELD.
- 8 PROPOSED 50' MONOPOLE TOWER.
- 9 TELEPHONE CONDUIT STUB-UP.
- 10 NOT USED.
- 11 NOT USED.
- 12 EXTERIOR DISCONNECT (200 AMP MAIN BREAKER) INSTALLED ON CABINET. CONFIRM WITH VERIZON REPRESENTATIVE.
- 13 PROPOSED OVERHEAD ELECTRIC SERVICE TO VERIZON LEASE AREA FROM EXISTING UTILITY POLE. ACTUAL SERVICE LOCATION AND SOURCE TO BE COORDINATED WITH ELECTRIC COMPANY. CONTRACTOR TO SUPPLY WEATHERHEAD AT MONOPOLE.
- 14 PROPOSED 12" x 12" x 6" PVC TELCO JUNCTION BOX MOUNTED TO CABINET.
- 15 PROPOSED UNDERGROUND TELEPHONE SERVICE TO VERIZON LEASE AREA. ACTUAL SERVICE LOCATION AND SOURCE TO BE COORDINATED WITH FIBER PROVIDER.

**ELECTRICAL SYMBOLS**

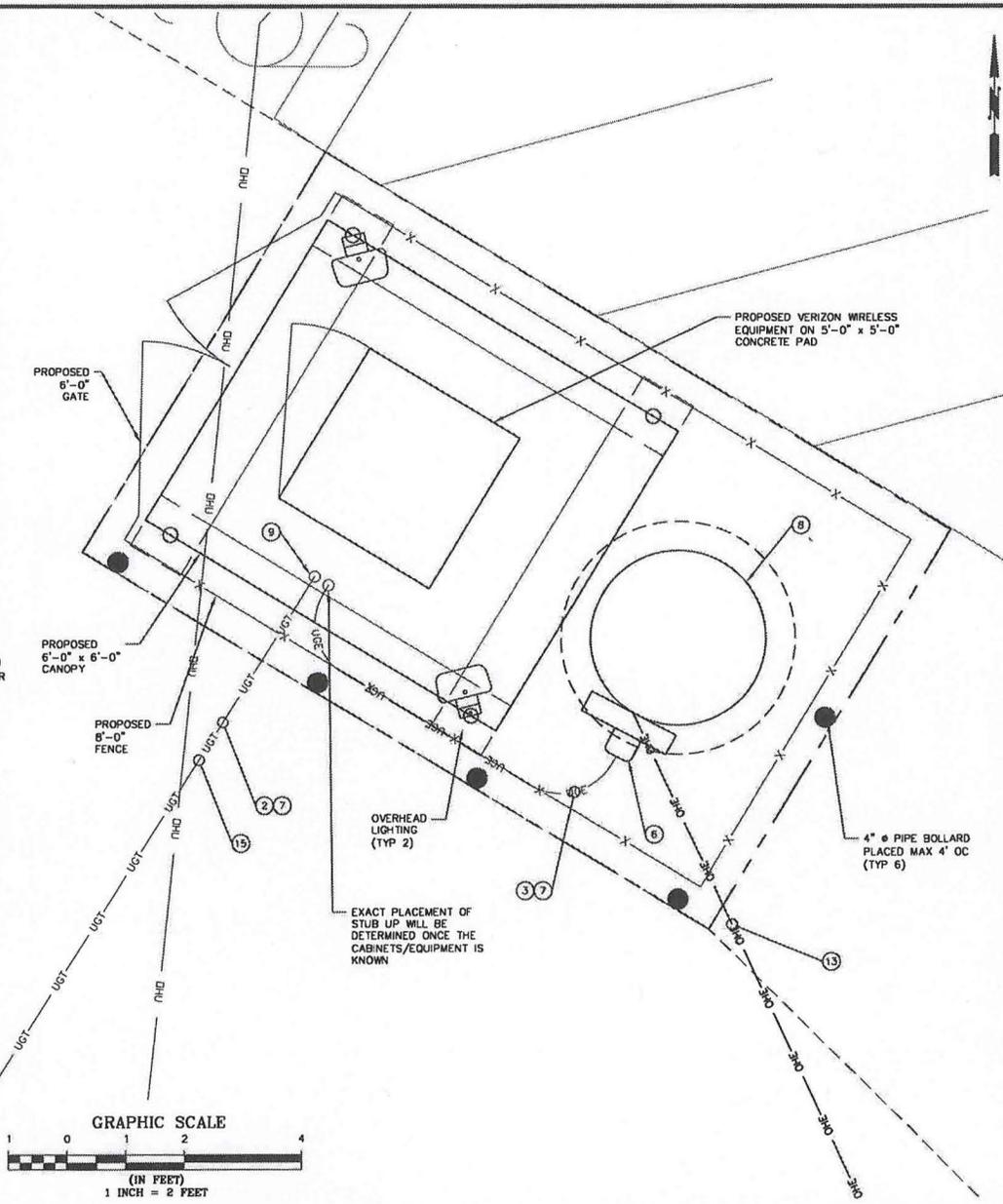
- ⊕ CHEMICAL GROUND ROD
- ⊠ INSPECTION GROUND PLATE WITH TEST LOOP
- ⊡ GROUND PLATE
- CADWELD TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- MIBG/CIGBE - GROUND BAR
- ⊞ DISCONNECT SWITCH
- Ⓜ METER
- Ⓢ CIRCUIT BREAKER
- ⓐ GENERATOR
- ⓐ GENERATOR RECEPTACLE
- ⓂⓈ AUTOMATIC TRANSFER SWITCH
- ⓂⓈ MANUAL TRANSFER SWITCH
- DWG GROUNDING WIRE
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE
- Ⓧ INDICATES CODED NUMBER

**ABBREVIATIONS**

- AWG AMERICAN WIRE GAUGE
- BCW BARE COPPER WIRE
- BTS BASE TRANSMISSION SYSTEM
- CIGBE COAX ISOLATED GROUND
- BAR EXTERNAL
- DIA DIAMETER
- DWG DRAWING
- EMT ELECTRICAL METALLIC TUBING
- GEN GENERATOR
- GPS GLOBAL POSITIONING SYSTEM
- I WALKING BEAM INTERLOCK
- IGR INTERIOR GROUND RING (HALO)
- MIBG MASTER ISOLATED GROUND BAR
- RGS RIGID GALVANIZED STEEL
- RWY RACEWAY
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**UTILITY NOTES:**

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5. EACH CONDUIT SHALL BE SEALED WITH A NON-GLUED CAP AND TAPE AT EACH END, MARKED AND LABELED APPROPRIATELY. CONTRACTOR TO PROVIDE 200 LB TEST POLYETHYLENE PULL STRINGS FOR EACH CONDUIT.
6. ALL CONDUITS ENTERING THE SHELTER SHALL BE SEALED WITH SEALANTS THAT ARE IDENTIFIED FOR USE WITH THE CABLE INSULATION SHIELD OR OTHER COMPONENTS.
7. ALL CONDUITS NOT STUBBED INTO AN ENCLOSURE, SHALL BE CAPPED TO PROVIDE A WEATHER TIGHT SEAL.
8. COORDINATE EXACT SOURCE AND INSTALLATION REQUIREMENTS WITH UTILITY COMPANIES.



**verizon wireless**  
375 WOODRUFF HILLS BOULEVARD  
LOUISVILLE, KY 40258  
PHONE (502) 712-7114  
FAX (502) 801-7411

**TENNESSEE PARTNERSHIP**

**BTM Engineering, Inc.**  
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
2000 TAYLOR SPRINGS DRIVE  
LOUISVILLE, KENTUCKY 40220  
PHONE (502) 439-8427  
FAX (502) 439-8427

**MICHAEL J. SMITH**  
REGISTERED ENGINEER  
IN AGRICULTURE  
COMMERCIAL  
No. 100639  
STATE OF TENNESSEE

DATE:	01/20/16
SITE NAME:	KEENE STREET
SITE NUMBER:	266358
SITE ADDRESS:	1042 MULBERRY ST LOUDDON, TN 37774
AREA:	LEASE AREA = 100 SF
PROPERTY OWNER:	KENNETH N. & JENNIFER BREWSTER 754 ROBINSON DRIVE LOUDDON, TN 37774
TAX MAP NUMBER:	040M
PARCEL NUMBER:	A-00.700-000
SOURCE OF TITLE:	DEED BOOK D302 PAGE 345
LATITUDE:	N 35° 43' 35.45"
LONGITUDE:	W 84° 21' 09.05"

NO.	DESCRIPTION	CHK	DATE
1	KL ISSUE FOR COMMENT		09/23/15 PCH
2	NLR ISSUE FOR COMMENT		09/24/15 PCH
3	NLR ISSUE FOR COMMENT		09/28/15 PCH
4	NLR ISSUE FOR COMMENT		11/05/15 PCH
5	NLR ISSUE FOR COMMENT		11/13/15 PCH
6	KTL ISSUE FOR COMMENT		12/10/15 PCH
7	KTL ISSUE FOR COMMENT		01/16/16 PCH
8	KTL CONSTRUCTION ISSUE		01/20/16 PCH

TITLE: CONDUIT ROUTING PLAN

SHEET: E-1A

**CODED DRAWING NOTES:**

- 1 #2 TINNED BARE COPPER SOLID WIRE BURIED EXTERIOR GROUND RING.
- 2 CANOPY. BOND TOP OF EACH CANOPY POST TO GRIP STRUT AND JUMPER EACH SECTION. BOND BOTTOM OF EACH CANOPY SUPPORT POST TO BURIED GROUND RING WITH CADWELD.
- 3 BOND NEUTRAL TERMINAL IN METERING DEVICE AND SERVICE DISCONNECT TO GROUND RING.
- 4 NOT USED.
- 5 NOT USED.
- 6 BOND GROUND RING TO PROPOSED FENCE CORNER POST (TYP 4).
- 7 #2 AWG SOLID TINNED GROUND LEAD TO GATE POSTS (TYP 2).
- 8 GALVANIZED BAR-NONE GROUND POST. SEE DETAILS ON SHEET E-7. CONFIRM WITH VERIZON REPRESENTATIVE.
- 9 TOP AND INTERMEDIATE TOWER TINNED COAX GROUND BAR(S), EXTERNAL, BOLTED TO TOWER STEEL.
- 10 PROPOSED 50' MONOPOLE TOWER.
- 11 AC UNITS BY CABINET MANUFACTURER. GROUNDING CONNECTION BY THIS CONTRACT.
- 12 NOT USED.
- 13 INSTALL INSPECTION PORTS AT MAIN TOWER GROUND RING (TYP 2).
- 14 CADWELD #2 SOLID TINNED BARE COPPER WIRE LEAD TO TOWER BASE PLATE OR FLANGE PLATES (TYP 4).
- 15 SHIELD OF COAX CABLES FROM ANTENNAS SHALL BE BONDED TO GROUND BAR OR BAR-NONE GROUND POST.
- 16 NOT USED.
- 17 NOT USED.
- 18 NOT USED.
- 19 IN LIEU OF STANDARD GROUND RODS, INSTALL 1" x 1" x 1/8" THICK COPPER PLATES SHALL BE PLACED AT A DEPTH EQUAL TO THAT OF THE GROUND RING (MINIMUM 30" BELOW GRADE). CADWELD PLATES TO THE GROUND RING (NO MECHANICAL CONNECTIONS BELOW GRADE). PLACE PLATES AT 5' (MAXIMUM) ON CENTER AROUND THE EQUIPMENT GROUND RING AND AT 10' CENTERS ELSEWHERE. PACK EACH GROUNDING PLATE WITH ONE FULL BAG OF TERRAFILL.

NOTE: GROUNDING TO BE INSTALLED INSIDE LEASE AREA. DRAWING IS REPRESENTATIVE OF LAYOUT AND NOT EXACT LOCATION.

**GROUNDING NOTES:**

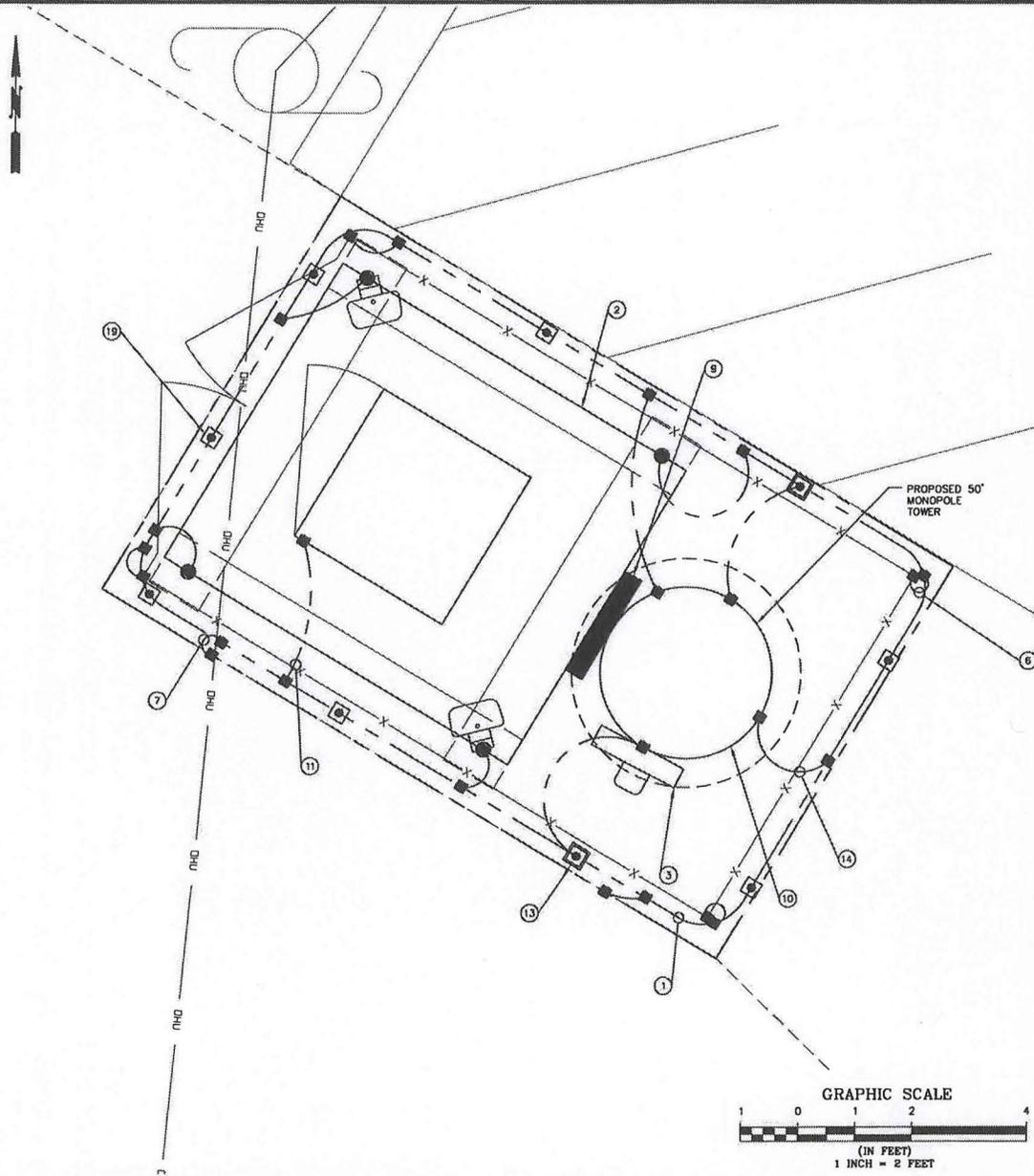
1. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
2. MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'-0" (20'-0" MAXIMUM).
3. GROUND RINGS SHALL BE COMPRISED OF #2 AWG SOLID TINNED BARE COPPER WIRE, OFFSET 18" (MINIMUM) FROM EQUIPMENT PAD, BURIED AT 30" (MINIMUM) BELOW FINISHED GRADE. BELOW GRADE CONNECTIONS SHALL BE EXOTHERMIC (CADWELD) WELDS. CADWELD TO BE USED AT FENCE. PROTECT GROUND RING CONNECTIONS WITH T&B "KOPRSIELD" HOMOGENEOUS BLEND OF COLLOIDAL COPPER AND RUST INHIBITOR. COORDINATE THE FINAL GROUNDING LAYOUT WITH THE VERIZON DIRECTOR OF CONSTRUCTION OR HIS DESIGNEE.
4. ALL GROUND LEADS SHALL BE INSTALLED IN A CLOCKWISE DIRECTION.

**ELECTRICAL SYMBOLS**

- ⊙ CHEMICAL GROUND ROD
- ⊠ INSPECTION GROUND PLATE WITH TEST LOOP
- ⊡ GROUND PLATE
- CADWELD TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- MIGB/CIGBE - GROUND BAR
- ⌘ DISCONNECT SWITCH
- Ⓜ METER
- Ⓢ CIRCUIT BREAKER
- ⓐ GENERATOR
- ⓐ GENERATOR RECEPTACLE
- ⓐ AUTOMATIC TRANSFER SWITCH
- ⓐ MANUAL TRANSFER SWITCH
- GROUNDING WIRE
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE
- ⓧ INDICATES CODED NUMBER

**ABBREVIATIONS**

- AWG AMERICAN WIRE GAUGE
- BCW BARE COPPER WIRE
- BTS BASE TRANSMISSION SYSTEM
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- GPS GLOBAL POSITIONING SYSTEM
- I WALKING BEAM INTERLOCK
- IGR INTERIOR GROUND RING (HALO)
- MIGB MASTER ISOLATED GROUND BAR
- RGS RIGID GALVANIZED STEEL
- RWY RACEWAY
- SS STAINLESS STEEL
- TYP TYPICAL
- VZW VERIZON WIRELESS



**verizon wireless**  
375 HOBBS HILLS BOWLING GREEN  
TENNESSEE 38003  
PARTNERSHIP  
PHONE: (615) 714-2111  
FAX: (615) 831-2411

01/20/16

**BTM Engineering, Inc.**  
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
ARCHITECTS  
3001 TAYLOR SPRINGS DRIVE  
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PHONE: (502) 449-8427  
FAX: (502) 449-8427

**MICHAEL J. SMITH**  
REGISTERED ENGINEER  
AGRICULTURE  
COMMERCE  
No. 10949  
EXPIRES 12/31/2016

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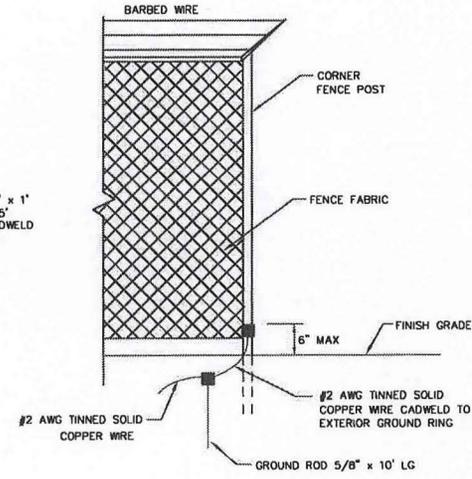
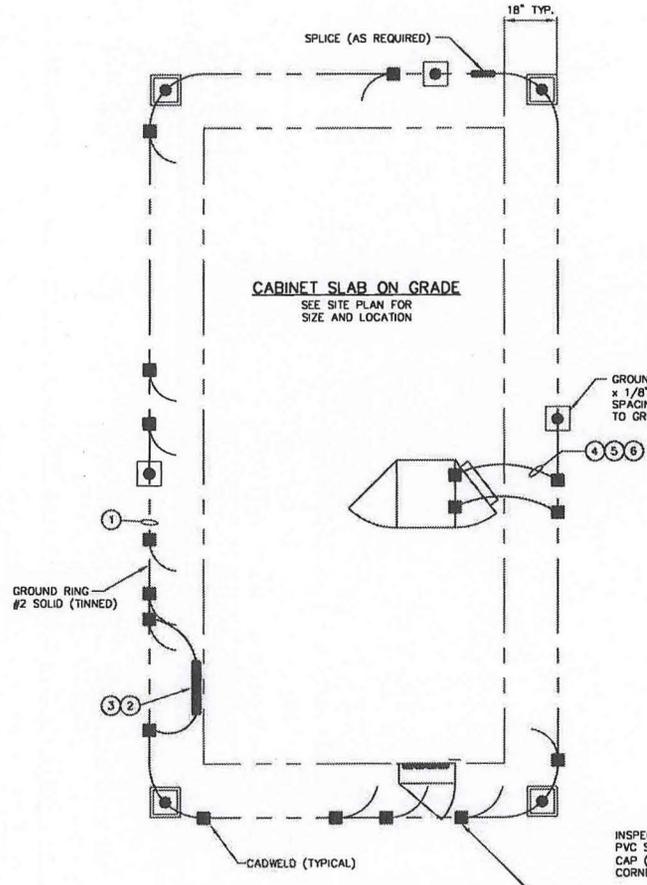
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 AREA: LEASE AREA = 100 SF  
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 LATITUDE: N 35° 43' 35.45" LONGITUDE: W 84° 21' 09.05"

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7	KTL	ISSUE FOR COMMENT	01/19/16	PCH
8	KTL	CONSTRUCTION ISSUE	01/20/16	PCH

TITLE: GROUNDING PLAN  
 SHEET: E-2

**CODED DRAWING NOTES:**

- ① #2 TINNED BARE COPPER SOLID WIRE BURIED EXTERIOR GROUND RING.
- ② EXTERNAL RF GROUND BAR.
- ③ CABLE ENTRANCE GROUNDING PLATE.
- ④ CABINET GROUND, CADWELD TO GROUND RING.
- ⑤ BOND GROUND BAR IN TELCO JUNCTION BOX TO BURIED GROUND RING.
- ⑥ ALL INTERNAL GROUND BARS TO BE BONDED TO THE EXTERNAL BURIED GROUND RING BY THIS CONTRACT



**FENCE GROUNDING DETAIL**  
NTS

**CABINET GROUNDING RING PLAN**  
NTS

NOTE: EQUIPMENT GROUNDING TO COMPLY WITH VERIZON WIRELESS SPECIFICATIONS

**NOTE**

1. EACH BUILDING / EQUIPMENT PAD GROUNDING LAYOUT IS TO COMPLY WITH VERIZON WIRELESS SPECIFICATIONS.
2. ALL GROUNDING DETAILS TO FLOW CLOCKWISE (AS SHOWN)
3. CONTACT VERIZON WIRELESS PERSONNEL PRIOR TO BACKFILLING GROUNDING INSTALLATION.
4. PLACE TEST PORTS AT OPPOSITE ENDS OF SHELTER.
5. MINIMUM 3 FOOT SPACING BETWEEN THE GROUND CONNECTIONS TO THE MAIN TOWER GROUND RING. (TO BE DETERMINED BY PAD AND TOWER LOCATION)

**ELECTRICAL SYMBOLS**

- ⊙ CHEMICAL GROUND ROD
- ⊕ INSPECTION PORT
- GROUND PLATE
- CADWELD TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- MICB/OCBC - GROUND BAR
- ⊗ DISCONNECT SWITCH
- ⊕ METER
- ⊖ CIRCUIT BREAKER
- GENERATOR
- ⊕ GENERATOR RECEPTACLE
- ⊕ AUTOMATIC TRANSFER SWITCH
- ⊖ MANUAL TRANSFER SWITCH
- GROUNDING WIRE
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- - - UNDERGROUND TELEPHONE/ELECTRIC
- ⓧ INDICATES CODED NUMBER

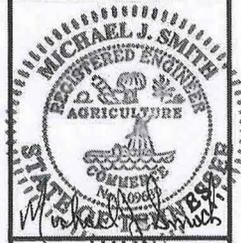
TO MAIN TOWER GROUND RING (SEE NOTE NO. 5, THIS SHEET)

TO MAIN TOWER GROUND RING (SEE NOTE NO. 5, THIS SHEET)

INSPECTION PORT 6" DIA. PVC SCH. 80 WITH CPLG & CAP (4 REQ'D) AT ALL FOUR CORNERS OF EQUIPMENT PAD

**verizon wireless**  
 875 RICHMOND HILLS BOULEVARD  
 TENNESSEE PARTNERSHIP  
 NASHVILLE, TENNESSEE 37217-7114  
 PHONE (615) 714-7114  
 FAX (615) 811-7411

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



SITE NAME:		KEENE STREET	
SITE NUMBER:		266358	
SITE ADDRESS:		1042 MULBERRY ST LOUDDON, TN 37774	
AREA:		LEASE AREA = 100 SF	
PROPERTY OWNER:		KENNETH N. & JENNIFER BREWSTER 754 ROBINSON DRIVE LOUDDON, TN 37774	
TAX MAP NUMBER:	040M	PARCEL NUMBER:	A-00.700-000
SOURCE OF TITLE: DEED BOOK D302 PAGE 345			
LATITUDE:		LONGITUDE:	
N 35° 43' 35.45"		W 84° 21' 09.05"	
NO.	DESCRIPTION	DATE	CHK
1	RI ISSUE FOR COMMENT	09/22/15	PCH
2	RI ISSUE FOR COMMENT	09/29/15	PCH
3	RI ISSUE FOR COMMENT	09/29/15	PCH
4	RI ISSUE FOR COMMENT	11/05/15	PCH
5	RI ISSUE FOR COMMENT	11/13/15	PCH
6	RI ISSUE FOR COMMENT	12/10/15	PCH
7	RI ISSUE FOR COMMENT	01/18/16	PCH
8	RI CONSTRUCTION ISSUE	01/20/16	PCH

TITLE: **EQUIPMENT GROUNDING PLAN**

SHEET: **E-3**

**ELECTRICAL SPECIFICATIONS:**

- SCOPE: PROVIDE LABOR, MATERIALS AND EQUIPMENT REQUIRED TO COMPLETE THE INSTALLATION AS REQUIRED BY MANUFACTURERS.
- CODES AND STANDARDS: INSTALLATION SHALL COMPLY WITH APPLICABLE LAWS AND ORDINANCES, UTILITY COMPANY REGULATIONS AND APPLICABLE REQUIREMENTS OF THE LATEST EDITIONS OF:
  - A. NFC - NATIONAL FIRE CODES
  - B. UL - UNDERWRITERS LABORATORIES
  - C. NEC - NATIONAL ELECTRIC CODE
  - D. NEMA - NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
  - E. OSHA - OCCUPATIONAL SAFETY AND HEALTH ACT
  - F. SBC - STANDARD BUILDING CODE
- PERMITS: OBTAIN AND PAY FOR REQUIRED PERMITS, LICENSES, FEES AND INSPECTIONS AS REQUIRED.
- COORDINATION: COORDINATE WORK WITH OTHER TRADES.
- SUBMITTALS: SUBMIT BROCHURES FOR APPROVAL ON MAJOR SYSTEM COMPONENTS.
- EXISTING SERVICES: DO NOT INTERRUPT EXISTING SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.
- EQUIPMENT: PROPERLY CONNECT ELECTRICALLY OPERATED EQUIPMENT.
- RECORD DRAWINGS: MAINTAIN A RECORD OF ALL CHANGES AND SUBSTITUTIONS BETWEEN WORK AS SPECIFIED AND INSTALLED. RECORD CHANGES ON A CLEAN SET OF CONTRACT DOCUMENTS WHICH SHALL BE TURNED OVER TO LESSEE UPON COMPLETION OF THE PROJECT.
- IDENTIFICATION: IDENTIFY SERVICE DISCONNECTING MEANS WITH PERMANENT NAME PLATE.
- CUTTING AND PATCHING: PROVIDE CUTTING REQUIRED TO DO THE WORK. DO NOT CUT MAJOR STRUCTURAL ELEMENTS WITHOUT APPROVAL. PATCHING SHALL BE OF QUALITY EQUAL TO AND OF MATCHING APPEARANCE OF EXISTING CONSTRUCTION.
- DITCHING AND BACKFILL: PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES.
- RACEWAYS: UNDERGROUND CONDUIT SHALL BE SCHEDULE 80 PVC CONDUIT (MEET NEMA TC2, LATEST EDITION). EXPOSED CONDUIT SHALL BE SCHEDULE 40 RIGID CONDUIT OR SCHEDULE 80 PVC. PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LB. TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 24" RADIUS. GRS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT.
- SUPPORTS: AS REQUIRED BY THE NEC (LATEST EDITION).
- CONDUCTORS: USE 98% CONDUCTIVITY COPPER WITH TYPE THHN/THWN OR EQUIVALENT 90°C INSULATION, 600 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 10 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 10 AWG.
- CONNECTORS FOR POWER CONDUCTORS: USE COMPRESSION TYPE INSULATED CONNECTORS FOR #10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR #8 AWG AND LARGER.
- GROUNDING: MAIN GROUNDING CONDUCTORS SHALL BE A MINIMUM OF #2 AWG SOLID TINNED COPPER. GROUNDING LEADS ON ANTENNA SUPPORT STRUCTURES SHALL BE A MINIMUM OF #2 AWG SOLID BARE COPPER AND SHALL BE TINNED WHERE THEY ARE INSTALLED AGAINST THE STRUCTURE. GROUND BARS SHALL BE 1/4" THICK, 4" WIDE, LENGTH AS REQUIRED. GROUND RESISTANCE TO BE 5 OHM MAXIMUM. PROVIDE ADDITIONAL GROUNDING RODS AS REQUIRED.
- TELEPHONE SERVICE: PROVIDE EMPTY CONDUITS WITH PULL WIRES (10' ON EACH SIDE OF CONDUIT).
- SERVICE: 240/120, SINGLE PHASE, 3 WIRE, 200 AMP FROM THE METER CENTER.

**GROUND BAR NOTES:**

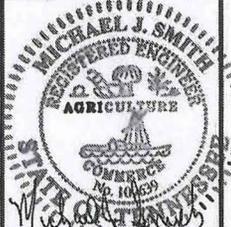
- THE SIZE OF THE GROUND BARS INSTALLED ON TOWERS SHALL BE 1/4" x 4" x LENGTH AS REQUIRED. TOP OF TOWER BARS MAY BE SMALLER, BUT MUST PROVIDE FOR FULL POTENTIAL OF FUTURE CONNECTIONS.
- THE LOWEST POINT OF THE GROUND BAR AT THE BOTTOM OF THE VERTICAL RUN SHOULD BE APPROXIMATELY ONE TO TWO FEET ABOVE 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.
- INTERMEDIATE TOWER GROUND BARS SHALL BE INSTALLED ON 75' CENTERS FROM THE CENTERLINE OF THE ANTENNAS DOWN, WHERE LESS THAN 100' FROM THE LOWEST GROUND BAR TO FINISHED GRADE EXISTS, AN ADDITIONAL INTERMEDIATE GROUND BAR IS NOT REQUIRED.
- ALL TOWER TOP GROUND BARS SHALL BE BOLTED TO TOWER STEEL, DEPENDING ON LOCATION, WITH APPROVED GROUNDING CLAMPS. NO ANGLE ADAPTERS OR ROUND MEMBER CLAMPS ALLOWED.
- THE BOTTOM GROUND BAR SHALL BE BONDED WITH TWO NO. 2 SOLID, TINNED, COPPER WIRES TO THE TOWER GROUND RING. GROUND WIRES SHALL BE BONDED TO THE GROUND BAR WITH 2-HOLE LUG CONNECTIONS AND TO THE GROUND RING WITH EXOTHERMIC WELDS. THE LEADS MUST RUN AS DIRECT AND STRAIGHT AS POSSIBLE IN 3/4" NON-METALIC FLEX. SHOULD EXCESSIVE FOUNDATION HEIGHT REQUIRE GROUND BAR INSTALLATION ABOVE 10-12 FEET, THIS CONNECTION MAY BE MADE DIRECTLY TO THE TOWER. THE FIELD MANAGER MUST APPROVE THIS ALTERNATIVE.
- THE MAIN REFERENCE GROUND BAR (MRGB) SHALL BE BONDED 6" IN FROM END WITH NO. 2 SOLID, TINNED, COPPER WIRE TO THE GROUND RING SYSTEM. GROUND WIRES SHALL BE BONDED TO THE GROUND BAR WITH 2-HOLE LUG CONNECTIONS AND TO THE GROUND RING WITH EXOTHERMIC WELDS.
- THIS 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.
- ALL EXTERIOR TRANSMISSION LINE GROUNDS HAVE INSULATED NO. 6 STRANDED COPPER CONDUCTORS WITH TWO HOLE COMPRESSION LUGS. GROUND CONDUCTORS MUST ALWAYS FALL DOWNWARD TO THE GROUND BAR CONNECTION.
- IF NON-TINNED GROUND BARS ARE USED (PERMITTED INSIDE THE SHELTER ONLY), THE GROUND BARS MUST BE CLEANED TO REMOVE ANY OXIDATION, PAINT OR OTHER FOREIGN SUBSTANCES. 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 ANTI-OXIDANT MATERIAL. WIPE CLEAN ALL EXCESS.
- 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 12".
- 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.
- ALL EXTERNAL GROUND BARS ARE TO BE TINNED. TOWER GROUND BARS SHALL BE NON-ISOLATED AND BOLTED DIRECTLY TO TOWER STEEL.



575 HICKORY HILLS BOULEVARD  
TENNESSEE  
PARTNERSHIP  
PAK # 63 714-271-4  
PK (615) 871-2111

**BTM Engineering, Inc.**  
CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS, ARCHITECTS  
3000 LAKE AS SPRINGS DRIVE  
LOUISVILLE, KENTUCKY 40220  
LOUISVILLE, KY 40220  
TEL: (502) 438-8422  
FAX: (502) 438-8422

01/20/16

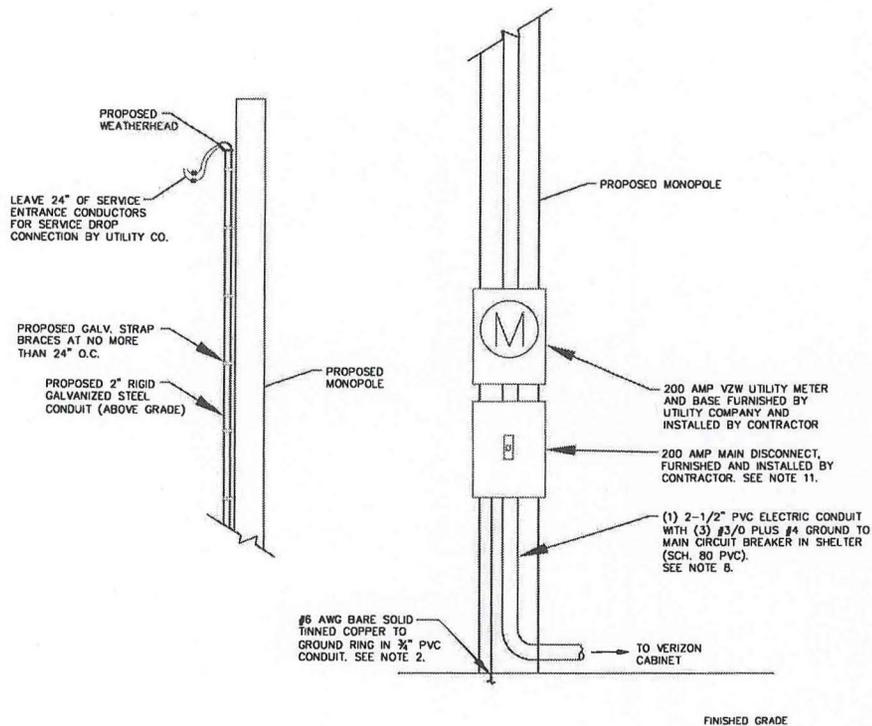


SITE NAME:		KEENE STREET	
SITE NUMBER:		266358	
SITE ADDRESS:		1042 MULBERRY ST LOUDDON, TN 37774	
AREA:		LEASE AREA = 100 SF	
PROPERTY OWNER:			
KENNETH N. & JENNIFER BREWSTER		754 ROBINSON DRIVE LOUDDON, TN 37774	
TAX MAP NUMBER:	D40M	PARCEL NUMBER:	A-00.700-000
SOURCE OF TITLE:			
DEED BOOK D302 PAGE 345			
LATITUDE:		LONGITUDE:	
N 35° 43' 35.45"		W 84° 21' 09.05"	

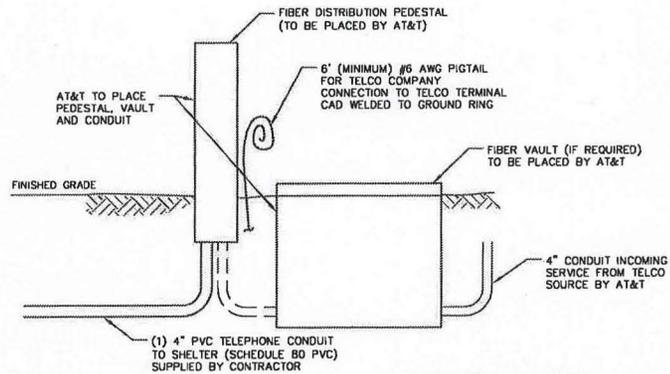
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3	NLR	ISSUE FOR COMMENT	08/28/15	PKT
4	NLR	ISSUE FOR COMMENT	11/05/15	PKT
5	NLR	ISSUE FOR COMMENT	11/13/15	PKT
6	KTL	ISSUE FOR COMMENT	12/01/15	PKT
7	KTL	ISSUE FOR COMMENT	01/18/16	PKT
8	KTL	CONSTRUCTION ISSUE	01/20/16	PKT

TITLE: **ELECTRICAL AND GROUND NOTES**

SHEET: **E-4**



UTILITY POLE — ELECTRIC METER SIDE  
NTS



TELCO PEDESTAL AND VAULT  
NTS

NOTE:  
TELCO DEMARC TO BE  
PLACED INSIDE THE SHELTER.  
SEE NOTE 2, SHEET E-1.

**NOTES:**

- ELECTRICAL SERVICE SHALL BE RATED 200A, 240/120V, 1Ø, 3W. COORDINATE METER CENTER ACCEPTABILITY WITH LOCAL UTILITY COMPANY PRIOR TO ORDERING AND INSTALLATION.
- CONNECT NEUTRAL TERMINAL IN METERING DEVICE TO GROUNDING ELECTRODE.
- PROVIDE GROUNDING ELECTRODE AND CONNECT TO METER AND SERVICE DISCONNECT PER NEC AND PER UTILITY COMPANY SPECIFICATIONS.
- REFER TO ELECTRICAL SITE PLAN FOR CONDUIT AND WIRE REQUIREMENTS.
- ALL EQUIPMENT SHALL BE GROUNDED PER LATEST EDITION OF NEC AND AS INDICATED ON GROUNDING PLAN.
- ELECTRICAL EQUIPMENT SHALL BE MIN 3'-0" FROM ANY STRUCTURE AND AS REQUIRED BY LOCAL UTILITY COMPANIES AND AHJ.
- USE NON-FUSED BREAKER FOR DISCONNECT IF ALLOWED BY CODE.
- ALL UNDERGROUND CONDUITS SHALL BE SCH. 80 PVC. ALL CONDUITS TO HAVE RIGID GALVANIZED STEEL (RGS) SWEEPS AND RISERS.
- ALL CONDUITS ARE REQUIRED TO BE STRAPPED TO THE UNISTRUT ON THE H-FRAMES.

**verizon wireless**  
375 HICKORY HILLS BOWLING  
WAY  
MEMPHIS, TN 38118  
TEL: (901) 714-7111  
FAX: (901) 811-7411

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LOUISVILLE, KENTUCKY 40220  
TEL: (502) 495-8422  
FAX: (502) 495-8427

01/20/16

**MICHAEL J. SMITH**  
REGISTERED ENGINEER  
AGRICULTURE  
COMMERCIAL  
No. 109659  
STATE OF TENNESSEE  
*Michael J. Smith*

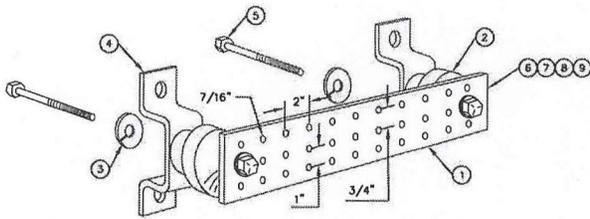
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SITE NUMBER:		266358	
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SOURCE OF TITLE: DEED BOOK D302 PAGE 345			
LATITUDE: N 35° 43' 35.45"		LONGITUDE: W 84° 21' 09.05"	

NO.	BY	DESCRIPTION	REVISIONS											
			DATE	CHK	DATE	CHK	DATE	CHK	DATE	CHK				
1	KL	ISSUE FOR COMMENT	09/23/15	PCH	09/24/15	PCH	09/28/15	PCH	11/05/15	PCH	12/01/15	PCH	01/20/16	PCH
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4	NLR	ISSUE FOR COMMENT	11/05/15	PCH	12/01/15	PCH	01/20/16	PCH						
5	NLR	ISSUE FOR COMMENT	12/01/15	PCH	01/20/16	PCH								
6	KTL	ISSUE FOR COMMENT	01/20/16	PCH										
7	KTL	ISSUE FOR COMMENT	01/20/16	PCH										
8	KTL	CONSTRUCTION ISSUE	01/20/16	PCH										

TITLE:  
UTILITY  
H-FRAME

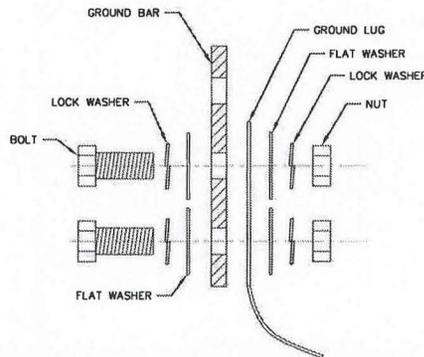
SHEET:  
E-5





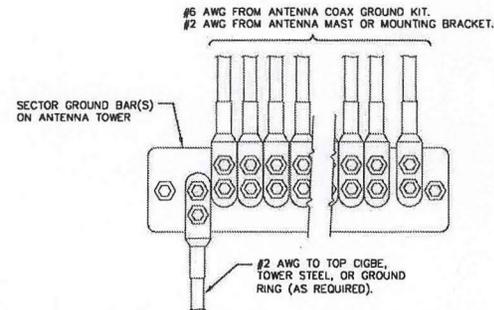
- LEGEND:**
1. TIN COATED COPPER GROUND BAR, 1/4" x 2" x 20" MINIMUM, NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
  2. INSULATORS, NEWTON INSTRUMENT CO. CAT. NO. 3061-4
  3. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT NO. 3015-8
  4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6055
  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**  
NTS



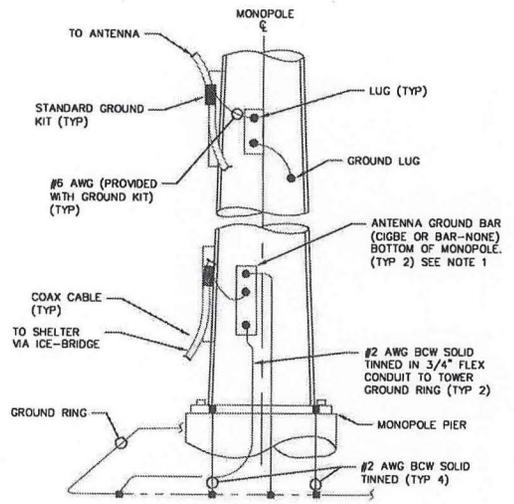
**NOTE:**  
WHEN CONNECTING A GROUND LEAD TO ANY GROUND BAR, CONTRACTOR SHALL FOLLOW THIS SEQUENCE; BOLT HEAD, LOCK WASHER, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER, LOCK WASHER, AND THE NUT. CONTRACTOR SHALL NOT PLACE LOCK WASHER NEXT TO ANY TINNED SURFACE.

**GROUND BAR CONNECTION DETAIL**  
NTS



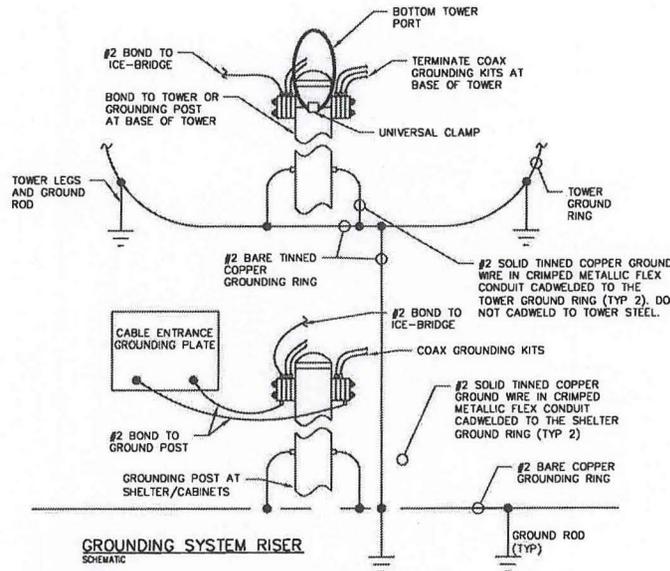
- NOTE:**
1. TIN COATED COPPER GROUND BAR 1/4" x 4" x LENGTH AS REQUIRED TO ACCOMMODATE INSTALLED ANTENNA, PLUS 50% SPARE CAPACITY, NEWTON INSTRUMENT CO. OR EQUIVALENT. 2-HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
  2. SIMILAR INSTALLATION FOR TOP AND BOTTOM TOWER GROUND BARS AND FOR COAX ENTRY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

**GROUND WIRE INSTALLATION TO GROUND BAR**  
NTS



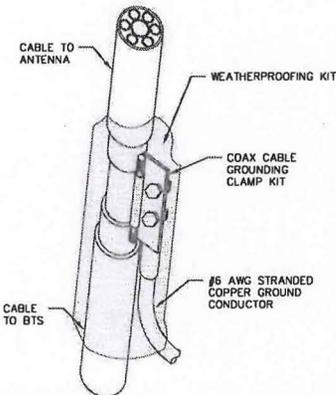
- NOTES:**
1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION, PROVIDE AS REQUIRED.
  2. SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

**ANTENNA CABLE GROUNDING - MONOPOLE**  
NTS



**GROUNDING SYSTEM RISER**  
SCHEMATIC

**NOTES:**  
BOND BAR-NONE GROUND POSTS TO THE TOWER GROUND RING. DOWN LEADS SHOULD BE BONDED TO THE GROUND POSTS BELOW GRADE PER MANUFACTURER'S RECOMMENDATIONS. ALL #2 AWG BARE COPPER WIRE GROUND LEADS ABOVE GRADE (EXCLUDING THOSE HIGHER UP ON THE TOWER) ARE TO BE INCASED IN METALLIC FLEX CONDUIT, CRIMP CONDUIT EVERY 6 INCHES AS NECESSARY TO SECURE AND CONCEAL COPPER GROUND LEADS.



- NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND IN CABLE.
  2. ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  3. 2 1/2" DIAMETER MAX FOR TX/RX ANTENNA CABLES.
  4. 1 1/4" DIAMETER MAX FOR GPS ANTENNA CABLES.

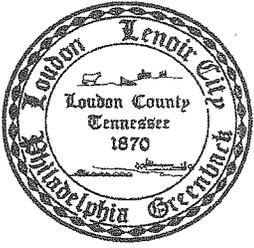
**COAX CABLE GROUND**  
NTS

**verizon wireless**  
375 HICKORY HILLS BOULEVARD  
MEMPHIS, TN 38117  
PHONE: 901-714-7114  
FAX: (901) 801-7411

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CONSULTING ENGINEERS, LANDSCAPE ARCHITECTS,  
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**MICHAEL J. SMITH**  
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6	K/L ISSUE FOR COMMENT	12/10/15	PCH
7	K/L ISSUE FOR COMMENT	07/18/16	PCH
8	K/L CONSTRUCTION ISSUE	07/20/16	PCH
TITLE:		GROUNDING DETAILS	
SHEET:		E-7	



# Loudon County Planning Department

101 Mulberry Street, Suite 101  
Loudon, Tennessee 37774  
Office: 865-458-2055  
Fax: 865-458-3598  
[www.loudoncounty-tn.gov](http://www.loudoncounty-tn.gov)

AGENDA  
LOUDON BOARD OF ZONING APPEALS  
LOUDON CITY HALL  
APRIL 6, 2016  
12:30 P.M.

1. Call to Order
2. Roll Call
3. Swearing In All Witnesses
4. Approval of Minutes from the March 15, 2016 meeting
5. Planned Agenda Items
  - A. Special Exception, applicant, Ralph Wyngarden for Verizon Wireless, request to allow 50' monopole to provide wireless communication service, 1042 Mulberry Street, Tax Map 40M, Group A, Parcel 007.00, C-2, Highway Business District, Kenneth and Jennifer Brewster, property owners;
  - B. Special Exception, applicant and property owner, Larry Smith, request to live in upstairs of building, office downstairs, 407 Wharf Street, Tax Map 041A, Parcel 018.00, C-1, Central Business District;
  - C. Special Exception, applicant and property owner, Anna James Shaver, request to live in upstairs of building (Annabelle's) with an office, 304 Wharf Street, Tax Map 41B, Parcel 006.00, C-1, Central Business District;
6. Additional public comments
7. Announcements and/or comments from Board/Commission
8. Adjournment



ITEM A



ITEM A



ITEM B



ITEM B

ITEM C

Cafe

C  
A  
F  
E

AND  
TRADE

**SPECIAL  
EXCEPTION**  
LOUDON COUNTY PLANNING  
& CODES ENFORCEMENT  
865-458-4470

Painted by  
Rafael Pasco  
4-15-10  
5/10



ITEM C

