

# RICHLAND COUNTY BOARD OF ZONING APPEALS



Wednesday, 7 January 2015

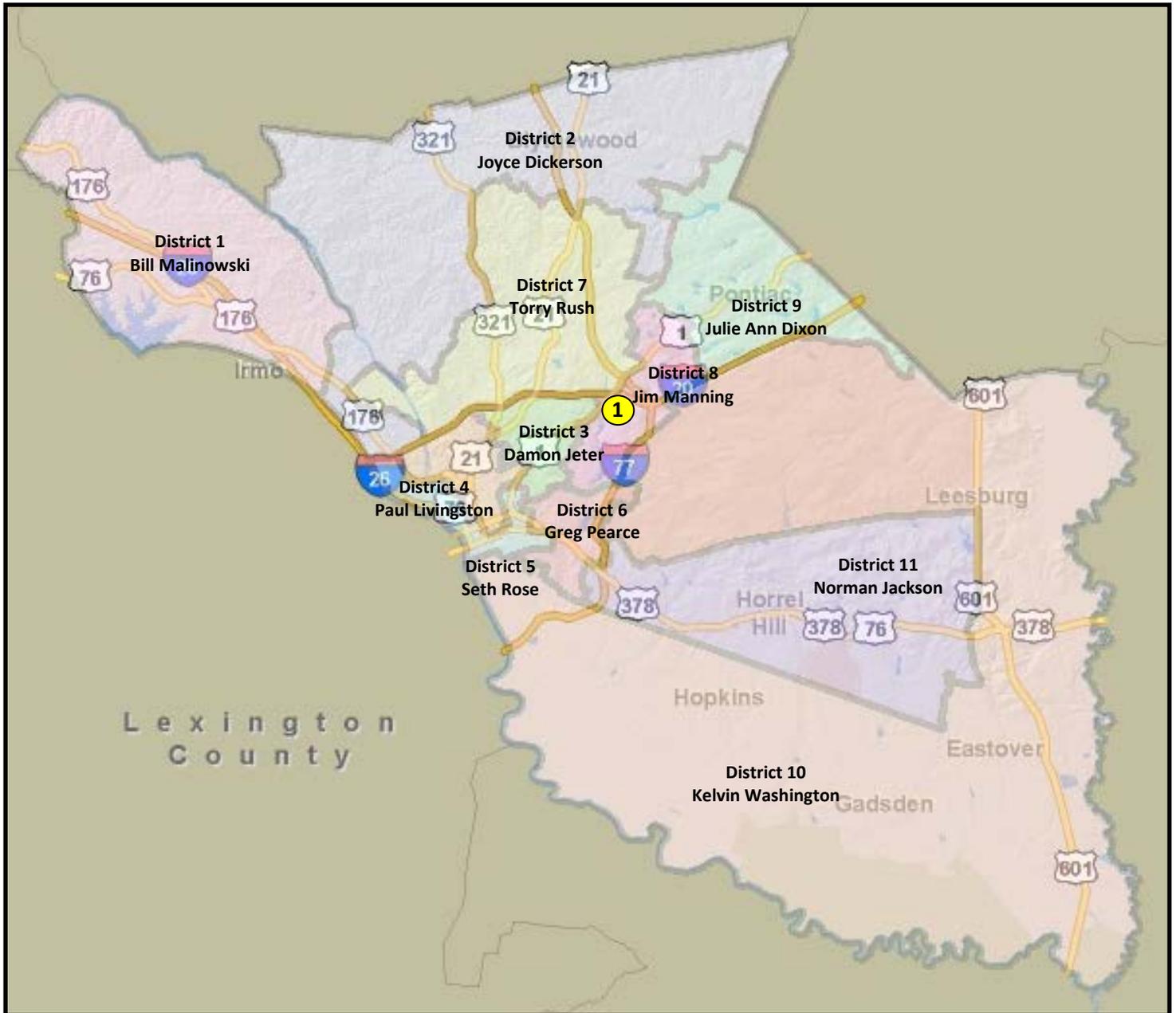
3 p.m.

Council Chambers



# RICHLAND COUNTY BOARD OF ZONING APPEALS

## January 7, 2015



| CASE NO.    | APPLICANT                              | TMS NO.     | LOCATION                            | DISTRICT |
|-------------|--|-------------|-------------------------------------|----------|
| 1. 14-06 SE | Jonathan Yates<br>Optima Towers IV LLC | 19203-14-11 | Leesburg Road<br>Columbia, SC 29209 | Jackson  |





**Richland County  
Board of Zoning Appeals  
Wednesday, January 7, 2015  
2020 Hampton Street  
2<sup>nd</sup> Floor, Council Chambers**

**3:00 p.m.**

## **Agenda**

- I. CALL TO ORDER & RECOGNITION OF QUORUM**      **Joshua McDuffie, Chairman**
- II. ADOPTION OF AGENDA**
- III. PUBLIC NOTICE ANNOUNCEMENT**
- IV. RULES OF ORDER**      **Amelia Linder, Attorney**
- V. APPROVAL OF MINUTES – November 2014**
- VI. PUBLIC HEARING**      **Geonard Price,  
Deputy Planning Director/ Zoning Adm.**

### **OPEN PUBLIC HEARING**

**14-06 SE  
Optima Towers IV, LLC  
Leesburg Rd.  
Columbia, SC 29209  
TMS# 19203-14-11**

**A special exception to establish a communication tower on property zoned General Commercial (GC).**

- VII. OTHER BUSINESS**
- VIII. ADJOURNMENT**





## REQUEST, DISCUSSION AND RECOMMENDATION

### **CASE:**

14-06 Special Exception

### **REQUEST:**

The applicant is requesting the Board of Zoning Appeals to grant a special exception to permit the construction of a communication tower in a GC (General Commercial) district.

### **GENERAL INFORMATION:**

*Applicant:* Jonathan Yates  
Optima Towers IV LLC

*TMS:* 19203-14-11

*Location:* 1709 Leesburg Road, Columbia, SC 29209

*Parcel Size:* .45± acre tract

*Existing Land Use:* The parcel is currently vacant.

*Proposed Land Use:* The applicant proposes to erect a 138-foot telecommunications tower, within a 2,500 (50 x 50) square foot leased area.

*Character of Area:* The abutting adjacent properties along Leesburg Road are mainly commercially developed. A residential neighborhood is located north of the subject parcel.

### **ZONING ORDINANCE CITATION:**

Table 26-V-2 of the Land Development Code authorizes the Board of Zoning Appeals to authorize radio, television and all other types of communications towers subject to the provisions of section 26-152 (d) (22).

### **CRITERIA FOR SPECIAL EXCEPTION:**

In addition to definitive standards in this chapter, the Board shall consider the following:

1. Traffic impact.
2. Vehicle and pedestrian safety.
3. Potential impact of noise, lights, fumes or obstruction of airflow on adjoining property.
4. Adverse impact of the proposed use on the aesthetic character of the environs, to include possible need for screening from view.
5. Orientation and spacing of improvements or buildings.

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### **Special exception requirements (as found in section 26-152 (d) (22)):**

(22) *Radio, television and telecommunications and other transmitting towers.*

- a. Use districts: Rural; Office and Institutional; Neighborhood Commercial; Rural Commercial; General Commercial; LI Light Industrial; Heavy Industrial.
- b. Communication towers shall have a maximum height of three hundred (300) feet. For towers on buildings, the maximum height shall be twenty (20) feet above the roofline of buildings forty (40) feet or four stories in height or less. For buildings greater than four stories or forty-one (41) feet in height, the maximum height of communication towers shall be forty feet above the roofline.

- c. The minimum setbacks for communication towers from abutting districts shall be as follows:
  1. Communication towers abutting a residentially zoned parcel shall have a minimum setback of one (1) foot for each foot of height of the tower as measured from the base of the tower. The maximum required setback shall be two hundred and fifty (250) feet.
  2. Communication towers abutting a non-residentially zoned parcel with a habitable residential dwelling shall have a minimum setback of fifty (50) feet.
  3. Communication towers abutting a non-residentially zoned parcel without a habitable residential dwelling shall observe the setbacks of the district in which it is located.
- d. The proposed user must show proof of an attempt to collocate on existing communication towers, and must be willing to allow other users to collocate on the proposed tower in the future subject to engineering capabilities of the structure. Evidence of an attempt to collocate must show that alternative towers, buildings, or other structures are not available for use within the applicant's tower site search area that are structurally capable of supporting the intended antenna or meeting the applicant's necessary height criteria, or provide a location free of interference from other communication towers.
- e. Towers shall be illuminated as required by the Federal Communications Commission, Federal Aviation Administration, or other regulatory agencies. However, no nighttime strobe lighting shall be incorporated unless required by the Federal Communications Commission, the Federal Aviation Administration, or other regulatory agency.
- f. Each communication tower and associated buildings shall be enclosed within a fence at least seven (7) feet in height.
- g. Each communication tower site shall be landscaped in accordance with the requirements of Section 26-176 of this chapter.
- h. No signage may be attached to any portion of a communications tower. Signs for the purpose of identification, warning, emergency function or contact or other as required by applicable state or federal rule, law, or regulation may be placed as required by standard industry practice.
- i. A communications tower which is no longer used for communications purposes must be dismantled and removed within one hundred twenty (120) days of the date the tower is taken out of service.

**DISCUSSION:**

The applicant proposes to erect a 138-foot monopole telecommunications tower, which will be situated within a 4,900 square foot fenced area.

Staff visited the site.

According to the provisions of subsection 26-152 (d) (22) (c) (1) "...towers abutting a residentially zoned parcel shall have a minimum setback of one (1) foot for each foot of height of the tower as measured from the base of the tower."

In addition, the provisions of subsection 26-152 (d) (22) (c) (3) require "...towers abutting a non-residentially zoned parcel without a habitable residential dwelling shall observe the setbacks of the district in which it is located." The required setbacks for the GC district are:

- **Front - 25 feet**
- **Rear - 10 feet**
- **Side – None**

The submitted site plan indicates that the tower will meet the required setbacks.

Meeting the criteria for a special exception in section 26-152 (d) (22) (c) may indicate that the applicant has taken necessary measures to minimize the impact of a communication tower on the surrounding area. Staff believes that this request will not impair the properties in the immediate or surrounding area.

The applicant must address, before the Board, the special exception requirements of section 26-152 (d) (22) (d).

Staff recommends approval for this request.

**CONDITIONS:**

Section 26-56 (f) (3)

*Conditions:* In granting a special exception, the board of zoning appeals may prescribe conditions and safeguards in addition to those spelled out in this chapter. The board of zoning appeals may also prescribe a time limit within which the special exception shall be begun or completed, or both. All conditions placed on the project by the board of zoning appeals shall be incorporated into such project.

**OTHER RELEVANT SECTIONS:**

N/A

**CASE HISTORY:**

A special exception (case 09-05 SE) to erect a 150-foot telecommunications tower, within a 4,900 (70 x 70) square foot leased area was approved by the Board of Zoning Appeals at the 4 February 2009 meeting.

**ATTACHMENTS:**

- Site plan
- Zoning Application Packet



**14-06 SE**  
**OPTIMA TOWERS IV, LLC**  
**LEESBURG ROAD**  
**COLUMBIA, SC 29209**  
**TMS# 19203-14-11**





# OPTIMA TOWERS

**OPTIMA TOWERS SITE NAME:**  
LEESBURG ROAD

**OPTIMA TOWERS SITE ID:**  
SC-1019

**SITE ADDRESS:**  
1709 LEESBURG ROAD  
COLUMBIA, SC 29209

**PROJECT TYPE**  
138' MONOPOLE  
TOWER

**2C COORDINATES:**  
LATITUDE: 33°58'41.5"N  
LONGITUDE: 80°55'52.34"W  
ELEVATION: 312' (AMSL)



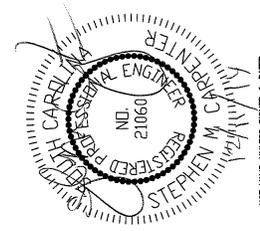
LOCATION MAP  
NTS

**SITE DIRECTIONS**

DIRECTIONS: FROM COLUMBIA TAKE I-77 N TO EXIT 94B (LEESBURG ROAD). GO EAST ON LEESBURG ROAD FOR 1.3 MILES. SITE WILL BE ON THE LEFT AFTER PATRICIA DR.

TMS PARCEL ID# R19203-14-11  
ZONING DISTRICT: GC  
PROPERTY OWNERS ADDRESS:  
2031 BULL STREET  
COLUMBIA, SOUTH CAROLINA 29201

**APPLICANT RESOURCE TEAM**  
SITE ENGINEER: TELECAD WIRELESS SITE DESIGN  
SITE SURVEYOR: COX & DINKINS  
LATITUDE: 33°58'41.5"N  
LONGITUDE: 80°55'52.34"W  
POWER CO.: SCEG  
TELCO CO.: AT&T  
PROPERTY OWNER: STOP N' SAVE INC. - TEL.: TBD  
ZONING DEPT: RICHLAND COUNTY  
BUILDING DEPT: RICHLAND COUNTY  
OPTIMA TOWERS REPRESENTATIVE:  
KEITH POWELL - 843-324-9745  
APPLICANT REPRESENTATIVE:  
JONATHAN VATES - 843-813-0103



NOT VALID UNLESS SIGNED & DATED

**NOTES:**

THE CONTRACTOR(S) OR ANYONE USING THESE DOCUMENTS IS ADVISED TO LAYOUT THEIR WORK AND VERIFY THE ACTUAL FIELD CONDITIONS RELATIVE TO THE DESIGNS SHOWN ON THE DRAWINGS. ANY DISCREPANCIES ENCOUNTERED THAT WOULD EFFECT THE PROPER INSTALLATION OF CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER IN ORDER TO ALLOW FOR NECESSARY ADJUSTMENTS IN THE PLANS.

THE CONTRACTOR SHALL LAYOUT IN THE FIELD ALL THE ELEMENTS OF THE IMPROVEMENTS PRIOR TO AND WELL AHEAD OF CONSTRUCTION TO INSURE THAT NO CONFLICTS EXIST BETWEEN ANY UNDERGROUND SERVICE UTILITIES OR DRAIN LINES, INCLUDING THEIR MINIMUM DEPTHS BELOW FINISHED SURFACES, THE SURFACE ELEVATIONS OF ALL MANHOLES AND CATCH BASINS RELATIVE TO FINISHED GRADES. THE PLANNED DISCREPANCIES ENCOUNTERED SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER IN ORDER TO ALLOW FOR NECESSARY ADJUSTMENTS IN THE PLANS.

THE CONTRACTOR(S) SHALL MAINTAIN ACCURATE AND LEGIBLE REQUIRED DRAWING RECORDS OF ALL INSTALLATIONS AND DELIVER THE SAME TO THE OWNER IN A FORM ADEQUATE TO REPRODUCE THE DRAWINGS. THE RECORDS SHALL BE KEPT AS LONG AS NECESSARY TO BE REVIEWED BY THE REVIEWING AGENCIES. THE FORM AND ADEQUACY OF THESE RECORDS ARE SUBJECT TO THE APPROVAL OF THE RECIPIENT.

**INDEX OF ZONING DRAWINGS**

- Z0 COVER SHEET
- S1 BOUNDARY SURVEY AND TOPOGRAPHIC MAP
- Z1 OVERALL SITE LAYOUT PLAN
- Z2 OVERALL SITE PLOT PLAN
- Z3 SITE LAYOUT & TOWER ELEVATION
- Z4 EQUIPMENT PAD DETAILS
- Z5 EQUIPMENT DETAILS
- Z6 ANTENNA PLAN
- Z7 SITE DETAILS
- Z8 FENCE DETAILS
- L1 LANDSCAPING PLAN
- L2 LANDSCAPING CERTIFICATIONS
- E1 UTILITY ROUTING PLAN
- E2 SITE GROUNDING PLAN
- E3 ELECTRICAL NOTES
- E4 ELECTRICAL DETAILS
- E5 ELECTRICAL DETAILS
- E6 UTILITY CENTER DETAILS
- E7 GROUNDING SINGLE LINE

ISSUE DATE: DECEMBER 11, 2014

| NO. | DATE     | ISSUE DESCRIPTION | DES. | CHK. |
|-----|----------|-------------------|------|------|
| 0   | 12-11-14 | ZONING ISSUE      | DL   | CTD  |
|     |          | ISSUE DESCRIPTION | DES. | CHK. |

**SHEET TITLE:**  
COVER SHEET &  
RESOURCE TEAM

**DRAWING NUMBER:** Z0

1961 NORTHPOINTE BOULEVARD SUITE 130 - HINSON, TN 37343  
(PHONE) 623-843-9500 - (FAX) 423-943-9589



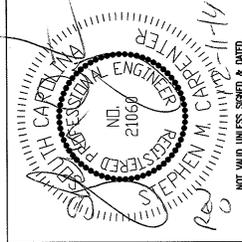
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|-----|----------|-----------------|-----------|----------|
| 0   | 12/11/14 | ZONING ISSUE    | US        | 12/11/14 |

**OPTIMA TOWERS**

SITE #: SC1019  
LEESBURG ROAD

OVERALL SITE  
PLOT PLAN

**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37343  
PH: 423-843-9500 FAX: 423-843-9509

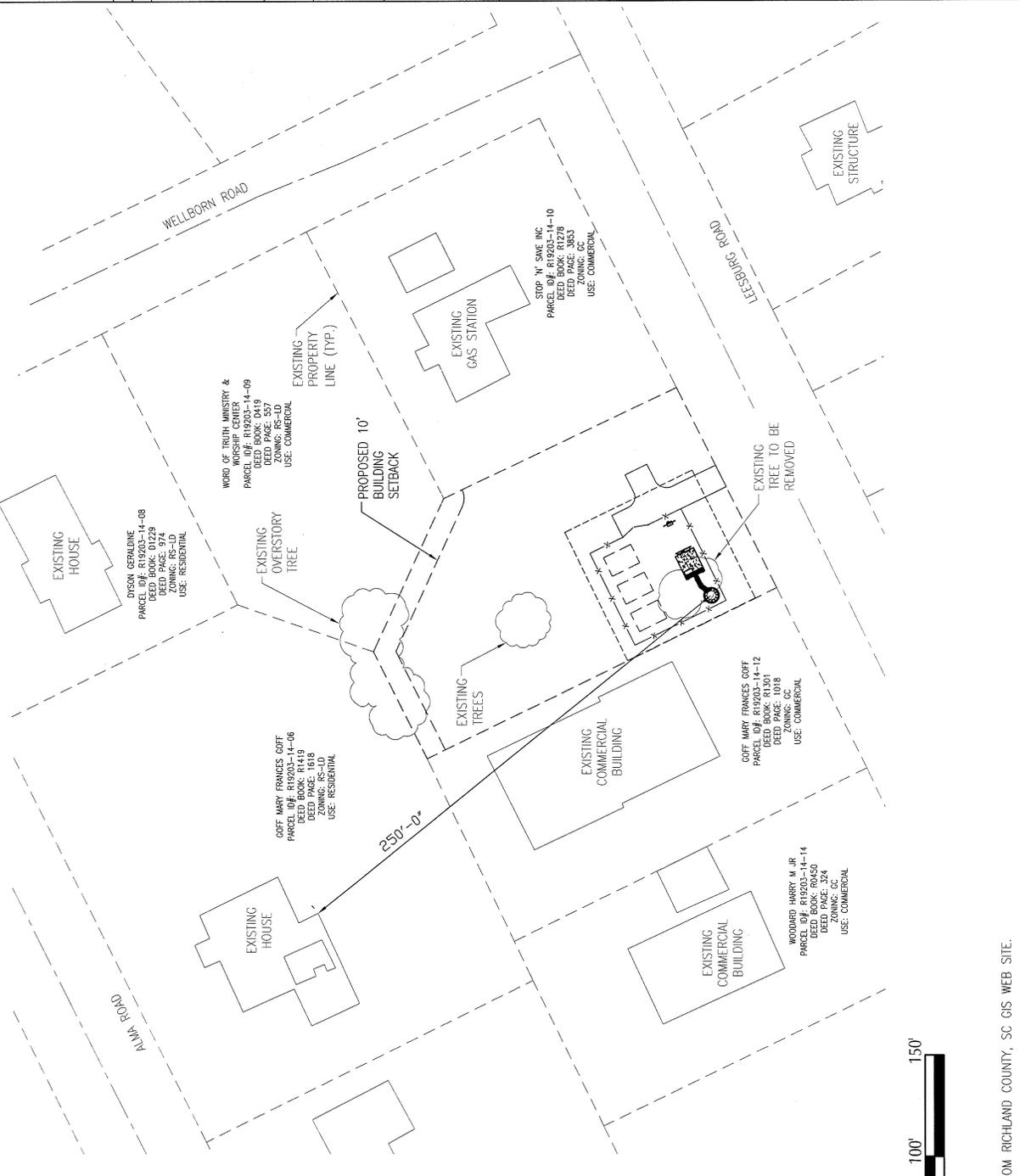


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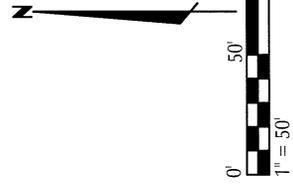
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PROJECT MGR: SEH

SHEET NUMBER: Z1



\*PARENT TRACT\*  
UNDER CONTRACT  
STOP 'N' SAVE INC  
PARCEL ID#: R19203-14-11  
DEED BOOK: R1278  
DEED PAGE: 3853  
ZONING: CC  
USE: VACANT COMMERCIAL



\*PARCEL INFORMATION TAKEN FROM RICHLAND COUNTY, SC GIS WEB SITE.

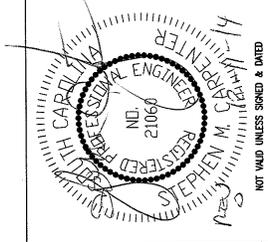
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**OPTIMA TOWERS**

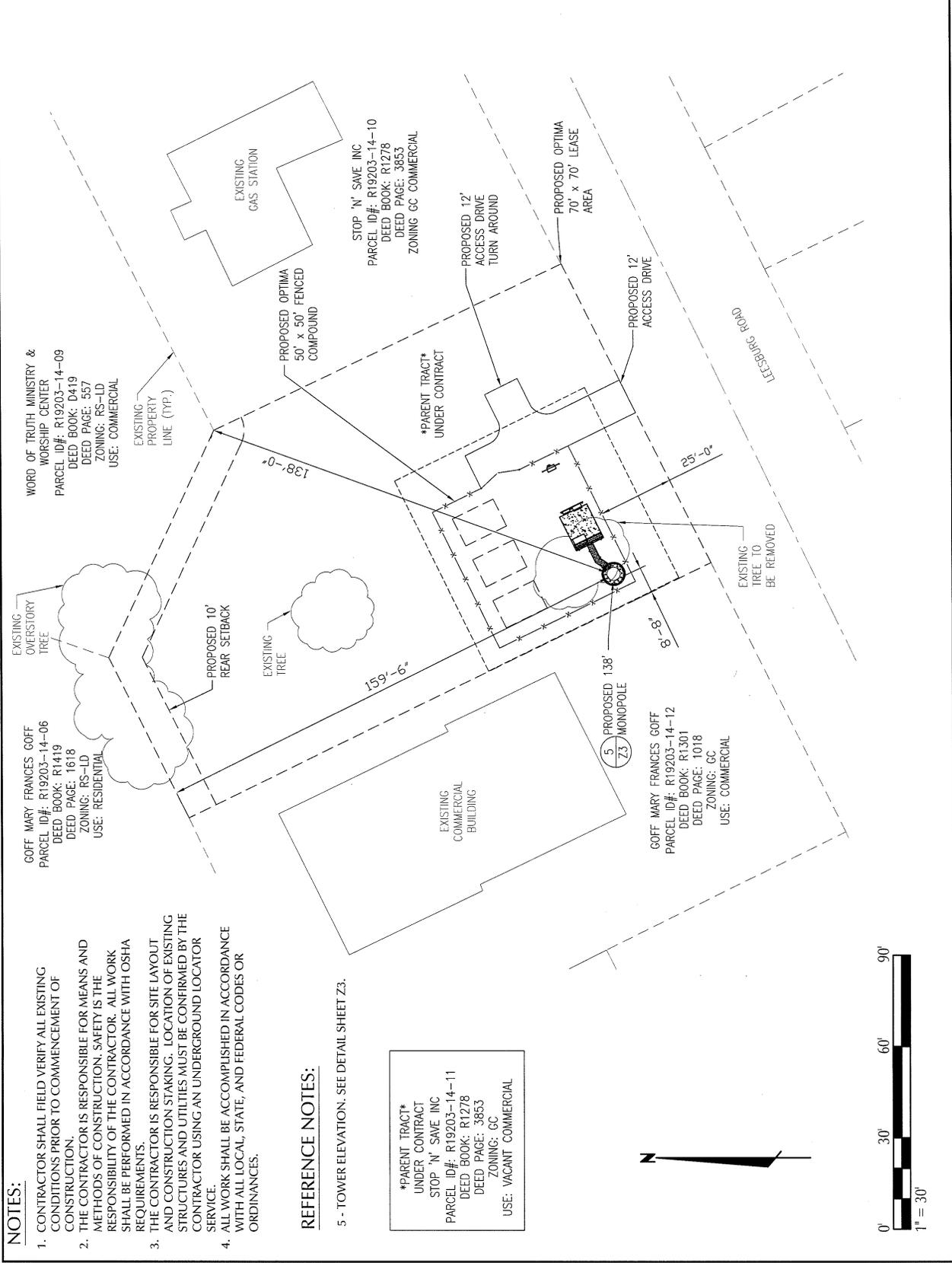
SITE #: SC1019  
LEESBURG ROAD

OVERALL SITE  
LAYOUT PLAN

**TeleCAD**  
WIRELESS SITE DESIGN, INC.  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37343  
PH: 423-843-9500 FAX: 423-843-9509



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PROJECT MGR: SEH  
SHEET NUMBER: Z2

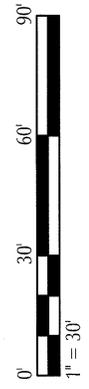


- NOTES:**
1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
  2. THE CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION, SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA REQUIREMENTS.
  3. THE CONTRACTOR IS RESPONSIBLE FOR SITE LAYOUT AND CONSTRUCTION STAKING. LOCATION OF EXISTING STRUCTURES AND UTILITIES MUST BE CONFIRMED BY THE CONTRACTOR USING AN UNDERGROUND LOCATOR SERVICE.
  4. ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES OR ORDINANCES.

**REFERENCE NOTES:**

5 - TOWER ELEVATION. SEE DETAIL SHEET Z3.

\*PARENT TRACT\*  
UNDER CONTRACT  
STOP 'N' SAVE INC  
PARCEL ID#: R19203-14-11  
DEED BOOK: R1278  
DEED PAGE: 3853  
ZONING: GC  
USE: VACANT COMMERCIAL



| NO. | DATE     | ZONING ISSUE | US CDD | BY | DATE |
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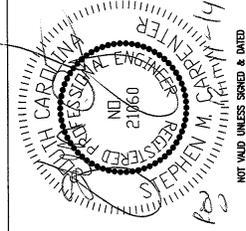
**OPTIMA TOWERS**

SITE #: SC1019  
LEESBURG ROAD

SITE LAYOUT &  
TOWER ELEVATION



WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37343  
PH: 423-843-9500 FAX: 423-843-9509



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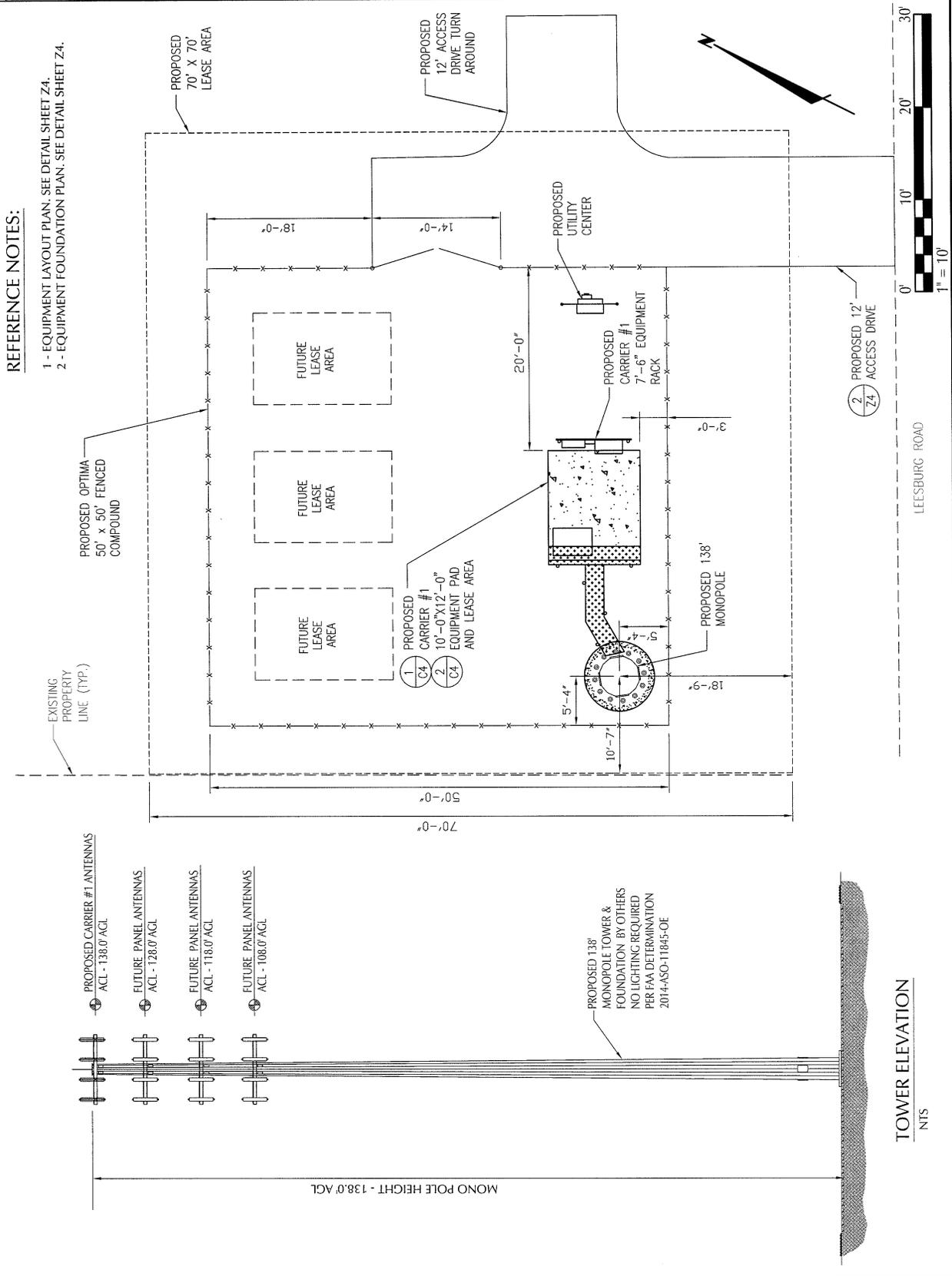
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PROJECT MGR: SEH

SHEET NUMBER: Z3

**REFERENCE NOTES:**

- 1 - EQUIPMENT LAYOUT PLAN, SEE DETAIL SHEET Z4.
- 2 - EQUIPMENT FOUNDATION PLAN, SEE DETAIL SHEET Z4.



**TOWER ELEVATION**  
NTS

LEESBURG ROAD



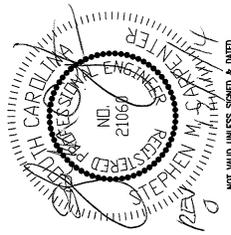
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**OPTIMA TOWERS**

SITE #: SC1019  
LEESBURG ROAD

CONCRETE PAD  
DETAILS

**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37243  
PH: 423-843-9500 FAX: 423-843-9509



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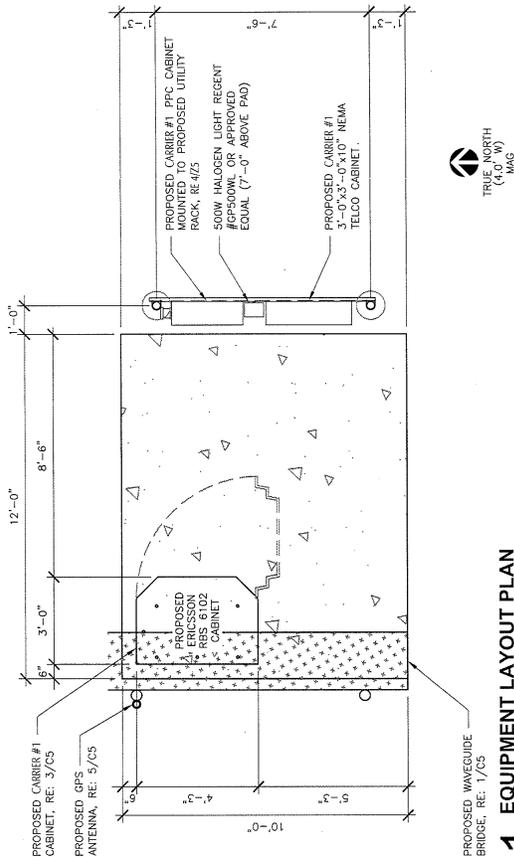
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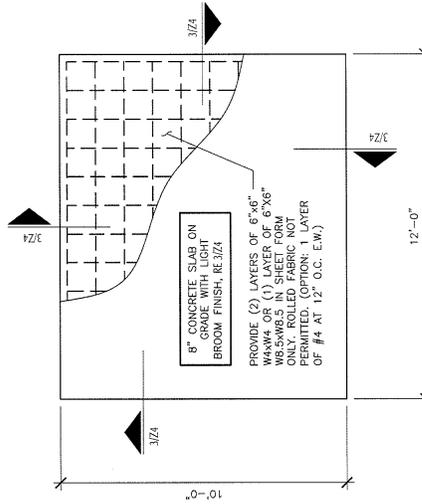
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**FOUNDATION NOTES:**

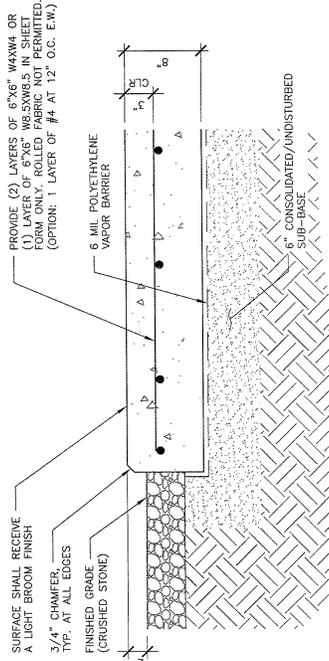
- FOUNDATION DESIGN BASED ON 2,000 PSF BEARING CAPACITY. IF OTHER CONDITIONS EXIST, FOUNDATION SHALL BE REDESIGNED. CONTRACTOR SHALL HAVE SOIL BEARING CAPACITY VERIFIED BY A LICENSED PROFESSIONAL GEO-TECHNICAL ENGINEER PRIOR TO INITIATION OF CONSTRUCTION.
- CONCRETE SHALL BE 3,000 PSI.
- REINFORCING STEEL  $F_y = 60,000$  PSI
- ALL BACKFILL SHALL BE THOROUGHLY COMPACTED TO A MINIMUM OF 95% DENSITY USING THE MODIFIED PROCTOR METHOD.
- SURFACE OF FINISHED SLAB SHALL BE LEVEL AND FLAT WITHIN 1/4".
- CONTRACTOR SHALL VERIFY WITH MANUFACTURER ACTUAL DIMENSIONS OF SHELTER PRIOR TO LAYING OUT FOUNDATION.
- ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI 318-05.



**1** EQUIPMENT LAYOUT PLAN



**2** TYPICAL EQUIPMENT FOUNDATION PLAN



**3** CONCRETE PAD DETAIL

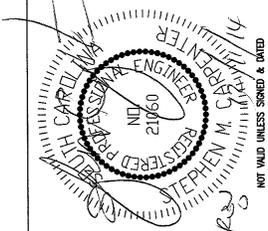
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**OPTIMA TOWERS**

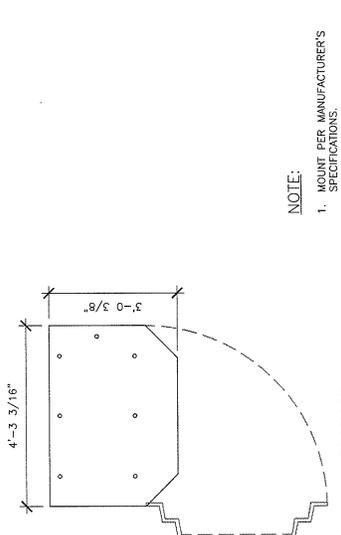
SITE#: SC1019  
LEESBURG ROAD

EQUIPMENT  
DETAILS

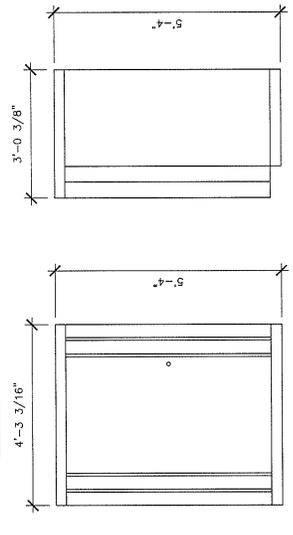
**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIKSON, TN 37243  
PH: 423-843-9500 FAX: 423-843-9509



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PROJECT MGR: SEH  
SHEET NUMBER: Z5



PLAN VIEW

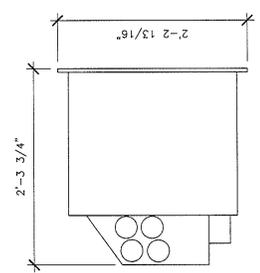


FRONT VIEW

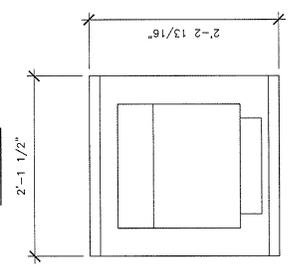
SIDE VIEW

NOTE:  
1. MOUNT PER MANUFACTURER'S SPECIFICATIONS.

NOTES:  
1. MOUNT PER MANUFACTURER'S SPECIFICATIONS.  
2. WESTELL BOXER CABINET TO BE INSTALLED ON BACK OF SERVICE RACK BY OTHERS AS NEEDED.

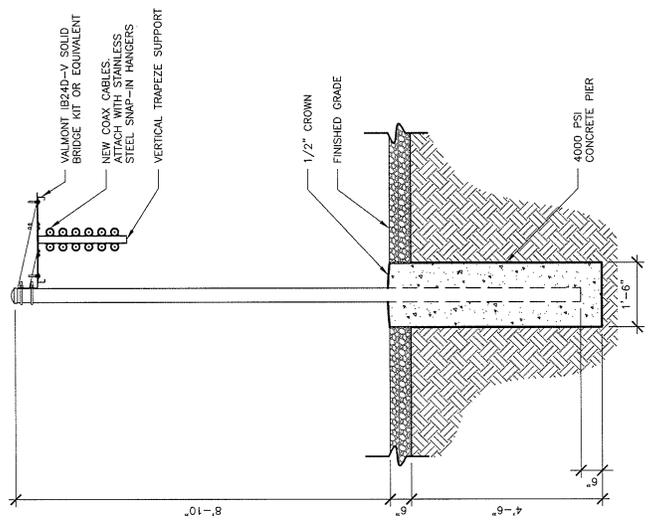


SIDE VIEW

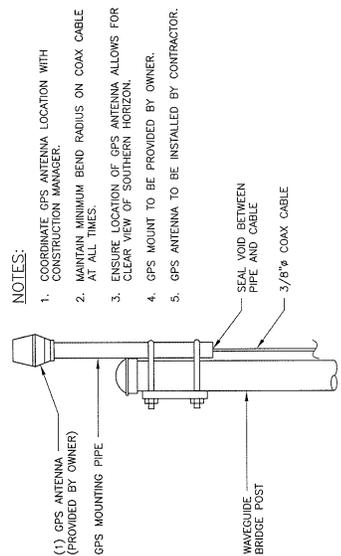


FRONT VIEW

**2 WESTELL BOXER DETAIL**  
SCALE: N.T.S.



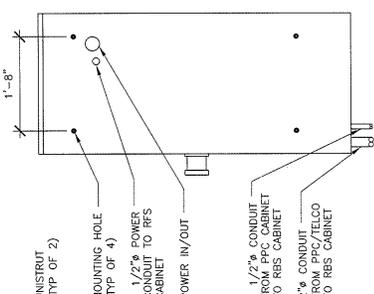
**1 WAVEGUIDE BRIDGE SECTION**  
SCALE: N.T.S.



NOTES:

- COORDINATE GPS ANTENNA LOCATION WITH CONSTRUCTION MANAGER.
- MAINTAIN MINIMUM BEND RADIUS ON COAX CABLE AT ALL TIMES.
- ENSURE LOCATION OF GPS ANTENNA ALLOWS FOR CLEAR VIEW OF SOUTHERN HORIZON.
- GPS MOUNT TO BE PROVIDED BY OWNER.
- GPS ANTENNA TO BE INSTALLED BY CONTRACTOR.

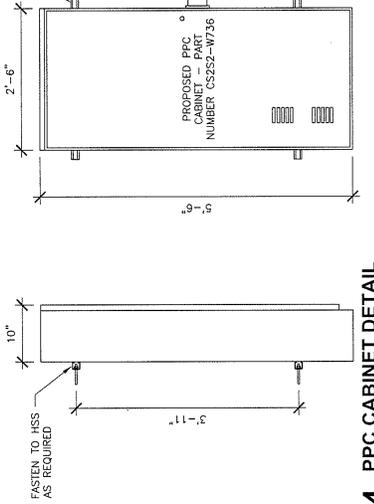
**3 RBS DETAIL**  
SCALE: N.T.S.



NOTES:

- UNISTRUT (TYP OF 2)
- MOUNTING HOLE (TYP OF 4)
- 1 1/2" POWER CONDUIT TO RBS CABINET
- POWER IN/OUT
- 1 1/2" CONDUIT FROM PPC CABINET TO RBS CABINET
- 2" CONDUIT FROM PPC/TELOO TO RBS CABINET

**4 PPC CABINET DETAIL**  
SCALE: N.T.S.



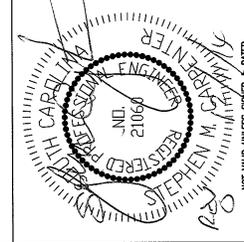
**5 GPS ANTENNA DETAIL**  
SCALE: N.T.S.

|     |          |                 |            |
|-----|----------|-----------------|------------|
| NO. | DATE     | RECORD OF ISSUE | US<br>CITY |
| 0   | 12/11/14 | ZONING ISSUE    | US<br>CITY |
|     |          | RECORD OF ISSUE | BT<br>OK   |

**OPTIMA TOWERS**

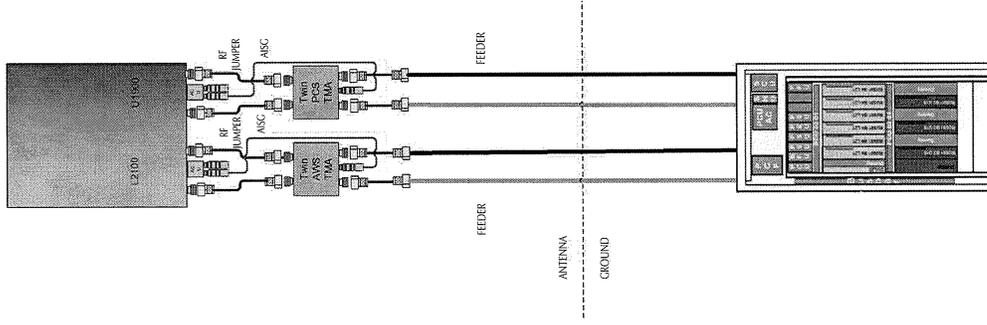
SITE #: SC1019  
LEESBURG ROAD  
CARRIER ANTENNA  
PLAN

**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37243  
PH: 423-843-9500 FAX: 423-843-9509



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PROJECT MGR: SEH  
SHEET NUMBER: Z6

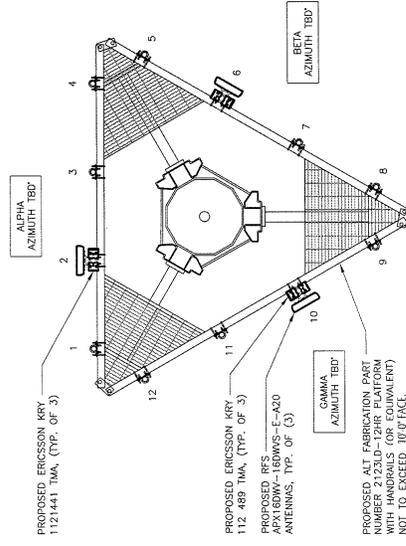
SITE CONFIGURATION 4E



RF DIAGRAM  
NTS

| EQUIPMENT TYPE | PROPOSED AZIMUTH | RAD. CENTER | EQUIPMENT                | QUANTITY TO BE ADDED |
|----------------|------------------|-------------|--------------------------|----------------------|
| ANTENNA        | TBD              | 150'        | RFS APX160DW-16DWS-E-A20 | (1)                  |
| COAX           | ---              | ---         | 1 5/8"                   | (4)                  |
| TMA            | ---              | ---         | ERICSSON KRY 1121441     | (1)                  |
| TMA            | ---              | ---         | ERICSSON KRY 112 489     | (1)                  |
| ANTENNA        | TBD              | 150'        | RFS APX160DW-16DWS-E-A20 | (1)                  |
| COAX           | ---              | ---         | 1 5/8"                   | (4)                  |
| TMA            | ---              | ---         | ERICSSON KRY 1121441     | (1)                  |
| TMA            | ---              | ---         | ERICSSON KRY 112 489     | (1)                  |
| ANTENNA        | TBD              | 150'        | RFS APX160DW-16DWS-E-A20 | (1)                  |
| COAX           | ---              | ---         | 1 5/8"                   | (4)                  |
| TMA            | ---              | ---         | ERICSSON KRY 1121441     | (1)                  |
| TMA            | ---              | ---         | ERICSSON KRY 112 489     | (1)                  |

NOTE: CONTRACTOR TO REFERENCE CARRIER ISSUED RFDS AND GIVE PRECEDENCE TO INFORMATION PROVIDED IN REDS OVER INFORMATION PROVIDED IN THIS TABLE.



ANTENNA PLAN  
NTS

THESE DRAWINGS ARE NOT INTENDED TO REFLECT THE STRUCTURAL INTEGRITY OF THE TOWER. THE PROPOSED ANTENNAS AND TRANSMISSION LINES SHOWN ARE REPRESENTATIVE IN NATURE AND DO NOT REFLECT THE ACTUAL CONFIGURATIONS REQUIRED. THE CONTRACTOR SHALL REFER TO THE STRUCTURAL ANALYSIS OF THIS OWNER SITE FOR THE APPROVED ANTENNA AND TRANSMISSION LINES. ALL ANTENNAS MUST BE MOUNTED AND THE TRANSMISSION LINES CONFIGURED IN STRICT ACCORDANCE WITH THE STRUCTURAL ANALYSIS. (LOWER BY OTHERS)

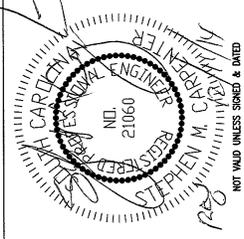
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|     |      |                 | CTD |
| NO. | DATE | RECORD OF ISSUE | BY  |
|     |      |                 | CHK |

**OPTIMA TOWERS**

SITE#: SC1019  
LEESBURG ROAD

SITE  
DETAILS

**TeleCAD**  
WIRELESS SITE DESIGN, INC.  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37343  
PH: 423-843-9500 FAX: 423-843-9509

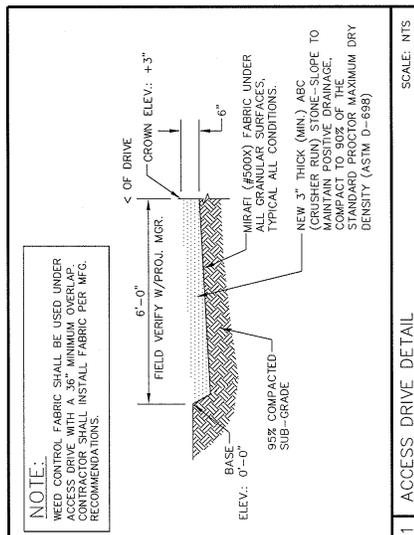
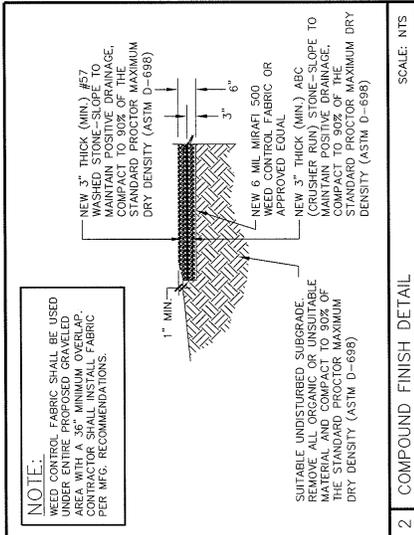
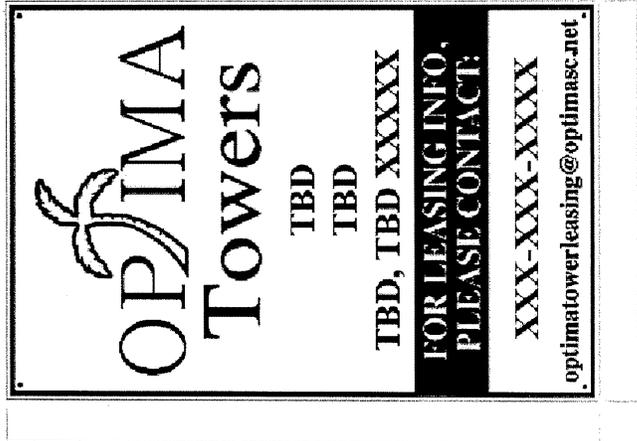
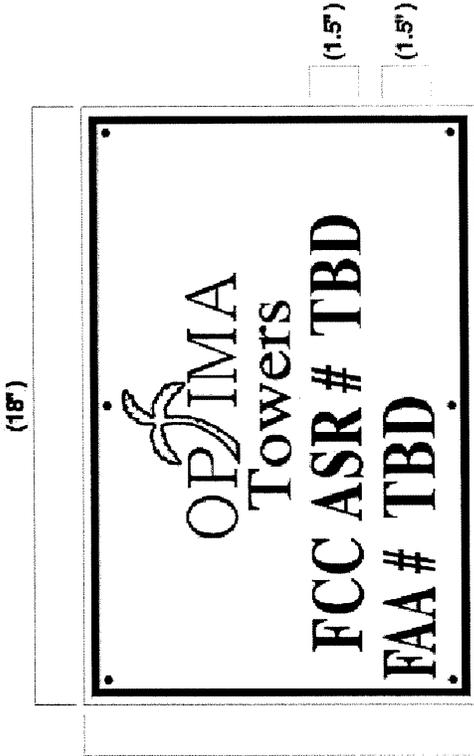


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CHECKED BY: CTD

PROJECT MGR: SEH

SHEET NUMBER: Z7



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| TELECAD WIRELESS SITE DESIGN, INC. |          | 2014            |            |
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| 0                                  | 12/11/14 | ZONING ISSUE    | D.S. / CTD |

**OPTIMA TOWERS**

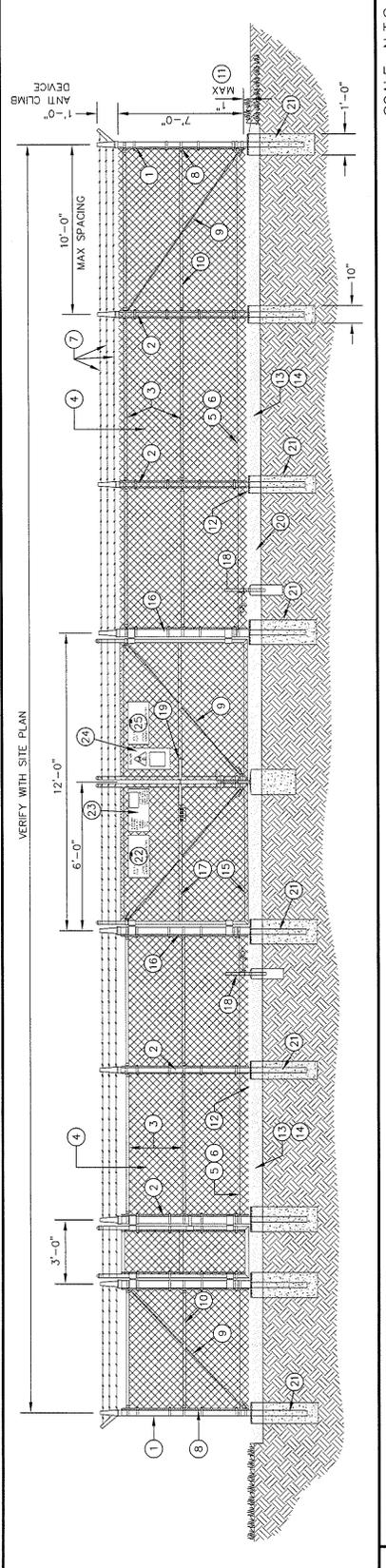
SITE#: SC1019  
LEESBURG ROAD

FENCE  
DETAILS

WIRELESS SITE DESIGN, INC.  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37243  
PH: 423-843-9500 FAX: 423-843-9509

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CHECKED BY: CTD  
PROJECT MGR: SEH  
SHEET NUMBER: Z8

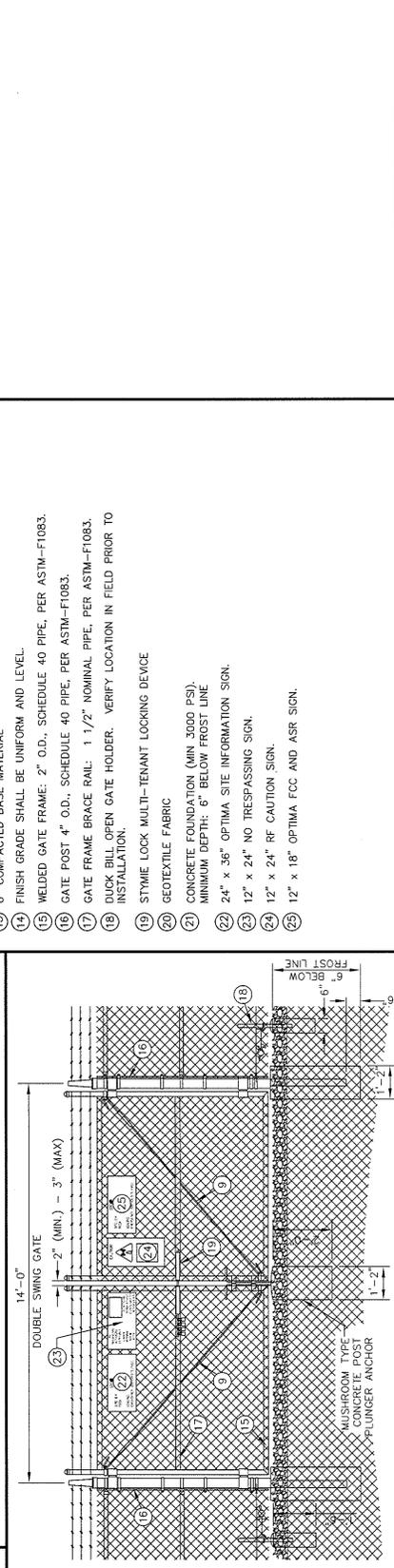


1 TYPICAL FENCING DETAIL SCALE: N.T.S.

- GENERAL NOTES:**
1. INSTALL FENCING PER ASTM F-557
  2. INSTALL SWING GATES PER ASTM F-900
  3. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED IF REQUIRED.
  4. POST & GATE PIPE SIZES ARE INDUSTRY STANDARDS. ALL PIPE TO BE GALVANIZED (HOT DIP, ASTM A120 GRADE "A" STEEL). ALL GATE FRAMES SHALL BE WELDED. ALL WELDING SHALL BE COATED WITH (5) COATS OF COLD GALV. (OR EQUIV.).
  5. ALL OPEN POSTS SHALL HAVE END-CAPS.
  6. USE GALVANIZED HOC-RING WIRE TO MOUNT ALL SIGNS.
  7. ALL SIGNS MUST BE MOUNTED ON INSIDE OF FENCE FABRIC.
  8. MUSHROOM ANCHOR & FLUNGER REQUIRED FOR GATE.

- BALLOON REFERENCE NOTES:**
- 1 CORNER, END OR PULL POST: 3" O.D. SCHEDULE 40 PIPE.
  - 2 LINE POST: 2 1/2" NOMINAL SCHEDULE 40 PIPE, PER ASTM-F1083. LINE POSTS SHALL BE EQUALLY SPACED AT MAXIMUM 10'-0" O.C.
  - 3 TOP RAIL & BRACE RAIL: 1-5/8" O.D. STANDARD ROUND PIPE, PER ASTM-F1083.
  - 4 FABRIC: 9 GA CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM-A382.
  - 5 TIE WIRE: 9 GA ALUMINUM. A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOG RINGS SPACED 12" O.C. POSTS/GATES AND 24" RAILS/WIRE.
  - 6 TENSION WIRE: 9 GA ALUMINUM
  - 7 BARBED WIRE: DOUBLE STRAND 12-1/2" O.D. TWISTED WIRE TO MATCH WITH FABRIC. 14 GA, 4 PT. BARBS SPACED ON APPROXIMATELY 5" CENTERS.
  - 8 3/16" X 3/4" (MIN) FULL HEIGHT STRETCHER BAR.
  - 9 3/8" DIAGONAL ROD WITH GALVANIZED STEEL TURNBUCKLE OR DIAGONAL THREADED ROD.
  - 10 FENCE CORNER POST BRACE: 1 5/8" NOMINAL PIPE.
  - 11 1" MAXIMUM CLEARANCE FROM FINISH GRADE.
  - 12 FENCE POST FOUNDATION TO BE 1" FINISH ABOVE FINISHED GRADE
  - 13 6" COMPACTED BASE MATERIAL
  - 14 FINISH GRADE SHALL BE UNIFORM AND LEVEL.
  - 15 WELDED GATE FRAME: 2" O.D., SCHEDULE 40 PIPE, PER ASTM-F1083.
  - 16 GATE POST 4" O.D., SCHEDULE 40 PIPE, PER ASTM-F1083.
  - 17 GATE FRAME BRACE RAIL: 1 1/2" NOMINAL PIPE, PER ASTM-F1083.
  - 18 DUCK BILL OPEN GATE HOLDER. VERIFY LOCATION IN FIELD PRIOR TO INSTALLATION.
  - 19 STYME LOCK MULTI-TENANT LOCKING DEVICE
  - 20 GEOTEXTILE FABRIC
  - 21 CONCRETE FOUNDATION (MIN 3000 PSI). MINIMUM DEPTH: 6" BELOW FROST LINE
  - 22 24" x 36" OPTIMA SITE INFORMATION SIGN.
  - 23 12" x 24" NO TRESPASSING SIGN.
  - 24 12" x 24" RF CAUTION SIGN.
  - 25 12" x 18" OPTIMA FCC AND ASR SIGN.

2 NOT USED SCALE: N.T.S.



3 DOUBLE-SWING GATE DETAIL SCALE: N.T.S.

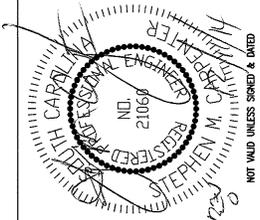
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**OPTIMA TOWERS**

SITE#: SC1019  
LEESBURG ROAD

LANDSCAPING  
PLAN

**TeleCAD**  
WIRELESS SITE DESIGN, INC.  
1961 NORTHPOINTE BLVD, SUITE 130  
MIXON, TN 37243  
PH: 423-943-9500 FAX: 423-943-9509



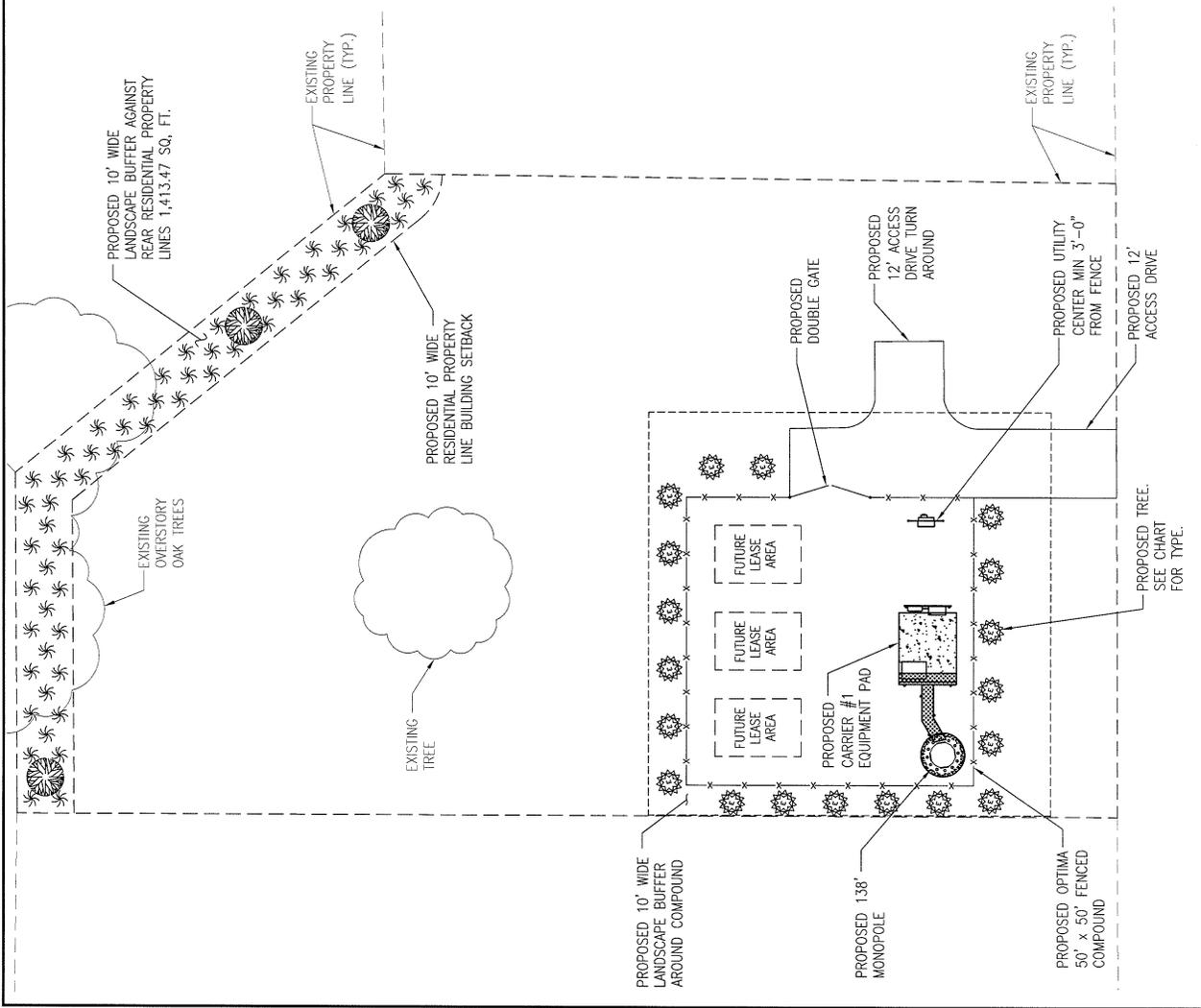
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CHECKED BY: CTD  
PROJECT MGR: SEH  
SHEET NUMBER: L1

**LANDSCAPE NOTES:**

1. ALL PLANT MATERIAL SHALL CONFORM TO THE STANDARDS SET FORTH THE CURRENT EDITION OF AMERICAN STANDARDS FOR NURSERY STOCK OF NURSERYMEN.
2. PLANTING PLAN TAKES PRECEDENCE OVER PLANT LIST.
3. ALL TREES SHALL BE STAKED OR GUYED AT TIME OF PLANTING UNLESS NO STAKES IS PRE-APPROVED BY OWNER. STAKES OR GUYS SHALL NOT RESTRICT MOVEMENT OF THE PLANT, BUT SHALL HAVE 2"-3" OF SLACK IN EACH GUY WIRE.
4. ALL PLANT MATERIAL IS SUBJECT TO THE OWNERS APPROVAL PRIOR TO INSTALLATION TO INSURE THE CONFORMITY TO THE SPECIFICATIONS.
5. APPLY GRANULAR PRE-EMERGENT HERBICIDE TO SOIL PER MANUFACTURERS RECOMMENDATIONS BELOW MULCH BED PRIOR TO MULCH APPLICATION.
6. APPLY "LESCO" (OR EQUAL) GRANULAR SLOW RELEASE FERTILIZER PER MANUFACTURERS RECOMMENDATIONS TO TREES AT TIME OF PLANTING.
7. PLACE 3"-4" MIN. THICKNESS OF SHREDDED BROWN HARDWOOD MULCH 10' WIDE AROUND FENCED AREA AS SHOWN ON PLAN. IF NECESSARY, INSTALL METAL OR PVC EDGING STRIPS TO PREVENT MULCH FROM WASHING ONTO ROAD OR OTHERWISE CAUSING PROBLEMS.
8. CONTRACTOR SHALL WARRANTY PLANTS FOR A PERIOD OF 1 YEAR AFTER FINAL ACCEPTANCE.

**PLANT MATERIAL LIST**

| BOTANICAL NAME              | COMMON NAME         | SIZE   | SYMBOL | QTY |
|-----------------------------|---------------------|--|--------|-----|
| X Cupressocyparis leylandii | Leyland Cypress     | 6'-0" MIN. AT PLANTING ON 10'-0" CENTERS, TYP. |        | 17  |
| Acer rubrum 'October Glory' | October Glory Maple | 8'-0" MIN. AT PLANTING ON 40'-0" CENTERS, TYP. |        | 3   |
| Viburnum x pragnense        | Prague Viburnum     | 2'-0" MIN. AT PLANTING EQUAL SPACED            |        | 57  |



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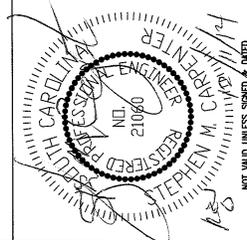
**OPTIMA TOWERS**

SITE #: SC1019  
LEESBURG ROAD

LANDSCAPING  
CERTIFICATIONS



**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37243  
PH: 423-843-9500 FAX: 423-843-9509



DRAWN BY: DWS

CHECKED BY: CTD

PROJECT MGR: SEH

SHEET NUMBER: 12

**CONTROLLED CLEARING CERTIFICATION**  
(TO BE AFFIXED TO SITE PLANS/SUBDIVISIONS/LANDSCAPE PLANS)

IN ACCORDANCE WITH SEC. 26-176. (1) a. OF THE RICHLAND COUNTY LAND DEVELOPMENT CODE, I HEREBY CERTIFY THAT ALL HARDWOOD TREES IN FAIR OR BETTER CONDITION, TWENTY-NINE (29) INCHES OR GREATER IN DIAMETER WILL BE PRESERVED.; AND

IN ACCORDANCE WITH SEC. 26-176. (1) b. OF THE RICHLAND COUNTY LAND DEVELOPMENT CODE, I HEREBY CERTIFY THAT ALL HARDWOODS TREES IN FAIR OR BETTER CONDITION, NINE (9) INCHES IN DIAMETER OR LARGER WILL BE PRESERVED IN ALL PROTECTED ZONES. PROTECTED ZONES (ARE PORTIONS OF THE PROPERTY REQUIRED BY PERMIT TO REMAIN IN NATURAL OPEN SPACE, BUFFER TRANSITION YARDS, STREET PROTECTIVE YARDS, OR AREAS REQUIRED BY PERMIT TO BE LANDSCAPED; AND

IN ACCORDANCE WITH SEC. 26-176. (1) c. OF THE RICHLAND COUNTY LAND DEVELOPMENT CODE, I HEREBY CERTIFY THAT ALL PINE TREES IN FAIR OR BETTER CONDITION THAT ARE TEN (10) INCHES TO TWENTY (20) INCHES IN DIAMETER LOCATED IN A PROTECTED ZONE SHALL BE PRESERVED.

OWNER/APPLICANT'S SIGNATURE: \_\_\_\_\_  
PRINT NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

IN ACCORDANCE WITH SEC. 26-176. (1) a. OF THE RICHLAND COUNTY LAND DEVELOPMENT CODE, I HEREBY CERTIFY THAT ALL HARDWOOD TREES IN FAIR OR BETTER CONDITION, TWENTY-NINE (29) INCHES OR GREATER IN DIAMETER HAVE BEEN IDENTIFIED ON ALL "CONTROLLED CLEARING PLANS"; AND

IN ACCORDANCE WITH SEC. 26-176. (1) b. OF THE RICHLAND COUNTY LAND DEVELOPMENT CODE, I HEREBY CERTIFY THAT ALL HARDWOODS TREES IN FAIR OR BETTER CONDITION, NINE (9) INCHES IN DIAMETER OR LARGER HAVE BEEN IDENTIFIED IN ALL PROTECTED ZONES AND SHOWN ON ALL "CONTROLLED CLEARING PLANS". PROTECTED ZONES (ARE PORTIONS OF THE PROPERTY REQUIRED BY PERMIT TO REMAIN IN NATURAL OPEN SPACE, BUFFER TRANSITION YARDS, STREET PROTECTIVE YARDS, OR AREAS REQUIRED BY PERMIT TO BE LANDSCAPED, AND

IN ACCORDANCE WITH SEC. 26-176. (1) c. OF THE RICHLAND COUNTY LAND DEVELOPMENT CODE, I HEREBY CERTIFY THAT ALL PINE TREES IN FAIR OR BETTER CONDITION THAT ARE TEN (10) INCHES TO TWENTY (20) INCHES IN DIAMETER LOCATED IN PROTECTED ZONES HAVE BEEN IDENTIFIED AND SHOWN ON ALL "CONTROLLED CLEARING PLANS".

ENGINEER/SURVEYOR SIGNATURE: \_\_\_\_\_  
PRINT NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

**LANDSCAPE CERTIFICATION**

I HEREBY CERTIFY THAT THE PLANT MATERIALS AS SHOWN ON THIS PLAN ARE CAPABLE OF PROVIDING THE REQUIRED VISUAL OPACITY AND HEIGHT WITHIN THREE (3) YEARS OF THEIR INITIAL PLANTING.

LANDSCAPE AUTHORITY SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

PRINT LANDSCAPE AUTHORITY SIGNATURE \_\_\_\_\_

**DEVELOPER-OWNER CERTIFICATION**

I HEREBY CERTIFY THAT THIS PLAN MEETS OR EXCEEDS THE REQUIREMENTS OF CHAPTER 26 SECTION 176 (K) "LANDSCAPING STANDARDS" OF THE RICHLAND COUNTY LAND DEVELOPMENT CODE AND THAT ALL PLANT MATERIAL SHALL BE DROUGHT-TOLERANT SPECIES, LIVING AND HEALTHY AT THE TIME OF INSTALLATION AND SHALL BE MAINTAINED IN A HEALTHY STATE OR PROMPTLY REPLACED [WITHIN NINETY (90) DAYS OF NOTIFICATION]] WITH HEALTHY PLANTS.

DEVELOPER-OWNER SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

PRINT DEVELOPER-OWNER SIGNATURE \_\_\_\_\_

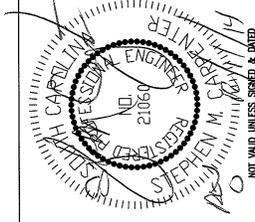
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|     |      |                              | BY  | CHK |

**OPTIMA TOWERS**

SITE#: SC1019  
LEESBURG ROAD

UTILITY ROUTING  
PLAN

**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37234  
PH: 423-843-9500 FAX: 423-843-9509



DRAWN BY: DWS

CHECKED BY: CTD

PROJECT MGR: SEH

SHEET NUMBER: E1

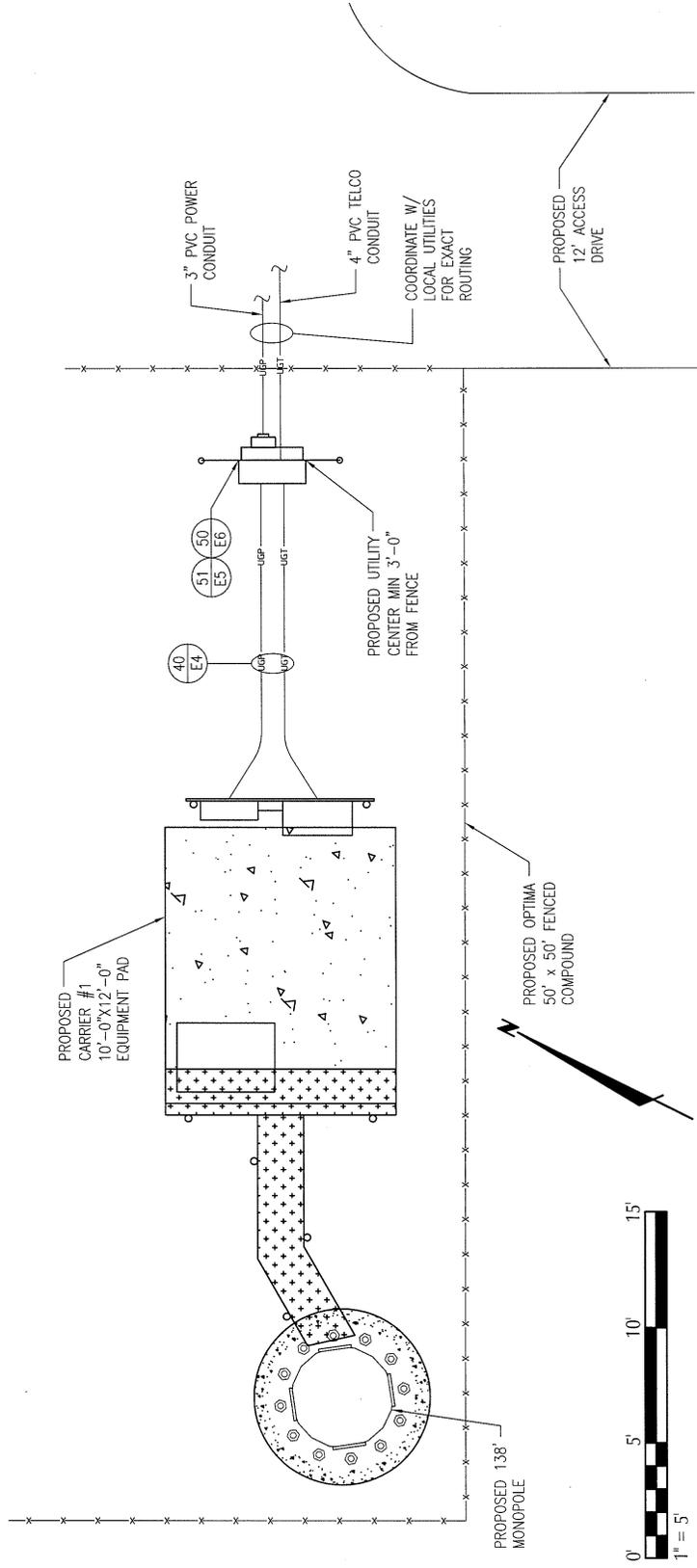
**REFERENCE NOTES:**

- 40 - CONDUIT TRENCH DETAIL. SEE DETAIL SHEET E4.
- 50 - UTILITY CENTER DETAIL. SEE DETAIL SHEET E6.
- 51 - ELECTRICAL SINGLE LINE DIAGRAM. SEE DETAIL SHEET E5.

**ELECTRICAL LEGEND:**

|                       |             |
|-----------------------|-------------|
| TELEPHONE PEDESTAL    | [Symbol]    |
| OVERHEAD TELEPHONE    | --- OHF --- |
| UNDERGROUND TELEPHONE | --- UGT --- |
| OVERHEAD POWER        | --- OHP --- |
| UNDERGROUND POWER     | --- UGP --- |

FOR ELECTRICAL NOTES, SEE SHEET E3.



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| 0   | 12/11/14 | ISSUING ISSUE   | MS        | DD  |
|     |          | RECORD OF ISSUE | BY        | CHK |

**OPTIMA TOWERS**

SITE #: SC1019  
LEESBURG ROAD

SITE GROUNDING  
PLAN

**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37243  
PH: 423-843-9500 FAX: 423-843-9509

STEPHEN M. C. CHEPENTER  
REGISTERED PROFESSIONAL ENGINEER  
IND. 21080  
NOT VALID UNLESS SIGNED & DATED

DRAWN BY: DWS  
CHECKED BY: CTD  
PROJECT MGR: SEH  
SHEET NUMBER: E2

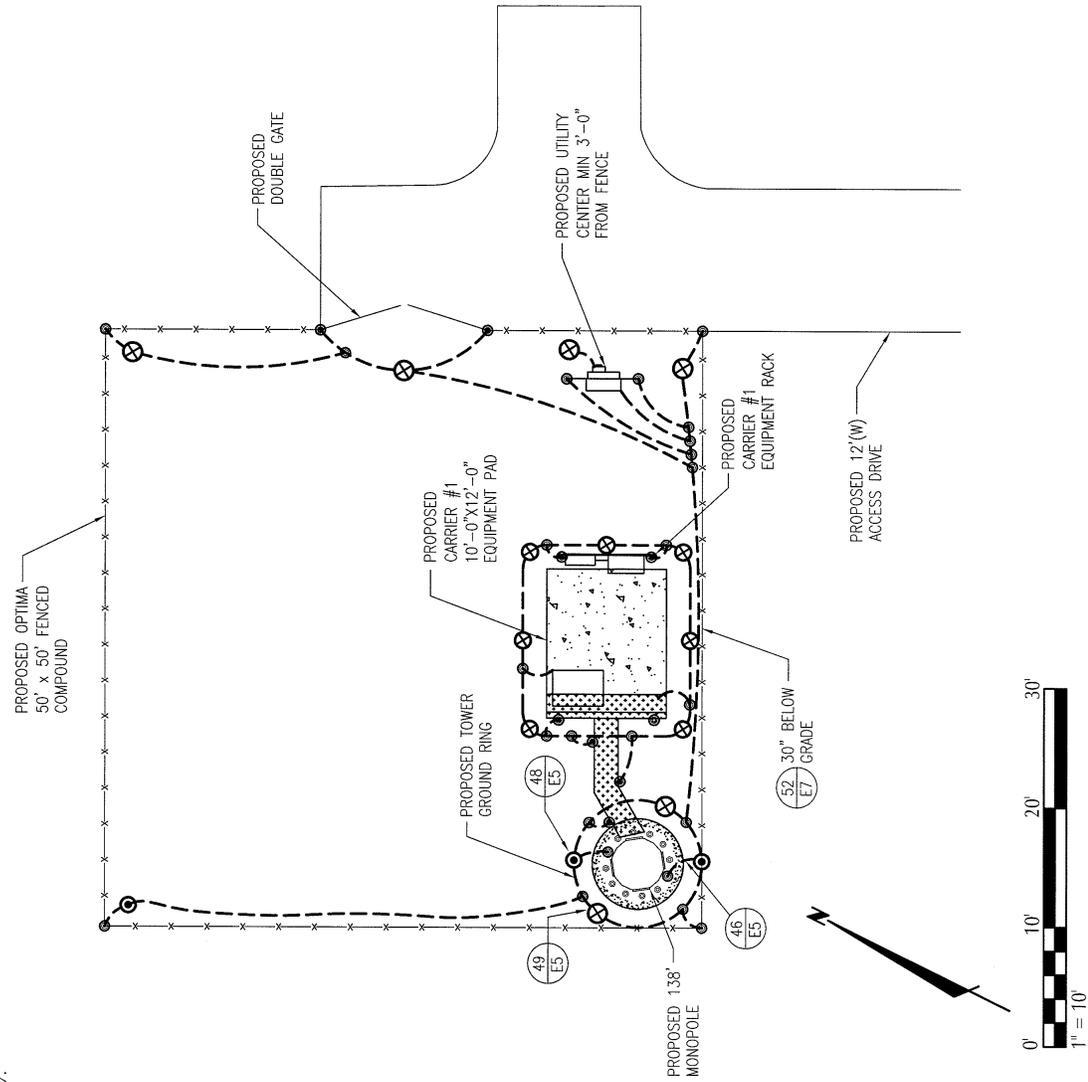
**REFERENCE NOTES:**  
46 - EXOTHERMIC WELD TO TOWER BASE PLATE. SEE DETAIL SHEET E5.  
48 - INSPECTION SLEEVE DETAIL. SEE DETAIL SHEET E5.  
49 - GROUND ROD DETAIL. SEE DETAIL SHEET E5.  
52 - GROUNDING SYSTEM SINGLE LINE DIAGRAM. SEE DETAIL SHEET E7.

**GROUNDING NOTE:**  
1. IF GROUND RESISTANCE CANNOT BE OBTAINED, A CHEMICAL GROUND ROD MAY BE ADDED TO THE GROUND COUNTERPOISE. CONSULT THE DESIGN ENGINEER PRIOR TO PLACEMENT.

FOR GROUNDING NOTES, SEE SHEET E3.  
ALL GROUND LEADS THAT EXTEND ABOVE GRADE ARE TO BE CADWELDED.

**GROUNDING LEGEND:**

|     |   |
|-----|---|
| --- | #2 AWG SOLID TINNED COPPER GROUND CABLE RUN 30" BELOW GRADE |
| —   | #2 AWG SOLID TINNED COPPER GROUND CABLE RUN ABOVE GRADE     |
| ⊗   | 8" X 5/8" DIAMETER COPPER CLAD, STEEL GROUND ROD.           |
| ●   | PARALLEL CADWELD  |
| ⊙   | CADWELD WITH INSPECTION SLEEVE                              |
| ⊕   | CHEMICAL GROUND ROD   |

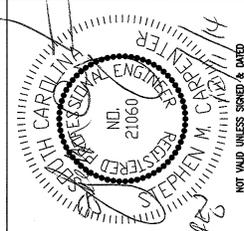


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**OPTIMA TOWERS**

**SITE#: SC1019  
LEESBURG ROAD**

**ELECTRICAL  
NOTES**



**DRAWN BY: DWS  
CHECKED BY: CTD  
PROJECT MGR: SEH  
SHEET NUMBER: E3**

**GROUNDING NOTES:**

- TO PROTECT PERSONNEL FROM ELECTRICAL SHOCK AND ENSURE SAFE, RELIABLE OPERATION OF EQUIPMENT, THE GROUNDING SYSTEM SHALL PROVIDE A LOW IMPEDANCE PATH TO EARTH FOR LIGHTNING AND FAULT CURRENT SURGES. THE GROUNDING RESISTANCE IS REQUIRED TO BE 5 OHMS OR LESS.
- INSTALL GROUND RING 2 FEET MAX OUTSIDE OF FUTURE EQUIPMENT PAD FOUNDATION AND 30 INCHES BELOW GRADE. GROUND RING CONSISTS OF #2 AWG SOLID BARE TINNED COPPER, SKYLINK PROPERTIES REPRESENTATIVE TO INSPECT GROUNDING BEFORE BACKFILLING OR GENERAL CONTRACTOR WILL TAKE DIGITAL PHOTOS PRIOR TO BACKFILLING.
- CADWELD ALL CONNECTIONS TO BURIED GROUND RING WITH PARALLEL WELDS. EXCEPTION: USE TEE WELDS FOR CONNECTIONS TO GROUND RODS.
- GROUND ALL EXTERIOR EXPOSED METAL OBJECTS, USE TWO HOLE MECHANICAL CONNECTORS (T & B 32007) FOR CONNECTION TO FLAT METAL SURFACES. PROVIDE STAINLESS STEEL HARDWARE AND LOCKWASHERS ON ALL MECHANICAL CONNECTIONS. APPLY ANTI-OXIDE COMPOUND TO CONNECTIONS.
- ALL ATTACHMENTS TO GROUND LOOP AND SUPPLEMENTAL GROUND CABLE ARE TO BE 90° BEND RADIUS IN 8" AND BE IN A COUNTERCLOCKWISE DIRECTION WITH PARALLEL CADWELDS. MAKE ALL GROUNDING CONNECTIONS AS SHORT AS POSSIBLE.
- CLEAN ALL SURFACES AND BRUSH WITH BRONZE BRUSH PRIOR TO MAKING GROUND CONNECTIONS. PAINT ALL EXOTHERMIC WELDS TO GALVANIZED OBJECTS WITH GALVANIZED PAINT.
- INSTALL 5/8" x 10" COPPER CLAD GROUND RODS IN LOCATIONS SHOWN ON GROUNDING PLAN.
- THE TOP OF THE UTILITY METER GROUND ROD IS TO BE 6" ABOVE THE SUB-GRADE, FOR INSPECTION BY LOCAL AUTHORITY. THE GROUND ROD IS NOT TO BE TIED INTO THE COUNTERPOISE.
- PROVIDE GROUNDING FOR ALL OWNER FURNISHED EQUIPMENT PER THE EQUIPMENT MANUFACTURER'S INSTRUCTIONS AND BOND TO THE EQUIPMENT GROUND RING.
- IF INSTALLING CHEMICAL GROUND RODS, GENERAL CONTRACTOR SHALL REMOVE AND PRESENT TO CONSTRUCTION MANAGER THE TAPE USED TO SEAL THE TOP AND BOTTOM OF CHEMICAL GROUND ROD.

**ELECTRICAL NOTES:**

- APPLY FOR UTILITY SERVICE (TELEPHONE AND ELECTRIC) NO LATER THAN THE NEXT BUSINESS DAY FOLLOWING AWARD OF CONTRACT. COORDINATE WITH ELECTRIC UTILITY COMPANY FOR EXACT TRANSFORMER LOCATION, METERING REQUIREMENTS, AND SERVICE ROUTING. PROVIDE COPIES OF RECEIPTS VERIFYING APPLICATION FOR ELECTRICAL SERVICE AND CONFIRM FROM UTILITY AS TO WHEN SERVICE WILL BE AVAILABLE.
- RUN 1-4" RGS TELCO CONDUIT TO THE NEW UTILITY POLE. COORDINATE WITH TELCO UTILITY FOR INSTALLATION REQUIREMENTS. INSTALL RACK FOR TELCO JUNCTION BOX/CELLPAK AFTER CONFIRMING THAT THIS IS ACCEPTABLE TO TELCO UTILITY.
- IF CELLPAK IS REQUIRED, GENERAL CONTRACTOR TO PROVIDE RACK, CONDUITS, AND EQUIPMENT PER BELLSOUTH. 3/4" FLEX CONDUIT BETWEEN TELCO STUB-UP AND CELL-PAK. IF SITE IS "NEW CONSTRUCTION" AND TELCO IS BEING BROUGHT DIRECTLY INTO H-FRAME, GENERAL CONTRACTOR IS TO STUB TELCO CONDUIT (4") UP 6" OUTSIDE RIGHT LEG OF H-FRAME FOR BELLSOUTH PEDESTAL PLACEMENT.
- AT THE NEW UTILITY POLE, TURN 2-3" POWER CONDUITS UP POLE WITH SCHEDULE 40 PVC AND EXTEND TO A WEATHERHEAD. VERIFY EXACT HEIGHT OF WEATHERHEAD WITH POWER COMPANY. STUB UP AND CAP SPARE 3" CONDUITS AT POLE.
- ALL CONDUITS ENTERING THE UTILITY CENTER SHALL BE SEALED WITH SEALANTS THAT ARE IDENTIFIED FOR USE WITH THE CABLE INSULATION, SHIELD, OR OTHER COMPONENTS. A BEAD OF SILICONE SHALL BE PLACED AROUND ALL CONDUIT PENETRATIONS INTO THE UTILITY CENTER.
- ALL ELECTRICAL AND GROUNDING AT THE SITE SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE, NFPA 70 AND STANDARD FOR THE INSTALLATION OF LIGHTING PROTECTION SYSTEMS (LATEST EDITION) NFPA 780.
- PROVIDE 2 PULL STRINGS SECURELY FASTENED AT EACH END OF THE CONDUIT. PULL STRING TO BE 200LB TEST POLYETHENE CORD. PROVIDE CAP ON END OF THE CONDUITS WITH IDENTIFICATION OF ROUTING.
- CONTRACTOR TO COORDINATE ALL NECESSARY STEPS INCLUDING BUT NOT LIMITED TO SCHEDULING OF INSPECTION, ETC., IN ORDER TO SECURE CONDITIONAL POWER. THIS PROCESS SHOULD BE INITIATED AT THE SAME TIME THE BUILDING PERMIT IS PULLED OR AT A TIME THAT BEST FACILITATES GETTING A METER PLACED ON SITE AND IN SERVICE.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR ENSURING THE COMPLETE COMPACTON AND RESTORATION OF ALL UTILITY TRENCHES TO THE SATISFACTION OF SKYLINK PROPERTIES AND PROPERTY OWNER, REGARDLESS OF THE PARTY PROVIDING INSTALLATION OF UTILITIES.
- PROVIDE AND INSTALL WARNING TAPE FOR ELECTRIC SERVICE CONDUIT 12" BELOW GRADE. SEE CONDUIT SECTION ON SHEET E4.
- ENCASE CONDUITS IN CONCRETE WHERE THEY CROSS ROADS.

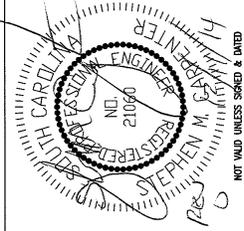
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| TELECAD WIRELESS SITE DESIGN, INC. |          | 2014            |          |
| 0                                  | 12/11/14 | ZONING ISSUE    | ISSUED   |
| NO.                                | DATE     | RECORD OF ISSUE | BY / CHK |

**OPTIMA TOWERS**

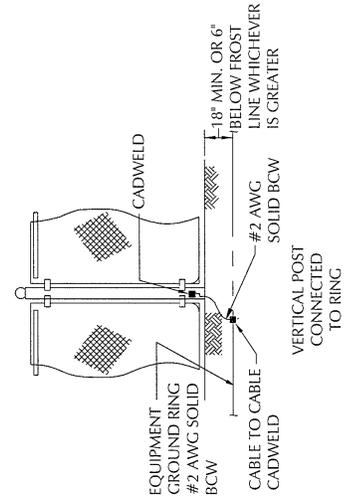
SITE#: SC1019  
LEESBURG ROAD

**ELECTRICAL  
DETAILS**

**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37243  
PH: 423-843-9500 FAX: 423-843-9509

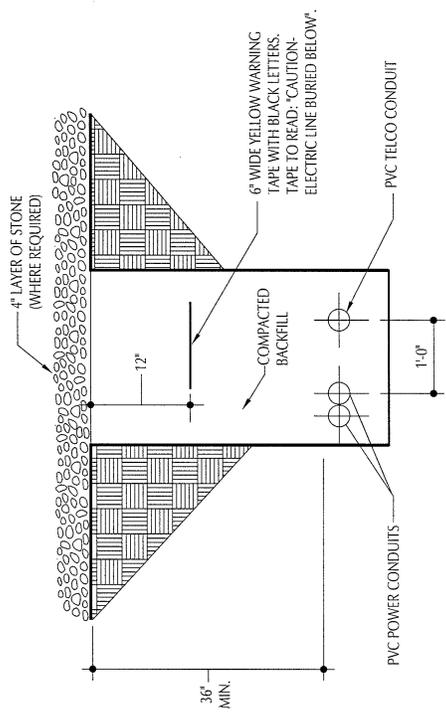


DRAWN BY: DWS  
CHECKED BY: CTD  
PROJECT MGR: SEH  
SHEET NUMBER: E4



NOTE:  
1. BOND EQUIPMENT GROUND RING TO VERTICAL FENCE POST.

**FENCE GROUNDING**  
NTS



NOTE: TYPICAL SPACING FOR ALL UNDERGROUND CONDUITS

**CONDUIT TRENCH DETAIL**  
NTS

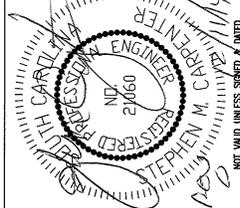
| NO. | DATE     | RECORD OF ISSUE | DESIGN BY | CHK |
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| 0   | 12/11/14 |                 |           |     |

**OPTIMA TOWERS**

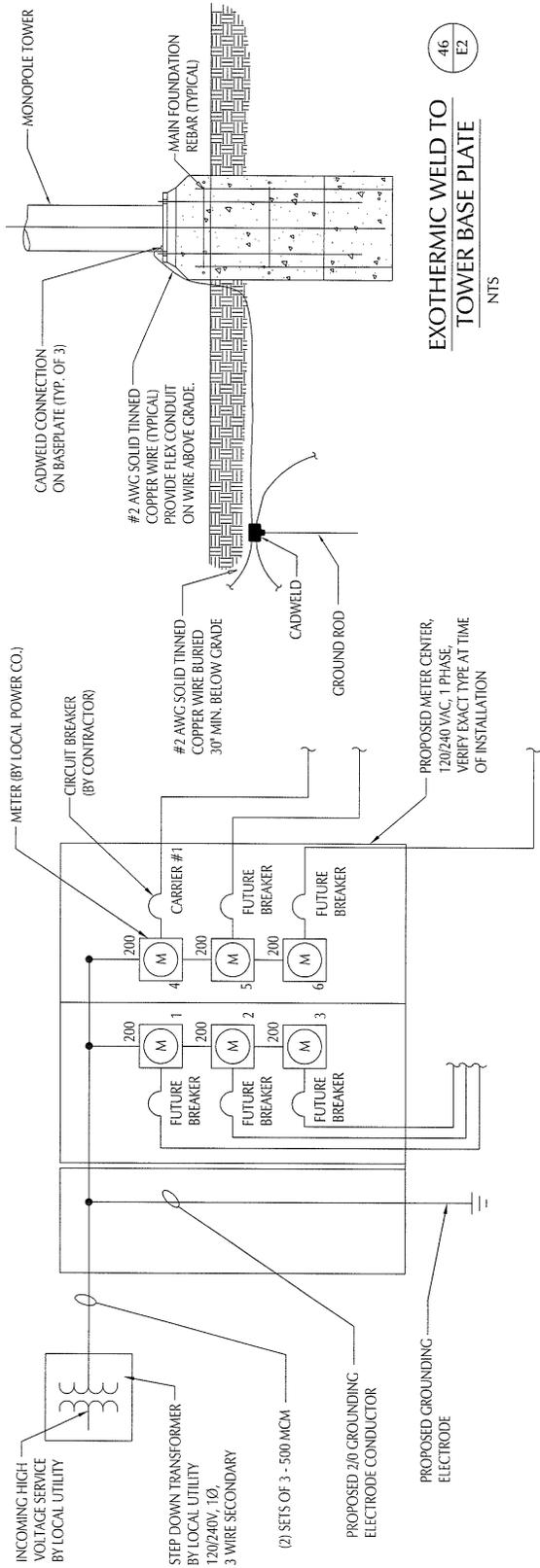
SITE#: SC1019  
LEESBURG ROAD

**ELECTRICAL  
DETAILS**

**TeleCAD**  
WIRELESS SITE DESIGN, INC.  
1961 NORTHPOINTE BLVD, SUITE 130  
MILSON, TN 37345  
PH: 423-943-9500 FAX: 423-943-9500



DRAWN BY: DWS  
CHECKED BY: CTD  
PROJECT MGR: SEH  
SHEET NUMBER: E5

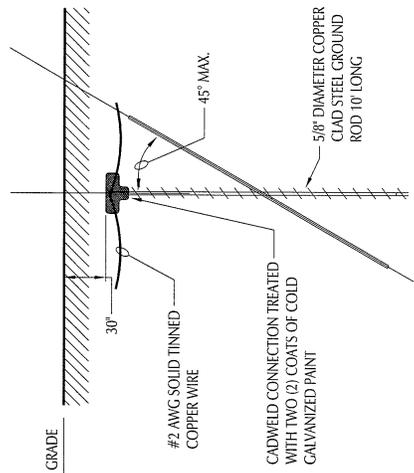


46  
E2

**EXOTHERMIC WELD TO  
TOWER BASE PLATE**  
NTS

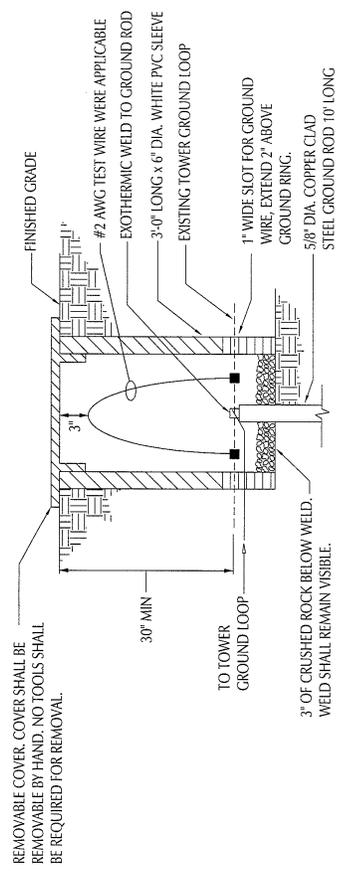
51  
E1

**ELECTRICAL SINGLE LINE DIAGRAM**  
NTS



49  
E2

**GROUND ROD DETAIL**  
NTS



48  
E2

**INSPECTION SLEEVE DETAIL**  
NTS

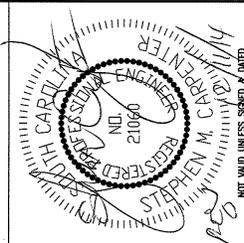
| NO. | DATE     | ZONING ISSUE | DESIGN BY       | CHK |
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| 0   | 12/11/14 |              |                 |     |
|     |          |              | RECORD OF ISSUE |     |

**OPTIMA TOWERS**

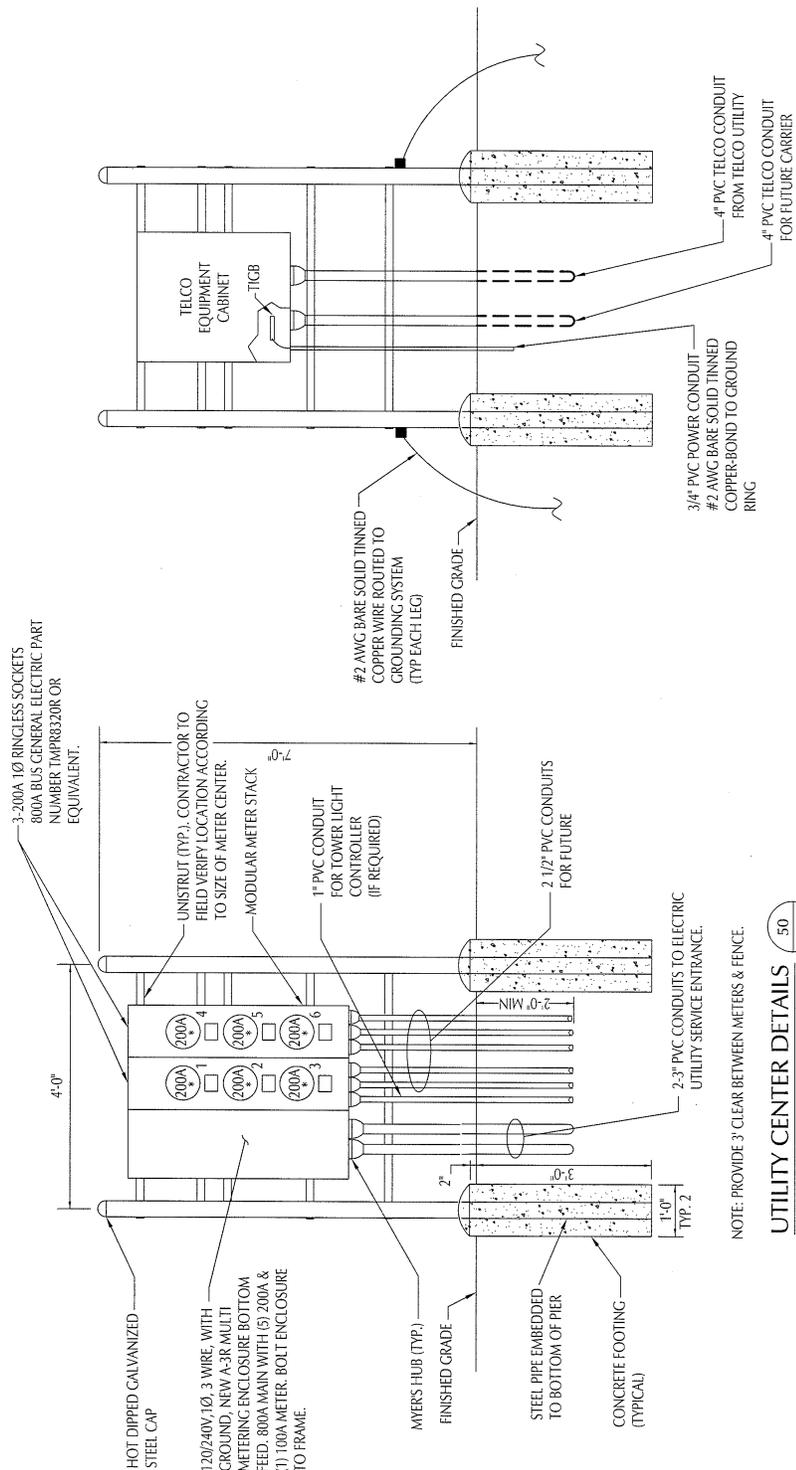
SITE#: SC1019  
LEESBURG ROAD

UTILITY CENTER  
DETAILS

**TeleCAD**  
WIRELESS SITE DESIGN, INC.  
1961 NORTHPOINTE BLVD, SUITE 130  
MAYSON, VA 25958  
PH: 423-942-9500 FAX: 423-943-9509



DRAWN BY: DWS  
CHECKED BY: CTD  
PROJECT MGR: SEH  
SHEET NUMBER: E6



UTILITY CENTER DETAILS 50 ET  
NTS

NOTE: PROVIDE 3' CLEAR BETWEEN METERS & FENCE.

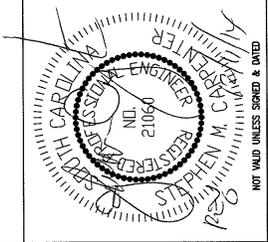
| NO. | DATE     | ZONING ISSUE<br>RECORD OF ISSUE | D/S |     |
|-----|----------|---------------------------------|-----|-----|
|     |          |                                 | BY  | CHK |
| 0   | 12/11/14 |                                 |     |     |

**OPTIMA TOWERS**

SITE #: SC1019  
LEESBURG ROAD

GROUNDING  
SINGLE LINE

**TeleCAD**  
WIRELESS SITE DESIGN, INC  
1961 NORTHPOINTE BLVD, SUITE 130  
HIXSON, TN 37243  
PH: 423-843-9500 FAX: 423-843-9509

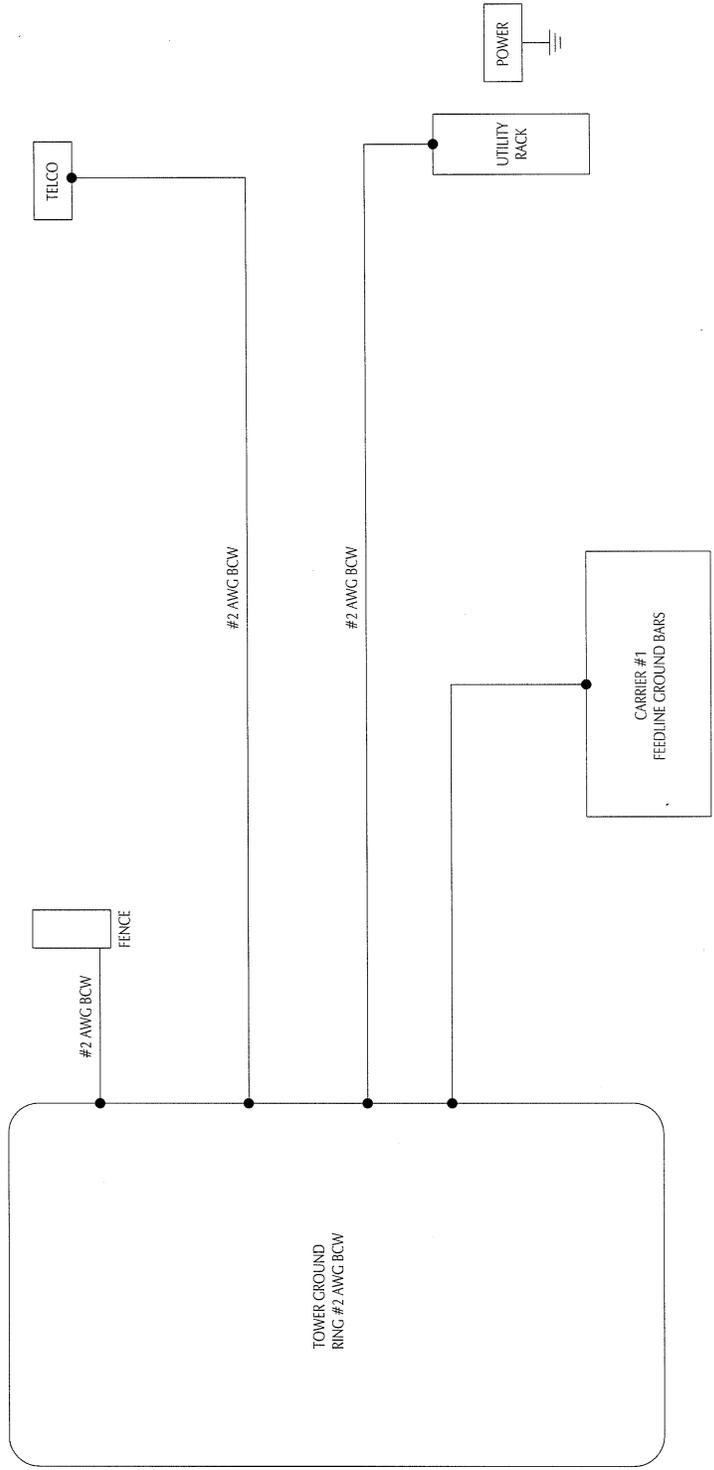


DRAWN BY: DWS

CHECKED BY: CTD

PROJECT MGR: SEH

SHEET NUMBER: E7



52  
E2

GROUNDING SYSTEM SINGLE LINE DIAGRAM

NTS



## Section 26-152(d) (22) Conditions

**Optima Towers proposed 138-foot monopole-style wireless telecommunications facility to be located at 1709 Leesburg Road, Columbia, SC 29209**

In support of this request we have taken the liberty of recasting the relevant provisions of the Richland County Land Development Ordinance with our answer to the relevant provision in bold font beneath the section. As will be evident from a review of the attached, Optima Towers has not only met, but has exceeded, all of the necessary requirements for approval under the Richland County Land Development Ordinance.

*(22) Radio, television and telecommunications and other transmitting towers .*

- a. Use districts: Rural; Office and Institutional; Neighborhood Commercial; Rural Commercial; General Commercial; LI Light Industrial; Heavy Industrial.

**The proposed tower shall be located in the General Commercial (GC) district of Richland County.**

- b. Communication towers shall have a maximum height of three hundred (300) feet. For towers on buildings, the maximum height shall be twenty (20) feet above the roofline of buildings forty (40) feet or four stories in height or less. For buildings greater than four stories or forty-one (41) feet in height, the maximum height of communication towers shall be forty feet above the roofline.

**As shown on Sheet Z3 of the Site Plans and Drawings, attached hereto as Exhibit "1," the proposed tower is a 138' monopole tower, which easily meets the requirements of this section.**

- c. The minimum setbacks for communication towers from abutting districts shall be as follows:
  - 1. Communication towers abutting a residentially zoned parcel shall have a minimum setback of one (1) foot for each foot of height of the tower as measured from the base of the tower . The maximum required setback shall be two hundred and fifty (250) feet.

**The proposed facility is set back at least 138 feet from any residentially-zoned property, as shown on Sheet Z2 of Exhibit "1."**

- 2. Communication towers abutting a non-residentially zoned parcel with a habitable residential dwelling shall have a minimum setback of fifty (50) feet.

**The proposed tower meets these setback requirements. These details can be found on page Z2 of the Exhibit "1."**

- 3. Communication towers abutting a non-residentially zoned parcel without a habitable residential dwelling shall observe the setbacks of the district in which it is located.

**The proposed tower meets the GC district setback requirements. These details can be found on page Z1 of Exhibit "1."**

- d. The proposed user must show proof of an attempt to collocate on existing communication towers , and must be willing to allow other users to collocate on the proposed tower in the future subject to engineering capabilities of the structure. Evidence of an attempt to collocate must show that alternative towers , buildings, or other structures are not available for use within the applicant's tower site search area that are structurally capable of supporting the intended antenna or meeting the applicant's necessary height criteria, or provide a location free of interference from other communication towers.

**There were no existing towers, alternative towers, buildings or other structures available in the vicinity of the proposed monopole, as stated in the letter of Keith Powell of Optima Towers. Furthermore, ASR Registration search results indicate that there are no existing towers within a radius of 0.8 kilometers. This documentation is attached hereto as Exhibit "3." The closest tower is 0.61 miles away, as shown in Exhibit "3." The need for additional coverage in this area is further detailed in the letter of CelPlan, which is attached hereto as Exhibit "8" and incorporated herein by reference.**

**In addition, Optima Towers has designed this facility for collocation up to four (4) wireless carriers, as shown on Sheet Z3 of Exhibit "1" and as shown in the Collocation Policy letter by Keith Powell of Optima Towers, attached hereto as Exhibit "4."**

- e. Towers shall be illuminated as required by the Federal Communications Commission, Federal Aviation Administration, or other regulatory agencies. However, no nighttime strobe lighting shall be incorporated unless required by the Federal Communications Commission, the Federal Aviation Administration, or other regulatory agency.

**As the monopole is only 138 feet, the FAA will not require illumination, as shown on Sheet Z3 of Exhibit "1," and in the FAA Letter by Ken Patterson of Airspace Engineering, attached hereto as Exhibit "6." Exhibit "6" references the original proposed height of 150, but, as the new proposed height is shorter, this letter is more than sufficient.**

- f. Each communication tower and associated buildings shall be enclosed within a fence at least seven (7) feet in height.

**The proposed wireless communications tower and associated structures shall be appropriately secured by means of a seven-foot chained link fence topped with three strands of barbed wire as an anti-climbing device, for a total height of eight (8) feet, as shown on Sheet Z8 of Exhibit "1."**

- g. Each communication tower site shall be landscaped in accordance with the requirements of Section 26-176 of this chapter.

**The tower site will be landscaped in accordance with the requirements of Section 26-176 of this chapter. Landscaping details can be found on Sheet L1 of Exhibit "1." Optima Towers will plant 17 Leyland Cypresses, 3 October Glory Maples, and 57 Prague Viburnums to screen the facility.**

- h. No signage may be attached to any portion of a communications tower . Signs for the purpose of identification, warning, emergency function or contact or other as required by applicable state or federal rule, law, or regulation may be placed as required by standard industry practice.

**Signs for the purpose of identification, warning, emergency function, and contact will be placed as required by applicable state and federal law. Examples of such signage can be found on Sheet Z7 of Exhibit "1."**

- i. A communications tower which is no longer used for communications purposes must be dismantled and removed within one hundred twenty (120) days of the date the tower is taken out of service.

**Optima Towers has agreed to remove the tower and/or antenna within one hundred twenty (120) days after cessation of use, as provided in the letter of Keith Powell of Optima Towers, attached hereto as Exhibit "5."**

**In addition, a copy of the site survey is attached hereto as Exhibit "2," a copy of the recorded plat is attached hereto as Exhibit "7," and a copy of the recorded deed is attached hereto as Exhibit "9."**

**We feel that we have met the requirements of the Richland County Ordinance, and we have found a location that will provide the best possible site to reduce visibility of the facility to the surrounding area. In addition, the facility will employ the monopole design, which is generally received as the most innocuous and visibly pleasing type of communications facility. After a construction period of 30-45 days, the facility will only be visited by the carriers for routine maintenance approximately 4-6 times per year, thus it will not increase traffic in the area. Finally, the facility does not produce any off-site noise, light, odors or fumes. The facility will simply provide the necessary platform to deliver adequate wireless infrastructure to the surrounding area.**

## LACK OF COLLOCATION DOCUMENTATION



Optima Towers III, LLC  
PO Box 2041  
Mount Pleasant, SC 29465

October 27, 2014

Geonard Price  
Richland County  
Zoning Administrator  
2020 Hampton Street, 1st Floor  
Columbia, SC 29202

Re: Wireless Communications Facility Application- Lack of collocation

Dear Richland County Zoning Administrator,

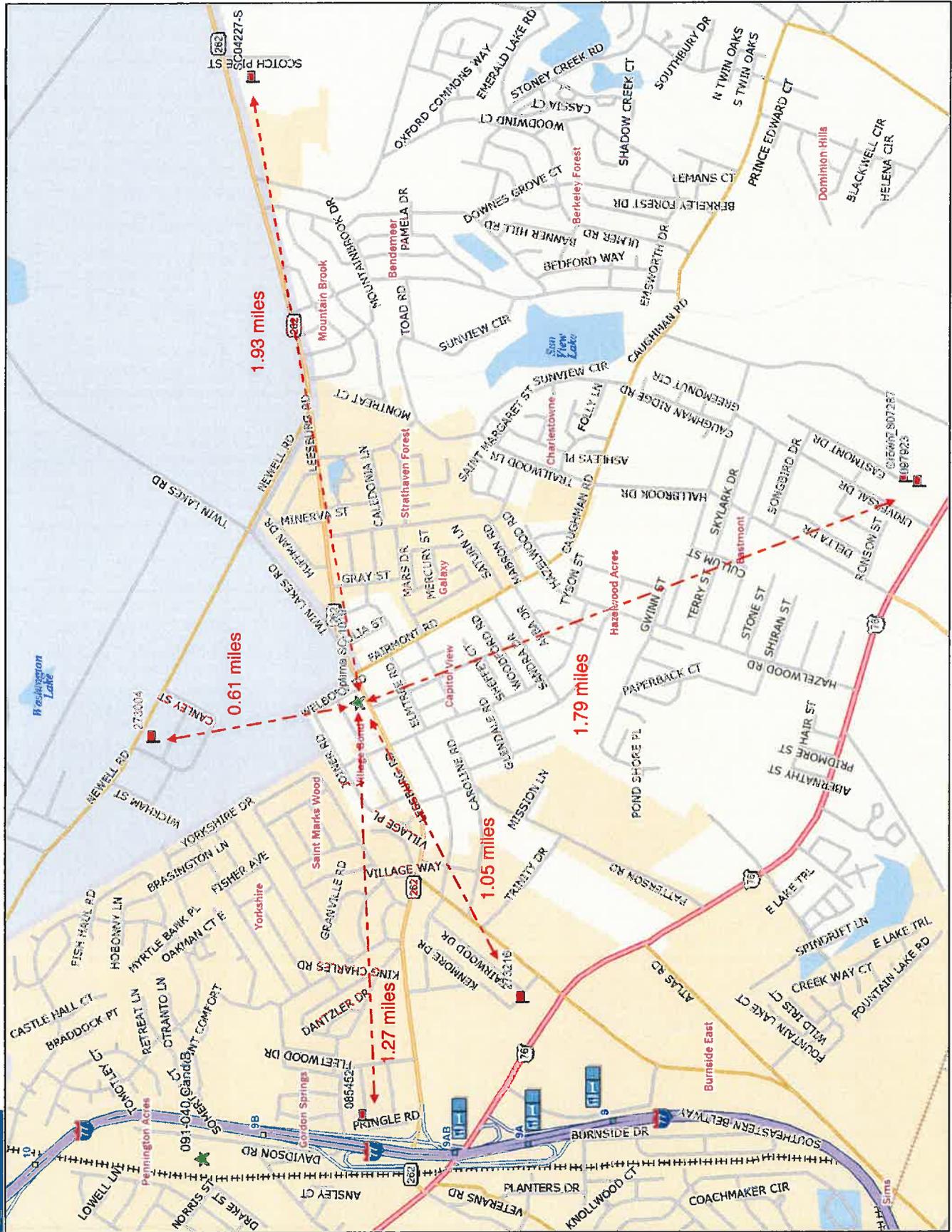
Please accept the signed statement below as confirming §§ 26-152, paragraph 24(d) of the Richland County Zoning Ordinance:

Please accept this letter as evidence by Optima Towers III, LLC (Optima) confirming that no other structures exist to provide coverage for the vicinity of Leesburg Road within the 0.5 mile search area that are structurally capable of supporting the intended antenna or meeting the applicant's necessary height criteria. Attached is a search of the FCC database confirming the non-existence of collocate-able structures and a map illustrating the closest existing structure. The closest existing structures are 0.61 miles to North, 1.93 miles to East, 1.79 miles to South-Southeast, 1.1 miles to West Southwest, and 1.23 miles to West. The proposed Optima site is designed to handle coverage and capacity between the appropriate structures. If you have any questions, please feel free to give me a call at 843-324-9732.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith Powell".

Keith Powell  
Director of Engineering  
Optima Towers III, LLC



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 www.delorme.com



## Collocation Policy by Keith Powell of Optima Towers



Optima Towers IV, LLC  
PO Box 2041  
Mt. Pleasant, SC 29465

October 27, 2014

Geonard Price  
Richland County  
Zoning Administrator  
2020 Hampton Street, 1st Floor  
Columbia, SC 29202

Re: Wireless Communications Facility Application- Collocation site design and policy statement

Dear Richland County Zoning Administrator,

Please accept this letter as notice and confirmation of Optima Towers (Optima) commitment to provide this communications facility for collocation to multiple wireless telecommunication entities. Optima's plan includes the engineered design to handle multiple (no less than four) collocations for its proposed site at 1709 Leesburg Road. If you have any questions, please feel free to give me a call at 843-324-9745.

Sincerely,

Keith Powell  
Managing Member  
Optima Towers IV, LLC

## Tower Removal Letter by Keith Powell of Optima Towers



Optima Towers III, LLC  
PO Box 2041  
Mount Pleasant, SC 29465

October 27, 2014

Geonard Price  
Richland County  
Zoning Administrator  
2020 Hampton Street, 1st Floor  
Columbia, SC 29202

Re: Wireless Communications Facility Application- Tower Removal

Dear Richland County Zoning Administrator,

Please accept the signed statement below as confirming §§ 26-152, paragraph 24(i) of the Richland County Zoning Ordinance:

Optima Towers III, LLC, its successors and assigns, provide this statement declaring itself, its successors and assigns of being financially responsible to assure the proposed communications tower which is no longer used for communications purposes will be dismantled and removed within one hundred twenty (120) days of the date the tower is taken out of service.

Applicant: Optima Towers III, LLC, a South Carolina limited liability company

---

Acknowledged and Accepted

By: Keith Powell

Its: Director of Engineering

Date: 10/27/2014

cc: Jonathan L. Yates, Esquire

FAA Letter by Ken Patterson of Airspace Consulting

# Ken Patterson

Airspace Consulting, Inc.

[www.airspace-ken.com](http://www.airspace-ken.com)

Site ID: Leesburg Road - SC 1019

October 29, 2015

## Notice to the FAA is Required

To Whom It May Concern:

On October 29, 2015, I personally conducted an evaluation of a proposed telecommunications site for Optima Towers. The study was to determine if the proposed structure would create any adverse effect on navigable airspace. The site is located near Columbia, South Carolina at 33° 58' 40.75" North and 80° 55' 52.07" West (NAD 83). The site elevation is 314' above mean sea level (AMSL). The proposed structure height is 150' plus appurtenances above ground level (AGL). Part 77 of the Federal Air Regulations and Part 17 of the FCC Rules and Regulations were used as the primary reference for this evaluation.

The closest public use or DOD runway is Runway 31 at Columbia Owens Downtown Airport. The distance to the runway is 3.25 nautical miles on a true bearing of 077.42° from the runway edge.

The proposed 150' AGL structure would exceed FAR Part 77.9 (b) Notice Requirement by 118'. Notice of Proposed Construction or Alteration Form 7460-1 must be filed with the FAA and a favorable FAA determination must be received prior to beginning construction.

The proposed 150' tower does not exceed any FAA Obstruction Standard.

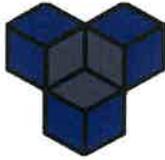
Marking and/or lighting should not be required. The FAA should approve the proposed structure without conducting an extended study. AM broadcast stations and private use landing facilities are not a factor for this site. For additional information or questions about this study, contact my office anytime.

Sincerely,



Ken Patterson

## Cell Plan Letter with Propagation Maps



**CelPlan**  
*Wireless Global Technologies*

November 28, 2014

Geonard Price  
Zoning Administrator  
Richland County  
2020 Hampton Street  
1st Floor  
Columbia, SC 29204

Re: Optima Towers proposed communications facility at 1709 Leesburg Rd

Dear Mr. Price,

I appreciate the opportunity to address and demonstrate the needs for additional advance cellular coverage and capacity in the Leesburg Road and Fairmont Drive area. To provide the minimum level of in-building coverage and to provide an adequate service and data speed levels, a new tower of approximately 135-ft to 150-ft in height is required. We reviewed the following information, submitted to us by Optima Towers:

1. Current transmitting locations of the PCS and Cellular carriers in and around the residential and commercial areas of Leesburg Road, North towards Fort Jackson, South towards Garners Ferry, West towards Interstate 77, and East towards Bendemeer and Berkeley Forest;
2. The current available coverage requirements including existing structure evaluation and user transmitting-receiving locations;
3. Residential-Commercial layout and density, physical properties, general usage type and uplink-downlink velocity;
4. Existing cellular PCS coverage of commercial areas of Interstate 20, Garners Ferry, and Leesburg Road.
5. Existing cellular PCS coverage of residential areas of Yorkshire, St. Marks Woods, Village Bond, Bendemeer, Berkeley Forest, and Charlestown.
5. Existing structures available for collocation respective to the needs of coverage; and
6. Properties zoned for wireless communication facilities.

Our analysis concluded that a tower in the proposed search area by Optima Towers is absolutely necessary in order to improve cellular, voice, and data usage. Cellular voice, data usage, and coverage have changed over the years and the development of the communications facilities have changed accordingly. Previously, communications facilities were developed to be big and tall to provide a large coverage area for voice calls and outside usage. Currently with the move to more extensive in-building Cellular phone usage (vs landline phones) and after smart-phone development, the coverage necessary to handle extensive data and voice traffic, and the ever increasing data speed needs, requires communications facilities to be smaller and more precise in their location. Subsequently, the search areas for newer facilities have been reduced dramatically and the proposed search ring for this site is no more than a 1500-ft radius.

As this relates specifically to the Leesburg Road area, our analysis shows an area of distressed or lacking in-building coverage exists: North from Fort Jackson; West from Neighborhoods just east of I-20

1920 Association Dr  
4<sup>th</sup> Floor  
Reston, VA 20191

Voice +1 703 259 4020  
Fax +1 703 476 8964  
[www.celplan.com](http://www.celplan.com)

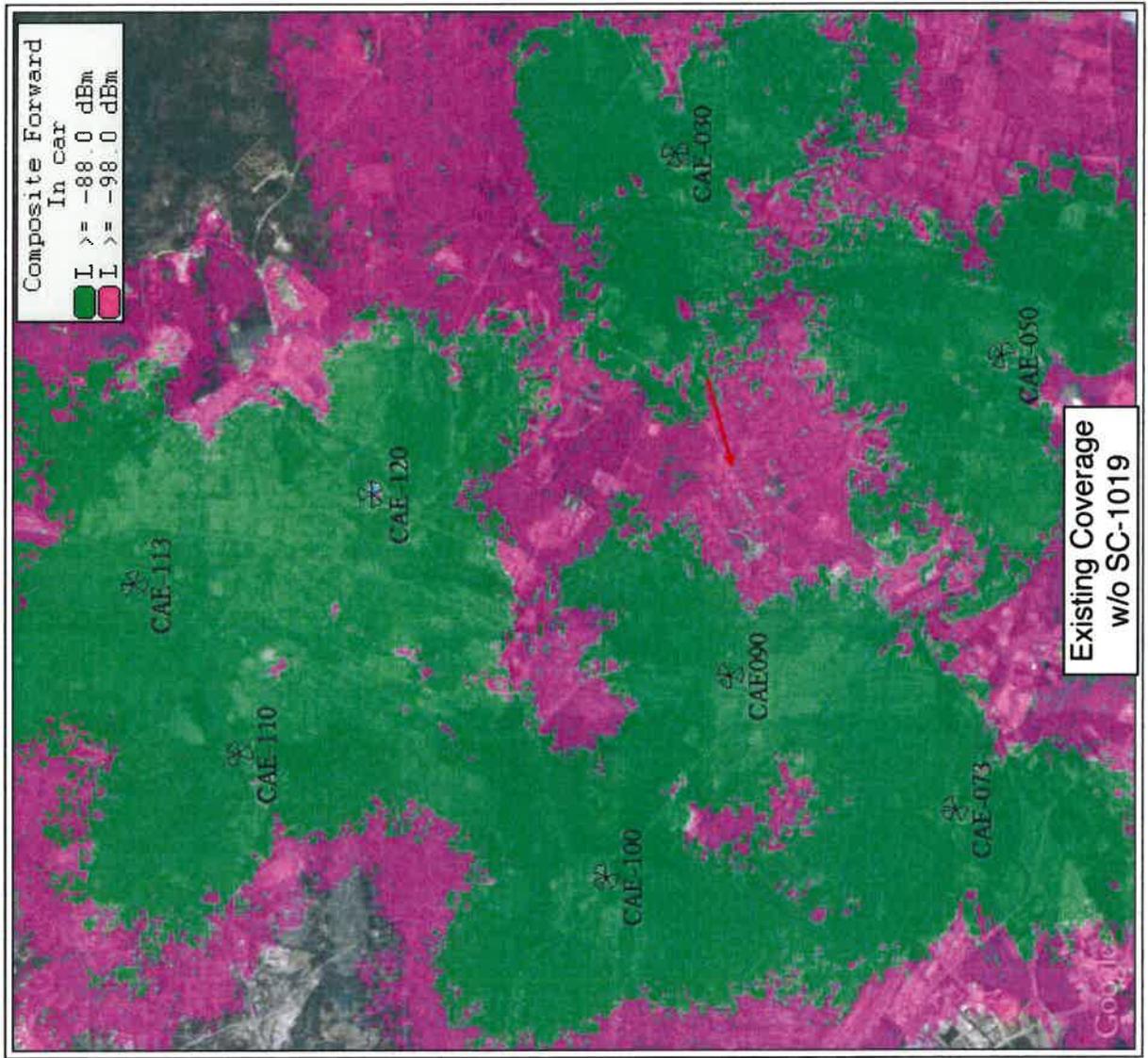
and Greenlawn Road, East from Ulmer Road; and South from Caughman Drive. The distressed area is a dynamic area that requires additional in-building coverage for high volume cellular and PCS traffic and also supplementary and new coverage to areas that no coverage currently exists or is extremely limited in service capabilities. In addition, this area experiences not only heavy vehicular use, but also residential and commercial usage in which many calls and data transmissions are interrupted due to lacking service and also protracted data speeds attributed to not having a dominate server in the area.

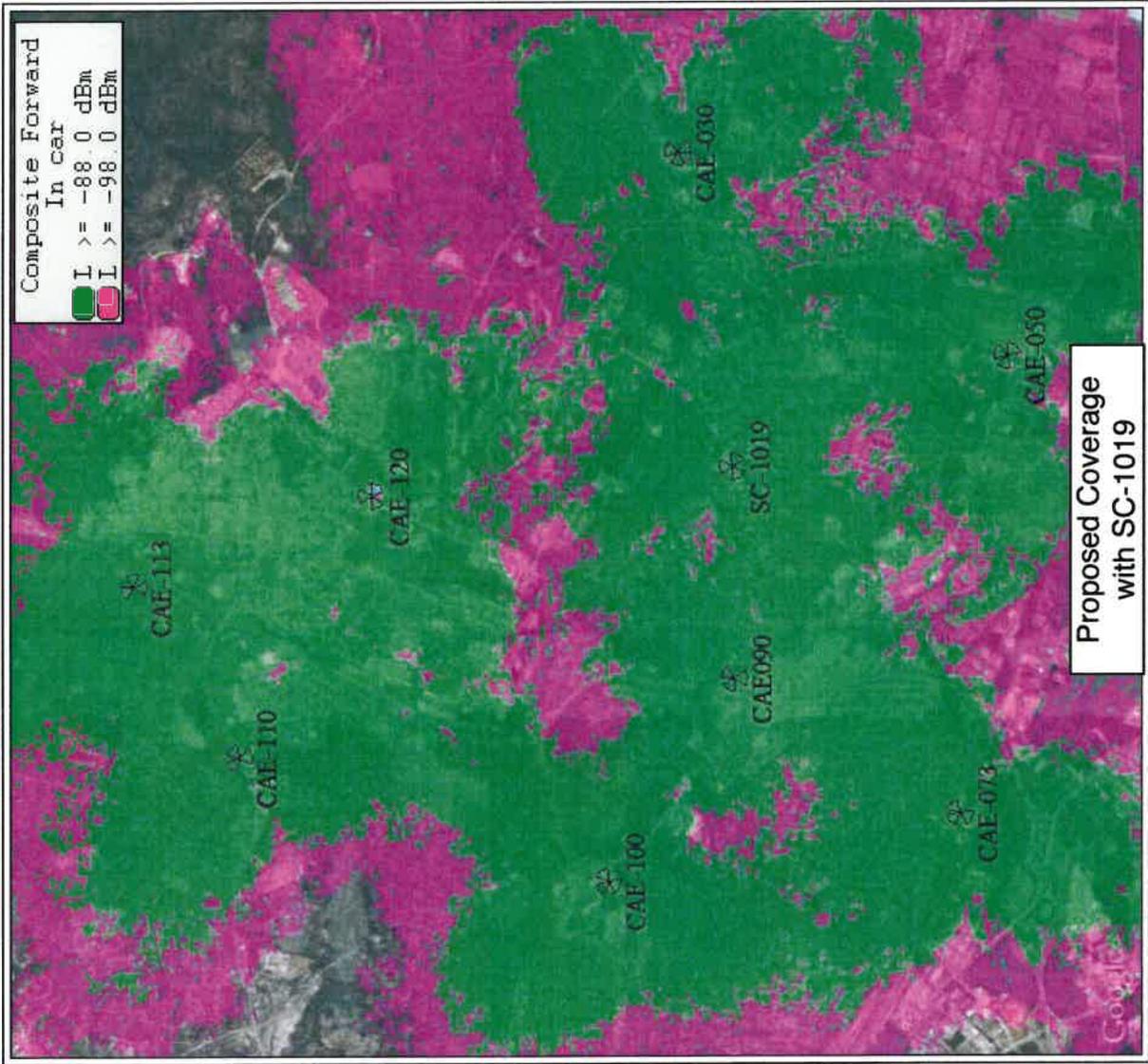
These dynamics require a structure to be located in the center of this search area near the intersection of Leesburg Road and Caughman Road with an approximate height of 135-150 ft. There are no existing communications facilities that will provide a complete solution for this area. The heights of the surrounding communication facilities are low to moderate in size, approximately 220-ft to 150-ft above ground level. The planned communications facility by Optima Towers will solve the existing problems, extend coverage, and enhance the call and data usage to the distressed commercial and residential areas centered around Leesburg Road and Caughman Road. The radio frequency emissions from the planned Optima Towers facility will comply with all FCC standards.

Sincerely,

Cristine Korowajczuk

Project Engineer  
[cristine@celplan.com](mailto:cristine@celplan.com)  
703-259-4036







Richland County Government  
2020 Hampton Street  
Columbia, SC 29204

Phone (803) 576-2180  
Fax (803) 576-2182

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