

**A RESOLUTION APPROVING THE MINOR MODIFICATION TO THE CUP FOR
THE AMERICAN TOWER TELECOMMUNICATION TOWER LOCATED AT 515
SOUTH GREENSBORO STREET TO ALLOW THE INSTALLATION OF A NEW
ANTENNA ARRAY AT A HEIGHT OF 170 FEET AND INSTALLATION OF NEW
EQUIPMENT AT THE BASE OF THE TOWER**

Resolution No. 190/2006-07

WHEREAS, the Carrboro Board of Aldermen approved a Conditional Use Permit for a telecommunications tower at 515 South Greensboro Street on November 10th, 1992; and

WHEREAS, the Town of Carrboro Land Use Ordinance requires that additional users on a tower shall constitute a minor modification to the original Conditional Use Permit and that one of the conditions of the original CUP for this particular tower requires a public hearing for any modification to the tower; and

WHEREAS, the Board of Aldermen finds that the applicant has satisfied the requirements related to minor modifications for towers contained in the Land Use Ordinance.

NOW, THEREFORE BE IT RESOLVED by the Carrboro Board of Aldermen:

Section 1. The Board hereby approves the minor modification to the American Tower conditional use permit located at 515 South Greensboro Street allowing Cricket Communication installation of a new antenna array at a height of 170 feet and installation of new equipment at the base of the tower.

Section 2. This resolution shall become effective upon adoption.



Kimley-Horn
and Associates, Inc.
Post Office Box 33068
Raleigh, North Carolina 27636

Copyright Kimley-Horn and Associates, Inc. 2007



REVISIONS

| DATE | NO. | DESCRIPTION |
|------|-----|-----------------------|
| | | PROJECT NO. |
| | | 012882000 |
| | | SITE NAME |
| | | CARRBORO |
| | | SITE NUMBER |
| | | RDU-043-A |
| | | SITE ADDRESS |
| | | 515 S. GREENSBORO ST. |
| | | CARRBORO, NC 27510 |

DESIGN TYPE:

CO-LOCATE

DRAWING TITLE:

SITE PLAN

cricket
Communications

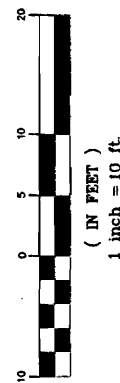
| | |
|---------|----------|
| SCALE | 1" = 10' |
| DATE | 1-4-07 |
| BY | UC |
| CHECKED | UC |
| DATE | 1-4-07 |
| BY | UC |
| CHECKED | UC |

A-1

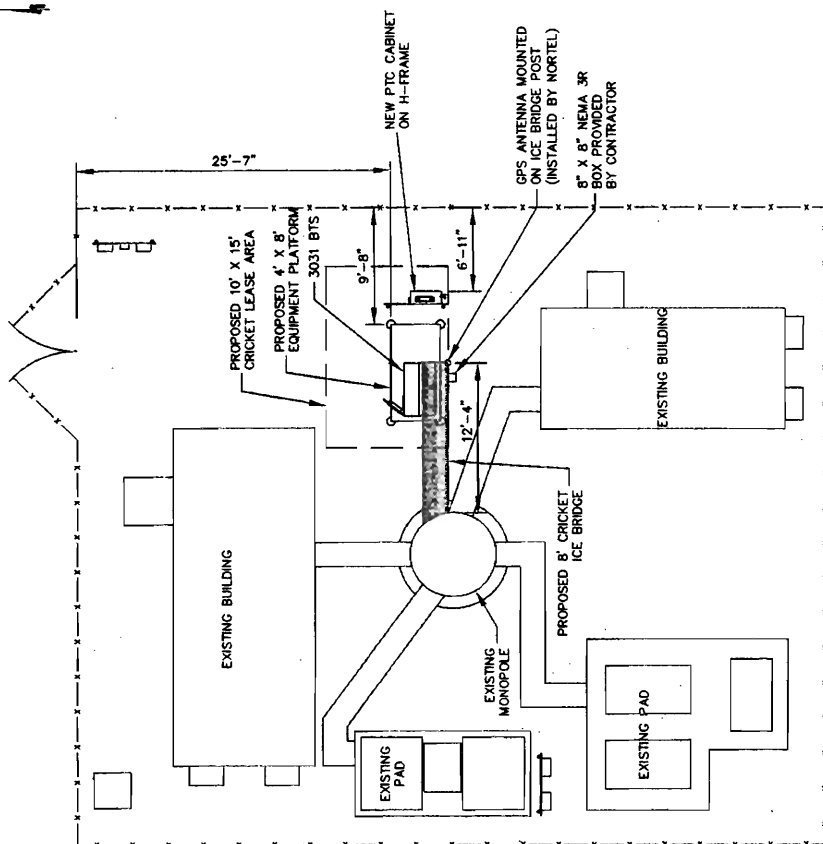
GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND OR REGULATIONS APPLICABLE TO THIS PROJECT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY UPON DISCOVERY. NO WORK SHALL BE PROCEEDED WITH UNLESS THE DISCREPANCY IS CORRECTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE AND FEDERAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE AND FEDERAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE AND FEDERAL AGENCIES.
3. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS DIFFER FROM THE DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION.
4. CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH SITE CONDITIONS AS SHOWN ON THE ATTACHED SITE PLAN AND/OR SURVEY DRAWINGS.
5. WAVEGUIDE BRIDGE IS SHOWN FOR REFERENCE ONLY. REFER TO SURVEY DRAWINGS FOR WAVEGUIDE BRIDGE LOCATION. INFORMATION INCLUDING FOOTINGS AND WAVEGUIDE BRIDGE LOCATION.
6. ALL FINISH GRADES SHALL BE MINIMUM 1/4" IN/FT AWAY FROM EQUIPMENT IN ALL DIRECTIONS. CONTRACTOR SHALL SLOPE SWALES AS REQUIRED ALONG EXISTING TERRAIN TO DRAIN AWAY FROM COMPOUND AND ACCESS DRIVE.
7. THE TOWER AND TOWER FOUNDATIONS WERE DESIGNED BY OTHERS. TOWER INFORMATION PROVIDED ON THESE PLANS IS PROVIDED FOR REFERENCE PURPOSES ONLY. NOTIFY ENGINEER OR PROJECT MANAGER OF ANY CONFLICTS OR DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION.
8. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION.
9. THE CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION, HE IS RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT INFORMATION.
10. CONTRACTOR TO PROVIDE DUMPSTER AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.

GRAPHIC SCALE



- SURVEY NOTE:
1. CRICKET COMMUNICATIONS STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN ACCORDANCE WITH THE PROPOSED LAYOUT.
 2. PROPOSED COMPOUND LAYOUT BASED ON SITE SKETCH PROVIDED BY FENL.



SCALE: 1" = 10'

SITE PLAN

STAFF REPORT

TO: Board of Aldermen

DATE: May 22nd, 2007

PROJECT: Minor Modification to Conditional Use Permit for Cellular Tower at 515 South Greensboro Street

APPLICANT: Cricket Communication
111 James Jackson, Suite 101
Cary, NC 27513

PURPOSE: The proposed modification will consist of: installation of a new antenna array at a height of 170 feet and installation of new equipment at the base of the tower.

EXISTING ZONING: M-1 (Light Manufacturing)

TAX MAP NUMBER: 7.100.C.33A

LOCATION: 515 South Greensboro Street

TRACT SIZE: Approximately 4.38 acres (leased area = .08 acres or 336 square feet)

EXISTING LAND USE: Storage Facility- #10.210
Towers and Antennas more than 50 feet tall- #18.200

PROPOSED LAND USE: No change

SURROUNDING LAND USES: North: M-1, Commercial Use
South: R-7.5, Single Family Residential
East: Chapel Hill Planning Jurisdiction, Single Family Residential
West: M-1, Commercial Use

ZONING HISTORY: B1-G (General Business), 1986
O-I (Office/Assembly), 1973

RELEVANT ORDINANCE SECTIONS: 15-146 Table of Permissible Uses
15-64 Amendment to and Modification of Permits
15-176 Towers and Antennas

ANALYSIS

Background

The Board of Aldermen granted a conditional use permit (**see attachment F**) on November 10th, 1992 to Sprint Cellular, which allowed them to erect and operate a 180 foot tall cellular telecommunication tower at the rear of the Village Self Storage facility at 515 South Greensboro Street. The original CUP included a condition (#10), which indicated that the tower was approved as presented at the public hearing and that any changes to the tower would require a modification to the existing CUP via a public hearing.

The current request to the telecommunication tower will be the installation of a new antenna array at a height of 170 feet and installation of new equipment at the base of the tower.

Structural Engineering Report

The applicant has provided a structural engineering report dealing with the additional antennas (**see attachment D**)

Power Output

Per condition #10(b) of the CUP, the Board may request a 2nd opinion by any expert with regard to potential health issues. In this case, the Town of Carrboro Zoning Division consults with an electrical engineer from Duke University dealing with electromagnetic safety and per his review he concluded that the power density should be at least 100 times less than the recommended safety level (**see attachment E**).

Recommendation

The staff recommends that the Board of Aldermen adopt the attached resolution approving the Minor Modification to the 515 South Greensboro Street Cellular Tower Conditional Use Permit allowing the installation of a new antenna array at a height of 170 feet and installation of new equipment at the base of the tower.

Eng. Number 27055922

December 7, 2006

Page 1

Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 180 ft Valmont Monopole located at Carrboro NC, NC, Orange County (ATC site #97443). The tower was originally designed and manufactured by Valmont (Drawing #DC1175Z dated December 3, 1992). The original design profile is attached for additional information.

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software. The analysis assumes that the tower is in good, undamaged, and non-corroded condition. A 5% overstress is allowed in the existing structural members to account for program variances.

Basic Wind Speed: 70.0 mph (Fastest Mile) / 90 mph (3-Second Gust)

Radial Ice: w/ 1/2" ice

Code: TIA/EIA-222 Rev F / IBC 2003 Code

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

| Elev. (ft) | Qty | Antennas | Mount | Coax | Carrier |
|---------------|-----|--------------------------|-----------------------|------------|-----------|
| 178.0 | 12 | DB844H90E-XY | (3)T-Arm | (12) 1-5/8 | Alltel |
| 161.0 | 3 | DB978G85-M | Standoff Mount | (3) 1-5/8 | |
| 151.0 | 6 | Ericsson KRY 112 71/x | (3)T-Arms | N/A | AT&T |
| | 4 | Allgon 7262.02 | | (4) 1-5/8 | |
| | 8 | Allgon 7250.03 | | (8) 1-5/8 | |
| 141.0 | 12 | DB848H90E-XY | (3) Sector Frame | (12) 7/8 | Nextel |
| 131.0 | 6 | ATM192012-0 | (3) T-Arm | N/A | Cingular |
| | 12 | 2003 MLA 75" * 14" | | (12) 1-5/8 | |
| 121.0 | 4 | HP2-23 Dish w/Radome | Pipe Mount | (4) 1/2 | Clearwire |
| 116.0 | 4 | NextNet BTS-2500 | (3) 6' Standoff Mount | (4) 5/16 | |
| | 4 | Stella Doradus 26 SD9890 | | (4) 5/16 | |
| | 1 | Trimble Acutime 2000 GPS | | (1) 5/16 | |

Proposed Antennas

| Elev. (ft) | Qty | Antennas | Mount | Coax | Carrier |
|---------------|-----|---------------|------------|-----------|---------|
| 170.0 | 6 | WBX065X17X050 | (3) T-Arms | (6) 1-5/8 | Cricket |

Results

The existing 180 ft Valmont Monopole with the existing and the proposed antennas is structurally acceptable per TIA/EIA-222 Rev F. The maximum structure usage is: 61.1 % (Pole Shaft).

Additional exit and/or entry ports may be required to accommodate the running of the proposed lines to the proposed antennas. These additional ports may not be installed without installation drawings providing the location, size and welding requirements of each port.

To ensure compliance with all conditions of this structural analysis, port installation drawings shall be provided by American Tower's Engineering Department under a subsequent project.

| Pole Reactions | Original Design Reactions | Current Analysis Reactions | % Of Design |
|------------------|---------------------------|----------------------------|-------------|
| Moment (ft-kips) | 2,999.00 | 4,375.63 | 145.9 |
| Shear (kips) | 27.90 | 37.81 | 135.5 |

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Conclusion

Based on the analysis results, the structure meets the requirements per TIA/EIA-222 Rev F and 2003 IBC standards. The tower and foundation can support the existing and proposed antennas with the TX line distribution as described in this report.

If you have any questions or require additional information, please call (972) 999-8900.

Install proposed coax inside monopole.

Attachment 2

Duke University
Pratt School of Engineering
DURHAM, NORTH CAROLINA 27708-0291

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING
BOX 90291

TELEPHONE (919) 660-5252
FAX (919) 660-5293
HTTP://WWW.EE.DUKE.EDU

Department of Electrical Engineering
Duke University
Durham, N.C. 27708-0291
email: wtj@ee.duke.edu
(919) 660 5281

April 15, 2007

Mr. James Thomas
Planner/Zoning Development Specialist
Town of Carrboro Zoning Division
301 West Main Street
Carrboro, North Carolina 27510

Re: Impact of Minor Modifications to CUP at S. Greensboro Street on
Electromagnetic Safety

Dear Mr. Thomas:

I have received your email letters dated 3/30/07 and 4/9/07 with attachments for proposed changes at the 515 South Greensboro Street Cellular Tower that you have asked me to review.

From the information supplied by Sprint-Nextel (RF Emissions Compliance Report) in one attachment, I have determined that 0.00292 mW/cm^2 (milliwatts per square centimeter) could be added to the existing ground level power density due to the changes proposed. From the information supplied by Cricket Communications (RF Emissions Letter), attached to your letter of 4/9/07, I have determined that 0.00024 mW/cm^2 could be added to the existing ground level power density due to the proposed changes.

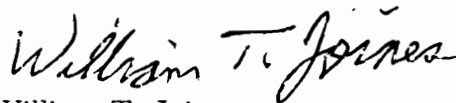
In an earlier assessment of proposed changes to this tower (10/17/03), I determined that 0.0013 mW/cm^2 could be added to the existing ground

level power density. Later, in an assessment of changes reported on 2/26/05, I determined that 0.00075 mW/cm^2 could be added to the existing ground level power density. Adding up all of the power densities corresponding to the changes cited yields:

$$0.0013 + 0.00075 + 0.00292 + 0.00024 = 0.00521 \text{ mW/cm}^2.$$

For most of the signal frequencies emitted by the antennas on the tower the maximum permissible exposure is approximately 1 mW/cm^2 . Hence, the added power density of 0.00521 mW/cm^2 is approximately 200 times less than the recommended safety level. I do not know what was on the tower before 10/17/03 (my first assessment of changes), but I would expect the level then to be no more than what has been added since. Thus, the ground level power density should be at least 100 times less than the recommended safety level.

Sincerely,

A handwritten signature in black ink that reads "William T. Joines". The script is cursive and fluid, with the first name "William" and last name "Joines" clearly legible.

William T. Joines
Professor

NORTH CAROLINA

ORANGE COUNTY

BOOK 1064 PAGE 103

TOWN OF CARRBORO

FILED

21 DEC 1992, at 02:14:10 PM
Book 1064, Page 103
Betty June Hayes,
Register of Deeds,
Orange County, N. C.

CONDITIONAL USE PERMIT GRANTED

On the date(s) listed below, the Board of Aldermen of the Town of Carrboro met and held a public hearing to consider the following application:

Applicant: The Bernstein Group, Inc.

Owner: Village Self Storage (Grey B. Moody and James A. Fountain, Jr.)

Property Location: 515 South Greensboro Street
(Street Address)

Tax Map 100 Block C Lot 33 9778-83-8470

Proposed Use of Property: To allow construction of a 180 foot self supporting monopole, outfitted with two whip antennas and six panel antennas, and a 12 foot x 28 foot equipment shelter.

Carrboro Land Use Ordinance Use Category: 18.200

Meeting Dates: October 27, 1992 and November 10, 1992

Having heard all the evidence and arguments presented at the hearing, the Board finds that the application is complete, that the application complies with all of the applicable requirements of the Carrboro Land Use Ordinance for the development proposed, and that therefore the application to make use of the above described property for the purpose indicated is hereby approved, subject to all applicable provisions of the Land Use Ordinance and the following conditions:

1) The applicant shall complete the development strictly in accordance with the plans submitted to and approved by this Board, a copy of which is filed in the Carrboro Town Hall. Any deviations from or changes in these plans must be pointed out specifically to the administrator in writing and specific written approval obtained as provided in Section 15-64 of the Land Use Ordinance.

2) If any of the conditions affixed hereto or any part thereof shall be held invalid or void, then this permit shall be void and of no effect.

3) Additional screening by eleven (11) Burford Hollies shall be placed along the property line that is adjacent to the school (eastern side). Also, the slats that will be placed in the existing eight-foot high chain link fence shall be the brown color as presented by the applicant.

4) The facility shall be a cellular transmitting and receiving facility that would serve the Town of Carrboro. The facility will consist of a 12' x 28' equipment shelter used to house several low-power radio transmitters, and a 180' self supporting monopole, outfitted with two whip antennas and six panel antennas. The panel antennas will be 3' long and 1' wide. The monopole will be approximately 6' in diameter at the base, tapering to a significantly smaller diameter at the top. The pole will be constructed of solid galvanized steel, and will require no lighting or painting. The entire facility will be enclosed and secured by

RECEIVED

JAN 6 7 1993
TOWN OF CARRBORO
ZONING DIVISION

a 6' high chain link fence. The terms of the Land Use Permit for construction of this tower will specifically provide that no additional antennas or microwave dish antennas may be attached to the pole without the prior approval of the Town of Carrboro. A photograph of the typical monopole construction utilized by Centel Cellular was submitted to the Board of Aldermen for consideration at the Board's meeting held on November 10, 1992.

5) Prior to construction, the applicant shall submit construction drawings of the entire tower as well as any antennas or other tower parts to the town staff for approval. Such submission shall take place within sufficient time for the staff to review the construction drawings. Any construction drawings shall include, but not be limited to, the normal requirements for construction drawings of such towers, as well as a list of the construction materials for the tower itself.

6) Prior to construction, the applicant shall submit studies to the town staff which will indicate that the monopole is not subject to collapse.

7) The applicant shall paint the monopole if the town asks him to do so.

8) The application will be amended in general in accordance with the amended proposal to erect a cellular facility as submitted to the Board on November 10, 1992 and as illustrated in a four-page document. As indicated in this document, the pole will not have any lighting on it at all. Should future federal requirements state that lighting should be placed on the tower, the applicant will be required to come back before the Board of Aldermen for a public hearing on the nature of the lighting and for approval of lighting.

9) No further height will be added to the monopole, nor will any other structure be allowed on the site to increase the height of the tower.

10) No other antennas or other change will be made to the monopole as presented to the Board. If the applicant/owner wishes to add any antennas or any other instrument to the tower itself, the following conditions shall be met.

- a. A public hearing with notification sent to all property owners and residents living within 200 feet of the tower site, plus the usual notice, will be held.
- b. The town will have adequate opportunity to request a second opinion by an expert chosen by Board regarding all health issues.

11) The applicant, as well as any subsequent purchasers or lessees of the property and equipment, as well as any servants, employees, officers and assignees of the applicant, shall take annual measurements at the tower site to measure power densities and radio-frequency emissions and report these measurements to the town for its review.

This permit shall automatically expire within two years of the date of issuance if the use has not commenced or less than 10 percent (10%) of total cost of construction has been completed or there has been non-compliance with any other requirements of Section 15-62 of the Carrboro Land Use Ordinance.

If this permit authorizes development on a tract of land in excess of one acre, nothing authorized by the permit may be done until the property owner properly executes and returns to the Town of Carrboro the attached acknowledgment of the issuance of this permit so that the town may have it recorded in the Orange County Registry.