

**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  
ADDITIONAL ANTENNAS ON THE EXISTING ARRAY AT THE HEIGHT OF  
141 FEET AND INSTALLATION OF ADDITIONAL EQUIPMENT IN THE  
BUILDING AT THE BASE OF THE TOWER**

**Resolution No. 191/2006-07**

WHEREAS, the Carrboro Board of Aldermen approved a Conditional Use Permit for a telecommunications tower at 515 South Greensboro Street on November 10<sup>th</sup>, 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.

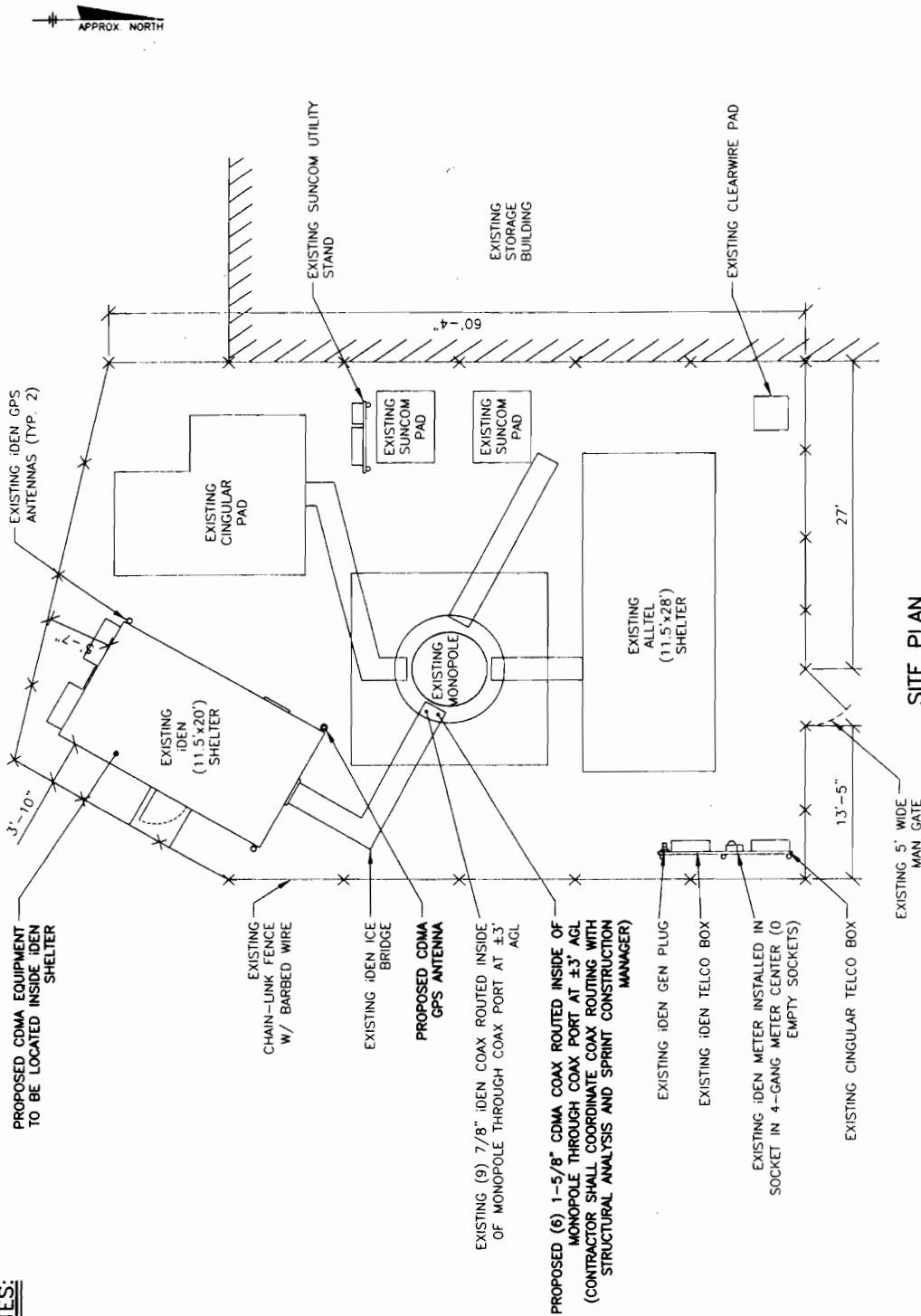
NOW, THEREFORE BE IT RESOLVED by the Carrboro Board of Aldermen:

Section 1. The Board hereby approves the minor modification to the American Tower conditional use permit located at 515 South Greensboro Street allowing Sprint-NEXTEL Corporation installation of additional antennas on the existing array at the height of 141 feet and installation of additional equipment in the existing building at the base of the tower.

Section 2. This resolution shall become effective upon adoption.

## SITE PLAN GENERAL NOTES:

1. GRASSED AREAS DISTURBED BY THE WORK OF THIS CONTRACT SHALL BE GRADED TO UNIFORM SLOPE, FERTILIZED, SEEDING AND COVERED WITH MULCH.
2. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
3. AUTHORIZATION FOR ACCESS TO AND WORK WITHIN PUBLIC ROAD AND WORK WITHIN PUBLIC ROAD R.O.W. SHALL BE OBTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL ADHERE TO ALL SPECIAL REQUIREMENTS SPECIFIED IN THE AUTHORIZATION.
4. ALL OTHER VEGETATIVE COVER DAMAGED OR REMOVED DURING CONSTRUCTION ACTIVITIES SHALL BE REPLACED IN KIND BY THE CONTRACTOR (UNLESS OTHERWISE NOTED).
5. PARKING SPACES ARE NOT REQUIRED FOR THIS DEVELOPMENT.



**SITE PLAN**  
SCALE: 1" = 10'

ENGINEER: DANIEL F. SOUTHWICK  
2000 REGENCY PARKWAY, SUITE 135  
CARY, NC 27516  
(919)380-0062, (919)271-7889  
NC PE NO. 022293

IN CHARGE OF D.F. SOUTHWICK  
DESIGNED CB DRAWN CB CHECKED DFS

PREPARED FOR:



PREPARED BY:

PS ENGINEERING, PLLC  
2000 REGENCY PARKWAY, SUITE 135  
CARY, NC 27516  
919.380.0062  
919.380.0036 (FAX)

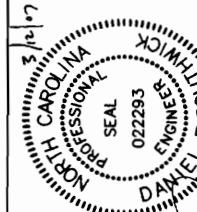
SPRINT COLLOCATION  
E. CARRBORO / CARRBORO, NC  
**SITE PLAN**

SITE NO. NC-1150/00230339

DATE: MARCH 12, 2007

FILE NO. 1027-269

C2



A PROFESSIONAL ENGINEER HAS REVIEWED THIS PLAN AND THE CONTRACTOR IS ALLOWED TO PROCEED WITH THE WORK. THE ENGINEER'S LIABILITY IS LIMITED TO THE WORK OF THE ENGINEER AND NOT TO THE WORK OF THE CONTRACTOR.

## STAFF REPORT

**TO:** Board of Aldermen

**DATE:** May 22<sup>nd</sup>, 2007

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

**APPLICANT:** Sprint-NEXTEL Corporation  
14001 Weston Parkway, #106-A  
Cary, NC 27513

**PURPOSE:** The proposed modification will consist of : installation of additional antennas on the existing array at the height of 141 feet and installation of equipment in the existing building 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 10<sup>th</sup>, 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 additional antennas on the existing array at the height of 141 feet and installation of equipment in the existing building 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 2<sup>nd</sup> 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 additional antennas on the existing array at the height of 141 feet and installation of equipment in the existing building at the base of the tower.


**AMERICAN TOWER<sup>®</sup>**  
 CORPORATION

**Level 1 Structural Evaluation<sup>1</sup>**

ATC Site Number & Name	97443, Carrboro NC	Engineering ID: 27211211
Carrier Site Number & Name	RA73XC035 / NC 1158, East Carrboro	
Site Address	515 South Greensboro Street Carrboro, NC 27510, Orange County	
Tower Description	180 ft Valmont Monopole	
Standards & Codes <sup>2</sup>	ANSI/TIA/EIA-222-F (1996) 70 mph w/ 0" radial ice 60.6 mph w/ 1/2" radial ice	2003 International Building Code 90 mph w/ 0" radial ice

**Table 1: Existing and Proposed Antenna Configuration**

HEIGHT (ft)	ANTENNA	CARRIER	COAX	[I]/[O] <sup>*</sup>	STATUS
178	(12) Decibel DB844H90-XY on T-Arm Mounts	Alltel	(12) 1-5/8"	I	Existing
170	(6) CSA WBX065X17X050 on T-Arm Mounts	Cricket	(6) 1-5/8" (1) 0.26"	I	Existing
161	(3) Decibel DB978G85-M on Standoff Mounts	Alltel	(3) 1-5/8"	I	Existing
151	(8) Allgon 7250.03 (4) Allgon 7262302 (6) Ericsson KRY 112 71/x on Sector Frame Mounts	AT&T	(8) 1-5/8" (4) 1-5/8" -	I	Existing
141	(9) Decibel DB848H90E-XY on Low Profile Platform	Nextel	(9) 7/8"	I	Existing
141	(3) CSA PCSX085-19 on Low Profile Platform	Sprint/Nextel	(6) 1-5/8" (1) 0.25"	I	Proposed
131	(6) RFS Celwave ATM192012-0 on T-Arm Mounts	Cingular	(12) 1-5/8"	I	Existing
121	(4) Radiowave HP2-23 Dish w/ Radome on Pipe Mounts	Clearwire	(4) 1/2"	I	Existing
116	(4) Stella Doradus 26SD9890 (4) NextNet BTS-2500 (1) Trimble Acutime 2000 GPS on Standoff Mounts	Clearwire	(4) 5/16" (4) 5/16" (1) 5/16"	I	Existing

<sup>\*</sup> [I] / [O] denotes coax installed inside or outside of monopole respectively.

The subject tower and foundation **are adequate** to support the above stated loads in conformance with specified requirements.<sup>3</sup>



1/17/07

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of North Carolina.

<sup>1</sup> The existing and proposed loads of Table 1 are compared to the tower's current design capacity or previous analysis.

<sup>2</sup> The design wind criteria are compared to the current code requirements.

<sup>3</sup> The tower should be re-evaluated as future loads are added or if actual loads are found different from those mentioned in Table 1.

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

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING  
BOX 90291

TELEPHONE (919) 660-5252  
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**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<sup>2</sup> (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<sup>2</sup> could be added to the existing ground level power density due to the proposed changes.

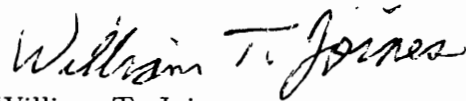
In an earlier assessment of proposed changes to this tower (10/17/03), I determined that 0.0013 mW/cm<sup>2</sup> could be added to the existing ground

level power density. Later, in an assessment of changes reported on 2/26/05, I determined that  $0.00075 \text{ mW/cm}^2$  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  $1 \text{ mW/cm}^2$ . Hence, the added power density of  $0.00521 \text{ mW/cm}^2$  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 cursive script that reads "William T. Joines".

William T. Joines  
Professor

NORTH CAROLINA

ORANGE COUNTY

BOOK 1064 PAGE 103

TOWN OF CARRBORO

FILED

21 DEC 1992, at 10:14 AM  
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 9778-83-8470ay

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

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DEC 27 1992  
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.