EM-SPRINT-NEXTEL-057-110210

CONNECTICUT SITING C

ORIGINAL

In re:

Sprint Nextel Corporation's Notice to Make an Exempt Modification to an Existing Facility at 9 Perryridge Road, Greenwich, Connecticut.	:	EXEMPT MODIFICATION NO.
	:	
	:	February 10, 2011

RECEIVED
FEB 10 2011
CONNECTICUT SITING COUNCIL

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), Sprint Nextel Corporation ("Sprint") hereby gives notice to the Connecticut Siting Council ("Council") and the Town of Greenwich of Sprint's intent to make an exempt modification to an existing monopole tower (the "Tower") located at 9 Perryridge Road in Greenwich, Connecticut. Specifically, Sprint plans to remove and replace existing antennas and install Tower Mounted Amplifiers ("TMA"). Under the Council's regulations (Conn. Agencies Regs. § 16-50j-72(b)), Sprint's plans do not constitute a modification subject to the Council's review because Sprint will not change the height of the tower, will not extend the boundaries of the compound, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

Sprint is currently upgrading its existing installations throughout Connecticut. This upgrade is designed to enhance the performance of Sprint's network. Upon completion of the upgrades to Sprint's network, it will offer improved voice and data communications to residents and travelers in Connecticut. In order to accomplish the upgrade at this site, Sprint plans to remove and replace antennas, install TMA and install related electronic equipment at the base of the Tower.

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The Tower is a 164-foot lattice tower located at 9 Perryridge Road in Greenwich, Connecticut (latitude 41.03 N, longitude -73.63 W). The Tower is owned by Greenwich

Hospital. Multiple carriers are currently located on the Tower. Presently, Sprint has 6 antennas over three sectors located on the Tower with a centerline of 154 feet. Sprint's base station equipment is located adjacent to the base of the Tower. A site plan with the Tower specifications is attached.

Sprint's plans to remove and replace 3 of its existing antennas with 3 upgraded antennas (one per sector). Additionally, Sprint proposes to install 2 TMA on the Tower, in the alpha and beta sectors. The new antennas and TMA will have the same centerline as the existing antennas – 154 feet. Sprint will continue to utilize its existing coax cables. To confirm that the Tower can support these changes, Sprint commissioned Infinigy Engineering & Surveying to perform a Structural Evaluation of the Tower (attached). According to the analysis dated October 26, 2010, "...the structure is capable of supporting the proposed installation" (Page 1, Structural Evaluation).

Within the existing compound Sprint will install one MCPA cabinet within the existing 10-foot by 24-foot (approximately) equipment area. Hence, no increase in the boundaries of the site is necessary. Excluding brief, minor, construction-related noise during the addition of the antennas and dishes and the installation of the equipment cabinets, the proposed changes to the Tower will not increase noise levels at the site.

The addition of the new antennas and the TMA will not adversely impact the health and safety of the surrounding community or the people working on the Tower. The total radio frequency exposure measured around the Tower will be below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). A cumulative power density analysis indicates that together, all of the

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antennas on the Tower will emit 23.7% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be below the FCC mandated radio frequency exposure limits in all locations around the Tower, even with extremely conservative assumptions. The power density analysis is attached.

In conclusion, Sprint's proposed plan to remove and replace antennas, install 2 TMAs and associated base station equipment does not constitute a modification subject to the Council's jurisdiction because Sprint will not increase the height of the Tower, will not extend the boundaries of the site, will not increase the noise levels at the site, and the total radio frequency electromagnetic radiation power density will stay within all applicable standards. *See* Conn. Agencies Regs. § 16-50j-72.

SPRINT NEXTEL CORPORATION

By: _____

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Certificate of Service

This is to certify that on this 10th day of February, 2011, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

Town of Greenwich
First Selectman Peter Tesei
Town Hall
101 Field Point Road
Greenwich, CT 06830

By: _____
Thomas J. Regan

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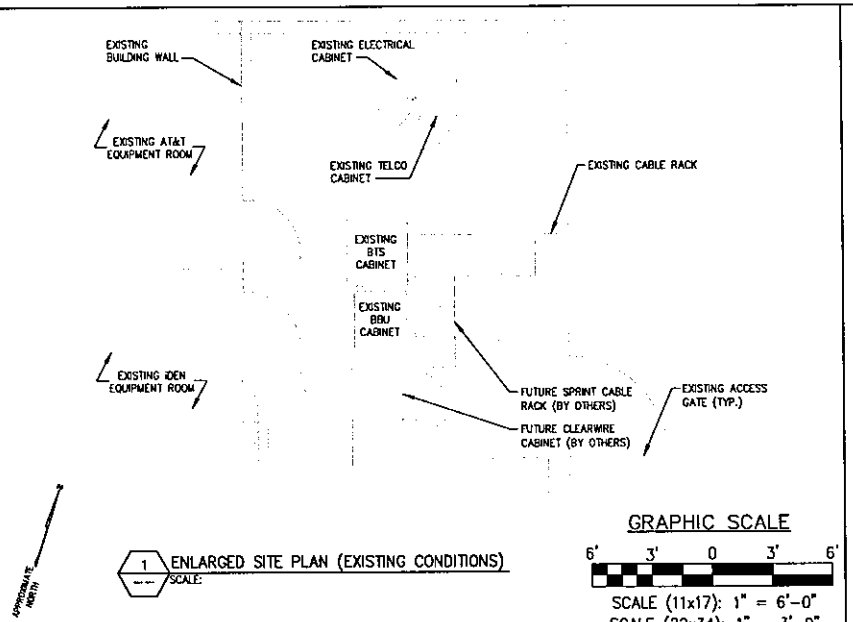
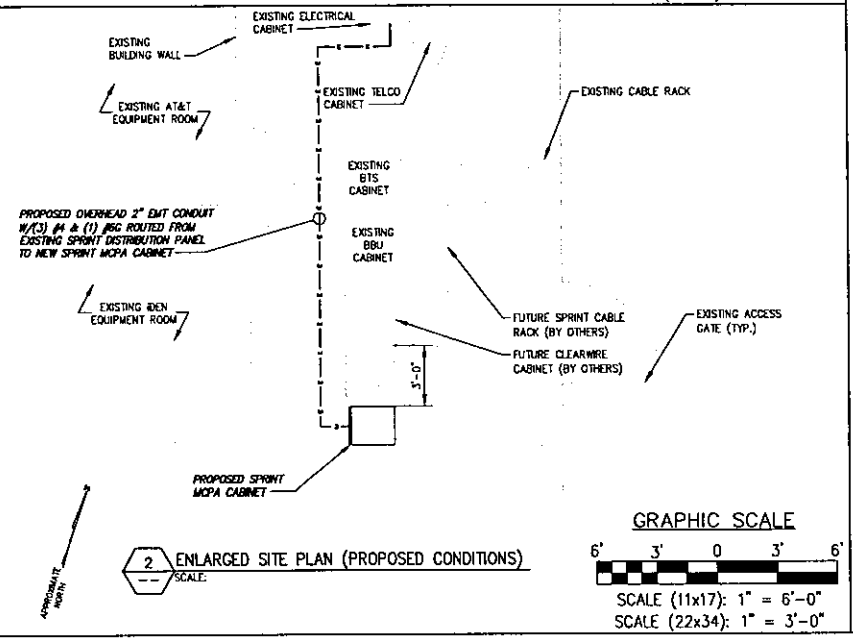


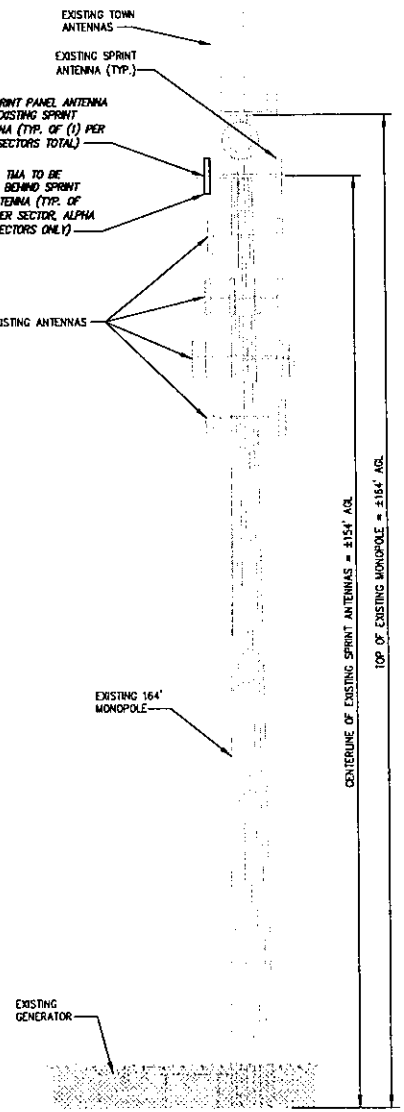
1 ENLARGED SITE PLAN (EXISTING CONDITIONS)
SCALE:

GRAPHIC SCALE
6' 3' 0 3' 6'
SCALE (11x17): 1" = 6'-0"
SCALE (22x34): 1" = 3'-0"



2 ENLARGED SITE PLAN (PROPOSED CONDITIONS)
SCALE:

GRAPHIC SCALE
6' 3' 0 3' 6'
SCALE (11x17): 1" = 6'-0"
SCALE (22x34): 1" = 3'-0"



3 TOWER ELEVATION
NOT TO SCALE

NOTES:
- BASEMAPPING BASED ON INFORMATION PROVIDED TO INFINIGY ENGINEERING AND A FIELD VISIT COMPLETED BY INFINIGY ENGINEERING.
- NO ELECTRIC LOAD STUDY WAS COMPLETED AT TIME OF ISSUANCE OF THESE DRAWINGS. CONTRACTOR TO ENSURE INSTALLATION IS PER ALL LOCAL AND NATIONAL CODES.
- INFINIGY ENGINEERING HAS NOT COMPLETED A STRUCTUAL ANALYSIS. INFINIGY ACCEPTS NO LIABILITY FOR THE PROPOSED OR EXISTING INSTALLATION.
- CONTRACTOR TO INSTALL NEW RF JUMPERS FROM EXISTING HARDLINE TO NEW MCPA CABINET. CONTRACTOR TO INSTALL NEW RF JUMPERS FROM MCPA CABINET TO EXISTING BTS CABINET.
- CONTRACTOR TO INSTALL NEW RF JUMPERS FROM PROPOSED TMA TO EXISTING SPRINT PANEL ANTENNAS. CONTRACTOR TO REUSE EXISTING RF JUMPERS FROM EXISTING HARDLINE TO PROPOSED TMA.
- PROPOSED TMA TO BE INSTALLED BEHIND SPRINT PANEL ANTENNA (TYP. OF (1) TMA PER SECTOR, ALPHA & BETA SECTORS ONLY)

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LATHAM, NY 12110
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FAX: (518) 690-0793

No.	Submittal / Revision	Init.	Date
1	REVISED PER CLIENT	MCR	8/23/10
0	ISSUED FOR REVIEW	MCR	8/9/10

Drawn: MCR Date: 8/23/10
Designed: MR Date: 8/23/10
Checked: MR Date: 8/23/10

Project Number: 109-077

Project Title:
CT43XC855
GREENWICH HOSPITAL
9 PERRYRIDGE ROAD
GREENWICH, CT 06830

Prepared For:
Sprint
Together with Nextel.
5 Airline Drive, Suite 105
Albany, NY 12205

Drawing Scale: AS NOTED
Date: 9/22/10

Drawing Title:
EQUIPMENT PLAN & TOWER ELEVATION

Drawing Number:
LE

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October 26, 2010

Mrs. Colleen Bisceglia
Sprint Nextel
Real Estate Manager - Upstate NY & CT
8 Airline Drive
Suite 105
Albany, NY 12205

RE: Structural Evaluation – CT43XC855 – Greenwich Hospital
9 Perryridge Road, Greenwich, CT 06830

Dear Mrs. Bisceglia:

As requested, Infinigy Engineering has performed an evaluation of the proposed installation for the above referenced facility. As discussed and agreed to, this evaluation was performed for the purpose of determining whether or not the existing structure is capable of supporting the proposed installation. This letter presents the findings and conclusions of our evaluation.

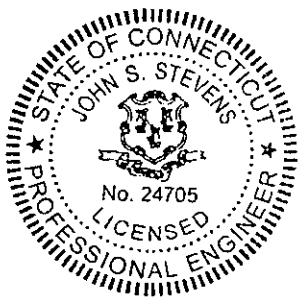
Prior to commencing work, we were provided access to the site and general information regarding antenna and equipment locations, sizes, and other physical data. The existing Sprint installation consists of (2) panel antennas per sector, (3) sectors total, mounted to the existing tower. The proposed Sprint installation consists of the swap of (1) panel antenna per sector, (3) sectors total. The proposed antennas are Andrew model HBX-6516DS-R2M in the alpha and beta sectors, and Andrew model HBX-9014DS-R2M in the gamma sector. Also proposed is the installation of (1) tower mounted amplifier in the alpha and beta sectors, which is to be installed behind the proposed antennas to be swapped. The tower mounted amplifiers are CCI model DTMA1819VG12A.

Based on the information that was collected and provided, and Infinigy Engineering Construction Drawings bearing a revision 0, dated 10/19/2010, and the assumption that the original structure construction was performed in accordance with good construction practices, it is our opinion that the structure is capable of supporting the proposed installation.

If the anticipated installation changes in any form, including but not limited to the size, weight, quantity, location, or model number of any proposed antennas or TMA's, the structure will need to be re-evaluated.

Very truly yours,

John S. Stevens, P.E.
Infinigy Engineering PLLC



GIANT SOLUTIONS LLC

Electomagnetic Exposure Analysis
Sprint
CT43XC855
February 4, 2011

Executive Summary:
A power density study has been performed utilizing the transmit power of all proposed transceiver equipment to be installed on the tower. This theoretical result has been combined with empirical data recorded during a field survey of the existing installed transmitters (see below). This report takes into consideration the cumulative effect of both the proposed Sprint transmitting elements and the existing transmitting elements currently located on the tower. This report assumes a worse case scenario of all new elements radiating from the same point in space simultaneously. Careful review of the data indicates that the site, as is and as proposed, is in compliance with applicable Federal standards for Maximum Permissible Exposure levels for RF power density.

Background:
FCC 96-326 is the standard FCC guideline for power density. The guidelines are given in terms of mW/cm^2 and the maximum limits are termed 'Maximum Permissible Exposure' (MPE) for both occupational (controlled) and general (uncontrolled) cases. Because these guidelines are based upon the same limits as those in the American National Standards Institute/Institute of Electrical and Electronics Engineering (ANSI/IEEE) guidelines, they also include the safety factors of 10 and 50 for occupational and general public scenarios respectively.

Additionally, FCC Bulletin OET 65 is the standard for evaluating compliance with FCC guidelines. GIANT Solutions has adopted these methods and procedures and others based on sound engineering practice to ensure that the theoretical calculations performed to complete this analysis will over-predict field strength levels at ground distances close to the transmitting elements. A more realistic approach to calculating power densities at areas near the base of the tower was utilized by taking advantage of the relative gain patterns of the directional antennas being proposed by Sprint. Directional antennas focus energy toward the horizon. This results in a pattern of losses and gains relative to the direction of propagation due to elevation angle changes. Equation 6 from OET 65 was utilized in conjunction with the antenna vertical gain patterns to predict the field strength levels at various points away from the base of the tower. This equation takes into consideration a four-fold increase in power density by assuming a 100% reflection of incoming radiation at the ground level.

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$$S=\frac{1.65\times ERP\times G}{\Pi\times R^2}$$

Where:
S = Power density in microwatts per centimeter squared.
ERP = Effective Radiated Power in microwatts (uW).
R = Straight-line distance between antenna centerline and head level in centimeters (cm).
$\Pi = 3.14$
G = Relative numeric gain of the antenna at specified angle of declination such that

$$G=10^{(dB/10)}$$

and, ***dB*** = relative antenna gain in dB (available from the antenna manufacturer).

Sprint has provided to GIANT Solutions the following information for the proposed installation required for analysis of these transmitting elements. These parameters were utilized to calculate the maximum exposure levels in and around the compound for the proposed installation.

- PCS B-Band, 2 carriers, 16 W per carrier. All three sectors are adding a Cellextender that will increase the signal's power by 6 dB.

With this information, the signal's additional power was calculated to increase by 48 W per carrier.

This site currently has several antennas installed. Applicable transmit parameters for all existing equipment was unavailable, thus a field study was conducted to determine existing exposure levels. The details and results of the field study are included at the end of this report.

Power density levels were calculated for the additional Sprint transmitting equipment utilizing the methods and procedures previously referenced at a transmitting height of 150' AGL. These values were then compared to the applicable Maximum Permissible Exposure limits for General Population /Uncontrolled and Occupation/Controlled exposure[1]. The ratio of the calculated value to the maximum permissible exposure value was then computed to analyze the results as a percentage of the maximum allowable levels. For example, an antenna operating in the frequency range of 1900 MHz with a calculated value of power density equal to 0.03 mW/cm^2 would be operating at 3% of the allowable General Public standard which is defined

[1] FCC Bulletin OET 65 Table 1

as 1mW/cm^2. These values were then summed to analyze the combined effect of all proposed transmitting equipment.

These calculated values were then added to the RF exposure measurements from the field survey to get the total combined field strength of the existing and proposed equipment.

Areas closest to the transmitting elements surrounding the site compound were considered for this report. Points further away from surveyed areas will see a decrease in power density due to the attenuation of radio waves traveling through free space.

Results of the cumulative total indicate that no area accessible to the general public will exceed 23.7% of the maximum permissible limit for General Public/Uncontrolled access. **This is 4.2 times less than the allowed maximum.** This is based on the highest measured level in the area as described below. As indicated previously, a conservative approach was taken in calculating the power density levels at the site since it is unlikely that all of the transmitters at the site will be transmitting simultaneously at maximum power. The actual levels experienced at the site will likely be lower.

RF Exposure Measurements

Site Name: CT43XC855
Date Collected: 01/27/2011
Time: 16:17– 18:08
Survey Meter: *Model #NARDA BN 2251/02*
Serial # L-0098
Date of Last Calibration: 1/2010
Calibration Due: 1/2013
Operator: Harold Briggs

Measurements were made at this facility utilizing the above-referenced Narda Meter. This equipment is designed to measure cumulative RF fields over the 3MHz – 40 GHz spectrum band. Due to the wide band nature of the measuring device the minimum detectable level for occupational exposure is approximately 5% of the Occupational threshold. Site data provided for this facility indicates a number of transmitters operating at the site and through visual inspection it was determined that there were no AM transmitters present. As a result, it was assumed that all existing elements were transmitting in the spectrum band measured. The weather was clear and the operating temperature was approximately 28 degrees F.

The test equipment was set to read percent of the total exposure limit as defined by the Federal Communications Commission Regulations ("FCC") for Exposure limits.

The unit was then carried around the tower site, taking two individual sets of data. The sets of data were taken over a period of approximately 2 hours, and included the area directly around the antenna site. Measurements were taken in all accessible areas.

Multiple trips were made around the compound looking for the largest signals to contribute to the percent of the standard being displayed on the monitor. Logged data was collected around the tower as well as spatial averaging to provide an additional means of data comparison. The highest average electrical field detected was 23.6% of the FCC general public/uncontrolled standard for human exposure in the areas accessible to the public.

Based upon these measurements, there were no instances when the measured data indicated that the site, as operating at the time of measurement, was not in full compliance with all applicable FCC RF exposure guidelines.

Martin Blatz
RF Engineer

2/4/2011

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