

# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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[www.ct.gov/csc](http://www.ct.gov/csc)

April 28, 2009

Steven L. Levine  
Real Estate Consultant  
New Cingular Wireless PCS, LLC  
500 Enterprise Drive  
Rocky Hill, CT 06067-3900

RE: **EM-CING-035-090330** - New Cingular Wireless PCS LLC notice of intent to modify an existing telecommunications facility located at Noroton Heights Rail Station, Darien, Connecticut.

Dear Mr. Levine:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated March 30, 2009, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps  
Executive Director

SDP/MP/laf

c: The Honorable Evonne M. Klein, First Selectman, Town of Darien  
David J. Keating, Zoning Enforcement Officer, Town of Darien  
John Crary, Town Administrator, Town of Darien  
Michael Green, Real Estate Department, NU



Cingular Wireless PCS, LLC  
500 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
Phone: (860) 513-7636  
Fax: (860) 513-7190

Steven L. Levine  
Real Estate Consultant

ORIGINAL

HAND DELIVERED

March 30, 2009

RECEIVED  
MAR 30 2009

CONNECTICUT  
SITING COUNCIL

Honorable Daniel F. Caruso, Chairman,  
and Members of the Connecticut Siting Council  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at Noroton Heights Rail Station (owner, CL&P)

Dear Chairman Caruso and Members of the Council:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC (“AT&T”) plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile (GSM) communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T’s operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes (“C.G.S.”) Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall

squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will be unaffected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. Radio frequency power density may increase due to use of one or more GSM channel for UMTS transmissions. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7636 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Steven L. Levine  
Real Estate Consultant

Attachments

## NEW CINGULAR WIRELESS Equipment Modification

Noroton Heights Rail Station, Darien  
Site Number 5011  
Former AT&T Cell Site  
Petitions 529 / 529A approved 11/01 and 9/02, respectively

**Tower Owner/Manager:** CL&P

**Equipment configuration:** Power Transmission Structure

**Current and/or approved:** Three panel antennas @ 85ft c.l.  
Six runs 7/8 inch coax

**Planned Modifications:** Remove all three existing antennas  
Install three Powerwave 7770 antennas @ 85 ft c.l.  
Install six TMA's @ 85 ft

### **Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 5 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 18.5 % of the standard.

### Existing

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Other Users *							
Cingular GSM * †	85	1900 Band	4	250	0.0498	1.0000	4.98
<b>Total</b>							<b>5.0%</b>

\* Per CSC records.

† Height increase to 110 ft per Petition 529A not implemented.

## Proposed

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Other Users *							
Cingular GSM	85	880 - 894	4	296	0.0589	0.5867	10.04
Cingular GSM	85	1900 Band	2	427	0.0425	1.0000	4.25
Cingular UMTS	85	880 - 894	1	500	0.0249	0.5867	4.24
<b>Total</b>							<b>18.5%</b>

\* Per CSC records.

### Structural information:

The attached structural analysis demonstrates that the tower has adequate structural capacity to accommodate the proposed modifications. (Tabas Associates, dated 3/6/09)

RF TABLE								
Sector	Sector Name	Antenna Make & Model	Antenna Count	Azimuth	Rad. Mechanical Downtilt	TMA Count	Diplexer Count	# of Coax Cables
1	ALPHA	POWERWAVE 7770	1 PROPOSED 0 EXISTING	0°	85±	0*	2 PROPOSED 0 EXISTING	0 PROPOSED 0 EXISTING
2	BETA	POWERWAVE 7770	1 PROPOSED 0 EXISTING	90°	85±	0*	2 PROPOSED 0 EXISTING	0 PROPOSED 0 EXISTING
3	Gamma	POWERWAVE 7770	1 PROPOSED 0 EXISTING	260°	85±	0*	2 PROPOSED 0 EXISTING	0 PROPOSED 0 EXISTING

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NOTE: \* REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS

PROPOSED REMOVE EXISTING (3)  
ANTENNAS AND RELOCATE WITH  
(3) NEW ANTENNAS  
(OP-1, PRR, SFCRC)  
13° 31'  
260°  
SECTOR 3

A compass rose diagram. At the top, 'MAGNETIC NORTH' is written vertically. At the bottom, 'TRUE NORTH' is written vertically. The cardinal directions 'N', 'S', 'E', and 'W' are positioned at the cardinal points. A horizontal line with arrows at both ends represents the magnetic meridian. A vertical line with arrows at both ends represents the true meridian. The angle between the true meridian and the magnetic meridian is labeled '13° 31'.

This technical diagram illustrates a proposed cellular tower structure. The tower is a lattice design, 80' high, located at the 'TOP OF EXISTING AT&T ANTENNA TOWER' at '80'-0" ± ASL'. The center of the tower is labeled 'CENTER OF EXISTING AT&T ANTENNA TOWER'. The diagram shows various proposed equipment and installations:

- Proposed Remove Existing:** (3) Antennas and replace with (5) new antennas with RETS on STATION LENS (Typ. 1 antenna per sector).
- Proposed Install Top and Bottom Jumpers from coax to diplexers per RRDS:** Labels point to the top and bottom of the tower structure.
- Proposed Upgrade Sector Ground Bars and Home Bars:** Labels point to the bottom of the tower structure.
- Proposed Install (1) 1/2" RET CABLE from antenna to MCU:** Labels point to the top of the tower structure.
- Proposed Install Top and Bottom Jumpers from coax to diplexers per RRDS:** Labels point to the top and bottom of the tower structure.
- Proposed Install (6) DM/DM JUMPERs from RAAT RACK to DIPLEXERS for Nokia DM/DM Right Angle Jumpers to DIPLEXERS for EMERSON ERICSSON EQUIPMENT:** Labels point to the bottom of the tower structure.
- Existing Equipment on Concrete Pad (Typ.):** Labels point to the existing equipment on the concrete pad.
- Existing Ice Bridge:** Labels point to the ice bridge.
- Existing Telco Panel:** Labels point to the telco panel.
- Existing 6' High Wood Fence:** Labels point to the wood fence.
- Existing Meter Bank:** Labels point to the meter bank.

The diagram also shows the 'Ground Ref.' at '0'-0" ± ASL'.

**SOUTHEAST ELEVATION**

## PROPOSED ANTENNA DETAIL

## PROPOSED ANTENNA

0' 8" 1'-4" 2'-8"

SCALE:  $1/2'' = 1'-0''$

0 4°-0° 8°-0° 16°-0° 24°-0°

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 <b>SAI</b> communications		 <b>at&amp;t</b>	
<b>SITE NUMBER: 5011</b>			
<b>SITE NAME: DARIEN NOROTON HEIGHTS</b> NOROTON HEIGHTS RAILROAD STATION DARIEN, CT 06820 FAIRFIELD COUNTY			
<b>184 ROCKINGHAM ROAD, UNIT A</b> <b>LONDONDERRY, NH 03353</b>		500 ENTERPRISE DRIVE ROCKY HILL, CT 06067	
<b>Hudson</b> Design Group Inc. 100 OGDEN STREET BLDG 200 NORTH, SUITE 2101 N. ANCHOR, MA 01460		<b>AT&amp;T</b> NO. 24176 LICENSED PROFESSIONAL ENGINEER NO. DATE REVISIONS SCALE: AS SHOWN DESIGNED BY: DC DRAWN BY: JC DRAWING NUMBER <b>5011.01</b> <b>A-2</b> <b>1</b>	
<b>CONSTRUCTION FINAL</b> 05/15/08 ISSUED FOR CONSTRUCTION			
<b>REVISIONS</b> <b>BT</b> <b>CHK</b> <b>APR</b>			
<b>ANTENNA LAYOUT AND ELEVATION</b>			



**New Cingular Wireless PCS, LLC**  
500 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
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**Steven L. Levine**  
Real Estate Consultant

March 30, 2009

Honorable Evonne M. Klein  
1<sup>st</sup> Selectman, Town of Darien  
Town Hall 2 Renshaw Road  
Darien, Connecticut 06820

Re: Telecommunications Facility – Noroton Heights Rail Station, Darien

Dear Ms. Klein:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC (“Cingular”) will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review Cingular’s proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes Cingular’s proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council’s procedures, please call me at (860) 513-7636 or Mr. Derek Phelps, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

A handwritten signature in black ink, appearing to read "SL Levine".

Steven L. Levine  
Real Estate Consultant

Enclosure

*Prepared for*

**AT&T Wireless**

500 Enterprise Drive  
Suite 3A  
Rocky Hill, CT 06067

**STRUCTURAL ANALYSIS REPORT OF AN  
EXISTING DOUBLE CIRCUIT UTILITY TOWER  
FOR REPLACEMENT OF EXISTING ANTENNAS**

AT&T Cell No. 5011  
CL&P TOWER No. 1182

Noroton Heights RR Station  
Darien, Connecticut

*prepared by*

**Tabas Associates, LLC**  
**Consulting Structural Engineers**  
724 Boston Post Road  
Madison, CT 06443

November 10, 2008  
Revised March 6, 2009

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## 1. SUMMARY

This report summarizes the structural analysis of the existing 90' tall steel lattice tower structure, CL&P tower #1182, located at Noroton Heights RR Station in Darien, Connecticut. The analysis was conducted in accordance with the Northeast Utilities Service Company's *Criteria for Design of PCS Facilities on or Above Metal Electric Transmission Towers/Poles*.

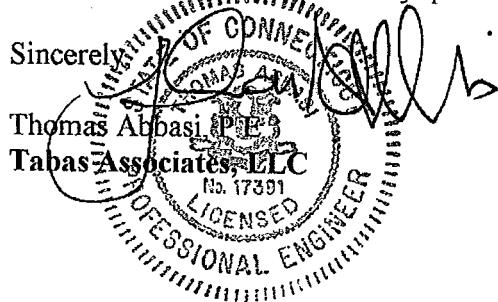
The antenna loading considered in the analysis consists of replacing of the existing AT&T antennas with proposed new AT&T antennas, and tower mounted amplifiers as outlined on the following pages of this report.

**The results of the evaluation indicate that the steel lattice utility tower structure is in compliance with the proposed loading conditions and considered structurally adequate with the Northeast Utilities loading criteria and requirements.** The Conductor and the Shield Wire arms were not reviewed structurally but the adequacy of the tower structure is not affected by the proposed antenna installation and the capacity of the cross arm members. Since no information on the existing tower foundation or soil condition was available, the existing foundation capacity and its stability was not reviewed. This analysis is based on:

1. The structure's theoretical capacity and not including any assessment of the existing condition of the tower.
2. Tower geometry and structural member sizes taken from Bethlehem Steel Company shop drawing No.1, dated 4/14/37, drawings No. E7, 8 to 11, dated 2/18/41, drawings E5 & E6, dated 5/28/37 and rebuilt shop drawings E16 & 20, dated 6/10/57. Shield Wire and Conductor loading provided by Northeast Utilities System.
3. AT&T antenna layout and elevation, drawing A-2, dated 7/02/08 prepared by Hudson Design Group.
4. Antenna inventory as specified above and on the following page of this report.
5. Northeast Utilities Service Company's *Criteria for Design of PCS Facilities on or Above Metal Electric Transmission Towers/Poles* dated December 7, 2001.
6. Tectonic Engineering structural analysis report dated, August 31, 2001. Tectonic Engineering As Built drawings S0001, dated 10/30/02 with revised date of 6/30/03 by Bechtel.

This report is only valid per the assumptions and data utilized in this report. The user of this report shall field verify the assumptions of the antenna and mount configurations. Notify the engineer in writing immediately if any of the assumptions in this report are other than specified.

Please contact us if you have any questions.



## 2. INTRODUCTION

A structural analysis of the 90' tall steel lattice transmission utility tower, CL&P pole #1182, located at Noroton Heights RR Station in Darien, CT was performed by Tabas Associates for AT&T Wireless. This analysis was conducted to evaluate the stresses on the utility tower for the proposed installation of new antennas after removal of existing AT&T antennas.

The tower structure is owned by CL&P, and was originally manufactured by Bethlehem Steel Company.

**The antenna and mount configuration as specified below:**

Antenna and Mount Description	Carrier	Antenna Centerline
(3) Proposed Antennas, Powerwave 7770 AT&T (to be attached to the tower with an exist. mount without any structural mast extension)		@ 85'-0"
(6) Proposed Powerwave LGP21401 (Tower Mounted Amplifiers)		
(6) Existing 7/8" AT&T coaxial cables (exposed) plus (3) 1/2" Ret. Cable at Mast		

## 3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with Northeast Utilities Service Company's *Criteria for Design of PCS Facilities on or Above Metal Electric Transmission Towers/Poles*, the American Society of Civil Engineers (ASCE) Manual and Reports on Engineering Practice No. 72, *Design of Steel Transmission Pole Structures*, and the American Institute of Steel Construction (AISC)

The analysis was conducted using PLS Structural Analysis Program. Two load conditions were evaluated as shown below which were compared to yield stresses (not plastic stresses) according to ASCE and AISC. The two load conditions were investigated in the analysis to determine the stresses and forces at different elevations.

Load Condition 1 = NESC C2 -2002 Extreme Wind Loading (50-year, 110 mph)

Load Condition 2 = NESC C2 -2002 Heavy Loading (combined ice and wind)

The load evaluation of the existing antenna was done in accordance with the provisions of TIA/EIA standard 222 with two conditions:

Load Condition 1 = Extreme Wind Loading (85 mph wind)

Load Condition 2 = Heavy Loading (combined ice and 74 mph wind)

#### 4. INFORMATION PROVIDED

For the purpose of the analysis, Tabas Associates was furnished with the following information:

- Tower geometry and structural member sizes taken from Bethlehem Steel Company shop drawing No.1, dated 4/14/37, drawings No. E7, 8 to 11, dated 2/18/41, drawings E5 & E6, dated 5/28/37 and rebuilt shop drawings E16 & 20, dated 6/10/57.
- Shield Wire and Conductor loading provided by Northeast Utilities System.
- AT&T antenna layout and elevation, drawing A-2, dated 7/02/08 prepared by Hudson Design Group.
- Antenna inventory as specified above and on the following page of this report.
- Northeast Utilities Service Company's *Criteria for Design of PCS Facilities on or Above Metal Electric Transmission Towers/Poles* dated December 7, 2001.
- Tectonic Engineering structural analysis report dated, August 31, 2001, and Tectonic Engineering As Built drawings S0001, dated 10/30/02 with revised date of 6/30/03 by Bechtel.
- Proposed antenna and TMA information provided by AT&T Wireless.

#### EVALUATION OF UTILITY TOWER

Combined axial and bending stresses on the steel lattice utility tower structure were evaluated to compare with stresses allowed in accordance with ASCE and AISC. The tower structure is about 94% of its capacity under Northeast Utilities Loading requirements (Extreme Hi Wind) including the loading from the proposed antennas and Amplifiers. Refer to calculations and structural analysis of the tower for details and load conditions.

Since there is no information available on the existing tower foundation including soil site condition (this information was not submitted to this office), reviewing the design of the existing foundation is not possible. It is also evident from Tectonic Engineering Consultant drawings, Section 1/S01, dated 10/30/02 that the existing tower foundation has been reinforced with a new 30" thick reinforced concrete cap. Northeast Utilities Company to review the analysis of the existing foundation if necessary for new tower reactions as shown below:

Max Shear 8.0 k    Max. Compression load 81.7 k    Max. Moment 1286.0 ft-kips  
Max. Tension load 75.5 k

## 6. CONCLUSIONS

The results of the analysis indicate that the existing steel lattice utility tower structure disregarding the existing foundation is in compliance with the proposed loading conditions after replacing the existing AT&T antennas with new proposed AT&T antennas as described above. Existing Mast by Valmont is not reviewed structurally and should be checked by the manufacturer.

### **Limitations/Assumptions:**

This report is based on the following:

1. Tower inventory as listed in this report.
2. All coaxial cable is installed outside of the utility tower.
3. The utility tower was properly installed and maintained since erection.
4. All members were specified in the original design documents and are in good condition.
5. All required members are in place.
6. All bolts are in place and are properly tightened.
7. The utility tower is in plumb condition.
8. Protective coatings are in good condition.
9. All utility tower members were properly designed, detailed, fabricated and installed.
10. Structural steel, ASTM A7 (Fy = 33 ksi).
11. Longitudinal tower loading and stresses were not evaluated per direction of Northeast Utilities Service Co.
12. Mount connection design was only checked for the threaded bolts between antennas mast support and the existing utility tower member.

Tabas Associates does not assume liability for any factual changes that may occur after the date of this report. All representations, recommendations and conclusions are based upon information contained and set forth herein. If you have knowledge of any information which conflicts with information in this report or you are aware of any defects arising from original design, material, fabrication or erection deficiencies, you should disregard this report and immediately contact Tabas Associates.