



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

August 16, 2002

Peter W. van Wilgen
Southwestern Bell Mobile Systems, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **EM-CING-007-017-052-148-020730** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Berlin, Bristol, Farmington, and Wallingford, Connecticut.

Dear Mr. van Wilgen:

At a public meeting held on August 15, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify these existing telecommunications facilities, 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 July 30, 2002. 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 sites that would not increase tower heights, extend the boundaries of the tower site, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundaries to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. These facilities have also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on these towers.

This decision is under the exclusive jurisdiction of the Council. Any additional change to these facilities 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,

Mortimer A. Gelston
Chairman

MAG/DM/laf

c: See attached list.

List Attachment.

- c: Honorable Paul C. Argazzi, Mayor, Town of Berlin
- Brian J. Miller, Town Planner, Town of Berlin
- Honorable Frank N. Nicastro, Sr., Mayor, City of Bristol
- Alan Weiner, Planner/Dev. Coordinator, City of Bristol
- Honorable Arline B. Whitaker, Town Council Chairman, Town of Farmington
- Jeffrey Ollendorf, Town Planner, Town of Farmington
- Honorable William W. Dickinson, Jr., Town of Wallingford
- Linda Bush, Town Planner, Town of Wallingford



SNET Mobility, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7730
Fax: (860) 513-7190

Peter W. van Wilgen
Senior Manager – Construction

HAND DELIVERED

RECEIVED

July 30, 2002

JUL 30 2002

**CONNECTICUT
SITING COUNCIL**

Mr. Mortimer A. Gelston, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Farmington, Bristol, Berlin and Wallingford

Dear Mr. Gelston:

In order to accommodate technological changes, implement E-911 capability and enhance system performance, SNET Mobility, LLC ("SNET" or "Cingular Wireless") plans to modify the antenna configurations at 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 each of the municipalities in which an affected cell site is located.

Attached are summary sheets detailing the planned changes, including power density calculations reflecting the change in the effect of Cingular's operations at each site. Also included is documentation of the structural sufficiency of each tower to accommodate the revised antenna configuration.

The changes to the facilities do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facilities will not be significantly changed or altered. Rather, the planned changes to the facilities fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

Mr. Mortimer A. Gelston

July 30, 2002

Page 2

1. The height of the overall structure will be unaffected. At almost all sites, new panel antennas approximately the same size will replace those previously installed. Tower mount amplifiers, approximately 5" x 9" x 13", will be added to the platform on which the panel antennas are mounted to enhance signal reception at the cell site. In addition, the mandated provision of E-911 capability will require installation of one LMU ("location measurement unit"), approximately nine inches high, on either the tower, the equipment shelter or the ice bridge. One GPS receive-only antenna will be attached to the equipment shelter at each site. None of the modifications will extend the height of the tower.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. Radio frequency power density will increase due to use of additional channels broadcasting at higher power. 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, Cingular Wireless respectfully submits that the proposed changes at the referenced sites constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7730 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Peter W. van Wilgen
Senior Manager - Construction

Enclosures

**CINGULAR WIRELESS
Antenna Modification**

Site Address: 263 Farmington Avenue, Farmington
Petition 7/94

Tower Owner/Manager: UCONN Health Center

Antenna configuration Antenna center line – 78’ above roof

Current and/or approved: 10 ALP 110 11 or comparable

Planned: 10 CSS DUO4-8670 or comparable
6 tower mount amplifiers
6 diplexers

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 19.1% 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 27.1%, or an additional 8.0% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	78	880 - 894	19	100	0.1123	0.5867	19.1

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	78	880 - 894	16	100	0.0946	0.5867	16.1
SNET GSM	78	880 - 894	2	296	0.0350	0.5867	6.0
SNET GSM	78	1930 - 1935	2	427	0.0505	1.0000	5.0
Total							27.1%

Structural information: Please see attached.



BAYAR ENGINEERING, P.C.
Structural Engineers

P.O. Box 1287, Port Chester, N.Y. 10573-8287
TEL: (914) 681-8749 FAX: (914) 421-0416

Demirtas C. Bayar, P.E.

July 10, 2002

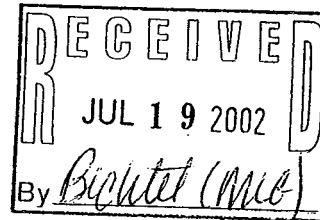
URS CORPORATION

JUL 15 2002

RECEIVED

Mr. Douglas J. Roberts
URS
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067-4002

Re: Farmington, CT. tower
Site ID: 1032
URS No. f300002292.14/f12
BE Job No. 0216-A



Dear Mr. Douglas,

We visited the site and analyzed the existing 80'-0" guyed tower mounted on the roof of the U.Conn. Medical Center in Farmington, CT for a condition of replacing the existing 6 ALP8013 and the 4 ALP11011 antennas with 10 new cellular antennas that have maximum dimensions of 48"x14"x9". Two new antennas in each sector will receive a TMA and a diplexer.

The original tower was designed to carry the existing antennas shown in our sketch No. 0216-A and one future mobile antenna above the 80' level and 2 future mobile antennas with a combined flat plate equivalent area of 2.24 sq.ft. at the 76' level.

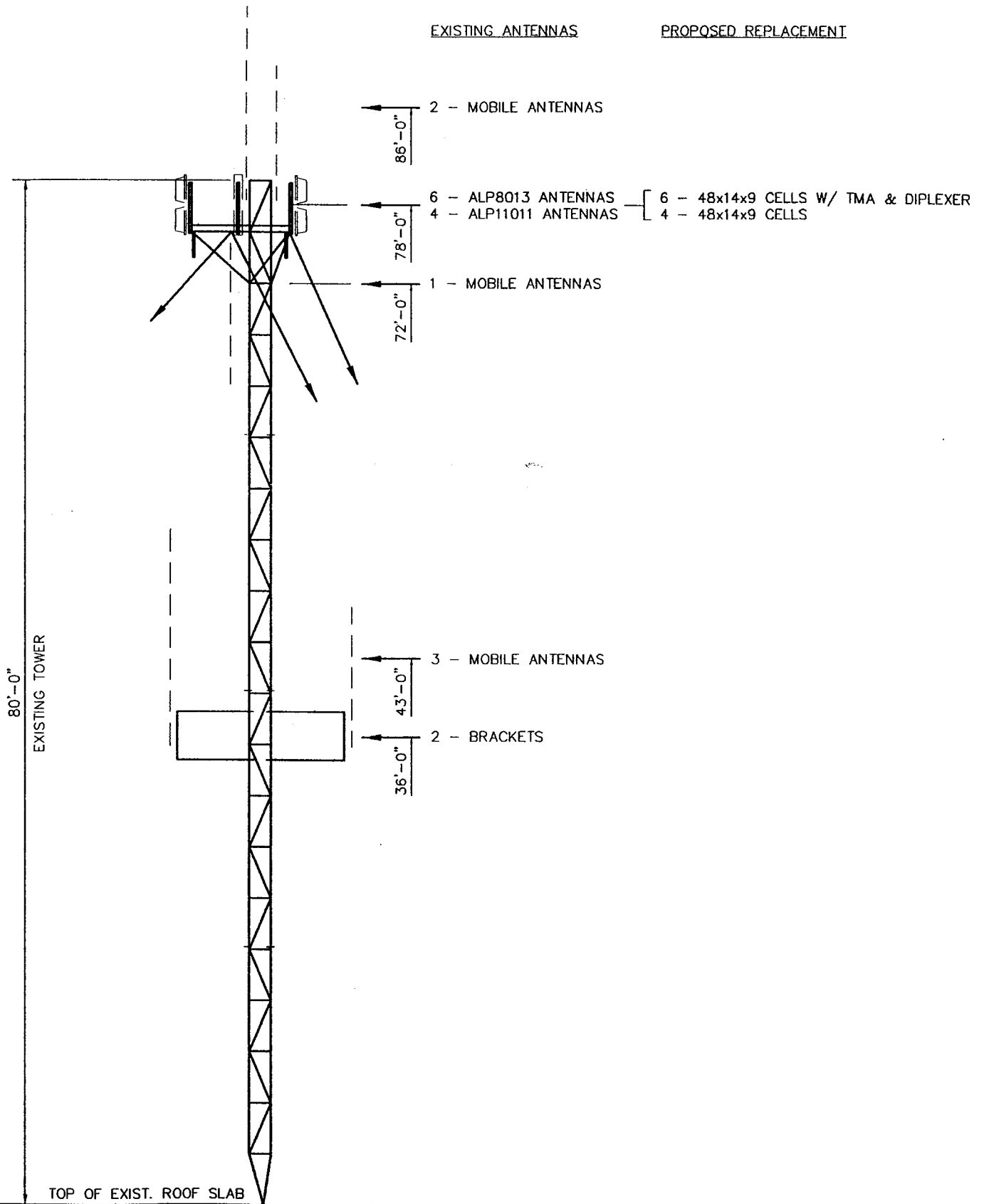
Our analysis indicates that the load of the proposed replacement of the cellular antennas are equivalent to the load of the existing cellular antennas plus the future mobile antenna designated to be placed above the 80' level. Therefore the tower presently is adequate to support the proposed antenna lay-out, but the future addition of a mobile antenna above the 80' level will overstress the tower.

Yours truly,

Demirtas Bayar, P.E.
President

PROJECT: FARMINGTON, CT.

EXISTING 80'-0" GUYED TOWER



CINGULAR WIRELESS
Antenna Modification

Site Address: Willis Street, Bristol
Petition, 11/93

Tower Owner/Manager: Springwich Cellular Limited Partnership;
managed by SpectraSite Communications, Inc.

Antenna configuration Antenna center line – 123'

Current and/or approved: 12 ALP 110 11 or comparable

Planned: 9 CSS DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 32')

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 7.7% 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 10.9%, or an additional 3.2% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	123	880 - 894	19	100	0.0452	0.5867	7.7

Cingular Planned

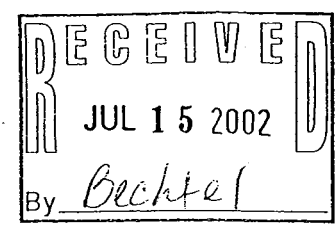
Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	123	880 - 894	16	100	0.0380	0.5867	6.5
SNET GSM	123	880 - 894	2	296	0.0141	0.5867	2.4
SNET GSM	123	1930 - 1935	2	427	0.0203	1.0000	2.0
Total							10.9%

Structural information: Please see attached.



SpectraSite

1055-
Bristol



RE: **CT-0036 [Bristol]**
Structural Evaluation of 121' Monopole
760 Beecher Road
Bristol, CT 06010
Hartford County

Date: July 2, 2002

SpectraSite Engineering has performed a *Level 1 evaluation*¹ for the above-noted tower. The evaluation was based on the requirements of the TIA/EIA-222-F Standard for a basic wind speed of **80 mph** without ice and 75% of the wind load with 1/2" radial ice.

Table 1. Existing and Proposed Antennas

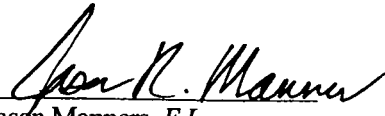
ELEVATION (ft)	ANTENNA	CARRIER	COAX*	NOTES
123	(3) Swedcom ALP-9214-N (6) Swedcom ALP-11011 on Platform w/ Handrails	Cingular	(9) 7/8"	Remove Existing
123	(9) CSS DUO4-8670 (6) TTA Amplifiers on Platform w/ Handrails	Cingular	(9) 7/8"	Proposed Replacement
123	(1) Decibel DB872 on Platform w/ Handrails	Cingular	(1) 7/8"	Existing
110	(8) Decibel DB844H90E-XY on T-arm Mounts	Nextel	(8) 7/8"	Proposed
32	(1) Nokia CS72187.01 on Stand off Mount	Cingular	(1) 1/2"	Proposed

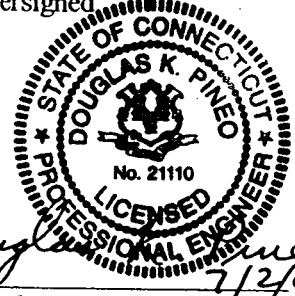

*Coax installed inside monopole.

The subject tower and foundation are *adequate* to support the above stated loads and *in conformance* with the requirements of TIA/EIA-222-F Standard after being reinforced per SpectraSite Drawing CT-0036-M1 Rev. 2, dated June 21, 2002.

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

Should any questions arise concerning this report please contact the undersigned.


Jason Manners, E.I.
Engineering Associate



Douglas K. Pineo, P.E.
Senior Design Engineer

¹ Level 1 evaluation means:
• the applied (existing and proposed) loads (Table 1) on the tower are compared to the original design loads,
• the design wind criteria is compared to the recent code requirements.

**CINGULAR WIRELESS
Antenna Modification**

Site Address: 240 Kensington Road, Berlin
tower share 12/8/99

Tower Owner/Manager: VoiceStream Wireless

Antenna configuration Antenna center line – 149'

Current and/or approved: 12 Allgon 7120.16 or comparable

Planned: 9 CSS DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 129')

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 5.2% 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 7.4%, or an additional 2.2% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	149	880 - 894	19	100	0.0308	0.5867	5.2

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	149	880 - 894	16	100	0.0259	0.5867	4.4
SNET GSM	149	880 - 894	2	296	0.0096	0.5867	1.6
SNET GSM	149	1930 - 1935	2	427	0.0138	1.0000	1.4
Total							7.4%

Structural information: Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 190' steel pole located at the Berlin Town Hall on 240 Kensington Road in Berlin, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 80 mph bare and 70 mph concurrent with 1/2" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined on the following page of this report. The proposed Cingular Wireless modification is to replace the existing Cingular Wireless antennas with the antennas listed below:

(9) DUO4-8670 antennas and (6) Cingular @ 149' elevation
amplifiers with existing low profile
platform and (9) 1 1/4" coax cables
within the steel pole

(1) LMU GSM RX antenna with (1) Cingular @ 129' elevation
1/2" coax cable within the steel pole

The results of the analysis indicate the structure to be in compliance with the proposed loading condition for the steel pole. The steel pole and foundation are considered feasible with the TIA/EIA-222-F wind load classification specified above and all the existing and proposed antenna loading.

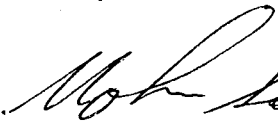
This analysis is based on:

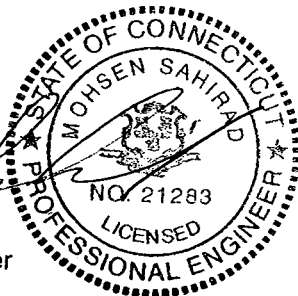
- 1) Tower design prepared by Pirod Incorporated engineering file no. A-115400 and drawing no. 204566-B dated February 5, 1999 and its foundation approved February 8, 1999.
- 2) Antenna loading as specified on the following page of this report.
- 3) TIA/EIA-222-F wind load classification.

This report is only valid as per the assumptions and data utilized in this report for antenna loading, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration and that adequate space is available for routing the coaxial cable inside the steel pole prior to installation. Notify the engineer immediately if any of the assumptions in this report are found to be other than specified.

If you should have any questions, please call.

Sincerely,
URS Corporation AES


Mohsen Sahirad, P.E.
Senior Structural Engineer
MS/rmn



cc: Richard R. Johanson – Bechtel
Doug Roberts – URS
I.A. – URS
A.A. – URS
CF/Book

Introduction:

A structural analysis of this 190' communications steel pole was performed by URS Corporation AES (URS) for Cingular Wireless. The steel pole is located at the Berlin Town Hall on 240 Kensington Road in Berlin, Connecticut.

The structure is self-supporting and was designed by Pirod Incorporated engineering file no. A-115400 and drawing no. 204566-B dated February 5, 1999 and its foundation approved February 8, 1999.

This analysis was conducted to evaluate twist (rotation), sway (deflection), and stress on the steel pole. The analysis was also used to find the effect of the forces to the foundation resulting from the antenna arrangement listed below.

The antenna and mount configuration:

	<u>Antenna Centerline Elevation</u>
(1) DB589 antenna with (1) side arm mount and (1) 7/8" coax cable within the steel pole	@ 193'-3"
(3) RR90-17-02-DP antennas with low profile platform and (6) 1 5/8" coax cables within the steel pole	Voicestream @ 181'-8"
(1) DB205 and (1) SRL224 antennas with (2) side arm mounts and (2) 7/8" coax cables within the steel pole	@ 165'
(9) DUO4-8670 antennas and (6) amplifiers with existing low profile platform and (9) 1 1/4" coax cables within the steel pole	Cingular (proposed) @ 149'
(1) SRL233 antenna with (1) side arm mount and (1) 7/8" coax cable within the steel pole	@ 135'-11.5"
(1) DB205 antenna with (1) side arm mount and (1) 1/2" coax cable within the steel pole	@ 132'
(1) LMU GSM RX antenna with (1) 1/2" coax cable within the steel pole	Cingular (proposed) @ 129'
(12) Allgon 7130.16 antennas with low profile platform and (12) 1 1/4" coax cables within the steel pole	Nextel @ 115'-10"
(2) DB205 antennas with (2) side arm mounts (2) 1/2" coax cables within the steel pole	@ 99'
(2) GPS antennas with (2) side arm mounts and (1) 7/8" and (1) 1/2" coax cables within the steel pole	@ 90'

(1) SRL233 antenna with (1) side arm mount and (1) 1/2" coax cable within the steel pole	@ 74'-11.5"
(1) DB583 antenna with (1) side arm mount and (1) 1/2" coax cable within the steel pole	@ 58'-7.5"
(1) FG4000 antenna with (1) side arm mount and (1) 1/2" coax cable within the steel pole	@ 45'-2"
(1) MYA4505 antenna with (1) side arm mount and (1) 1/2" coax cable within the steel pole	@ 31'-7.5"

Note: 1. Porthole may be required. Installation of porthole shall be done per manufacturer suggestion.

2. Cingular Wireless shall verify the antenna and mount configuration and that adequate space is available for routing the coaxial cable inside the steel pole prior to installation. Notify the engineer immediately if any of the assumptions in this report are found to be other than specified.

Structural Analysis:

Methodology:

The structural analysis was done in accordance with TIA/EIA-222-F June 1996, Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The analysis was conducted using ERI Tower 2.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA. The two load combinations were investigated in ERI Tower 2.0 to determine the stress, sway and rotation.

- Load Condition 1 = 80 mph Wind Load (without ice) + Tower Dead Load
- Load Condition 2 = 70 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and steel poles less than 700 feet tall. For purposes of this analysis, allowable stresses of the steel pole members were increased by one-third in computing the load capacity.

Evaluation of Steel pole:

Combined axial and bending stresses on the steel pole structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses.

Analysis Results:

Our analysis determined that the steel pole will support the proposed antenna replacement under the analysis criteria outlined on the previous page. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

Our analysis for the proposed antenna replacement and load condition is provided in Appendix A.

Limitations/Assumptions:

This report is based on the following:

1. Tower loading for antennas and mounts as listed in this report.
2. Tower is properly installed and maintained.
3. All members were as specified in the original design Documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All members are galvanized.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design Documents.
10. All co-axial cable is installed within or outside the steel pole, except as noted.

URS is not responsible for any modifications completed prior to or hereafter, which URS is not or was not directly involved. Modifications include but are not limited to:

1. Removing/Replacing antennas
2. Adding antennas and amplifiers

URS hereby states that this document represents the entire report and that it assumes no 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 are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

**CINGULAR WIRELESS
Antenna Modification**

Site Address: 1605 Durham Road, Wallingford
TS-SCLP-148-000619 (7/11/00)

Tower Owner/Manager: SBA

Antenna configuration Antenna center line – 125’ and 95’

Current and/or approved: 3 ASPD 977 or comparable (125’)

Planned: 3 ASPD 977 or comparable (125’)
and
9 CSS DUO4-8670 or comparable (95’)
6 tower mount amplifiers (95’)
3 diplexers (95’)
1 LMU (at 80’)

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 7.5% 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 additional planned operations would be approximately 18.3%. The total radio frequency electromagnetic radiation power density for Cingular’s operations at the site will be 25.8% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	125	880 - 894	19	100	0.0437	0.5867	7.5

Cingular Planned

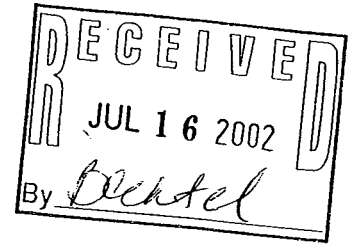
Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	95	880 - 894	16	100	0.0637	0.5867	10.9
SNET GSM	95	880 - 894	2	296	0.0236	0.5867	4.0
SNET GSM	95	1930 - 1935	2	427	0.0340	1.0000	3.4
Total							18.3%

Structural information: Please see attached.



PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 500 • Columbus, Ohio 43215

Structural Analysis Report



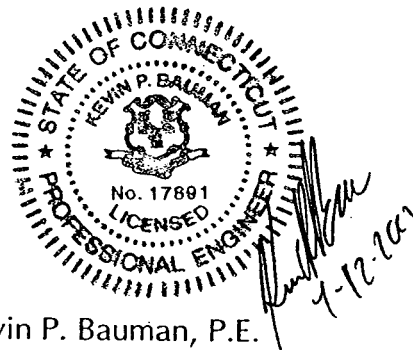
Existing 162-ft Monopole
Manufactured by Summit Manufacturing, LLC.
Owned by SBA Network Services, Inc.
Located in New Haven Co., CT
Cingular Site #2192 - Wallingford

Paul J. Ford and Company Project
31302-0014

Prepared For:

SBA Network Services, Inc.
80 Eastern Blvd.
Glastonbury, CT 06033

July 12, 2002



Kevin P. Bauman, P.E.
Registered Connecticut Professional Engineer

COLUMBUS, OHIO
614-221-6679
FAX 614-221-2540

• ATLANTA, GEORGIA •
404-266-2407
FAX 404-869-4608

• ORLANDO, FLORIDA •
407-898-9039
FAX 407-897-3662

• www.pjfweb.com •



PJF #31302-0014
July 12, 2002

Executive Summary:

The monopole was analyzed for the following antenna loading:

Elevation	Description
162'	(6) Decibel DB980H Panel Antennas 14' Low Profile Platform
154'	(12) EMS RR90-17-00DP Panel Antennas 14' Low Profile Platform
145'	(9) Decibel DB844 Panel Antennas 14' Low Profile Platform
135'	(12) Decibel DB844 Panel Antennas 14' Low Profile Platform
125'	(3) ASP-D-977 Antennas 14' Low Profile Platform
105'	(9) Allgon 7184 Panel Antennas 14' Low Profile Platform
95'	(9) CSS DUO4-8670 Panel Antennas (6) ADC 850/1900 Tower Mounted Amplifiers (3) ADC 850/1900 Diplexers 14' Low Profile Platform
80'	(1) Katherein 738449

The monopole was analyzed in accordance with the TIA/EIA-F 1996 Standard for the following wind load cases:

*85 mph design wind
74 mph reduced wind with ½" ice
50 mph no ice operational wind case*

The existing monopole and foundation have sufficient capacity to support the above antenna loading while meeting the local minimum wind requirements.

COLUMBUS, OHIO
614-221-6679
FAX 614-221-2540

• ATLANTA, GEORGIA •
404-266-2407
FAX 404-869-4608

• ORLANDO, FLORIDA •
407-898-9039
FAX 407-897-3662

• www.pjfweb.com •



PJF #31302-0014
July 12, 2002

Project Description:

Pursuit to the request of Ed Dupont, Paul J. Ford and Company has analyzed the existing 162-ft monopole for SBA Network Services, Inc. in accordance with the Electronic Industries Association /Telecommunications Industries Association Standards EIA/TIA-222-F, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures." This is a nationally recognized standard and is modeled after the American National Standards Institute document ANSI A58.1. The ANSI standard is based upon equations that were developed using wind tunnel testing to accurately predict the effect that wind has on structures. This ANSI standard is now known as ASCE-7-93. The EIA/TIA standard was developed by professional engineers experienced in the design of communication structures. Much of these specific design criteria are often not available in local building codes.

Pole History:

Paul J. Ford and Company originally designed the monopole and foundation per job #29299-0949. The monopole was manufactured by Summit Manufacturing, LLC. for SBA Network Services, Inc., per job #5962 dated 12-14-1999. The monopole was originally designed in accordance with TIA/EIA-222-F for 85 mph and 74 mph (w/ ice) design winds for the following antenna loading:

Elevation	Description
162'	(12) Decibel DB896H Panel Antennas 14' Low Profile Platform
154'	(12) Decibel DB896H Panel Antennas 14' Low Profile Platform
145'	(12) Decibel DB896H Panel Antennas 14' Low Profile Platform
135'	(12) Decibel DB896H Panel Antennas 14' Low Profile Platform
125'	(12) Decibel DB896H Panel Antennas 14' Low Profile Platform

Our Analysis:

Our analysis was completed according to the recommendations of the TIA/EIA-222-F 1996. This standard recommends a minimum design wind speed of 85 mph (no ice) for New Haven County. If ice accumulation is considered, the TIA/EIA standards allows a reduced wind speed of 74 mph with ½" radial ice. Our analysis was completed in compliance with the minimum wind requirements under the following load cases:

85 mph design wind
74 mph reduced wind with ½" ice
50 mph no ice operational wind case

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Existing & Proposed Antenna Loading:

Our analysis was completed using the following existing and proposed antenna loading:

Status	Elevation	Description	Owner
Existing	162'	(6) Decibel DB980H Panel Antennas 14' Low Profile Platform	Sprint
Existing	154'	(12) EMS RR90-17-00DP Panel Antennas 14' Low Profile Platform	Omnipoint
Existing	145'	(9) Decibel DB844 Panel Antennas 14' Low Profile Platform	Nextel
Existing	135'	(12) Decibel DB844 Panel Antennas 14' Low Profile Platform	Verizon
Existing	125'	(3) ASP-D-977 Antennas 14' Low Profile Platform	Cingular
Existing	105'	(9) Allgon 7184 Panel Antennas 14' Low Profile Platform	AT&T
Proposed	95'	(9) CSS DUO4-8670 Panel Antennas (6) ADC 850/1900 Tower Mounted Amplifiers (3) ADC 850/1900 Diplexers 14' Low Profile Platform	Cingular
Proposed	80'	(1) Katherein 738449	

Proposed coaxial cable was assumed mounted to the exterior of the monopole and exposed to the wind.

Results:

When the new antenna loading is considered, the monopole has sufficient capacity to safely support the new loading while maintaining the 85 mph (no ice) wind rating:

Member	Elevation	Actual Stress	Allowable Stress	Stress Ratio
Shaft #1	124'	24.9 ksi	52.0 ksi	48.0%
Shaft #2	84'	40.3 ksi	52.0 ksi	77.5%
Shaft #3	45'	44.3 ksi	52.0 ksi	85.2%
Shaft #4	0'	43.2 ksi	52.0 ksi	83.1%
Base Plate	0'	35.4 ksi	50.0 ksi	70.9%
Anchor Bolts	0'	147.9 kips	194.8 kips	75.9%

Paul J. Ford and Company has analyzed the existing pad & pier (spread) footing for the resulting base reactions from this analysis. The existing foundation has sufficient capacity to safely support the new antenna loading.



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Conclusion:

The existing monopole and foundation have sufficient capacity to support the new antenna loading while meeting the minimum wind requirements of New Haven County, CT.

If you have any questions concerning our analysis, or if we can be of further service to you, please feel free to contact us at (614) 221-6679.

Sincerely,

Paul J. Ford and Company

Michael F. Plahovinsak, EIT
Project Engineer

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