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
www.ct.gov/csc

June 10, 2004

Wendell G. Davis, Esq.
Blackwell, Davis, Spadaccini, LLC
158 East Center Street
Manchester, CT 06040

RE: **EM-SBA-033-040227** - SBA Network Services, Inc. on behalf of Sprint Spectrum, L.P. d/b/a Sprint PCS notice of intent to modify an existing telecommunications facility located at 179 Shunpike Road, Cromwell, Connecticut.

Dear Attorney Davis:

At a public meeting held on June 9, 2004, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies, with the condition that the foundation be reinforced in accordance with Figure 1 of the revised Structural Analysis report dated May 5, 2004 and sealed by Jeffrey Kirby, P.E. prior to the antenna installation.

The proposed modifications are to be implemented as specified here and in your notices dated February 26, 2004, and May 19, 2004. 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. 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,

Pamela B. Katz, P.E.
Chairman

PBK/cm

c: Honorable Stanley A. Terry, Jr., First Selectman, Town of Cromwell
Frederic Curtin, Zoning Enforcement Officer, Town of Cromwell
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Christopher B. Fisher, Esq., Cuddy & Feder
Stephen J. Humes, Esq., LeBoeuf, Lamb, Greene & MacRae, LLP
Michele G. Briggs, Southwestern Bell Mobile Systems, LLC

Blackwell ♦ Davis ♦ Spadaccini LLC
Attorneys at Law
Manchester Hartford

David H. Blackwell, Esq.
Wendell G. Davis, Jr., Esq.
Louis A. Spadaccini, Esq.

May 19, 2004

Connecticut Siting Council
Attn: Mike Perrone, Siting Analyst
10 Franklin Square
New Britain, CT 06051

Re: EM – SBA – 033-040227 – SBA Network Services, Inc
On behalf of Sprint Spectrum L.P. d/b/a Sprint PCS
179 Shunpike Road, Cromwell, CT

Dear Mr. Perrone:

Pursuant to our discussion, for filing enclosed herein please find fourteen (14) copies of the revised Structural Analysis Report prepared by Tectonic Engineering & Surveying Consultants, P.C. with regard to the above-captioned matter. It is anticipated that any approval of this matter will be subject to the completion of the improvements referenced in the conclusion and recommendations section of this report.

Please contact me with any questions that you may have.

Resectfully,

Wendell G. Davis

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Manchester, CT 06040

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SPRINT: CROMWELL
W.O. 2850.CT931
EXISTING 170' SELF-SUPPORTING TOWER
CROMWELL, CT
STRUCTURAL ANALYSIS REPORT – REVISION 2
MAY 5, 2004

1.0 INTRODUCTION

The existing 170 foot self-supporting tower, located off Shunpike Road in Cromwell, CT currently serves the communication needs of the Town of Cromwell, AT&T Wireless, T-Mobile (formerly VoiceStream Wireless), and Cingular. Sprint anticipates installing its antennas on this tower in the near future.

Tectonic Engineering & Surveying Consultants P.C. has performed a structural analysis of the tower. The analysis was to verify the adequacy of the tower for supporting the proposed Sprint installation in addition to the existing equipment in accordance with current code requirements.

This revision incorporates recently received information regarding the tower foundation, and structural reinforcement of this tower foundation to facilitate the proposed installation.

1.1 Information Provided

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

- "RF Site Design Form", by Sprint, Site Name: Cromwell Tower, Site No. CT60XC931-A, dated 12/16/03.
- "RF Site Design Form", by Cris Ponce, Cascade ID: CT60XC931, dated 10/13/03.
- "Cingular Wireless Cromwell Communications Tower, Reinforcement of Diagonal Members between Elevations 80' and 90'", by Maguire Group, MGCI No: 15364, drawing SA/1, dated 7/22/02.
- "Proposed Wireless Communications Facility, Cromwell Fire Tower", by Maguire Group, project no. 15364.1244, sheet nos. T-1, T-2, C-2, and C-4, dated 9/27/02.
- "Structural Analysis Report for Cingular Wireless, 170' Communications Tower, Cromwell, Connecticut" including calculations and an as-built tower drawing for a previous analysis by Paul J. Ford & Company, MGI 15364.1251, dated 7/15/02 (58 pages).
- Letter from Cingular Wireless to the Connecticut Siting Council, Re: "Notice of Exempt Modification – Existing Telecommunications Tower Facility at 179 Shunpike Road, Cromwell, Connecticut", dated 7/22/03 (4 pages).

- "AT&T Wireless, Cromwell (CT-120), CT; U – 20.0 x 170' Base Foundation (& Self-Supporting Tower)", by PiRod Inc., eng. file no. A-116398, drawing no. 205687-B, pages 4, 5, and 6, dated 11/10/99 (3 pages).

2.0 STRUCTURE DESCRIPTION

2.1 General

The structure was reportedly manufactured by PiRod in 1999, and is a three-legged self-supporting tower, with a total height of 170'. The tower is comprised of eight (8) 20' long sections and one (1) 10' long section, and is X-braced for its entire height. The geometry and member sizes are shown on the Paul J. Ford drawing provided.

The bottom 150' portion of the tower utilizes 12" wide triangular latticed leg members and single angles for bracing. The upper 20' portion of the tower utilizes solid rods for leg and bracing members.

The tower is 20'-0" wide at the base, center-to-center of legs, tapering uniformly to a width of 5'-0" at the 150' level. The tower has a uniform width of 5'-0" from the 150' level to the top. All member connections are bolted, except for the solid rod bracing connections, which are welded.

2.2 Tower Foundation

The tower foundation was also designed by PiRod in 1999. According to the foundation drawing provided, the foundation consists of three (3) 5'-6" diameter reinforced concrete drilled piers, one (1) per leg, bearing at a depth of 41' below grade, and extending 6" above grade. Each leg of the tower is anchored to its respective pier by six (6) 1-1/4" diameter anchor bolts.

The envelope of maximum foundation reactions listed on the PiRod foundation drawing is as follows:

Max. uplift per leg	275.0 kips
Max. compression per leg	311.6 kips
Total shear	52.1 kips
Overturning moment	5080.8 kip-ft

2.3 Loading Criteria

No information regarding the original design of the tower was provided to Tectonic.

3.0 EXISTING CONDITION

3.1 Field Inspection

No inspection of the tower was performed by Tectonic, and no photographs were provided.

3.2 Existing Antennas and Equipment

Based on the information listed in the structural analysis report by Maguire Group, the tower is currently supporting the following items:

- 3 Celwave PD620 omnidirectional antennas (Town of Cromwell) at the 170' level (base of antenna), mounted to a PiRod 9-Arm Halo Mount
- 2 Celwave PD1142 omnidirectional antennas (Town of Cromwell) at the 170' level (base of antenna), mounted to the same Halo Mount
- 1 Celwave PD201-7 omnidirectional antenna (Town of Cromwell) at the 170' level (base of antenna), mounted to the same Halo Mount
- 1 TX/RX antenna (Town of Cromwell) at the 170' level (base of antenna), mounted to the same Halo Mount
- 1 1-5/8" diameter coaxial cable to the 170' level
- 1 1-1/4" diameter coaxial cable to the 170' level
- 5 7/8" diameter coaxial cables to the 170' level
- 12 Allgon 7184 panel antennas (AT&T) at the 160' level (centerline), mounted to three (3) PiRod 15' T-Frames
- 12 1-5/8" diameter coaxial cables to the 160' level
- 3 Celwave PD620 omnidirectional antennas (Town of Cromwell) at the 135' level (base of antenna), mounted to an antenna platform
- 2 Celwave PD1142 omnidirectional antennas (Town of Cromwell) at the 135' level (base of antenna), mounted to the same platform
- 1 Celwave PD201-7 omnidirectional antenna (Town of Cromwell) at the 135' level (base of antenna), mounted to the same platform
- 1 TX/RX antenna (Town of Cromwell) at the 135' level (base of antenna), mounted to the same platform
- 1 1-1/4" diameter coaxial cable to the 135' level
- 1 7/8" diameter coaxial cable to the 135' level
- 5 1/2" diameter coaxial cables to the 135' level
- 6 EMS RR90-12 panel antennas (T-Mobile) at the 125' level (centerline), mounted to a low-profile platform
- 6 1-5/8" diameter coaxial cables to the 125' level
- 12 CSS DUO4-8670 panel antennas (Cingular) at the 115' level (centerline), mounted to three (3) PiRod 15' T-Frames
- 6 ADC ClearGain tower-mounted amplifiers (Cingular) at the 115' level, mounted to the same PiRod T-Frames

12 1-5/8" diameter coaxial cables to the 115' level

We understand that the X-bracing of the tower has been reinforced between the 80' and 90' levels in conjunction with the Cingular installation, as shown on the drawings provided.

4.0 PROPOSED INSTALLATION

It is our understanding that all existing appurtenances will remain on the tower, and that the following items are proposed to be installed on the tower by Sprint:

6 Decibel 950G65VTZE-M panel antennas at the 170' level (centerline), mounted to the existing Halo Mount
6 1-5/8" diameter coaxial cables to the 170' level

5.0 STRUCTURAL ANALYSIS

5.1 Current Loading Criteria

In accordance with the provisions of ANSI/TIA/EIA-222-F-1996 "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", a fastest-mile wind speed of 85 mph applies to Middlesex County, CT, where the tower is located. The 1999 Connecticut supplement to the BOCA National Building Code / 1996 for the Town of Cromwell requires a fastest-mile wind speed of 80 mph for this vicinity. Furthermore, the 2003 International Building Code requires a 3-second gust wind speed of 105 mph for this vicinity, which is approximately equivalent to a fastest-mile wind speed of 85 mph. Therefore, a wind speed of 85 mph was used in our analysis.

Ice loads have been established based on a 0.5" radial ice thickness in accordance with industry standard practice. A reduced wind speed of 74 mph is used in conjunction with this ice load.

5.2 Procedure

The tower has been analyzed with PLS-Tower, a specialized three-dimensional structural analysis program, using the geometry and member sizes indicated in the as-built and reinforcing drawings provided. The analysis included the tower with the existing equipment along with the proposed Sprint installation, using current loading criteria with:

a) a wind speed of 85 mph and no ice
b) a wind speed of 74 mph in conjunction with 0.5" ice

A plot of the model geometry is attached.

5.3 Assumptions

Several assumptions were made in order to perform the analysis. Each of these is considered by Tectonic to be both reasonable and consistent with current standards of practice.

1. The tower and its foundation are in good condition, and have no damage or significant deformation.
2. Tower member sizes are as indicated in the drawings provided.
3. Tower member yield stresses are in accordance with PiRod standard fabrication practice (50 ksi solid rod, 36 ksi angles).
4. The connection of the tower to its foundation is assumed to be pinned.
5. Wind loads are based on the full projected area of all antennas and mounts in each loading condition.
6. The tower foundation was constructed in accordance with the approved plans, and the subsurface conditions are consistent with the design assumptions.
7. The foundation reinforcement shown on Tectonic Figure 1 will be properly installed.

5.4 Results

The results of our analysis indicate that the calculated stresses in all of the tower members are less than the allowable values established by applicable codes. The following table shows the results of the calculations for the critical members in each section:

Level (ft)	LEGS			BRACING		
	Capacity (kips)	Max Force (kips)	Stress Ratio (%)	Capacity (kips)	Max Force (kips)	Stress Ratio (%)
0 – 20	442.5	358.6	81	15.3	13.3	87
20 – 40	349.7	314.6	90	13.5	11.6	85
40 – 60	349.7	269.4	77	16.2	11.4	70
60 – 80	267.8	223.0	83	12.1	10.8	89
80 – 100	196.5	175.7	89	10.2	9.7	95
100 – 120	196.5	127.6	65	11.5	10.3	90
120 – 140	136.4	80.5	59	11.3	9.6	85
140 – 150	136.4	44.7	33	13.7	7.2	52
150 – 170	68.0	36.9	54	16.0	4.9	30

The anchor bolts are stressed to 68% of their allowable capacity.

In addition, the resulting envelope of foundation reactions is as follows:

Max. uplift per leg	325.9 kips
Max. compression per leg	369.3 kips
Max. leg shear	41.9 kips
Total shear	66.3 kips
Overturning moment	6269.0 kip-ft

Since the above reactions are significantly (18% - 27%) greater than those originally used for design of the tower foundation, it is expected that the foundation ca will be exceeded. Therefore, reinforcement of the foundation has been designed to eliminate the overload, and is shown in Figure 1, attached.

6.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of our analysis, we find that the existing tower has sufficient capacity to permit the installation of the proposed Sprint antennas and their related cables. No structural problems for the tower are anticipated, and no structural modifications are necessary.

We also find that the existing tower foundation will be overloaded by the proposed installation, but will have sufficient capacity in accordance with current applicable codes once it has been reinforced in accordance with the attached Figure 1.

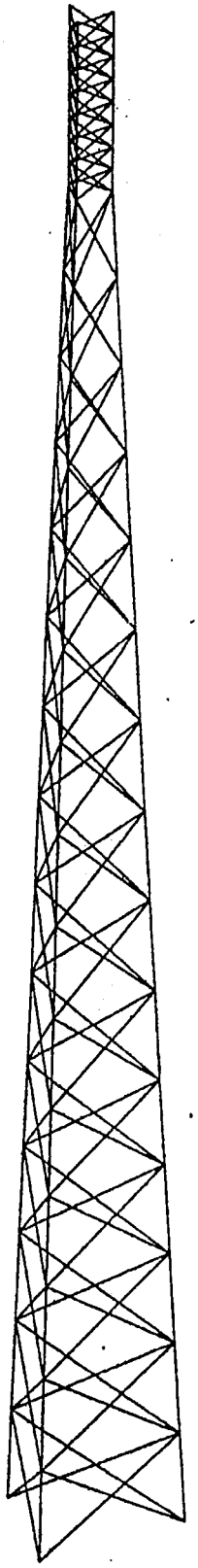
Any further changes to the antenna configuration or other appurtenances should be reviewed with respect to their effect on structural loads prior to implementation.

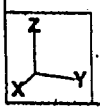
Prepared by: Richard J. Dyer, E.I.T.
Staff Structural Engineer

Reviewed by: _____ Date: 5/5/04
Jeffrey B. Kirby, P.E.
Chief Structural Engineer

STATE OF CONNECTICUT
JEFFREY B. KIRBY
No. 21291
LICENSED
PROFESSIONAL ENGINEER

Tectonic Engineering, Project: "cromwell-twranalysis"
Tower Version 6.31, 12:54:09 PM Tuesday, January 27, 2004
Load case displayed: Undeformed Geometry





Cromwell, CT (W.O. 2850.CT931)

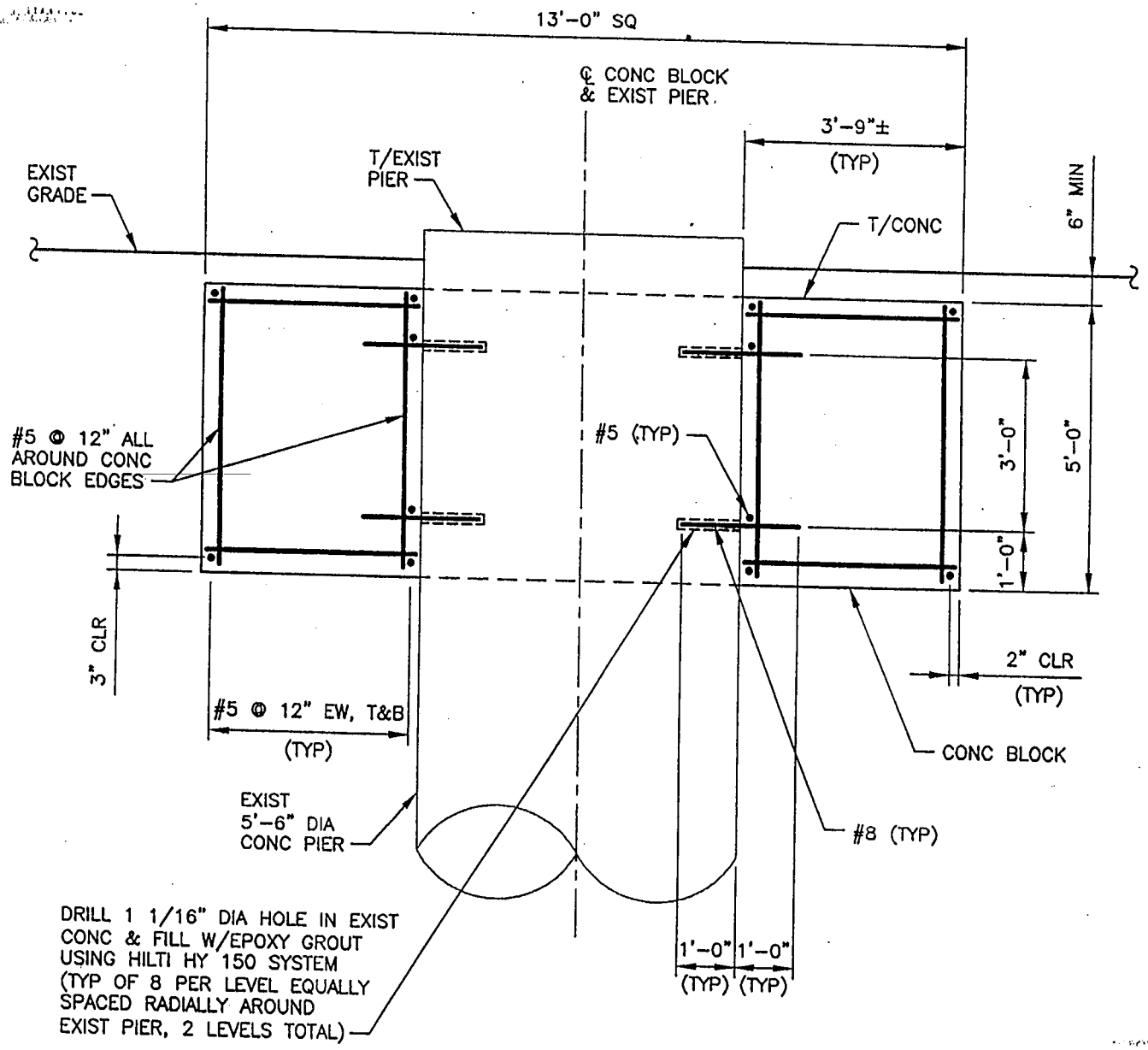


FIGURE 1

W.O. 2850.CT931
CROMWELL, CT

EM-SBA-033-040227

♦ Davis ♦ Spadaccini LLC
Attorneys at Law
Manchester Hartford

David H. Blackwell, Esq.
Wendell G. Davis, Jr., Esq.
Louis A. Spadaccini, Esq.

February 26, 2004

Hon. Pamela B. Katz,
Chairperson
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

RE: ***NOTICE OF INTENT TO MODIFY AN EXISTING TELECOMMUNICATIONS FACILITY AT 179 SHUNPIKE ROAD, CROMWELL, CT***

The Honorable Pamela B. Katz:

Sprint Spectrum, L.P. d/b/a Sprint PCS ("Sprint") by and through its agent SBA Network Services, Inc. hereby respectfully requests acknowledgment that the proposed co-location of Sprint on an existing telecommunications tower owned by the Cromwell Fire District and located at 179 Shunpike Road, Cromwell, Connecticut constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72. In accordance with R.C.S.A. Section 16-50j-73, a copy of this letter has been sent to The Honorable Stanley A. Terry, Jr., the First Selectman of the Town of Cromwell.

The Facility At 179 Shunpike Road

The Shunpike Road Facility is owned and operated by the Cromwell Fire District which erected the 170 self-supporting lattice tower in 1999. The facility currently supports the antenna arrays and related equipment of several carriers, already approved by the Connecticut Siting Council, including AT&T Wireless, T-Mobile, and Cingular. Sprint and the Cromwell Fire District have agreed to the shared use of the Route 79 Facility as is more fully detailed below.

Sprint's Facility

Sprint will install 6 panel antennas at an antenna center line height of approximately 170 feet. A structural integrity report, attached as Exhibit A, was generated by Tectonic Engineering & Surveying Consultants P.C. and confirms that the tower is structurally capable of supporting Sprint's proposed antennas. Sprint will install its equipment in a 12' x 18' area at the base of the tower all within the existing fenced compound and as depicted in Exhibit A.

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Sprints' Facility Constitutes An Exempt Modification

For the following reasons, the proposed modifications to the Shunpike Road Facility meet the exempt modification criteria set forth in R.C.S.A. Section 16-50j-72(b)(2):

1. As evidenced by the attached Tower Elevation Drawing (Exhibit B), the proposed modification will not increase the height of the tower as Sprint's antennas will be installed at a center line height of approximately 170' feet on an existing 170' monopole.

2. As evidenced by the attached Site Plan Drawing (Exhibit B), the installation of Sprint's equipment will not require an extension of the existing site boundaries.

3. The proposed modifications will not increase the noise levels at the existing facility by six decibels or more.

4. As set forth in the Power Density Report prepared by Sprint PCS attached as Exhibit C, the operation of the additional antennas will not increase the total radio frequency (RF) electromagnetic radiation power density to a level at or above the standards adopted by the Connecticut Department of Environmental Protection and the Federal Communications Commission.

For the foregoing reasons, Sprint, by and through its agent SBA Network Services, Inc. respectfully submits that the proposed addition of Sprints' antenna and equipment at the Shunpike Road Facility constitutes an exempt modification under R.C.S.A. Section 16-50j-72.

Respectfully,

Wendell G. Davis

Cc w/ Enc. The Honorable Stanley A. Terry, Jr., First Selectman, Town of Cromwell
Aaron Cowher, SBA Network Services, Inc., Agent for Sprint

SPRINT: CROMWELL
W.O. 2850.CT931
EXISTING 170' SELF-SUPPORTING TOWER
CROMWELL, CT
STRUCTURAL ANALYSIS REPORT – REVISION 1
JANUARY 27, 2004

1.0 INTRODUCTION

The existing 170 foot self-supporting tower, located off Shunpike Road in Cromwell, CT currently serves the communication needs of the Town of Cromwell, AT&T Wireless, T-Mobile (formerly VoiceStream Wireless), and Cingular. Sprint anticipates installing its antennas on this tower in the near future.

Tectonic Engineering & Surveying Consultants P.C. has performed a structural analysis of the tower. The analysis was to verify the adequacy of the tower for supporting the proposed Sprint installation in addition to the existing equipment in accordance with current code requirements.

This revision incorporates a change to the height of the proposed Sprint antennas.

1.1 Information Provided

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

- "RF Site Design Form", by Sprint, Site Name: Cromwell Tower, Site No. CT60XC931-A, dated 12/16/03.
- "RF Site Design Form", by Cris Ponce, Cascade ID: CT60XC931, dated 10/13/03.
- "Cingular Wireless Cromwell Communications Tower, Reinforcement of Diagonal Members between Elevations 80' and 90'", by Maguire Group, MGCI No: 15364, drawing SA/1, dated 7/22/02.
- "Proposed Wireless Communications Facility, Cromwell Fire Tower", by Maguire Group, project no. 15364.1244, sheet nos. T-1, T-2, C-2, and C-4, dated 9/27/02.
- "Structural Analysis Report for Cingular Wireless, 170' Communications Tower, Cromwell, Connecticut" including calculations and an as-built tower drawing for a previous analysis by Paul J. Ford & Company, MGI 15364.1251, dated 7/15/02 (58 pages).
- Letter from Cingular Wireless to the Connecticut Siting Council, Re: "Notice of Exempt Modification – Existing Telecommunications Tower Facility at 179 Shunpike Road, Cromwell, Connecticut", dated 7/22/03 (4 pages).

2.0 STRUCTURE DESCRIPTION

2.1 General

The structure was reportedly manufactured by PiRod in 1999, and is a three-legged self-supporting tower, with a total height of 170'. The tower is comprised of eight (8) 20' long sections and one (1) 10' long section, and is X-braced for its entire height. The geometry and member sizes are shown on the drawing provided.

The bottom 150' portion of the tower utilizes 12" wide triangular latticed leg members and single angles for bracing. The upper 20' portion of the tower utilizes solid rods for leg and bracing members.

The tower is 20'-0" wide at the base, center-to-center of legs, tapering uniformly to a width of 5'-0" at the 150' level. The tower has a uniform width of 5'-0" from the 150' level to the top. All member connections are bolted, except for the solid rod bracing connections, which are welded.

2.2 Tower Foundation

No information regarding the tower foundation or site soil conditions was provided to Tectonic. However, information regarding the anchor bolts was provided.

2.3 Loading Criteria

No information regarding the original design of the tower or its foundation was provided to Tectonic.

3.0 EXISTING CONDITION

3.1 Field Inspection

No inspection of the tower was performed by Tectonic, and no photographs were provided.

3.2 Existing Antennas and Equipment

Based on the information listed in the structural analysis report by Maguire Group, the tower is currently supporting the following items:

3 Celwave PD620 omnidirectional antennas (Town of Cromwell) at the 170' level (base of antenna), mounted to a PiRod 9-Arm Halo Mount
2 Celwave PD1142 omnidirectional antennas (Town of Cromwell) at the 170' level (base of antenna), mounted to the same Halo Mount
1 Celwave PD201-7 omnidirectional antenna (Town of Cromwell) at the 170' level (base of antenna), mounted to the same Halo Mount
1 TX/RX antenna (Town of Cromwell) at the 170' level (base of antenna), mounted to the same Halo Mount
1 1-5/8" diameter coaxial cable to the 170' level
1 1-1/4" diameter coaxial cable to the 170' level
5 7/8" diameter coaxial cables to the 170' level
12 Allgon 7184 panel antennas (AT&T) at the 160' level (centerline), mounted to three (3) PiRod 15' T-Frames
12 1-5/8" diameter coaxial cables to the 160' level
3 Celwave PD620 omnidirectional antennas (Town of Cromwell) at the 135' level (base of antenna), mounted to an antenna platform
2 Celwave PD1142 omnidirectional antennas (Town of Cromwell) at the 135' level (base of antenna), mounted to the same platform
1 Celwave PD201-7 omnidirectional antenna (Town of Cromwell) at the 135' level (base of antenna), mounted to the same platform
1 TX/RX antenna (Town of Cromwell) at the 135' level (base of antenna), mounted to the same platform
1 1-1/4" diameter coaxial cable to the 135' level
1 7/8" diameter coaxial cable to the 135' level
5 1/2" diameter coaxial cables to the 135' level
6 EMS RR90-12 panel antennas (T-Mobile) at the 125' level (centerline), mounted to a low-profile platform
6 1-5/8" diameter coaxial cables to the 125' level
12 CSS DUO4-8670 panel antennas (Cingular) at the 115' level (centerline), mounted to three (3) PiRod 15' T-Frames
6 ADC ClearGain tower-mounted amplifiers (Cingular) at the 115' level, mounted to the same PiRod T-Frames
12 1-5/8" diameter coaxial cables to the 115' level

We understand that the X-bracing of the tower has been reinforced between the 80' and 90' levels in conjunction with the Cingular installation, as shown on the drawings provided.

4.0 PROPOSED INSTALLATION

It is our understanding that all existing appurtenances will remain on the tower, and

that the following items are proposed to be installed on the tower by Sprint:

6 Decibel 950G65VTZE-M panel antennas at the 170' level (centerline), mounted to the existing Halo Mount
6 1-5/8" diameter coaxial cables to the 170' level

5.0 STRUCTURAL ANALYSIS

5.1 Current Loading Criteria

In accordance with the provisions of ANSI/TIA/EIA-222-F-1996 "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", a fastest-mile wind speed of 85 mph applies to Middlesex County, CT, where the tower is located. The 1999 Connecticut supplement to the BOCA National Building Code / 1996 for the Town of Cromwell requires a fastest-mile wind speed of 80 mph for this vicinity. Furthermore, the 2003 International Building Code requires a 3-second gust wind speed of 105 mph for this vicinity, which is approximately equivalent to a fastest-mile wind speed of 85 mph. Therefore, a wind speed of 85 mph was used in our analysis.

Ice loads have been established based on a 0.5" radial ice thickness in accordance with industry standard practice. A reduced wind speed of 74 mph is used in conjunction with this ice load.

5.2 Procedure

The tower has been analyzed with PLS-Tower, a specialized three-dimensional structural analysis program, using the geometry and member sizes indicated in the as-built and reinforcing drawings provided. The analysis included the tower with the existing equipment along with the proposed Sprint installation, using current loading criteria with:

a) a wind speed of 85 mph and no ice
b) a wind speed of 74 mph in conjunction with 0.5" ice

A plot of the model geometry is attached.

5.3 Assumptions

Several assumptions were made in order to perform the analysis. Each of these is considered by Tectonic to be both reasonable and consistent with current standards of practice.

1. The tower and its foundation are in good condition, and have no damage or significant deformation.
2. Tower member sizes are as indicated in the drawings provided.
3. Tower member yield stresses are in accordance with PiRod standard fabrication practice (50 ksi solid rod, 36 ksi angles).
4. The connection of the tower to its foundation is assumed to be pinned.
5. Wind loads are based on the full projected area of all antennas and mounts in each loading condition.
6. The tower foundation was constructed in accordance with the approved plans, and the subsurface conditions are consistent with the design assumptions.

5.4 Results

The results of our analysis indicate that the calculated stresses in all of the tower members are less than the allowable values established by applicable codes. The following table shows the results of the calculations for the critical members in each section:

Level (ft)	LEGS			BRACING		
	Capacity (kips)	Max Force (kips)	Stress Ratio (%)	Capacity (kips)	Max Force (kips)	Stress Ratio (%)
0 – 20	442.5	358.6	81	15.3	13.3	87
20 – 40	349.7	314.6	90	13.5	11.6	85
40 – 60	349.7	269.4	77	16.2	11.4	70
60 – 80	267.8	223.0	83	12.1	10.8	89
80 – 100	196.5	175.7	89	10.2	9.7	95
100 – 120	196.5	127.6	65	11.5	10.3	90
120 – 140	136.4	80.5	59	11.3	9.6	85
140 – 150	136.4	44.7	33	13.7	7.2	52
150 – 170	68.0	36.9	54	16.0	4.9	30

In addition, the resulting envelope of foundation reactions are as follows:

Max. uplift per leg	325.9 kips
Max. compression per leg	369.3 kips
Max. leg shear	41.9 kips
Total shear	66.3 kips
Overturning moment	6269.0 kip-ft

The anchor bolts are stressed to 68% of their allowable capacity.

6.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of our analysis, we find that the existing tower has sufficient capacity to permit the installation of the proposed Sprint antennas and their related cables. No structural problems for the tower are anticipated, and no structural modifications are necessary.

Because no information regarding the foundation was provided, it could not be evaluated. We recommend that the foundation be verified to have adequate capacity to resist the calculated foundation reactions listed in Section 5.4, above.

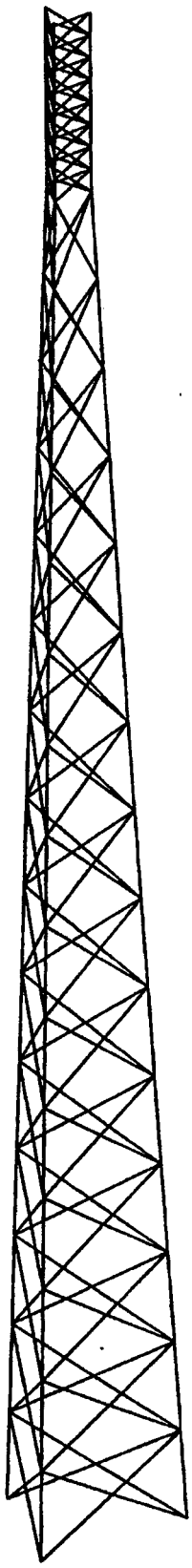
Any further changes to the antenna configuration or other appurtenances should be reviewed with respect to their effect on structural loads prior to implementation.

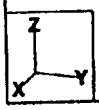
Prepared by: Richard J. Dyer, E.I.T.
Staff Structural Engineer

Reviewed by: _____ Date: 1/27/04
Jeffrey B. Kirby, P.E.
Chief Structural Engineer

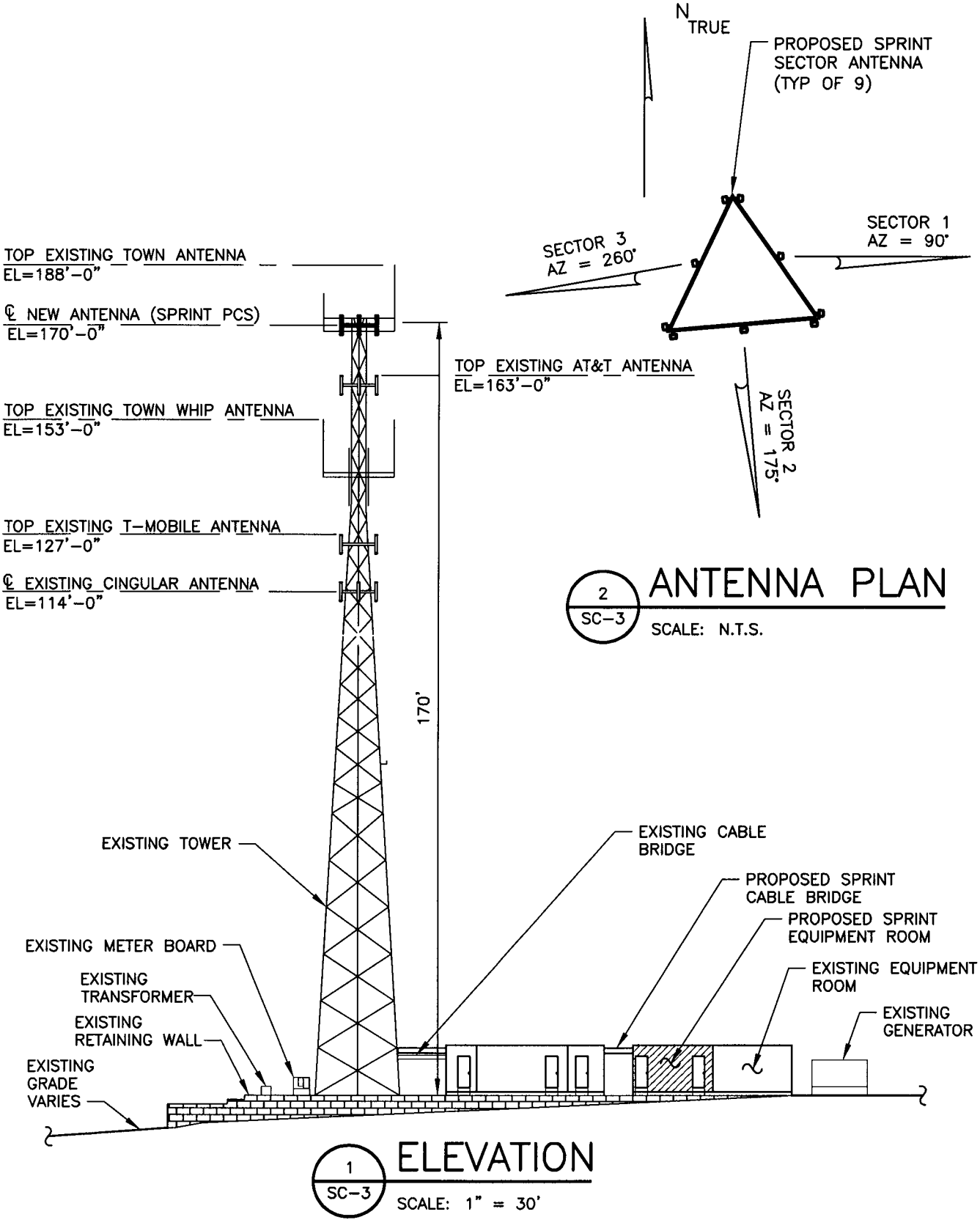
STATE OF CONNECTICUT JEFFREY B. KIRBY No. 21291 LICENSED PROFESSIONAL ENGINEER

Tectonic Engineering, Project: "cromwell-twranalysis"
Tower Version 6.31, 12:54:09 PM Tuesday, January 27, 2004
Load case displayed: Undeformed Geometry





Cromwell, CT (W.O. 2850.CT931)



2 / SC-3 ANTENNA PLAN

SCALE: N.T.S.

1 / SC-3 ELEVATION

SCALE: 1" = 30'

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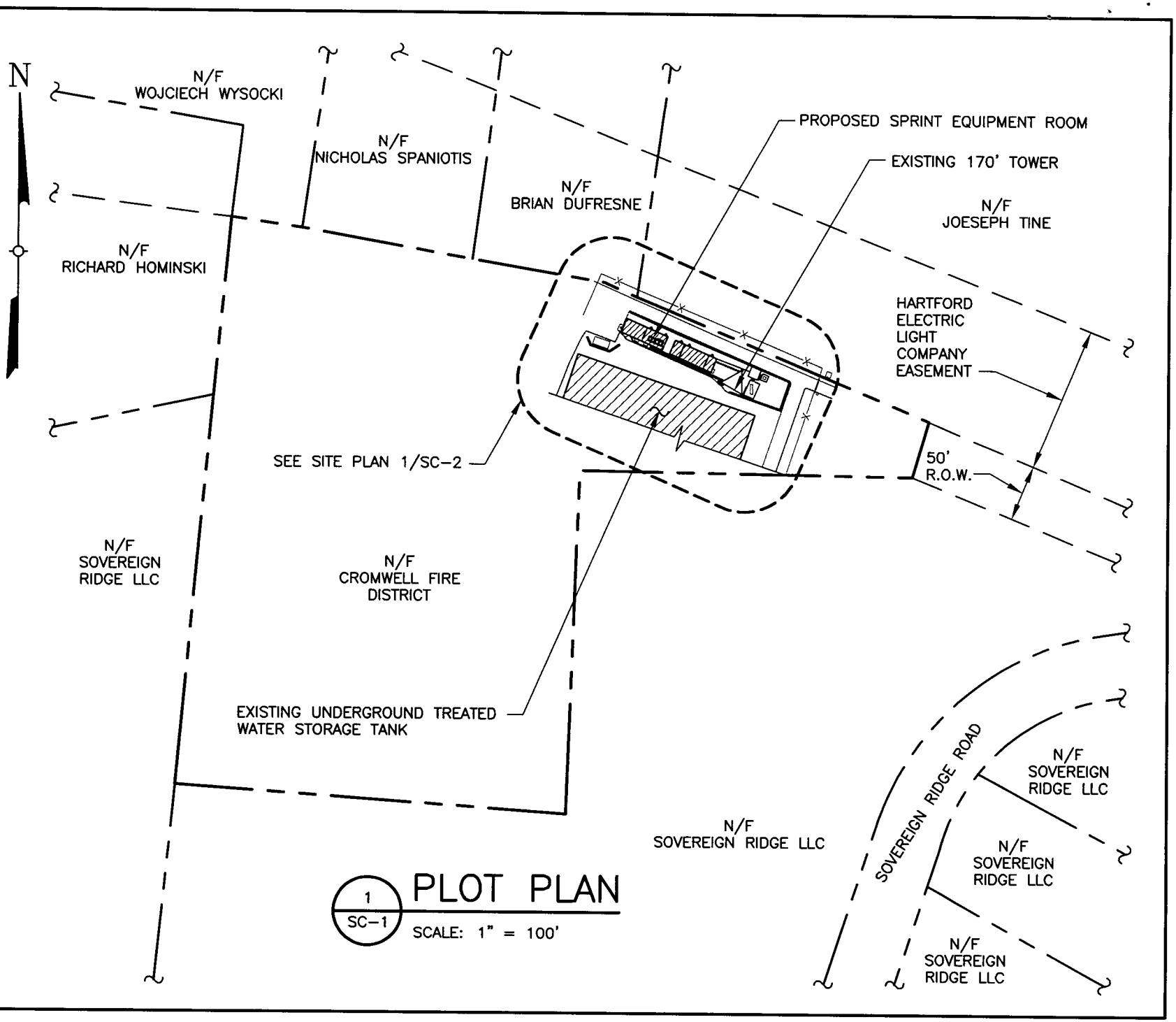
TEC WO:2850.CT931	ISSUED BY: DML	DATE: 12/31/03	SITE NO: CT60XC931	SHEET: SC-2	REV: 2



1 / SC-1 PLOT PLAN

SCALE: 1" = 100'

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CT60XC931 - Cromwell Tower, 179 Shunpike Rd., Cromwell, CT 06416

Cumulative Power Density Analysis of Sprint PCS and Existing Antennas

Operator	Operating Frequency	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
AT&T*	1945-1985	160	0.011200	1.000000	1.12%
VoiceStream*	1930-1950	125	0.024700	1.000000	2.47%
SBMS GSM*	881-894	114	0.016400	1.586700	1.03%
SBMS GSM*	1931-1935	114	0.023600	1.000000	2.36%
Town of Cromwell*	Cumulative	142 +/-	Cumulative		1.30%
Sprint PCS	1962.5	170	0.049085	1.000000	4.91%
Total Percentage of Maximum Permissible Exposure					**13.19%**

* Technical data provided by respective operator