



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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Web Site: [www.state.ct.us/csc/index.htm](http://www.state.ct.us/csc/index.htm)

July 9, 2003

Stephen J. Humes  
LeBoeuf, Lamb, Greene & MacRae  
Goodwin Square  
225 Asylum Street  
Hartford, CT 06103

RE: **TS-T-MOBILE-040-030618** - Omnipoint Communications, Inc. request for an order to approve tower sharing at an existing telecommunications facility located at 60 South Main Street, East Granby, Connecticut.

Dear Attorney Humes:

At a public meeting held July 8, 2003, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. 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 may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point 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.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated June 18, 2003.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.  
Chairman

PBK/laf

c: Honorable David K. Kilbon, First Selectman, Town of East Granby  
Richard A. Nelson, Zoning Enforcement Officer, Town of East Granby  
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels, LLP  
Christopher B. Fisher, Esq., Cuddy & Feder LLP

LEBOEUF, LAMB, GREENE & MACRAE  
L.L.P.

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CONNECTICUT  
SITING COUNCIL

June 18, 2003

Pamela Katz, Chairman  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

TS-T-MOBILE-040-030618

Re: Request by T-Mobile for an Order to Approve the Shared Use of a Tower Facility at 60 South Main Street, East Granby, Connecticut

Dear Chairman Katz and Members of the Council:

Please be advised that LeBoeuf, Lamb, Greene & MacRae, L.L.P. represents Omnipoint Communications, Inc., a subsidiary of T-Mobile USA, Inc. (hereinafter T-Mobile) in the above-referenced matter. Pursuant to Connecticut General Statutes §16-50aa, T-Mobile hereby requests an order from the Connecticut Siting Council ("Council") approving T-Mobile's proposed shared use of an existing tower located at 60 South Main Street, in East Granby, Connecticut. T-Mobile proposes to install antennas on the existing tower, and the equipment associated with this facility would be located near the base of the tower within the existing compound (see drawing A-1 attached as part of Exhibit B). T-Mobile requests that the Council find that the proposed shared use of the tower satisfies the criteria stated in §16-50aa and issue an order approving the proposed use. The chief elected official East Granby has been notified via First Class Mail.

ORIGINAL

## **Background**

T-Mobile operates "Wideband PCS" licenses for the 2-GHz PCS frequencies for the greater New York City area, including the entire State of Connecticut. Omnipoint is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in Connecticut, which includes the area to be served by the proposed installation.

The tower at 60 South Main Street, East Granby, is an existing ninety seven foot (97') monopole. The coordinates for the site are **41°-56'-29" N** and **72°-44'-18" W**. The tower is located approximately fourteen hundred feet (1,400') east of State Route 20 and approximately twenty-five hundred feet west of South Main Street (Route 187) in East Granby. The tower is owned by Sprint Sites USA, with the underlying landowner being Glasso Holdings, LLC. T-Mobile and the owner have agreed to mutually acceptable terms and conditions for the proposed shared use of this tower, and the owner has authorized T-Mobile to act on its behalf to apply for all necessary local, state and federal permits, approvals and authorizations which may be required for the proposed shared use of this facility. The tower is designed and built to hold multiple carrier antennas at multiple elevations above ground level ("AGL"). These elevations are listed on the elevation drawing 3, A-1 attached as part of Exhibit B. Currently, there are telecommunications antennas for other carriers at the ninety-seven foot (97'-0") centerline AGL (Sprint) and the seventy-seven foot (77'-0") centerline AGL (AT&T).

T-Mobile proposes to install an antenna cluster comprised of three (3) sectors, with three (3) antennas per sector for a total of nine (9) antennas. The model number for each antenna is EMS RR90-17-02 DP. The antennas would be mounted on pipe mounts on a proposed low profile triangular platform at the eighty-seven foot (87'-0") centerline AGL. The antenna mounting plan is shown on drawing 2, A-1 attached as part of Exhibit B. The radio transmission equipment associated with these antennas, three (3) Nortel S8000 BTS cabinets and one (1) power/telco cabinet, would be located near the base of the tower on two proposed five foot by ten foot (5'-0" x 10'-0") concrete pads within a leased ten foot by twenty foot (10' x 20') square area. The tower and all of the equipment for all existing and proposed carriers is within an existing compound surrounded by a gated six foot (6') high chain link fence (shown on drawing 1, A-1, attached as part of Exhibit B). Access to the compound is via an existing access drive. Utilities will be run from existing utility sources approved by the owner via underground conduits (shown in drawing 1, A-1, attached as part of Exhibit B).

C.G.S. §16-50aa (c) (1) provides, in pertinent part, that upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." The shared use of the tower satisfies those criteria as follows:

**A. Technical Feasibility** - The existing tower and compound were designed to accommodate multiple carriers. A structural analysis of the tower with the proposed T-Mobile installation has been performed and is attached as Exhibit D. The proposed shared use of this tower therefore is technically feasible.

**B. Legal Feasibility** Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the proposed shared use of an existing tower facility such as the facility at 60 South Main Street in East Granby. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. C.G.S. § 16-50x(a) vests exclusive jurisdiction over these facilities in the Council, which shall "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under this statutory authority vested in the Council, an order by the Council approving the shared use would permit the Applicant to obtain a building permit for the proposed installations.

**C. Environmental Feasibility** The proposed shared use would have minimal environmental effects, if any, for the following reasons:

1. The proposed installations (i.e., three (3) sectors with three (3) antennas per sector) would have an insignificant incremental visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing site. In particular, the proposed installations would not increase the height of the existing tower, and would not extend the boundaries of the existing compound area. The tower is designed to accommodate multiple carriers
2. The proposed installations would not increase the noise levels at the existing facility by six decibels or more.
3. Operation of antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the American National Standards Institute ("ANSI"). The "worst-case" exposure calculated for operation of this facility (i.e., calculated at the base of the tower, which represents the closest publicly accessible point within the broadcast field of the antennas) will be 0.109 mW/cm<sup>2</sup>, which is 10.9% of the Maximum Permissible Emission (MPE). The combined power density calculation from other carriers is 45.91% of the MPE. This accounts for a combined power density of 56.81% of the MPE standard. These calculations are attached as Exhibit E.
4. The proposed installations would not require any water or sanitary facilities, or generate air emissions or discharges to water or sanitary facilities, or generate air emissions or discharges to water bodies. After construction is complete (approximately two (2) weeks), the proposed installations would not generate any traffic other than periodic maintenance visits.

The proposed use of this facility would therefore have a minimal environmental effect, if any, and is environmentally feasible.

**D. Economic Feasibility** As previously mentioned, the owner and T-Mobile have entered into a mutual agreement to share the use of the existing tower on terms agreeable to the parties. The proposed tower sharing is therefore economically feasible.

E. **Public Safety Concerns** As stated above, the existing tower is structurally capable of supporting the proposed T-Mobile antennas. The tower stands on a compound accessible from South Main Street via an access road. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing tower. In fact, the provision of new or improved phone service through shared use of the existing tower will enhance the safety and welfare of area residents and the public.

**Conclusion**

For the reasons discussed above, the proposed shared use of the existing tower facility at South Main Street in East Granby, Connecticut satisfies the criteria stated in C.G.S. §16-50aa, and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. T-Mobile therefore respectfully requests that the Council issue an order approving the proposed shared use of this tower.

Thank you for your consideration of this matter.

Respectfully submitted,

T-MOBILE USA, INC.

By: 

Its Counsel  
Stephen J. Humes

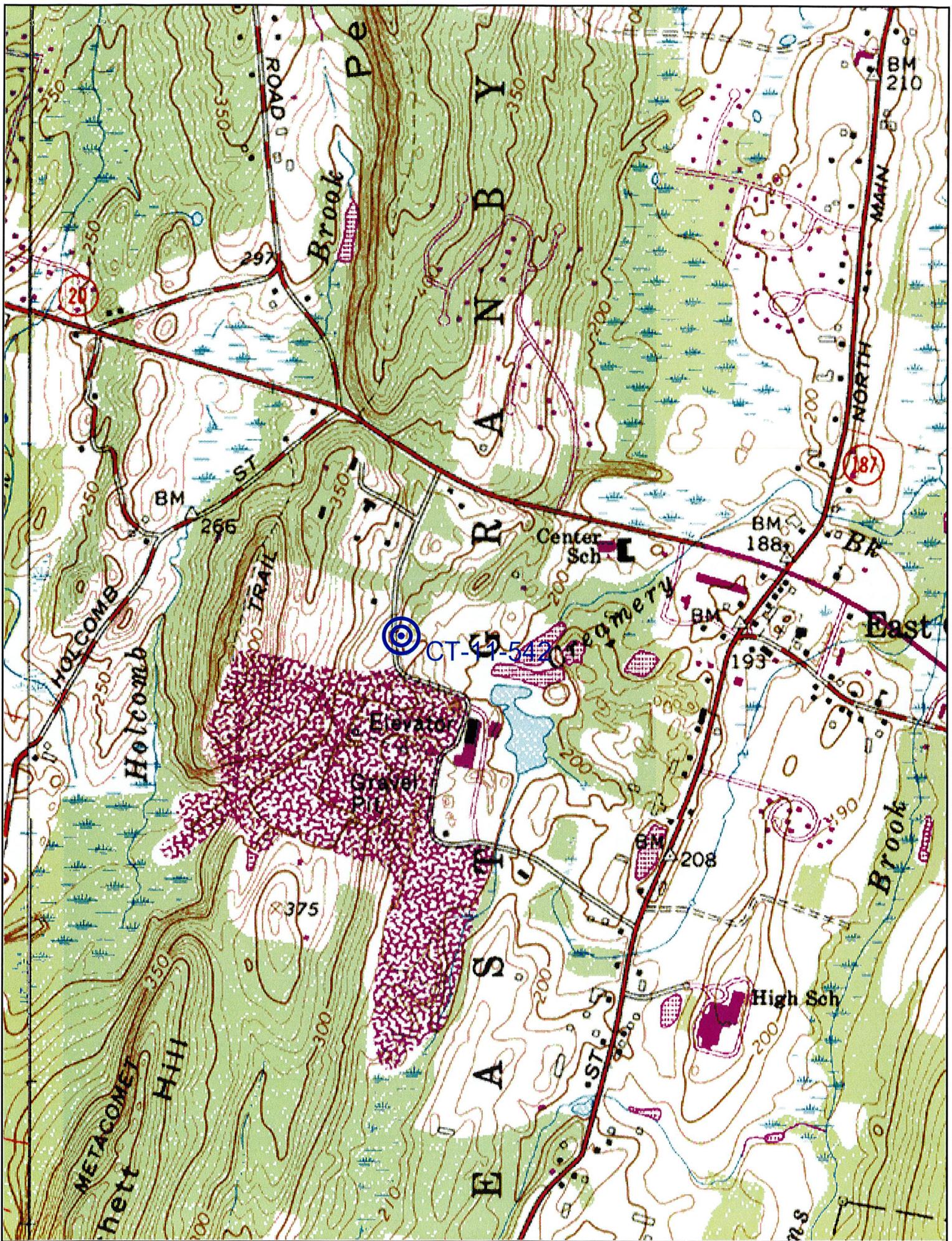
Attachments

cc: David K. Kilbon, First Selectman

**Exhibit A**

**Site Map**

**60 South Main Street**  
**East Granby, Connecticut**



# **Exhibit B**

## **Design Drawings**

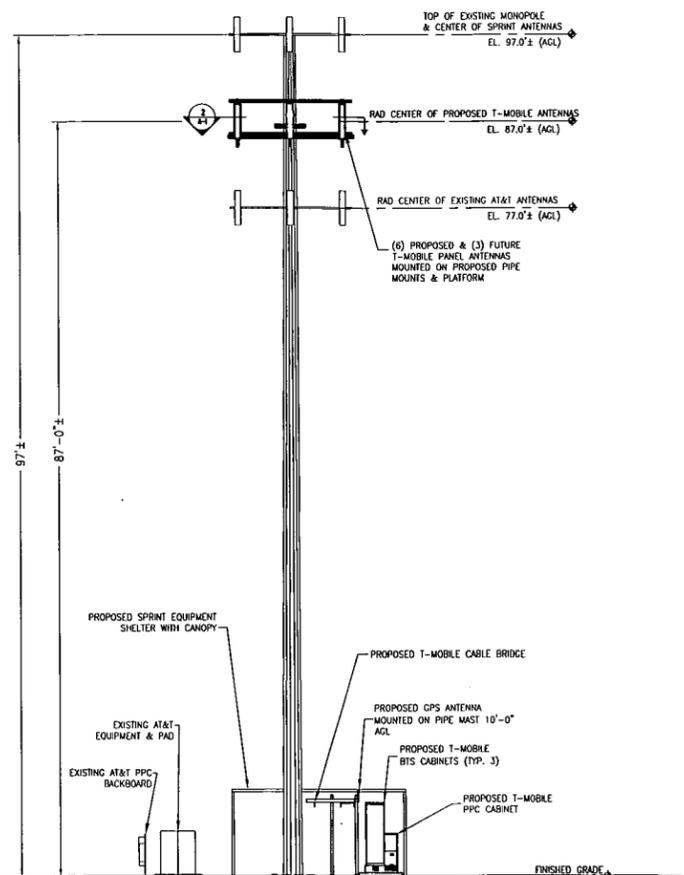
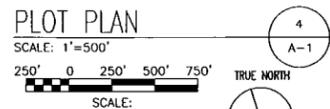
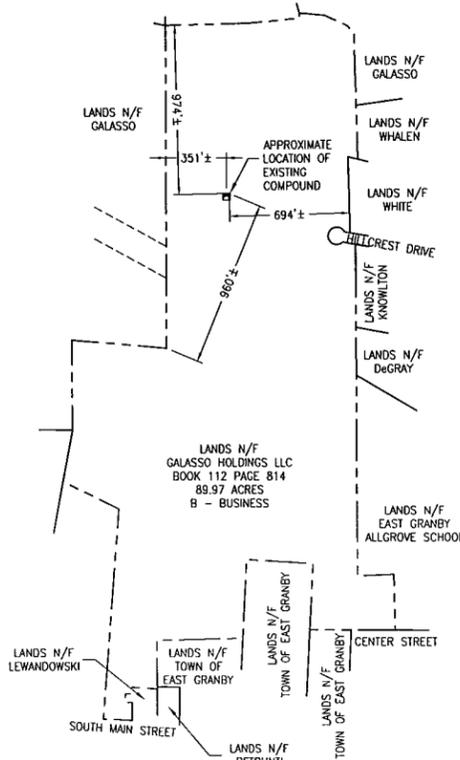
**60 South Main Street  
East Granby, Connecticut**

**NOTES:**

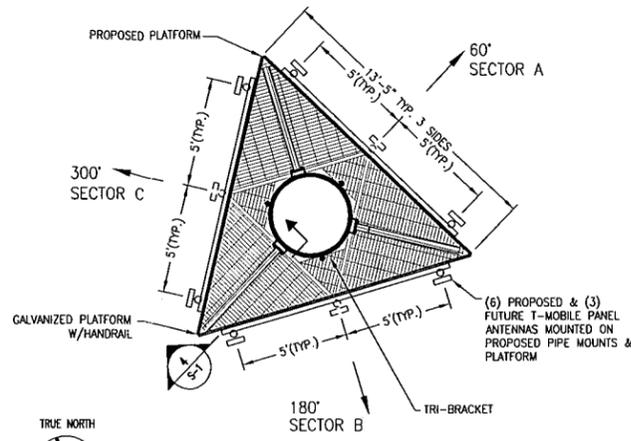
- ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH AFFECTS THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH OWNER PRIOR TO CONSTRUCTION.
- NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCIES BEFORE STARTING CONSTRUCTION.
- THE GENERAL CONTRACTOR AND OR HIS SUB CONSULTANT SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
- COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE ATTACHMENT K). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
- ANY EQUIPMENT THAT IS TO BE PAINTED SHALL BE PAINTED TO MATCH EXISTING. PAINT SHALL BE SHERWIN WILLIAMS, COROTHANE II. SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS AND OMINPOINT GUIDELINES.
- COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- EQUIPMENT WILL BE INDEPENDENTLY POWERED WITH SEPARATE METER.
- PRIOR TO EXCAVATION NEAR (E)TOWER, CONTRACTOR TO CONTACT AND COORDINATE WITH PROPERTY OWNER.
- ALL (E)ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
- ALL (E)INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY ENGINEERING.
- THE AREAS OF THE PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED AND COVERED WITH MULCH.
- THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SOIL EROSION AND SEDIMENTATION CONTROLS AT ALL TIMES DURING CONSTRUCTION.
- ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
- PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. T-MOBILE IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. T-MOBILE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

**NOTES:**  
PLOT PLAN BASED ON TAX MAPS

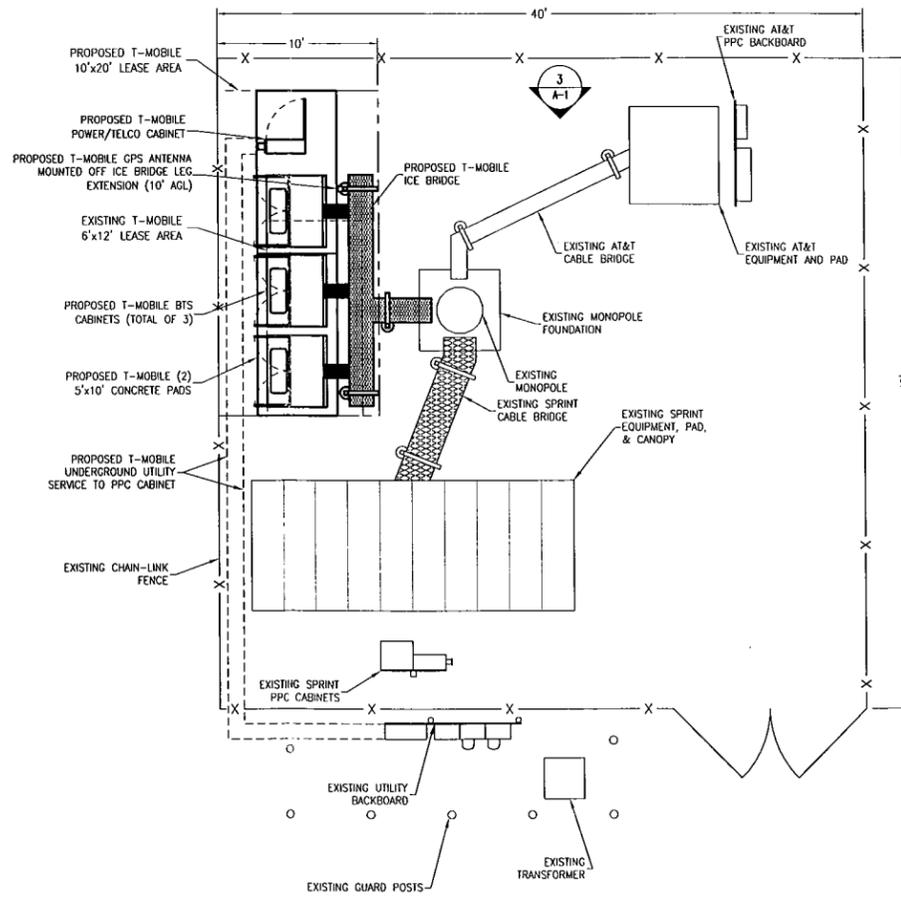
SETBACKS ARE TAKEN FROM PROPOSED EQUIPMENT TO EXISTING PROPERTY LINES.



**NORTH ELEVATION**  
SCALE: 1"=10'  
5' 0 5' 10' 15'



**ANTENNA MOUNTING PLAN**  
SCALE: 1/4"=1'-0"  
2' 0 2' 4' 6'



**SITE PLAN/EQUIPMENT PLAN**  
SCALE: 3/16"=1'-0"  
2'-8" 0 2'-8" 5'-4" 8'

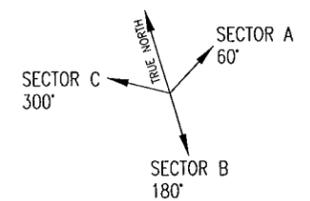
**ABBREVIATIONS**

ADJ	ADJUSTABLE	SF	SQUARE FOOT
APPROX	APPROXIMATE	SHT	SHEET
C	CONDUIT	SIM	SIMILAR
CONC	CONCRETE	STL	STEEL
CONT	CONTINUOUS	TOC	TOP OF CONCRETE
CJ	CONSTRUCTION JOINT	TOM	TOP OF MASONRY
DIA	DIAMETER	TYP	TYPICAL
DWG	DRAWING	VIF	VERIFY IN FIELD
EGB	EQUIPMENT GROUND BAR	UON	UNLESS OTHERWISE NOTED
EA	EACH	WMF	WELDED WIRE FABRIC
ELEC	ELECTRICAL	W/	WITH
EL	ELEVATION	BTS	BASE TRANSMISSION STATION
EQ	EQUAL	LNA	LOW NOISE AMPLIFIER
(E)P	EQUIPMENT	PCS	PERSONAL COMMUNICATIONS SERVICES
(E)	(E)		
EXT	EXTERIOR		
FF	FINISHED FLOOR		
FG	FINISHED GRADE		
GA	GAUGE	A-1	ANTENNA MARK NO.
GALV	GALVANIZED		
GC	GENERAL CONTRACTOR		
LG	LONG	PL	PLATE
MAX	MAXIMUM	&	AND
MECH	MECHANICAL	@	AT
MFR	MANUFACTURER		
MCB	MASTER GROUND BAR		
MIN	MINIMUM		
MTL	METAL		
NIC	NOT IN CONTRACT		
NTS	NOT TO SCALE		
OC	ON CENTER		
OPP	OPPOSITE		

**SYMBOLS AND MATERIALS**

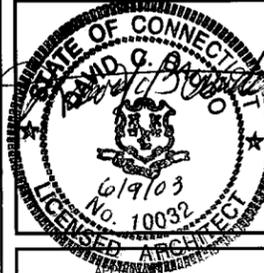
	NEW ANTENNA		GROUT OR PLASTER
	EXISTING ANTENNAS		(E)BRICK
	ASPHALT		(E)MASONRY
	NEW ACCESS EASEMENT		CONCRETE
	CONCRETE		EARTH
	ELECTRIC BOX		GRAVEL
	LIGHT POLE		PLYWOOD
	FND. MONUMENT		SAND
	SPOT ELEVATION		WOOD CONT.
	SET POINT		WOOD BLOCKING
	REVISION		STEEL
	GRID REFERENCE		CENTER LINE
	DETAIL REFERENCE		PROPERTY LINE
	ELEVATION		STEPPED FOOTING
	SECTIONS & DETAILS		MATCH LINE
			WORK POINT
			GROUND WIRE
			COAXIAL CABLE

**ANTENNA ORIENTATION KEY**



**T-Mobile**  
100 FILLEY STREET  
BLOOMFIELD, CT 06002  
OFFICE: (860)-794-4300  
FAX: (860)-692-7159

**Dynatek**  
TELECOMMUNICATIONS SERVICES  
5170 Belmont Avenue  
Youngstown, Ohio 44505  
Phone: 800-838-3224  
Fax: (330) 759-8471  
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ZONING \_\_\_\_\_  
CONSTRUCTION \_\_\_\_\_  
A/E \_\_\_\_\_

PROJECT NO: 4500

DRAWN BY: M.N.T.

CHECKED BY: D.C.B.

**SUBMITTALS**

2	6/9/03	CONSTRUCTION REVISIONS
1	5/6/03	CONSTRUCTION REVISIONS
0	4/17/03	CONSTRUCTION

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CT-11-542A  
EAST GRANBY  
60 SOUTH MAIN STREET  
EAST GRANBY, CT 06026

SHEET TITLE  
PLANS AND ELEVATIONS

SHEET NUMBER  
**A-1**

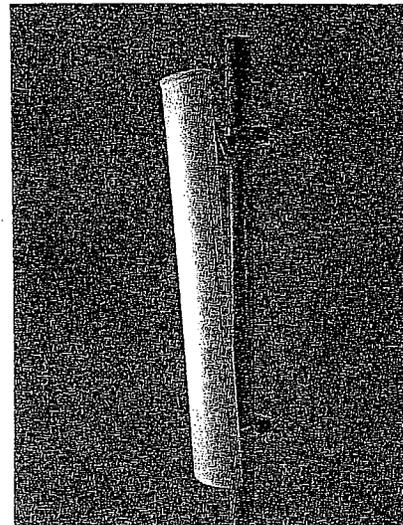
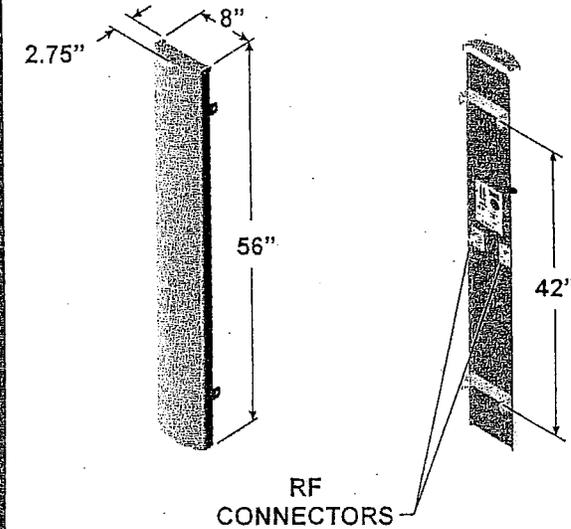
# **Exhibit C**

## **Equipment Specifications**

**60 South Main Street**

**East Granby, Connecticut**

**1850 MHz - 1990 MHz (P)**



- 90° beamwidth
- 16.5 dBi gain
- +45° DualPol™
- 56 inch

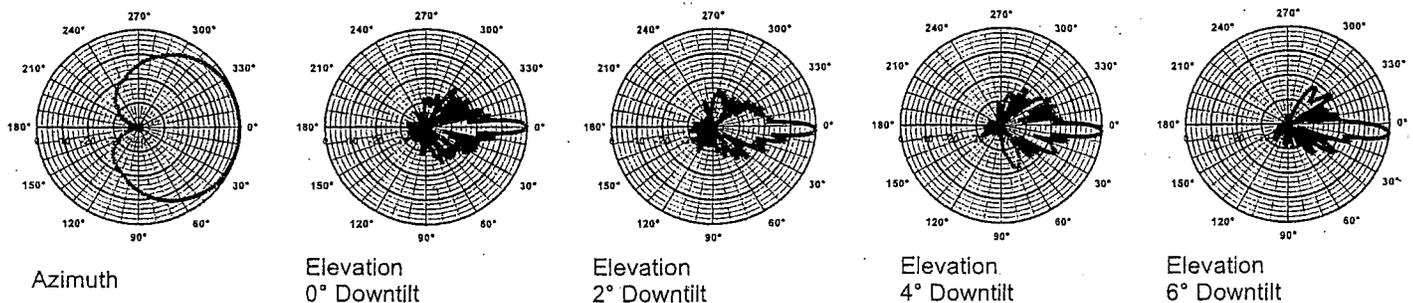
### SPECIFICATIONS

Electrical		Mechanical	
Azimuth Beamwidth	90°	Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Elevation Beamwidth	6°	Rated Wind Velocity	150 mph (241 km/hr)
Gain	16.5 dBi (14.4 dBd)	Equivalent Flat Plate Area	3.1ft <sup>2</sup> (.29 m <sup>2</sup> )
Polarization	Slant, ±45°	Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Port-to-Port Isolation	≥ 30 dB	Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)	Weight	18 lbs (8.2 kg)
Electrical Downtilt Options	0°, 2°, 4°, 6°	<p>Note: Patent Pending and US Patent number 5, 757, 246.</p> <p>Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site <a href="http://www.emswireless.com">www.emswireless.com</a> and reflect all updates.</p>	
VSWR	1.35:1 Max		
Connectors	2; Type N or 7-16 DIN (female)		
Power Handling	250 Watts CW		
Passive Intermodulation	<-147 dBc (2 tone @ +43 dBm {20W} ea.)		
Lightning Protection	Chassis Ground		

### MOUNTING OPTIONS

Model Number	Description	Comments
MTG-P00-10	Standard Mount (Supplied with antenna)	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)
MTG-S02-10	Swivel Mount	Mounting kit providing azimuth adjustment.
MTG-DXX-20*	Mechanical Downtilt Kits	0° - 10° or 0° - 15° Mechanical Downtilt
MTG-CXX-10*	Cluster Mount Kits	3 antennas 120° apart or 2 antennas 180° apart
MTG-C02-10	U-Bolt Cluster Mount Kit	3 antennas 120° apart, 4.5" O.D. pole.
MTG-TXX-10*	Steel Band Mount	Pole diameters 7.5" - 45"

\* Model number shown represents a series of products. See mounting options section for specific model number.



### 3.7.12 S8000 Outdoor BTS Specifications

Table 107. S8000 Outdoor BTS Cabinet General Specifications

	S8000 Outdoor Cabinet
Height	1.60 m (63")
Width	1.35 m (53")
Depth	0.65 m (25")
Footprint	1.80 m <sup>2</sup>
Maximum Weight	480 kg (1058 lbs.)
Empty weight	148 kg (326.2 lbs.)
Maximum Power(240V)	6500 Watts
Voltage	240 V +/- 10%
Normal Power	3238 Watts
Main Circuit Protection	<del>70</del> Amps <b>50</b>
Max. Heat Dissipation	22100 Btu/Hour
Normal Heat Dissipation	11006 Btu/Hour
Operating Temperature	-40 <sup>0</sup> C to 50 <sup>0</sup> C (-40 <sup>0</sup> F to 122 <sup>0</sup> F)
Maximum Operating Humidity	100%
Max level of acoustic noise	65 dB
Ground Cable	2/0 MCM
Antenna Connectors	<b>DIN</b>
Cabinet output	40.3 dBm
Receive sensitivity	-108 dBm
Output power at cabinet antenna connector (H2D)	38.0 dBm

#### 4.1.1 Dimensions and Weight

Table 1 – Dimensions of the S12000 BTS

	Populated cabinet		Depopulated cabinet	
	(cm)	(in)	(cm)	(in)
Height	191	75.2	172	67.7
Depth	65	25.6	65	25.6
Width	135	53.2	135	53.2

Table 2 – Weight of the S12000 BTS

	Populated cabinet (full configuration)		Depopulated cabinet	
	(kg)	(lb.)	(kg)	(lb.)
S12000	570	1257	200	441

Note: The pallet weights 19kg (42 lb.) and has a height of 13cm (5.1 in)

Note: The height of S12000 Outdoor with the hood open is 256 cm (100.8 in)

The BTS floor print can be found in section 10.2 Appendix B.

#### 4.1.2 Key Cabled Cabinet Components

A low mass, mechanically strong external cabinet housing containing:

- All mechanical sub-racks and mechanical support systems required for the installation, transport and operation of the GSM wireless equipment to be housed within.
- A forced ventilation, low acoustic Direct Ambient Cooling System (DACs)
- An AC/DC power system
- A fixed DC distribution system to power the enclosed electronic equipment
- A Power Amplifier Interconnection module (PA#ICO)
- DRX interconnection modules (DRX ICO) (A&B)
- Combiner interconnection modules (COMICO) (A&B)
- A batteries box

Refer to section 10.1 Appendix A for a general overview of the S12000.

Preliminary

### 4.1.3 Environmental Requirements

Table 3 – Operational Temperature and Humidity

Normal	Range
Optimized operating temperature	-20°C (-4°F) to 40°C (104°F)
Total operating temperature	-40°C (-40°F) to 50°C (122°F)
Normal Operating humidity	15% to 100% relative humidity (non-condensing)
Absolute humidity	0,26 g/m3 to 36 g/m3

- Storage requirements

The S12000 meets the requirements of reference document R10 class 1.2

- Transport requirements

The S12000 meets the requirements of reference document R11 class 2.2

- Ingress protection

The cabinet shall be weather resistant to prevent ingress of rain, snow, dust and other solid foreign objects to a minimum level of IP55 as specified by reference document R3. The maximum permitted water ingress under test conditions shall be 5ml.

- Noise

LWAd < 63 dB (A) measured in accordance with reference document R8 if Temp<sub>ext</sub> < 40°C (104°F)

The maximum sound power level emitted from the S12000 Outdoor cabled cabinet, when fully populated and measured in accordance with the requirements of reference document R8, shall not exceed:

- Normal speed operation: 63 dB (A) (when temperature is < 40°C)
- Maximum speed operation: 70 dB (A) (when temperature is >40°C)

Note: The noise may be higher than the one previously indicated due to the real configuration of the site (proximity of walls or any reflecting surfaces). Specific protections against noise can be added to comply with the local recommendations.

- External air flow rate

Normal speed operation: 800 m<sup>3</sup> / hour

Preliminary

# **Exhibit D**

## **Structural Analysis** **60 South Main Street** **East Granby, Connecticut**

1047 N. 204<sup>th</sup> Avenue  
Elkhorn, NE 68022  
Ph: 402-289-1888  
Fax: 402-289-1861

**SEMAAN ENGINEERING SOLUTIONS**

OK  
R/O 4/9

05

**97 ft EEI Monopole  
Structural Analysis**

CT-11-S42A

**Prepared for:  
Sprint Sites USA  
535 East Crescent Ave  
Ramsey, NJ 07446**

**Site: CT43XC804  
East Granby, CT**

**April 4, 2002**

Mr. Russ Van Oudenaren  
Sprint Sites USA - NJ  
535 East Crescent Ave  
Ramsey, NJ 07446

**Re: Site Number CT43XC804 – East Granby, CT.**

Dear Mr. Van Oudenaren:

We have completed the structural analysis for the existing monopole, located at the above referenced site. The purpose of this analysis is to determine that the existing monopole design is in conformance with the EIA/TIA-222-F standard and local building codes for the proposed antennae loads installation. Refer to the Review and Recommendations section at the end of this report for the analysis results.

**Description of Structure:**

The structure is a 97 ft EEI Monopole.

Refer to EEI job #7832-E01 dated September 22, 2000 for a detailed description of the structure.

**Method of analysis:**

The tower was analyzed using Semaan Engineering Solutions' software suite for communication structures. The structural analysis is performed using the SAPS finite element engine. The method is 3D, non-linear, which accounts for the second order geometric effects due to the displacements. It also treats guys as exact cable elements and therefore is ideal for guyed towers. The analysis was performed in conformance with **EIA/TIA-222-F and local building codes for 80 mph with 1/2" radial ice**. Wind is applied to the structure, accessories and antennas.

**Structure loading:**

Per the loading sheet supplied, the analysis was performed using the following loading: (Proposed loading in bold)

<b>Elev. (ft)</b>	<b>Qty.</b>	<b>Antennas and Mounts</b>	<b>Coax</b>	<b>Owner</b>
97.0	9	DB980H90 Mounted On a EEI 10'8" Low Profile platform	(9) 1-5/8	Sprint
87.0	6	RR90-17-02DP Mounted On a Low Profile platform	(12) 1-5/8	Voicestream
<b>77.0</b>	<b>12</b>	<b>Allgon 7250 Mounted On a Low Profile platform</b>	<b>(12) 1-1/4</b>	<b>AT&amp;T</b>

**All new access holes shall be reinforced with welded rims that are compatible with the pole and to be sized and supplied by pole manufacturer.**

**All transmission lines are assumed running inside of pole shaft.**

**Results of Analysis:**

Refer to the attached Computer Summary sheets for detailed analysis results.

**Structure:**

The existing monopole is structurally capable of supporting the existing and proposed antennas.

The maximum structure usage is: 72.0%.

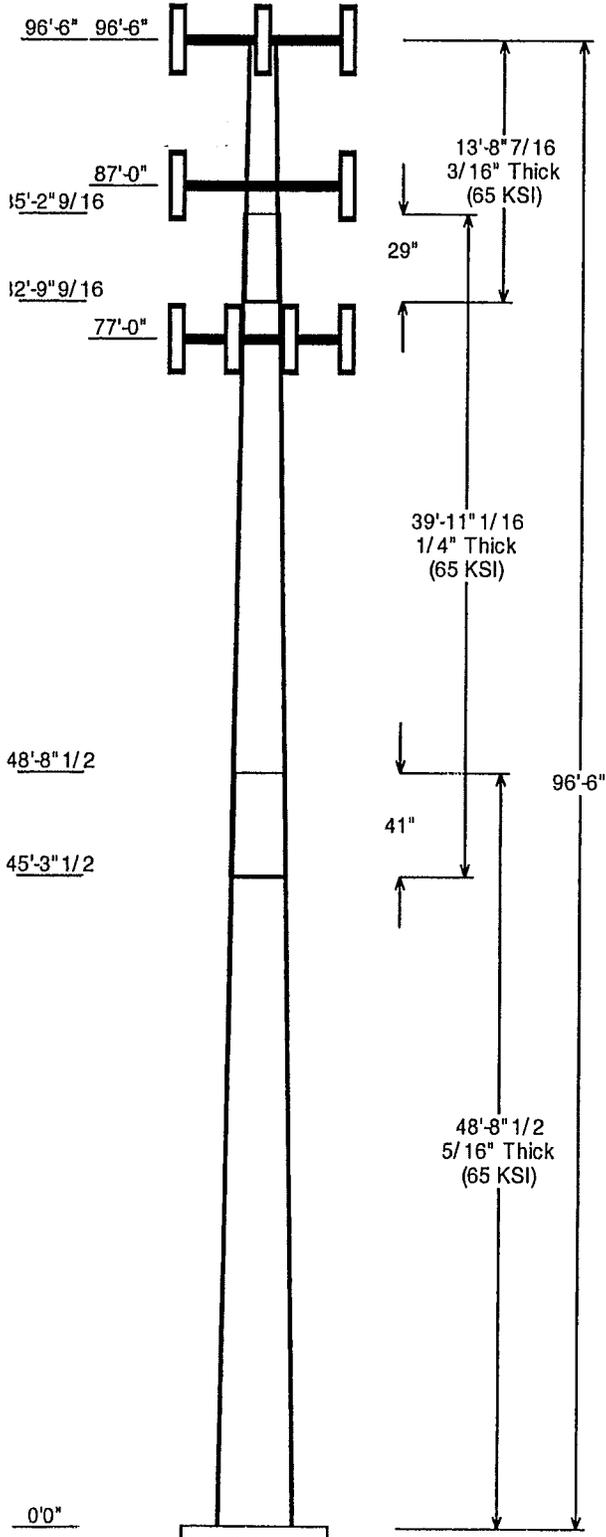
**Foundation:**

<b>Pole Reactions</b>	<b>Original Design Reactions</b>	<b>Current Analysis Reactions</b>	<b>% Of Design</b>
Moment (ft-kips)	905.90	729.12	80.5
Shear (kips)	11.87	9.92	83.6

The structure base reactions resulting from this analysis do not exceed the ones shown on the original structure drawings.

**Review and Recommendations:**

Based on the analysis results, the existing structure meets the requirements per the EIA/TIA-222-F standards for a basic wind speed of 80 mph with 1/2" radial ice.



Job Information			
Pole :	CT43XC804		
Description :	Client : Sprint Sites USA - NJ		
	Location : East Granby, CT		
	Type :	18 Sides	Slip Joints
Height :(ft)	96.500	Taper: 0.2163 (in/ft)	

Sections Properties							
Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade (ksi)
		Across Top	Across Bottom				
1	48.710	21.46	32.00	0.313		0.000	65
2	39.920	14.06	22.70	0.250	Slip Joint	41.000	65
3	13.703	12.00	14.96	0.188	Slip Joint	29.000	65

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Type	Qty	Description
96.500	96.500	Panel	9	DB980H90
96.500	96.500	Platform	1	EEL 10'8" Low Profile platform
87.000	87.000	Panel	6	RR90-17-02DP
87.000	87.000	Platform	1	Low Profile platform
77.000	77.000	Panel	12	Allgon 7250
77.000	77.000	Platform	1	Low Profile platform

Load Cases / Deflections			
Load Case	Attach Elev (ft)	Translation (in)	Rotation (deg)
<u>No Ice</u>	<u>No Ice Wind Speed = 80.00 mph w/ No Ice</u>		
	96.500	56.07	-5.090
	87.000	46.04	-4.960
<u>Ice</u>	<u>Ice Wind Speed = 69.28 mph w/ Ice 0.50 in Thick</u>		
	96.500	48.93	-4.479
	87.000	40.11	-4.357
	77.000	31.28	-4.048

Reactions			
Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)
No Ice	729.116	9.922	-11.090
Ice	625.446	8.244	-15.300



4-5-02

# **Exhibit E**

## **Power Density Calculations**

**60 South Main Street**

**East Granby, Connecticut**

## Technical Memo

To: Karina Hansen  
From: Hassan Syed - Radio Frequency Engineer  
cc: Jason Overbey  
Subject: Power Density Report for CT11542A  
Date: May 2, 2003

### 1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile PCS antenna installation on a Monopole at 60 South main street, East Granby, CT06026, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

### 2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from T-Mobile transmitters are in the 1935-1945 MHz frequency band.
- 2) The antenna array consists of three sectors, with 3 antennas per sector.
- 3) The model number for each antenna is EMS RR90-17-02DP.
- 4) The antenna center line height is 87 ft.
- 5) The maximum transmit power from any sector is 3259.73 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) The average ground level of the studied area does not change significantly with respect to the transmitting location

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

### 3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile PCS antenna installation on a Monopole at 60 South main street, East Granby, CT06026, CT, is 0.109 mW/cm<sup>2</sup>. This value represents 10.9% of the Maximum Permissible Emission (MPE) standard of 1 milliwatt per square centimeter (mW/cm<sup>2</sup>) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

The combined Power Density from other carriers is 45.91%. The combined Power Density for the site is 56.81% of the M.P.E. standard.

# New England Market



Connecticut

## Worst Case Power Density

Site:	CT11542A
Site Address:	60 South main street
Town:	East Granby,CT06026
Tower Height:	97 ft.
Tower Style:	Monopole
Base Station TX output	15 W
Number of channels	8
Antenna Model	EMS RR90-17-02DP
Cable Size	1 5/8 in.
Cable Length	100 ft.
Antenna Height	87.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	1.00 dB
Antenna Gain	16.5 dBi
Cable Loss per foot	0.0116 dB
Total Cable Loss	1.1600 dB
Total Attenuation	2.1600 dB
Total EIRP per Channel	56.10 dBm
(In Watts)	407.47 W
Total EIRP per Sector	65.13 dBm
(In Watts)	3259.73 W
nsg	14.3400
Power Density (S) =	0.109001 mW/cm <sup>2</sup>
Voicestream Worst Case % MPE =	10.9001%
Equation Used :	$S = \frac{(1000)(grf)^2 (Power) 10^{(nsg/10)}}{4\pi (R)^2}$
<small>Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997</small>	

Co-Location Total	
Carrier	% of Standard
Verizon	
Cingular	
Sprint PCS	20.3400 %
AT&T Wireless	25.5700 %
Nextel	
<b>Total Excluding Voicestream</b>	<b>45.9100 %</b>
Voicestream	10.9001
<b>Total % MPE for Site</b>	<b>56.8101%</b>

Relative Gain Power Density	
Antenna Relative Gain Factor	-3.7 dBi
Total Attenuation	2.1600 dB
Total EIRP per Channel	52.40 dBm
(In Watts)	173.82 W
Total EIRP per Sector	61.43 dBm
(In Watts)	1390.53 W
nsg	10.6400
Power Density (S) =	0.046498 mW/cm <sup>2</sup>
<b>Voicestream Relative Gain % MPE =</b>	<b>4.6498%</b>