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

July 9, 2003

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

RE: **TS-T-MOBILE-019-030617** - Omnipoint Communications, Inc. request for an order to approve tower sharing at an existing telecommunications facility located at 116 Grant Hill Road, Brooklyn, 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 17, 2003.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: Honorable Maurice F. Bowen, First Selectman, Town of Brooklyn
Chester Dobrowski, Zoning Enforcement Officer, Town of Brooklyn
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels, LLP
Christopher B. Fisher, Esq., Cuddy & Feder LLP

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

June 23, 2003

Honorable Maurice F. Bowen
First Selectman
Town of Brooklyn
Town Hall
P. O. Box 356
Brooklyn, CT 06234-0356

RE: **TS-T-MOBILE-019-030617 -** Omnipoint Communications, Inc. request for an order to approve tower sharing at an existing telecommunications facility located at 116 Grant Hill Road, Brooklyn, Connecticut.

Dear Mr. Bowen:

The Connecticut Siting Council (Council) received this request for tower sharing, pursuant to Connecticut General Statutes § 16-50aa.

The Council will consider this item at the next meeting scheduled for July 8, 2003, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/ld

Enclosure: Notice of Tower Sharing

c: Chester Dobrowski, Zoning Enforcement Officer, Town of Brooklyn

LeBoeuf, Lamb, Greene & MacRae

L.L.P.

A LIMITED LIABILITY PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

NEW YORK
WASHINGTON, D.C.
ALBANY
BOSTON
DENVER
HARRISBURG
HARTFORD
HOUSTON
JACKSONVILLE
LOS ANGELES
NEWARK
PITTSBURGH
SALT LAKE CITY
SAN FRANCISCO

GOODWIN SQUARE
225 ASYLUM STREET, 13TH FLOOR
HARTFORD, CT 06103
(860) 293-3500
FACSIMILE: (860) 293-3555
E-MAIL ADDRESS: STEPHEN.HUMES@LLGM.COM
WRITER'S DIRECT DIAL: (860) 293-3744
WRITER'S DIRECT FACSIMILE: (860) 241-1344

LONDON
(A LONDON-BASED MULTINATIONAL PARTNERSHIP)
PARIS
BRUSSELS
JOHANNESBURG
(PTY) LTD.
MOSCOW
RIYADH
(AFFILIATED OFFICE)
TASHKENT
BISHKEK
ALMATY
BEIJING

June 17, 2003

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

TS-T-MOBILE-019-030617

Re: Request by T-Mobile for an Order to Approve the Shared Use of a Tower Facility at 116 Grant Hill Road, Brooklyn, 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 116 Grant Hill Road, Brooklyn, 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 of Brooklyn has been notified via First Class Mail.

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 Grant Hill Road, Brooklyn, is an existing one hundred fifty foot (150') monopole. The coordinates for the site are **41°-47'-30" N** and **72°-00'-53" W**. The tower is located approximately twenty-five hundred feet (2,500') north of Route 6 and approximately two thousand feet (2,000) west of Cherry Road in the "Stetson Corner" area of western Brooklyn. The tower is owned by Sprint Sites, USA, with the underlying landowner being Robert and Agnes Berner. 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, AT&T has antenna equipment located at the one hundred twenty-seven foot (127'-0") centerline AGL, and there is a location available at the one hundred fifty foot (150'-0") centerline AGL.

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 an existing low profile triangular platform at the one hundred thirty-seven foot (137'-0") centerline AGL. The antenna mounting plan is shown on drawing 4, A-1 attached as part of Exhibit B. The radio transmission equipment associated with these antennas, three (3) Nortel S8000 BTS cabinets and a power/telco cabinet, would be located near the base of the tower on two proposed five foot by ten foot (5' x 10') 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 a large existing compound surrounded by a gated seven foot (7') high chain link fence with three strands of barbed wire (shown on drawing 1, A-1, attached as part of Exhibit B). Access to the compound is via an existing access drive that winds across the owners' land from Grant Hill Road (shown on drawing 2, A-1). 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 Grant Hill Road in Brooklyn. 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 0.04133 mW/cm2, which is 4.133% of the Maximum Permissible Emission (MPE). The combined power density calculations from other carriers is 8.15% of the MPE. This accounts for a combined power density of 12.283% 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 indicated, the existing tower is structurally capable of supporting the proposed T-Mobile antennas. The tower stands on a compound accessible from Grant Hill Road 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 Grant Hill Road in Brooklyn, 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: First Selectman, Maurice F. Bowen

Exhibit A

Site Map
116 Grant Hill Road
Brooklyn, Connecticut

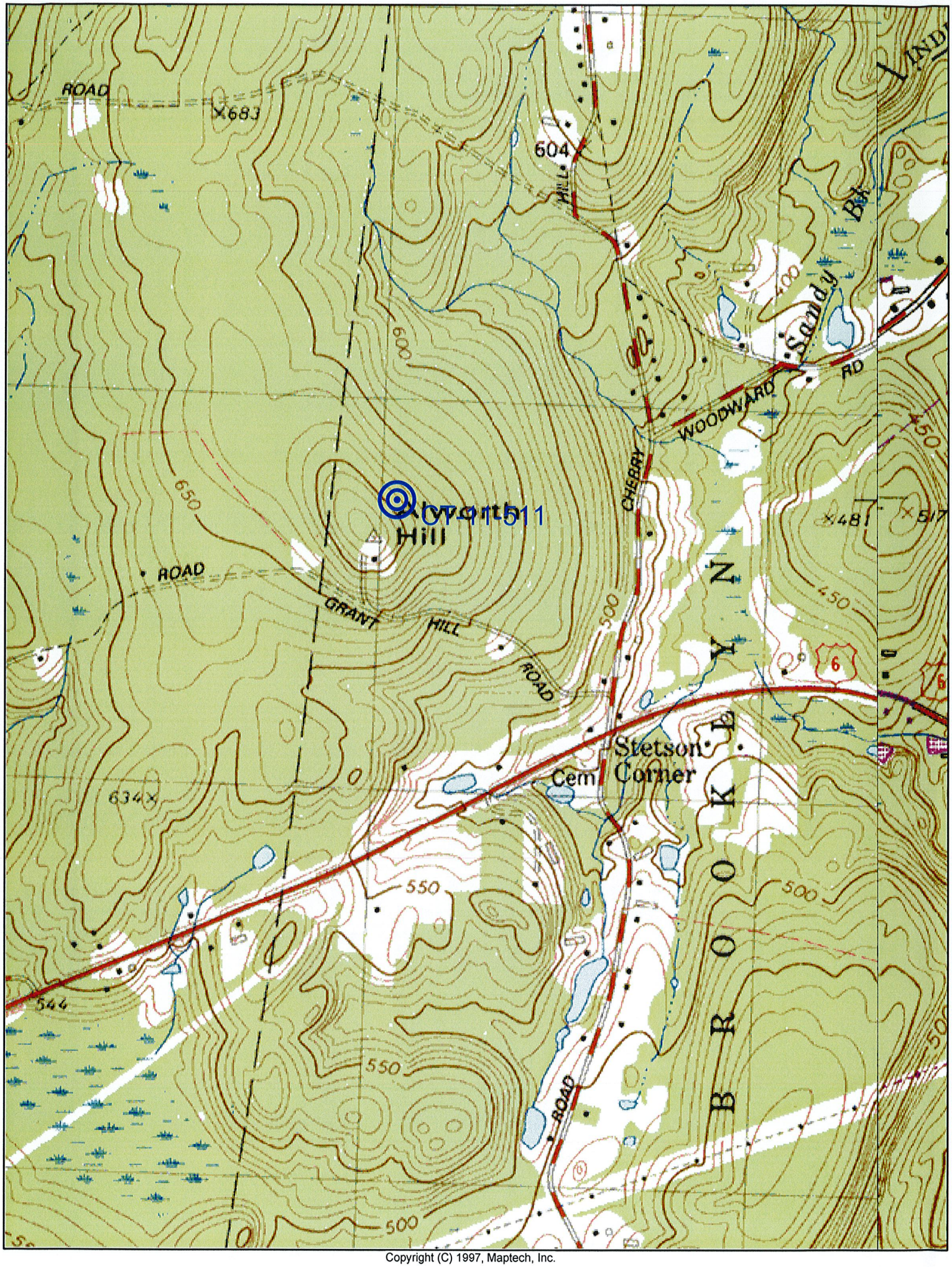
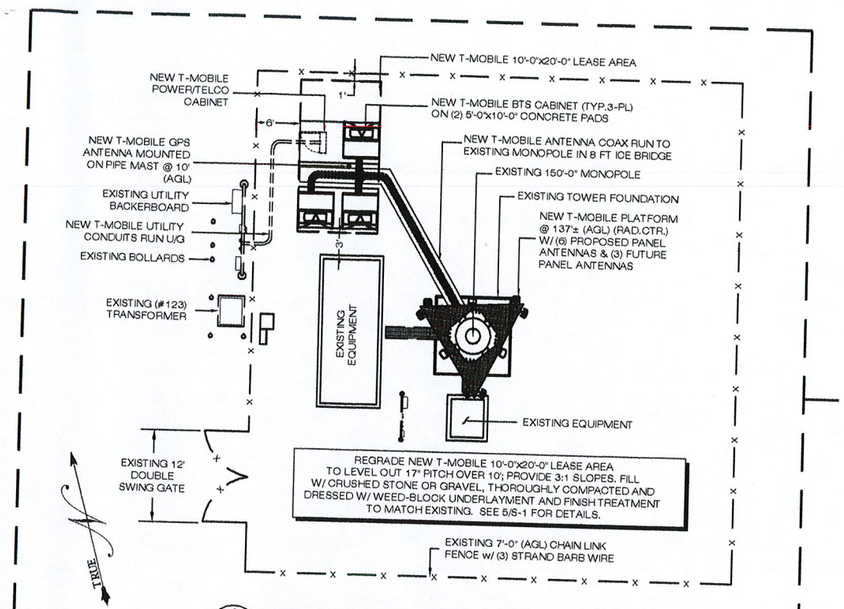


Exhibit B

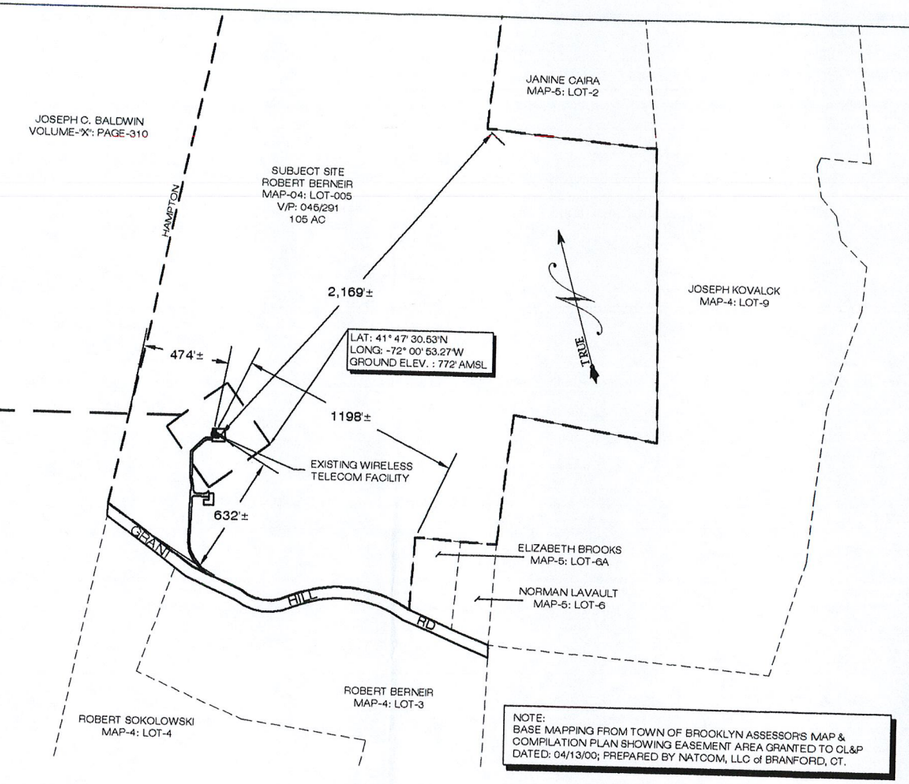
Design Drawings
116 Grant Hill Road
Brooklyn, Connecticut



1 A-1 ENLARGED COMPOUND PLAN

SCALE: 1"= 10'-0"

0 5 10 20



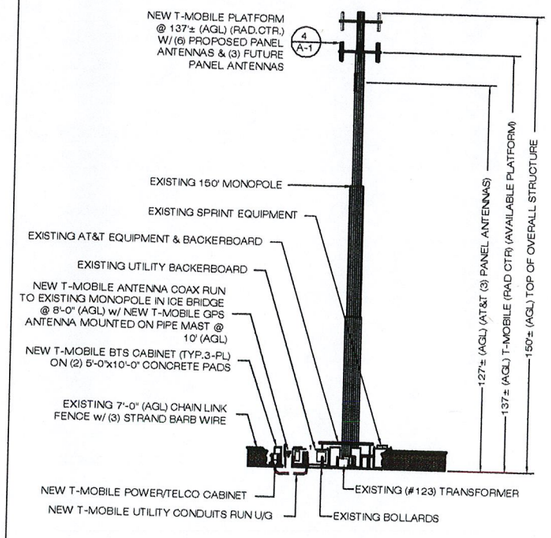
NOTE:
BASE MAPPING FROM TOWN OF BROOKLYN ASSESSORS MAP & COMPILATION PLAN SHOWING EASEMENT AREA GRANTED TO CL&P DATED: 04/13/00; PREPARED BY NATCOM, LLC of BRANFORD, CT.

2 A-1 PLOT PLAN

SCALE: 1"= 500'-0"

0 250 500 1000

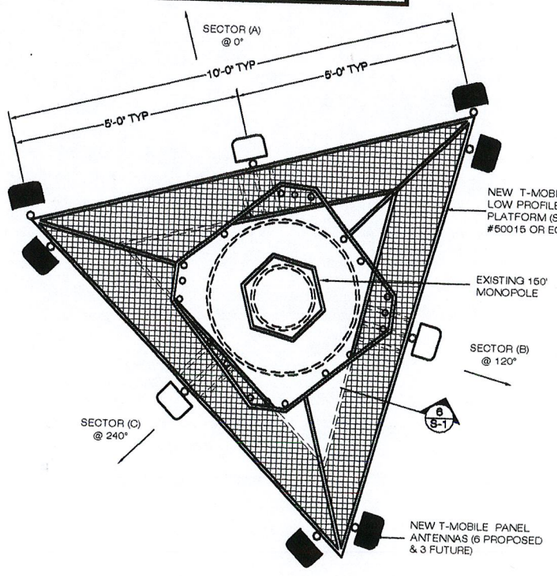
NOTE:
EXISTING MONOPOLE MODEL: ENGINEERING ENDEAVORS, INC. JOB # 6459, DATE: 02/22/00



3 A-1 SOUTHWESTERN ELEVATION

SCALE: 1"= 25'-0"

0 12.5 25 50



4 A-1 ANTENNA PLATFORM DETAIL

SCALE: NTS

NOTES

1) ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS & ELEVATIONS WHICH EFFECTS THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS w/ OWNER PRIOR TO CONSTRUCTION.
2) NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH & INFORM CONSTRUCTION MANAGER of ANY DISCREPANCIES BEFORE STARTING CONSTRUCTION.
3) THE GENERAL CONTRACTOR and/or HIS SUB CONSULTANT SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS & INSPECTIONS WHICH MAY BE REQ'D FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTRY or LOCAL GOVERNMENT AUTHORITY.
4) ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY & ERECTION of RADIO ANTENNAS, TRANSMISSION LINES & SUPPORT STRUCTURES.
5) COAXIAL CABLE CONNECTORS & TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE OWNER & 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.
6) ANY EQUIPMENT THAT IS TO BE PAINTED SHALL BE PAINTED TO MATCH EXISTING. PAINT SHALL BE SHERWIN WILLIAMS, COROTHANE II. SURFACE PREPARATION & APPLICATION SHALL BE IN ACCORDANCE w/ MANF's SPECIFICATIONS & T-MOBILE GUIDELINES.
7) COORDINATION, LAYOUT, & FURNISHING of CONDUIT, CABLE & ALL APPURTENANCES REQ'D FOR PROPER INSTALLATION of ELECTRICAL & TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY of THE CONTRACTOR.
8) EQUIPMENT WILL BE INDEPENDENTLY POWERED w/ SEPARATE METER.
9) PRIOR TO EXCAVATION NEAR TOWER, CONTRACTOR TO CONTACT & COORDINATE w/ PROPERTY OWNER.
10) ALL ACTIVE SEWER, WATER, GAS, ELECTRIC, & OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, & WHERE REQ'D 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.
11) ALL INACTIVE SEWER, WATER, GAS, ELECTRIC & OTHER UTILITIES, WHICH INTERFERE w/ THE EXECUTION of THE WORK, SHALL BE REMOVED and/or CAPPED, PLUGGED or OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE w/ THE EXECUTION of THE WORK, SUBJECT TO THE APPROVAL of UTILITY COMPANY ENGINEERING.
12) THE AREAS of THE PROPERTY DISTURBED BY THE WORK & NOT COVERED BY THE EQUIPMENT, DRIVEWAY or GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED & COVERED w/ MULCH.
13) THE CONTRACTOR SHALL ESTABLISH & MAINTAIN SOIL EROSION & SEDIMENTATION CONTROLS AT ALL TIMES DURING CONSTRUCTION.
14) ALL UTILITY WORK SHALL BE IN ACCORDANCE w/ LOCAL UTILITY COMPANY REQUIREMENTS & SPECIFICATIONS.
15) PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE REQ'D TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. T-MOBILE IMPLEMENTATION REQUIRES DEPLOYMENT of EQUIPMENT & 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 & LOCATION as TECHNOLOGY EVOLVES TO MEET REQ'D SPECIFICATION.

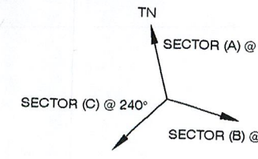
ABBREVIATIONS

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

SYMBOLS AND MATERIALS

- NEW ANTENNA
- EXISTING ANTENNA
- ASPHALT
- NEW ACCESS EASEMENT
- CONCRETE
- ELECTRIC BOX
- LIGHT POLE
- FND. MONUMENT
- SPOT ELEVATION
- SET POINT
- REVISION
- GRID REFERENCE
- DET.# SHT.# DETAIL REFERENCE
- D SH ELEVATION
- D SH SECTIONS & DETAILS
- GROUT or PLASTER
- BRICK
- MASONRY
- CONCRETE
- EARTH
- GRAVEL
- PLYWOOD
- SAND
- WOOD CONT.
- WOOD BLOCKING
- STEEL
- CENTERLINE
- PROPERTY LINE
- STEPPED FOOTING
- MATCH LINE
- WORK POINT
- GROUND WIRE
- COAXIAL CABLE

ANTENNA ORIENTATION KEY



T-Mobile
100 FILLEY STREET
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100
FAX: (860)-692-7159

ALL-POINTS TECHNOLOGY CORPORATION, P.C.
3 BADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
PHONE: (860)-663-1697
FAX: (860)-663-0935
www.allpointstech.com

STATE OF CONNECTICUT
SCOTT M CHASSE
No. 19729
LICENSED PROFESSIONAL ENGINEER

APPROVALS

LANDLORD _____
LEASING _____
R.F. _____
ZONING _____
CONSTRUCTION _____
A/E _____

PROJECT NO: CT-11-511-A

DRAWN BY: GWA

CHECKED BY: SMC

SUBMITTALS

1	05/30/03	CONSTRUCTION FINAL: SMC
0	05/19/03	CONSTRUCTION : GWA

CT-11-511-A
SPRINT BROOKLYN
116 GRANT HILL ROAD
BROOKLYN, CT 06234

SHEET TITLE
SITE & COMPOUND PLAN, ELEVATION & DETAILS

SHEET NUMBER
A-1

Exhibit C

Equipment Specifications

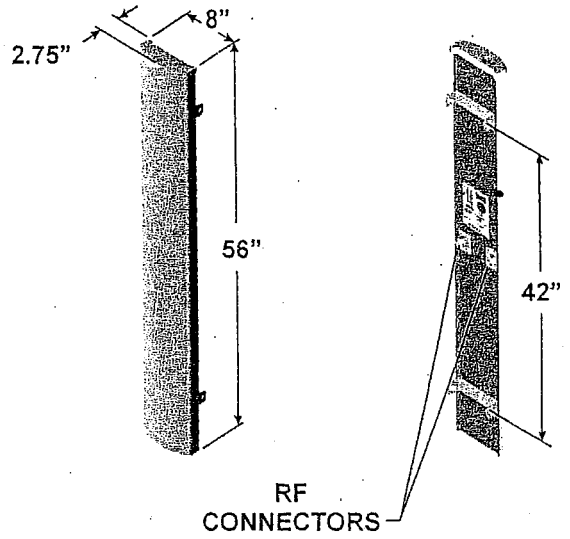
116 Grant Hill Road
Brooklyn, Connecticut

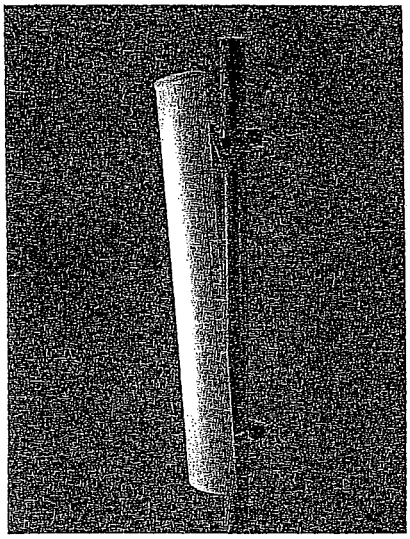
EMS WIRELESS

OptiRange™

RR90-17-XXXP

1850 MHz - 1990 MHz (P)





90° beamwidth

16.5 dBi gain

±45° DualPol™

56 inch

SPECIFICATIONS

Electrical

Azimuth Beamwidth	90°
Elevation Beamwidth	6°
Gain	16.5 dBi (14.4 dBd)
Polarization	Slant, ±45°
Port-to-Port Isolation	≥ 30 dB
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)
Electrical Downtilt Options	0°, 2°, 4°, 6°
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

Mechanical

Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	3.1ft² (.29 m²)
Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Weight	18 lbs (8.2 kg)

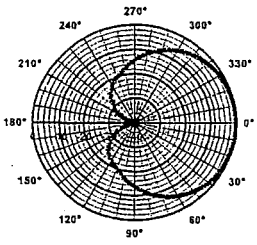
Note: Patent Pending and US Patent number 5, 757, 246.

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 www.emswireless.com and reflect all updates.

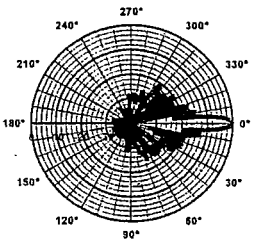
MOUNTING OPTIONS

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"

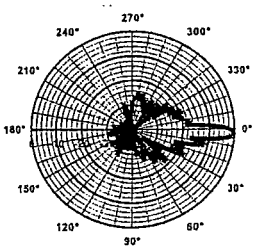
* Model number shown represents a series of products. See mounting options section for specific model number.



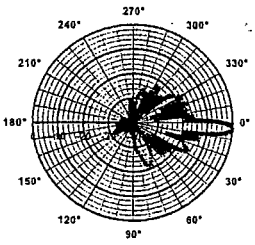
Azimuth



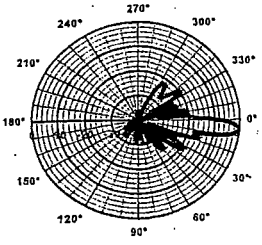
Elevation
0° Downtilt



Elevation
2° Downtilt



Elevation
4° Downtilt



Elevation
6° Downtilt

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^2
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	~~70~~ 50 Amps
Max. Heat Dissipation	22100 Btu/Hour
Normal Heat Dissipation	11006 Btu/Hour
Operating Temperature	-40^{0}C to 50^{0}C (-40^{0}F to 122^{0}F)
Maximum Operating Humidity	100%
Max level of acoustic noise	65 dB
Ground Cable	2/0 MCM
Antenna Connectors	N (f)
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 (PAMICO)
- 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.

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 $Temp_{ext}$ < 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^3 / hour

Exhibit D

Structural Analysis
116 Grant Hill Road
Brooklyn, Connecticut

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

SEMAAN ENGINEERING SOLUTIONS

OK P/O 6/2/03

150 ft EEI Monopole
Structural Analysis

CT-11-511A

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

Site: CT33XC567
VoiceStream
Brooklyn, CT

May 29, 2003

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

Re: Site Number CT33XC567 – Brooklyn, 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 150 ft EEI Monopole.

Refer to EEI job #6459 dated February 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 a basic wind speed of 85 mph and 1/2" radial ice with reduced wind speed.** 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)

Elev. (ft)	Qty.	Antennas and Mounts	Coax	Owner
147.0	9	DB980H90E Mounted On a EEI Low Profile platform	(9) 1-5/8	Sprint
137.0	**6**	**RR90-17-00NP Mounted On a Low Profile Platform**	**(12) 1-5/8**	**VoiceStream**
127.0	6	Allgon 7250 Mounted On (3) T-Arms	(12) 1-5/8	AT&T

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: 48.9%.

Foundation:

Pole Reactions	Original Design Reactions	Current Analysis Reactions	% Of Design
Moment (ft-kips)	2,805.10	1,581.09	56.4
Shear (kips)	25.29	15.99	63.2

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 85 mph and 1/2" radial ice with reduced wind speed.

Exhibit E

Power Density Calculations

116 Grant Hill Road

Brooklyn, Connecticut

T-Mobile USA Inc.
100 Filley St, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: Karina Hansen
From: Hassan Syed - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11511A
Date: June 11, 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 116 Grant Hill Road, Brooklyn, 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 137 ft.
5) The maximum transmit power from any sector is 3232.5 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 116 Grant Hill Road, Brooklyn, CT, is 0.04133 mW/cm^2. This value represents 4.133% of the Maximum Permissible Emission (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) 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 8.15%. The combined Power Density for the site is 12.283% of the M.P.E. standard.

New England Market
Connecticut
Worst Case Power Density

T-Mobile

Site:	**CT11511A**
Site Address:	**116 Grant Hill Road**
Town:	**Brooklyn**
Tower Height:	**150 ft.**
Tower Style:	**Monopole**
Base Station TX output	17 W
Number of channels	8
Antenna Model	EMS RR90-17-02DP
Cable Size	1 5/8 in.
Cable Length	150 ft.
Antenna Height	137.0 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	1.7400 dB
Total Attenuation	2.7400 dB
Total EIRP per Channel	56.06 dBm
(In Watts)	404.06 W
Total EIRP per Sector	65.10 dBm
(In Watts)	3232.50 W
nsg	13.7600
Power Density (S) =	**0.041325 mW/cm^2**
Voicestream Worst Case % MPE =	**4.1325%**

Equation Used :

$$S = \frac{(1000)(grf)^2(Power)*10^{(nsg/10)}}{4\pi(R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total

Carrier	**% of Standard**
Verizon	
Cingular	
Sprint PCS	4.5900 %
AT&T Wireless	3.5600 %
Nextel	
Total Excluding Voicestream	**8.1500 %**
Voicestream	4.1325
Total % MPE for Site	**12.2825%**