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

September 26, 2002

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

RE: **TS-T-MOBILE-054-020916** - Omnipoint Communications, Inc., a subsidiary of T-Mobile USA, Inc. request for an order to approve tower sharing at an existing telecommunications facility located at 2577 Main Street, Glastonbury, Connecticut.

Dear Attorney Humes:

At a public meeting held September 25, 2002, 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 with the condition that a certified lab report confirming the material specification used for the tower legs be submitted to URS prior to the installation of any antennas and that this report shall also be submitted to the Council. 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 September 16, 2002.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/laf

c: Honorable Walter Cussan, Chairman Town Council, Town of Glastonbury
Richard J. Johnson, Town Manager, Town of Glastonbury
Kenith Leslie, Town Planner, Town of Glastonbury
Thomas F. Flynn III, Nextel Communications Inc.
Julie M. Donaldson, Esq., Hurwitz & Sagarin LLC
Christopher B. Fisher, Esq., Cuddy & Feder & Worby LLP

I:\siting\cm\omni\glastonbury\dc092502.doc

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TS-T-MOBILE-054-020916

September 16, 2002

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

Re: Request by T-Mobile for an Order to Approve the Shared Use of a Tower Facility at 2577 Main Street, Glastonbury, Connecticut

Dear Chairman Gelston 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. T-Mobile is the successor to VoiceStream Wireless Corp. by virtue of a recent corporate name change and nationwide re-branding strategy. Pursuant to Connecticut General Statutes §16-50aa, T-Mobile hereby requests an order from the Connecticut Siting Council ("Council") approving the proposed shared use by the Applicant of an existing tower located at St. Paul Roman Catholic Church, 2577 Main Street, in Glastonbury, 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 and adjacent to the existing compound (see drawing Z-1 attached as 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.

Background

Omnipoint Communications, Inc., under the brand name of T-Mobil, operates the "A block" "Wideband PCS" license 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 the State of Connecticut, which includes the area to be served by the proposed installation.

The tower at 2577 Main Street, Glastonbury is a one hundred thirty foot (130') Nextel lattice tower. The coordinates for the site are **41°-42'-52.2" N** and **72°-36'-46.6" W**. The tower is located approximately twenty-nine hundred feet (2,900') west of Route 2 and approximately thirty-nine hundred feet (3,900') south of Route 3 in Glastonbury. The site is approximately eighteen hundred feet (1,800') east of the Connecticut River. The tower is owned by Nextel Communications. 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 page three of the structural analysis attached as Exhibit D and are also shown on the elevation drawing on Z-1 attached as Exhibit B. Currently, Nextel has antennas at the one hundred twenty eight foot (128'-0") centerline AGL, Sprint has antennas at the one hundred eighteen foot (128'-0") centerline AGL and AT&T has antennas at the one hundred eight foot (108'-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 RR65-19-02 DP. Each cluster of the proposed antennas would be mounted on a T-frame tubular arm pipe mount set at the ninety-three foot (93'-0") centerline AGL. The radio transmission equipment associated with these antennas, three (3) Nortel S8000 BTS cabinets, would be located near the base of the tower on a proposed concrete pad. The tower and all of the equipment for all existing and proposed carriers is within an existing seventy foot by seventy foot (70'-0") gravel compound, surrounded by a gated, twelve foot (12') high chain link fence. (shown on drawing Z-1 attached as 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 structural analysis shows that the tower and foundation can support the proposed installation. 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 2577 Main Street in Glastonbury. 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 0.093384 mW/cm2, which is 9.3384 % of the Maximum Permissible Emission (MPE). The combined power density calculations from other carriers is 9.6800 % of the MPE. This accounts for a combined power density of 19.0184% 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 Main Street in Glastonbury on the St. Paul Roman Catholic Church property. 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 2577 Main Street, Glastonbury, 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 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: Stephen J. Humes/bg

Its Counsel
Diane W. Whitney
Stephen J. Humes

Attachments

cc: Walter J. Cusson, Chairman Glastonbury Town Council
Richard J. Johnson, Town Manager

Exhibit A

Site Map
2577 Main Street
Glastonbury, Connecticut

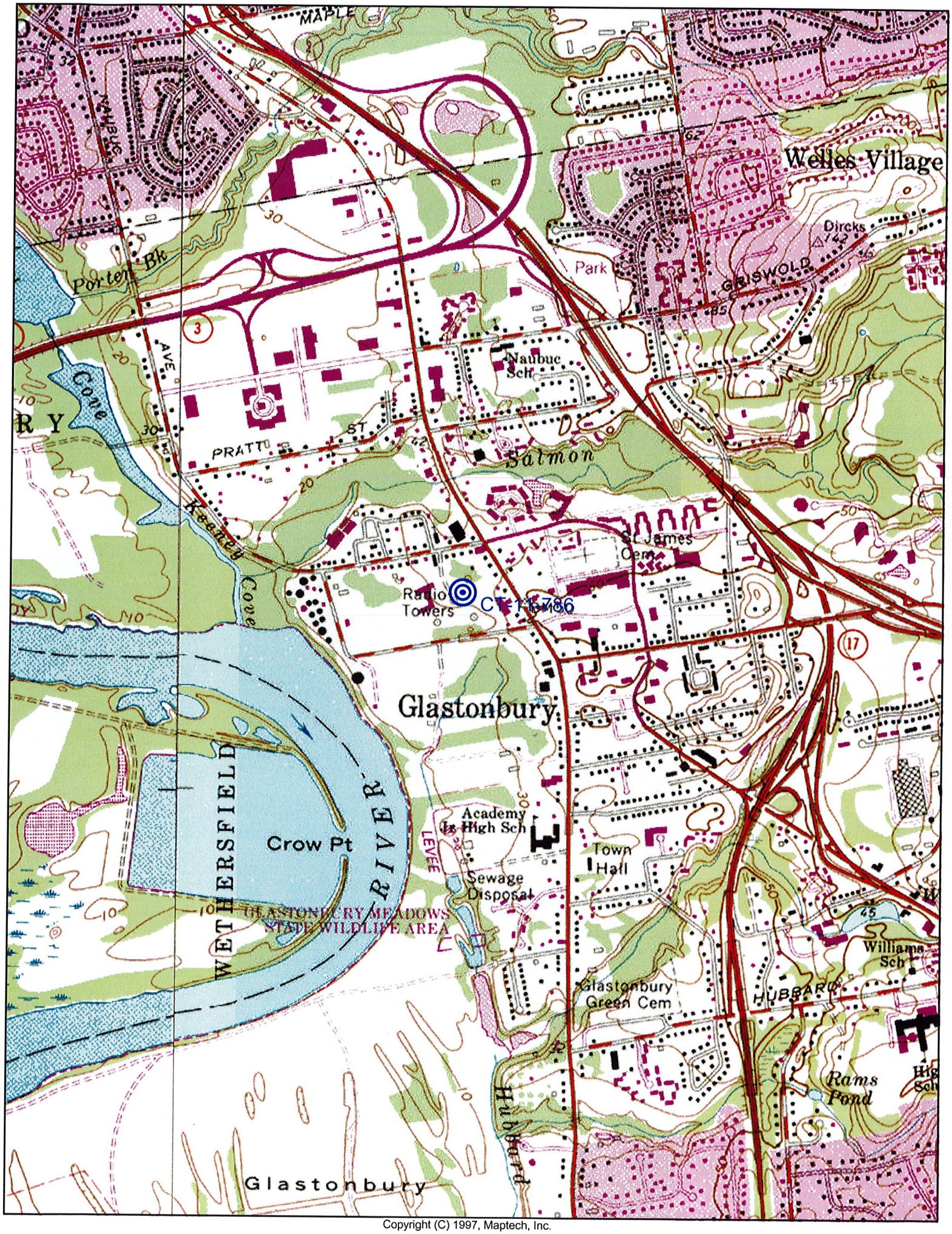
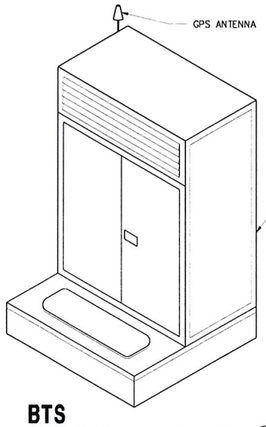


Exhibit B

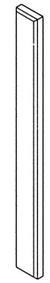
Design Drawings

2577 Main Street

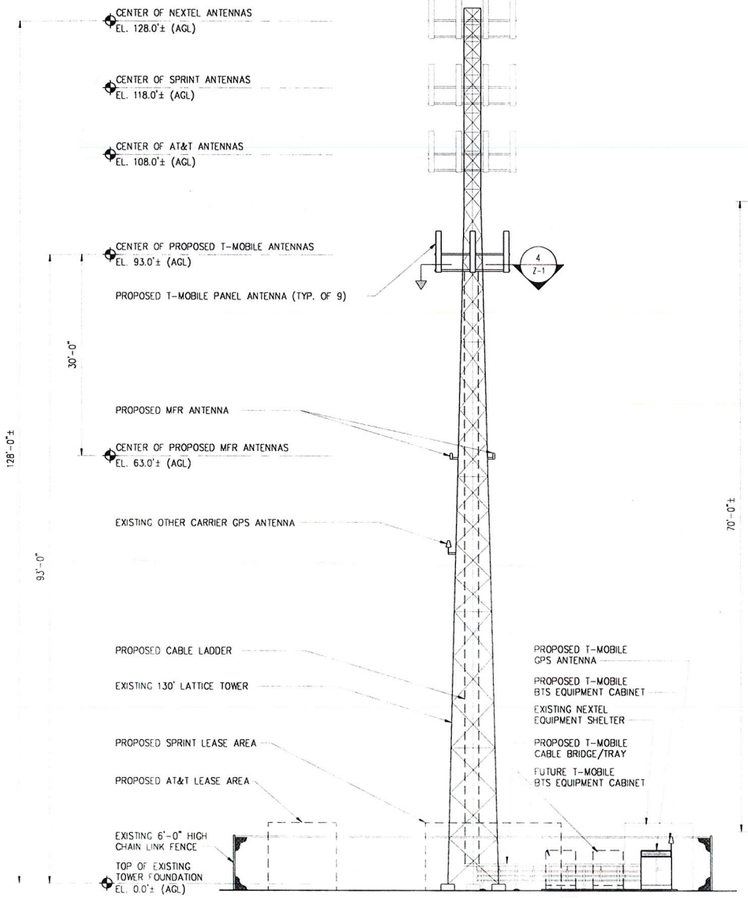
Glastonbury, Connecticut



BTS EQUIPMENT CABINET
SCALE: NOT TO SCALE (7 / Z-1)

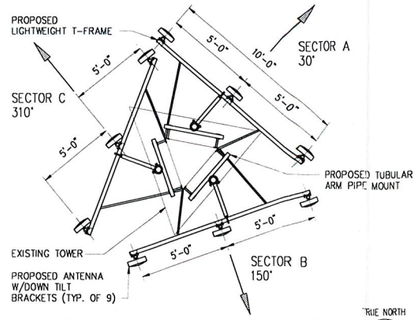


PANEL ANTENNA DETAIL
SCALE: NOT TO SCALE (6 / Z-1)



ELEVATION
SCALE: 3/32"=1'-0" (3 / Z-1)

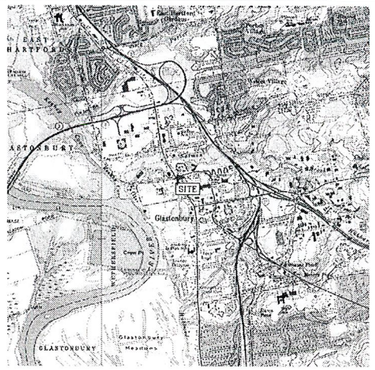
0 5'-4" 10'-8" 21'-4" 32'-0"



ANTENNA MOUNTING PLAN
SCALE: 1/4"=1'-0" (4 / A-1)

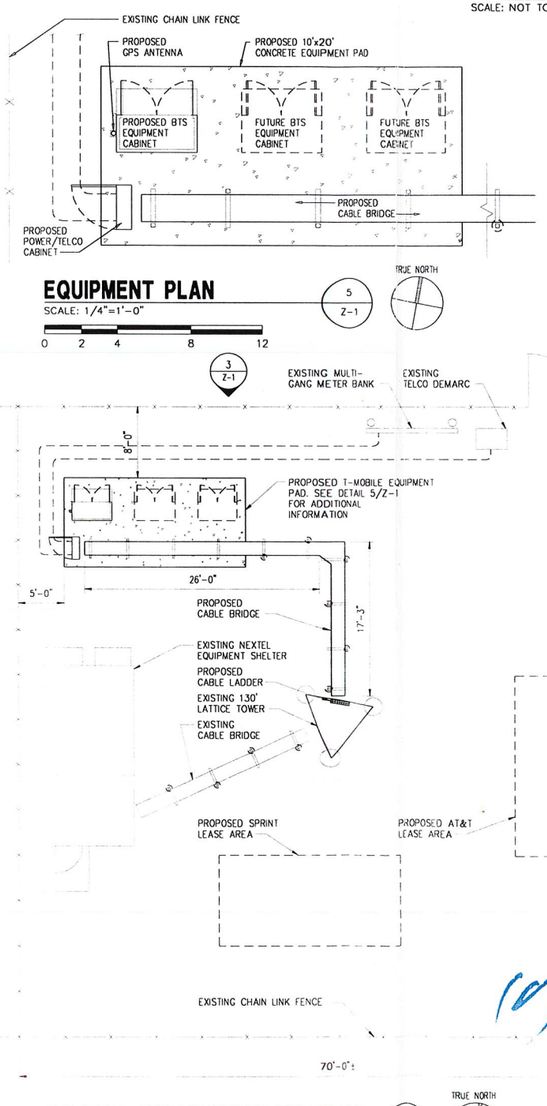
0 2 4 8 12

TRUE NORTH



VICINITY MAP
SCALE: NOT TO SCALE

TRUE NORTH



EQUIPMENT PLAN
SCALE: 1/4"=1'-0" (5 / Z-1)

0 2 4 8 12

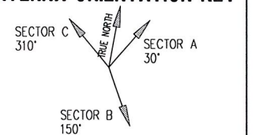
TRUE NORTH

PARTIAL SITE/EQUIPMENT PLAN
SCALE: 1/8"=1'-0" (2 / Z-1)

0 4 8 16 24

TRUE NORTH

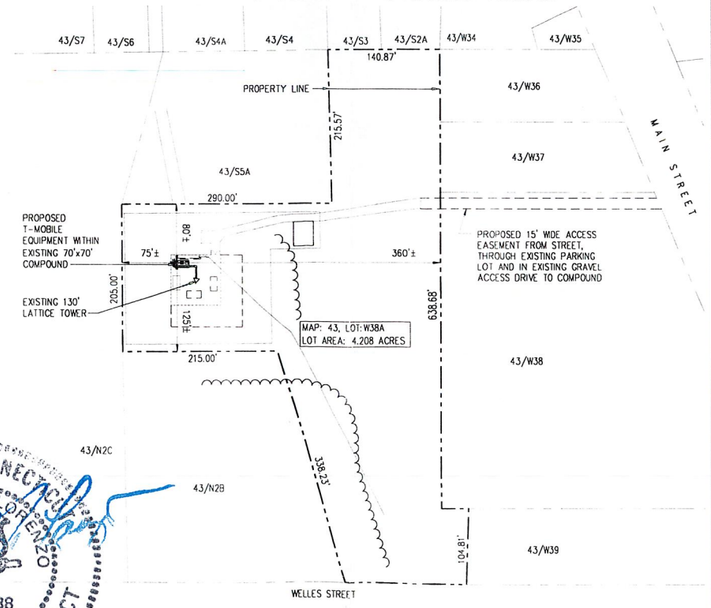
ANTENNA ORIENTATION KEY



GENERAL NOTES

1. THE TYPE, DIMENSIONS, MOUNTING HARDWARE, AND POSITIONS OF ALL EQUIPMENT FOR THE T-MOBILE INSTALLATION ARE SHOWN IN ILLUSTRATED FASHION. THESE DRAWINGS ARE NOT INTENDED FOR CONSTRUCTION. ACTUAL HARDWARE DETAILS AND FINAL LOCATIONS MAY DIFFER SLIGHTLY FROM WHAT IS SHOWN.
2. THE T-MOBILE PCS EQUIPMENT CONSISTS OF AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. THE T-MOBILE BASE TRANSMISSION STATION (BTS) CABINET IS A WEATHER RESISTANT, VANDAL RESISTANT STEEL CABINET CONTAINING RECTIFIERS, AMPLIFIERS, RADIOS, AND OTHER INTEGRATED ELECTRONIC CONTROL EQUIPMENT. THE BTS IS ENVIRONMENTALLY CONTROLLED BY A SELF-CONTAINED AC-POWERED HEATING AND COOLING SYSTEM USING CFC-FREE THERMAL TRANSFER COMPOUNDS. MANUFACTURER'S SPECIFICATIONS INDICATE THAT AT FULL LOAD CONDITIONS, MAXIMUM ACOUSTICAL NOISE LEVELS ARE 50 DB(A) AT A DISTANCE OF 3 METERS (10 FEET) AND 40 DB(A) AT A DISTANCE OF 9 METERS (30 FEET). BATTERY BACKUP FOR EMERGENCY STANDBY POWER IS CONTAINED WITHIN THE SEALED BTS CABINET AND CONSISTS OF FOUR 12-VOLT, CLOSED-CELL DC BATTERIES. THE BATTERIES ARE LEAD-ACID RECHARGEABLE STANDBY INDUSTRIAL POWER CELLS MANUFACTURED TO MEET ENVIRONMENTAL QUALITY AND RUGGEDNESS STANDARDS OF THE INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA). THE BATTERY CHARGING SYSTEM IS COMPUTER CONTROLLED AND THE EQUIPMENT CABINET IS REMOTELY MONITORED AT T-MOBILE'S EAST PROVIDENCE OFFICE 24 HOURS A DAY, 7 DAYS A WEEK FOR FAULTS AND ALARMS.
4. THE DESIGN OF THE ANTENNA MOUNTING HARDWARE WILL MEET THE ANSI/EIA/TIA-222-F STANDARDS FOR STRUCTURAL STEEL ANTENNA SUPPORTING STRUCTURES AND STATE BUILDING CODE REQUIREMENTS. DETAILED CONSTRUCTION DRAWINGS AND STRUCTURAL CALCULATIONS WILL BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH A BUILDING PERMIT APPLICATION FOR REVIEW AND APPROVAL BY THE LOCAL BUILDING CODE ENFORCEMENT OFFICIAL.
5. ONCE THE FACILITY BECOMES FULLY OPERATIONAL, NORMAL AND ROUTINE MAINTENANCE BY T-MOBILE TECHNICIANS WILL BE PERFORMED ON A MONTHLY BASIS. THEREFORE, THE ESTIMATED VEHICLE TRIP GENERATION RATE IS TWO TRIPS PER MONTH. THE AVERAGE DAILY TRIP GENERATION RATE IS 0.07.
6. PAINT ANTENNAS, MOUNTING HARDWARE, COAXIAL CABLE AND EXPOSED VERTICAL CABLE TRAY TO MATCH EXISTING CONDITIONS.
7. PERMANENT STANDBY EMERGENCY POWER WILL NOT BE UTILIZED BY T-MOBILE. IF NECESSARY, DURING AN EXTENDED POWER OUTAGE, A PORTABLE EMERGENCY GENERATOR WILL BE USED TO PROVIDE TEMPORARY EMERGENCY BACKUP POWER. THERE IS NO ON-SITE BULK STORAGE OF FLAMMABLE OR COMBUSTIBLE FUELS FOR OPERATING AN EMERGENCY GENERATOR FOR THE T-MOBILE EQUIPMENT.
8. FCC MANDATE REQUIRES ENHANCED EMERGENCY (E911) POSITION LOCATION EQUIPMENT TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. IMPLEMENTATION OF E911 STANDARDS REQUIRES T-MOBILE TO DEPLOY A MINIMUM OF 2 MEASUREMENT FUNCTION RECEIVER (MFR) ANTENNAS AND 1 GLOBAL POSITIONING SYSTEM (GPS) ANTENNA. THIS PLAN DEPICTS A SCHEMATIC DESIGN AND LOCATION OF THE MFR AND GPS ANTENNAS AND MAY BE SUBJECT TO CHANGE. T-MOBILE RESERVES THE RIGHT TO CHANGE THE LOCATION AND CONFIGURATION OF THE E911 EQUIPMENT WITHOUT ANY UNREASONABLE RESTRICTIONS IMPOSED BY THE LANDLORD.

9.	APPLICANT:	OMNIPOINT COMMUNICATIONS, INC. 100 FILLEY STREET BLOOMFIELD, CT 06002
10.	PROPERTY OWNER:	ST PAUL ROMAN CATHOLIC CHURCH 2577 MAIN STREET GLASTONBURY, CT 06033-2023
11.	STRUCTURE OWNER:	NEXTEL COMMUNICATIONS 100 CORPORATE PLACE ROCKY HILL, CT 06067
12.	ASSESSOR'S PARCEL NO.:	ASSESSOR'S PLAT/MAP: 43, LOT: W38A
13.	JURISDICTION:	TOWN OF GLASTONBURY
14.	ZONING DISTRICT:	PLANNED BUSINESS AND DEVELOPMENT



PLOT PLAN BASED ON TAX MAP FROM THE TOWN OF GLASTONBURY, CT
SETBACKS ARE TAKEN FROM PROPOSED EQUIPMENT TO PROPERTY LINES.

PLOT PLAN
SCALE: 1"=100'-0" (1 / Z-1)

0 50 100 200 300

TRUE NORTH

STATE OF CONNECTICUT
DENNIS J. FLORENZO
No. 3388
REGISTERED ARCHITECT

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

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APPROVALS

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

PROJECT NO: 02125.12
DRAWN BY: MJE/JJT
CHECKED BY: DJD

SUBMITTALS

3	9/13/02	FOR ZONING REVISED
2	5/23/02	FOR ZONING REVISED
1	5/6/02	FOR ZONING FINAL
0	4/26/02	FOR ZONING REVIEW

CT-11-786D
GLASTONBURY
2577 MAIN STREET
GLASTONBURY, CT 06033

SHEET TITLE
PLANS, ELEVATIONS, DETAILS AND NOTES

SHEET NUMBER
Z-1

Exhibit C

Equipment Specifications

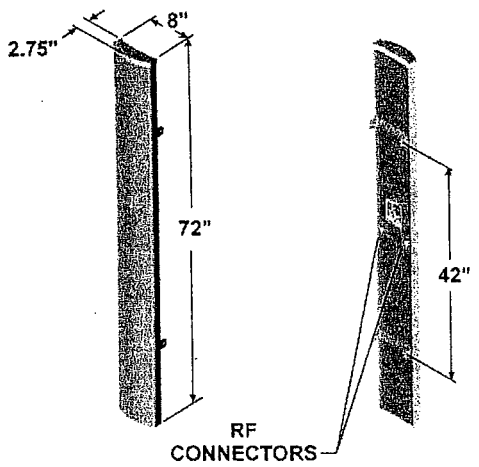
2577 Main Street
Glastonbury, Connecticut

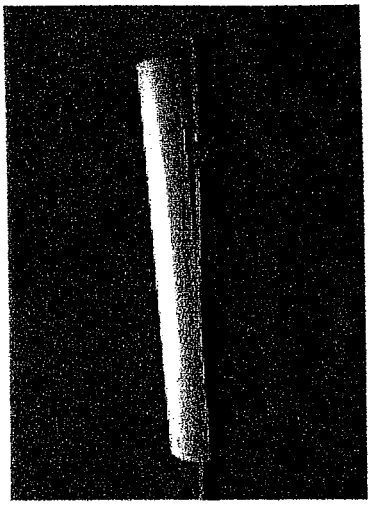
EMS Wireless

OptiRange™

RR65-19-XXDP

1850 MHz - 1990 MHz (P)





65° beamwidth

18.5 dBi gain

±45° DualPol™

72 inch

SPECIFICATIONS

Electrical

Azimuth Beamwidth	65°
Elevation Beamwidth	4.5°
Gain	18.5 dBi (16.4 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; 7-16 DIN (female)
Power Handling	250 Watts CW
Passive Intermodulation	≤ -147 dBc [2x20W (+43 dBm)]
Lightning Protection	Chassis Ground

Mechanical

Dimensions (L x W x D)	72in x 8in x 2.75in (183 cm x 20.3 cm x 7.0 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	4ft² (0.37 m²)
Front Wind Load @ 100 mph (161 kph)	115 lbs (512 N)
Side Wind Load @ 100 mph (161 kph)	40 lbs (176 N)
Weight	23 lbs (10.4 kg)

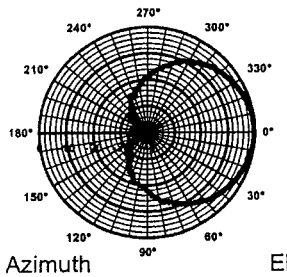
Note: Patent Pending and US Patent number 5, 757, 246.

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.

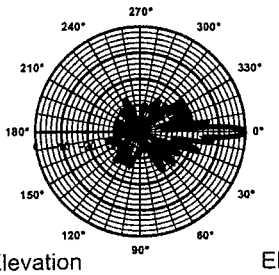
MOUNTING OPTIONS

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"

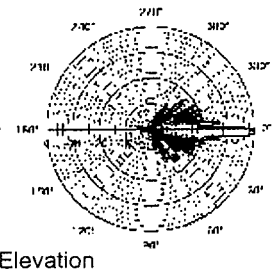
* Model number shown represents a series of products. See mounting options section for specific model number.



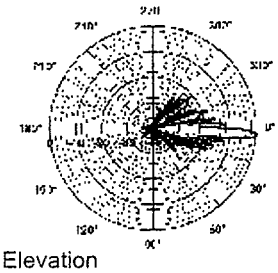
Azimuth



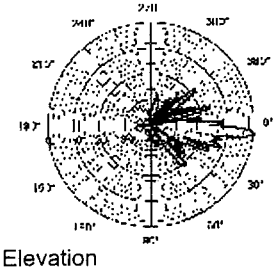
Elevation
0° Downtilt



Elevation
2° Downtilt



Elevation
4° Downtilt



Elevation
6° Downtilt

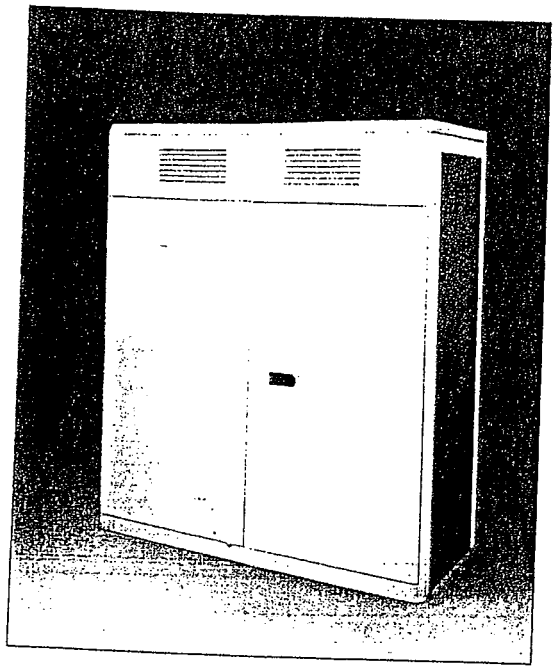
www.emswireless.com
+1 770.582.0555
Fax +1 770.729.0036

Revised 11/19/01

GSM 900 / DCS 1800 / PCS 1900

NORTEL
NORTHERN TELECOM

S8000 Outdoor Base Transceiver Station



Nortel's S8000 Outdoor Base Transceiver Station has been designed to meet the economic and performance requirements of network operators. Based on a highly integrated RF and digital design, the S8000 Outdoor Base Transceiver Station represents a major technology advancement and delivers all the benefits of a compact, modular, high quality and high performance product.

Nortel's S8000 Outdoor BTS: Radio Performance Leadership - Reduced Site Acquisition and Operating Costs

Installation

- The S8000 Outdoor Base Transceiver Station (BTS) offers compact packaging and requires minimal floor space, only .88 sq m (9.5 sq ft.). Front only access keeps total space required, including maintenance access, to only 1.8 sq m (19.4 sq ft) per cabinet.

Transmission

- Integrated drop and insert connection to the Base Station Controller (BSC) and signaling concentration on the A-bis interface provide significant transmission cost reduction.
- Optional integrated digital microwave radio.

Maintenance

- Highly reliable technology, redundant architecture and integrated battery backup ensure high availability service.
- Front access and interconnections, as well as powerful fault detection, help reduce lifetime maintenance costs.

Industry leading performance

- New RF technology and advanced digital processing techniques provide very high receive sensitivity (-108 dBm guaranteed) and improved diversity gain (up to 6 dB). This provides higher resistance to interference, as well as, improved speech quality and cell coverage.
- Nortel's proven experience in frequency hopping, 1*3 frequency reuse, sophisticated microcellular handover algorithms and support of half-rate vocoders enables the operator to maximize use of available spectrum and deploy fewer cell sites.

Fast network deployment

- The S8000 BTS can be shipped fully equipped and tested, which provides fast network roll out to meet operator time to market requirements.

Modular and flexible configuration

- The S8000 supports eight transceivers (TRX) per cabinet in Omni and sectored configurations. The typical one cabinet S222 configuration may be expanded up to S332 or S422 without an additional cabinet.

Technical Data

• Frequency range		900 MHz GSM
		900 MHz GSM extended
		1800 MHz DCS
		1900 MHz PCS
• Receive sensitivity (guaranteed)		-108 dBm
• Dimensions	Height	1600 mm / 5 ft. 3 in.
	Width	1350 mm / 4 ft. 5 in.
	Depth	650 mm / 2 ft. 1 in.
• Weight	Fully equipped	600 kg / 1300 lbs.
• Capacity		8 TRX per cabinet
		up to 3 cabinets
• Configuration	Trisectorial	up to S888
	Omnidirectional	up to O16
• Amplifier output power		30 W (± 1.5 dB)
• Power control	Static	6 steps of 2 dB
	Dynamic	15 steps of 2 dB
• Frequency hopping		RF synthesized
		baseband
• Supported vocoders		Full rate
		Enhanced full rate
		Half rate
• Encryption algorithms		A5/1 A5/2
• Power supply		230V AC 50/60 Hz
• Power back-up		Integrated battery back-up plus optional battery cabinet allows provisioning up to 8 hours back-up time.
• Operating temperature range		-40°C to +50°C
		-40°F to +122°F

For more information,
please contact your local Nortel account representative.

In the USA:
Northern Telecom
2221 Lakeside Boulevard
Richardson TX 75082
USA
Telephone: 1-800-4 NORTEL
1-800-466-7838 or (214) 684-5935
http://www.nortel.com/wireless

In Canada:
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2920 Matheson Boulevard East
Mississauga ON L4W 4M7
Canada
Telephone: 1-800-4 NORTEL

In the Caribbean and Latin America:
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Sunrise FL 33323
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Telephone: (305) 851-8400

In Asia:
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151 Lorong Chuan
#02-01 New Tech Park
Singapore 1955
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34th Floor, Central Plaza
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Maidenhead
Berkshire SL6 1AY
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Nortel Europe
12-12bis rue Jean Jaurès
92807 Puteaux
France
Telephone (33) (1) 46 96 15 15

NORTEL
NORTHERN TELECOM

3 CABINET DESCRIPTION

3.1 PHYSICAL CHARACTERISTICS

3.1.1 S8000 Outdoor BTS

3.1.1.1 BTS cabinet

Dimensions

The BTS S8000 Outdoor has the following dimensions:

- height: 160 cm (63 in.)
- width: 135 cm (52.8 in.)
- depth: 65 cm (25.6 in.)

Weight

The weight of the cabinet when empty, that is, without its battery, fan units or boards, is 164 kg (361 lb). Depending on the configuration, a fully equipped cabinet weighs approximately 480 kg (1056 lb) with ACU unit or 440 kg (968 lb) with DACS unit.

These weights do not include the plinth.

Operating temperature

To operate correctly, the BTS requires a temperature greater than –40°C (–40°F) and less than +50°C (+122°F).

Consumption

BTS input voltage:

- GSM 900/1800
  - nominal voltage contained between 220V AC and 240V AC
  - minimum voltage: 220 – 10% = 198V AC
  - maximum voltage: 240 + 6% = 254V AC
- GSM 1900 (with DACS)
  - nominal voltage: 208V AC to 240V AC
  - minimum voltage: 208 – 10% = 187V AC
  - maximum voltage: 240 + 6% = 254V AC

NON - PREMIUM BTS ONLY

- GSM 1900 (with ACU and/or the power system six–rectifier type)
  - nominal voltage: 240V AC
  - minimum voltage: 240 – 10% = 187V AC
  - maximum voltage: 240 + 6% = 254V AC

Exhibit D

Structural Analysis

2577 Main Street

Glastonbury, Connecticut

DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF 130' EXISTING LATTICE TOWER FOR NEW ANTENNA ARRANGEMENT

2557 Main Street

Glastonbury, Connecticut
VoiceStream Site No.: CT-11-786D

prepared for

T-Mobile

100 FILLEY STREET
BLOOMFIELD, CT 06002
TEL. 860-692-7127

URS

prepared by

URS CORPORATION AES
795 BROOK STREET, BLDG 5
ROCKY HILL, CT 06067
TEL 860-529-8882

VS1 001

August 30, 2002

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the reinforced 130' lattice tower located on 2557 Main Street in Glastonbury, Connecticut. The analysis was conducted in accordance with TIA/EIA-222-E standard for wind velocity of 80 mph and 70 mph concurrent with ½" ice design wind loads. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Analysis Methodology and Loading Condition Section of this report. The proposed T-Mobile modification is to add the antennas listed below:

(9) RR65-19 antennas with (3) T-Frame mounts and (18) 1 5/8" coax cables	T-Mobile	@ 93' elevation

The results of the analysis indicate that the tower structure is in compliance with the proposed loading conditions. The tower and its foundation are considered feasible with the TIA/EIA-222-E wind load classification specified above and all the existing and proposed antenna loading.

This analysis is based on:

1) The tower structure's theoretical capacity not including any assessment of the condition of the tower.

2) Tower and Foundation documents prepared by Fred A. Nudd Corporation project no. 6893B dated July 2002.

3) Antenna inventory as specified in section 2 and 6 of this report.

4) TIA\EIA-222-E wind load classification.

5) Cable orientation as specified on drawing SK-1 of this report.

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration. Notify the engineer in writing immediately if any of the assumptions in this report are found to be other than specified. A certified lab report shall be submitted to URS Corporation prior to installation. The certified lab test shall confirm the use of the material specification for minimum yield stress ASTM A500-C of FY > 54ksi for the tower legs, FY > 45ksi for the tower rods, and anchor bolts A36-F55 with a tensile strength of Fu > 85ksi. The original designer of the tower utilized the parameters listed above which are nonstandard.

If you should have any questions, please call.

Sincerely,
URS Corporation AES

Mohsen Sahirad, P.E.
Senior Structural Engineer

MS/rmn

cc: Bryan Bakis – T-Mobile
Doug Roberts – URS
N.A. – URS
A.A. – URS
CF/Book

2. INTRODUCTION

The subject tower is located on 2557 Main Street in Glastonbury, Connecticut. The structure is a self supporting 130' steel triangular tapered lattice tower manufactured by Fred A. Nudd Corporation.

The tower is constructed of pipe legs, diagonal angle braces and horizontal angle braces. The tower sections are all bolted together. The width of the face is 2'-6" at the top and 7'-6"' at the bottom. The tower geometry and structural member sizes were taken from Fred A. Nudd Corporation project no. 6893B dated July 2002.

The existing structure supports several communication antennas. The antenna and mount configuration as specified below:

Antenna Type	Carrier	Mount	Elevation	Cable
(12) DB844H90	Nextel	(3) T-Frame	128'	(12) 1 1/4" coax cable
(12) DB978H90T5E-M	Sprint	Low Profile Platform	118'	(12) 1 1/4" coax cable
(12) Allgon 7184	AT&T	Low Profile Platform	108'	(12) 1 1/4" coax cable
(9) RR65-19	**T-Mobile (proposed)**	**(3) T-Frame**	**93'**	**(18) 1 5/8" coax cable**
(2) MFR	**T-Mobile (proposed)**	**(2) Stand off mount**	**63'**	**(2) 1/2" coax cable**
(2) GPS	Nextel	(2) Stand off mount	50'	(2) 1/2" coax cable

This structural analysis of the communications tower was performed by URS Corporation, AES (URS) for T-Mobile. The purpose of this analysis was to the existing tower for its existing and proposed antenna loads. This analysis was conducted to evaluate twist (rotation), sway (deflection) and stress on the tower, and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangements.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

Methodology:

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

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

Load Condition 1 = 80 mph Wind Load + Tower Dead Load
Load Condition 2 = 70 mph Wind Load (with ½" radial ice) + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, allowable stresses of tower members were increased by one-third in computing the load capacity; in addition, the appropriate "k" factors were assigned to each member.

4. FINDINGS AND EVALUATION

The combined axial and bending stresses on the tower structure were evaluated to compare with the allowable stress in accordance with AISC. The analysis indicates that the tower legs, diagonal members, horizontal members and foundation have sufficient capacity to carry the loads applied.

The tower base reactions are as follows:

Existing Tower Reactions	
Compression (kips)	244
Uplift (kips)	225
Total Shear (kips)	19
Moment (kips-ft)	1527

Proposed Tower Reactions	
Compression (kips)	274
Uplift (kips)	252
Total Shear (kips)	20
Moment (kips-ft)	1710

For detailed proposed tower reactions, see drawing no. E-1 in section 6 of this report.

5. CONCLUSIONS

The results of the analysis indicate that the structure is in compliance with the loading conditions and the materials and member sizes for the tower. The tower is considered feasible with the TIA/EIA-222-E wind load classification specified above and all the existing and proposed antenna loading. The user of this report shall field verify the assumption of the antenna and mount configuration. Notify the engineer in writing immediately if any of the assumptions in this report are found to be other than specified.

Limitations/Assumptions:

This report is based on the following:

A. Tower is properly installed and maintained.

B. All members were as specified in the original Construction Documents and are in good condition.

C. All required members are in place.

D. All bolts are in place and are properly tightened.

E. Tower is in plumb condition.

F. All members are galvanized.

G. All tower members were properly designed, detailed, fabricated, installed, and have been properly maintained since erection.

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

A. Adding antennas
B. Adding mounts
C. Adding cables

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Ongoing and Periodic Inspection and Maintenance by the Owner:

1. After the Contractor has successfully completed the installation and the work has been accepted, the tower owner will be responsible for the ongoing and periodic inspection and maintenance of the tower and reinforcing system.

2. The Owner shall refer to TIA/EIA-222-E, Section 14 and Annex E for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the Owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system is performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-E Section 14.1, Note 1: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

Exhibit E

Power Density Calculations

2577 Main Street

Glastonbury, Connecticut

VOICESTREAM WIRELESS CORPORATION
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: Mike Fulton
Subject: Power Density Report for CT11786
Date: September 12, 2002

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the Voicestream Wireless Corporation PCS antenna installation on a New Lattice Tower at 2557, Main Street, Glastonbury, 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 Voicestream Wireless 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 RR65-19-02DP.
4) The antenna center line height is 93 ft.
5) The maximum transmit power from any sector is 3221.74 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 VoiceStream Wireless Corporation PCS antenna installation on a New Lattice Tower at 2557, Main Street, Glastonbury, CT, is 0.09338 mW/cm^2. This value represents 9.338% 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 VoiceStream Wireless 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.

New England Market
Connecticut
Worst Case Power Density

VoiceStream
Global Wireless by T-Mobile

Site:	**CT11786**
Site Address:	**2557, Main Street**
Town:	**Glastonbury**
Tower Height:	**130 ft.**
Tower Style:	**New Lattice Tower**
Base Station TX output	10 W
Number of channels	8
Antenna Model	EMS RR65-19-02DP
Cable Size	1 5/8 in.
Cable Length	125 ft.
Antenna Height	93.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	1.00 dB
Antenna Gain	18.5 dBi
Cable Loss per foot	0.0116 dB
Total Cable Loss	1.4500 dB
Total Attenuation	2.4500 dB
Total EIRP per Channel	56.05 dBm
(In Watts)	402.72 W
Total EIRP per Sector	65.08 dBm
(In Watts)	3221.74 W
nsg	16.0500
Power Density (S) =	**0.093384 mW/cm^2**
Voicestream Worst Case % MPE =	**9.3384%**

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	3.4100 %
AT&T Wireless	2.7800 %
Nextel	3.4900 %
Total Excluding Voicestream	**9.6800 %**
Voicestream	9.3384
Total % MPE for Site	**19.0184%**

Relative Gain Power Density

Antenna Relative Gain Factor	-23.8 dBi
Total Attenuation	2.4500 dB
Total EIRP per Channel	32.25 dBm
(In Watts)	1.68 W
Total EIRP per Sector	41.28 dBm
(In Watts)	13.43 W
nsg	-7.7500
Power Density (S) =	**0.000389 mW/cm^2**
Voicestream Relative Gain % MPE =	**0.0389%**

URS

To: Mr. Dave Martin

Firm: Connecticut siting Council

Facsimile #: 827-2950

From: Mohsen Sahirad

Date: 6/17/02

Page 1 of: 5

RECEIVED
SEP 17 2002
CONNECTICUT
SITING COUNCIL

Subject: Glastonbury Police Department

Message: Here is a copy of revised report for Glastonbury police Department Tower Issued Sept. 6, 2002. The Tower is adequate as it without any required reinforcement

I would like to apologize for the Typing error

Thank you.

Mark Gaudet

cc:

URS Corporation
795 Brook Street, Building 5
Rocky Hill, CT 06067
Tel: 860.529.8882
Fax: 860.529.5566
www.urscorp.com

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the 170' lattice tower located on 2108 Main Street in Glastonbury, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-E standard for wind velocity of 80 mph and 80 mph concurrent with ½" ice design wind loads. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Analysis Methodology and Loading Condition Section of this report. The proposed Cingular Wireless modification is to replace the existing Cingular Wireless antennas with the antennas listed below:

(9) DUO1417-8686 antennas and (6) TMAs and (3) Diplexers with (3) T-Frame mounts and (9) 1 1/4" coax cables	Cingular	@ 166'-6" elevation

The results of the analysis indicate the structure to be in compliance with the proposed loading condition for the tower. The tower is considered feasible with the TIA/EIA-222-E wind load classification specified above. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

This analysis is based on:

1) The tower structure's theoretical capacity not including any assessment of the condition of the tower.

2) Tower and Foundation documents prepared by Rohn Industries engineering file no. 34586PH dated July 23, 1997 and September 18, 1997.

3) Antenna inventory as specified in section 2 and 6 of this report.

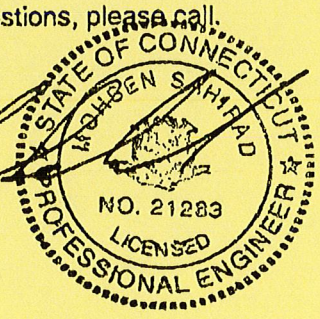
4) TIA\EIA-222-E wind load classification.

5) Antenna inventory prepared by Construction Service of Branford Communication (CSB) dated August 12, 2002.

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration. Notify the engineer in writing immediately if any of the assumptions in this report are found to be other than specified.

If you should have any questions, please call.

Sincerely,
URS Corporation AES



Mohsen Sahirad, P.E.
Senior Structural Engineer

MS/rmn

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

2. INTRODUCTION

The subject tower is located on 2108 Main Street in Glastonbury, Connecticut. The structure is a self supporting 170' steel triangular tapered lattice tower manufactured by Rohn Industries.

The tower is constructed of pipe legs, diagonal angle braces and horizontal angle braces. The tower sections are all bolted together. The width of the face is 4'-6 3/4" at the top and 20'-10 3/8" at the bottom. The tower geometry and structural member sizes were taken from Rohn Industries engineering file no. 34586PH dated July 23, 1997.

The existing structure supports several communication antennas. The antenna and mount configuration as specified below:

Antenna model	Leg	Mount	Associated cable	Elevation (ft)
18' whip	Southeast	4' side arm	1/2" coax	50
PD220	Southwest	4' side arm	1/2" coax	41
PD455	Northeast	4' side arm	1/2" coax	54
1' Antenna	Southwest	4' side arm	1/2" coax	54
ASP973	Southeast	4' side arm	7/8" coax	57
PD220	Northeast	4' side arm	7/8" coax	64
11' Folded dipole	Northeast	Clamped to leg	1/2" coax	69
DB636	Southwest	4' side arm	7/8" coax	79.15
ASP 973	Southeast	4' side arm	7/8" coax	94
	Southeast	4' side arm		90
11' Folded dipole	Southeast	Clamped to leg	1/2" coax	102
DB536	Northeast	4' side arm	7/8" coax	113.655
11' Folded dipole	Northeast	Clamped to leg	1/2" coax	109
PD220	Southwest	4' side arm	7/8" coax	111
	Southwest	4' side arm		120
ASP 923	Southeast	4' side arm	1 1/4" coax	139
11' Folded dipole	Southwest	4' side arm	1/2" coax	133
PD455	Northeast	4' side arm	7/8" coax	144
	Southeast	4' side arm		140
MFF-900B	Southwest	4' side arm	1 1/4" coax	153
MFF-900B	Southeast	4' side arm	1 1/4" coax	155
MFF-900B	Northeast	4' side arm	1 1/4" coax	155.5
MFF-900B	Southwest	4' side arm	1 1/4" coax	156
Dish P-21A48GF-U	Northeast	Mounted to leg	1 5/8" coax	159
Proposed Cingular (9) DUO1417-8686 (6) TMA (3) Duplexers	**All three**	**(3) 12' T-Frame**	**(9) 1 1/4" coax**	**166.5**
12' Whip	Northeast	Mounted to T-Frame	7/8" coax	175
12' Whip	Southeast	Mounted to T-Frame	7/8" coax	175
PD455	Southwest	Mounted to T-Frame	1/2" coax	175

The structural analysis of this communications tower was performed by URS Corporation, AES (URS) for Cingular Wireless. The purpose of this analysis was to analyze the existing tower for its existing and proposed antenna loads. This analysis was conducted to evaluate twist (rotation), sway

(deflection) and stress on the tower, and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangements.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

Methodology:

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

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

Load Condition 1 = 80 mph Wind Load + Tower Dead Load
Load Condition 2 = 70 mph Wind Load (with ½" radial ice) + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, allowable stresses of tower members were increased by one-third in computing the load capacity; in addition, the appropriate "k" factors were assigned to each member.

4. FINDINGS AND EVALUATION

The combined axial and bending stresses on the tower structure were evaluated to compare with the allowable stress in accordance with AISC. The analysis indicates that the tower legs, diagonal members, horizontal members and foundation have sufficient capacity to carry the loads applied.

The tower base reactions are as follows:

Original Tower Reactions	
Compression (kips)	206.4
Uplift (kips)	172.4
Total Shear (kips)	33.6
Moment (kips-ft)	3276

Proposed Tower Reactions	
Compression (kips)	147
Uplift (kips)	120
Total Shear (kips)	26
Moment (kips-ft)	2468

For detailed proposed tower reactions, see drawing no. E-1 in section 6 of this report.

5. CONCLUSIONS

The results of the analysis indicate the structure to be in compliance with the loading conditions and the materials and member sizes for the tower. The tower is considered feasible with the Connecticut State Police requirements and the TIA/EIA-222-E wind load classification specified above and all the existing and proposed antenna loading. The user of this report shall field verify the assumption of the

antenna and mount configuration. Notify the engineer in writing immediately if any of the assumptions in this report are found to be other than specified.

Limitations/Assumptions:

This report is based on the following:

A. Tower is properly installed and maintained.

B. All members were as specified in the original Construction Documents and are in good condition.

C. All required members are in place.

D. All bolts are in place and are properly tightened.

E. Tower is in plumb condition.

F. All members are galvanized.

G. All tower members were properly designed, detailed, fabricated, installed, and have been properly maintained since erection.

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

A. Replacing/Removing antennas
B. Adding antennas and amplifiers

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Ongoing and Periodic Inspection and Maintenance by the Owner:

1. After the Contractor has successfully completed the installation and the work has been accepted, the owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

2. The Owner shall refer to TIA/EIA-222-E for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the Owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system is performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-E: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.