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CONNECTICUT
SITING COUNCIL

June 24, 2003

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

TS-T-MOBILE-062-030624

Re: Request by T-Mobile for an Order to Approve the Shared Use of a Tower Facility at 890 Evergreen Avenue, Hamden, 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 890 Evergreen Avenue in Hamden, Connecticut. T-Mobile proposes to install antennas on the existing silo tower, and the equipment associated with this facility would be located near the base of the tower within an existing equipment room (see drawing 3, 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 Hamden 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 890 Evergreen Avenue, Hamden, is an existing one hundred eight foot (108') silo structure designed for interior-mounted telecommunications antennas. The coordinates for the site are **41°-24'-27" N and 72°-54'-11" W**. The tower is located approximately eight hundred eighty feet (800') west of Evergreen Avenue approximately six hundred (600') feet south of Kenwood Avenue. The tower is approximately thirteen hundred feet (1,300') west of Whitney Avenue (Route 10), roughly twenty-one hundred feet (2,100') north of the intersection with the Route 40 connector. The tower is owned by Crown Castle Atlantic, with the underlying landowner being Connecticut Agricultural Experiment Station. 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 silo 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-five foot (95'-0") centerline AGL (Verizon), eighty-five foot (85'-0") centerline AGL (Cingular), seventy-five foot (75'-0") centerline AGL (Nextel), and the sixty-five foot (65'-0") centerline AGL (AT&T).

T-Mobile proposes to install an antenna cluster comprised of three (3) sectors, with one (1) antenna per sector for a total of three (3) antennas. The model number for each antenna is EMS DR65-18-02 DPL2Q. The antennas would be mounted on a four and one half inch (4 ½") diameter, eighteen foot long (18') mounting pipe, which in turn is mounted to brackets within the silo structure. The T-Mobile antenna configuration would be located at the one hundred four foot (104'-0") centerline AGL. The antenna mounting plan is shown on drawings 4, A-1 and 5, S-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. One of the cabinets will be within the silo, attached to the existing concrete slab on the floor of the silo. The other two cabinets would be mounted on a newly installed, approximately ten foot by four foot (10' x 4') metal grate within the existing equipment building. Per an agreement with the Town of Hamden, a town "Omni" antenna, small equipment cabinet and associated electrical connections will be moved to a town-approved location. Equipment rooms currently exist within the building for the other four carriers. The coaxial cables will be routed from the cabinets along the walls within cable trays. 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 2 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 equipment building 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 Evergreen Avenue in Hamden. 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 one (1) antenna 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 equipment building. 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 0.07454 mW/cm², which is 7.454% of the Maximum Permissible Emission (MPE). The power density calculation from other existing carriers is 64.43% of the MPE. T-Mobile's proposal, when combined with all other coverage, accounts for a cumulative power density of 71.884% 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 an agricultural facility accessible from Evergreen Avenue 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

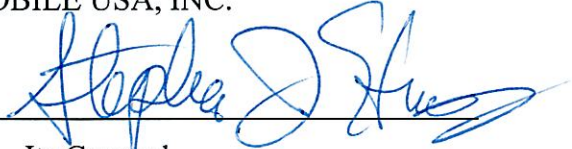
For the reasons discussed above, the proposed shared use of the existing tower facility at Evergreen Avenue in Hamden, Connecticut satisfies the criteria stated in C.G.S. §16-50aa, and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. 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: Honorable Carl Amento, Mayor, Town of Hamden

Exhibit A

Site Map

**890 Evergreen Avenue
Hamden, Connecticut**

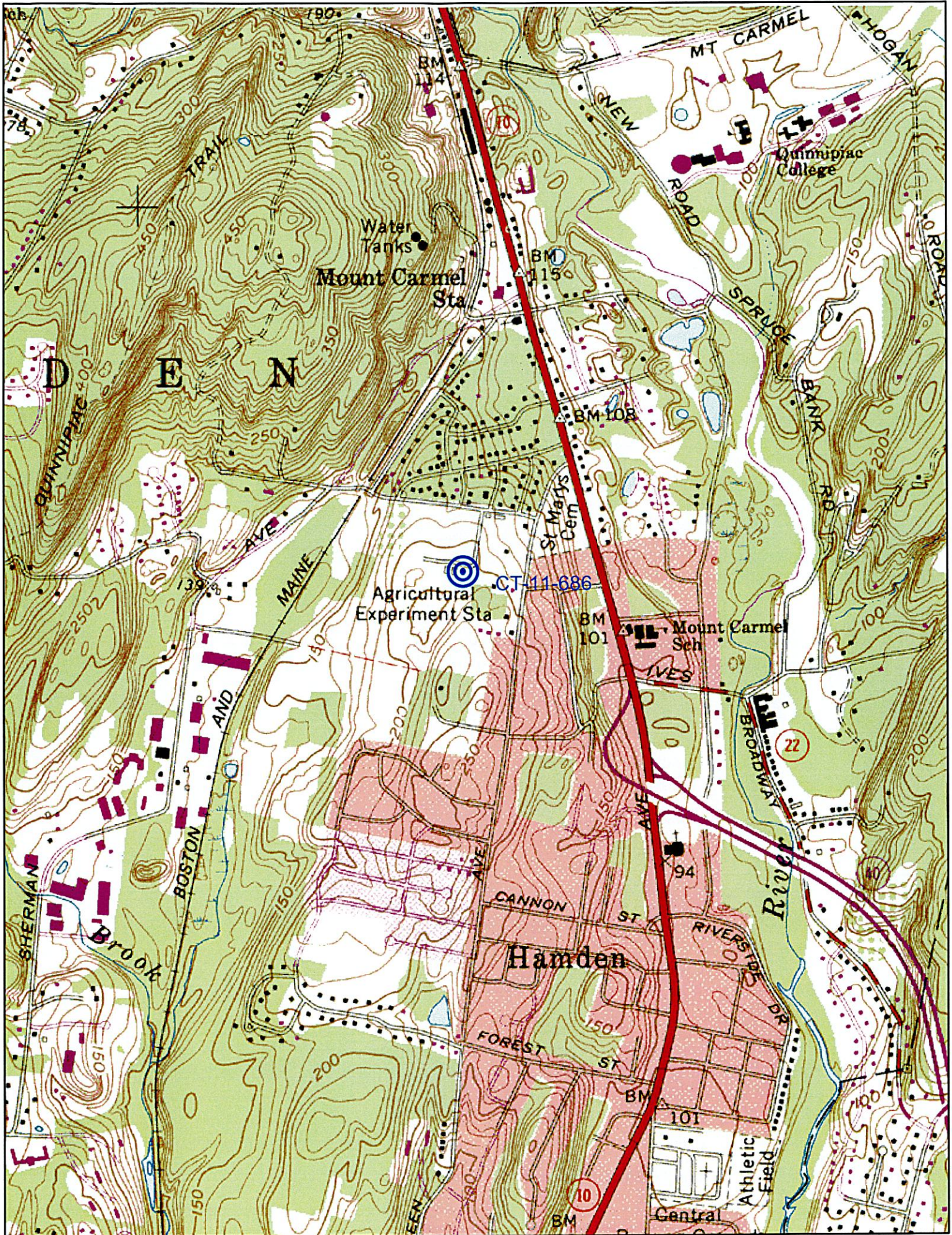
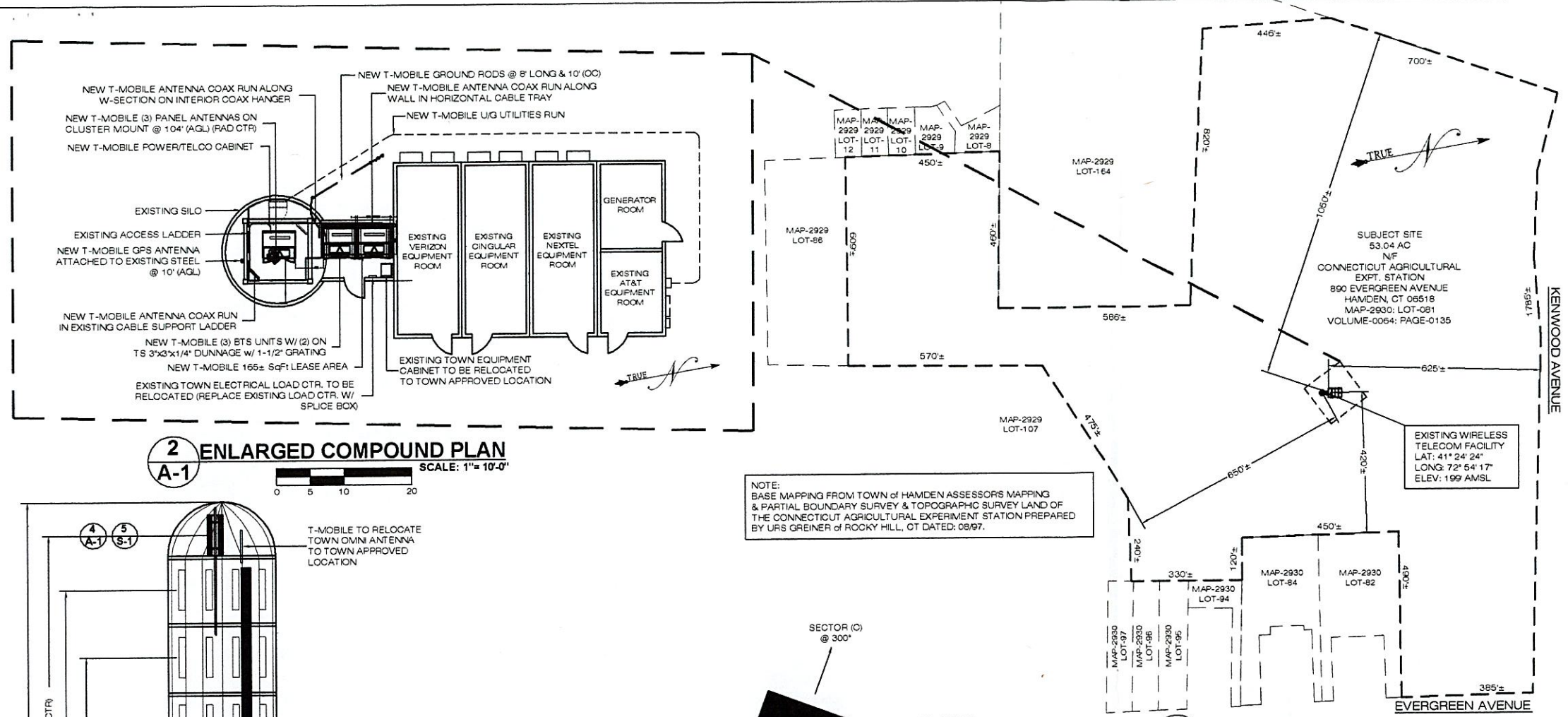


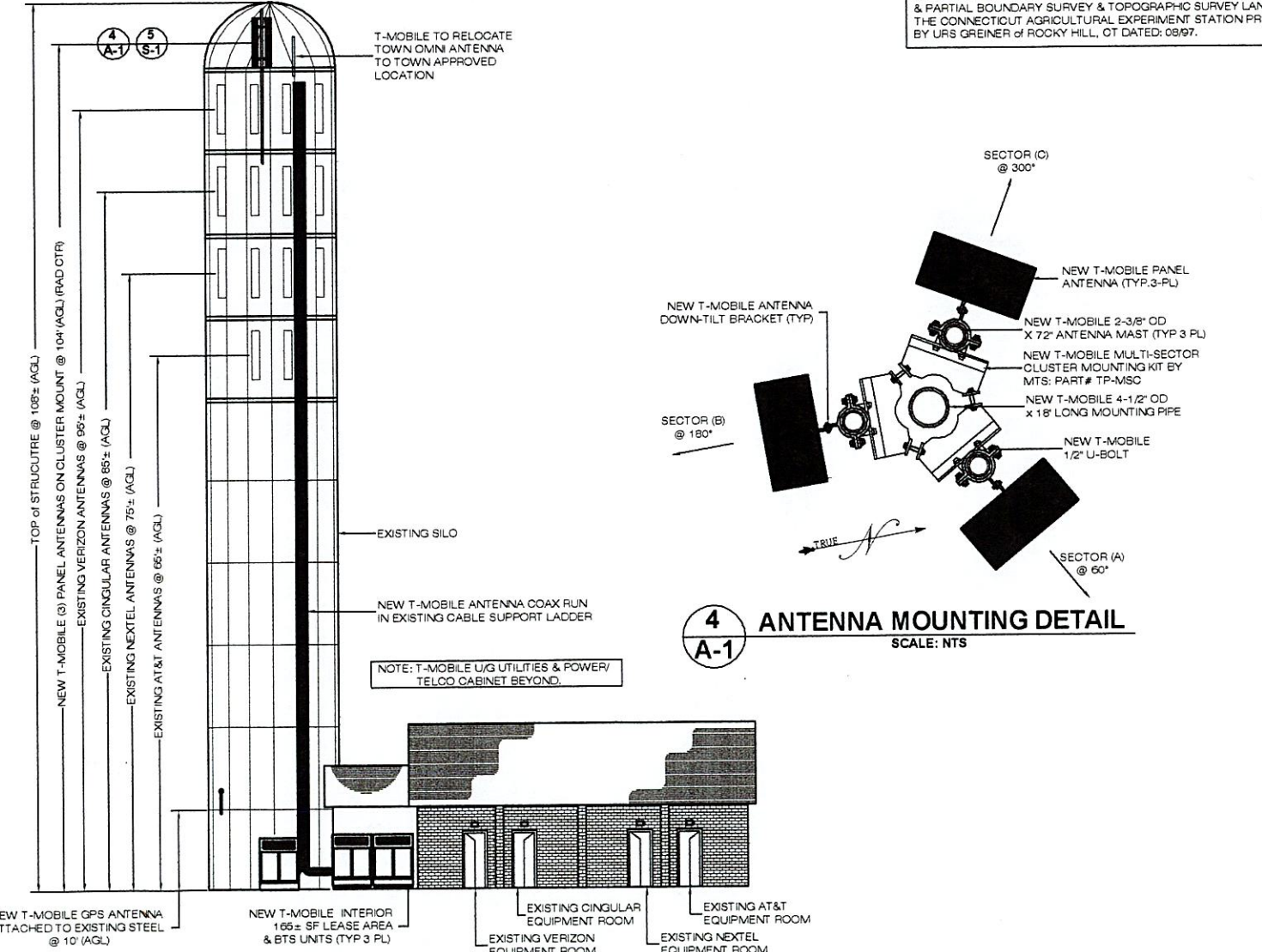
Exhibit B

Design Drawings

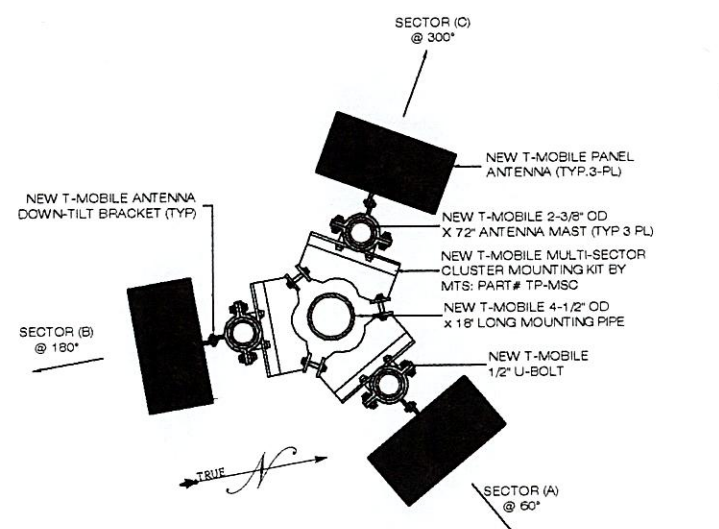
**890 Evergreen Avenue
Hamden, Connecticut**



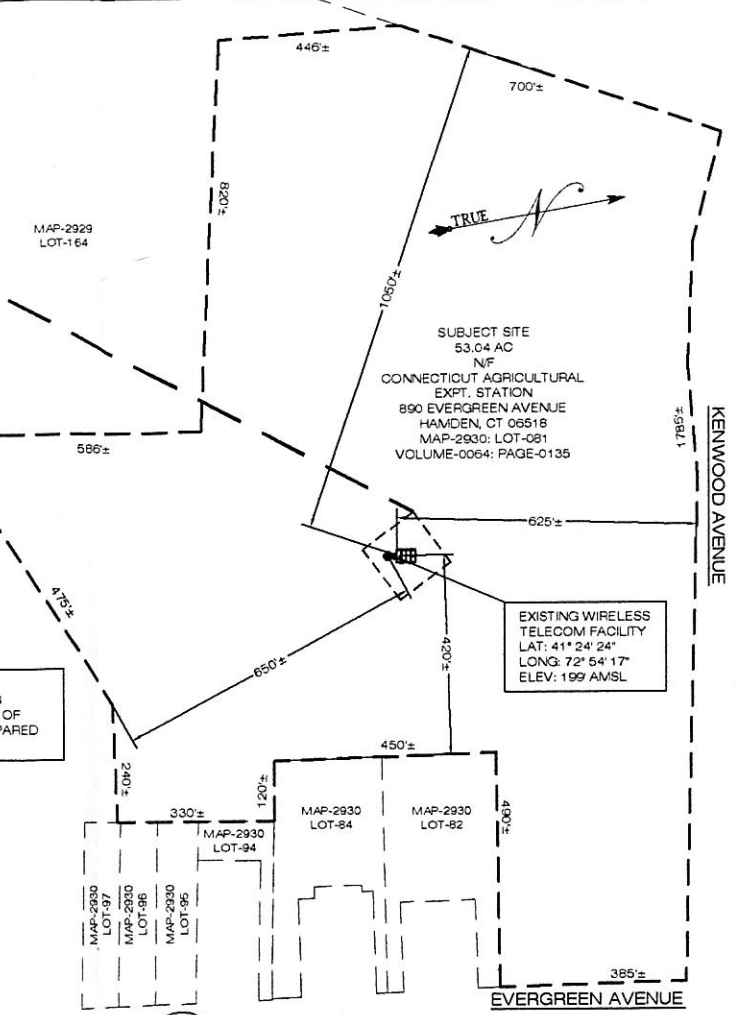
2 ENLARGED COMPOUND PLAN
SCALE: 1"= 10'-0"



3 ELEVATION VIEW
SCALE: 1"= 10'-0"



4 ANTENNA MOUNTING DETAIL
SCALE: NTS



1 PLOT PLAN
SCALE: 1"= 200'-0"

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 REQD 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 REQD 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 REQD 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 REQD 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 REQD SPECIFICATION.

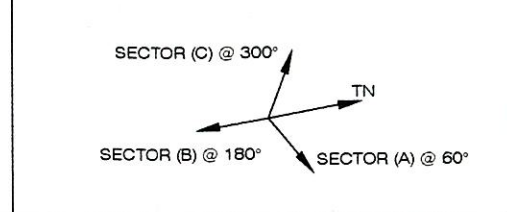
ABBREVIATIONS

SF	SQUARE FOOT	ADJ	ADJUSTABLE
APPROX	APPROXIMATE	SHT	SHEET
CONC	CONCRETE	SIM	SIMILAR CONDUIT
CONT	CONTINUOUS	STL	STEEL
CJ	CONSTRUCTION JOINT	TOO	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	PL	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		GROUT or PLASTER
	EXISTING ANTENNA		BRICK
	ASPHALT		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		CENTERLINE
	DETAIL REFERENCE		PROPERTY LINE
	ELEVATION		STEPPED FOOTING
	SECTIONS & DETAILS		MATCH LINE
			WORK POINT
			GROUND WIRE
			COAXIAL CABLE

ANTENNA ORIENTATION KEY



T-Mobile

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KILLINGWORTH, CT. 06419
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FAX: (860)-663-0935
www.allpointstech.com

STATE OF CONNECTICUT

PROFESSIONAL ENGINEER

SEPT M CHASE
No. 19728
LICENSED

APPROVALS

LANDLORD _____

LEASING _____

R.F. _____

ZONING _____

CONSTRUCTION _____

AE _____

PROJECT NO: CT-11-686-I

DRAWN BY: GWA

CHECKED BY: SMC

SUBMITTALS

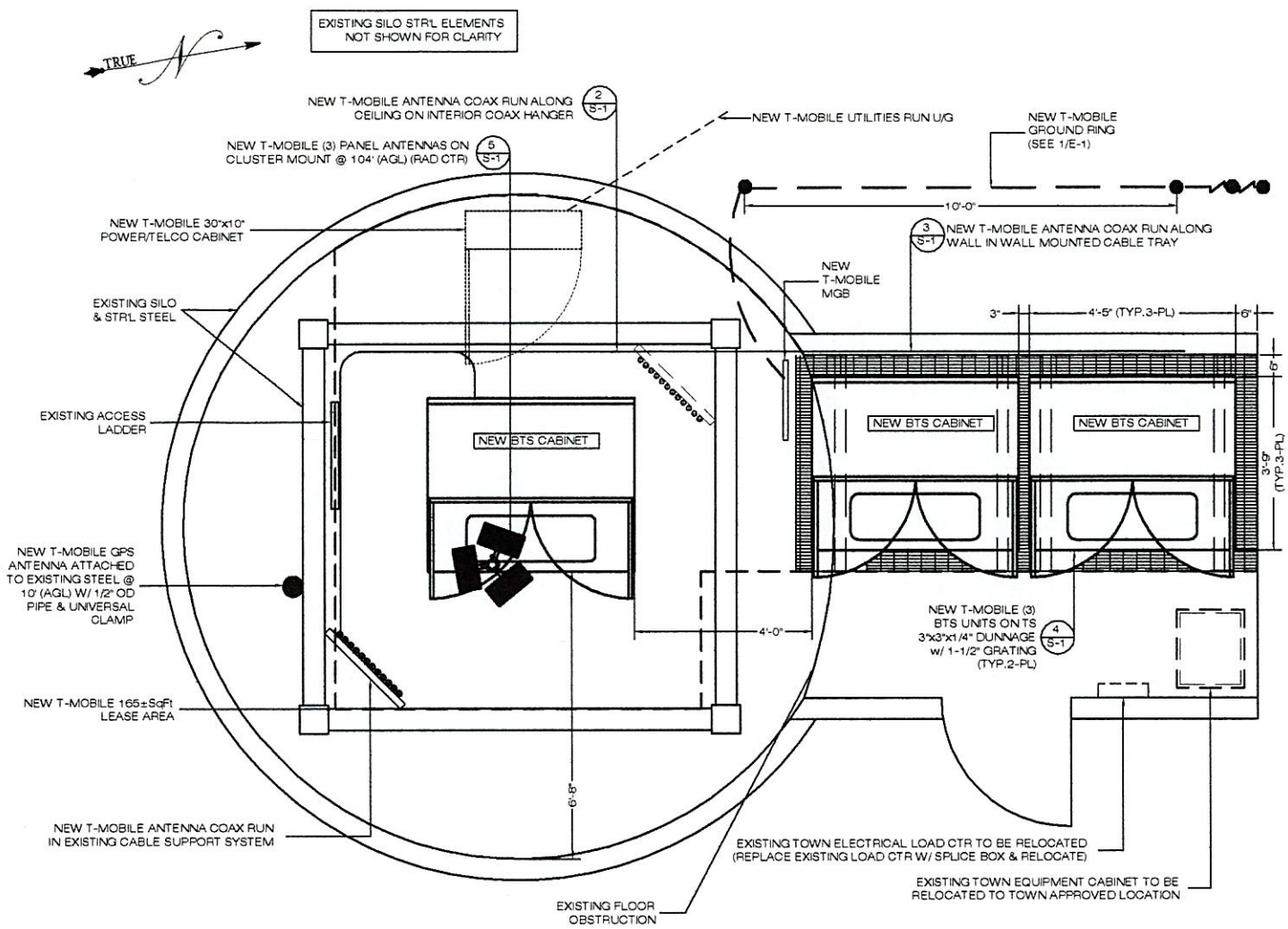
0	06/06/08	CONSTRUCTION - GWA
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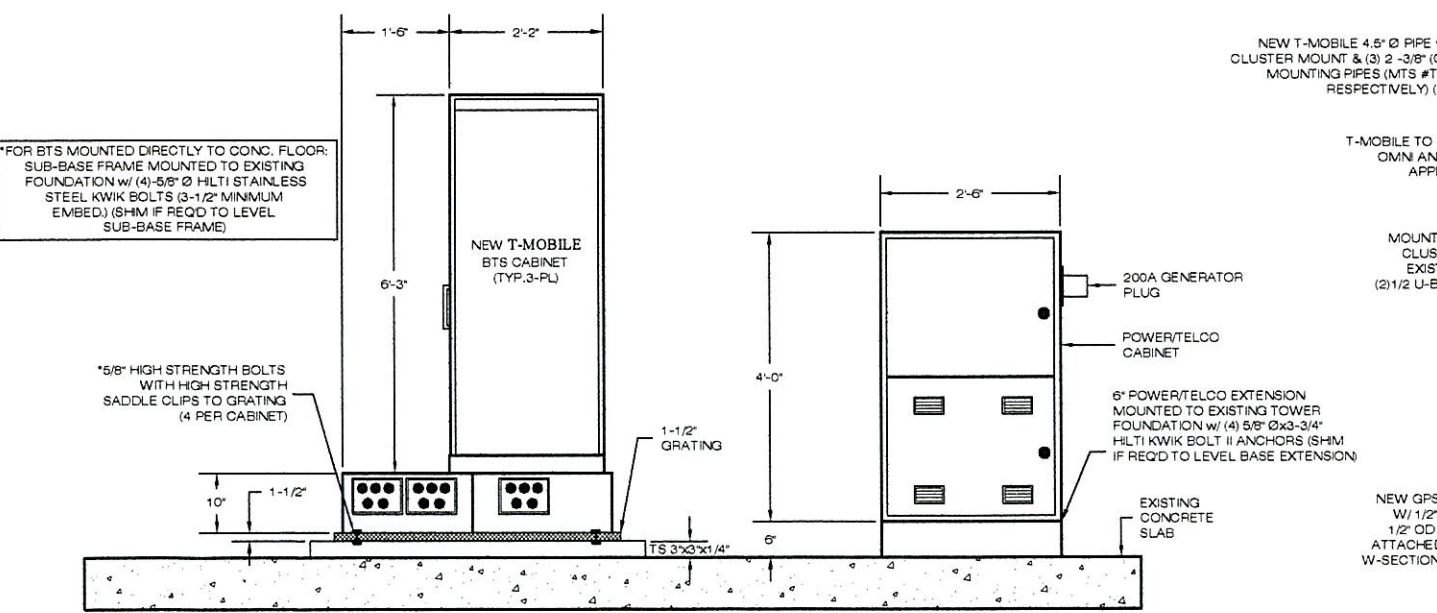
CT-11-686-I
CROWN HAMDEN
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE
PLOT & COMPOUND PLAN, ELEVATION & DETAILS

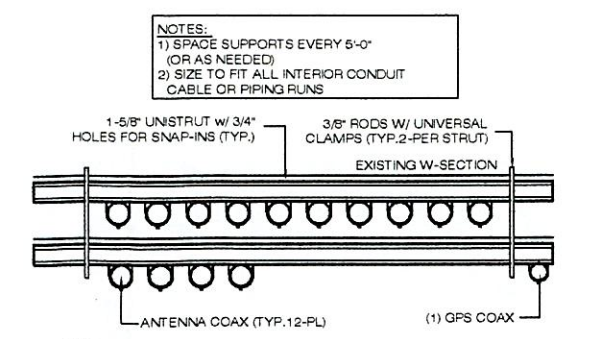
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A-1



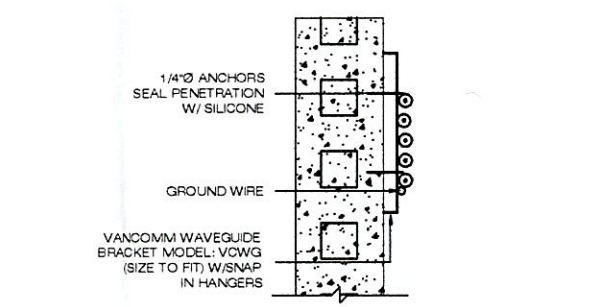
1 ENLARGED COMPOUND PLAN
SCALE: 1/2" = 1'-0"



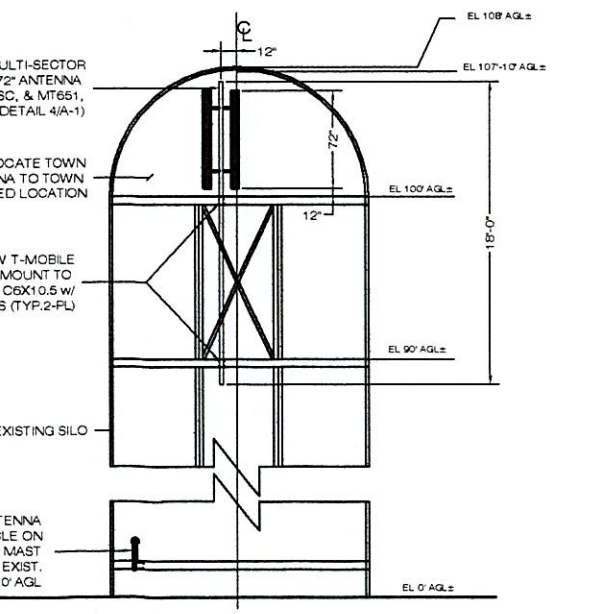
4 EQUIPMENT SLAB SECTION VIEW
SCALE: NTS



2 INTERIOR COAX HANGER DETAIL
SCALE: NTS



3 WALL MOUNTED COAX HANGER
SCALE: NTS



5 ANTENNA MOUNTING DETAIL
SCALE: NTS

STRUCTURAL NOTES

- 1) DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE & APPLICABLE SUPPLEMENTS, ANSI/AISC 7, EIA/IA-222-F STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.
- 2) CONTRACTOR SHALL VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD PRIOR TO FABRICATION & ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER.
- 3) DESIGN & CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR THE DESIGN, FABRICATION & ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
- 4) STRUCTURAL & MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 STRUCT. STEEL UNLESS OTHERWISE INDICATED.
- 5) STEEL PIPE SHALL CONFORM TO ASTM A500 COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING, GRADE A, or ASTM A53 PIPE STEEL BLACK & HOT-DIPPED ZINC-COATED WELDED & SEAMLESS TYPE E or S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- 6) STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) & CONFORM TO ASTM A325 HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS & PLAIN HARDENED WASHERS. ALL BOLTS SHALL BE 25/8" UNF.
- 7) ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE W/ ASTM A123 "ZINC (HOT-DIP GALVANIZED COATINGS ON IRON & STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- 8) ALL BOLTS, ANCHORS & MISCELLANEOUS HARDWARE SHALL BE GALV. IN ACCORDANCE W/ ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON & STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- 9) FIELD WELDS, DRILL HOLES, SAW CUTS & ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED W/ AN ORGANIC ZINC REPAIR PAINT COMPLYING W/ REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN or EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW DRY TIME BETWEEN COATS) W/ A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 or A153 as APPLICABLE.
- 10) CONTRACTOR SHALL COMPLY W/ AWS CODE FOR PROCEDURES, APPEARANCE & QUALITY OF WELDS, & FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS & WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE W/ AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES & WELDING SHALL CONFORM TO AISC 360 D.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION, 11.
- 11) INCORRECTLY FABRICATED, DAMAGED or OTHERWISE MISFITTING or NONCONFORMING MATERIALS or CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL or CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- 12) UNISTRUTS SHALL BE FORMED STEEL CHANNEL STRUT FRAMING as MANUFACTURED BY UNISTRUT CORP, WAYNE, MI or EQUAL. STRUT MEMBERS SHALL BE 1-5/8" x 1-5/8" x 1/2" GA, UNLESS OTHERWISE NOTED, & SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- 13) EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2" DIAMETER STAINLESS STEEL ANCHOR ROD w/ NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE & A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HLT-HI HY-20 and/or HY-150 SYSTEMS (as SPECIFIED AN DWG.) or ENGINEERS APPROVED EQUAL w/ 4-1/4" MIN. EMBEDMENT DEPTH.
- 14) EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HLT KWIK BOLT II or APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE W/ THE MANUFACTURERS RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE & ONE HALF (3 1/2) INCHES.
- 15) GRAVEL SUB BASE & CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL.
- 16) CONCRETE FOR FENCE & ICE BRIDGE SUPPORT SHALL BE 3000 PSI AIR ENTRAINED (4%-6%) NORMAL WEIGHT CONCRETE.
- 17) ALL CAST IN PLACE CONCRETE SHALL BE MIXED & PLACED IN ACCORDANCE W/ THE REQUIREMENTS OF ACI 318 & ACI 301.
- 18) THE FOLLOWING MINIMUM CONCRETE COVER OVER REINFORCING STEEL SHALL BE as FOLLOWS UNLESS NOTED OTHERWISE:
 CONCRETE CAST AGAINST EARTH ... 3 INCHES.
 CONCRETE EXPOSED TO EARTH or WATER
 #6 & LARGER 2 INCHES
 #5 & SMALLER 1 1/2 INCHES
 ALL EXPOSED EDGES SHALL BE PROVIDED W/ A 3/4"x3/4" CHAMFER UNLESS NOTED OTHERWISE.
- 19) LUMBER SHALL COMPLY W/ THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION & THE NATIONAL FOREST PRODUCTS ASSOCIATIONS NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED & SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- 20) WHERE ROOF PENETRATIONS ARE REQD, THE CONTRACTOR SHALL CONTACT & COORDINATE RELATED WORK W/ THE BUILDING OWNER & THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER as TO NOT VOID THE EXISTING ROOF WARRANTY.
- 21) PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE REQD 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 REQD SPECIFICATION.

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FAX: (860)-463-0935
www.allpointstech.com



APPROVALS

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

PROJECT NO: CT-11-686-1

DRAWN BY: GWA

CHECKED BY: SMC

SUBMITTALS

NO.	DATE	DESCRIPTION
0	06/08/03	CONSTRUCTION: GWA

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CT-11-686-1
CROWN HAMDEN
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE
EQUIPMENT LAYOUT,
STRUCTURAL NOTES &
DETAILS

SHEET NUMBER
S-1

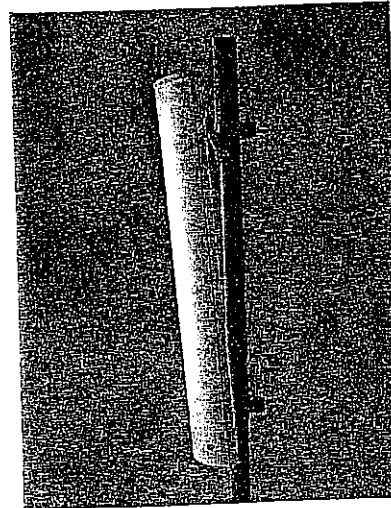
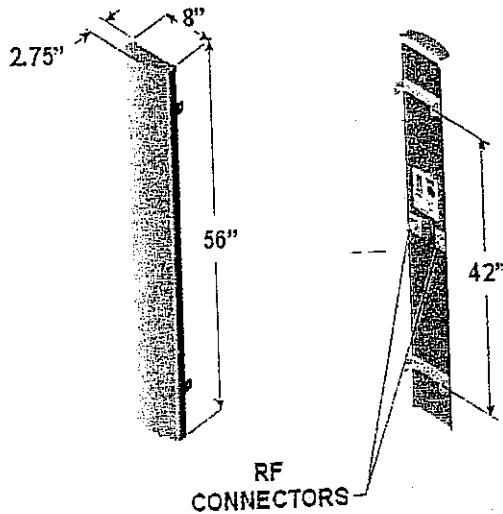
Exhibit C

Equipment Specifications

**890 Evergreen Avenue
Hamden, Connecticut**

65° To be used
in urban areas.

1850 MHz - 1990 MHz (P)



- 65° beamwidth
- 17.5 dBi gain
- ±45° DualPol
- 56 inch

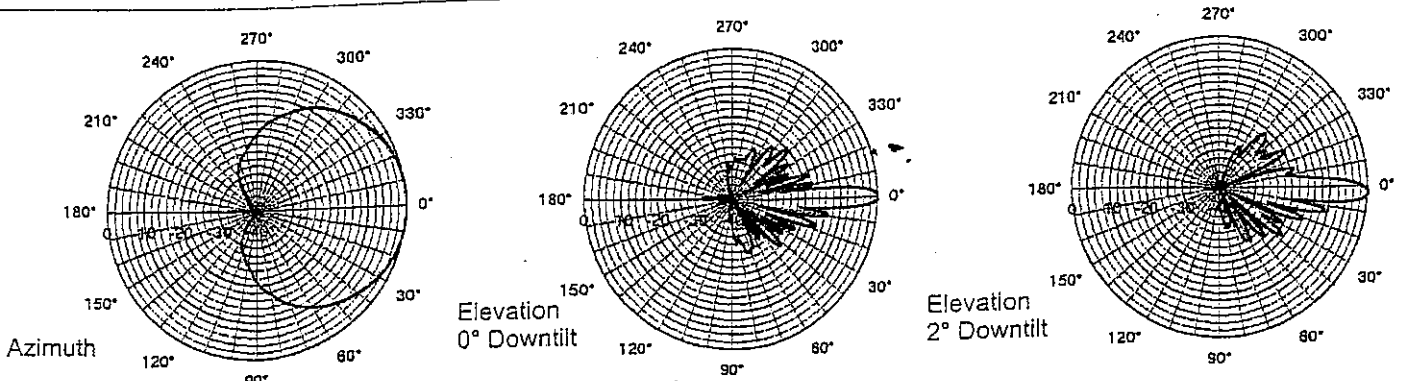
SPECIFICATIONS

Electrical		Mechanical	
Gain	17.5 dBi (15.4 dBd)	Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Azimuth Beamwidth (-3 dB)	65°	Rated Wind Velocity	150 mph (241 km/hr)
Elevation Beamwidth (-3 dB)	6°	Equivalent Flat Plate Area	3.1ft ² (.29 m ²)
Elevation Sidelobes (Upper)	>18 dB	Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Front-to-Back Ratio	>25 dB (≥ 30dB Typ.)	Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Polarization	Slant, ±45	Weight	18 lbs (8.2 kg)
Port-to-Port Isolation	>30 dB	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.	
Electrical Downtilt Options	0°, 2°		
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		

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.



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_{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 m³ / hour

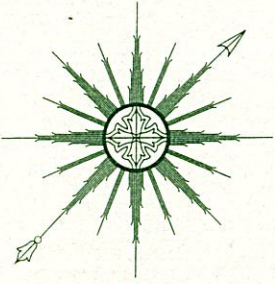
Preliminary

Exhibit D

Structural Analysis

**890 Evergreen Avenue
Hamden, Connecticut**

CT-11-686I



ALL-POINTS TECHNOLOGY CORPORATION, P.C.

June 16, 2003

Crown Castle Atlantic
500 West Cummings Park
Suite 3400
Woburn, MA 01801

Attn: Lincoln Erhard
Re: T-Mobile USA Collocation
108' Silo Tower
Hamden, Connecticut
BU #800529

Dear Lincoln,

I am writing with regard to T-Mobile USA's proposed antennas to be installed on the 108' silo tower located at 890 Evergreen Avenue in Hamden, Connecticut. I evaluated the silo tower (Berenyi, Inc. Job #00-065) in accordance with EIA/TIA-222-F, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures. My evaluation consisted of comparing design loads shown on Berenyi Incorporated drawings with existing and proposed antenna and waveguide loads.

Additional antennas are to consist of three EMS Wireless DR65-18-02DPL2Q panel antennas with a radiation center of 104' and fed by twelve 1-5/8" waveguide cables. The proposed antennas will be pipe mounted to the top of the tower steel under the silo dome.

My evaluation indicates the tower and foundation are capable of supporting T-Mobile USA's proposed antennas. Please call if you have any questions.

Sincerely,
All-Points Technology Corporation, P.C.

Robert E. Adair, P.E.
Principal

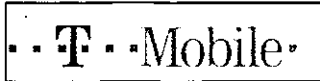


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Exhibit E

Power Density Calculations

**890 Evergreen Avenue
Hamden, 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: Jeetendra Ghare - Radio Frequency Engineer
cc: Overbey Jason
Subject: Power Density Report for CT116861
Date: June 16, 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 Silo at 890 Evergreen Ave, Hamden, 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 1 antennas per sector.
- 3) The model number for each antenna is EMS DR65-18-02DPL2Q.
- 4) The antenna center line height is 104 ft.
- 5) The maximum transmit power from any sector is 3263.12 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 Silo at 890 Evergreen Ave, Hamden, CT, is 0.07454 mW/cm². This value represents 7.454% of the Maximum Permissible Emission (MPE) standard of 1 milliwatt per square centimeter (mW/cm²) 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 64.43%. The combined Power Density for the site is 71.884% of the M.P.E. standard.

New England Market

Connecticut

Worst Case Power Density



Site:	CT11686I
Site Address:	890 Evergreen Ave
Town:	Hamden
Tower Height:	108 ft.
Tower Style:	Silo
Base Station TX output	13 W
Number of channels	8
Antenna Model	EMS DR65-18-02DPL2Q
Cable Size	1 5/8 in.
Cable Length	115 ft.
Antenna Height	104.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	1.00 dB
Antenna Gain	17.3 dBi
Cable Loss per foot	0.0116 dB
Total Cable Loss	1.3340 dB
Total Attenuation	2.3340 dB
Total EIRP per Channel	56.11 dBm
(In Watts)	407.89 W
Total EIRP per Sector	65.14 dBm
(In Watts)	3263.12 W
nsg	14.9660
Power Density (S) =	0.074542 mW/cm²
T-Mobile USA Worst Case % MPE =	7.4542%
Equation Used :	$S = \frac{(1000(\text{grf})^2 (\text{Power}) * 10^{(\text{ns} \text{g} 10)})}{4 \pi (R)^2}$
	Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total	
Carrier	% of Standard
BAM	12.9000 %
Springwich	16.0000 %
Nextel	10.0000 %
AT&T Wireless	25.5300 %
Total Excluding T-Mobile USA	64.4300 %
T-Mobile USA	7.4542
Total % MPE for Site	71.8842%