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@ct.gov
Internet: ct.gov/csc

Daniel F. Caruso
Chairman

February 25, 2008

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-111-080128** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 170 Mt. Tobe Road, Plymouth, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on February 14, 2008, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies, with the condition that the proposed coax lines are installed inside the monopole shaft.

The proposed modifications are to be implemented as specified here and in your notice dated January 28, 2008, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Daniel F. Caruso
Chairman

DFC/MP/cm

c: The Honorable Vincent Festa, Jr., Mayor, Town of Plymouth
William Kuehn, Town Planner, Town of Plymouth
SBA

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ROBINSON & COLE

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
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kbaldwin@rc.com
Direct (860) 275-8345

EM-VER-111-080128

ORIGINAL

January 28, 2008

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
170 Mt. Tobe Road, Plymouth, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at the above referenced location. The Council approved Cellco's shared use of this facility on March 4, 2004. Cellco now intends to modify its installation by replacing six (6) DB950F85E-M antennas with six (6) LPA-80080/6CF antennas at the same 137-foot level on the tower. Attached behind Tab 1 are the specifications for the existing and proposed replacement antennas.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Vincent Festa, Jr., Mayor of the Town of Plymouth. Pursuant to a Council directive, a copy of this letter is also being sent to Susan and Walter MacDonald, the owners of the property on which the facility is located.

The planned modifications to the facility falls squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in any increase in the overall height of the existing structures. Cellco's replacement antennas will be located at the same height and location as the existing antennas.

2. The proposed modifications will not involve any ground-mounted equipment and, therefore, will not require the extension of the site boundaries.

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

4. The operation of the replacement antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for the facility is included behind Tab 2.

Also attached is a Detailed Structural Analysis confirming that the tower can support the proposed modifications. (See Tab 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Vincent Festa, Jr., Plymouth Mayor
Susan and Walter MacDonald
Sandy M. Carter

ANDREW®

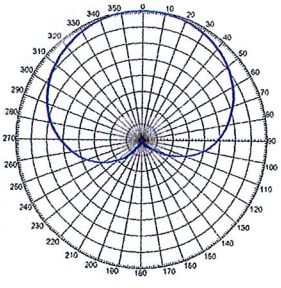
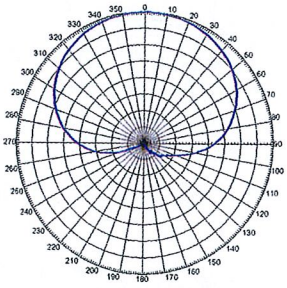
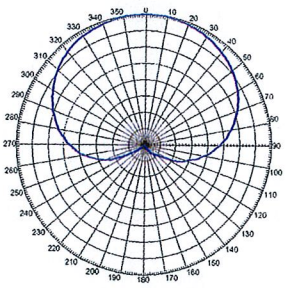
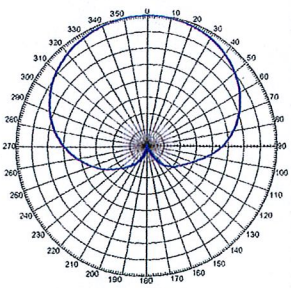
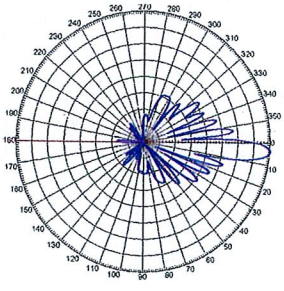
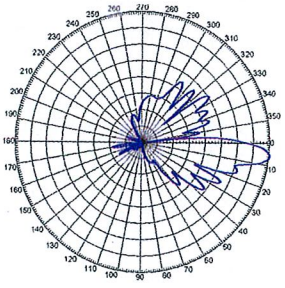
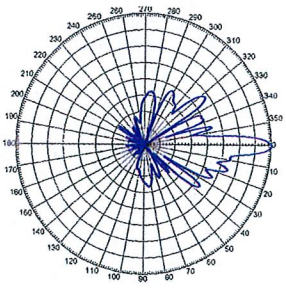
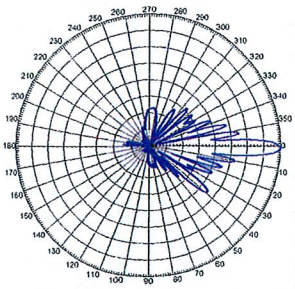
Vertically Polarized Directed Dipole® Panel Antennas

1710 - 2170 MHz

85° HORIZONTAL BEAMWIDTH

HORIZONTAL BEAMWIDTH	85°	85°	85°	85°
FREQUENCY RANGE	1850-1990 MHz	1850-1990 MHz	1850-1990 MHz	1850-1990 MHz
	16.5 dBi / 4° Tilt	15.9 dBi / 6° Tilt	17 dBi / 0° Tilt	17.7 dBi / 0° Tilt
MODEL	948G85T4E-M	948F85T6E-M	DB950F85E-M	DB950G85E-M
TYPE	Directed Dipole®	Directed Dipole®	Directed Dipole®	Directed Dipole®
ELECTRICAL SPECIFICATIONS				
Frequency Range (MHz)	1850-1990	1850-1990	1850-1990	1850-1990
Gain (dBd/dBi)	14.4 / 16.5	13.8 / 15.9	14.9 / 17	15.6 / 17.7
Horizontal Beamwidth (Deg.)	85	85	85	85
Elevation Beamwidth (Deg.)	7	8	6.5	6
USLS (dB)	N/A	>20	>18	N/A
Null Fill (dB) – Below Peak	N/A	15	12	N/A
Beam Tilt (Deg.)	4	6	0	0
VSWR	<1.33:1	<1.33:1	<1.33:1	<1.33:1
Front-To-Back Ratio (dB)	40	40	40	40
Isolation (dB)	N/A	N/A	N/A	N/A
Max. Input Power (Watts)	250	250	250	250
Polarization	Vertical	Vertical	Vertical	Vertical
Connector Location	Bottom	Bottom	Bottom	Bottom
Connector Type	7-16 DIN - Female	7-16 DIN - Female	7-16 DIN - Female	7-16 DIN - Female
MECHANICAL SPECIFICATIONS				
Length (inch/mm)	48 / 1,219	48 / 1,219	60 / 1,524	60 / 1,524
Width (inch/mm)	3.5 / 89	3.5 / 89	3.5 / 89	3.5 / 89
Depth (inch/mm)	7 / 178	7 / 178	7 / 178	7 / 178
Net Weight (lbs/kg)	8.5 / 3.9	8.5 / 3.9	11.5 / 5.2	11.5 / 5.2
Max. Flat Plate Area (ft^2/m^2)	1.18 / 0.11	1.18 / 0.11	1.51 / 0.14	1.51 / 0.14
Max. Wind Load at 100 mph (lbf/N)	65 / 285	65 / 285	84 / 373	84 / 373
Max. Wind Speed (mph/kmh)	125 / 201	125 / 201	125 / 201	125 / 201
Radome Material	ABS, UV Resistant	ABS, UV Resistant	ABS, UV Resistant	ABS, UV Resistant
Reflector Material	Pass. Aluminum	Pass. Aluminum	Pass. Aluminum	Pass. Aluminum
Radiator Material	Low Loss Circuit Board	Low Loss Circuit Board	Low Loss Circuit Board	Low Loss Circuit Board
Hardware Material	Galvanized Steel	Galvanized Steel	Galvanized Steel	Galvanized Steel
Color	Light Gray	Light Gray	Light Gray	Light Gray
Std. Mounting Hardware	DB390	DB390	DB390	DB390
Optional Downtilt Kit	DB5098	DB5098	DB5098	DB5098
Optional Special Mounting	DB5094-AZ	DB5094-AZ	DB5094-AZ	DB5094-AZ

Specifications are subject to change. Please see our website for the latest information.
*TELETILT® compatible.

	948G85T4E-M	948F85T6E-M	DB950F85E-M	DB950G85E-M
Azimuth Pattern				
Elevation Pattern				

Scale: 10° radials, 5 dB per division

ANDREW CORPORATION PHONE 1-800-676-5342 • (214) 631-0310 FAX 1-800-229-4706 • (214) 631-4706 WWW.ANDREW.COM

Vertically Polarized, Log Periodic 80° / 14 dBd

LPA-80080/6CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1800	mm	70.9	in
Width	140	mm	5.5	in
Depth	335	mm	13.2	in
Depth with z-bracket	375	mm	14.8	in
[4] Weight	9.5	kg	21.0	lbs
Wind Area				
Fore/Aft	0.25	m^2	2.7	ft^2
Side	0.60	m^2	6.5	ft^2
Rated Wind Velocity (Safety factor 2.0)	>295	km/hr	>183	mph
Wind Load @ 100 mph (161 km/hr)				
Fore/Aft	415	N	93.3	lbs
Side	870	N	195.6	lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

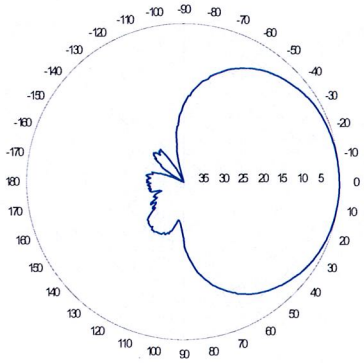
Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in). If the lock-down brace is used, the maximum diameter is Ø88.9 mm (3.5 in)

Mounting Bracket & Downtilt Bracket Kit #21699999

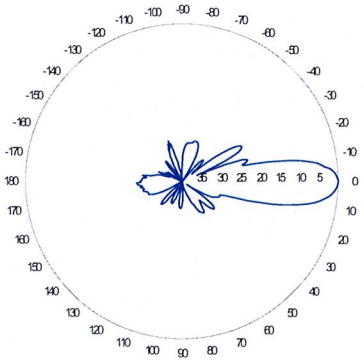
Electrical specifications

Frequency Range	806-960 MHz
Impedance	50Ω
[3] Connector(s)	NE or E-DIN 1 port / center
[1] VSWR	≤ 1.4:1
Polarization	Vertical
[1] Gain	14 dBd
[2] Power Rating	500 W
[1] Half Power Angle	
H-Plane	80°
E-Plane	10°
[1] Electrical Downtilt	0°
[1] Null Fill	10%
Lightning Protection	Direct Ground

Radiation pattern[1]



Horizontal

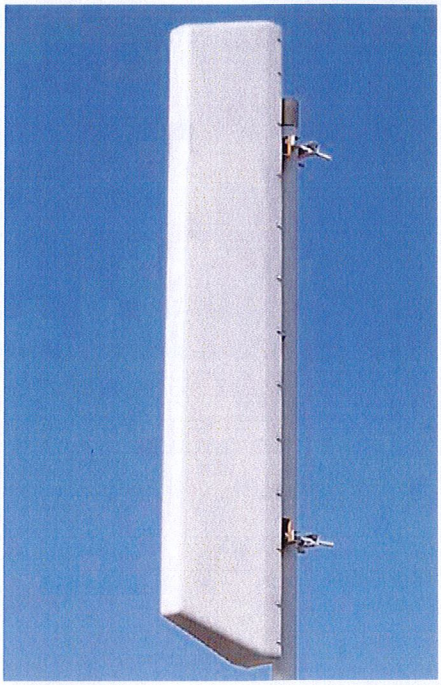


Vertical

Featuring upper side lobe suppression.

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connector only.

CF Denotes a Center-Fed Connector.

806-960 MHz

[1] Typical values.
[2] Power rating limited by connector only.
[3] NE indicates an elongated N connector. E-DIN indicates an elongated DIN connector.
[4] The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Revision Date: 7/5/07

	General	Power	Density					
Site Name: Thomaston South								
Tower Height: Verizon @ 137Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
T-Mobile	8	151	160	0.0170	1935	1.0000	1.70%	
Sprint	11	351	150	0.0617	1962.5	1.0000	6.17%	
Nextel	9	100	127	0.0201	851	0.5673	3.54%	
Cingular	2	296	108	0.0182	880	0.5867	3.11%	
Cingular	2	427	108	0.0263	1930	1.0000	2.63%	
Verizon	**9**	**485**	**137**	**0.0836**	**1970**	**1.0000**	**8.36%**	
Verizon	**9**	**200**	**137**	**0.0345**	**875**	**0.5830**	**5.91%**	
								31.42%
* Source: Siting Council								

Structural Analysis for SBA Network Services

160' Monopole

Site Name: South Plymouth
Site ID: CT03538-S

FDH Project Number 08-01224E

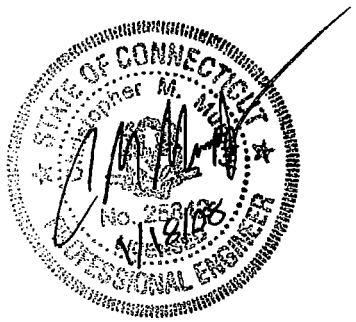
Prepared By:

Bradley Newman, EI
Project Engineer

Reviewed By:

Christopher M. Murphy, PE
Vice President
CT PE License No. 25842

FDH Engineering, Inc.
PO Box 99556
Raleigh, NC 27615
(919)-755-1012
info@fdh-inc.com



January 18, 2008

Prepared pursuant to ANSI/TIA-222-G Structural Standards for Antenna Supporting Structures and Antennas

TABLE OF CONTENTS

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com

EXECUTIVE SUMMARY

At the request of SBA Network Services, FDH Engineering, Inc. performed a structural analysis of the monopole located in Plymouth, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *Structural Standards for Antenna Supporting Structures and Antennas, ANSI/TIA-222-G.* Information pertaining to the existing/proposed antenna loading, current tower geometry, and member sizes was obtained from Paul J. Ford (Job No. 29201-1019) original design drawings dated August 21, 2001 and SBA Network Services.

The *basic design wind speed* per *ANSI/TIA-222-G* standards is 100 mph without ice and 40 mph with 1" radial ice.

Conclusions

With the existing and proposed antennas from Verizon at 137 ft, the tower meets the requirements of the *ANSI/TIA-222-G* standards. Furthermore, provided the foundation was constructed per the original design drawings (see Paul J. Ford Job No. 29201-1019), the foundation should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH is accurate (i.e., the steel data, tower layout, existing and proposed antenna loading) and that the tower was properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *ANSI/TIA-222-G* standards are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed coax lines should be installed inside the monopole shaft.

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1.** *If the actual layout determined in the field deviates from this layout, FDH should be contacted to perform a revised analysis.*

Table 1 – Appurtenance Loading

Existing Loading:

No.	Centerline Elevation (ft)	Coax and Lines[1]	Carrier	Mount Type	Description
1-6	162	(12) 1-5/8"	T-Mobile	(1) 13' Low Profile Platform (assumed)	(6) EMS RR90-17-02DP (6) TMAs
7-18	148	(12) 1-5/8"[2]	Sprint	(1) 13' Low Profile Platform (assumed)	(12) Decibel DB980F90T2E-M
19-30	137	(12) 1-5/8"[3]	Verizon	(1) 13' Low Profile Platform (assumed)	(12) Decibel DB950F85E-M
31-42	127	(12) 1-1/4"	Nextel	(1) 13' Low Profile Platform (assumed)	(12) Decibel DB844H90E-XY
43-54	108	(12) 1-5/8"[4]	Cingular	(1) 13' Low Profile Platform (assumed)	(12) CSS DUO-1417-8686-40 (6) TMAs
55	75	(1) 1/2"	T-Mobile	(1) 2'6"x4" Pipe Mount (assumed)	(1) GPS

1 The existing coax is located inside the pole's shaft, unless otherwise noted.
2 Currently, Sprint has (6) Decibel DB980F90T2E-M panels and (6) 1-5/8" coax installed at 148 ft. According to information provided by SBA, Sprint may install up to (12) DB980F90T2E-M and (12) coax at 148 ft. Analysis performed with total leased loading in place.
3 The loading for Verizon at 137 ft will be altered. See the proposed loading below.
4 Currently, Cingular has (9) CSS DUO-1417-8686-40 panels, (6) TMAs, and (9) 1-5/8" coax installed at 108 ft. According to information provided by SBA, Cingular may install up to (12) DUO-1417-8686-40, (6) TMAs, and (12) coax at 108 ft. Analysis performed with total leased loading in place.

Proposed Loading:

No.	Centerline Elevation (ft)	Coax and Lines	Carrier	Mount Type	Description
1-12	137	(12) 1-5/8"[1]	Verizon	(1) 13' Low Profile Platform (assumed)	(6) Decibel DB950F85E-M (6) Antel LPA-80080/6CF

1 This represents the final loading for Verizon at 137 ft. According to information provided by SBA, Verizon will remove (6) Decibel DB950F85E-M panels and install (6) Antel LPA-80080/6CF panels at 137 ft. Verizon will also reuse the existing (12) 1-5/8" coax for a total loading of (12) panels and (12) coax at 137 ft.

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com

RESULTS

Based on information obtained from the original design drawings, the yield strength of steel for individual members was as follows:

Table 2 - Material Strength

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Base Plate	55 ksi
Anchor Bolts	75 ksi

Table 3 displays the ratio (as a percentage) of actual force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 105% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information.

Table 3 – Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	160 - 119.25	Pole	TP32.763x24x0.25	32.1	Pass
L2	119.25 - 78.5	Pole	TP41.025x31.3491x0.3125	57.5	Pass
L3	78.5 - 38.75	Pole	TP48.947x39.2711x0.375	64.2	Pass
L4	38.75 - 0	Pole	TP56.53x46.8531x0.4375	64.5	Pass
			Anchor Bolts	OK	Pass
			Base Plate	OK	Pass

Table 4 – Maximum Base Reactions

Load Type	Current Analysis
Axial	53 k
Shear	31 k
Moment	3,231 k-ft

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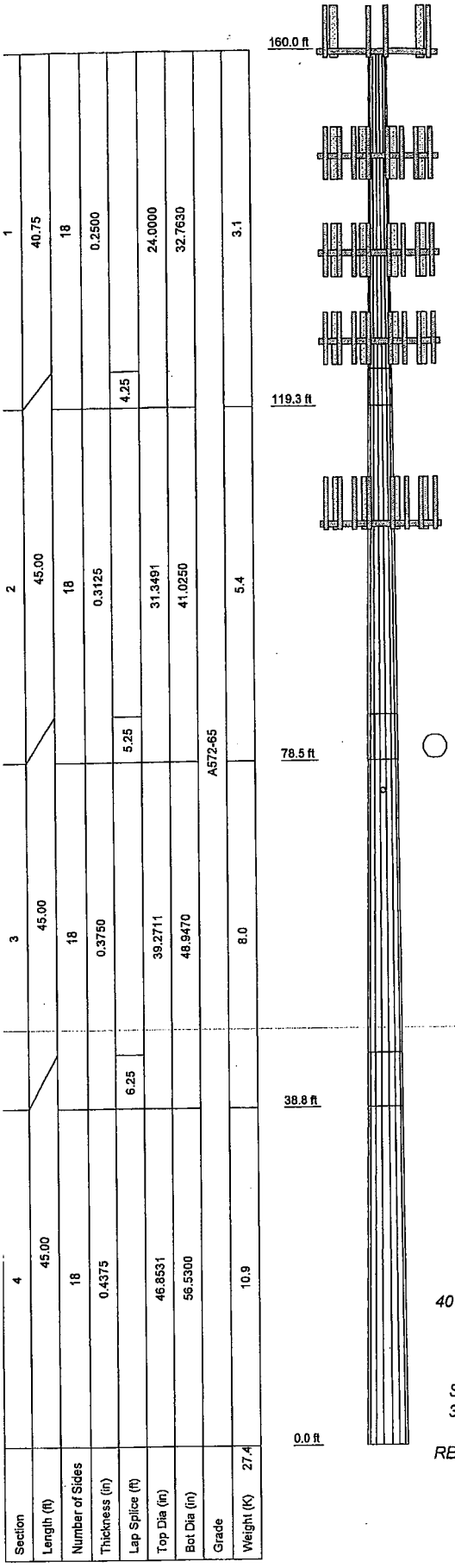
GENERAL COMMENTS

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering should be notified immediately to perform a revised analysis.

LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com



Section	1	2	3	4
Length (ft)	40.75	45.00	45.00	45.00
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.4375
Lap Splice (ft)	4.25	5.25	6.25	
Top Dia (in)	24.0000	31.3491	39.2711	46.8531
Bot Dia (in)	32.7630	41.0250	48.9470	56.5300
Grade	A572-65			
Weight (K) 27.4	3.1	5.4	8.0	10.9

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) RR90-17-02DP (T-Mobile)	162	(2) LPA-80080/6CF (Verizon)	137
(2) RR90-17-02DP (T-Mobile)	162	PiROD 13' Low Profile Platform (Monopole) (Verizon)	137
(2) RR90-17-02DP (T-Mobile)	162	(4) DB844H90E-XY (Nextel)	127
(2) TMA (T-Mobile)	162	(4) DB844H90E-XY (Nextel)	127
(2) TMA (T-Mobile)	162	(4) DB844H90E-XY (Nextel)	127
(2) TMA (T-Mobile)	162	PiROD 13' Low Profile Platform (Monopole) (Nextel)	127
PiROD 13' Low Profile Platform (Monopole) (T-Mobile)	160	(2) TMA (Cingular)	108
(4) DB980F90T2E-M (Sprint)	148	(2) TMA (Cingular)	108
(4) DB980F90T2E-M (Sprint)	148	(4) DUO1417-8686 (Cingular)	108
(4) DB980F90T2E-M (Sprint)	148	(4) DUO1417-8686 (Cingular)	108
PiROD 13' Low Profile Platform (Monopole) (Sprint)	148	(4) DUO1417-8686 (Cingular)	108
(2) DB950F85E-M (Verizon)	137	(2) TMA (Cingular)	108
(2) DB950F85E-M (Verizon)	137	PiROD 13' Low Profile Platform (Monopole) (Cingular)	108
(2) DB950F85E-M (Verizon)	137	2'6"x4" Pipe Mount (T-Mobile)	75
(2) LPA-80080/6CF (Verizon)	137	GPS (T-Mobile)	75
(2) LPA-80080/6CF (Verizon)	137		

MATERIAL STRENGTH

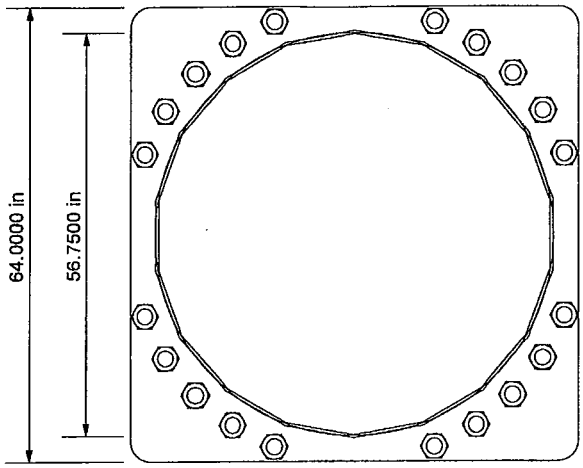
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

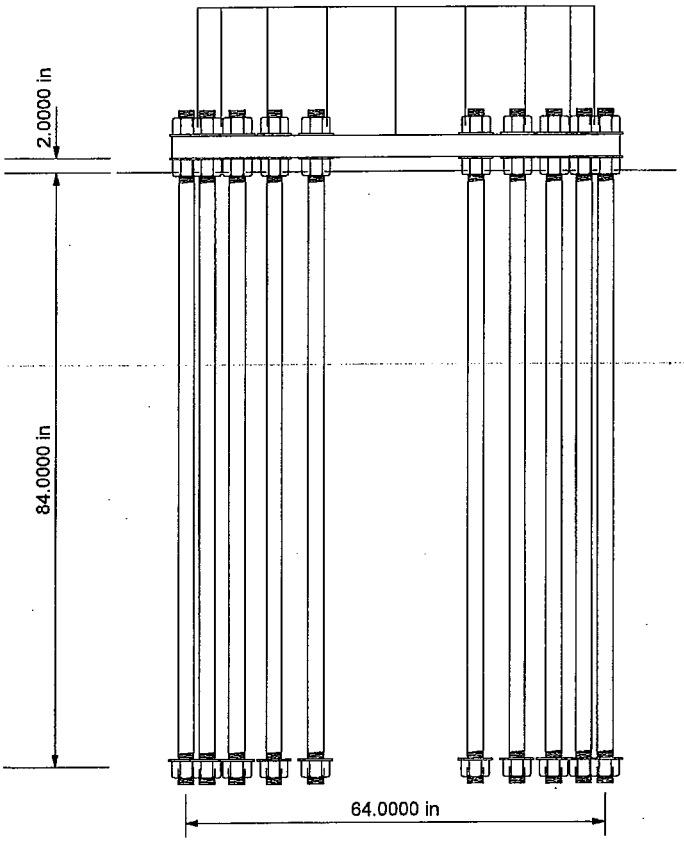
TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 100 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.

FDH Engineering, Inc
2730 Rowland Rd, Ste 100
Raleigh, NC 27615
Phone: (919) 755-1012
FAX: (919) 755-1031

Job: South Plymouth		
Project: 08-01224E		
Client: SBA	Drawn by: BRN	App'd:
Code: TIA-222-G	Date: 01/21/08	Scale: NTS
Path:		Dwg No. E-1





FOUNDATION NOTES

1. Plate thickness is 3.0000 in.
2. Plate grade is A572-55.
3. Anchor bolt grade is A615-75.
4. f'c is 3 ksi.

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Job: South Plymouth		
Project: 08-01224E		
Client: SBA	Drawn by: BRN	App'd:
Code: TIA-222-G	Date: 01/18/08	Scale: NTS
Path:		Dwg No. F-1