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
www.ct.gov/csc

December 11, 2008

Carrie L. Larson, Esq.
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103-3702

RE: **EM-POCKET-002-081110** – Youghiogheny Communications-Northeast, LLC d/b/a Pocket Communications notice of intent to modify an existing telecommunications facility located at 1 Deerfield Lane, Ansonia, Connecticut.

Dear Attorney Larson:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated November 7, 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,

S. Derek Phelps
Executive Director

SDP/CDM/laf

c: The Honorable James T. DellaVolpe, Mayor, City of Ansonia
Peter Crabtree, Zoning Enforcement Officer, City of Ansonia
SBA

G:\EM\Pocket\Ansonia\dc121008.DOC

CSC
CONNECTICUT SITING COUNCIL

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

November 14, 2008

The Honorable James T. DellaVolpe
Mayor
City of Ansonia
City Hall
253 Main Street
Ansonia, CT 06401-1866

RE: **EM-POCKET-002-081110** – Youghiogheny Communications-Northeast, LLC d/b/a Pocket Communications notice of intent to modify an existing telecommunications facility located at 1 Deerfield Lane, Ansonia, Connecticut.

Dear Mayor DellaVolpe:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by November 28, 2008.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/jb

Enclosure: Notice of Intent

c: Peter Crabtree, Zoning Enforcement Officer, City of Ansonia

PULLMAN & COMLEY, LLC
ATTORNEYS AT LAW

EM-POCKET-002-081110

CARRIE L. LARSON
90 State House Square
Hartford, CT 06103-3702
p (860) 424-4312
f (860) 424-4370

www.pullcom.com

ORIGINAL

November 7, 2008

Via Federal Express

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

Re: Notice of Exempt Modification
SBA Infrastructure, LLC (formerly known as Optasite)
Telecommunications Facility
1 Deerfield Lane, Ansonia, Connecticut

Dear Mr. Phelps:

Youghiogheny Communications-Northeast, LLC, doing business as Pocket Communications ("Pocket"), intends to install antennas and appurtenant equipment at the existing 170-foot monopole facility owned by SBA Infrastructure, LLC (formerly known as Optasite) and located at 1 Deerfield Lane, Ansonia, Connecticut, Connecticut ("Facility"). Pocket Communications provides prepaid, flat rate wireless voice and data services to more than a quarter of a million subscribers. Pocket 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. This installation constitutes an exempt modification pursuant to the Public Utility Environmental Standards Act, Connecticut General Statutes Section 16-50g et. seq. (PUESA), and Section 16-50j-72(b)(2) of the Regulations of the Connecticut State Agencies adopted pursuant to PUESA. In accordance with R.C.S.A. Section 16-50j-73, a copy of this notice has been sent to James T. Della Volpe, Mayor, City of Ansonia.

The existing Facility consists of a 170-foot self-supporting monopole tower capable of supporting multiple carriers within a fenced compound. The coordinates for the Facility are **Lat: 41°-21'-2.7" and Long: 73°–2'-57.3".** The tower is located on a former Nike missile site, on the eastern edge of Ansonia, roughly 3,000 feet southwest of Rimmon Road (Route 319) in Woodbridge. The Facility stands roughly one mile to the northeast of the downtown area of Ansonia (see Site Map, attached as Exhibit A). The tower currently supports AT&T antennas at the one hundred forty seven foot (147') level centerline AGL (above ground level), Verizon antennas at the one hundred fifty seven foot level (157') AGL, and T-Mobile antennas at the one hundred sixty seven foot level (167') AGL. Pocket proposes to install three RFS APXV18-206517S-C flush mount antennas on the tower at the one hundred thirty seven foot centerline

(137') AGL, and a Nortel CDMA Micro BTS 3231 cabinet, mounted on an "H-Frame," contained within a six foot by six foot (6'-0" x 6'-0") lease area. A small GPS antenna will be mounted to the H-Frame. An ice bridge will run from the lease area to the tower. Utilities will be run via a proposed underground conduit from an existing utility backboard, within the compound (See Design Drawings and Equipment Specifications, attached as Exhibits B and C respectively).

For the following reasons, the proposed modifications to the Deerfield Lane Facility meet the exempt modification criteria set forth in R.C.S.A. Section 16-50j-72(b)(2):

1. The proposed modification will not increase the height of the tower as Pocket's antennas will be installed at a center line height of approximately 137 feet.

2. The installation of Pocket's equipment and shelter will not require an extension of the site boundaries.

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

4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. The worst-case RF power density calculations for the proposed Pocket antennas would be 17.08% of the FCC standard (see general power density calculations table, attached as Exhibit D).

Also attached, Exhibit E, is a structural analysis confirming that the tower can support the existing and proposed antennas and associated equipment.

For the foregoing reasons, Pocket respectfully submits that the proposed antenna installation and equipment at the Ansonia Facility constitutes an exempt modification under R.C.S.A. Section 16-50j-72(b)(2)

Respectfully Submitted,

Carrie L. Larson

cc: James T. Della Volpe, Mayor, City of Ansonia
Macabee Properties, LLC, Attn: Joel & Cheryl Gelernter, underlying property owners

Exhibit A

Site Map

Pocket Site NHCT0594A

1 Deerfield Lane

Ansonia, Connecticut

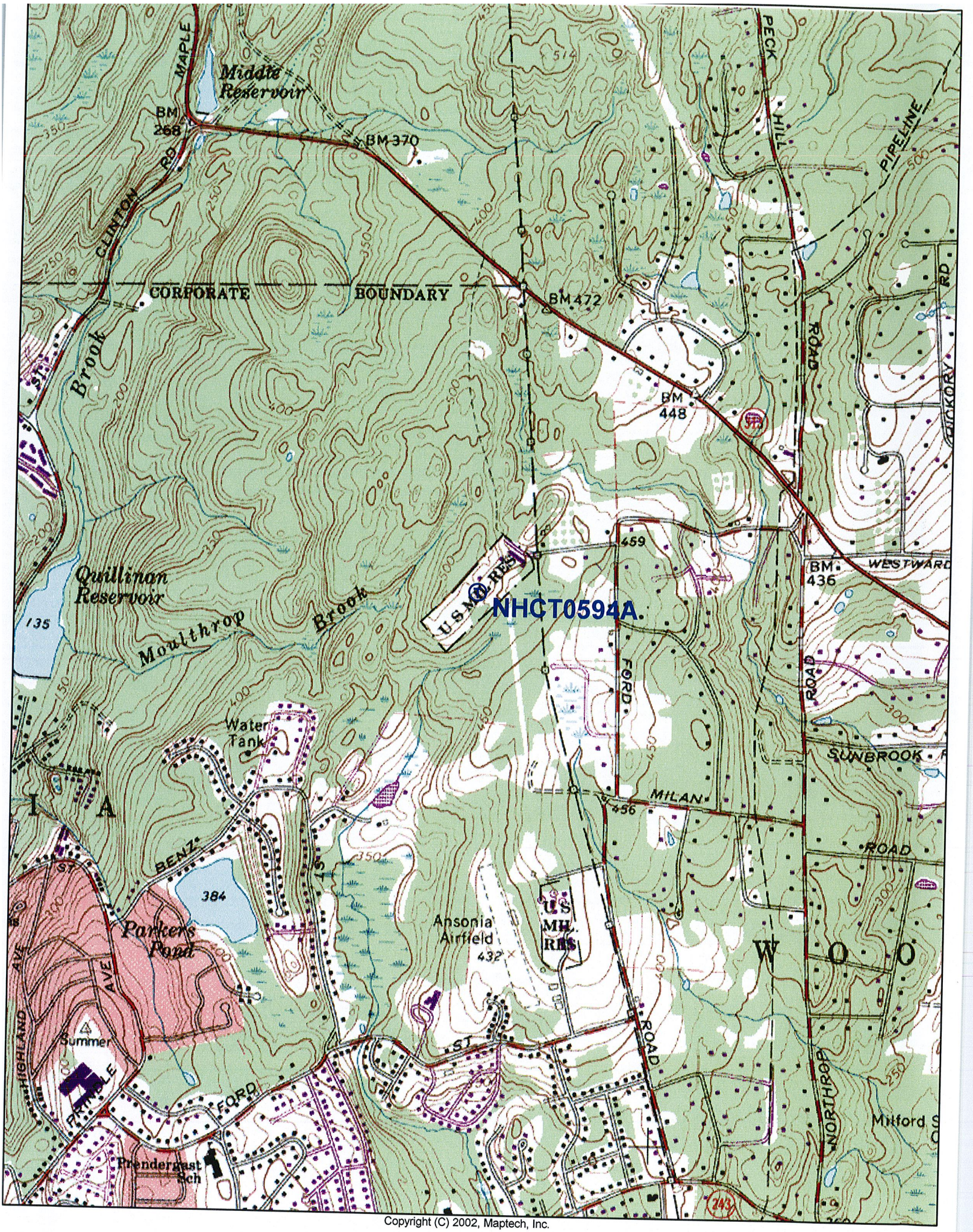
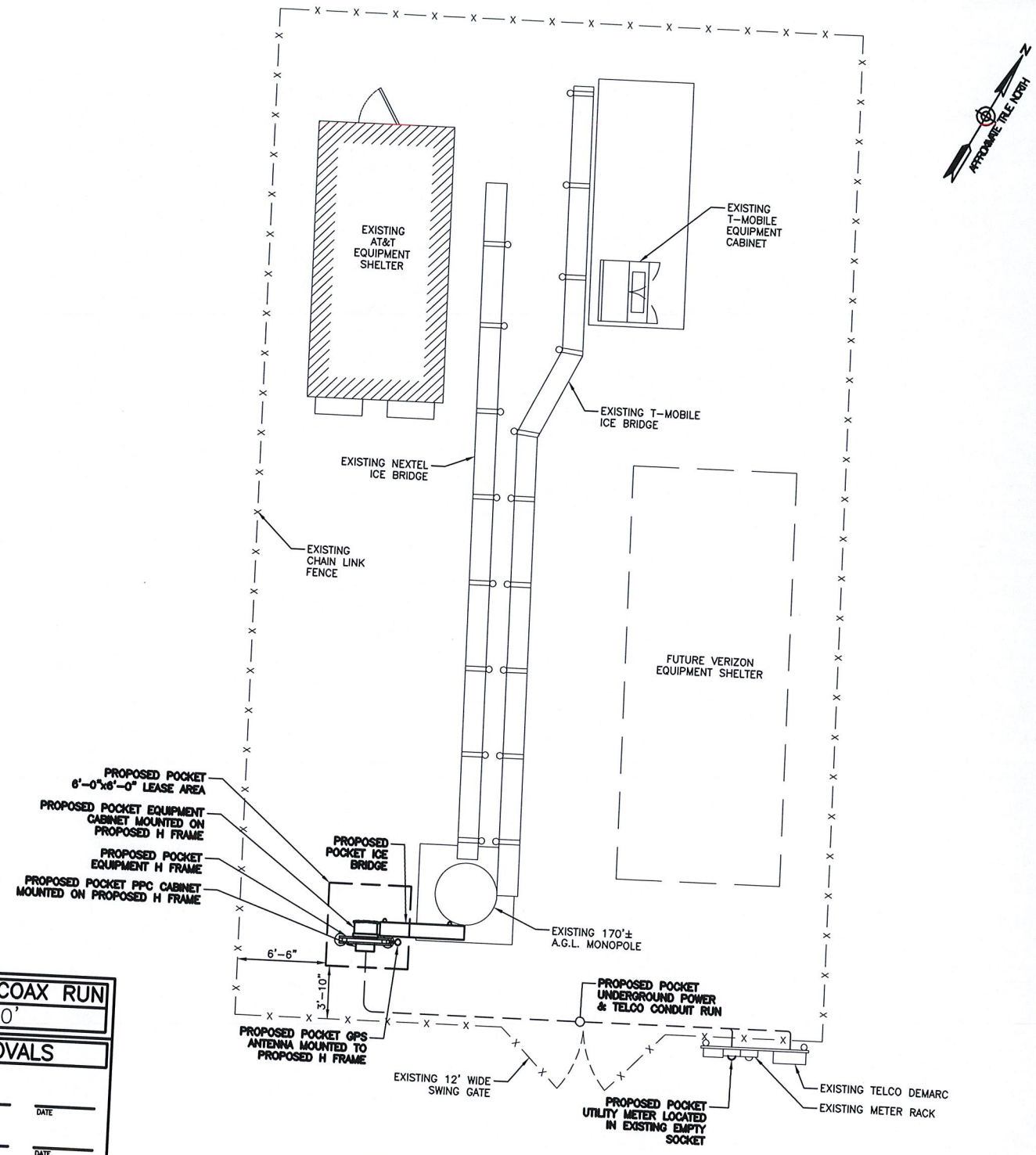


Exhibit B

Design Drawings
Pocket Site NHCT0594A
1 Deerfield Lane
Ansonia, Connecticut



COMPOUND PLAN

SCALE: N.T.S.

1

APPROX. COAX RUN
160'

APPROVALS

SITE OWNER	DATE
CONSTRUCTION MANAGER	DATE
R.F ENGINEER	DATE
SITE ACQUISITION	DATE

THE ABOVE PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION WORKS DESCRIBED HEREIN. ALL CONSTRUCTION WORKS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING OFFICIAL AND ANY CHANGES OR MODIFICATIONS THEY MAY IMPOSE.

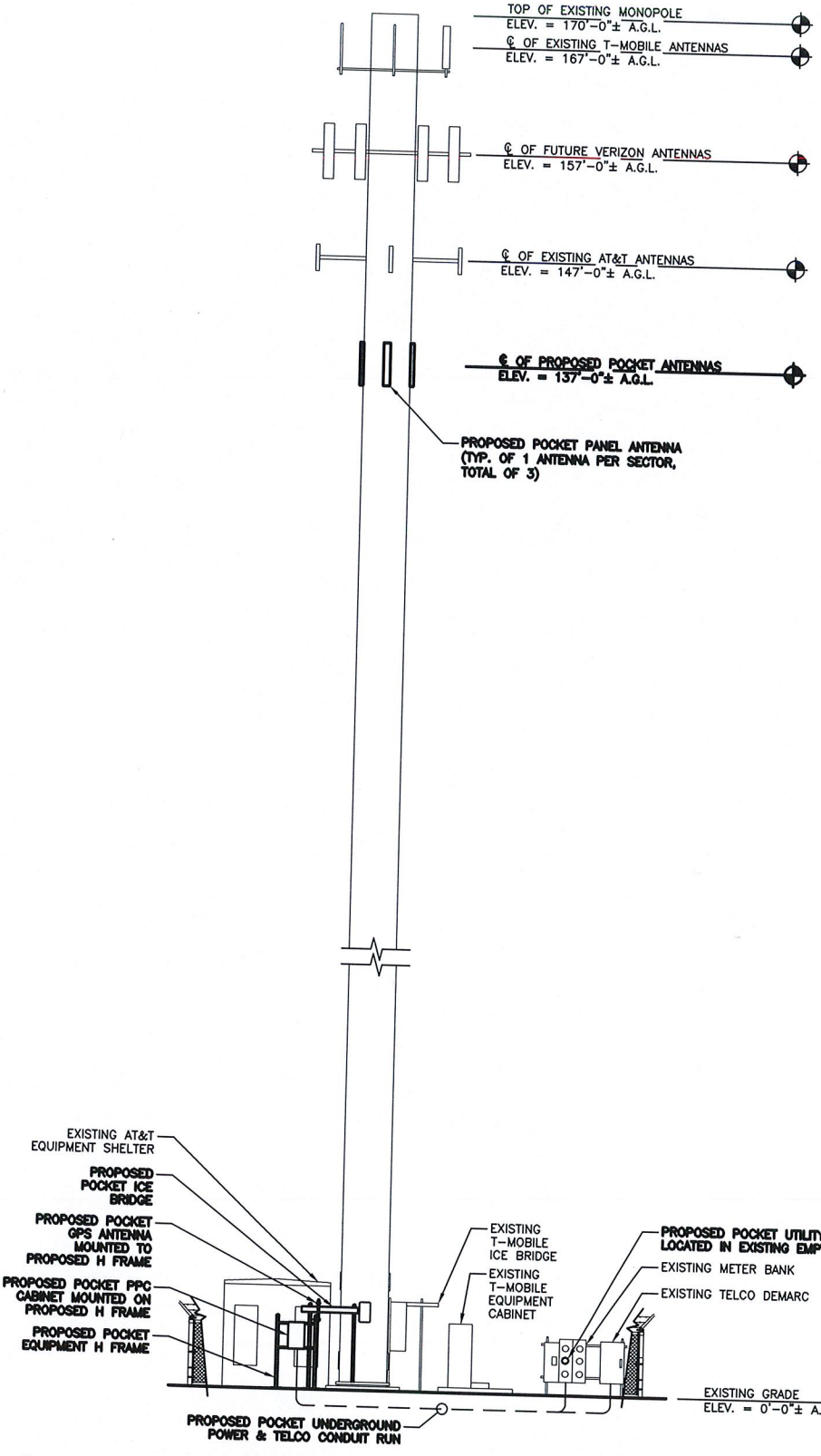
MAXTON
BAY STATE DESIGN
50 Eastman St.
South Easton, MA 02375
Phone: (508) 936-6363
Fax: (508) 936-6365
Bay State Design Associates, Inc.
Architects • Engineers
70 Tower Office Park
Woburn, MA 01801
Phone: 781-932-2467
Fax: 781-932-9771

PREPARED FOR:

pocket SMART WIRELESS

Pocket Communications
P.O. Box 5936
San Antonio, TX 78201

SITE NUMBER: NHCT594A		DRAWN BY: JRK	PROJECT NUMBER: 2882.085
SITE NAME: NH-594 ANSONIA, CT		CHECKED BY: JP	SHEET: LE-1
SITE ADDRESS: OSBORNE LANE ANSONIA, CT 06525		DATE: 09/03/08	



ELEVATION

SCALE: N.T.S.

1

APPROVALS

SITE OWNER _____ DATE _____

CONSTRUCTION MANAGER _____ DATE _____

R.F ENGINEER _____ DATE _____

SITE ACQUISITION _____ DATE _____

THE ABOVE NAMED HEREBY APPROVE AND ACCEPT THESE DRAWINGS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION NOTED HEREON. ALL CONSTRUCTION DRAWINGS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING BUILDING AND ANY CHANGES OR MODIFICATIONS THEY MAY IMPOSE.

MAXTON
50 Eastman St.
South Easton, MA 02375
Phone: (508) 936-6363
Fax: (508) 936-6395

BAY STATE DESIGN
Bay State Design Associates, Inc.
Architects • Engineers
70 Tower Office Park
Woburn, MA 01801
Phone: 781-932-2467
Fax: 781-932-9771

PREPARED FOR:

pocket SMART WIRELESS

Pocket Communications
P.O. Box 5936
San Antonio, TX 78201

SITE NUMBER: NHCT594A	DRAWN BY: JRK	PROJECT NUMBER: 2882.085	
SITE NAME: NH-594 ANSONIA, CT	CHECKED BY: JP	SHEET: LE-2	
SITE ADDRESS: OSBORNE LANE ANSONIA, CT 06525	DATE: 09/03/08		

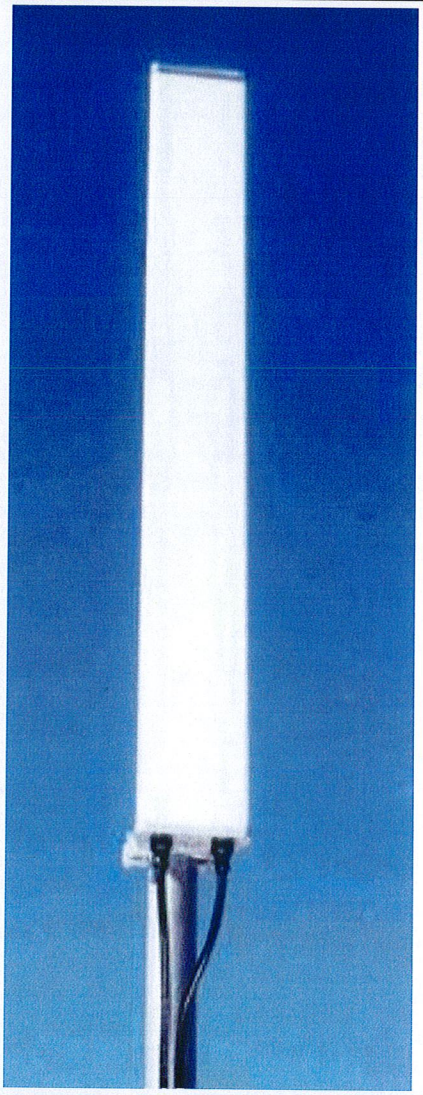
Exhibit C

Equipment Specifications
Pocket Site NHCT0594A
1 Deerfield Lane
Ansonia, Connecticut

Technical Data Sheet APXV18-206517S-C

Product Description

This variable tilt antenna provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features null fill and a wide downtilt range with optional remote tilt.



Features/Benefits

- Variable electrical downtilt - provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.
- High Suppression of all Upper Sidelobes (Typically <-20dB).
- Optional remote tilt - can be retrofitted.
- Broadband design.
- Dual polarization.
- Low profile for low visual impact.

Technical Features

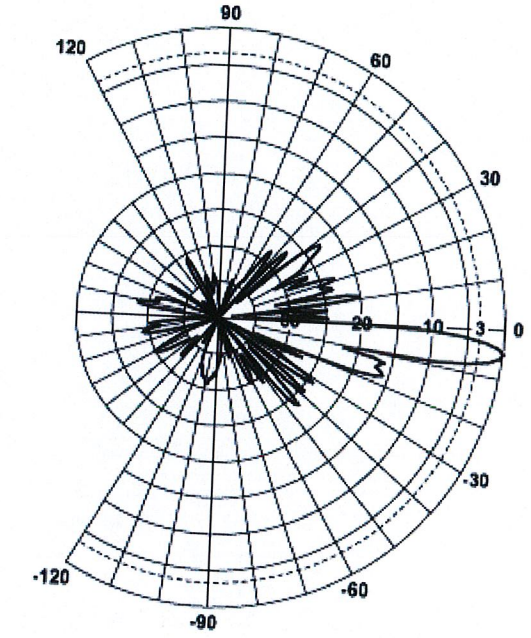
Frequency Band	3G/UMTS (Single, Broad, Dual and Triple-Band)
Horizontal Pattern	Directional
Antenna Type	Panel Dual Polarized
Electrical Down Tilt Option	Variable

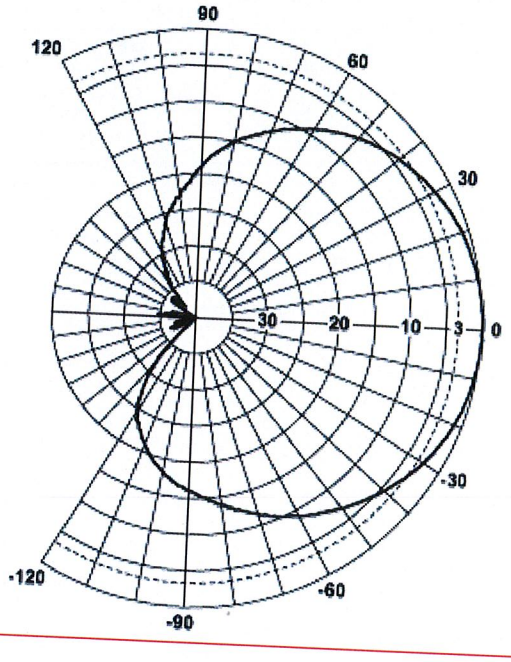
Technical Data Sheet APXV18-206517S-C

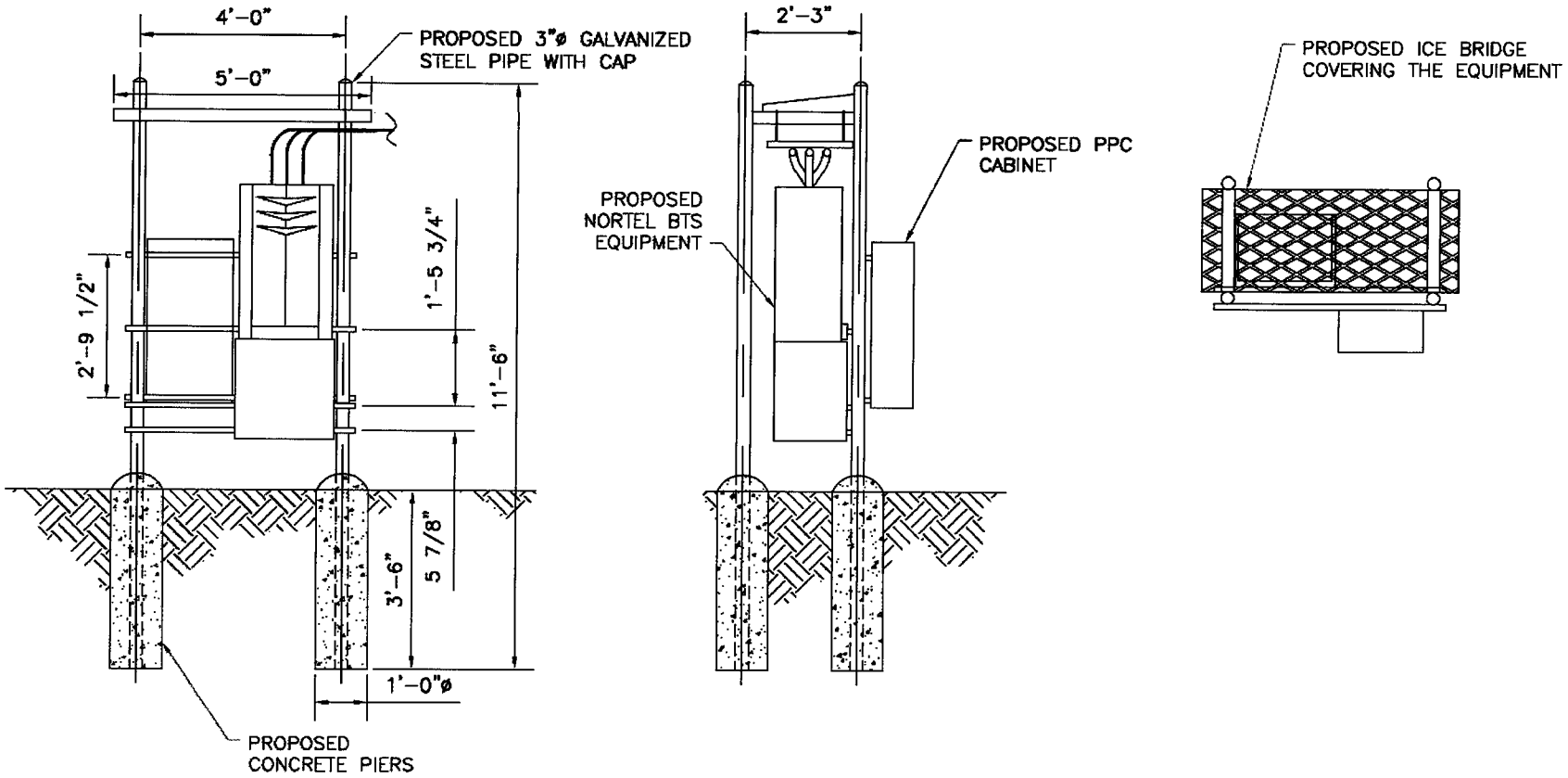
Gain, dBi (dBd)	18.8 (16.7) , 19.0 (16.9)
Frequency Range, MHz	1710-1900, 1900-2170
Connector Type	(2) 7-16 DIN Female
Connector Location	Bottom
Mount Type	Downtilt
Electrical Downtilt, deg	0-10
Horizontal Beamwidth, deg	67 , 63
Mounting Hardware	APM40-2
Rated Wind Speed, km/h (mph)	160 (100)
VSWR	< 1.5:1
Vertical Beamwidth, deg	5.0 , 4.6
Upper Sidelobe Suppression, dB	>17 , >18 all (Typically >20)
Polarization	Dual pol +/-45°
Front-To-Back Ratio, dB	>30
Maximum Power Input, W	300
Isolation between Ports, dB	>30
Lightning Protection	Direct Ground
3rd Order IMP @ 2 x 43 dBm, dBc	>150
7th Order IMP @ 2x46 dBm, dBc	>170
Impedance, Ohms	50
Overall Length, m (ft)	1.85 (6.06)
Mounting Hardware Weight, kg (lb)	3.4 (7.5)
Dimensions - HxWxD, mm (in)	1850 x 175 x 80 (72.0 x 6.8 x 3.15)
Weight w/o Mtg Hardware, kg (lb)	12 (26.4)
Weight w/ Mtg Hardware, kg (lb)	14.8 (32.5)
Radiating Element Material	Brass
Radome Color	Light Grey RAL7035
Radome Material	Fiberglass
Mounting Hardware Material	Diecasted Aluminum
Reflector Material	Aluminum
Max Wind Loading Area, m^2 (ft^2)	0.31 (3.3)
Survival Wind Speed, km/h (mph)	200 (125)
Maximum Thrust @ Rated Wind, N (lbf)	558 (125)
Front Thrust @ Rated Wind, N (lbf)	558 (125)
Shipping Weight, kg (lb)	18.3 (39.8)
Packing Dimensions, HxWxD, mm (in)	2021 x 260 x 200 (79.5 x 10.2 x 7.8)
Packing Dimensions - HxWxD, m (ft)	2.0 x 0.26 x 0.2 (6.6 x 0.85 x 0.65)

Notes

For additional mounting information please click "External Document Link" below.







Pocket/Youghiogheny Communications – Northeast, LLC

Rack Detail

>BUSINESS MADE **SIMPLE**

NORTEL

CDMA BTS 3231 AWS 1.7/2.1 GHz (Outdoor/Indoor)

CDMA BTS 3231

Industry's Highest Capacity AWS Micro BTS

The CDMA BTS 3231 is the latest extension to Nortel Networks BTS (Base Transceiver Station) portfolio providing the ideal solution for urban, sub-urban and rural deployments. The CDMA BTS 3231 is a 3-carrier, 3-sector outdoor/indoor BTS operating at the AWS band of 1.7/2.1 GHz supporting IS-95, 1XRTT and 1xEV-DO simultaneously. BTS 3231 provides flexible deployments solutions including floor, rack, and wall mount options. The power consumption of BTS3231 is industry leading consuming only 630W for 3C3S. The BTS 3231 is also very light at 240lbs making it easy to transport to hard to reach locations such as the top of a high rise building.

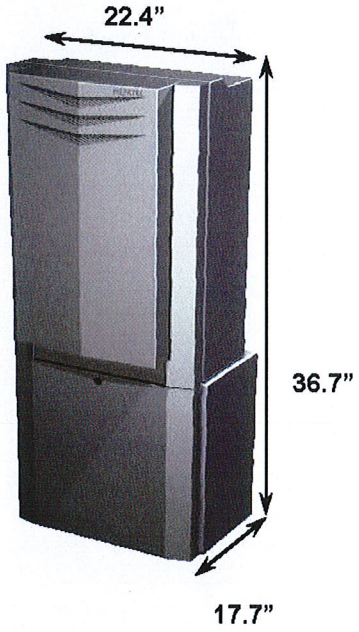


Exhibit D

Power Density Calculations

Pocket Site NHCT0594A

1 Deerfield Lane

Ansonia, Connecticut

C Squared Systems, LLC
920 Candia Road
Manchester, NH 03109
Phone: (603) 657 9702
E-mail:
support@csquaredsystems.com

Calculated Radio Frequency Emissions

NHCT0594

1 Deerfield Lane, Ansonia, CT

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed Pocket antennas to be installed on the existing tower at 1 Deerfield Lane, Ansonia, CT.

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are much more conservative (higher) than the actual signal levels will be from the finished installation.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (mW/cm^2). The number of mW/cm^2 emitted is called the power density. The general population exposure limit for the cellular band is 0.567-0.593 mW/cm^2, and the general population exposure limit for the PCS/AWS band is 1.0 mW/cm^2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

The FCC general population / uncontrolled limits set the maximum exposure to which most people may be subjected. General population / uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Higher exposure limits are permitted under the occupational / controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure (through training), and they must be able to exercise control over their exposure. General population / uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals."

The FCC describes exposure to radio frequency (RF) energy in terms of percentage of maximum permissible exposure (MPE) with 100% being the maximum allowed. Rather than the FCC presenting the user specification in terms of complex power density figures over a specified surface area, this MPE measure is particularly useful, and even more so when considering that power density limits actually vary by frequency because of the different absorptive properties of the human body at different frequencies.

MPE limits are specified as time-averaged exposure limits. This means that exposure can be averaged over 30 minutes for general population / uncontrolled exposure (or 6 minutes for occupational / controlled exposure). However, for the case of exposure of the general public, time averaging is usually not applied because of uncertainties over exact exposure conditions and difficulty in controlling time of exposure. Therefore, the typical conservative approach is to assume that any RF exposure to the general public will be continuous.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population / uncontrolled exposure and for occupational / controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include limits for Maximum Permissible Exposure (MPE) for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP), the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit. As shown in these excerpts, each frequency band has different exposure limits, requiring power density to be reported as a percent of Maximum Permissible Exposure (MPE) when dealing with carriers transmitting in different frequency bands.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{EIRP}{\pi \times R^2} \right) \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna

V = Vertical Distance from bottom of antenna

Off Beam Loss is determined by the selected antenna patterns

4. Calculation Results

Table 1 below outlines the power density information for the site. All information for carriers other than Pocket was obtained from previous siting council filings.

Carrier	Number of Trans.	Effective Radiated Power (ERP) Per Transmitter (Watts)	Antenna Height (Feet)	Operating Frequency (MHz)	Total ERP (Watts)	Power Density (mw/cm^2)	Limit	%MPE
T-Mobile	8	142	167	1945	1,136	0.0146	1.0000	1.46%
Verizon cellular	9	200	157	880	1,800	0.0263	0.5867	4.48%
Verizon PCS	6	200	157	1970	1,200	0.0175	1.0000	1.75%
AT&T GSM	2	296	147	1900	592	0.0099	1.0000	0.99%
AT&T GSM	4	296	147	880	1,184	0.0197	0.5867	3.36%
AT&T UMTS	1	500	147	880	500	0.0083	0.5867	1.42%
Pocket	3	631	137	2130-2133.75	1,893	0.0363	1.0000	3.63%
							Total	17.08%

Table 1: Proposed Carrier Information

5. Conclusion

The above analysis verifies that emissions from the proposed site will be well below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 17.08% of the FCC limit.

As noted in the introduction, obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished installation.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Tony Wells
C Squared Systems

September 7, 2008
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits For Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure

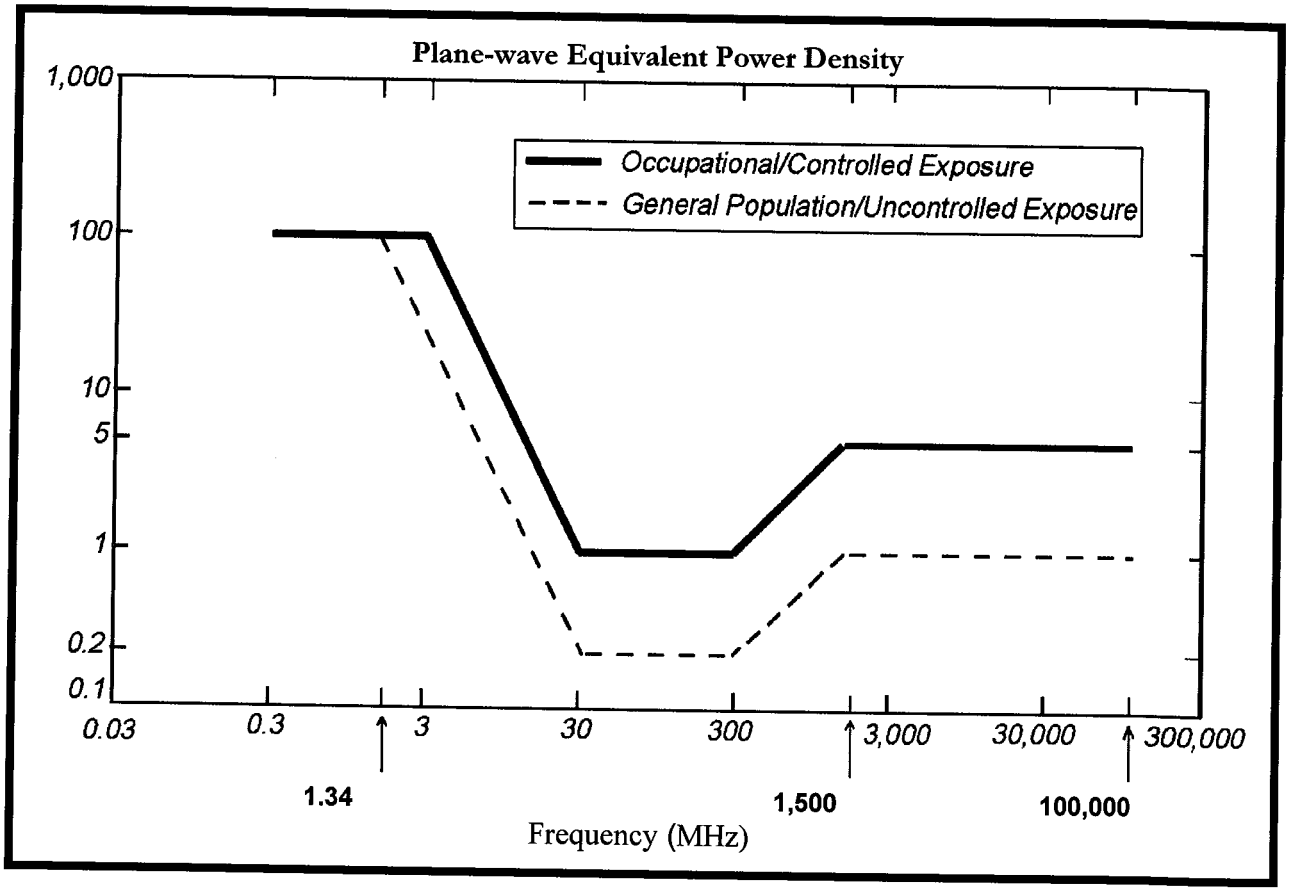
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

NOTE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.
NOTE 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.



• FCC Limits for Maximum Permissible Exposure (MPE)

Exhibit E

Structural Analysis
Pocket Site NHCT0594A
1 Deerfield Lane
Ansonia, Connecticut

Structural Analysis Report

Job Number: 09-10359

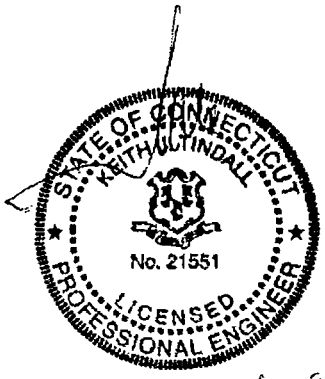
Existing 170' Sabre Communications Corporation
18-sided Monopole

Located at Ansonia, CT

Report Completed for

Bay State Design Inc.

Woburn, MA



11/6/08

Prepared by

Sabre Towers & Poles

November 5, 2008

Sabre Towers & Poles
Job Number: 09-10359
November 5, 2008

Structural Analysis Report
Existing 170' Sabre Communications Corporation
18-sided Monopole

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CONCLUSIONS. 2
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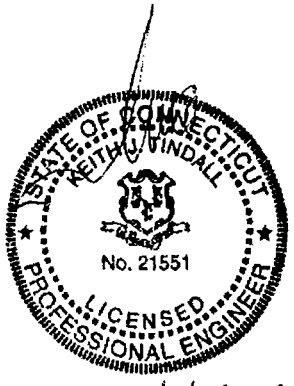
PLOTS & CALCULATIONS. A1-A7

Prepared by PEB
Checked by KJT
Approved by KJT



11/6/08

Introduction

The purpose of this analysis is to determine if the existing tower is in conformance with the requirements of ANSI/TIA-222-G, while supporting specified equipment. The tower is a 170' 18-sided monopole and was originally manufactured by Sabre Communications Corporation. The tower is located in Ansonia, CT. The analysis is being performed for Bay State Design Inc. , Woburn, MA.

Method of Analysis

The computer program that was used for this analysis is described on the attached page. The analysis was performed using a basic wind speed of 110 with no ice and 50 with 0.75" ice, in accordance with ANSI/TIA-222-G. Factored resistances and load factors were also determined in accordance with this standard.

Supported Equipment

The analysis was performed for the tower, supporting the following equipment:

1. Nine (9) APXV18-209014-C antennas on three (3) T-Arms at 167', with eighteen (18) 1-5/8" lines
2. Three (3) TMA's on the same mounts as above at 167'
3. Twelve (12) LPA-185063/8CF antennas on three (3) T-Arms at 157', with fifteen (15) 1-5/8" lines
4. Six (6) 7770 antennas on three (3) T-Arms at 147', with twelve (12) 1-5/8" lines
5. Six (6) TMA's on the same mounts as above at 147'
6. Six (6) diplexers on the same mounts as above at 147'
7. Three (3) APXV18-206517-C antennas at 137', with six (6) 1-5/8" lines

The transmission lines are assumed to run inside the pole.

Results

The results of the analysis show no overloads in any tower component.

The maximum utilization ratio in any tower component is 77%.

In addition, the results of the analysis show that the foundations are adequate.

Conclusions

Based on the preceding results, the following conclusions have been made:

1. The tower with specified equipment is adequate to achieve a basic wind speed rating of 110 mph with no ice and 50 mph with 0.75" ice, in accordance with ANSI/TIA-222-G.
2. No modifications are required, in order to meet the structural criteria stated above.
3. The analysis is valid only for the equipment listed above. If the equipment is not as listed, an additional analysis should be performed.
4. The analysis assumes that the tower contains no structural defects, and that all components have been installed properly.

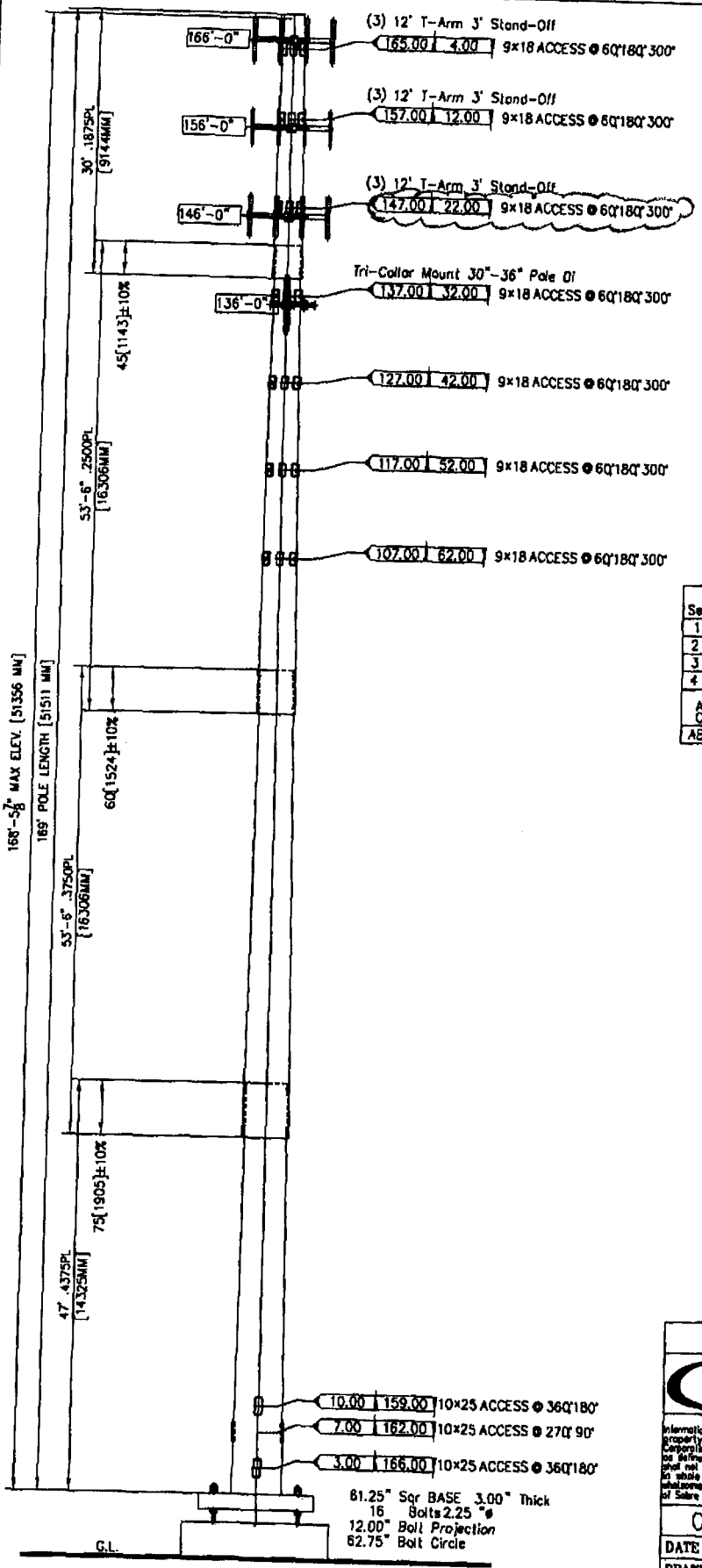
Description of Monopole Computer Program

A customized monopole computer program is utilized by Sabre Communications to perform the structural analysis and design of monopoles.

The basic criteria for designing a monopole such as wind speed, effective areas of monopole sections, factored resistances, allowable rigidity and foundation requirements are based on ANSI/TIA Standard 222-G.

A monopole is treated as a cantilevered beam with a fixed base support. Wind, ice and weight are the major design loads considered in the static analysis. Effects due to eccentric moments, torques, slopes and deflections are included in the computer program.

After all the necessary input data is entered, the program will compute the effective area of each monopole section, the wind loads at each elevation, and the factored resistance of each section. The total weight, wind shear, overturning moment and torque are calculated at each elevation, in order to determine loads in each section of the monopole. The factored loads are then compared with the factored resistances to determine the adequacy and/or required sizes.



POLE SPECIFICATIONS		
POLE HEIGHT	169.00	FEET
TAPER	.2000	IN/FT
POLE SHAPE	18	SIDED POLYGON
ORIENTATION	FLAT-FLAT	

Lev	Qty	Elev ft.	Future	DESCRIPTION APPURTENANCE / ANTENNA
1	3	166.00	F	12' T-Arm 3' Stand-Off
	9	166.00	F	APXV18-209014-C
	3	166.00	F	TMA
2	3	156.00	F	12' T-Arm 3' Stand-Off
	12	156.00	F	LPA-185063/8CF
3	3	146.00	F	12' T-Arm 3' Stand-Off
	6	146.00	F	7770
	6	146.00	F	TMA
	6	146.00	F	DIPLEXER
4	1	136.00	F	Tri-Collar Mount 30"-36" Pole Di
	3	136.00	F	APXV18-206517-C

	Load Case DESCRIPTION	Wind (mph)	OLF Vert	Rad. Ice	Factors Gust	Cf	Wind (psf)
1)	3s Gusted Wind	110.0	1.20		1.10	.65	51.8
2)	3s Gusted Wind 0.9	110.0	.90		1.10	.65	51.8
3)	3s Gusted Wind&Ice	50.0	1.20	.75	1.10	1.20	6.7
4)	Service Loads	60.0	1.00		1.10	.65	8.6

	Load Case DESCRIPTION	Res. Axial (kips)	Base React Shear (kips)	Mom (ft-k)	Disp DEFL. (ft)	@Top SWAY (deg)
1)	3s Gusted Wind	48.8	33.1	3591	9.4	5.89
2)	3s Gusted Wind 0.9	36.9	33.1	3545	9.2	5.76
3)	3s Gusted Wind&Ice	69.2	7.6	805	2.0	1.27
4)	Service Loads	39.7	5.5	594	1.5	.97

Sec	LENGTH (ft)	Flat-Flat TOP⌀	Flat-Flat BOT⌀	THICK (in)	WEIGHT (lbs)	STEEL SPEC	FINISH
1	30.00	24.00	30.00	.1875	2100	A572-65	Galv
2	53.50	28.88	39.58	.2500	5700	A572-65	Galv
3	53.50	38.08	48.78	.3750	10000	A572-65	Galv
4	47.00	46.78	56.18	.4375	14200	A572-65	Galv
				TOTAL	32000		
ABolt Cluster		Bolt⌀	Hole⌀				
AB	84.00	2.25	2.625		2200	A615-75	Galv-18"

1) FULL HEIGHT STEP BOLTS
2) ANTENNA FEED LINES RUN INSIDE POLE
3) THE MONOPOLE WAS DESIGNED IN ACCORDANCE WITH ANSI/TIA-222-G, STRUCTURE CLASS II, EXPOSURE CATEGORY C, TOPOGRAPHIC CATEGORY 1.

BAY STATE DESIGN INC

Ansonia, CT

170.00 MONOPOLE

Sabre Towers & Poles

09-10359	
DATE	05Nov08
DRAWN BY	_
CHECKED BY	REB

SIZE	DRAWING NO.	REV
A	09-10359-PE	_
REFERENCE DRAWING	SCALE N.T.S.	PAGE A1

SABRE COMMUNICATIONS CORP
2101 Murray Street
Sioux City, IA 51101

JOB: 09-10359
BAY STATE DESIGN INC
Ansonia, CT

05-Nov-08 15:38
Ph 712.258.6690
Fx 712.258.8250

TOP	DIAMETER	24.00 in.	[24.37 in. Point-Point]
BOTTOM	DIAMETER	56.18 in.	[57.04 in. Point-Point]
POLE	HEIGHT	169.00 ft.	18 SIDED FLAT ORIENTATION
BASE	HEIGHT	1.00 ft.	ABOVE GROUND
E-MODULUS		*29000 ksi*	*[12000 ksi SHEAR MODULUS]*

APPURTENANCES

ATTACH POINTS:

NO.	X,ft	Qty	Description	Status
1	166.00	3	12' T-Arm 3' Stand-Off	Future Appurt
2	156.00	3	12' T-Arm 3' Stand-Off	Future Appurt
3	146.00	3	12' T-Arm 3' Stand-Off	Future Appurt
4	136.00	1	Tri-Collar Mount 30"-36" Pole Di	Future Appurt

Some wind forces may have been derived from full-scale wind tunnel tests.

Pole Section	Bottom X,ft.	Thick in.	Connect Type	LAP in.	Taper in/ft	Length ft.	Weight lbs	Steel Spec	Pole Finish
1	30.00	.18750	SLIP-JNT	45.	.2000	30.00	1628	A572-65	GALVANIZE
2	79.75	.25000	SLIP-JNT	60.	.2000	53.50	4907	A572-65	GALVANIZE
3	128.25	.37500	SLIP-JNT	75.	.2000	53.50	9327	A572-65	GALVANIZE
4	169.00	.43750	C-WELD		.2000	47.00	11333	A572-65	GALVANIZE

SECTION PROPERTIES

X,ft	UP,ft	D,in	T,in	Area in^2	Iz in^4	IxIy in^4	SxSy in^3	w/t	d/t	F_y(ksi)	
169.00	.00	24.00	.1875	14.17	2028	1014	83.2	20.81	128.0	65.00	TOP
166.00	3.00	24.60	.1875	14.53	2186	1093	87.5	21.37	131.2	65.00	
161.00	8.00	25.60	.1875	15.12	2468	1234	94.9	22.31	136.5	65.00	P01
156.00	13.00	26.60	.1875	15.72	2770	1385	102.6	23.25	141.9	65.00	
151.00	18.00	27.60	.1875	16.31	3096	1548	110.5	24.19	147.2	65.00	P02
146.00	23.00	28.60	.1875	16.91	3448	1724	118.7	25.13	152.5	65.00	
142.75	26.25	29.25	.1875	17.30	3690	1845	124.2	25.74	156.0	65.00	P03
139.00	30.00	29.63	.2500	23.31	5082	2541	168.9	19.13	118.5	65.00	Slip-B01
136.00	33.00	30.23	.2500	23.78	5400	2700	175.9	19.55	120.9	65.00	Slip-T02
131.00	38.00	31.23	.2500	24.58	5956	2978	187.8	20.26	124.9	65.00	
126.00	43.00	32.23	.2500	25.37	6554	3277	200.3	20.97	128.9	65.00	P04
121.00	48.00	33.23	.2500	26.16	7186	3593	213.0	21.67	132.9	65.00	
116.00	53.00	34.23	.2500	26.96	7860	3930	226.2	22.38	136.9	65.00	
111.00	58.00	35.23	.2500	27.75	8576	4288	239.8	23.08	140.9	65.00	
106.00	63.00	36.23	.2500	28.55	9332	4666	253.7	23.79	144.9	65.00	
101.00	68.00	37.23	.2500	29.34	10132	5066	268.0	24.49	148.9	65.00	
96.00	73.00	38.23	.2500	30.13	10978	5489	282.8	25.20	152.9	65.00	
94.25	74.75	38.58	.2500	30.41	11284	5642	288.1	25.44	154.3	65.00	Slip-B02
89.25	79.75	39.08	.3750	46.06	17428	8714	439.2	16.61	104.2	65.00	Slip-T03
84.25	84.75	40.08	.3750	47.25	18812	9406	462.3	17.08	106.9	65.00	
79.25	89.75	41.08	.3750	48.44	20272	10136	486.0	17.55	109.5	65.00	
74.25	94.75	42.08	.3750	49.63	21800	10900	510.3	18.02	112.2	65.00	
69.25	99.75	43.08	.3750	50.82	23408	11704	535.2	18.49	114.9	65.00	
64.25	104.75	44.08	.3750	52.01	25092	12546	560.7	18.96	117.5	65.00	
59.25	109.75	45.08	.3750	53.20	26852	13426	586.7	19.43	120.2	65.00	
54.25	114.75	46.08	.3750	54.39	28696	14348	613.3	19.90	122.9	65.00	
49.25	119.75	47.08	.3750	55.58	30622	15311	640.6	20.37	125.5	65.00	
47.00	122.00	47.53	.3750	56.12	31514	15757	653.0	20.58	126.7	65.00	Slip-B03
42.00	127.00	47.78	.4375	65.73	37208	18604	767.0	17.49	109.2	65.00	
40.75	128.25	48.03	.4375	66.08	37800	18900	775.1	17.59	109.8	65.00	Slip-T04
35.75	133.25	49.03	.4375	67.47	40234	20117	808.2	18.00	112.1	65.00	
30.75	138.25	50.03	.4375	68.86	42770	21385	842.0	18.40	114.3	65.00	
25.75	143.25	51.03	.4375	70.24	45410	22705	876.4	18.80	116.6	65.00	
20.75	148.25	52.03	.4375	71.63	48158	24079	911.6	19.20	118.9	65.00	
15.75	153.25	53.03	.4375	73.02	51012	25506	947.4	19.61	121.2	65.00	
10.75	158.25	54.03	.4375	74.41	53976	26988	983.9	20.01	123.5	65.00	
5.75	163.25	55.03	.4375	75.80	57056	28528	1021.2	20.41	125.8	65.00	
.75	168.25	56.03	.4375	77.19	60248	30124	1059.0	20.82	128.1	65.00	
.00	169.00	56.18	.4375	77.40	60736	30368	1064.8	20.88	128.4	65.00	BASE

SABRE COMMUNICATIONS CORP	JOB: 09-10359	05-Nov-08 15:38
2101 Murray Street	**BAY STATE DESIGN INC**	Ph 712.258.6690
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CASE - 1: 3s Gusted Wind — ANSI-TIA-222-G

WIND OLF		1.60	GUSTED WIND (3sec)	110.0 mph	177.0 kph
VERTICAL OLF		1.20	EXP-CAT/STRUC CLASS	C-II	
DESIGN ICE		.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR	(Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF	(Cf)	.65	PRESSURE @ 32.7 ft	51.8 psf	2478.3 Pa
IMPORTANCE FAC	(I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC	(Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT		1			

APPURTENANCES — Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
1	3	12' T-Arm 3' Stand-Off	166.0	281	52.6				73.0	3.84	-1.0	-1.0
	9	APXV18-209014-C	166.0	25		1 5/8"	18	1.04	73.0		-4.0	
	3	TMA	166.0	5		None	1	.00	73.0		.0	
2	3	12' T-Arm 3' Stand-Off	156.0	281	40.0				72.1	2.89	-1.0	-.7
	12	LPA-185063/8CF	156.0	9		1 5/8"	15	1.04	72.1		-3.0	
3	3	12' T-Arm 3' Stand-Off	146.0	281	42.6				71.1	3.03	-1.0	-.8
	6	7770	146.0	35		1 5/8"	12	1.04	71.1		-2.4	
	6	TMA	146.0	5		None	1	.00	71.1		.0	
	6	DIPLEXER	146.0	5		None	1	.00	71.1		.0	
4	1	Tri-Collar Mount 30"-36" Pole Di	136.0	254	11.9				70.1	.83	-.3	-.3
	3	APXV18-206517-C	136.0	26		1 5/8"	6	1.04	70.0		-1.1	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
169.00	1.00	47.64	.00	.0	.01	-.1	.0	.0	.0	65.00	.000
166.00	1.00	47.46	.00	.0	4.76	-4.9	-1.4	.0	.0	65.00	.009
161.00	1.00	47.16	.00	.0	5.44	-5.2	-26.0	.0	.0	65.00	.062
156.00	1.00	46.85	.00	.0	9.27	-9.3	-53.9	.0	.0	65.00	.118
151.00	1.00	46.53	.00	.0	9.83	-9.7	-100.3	.0	.0	65.00	.197
146.00	1.00	46.21	.00	.0	13.66	-13.2	-150.2	.0	.0	64.63	.275
142.75	1.00	45.99	.00	.0	14.08	-13.7	-194.6	.0	.0	63.98	.341
139.00	1.00	45.73	.00	.0	14.49	-14.3	-247.4	.0	.0	65.00	.311
136.00	1.00	45.53	.00	.0	15.92	-16.1	-291.1	.0	.0	65.00	.351
131.00	1.00	45.17	.00	.0	16.51	-16.7	-370.8	.0	.0	65.00	.417
126.00	1.00	44.81	.00	.0	17.10	-17.2	-453.3	.0	.0	65.00	.476
121.00	1.00	44.43	.00	.0	17.70	-17.8	-538.8	.0	.0	65.00	.531
116.00	1.00	44.04	.00	.0	18.31	-18.5	-627.3	.0	.0	65.00	.581
111.00	1.00	43.64	.00	.0	18.92	-19.1	-718.9	.0	.0	65.00	.627
106.00	1.00	43.22	.00	.0	19.54	-19.8	-813.5	.0	.0	65.00	.670
101.00	1.00	42.78	.00	.0	20.16	-20.5	-910.8	.0	.0	65.00	.710
96.00	1.00	42.33	.00	.0	20.58	-21.0	-1011.7	.0	.0	64.56	.751
94.25	1.00	42.17	.00	.0	21.05	-22.0	-1048.3	.0	.0	64.30	.768
89.25	1.00	41.70	.00	.0	21.74	-23.5	-1153.3	.0	.0	65.00	.548
84.25	1.00	41.20	.00	.0	22.42	-24.8	-1261.7	.0	.0	65.00	.569
79.25	1.00	40.68	.00	.0	23.09	-25.9	-1374.2	.0	.0	65.00	.589
74.25	1.00	40.13	.00	.0	23.76	-27.0	-1489.2	.0	.0	65.00	.608
69.25	1.00	39.55	.00	.0	24.43	-28.1	-1608.3	.0	.0	65.00	.626
64.25	1.00	38.94	.00	.0	25.10	-29.2	-1730.0	.0	.0	65.00	.643
59.25	1.00	38.30	.00	.0	25.77	-30.4	-1855.8	.0	.0	65.00	.659
54.25	1.00	37.60	.00	.0	26.43	-31.6	-1985.0	.0	.0	65.00	.674
49.25	1.00	36.86	.00	.0	26.91	-32.6	-2116.7	.0	.0	65.00	.688
47.00	1.00	36.51	.00	.0	27.40	-34.0	-2177.5	.0	.0	65.00	.695
42.00	1.00	35.67	.00	.0	27.81	-35.2	-2314.2	.0	.0	65.00	.628
40.75	1.00	35.45	.00	.0	28.22	-36.5	-2349.2	.0	.0	65.00	.631
35.75	1.00	34.51	.00	.0	28.86	-38.3	-2490.0	.0	.0	65.00	.642
30.75	1.00	33.46	.00	.0	29.48	-39.8	-2635.0	.0	.0	65.00	.652
25.75	1.00	32.28	.00	.0	30.11	-41.3	-2781.7	.0	.0	65.00	.661
20.75	1.00	30.90	.00	.0	30.74	-42.9	-2932.5	.0	.0	65.00	.670
15.75	1.00	29.25	.00	.0	31.38	-44.5	-3086.7	.0	.0	65.00	.679
10.75	1.00	28.62	.00	.0	32.02	-46.1	-3243.3	.0	.0	65.00	.687
5.75	1.00	28.62	.00	.0	32.67	-47.7	-3403.3	.0	.0	65.00	.695
.75	1.00	28.62	.00	.0	33.05	-48.7	-3566.7	.0	.0	65.00	.702
.00	1.00	28.62	.00	.0	33.10	-48.8	3591.7	.0	.0	65.00	.703

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result
169.00	.00	9.36	-.36	9.36< 5.54%>	-5.89	.00	.00	5.89

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2101 Murray Street	**BAY STATE DESIGN INC**	Ph 712.258.6690
Sioux City, IA 51101	**Ansonia, CT**	Fx 712.258.8250

CASE - 2: 3s Gusted Wind 0.9 Dead — **ANSI-TIA-222-G**

WIND OLF		1.60	GUSTED WIND (3sec)	110.0 mph	177.0 kph
VERTICAL OLF		.90	EXP-CAT/STRUC CLASS	C-II	
DESIGN ICE		.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR	(Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF	(Cf)	.65	PRESSURE @ 32.7 ft	51.8 psf	2478.3 Pa
IMPORTANCE FAC	(I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC	(Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT		1			

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	FORCES Ax-Z Kips	MOM. Lg-X Ft-K
_ 1	3	12' T-Arm 3' Stand-Off	166.0	281	52.6				73.0	3.84	-.8	-1.0
	9	APXV18-209014-C	166.0	25		1 5/8"	18	1.04	73.0		-3.0	
	3	TMA	166.0	5		None	1	.00	73.0		.0	
_ 2	3	12' T-Arm 3' Stand-Off	156.0	281	40.0				72.1	2.89	-.8	-.7
	12	LPA-185063/8CF	156.0	9		1 5/8"	15	1.04	72.1		-2.3	
_ 3	3	12' T-Arm 3' Stand-Off	146.0	281	42.6				71.1	3.03	-.8	-.8
	6	7770	146.0	35		1 5/8"	12	1.04	71.1		-1.8	
	6	TMA	146.0	5		None	1	.00	71.1		.0	
	6	DIPLEXER	146.0	5		None	1	.00	71.1		.0	
_ 4	1	Tri-Collar Mount 30"-36" Pole Di	136.0	254	11.9				70.1	.83	-.2	-.3
	3	APXV18-206517-C	136.0	26		1 5/8"	6	1.04	70.0		-.8	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
169.00	1.00	47.64	.00	.0	.00	-.1	.0	.0	.0	65.00	.000
166.00	1.00	47.46	.00	.0	4.62	-3.6	-1.4	.0	.0	65.00	.008
161.00	1.00	47.16	.00	.0	5.29	-3.8	-25.2	.0	.0	65.00	.059
156.00	1.00	46.85	.00	.0	9.01	-6.8	-52.4	.0	.0	65.00	.113
151.00	1.00	46.53	.00	.0	9.56	-7.1	-97.4	.0	.0	65.00	.189
146.00	1.00	46.21	.00	.0	13.30	-9.7	-146.0	.0	.0	64.63	.264
142.75	1.00	45.99	.00	.0	13.71	-10.1	-189.2	.0	.0	63.98	.328
139.00	1.00	45.73	.00	.0	14.11	-10.5	-240.6	.0	.0	65.00	.300
136.00	1.00	45.53	.00	.0	15.51	-11.9	-283.2	.0	.0	65.00	.339
131.00	1.00	45.17	.00	.0	16.10	-12.3	-360.8	.0	.0	65.00	.403
126.00	1.00	44.81	.00	.0	16.70	-12.7	-441.3	.0	.0	65.00	.461
121.00	1.00	44.43	.00	.0	17.30	-13.2	-524.8	.0	.0	65.00	.515
116.00	1.00	44.04	.00	.0	17.92	-13.7	-611.3	.0	.0	65.00	.564
111.00	1.00	43.64	.00	.0	18.54	-14.2	-700.8	.0	.0	65.00	.609
106.00	1.00	43.22	.00	.0	19.17	-14.7	-793.5	.0	.0	65.00	.651
101.00	1.00	42.78	.00	.0	19.80	-15.2	-889.2	.0	.0	65.00	.690
96.00	1.00	42.33	.00	.0	20.24	-15.6	-988.3	.0	.0	64.56	.731
94.25	1.00	42.17	.00	.0	20.70	-16.4	-1023.3	.0	.0	64.30	.746
89.25	1.00	41.70	.00	.0	21.39	-17.6	-1127.5	.0	.0	65.00	.533
84.25	1.00	41.20	.00	.0	22.08	-18.6	-1234.2	.0	.0	65.00	.555
79.25	1.00	40.68	.00	.0	22.76	-19.4	-1344.2	.0	.0	65.00	.574
74.25	1.00	40.13	.00	.0	23.44	-20.2	-1458.3	.0	.0	65.00	.593
69.25	1.00	39.55	.00	.0	24.12	-21.1	-1575.8	.0	.0	65.00	.611
64.25	1.00	38.94	.00	.0	24.81	-21.9	-1695.8	.0	.0	65.00	.628
59.25	1.00	38.30	.00	.0	25.49	-22.8	-1820.0	.0	.0	65.00	.644
54.25	1.00	37.60	.00	.0	26.17	-23.8	-1947.5	.0	.0	65.00	.659
49.25	1.00	36.86	.00	.0	26.67	-24.5	-2078.3	.0	.0	65.00	.673
47.00	1.00	36.51	.00	.0	27.16	-25.6	-2138.3	.0	.0	65.00	.680
42.00	1.00	35.67	.00	.0	27.59	-26.5	-2274.2	.0	.0	65.00	.615
40.75	1.00	35.45	.00	.0	28.01	-27.5	-2309.2	.0	.0	65.00	.618
35.75	1.00	34.51	.00	.0	28.67	-28.9	-2449.2	.0	.0	65.00	.629
30.75	1.00	33.46	.00	.0	29.31	-30.0	-2592.5	.0	.0	65.00	.639
25.75	1.00	32.28	.00	.0	29.96	-31.2	-2739.2	.0	.0	65.00	.649
20.75	1.00	30.90	.00	.0	30.62	-32.4	-2888.3	.0	.0	65.00	.658
15.75	1.00	29.25	.00	.0	31.29	-33.6	-3041.7	.0	.0	65.00	.667
10.75	1.00	28.62	.00	.0	31.97	-34.8	-3198.3	.0	.0	65.00	.675
5.75	1.00	28.62	.00	.0	32.65	-36.1	-3358.3	.0	.0	65.00	.683
.75	1.00	28.62	.00	.0	33.05	-36.8	-3521.7	.0	.0	65.00	.690
.00	1.00	28.62	.00	.0	33.10	-36.9	3545.8	.0	.0	65.00	.691

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result
169.00	.00	9.18	-.34	9.18< 5.43%>	-5.76	.00	.00	5.76

SABRE COMMUNICATIONS CORP
2101 Murray Street
Sioux City, IA 51101

JOB: 09-10359
BAY STATE DESIGN INC
Ansonia, CT

05-Nov-08 15:38
Ph 712.258.6690
Fx 712.258.8250

CASE - 3: 3s Gusted Wind&Ice

ANSI-TIA-222-G

WIND OLF	1.00	GUSTED WIND (3sec)	50.0 mph	80.5 kph	
VERTICAL OLF	1.20	EXP-CAT/STRUC CLASS	C-II		
DESIGN ICE	.75 in	EXP-POWER COEFF.	.2105		
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft		
FORCE COEFF (Cf)	1.20	PRESSURE @ 32.7 ft	6.7 psf	320.0 Pa	
IMPORTANCE FAC (I)	1.00	BASE ABOVE Grd	1.0		
DIRECTION FAC (Kd)	.95	CREST HEIGHT	.0 ft		
TOPOGRAPHIC CAT	1				

APPURTENANCES

Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	FORCES Ax-Z Kips	MOM. Lg-X Ft-K
1	3	12' T-Arm 3' Stand-Off	166.0	309	66.3				9.4	.63	-1.8	-.2
	9	APXV18-209014-C	166.0	64		1 5/8"	18	1.04	9.4		-6.3	
	3	TMA	166.0	15		None	1	.00	9.4		-.3	
2	3	12' T-Arm 3' Stand-Off	156.0	309	52.5				9.3	.49	-1.7	-.1
	12	LPA-185063/8CF	156.0	30		1 5/8"	15	1.04	9.3		-5.0	
3	3	12' T-Arm 3' Stand-Off	146.0	309	57.6				9.2	.53	-1.8	-.1
	6	7770	146.0	67		1 5/8"	12	1.04	9.2		-3.7	
	6	TMA	146.0	15		None	1	.00	9.2		-.5	
	6	DIPLEXER	146.0	15		None	1	.00	9.2		-.5	
4	1	Tri-Collar Mount 30"-36" Pole Di	136.0	279	16.7				9.0	.15	-.3	-.1
	3	APXV18-206517-C	136.0	52		1 5/8"	6	1.04	9.0		-1.7	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
169.00	1.00	11.36	1.77	.0	.01	-.2	.0	.0	.0	65.00	.000
166.00	1.00	11.32	1.76	.0	.92	-8.3	-.3	.0	.0	65.00	.010
161.00	1.00	11.24	1.76	.0	1.11	-8.9	-5.1	.0	.0	65.00	.021
156.00	1.00	11.17	1.75	.0	1.88	-15.6	-10.7	.0	.0	65.00	.038
151.00	1.00	11.09	1.75	.0	2.04	-16.2	-20.1	.0	.0	65.00	.054
146.00	1.00	11.02	1.74	.0	2.82	-22.7	-30.5	.0	.0	64.63	.076
142.75	1.00	10.96	1.74	.0	2.93	-23.4	-39.6	.0	.0	63.98	.090
139.00	1.00	10.90	1.73	.0	3.04	-24.2	-50.6	.0	.0	65.00	.079
136.00	1.00	10.85	1.73	.0	3.36	-27.0	-59.8	.0	.0	65.00	.089
131.00	1.00	10.77	1.72	.0	3.52	-27.8	-76.6	.0	.0	65.00	.103
126.00	1.00	10.68	1.72	.0	3.68	-28.7	-94.2	.0	.0	65.00	.116
121.00	1.00	10.59	1.71	.0	3.84	-29.6	-112.6	.0	.0	65.00	.128
116.00	1.00	10.50	1.70	.0	3.99	-30.5	-131.8	.0	.0	65.00	.139
111.00	1.00	10.40	1.69	.0	4.15	-31.5	-151.8	.0	.0	65.00	.149
106.00	1.00	10.30	1.69	.0	4.31	-32.5	-172.5	.0	.0	65.00	.159
101.00	1.00	10.20	1.68	.0	4.47	-33.5	-194.0	.0	.0	65.00	.168
96.00	1.00	10.09	1.67	.0	4.58	-34.2	-216.3	.0	.0	64.56	.178
94.25	1.00	10.05	1.67	.0	4.69	-35.5	-224.3	.0	.0	64.30	.182
89.25	1.00	9.94	1.66	.0	4.87	-37.4	-247.8	.0	.0	65.00	.130
84.25	1.00	9.82	1.65	.0	5.04	-39.0	-272.2	.0	.0	65.00	.135
79.25	1.00	9.70	1.64	.0	5.21	-40.4	-297.3	.0	.0	65.00	.140
74.25	1.00	9.57	1.63	.0	5.38	-41.9	-323.3	.0	.0	65.00	.144
69.25	1.00	9.43	1.62	.0	5.54	-43.4	-350.3	.0	.0	65.00	.149
64.25	1.00	9.28	1.61	.0	5.71	-44.9	-377.9	.0	.0	65.00	.153
59.25	1.00	9.13	1.59	.0	5.87	-46.4	-406.5	.0	.0	65.00	.157
54.25	1.00	8.96	1.58	.0	6.04	-48.0	-435.8	.0	.0	65.00	.161
49.25	1.00	8.79	1.56	.0	6.15	-49.3	-466.0	.0	.0	65.00	.164
47.00	1.00	8.70	1.56	.0	6.27	-50.9	-479.9	.0	.0	65.00	.166
42.00	1.00	8.50	1.54	.0	6.37	-52.4	-511.3	.0	.0	65.00	.150
40.75	1.00	8.45	1.54	.0	6.47	-54.0	-519.2	.0	.0	65.00	.151
35.75	1.00	8.23	1.52	.0	6.63	-56.2	-551.6	.0	.0	65.00	.154
30.75	1.00	7.98	1.49	.0	6.78	-58.1	-584.7	.0	.0	65.00	.157
25.75	1.00	7.70	1.47	.0	6.93	-60.0	-618.6	.0	.0	65.00	.159
20.75	1.00	7.37	1.44	.0	7.08	-61.9	-653.2	.0	.0	65.00	.162
15.75	1.00	6.97	1.40	.0	7.23	-63.9	-688.6	.0	.0	65.00	.164
10.75	1.00	6.82	1.35	.0	7.38	-65.9	-724.8	.0	.0	65.00	.166
5.75	1.00	6.82	1.28	.0	7.53	-67.9	-761.6	.0	.0	65.00	.168
.75	1.00	6.82	1.12	.0	7.62	-69.1	-799.3	.0	.0	65.00	.170
.00	1.00	6.82	1.06	.0	7.63	-69.2	805.0	.0	.0	65.00	.170

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result
169.00	.00	2.04	-.02	2.04< 1.21%>	-1.27	.00	.00	1.27

SABRE COMMUNICATIONS CORP
2101 Murray Street
Sioux City, IA 51101

JOB: 09-10359
BAY STATE DESIGN INC
Ansonia, CT

05-Nov-08 15:38
Ph 712.258.6690
Fx 712.258.8250

CASE - 4: Service Loads

ANSI-TIA-222-G

WIND OLF		1.00	GUSTED WIND (3sec)	60.0 mph	96.6 kph
VERTICAL OLF		1.00	EXP-CAT/STRUC CLASS	C-II	
DESIGN ICE		.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR	(Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF	(Cf)	.65	PRESSURE @ 32.7 ft	8.6 psf	412.3 Pa
IMPORTANCE FAC	(I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC	(Kd)	.85	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT		1			

APPURTENANCES

Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	FORCES Ax-Z Kips	MOM. Lg-X Ft-K
	3	12' T-Arm 3' Stand-Off	166.0	281	52.6				12.2	.64	-.8	-.2
	9	APXV18-209014-C	166.0	25		1 5/8"	18	1.04	12.1		-3.3	
	3	TMA	166.0	5		None	1	.00	12.1		.0	
2	3	12' T-Arm 3' Stand-Off	156.0	281	40.0				12.0	.48	-.8	-.1
	12	LPA-185063/8CF	156.0	9		1 5/8"	15	1.04	12.0		-2.5	
3	3	12' T-Arm 3' Stand-Off	146.0	281	42.6				11.8	.50	-.8	-.1
	6	7770	146.0	35		1 5/8"	12	1.04	11.8		-2.0	
	6	TMA	146.0	5		None	1	.00	11.8		.0	
	6	DIPLEXER	146.0	5		None	1	.00	11.8		.0	
4	1	Tri-Collar Mount 30"-36" Pole Di	136.0	254	11.9				11.7	.14	-.3	.0
	3	APXV18-206517-C	136.0	26		1 5/8"	6	1.04	11.7		-.9	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
169.00	1.00	7.93	.00	.0	.00	-.1	.0	.0	.0	65.00	.000
166.00	1.00	7.90	.00	.0	.78	-4.5	-.2	.0	.0	65.00	.006
161.00	1.00	7.85	.00	.0	.89	-4.7	-4.3	.0	.0	65.00	.015
156.00	1.00	7.79	.00	.0	1.52	-8.4	-8.9	.0	.0	65.00	.027
151.00	1.00	7.74	.00	.0	1.61	-8.6	-16.5	.0	.0	65.00	.040
146.00	1.00	7.69	.00	.0	2.24	-11.9	-24.6	.0	.0	64.63	.055
142.75	1.00	7.65	.00	.0	2.31	-12.3	-31.9	.0	.0	63.98	.066
139.00	1.00	7.61	.00	.0	2.38	-12.7	-40.6	.0	.0	65.00	.059
136.00	1.00	7.57	.00	.0	2.62	-14.3	-47.8	.0	.0	65.00	.066
131.00	1.00	7.52	.00	.0	2.72	-14.7	-60.9	.0	.0	65.00	.077
126.00	1.00	7.45	.00	.0	2.81	-15.1	-74.5	.0	.0	65.00	.086
121.00	1.00	7.39	.00	.0	2.92	-15.6	-88.5	.0	.0	65.00	.095
116.00	1.00	7.33	.00	.0	3.02	-16.0	-103.1	.0	.0	65.00	.104
111.00	1.00	7.26	.00	.0	3.12	-16.5	-118.2	.0	.0	65.00	.111
106.00	1.00	7.19	.00	.0	3.22	-17.0	-133.8	.0	.0	65.00	.118
101.00	1.00	7.12	.00	.0	3.33	-17.5	-149.9	.0	.0	65.00	.125
96.00	1.00	7.04	.00	.0	3.40	-17.9	-166.6	.0	.0	64.56	.132
94.25	1.00	7.02	.00	.0	3.48	-18.7	-172.5	.0	.0	64.30	.135
89.25	1.00	6.94	.00	.0	3.59	-19.9	-189.9	.0	.0	65.00	.096
84.25	1.00	6.85	.00	.0	3.71	-20.9	-207.8	.0	.0	65.00	.100
79.25	1.00	6.77	.00	.0	3.82	-21.7	-226.3	.0	.0	65.00	.103
74.25	1.00	6.68	.00	.0	3.93	-22.6	-245.5	.0	.0	65.00	.106
69.25	1.00	6.58	.00	.0	4.05	-23.4	-265.2	.0	.0	65.00	.110
64.25	1.00	6.48	.00	.0	4.16	-24.3	-285.3	.0	.0	65.00	.112
59.25	1.00	6.37	.00	.0	4.27	-25.2	-306.2	.0	.0	65.00	.115
54.25	1.00	6.26	.00	.0	4.38	-26.2	-327.5	.0	.0	65.00	.118
49.25	1.00	6.13	.00	.0	4.47	-27.0	-349.4	.0	.0	65.00	.120
47.00	1.00	6.07	.00	.0	4.55	-28.0	-359.5	.0	.0	65.00	.121
42.00	1.00	5.93	.00	.0	4.62	-29.0	-382.3	.0	.0	65.00	.110
40.75	1.00	5.90	.00	.0	4.69	-30.1	-388.0	.0	.0	65.00	.110
35.75	1.00	5.74	.00	.0	4.80	-31.5	-411.4	.0	.0	65.00	.112
30.75	1.00	5.57	.00	.0	4.90	-32.7	-435.4	.0	.0	65.00	.114
25.75	1.00	5.37	.00	.0	5.01	-33.9	-459.9	.0	.0	65.00	.116
20.75	1.00	5.14	.00	.0	5.12	-35.1	-485.0	.0	.0	65.00	.118
15.75	1.00	4.87	.00	.0	5.23	-36.3	-510.6	.0	.0	65.00	.119
10.75	1.00	4.76	.00	.0	5.34	-37.6	-536.7	.0	.0	65.00	.121
5.75	1.00	4.76	.00	.0	5.45	-38.9	-563.4	.0	.0	65.00	.122
.75	1.00	4.76	.00	.0	5.52	-39.7	-590.7	.0	.0	65.00	.123
.00	1.00	4.76	.00	.0	5.53	-39.7	594.8	.0	.0	65.00	.123

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result	MicroW Allow
169.00	.00	1.55	-.01	1.55< .91%>	-.97	.00	.00	.97	

SABRE COMMUNICATIONS CORP 2101 Murray Street Sioux City, IA 51101	JOB: 09-10359 **BAY STATE DESIGN INC** **Ansonia, CT**	05-Nov-08 15:38 Ph 712.258.6690 Fx 712.258.8250

SHAPE: 18 SIDED POLYGON with FLAT-FLAT ORIENTATION
BOLTS: QUADRANT SPACED BOLTS 6.00 in. ON CENTER
LOCATE:

POLE DATA

DIAMETER	= 56.18 in.	BASE ACTIONS	AXIAL FORCE=	-48.8 kips	Vert
PLATE	= .4375 in.		SHEAR X =	21.1 kips	Long
TAPER	= .2000 in/ft		SHEAR Y =	25.5 kips	Tran
POLE Fy	= 65.00 ksi		X-AXIS MOM =	2539.3 ft-kips	Tran
			Y-Axis MOM =	2539.3 ft-kips	Long
			Z-Axis MOM =	.0 ft-kips	Vert

DESIGN CASE = 1 3s Gusted Wind

Design: ANY Orientation Reactions at 45.00 deg to X-AXIS

BOLT LOADS

	AXIAL - COMPRESSION	= 174.76 kips		
	AXIAL - TENSION	= 168.66 kips		
	SHEAR	= 2.91 kips		
AXIAL	STRESS	= 53.77 ksi		
SHEAR	STRESS	= .95 ksi		
YIELD	STRENGTH Fy	= 75.00 ksi		
ULT.	STRENGTH Fu	= 100.00 ksi		
ALLOW	STRESS Fa [.80 x 1.00]	= 80.00 ksi	Interaction	
	SHEAR Fv [.80 x .40]	= 32.00 ksi	.696	TIA-G
	TENSION AREA REQUIRED	= 2.18 in^2		
	TENSION AREA FURNISHED	= 3.25 in^2		
	ROOT AREA FURNISHED	= 3.07 in^2		

A615 ::: ANCHOR BOLT DESIGN USED

16 Bolts on a	62.750 in.	Bolt Circle	SHIP
2.250 in. Diameter	67.13 in.	Embedded	(lbs)
12.00 in. Exposed	84.00 in.	Total Length	2185

CONCRETE - Fc= 4000 psi

ANCHOR BOLTS are STRAIGHT w\ UPLIFT NUT

BASE PLATE

[Bend Model: Flat- 17]

YIELD STRENGTH	=	60.0 ksi
BEND LINE WIDTH	=	30.6 in.
PLATE MOMENT	=	1670.0 in-k
THICKNESS REQD	=	2.463 in.
BENDING STRESS	=	36.4 ksi
ALLOWABLE STRESS	=	54.0 ksi
[Fy x .90 x 1.00]		

BASE PLATE USED

3.00	in.	THICK	SHIP
61.25	in.	SQUARE	(lbs)
42.50	in.	CENTER HOLE	1654
12.00	in.	CORNER CLIP	

LOAD CASE SUMMARY

	FORCES-(kips)			MOMENTS-(ft-k)			ABolt-Str		Plate-Str		
								Allow	Actual	Allow	Design
LC	Axial	ShearX	ShearY	X-axis	Y-axis	TorQ	CSR	ksi	ksi	ksi	Code
1	48.8	21.1	25.5	2285	2770	0	.696	75.00	36.41	54.00	TIA-G
2	36.9	21.1	25.5	2256	2735	0	.685	75.00	35.79	54.00	TIA-G
3	69.2	4.9	5.9	512	621	0	.170	75.00	8.94	54.00	TIA-G
4	39.7	3.5	4.3	378	458	0	.123	75.00	6.45	54.00	TIA-G