

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

April 9, 2002

Mr. Christopher B. Fisher, Esq.
Cuddy & Feder & Worby
90 Maple Avenue
White Plains, NY 10601-5196

RE: **EM-AT&T-126-020322** – AT&T Wireless notice of intent to modify an existing telecommunications facility located at 165 Birdseye Road, Shelton, Connecticut.

Dear Atty. Fisher:

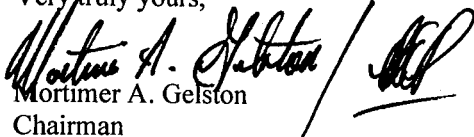
At a public meeting held on April 3, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice[s] dated March 22, 2002. 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. 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,


Mortimer A. Gelston
Chairman

MAG/DM/laf

c: Honorable Mark A. Lauretti, Mayor, City of Shelton
Mr. Richard Schultz, Planning Administrator, City of Shelton
Mr. Ronald C. Clark, Nextel Communications

CERTIFICATE OF SERVICE

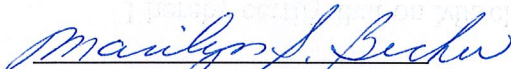
I hereby certify that on March 21, 2002, a copy of the original Notice of Exempt Modification sent to the Connecticut Siting Council by AT&T Wireless for its proposed collocation on an existing tower at 165 Birdseye Road, Shelton, Connecticut, was mailed, by first class mail, to the following party:

Mayor, City of Shelton
54 Hill Street
Shelton, Connecticut 06484


Barbara Jagers

Dated: April 5, 2002
White Plains, New York

Sworn to before me this 5th
day of April 2002.


NOTARY PUBLIC

MARILYN S. BECKER
Notary Public, State of New York
No. 4694219
Qualified in Westchester County
Commission Expires January 31, 2006

RECEIVED

APR 08 2002

CONNECTICUT
SITING COUNCIL

CUDDY & FEDER & WORBY LLP

90 MAPLE AVENUE
WHITE PLAINS, NEW YORK 10601-5196

CUDDY & FEDER
1971-1995

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THOMAS R. BLIRNE (also DC)
THOMAS M. BLOOMER
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KENNETH J. DUBROFF
ROBERT FEDER
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JOSHUA J. GRAUER
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DANIEL F. LEARY (also CT)
BARRY E. LONG

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TELECOPIER (914) 761-5372/6405

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DAVID E. WORBY

Of Counsel
MICHAEL R. EDELMAN
ANDREW A. GLICKSON (also CT)
ROBERT L. OSAR (also TX)
MARYANN PALERMO
ROBERT C. SCHNEIDER
LOUIS R. TAFFERA

TO: S. Derek Phelps, Executive Director

FROM: Linda Grant

TELECOPIER NO. 860-827-2950

DATE: 4/5/02 PAGES: 2 CLIENT 1844 MATTER: 596

(Including Cover)

MESSAGE:

IMPORTANT NOTICE: The accompanying fax transmission is intended to be viewed and read only by the individual or entity named above. If you are not the intended recipient so named, you are prohibited from reading this transmission. You are also notified that any dissemination, distribution or copying of this transmission is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original transmission to us by the U.S. Postal Service. Thank you.

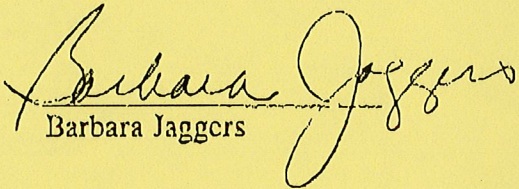
OPERATOR: Barb Jagers (914) 761-1300 Ext. 256

IF THERE ARE ANY PROBLEMS, PLEASE NOTIFY OPERATOR IMMEDIATELY

CERTIFICATE OF SERVICE

I hereby certify that on March 21, 2002, a copy of the original Notice of Exempt Modification sent to the Connecticut Siting Council by AT&T Wireless for its proposed collocation on an existing tower at 165 Birdseye Road, Shelton, Connecticut, was mailed, by first class mail, to the following party:

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54 Hill Street
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Barbara Jagers

Dated: April 5, 2002
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Sworn to before me this 5th
day of April 2002.


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MARILYN S. BECKER
Notary Public, State of New York
No. 4694219
Qualified in Westchester County
Commission Expires January 31, 2006

S. Derek Phelps

From: Paul M. Aresta
Sent: Friday, April 05, 2002 1:34 PM
To: S. Derek Phelps
Subject: FW: EM-AT&T-126-020322

-----Original Message-----

From: SHELTON02@aol.com [mailto:SHELTON02@aol.com]
Sent: Thursday, April 04, 2002 3:07 PM
To: siting.council@po.state.ct.us
Subject: EM-AT&T-126-020322

Attention: Derek Phelps

Mayor Lauretti received your letter of March 27 on April 1. He was unable to attend the hearing on the AT&T notice of intent to modify an existing telecommunications facility located at 165 Birdseye Road, Shelton, CT. Was any action taken? Is not the applicant supposed to notice the City in advance of the meeting?

Thanks for your help.

Sandy Nesteriak
Administrative Assistant to Mayor Lauretti
203-924-1555 Ext. 11
Shelton02@aol.com

S. Derek Phelps

From: S. Derek Phelps [derek.phelps@po.state.ct.us]
Sent: Friday, April 05, 2002 3:39 PM
To: 'SHELTON02@aol.com'
Subject: EM-AT&T-126-020322

Sandy:

Thanks for your e-mail.

The letter you received was not required correspondence; it was a courtesy letter sent to municipalities whenever we put an item on the agenda affecting a tower structure.

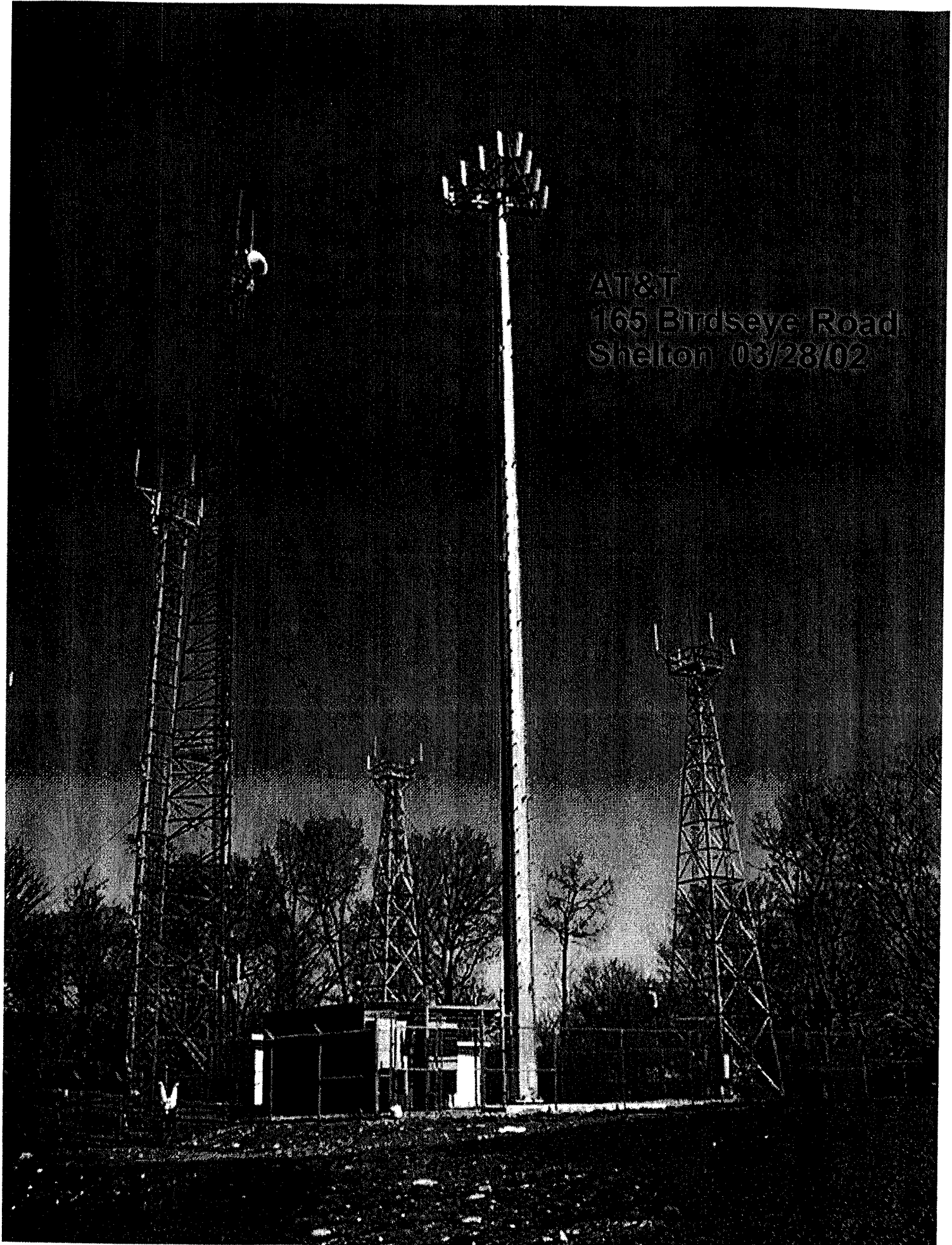
EM-AT&T-126-020322 was a notice of intent to modify a tower pursuant to a provision in the relevant statutes that enables an applicant, under specific circumstances, to be exempt from our certificate approval process. In other words, we do not approve or disapprove the action -- we merely acknowledge the regulatory exemption.

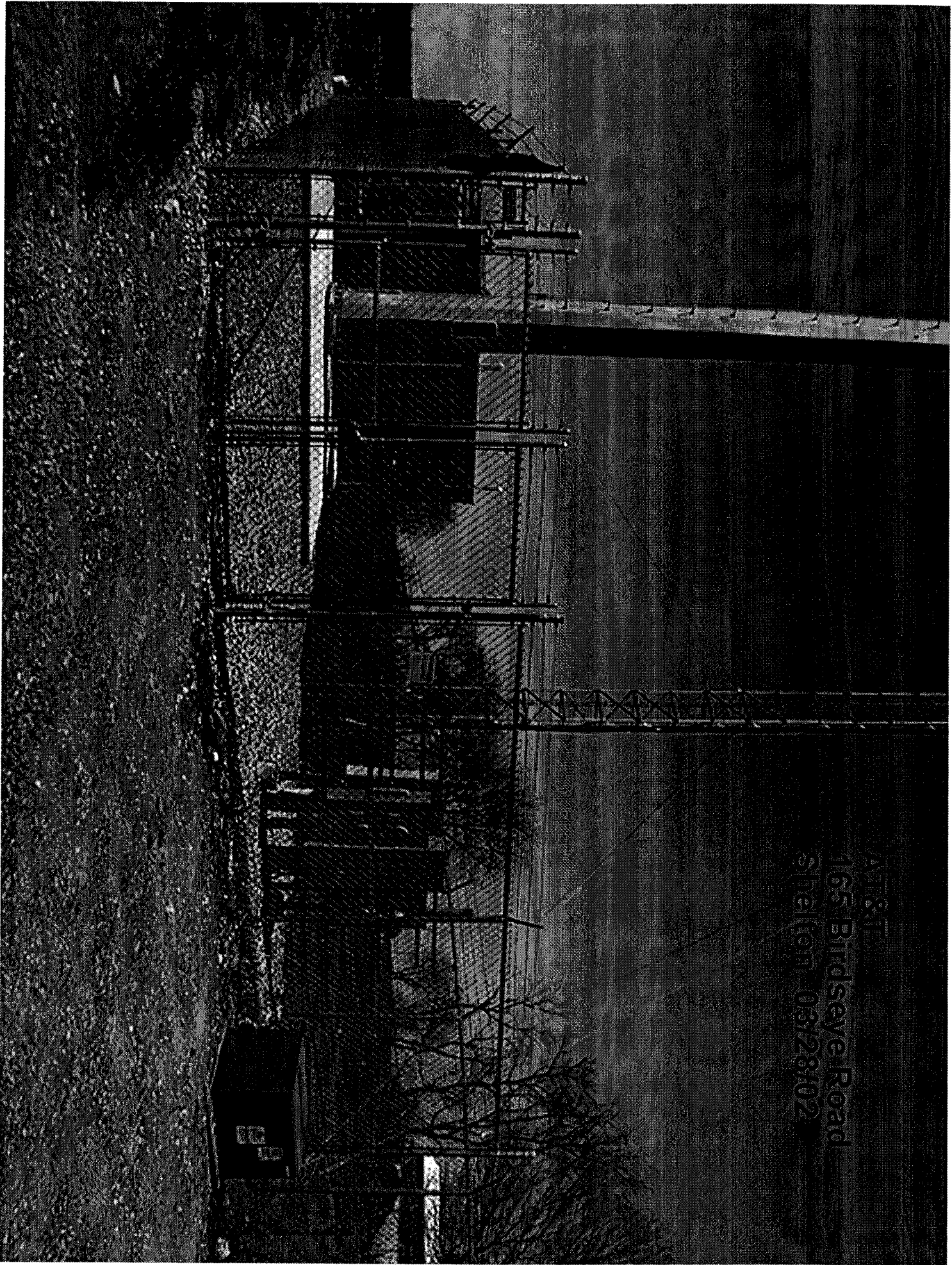
You are right, however, that the applicant is required to give notice to the municipality when they make application to us. And I checked the file and the application package that we received indicated that a copy was sent to Mayor Lauretti. I intend to ask their attorney to provide me evidence that you received such notice.

For your information the essence of the modification was the addition of 6 panel at antennas at the 108' level and the addition of to equipment cabinets. The exempt modification was acknowledged at the Council meeting.

Derek Phelps

AT&T
165 Birdseye Road
Shelton 03/28/02





AT&T
165 Birdseye Road
Shelton, CT 06428/02



City of Shelton

54 Hill Street

Shelton, Conn. 06484

RECEIVED

MAR 27 2002

CONNECTICUT
SITING COUNCIL

DATE: 3-27-02

203-924-1555

Fax: 203-924-4273

THIS TRANSMISSION CONSISTS OF THIS INSTRUCTION SHEET
AND 2 PAGES TO:

ATTENTION OF: David Martin

ADDRESS: _____

TELEPHONE NUMBER: _____

FAX NUMBER: 860-827-2950

FROM: _____

IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL
(203)924-1555, EXT. OUR FAX NUMBER IS (203)924-6980.

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MAR 27 2002

WIRELESS COMMUNICATIONS FACILITIES
INVENTORY
CONNECTICUT
SITING COUNCIL
PROCESSED UNDER THE SHELTON ZONING REGULATIONS
SECTION 48

SHELTON PLANNING AND ZONING DEPARTMENT
1/02

NAME/TYPE/ LOCATION	SITING COUNCIL APPROVAL	PZC PUBLIC HEARING	PZC APPROVAL DATE	STATUS
1. Omnipoint Communications: Three (3) rooftop mounted antennae and support equipment for cellular phone service. Tower Two Two Corporate Drive	NO*	YES	11/17/98	Completed
2. AT&T Wireless PCS: Nine (9) concealed rooftop mounted antennae and support equipment for cellular phone service. Huntington Pointe 1077 Bridgeport Avenue	NO*	YES	3/14/00	In-complete
3. Nextel Communications: one (1) 120 ft monopole and support equipment for cellular phone service. 162 Birdseye Road	NO*	YES	5/9/00	Completed
4. Omnipoint Communications: one (1) 120 ft monopole and support equipment for cellular phone service. Riverside Cemetery River Road	NO*	YES	8/8/00	Completed

5. Metricom, Inc.:	NO*	NO	2/27/01	Completed
Sixteen (16) rooftop mounted antennae and support equipment for cellular phone service. Tower Two Two Corporate Drive				
6. Sprint Spectrum, LP:	NO*	NO	5/8/01	Completed
Nine (9) rooftop mounted antennae and support equipment for cellular phone service. Tower Two Two Corporate Drive				
7. United Illuminating Co.	YES	YES	2/13/01	Completed
One (1) seventy-nine ft. wooden pole with ten (10) ft. mounted antennae with support equipment for remote network meter reading system. Wesley Heights Road United Methodist Homes of Ct.				
8. United Illuminating Co.	YES	YES	2/13/01	Completed
One (1) seventy-nine ft. wooden pole with ten (10) ft. mounted antennae with support equipment for remote network meter reading system. Nike Recreational Complex Off Mohegan Road				

*Roof mounted antennae and support equipment are not regulated by the Siting Council. Additions to church steeples, water tanks and similar structures are also not regulated. New towers and additions to existing towers are regulated and have been since July 10, 2001.



STATE OF CONNECTICUT

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Phone: (860) 827-2935 Fax: (860) 827-2950

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Web Site: www.state.ct.us/csc/index.htm

March 27, 2002

Honorable Mark A. Laretti
Mayor
City of Shelton
54 Hill Street
P. O. Box 364
Shelton, CT 06484

RE: **EM-AT&T-126-020322** - AT&T Wireless notice of intent to modify an existing telecommunications facility located at 165 Birdseye Road, Shelton, Connecticut.

Dear Mayor Laretti:

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.

The Council will consider this item at the next meeting scheduled for April 3, 2002, at 1:30 p.m. in Hearing Room Two, Ten Franklin Square, New Britain, Connecticut.

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

Thank you for your cooperation and consideration.

Very truly yours,


S. Derek Phelps
Executive Director

SDP/grg

Enclosure: Notice of Intent

c: Richard Schultz, Planning Administrator, City of Shelton

Thank you for your continued cooperation!

**NOTICE OF INTENT TO MODIFY AN
EXISTING TELECOMMUNICATIONS FACILITY AT
165 BIRDSEYE ROAD, SHELTON, CONNECTICUT**

RECEIVED
MAR 22 2002

**CONNECTICUT
SITING COUNCIL**

Pursuant to the Public Utility Environmental Standards Act, Connecticut General Statutes § 16-50g et. seq. ("PUESA"), and Sections 16-50j-72(b) of the Regulations of Connecticut State Agencies adopted pursuant to the PUESA, AT&T Wireless PCS, LLC d/b/a AT&T Wireless ("AT&T Wireless") hereby notifies the Connecticut Siting Council of its intent to modify an existing facility located at 165 Birdseye Road, Connecticut (the "Birdseye Road Facility"), owned by Nextel Communications, ("Nextel"). AT&T Wireless and Nextel have agreed to share the use of the Birdseye Road Facility, as detailed below.

The Birdseye Road Facility

The Birdseye Road Facility consists of an approximately one hundred twenty (120) foot monopole (the "Tower") and associated equipment currently being used for wireless communications by Nextel. A chain link fence surrounds the Tower compound. The current adjacent land uses are predominantly residential.

AT&T Wireless' Facility

As shown on the enclosed plans prepared by Natcomm, LLC, including a site plan and tower elevation of the Birdseye Road Facility, AT&T Wireless proposes shared use of the Facility by placing antennas on the Tower and equipment cabinets needed to provide personal communications services ("PCS") within the existing fenced compound. AT&T Wireless will install 6 panel antennas at approximately the 108 foot level of the Tower and associated equipment cabinets (2 proposed, 2 future, each 76" H x 30" W x 30" D) located on a concrete pad. As evidenced in the letter of structural integrity prepared by Natcomm, LLC, annexed hereto as Exhibit A, AT&T has confirmed that the tower is structurally capable of supporting the addition of AT&T Wireless' antennas.

AT&T Wireless' Facility Constitutes An Exempt Modification

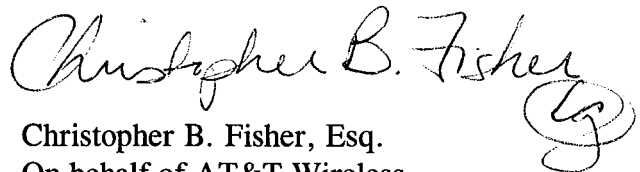
The proposed addition of AT&T Wireless' antennas and equipment to the Birdseye Road Facility constitutes an exempt "modification" of an existing facility as defined in Connecticut General Statutes Section 16-50i(d) and Council regulations promulgated pursuant thereto. Addition of AT&T Wireless' antennas and equipment to the Tower will not result in an increase of the Tower's height nor extend the site boundaries. Further, there will be no increase in noise levels by six (6) decibels or more at the Tower site's boundary. As set forth in an Emissions Report prepared by Satish Bhandare, Radio Frequency Engineer, annexed hereto as Exhibit B, the total radio frequency electromagnetic radiation power density at the Tower site's boundary will not be increased to 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. For all the foregoing reasons, addition of AT&T Wireless' facility to the Tower constitutes an exempt modification which will not have a substantially adverse environmental effect.

Conclusion

Accordingly, AT&T Wireless requests that the Connecticut Siting Council acknowledge that its proposed modification to the Birdseye Road Facility meets the Council's exemption criteria.

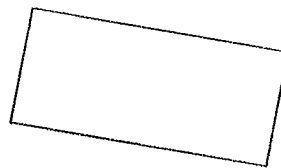
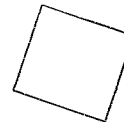
Respectfully Submitted,

Handwritten signature of Christopher B. Fisher in cursive script.

Christopher B. Fisher, Esq.
On behalf of AT&T Wireless

cc: Mayor, City of Shelton
Harold Hewett, Bechtel

BIRDSEYE RD



EXISTING GUYED TOWER



EXISTING CHAIN LINK FENCE WITH 3 STRANDS OF BARBED WIRE

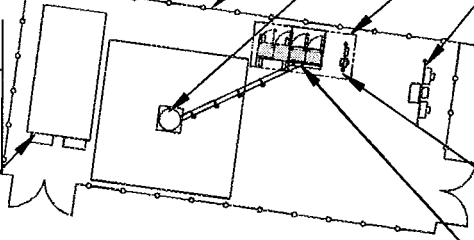
EXISTING MONOPOLE

PROPOSED AT&T 7'-0" X 16'-0" LEASE AREA

EXISTING ELECTRIC AND TELCO BACKBOARD

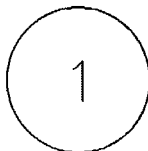
82°

EXISTING NEXTEL EQUIPMENT SHELTER



PROPOSED AT&T UTILITY RACK

PROPOSED AT&T EQUIPMENT CABINETS AND ICE BRIDGE



SITE PLAN

SCALE: 1" = 30'-0"

NOTE:
 41°-19'-32.8"
 73°-8'-55.2"
 COORDINATES WHERE TAKEN
 WITH A HAND HELD GPS

"ISSUED FOR SITING COUNCIL"



Natcomm, LLC

63-2 North Branford Road
 Branford, Connecticut 06406

Tel. (203) 488-0590
 Fax (203) 488-8887

Consulting Engineers - Project Management
 Civil - Structural - Mechanical - Electrical



AT&T

AT&T WIRELESS PCS LLC
 12 OMEGA DRIVE
 STAMFORD, CONNECTICUT 06907

DRAWING TITLE:

SITING COUNCIL

PROJECT INFORMATION:

SHELTON
 CT-441
 165 BIRDSEYE ROAD
 SHELTON, CT 06484

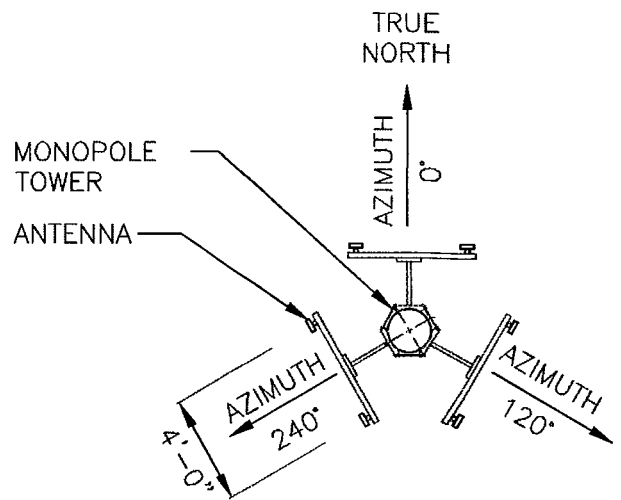
LESSOR:

KNEEN, RODMAN T SR.
 165 BIRDSEYE ROAD
 SHELTON, CT 06484

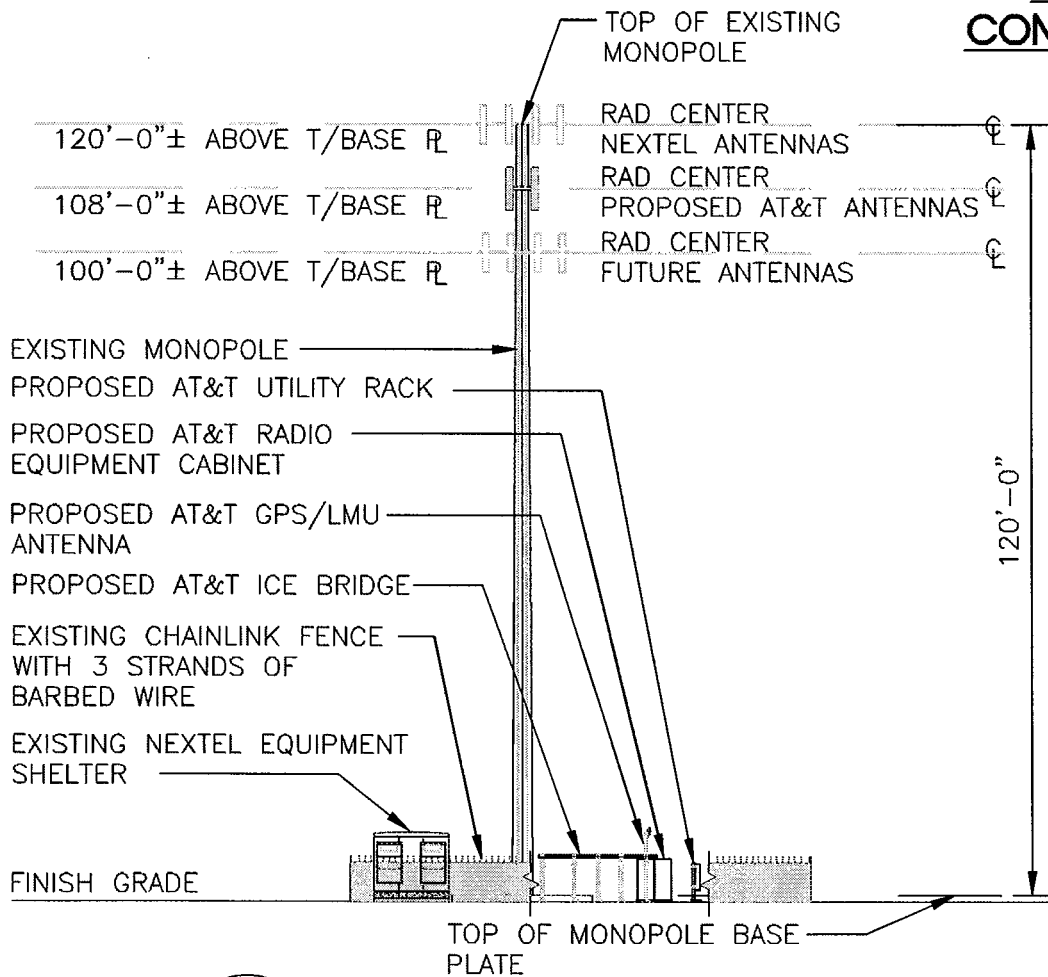
DRAWING NO.

3CO-CT441-SC01-0

REVISION NO. 0	DRAWN BY: P.A.M.
DATE ISSUED: 03/18/01	CHECKED BY: JJP
SCALE: AS NOTED	APPROVED BY: CFC
SHEET NO. 1 OF 2	
A/E PROJECT NO: 503A	



ANTENNA CONFIGURATION



2

TOWER ELEVATION

SCALE: 1" = 30'-0"

"ISSUED FOR SITING COUNCIL"



Natcomm, LLC

63-2 North Branford Road
Branford, Connecticut 06405
Tel. (203) 486-0580
Fax (203) 486-8587

Consulting Engineers - Project Management
CIVIL - STRUCTURAL - MECHANICAL - ELECTRICAL



AT&T

AT&T WIRELESS PCS LLC
12 OMEGA DRIVE
STAMFORD, CONNECTICUT 06907

DRAWING TITLE:

SITING COUNCIL

PROJECT INFORMATION:

SHELTON
CT-441
165 BIRDSEYE ROAD
SHELTON, CT 06484

LESSOR:

KNEEN, RODMAN T SR.
165 BIRDSEYE ROAD
SHELTON, CT 06484

DRAWING NO.

3CO-CT441-SC02-0

REVISION NO. 0	DRAWN BY: P.A.M.
DATE ISSUED: 03/18/01	CHECKED BY: JJP
SCALE: AS NOTED	APPROVED BY: CFC
SHEET NO. 2 OF 2	
A/E PROJECT NO: 503A	



PAUL J. FORD AND COMPANY
 STRUCTURAL ENGINEERS
 250 East Broad Street • Suite 500 • Columbus, Ohio 43215

March 5, 2002

Natcomm, LLC
 63-2 N. Branford Rd.
 Branford, CT 06405

Attn: Jennifer Coombs

Re: Analysis of an Existing 120-ft Monopole
 Located in Fairfield Co., CT: AT&T Site #CT-441
 PJF Project #29202-0129 Summit #12218

Dear Ms. Coombs:

Paul J. Ford and Company has analyzed the existing Nextel monopole for the proposed addition of AT&T co-location antennas. The antennas will be in addition to the antennas currently on the pole. Listed below are the existing and proposed antenna loadings for this analysis;

	<u>Elevation</u>	<u>Antenna Description</u>	<u>Owner</u>
Existing	120'	(12) Decibel DB844H90 Panel Antennas on a 14-ft Low Profile Platform	Nextel
Proposed	108.5'	(6) Allgon 7250.02 Panel Antennas on (3) 14-ft T-Arm Mounts	AT&T
Future	98'	(12) Swedcom ALP-9212 Panel Antennas on a 14-ft Low Profile Platform	
Future	50' & 40'	(2) GPS Antennas w/ Mount	

Our analysis has been completed according to the Telecommunications Industry Association Standard TIA/EIA 222-F 1996. This standard recommends minimum design wind velocities of 85 mph and 74 mph winds with 1/2" of radial ice accumulation for the Fairfield County. The existing pole has sufficient capacity to safely withstand wind velocities in excess of 85 mph and 74 mph winds with 1/2" of radial ice accumulation, while supporting the antenna loading as shown above and on the enclosed sketches. The existing monopole will safely support the existing and proposed antenna loads while meeting the minimum wind requirements.

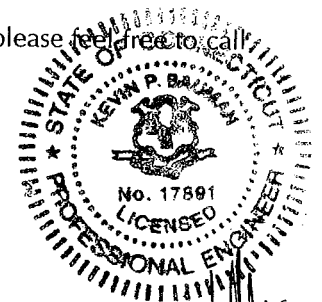
Paul J. Ford and Company has analyzed the existing mat foundation. The mat has sufficient capacity to safely support the base reactions from the modified loading, as listed on page 1 of the enclosed sketches.

If you have any questions regarding our analysis, or if we can be of further service to you, please feel free to call us @ (614) 221-6679.

Sincerely,

PAUL J. FORD AND COMPANY

Michael F. Plahovinsak, E.I.T.
 Project Engineer
 e-mail: mplahovinsak@pifweb.com



Kevin P. Bauman, P.E.

G:\COMMONWORD\Mike_P\Summit 2002\292020129CL001.doc

COLUMBUS, OHIO
 (614) 221-6679
 Fax (614) 221-2540

ATLANTA, GEORGIA
 (404) 266-2407
 Fax (404) 869-4608

ORLANDO, FLORIDA
 (407) 898-9039
 Fax (407) 897-3662

• www.pifweb.com •

SUMMIT MANUFACTURING, LLC

225 KIWANIS BOULEVARD, WEST HAZLETON, PA 18201
 PHONE: (888) 847-6537 FAX: (888) 460-6885
 VISIT US AT WWW.SUMMITMFG.COM

IF EXISTING CONDITIONS ARE NOT AS REPRESENTED ON THESE SKETCHES, PJF SHOULD BE CONTACTED IMMEDIATELY TO RE-EVALUATE THE STRUCTURAL INTEGRITY OF THE POLE.



PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
 250 East Broad Street, Suite 500, Columbus, Ohio 43215
 (614) 221-6679 Fax: (614) 448-4105 www.PJFweb.com

J O B D A T A

Page 1 of 2	Job No.	29202-0129
By MFP	Design No.	SUMMIT #12218
Chk'd By KJS	Date	03-05-2002
	Rev. No.	Rev. Date
Pole	EXISTING 120-FT MONOPOLE	
Site	AT&T CT-441; SHELTON, FAIRFIELD CO., CT	
Owner	NEXTEL	
Ref. No.	29200-1700	
Design	MINIMUM WIND VELOCITY = 85 MPH / 74 MPH + 1/2" RADIAL ICE ACCORDING TO TIA/EIA-222-F 1996	

L O A D C A S E S

CASE 1	85 MPH WITH NO ICE	DESIGN WIND
CASE 2	74 MPH WITH 1/2" RADIAL ICE	REDUCED WIND WITH ICE
CASE 3	50 MPH WITH NO ICE	OPERATIONAL WIND

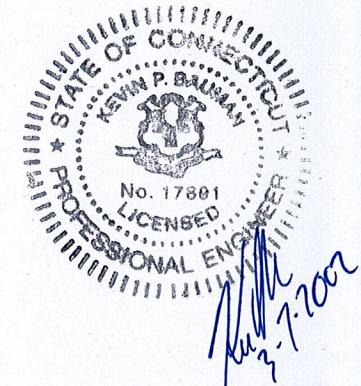
P O L E S P E C I F I C A T I O N S

Pole Shape Type:	12-SIDED POLYGON
Taper:	0.165000 IN/FT
Shaft Steel:	ASTM A607 GRADE 65
Base PL Steel:	ASTM A572 GRADE 50 (50 KSI)
Anchor Bolts:	2 1/4"φ #18J ASTM A615 GRADE 75

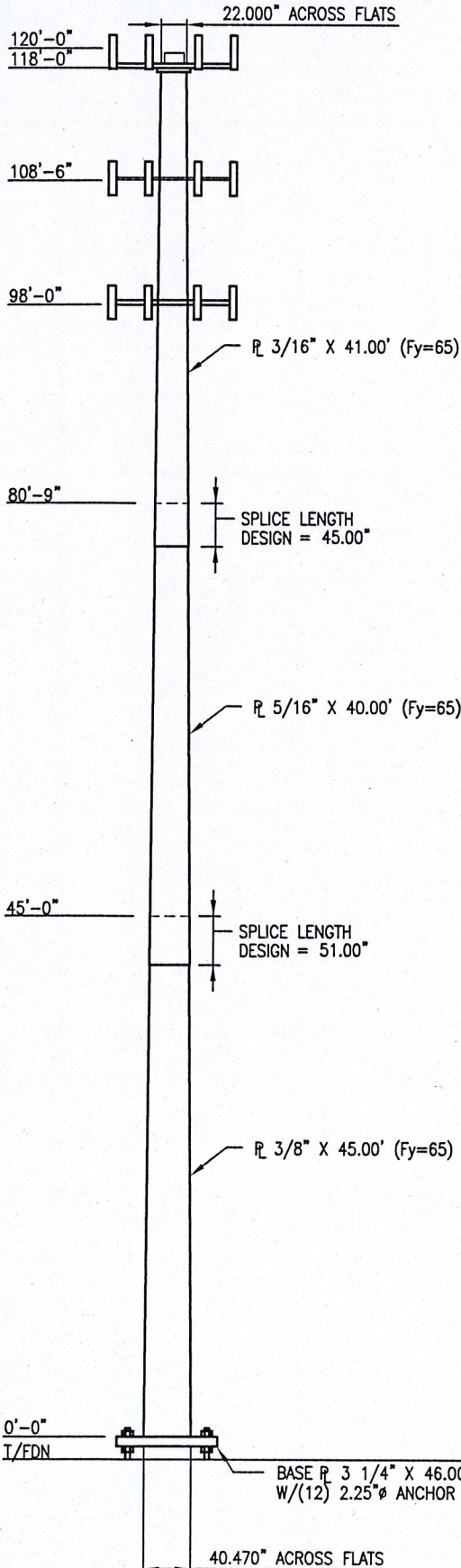
A N T E N N A L I S T

No.	Elev.	Description
-	TOP	5/8" LIGHTNING ROD
1-12	TOP	(12) DB844H90 PANEL (NEXTEL)
-	TOP	14' LOW PROFILE PLATFORM
13-18	108.50	(6) ALLGON 7250.02 SECTOR (AT&T)
-	108.50	(3) 14' T-ARM MOUNTS
19-30	98.00	(12) SWEDCOM ALP-9212-N
-	98.00	14' LOW PROFILE PLATFORM
-	50.00	GPS ANTENNA W/ MOUNT
-	40.00	GPS ANTENNA W/ MOUNT

STEP BOLTS FULL HEIGHT.
 ANTENNA FEED LINES RUN INSIDE OF POLE.



G:\TOWER DRAWINGS\MONOPOLE\292-SUMMIT_MANUF\292-2002\292020129M000.DWG MFLAHOVINSAK TUE 05-MAR-2002 1:43:14 PM



Elevation	85 MPH WIND		50 MPH WIND	
	Lateral Deflection (Inches)	Rotation (sway) (degrees)	Lateral Deflection (Inches)	Rotation (sway) (degrees)
TOP	67.9	4.739	23.5	1.640

S H A F T S E C T I O N D A T A

Shaft Section	Section Length (feet)	Plate Thickness (in.)	Lap Splice (in.)	Diameter Across Flats (inches)	
				@ Top	@ Bottom
1	41.00	0.1875		22.000	28.765
2	40.00	0.3125	45.00	27.771	34.371
3	45.00	0.3750	51.00	33.045	40.470

NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES

UNFACTORED BASE REACTIONS

MOMENT = 1699 ft-kips
 SHEAR = 20.9 kips
 AXIAL = 17.9 kips

SUMMIT MANUFACTURING, LLC

225 KIWANIS BOULEVARD, WEST HAZLETON, PA 18201
 PHONE: (888) 847-6537 FAX: (888) 460-6885
 VISIT US AT WWW.SUMMITMFG.COM



PAUL J. FORD AND COMPANY
 STRUCTURAL ENGINEERS
 250 East Broad Street, Suite 500, Columbus, Ohio 43215
 (614) 221-6679 Fax: (614) 448-4105 www.PJFweb.com

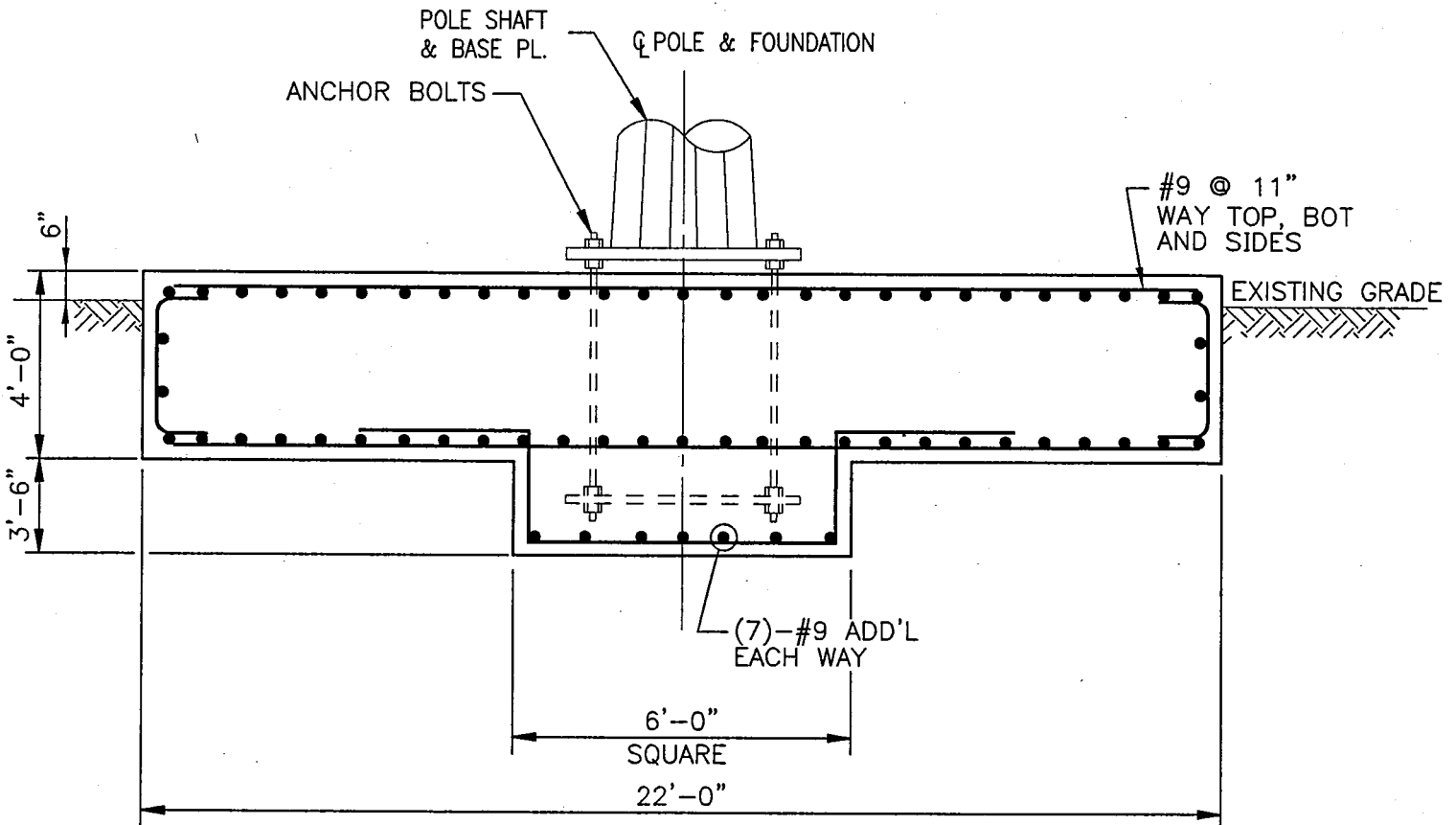
NOTES:

1. ALL CONCRETE ASSUMED TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
2. REINFORCING STEEL ASSUMED TO CONFORM TO THE REQUIREMENTS OF ASTM A-615 (GRADE 60)
3. SEE PAGE 1 FOR ANCHOR BOLT QUANTITY, SIZE, LENGTH, AND BOLT CIRCLE.
4. ORIGINAL FOUNDATION DESIGN COMPLETED BY PAUL J. FORD & CO., PER PJF JOB #29200-1700 DATED 11-15-2000. ANALYSIS ASSUMES THE AS BUILT CONDITION OF THE FOUNDATION IS PER THE ORIGINAL DESIGN DRAWINGS. IF AS BUILT CONDITIONS ARE NOT AS SHOWN ON THIS SKETCH, PAUL J. FORD & CO. SHALL BE NOTIFIED SO THAT THE EXISTING CONDITION OF THE FOUNDATION MAY BE RE-EVALUATED.

JOB DATA			
Page 2 of 2	Job No.	29202-0129	
By MFP	Design No.	SUMMIT #12218	
Chk'd By KSS	Date	03-05-2002	
	Rev. No.	Rev. Date	
Pole	EXISTING 120-FT MONOPOLE		
Site	AT&T CT-441; SHELTON, FAIRFIELD CO., CT		
Owner	NEXTEL		
Ref. No.	29200-1700		
Design	85 MPH / 74 MPH + 1/2" RADIAL ICE ACCORDING TO TIA/EIA-222-F 1996		

FOUNDATION SPECIFICATIONS	
Soils Report:	DR. CLARENCE WELTI ASSOCIATES, INC. 06-05-2000

ANALYSIS CRITERIA	
Moment:	1699 FT-KIPS
Shear:	20.9 KIPS
Axial:	17.9 KIPS



EXISTING MAT FOUNDATION

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Tue Mar 5, 2002 - 1:29:02 pm

(c) 1993 to 2000 PAUL J. FORD AND COMPANY, Columbus, Ohio

Job No.....: 29202-0129 Design No: Summit #12218 Engineer : MFP
Description : Existing 120-Ft Monopole - AT&T CT-441; SHELTON, FAIRFIELD CO., CT
Design..... : 85 mph / 74 mph + 1/2" radial ice
Owner..... : Nextel Client: Summit Manufacturing, LLC (
Status..... : Final Design Revision: Rev. Date :

S U M M A R Y O F A N A L Y S I S R E S U L T S

Pole Height.....: 118.00 ft
Top Diameter.....: 22.000 in
Bottom Diameter.....: 40.470 in
Pole Shape.....: 12-Sided Polygon
Splice Joint Type.....: Taper shaft - Slip Joint
Shaft Taper.....: 0.165000 (in/ft)
Shaft Steel Weight.....: 13.043 kips
Force Coeff(Cf) used.....: 1.0270

POLE SHAFT PROPERTIES:

Shaft Section Number	Section Length (ft)	Wall Thickness [t] (in)	Steel Yield [Fy] (ksi)	Top Diameter [Dt] (in)	Bottom Diameter [Db] (in)	Slip Joint Overlap (in)
1.	41.000	0.18750	65	22.000	28.765	45.00
2.	40.000	0.31250	65	27.771	34.371	51.00
3.	45.000	0.37500	65	33.045	40.470	

POLE SHAFT SECTION MAXIMUM FORCES AND MOMENTS:

Shaft Section Number	Wind Load No.	Wind Speed (mph)	Radial Ice (in)	At Base of Section				Max. Ratio Actual/ Allowable [Ftot/Fb]
				Sect. Elev. (ft)	Axial Load (kips)	Horiz. Shear (kips)	Bending Moment (ft-kips)	
1.	1	85.0	0.00	80.75	6.666	12.519	324.765	0.7461
2.	1	85.0	0.00	45.00	11.127	16.279	850.800	0.7245
3.	1	85.0	0.00	0.00	17.920	20.861	1698.990	0.8335

>> MAXIMUM BASE REACTIONS : 17.920 20.861 1698.990 <<

POLE DEFLECTION AND ROTATION AT TOP AND AT HIGHEST MICROWAVE DISH ELEVATION:

Wind Load No.	Wind Speed (mph)	Radial Ice (in)	Location	Elev (ft)	Deflection (in)	Rotation (deg)	Max. Allowable Rotation Limit (deg)
1.	85.0	0.00	Top	118.00	67.934	4.739	
2.	73.6	0.50	Top	118.00	56.407	3.958	
3.	50.0	0.00	Top	118.00	23.477	1.640	

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 Design..... : 85 mph / 74 mph + 1/2" radial ice
 Owner..... : Nextel Client: Summit Manufacturing, LLC ()
 Status..... : Final Design Revision: Rev. Date :

Pole Height : 118 ft
 Pole Shape : 12-Sided Polygon
 Pole Type : Taper shaft - Slip Joint
 Pole Taper : 0.165000 (in/ft)

INPUT TUBE PROPERTIES:

Tube Sect No.	Top / Splice Elev (ft)	Bot Tube Elev (ft)	Tube Length (ft)	Wall Thick [t] (in)	Steel [Fy] (ksi)	Top Diam [Dt] (in)	Bot Diam [Db] (in)	Slip Joint Overlap (in)
1.	118.00	77.00	41.000	0.18750	65	22.000	28.765	45.00
2.	80.75	40.75	40.000	0.31250	65	27.771	34.371	51.00
3.	45.00	0.00	45.000	0.37500	65	33.045	40.470	

TUBE SECTION PROPERTIES:

Tube Sect No.	Section Weight (kips)	Location	Elev (ft)	Diam. Across Flats (in)	Wall Thick [t] (in)	[W/t] Ratio	Diam/ Thick [D/t] Ratio	Area (in^2)	Ix (in^4)
1	2.119	@Top	118.0	22.000	0.1875	28.76	117.33	13.15	800.9
		@Splice	80.8	28.146		37.54	150.11	16.86	1686.5
		@Bot	77.0	28.765		38.43	153.41	17.23	1801.0
2	4.207	@Top	80.8	27.771	0.3125	21.13	88.87	27.59	2663.0
		@Splice	45.0	33.670		26.19	107.74	33.52	4774.1
		@Bot	40.8	34.371		26.79	109.99	34.22	5081.5
3	6.717	@Top	45.0	33.045	0.3750	20.93	88.12	39.39	5382.1
		@Bot	0.0	40.470		26.24	107.92	48.35	9948.4

Total Shaft Steel Weight = 13.043 kips

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 Description : Existing 120-Ft Monopole - AT&T CT-441; SHELTON, FAIRFIELD CO., CT
 Design..... : 85 mph / 74 mph + 1/2" radial ice
 Owner..... : Nextel Client: Summit Manufacturing, LLC (
 Status..... : Final Design Revision: Rev. Date :

Segment Properties: (@ Max Segment = 5 ft)

Tube Segmt No.	Segment Feature Location	Segment Elev. (ft)	Diam. Across Flats (in)	Wall Thick [t] (in)	[W/t] Ratio	Diam/ Thick [D/t] Ratio	Area (in^2)	Ix (in^4)
1.	top	118.000	22.000	0.18750	28.76	117.33	13.15	800.9
2.	<arm [1]>	118.000	22.000	0.18750	28.76	117.33	13.15	800.9
3.	<arm [2]>	118.000	22.000	0.18750	28.76	117.33	13.15	800.9
4.	<arm [3]>	118.000	22.000	0.18750	28.76	117.33	13.15	800.9
5.		115.000	22.495	0.18750	29.47	119.97	13.45	856.6
6.		110.000	23.320	0.18750	30.65	124.37	13.95	955.2
7.	<arm [4]>	108.500	23.568	0.18750	31.00	125.69	14.10	986.2
8.	<arm [5]>	108.500	23.568	0.18750	31.00	125.69	14.10	986.2
9.		105.000	24.145	0.18750	31.83	128.77	14.44	1061.1
10.		100.000	24.970	0.18750	33.00	133.17	14.94	1174.6
11.	<arm [6]>	98.000	25.300	0.18750	33.48	134.93	15.14	1222.1
12.	<arm [7]>	98.000	25.300	0.18750	33.48	134.93	15.14	1222.1
13.		95.000	25.795	0.18750	34.18	137.57	15.44	1295.8
14.		90.000	26.620	0.18750	35.36	141.97	15.94	1425.1
15.		85.000	27.445	0.18750	36.54	146.37	16.43	1562.8
16.	top sec(2)	80.750	28.146	0.18750	37.54	150.11	16.86	1686.5
17.		80.000	27.895	0.31250	21.24	89.26	27.72	2699.1
18.	bot sec(1)	77.000	28.765	0.31250	21.98	92.05	28.59	2962.6
19.		75.000	28.720	0.31250	21.95	91.90	28.54	2948.6
20.		70.000	29.545	0.31250	22.65	94.54	29.37	3213.0
21.		65.000	30.370	0.31250	23.36	97.18	30.20	3492.8
22.		60.000	31.195	0.31250	24.07	99.82	31.03	3788.3
23.		55.000	32.020	0.31250	24.78	102.46	31.86	4100.1
24.		50.000	32.845	0.31250	25.48	105.10	32.69	4428.5
25.	<arm [8]>	50.000	32.845	0.31250	25.48	105.10	32.69	4428.5
26.	top sec(3)	45.000	33.670	0.31250	26.19	107.74	33.52	4774.1
27.	bot sec(2)	40.750	33.746	0.37500	21.43	89.99	40.24	5736.2
28.		40.000	33.870	0.37500	21.52	90.32	40.39	5800.2
29.	<arm [9]>	40.000	33.870	0.37500	21.52	90.32	40.39	5800.2
30.		35.000	34.695	0.37500	22.11	92.52	41.38	6239.4
31.		30.000	35.520	0.37500	22.70	94.72	42.38	6700.2
32.		25.000	36.345	0.37500	23.29	96.92	43.37	7183.2
33.		20.000	37.170	0.37500	23.88	99.12	44.37	7688.8
34.		15.000	37.995	0.37500	24.47	101.32	45.36	8217.7
35.		10.000	38.820	0.37500	25.06	103.52	46.36	8770.2
36.		5.000	39.645	0.37500	25.65	105.72	47.35	9347.0
37.	base	0.000	40.470	0.37500	26.24	107.92	48.35	9948.4

Total Number of Antennas / Arms = 9

PJF_Pole (tm) - Monopole Design Program

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Tue Mar 5, 2002 - 1:29:02 pm

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Job No.....: 29202-0129 Design No: Summit #12218 Engineer : MFP
Description : Existing 120-Ft Monopole - AT&T CT-441; SHELTON, FAIRFIELD CO., CT
Design..... : 85 mph / 74 mph + 1/2" radial ice
Owner..... : Nextel Client: Summit Manufacturing, LLC (
Status..... : Final Design Revision: Rev. Date :

ANTENNA AND ARM PROPERTIES AND LOAD DATA:

LOAD CASE 1: BASIC WIND VELOCITY = 85.00 mph

Ant Arm No.	Arm Mount. Elev. (ft)	Load Applic. Elev. (ft)	Arm Length (ft)	Ice Load Case	Antenna Area [CaAa] (sf)	Antenna Force [qzGhCaAa] (lbs)	Antenna Weight (lbs)
[1]	118.000	121.000	0.0000	No Ice:	0.25	11.33	108.00
	Description: 5/8" Lightning Rod				[qz] (psf)	[qz] [Gh] (psf)	
		[Gh] [Kz] 1.69 1.450		No Ice:	26.810	45.309	
[2]	118.000	120.000	2.0000	No Ice:	42.41	1917.01	180.00
	Description: (12) DB844H90 Panel (NEXTEL)				[qz] (psf)	[qz] [Gh] (psf)	
		[Gh] [Kz] 1.69 1.446		No Ice:	26.747	45.202	
[3]	118.000	120.000	2.0000	No Ice:	30.28	1368.71	1300.00
	Description: 14' Low Profile Platform				[qz] (psf)	[qz] [Gh] (psf)	
		[Gh] [Kz] 1.69 1.446		No Ice:	26.747	45.202	
[4]	108.500	108.500	2.0000	No Ice:	27.30	1199.00	1200.00
	Description: (3) 14' T-Arm Mounts				[qz] (psf)	[qz] [Gh] (psf)	
		[Gh] [Kz] 1.69 1.405		No Ice:	25.988	43.919	
[5]	108.500	108.500	2.0000	No Ice:	17.58	772.10	92.40
	Description: (6) Allgon 7250.02 Sector (AT&T)				[qz] (psf)	[qz] [Gh] (psf)	
		[Gh] [Kz] 1.69 1.405		No Ice:	25.988	43.919	
[6]	98.000	98.000	0.0000	No Ice:	66.66	2843.74	324.00
	Description: (12) Swedcom ALP-9212-N				[qz] (psf)	[qz] [Gh] (psf)	
		[Gh] [Kz] 1.69 1.365		No Ice:	25.243	42.660	
[7]	98.000	98.000	2.0000	No Ice:	21.52	918.05	1300.00
	Description: 14' Low Profile Platform				[qz] (psf)	[qz] [Gh] (psf)	
		[Gh] [Kz] 1.69 1.365		No Ice:	25.243	42.660	
[8]	50.000	50.000	2.0000	No Ice:	6.00	211.19	210.00
	Description: GPS Antenna w/ Mount						

[Gh]	[Kz]		[qz]	[qz] [Gh]
1.69	1.126	No Ice:	(psf)	(psf)
			20.827	35.198

[9]	40.000	40.000	2.0000	No Ice:	6.00	198.15	210.00
Description: GPS Antenna w/ Mount							

[Gh]	[Kz]		[qz]	[qz] [Gh]
1.69	1.057	No Ice:	(psf)	(psf)
			19.541	33.024

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 Status..... : Final Design Revision: Rev. Date :

POLE SHAFT LOADS:

LOAD CASE 1: BASIC WIND VELOCITY = 85.00 mph

Design Loads per TIA/EIA-222-F Standard; Gust Factor Gh = 1.69
 Pole DL Overload Factor = 1

Per TIA/EIA Table 1: Note 3: For all cross sectional shapes,
 Force Coefficient [Cf] need not exceed 1.2
 for any value of C. (Where C=sqrt(Kz)*V*D.)

Top of Segment Elev. (ft)	Expos Coeff [Kz]	Veloc Press [qz] (psf)	Pole Veloc Coeff [C]	Force Coeff [Cf]	Projected Area Shaft [Ae] (sf)	Segment [Cf Ae] (sf)	Wind Force (lbs)	Shaft Segment Weight (lbs)
118.000	1.439	26.62	186.94	1.027	0.000	0.000	0.00	0.00
118.000	1.439	26.62	186.94	1.027	0.000	0.000	0.00	0.00
118.000	1.439	26.62	186.94	1.027	0.000	0.000	0.00	0.00
118.000	1.439	26.62	186.94	1.027	1.840	1.890	85.02	44.92
115.000	1.429	26.42	190.45	1.027	5.603	5.754	257.60	136.78
110.000	1.411	26.09	196.18	1.027	9.614	9.873	437.55	234.74
108.500	1.405	25.99	197.88	1.027	0.980	1.007	44.27	23.94
108.500	1.405	25.99	197.88	1.027	0.984	1.010	44.37	24.02
105.000	1.392	25.75	201.78	1.027	7.993	8.209	358.62	195.24
100.000	1.373	25.39	207.22	1.027	10.301	10.579	456.47	251.67
98.000	1.365	25.24	209.36	1.027	2.101	2.158	92.34	51.35
98.000	1.365	25.24	209.36	1.027	2.115	2.172	92.67	51.69
95.000	1.353	25.02	212.51	1.027	6.428	6.602	279.97	157.09
90.000	1.332	24.64	217.62	1.027	10.989	11.285	472.79	268.59
85.000	1.310	24.24	222.54	1.027	11.332	11.638	479.86	277.05
80.750	1.291	23.88	226.56	1.027	9.302	9.553	387.88	444.92
80.000	1.288	23.82	224.24	1.027	2.331	2.394	96.39	94.59
77.000	1.274	23.56	229.97	1.027	7.108	7.300	291.75	288.44
75.000	1.264	23.39	228.75	1.027	4.787	4.916	194.65	194.26
70.000	1.240	22.93	233.01	1.027	12.207	12.537	489.69	495.52
65.000	1.214	22.45	237.00	1.027	12.551	12.890	493.23	509.62
60.000	1.186	21.94	240.67	1.027	12.895	13.243	495.63	523.73
55.000	1.157	21.40	243.98	1.027	13.239	13.596	496.76	537.83
50.000	1.126	20.83	246.88	1.027	10.838	11.131	397.26	440.42
50.000	1.126	20.83	246.88	1.027	2.744	2.818	99.19	111.52
45.000	1.093	20.21	249.30	1.027	13.900	14.275	493.60	1054.80
40.750	1.062	19.65	246.35	1.027	11.180	11.482	385.64	544.30
40.000	1.057	19.54	246.60	1.027	0.000	0.000	0.00	0.00
40.000	1.057	19.54	246.60	1.027	2.829	2.906	95.96	137.77
35.000	1.017	18.81	247.83	1.027	14.353	14.741	475.97	698.99
30.000	1.000	18.50	251.60	1.027	14.697	15.094	472.60	715.92
25.000	1.000	18.50	257.44	1.027	15.041	15.447	482.84	732.84
20.000	1.000	18.50	263.29	1.027	15.384	15.800	493.87	749.77
15.000	1.000	18.50	269.13	1.027	15.728	16.153	504.91	766.69
10.000	1.000	18.50	274.98	1.027	16.072	16.506	515.94	783.62
5.000	1.000	18.50	280.82	1.027	16.416	16.859	526.98	800.54
1.000	1.000	18.50	285.49	1.027	13.380	13.741	429.53	652.62

Summation TOTAL = 11421.80 12995.80

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 Status..... : Final Design Revision: Rev. Date :

POLE SHAFT SEGMENTS -- AXIAL AND SHEAR FORCES:

LOAD CASE 1: BASIC WIND VELOCITY = 85.00 mph

Tube Segment No.	Segment Elevation (ft)	Axial Load (kips)	Cumulative Axial Load (kips)	Horiz. Shear (kips)	Cumulative Horiz. Shear (kips)
1.	118.000	0.000	0.000	0.000	0.000
2.	118.000	0.108	0.108	0.011	0.011
3.	118.000	0.180	0.288	1.917	1.928
4.	118.000	1.345	1.633	1.454	3.382
5.	115.000	0.137	1.770	0.258	3.640
6.	110.000	0.235	2.004	0.438	4.077
7.	108.500	1.224	3.228	1.243	5.320
8.	108.500	0.116	3.345	0.816	6.137
9.	105.000	0.195	3.540	0.359	6.496
10.	100.000	0.252	3.792	0.456	6.952
11.	98.000	0.375	4.167	2.936	9.888
12.	98.000	1.352	5.519	1.011	10.899
13.	95.000	0.157	5.676	0.280	11.179
14.	90.000	0.269	5.944	0.473	11.652
15.	85.000	0.277	6.221	0.480	12.131
16.	80.750	0.445	6.666	0.388	12.519
17.	80.000	0.095	6.761	0.096	12.616
18.	77.000	0.288	7.049	0.292	12.907
19.	75.000	0.194	7.244	0.195	13.102
20.	70.000	0.496	7.739	0.490	13.592
21.	65.000	0.510	8.249	0.493	14.085
22.	60.000	0.524	8.773	0.496	14.581
23.	55.000	0.538	9.310	0.497	15.077
24.	50.000	0.440	9.751	0.397	15.475
25.	50.000	0.322	10.072	0.310	15.785
26.	45.000	1.055	11.127	0.494	16.279
27.	40.750	0.544	11.671	0.386	16.664
28.	40.000	0.000	11.671	0.000	16.664
29.	40.000	0.348	12.019	0.294	16.958
30.	35.000	0.699	12.718	0.476	17.434
31.	30.000	0.716	13.434	0.473	17.907
32.	25.000	0.733	14.167	0.483	18.390
33.	20.000	0.750	14.917	0.494	18.884
34.	15.000	0.767	15.683	0.505	19.389
35.	10.000	0.784	16.467	0.516	19.905
36.	5.000	0.801	17.268	0.527	20.432
37.	1.000	0.653	17.920	0.430	20.861
Base	0.000		17.920		20.861

----- (END LOAD CASE 1 -- AXIAL AND SHEAR FORCE) -----

PJF_Pole (tm) - Monopole Design Program

Windows Version 3.04.0000

Tue Mar 5, 2002 - 1:29:02 pm

(c) 1993 to 2000 PAUL J. FORD AND COMPANY, Columbus, Ohio

 Job No.....: 29202-0129 Design No: Summit #12218 Engineer : MFP
 Description : Existing 120-Ft Monopole - AT&T CT-441; SHELTON, FAIRFIELD CO., CT
 Design..... : 85 mph / 74 mph + 1/2" radial ice
 Owner..... : Nextel Client: Summit Manufacturing, LLC ()
 Status..... : Final Design Revision: Rev. Date :

 POLE SHAFT SEGMENTS -- MOMENTS and DEFLECTIONS:

LOAD CASE 1: BASIC WIND VELOCITY = 85.00 mph

Segmnt Elev (ft)	[----- MOMENTS (ft-kips) -----]				[--DEFLECTIONS (inch)-----]		
	From Ant/ Arm	From Shaft Wind	From P-Delta Effects	Total Moment	No P-Delta Effects	Total W/ P-Delta Effects	Total Rotation (deg)
118.00	6.605	0.000	0.000	6.605	65.865	67.934	4.739
118.00	6.605	0.000	0.000	6.605	65.865	67.934	4.739
118.00	6.605	0.000	0.000	6.605	65.865	67.934	4.739
118.00	6.605	0.000	0.024	6.629	64.902	66.940	4.739
115.00	16.497	0.512	0.441	17.449	62.018	63.958	4.727
110.00	32.982	3.096	1.208	37.286	57.237	59.017	4.684
108.50	37.927	4.288	1.290	43.506	56.761	58.525	4.667
108.50	37.927	4.288	1.422	43.637	56.287	58.035	4.667
105.00	56.366	7.865	2.532	66.763	52.515	54.137	4.613
100.00	82.706	14.912	3.984	101.602	47.882	49.349	4.506
98.00	93.243	18.372	4.283	115.898	46.966	48.403	4.455
98.00	93.243	18.372	4.608	116.222	46.062	47.468	4.455
95.00	120.333	24.258	5.897	150.487	43.374	44.691	4.364
90.00	165.482	35.945	8.057	209.485	39.032	40.207	4.177
85.00	210.632	50.010	10.209	270.851	34.902	35.942	3.948
80.75	249.009	63.852	11.904	324.765	31.777	32.717	3.727
80.00	255.782	66.469	12.336	334.587	31.024	31.940	3.695
77.00	282.871	77.517	13.645	374.033	28.803	29.649	3.586
75.00	300.931	85.369	14.525	400.826	27.360	28.160	3.511
70.00	346.081	106.708	16.742	469.532	23.892	24.583	3.310
65.00	391.231	130.503	18.965	540.698	20.634	21.224	3.096
60.00	436.380	156.769	21.168	614.318	17.599	18.096	2.870
55.00	481.530	185.516	23.329	690.375	14.797	15.211	2.635
50.00	526.680	216.747	25.013	768.439	12.726	13.077	2.392
50.00	526.680	216.747	25.420	768.847	12.239	12.576	2.392
45.00	572.885	250.457	27.457	850.800	9.930	10.201	2.142
40.75	612.160	281.025	29.078	922.262	8.262	8.485	1.946
40.00	619.091	286.592	29.080	934.763	8.260	8.482	1.912
40.00	619.091	286.592	29.470	935.153	7.870	8.082	1.912
35.00	666.287	325.143	31.397	1022.827	6.040	6.200	1.680
30.00	713.484	366.061	33.170	1112.714	4.447	4.562	1.446
25.00	760.680	409.361	34.759	1204.799	3.093	3.173	1.208
20.00	807.876	455.097	36.132	1299.105	1.982	2.032	0.969
15.00	855.073	503.325	37.258	1395.655	1.116	1.144	0.728
10.00	902.269	554.099	38.103	1494.471	0.497	0.509	0.486
5.00	949.465	607.475	38.635	1595.576	0.124	0.127	0.243
0.00	996.662	663.508	38.821	1698.990	0.000	0.000	0.000

----- (END LOAD CASE 1 -- MOMENTS AND DEFLECTIONS) -----

PJF_Pole (tm) - Monopole Design Program

Windows Version 3.04.0000

Tue Mar 5, 2002 - 1:29:02 pm

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-----
Job No.....: 29202-0129          Design No: Summit #12218      Engineer : MFP
Description : Existing 120-Ft Monopole - AT&T CT-441; SHELTON, FAIRFIELD CO., CT
Design..... : 85 mph / 74 mph + 1/2" radial ice
Owner.....  : Nextel                  Client: Summit Manufacturing, LLC (
Status..... : Final Design            Revision:          Rev. Date :
-----

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POLE SHAFT SEGMENTS -- ACTUAL VS. ALLOWABLE STRESSES:

LOAD CASE 1: BASIC WIND VELOCITY = 85.00 mph

Note: Per TIA/EIA Sec. 3.1.1.1: Allow a 1/3 stress increase for poles under 700 feet in height. The allowable stresses shown include the factor of 1.333

Segmnt Elev (ft)	[----- ACTUAL STRESSES -----]					Allow. Stress [Fb] (ksi)	Actual/ Allowable [Ftot/Fb] Ratio
	Bending [fb] (ksi)	Axial [fa] (ksi)	Torsion [ft] (ksi)	Shear [fv] (ksi)	Combined [Ftot] (ksi)		
118.00	1.127	0.000	0.000	0.000	1.127	52.00	0.0217
118.00	1.127	0.008	0.001	0.002	1.135	52.00	0.0218
118.00	1.127	0.022	0.322	0.296	1.570	52.00	0.0302
118.00	1.131	0.124	0.551	0.520	2.239	52.00	0.0431
115.00	2.846	0.132	0.527	0.547	3.511	52.00	0.0675
110.00	5.654	0.144	0.490	0.591	6.092	51.37	0.1186
108.50	6.458	0.229	0.654	0.763	7.123	51.09	0.1394
108.50	6.477	0.237	0.766	0.880	7.295	51.09	0.1428
105.00	9.436	0.245	0.730	0.909	10.089	50.44	0.2000
100.00	13.417	0.254	0.682	0.941	13.957	49.52	0.2818
98.00	14.904	0.275	0.854	1.320	15.639	49.15	0.3182
98.00	14.945	0.365	0.969	1.455	15.875	49.15	0.3230
95.00	18.608	0.368	0.932	1.464	19.424	48.59	0.3997
90.00	24.306	0.373	0.875	1.478	25.013	47.67	0.5247
85.00	29.546	0.379	0.823	1.492	30.193	46.75	0.6459
80.75	33.667	0.395	0.782	1.501	34.292	45.96	0.7461
80.00	21.479	0.244	0.482	0.920	21.859	52.00	0.4204
77.00	22.558	0.247	0.453	0.913	22.927	52.00	0.4409
75.00	24.251	0.254	0.455	0.928	24.621	52.00	0.4735
70.00	26.819	0.263	0.429	0.935	27.185	52.00	0.5228
65.00	29.204	0.273	0.406	0.943	29.569	52.00	0.5686
60.00	31.422	0.283	0.385	0.950	31.789	52.00	0.6113
55.00	33.490	0.292	0.365	0.957	33.860	52.00	0.6512
50.00	35.402	0.298	0.347	0.957	35.772	52.00	0.6879
50.00	35.421	0.308	0.356	0.976	35.803	52.00	0.6885
45.00	37.273	0.332	0.339	0.982	37.674	52.00	0.7245
40.75	33.703	0.290	0.282	0.837	34.048	52.00	0.6548
40.00	33.906	0.289	0.280	0.834	34.250	52.00	0.6586
40.00	33.920	0.298	0.287	0.849	34.275	52.00	0.6591
35.00	35.329	0.307	0.273	0.852	35.690	52.00	0.6863
30.00	36.642	0.317	0.261	0.854	37.009	52.00	0.7117
25.00	37.866	0.327	0.249	0.857	38.241	52.00	0.7354
20.00	39.011	0.336	0.238	0.860	39.393	52.00	0.7576
15.00	40.083	0.346	0.228	0.864	40.473	52.00	0.7783
10.00	41.090	0.355	0.218	0.868	41.488	52.00	0.7979
5.00	42.038	0.365	0.209	0.872	42.444	52.00	0.8162
0.00	42.932	0.371	0.200	0.872	43.342	52.00	0.8335

----- (END LOAD CASE 1 -- ACTUAL VS. ALLOWABLE STRESSES) -----

```

-----
Job No.....: 29202-0129          Design No: Summit #12218      Engineer : MFP
Description : Existing 120-Ft Monopole - AT&T CT-441; SHELTON, FAIRFIELD CO., CT
Design..... : 85 mph / 74 mph + 1/2" radial ice
Owner.....  : Nextel
Status.....  : Final Design
Client: Summit Manufacturing, LLC (
Revision:
Rev. Date :
-----

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M O N O P O L E B A S E P L A T E D E S I G N D E T A I L S

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Shaft Shape .....: 12 Sided Polygon      Stress Increase ...: 1.333 Factor
Base Dia, DF .....: 40.470 Inches          Base Plate Shape ...: Square
PT-to-PT, DP .....: 41.898 Inches
Min Bolt Circle ..: 48.148 Inches          Use Bolt Circle ...: 48.000 Inches
-----

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Base Reactions : DESIGN USER

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Moment .....: 1698.99 Ft-Kips          1698.99 Ft-Kips
Axial Load .....: 17.92 Kips              17.92 Kips
-----

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Anchor Bolt Details : DESIGN USER

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Number of Bolts .....: 12                      12
Bolt Diameter .....: 2.250 Inches           2.250 Inches
Bolt Type .....: #18J ASTM A615        #18J ASTM A615
Y-Distance .....: 6                      6
Mom. of Inertia .....: 3477.35 In^4          3456.00 In^4
Bolt Tension, T .....: 141.15 Kips           141.58 Kips
Allowable Tension ...: 194.81 Kips           194.81 Kips
Bolt Compression, C ..: 142.64 Kips           143.08 Kips
-----

```

Base Plate Details : DESIGN USER

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Plate Moment, MPL ...: 1642.79 In-Kips        1616.04 In-Kips
Bend Plane, W .....: 26.64 Inches          24.58 Inches
Plate Thickness, t ...: 2.720 Inches          3.250 Inches
Plate Width .....: 47.457 Inches         46.000 Inches
Plate Steel .....: ASTM A572 GRADE 50 (50 KSI)  ASTM A572 GRADE 50 (50 KSI)
Gross Weight .....: 1737.20 Lbs           1950.20 Lbs
Net Weight .....: 1339.00 Lbs           1474.40 Lbs
Allowable Stress .....: 49.99 Ksi             49.99 Ksi
Actual Stress .....: 49.99 Ksi             37.34 Ksi
Act./Allow Ratio .....: 1.00                  0.75
-----

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B A S E P L A T E D E S I G N S U M M A R Y

USE FOLLOWING SPECIFICATIONS:

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Plate Thickness .....: 3.250 Inches
Plate Width/Diameter : 46.000 Inches (Square)
Plate Weight .....: 1.950 Kips
Number of Bolts ...: 12
Bolt Circle .....: 48.00 Inches
Bolt Diameter .....: 2.25 Inches
Bolt Type .....: #18J ASTM A615

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MAT FOOTING FOR TOWERS PROGRAM BY PAUL J. FORD and COMPANY

JOB NO.

DATE 03-05-2002

PAGE 1

INPUT: MAT FOOTING FOR TOWERS

TOWER LOADS: TOWER WEIGHT = 17.90 kips (including ice, antenna etc)
OVERTURNING MOMENT = 1699.00 ft-k at base of tower
TOTAL HORIZONTAL = 20.90 kips total for entire tower

DESIGN SAFETY FACTOR AGAINST OVERTURNING = 1.50

CONCRETE: CONCRETE STRENGTH = 3000 psi at 28 days
REINFORCING STEEL STRENGTH = 60000 psi (ASTM A615)

SOIL: WATER TABLE BELOW BOTTOM OF FOOTING
SOIL WT = 100 pcf (dry)
ALLOWABLE SOIL BEARING = 6000 psf

FOOTING SIZE: WIDTH = 22.0 ft LENGTH = 22.0 ft
THICKNESS = 4.00 ft DEPTH = 3.50 ft below grade
CONCRETE WEIGHT = 150 pcf

OUTPUT: MAT FOOTING FOR TOWERS

VOLUME OF CONCRETE = 1936 ft³ (71.70 cubic yards)

WEIGHT OF TOWER =====> 17.90 kips

WEIGHT OF CONCRETE => 290.40 kips (1936 x 0.150)

TOTAL WEIGHT = 308.30 kips

OVERTURNING MOMENT = 1699.00 ft-k + (20.90 k x 4.00 ft) = 1783 ft-kips
RESISTING MOMENT = 308.30 k x 22.00 ft/2 = 3391 ft-kips

SAFETY FACTOR = $M_{resist} / O.T.M. = 3391 / 1783 = 1.90 > 1.50$ O.K.

GROSS SOIL BEARING = 1790 psf (includes soil overburden)
NET SOIL BEARING = 1440 psf < 6000 psf O.K.

BENDING MOMENT IN FOOTING = 1825 ft-kips
FOOTING REINFORCING = 0.55 in²/ft = 28 no. 6 bars @ 9.65 in. o.c.
(.18 % = 1.04 in²/ft)

BENDING SHEAR IN THE FOOTING = 281.05 kips
ALLOWABLE BENDING SHEAR = 837.91 kips O.K.



**RF Exposure Analysis for Proposed
AT&T Wireless Antenna Facility**

913-010-441

March 14, 2002

**Prepared by AT&T Wireless Services, Inc.
Satish Bhandare, RF Engineer**

Table of Contents

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2. SITE DATA.....	3
3. RF EXPOSURE PREDICTION	3
4. FCC GUIDELINES FOR EVALUATING THE ENVIRONMENTAL EFFECTS OF RF RADIATION 4	
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1. Introduction

This report constitutes an RF exposure analysis for the proposed AT&T Wireless antenna facility to be located at 165 Birdseye Rd, Shelton, CT 06484. This analysis uses site-specific engineering data to determine the predicted levels of radio frequency (RF) electromagnetic energy in the vicinity of the proposed facility and compares those levels with the Maximum Permissible Exposure (MPE) limits established by the Federal Communications Commission.

2. Site Data

Site Name: Shelton North Central	
Number of simultaneously operating channels	12
Type of antenna	7250.02
Power per channel (Watts ERP)	250.0 Watts
Height of antenna (feet AGL)	108 feet
Antenna Aperture Length	5 feet

3. RF Exposure Prediction

The following equations established by the FCC, in conjunction with the site data, were used to determine the levels of RF electromagnetic energy present in the vicinity of the proposed facility¹:

$$PowerDensity = \frac{0.64 * N * EIRP(\theta)}{\pi * R^2} (mw/cm^2) \quad Eq. 1-Far-field$$

Where, N = Number of channels, R = distance in cm from the RC (Radiation Center) of antenna, and $EIRP(\theta)$ = The isotropic power expressed in milliwatts in the direction of prediction point.

$$PowerDensity = \frac{P_{in} / ch * N * 10^3}{2 * \pi * R * h * \alpha / 360} (mw/cm^2) \quad Eq. 2-Near-field$$

Where P_{in}/ch = Input power to antenna terminals in watts/ch, R = distance to center of radiation, h = aperture height in meters, α = 3 dB band-width of horizontal pattern.

¹ RF exposure is measured and predicted in terms of power density in units of milliwatts (mW), a thousandth of a watt, or microwatts (μ W), a millionth of a watt, per square centimeter (cm^2). Data comparing predictive analysis with on site measurements has demonstrated that power density can be effectively predicted at given locations in the vicinity of a wireless antenna facility.

4. FCC Guidelines for Evaluating the Environmental Effects of RF Radiation

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 a Second Memorandum Opinion and Order. These new rules represent a consensus of the federal agencies responsible for the protection of public health and the environment, including the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), the National Institute for Occupational Health and Safety (NIOSH), and the Occupational Safety and Health Administration (OSHA).

Under the laws that govern the delivery of wireless communications services in the United States, as amended by the Telecommunications Act of 1996, the FCC has exclusive jurisdiction over RF emissions from personal wireless antenna facilities, which include cellular, PCS, messaging and aviation sites.² Pursuant to its authority under federal law, the FCC has established rules to regulate the safety of emissions from these facilities.

5. Comparison with Standards

Exhibit A shows the levels of RF electromagnetic energy as one moves away from the antenna facility. As shown in Exhibit A, the maximum power density is 2.26 μ W/cm² which occurs at 120 feet from the antenna facility. The chart in exhibit A also shows that the power density is only 0.52 μ W/cm² at a distance of 4 feet. Table 1 below shows the Maximum Permissible Exposure (MPE) limits established by the FCC. There are different MPE limits for public/uncontrolled and occupational/controlled environments.

Table 1: Maximum Permissible Exposure limits for RF radiation

<i>Frequency</i>	<i>Public/Uncontrolled</i>	<i>Occupational/controlled</i>	<i>Maximum power density at Accessible location</i>
Cellular	580 μ W/cm ²	2,900 μ W/cm ²	2.26 μ W/cm ²
PCS	1000 μ W/cm ²	5,000 μ W/cm ²	

The maximum power density at the proposed facility represents only 0.36% of the public MPE limit.

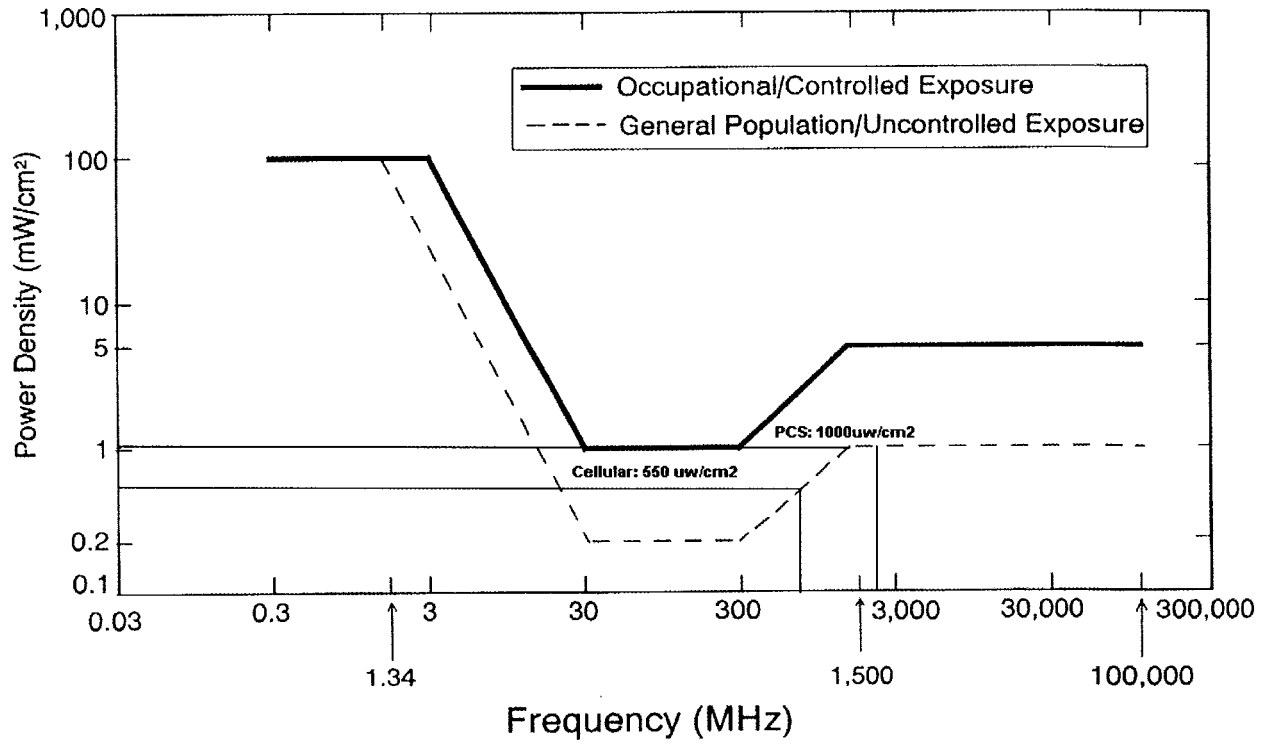
6. Conclusion

This analysis show that the maximum power density in accessible areas at this location is 2.26 μ W/cm², a level of RF energy that is well below the Maximum Permissible Exposure limit established by the FCC.

² 47 U.S. C. Section 332 (c) (7)(B)(iv) states that “[n]o State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission’s regulations concerning such emissions.”

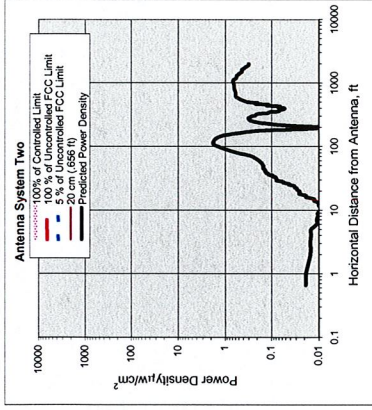
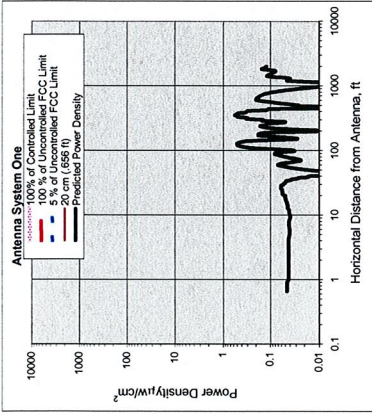
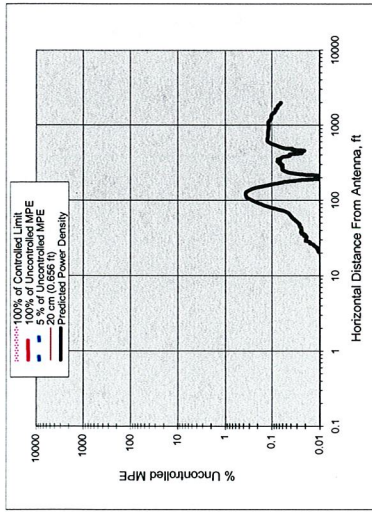
7. FCC Limits for Maximum Permissible Exposure

FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density



8. Exhibit A

Heading



Number of Antenna Systems: 2
Meets FCC Controlled Limits for The Antennas Systems.

Meets FCC Uncontrolled Limits for The Antenna Systems.

Meets 5% of FCC Uncontrolled Limits for The Antenna Systems.

No Further Maximum Permissible Exposure (MPE) Analysis Required.

Power Density	@Horiz. Dist.
$\mu\text{W}/\text{cm}^2$	feet
Maximum Power Density = 2.26	% of limit
279.54 times lower than the MPE limit for uncontrolled environment	0.36
Composite Power (ERP) = 7,000.00	Watts

Site ID: 913-010-441
Site Name: Shelton North Central
Site Location: 165 Birdseye Rd, Shelton, CT 06484

Performed By: alish Bhandari
Date: 3/14/202

Antenna System One

Frequency	units	Value
# of Channels	IMHz	1945
Max ERP/Ch	#	12
Max Pwr/Ch Into Ant.	Watts	250
(Center of Calculation Point	feet	108
or roof surface)	feet	0
Model No.		Alsson 7250.02
Max Ant Gain	dBd	16.5
Down tilt	degrees	0
Miscellaneous Alt.	dB	0
Height of aperture	feet	5.11
Ant. HBW	degrees	65
Distance to Ant. location	feet	105.445
WOS?	Y/N?	n

Ant System ONE Owner: AT&T
Sector: 3
Azimuth: 0120/240

Antenna System Two

Frequency	units	Value
# of Channels	IMHz	860
Max ERP/Ch	#	16
Max Pwr/Ch Into Ant.	Watts	250
(Center of ground or roof surface)	feet	15.77393361
Point	feet	0
Model No.		DB844H90-XY
Max Ant Gain	dBd	12
Down tilt	degrees	0
Miscellaneous Alt.	dB	0
Height of aperture	feet	4
Ant. HBW	degrees	90
Distance to Ant. location	feet	118
WOS?	Y/N?	n

Ant System TWO Owner: Nextel
Sector: 3
Azimuth: 0120/240

9. For Further Information

Additional information about the environmental impact of RF energy from personal wireless antenna facilities can be obtained from the Federal Communications Commission:

Dr. Robert Cleveland
Federal Communications Commission
Office of Engineering and Technology
Washington, DC 20554

RF Safety Program: 202-418-2464
Internet address: rfsafety@fcc.gov
RF Safety Web Site: www.fcc.gov/oet/rfsafety

10. References

[1] The Communications Act of 1934, as amended by the Telecommunications Act of 1996, 47 U.S.C. Section 332 (c)(7)(B)(iv).

[2] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Notice of Proposed Rulemaking, ET Docket 93-62, 8 FCC Rcd 2849 (1993).

[3] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Report and Order, ET Docket 93-62, FCC 96-326, adopted August 1, 1996. 61 Federal Register 41006 (1996).

[4] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Second Memorandum Opinion and Order, ET Docket 93-62, adopted August 25, 1997.

[5] *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields*, OET Bulletin 65, August, 1997.