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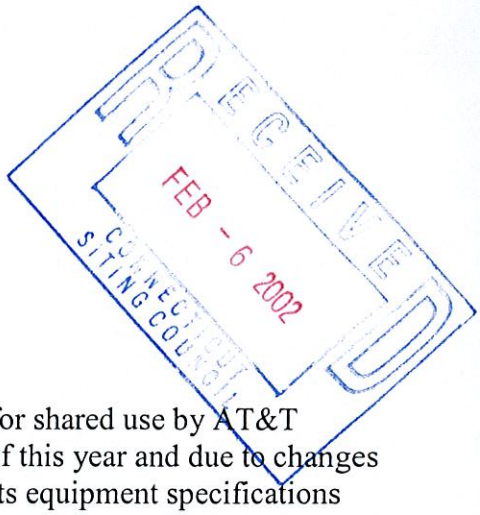
MARYANN M. PALERMO
ROBERT C. SCHNEIDER
LOUIS R. TAFFERA

February 6, 2002

BY HAND
Mr. Derrick Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: AT&T Wireless – Post Approval Construction Modifications
Chapel Street, Stratford, Connecticut
474 Main Street, Monroe, Connecticut
2577 Main Street, Glastonbury, Connecticut
1214 Farmington Avenue, Bristol, Connecticut
Flanders Road, East Lyme, Connecticut
238 Meriden Road, Middlefield, Connecticut
Old Route 79, Madison, Connecticut
Noroton Heights Railroad Station, Darien, Connecticut



Dear Mr. Phelps:

The above referenced sites were approved by the Council for shared use by AT&T Wireless ("AT&T") in the fourth quarter of 2001. As of the first of this year and due to changes in the technology being deployed by AT&T in the State, some of its equipment specifications have changed. Universally, the equipment to be deployed at each of the above referenced sites requires less ground space than previously required and approved by the Council.

The purpose of this letter is to outline those material changes at each site as they relate to the Council's prior approvals. Further, we respectfully request that these changes be handled as a construction related matter by Council staff and that this letter be added to the Council's respective files for purposes of future clarity. The following material changes are proposed:

Petition No. 528 - Chapel Street, Stratford, Connecticut

Replace approved 12'-0" x 20'-0" concrete equipment pad with a 5'-3" x 6'-0" concrete equipment pad for the initial build and an adjacent 5'-3" x 6'-0" concrete equipment pad for potential growth. The proposed Lucent equipment cabinets will be replaced with two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for the initial build and two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for potential growth.

TS-AT&T-085-011017 - 474 Main Street, Monroe, Connecticut

Replace approved 16'-0" x 8'-6" concrete equipment pad with a 5'-3" x 6'-0" concrete equipment pad for the initial build and an adjacent 5'-3" x 6'-0" concrete equipment pad for potential growth. The proposed Lucent equipment cabinets will be replaced with two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for the initial build and two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for potential growth.

TS-AT&T-054-010906 – 2577 Main Street, Glastonbury, Connecticut

Replace approved 12'-0" x 20'-0" equipment shelter with a 5'-3" x 6'-0" concrete equipment pad for the initial build and an adjacent 5'-3" x 6'-0" concrete equipment pad for potential growth. The proposed Lucent equipment cabinets will be replaced with two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for the initial build and two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for potential growth.

TS-AT&T-017-010927 - 1214 Farmington Avenue, Bristol, Connecticut

Replace Lucent equipment cabinets with two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for the initial build and two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for potential growth

Petition No. 530 - Flanders Road, East Lyme, Connecticut

Replace approved 12'-0" x 20'-0" concrete equipment pad with a 5'-3" x 6'-0" concrete equipment pad for the initial build and an adjacent 5'-3" x 6'-0" concrete equipment pad for potential growth. The proposed Lucent equipment cabinets will be replaced with two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for the initial build and two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for potential growth

TS-AT&T-082-011017 - 238 Meriden Road, Middlefield, Connecticut

Replace approved 12'-0" x 20'-0" concrete equipment pad with a 5'-3" x 6'-0" concrete equipment pad and replace proposed Lucent equipment cabinets with two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D.

TS-AT&T-076-010827 - Old Route 79, Madison, Connecticut

Replace approved 17'-10" x 8'-6" concrete equipment pad with a 5'-3" x 6'-0" concrete equipment pad for the initial build and an adjacent 5'-3" x 6'-0" concrete equipment pad for potential growth. The proposed Lucent equipment cabinets will be replaced with two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for the initial build and two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D for potential growth.

Petition No. 529 – Noroton Heights Railroad Station, Darien, Connecticut
Replace approved 12'-0" x 20'-0" concrete equipment pad with a 5'-3" x 6'-0" concrete equipment pad and replace proposed Lucent equipment cabinets with two Nokia equipment cabinets, each 76.4"H x 30.3"W x 29.5"D.

Should you, the Council or staff have any questions, please do not hesitate to contact us. Thank you for your consideration of the foregoing.

Very truly yours,

Christopher B. Fisher

cc: Carmen Chapman, AT&T Wireless
Harold Hewett, Bechtel Telecommunications

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

November 9, 2001

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

RE: **TS-AT&T-076-010827** - AT&T Wireless PCS, LLC d/b/a AT&T Wireless request for an order to approve tower sharing at an existing telecommunications facility located at the Madison Police Station, Old Route 79, Madison, Connecticut.

Dear Attorney Fisher:

At a public meeting held November 7, 2001, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. As agreed upon by AT&T, AT&T will consult with Marilyn M. Ozols, Planning and Zoning Administration for the Town of Madison for the placement of additional evergreen vegetation on the eastern side of the tower base. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated October 15, 2001.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/laf

Enclosure - Town of Madison Letter, dated September 11, 2001

c: Honorable David S. LaFemina, First Selectman, Town of Madison
William H. McMinn, Zoning Enforcement Officer, Town of Madison
Marilyn M. Ozols, Planning and Zoning Administrator, Town of Madison
Maureen Woodstrom, Spectrasite Communications
Ronald C. Clark, Nextel Communications
Sandy M. Carter, Verizon Wireless
Peter W. van Wilgen, SNET Mobility LLC
Stephen J. Humes, Esq., LeBoeuf, Lamb, Greene & MacRae
Christopher B. Fisher, Esq., Cuddy & Feder & Worby LLP

CUDDY & FEDER & WORBY LLP

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NORWALK, CONNECTICUT 06850
(203) 853-8001
TELECOPIER (203) 831-8250

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THOMAS M. BLOOMER
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ROBERT L. OSAR (also TX)
MARYANN M. PALERMO
ROBERT C. SCHNEIDER
LOUIS R. TAFFERA

October 15, 2001

VIA FEDERAL EXPRESS
Mr. Robert K. Erling
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Tower Sharing Request by AT&T Wireless
Existing SpectraSite Tower Facility at
The Former Police Station
Old Route 79, Madison, Connecticut

Dear Mr. Erling:

On behalf of AT&T Wireless, enclosed please find a revised plan for the above referenced site, prepared by URS Corporation, which includes VoiceStream at the 120' level of the tower and denotes the site as the "Former" Madison Police Station. In addition, we enclose a Cumulative Emissions Compliance Report dated October 2, 2001, prepared by David Cotton, Jr., AT&T Senior Radio Frequency Engineer, setting forth calculations for the emissions of all antennas known to be on the tower. The "worst case" exposure calculated for the operation of this facility for all carriers, would be approximately 22.65% of the standard adopted by the FCC and Connecticut Department of Health as evidenced in the annexed report.

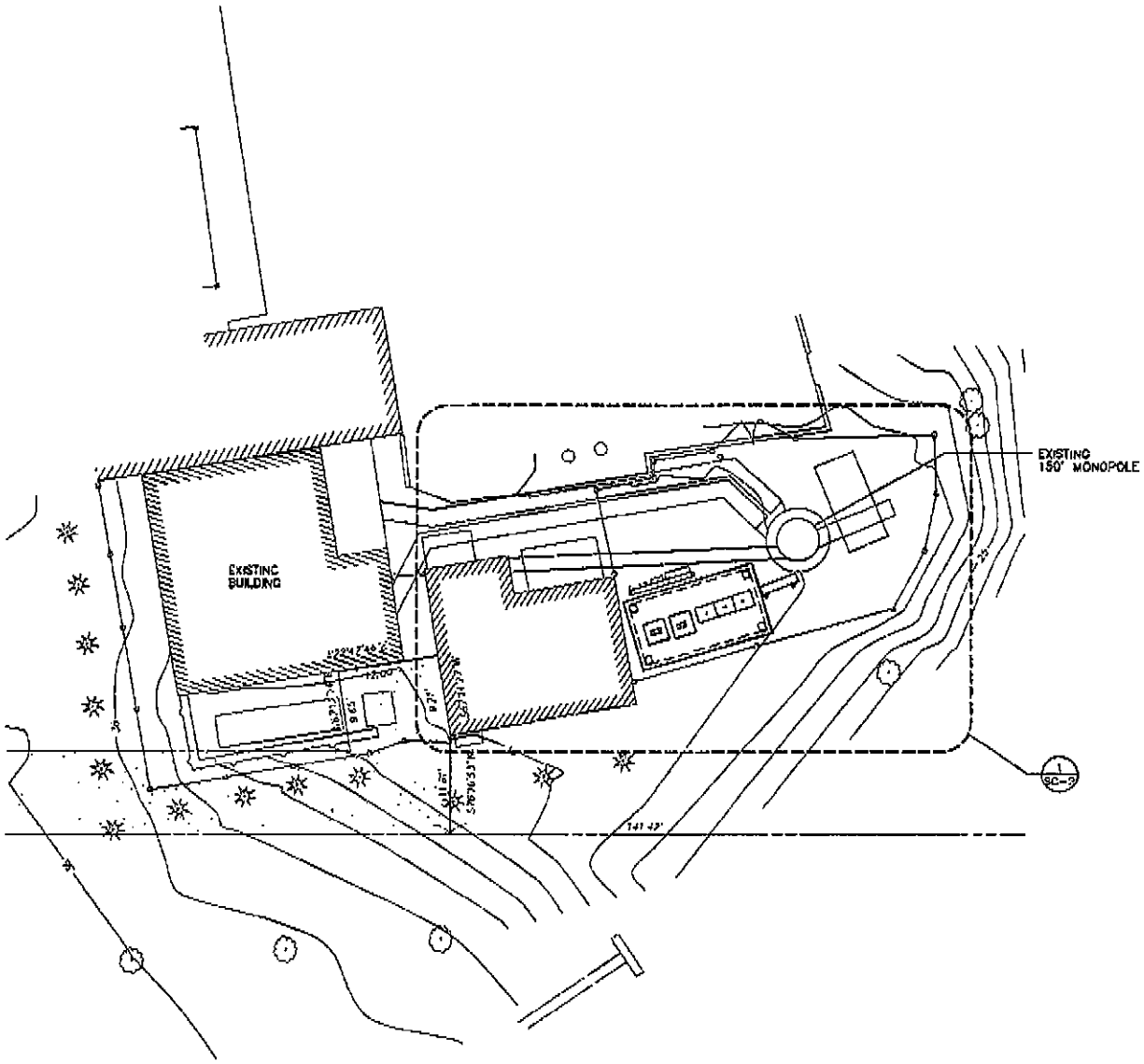
We would appreciate it if this matter were placed on the next available agenda of the Council for consideration of the application and an order for shared use by AT&T. Should the Council or staff have any questions regarding this matter, please do not hesitate to contact us.

C&F&W: 287201.01

Very truly yours,

Christopher B. Fisher

Encl.
cc: D. Stewart MacMillan, Jr., PE, Town of Madison DPW



1 / SC-1 SITE PLAN
SCALE: 1" = 20'-0"

0 5 10 20 40

URS
URS CORPORATION-CT
795 BROOK STREET, BLDG 5
ROCKY HILL, CT. 06067
1-(860)-529-8882
URS JOB NO.: F301924.30

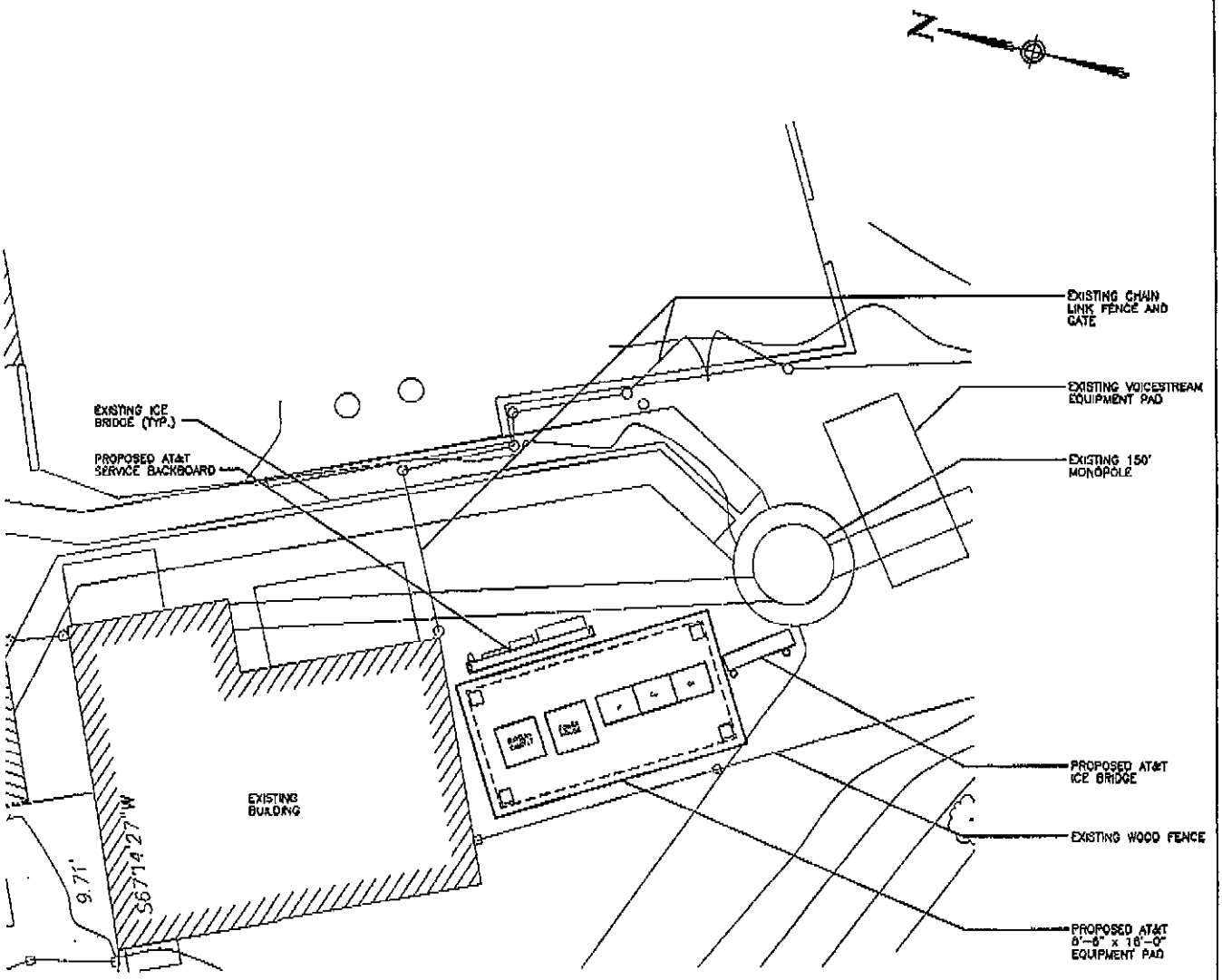
AT&T
AT&T WIRELESS PCS LLC
12 OMEGA DRIVE
STAMFORD, CT 06902

DRAWING TITLE: SITE PLAN
PROJECT INFORMATION: FORMER MADISON POLICE STATION
24445-3CO-203-SC1-1
OLD ROUTE 79
MADISON, CONNECTICUT
PROPERTY OWNER: TOWN OF MADISON

SCALE:	AS NOTED	DRAWN BY:	MCD
DATE ISSUED:	08-30-01	CHECKED BY:	KA
		APPROVED BY:	

REVISED SITING COUNCIL

JOB NO.	SITE NO.	DRAWING NUMBER	REV.
24445	CT-205	SC-1	1



1 / SC-2 SITE PLAN
SCALE: 1" = 10'-0"

0 5 10 20

URS
URS CORPORATION-CT
795 BROOK STREET, BLDG 5
ROCKY HILL, CT. 06067
1-(860)-529-8882
URS JOB NO.: FJ01824.30

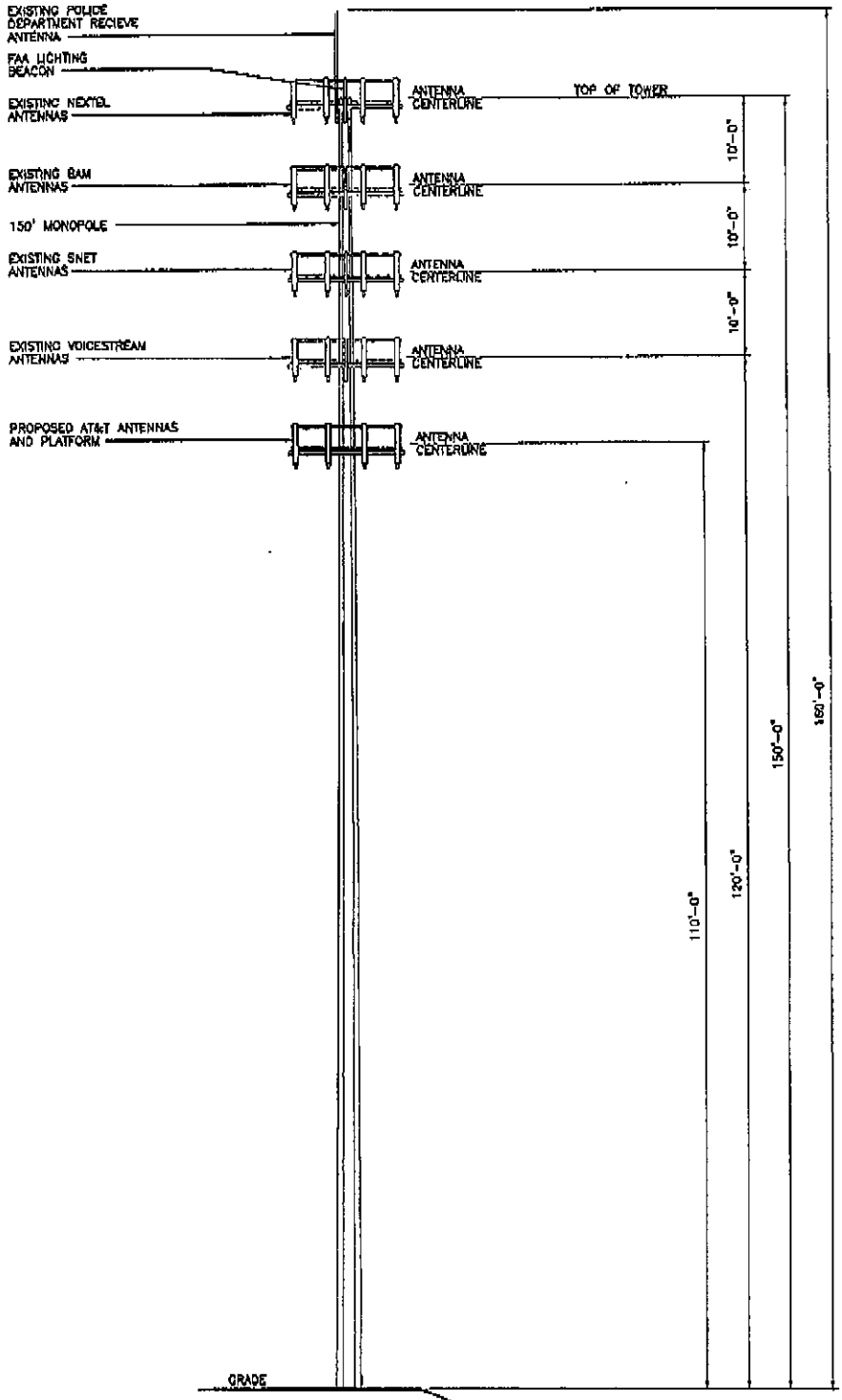
AT&T
AT&T WIRELESS PCS LLC
12 OMEGA DRIVE
STAMFORD, CT 06902

DRAWING TITLE: COMPOUND PLAN
PROJECT INFORMATION:
FORMER MADISON POLICE STATION
24445-860-205-802-1
OLD ROUTE 79
MADISON, CONNECTICUT
PROPERTY OWNER:
TOWN OF MADISON

SCALE:	AS NOTED	DRAWN BY:	MCD
DATE ISSUED:	08-30-01	CHECKED BY:	ICA
		APPROVED BY:	

REVISED SITING COUNCIL

JOB NO.	SITE NO.	DRAWING NUMBER	REV.
24445	CT-205	SC-2	1



1 / SC-3 TOWER ELEVATION
SCALE: 1" = 20'

0 5 10 20 40

URS
URS CORPORATION-CT
795 BROOK STREET, BLDG 5
ROCKY HILL, CT. 06067
1-(860)-529-8882
URS JOB NO.: F301924.30

AT&T
AT&T WIRELESS PCS LLC
12 OMEGA DRIVE
STAMFORD, CT 06902

DRAWING TITLE: TOWER ELEVATION
PROJECT INFORMATION:
FORMER MADISON POLICE STATION
24445-3CO-286-9C3-1
OLD ROUTE 79
MADISON, CONNECTICUT
PROPERTY OWNER:
TOWN OF MADISON

SCALE:	AS NOTED	DRAWN BY:	MCD
DATE ISSUED	08-30-01	CHECKED BY:	ICA
		APPROVED BY:	

REVISED SITING COUNCIL

JOB NO.	SITE NO.	DRAWING NUMBER	REV.
24445	CT-205	SC-3	1

A. Owner of the structure on which the antenna is located and the location of the antenna:

Name of owner of the structure on which the antenna is located:	
Owner of Structure:	SpectraSite
Address of structure:	Old Route 79
	Madison, CT

Latitude:	41° 40' 25" N
Longitude:	72° 51' 14" W

B. Owner of the antenna:

Name of the owner of the antenna:	AT&T Wireless Services
Address of antenna owner:	12 Omega Drive
	Stamford, CT 06907
Telephone number:	(203) 602-7000

C. Technical specifications:

FCC class (or type) of service:	PCS (IS-136)
Operating frequency of transmitter:	1965-1970MHz
Peak power output of transmitter:	8 Watts/per channel
Power into the antenna:	4 watts
Antenna manufacturer:	EMS
Antenna model:	RR90-17-00
Antenna type:	Panel
Gain of the antenna:	14.4 dBd
Antenna radiating pattern:	H-plane - 90°±3° E-plane –6°±1°
Polarization of radiation from antenna:	Vertical 180°
Effective radiating power:	881.4 watts ERP at centerline (maximum)

D. Power density information:

The power density values presented in the attached studies were achieved according to FCC OET-65 using the following formula:

$$S = \frac{33.4xP}{R^2} \quad \text{(Equation 9, FCC OET-65)}$$

Where: S = Power density in $\mu W/cm^2$
P = Power (watts) ERP (effective radiated power)
R = Distance (meters)

Five measurements were taken for this structure. Besides the AT&T carrier information, measurements for Nextel, Verizon, Cingular, and Voicestream are also included for the purposes of this study. The Police Department antenna is a receive-only antenna. Given the above equation, the worse case ground scenario is located at the base of the tower.

The results of this analysis indicate that the maximum level of RF energy in areas normally accessible to the public is below all applicable health and safety limits. Specifically, the maximum level of RF energy associated with simultaneous and continuous operation of all proposed transmitters will be less than 22.65% of the safety criteria adopted by the Federal Communication Commission as mandated by the Telecommunications Act of 1996. The Telecommunications Act of 1996 is the applicable Federal law with respect to consideration of the environmental effects of RF emissions in the siting of personal wireless facilities. The maximum level of RF energy will also be less than 22.65% of the exposure limits of ANSI, IEEE, NCRP, and the limits used by all states that regulate RF exposure.

Carrier	Power Density ($\mu W/cm^2$)	Maximum Allowable ($\mu W/cm^2$)	Percentage of Maximum
AT&T	**26.19**	1000	**2.62%**
Voicestream	**36.44**	1000	**3.64%**
Cingular	**40.42**	566.7	**7.13%**
Verizon	**34.85**	566.7	**6.15%**
Nextel	**47.75**	566.7	**3.10%**
Total	**155.47**		**22.65%**

The calculations of these values are shown on the attached spreadsheets.

To the best of my knowledge, the statements made and information disclosed in this study are true, complete, and correct.

10/2/01
Date

David Cotton, Senior RF Engineer

AT&T WIRELESS SERVICES

Date: October 2, 2001

CT-205
Base of Tower

ERP Calculator	AT&T		ERP Calculator	Cingular	
Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)	Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
45.051500	14.4	59.451500	52.787536	10	62.787536
(watts per channel)	Maximum Number of Channels	(watts)	(watts per channel)	Maximum Number of Channels	(watts)
4.000000	8	881.353185	10.000000	19	1900.000000

ERP Calculator			ERP Calculator	Voicestream	
Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)	Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
0.000000	0	0.000000	49.542425	12.1	61.642425
(watts per channel)	Maximum Number of Channels	(watts)	(watts per channel)	Maximum Number of Channels	(watts)
0.000000	0	0.000000	10.000000	9	1459.629088

ERP Calculator	Nextel		ERP Calculator		
Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)	Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
50.413927	10	60.413927	0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)	(watts per channel)	Maximum Number of Channels	(watts)
10.000000	11	1100.000000	0.000000	0	0.000000

ERP Calculator	Verizon		ERP Calculator		
Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)	Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
52.787536	10	62.787536	0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)	(watts per channel)	Maximum Number of Channels	(watts)
10.000000	19	1900.000000	0.000000	0	0.000000

Field density

	AT&T	(none)	Nextel	Verizon
BAND/FREQUENCY (MHz)	1900	0	850	850
Signal Level (E.R.P. dbm)	59.451500	0.000000	60.413927	62.787536
Antenna Centerline Height (ft)	110	0	150	140
Antenna Centerline Height (m)	33.528000	0.000000	45.720000	42.672000
Signal Level (E.R.P. Watts)	881.353185	0.000000	1100.000000	1900.000000
Field Density (μW/cm2)	26.186723	0.000000	17.576270	34.850906
Cumulative Density (μW/cm2)	26.186723	26.186723	43.762992	78.613898
Maximum Density OET-65 (μW/cm2)	1000.000000	0.000000	566.666667	566.666667
% of Maximum Density	2.62%	0.00%	3.10%	6.15%
Cummulative Percentage	2.62%	2.62%	5.72%	11.87%

	Cingular	Voicestream	(none)	(none)
BAND/FREQUENCY (MHz)	850	1900		
Signal Level (E.R.P. dbm)	62.787536	61.642425	0.000000	0.000000
Antenna Centerline Height (ft)	130	120	0	0
Feet converted to (m)->	39.624000	36.576000	0.000000	0.000000
Signal Level (E.R.P. Watts)	1900.000000	1459.629088	0.000000	0.000000
	40.418802	36.441526	0.000000	0.000000
Cumulative Density (μW/cm2)	119.032700	155.474227	155.474227	155.474227
Maximum Density OET-65 (μW/cm2)	566.666667	1000.000000	0.000000	0.000000
% of Maximum Density	7.13%	3.64%	0.00%	0.00%
Cummulative Percentage	19.00%	22.65%	22.65%	22.65%

Percentage of Maximum _____

155.47 uW/cm2 Cumulative Density
22.65% of maximum allowable level.

TOWN OF MADISON
CONNECTICUT
LAND USE OFFICE

8 CAMPUS DRIVE
MADISON, CONNECTICUT 06443-2563
(203) 245-5632
FAX (203) 245-5613

September 11, 2001

Joel M. Rinebold
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **TS-AT&T-076-010827** – AT&T Wireless PCS, LLC d/b/a AT&T Wireless request for an order to approve tower sharing at an existing telecommunications facility located at the Madison Police Station, Old Route 79, Madison, Connecticut.

Dear Mr. Rinebold:

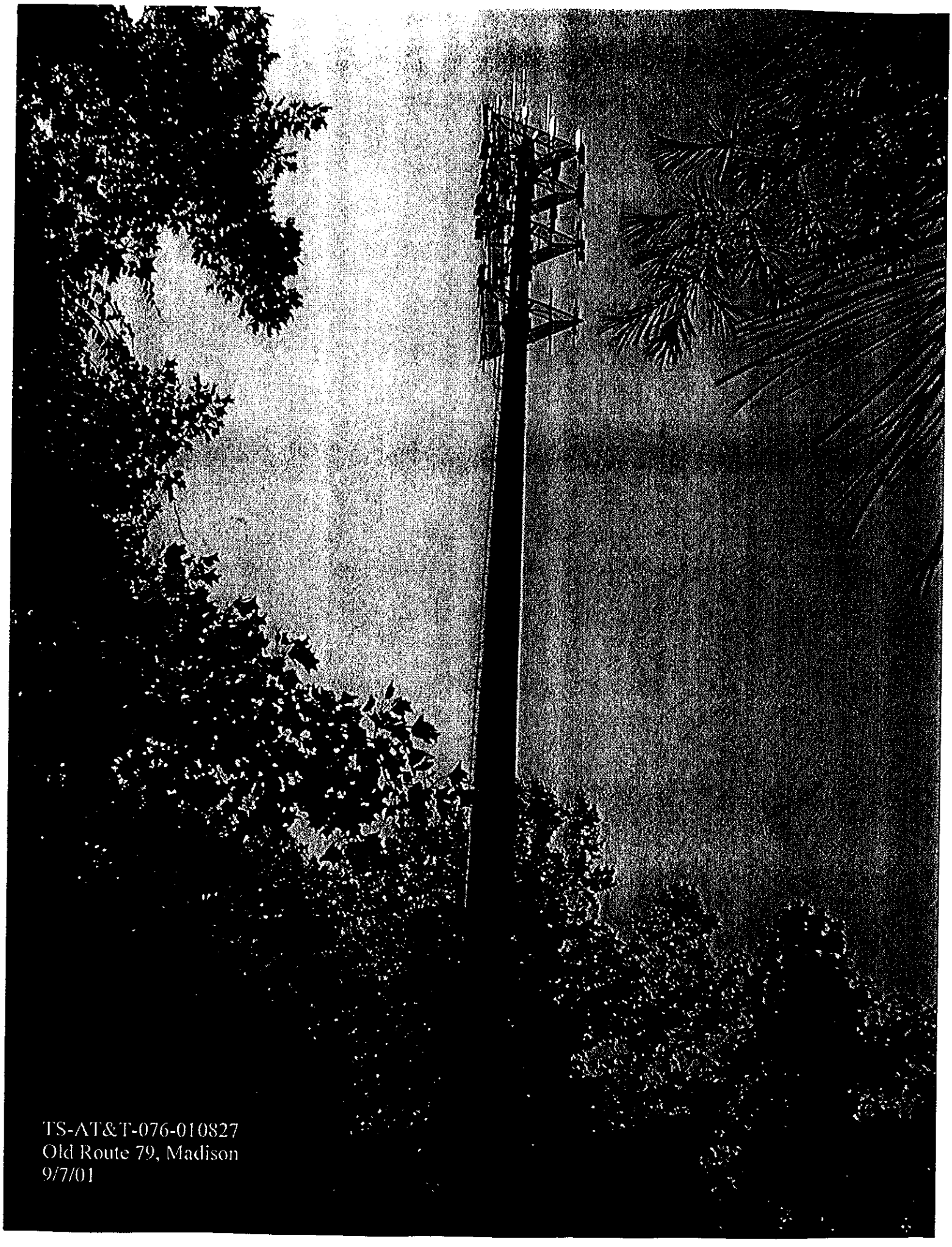
On behalf of the Town of Madison, I have reviewed the above referenced application for tower sharing. The Town has no objection to the proposal. It is requested, however, that the applicants provide additional evergreen screening around the base of the tower. The tower area is densely vegetated with deciduous trees, but there is no year round screening for the adjacent residential property to the east where the first floor windows face the tower base. Since the applicants are proposing to add an additional cabinet to the base area, it would seem reasonable that they also be required to plant three to five evergreen trees immediately adjacent to the tower enclosure on the east side. It is requested that they contact the Town to discuss species and placement prior to planting.

Thank you for the opportunity to comment on this matter. Please do not hesitate to contact me with any questions relative to the above request.

Sincerely,

Marilyn M. Ozols
Planning & Zoning Administrator

cc: D. LaFemina, First Selectman



TS-AT&T-076-010827
Old Route 79, Madison
9/7/01

TOWN OF MADISON
CONNECTICUT
PUBLIC WORKS DEPARTMENT

8 Campus Drive
Madison, CT 06443-2562
203-245-5611
Fax: 203-245-5613

D. Stewart MacMillan Jr. P. E.
Director of Public Works & Facilities
Town Engineer

September 5, 2001

Mr. Joel M. Rinebold, Executive Director
State of Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: **TS-AT&T- 076-010827** AT&T Wireless

Dear Mr. Rinebold:

I am writing to you regarding the above application. A review of the application reveals what appears to be several factual errors that should be corrected prior to final Council action.

The letter of application dated August 24, 2001 refers to the tower property as the "Police Station". The town relocated its police station over a year ago. Perhaps the word "former" could be inserted for accuracy.

The drawing in Exhibit A, numbered SC-3 dated 8-02-01 is in error. It shows three existing cell/PCS antennas on the tower with the AT&T to be the fourth. There are currently four such antennas already on the tower. We believe Nextel, BAM (currently Verizon), SNET (currently Cingular) and either OmniPoint or Voice Stream occupies these. This drawing should be corrected.

While I'm not an expert in emission studies it appears the Maximum Possible Exposure Study (MPE) also does not include one of the four existing transmitters. This would appear to result in an understated percentage of the allowable RF power output. It appears the stress analysis for the proposal does however include what is referred to as the "Omnipoint" antenna.

We would ask that you investigate these issues and correct the record as appropriate. Perhaps the applicants never looked up while preparing the study.

If you have any questions please feel free to contact us.

Sincerely,

D. Stewart MacMillan, Jr. P.E.
Dir. Of Public Works and Facilities

cc: Christopher B. Fisher esq

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

August 28, 2001

Honorable David S. LaFemina
First Selectman
Town of Madison
Madison Town Campus
8 Campus Drive
Madison, CT 06443-2563

RE: **TS-AT&T-076-010827** - AT&T Wireless PCS, LLC d/b/a AT&T Wireless request for an order to approve tower sharing at an existing telecommunications facility located at the Madison Police Station, Old Route 79, Madison, Connecticut.

Dear Mr. LaFemina:

The Connecticut Siting Council (Council) received this request for tower sharing, pursuant to Connecticut General Statutes § 16-50aa.

The Council will consider this item at the next meeting scheduled for September 12, 2001, 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,

Joel M. Rinebold
Executive Director

JMR/laf

Enclosure: Notice of Tower Sharing

c: William H. McMinn, Zoning Enforcement Officer, Town of Madison

CUDDY & FEDER & WORBY LLP

90 MAPLE AVENUE
WHITE PLAINS, NEW YORK 10601-5196

(914) 761-1300
TELECOPIER (914) 761-5372/6405
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STAMFORD, CONNECTICUT 06901
(203) 348-4780

ONE MARSHALL STREET
NORWALK, CONNECTICUT 06854
(203) 853-8001
TELECOPIER (203) 831-8250

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KENNETH J. DUBROFF
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CHRISTOPHER B. FISHER (also CT)
ANTHONY B. GIOFFRE III (also CT)
SUSAN E.H. GORDON
KAREN G. GRANIK
JOSHUA J. GRAUER
WAYNE E. HELLER (also CT)
KENNETH F. JURIST
MICHAEL L. KATZ (also NJ)
JOSHUA E. KIMERLING (also CT)
DANIEL F. LEARY (also CT)
BARRY E. LONG

CUDDY & FEDER
1971-1995

WILLIAM S. NULL
DAWN M. PORTNEY
ELISABETH N. RADOW
NEIL T. RIMSKY
RUTH E. ROTH
MIGUEL A. TORRELLAS (also NJ)
CHAUNCEY L. WALKER (also CA)
ROBERT L. WOLFE
DAVID E. WORBY

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

August 24, 2001

VIA FEDERAL EXPRESS
Mr. Joel Rinebold
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Tower Sharing Request by AT&T Wireless
Existing Spectrasite Tower Facility at
Old Route 79, Madison, Connecticut

Dear Mr. Rinebold:

On behalf of AT&T Wireless PCS, LLC d/b/a AT&T Wireless, we respectfully enclose an original and twenty copies of its request for the shared use of an existing tower with respect to the above mentioned facility, together with a check for $500.00, the filing fee. We would appreciate it if this matter were placed on the next available agenda by the Council to approve the application and issue an order for shared use by AT&T. Should the Council or staff have any questions regarding this matter, please do not hesitate to contact us.

Very truly yours,

Linda Grant

Linda Grant

Encls.
cc: Christopher B. Fisher, Esq.

C&F&W:

CUDDY & FEDER & WORBY LLP

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August 24, 2001

VIA FEDERAL EXPRESS

Hon. Mortimer Gelston, Chairman and Members
of the Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Tower Sharing Request by AT&T Wireless
Existing Spectrasite Tower Facility at
Old Route 79, Madison, Connecticut

Hon. Mortimer Gelston, Chairman and Members of the Siting Council:

Pursuant to Connecticut General Statutes (C.G.S.) § 16-50aa, AT&T Wireless PCS LLC, by and through its agent AT&T Wireless Services, Inc., ("AT&T Wireless") hereby requests an order from the Connecticut Siting Council (the "Council") to approve the proposed shared use of an existing communications tower owned by Spectrasite and located at Old Route 79 in the Town of Madison (the "Old Route 79 Facility "). AT&T Wireless and Spectrasite have agreed to the shared use of the Old Route 79 Facility, as detailed below.

The Old Route 79 Facility

The Old Route 79 Facility consists of an approximately one hundred fifty (150) foot high monopole tower (the "Tower") and equipment shelters currently being used for wireless communications and municipal uses. A chain link and decorative wood fence surrounds the Old Route 79 Facility. Current surrounding land uses include the Police Station where the Facility is located, professional offices and commercial uses.

AT&T Wireless' Facility

As shown on the enclosed plans prepared by URS Corporation, including a site plan and tower elevation of the Old Route 79 Facility, AT&T Wireless proposes shared use of the Facility by placing antennas on the Tower and equipment needed to provide personal communications services ("PCS") within the existing fenced compound. AT&T Wireless will install up to twelve (12) panel antennas at approximately the 110 foot level of the Tower and equipment cabinets on a 17'-10" x 8'-6" equipment pad within the existing fenced compound.

Connecticut General Statutes § 16-50aa provides that, upon written request for shared use approval, an order approving such use shall be issued, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns." (C.G.S. § 16-50aa(c)(1).) Further, upon approval of such shared use, it is exclusive and no local zoning or land use approvals are required C.G.S. § 16-50x. Shared use of the Old Route 79 Facility satisfies the approval criteria set forth in C.G.S. § 16-50aa as follows:

A. Technical Feasibility AT&T has confirmed that the Tower as originally designed is structurally capable of supporting the addition of AT&T Wireless' antennas. The proposed shared use of this Tower is therefore technically feasible. See structural report from URS Greiner Woodward-Clyde, Inc., annexed hereto as Exhibit A.

B. Legal Feasibility Pursuant to C.G.S. § 16-50aa, the Council has been authorized to issue an order approving shared use of the existing Old Route 79 Facility. (C.G.S. § 16-50aa(c)(1)). Under the authority vested in the Council by C.G.S. § 16-50aa, an order by the Council approving the shared use of a tower would permit the Applicant to obtain a building permit for the proposed installation.

C. Environmental Feasibility The proposed shared use would have a minimal environmental effect, for the following reasons:

    1. The proposed installation would have a de minimis visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing facility;

2. The proposed installation by AT&T Wireless would not increase the height of the Tower or extend the boundaries of the Old Route 79 Facility;

3. The proposed installation would not increase the noise levels at the existing facility boundaries by six decibels or more;

4. Operation of AT&T Wireless' antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. The "worst case" exposure calculated for the operation of this facility for all carriers, would be approximately 22.88% of the standard. See Cumulative Emissions Compliance Report dated August 13, 2001, prepared by David Cotton, Jr., AT&T Senior Radio Frequency Engineer, annexed hereto as Exhibit B;

5. The proposed shared use of the Old Route 79 Facility would not require any water or sanitary facilities, or generate air emissions or discharges to water bodies. Further, the installation will not generate any traffic other than for periodic maintenance visits.

D. Economic Feasibility The Applicant and the Tower owner have agreed to share use of the Old Route 79 Facility on terms agreeable to both parties. The proposed tower sharing is therefore economically feasible.

E. Public Safety As stated above and evidenced in the Cumulative Emissions Compliance Report annexed hereto as Exhibit B, the operation of AT&T Wireless' antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. Further, the addition of AT&T Wireless' telecommunications service in the Madison area through shared use of the Old Route 79 Facility is expected to enhance the safety and welfare of local residents and travelers through the area resulting in an improvement to public safety in this area.

Conclusion

As delineated above, the proposed shared use of the Old Route 79 Facility satisfies the criteria set forth in C.G.S. § 16-50aa, and advances the General Assembly's and the Siting

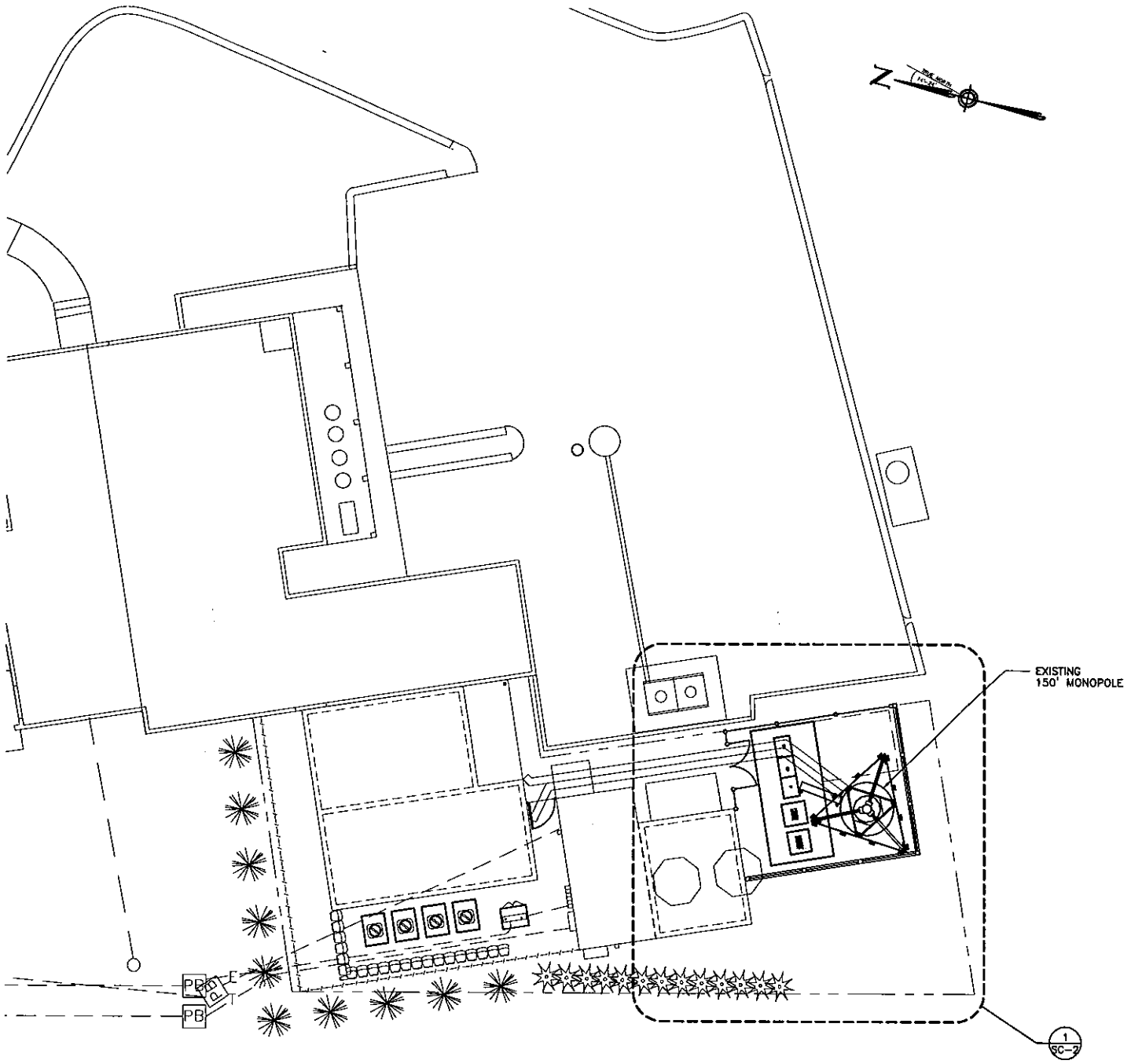
Council's goal of preventing the proliferation of towers in the State of Connecticut. AT&T Wireless therefore requests the Siting Council issue an order approving the proposed shared use of the Old Route 79 Road Facility.

Respectfully submitted,

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

cc: First Selectman, Town of Madison
Carmen Chapman, AT&T Wireless
Harold Hewett, Bechtel Telecommunications
Connie Lamberes, Bechtel Telecommunications

C&F&W:



1 / SC-1 SITE PLAN
SCALE: 1" = 20'-0"

0 5 10 20 40

URS
URS CORPORATION-CT
500 ENTERPRISE DRIVE
ROCKY HILL, CT. 06067
1-(860)-529-8882
URS JOB NO.: F301924.30

AT&T
AT&T WIRELESS PCS LLC
12 OMEGA DRIVE
STAMFORD, CT 06902

DRAWING TITLE: COMPOUND PLAN

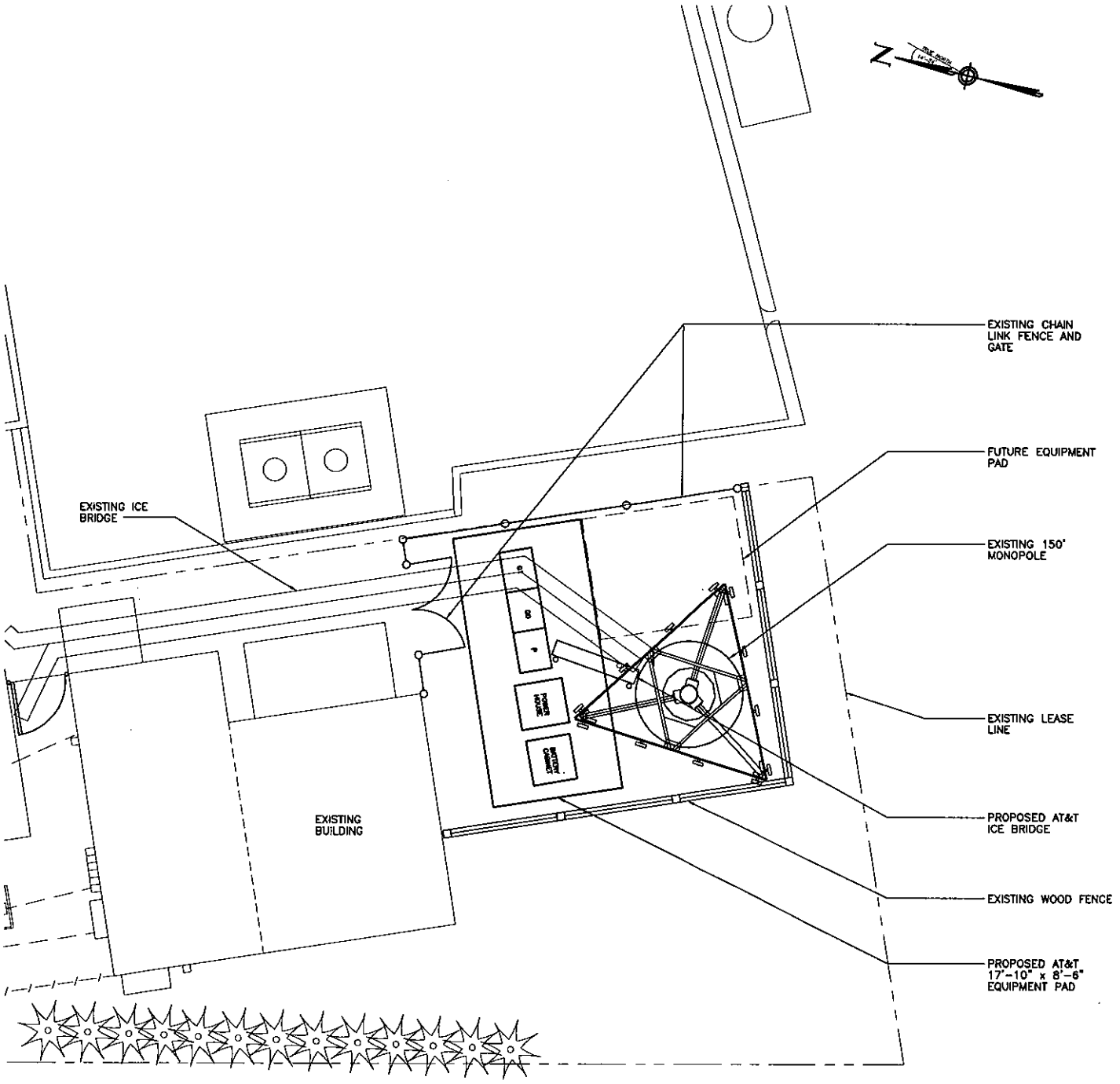
PROJECT INFORMATION:
MADISON POLICE STATION
24445-3CO-205-SC1-A
OLD ROUTE 79
MADISON, CONNECTICUT

PROPERTY OWNER: TOWN OF MADISON

SCALE:	AS NOTED	DRAWN BY:	MCD
DATE ISSUED:	08-02-01	CHECKED BY:	ICA
		APPROVED BY:	

ISSUED FOR SITING COUNCIL

JOB NO.	SITE NO.	DRAWING NUMBER	REV.
24445	CT-205	SC-1	A



1 / SC-2 SITE PLAN
SCALE: 1" = 10'-0"

0 5 10 20

URS
URS CORPORATION-CT
500 ENTERPRISE DRIVE
ROCKY HILL, CT. 06067
1-(860)-529-8882
URS JOB NO.: F301924.30

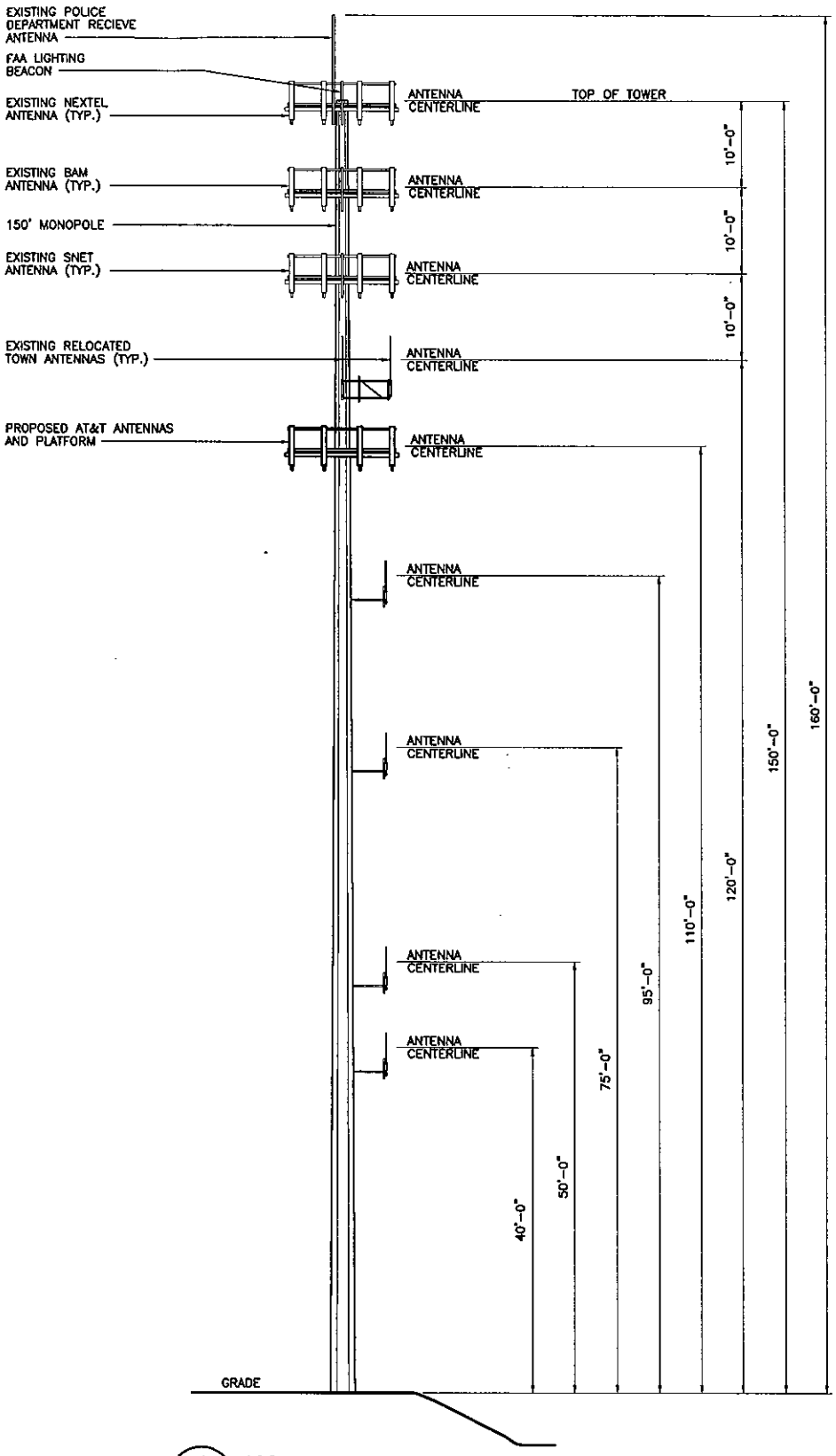
AT&T
AT&T WIRELESS PCS LLC
12 OMEGA DRIVE
STAMFORD, CT 06902

DRAWING TITLE: COMPOUND PLAN
PROJECT INFORMATION: MADISON POLICE STATION
24445-3CO-205-SC2-A
OLD ROUTE 79
MADISON, CONNECTICUT
PROPERTY OWNER: TOWN OF MADISON

SCALE:	AS NOTED	DRAWN BY:	MCD
DATE ISSUED:	08-02-01	CHECKED BY:	ICA
		APPROVED BY:	

ISSUED FOR SITING COUNCIL

JOB NO.	SITE NO.	DRAWING NUMBER	REV.
24445	CT-205	SC-2	A



1 / SC-3 TOWER ELEVATION

SCALE: 1" = 20'

0 5 10 20 40

URS
URS CORPORATION-CT
500 ENTERPRISE DRIVE
ROCKY HILL, CT. 06067
1-(860)-529-8882
URS JOB NO.: F301924.30

AT&T
AT&T WIRELESS PCS LLC
12 OMEGA DRIVE
STAMFORD, CT 06902

DRAWING TITLE: TOWER ELEVATION

PROJECT INFORMATION:
MADISON POLICE STATION
24445-3CO-205-SC3-A
OLD ROUTE 79
MADISON, CONNECTICUT

PROPERTY OWNER:
TOWN OF MADISON

SCALE:	AS NOTED	DRAWN BY:	MCD
DATE ISSUED:	08-02-01	CHECKED BY:	ICA
		APPROVED BY:	

ISSUED FOR SITING COUNCIL

JOB NO.	SITE NO.	DRAWING NUMBER	REV.
24445	CT-205	SC-3	A

CT-1030

Analysis and Evaluation of 148' Proposed Monopole for New Antenna Arrangement

Madison Police Station
Old Route 79
Madison, Connecticut
Summit Manufacturing No. 5606

Prepared for

Spectrasite, Inc.
99 Cherry Hill Road
Parisppany, New Jersey 07654

Prepared by

URS Greiner Woodward-Clyde, Inc.
500 Enterprise Drive
Rocky Hill, CT 06067

F300001804.36

December 1999

Introduction:

A structural analysis of this communication monopole was performed by URS Greiner Woodward-Clyde, Inc. (URSGWC) for Spectrasite. The monopole is proposed to be installed and located in Madison, Connecticut.

The structure is a 148' galvanized steel 18-sided polygon tapered shaft with slip joint splice. The structure is self supporting and was manufactured by Summit Manufacturing, Inc..

This analysis was conducted to evaluate twist (rotation) sway (deflection) and stress on monopole and the effect of the forces to the foundation of the monopole, resulting from new antenna arrangement.

The antenna inventory is:

52"L x 11.4"W x 11.4"D

		RAD Center Elevation
12-ALP 9212-N antenna 14' low profile platform with (12) 1-5/8" coax cable within monopole	NEXTEL	@ 148' elevation
12-ALP 9212-N antenna 14' low profile platform with (12) 1-5/8" coax cable within monopole	BAM	@ 140' elevation
12-ALP 9212-N antenna 14' low profile platform with (12) 1-5/8" coax cable within monopole	SNET	@ 130' elevation
12-ALP 9212-N antenna 14' low profile platform with (12) 1-5/8" coax cable within monopole	Omnipoint	@ 120' elevation
(12) Allgon 7184.14 antenna with 14' low profile platform with (12) 1-5/8" coax cable within or along outside along the perimeter and length of monopole.	AT&T	@ 110' elevation
(3) 10' whip antenna with (3) 6' side arms and their required coax cables within the monopole.	Town	@ 100' elevation
(3) 10' whip antenna with (3) 6' side arms and their required coax cables within the monopole.	Town	@ 90' elevation

Structural Analysis:

Methodology:

The monopole analysis was done in accordance with TIA/EIA-222-F June 1996, Structural Standard for Steel Antenna Towers and Antenna Supporting Structure; The American Institute of Steel Construction (AISC), Manual of Steel Construction; Allowable Stress Design (ASD).

The analysis was conducted by placing one-half inch of radical ice over the entire structure and all appurtenances, then applying a simultaneous wind load at 85 mph. Two analytical methods were used to evaluate the structure: a two-dimensional model using spreadsheet program developed by URSGWC and three-dimensional space frame analysis and design, using STAAD-PRO 3.1 Finite element software. The spreadsheet program was used to generate dead load, ice load, wind on ice and wind load. The maximum bending and axial load were used to calculate stress and movement on monopole which were compared to allowable stresses according to AISC and TIA/EIA. The three load combination was investigated in STADD/PRO Model to determine the stress, sway and rotation.

Case 1 = 85 mph Wind Load (without ice) + Tower Dead Load
Case 2 = 0.75 Wind Load (with ice) + Ice Load + Tower Dead Load
Case 3 = 50 mph Wind + Dead Load (for deflection)

The TIA/EIA standard permits one third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, allowable stresses of monopole member were increased by one-third in computing the load capacity.

Evaluation of Monopole:

Combined axial and bending stresses on the monopole structure were evaluated to determine allowable stresses in accordance with AISC. In all cases, calculated stresses under the proposed loading were less than allowable stresses

Analysis and Evaluation of Foundation:

Our calculation indicates that the combined axial load, shear and bending moment acting at the top of the foundation are less than the original design loads. The proposed foundation is designed based on the original (higher) foundation reactions.

The original design load is provided in manufacturing drawing. The analysis and design of foundation is included in Appendix A.

Analysis Results:

Our analysis determined the tower will support the proposed new antenna arrangements under the analysis criteria outlined above.

Our analysis for proposed new antenna arrangement and load condition is provided in Appendix A.

Limitations/Assumptions:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are as specified in the original Construction Document.
3. All required members are in place.
4. All bolts are in place and are properly tightened.

5. Tower is installed in plumb condition.

6. All members are galvanized.

7. All tower members are detailed, fabricated, and will be installed as specified in the original Design Documents.

8. Foundations were properly constructed to support original design loads as specified in the original Bid Document.

9. All co-axial cable is installed within the monopole, except as noted.

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

1. Adding or relocating antennas.
2. Installing antenna mounting gates or side arms.

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

APPENDIX A

Calculations

CT-1030

Analysis and Evaluation of 148' Proposed Monopole for New Antenna Arrangement

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Madison, Connecticut
Summit Manufacturing No. 5606

Prepared for

Spectrasite, Inc.
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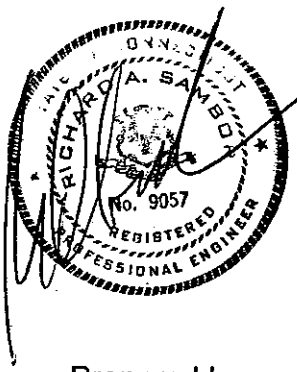

Prepared by

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500 Enterprise Drive
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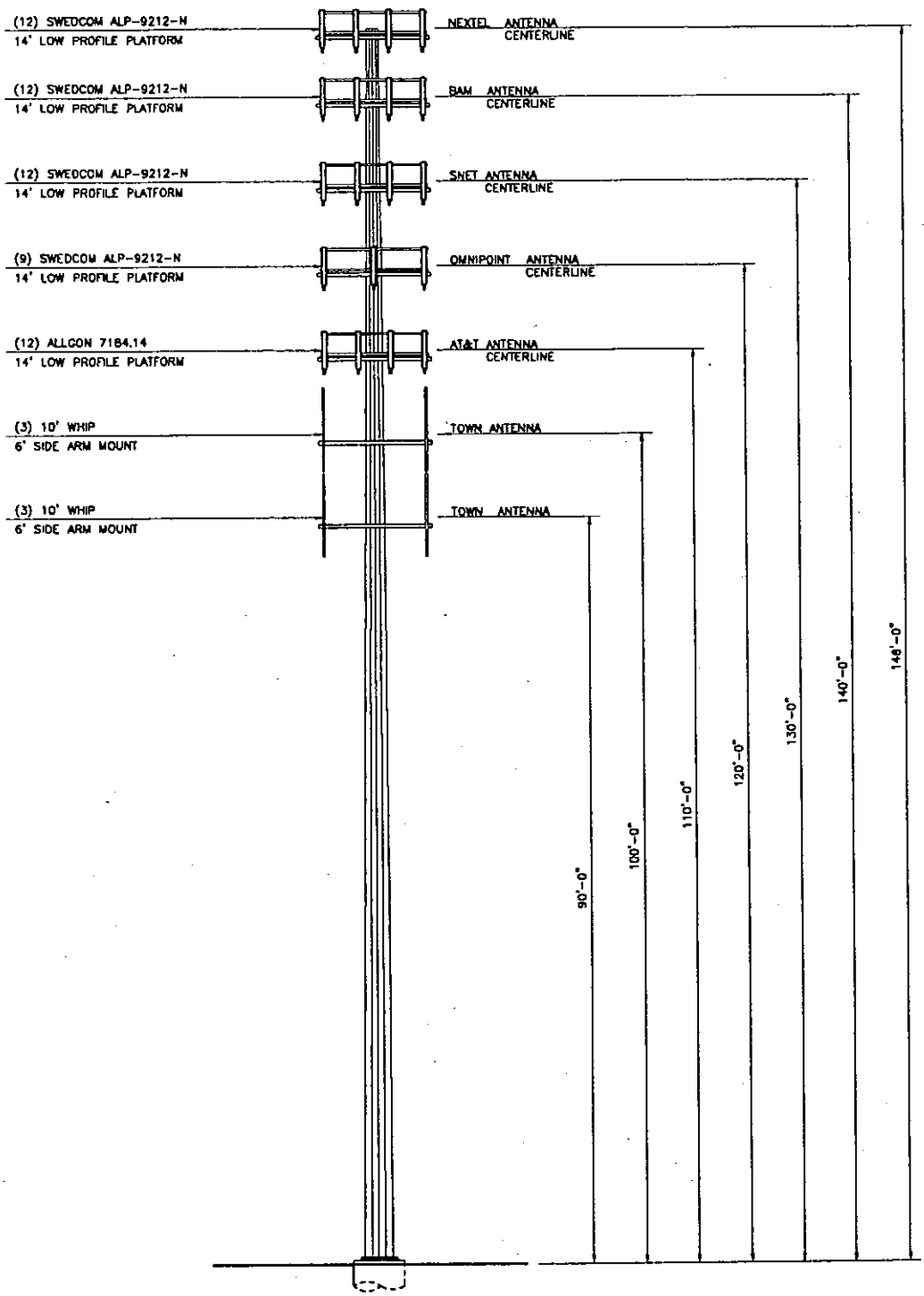
APPENDIX A

Calculations



1 / TL-1 TOWER ELEVATION
SCALE: 1"=20'-0"

SITE ID NO:
Designed by:
Drawn by: WJK
Checked by:
Approved by:

BBS Graiver Woodward Clyde A-E-S
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(860)-529-8882

SPECTRASITE COMMUNICATIONS INC.

SITE ADDRESS: MADISON POLICE STATION
OLD ROUTE 79
MADISON, CONNECTICUT

REV.	DATE:	DESCRIPTION

Scale: AS SHOWN | Date: 12-01-99
Job No. F301898.00 | File No. TL-1

Dwg. No. TL-1
Dwg. 1 of 2

URS Greiner Woodward Clyde

Job	Madison Police statior
Description	Madison

Project No.		sheet	of
Computed by	M. Sahirad	Date	01-Dec-99
Checked by		Date	

Connecticut Town of	Madison		
Importance Factor	III	1.210	
wind Velocity mph V=	85	use →	85
Cf for round member Cf=	1.030		
is member tubular	y		
For tubular pole Gh=	1.690		

Shaft section	section length	Diameter Across flats(inches) @ Top	@ Bot	section thickness
1	35.00	24.000	34.323	0.2500
2	34.50	34.323	43.225	0.3125
3	33.50	43.225	49.215	0.3750
4	45.00	49.215	61.050	0.5000

Height ft	Member NO.	actual OD	Ave. diam. in OD	Thickness in	Ave. diam. in ID	Wind Speed mph	Cf	I	Kz	Gh	Qz	Fo psf	Wind on Structure Wo plf	Ave.diam.+1" For ice inch	Wind on Ice With Struct, Wi plf	Dead Load of Ice/ lb/ft	Dead Load of Mast/ lb/ft
150.000	34	23.299															
148.000	33	24.000	23.650	0.250	23.150	85	1.03	1.21	1.54	1.69	28.40	49.43	97.42	24.650	101.54	14.75	62.54
145.000	32	24.774	24.387	0.250	23.887	85	1.03	1.21	1.53	1.69	28.23	49.14	99.87	25.387	103.97	15.20	64.51
140.000	31	26.360	25.567	0.250	25.067	85	1.03	1.21	1.51	1.69	27.95	48.65	103.66	26.567	107.72	15.92	67.66
135.000	30	27.724	27.042	0.250	26.542	85	1.03	1.21	1.50	1.69	27.66	48.15	108.51	28.042	112.52	16.82	71.60
130.000	29	29.309	28.516	0.250	28.016	85	1.03	1.21	1.48	1.69	27.37	47.63	113.20	29.516	117.17	17.73	75.54
125.000	28	30.673	29.991	0.250	29.491	85	1.03	1.21	1.46	1.69	27.08	47.10	117.72	30.991	121.65	18.63	79.48
120.000	27	32.258	31.466	0.250	30.966	85	1.03	1.21	1.45	1.69	26.75	46.56	122.08	32.466	125.96	19.53	83.42
115.000	26	33.622	32.940	0.250	32.440	85	1.03	1.21	1.43	1.69	26.42	46.00	126.26	33.940	130.09	20.43	87.37
113.000	25	34.323	33.291	0.313	32.666	85	1.03	1.21	1.42	1.69	26.29	45.77	126.96	34.291	130.78	20.64	110.17
110.000	24	35.097	34.360	0.313	33.735	85	1.03	1.21	1.41	1.69	26.09	45.41	130.04	35.360	133.82	21.29	113.74
105.000	23	36.387	35.742	0.313	35.117	85	1.03	1.21	1.39	1.69	25.75	44.81	133.48	36.742	137.22	22.14	118.36
100.000	22	37.677	37.032	0.313	36.407	85	1.03	1.21	1.37	1.69	25.39	44.19	136.39	38.032	140.07	22.93	122.67
95.000	21	38.968	38.322	0.313	37.697	85	1.03	1.21	1.35	1.69	25.02	43.55	139.08	39.322	142.71	23.72	126.98
90.000	20	40.258	39.613	0.313	38.988	85	1.03	1.21	1.33	1.69	24.64	42.88	141.56	40.613	145.14	24.50	131.29
85.000	19	41.548	40.903	0.313	40.278	85	1.03	1.21	1.31	1.69	24.24	42.19	143.81	41.903	147.32	25.29	135.60
80.000	18	42.838	42.193	0.313	41.568	85	1.03	1.21	1.29	1.69	23.82	41.46	145.79	43.193	149.25	26.08	139.91
78.500	17	43.225	43.031	0.375	42.281	85	1.03	1.21	1.28	1.69	23.69	41.24	147.89	44.031	151.33	26.59	171.00
75.000	16	43.851	43.538	0.375	42.788	85	1.03	1.21	1.26	1.69	23.39	40.71	147.69	44.538	151.08	26.90	173.03
70.000	15	44.745	44.298	0.375	43.548	85	1.03	1.21	1.24	1.69	22.93	39.91	147.34	45.298	150.66	27.37	176.08
65.000	14	45.639	45.192	0.375	44.442	85	1.03	1.21	1.21	1.69	22.45	39.08	147.16	46.192	150.42	27.91	179.66
60.000	13	46.533	46.086	0.375	45.336	85	1.03	1.21	1.19	1.69	21.94	38.19	146.68	47.086	149.86	28.46	183.25
55.000	12	47.427	46.980	0.375	46.230	85	1.03	1.21	1.16	1.69	21.40	37.26	145.85	47.980	148.96	29.00	186.83
50.000	11	48.321	47.874	0.375	47.124	85	1.03	1.21	1.13	1.69	20.83	36.25	144.64	48.874	147.66	29.55	190.41
45.000	10	49.215	48.768	0.500	47.768	85	1.03	1.21	1.09	1.69	20.21	35.18	142.97	49.768	145.90	30.10	258.00
40.000	9	50.530	49.873	0.500	48.873	85	1.03	1.21	1.06	1.69	19.54	34.02	141.37	50.873	144.20	30.77	263.90
35.000	8	51.845	51.188	0.500	50.188	85	1.03	1.21	1.02	1.69	18.81	32.74	139.66	52.188	142.39	31.57	270.93
30.000	7	53.160	52.503	0.500	51.503	85	1.03	1.21	1.00	1.69	18.50	32.20	140.86	53.503	143.55	32.38	277.96
25.000	6	54.475	53.818	0.500	52.818	85	1.03	1.21	1.00	1.69	18.50	32.20	144.39	54.818	147.08	33.18	284.99
20.000	5	55.790	55.133	0.500	54.133	85	1.03	1.21	1.00	1.69	18.50	32.20	147.92	56.133	150.60	33.98	292.01
15.000	4	57.105	56.448	0.500	55.448	85	1.03	1.21	1.00	1.69	18.50	32.20	151.45	57.448	154.13	34.79	299.04
10.000	3	58.420	57.763	0.500	56.763	85	1.03	1.21	1.00	1.69	18.50	32.20	154.98	58.763	157.66	35.59	306.07
5.000	2	59.735	59.078	0.500	58.078	85	1.03	1.21	1.00	1.69	18.50	32.20	158.50	60.078	161.19	36.39	313.10
0.000	1	61.050	60.393	0.500	59.393	85	1.03	1.21	1.00	1.69	18.50	32.20	162.03	61.393	164.72	37.20	320.13

URS Greiner Woodward Clyde

Job	Madison Police statior		
Description	Madison		

Project No.		sheet	of
Computed by	M. Sahirad	Date	01-Dec-99
Checked by		Date	

50 mph used for deflection only

Connecticut Town of	Madison		
Importance Factor	III	1.210	
wind Velocity mph V=	85	use ⟶	50
Cf for round member Cf=	1.030		
is member tubular	y		
For tubular pole Gh=	1.690		

Shaft section	section length	Diameter Across flats(inches) @ Top	@ Bot	section thickness
1	35.00	24.000	34.323	0.2500
2	34.50	34.323	43.225	0.3125
3	33.50	43.225	49.215	0.3750
4	45.00	49.215	61.050	0.5000

Height ft	Member NO.	actual OD	Ave. diam. in OD	Thickness in	Ave. diam. in ID	Wind Speed mph	Cf	I	Kz	Gh	Qz	Fo psf	Wind on Structure Wo plf	Ave.diam.+1" For ice inch	Wind on Ice With Struct, Wi plf	Dead Load of Ice/ lb/ft	Dead Load of Mast/ lb/ft
150.000	34	23.299															
148.000	33	24.000	23.650	0.250	23.150	50	1.03	1.21	1.54	1.69	9.83	17.10	33.71	24.650	35.14	14.75	62.54
145.000	32	24.774	24.387	0.250	23.887	50	1.03	1.21	1.53	1.69	9.77	17.00	34.56	25.387	35.98	15.20	64.51
140.000	31	26.360	25.567	0.250	25.067	50	1.03	1.21	1.51	1.69	9.67	16.84	35.87	26.567	37.27	15.92	67.66
135.000	30	27.724	27.042	0.250	26.542	50	1.03	1.21	1.50	1.69	9.57	16.66	37.55	28.042	38.93	16.82	71.60
130.000	29	29.309	28.516	0.250	28.016	50	1.03	1.21	1.48	1.69	9.47	16.48	39.17	29.516	40.54	17.73	75.54
125.000	28	30.673	29.991	0.250	29.491	50	1.03	1.21	1.46	1.69	9.36	16.30	40.74	30.991	42.09	18.63	79.48
120.000	27	32.258	31.466	0.250	30.966	50	1.03	1.21	1.45	1.69	9.25	16.11	42.24	32.466	43.59	19.53	83.42
115.000	26	33.622	32.940	0.250	32.440	50	1.03	1.21	1.43	1.69	9.14	15.92	43.69	33.940	45.01	20.43	87.37
113.000	25	34.323	33.291	0.313	32.666	50	1.03	1.21	1.42	1.69	9.10	15.84	43.93	34.291	45.25	20.64	110.17
110.000	24	35.097	34.360	0.313	33.735	50	1.03	1.21	1.41	1.69	9.03	15.71	45.00	35.360	46.30	21.29	113.74
105.000	23	36.387	35.742	0.313	35.117	50	1.03	1.21	1.39	1.69	8.91	15.51	46.19	36.742	47.48	22.14	118.36
100.000	22	37.677	37.032	0.313	36.407	50	1.03	1.21	1.37	1.69	8.79	15.29	47.19	38.032	48.47	22.93	122.67
95.000	21	38.968	38.322	0.313	37.697	50	1.03	1.21	1.35	1.69	8.66	15.07	48.13	39.322	49.38	23.72	126.98
90.000	20	40.258	39.613	0.313	38.988	50	1.03	1.21	1.33	1.69	8.52	14.84	48.98	40.613	50.22	24.50	131.29
85.000	19	41.548	40.903	0.313	40.278	50	1.03	1.21	1.31	1.69	8.39	14.60	49.76	41.903	50.98	25.29	135.60
80.000	18	42.838	42.193	0.313	41.568	50	1.03	1.21	1.29	1.69	8.24	14.35	50.45	43.193	51.64	26.08	139.91
78.500	17	43.225	43.031	0.375	42.281	50	1.03	1.21	1.28	1.69	8.20	14.27	51.17	44.031	52.36	26.59	171.00
75.000	16	43.851	43.538	0.375	42.788	50	1.03	1.21	1.26	1.69	8.09	14.09	51.10	44.538	52.28	26.90	173.03
70.000	15	44.745	44.298	0.375	43.548	50	1.03	1.21	1.24	1.69	7.93	13.81	50.98	45.298	52.13	27.37	176.08
65.000	14	45.639	45.192	0.375	44.442	50	1.03	1.21	1.21	1.69	7.77	13.52	50.92	46.192	52.05	27.91	179.66
60.000	13	46.533	46.086	0.375	45.336	50	1.03	1.21	1.19	1.69	7.59	13.22	50.75	47.086	51.86	28.46	183.25
55.000	12	47.427	46.980	0.375	46.230	50	1.03	1.21	1.16	1.69	7.41	12.89	50.47	47.980	51.54	29.00	186.83
50.000	11	48.321	47.874	0.375	47.124	50	1.03	1.21	1.13	1.69	7.21	12.54	50.05	48.874	51.09	29.55	190.41
45.000	10	49.215	48.768	0.500	47.768	50	1.03	1.21	1.09	1.69	6.99	12.17	49.47	49.768	50.48	30.10	258.00
40.000	9	50.530	49.873	0.500	48.873	50	1.03	1.21	1.06	1.69	6.76	11.77	48.92	50.873	49.90	30.77	263.90
35.000	8	51.845	51.188	0.500	50.188	50	1.03	1.21	1.02	1.69	6.51	11.33	48.33	52.188	49.27	31.57	270.93
30.000	7	53.160	52.503	0.500	51.503	50	1.03	1.21	1.00	1.69	6.40	11.14	48.74	53.503	49.67	32.38	277.96
25.000	6	54.475	53.818	0.500	52.818	50	1.03	1.21	1.00	1.69	6.40	11.14	49.96	54.818	50.89	33.18	284.99
20.000	5	55.790	55.133	0.500	54.133	50	1.03	1.21	1.00	1.69	6.40	11.14	51.18	56.133	52.11	33.98	292.01
15.000	4	57.105	56.448	0.500	55.448	50	1.03	1.21	1.00	1.69	6.40	11.14	52.40	57.448	53.33	34.79	299.04
10.000	3	58.420	57.763	0.500	56.763	50	1.03	1.21	1.00	1.69	6.40	11.14	53.63	58.763	54.55	35.59	306.07
5.000	2	59.735	59.078	0.500	58.078	50	1.03	1.21	1.00	1.69	6.40	11.14	54.85	60.078	55.77	36.39	313.10
0.000	1	61.050	60.393	0.500	59.393	50	1.03	1.21	1.00	1.69	6.40	11.14	56.07	61.393	57.00	37.20	320.13

URS Greiner Woodward Clyde

		Page	of
Project No.		sheet	of
Computed by	M. Sahirad	Date	01-Dec-99
Checked by		Date	

Job Description: Madison Police station, Madison

1 5/8" Cable

Connecticut Town of	Madison			Reference
Importance Factor	III	1.210		
wind Velocity mph V=	85	use →	85	
Cf for round member Cf=	1.030			
is member tubular	y			
For tubular pole Gh=	1.690			

Shaft section	section length	Diameter Across flats(inches) @ Top	@ Bot	section thickness	Cable weight lb/ft
1	35.00	1.625	1.625	1.6250	0.5
2	34.50	1.625	1.625	1.6250	0.5
3	33.50	1.625	1.625	1.6250	0.5
4	45.00	1.625	1.625	1.6250	0.5

Height ft	Member NO.		Ave. diam. In OD	Thickness in	Ave. diam. in ID	Wind Speed mph	Cf	I	Kz	Gh	Qz	Fo psf	Wind on Structure Wo plf	Ave.diam.+1" For ice inch	Wind on Ice With Struct, Wi plf	Dead Load of Ice/ lb/ft	Dead Load 1 5/8 cable lb/ft
150.000	34	1.625															
148.000	33	1.625	1.625	1.625	1.625	85	1.03	1.21	1.54	1.69	28.40	49.43	6.69	2.625	10.81	1.30	0.50
145.000	32	1.625	1.625	1.625	1.625	85	1.03	1.21	1.53	1.69	28.23	49.14	6.65	2.625	10.75	1.30	0.50
140.000	31	1.625	1.625	1.625	1.625	85	1.03	1.21	1.51	1.69	27.95	48.65	6.59	2.625	10.64	1.30	0.50
135.000	30	1.625	1.625	1.625	1.625	85	1.03	1.21	1.50	1.69	27.66	48.15	6.52	2.625	10.53	1.30	0.50
130.000	29	1.625	1.625	1.625	1.625	85	1.03	1.21	1.48	1.69	27.37	47.63	6.45	2.625	10.42	1.30	0.50
125.000	28	1.625	1.625	1.625	1.625	85	1.03	1.21	1.46	1.69	27.06	47.10	6.38	2.625	10.30	1.30	0.50
120.000	27	1.625	1.625	1.625	1.625	85	1.03	1.21	1.45	1.69	26.75	46.56	6.30	2.625	10.18	1.30	0.50
115.000	26	1.625	1.625	1.625	1.625	85	1.03	1.21	1.43	1.69	26.42	46.00	6.23	2.625	10.06	1.30	0.50
113.000	25	1.625	1.625	1.625	1.625	85	1.03	1.21	1.42	1.69	26.29	45.77	6.20	2.625	10.01	1.30	0.50
110.000	24	1.625	1.625	1.625	1.625	85	1.03	1.21	1.41	1.69	26.09	45.41	6.15	2.625	9.93	1.30	0.50
105.000	23	1.625	1.625	1.625	1.625	85	1.03	1.21	1.39	1.69	25.75	44.81	6.07	2.625	9.80	1.30	0.50
100.000	22	1.625	1.625	1.625	1.625	85	1.03	1.21	1.37	1.69	25.39	44.19	5.98	2.625	9.67	1.30	0.50
95.000	21	1.625	1.625	1.625	1.625	85	1.03	1.21	1.35	1.69	25.02	43.55	5.90	2.625	9.53	1.30	0.50
90.000	20	1.625	1.625	1.625	1.625	85	1.03	1.21	1.33	1.69	24.64	42.88	5.81	2.625	9.38	1.30	0.50
85.000	19	1.625	1.625	1.625	1.625	85	1.03	1.21	1.31	1.69	24.24	42.19	5.71	2.625	9.23	1.30	0.50
80.000	18	1.625	1.625	1.625	1.625	85	1.03	1.21	1.29	1.69	23.82	41.46	5.62	2.625	9.07	1.30	0.50
78.500	17	1.625	1.625	1.625	1.625	85	1.03	1.21	1.28	1.69	23.69	41.24	5.58	2.625	9.02	1.30	0.50
75.000	16	1.625	1.625	1.625	1.625	85	1.03	1.21	1.26	1.69	23.39	40.71	5.51	2.625	8.90	1.30	0.50
70.000	15	1.625	1.625	1.625	1.625	85	1.03	1.21	1.24	1.69	22.93	39.91	5.40	2.625	8.73	1.30	0.50
65.000	14	1.625	1.625	1.625	1.625	85	1.03	1.21	1.21	1.69	22.45	39.08	5.29	2.625	8.55	1.30	0.50
60.000	13	1.625	1.625	1.625	1.625	85	1.03	1.21	1.19	1.69	21.94	38.19	5.17	2.625	8.35	1.30	0.50
55.000	12	1.625	1.625	1.625	1.625	85	1.03	1.21	1.16	1.69	21.40	37.26	5.04	2.625	8.15	1.30	0.50
50.000	11	1.625	1.625	1.625	1.625	85	1.03	1.21	1.13	1.69	20.83	36.25	4.91	2.625	7.93	1.30	0.50
45.000	10	1.625	1.625	1.625	1.625	85	1.03	1.21	1.09	1.69	20.21	35.18	4.76	2.625	7.70	1.30	0.50
40.000	9	1.625	1.625	1.625	1.625	85	1.03	1.21	1.06	1.69	19.54	34.02	4.61	2.625	7.44	1.30	0.50
35.000	8	1.625	1.625	1.625	1.625	85	1.03	1.21	1.02	1.69	18.81	32.74	4.43	2.625	7.16	1.30	0.50
30.000	7	1.625	1.625	1.625	1.625	85	1.03	1.21	1.00	1.69	18.50	32.20	4.36	2.625	7.04	1.30	0.50
25.000	6	1.625	1.625	1.625	1.625	85	1.03	1.21	1.00	1.69	18.50	32.20	4.36	2.625	7.04	1.30	0.50
20.000	5	1.625	1.625	1.625	1.625	85	1.03	1.21	1.00	1.69	18.50	32.20	4.36	2.625	7.04	1.30	0.50
15.000	4	1.625	1.625	1.625	1.625	85	1.03	1.21	1.00	1.69	18.50	32.20	4.36	2.625	7.04	1.30	0.50
10.000	3	1.625	1.625	1.625	1.625	85	1.03	1.21	1.00	1.69	18.50	32.20	4.36	2.625	7.04	1.30	0.50
5.000	2	1.625	1.625	1.625	1.625	85	1.03	1.21	1.00	1.69	18.50	32.20	4.36	2.625	7.04	1.30	0.50
0.000	1	1.625	1.625	1.625	1.625	85	1.03	1.21	1.00	1.69	18.50	32.20	4.36	2.625	7.04	1.30	0.50

URS Greiner Woodward Clyde

		Page	of
Project No.		sheet	of
Computed by	M. Sahirad	Date	01-Dec-99
Checked by		Date	

Job Madison Police station
Description Madison

1 5/8" Cable

50 mph used for deflection only

Connecticut Town of		Madison		Reference
Importance Factor		III	1.210	
wind Velocity mph V=		85	use →	50
Cf for round member Cf=		1.030		
is member tubular		y		
For tubular pole Gh=		1.690		

Shaft section	section length	Diameter Across flats(inches) @ Top	@ Bot	section thickness	Cable weight lb/ft
1	35.00	1.625	1.625	1.6250	0.5
2	34.50	1.625	1.625	1.6250	0.5
3	33.50	1.625	1.625	1.6250	0.5
4	45.00	1.625	1.625	1.6250	0.5

Height ft	Member NO.		Ave. diam. in OD	Thickness in	Ave. diam. in ID	Wind Speed mph	Cf	I	Kz	Gh	Qz	Fo psf	Wind on Structure Wo plf	Ave.diam.+1" For ice inch	Wind on Ice With Struct, Wi plf	Dead Load of Ice/ lb/ft	Dead Load 1 5/8 cable lb/ft
150.000	34	1.625															
148.000	33	1.625	1.625	1.625	1.625	50	1.03	1.21	1.54	1.69	9.83	17.10	2.32	2.625	3.74	1.30	0.50
145.000	32	1.625	1.625	1.625	1.625	50	1.03	1.21	1.53	1.69	9.77	17.00	2.30	2.625	3.72	1.30	0.50
140.000	31	1.625	1.625	1.625	1.625	50	1.03	1.21	1.51	1.69	9.67	16.84	2.28	2.625	3.68	1.30	0.50
135.000	30	1.625	1.625	1.625	1.625	50	1.03	1.21	1.50	1.69	9.57	16.66	2.26	2.625	3.64	1.30	0.50
130.000	29	1.625	1.625	1.625	1.625	50	1.03	1.21	1.48	1.69	9.47	16.48	2.23	2.625	3.61	1.30	0.50
125.000	28	1.625	1.625	1.625	1.625	50	1.03	1.21	1.46	1.69	9.36	16.30	2.21	2.625	3.57	1.30	0.50
120.000	27	1.625	1.625	1.625	1.625	50	1.03	1.21	1.45	1.69	9.25	16.11	2.18	2.625	3.52	1.30	0.50
115.000	26	1.625	1.625	1.625	1.625	50	1.03	1.21	1.43	1.69	9.14	15.92	2.16	2.625	3.48	1.30	0.50
113.000	25	1.625	1.625	1.625	1.625	50	1.03	1.21	1.42	1.69	9.10	15.84	2.14	2.625	3.46	1.30	0.50
110.000	24	1.625	1.625	1.625	1.625	50	1.03	1.21	1.41	1.69	9.03	15.71	2.13	2.625	3.44	1.30	0.50
105.000	23	1.625	1.625	1.625	1.625	50	1.03	1.21	1.39	1.69	8.91	15.51	2.10	2.625	3.39	1.30	0.50
100.000	22	1.625	1.625	1.625	1.625	50	1.03	1.21	1.37	1.69	8.79	15.29	2.07	2.625	3.35	1.30	0.50
95.000	21	1.625	1.625	1.625	1.625	50	1.03	1.21	1.35	1.69	8.66	15.07	2.04	2.625	3.30	1.30	0.50
90.000	20	1.625	1.625	1.625	1.625	50	1.03	1.21	1.33	1.69	8.52	14.84	2.01	2.625	3.25	1.30	0.50
85.000	19	1.625	1.625	1.625	1.625	50	1.03	1.21	1.31	1.69	8.39	14.60	1.98	2.625	3.19	1.30	0.50
80.000	18	1.625	1.625	1.625	1.625	50	1.03	1.21	1.29	1.69	8.24	14.35	1.94	2.625	3.14	1.30	0.50
78.500	17	1.625	1.625	1.625	1.625	50	1.03	1.21	1.28	1.69	8.20	14.27	1.93	2.625	3.12	1.30	0.50
75.000	16	1.625	1.625	1.625	1.625	50	1.03	1.21	1.26	1.69	8.09	14.09	1.91	2.625	3.08	1.30	0.50
70.000	15	1.625	1.625	1.625	1.625	50	1.03	1.21	1.24	1.69	7.93	13.81	1.87	2.625	3.02	1.30	0.50
65.000	14	1.625	1.625	1.625	1.625	50	1.03	1.21	1.21	1.69	7.77	13.52	1.83	2.625	2.96	1.30	0.50
60.000	13	1.625	1.625	1.625	1.625	50	1.03	1.21	1.19	1.69	7.59	13.22	1.79	2.625	2.89	1.30	0.50
55.000	12	1.625	1.625	1.625	1.625	50	1.03	1.21	1.16	1.69	7.41	12.89	1.75	2.625	2.82	1.30	0.50
50.000	11	1.625	1.625	1.625	1.625	50	1.03	1.21	1.13	1.69	7.21	12.54	1.70	2.625	2.74	1.30	0.50
45.000	10	1.625	1.625	1.625	1.625	50	1.03	1.21	1.09	1.69	6.99	12.17	1.65	2.625	2.66	1.30	0.50
40.000	9	1.625	1.625	1.625	1.625	50	1.03	1.21	1.06	1.69	6.76	11.77	1.59	2.625	2.57	1.30	0.50
35.000	8	1.625	1.625	1.625	1.625	50	1.03	1.21	1.02	1.69	6.51	11.33	1.53	2.625	2.48	1.30	0.50
30.000	7	1.625	1.625	1.625	1.625	50	1.03	1.21	1.00	1.69	6.40	11.14	1.51	2.625	2.44	1.30	0.50
25.000	6	1.625	1.625	1.625	1.625	50	1.03	1.21	1.00	1.69	6.40	11.14	1.51	2.625	2.44	1.30	0.50
20.000	5	1.625	1.625	1.625	1.625	50	1.03	1.21	1.00	1.69	6.40	11.14	1.51	2.625	2.44	1.30	0.50
15.000	4	1.625	1.625	1.625	1.625	50	1.03	1.21	1.00	1.69	6.40	11.14	1.51	2.625	2.44	1.30	0.50
10.000	3	1.625	1.625	1.625	1.625	50	1.03	1.21	1.00	1.69	6.40	11.14	1.51	2.625	2.44	1.30	0.50
5.000	2	1.625	1.625	1.625	1.625	50	1.03	1.21	1.00	1.69	6.40	11.14	1.51	2.625	2.44	1.30	0.50
0.000	1	1.625	1.625	1.625	1.625	50	1.03	1.21	1.00	1.69	6.40	11.14	1.51	2.625	2.44	1.30	0.50

URS Greiner Woodward Clyde

Job Description: Madison Police Station
Connecticut Town of: Madison
Project No.
Computed by: M. Sahirad
Checked by
Page: sheet
of
Date: 02-Dec-99
Date

wind Velocity mph V= 85 use mph→ 85

Antenna and Platform Type and Model	Telecom CO.	Z Height above ground ft	no. antenna	Dead of each antenna with no ice Each	Projected area net Aa ft^2	Projected area net w/ Ice ft^2	Length L	Width W	Is member flat y or n	CA	Wind Speed mph	Kz	is member tubular y or n	Gh	Qz	Thrust Fx no ice lb	Thrust Fx lb with ice	Total Dead Load OF Antenna no ice	Total Dead Load OF Antenna with ice
SWEDCOM ALP-9212-N	NEXTEL	148.00	12.00	26.70	49.40	54.77	52.00	11.40	Y	1.40	85.00	1.54	Y	1.69	28.40	3320.00	3680.00	320.40	385.00
14' Low Profile Platform	NEXTEL	148.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	85.00	1.54	Y	1.69	28.40	1944.00	2431.00	1300.00	2100.00
SWEDCOM ALP-9212-N	BAM	140.00	12.00	26.70	49.40	54.77	52.00	11.40	Y	1.40	85.00	1.51	Y	1.69	27.95	3267.00	3622.00	320.40	385.00
14' Low Profile Platform	BAM	140.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	85.00	1.51	Y	1.69	27.95	1914.00	2393.00	1300.00	2100.00
SWEDCOM ALP-9212-N	SNET	130.00	12.00	26.70	49.40	54.77	52.00	11.40	Y	1.40	85.00	1.48	Y	1.69	27.37	3199.00	3546.00	320.40	385.00
14' Low Profile Platform	SNET	130.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	85.00	1.48	Y	1.69	27.37	1874.00	2342.00	1300.00	2100.00
SWEDCOM ALP-9212-N	OMNIPOINT	120.00	9.00	26.70	37.05	41.08	52.00	11.40	Y	1.40	85.00	1.45	Y	1.69	26.75	2345.00	2600.00	240.30	289.00
14' Low Profile Platform	OMNIPOINT	120.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	85.00	1.45	Y	1.69	26.75	1831.00	2290.00	1300.00	2100.00
Allgon 7184.14	AT&T	110.00	12.00	9.80	49.40	54.77	52.00	11.40	Y	1.40	85.00	1.41	Y	1.69	26.09	3050.00	3381.00	117.60	142.00
14' Low Profile Platform	AT&T	110.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	85.00	1.41	Y	1.69	26.09	1786.00	2233.00	1300.00	2100.00
10' Whip	TOWN	100.00	3.00	25.00	6.00	9.06	144.00	2.00	Y	2.00	85.00	1.37	Y	1.69	25.39	515.00	778.00	75.00	90.00
6' Side Arm Mount	TOWN	100.00	3.00	200.00	12.84	14.55	72.50	8.50	Y	1.68	85.00	1.37	Y	1.69	25.39	928.00	1052.00	600.00	720.00
10' Whip	TOWN	90.00	3.00	25.00	6.00	9.06	144.00	2.00	Y	2.00	85.00	1.33	Y	1.69	24.64	500.00	755.00	75.00	90.00
6' Side Arm Mount	TOWN	90.00	3.00	200.00	12.84	14.55	72.50	8.50	Y	1.68	85.00	1.33	Y	1.69	24.64	901.00	1021.00	600.00	720.00

wind Velocity mph V= 50

Antenna and Platform Type and Model	Telecom CO.	Z Height above ground ft	no. antenna	Dead of each antenna with no ice Each	Projected area net Aa ft^2	Projected area net w/ Ice ft^2	Length L	Width W	Is member flat y or n	CA	Wind Speed mph	Kz	is member tubular y or n	Gh	Qz	Thrust Fx no ice lb
SWEDCOM ALP-9212-N	NEXTEL	148.00	12.00	26.70	49.40	54.77	52.00	11.40	Y	1.40	50.00	1.54	Y	1.69	9.83	1149.00
14' Low Profile Platform	NEXTEL	148.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	50.00	1.54	Y	1.69	9.83	673.00
SWEDCOM ALP-9212-N	BAM	140.00	12.00	26.70	49.40	54.77	52.00	11.40	Y	1.40	50.00	1.51	Y	1.69	9.67	1131.00
14' Low Profile Platform	BAM	140.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	50.00	1.51	Y	1.69	9.67	662.00
SWEDCOM ALP-9212-N	SNET	130.00	12.00	26.70	49.40	54.77	52.00	11.40	Y	1.40	50.00	1.48	Y	1.69	9.47	1107.00
14' Low Profile Platform	SNET	130.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	50.00	1.48	Y	1.69	9.47	649.00
SWEDCOM ALP-9212-N	OMNIPOINT	120.00	9.00	26.70	37.05	41.08	52.00	11.40	Y	1.40	50.00	1.45	Y	1.69	9.25	812.00
14' Low Profile Platform	OMNIPOINT	120.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	50.00	1.45	Y	1.69	9.25	634.00
Allgon 7184.14	AT&T	110.00	12.00	9.80	49.40	54.77	52.00	11.40	Y	1.40	50.00	1.41	Y	1.69	9.03	1056.00
14' Low Profile Platform	AT&T	110.00	1.00	1300.00	33.75	42.20	161.00	6.00	N	1.20	50.00	1.41	Y	1.69	9.03	618.00
10' Whip	TOWN	100.00	3.00	25.00	6.00	9.06	144.00	2.00	Y	2.00	50.00	1.37	Y	1.69	8.79	179.00
6' Side Arm Mount	TOWN	100.00	3.00	200.00	12.84	14.55	72.50	8.50	Y	1.68	50.00	1.37	Y	1.69	8.79	322.00
10' Whip	TOWN	90.00	3.00	25.00	6.00	9.06	144.00	2.00	Y	2.00	50.00	1.33	Y	1.69	8.52	173.00
6' Side Arm Mount	TOWN	90.00	3.00	200.00	12.84	14.55	72.50	8.50	Y	1.68	50.00	1.33	Y	1.69	8.52	312.00

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*****************************************************
*                                                   *
*           STAAD/Pro STAAD-III                     *
*           Revision 3.1                            *
*           Proprietary Program of                  *
*           RESEARCH ENGINEERS, Inc.                *
*           Date=    DEC  2, 1999                   *
*           Time=    11:10:59                       *
*                                                   *
*      USER ID: URS Greiner                         *
*****************************************************
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 1. STAAD SPACE 148' MAST 85 MPH MADISON, CT.
 2. START JOB INFORMATION
 3. JOB NAME MADISON POLICE STATION
 4. JOB CLIENT SPECTRA
 5. JOB NO F300001896.00/00F04
 6. ENGINEER NAME M.SAHIRAD
 7. ENGINEER DATE 12/2/99
 8. END JOB INFORMATION
 9. INPUT WIDTH 72
10. UNIT FEET KIP
11. JOINT COORDINATES
12. 1 0 0 0; 2 0 5 0; 3 0 10 0; 4 0 15 0; 5 0 20 0; 6 0 25 0; 7 0 30 0
13. 8 0 35 0; 9 0 40 0; 10 0 45 0; 11 0 50 0; 12 0 55 0; 13 0 60 0
14. 14 0 65 0; 15 0 70 0; 16 0 75 0; 17 0 78.5 0; 18 0 80 0; 19 0 85 0
15. 20 0 90 0; 21 0 95 0; 22 0 100 0; 23 0 105 0; 24 0 110 0; 25 0 113 0
16. 26 0 115 0; 27 0 120 0; 28 0 125 0; 29 0 130 0; 30 0 135 0; 31 0 140 0
17. 32 0 145 0; 33 0 148 0
18. MEMBER INCIDENCES
19. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10
20. 10 10 11; 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 15 16; 16 16 17
21. 17 17 18; 18 18 19; 19 19 20; 20 20 21; 21 21 22; 22 22 23; 23 23 24
22. 24 24 25; 25 25 26; 26 26 27; 27 27 28; 28 28 29; 29 29 30; 30 30 31
23. 31 31 32; 32 32 33
24. UNIT INCHES KIP
25. MEMBER PROPERTY AMERICAN
26. 1 TABLE ST PIPE OD 60.393 ID 59.393
27. 2 TABLE ST PIPE OD 59.078 ID 58.078
28. 3 TABLE ST PIPE OD 57.763 ID 56.763
29. 4 TABLE ST PIPE OD 56.448 ID 55.448
30. 5 TABLE ST PIPE OD 55.133 ID 54.133
31. 6 TABLE ST PIPE OD 53.818 ID 52.818
32. 7 TABLE ST PIPE OD 52.503 ID 51.503
33. 8 TABLE ST PIPE OD 51.188 ID 50.188
34. 9 TABLE ST PIPE OD 49.873 ID 48.873
35. 10 TABLE ST PIPE OD 48.768 ID 47.768
36. 11 TABLE ST PIPE OD 47.874 ID 47.124
37. 12 TABLE ST PIPE OD 46.98 ID 46.23
38. 13 TABLE ST PIPE OD 46.086 ID 45.336
39. 14 TABLE ST PIPE OD 45.192 ID 44.442
40. 15 TABLE ST PIPE OD 44.298 ID 43.548
41. 16 TABLE ST PIPE OD 43.538 ID 42.788
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42. 17 TABLE ST PIPE OD 43.031 ID 42.281
43. 18 TABLE ST PIPE OD 42.193 ID 41.568
44. 19 TABLE ST PIPE OD 40.903 ID 40.278
45. 20 TABLE ST PIPE OD 39.613 ID 38.988
46. 21 TABLE ST PIPE OD 38.322 ID 37.697
47. 22 TABLE ST PIPE OD 37.032 ID 36.407
48. 23 TABLE ST PIPE OD 35.742 ID 35.117
49. 24 TABLE ST PIPE OD 34.36 ID 33.735
50. 25 TABLE ST PIPE OD 33.291 ID 32.666
51. 26 TABLE ST PIPE OD 32.94 ID 32.44
52. 27 TABLE ST PIPE OD 31.466 ID 30.966
53. 28 TABLE ST PIPE OD 29.991 ID 29.491
54. 29 TABLE ST PIPE OD 28.516 ID 28.016
55. 30 TABLE ST PIPE OD 27.042 ID 26.542
56. 31 TABLE ST PIPE OD 25.567 ID 25.067
57. 32 TABLE ST PIPE OD 24.387 ID 23.887
58. SUPPORTS
59. 1 FIXED
60. CONSTANTS
61. E 29000 ALL
62. POISSON 0.3 ALL
63. DENSITY 0.000283 ALL
64. ALPHA 6.5E-006 ALL
65. UNIT FEET POUND
66. LOAD 10 MAST DEADLOAD
67. MEMBER LOAD
68. 1 UNI GY -320.13
69. 2 UNI GY -313.1
70. 3 UNI GY -306.07
71. 4 UNI GY -299.04
72. 5 UNI GY -292.04
73. 6 UNI GY -284.99
74. 7 UNI GY -277.96
75. 8 UNI GY -270.93
76. 9 UNI GY -263.9
77. 10 UNI GY -258
78. 11 UNI GY -190.41
79. 12 UNI GY -186.83
80. 13 UNI GY -183.25
81. 14 UNI GY -179.66
82. 15 UNI GY -176.08
83. 16 UNI GY -173.03
84. 17 UNI GY -171
85. 18 UNI GY -139.91
86. 19 UNI GY -135.6
87. 20 UNI GY -131.29
88. 21 UNI GY -126.98
89. 22 UNI GY -122.67
90. 23 UNI GY -118.36
91. 24 UNI GY -113.74
92. 25 UNI GY -110.17
93. 26 UNI GY -87.37
94. 27 UNI GY -83.42
95. 28 UNI GY -79.48
96. 29 UNI GY -75.54
97. 30 UNI GY -71.6
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 98. 31 UNI GY -67.66
 99. 32 UNI GY -64.51
100. *ICE DEAD LOAD ON MAST
101. LOAD 20 ICE DEADLOAD ON MAST
102. MEMBER LOAD
103. 1 UNI GY -37.2
104. 2 UNI GY -36.39
105. 3 UNI GY -35.59
106. 4 UNI GY -34.79
107. 5 UNI GY -33.98
108. 6 UNI GY -33.18
109. 7 UNI GY -32.38
110. 8 UNI GY -31.57
111. 9 UNI GY -30.77
112. 10 UNI GY -30.1
113. 11 UNI GY -29.55
114. 12 UNI GY -29
115. 13 UNI GY -28.46
116. 14 UNI GY -27.91
117. 15 UNI GY -27.37
118. 16 UNI GY -26.9
119. 17 UNI GY -26.59
120. 18 UNI GY -26.08
121. 19 UNI GY -25.29
122. 20 UNI GY -24.5
123. 21 UNI GY -23.72
124. 22 UNI GY -22.93
125. 23 UNI GY -22.14
126. 24 UNI GY -21.29
127. 25 UNI GY -20.64
128. 26 UNI GY -20.43
129. 27 UNI GY -19.53
130. 28 UNI GY -18.63
131. 29 UNI GY -17.73
132. 30 UNI GY -16.82
133. 31 UNI GY -15.92
134. 32 UNI GY -15.2
135. *WIND ON MAST STRUCTURE WITH ICE 85 MPH WIND
136. LOAD 30
137. MEMBER LOAD
138. 1 UNI GX 164.72
139. 2 UNI GX 161.19
140. 3 UNI GX 157.66
141. 4 UNI GX 154.13
142. 5 UNI GX 150.6
143. 6 UNI GX 147.08
144. 7 UNI GX 143.55
145. 8 UNI GX 142.39
146. 9 UNI GX 144.2
147. 10 UNI GX 145.9
148. 11 UNI GX 147.66
149. 12 UNI GX 148.96
150. 13 UNI GX 149.86
151. 14 UNI GX 150.42
152. 15 UNI GX 150.66
153. 16 UNI GX 151.08
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154. 17 UNI GX 151.33
155. 18 UNI GX 149.25
156. 19 UNI GX 147.32
157. 20 UNI GX 145.14
158. 21 UNI GX 142.71
159. 22 UNI GX 140.07
160. 23 UNI GX 137.22
161. 24 UNI GX 133.82
162. 25 UNI GX 130.78
163. 26 UNI GX 130.09
164. 27 UNI GX 125.96
165. 28 UNI GX 121.65
166. 29 UNI GX 117.17
167. 30 UNI GX 112.52
168. 31 UNI GX 107.72
169. 32 UNI GX 103.97
170. *WIND ON MAST STRUCTURE WITHOUT ICE 85 MPH
171. LOAD 40
172. MEMBER LOAD
173. 1 UNI GX 162.03
174. 2 UNI GX 158.5
175. 3 UNI GX 154.98
176. 4 UNI GX 151.45
177. 5 UNI GX 147.92
178. 6 UNI GX 144.39
179. 7 UNI GX 140.86
180. 8 UNI GX 139.66
181. 9 UNI GX 141.37
182. 10 UNI GX 142.97
183. 11 UNI GX 144.64
184. 12 UNI GX 145.85
185. 13 UNI GX 146.68
186. 14 UNI GX 147.16
187. 15 UNI GX 147.34
188. 16 UNI GX 147.69
189. 17 UNI GX 147.89
190. 18 UNI GX 145.79
191. 19 UNI GX 143.81
192. 20 UNI GX 141.56
193. 21 UNI GX 139.08
194. 22 UNI GX 136.39
195. 23 UNI GX 133.48
196. 24 UNI GX 130.04
197. 25 UNI GX 126.96
198. 26 UNI GX 126.26
199. 27 UNI GX 122.08
200. 28 UNI GX 117.72
201. 29 UNI GX 113.2
202. 30 UNI GX 108.51
203. 31 UNI GX 103.66
204. 32 UNI GX 99.87
205. *WIND ON MAST STRUCTURE WITHOUT ICE 50 MPH FOR DEFLECTION
206. LOAD 50
207. MEMBER LOAD
208. 1 UNI GX 56.07
209. 2 UNI GX 54.85
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210. 3 UNI GX 53.63
211. 4 UNI GX 52.4
212. 5 UNI GX 51.18
213. 6 UNI GX 49.96
214. 7 UNI GX 48.74
215. 8 UNI GX 48.33
216. 9 UNI GX 48.92
217. 10 UNI GX 49.74
218. 11 UNI GX 50.05
219. 12 UNI GX 50.47
220. 13 UNI GX 50.75
221. 14 UNI GX 50.92
222. 15 UNI GX 50.98
223. 16 UNI GX 51.1
224. 17 UNI GX 51.17
225. 18 UNI GX 50.45
226. 19 UNI GX 49.76
227. 20 UNI GX 48.98
228. 21 UNI GX 48.13
229. 22 UNI GX 47.19
230. 23 UNI GX 46.19
231. 24 UNI GX 45
232. 25 UNI GX 43.93
233. 26 UNI GX 43.69
234. 27 UNI GX 42.24
235. 28 UNI GX 40.74
236. 29 UNI GX 39.17
237. 30 UNI GX 37.55
238. 31 UNI GX 35.87
239. 32 UNI GX 34.56
240. *DEAD LOAD OF 1 5/8 CABLE
241. LOAD 60 DEADLOAD OF CABLE
242. MEMBER LOAD
243. 1 TO 32 UNI GY -6
244. 1 TO 30 UNI GY -6
245. 1 TO 28 UNI GY -6
246. 1 TO 26 UNI GY -6
247. 1 TO 23 UNI GY -6
248. 1 TO 21 UNI GY -6
249. 1 TO 19 UNI GY -6
250. ******************WIND ON 1 5/8" CABLE WITHOUT ICE 85 MPH
251. LOAD 70
252. MEMBER LOAD
253. 1 UNI GX 4.36
254. 2 UNI GX 4.36
255. 3 UNI GX 4.36
256. 4 UNI GX 4.36
257. 5 UNI GX 4.36
258. 6 UNI GX 4.36
259. 7 UNI GX 4.36
260. 8 UNI GX 4.43
261. 9 UNI GX 4.61
262. 10 UNI GX 4.76
263. 11 UNI GX 4.91
264. 12 UNI GX 5.04
265. 13 UNI GX 5.17
```

```
266. 14 UNI GX 5.29
267. 15 UNI GX 5.4
268. 16 UNI GX 5.51
269. 17 UNI GX 5.58
270. 18 UNI GX 5.62
271. 19 UNI GX 5.71
272. 20 UNI GX 5.81
273. 21 UNI GX 5.9
274. 22 UNI GX 5.98
275. 23 UNI GX 6.07
276. 24 UNI GX 6.15
277. 25 UNI GX 6.2
278. 26 UNI GX 6.23
279. 27 UNI GX 6.3
280. 28 UNI GX 6.38
281. 29 UNI GX 6.45
282. 30 UNI GX 6.52
283. 31 UNI GX 6.59
284. 32 UNI GX 6.65
285. ******************WIND ON 1 5/8" CABLE WITH ICE 85 MPH
286. LOAD 80
287. MEMBER LOAD
288. 1 UNI GX 7.04
289. 2 UNI GX 7.04
290. 3 UNI GX 7.04
291. 4 UNI GX 7.04
292. 5 UNI GX 7.04
293. 6 UNI GX 7.04
294. 7 UNI GX 7.04
295. 8 UNI GX 7.16
296. 9 UNI GX 7.44
297. 10 UNI GX 7.70
298. 11 UNI GX 7.93
299. 12 UNI GX 8.15
300. 13 UNI GX 8.35
301. 14 UNI GX 8.55
302. 15 UNI GX 8.73
303. 16 UNI GX 8.9
304. 17 UNI GX 9.02
305. 18 UNI GX 9.07
306. 19 UNI GX 9.23
307. 20 UNI GX 9.38
308. 21 UNI GX 9.53
309. 22 UNI GX 9.67
310. 23 UNI GX 9.8
311. 24 UNI GX 9.93
312. 25 UNI GX 10.01
313. 26 UNI GX 10.06
314. 27 UNI GX 10.18
315. 28 UNI GX 10.3
316. 29 UNI GX 10.42
317. 30 UNI GX 10.53
318. 31 UNI GX 10.64
319. 32 UNI GX 10.75
320. ******************WIND ON 1 5/8" CABLE WITHOUT ICE 50 MPH
321. LOAD 90
```

```
322. MEMBER LOAD
323. 1 UNI GX 1.53
324. 2 UNI GX 1.53
325. 3 UNI GX 1.53
326. 4 UNI GX 1.53
327. 5 UNI GX 1.53
328. 6 UNI GX 1.53
329. 7 UNI GX 1.53
330. 8 UNI GX 1.59
331. 9 UNI GX 1.65
332. 10 UNI GX 1.7
333. 11 UNI GX 1.75
334. 12 UNI GX 1.79
335. 13 UNI GX 1.83
336. 14 UNI GX 1.87
337. 15 UNI GX 1.91
338. 16 UNI GX 1.93
339. 17 UNI GX 1.94
340. 18 UNI GX 1.98
341. 19 UNI GX 2.01
342. 20 UNI GX 2.04
343. 21 UNI GX 2.07
344. 22 UNI GX 2.1
345. 23 UNI GX 2.13
346. 24 UNI GX 2.14
347. 25 UNI GX 2.16
348. 26 UNI GX 2.18
349. 27 UNI GX 2.18
350. 28 UNI GX 2.21
351. 29 UNI GX 2.23
352. 30 UNI GX 2.26
353. 31 UNI GX 2.28
354. 32 UNI GX 2.3
355. **************************DEAD LOAD OF THE ANTENNAS
356. LOAD 100
357. JOINT LOAD
358. *12 SWEDCOM ALP-9212-N @ 148'
359. 33 FY -320.4
360. * 14' LOW PROFILE PLATFORM @ 148'
361. 33 FY -1300
362. ****************
363. *12 SWEDCOM ALP-9212-N @ 140'
364. 31 FY -320.4
365. * 14' LOW PROFILE PLATFORM @ 140'
366. 31 FY -1300
367. ****************
368. *12 SWEDCOM ALP-9212-N @ 130'
369. 29 FY -320.4
370. * 14' LOW PROFILE PLATFORM @ 130'
371. 29 FY -1300
372. ****************
373. *12 SWEDCOM ALP-9212-N @ 120'
374. 27 FY -240.3
375. * 14' LOW PROFILE PLATFORM @ 120'
376. 27 FY -1300
377. ****************
```

```
378. *12 ALLGON 7184.14 AT 110'
379. 24 FY -117.6
380. *14' LOW PROFILE PLATFORM @ 110'
381. 24 FY -1300
382. ****************
383. *3 10' WHIP ANTENA @ 100'
384. 22 FY -75
385. *3  6' SIDE ARM @ 100'
386. 22 FY -600
387. ****************
388. *3 10' WHIP ANTENA @ 90'
389. 20 FY -75
390. *3  6' SIDE ARM @ 90'
391. 20 FY -600
392. **********************************DEAD LOAD OF THE ANTENNAS WITH ICE
393. LOAD 110
394. JOINT LOAD
395. *12 SWEDCOM ALP-9212-N @ 148'
396. 33 FY -385
397. * 14' LOW PROFILE PLATFORM @ 148'
398. 33 FY -2100
399. ****************
400. *12 SWEDCOM ALP-9212-N @ 140'
401. 31 FY -385
402. * 14' LOW PROFILE PLATFORM @ 140'
403. 31 FY -2100
404. ****************
405. *12 SWEDCOM ALP-9212-N @ 130'
406. 29 FY -385
407. * 14' LOW PROFILE PLATFORM @ 130'
408. 29 FY -2100
409. ****************
410. *12 SWEDCOM ALP-9212-N @ 120'
411. 27 FY -289
412. * 14' LOW PROFILE PLATFORM @ 120'
413. 27 FY -2100
414. ****************
415. *12 ALLGON 7184.14 AT 110'
416. 24 FY -142.
417. *14' LOW PROFILE PLATFORM @ 110'
418. 24 FY -2100
419. ****************
420. *3 10' WHIP ANTENA @ 100'
421. 22 FY -90
422. *3  6' SIDE ARM @ 100'
423. 22 FY -720
424. ****************
425. *3 10' WHIP ANTENA @ 90'
426. 20 FY -90
427. *3  6' SIDE ARM @ 90'
428. 20 FY -720
429. **************************WIND LOAD ON ANTENNAS WITH NO ICE 85 MPH WIND
430. LOAD 120
431. JOINT LOAD
432. *12 SWEDCOM ALP-9212-N @ 148'
433. 33 FX 3320
```

```
434. * 14' LOW PROFILE PLATFORM @ 148'
435. 33 FX 1944
436. ****************
437. *12 SWEDCOM ALP-9212-N @ 140'
438. 31 FX 3267
439. * 14' LOW PROFILE PLATFORM @ 140'
440. 31 FX 1914
441. ****************
442. *12 SWEDCOM ALP-9212-N @ 130'
443. 29 FX 3199
444. * 14' LOW PROFILE PLATFORM @ 130'
445. 29 FX 1874
446. ****************
447. *12 SWEDCOM ALP-9212-N @ 120'
448. 27 FX 2345
449. * 14' LOW PROFILE PLATFORM @ 120'
450. 27 FX 1831
451. ****************
452. *12 ALLGON 7184.14 AT 110'
453. 24 FX 3050
454. *14' LOW PROFILE PLATFORM @ 110'
455. 24 FX 1786
456. ****************
457. *3 10' WHIP ANTENA @ 100'
458. 22 FX 515
459. *3  6' SIDE ARM @ 100'
460. 22 FX 928
461. ****************
462. *3 10' WHIP ANTENA @ 90'
463. 20 FX 500
464. *3  6' SIDE ARM @ 90'
465. 20 FX 901
466. **************************WIND LOAD ON ANTENNAS WITH ICE WITH 85 MPH WIND
467. LOAD 130
468. JOINT LOAD
469. *12 SWEDCOM ALP-9212-N @ 148'
470. 33 FX 3680
471. * 14' LOW PROFILE PLATFORM @ 148'
472. 33 FX 2431
473. ****************
474. *12 SWEDCOM ALP-9212-N @ 140'
475. 31 FX 3622
476. * 14' LOW PROFILE PLATFORM @ 140'
477. 31 FX 2393
478. ****************
479. *12 SWEDCOM ALP-9212-N @ 130'
480. 29 FX 3546
481. * 14' LOW PROFILE PLATFORM @ 130'
482. 29 FX 2342
483. ****************
484. *12 SWEDCOM ALP-9212-N @ 120'
485. 27 FX 2600
486. * 14' LOW PROFILE PLATFORM @ 120'
487. 27 FX 2290
488. ****************
489. *12 ALLGON 7184.14 AT 110'
```

```
490. 24 FX 3381
491. *14' LOW PROFILE PLATFORM @ 110'
492. 24 FX 2233
493. ****************
494. *3 10' WHIP ANTENA @ 100'
495. 22 FX 778
496. *3  6' SIDE ARM @ 100'
497. 22 FX 1052
498. ****************
499. *3 10' WHIP ANTENA @ 90'
500. 20 FX 755
501. *3  6' SIDE ARM @ 90'
502. 20 FX 1021
503. ***************************WIND LOAD ON ANTENNAS WITH 50 MPH
504. LOAD 140
505. JOINT LOAD
506. *12 SWEDCOM ALP-9212-N @ 148'
507. 33 FX 1149
508. * 14' LOW PROFILE PLATFORM @ 148'
509. 33 FX 673
510. ****************
511. *12 SWEDCOM ALP-9212-N @ 140'
512. 31 FX 1131
513. * 14' LOW PROFILE PLATFORM @ 140'
514. 31 FX 662
515. ****************
516. *12 SWEDCOM ALP-9212-N @ 130'
517. 29 FX 1107
518. * 14' LOW PROFILE PLATFORM @ 130'
519. 29 FX 649
520. ****************
521. *12 SWEDCOM ALP-9212-N @ 120'
522. 27 FX 812
523. * 14' LOW PROFILE PLATFORM @ 120'
524. 27 FX 634
525. ****************
526. *12 ALLGON 7184.14 AT 110'
527. 24 FX 1056
528. *14' LOW PROFILE PLATFORM @ 110'
529. 24 FX 618
530. ****************
531. *3 10' WHIP ANTENA @ 100'
532. 22 FX 179
533. *3  6' SIDE ARM @ 100'
534. 22 FX 322
535. ****************
536. *3 10' WHIP ANTENA @ 90'
537. 20 FX 173
538. *3  6' SIDE ARM @ 90'
539. 20 FX 312
540. ********************************************************************************
541. ********************************************************************************
542. *DEAD LOAD + WIND
543. LOAD COMBINATION 1
544. 10 1.0 20 1.0 40 1.0 60 1.0 70 2.0 100 1.0 120 1.0
545. *DEAD LOAD + WIND ON ICE
```

```
546. LOAD COMBINATION 2
547. 10 1.0 20 1.0 30 0.75 60 1.0 80 2.0 100 1.0 110 1.0 130 0.75
548. *DEAD LOAD + 50 MPH WIND
549. LOAD COMBINATION 3
550. 10 1.0 20 1.0 50 1.0 60 1.0 90 2.0 100 1.0 140 1.0
551. PERFORM ANALYSIS
```

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 33/ 32/ 1
ORIGINAL/FINAL BAND-WIDTH = 1/ 1
TOTAL PRIMARY LOAD CASES = 14, TOTAL DEGREES OF FREEDOM = 192
SIZE OF STIFFNESS MATRIX = 2304 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE = 12.10/ 2557.2 MB, EXMEM = 182.6 MB

```
++ Processing Element Stiffness Matrix.          11:10:59
++ Processing Global Stiffness Matrix.           11:10:59
++ Processing Triangular Factorization.          11:11: 0
++ Calculating Joint Displacements.              11:11: 0
++ Calculating Member  Forces.                   11:11: 0
```

```
552. LOAD LIST 1 TO 3
553. UNIT INCHES KIP
554. PARAMETER
555. CODE AISC
556. BEAM 1 ALL
557. TRACK 2.0 ALL
558. *INCREASE THE ALLOWABLE STRESSES BY 1/3 FOR POLE UNDER 700' PER TIA/EIA-22
559. FYLD 86.45 ALL
560. CHECK CODE ALL
```

```
                     STAAD-III CODE CHECKING - (AISC)
                     ***********************

|--------------------------------------------------------------------------|
|                                                    Y        PROPERTIES   |
|*************                                       |        IN INCH UNIT |
|            *  |=============================|               ------------ |
|MEMBER    1 *  |                             |               AX =   94.08 |
|            *  |        ST  PIP E            |          --Z  AY =   56.45 |
|DESIGN CODE *  |                             |               AZ =   56.45 |
| AISC-1989  *  ===============================               SY =1397.11 |
|            *                                                SZ =1397.11 |
|            *  |<---LENGTH (FT)=     5.00 --->|               RY =   21.18 |
|*************                                                RZ =   21.18 |
|                                                                          |
|               5023.7 (KIP-FEET)                                          |
|PARAMETER      |L1                                           STRESSES     |
|IN KIP  INCH   |    L1                                       IN KIP  INCH |
|-------------- +        L1  L1                               -------------|
| KL/R-Y=   2.83 |               L1                           FA  =  40.06 |
| KL/R-Z=   2.83 +                                            fa  =   0.48 |
| UNL   =  60.00 |                   L1  L1                   FCZ =  51.87 |
| CB    =   1.00 +                                            FTZ =  51.87 |
| CMY   =   0.85 |                           L1               FCY =  51.87 |
| CMZ   =   0.85 +                               L1  L1       FTY =  51.87 |
| FYLD  =  86.45 |                                       L1   fbz =  43.15 |
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|   fby =   0.00 |
| DFF   =   0.004765.3                                        FV  =  34.58 |
| dff   =   0.00              ABSOLUTE MZ ENVELOPE            Fey =******* |
|                               (WITH LOAD NO.)                Fez =******* |
|                                                                          |
|                     MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                |
|                     -------------------------                            |
|                                                                          |
|              AXIAL      SHEAR-Y     SHEAR-Z    MOMENT-Y    MOMENT-Z      |
|                                                                          |
|     VALUE     58.7        49.4         0.0         0.0      5023.7       |
|   LOCATION     0.0         0.0         0.0         0.0         0.0       |
|    LOADING       2           1           0           0           1       |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                        DESIGN SUMMARY  (KIP-FEET)                      *|
|*                        --------------                                  *|
|*                                                                        *|
|*       RESULT/     CRITICAL COND/     RATIO/       LOADING/             *|
|          FX             MY             MZ         LOCATION              |
|        ===================================================               |
|          PASS       AISC- H1-3        0.844            1                |
|         44.97 C         0.00       5023.65           0.00               |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|-------------------------------------------------------------------------|
|                                                  Y         PROPERTIES   |
|*************                                     |         IN INCH UNIT |
|            *  |============================|               ------------ |
|MEMBER   2  *  |                            |               AX =   92.01 |
|            *  |       ST   PIP E           |          --Z  AY =   55.21 |
|DESIGN CODE *  |                            |               AZ =   55.21 |
| AISC-1989  *  ==============================               SY =1336.19 |
|            *                                               SZ =1336.19 |
|            *  |<---LENGTH (FT)=     5.00 --->|              RY =   20.71 |
|*************                                               RZ =   20.71 |
|                                                                         |
|              4778.9 (KIP-FEET)                                          |
|PARAMETER        |L1                                        STRESSES     |
|IN KIP  INCH     |   L1                                     IN KIP  INCH |
|---------------  +       L1  L1                             ------------ |
| KL/R-Y=   2.90  |               L1                         FA  =  40.18 |
| KL/R-Z=   2.90  +                                          fa  =   0.47 |
| UNL   =  60.00  |                   L1  L1                 FCZ =  51.87 |
| CB    =   1.00  +                                          FTZ =  51.87 |
| CMY   =   0.85  |                           L1             FCY =  51.87 |
| CMZ   =   0.85  +                               L1  L1     FTY =  51.87 |
| FYLD  =  86.45  |                                       L1 fbz =  42.92 |
| NSF   =   1.00  +---+---+---+---+---+---+---+---+---+---|  fby =   0.00 |
| DFF   =   0.004524.9                                       FV  =  34.58 |
| dff   =   0.00              ABSOLUTE MZ ENVELOPE           Fey =******* |
|                              (WITH LOAD NO.)               Fez =******* |
|                                                                         |
|                     MAX FORCE/ MOMENT SUMMARY   (KIP-FEET)              |
|                     -------------------------                           |
|                                                                         |
|                AXIAL      SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z    |
|                                                                         |
|       VALUE     56.7        48.5       0.0         0.0       4778.9     |
|    LOCATION      0.0         0.0       0.0         0.0          0.0     |
|     LOADING        2           1         0           0            1     |
|                                                                         |
|*************************************************************************|
|*                                                                       *|
|*                      DESIGN SUMMARY   (KIP-FEET)                      *|
|*                      --------------                                   *|
|*                                                                       *|
|*      RESULT/      CRITICAL COND/      RATIO/        LOADING/          *|
|        FX                MY              MZ           LOCATION          |
|       ======================================================            |
|        PASS          AISC- H1-3         0.839            1              |
|       42.97 C           0.00           4778.86          0.00            |
|*                                                                       *|
|*************************************************************************|
|                                                                         |
|-------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|--------------------------------------------------------------------------|
|                                                          Y     PROPERTIES |
|*************                                             |     IN INCH UNIT |
|            *  |=============================|                  ------------ |
|MEMBER   3  *  |                             |                  AX =  89.95 |
|            *  |        ST  PIP E            |             --Z  AY =  53.97 |
|DESIGN CODE *  |                             |                  AZ =  53.97 |
| AISC-1989  *  ===============================                  SY =1276.63 |
|            *                                                   SZ =1276.63 |
|            *  |<---LENGTH (FT)=    5.00 --->|                  RY =  20.25 |
|*************                                                   RZ =  20.25 |
|                                                                            |
|              4538.3 (KIP-FEET)                                             |
|PARAMETER       |L1                                             STRESSES   |
|IN KIP  INCH    |   L1                                          IN KIP  INCH|
|--------------- +       L1  L1                                  ------------|
| KL/R-Y=  2.96  |               L1                                FA  =  40.31|
| KL/R-Z=  2.96  +                                                 fa  =   0.46|
| UNL   = 60.00  |                   L1  L1                        FCZ =  51.87|
| CB    =  1.00  +                                                 FTZ =  51.87|
| CMY   =  0.85  |                           L1                    FCY =  51.87|
| CMZ   =  0.85  +                               L1  L1            FTY =  51.87|
| FYLD  = 86.45  |                                       L1        fbz =  42.66|
| NSF   =  1.00  +---+---+---+---+---+---+---+---+---+---|         fby =   0.00|
| DFF   =  0.004288.7                                            FV  =  34.58|
| dff   =  0.00              ABSOLUTE MZ ENVELOPE                Fey =*******|
|                              (WITH LOAD NO.)                    Fez =*******|
|                                                                            |
|                      MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                 |
|                      -------------------------                             |
|                                                                            |
|                 AXIAL     SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z       |
|                                                                            |
|      VALUE       54.7       47.7       0.0         0.0       4538.3        |
|   LOCATION        0.0        0.0       0.0         0.0          0.0        |
|    LOADING          2          1         0           0            1        |
|                                                                            |
|****************************************************************************|
|*                                                                          *|
|*                        DESIGN SUMMARY  (KIP-FEET)                        *|
|*                        --------------                                    *|
|*                                                                          *|
|*      RESULT/     CRITICAL COND/     RATIO/          LOADING/             *|
|          FX             MY             MZ            LOCATION              |
|       ======================================================               |
|         PASS       AISC- H1-3        0.834              1                  |
|        41.02 C         0.00        4538.28            0.00                 |
|*                                                                          *|
|****************************************************************************|
|                                                                            |
|----------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
|--------------------------------------------------------------------------|
|                                                  Y         PROPERTIES    |
|*************                                     |         IN INCH UNIT  |
|            *  |=============================|              ------------  |
|MEMBER    4 *  |                             |              AX =   87.88  |
|            *  |       ST   PIP E            |          --Z AY =   52.73  |
|DESIGN CODE *  |                             |              AZ =   52.73  |
| AISC-1989  *  ===============================              SY =1218.43  |
|            *                                               SZ =1218.43  |
|            *  |<---LENGTH (FT)=     5.00 --->|              RY =   19.78  |
|*************                                               RZ =   19.78  |
|                                                                          |
|               4301.8 (KIP-FEET)                                          |
|PARAMETER        |L1                                        STRESSES      |
|IN KIP  INCH     |   L1                                     IN KIP   INCH |
|---------------  +       L1  L1                             ------------- |
| KL/R-Y=   3.03  |               L1                         FA  =  40.44  |
| KL/R-Z=   3.03  +                                          fa  =   0.44  |
| UNL    =  60.00 |                   L1  L1                 FCZ =  51.87  |
| CB     =   1.00 +                                          FTZ =  51.87  |
| CMY    =   0.85 |                           L1             FCY =  51.87  |
| CMZ    =   0.85 +                               L1  L1     FTY =  51.87  |
| FYLD   =  86.45 |                                       L1 fbz =  42.37  |
| NSF    =   1.00 +---+---+---+---+---+---+---+---+---+---|  fby =   0.00  |
| DFF    =   0.004056.5                                      FV  =  34.58  |
| dff    =   0.00             ABSOLUTE MZ ENVELOPE          Fey =*******  |
|                                (WITH LOAD NO.)             Fez =*******  |
|                                                                          |
|                       MAX FORCE/ MOMENT SUMMARY   (KIP-FEET)             |
|                       -------------------------                          |
|                                                                          |
|                 AXIAL       SHEAR-Y     SHEAR-Z    MOMENT-Y    MOMENT-Z   |
|                                                                          |
|      VALUE       52.8         46.9         0.0         0.0      4301.8   |
|    LOCATION       0.0          0.0         0.0         0.0         0.0   |
|     LOADING         2            1           0           0           1   |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                         DESIGN SUMMARY   (KIP-FEET)                    *|
|*                         --------------                                 *|
|*                                                                        *|
|*       RESULT/      CRITICAL COND/      RATIO/           LOADING/       *|
|         FX              MY               MZ              LOCATION        |
|        ==================================================                |
|         PASS         AISC- H1-3          0.828               1           |
|        39.10 C          0.00          4301.84              0.00          |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
|--------------------------------------------------------------------------------|
|                                                        Y         PROPERTIES    |
|*************                                          |         IN INCH UNIT  |
|            *  |=============================|                   -----------   |
|MEMBER    5 *  |                             |                   AX =   85.82  |
|            *  |       ST   PIP E            |               --Z AY =   51.49  |
|DESIGN CODE *  |                             |                   AZ =   51.49  |
| AISC-1989  *  ===============================                   SY =1161.58   |
|            *                                                    SZ =1161.58   |
|            *  |<---LENGTH (FT)=     5.00 --->|                  RY =   19.32  |
|*************                                                    RZ =   19.32  |
|                                                                               |
|              4069.5 (KIP-FEET)                                                |
|PARAMETER       |L1                                              STRESSES      |
|IN KIP  INCH    |   L1                                           IN KIP  INCH  |
|--------------- +       L1  L1                                   ------------- |
| KL/R-Y=   3.11 |               L1                                FA  =  40.58 |
| KL/R-Z=   3.11 +                                                 fa  =   0.43 |
| UNL    =  60.00 |                  L1  L1                        FCZ =  51.87 |
| CB     =   1.00 +                                                FTZ =  51.87 |
| CMY    =   0.85 |                          L1                    FCY =  51.87 |
| CMZ    =   0.85 +                              L1  L1            FTY =  51.87 |
| FYLD   =  86.45 |                                      L1        fbz =  42.04 |
| NSF    =   1.00 +---+---+---+---+---+---+---+---+---+---|        fby =   0.00 |
| DFF    =   0.003828.3                                            FV  =  34.58 |
| dff    =   0.00               ABSOLUTE MZ ENVELOPE               Fey =******* |
|                                 (WITH LOAD NO.)                  Fez =******* |
|                                                                               |
|                     MAX FORCE/ MOMENT SUMMARY   (KIP-FEET)                    |
|                     -------------------------                                 |
|                                                                               |
|                 AXIAL       SHEAR-Y     SHEAR-Z     MOMENT-Y     MOMENT-Z     |
|                                                                               |
|      VALUE       50.9        46.1         0.0          0.0        4069.5      |
|    LOCATION       0.0         0.0         0.0          0.0           0.0      |
|     LOADING         2           1           0            0             1      |
|                                                                               |
|********************************************************************************|
|*                                                                             *|
|*                        DESIGN SUMMARY   (KIP-FEET)                          *|
|*                        --------------                                       *|
|*                                                                             *|
|*       RESULT/      CRITICAL COND/      RATIO/          LOADING/             *|
|         FX              MY              MZ            LOCATION                |
|        =======================================================                |
|          PASS         AISC- H1-3        0.821               1                 |
|         37.22 C          0.00          4069.45            0.00                |
|*                                                                             *|
|********************************************************************************|
|                                                                               |
|--------------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
**************
*            *
*  MEMBER  6 *
*            *
* DESIGN CODE*
*  AISC-1989 *
*            *
**************
```

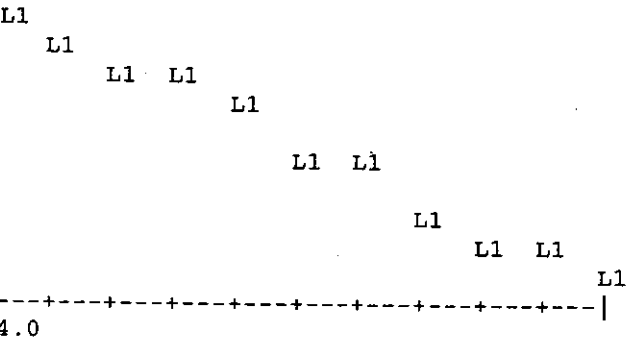
ST PIP E

<---LENGTH (FT)= 5.00 --->

PROPERTIES IN INCH UNIT

AX	83.75
AY	50.25
AZ	50.25
SY	1106.09
SZ	1106.09
RY	18.85
RZ	18.85

3841.0 (KIP-FEET)



ABSOLUTE MZ ENVELOPE
(WITH LOAD NO.)

PARAMETER IN KIP INCH	
KL/R-Y=	3.18
KL/R-Z=	3.18
UNL =	60.00
CB =	1.00
CMY =	0.85
CMZ =	0.85
FYLD =	86.45
NSF =	1.00
DFF =	0.003604.0
dff =	0.00

STRESSES IN KIP INCH

FA =	40.73
fa =	0.42
FCZ =	51.87
FTZ =	51.87
FCY =	51.87
FTY =	51.87
fbz =	41.67
fby =	0.00
FV =	34.58
Fey =	*******
Fez =	*******

MAX FORCE/ MOMENT SUMMARY (KIP-FEET)

	AXIAL	SHEAR-Y	SHEAR-Z	MOMENT-Y	MOMENT-Z
VALUE	49.1	45.3	0.0	0.0	3841.0
LOCATION	0.0	0.0	0.0	0.0	0.0
LOADING	2	1	0	0	1

DESIGN SUMMARY (KIP-FEET)

RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
PASS	AISC- H1-3	0.814	1
35.38 C	0.00	3841.02	0.00

STAAD-III CODE CHECKING - (AISC)
****

```
|--------------------------------------------------------------------------|
|                                                    Y         PROPERTIES  |
|*************                                       |         IN INCH UNIT|
|            *  |=============================|                 ----------|
|MEMBER    7 *  |                             |                AX =  81.69|
|            *  |        ST  PIP E            |            --Z AY =  49.01|
|DESIGN CODE *  |                             |                AZ =  49.01|
| AISC-1989  *  ===============================                SY =1051.96|
|            *                                                 SZ =1051.96|
|            *  |<---LENGTH (FT)=     5.00 --->|               RY =  18.39|
|*************                                                 RZ =  18.39|
|                                                                          |
|               3616.5 (KIP-FEET)                                          |
|PARAMETER        |L1                                          STRESSES    |
|IN KIP  INCH     |   L1                                       IN KIP  INCH|
|---------------  +       L1  L1                               ------------|
| KL/R-Y=   3.26  |               L1                           FA  =  40.88|
| KL/R-Z=   3.26  +                                            fa  =   0.41|
| UNL   =  60.00  |                   L1  L1                   FCZ =  51.87|
| CB    =   1.00  +                                            FTZ =  51.87|
| CMY   =   0.85  |                           L1               FCY =  51.87|
| CMZ   =   0.85  +                               L1  L1       FTY =  51.87|
| FYLD  =  86.45  |                                       L1   fbz =  41.25|
| NSF   =   1.00  +---+---+---+---+---+---+---+---+---+---|    fby =   0.00|
| DFF   =   0.003383.4                                         FV  =  34.58|
| dff   =   0.00              ABSOLUTE MZ ENVELOPE             Fey =*******|
|                               (WITH LOAD NO.)                 Fez =*******|
|                                                                          |
|                       MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)              |
|                       -------------------------                          |
|                                                                          |
|                 AXIAL       SHEAR-Y     SHEAR-Z    MOMENT-Y    MOMENT-Z  |
|                                                                          |
|     VALUE        47.3         44.5        0.0         0.0       3616.5   |
|   LOCATION        0.0          0.0        0.0         0.0          0.0   |
|    LOADING         2            1          0           0            1    |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                          DESIGN SUMMARY  (KIP-FEET)                    *|
|*                          --------------                                *|
|*                                                                        *|
|*       RESULT/      CRITICAL COND/     RATIO/         LOADING/          *|
|         FX               MY             MZ           LOCATION           |
|        =====================================================            |
|          PASS        AISC- H1-3        0.805             1              |
|         33.58 C          0.00       3616.46            0.00             |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
                             STAAD-III CODE CHECKING - (AISC)
                             ***********************

|--------------------------------------------------------------------------|
|                                                     Y         PROPERTIES |
|*************                                        |         IN INCH UNIT |
|           *  |=============================|                 ------------ |
|MEMBER   8  *  |                             |                 AX =  79.62 |
|           *  |      ST   PIP E             |           --Z   AY =  47.77 |
|DESIGN CODE *  |                             |                 AZ =  47.77 |
| AISC-1989  *  ===============================                 SY = 999.19 |
|           *                                                  SZ = 999.19 |
|           *  |<---LENGTH (FT)=    5.00 --->|                 RY =  17.92 |
|*************                                                RZ =  17.92 |
|                                                                          |
|              3395.7 (KIP-FEET)                                          |
|PARAMETER     |L1                                            STRESSES    |
|IN KIP  INCH  |   L1                                         IN KIP  INCH |
|--------------- +       L1  L1                               -------------|
| KL/R-Y=   3.35 |            L1                              FA  =  41.05 |
| KL/R-Z=   3.35 +                                            fa  =   0.40 |
| UNL    =  60.00 |               L1  L1                      FCZ =  51.87 |
| CB     =   1.00 +                                           FTZ =  51.87 |
| CMY    =   0.85 |                      L1                   FCY =  51.87 |
| CMZ    =   0.85 +                          L1  L1           FTY =  51.87 |
| FYLD   =  86.45 |                                  L1       fbz =  40.78 |
| NSF    =   1.00 +---+---+---+---+---+---+---+---+---+---|    fby =   0.00 |
| DFF    =   0.003166.6                                       FV  =  34.58 |
| dff    =   0.00            ABSOLUTE MZ ENVELOPE             Fey =******* |
|                              (WITH LOAD NO.)                 Fez =******* |
|                                                                          |
|                 MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                    |
|                 -------------------------                                |
|                                                                          |
|             AXIAL      SHEAR-Y     SHEAR-Z    MOMENT-Y    MOMENT-Z       |
|                                                                          |
|     VALUE    45.5        43.8        0.0         0.0       3395.7        |
|   LOCATION    0.0         0.0        0.0         0.0          0.0        |
|   LOADING      2           1          0           0            1         |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                    DESIGN SUMMARY  (KIP-FEET)                          *|
|*                    --------------                                      *|
|*                                                                        *|
|*     RESULT/      CRITICAL COND/     RATIO/        LOADING/             *|
|       FX                MY             MZ          LOCATION              |
|     ======================================================               |
|        PASS       AISC- H1-3        0.796             1                  |
|      31.82 C         0.00          3395.69           0.00                |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
**************
*            *
MEMBER   9   *
*            *
DESIGN CODE  *
 AISC-1989   *
*            *
*            *
**************
```

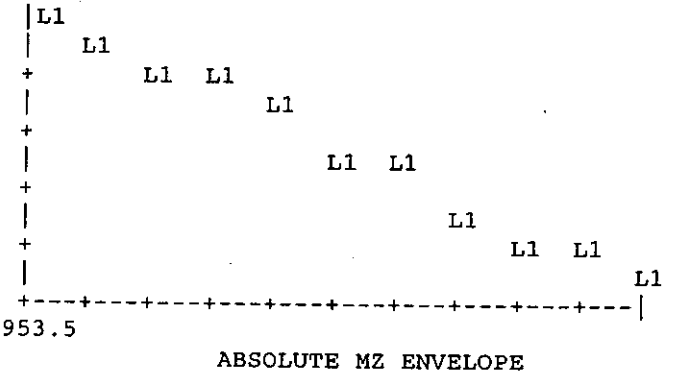
ST PIP E

<---LENGTH (FT)= 5.00 --->

PROPERTIES IN INCH UNIT

AX	77.55
AY	46.53
AZ	46.53
SY	947.78
SZ	947.78
RY	17.46
RZ	17.46

3178.6 (KIP-FEET)



PARAMETER IN KIP INCH	
KL/R-Y=	3.44
KL/R-Z=	3.44
UNL =	60.00
CB =	1.00
CMY =	0.85
CMZ =	0.85
FYLD =	86.45
NSF =	1.00
DFF =	0.002953.5
dff =	0.00

ABSOLUTE MZ ENVELOPE (WITH LOAD NO.)

STRESSES IN KIP INCH

FA =	41.22
fa =	0.39
FCZ =	51.87
FTZ =	51.87
FCY =	51.87
FTY =	51.87
fbz =	40.25
fby =	0.00
FV =	34.58
Fey =	*******
Fez =	*******

MAX FORCE/ MOMENT SUMMARY (KIP-FEET)

	AXIAL	SHEAR-Y	SHEAR-Z	MOMENT-Y	MOMENT-Z
VALUE	43.8	43.0	0.0	0.0	3178.6
LOCATION	0.0	0.0	0.0	0.0	0.0
LOADING	2	1	0	0	1

DESIGN SUMMARY (KIP-FEET)

RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
PASS	AISC- H1-3	0.785	1
30.09 C	0.00	3178.63	0.00

```
                    STAAD-III CODE CHECKING - (AISC)
                    ***********************

|--------------------------------------------------------------------------|
|                                                   Y       PROPERTIES     |
|*************                                      |       IN INCH UNIT   |
|            *  |============================|              -----------   |
|MEMBER  10  *  |                            |              AX =  75.82    |
|            *  |       ST   PIP E           |          --Z AY =  45.49    |
|DESIGN CODE *  |                            |              AZ =  45.49    |
| AISC-1989  *  ==============================              SY = 905.63    |
|            *                                              SZ = 905.63    |
|            *  |<---LENGTH (FT)=     5.00 --->|             RY =  17.07    |
|*************                                              RZ =  17.07    |
|                                                                          |
|              2965.3 (KIP-FEET)                                           |
|PARAMETER       |L1                                        STRESSES       |
|IN KIP  INCH    |   L1                                     IN KIP  INCH   |
|--------------- +       L1  L1                             -------------  |
| KL/R-Y=   3.52 |               L1                         FA  =  41.37   |
| KL/R-Z=   3.52 +                                          fa  =   0.37   |
| UNL   =  60.00 |                  L1  L1                  FCZ =  51.87   |
| CB    =   1.00 +                                          FTZ =  51.87   |
| CMY   =   0.85 |                          L1              FCY =  51.87   |
| CMZ   =   0.85 +                              L1  L1      FTY =  51.87   |
| FYLD  =  86.45 |                                      L1  fbz =  39.29   |
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|  fby =   0.00   |
| DFF   =   0.002744.2                                      FV  =  34.58   |
| dff   =   0.00               ABSOLUTE MZ ENVELOPE         Fey =*******   |
|                                (WITH LOAD NO.)             Fez =*******   |
|                                                                          |
|                   MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                  |
|                   -------------------------                              |
|                                                                          |
|             AXIAL      SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z        |
|                                                                          |
|     VALUE    42.1        42.3        0.0        0.0       2965.3        |
|   LOCATION    0.0         0.0        0.0        0.0          0.0        |
|    LOADING      2           1          0          0            1        |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                      DESIGN SUMMARY  (KIP-FEET)                        *|
|*                      --------------                                    *|
|*                                                                        *|
|*      RESULT/    CRITICAL COND/     RATIO/        LOADING/              *|
|        FX              MY            MZ          LOCATION               |
|       =====================================================              |
|        PASS       AISC- H1-3        0.767            1                   |
|       28.41 C          0.00       2965.33          0.00                  |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

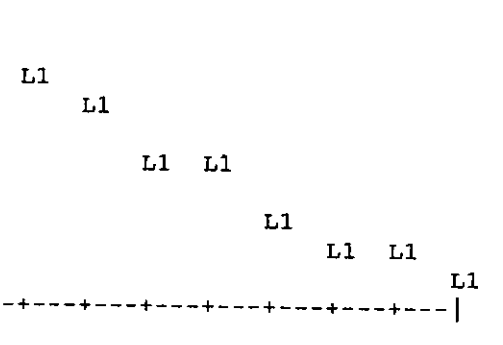
```
**************
*            *
* MEMBER  11 *
*            *
* DESIGN CODE*
*  AISC-1989 *
*            *
**************
```

ST PIP E

<---LENGTH (FT)= 5.00 --->

2755.8 (KIP-FEET)

PARAMETER IN KIP INCH	
KL/R-Y=	3.57
KL/R-Z=	3.57
UNL =	60.00
CB =	1.00
CMY =	0.85
CMZ =	0.85
FYLD =	86.45
NSF =	1.00
DFF =	0.002538.7
dff =	0.00



ABSOLUTE MZ ENVELOPE
(WITH LOAD NO.)

PROPERTIES IN INCH UNIT	
AX =	55.96
AY =	33.58
AZ =	33.58
SY =	659.33
SZ =	659.33
RY =	16.79
RZ =	16.79

STRESSES IN KIP INCH	
FA =	39.77
fa =	0.48
FCZ =	51.87
FTZ =	51.87
FCY =	51.87
FTY =	51.87
fbz =	50.16
fby =	0.00
FV =	34.58
Fey =	*******
Fez =	*******

MAX FORCE/ MOMENT SUMMARY (KIP-FEET)

	AXIAL	SHEAR-Y	SHEAR-Z	MOMENT-Y	MOMENT-Z
VALUE	40.5	41.5	0.0	0.0	2755.8
LOCATION	0.0	0.0	0.0	0.0	0.0
LOADING	2	1	0	0	1

DESIGN SUMMARY (KIP-FEET)

RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
PASS	AISC- H1-3	0.979	1
26.76 C	0.00	2755.81	0.00

STAAD-III CODE CHECKING - (AISC)
****

```
|---------------------------------------------------------------------------|
|                                                    Y         PROPERTIES   |
|*************                                       |         IN INCH UNIT |
|            *  |=============================|                 ------------ |
|MEMBER  12  *  |                             |                AX =  54.91  |
|            *  |        ST   PIP E           |            --Z AY =  32.94  |
|DESIGN CODE *  |                             |                AZ =  32.94  |
| AISC-1989  *  ===============================                SY = 634.65  |
|            *                                                 SZ = 634.65  |
|            *  |<---LENGTH (FT)=     5.00 --->|                RY =  16.48  |
|*************                                                 RZ =  16.48  |
|                                                                           |
|              2550.1 (KIP-FEET)                                            |
|PARAMETER      |L1                                            STRESSES     |
|IN KIP  INCH   |   L1                                         IN KIP  INCH |
|-------------- +       L1  L1                                 ------------ |
| KL/R-Y=  3.64 |             L1                               FA  =  39.86 |
| KL/R-Z=  3.64 +                                              fa  =   0.46 |
| UNL   = 60.00 |                 L1  L1                       FCZ =  51.87 |
| CB    =  1.00 +                                              FTZ =  51.87 |
| CMY   =  0.85 |                         L1                   FCY =  51.87 |
| CMZ   =  0.85 +                             L1  L1           FTY =  51.87 |
| FYLD  = 86.45 |                                     L1       fbz =  48.22 |
| NSF   =  1.00 +---+---+---+---+---+---+---+---+---+---|      fby =   0.00 |
| DFF   =  0.002337.1                                          FV  =  34.58 |
| dff   =  0.00              ABSOLUTE MZ ENVELOPE              Fey =******* |
|                              (WITH LOAD NO.)                 Fez =******* |
|                                                                           |
|                  MAX FORCE/ MOMENT SUMMARY   (KIP-FEET)                   |
|                  -------------------------                                |
|                                                                           |
|               AXIAL     SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z        |
|                                                                           |
|     VALUE      39.2       40.8        0.0         0.0      2550.1         |
|   LOCATION      0.0        0.0        0.0         0.0         0.0         |
|    LOADING        2          1          0           0           1         |
|                                                                           |
|***************************************************************************|
|*                                                                         *|
|*                      DESIGN SUMMARY   (KIP-FEET)                        *|
|*                      --------------                                     *|
|*                                                                         *|
|*      RESULT/     CRITICAL COND/     RATIO/        LOADING/              *|
|        FX             MY             MZ           LOCATION               |
|       =================================================                  |
|        PASS        AISC- H1-3       0.941             1                  |
|       25.45 C         0.00        2550.12           0.00                 |
|*                                                                         *|
|***************************************************************************|
|                                                                           |
|---------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|--------------------------------------------------------------------------|
|                                                     Y        PROPERTIES  |
|*************                                        |        IN INCH UNIT|
|            *  |============================|                 ----------- |
|MEMBER  13  *  |                            |                 AX =  53.85 |
|            *  |        ST  PIP E           |             --Z AY =  32.31 |
|DESIGN CODE *  |                            |                 AZ =  32.31 |
| AISC-1989  *  ==============================                 SY = 610.44 |
|            *                                                 SZ = 610.44 |
|            *  |<---LENGTH (FT)=    5.00 --->|                 RY =  16.16 |
|*************                                                 RZ =  16.16 |
|                                                                          |
|               2348.3 (KIP-FEET)                                          |
|PARAMETER       |L1                                           STRESSES    |
|IN KIP  INCH    |   L1                                        IN KIP  INCH|
|--------------- +      L1  L1                                 ------------|
| KL/R-Y=   3.71 |             L1                              FA  =  39.97|
| KL/R-Z=   3.71 +                                             fa  =   0.45|
| UNL   =  60.00 |                L1  L1                       FCZ =  51.87|
| CB    =   1.00 +                                             FTZ =  51.87|
| CMY   =   0.85 |                      L1                     FCY =  51.87|
| CMZ   =   0.85 +                         L1  L1              FTY =  51.87|
| FYLD  =  86.45 |                                  L1         fbz =  46.16|
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|     fby =   0.00|
| DFF   =   0.002139.4                                         FV  =  34.58|
| dff   =   0.00            ABSOLUTE MZ ENVELOPE               Fey =*******|
|                             (WITH LOAD NO.)                   Fez =*******|
|                                                                          |
|                 MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                    |
|                 -------------------------                                |
|                                                                          |
|              AXIAL      SHEAR-Y     SHEAR-Z    MONENT-Y     MOMENT-Z      |
|                                                                          |
|      VALUE    37.9        40.0        0.0         0.0        2348.3      |
|   LOCATION     0.0         0.0        0.0         0.0           0.0      |
|    LOADING       2           1          0           0             1      |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                     DESIGN SUMMARY  (KIP-FEET)                         *|
|*                     --------------                                     *|
|*                                                                        *|
|*     RESULT/      CRITICAL COND/     RATIO/          LOADING/           *|
|       FX                MY            MZ             LOCATION            |
|      =============================================================       |
|        PASS        AISC- H1-3         0.901              1               |
|       24.16 C        0.00           2348.33            0.00              |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|-----------------------------------------------------------------------------|
|                                                        Y        PROPERTIES  |
|*************                                          |        IN INCH UNIT |
|            *  |=============================|                  ----------- |
|MEMBER  14  *  |                             |                  AX =  52.80 |
|            *  |        ST  PIP E            |               --Z AY =  31.68 |
|DESIGN CODE *  |                             |                  AZ =  31.68 |
| AISC-1989  *  ===============================                  SY = 586.70 |
|            *                                                   SZ = 586.70 |
|            *  |<---LENGTH (FT)=    5.00 --->|                   RY =  15.85 |
|*************                                                   RZ =  15.85 |
|                                                                             |
|               2150.4 (KIP-FEET)                                             |
|PARAMETER      |L1                                              STRESSES    |
|IN KIP  INCH   |   L1                                           IN KIP  INCH|
|--------------- +       L1  L1                                  ------------|
| KL/R-Y=   3.79 |               L1                                FA  =  40.07|
| KL/R-Z=   3.79 +                                               fa  =   0.43|
| UNL   =  60.00 |                   L1  L1                      FCZ =  51.87|
| CB    =   1.00 +                                               FTZ =  51.87|
| CMY   =   0.85 |                           L1                  FCY =  51.87|
| CMZ   =   0.85 +                               L1  L1          FTY =  51.87|
| FYLD  =  86.45 |                                       L1      fbz =  43.98|
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|       fby =   0.00|
| DFF   =   0.001945.7                                           FV  =  34.58|
| dff   =   0.00                ABSOLUTE MZ ENVELOPE             Fey =*******|
|                                  (WITH LOAD NO.)               Fez =*******|
|                                                                             |
|                        MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                |
|                        -------------------------                            |
|                                                                             |
|                   AXIAL      SHEAR-Y     SHEAR-Z     MOMENT-Y     MOMENT-Z  |
|                                                                             |
|        VALUE       36.6        39.2         0.0          0.0       2150.4   |
|     LOCATION        0.0         0.0         0.0          0.0          0.0   |
|      LOADING          2           1           0            0            1   |
|                                                                             |
|*****************************************************************************|
|*                                                                           *|
|*                          DESIGN SUMMARY  (KIP-FEET)                       *|
|*                          --------------                                   *|
|*                                                                           *|
|*         RESULT/      CRITICAL COND/      RATIO/          LOADING/         *|
|           FX                MY             MZ            LOCATION          |
|          =======================================================          |
|           PASS        AISC- H1-3         0.859               1             |
|          22.89 C          0.00          2150.42            0.00            |
|*                                                                           *|
|*****************************************************************************|
|                                                                             |
|-----------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|--------------------------------------------------------------------------------|
|                                                      Y        PROPERTIES       |
|*************                                         |        IN INCH UNIT     |
|            *  |============================|                  -------------    |
|MEMBER  15  *  |                            |                  AX =   51.75     |
|            *  |       ST   PIP E           |              --Z AY =   31.05     |
|DESIGN CODE *  |                            |                  AZ =   31.05     |
| AISC-1989  *  ==============================                  SY =  563.44     |
|            *                                                  SZ =  563.44     |
|            *  |<---LENGTH (FT)=     5.00 --->|                RY =   15.53     |
|*************                                                  RZ =   15.53     |
|                                                                                |
|                1956.5 (KIP-FEET)                                               |
|PARAMETER       |L1                                            STRESSES         |
|IN KIP  INCH    |   L1                                         IN KIP  INCH     |
|--------------- +       L1  L1                                 -------------    |
| KL/R-Y=   3.86 |              L1                              FA   =  40.18    |
| KL/R-Z=   3.86 +                                              fa   =   0.42    |
| UNL    = 60.00 |                  L1  L1                      FCZ  =  51.87    |
| CB     =  1.00 +                                              FTZ  =  51.87    |
| CMY    =  0.85 |                          L1                    FCY  =  51.87    |
| CMZ    =  0.85 +                              L1  L1            FTY  =  51.87    |
| FYLD   = 86.45 |                                      L1        fbz  =  41.67    |
| NSF    =  1.00 +---+---+---+---+---+---+---+---+---+---|        fby  =   0.00    |
| DFF    =  0.001755.9                                          FV   =  34.58    |
| dff    =  0.00              ABSOLUTE MZ ENVELOPE              Fey  =*******    |
|                              (WITH LOAD NO.)                   Fez  =*******    |
|                                                                                |
|                   MAX FORCE/ MOMENT SUMMARY   (KIP-FEET)                       |
|                   -------------------------                                    |
|                                                                                |
|              AXIAL      SHEAR-Y     SHEAR-Z     MOMENT-Y     MOMENT-Z          |
|                                                                                |
|      VALUE    35.4        38.4         0.0          0.0       1956.5           |
|   LOCATION     0.0         0.0         0.0          0.0          0.0           |
|    LOADING       2           1           0            0            1           |
|                                                                                |
|********************************************************************************|
|*                                                                              *|
|*                   DESIGN SUMMARY   (KIP-FEET)                                *|
|*                   --------------                                             *|
|*                                                                              *|
|*     RESULT/      CRITICAL COND/      RATIO/        LOADING/                  *|
|       FX              MY               MZ           LOCATION                   |
|       ======================================================                   |
|        PASS         AISC- H1-3        0.814            1                       |
|       21.64 C          0.00          1956.47          0.00                     |
|*                                                                              *|
|********************************************************************************|
|                                                                                |
|--------------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

MEMBER 16

DESIGN CODE
AISC-1989

ST PIP E

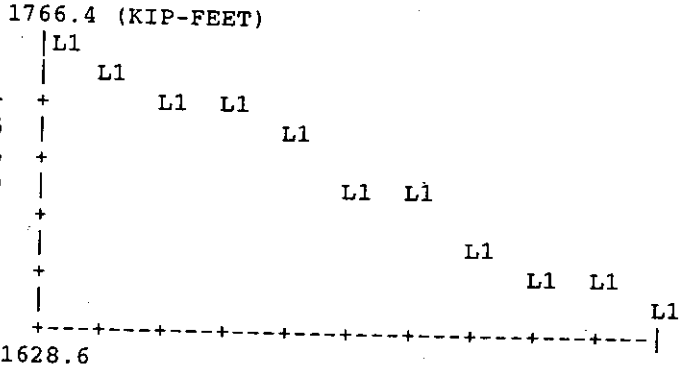
<---LENGTH (FT)= 3.50 --->

PROPERTIES IN INCH UNIT

AX	50.85
AY	30.51
AZ	30.51
SY	544.03
SZ	544.03
RY	15.26
RZ	15.26

PARAMETER IN KIP INCH

KL/R-Y=	2.75
KL/R-Z=	2.75
UNL =	42.00
CB =	1.00
CMY =	0.85
CMZ =	0.85
FYLD =	86.45
NSF =	1.00
DFF =	0.001628.6
dff =	0.00



ABSOLUTE MZ ENVELOPE
(WITH LOAD NO.)

STRESSES IN KIP INCH

FA =	40.28
fa =	0.40
FCZ =	51.87
FTZ =	51.87
FCY =	51.87
FTY =	51.87
fbz =	38.96
fby =	0.00
FV =	34.58
Fey =	*******
Fez =	*******

MAX FORCE/ MOMENT SUMMARY (KIP-FEET)

	AXIAL	SHEAR-Y	SHEAR-Z	MOMENT-Y	MOMENT-Z
VALUE	34.1	37.6	0.0	0.0	1766.4
LOCATION	0.0	0.0	0.0	0.0	0.0
LOADING	2	1	0	0	1

DESIGN SUMMARY (KIP-FEET)

RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
PASS	AISC- H1-3	0.761	1
20.42 C	0.00	1766.45	0.00

STAAD-III CODE CHECKING - (AISC)
****

```
|--------------------------------------------------------------------------|
|                                                    Y         PROPERTIES   |
|*************                                       |         IN INCH UNIT |
|            *  |============================|                ------------ |
|MEMBER  17  *  |                            |                AX =   50.25 |
|            *  |        ST   PIP E          |           --Z  AY =   30.15 |
|DESIGN CODE *  |                            |                AZ =   30.15 |
| AISC-1989  *  ==============================                SY = 531.27  |
|            *                                                SZ = 531.27  |
|            *  |<---LENGTH (FT)=     1.50 --->|               RY =   15.08 |
|*************                                                RZ =   15.08 |
|                                                                          |
|               1635.8 (KIP-FEET)                                          |
|PARAMETER       |L1                                         STRESSES      |
|IN KIP  INCH    |   L1                                      IN KIP  INCH  |
|--------------- +       L1  L1                            ------------   |
| KL/R-Y=   1.19 |               L1                          FA  =  40.35   |
| KL/R-Z=   1.19 +                                           fa  =   0.39   |
| UNL   =  18.00 |                   L1  L1                  FCZ =  51.87   |
| CB    =   1.00 +                                           FTZ =  51.87   |
| CMY   =   0.85 |                           L1              FCY =  51.87   |
| CMZ   =   0.85 +                               L1  L1      FTY =  51.87   |
| FYLD  =  86.45 |                                       L1  fbz =  36.95   |
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|  fby =   0.00   |
| DFF   =   0.001577.3                                       FV  =  34.58   |
| dff   =   0.00            ABSOLUTE MZ ENVELOPE             Fey =*******   |
|                              (WITH LOAD NO.)                Fez =*******   |
|                                                                          |
|                   MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                  |
|                   -------------------------                              |
|                                                                          |
|               AXIAL      SHEAR-Y     SHEAR-Z    MOMENT-Y    MOMENT-Z     |
|                                                                          |
|      VALUE     33.3        37.1        0.0         0.0       1635.8      |
|   LOCATION      0.0         0.0        0.0         0.0          0.0      |
|    LOADING        2           1          0           0            1      |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                    DESIGN SUMMARY  (KIP-FEET)                          *|
|*                    --------------                                      *|
|*                                                                        *|
|*      RESULT/     CRITICAL COND/     RATIO/        LOADING/             *|
|        FX               MY            MZ          LOCATION              |
|       =================================================                  |
|         PASS        AISC- H1-3       0.722            1                  |
|       19.57 C         0.00        1635.82           0.00                 |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|--------------------------------------------------------------------------|
|                                                     Y        PROPERTIES  |
|*************                                        |        IN INCH UNIT |
|            *  |=============================|                ------------ |
|MEMBER  18  *  |                             |                AX =  41.12 |
|            *  |      ST   PIP E             |            --Z AY =  24.67 |
|DESIGN CODE *  |                             |                AZ =  24.67 |
| AISC-1989  *  ===============================                SY = 427.33 |
|            *                                                 SZ = 427.33 |
|            *  |<---LENGTH (FT)=     5.00 --->|                RY =  14.81 |
|*************                                                 RZ =  14.81 |
|                                                                           |
|                1580.4 (KIP-FEET)                                          |
|PARAMETER       |L1                                           STRESSES    |
|IN KIP  INCH    |   L1                                        IN KIP  INCH |
|---------------  +      L1  L1                                ------------|
| KL/R-Y=   4.05 |              L1                             FA  =  39.48 |
| KL/R-Z=   4.05 +                                             fa  =   0.47 |
| UNL    =  60.00 |                 L1  L1                     FCZ =  51.87 |
| CB     =   1.00 +                                            FTZ =  51.87 |
| CMY    =   0.85 |                        L1                  FCY =  51.87 |
| CMZ    =   0.85 +                            L1  L1          FTY =  51.87 |
| FYLD   =  86.45 |                                    L1      fbz =  44.38 |
| NSF    =   1.00 +---+---+---+---+---+---+---+---+---+---|    fby =   0.00 |
| DFF    =   0.001388.2                                        FV  =  34.58 |
| dff    =   0.00           ABSOLUTE MZ ENVELOPE               Fey =9095.08 |
|                             (WITH LOAD NO.)                  Fez =9095.08 |
|                                                                           |
|                  MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                    |
|                  -------------------------                                |
|                                                                           |
|              AXIAL      SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z        |
|                                                                           |
|     VALUE     32.9       36.8        0.0        0.0        1580.4         |
|   LOCATION     0.0        0.0        0.0        0.0           0.0         |
|    LOADING       2          1          0          0             1         |
|                                                                           |
|***************************************************************************|
|*                                                                         *|
|*                     DESIGN SUMMARY  (KIP-FEET)                          *|
|*                     --------------                                      *|
|*                                                                         *|
|*      RESULT/     CRITICAL COND/    RATIO/        LOADING/               *|
|        FX              MY           MZ           LOCATION                 |
|       =====================================================               |
|        PASS       AISC- H1-3        0.867           1                     |
|       19.21 C          0.00       1580.40          0.00                   |
|*                                                                         *|
|***************************************************************************|
|                                                                           |
|---------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|--------------------------------------------------------------------------|
|                                                    Y        PROPERTIES   |
|*************                                       |        IN INCH UNIT |
|            *   |=============================|              ------------ |
|MEMBER  19  *   |                             |              AX =  39.85  |
|            *   |       ST   PIP E            |          --Z AY =  23.91  |
|DESIGN CODE *   |                             |              AZ =  23.91  |
| AISC-1989  *   ===============================              SY = 401.31  |
|            *                                                SZ = 401.31  |
|            *   |<---LENGTH (FT)=     5.00 --->|              RY =  14.35  |
|*************                                                RZ =  14.35  |
|                                                                          |
|                 1398.3 (KIP-FEET)                                        |
|PARAMETER        |L1                                         STRESSES     |
|IN KIP  INCH     |   L1                                      IN KIP  INCH |
|--------------   +       L1  L1                              -------------|
| KL/R-Y=   4.18  |               L1                          FA   =  39.64 |
| KL/R-Z=   4.18  +                                           fa   =   0.46 |
| UNL   =  60.00  |                   L1  L1                  FCZ  =  51.87 |
| CB    =   1.00  +                                           FTZ  =  51.87 |
| CMY   =   0.85  |                           L1              FCY  =  51.87 |
| CMZ   =   0.85  +                               L1  L1      FTY  =  51.87 |
| FYLD  =  86.45  |                                       L1  fbz  =  41.81 |
| NSF   =   1.00  +---+---+---+---+---+---+---+---+---+---|   fby  =   0.00 |
| DFF   =   0.001210.2                                        FV   =  34.58 |
| dff   =   0.00              ABSOLUTE MZ ENVELOPE            Fey =8543.45  |
|                               (WITH LOAD NO.)               Fez =8543.45  |
|                                                                          |
|                       MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)              |
|                       -------------------------                          |
|                                                                          |
|                 AXIAL      SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z    |
|                                                                          |
|      VALUE      31.9        36.0        0.0         0.0       1398.3     |
|    LOCATION      0.0         0.0        0.0         0.0          0.0     |
|     LOADING        2           1          0           0            1     |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                      DESIGN SUMMARY  (KIP-FEET)                        *|
|*                      --------------                                    *|
|*                                                                        *|
|*      RESULT/     CRITICAL COND/     RATIO/        LOADING/             *|
|        FX             MY             MZ           LOCATION              |
|       =======================================================           |
|        PASS        AISC- H1-3       0.818             1                 |
|       18.17 C         0.00        1398.32            0.00               |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
|------------------------------------------------------------------------------------|
|                                                       Y         PROPERTIES          |
|*************                                          |         IN INCH UNIT        |
|            *  |===========================|                     ------------        |
|MEMBER  20  *  |                           |                     AX =   38.58        |
|            *  |       ST   PIP E          |            --Z      AY =   23.15        |
|DESIGN CODE *  |                           |                     AZ =   23.15        |
| AISC-1989  *  ==============================                    SY = 376.12         |
|            *                                                    SZ = 376.12         |
|            *  |<---LENGTH (FT)=     5.00 --->|                  RY =   13.90        |
|*************                                                    RZ =   13.90        |
|                                                                                     |
|                1220.1 (KIP-FEET)                                                    |
|PARAMETER      |L1                                               STRESSES            |
|IN KIP  INCH   |   L1                                            IN KIP   INCH       |
|---------------+       L1  L1                                    -------------       |
| KL/R-Y=  4.32 |               L1                                FA  =  39.80        |
| KL/R-Z=  4.32 +                                                 fa  =   0.43        |
| UNL   = 60.00 |                   L1  L1                        FCZ =  51.87        |
| CB    =  1.00 +                                                 FTZ =  51.87        |
| CMY   =  0.85 |                           L1                    FCY =  51.87        |
| CMZ   =  0.85 +                               L1  L1            FTY =  51.87        |
| FYLD  = 86.45 |                                       L1        fbz =  38.93        |
| NSF   =  1.00 +---+---+---+---+---+---+---+---+---+---|         fby =   0.00        |
| DFF   =  0.001043.5                                             FV  =  34.58        |
| dff   =  0.00                ABSOLUTE MZ ENVELOPE               Fey =8009.07        |
|                                 (WITH LOAD NO.)                 Fez =8009.07        |
|                                                                                     |
|                       MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                         |
|                       -------------------------                                     |
|                                                                                     |
|                  AXIAL       SHEAR-Y     SHEAR-Z    MONENT-Y     MOMENT-Z          |
|                                                                                     |
|       VALUE       29.4        33.8         0.0         0.0        1220.1           |
|    LOCATION        0.0         0.0         0.0         0.0           0.0           |
|     LOADING          2           1           0           0             1           |
|                                                                                     |
|*************************************************************************************|
|*                                                                                   *|
|*                          DESIGN SUMMARY  (KIP-FEET)                               *|
|*                          --------------                                           *|
|*                                                                                   *|
|*      RESULT/     CRITICAL COND/     RATIO/         LOADING/                       *|
|        FX             MY              MZ           LOCATION                         |
|       =================================================                             |
|        PASS        AISC- H1-3         0.761            1                            |
|       16.48 C         0.00          1220.10           0.00                          |
|*                                                                                   *|
|*************************************************************************************|
|                                                                                     |
|-------------------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|--------------------------------------------------------------------------|
|                                                          Y        PROPERTIES  |
|*************                                             |        IN INCH UNIT|
|            *  |============================|                      -----------|
|MEMBER  21  *  |                            |                      AX =  37.32|
|            *  |      ST   PIP E            |                --Z   AY =  22.39|
|DESIGN CODE *  |                            |                      AZ =  22.39|
| AISC-1989  *  ==============================                      SY = 351.72|
|            *                                                      SZ = 351.72|
|            *  |<---LENGTH (FT)=    5.00 --->|                      RY =  13.44|
|*************                                                      RZ =  13.44|
|                                                                             |
|               1052.8 (KIP-FEET)                                             |
|PARAMETER       |L1                                                STRESSES   |
|IN KIP  INCH    |   L1                                             IN KIP  INCH|
|--------------- +       L1  L1                                     -----------|
| KL/R-Y=   4.46 |               L1                                 FA  =  39.98|
| KL/R-Z=   4.46 +                                                  fa  =   0.42|
| UNL   =  60.00 |                   L1  L1                         FCZ =  51.87|
| CB    =   1.00 +                                                  FTZ =  51.87|
| CMY   =   0.85 |                           L1                     FCY =  51.87|
| CMZ   =   0.85 +                               L1  L1             FTY =  51.87|
| FYLD  =  86.45 |                                       L1         fbz =  35.92|
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|          fby =   0.00|
| DFF   =   0.00 880.2                                              FV  =  34.58|
| dff   =   0.00              ABSOLUTE MZ ENVELOPE                  Fey =7491.56|
|                               (WITH LOAD NO.)                      Fez =7491.56|
|                                                                             |
|                 MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                       |
|                 -------------------------                                   |
|                                                                             |
|               AXIAL      SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z         |
|                                                                             |
|     VALUE      28.4        33.1        0.0         0.0      1052.8          |
|   LOCATION      0.0         0.0        0.0         0.0         0.0          |
|    LOADING        2           1          0           0           1          |
|                                                                             |
|*****************************************************************************|
|*                                                                           *|
|*                     DESIGN SUMMARY  (KIP-FEET)                            *|
|*                     --------------                                        *|
|*                                                                           *|
|*      RESULT/      CRITICAL COND/     RATIO/         LOADING/              *|
|        FX               MY              MZ          LOCATION               |
|       ======================================================               |
|         PASS        AISC- H1-3        0.703             1                  |
|        15.52 C          0.00        1052.77           0.00                 |
|*                                                                           *|
|*****************************************************************************|
|                                                                             |
|-----------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
```
                      STAAD-III CODE CHECKING - (AISC)
                      ************************

|--------------------------------------------------------------------------|
|                                                      Y         PROPERTIES |
|*************                                         |         IN INCH UNIT |
|            *  |=============================|                  ------------ |
|MEMBER  22  *  |                             |                  AX =   36.05 |
|            *  |       ST   PIP E             |            --Z  AY =   21.63 |
|DESIGN CODE *  |                             |                  AZ =   21.63 |
| AISC-1989  *  ===============================                  SY = 328.16 |
|            *                                                   SZ = 328.16 |
|            *  |<---LENGTH (FT)=     5.00 --->|                  RY =   12.98 |
|*************                                                   RZ =   12.98 |
|                                                                          |
|               889.2 (KIP-FEET)                                           |
|PARAMETER      |L1                                              STRESSES   |
|IN KIP  INCH   |   L1                                           IN KIP  INCH |
|---------------  +     L1  L1                                   ------------ |
| KL/R-Y=   4.62  |           L1                                  FA  =  40.17 |
| KL/R-Z=   4.62  +                                               fa  =   0.39 |
| UNL   =  60.00  |               L1  L1                            FCZ =  51.87 |
| CB    =   1.00  +                                               FTZ =  51.87 |
| CMY   =   0.85  |                       L1                        FCY =  51.87 |
| CMZ   =   0.85  +                           L1  L1                FTY =  51.87 |
| FYLD  =  86.45  |                                   L1            fbz =  32.52 |
| NSF   =   1.00  +---+---+---+---+---+---+---+---+---+---|        fby =   0.00 |
| DFF   =   0.00 728.2                                            FV  =  34.58 |
| dff   =   0.00              ABSOLUTE MZ ENVELOPE                Fey =6991.71 |
|                                (WITH LOAD NO.)                 Fez =6991.71 |
|                                                                          |
|                      MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)               |
|                      -------------------------                           |
|                                                                          |
|                 AXIAL      SHEAR-Y    SHEAR-Z    MOMENT-Y   MOMENT-Z     |
|                                                                          |
|       VALUE     26.0        30.9        0.0        0.0       889.2       |
|    LOCATION      0.0         0.0        0.0        0.0         0.0       |
|     LOADING        2           1          0          0           1       |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                         DESIGN SUMMARY  (KIP-FEET)                     *|
|*                         --------------                                 *|
|*                                                                        *|
|*       RESULT/      CRITICAL COND/      RATIO/        LOADING/          *|
|         FX               MY              MZ          LOCATION           |
|        =======================================================          |
|          PASS        AISC- H1-3        0.637             1              |
|         13.91 C          0.00          889.25           0.00            |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

```
                    STAAD-III CODE CHECKING - (AISC)
                    ***********************

|--------------------------------------------------------------------------|
|                                                       Y       PROPERTIES  |
|*************                                          |       IN INCH UNIT|
|            *  |==============================|                ----------- |
|MEMBER  23  *  |                              |                AX =  34.78 |
|            *  |        ST  PIP E             |            --Z AY =  20.87 |
|DESIGN CODE *  |                              |                AZ =  20.87 |
| AISC-1989  *  ===============================                SY = 305.41 |
|            *                                                 SZ = 305.41 |
|            *  |<---LENGTH (FT)=     5.00 --->|                RY =  12.53 |
|*************                                                 RZ =  12.53 |
|                                                                          |
|                736.7 (KIP-FEET)                                          |
|PARAMETER      |L1                                            STRESSES    |
|IN KIP  INCH   |   L1                                         IN KIP  INCH|
|--------------- +       L1  L1                                ------------|
| KL/R-Y=  4.79 |               L1                             FA  =  40.37|
| KL/R-Z=  4.79 +                                              fa  =   0.37|
| UNL   = 60.00 |                   L1  L1                     FCZ =  51.87|
| CB    =  1.00 +                                              FTZ =  51.87|
| CMY   =  0.85 |                           L1                 FCY =  51.87|
| CMZ   =  0.85 +                               L1  L1         FTY =  51.87|
| FYLD  = 86.45 |                                       L1     fbz =  28.94|
| NSF   =  1.00 +---+---+---+---+---+---+---+---+---+---|      fby =   0.00|
| DFF   =  0.00 579.5                                          FV  =  34.58|
| dff   =  0.00              ABSOLUTE MZ ENVELOPE              Fey =6509.12|
|                              (WITH LOAD NO.)                 Fez =6509.12|
|                                                                          |
|                    MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                 |
|                    -------------------------                             |
|                                                                          |
|               AXIAL      SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z      |
|                                                                          |
|      VALUE     25.1        30.1        0.0        0.0        736.7       |
|   LOCATION      0.0         0.0        0.0        0.0          0.0       |
|    LOADING        2           1          0          0            1       |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                      DESIGN SUMMARY  (KIP-FEET)                        *|
|*                      --------------                                    *|
|*                                                                        *|
|*      RESULT/     CRITICAL COND/     RATIO/        LOADING/             *|
|        FX              MY             MZ          LOCATION              |
|       ===================================================               |
|        PASS        AISC- H1-3        0.567            1                  |
|       13.04 C         0.00          736.65          0.00                 |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
|--------------------------------------------------------------------------------|
|                                                     Y          PROPERTIES       |
|*************                                        |          IN INCH UNIT     |
|            *  |===========================|                     -----------     |
|MEMBER  24  *  |                           |                     AX =   33.43    |
|            *  |       ST  PIP E           |            --Z      AY =   20.06    |
|DESIGN CODE *  |                           |                     AZ =   20.06    |
| AISC-1989  *  =============================                     SY = 281.95     |
|            *                                                    SZ = 281.95     |
|            *  |<---LENGTH (FT)=     3.00 --->|                  RY =   12.04    |
|*************                                                    RZ =   12.04    |
|                                                                                  |
|               587.7 (KIP-FEET)                                                   |
|PARAMETER      |L1                                               STRESSES        |
|IN KIP  INCH   |   L1                                            IN KIP  INCH    |
|---------------+       L1   L1                                   -------------   |
| KL/R-Y=   2.99 |                L1                              FA  =  40.60    |
| KL/R-Z=   2.99 +                                                fa  =   0.32    |
| UNL   =  36.00 |                    L1   L1                     FCZ =  51.87    |
| CB    =   1.00 +                                                FTZ =  51.87    |
| CMY   =   0.85 |                            L1                  FCY =  51.87    |
| CMZ   =   0.85 +                                L1   L1         FTY =  51.87    |
| FYLD  =  86.45 |                                        L1      fbz =  25.01    |
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|      fby =   0.00    |
| DFF   =   0.00 510.6                                            FV  =  34.58    |
| dff   =   0.00              ABSOLUTE MZ ENVELOPE                Fey =*******    |
|                               (WITH LOAD NO.)                   Fez =*******    |
|                                                                                  |
|                   MAX FORCE/ MOMENT SUMMARY   (KIP-FEET)                         |
|                   -------------------------                                      |
|                                                                                  |
|               AXIAL       SHEAR-Y     SHEAR-Z     MOMENT-Y     MOMENT-Z          |
|                                                                                  |
|      VALUE     20.6        24.6         0.0          0.0        587.7            |
|   LOCATION      0.0         0.0         0.0          0.0          0.0            |
|    LOADING        2           1           0            0            1            |
|                                                                                  |
|*********************************************************************************|
|*                                                                               *|
|*                      DESIGN SUMMARY   (KIP-FEET)                              *|
|*                      --------------                                           *|
|*                                                                               *|
|*       RESULT/      CRITICAL COND/      RATIO/          LOADING/               *|
|         FX                MY             MZ              LOCATION               |
|        ======================================================                   |
|          PASS        AISC- H1-3         0.490               1                    |
|         10.77 C         0.00          587.74              0.00                   |
|*                                                                               *|
|*********************************************************************************|
|                                                                                  |
|---------------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
**************
*            *
MEMBER  25    *
*            *
DESIGN CODE   *
 AISC-1989    *
*            *
*            *
**************
```

ST PIP E

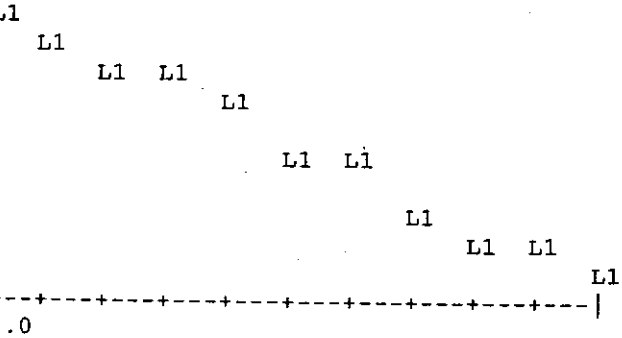
<---LENGTH (FT)= 2.00 --->

Y
|
--Z

PROPERTIES IN INCH UNIT

AX =	32.38
AY =	19.43
AZ =	19.43
SY =	264.45
SZ =	264.45
RY =	11.66
RZ =	11.66

514.7 (KIP-FEET)



PARAMETER IN KIP INCH	
KL/R-Y=	2.06
KL/R-Z=	2.06
UNL =	24.00
CB =	1.00
CMY =	0.85
CMZ =	0.85
FYLD =	86.45
NSF =	1.00
DFF =	0.00
dff =	0.00

ABSOLUTE MZ ENVELOPE
(WITH LOAD NO.)

STRESSES IN KIP INCH

FA =	40.79
fa =	0.32
FCZ =	51.87
FTZ =	51.87
FCY =	51.87
FTY =	51.87
fbz =	23.35
fby =	0.00
FV =	34.58
Fey =	*******
Fez =	*******

MAX FORCE/ MOMENT SUMMARY (KIP-FEET)

	AXIAL	SHEAR-Y	SHEAR-Z	MOMENT-Y	MOMENT-Z
VALUE	20.1	24.1	0.0	0.0	514.7
LOCATION	0.0	0.0	0.0	0.0	0.0
LOADING	2	1	0	0	1

DESIGN SUMMARY (KIP-FEET)

RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
PASS	AISC- H1-3	0.458	1
10.29 C	0.00	514.65	0.00

```
                         STAAD-III CODE CHECKING - (AISC)
                         ***********************

|--------------------------------------------------------------------------|
|                                                     Y        PROPERTIES   |
|*************                                        |        IN INCH UNIT |
|            * |=============================|                 ------------ |
|MEMBER  26  * |                             |                 AX =  25.67  |
|            * |      ST   PIP E             |            --Z  AY =  15.40  |
|DESIGN CODE * |                             |                 AZ =  15.40  |
| AISC-1989  *  ===============================                SY = 208.25  |
|            *                                                 SZ = 208.25  |
|            *  |<---LENGTH (FT)=     5.00 --->|                RY =  11.56  |
|*************                                                 RZ =  11.56  |
|                                                                           |
|               466.6 (KIP-FEET)                                            |
|PARAMETER     |L1                                              STRESSES    |
|IN KIP  INCH  |   L1                                           IN KIP  INCH|
|--------------+       L1  L1                                   ------------|
| KL/R-Y=  5.19 |              L1                               FA  =  39.60 |
| KL/R-Z=  5.19 +                                               fa  =   0.39 |
| UNL   = 60.00 |                  L1   L1                      FCZ =  51.87 |
| CB    =  1.00 +                                               FTZ =  51.87 |
| CMY   =  0.85 |                          L1                    FCY =  51.87 |
| CMZ   =  0.85 +                              L1   L1          FTY =  51.87 |
| FYLD  = 86.45 |                                        L1     fbz =  26.89 |
| NSF   =  1.00 +---+---+---+---+---+---+---+---+---+---|       fby =   0.00 |
| DFF   =  0.00 342.4                                           FV  =  34.58 |
| dff   =  0.00               ABSOLUTE MZ ENVELOPE              Fey =5541.33 |
|                               (WITH LOAD NO.)                 Fez =5541.33 |
|                                                                           |
|                  MAX FORCE/ MOMENT SUMMARY   (KIP-FEET)                   |
|                  -------------------------                                |
|                                                                           |
|             AXIAL       SHEAR-Y     SHEAR-Z     MOMENT-Y     MOMENT-Z     |
|                                                                           |
|     VALUE    19.8        23.9         0.0         0.0         466.6       |
|  LOCATION    0.0         0.0         0.0         0.0           0.0       |
|   LOADING     2           1           0           0             1        |
|                                                                           |
|***************************************************************************|
|*                                                                         *|
|*                     DESIGN SUMMARY   (KIP-FEET)                         *|
|*                     --------------                                      *|
|*                                                                         *|
|*      RESULT/      CRITICAL COND/      RATIO/          LOADING/          *|
|         FX              MY              MZ            LOCATION           |
|       ===================================================               |
|         PASS        AISC- H1-3          0.528             1              |
|         9.98 C         0.00            466.63            0.00             |
|*                                                                         *|
|***************************************************************************|
|                                                                           |
|---------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
|-----------------------------------------------------------------------------|
|                                                          Y        PROPERTIES  |
|*************                                             |        IN INCH UNIT|
|            *  |=============================|                      ------------|
|MEMBER  27  *  |                             |                      AX =  24.52 |
|            *  |         ST  PIP E           |             --Z      AY =  14.71 |
|DESIGN CODE *  |                             |                      AZ =  14.71 |
| AISC-1989  *  ===============================                      SY = 189.82 |
|            *                                                       SZ = 189.82 |
|            *  |<---LENGTH (FT)=    5.00 --->|                       RY =  11.04 |
|*************                                                       RZ =  11.04 |
|                                                                              |
|              349.0 (KIP-FEET)                                                |
|PARAMETER      |L1                                                STRESSES    |
|IN KIP  INCH   |   L1                                             IN KIP  INCH|
|---------------+       L1  L1                                     ------------|
| KL/R-Y=  5.44 |               L1                                 FA  =  39.84|
| KL/R-Z=  5.44 +                                                  fa  =   0.32|
| UNL   = 60.00 |                   L1  L1                         FCZ =  51.87|
| CB    =  1.00 +                                                  FTZ =  51.87|
| CMY   =  0.85 |                           L1                     FCY =  51.87|
| CMZ   =  0.85 +                               L1  L1             FTY =  51.87|
| FYLD  = 86.45 |                                       L1         fbz =  22.06|
| NSF   =  1.00 +---+---+---+---+---+---+---+---+---+---|          fby =   0.00|
| DFF   =  0.00 250.4                                              FV  =  34.58|
| dff   =  0.00             ABSOLUTE MZ ENVELOPE                   Fey =5052.90|
|                              (WITH LOAD NO.)                      Fez =5052.90|
|                                                                              |
|                   MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                      |
|                   -------------------------                                  |
|                                                                              |
|                AXIAL      SHEAR-Y     SHEAR-Z    MONENT-Y    MOMENT-Z        |
|                                                                              |
|       VALUE     15.2         19.0         0.0         0.0       349.0        |
|    LOCATION      0.0          0.0         0.0         0.0         0.0        |
|     LOADING        2            1           0           0           1        |
|                                                                              |
|******************************************************************************|
|*                                                                            *|
|*                   DESIGN SUMMARY  (KIP-FEET)                               *|
|*                   --------------                                           *|
|*                                                                            *|
|*      RESULT/    CRITICAL COND/     RATIO/         LOADING/                 *|
|        FX              MY            MZ           LOCATION                   |
|       =======================================================                |
|        PASS       AISC- H1-3        0.433              1                     |
|        7.78 C        0.00          348.98            0.00                    |
|*                                                                            *|
|******************************************************************************|
|                                                                              |
|------------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
|-------------------------------------------------------------------------|
|                                                 Y        PROPERTIES     |
|*************                                    |        IN INCH UNIT   |
|            * |=============================|             -----------    |
|MEMBER  28  * |                             |             AX =  23.36    |
|            * |        ST   PIP E           |         --Z AY =  14.02    |
|DESIGN CODE * |                             |             AZ =  14.02    |
| AISC-1989  * ===============================             SY = 172.24    |
|            *                                             SZ = 172.24    |
|            * |<---LENGTH (FT)=     5.00 --->|            RY =  10.52    |
|*************                                             RZ =  10.52    |
|                                                                         |
|                255.6 (KIP-FEET)                                          |
|PARAMETER       |L1                                       STRESSES       |
|IN KIP  INCH    |    L1                                   IN KIP   INCH  |
|--------------- +        L1   L1                          -------------  |
| KL/R-Y=    5.71 |                L1                      FA   =  40.10  |
| KL/R-Z=    5.71 +                                        fa   =   0.31  |
| UNL    =  60.00 |                    L1   L1             FCZ  =  51.87  |
| CB     =   1.00 +                                        FTZ  =  51.87  |
| CMY    =   0.85 |                            L1          FCY  =  51.87  |
| CMZ    =   0.85 +                                L1   L1 FTY  =  51.87  |
| FYLD   =  86.45 |                                    L1  fbz  =  17.81  |
| NSF    =   1.00 +---+---+---+---+---+---+---+---+---+---| fby  =   0.00 |
| DFF    =   0.00 160.6                                    FV   =  34.58  |
| dff    =   0.00              ABSOLUTE MZ ENVELOPE        Fey =4586.70   |
|                                (WITH LOAD NO.)            Fez =4586.70   |
|                                                                         |
|                    MAX FORCE/ MOMENT SUMMARY    (KIP-FEET)               |
|                    -------------------------                            |
|                                                                         |
|               AXIAL      SHEAR-Y     SHEAR-Z     MOMENT-Y    MOMENT-Z   |
|                                                                         |
|       VALUE    14.6        18.3         0.0         0.0       255.6     |
|    LOCATION     0.0         0.0         0.0         0.0         0.0     |
|     LOADING       2           1           0           0           1     |
|                                                                         |
|*************************************************************************|
|*                                                                       *|
|*                      DESIGN SUMMARY   (KIP-FEET)                      *|
|*                      --------------                                   *|
|*                                                                       *|
|*      RESULT/      CRITICAL COND/     RATIO/         LOADING/          *|
|        FX                MY            MZ           LOCATION           |
|       ======================================================            |
|        PASS         AISC- H1-3         0.351             1              |
|        7.18 C          0.00          255.64            0.00             |
|*                                                                       *|
|*************************************************************************|
|                                                                         |
|-------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
|---------------------------------------------------------------------------|
|                                                      Y        PROPERTIES  |
|*************                                         |        IN INCH UNIT|
|            *  |=============================|                 ------------|
|MEMBER  29  *  |                             |                 AX =  22.20 |
|            *  |         ST   PIP E          |             --Z AY =  13.32 |
|DESIGN CODE *  |                             |                 AZ =  13.32 |
| AISC-1989  *  ===============================                 SY = 155.51 |
|            *                                                  SZ = 155.51 |
|            *  |<---LENGTH (FT)=     5.00 --->|                 RY =   9.99 |
|*************                                                  RZ =   9.99 |
|                                                                           |
|               165.6 (KIP-FEET)                                            |
|PARAMETER      |L1                                             STRESSES    |
|IN KIP  INCH   |  L1                                           IN KIP  INCH|
|---------------+     L1  L1                                    ------------|
| KL/R-Y=  6.00 |            L1                                 FA  =  40.38|
| KL/R-Z=  6.00 +                                               fa  =   0.22|
| UNL  =  60.00 |               L1  L1                          FCZ =  51.87|
| CB   =   1.00 +                                               FTZ =  51.87|
| CMY  =   0.85 |                     L1                        FCY =  51.87|
| CMZ  =   0.85 +                        L1  L1                 FTY =  51.87|
| FYLD =  86.45 |                                 L1            fbz =  12.78|
| NSF  =   1.00 +---+---+---+---+---+---+---+---+---|           fby =   0.00|
| DFF  =   0.00 100.7                                           FV  =  34.58|
| dff  =   0.00            ABSOLUTE MZ ENVELOPE                 Fey =4143.06|
|                             (WITH LOAD NO.)                   Fez =4143.06|
|                                                                           |
|                    MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                  |
|                    -------------------------                              |
|                                                                           |
|               AXIAL      SHEAR-Y    SHEAR-Z    MONENT-Y    MOMENT-Z       |
|                                                                           |
|      VALUE      9.9        12.6        0.0        0.0        165.6        |
|   LOCATION      0.0         0.0        0.0        0.0          0.0        |
|    LOADING        2           1          0          0            1        |
|                                                                           |
|***************************************************************************|
|*                                                                         *|
|*                       DESIGN SUMMARY  (KIP-FEET)                        *|
|*                       --------------                                    *|
|*                                                                         *|
|*     RESULT/      CRITICAL COND/     RATIO/        LOADING/              *|
|       FX                MY           MZ            LOCATION              |
|     ======================================================               |
|       PASS         AISC- H1-3        0.252             1                 |
|       4.97 C          0.00         165.58            0.00                |
|*                                                                         *|
|***************************************************************************|
|                                                                           |
|---------------------------------------------------------------------------|
```

```
                    STAAD-III CODE CHECKING - (AISC)
                    ***********************

|-----------------------------------------------------------------------------|
|                                                     Y          PROPERTIES    |
|*************                                        |          IN INCH UNIT  |
|            *  |===========================|                    ------------  |
|MEMBER  30  *  |                           |                    AX =  21.04   |
|            *  |       ST  PIP E           |              --Z   AY =  12.63   |
|DESIGN CODE *  |                           |                    AZ =  12.63   |
| AISC-1989  *  ==============================                   SY = 139.65   |
|            *                                                   SZ = 139.65   |
|            *  |<---LENGTH (FT)=     5.00 --->|                 RY =   9.47   |
|*************                                                   RZ =   9.47   |
|                                                                              |
|               104.1 (KIP-FEET)                                               |
|PARAMETER      |L1                                              STRESSES      |
|IN KIP  INCH   |   L1                                           IN KIP  INCH  |
|-------------- +       L1  L1                                   ------------- |
| KL/R-Y=   6.33 |              L1                               FA  =  40.70  |
| KL/R-Z=   6.33 +                                               fa  =   0.21  |
| UNL   =  60.00 |                  L1  L1                       FCZ =  51.87  |
| CB    =   1.00 +                                               FTZ =  51.87  |
| CMY   =   0.85 |                          L1                   FCY =  51.87  |
| CMZ   =   0.85 +                              L1  L1           FTY =  51.87  |
| FYLD  =  86.45 |                                      L1       fbz =   8.95  |
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|       fby =   0.00  |
| DFF   =   0.00 42.6                                            FV  =  34.58  |
| dff   =   0.00              ABSOLUTE MZ ENVELOPE               Fey =3722.26  |
|                                (WITH LOAD NO.)                 Fez =3722.26  |
|                                                                              |
|                    MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                     |
|                    -------------------------                                 |
|                                                                              |
|               AXIAL      SHEAR-Y     SHEAR-Z    MOMENT-Y    MOMENT-Z          |
|                                                                              |
|      VALUE     9.4        12.0         0.0         0.0       104.1            |
|   LOCATION     0.0         0.0         0.0         0.0         0.0            |
|    LOADING       2           1           0           0           1            |
|                                                                              |
|******************************************************************************|
|*                                                                            *|
|*                       DESIGN SUMMARY  (KIP-FEET)                           *|
|*                       --------------                                       *|
|*                                                                            *|
|*      RESULT/     CRITICAL COND/     RATIO/        LOADING/                 *|
|        FX              MY            MZ           LOCATION                   |
|       ===================================================                    |
|        PASS        AISC- H1-3        0.178            1                      |
|         4.45 C          0.00       104.13           0.00                     |
|*                                                                            *|
|******************************************************************************|
|                                                                              |
|-----------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)

```
                  STAAD-III CODE CHECKING - (AISC)
                  ************************

|--------------------------------------------------------------------------|
|                                                Y          PROPERTIES     |
|*************                                   |          IN INCH UNIT   |
|            *   |============================|             -----------   |
|MEMBER  31  *   |                            |             AX =   19.88  |
|            *   |       ST  PIP E            |         --Z AY =   11.93  |
|DESIGN CODE *   |                            |             AZ =   11.93  |
| AISC-1989  *   ==============================             SY = 124.63   |
|            *                                              SZ = 124.63   |
|            *   |<---LENGTH (FT)=    5.00 --->|             RY =    8.95  |
|*************                                              RZ =    8.95  |
|                                                                          |
|                 45.8 (KIP-FEET)                                          |
|PARAMETER       |L1                                        STRESSES      |
|IN KIP  INCH    |    L1                                    IN KIP  INCH  |
|--------------- +       L1  L1                             -------------|
| KL/R-Y=   6.70 |               L1                         FA  =  41.05  |
| KL/R-Z=   6.70 +                                          fa  =   0.12  |
| UNL   =  60.00 |                  L1  L1                  FCZ =  51.87  |
| CB    =   1.00 +                                          FTZ =  51.87  |
| CMY   =   0.85 |                        L1                FCY =  51.87  |
| CMZ   =   0.85 +                           L1  L1         FTY =  51.87  |
| FYLD  =  86.45 |                                 L1       fbz =   4.41  |
| NSF   =   1.00 +---+---+---+---+---+---+---+---+---+---|  fby =   0.00  |
| DFF   =   0.00 14.7                                       FV  =  34.58  |
| dff   =   0.00            ABSOLUTE MZ ENVELOPE            Fey =3323.73  |
|                             (WITH LOAD NO.)                Fez =3323.73  |
|                                                                          |
|                 MAX FORCE/ MOMENT SUMMARY  (KIP-FEET)                    |
|                 -------------------------                                |
|                                                                          |
|              AXIAL      SHEAR-Y    SHEAR-Z    MOMENT-Y    MOMENT-Z       |
|                                                                          |
|      VALUE     4.8         6.2        0.0         0.0        45.8        |
|   LOCATION     0.0         0.0        0.0         0.0         0.0        |
|    LOADING       2           1          0           0           1        |
|                                                                          |
|**************************************************************************|
|*                                                                        *|
|*                     DESIGN SUMMARY  (KIP-FEET)                         *|
|*                     --------------                                     *|
|*                                                                        *|
|*      RESULT/     CRITICAL COND/     RATIO/        LOADING/             *|
|        FX              MY             MZ           LOCATION              |
|       ======================================================             |
|         PASS       AISC- H1-3        0.088             1                 |
|         2.33 C         0.00         45.79            0.00                |
|*                                                                        *|
|**************************************************************************|
|                                                                          |
|--------------------------------------------------------------------------|
```

STAAD-III CODE CHECKING - (AISC)
****

```
**************
*            *
MEMBER  32   *
*            *
DESIGN CODE  *
 AISC-1989   *
*            *
**************
```

ST PIP E

<---LENGTH (FT)= 3.00 --->

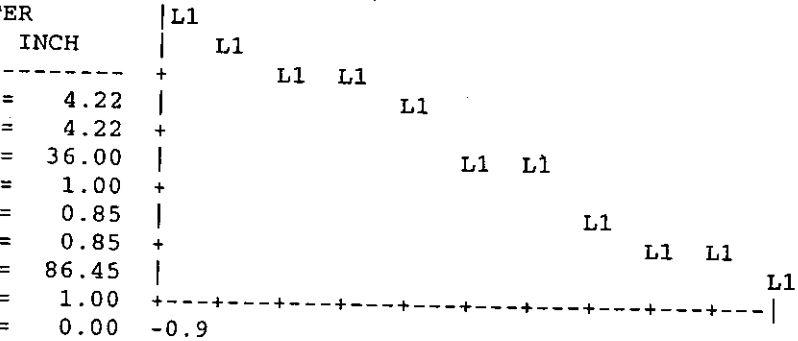
Y
|
--Z

PROPERTIES IN INCH UNIT

AX =	18.96
AY =	11.37
AZ =	11.37
SY =	113.23
SZ =	113.23
RY =	8.53
RZ =	8.53

PARAMETER		IN KIP INCH
KL/R-Y=	4.22	
KL/R-Z=	4.22	
UNL =	36.00	
CB =	1.00	
CMY =	0.85	
CMZ =	0.85	
FYLD =	86.45	
NSF =	1.00	
DFF =	0.00	
dff =	0.00	

16.3 (KIP-FEET)



ABSOLUTE MZ ENVELOPE
(WITH LOAD NO.)

STRESSES IN KIP INCH

FA =	41.37
fa =	0.10
FCZ =	51.87
FTZ =	51.87
FCY =	51.87
FTY =	51.87
fbz =	1.73
fby =	0.00
FV =	34.58
Fey =	8392.07
Fez =	8392.07

MAX FORCE/ MOMENT SUMMARY (KIP-FEET)

	AXIAL	SHEAR-Y	SHEAR-Z	MOMENT-Y	MOMENT-Z
VALUE	4.4	5.6	0.0	0.0	16.3
LOCATION	0.0	0.0	0.0	0.0	0.0
LOADING	2	1	0	0	1

DESIGN SUMMARY (KIP-FEET)

RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
PASS	AISC- H1-3	0.036	1
1.88 C	0.00	16.31	0.00

561. UNIT FEET KIP
562. PRINT SUPPORT REACTION ALL

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	1	-49.39	44.97	0.00	0.00	0.00	5023.66
	2	-42.35	58.68	0.00	0.00	0.00	4351.86
	3	-17.10	44.97	0.00	0.00	0.00	1739.42

********** END OF LATEST ANALYSIS RESULT **********

563. UNIT INCHES KIP
564. PERFORM ANALYSIS
++ Processing Element Stiffness Matrix. 11:11: 1
++ Processing Global Stiffness Matrix. 11:11: 1
++ Processing Triangular Factorization. 11:11: 1
++ Calculating Joint Displacements. 11:11: 1
++ Calculating Member Forces. 11:11: 1

565. LOAD LIST 3
566. PRINT JOINT DISPLACMENTS ALL

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	3	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	3	0.03182	-0.00097	0.00000	0.00000	0.00000	-0.00100
3	3	0.12406	-0.00191	0.00000	0.00000	0.00000	-0.00201
4	3	0.27767	-0.00283	0.00000	0.00000	0.00000	-0.00304
5	3	0.49361	-0.00373	0.00000	0.00000	0.00000	-0.00409
6	3	0.77281	-0.00461	0.00000	0.00000	0.00000	-0.00515
7	3	1.11619	-0.00546	0.00000	0.00000	0.00000	-0.00623
8	3	1.52464	-0.00629	0.00000	0.00000	0.00000	-0.00732
9	3	1.99901	-0.00709	0.00000	0.00000	0.00000	-0.00842
10	3	2.54007	-0.00787	0.00000	0.00000	0.00000	-0.00954
11	3	3.14808	-0.00862	0.00000	0.00000	0.00000	-0.01065
12	3	3.83354	-0.00959	0.00000	0.00000	0.00000	-0.01210
13	3	4.60471	-0.01052	0.00000	0.00000	0.00000	-0.01351
14	3	5.45950	-0.01143	0.00000	0.00000	0.00000	-0.01489
15	3	6.39546	-0.01230	0.00000	0.00000	0.00000	-0.01622
16	3	7.40984	-0.01314	0.00000	0.00000	0.00000	-0.01750
17	3	8.16473	-0.01371	0.00000	0.00000	0.00000	-0.01836
18	3	8.49922	-0.01395	0.00000	0.00000	0.00000	-0.01873
19	3	9.66893	-0.01489	0.00000	0.00000	0.00000	-0.02014
20	3	10.92243	-0.01581	0.00000	0.00000	0.00000	-0.02152
21	3	12.25631	-0.01667	0.00000	0.00000	0.00000	-0.02283
22	3	13.66675	-0.01750	0.00000	0.00000	0.00000	-0.02406
23	3	15.14875	-0.01827	0.00000	0.00000	0.00000	-0.02521
24	3	16.69662	-0.01902	0.00000	0.00000	0.00000	-0.02625
25	3	17.65394	-0.01941	0.00000	0.00000	0.00000	-0.02684
26	3	18.30373	-0.01967	0.00000	0.00000	0.00000	-0.02722
27	3	19.97216	-0.02045	0.00000	0.00000	0.00000	-0.02825
28	3	21.69667	-0.02108	0.00000	0.00000	0.00000	-0.02911
29	3	23.46843	-0.02169	0.00000	0.00000	0.00000	-0.02981
30	3	25.27585	-0.02213	0.00000	0.00000	0.00000	-0.03034
31	3	27.10926	-0.02254	0.00000	0.00000	0.00000	-0.03068
32	3	28.95652	-0.02276	0.00000	0.00000	0.00000	-0.03084
33	3	30.06809	-0.02288	0.00000	0.00000	0.00000	-0.03087

********** END OF LATEST ANALYSIS RESULT **********

567. FINISH

********** END OF STAAD-III **********

**** DATE= DEC 2,1999 TIME= 11:11: 2 ****

Licensed to: Software Coordinator

URS Greiner

LATERALLY LOADED PILE ANALYSIS PROGRAM LPILE plus
PC VERSION 3.0 (C) COPYRIGHT ENSOFT,INC. 1997
THE PROGRAM WAS COMPILED USING MICROSOFT FORTRAN COMPILER,
(C) COPYRIGHT MICROSOFT CORPORATION

Madison Police Station

****
ULTIMATE BENDING RESISTANCE AND FLEXURAL RIGIDITY
****

DIAMETER = 84.00 IN

CONCRETE COMPRESSIVE STRENGTH = 3.000000 KIP/IN**2

REBAR YIELD STRENGTH = 60.000000 KIP/IN**2

MODULUS OF ELASTICITY OF STEEL = 29000.000000 KIP/IN**2

NUMBER OF REINFORCING BARS = 30

AREA OF ONE REBAR = .156E+01 IN**2

NUMBER OF ROWS OF REINFORCING BARS = 15

COVER THICKNESS = 6.035 IN

SQUASH LOAD CAPACITY = 16820.17 KIP

ROW NUMBER	AREA OF REINFORCEMENT IN**2	DISTANCE TO CENTROIDAL AXIS IN
1	3.120000	35.7680
2	3.120000	34.2048
3	3.120000	31.1466
4	3.120000	26.7273
5	3.120000	21.1397
6	3.120000	14.6283
7	3.120000	7.4776
8	3.120000	.0000
9	3.120000	-7.4776
10	3.120000	-14.6283
11	3.120000	-21.1397
12	3.120000	-26.7273
13	3.120000	-31.1466
14	3.120000	-34.2048
15	3.120000	-35.7680

OUTPUT RESULTS FOR AN AXIAL LOAD = 50.00 KIP
****

MOMENT IN-KIP	EI KIP-IN**2	PHI 1/IN	MAX STR IN/IN	N AXIS IN
.853E+04	.85251E+10	.000001	.00004	44.828
.103E+05	.20682E+10	.000005	.00012	23.248
.177E+05	.19657E+10	.000009	.00020	22.451
.250E+05	.19217E+10	.000013	.00029	22.238
.322E+05	.18946E+10	.000017	.00038	22.146
.394E+05	.18747E+10	.000021	.00046	22.131
.465E+05	.18585E+10	.000025	.00055	22.158
.535E+05	.18442E+10	.000029	.00064	22.211
.604E+05	.18312E+10	.000033	.00074	22.283
.673E+05	.18188E+10	.000037	.00083	22.369
.723E+05	.17632E+10	.000041	.00091	22.259
.757E+05	.16815E+10	.000045	.00099	22.008
.783E+05	.15971E+10	.000049	.00106	21.725
.802E+05	.15139E+10	.000053	.00114	21.424
.883E+05	.10642E+10	.000083	.00163	19.636
.914E+05	.80898E+09	.000113	.00209	18.496
.930E+05	.65031E+09	.000143	.00255	17.800
.939E+05	.54256E+09	.000173	.00298	17.205
.945E+05	.46565E+09	.000203	.00342	16.835
.947E+05	.40648E+09	.000233	.00389	16.713

THE ULTIMATE BENDING MOMENT AT A CONCRETE STRAIN OF 0.003
IS : .939E+05 IN-KIP

$\frac{0.939 \times 10^5}{12 \times 1.3} \times 0.9 = 5417.3$ ft-k > 5050 ft-k

PROGRAM LPILE plus Version 3.0

Madison Police Station

UNITS--ENGLISH UNITS

I N P U T I N F O R M A T I O N

****

THE LOADING IS STATIC

PILE GEOMETRY AND PROPERTIES

PILE LENGTH = 324.00 IN
2 POINTS

X IN	DIAMETER IN	MOMENT OF INERTIA IN**4	AREA IN**2	MODULUS OF ELASTICITY LBS/IN**2
.00	84.000	.244E+07	.554E+04	.300E+07
324.00	84.000	.244E+07	.554E+04	.300E+07

SOILS INFORMATION

X AT THE GROUND SURFACE = 12.00 IN

SLOPE ANGLE AT THE GROUND SURFACE = .00 DEG.

3 LAYER(S) OF SOIL

LAYER 1
THE SOIL IS A SAND - P-Y CRITERIA BY REESE ET AL, 1974
X AT THE TOP OF THE LAYER = 12.00 IN
X AT THE BOTTOM OF THE LAYER = 84.00 IN
MODULUS OF SUBGRADE REACTION = .750E+02 LBS/IN**3

LAYER 2
THE SOIL IS A SAND - P-Y CRITERIA BY REESE ET AL, 1974
X AT THE TOP OF THE LAYER = 84.00 IN
X AT THE BOTTOM OF THE LAYER = 180.00 IN
MODULUS OF SUBGRADE REACTION = .750E+02 LBS/IN**3

LAYER 3
THE SOIL IS A SAND - P-Y CRITERIA BY REESE ET AL, 1974
X AT THE TOP OF THE LAYER = 180.00 IN
X AT THE BOTTOM OF THE LAYER = 400.00 IN
MODULUS OF SUBGRADE REACTION = .600E+03 LBS/IN**3

DISTRIBUTION OF EFFECTIVE UNIT WEIGHT WITH DEPTH
5 POINTS

X,IN	WEIGHT,LBS/IN**3
12.00	.78E-01
84.00	.78E-01
180.00	.42E-01
180.00	.59E-01
400.00	.59E-01

DISTRIBUTION OF STRENGTH PARAMETERS WITH DEPTH
6 POINTS

X,IN	C,LBS/IN**2	PHI,DEGREES	E50
12.00	.000E+00	36.000	.100E-02
84.00	.000E+00	36.000	.100E-02
84.00	.000E+00	36.000	.100E-02
180.00	.000E+00	36.000	.100E-02
180.00	.000E+00	.450E+02	-----
400.00	.000E+00	.450E+02	-----

BOUNDARY AND LOADING CONDITIONS

LOADING NUMBER 1

BOUNDARY-CONDITION CODE = 1
LATERAL LOAD AT THE PILE HEAD = .470E+05 LBS
MOMENT AT THE PILE HEAD = .606E+08 IN-LBS
AXIAL LOAD AT THE PILE HEAD = .350E+05 LBS

FINITE-DIFFERENCE PARAMETERS
NUMBER OF PILE INCREMENTS = 100
DEFLECTION TOLERANCE ON DETERMINATION OF CLOSURE = .100E-04 IN
MAXIMUM NUMBER OF ITERATIONS ALLOWED FOR PILE ANALYSIS = 100
MAXIMUM ALLOWABLE DEFLECTION = .10E+03 IN

OUTPUT CODES
KOUTPT = 1
KPYOP = 0
INC = 1

O U T P U T I N F O R M A T I O N

****

****
* COMPUTE LOAD-DISTRIBUTION AND LOAD-DEFLECTION *
* CURVES FOR LATERAL LOADING *
****

LOADING NUMBER 1

BOUNDARY CONDITION CODE = 1
LATERAL LOAD AT THE PILE HEAD = .470E+05 LBS
MOMENT AT THE PILE HEAD = .606E+08 IN-LBS
AXIAL LOAD AT THE PILE HEAD = .350E+05 LBS

X	DEFLECTION	MOMENT	SHEAR	SLOPE	TOTAL STRESS	FLEXURAL RIGIDITY	SOIL REACTION
IN	IN	LBS-IN	LBS	RAD.	LBS/IN**2	LBS-IN**2	LBS/IN
.0	.590E+00	.606E+08	.470E+05	-.340E-02	.105E+04	.733E+13	.000E+00
3.2	.579E+00	.608E+08	.470E+05	-.338E-02	.105E+04	.733E+13	.000E+00
6.5	.569E+00	.609E+08	.470E+05	-.335E-02	.105E+04	.733E+13	.000E+00
9.7	.558E+00	.611E+08	.470E+05	-.332E-02	.106E+04	.733E+13	.000E+00
13.0	.547E+00	.612E+08	.469E+05	-.330E-02	.106E+04	.733E+13	-.382E+02
16.2	.536E+00	.614E+08	.466E+05	-.327E-02	.106E+04	.733E+13	-.169E+03
19.4	.526E+00	.615E+08	.459E+05	-.324E-02	.106E+04	.733E+13	-.293E+03
22.7	.515E+00	.617E+08	.447E+05	-.321E-02	.107E+04	.733E+13	-.413E+03
25.9	.505E+00	.618E+08	.432E+05	-.319E-02	.107E+04	.733E+13	-.527E+03
29.2	.495E+00	.619E+08	.413E+05	-.316E-02	.107E+04	.733E+13	-.637E+03
32.4	.485E+00	.621E+08	.391E+05	-.313E-02	.107E+04	.733E+13	-.741E+03
35.6	.474E+00	.622E+08	.365E+05	-.311E-02	.108E+04	.733E+13	-.841E+03
38.9	.464E+00	.623E+08	.336E+05	-.308E-02	.108E+04	.733E+13	-.936E+03
42.1	.454E+00	.624E+08	.304E+05	-.305E-02	.108E+04	.733E+13	-.103E+04
45.4	.445E+00	.625E+08	.270E+05	-.302E-02	.108E+04	.733E+13	-.111E+04
48.6	.435E+00	.626E+08	.232E+05	-.300E-02	.108E+04	.733E+13	-.119E+04
51.8	.425E+00	.627E+08	.193E+05	-.297E-02	.108E+04	.733E+13	-.127E+04
55.1	.416E+00	.627E+08	.150E+05	-.294E-02	.108E+04	.733E+13	-.134E+04
58.3	.406E+00	.628E+08	.106E+05	-.291E-02	.108E+04	.733E+13	-.141E+04
61.6	.397E+00	.628E+08	.588E+04	-.288E-02	.109E+04	.733E+13	-.147E+04
64.8	.388E+00	.628E+08	.100E+04	-.286E-02	.109E+04	.733E+13	-.153E+04
68.0	.378E+00	.628E+08	-.406E+04	-.283E-02	.109E+04	.733E+13	-.159E+04
71.3	.369E+00	.628E+08	-.929E+04	-.280E-02	.109E+04	.733E+13	-.164E+04
74.5	.360E+00	.627E+08	-.147E+05	-.277E-02	.108E+04	.733E+13	-.169E+04
77.8	.351E+00	.627E+08	-.202E+05	-.275E-02	.108E+04	.733E+13	-.173E+04
81.0	.342E+00	.626E+08	-.259E+05	-.272E-02	.108E+04	.733E+13	-.177E+04
84.2	.334E+00	.625E+08	-.316E+05	-.269E-02	.108E+04	.733E+13	-.175E+04
87.5	.325E+00	.624E+08	-.374E+05	-.266E-02	.108E+04	.733E+13	-.179E+04

90.7	.316E+00	.623E+08	-.432E+05	-.264E-02	.108E+04	.733E+13	-.182E+04
94.0	.308E+00	.621E+08	-.491E+05	-.261E-02	.107E+04	.733E+13	-.184E+04
97.2	.299E+00	.619E+08	-.551E+05	-.258E-02	.107E+04	.733E+13	-.187E+04
100.4	.291E+00	.618E+08	-.612E+05	-.255E-02	.107E+04	.733E+13	-.188E+04
103.7	.283E+00	.616E+08	-.673E+05	-.253E-02	.106E+04	.733E+13	-.190E+04
106.9	.275E+00	.613E+08	-.735E+05	-.250E-02	.106E+04	.733E+13	-.191E+04
110.2	.267E+00	.611E+08	-.797E+05	-.247E-02	.106E+04	.733E+13	-.192E+04
113.4	.259E+00	.608E+08	-.860E+05	-.244E-02	.105E+04	.733E+13	-.193E+04
116.6	.251E+00	.605E+08	-.922E+05	-.242E-02	.105E+04	.733E+13	-.193E+04
119.9	.243E+00	.602E+08	-.984E+05	-.239E-02	.104E+04	.733E+13	-.193E+04
123.1	.235E+00	.599E+08	-.105E+06	-.236E-02	.104E+04	.733E+13	-.192E+04
126.4	.228E+00	.595E+08	-.111E+06	-.234E-02	.103E+04	.733E+13	-.192E+04
129.6	.220E+00	.592E+08	-.117E+06	-.231E-02	.102E+04	.733E+13	-.191E+04
132.8	.213E+00	.588E+08	-.123E+06	-.229E-02	.102E+04	.733E+13	-.189E+04
136.1	.205E+00	.584E+08	-.129E+06	-.226E-02	.101E+04	.733E+13	-.188E+04
139.3	.198E+00	.579E+08	-.135E+06	-.223E-02	.100E+04	.733E+13	-.186E+04
142.6	.191E+00	.575E+08	-.141E+06	-.221E-02	.994E+03	.733E+13	-.184E+04
145.8	.184E+00	.570E+08	-.147E+06	-.218E-02	.986E+03	.733E+13	-.182E+04
149.0	.177E+00	.565E+08	-.153E+06	-.216E-02	.978E+03	.733E+13	-.179E+04
152.3	.170E+00	.560E+08	-.159E+06	-.213E-02	.969E+03	.733E+13	-.176E+04
155.5	.163E+00	.555E+08	-.165E+06	-.211E-02	.960E+03	.733E+13	-.173E+04
158.8	.156E+00	.550E+08	-.170E+06	-.208E-02	.951E+03	.733E+13	-.169E+04
162.0	.149E+00	.544E+08	-.176E+06	-.206E-02	.941E+03	.733E+13	-.166E+04
165.2	.143E+00	.538E+08	-.181E+06	-.204E-02	.931E+03	.733E+13	-.162E+04
168.5	.136E+00	.532E+08	-.186E+06	-.201E-02	.921E+03	.733E+13	-.158E+04
171.7	.130E+00	.526E+08	-.191E+06	-.199E-02	.911E+03	.733E+13	-.153E+04
175.0	.123E+00	.520E+08	-.196E+06	-.197E-02	.900E+03	.733E+13	-.149E+04
178.2	.117E+00	.514E+08	-.201E+06	-.194E-02	.889E+03	.733E+13	-.144E+04
181.4	.111E+00	.507E+08	-.214E+06	-.192E-02	.878E+03	.733E+13	-.691E+04
184.7	.105E+00	.500E+08	-.237E+06	-.190E-02	.865E+03	.733E+13	-.695E+04
187.9	.985E-01	.492E+08	-.259E+06	-.188E-02	.851E+03	.733E+13	-.697E+04
191.2	.924E-01	.483E+08	-.282E+06	-.186E-02	.836E+03	.733E+13	-.698E+04
194.4	.865E-01	.473E+08	-.304E+06	-.183E-02	.820E+03	.733E+13	-.697E+04
197.6	.805E-01	.463E+08	-.327E+06	-.181E-02	.802E+03	.733E+13	-.689E+04
200.9	.747E-01	.452E+08	-.349E+06	-.179E-02	.783E+03	.733E+13	-.654E+04
204.1	.689E-01	.441E+08	-.369E+06	-.177E-02	.763E+03	.733E+13	-.617E+04
207.4	.632E-01	.428E+08	-.389E+06	-.175E-02	.742E+03	.733E+13	-.578E+04
210.6	.576E-01	.415E+08	-.407E+06	-.174E-02	.720E+03	.733E+13	-.537E+04
213.8	.520E-01	.402E+08	-.423E+06	-.172E-02	.697E+03	.733E+13	-.495E+04
217.1	.464E-01	.388E+08	-.439E+06	-.170E-02	.673E+03	.733E+13	-.451E+04
220.3	.410E-01	.373E+08	-.453E+06	-.168E-02	.648E+03	.733E+13	-.406E+04
223.6	.355E-01	.359E+08	-.465E+06	-.167E-02	.623E+03	.733E+13	-.359E+04
226.8	.301E-01	.343E+08	-.476E+06	-.165E-02	.596E+03	.733E+13	-.311E+04
230.0	.248E-01	.328E+08	-.485E+06	-.164E-02	.570E+03	.733E+13	-.261E+04
233.3	.195E-01	.312E+08	-.493E+06	-.162E-02	.542E+03	.733E+13	-.209E+04
236.5	.143E-01	.296E+08	-.499E+06	-.161E-02	.515E+03	.733E+13	-.156E+04
239.8	.912E-02	.280E+08	-.503E+06	-.160E-02	.487E+03	.733E+13	-.101E+04
243.0	.396E-02	.263E+08	-.505E+06	-.158E-02	.459E+03	.733E+13	-.447E+03
246.2	-.115E-02	.247E+08	-.506E+06	-.157E-02	.431E+03	.733E+13	.132E+03
249.5	-.623E-02	.230E+08	-.504E+06	-.156E-02	.402E+03	.733E+13	.727E+03
252.7	-.113E-01	.214E+08	-.501E+06	-.155E-02	.374E+03	.733E+13	.134E+04
256.0	-.163E-01	.198E+08	-.496E+06	-.154E-02	.347E+03	.733E+13	.196E+04
259.2	-.213E-01	.182E+08	-.488E+06	-.154E-02	.319E+03	.733E+13	.261E+04
262.4	-.262E-01	.166E+08	-.479E+06	-.153E-02	.292E+03	.733E+13	.327E+04
265.7	-.312E-01	.151E+08	-.467E+06	-.152E-02	.266E+03	.733E+13	.394E+04
268.9	-.361E-01	.136E+08	-.453E+06	-.151E-02	.240E+03	.733E+13	.463E+04
272.2	-.410E-01	.122E+08	-.437E+06	-.151E-02	.215E+03	.733E+13	.534E+04
275.4	-.459E-01	.108E+08	-.418E+06	-.150E-02	.192E+03	.733E+13	.606E+04
278.6	-.507E-01	.946E+07	-.398E+06	-.150E-02	.169E+03	.733E+13	.681E+04
281.9	-.556E-01	.821E+07	-.374E+06	-.150E-02	.147E+03	.733E+13	.756E+04
285.1	-.604E-01	.703E+07	-.349E+06	-.149E-02	.127E+03	.733E+13	.796E+04
288.4	-.652E-01	.594E+07	-.323E+06	-.149E-02	.108E+03	.733E+13	.816E+04
291.6	-.701E-01	.494E+07	-.296E+06	-.149E-02	.912E+02	.733E+13	.835E+04
294.8	-.749E-01	.402E+07	-.269E+06	-.148E-02	.755E+02	.733E+13	.853E+04
298.1	-.797E-01	.320E+07	-.241E+06	-.148E-02	.613E+02	.733E+13	.869E+04

301.3	-.845E-01	.246E+07	-.213E+06	-.148E-02	.486E+02	.733E+13	.884E+04
304.6	-.893E-01	.182E+07	-.184E+06	-.148E-02	.376E+02	.733E+13	.898E+04
307.8	-.941E-01	.127E+07	-.155E+06	-.148E-02	.281E+02	.733E+13	.912E+04
311.0	-.989E-01	.818E+06	-.125E+06	-.148E-02	.204E+02	.733E+13	.930E+04
314.3	-.104E+00	.462E+06	-.943E+05	-.148E-02	.143E+02	.733E+13	.946E+04
317.5	-.108E+00	.207E+06	-.634E+05	-.148E-02	.987E+01	.733E+13	.963E+04
320.8	-.113E+00	.520E+05	-.319E+05	-.148E-02	.721E+01	.733E+13	.978E+04
324.0	-.118E+00	.000E+00	.000E+00	-.148E-02	.632E+01	.733E+13	.993E+04

OUTPUT VERIFICATION

THE MAXIMUM MOMENT IMBALANCE FOR ANY ELEMENT = -.105E-03 IN-LBS
THE MAX. LATERAL FORCE IMBALANCE FOR ANY ELEMENT = .266E-04 LBS

OUTPUT SUMMARY

PILE-HEAD DEFLECTION	=	.590E+00 IN
COMPUTED SLOPE AT PILE HEAD	=	-.340E-02
MAXIMUM BENDING MOMENT	=	.628E+08 LBS-IN
MAXIMUM SHEAR FORCE	=	-.506E+06 LBS
NO. OF ITERATIONS	=	11
NO. OF ZERO DEFLECTION POINTS	=	1

S U M M A R Y T A B L E
****

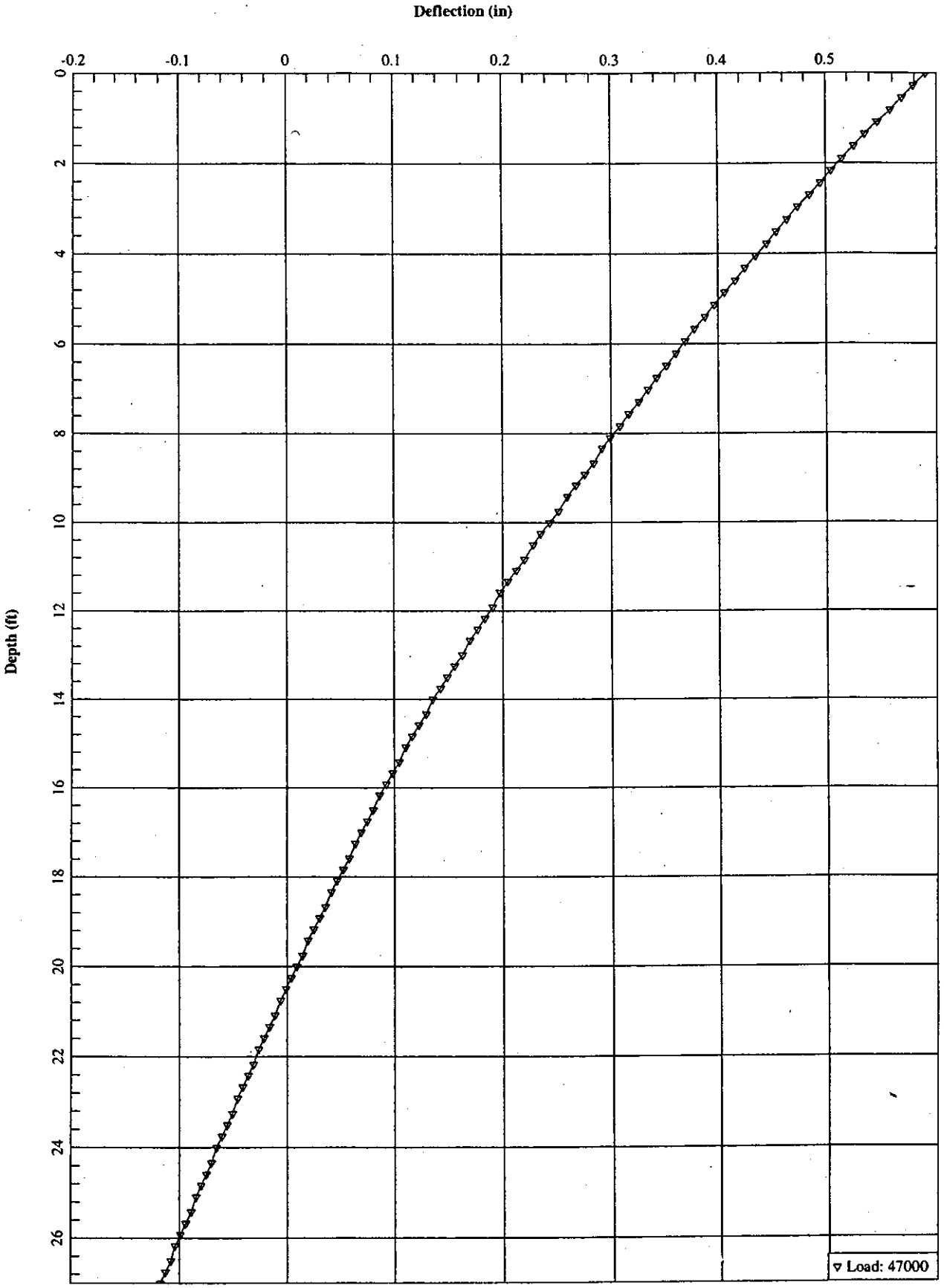
BOUNDARY CONDITION BC1	BOUNDARY CONDITION BC2	AXIAL LOAD LBS	PILE HEAD DEFLECTION IN	MAX. MOMENT IN-LBS	MAX. SHEAR LBS
.4700E+05	.6060E+08	.3500E+05	.5905E+00	.6280E+08	-.5057E+06

****
* COMPUTE PILE-HEAD STIFFNESS COMPONENTS *
* K22, K23, K32, K33 FOR SUPER-STRUCTURE *
****

S U M M A R Y T A B L E
****

LATERAL LOAD LBS	K22 LBS/IN	K23 LBS/RAD.	BENDING MOMENT IN-LBS	K32 IN-LBS/IN	K33 IN-LBS/RAD.
.4700E+04	.2338E+07	.3839E+09	.6060E+07	.3839E+09	.8439E+11
.1415E+05	.2338E+07	.3839E+09	.1824E+08	.3839E+09	.8439E+11
.2242E+05	.2338E+07	.3839E+09	.2891E+08	.3839E+09	.8439E+11
.2830E+05	.2338E+07	.3839E+09	.3648E+08	.3839E+09	.8439E+11
.3285E+05	.2338E+07	.3839E+09	.4236E+08	.3839E+09	.8439E+11
.3657E+05	.2338E+07	.3839E+09	.4716E+08	.3839E+09	.8439E+11
.3972E+05	.2338E+07	.3839E+09	.5121E+08	.3839E+09	.8439E+11
.4245E+05	.2338E+07	.3839E+09	.5473E+08	.3839E+09	.8439E+11
.4485E+05	.2338E+07	.3839E+09	.5783E+08	.3839E+09	.8439E+11

.4700E+05 .2338E+07 .3839E+09 .6060E+08 .3839E+09 .8439E+11


Deflection (in)
-0.2
-0.1
0
0.1
0.2
0.3
0.4
0.5
Depth (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
▽ Load: 47000

file 1844.438

AT&T WIRELESS SERVICES

CT-205 Site Summary
MPE (Maximum Possible Exposure) Study
August 6, 2001

A. Owner of the structure on which the antenna is located and the location of the antenna:

Name of owner of the structure on which the antenna is located:	
Owner of Structure:	Madison Police Dept
Address of structure:	Old Route 79
	Madison, CT

Latitude:	41° 40' 25" N
Longitude:	72° 51' 14" W

B. Owner of the antenna:

Name of the owner of the antenna:	AT&T Wireless Services
Address of antenna owner:	12 Omega Drive
	Stamford, CT 06907
Telephone number:	(203) 602-7000

C. Technical specifications:

FCC class (or type) of service:	PCS (IS-136)
Operating frequency of transmitter:	1965-1970MHz
Peak power output of transmitter:	8 Watts/per channel
Power into the antenna:	4 watts
Antenna manufacturer:	EMS
Antenna model:	RR90-17-00
Antenna type:	Panel
Gain of the antenna:	14.4 dBd
Antenna radiating pattern:	H-plane - 90°±3° E-plane –6°±1°
Polarization of radiation from antenna:	Vertical 180°
Effective radiating power:	881.4 watts ERP at centerline (maximum)

D. Power density information:

The power density values presented in the attached studies were achieved according to FCC OET-65 using the following formula:

$$S = \frac{33.4xP}{R^2}$$ (Equation 9, FCC OET-65)

Where: S = Power density in $\mu W/cm^2$
P = Power (watts) ERP (effective radiated power)
R = Distance (meters)

Five measurements were taken for this structure. Besides the AT&T carrier information, the previous emissions study for the Connecticut Siting Council (atch 2) for the other carriers were also included for the purposes of this study. In the case of the AT&T emissions, the worse case ground scenario is located at the base of the tower.

The results of this analysis indicate that the maximum level of RF energy in areas normally accessible to the public is below all applicable health and safety limits. Specifically, the maximum level of RF energy associated with simultaneous and continuous operation of all proposed transmitters will be less than 22.88% of the safety criteria adopted by the Federal Communication Commission as mandated by the Telecommunications Act of 1996. The Telecommunications Act of 1996 is the applicable Federal law with respect to consideration of the environmental effects of RF emissions in the siting of personal wireless facilities. The maximum level of RF energy will also be less than 22.88% of the exposure limits of ANSI, IEEE, NCRP, and the limits used by all states that regulate RF exposure.

Carrier	Power Density ($\mu W/cm^2$)	Maximum Allowable ($\mu W/cm^2$)	Percentage of Maximum
AT&T	**26.19**	1000	**2.62%**
Cingular	**35.00**	587	**5.94%**
Verizon	**40.00**	583	**6.93%**
Northeast Utilities	**6.00**	200	**3.19%**
Highway	**3.00**	200	**1.49%**
Town-Police	**0.60**	306	**0.20%**
Nextel	**14.00**	572	**2.51%**
		Total Percentage	**22.88%**

The calculations of AT&T's values are shown on the attached spreadsheet (atch 1). The other carrier information is shown on attachment 2.

To the best of my knowledge, the statements made and information disclosed in this study are true, complete, and correct.

13 Aug 01
Date

David Cotton, Senior RF Engineer

AT&T WIRELESS SERVICES

Date: August 6, 2001

CT-205
Base of Tower

ERP Calculator — AT&T

Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
45.051500	14.4	59.451500
(watts per channel)	Maximum Number of Channels	(watts)
4.000000	8	881.353185

ERP Calculator

Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)
0.000000	0	0.000000

ERP Calculator

Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)
0.000000	0	0.000000

ERP Calculator

Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)
0.000000	0	0.000000

ERP Calculator

Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)
0.000000	0	0.000000

ERP Calculator

Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)
0.000000	0	0.000000

ERP Calculator

Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)
0.000000	0	0.000000

ERP Calculator

Max Power to Ant port (dBm)	Ant Gain on determined lobe (dBd)	ERP (dbm)
0.000000	0	0.000000
(watts per channel)	Maximum Number of Channels	(watts)
0.000000	0	0.000000

Field density

	AT&T	*(none)*	*(none)*	*(none)*
BAND/FREQUENCY (MHz)	*1900*	*0*	*0*	*0*
Signal Level (E.R.P. dbm)	59.451500	0.000000	0.000000	0.000000
Antenna Centerline Height (ft)	110	0	0	0
Antenna Centerline Height (m)	33.528000	0.000000	0.000000	0.000000
Signal Level (E.R.P. Watts)	881.353185	0.000000	0.000000	0.000000
Field Density (µW/cm2)	26.186723	0.000000	0.000000	0.000000
Cumulative Density (µW/cm2)	26.186723	26.186723	26.186723	26.186723
Maximum Density OET-65 (µW/cm2)	1000.000000	0.000000	0.000000	0.000000
% of Maximum Density	2.62%	0.00%	0.00%	0.00%
Cummulative Percentage	2.62%	2.62%	2.62%	2.62%

	(none)	*(none)*	*(none)*	*(none)*
BAND/FREQUENCY (MHz)				
Signal Level (E.R.P. dbm)	0.000000	0.000000	0.000000	0.000000
Antenna Centerline Height (ft)	0	0	0	0
Feet converted to (m)->	0.000000	0.000000	0.000000	0.000000
Signal Level (E.R.P. Watts)	0.000000	0.000000	0.000000	0.000000
	0.000000	0.000000	0.000000	0.000000
Cumulative Density (µW/cm2)	26.186723	26.186723	26.186723	26.186723
Maximum Density OET-65 (µW/cm2)	0.000000	0.000000	0.000000	0.000000
% of Maximum Density	0.00%	0.00%	0.00%	0.00%
Cummulative Percentage	2.62%	2.62%	2.62%	2.62%

Percentage of Maximum ____

26.19 uW/cm2 Cumulative Density
2.62% of maximum allowable level.

MODIFICATION OF SPECIAL EXCEPTION PERMIT
8 OLD ROUTE 79, MADISON, CONNECTICUT

Below is the breakdown of the RF Power Densities for Bell Atlantic Mobile, SNET Mobility, Nextel and Municipal antennas to be located on the monopole tower.

Company	Standard MW/cm2	Power Density mW/cm2	Percentage of Standard
Bell Atlantic	0.583	0.040	6.93%
SNET Mobility	0.587	0.035	5.94%
Nextel	0.572	0.014	2.51%
Town-Police	0.306	0.0006	0.20%
Highway	0.200	0.003	1.49%
NU	0.200	0.006	3.19%
		Total Percentage of Standard	20.26%