STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

October 20, 2003

William Parker
RCR Development, LLC
1 Kalisa Way, Suite 308
Paramus, NJ 07652

RE: **EM-T-MOBILE-051-030929** - Omnipoint Facilities Networks 2, LLC, notice of intent to modify an existing telecommunications facility located at 3965 Congress Street, Fairfield, Connecticut.

Dear Mr. Parker:

At a public meeting held on October 14, 2003, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated September 25, 2003. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: Honorable Kenneth A. Flatto, First Selectman, Town of Fairfield
Joseph E. Devonshuk, Town Planner, Town of Fairfield
Christopher B. Fisher, Esq., Cuddy & Feder LLP
Michele G. Briggs, Southwestern Bell Mobile Systems
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels
Thomas F. Flynn III, Nextel Communications Inc.

RCR Development, LLC

1 Kalisa Way, Suite 308
Paramus, New Jersey 07652
O (201) 262-2229 F (201) 262-2126

September 25, 2003

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

EM-T-MOBILE-051-030929

RE: T-Mobile notice of intent to modify an existing telecommunications facility located at 3965 Congress Street, Fairfield, CT.

Dear Mr. Phelps:

Please be advised that Richard Connor Riley & Associates, L.L.C. is acting as agent for Omnipoint Facilities Networks 2, LLC, a subsidiary of T-Mobile International AG ("T-Mobile") in the above-referenced matter.

I have attached one (1) original and twenty (25) copies of a notice of intent to modify an existing telecommunication facility identified above for the purpose of filing the same. Please date stamp one copy as received and return that copy in the enclosed postage paid envelope. Also enclosed is a check in the amount of $500.00. Please review and set the matter to be heard at your earliest convenience.

Thank you.

Respectfully submitted,
RICHARD CONNOR RILEY & ASSOCIATES AS AGENT FOR Omnipoint Facilities Networks 2, LLC.

William Parker

Attachments

RCR Development, LLC
1 Kalisa Way, Suite 308
Paramus, New Jersey 07652
O (201) 262-2229 F (201) 262-2126

September 25, 2003

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

EM-T-MOBILE-051-030929

RE: T-Mobile notice of intent to modify an existing telecommunications facility located at 3965 Congress Street, Fairfield, CT. – **TS-SCLP-051-990219**

Dear Mr. Phelps:

Please be advised that Richard Connor Riley & Associates, L.L.C. is acting as agent for Omnipoint Facilities Networks 2, LLC, a subsidiary of T-Mobile International AG ("T-Mobile") in the above-referenced matter. T-Mobile hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed upgrade of existing equipment, currently approved for shared use by the applicant at an existing tower located at 3965 Congress Street, Fairfield, CT. T-Mobile proposes to replace three existing antennas (one per sector) with six new antennas at the same elevation on the existing tower. Two new Nortel S12000 BTS cabinets will be added adjacent to the existing equipment on the ground as shown on page C-4 as part of Exhibit A attached hereto. Please accept this letter as notification, pursuant to R.C.S.A. § 16-50J-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50J-72(b)(2). In accordance with R.C.S.A. § 16-50J-73, a copy of this letter is being sent to the Honorable Kenneth A. Flatto, First Selectman of the Town of Fairfield.

Background

Effective as of the May 31, 2001 merger between Deutsche Telekom AG and T-Mobile, the corporate structure of T-Mobile has changed. T-Mobile holds the "A block" "Wideband PCS" license for the 2-GHz PCS frequencies for the greater New York City area, including the entire State of Connecticut. T-Mobile is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation.

The facility at 3965 Congress Street is a 150 foot tower owned and operated by The Town of Fairfield. The coordinates for the site are 41°-11'-16" N and 73°-17'-55" W. T-Mobile and The Town of Fairfield have agreed to mutually acceptable terms and conditions for the proposed shared use of this tower. The Town of Fairfield has authorized T-Mobile to act on its behalf to apply for all necessary local, state and federal permits, approvals and authorizations which may be required for the proposed shared use of this facility.

The compound layout of the tower site is shown on page C4 as part of Exhibit A. Currently, the tower holds other communication antennas operated by AT&T Wireless, Cingular, Sprint, Nextel, and The

Town of Fairfield. Existing antennas are generally shown on the elevation drawing on page C5 as part of Exhibit A and specifically listed in the structural analysis on page 2 as part of Exhibit C. T-Mobile proposes to remove its three existing antennas with a RAD center elevation of approximately one hundred thirteen (113) feet above ground level. T-Mobile proposes to replace the three existing panel antennas with six new antennas mounted on modified mounting brackets at the same RAD center elevation. The model number for each new antenna is EMS TDR85-17-222DPL2Q. The radio transmission equipment associated with these antennas will also be updated as stated above. Two new Nortel S12000 BTS cabinets will be mounted on newly extended concrete pads as shown on page C4 as part of Exhibit A. Location Based E-911 Equipment will also be installed. The actual location of that equipment is to be determined (see note on page C3 as part of Exhibit A). No changes will be made to the compound fence, nor will the size of the compound be affected. Exhibit B contains specifications for the proposed antennas and equipment cabinets.

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

1. The proposed modification will not increase the height of the tower. T-Mobile's new antennas will be installed with a RAD elevation of approximately one hundred thirteen (113) feet above ground level, the same height of its existing antennas. Also, there is no increase in the vertical dimensions of the new antennas. The tower drawing attached and marked as page C5 as part of Exhibit A confirms that the planned changes will not increase the overall height of the tower.

2. The installation of T-Mobile equipment, as reflected on the site plan attached and marked as page C4 of Exhibit A, will not require an extension of the site boundaries. T-Mobile's proposed equipment cabinets will be in addition to existing equipment and located entirely within the existing compound.

3. The proposed modification to the facility will not increase the noise levels at the existing facility by six decibels or more. T-Mobile's equipment is self-contained and requires no additional heating, ventilation or cooling equipment.

4. The operation of the new antenna will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the applicable standard. The "worst-case" RF power density calculations, for a point at the site boundary, are attached hereto as Exhibit D.

For the foregoing reasons, T-Mobile respectfully submits that the proposed installation of antennas and equipment at this facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Thank you for your consideration of this matter.

Respectfully submitted,
RICHARD CONNOR RILEY & ASSOCIATES AS AGENT FOR Omnipoint Facilities Networks 2, LLC.

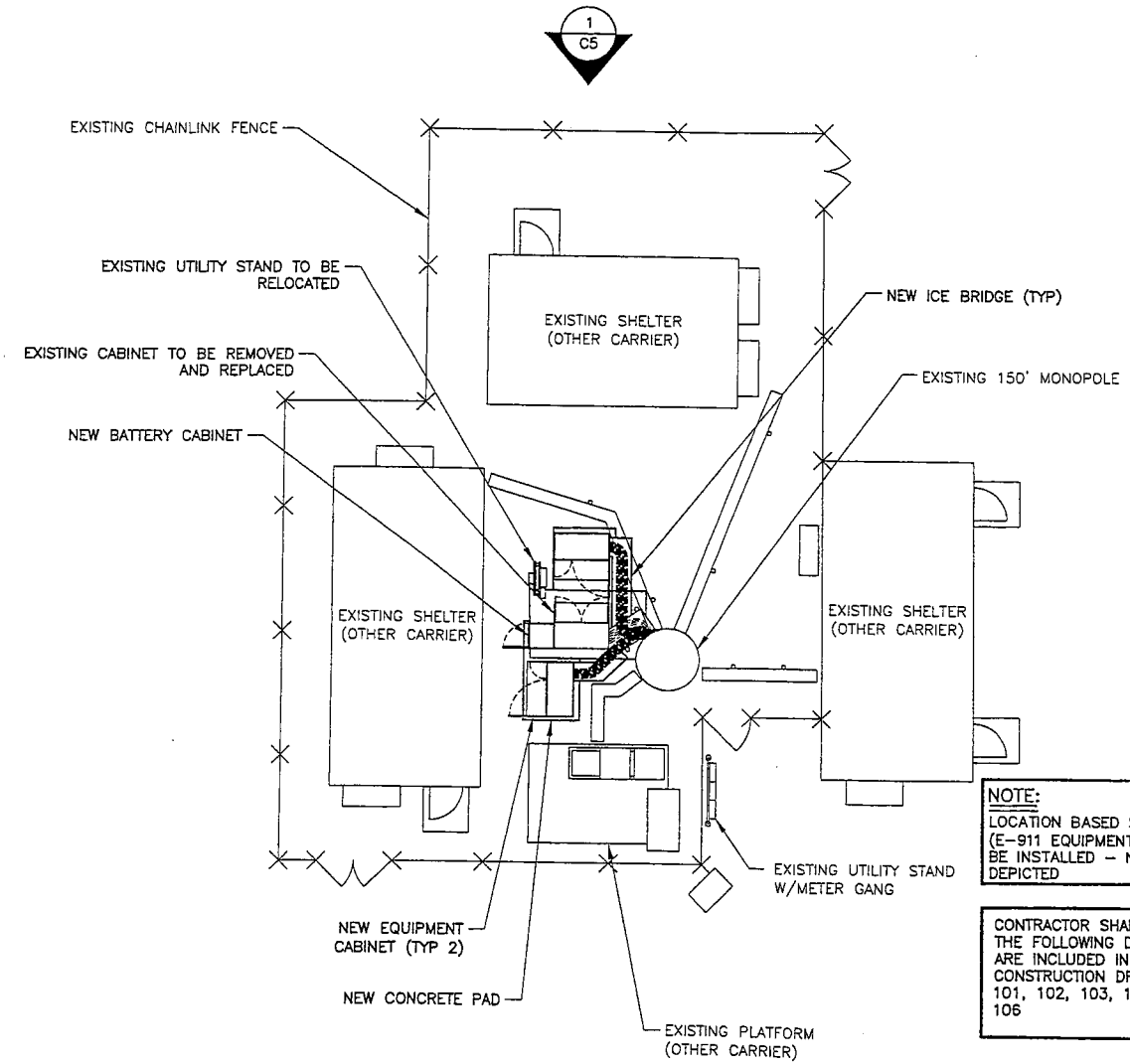
William Parker

Attachments

cc: Honorable Herbert C. Rosenthal
First Selectman of the Town of Newtown
45 Main Street, Newtown, CT 06470

Exhibit A

Compound Layout



SITE PLAN

SCALE: 1"=10'

NOTE:
LOCATION BASED SYSTEM (E-911 EQUIPMENT) TO BE INSTALLED - NOT DEPICTED

CONTRACTOR SHALL REFERENCE THE FOLLOWING DETAILS, WHICH ARE INCLUDED IN THESE CONSTRUCTION DRAWINGS: 101, 102, 103, 104, 105, AND 106

SCALE FOR 11x17 SHEET 1"=10'

SCALE FOR 24x36 SHEET 1"=5'

10 0 10 20

10 0 10 20

SEAL

STATE OF CONNECTICUT
DANIEL F. SOUTHWICK
No. 23294
LICENSED PROFESSIONAL ENGINEER

7/24/03

APPLICANT/OWNER:

OMNIPOINT COMMUNICATIONS INC.

AS AGENT FOR:
OMNIPOINT FACILITIES NETWORK 2, LLC

PREPARED BY:

ALCOA

AFL Telecommunications
Wireless Services
Pacific 17, Inc

2000 Regency Parkway, Suite 160
Cary, NC 27511-8596
Office (919) 462-0851
Fax (919) 462-0986

REVISIONS

REV	DATE	DESCRIPTION	BY
A	6/25/03	ISSUED FOR REVIEW	HWJ
0	7/23/03	ISSUED FOR CONSTRUCTION	HWJ
1			
2			
3			
4			
5			
6			
7			
8			

APPROVALS

	SIGNATURE	DATE
OMNIPOINT		
OWNER/LANDLORD		
LEASING/SAC		
RF		
ZONING		
CONSTRUCTION		

PROJECT LOCATION

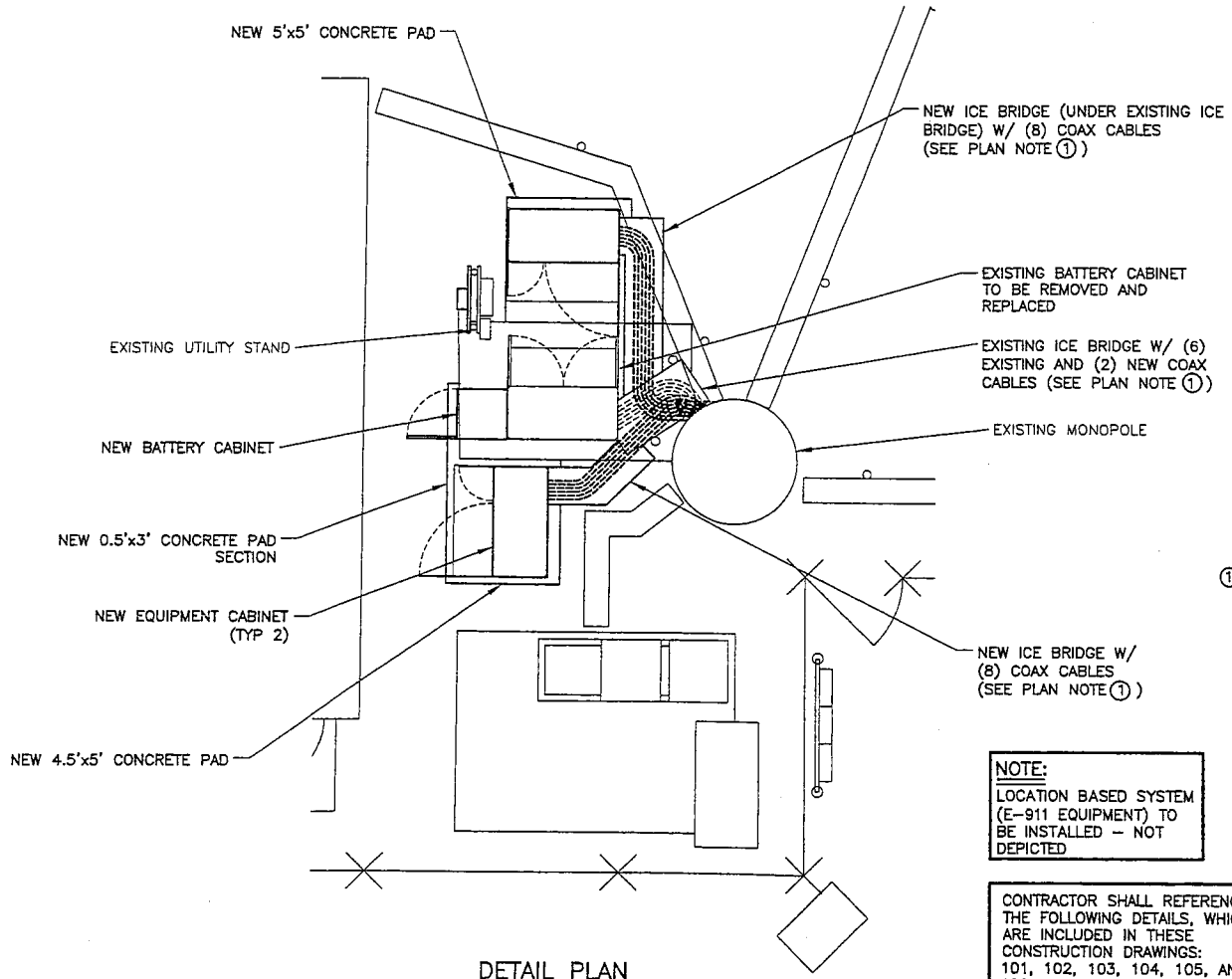
FAIRFIELD / MP X 44
CT-11-077C

3965 CONGRESS STREET
FAIRFIELD, CT 06430

DRAWN BY:	KGL
CHECKED BY:	HWJ
DATE:	7/23/03
JOB NO. :	1356-052
SITE NO. :	CT-11-077C

DRAWING DESCRIPTION:
SITE PLAN

DRAWING NUMBER:
C3



DETAIL PLAN
SCALE: 1"=5'

PLAN NOTES:

1. THERE WILL BE (24) COAX CABLES TOTAL FOR THIS INSTALLATION.

NOTE:
LOCATION BASED SYSTEM (E-911 EQUIPMENT) TO BE INSTALLED – NOT DEPICTED

CONTRACTOR SHALL REFERENCE THE FOLLOWING DETAILS, WHICH ARE INCLUDED IN THESE CONSTRUCTION DRAWINGS: 101, 102, 103, 104, 105, AND 106

SCALE FOR 11x17 SHEET 1"=5'

SCALE FOR 24x36 SHEET 1"=2.5'

SEAL

STATE OF CONNECTICUT * DANIEL F. SOUTHWICK * No. 23294 LICENSED PROFESSIONAL ENGINEER

7/24/03

APPLICANT/OWNER:

OMNIPOINT COMMUNICATIONS INC.

AS AGENT FOR:
OMNIPOINT FACILITIES NETWORK 2, LLC

PREPARED BY:

ALCOA

AFL Telecommunications
Wireless Services
Pacific 17, Inc

2000 Regency Parkway, Suite 150
Cary, NC 27511-8595
Office (919) 462-0981
Fax (919) 462-0886

REVISIONS

REV	DATE	DESCRIPTION	BY
A	6/26/03	ISSUED FOR REVIEW	HWJ
0	7/23/03	ISSUED FOR CONSTRUCTION	HWJ
1			
2			
3			
4			
5			
6			
7			
8			

APPROVALS

	SIGNATURE	DATE
OMNIPOINT		
OWNER/LANDLORD		
LEASING/SAC		
RF		
ZONING		
CONSTRUCTION		

PROJECT LOCATION

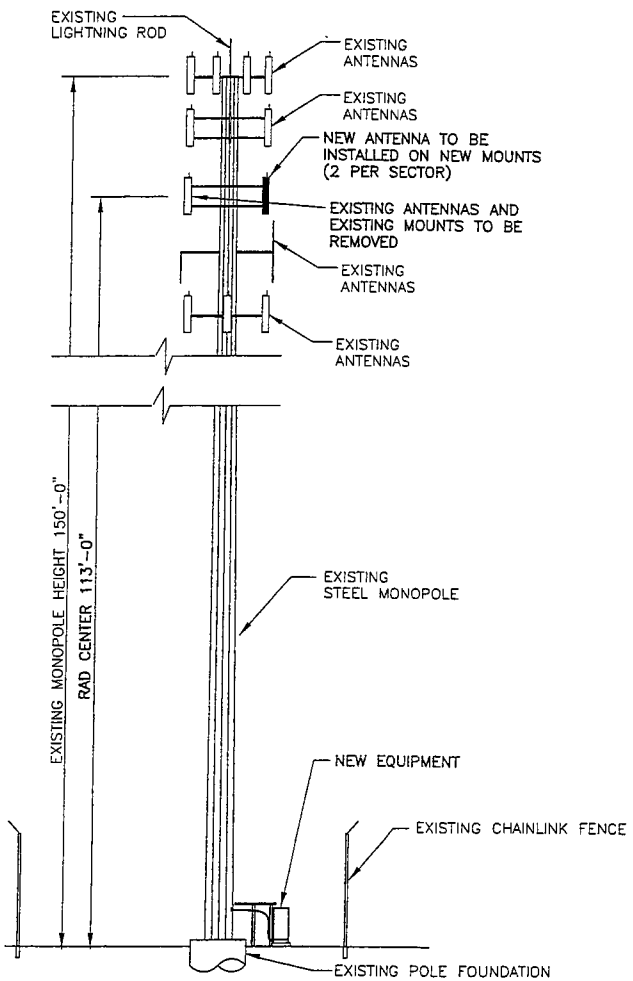
FAIRFIELD / MP X 44
CT-11-077C

3965 CONGRESS STREET
FAIRFIELD, CT 06430

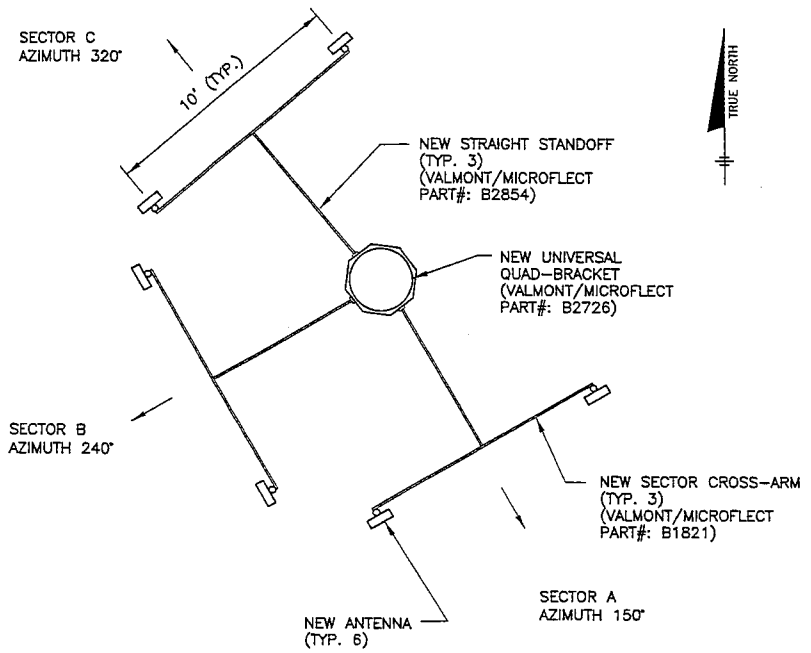
DRAWN BY:	KGL
CHECKED BY:	HWJ
DATE:	7/23/03
JOB NO. :	1356-052
SITE NO. :	CT-11-077C

DRAWING DESCRIPTION:
DETAIL PLAN

DRAWING NUMBER:
C4



ELEVATION (1 / C5)
NOT TO SCALE



ANTENNA ORIENTATION DETAIL
SCALE: 1"=5'

SEAL

STATE OF CONNECTICUT * DANIEL F. SOUTHWICK * No. 23294 * LICENSED PROFESSIONAL ENGINEER

7/24/03

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APPROVALS

	SIGNATURE	DATE
OMNIPOINT		
OWNER/LANDLORD		
LEASING/SAC		
RF		
ZONING		
CONSTRUCTION		

PROJECT LOCATION

FAIRFIELD / MP X 44
CT-11-077C

3965 CONGRESS STREET
FAIRFIELD, CT 06430

DRAWN BY:	KDL
CHECKED BY:	HWJ
DATE:	7/23/03
JOB NO. :	1356-052
SITE NO. :	CT-11-077C

DRAWING DESCRIPTION:
ELEVATION

DRAWING NUMBER:
C5

Exhibit B

Equipment Specifications

EMS Wireless

DR85-17-XXDPL2Q

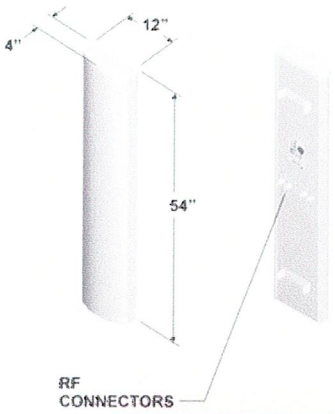
Dual DualPol® Polarization

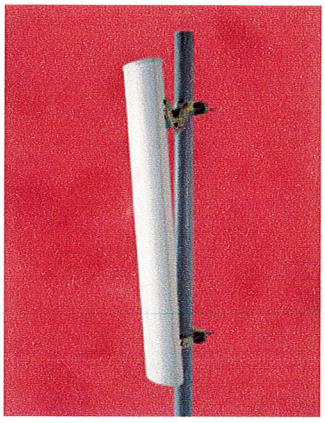
1850 MHz - 1990 MHz

OptiRange™ Suppressor™

Electrical Specifications

Azimuth Beamwidth (-3 dB)	88°
Elevation Beamwidth (-3 dB)	6.4°
Elevation Sidelobes (Upper)	≥ 14.5 dB
Gain	16.2 dBi (14.1 dBd)
Polarization	Quad Linear, Slant (± 45°)
Port-to-Port Isolation	≥ 30 dB
Front-to-Back Ratio	≥ 33 dB
Electrical Downtilt Options	2°, 4°, 6°
VSWR	1.35:1 Max
Connectors	4; 7-16 DIN (female)
Power Handling	250 Watts CW
Passive Intermodulation	≤ -150 dBc [2 x 20W (+ 43 dBm)]
Lightning Protection	Chassis Ground





Mechanical Specifications

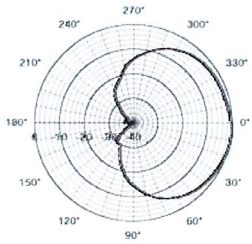
Dimensions (L x W x D)	54 in x 12 in x 4 in (137.2 cm x 30.5 cm x 10.2 cm)
Rated Wind Velocity	130 mph (209 km/hr)
Equivalent Flat Plate Area	4.5ft² (.42 m²)
Front Wind Load @ 100 mph (161 kph)	130 lbs (576 N)
Side Wind Load @ 100 mph (161 kph)	43 lbs (192 N)
Weight	24 lbs (11 kg)

Mounting Options

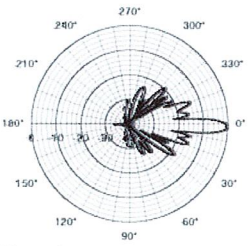
MTG-P00-10, MTG-S02-10, MTG-DXX-20*, MTG-CXX-10*, MTG-C02-10, MTG-TXX-10*

*Note: *Model number shown represents a series of products. See Mounting Options section for specific model number.*

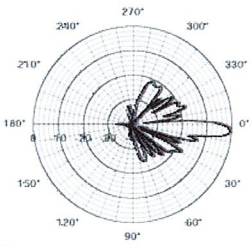
Patterns



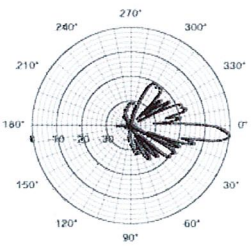
Azimuth



Elevation
2° Downtilt



Elevation
4° Downtilt



Elevation
6° Downtilt

Revised 05/14/02

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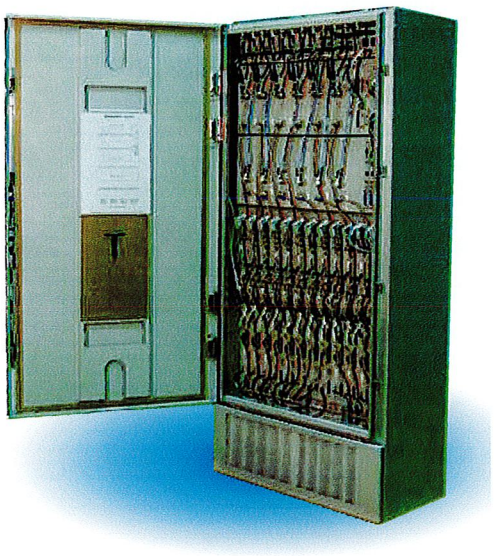
www.emswireless.com

Nortel Networks
BTS S12000

As the mature GSM industry moves into the world of data, pressure has increased on capacity and so network enhancement and development costs are rising. The S12000 BTS is a product that should meet the needs of a mature GSM market by increasing site capacity and at the same time lowering the risks and the costs of introduction for existing S8000 customers. The S12000 BTS is aimed at offering high capacity in a cost effective unit, giving the right balance between product advancement, increased capacity and reduced costs.

The S12000 is built on an existing stable platform, the S8000, which is known for its quality and robustness. The reuse of a considerable amount of technology should help lower the risk and cost for the operators when introducing this new product into a mature network.

In the GSM voice and packet data environment, Nortel Networks offers an industry winning mix of quality, support and know-how only available from a company with a pedigree in carrier grade products covering voice and data.



The high capacity cell site

Pressure is building on GSM network capacity and spectrum efficiency. To address the growing needs of GSM capacity, Nortel Networks is introducing the S12000 BTS, which is an innovative development of the S8000 BTS. This innovative approach to network expansion and development is aimed at providing high capacity sites installed with low risk, reduced network impact and a lower cost of ownership.

The approach should bring protection for past investments and operational efficiency. New high capacity sites can now be added to the network or existing S8000 sites can be extended with the S12000 providing a single integrated high capacity BTS. A granularity of one carrier per TRX module adds to the flexibility of the S12000.

The S12000 could become a key component to the delivery of more capacity within a GSM/GPRS network and to drive down network costs. The S12000 offers nearly double the capacity of the S8000, thereby offering a more compact site and improved operational efficiency.

Lowering the cost of ownership and network introduction

It is not just the introduction of this evolution of a field proven and reliable technology that should reduce the cost of ownership but also the reduced spares holding and training requirements. By the design of the S12000, Nortel Networks has aimed to reduce the cost of introducing the S12000 into a mature GSM network. The S12000 should offer the operator considerable savings in CAPEX and OPEX since all modules and skills are usable within the S8000 and S12000 BTS. The operator does not have to change the network Engineering and Operational procedures on the existing S8000 network.

Low introduction costs are invaluable when facing the financial pressures of network enhancements such as GPRS or new services such as UMTS. The use of the S12000 should put the operator in a position to make efficient use of all resources and reduce network complexity relieving pressure on investment and cash flow.

NORTEL NETWORKS™

Modular and flexible

The S12000 supports twelve TRX per cabinet and offers cost effective configurations from 2 to 16 TRX per cell in a tri-sector configuration. A dual band configuration of 6 + 6 TRX can be supported in a single cabinet for all coupling configurations. The integrated extension of existing S8000 sites gives increasable flexibility and investment protection.

High Performance

The Nortel Networks family of BTS holds a high market position for reliability, operability and service quality. The BTS provides high quality voice and data services, high coverage and building penetration and smooth call handovers.

It possesses many advanced RF feature to improve spectral usage and optimisation and so increase available capacity. The planned introduction of AMR and EDGE capabilities in the near future should further enhance spectrum efficiency. These high performance qualities are extremely important with the introduction of GPRS services.

The high performance radio and advanced digital processing of the S12000 provide one of the highest receive sensitivity in the market today, offering –115 dBm guaranteed and without the need for masthead amplifiers (-117dBm typical). The high performance radio enhances the resistance to interference, improving voice quality, data throughput, cell coverage and service availability. Nortel Networks experience in frequency hopping, fractional re-use, cell tiering and multi-layer management algorithms provide high spectrum efficiency which releases more capacity from a fixed allocation of spectrum.

Growing the business and ensuring success

The S12000 is future ready. The high capacity and flexibility, the introduction of AMR and EDGE, puts the operator in a position to meet the challenges and opportunities of GSM/GPRS. These advantages should enable the operator to capture new revenue, improve profitability and gain a better return on investment as the network develops and moves forward.

Technical Specifications

Frequency range		900 MHz GSM / 900 MHZ Extended GSM 1800 MHz GSM and Dual Band GSM 900 / 1800 850 MHZ GSM 1900 MHz GSM and Dual Band GSM 850 / 1900
Receive sensitivity	w/o diversity with diversity	-110 dBm garanteed (w/o TMA) -115 dBm garanteed (w/o TMA)
Dimensions	Height Width Depth	1950 mm 910 mm 450 mm
Weight	Empty cabinet Fully equipped	125 kg 345 kg
Capacity	Standard Optional	12 TRX per radio cabinet Up to 3 radio cabinets Up to 4 radio cabinets
Configuration	Monoband Trisectorial Dual Band Trisectorial Cell Splitting	Up to S16-16-16 (4 radio cabinets) S222_222 (1 radio cabinet) Mono-BCCH dual band cells Cell splitting across radio cabinets
Amplifier output power	Standard Optional	30W (+/- 0.5 dB) 60W (+/- 0.5 dB)
Transmission coupling		All coupling configurations From Duplexers to 4 Ways Hybrid Coupling (H4D)
Power control	Static Dynamic	6 steps of 2 dB 15 steps of 2 dB
Frequency Hopping		RF Synthetised
Supported vocoders		Full Rate (FR) Enhanced Full Rate (EFR) Adaptive Multi-Rate - Full Rate (AMR FR) Adaptive Multi-Rate - Half Rate (AMR HR)
Encryption algorithms		A5/1 & A5/2
Power supply	Nominal	DC -48 V
Operational temperature range		-5°C to +45°C
Max acoustic noise		65 dB(A)
Backhaul	Standard Optional	6 E1 / T1 links 8 E1 / T1 links

In North america, the Caribbean, and Latin America :
Tel : 1-800-4-Nortel
or 1-506-674-5470

In Europe, Middle East, and Africa :
Tel : 00-800-8008-9009*
or +44 (0)20 8920 4618

In Asia :
Tel : 65-287-2877

for more information contact your Nortel Networks account representative, or visit :
www.nortelnetworks.com/contact

* call are not from all European Countries.

www.nortelnetworks.com

66185.13/02-02

NORTEL NETWORKS™

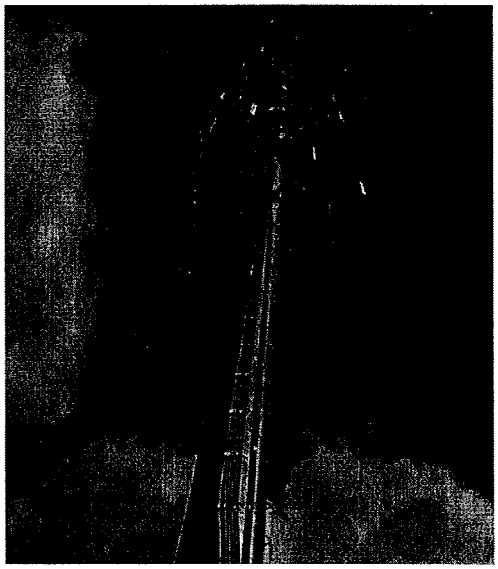
Exhibit C

Structural Analysis

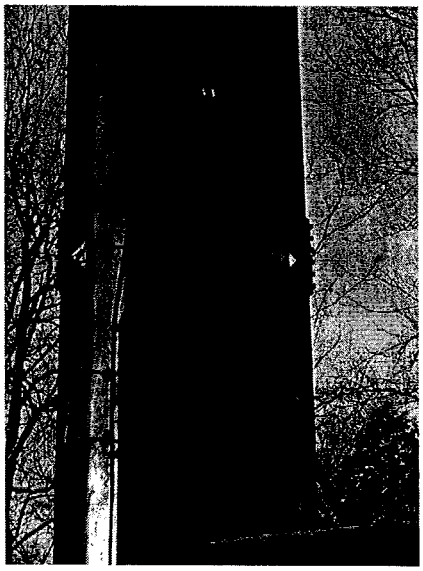
INTRODUCTION

At the request of Omnipoint, AFL Telecommunications has performed a structural analysis on the telecommunication structure, manufactured by Valmont and strengthened by others, of site CT-11-077C in Fairfield County, CT. The analysis is based on information obtained from original design information from a previous structural analysis issued by Paul J. Ford and Company (job # 31298-044) on December 3, 1998 and site photographs.

At this site, AFL Telecommunications investigates the effects of replacing (6) existing panel antennas with (6) new Quadpole panel antennas and the addition of 1 5/8"∅ coaxial transmission cables to make (24) total on the outside of the pole at a radiation center of 113' A.G.L.



Tower elevation with existing appurtenances.



Existing tower strengthening.

SITE LOCATION

This site is located in Fairfield County in Connecticut. The basic wind speed prescribed by TIA/EIA-222-F is 85 mph with no ice (74 mph with ½" radial ice).

REPORT SUMMARY

This statement highlights the conclusion section. Additional information, assumptions and requirements are contained within this report and should be reviewed. Passed indicates modification is within allowable stress range. Failed indicates modification is outside allowable stress range and recommendations are contained within.

STRUCTURAL ANALYSIS: PASSED
FOUNDATION ANALYSIS: PASSED

ANALYSIS CRITERIA AND LOADING

The monopole is analyzed with the existing appurtenances along with the proposed configuration of antennas and coaxial cables. Its behavior was studied under the provisions of TIA/EIA-222-F with a wind speed of 85 mph with no radial ice (74 mph with ½" radial ice). The following table lists the appurtenance loading considered for the analysis:

Elevation (ft)	Antenna		Mounting		Coaxial Transmission Cables	
	Qty	Type	Qty	Type	Qty	Dia. (in.)
149	1	Existing Decibel DB 810 K	-	-	1	7/8
148	12	Existing Swedcom ALP E-9011	3	Existing T-arm	12	1 5/8
138	9	Existing Decibel DB980H90	1	Existing Platform	9	1 5/8
125	12	Existing Swedcom ALP 11011-N	1	Existing Platform	12	1 5/8
113	**6**	**Existing Panels To Be Removed**	**-**	**-**	**-**	**-**
113	**6**	**New Quadpole Panel Antennas**	**1**	**Existing Platform**	**24**	**1 5/8**
105	3	ASP-685	1	2' Standoff	3	7/8
105	1	PD 1142-30	1	2' Standoff	1	7/8
90	9	Allgon 7184.14	3	T-arm	9	1 1/4
40	1	Global Positioning Antenna	-	-	1	1/2

The original tower design loading is unknown.

Since some of the mechanical and physical properties of the existing appurtenances were unavailable, the dimensions have been determined from pictures and measurements taken during site visits. Their weight was established from catalogs of manufacturers who developed similar mountings and antennas. If Omnipoint has more specific information about the existing appurtenances mounted on this tower, it should be forwarded to AFL Telecommunications for review.

METHOD OF ANALYSIS

The analysis was performed with the help of the software ERI Tower. A model of the structure was created with the information obtained from a previous structural analysis issued by Paul J. Ford and Company (job # 31298-044) on December 3, 1998. The model was analyzed under the provisions of TIA/EIA-222-F.

Allowable stresses were compared with the maximum stresses developed for each member and connection of the tower under extreme weather conditions. The proper material properties and end connectivity were assigned to each member to reflect the structural behavior of the tower.

RESULTS

A. Steel Members

The following represents the performance characteristics of the pole superstructure under extreme wind loads. The capacities of the pole sections include the EIA allowable stress increase of 33% for wind load cases. The results of the analysis are confined in the output excerpt included in appendix A of this report. The value 1.00 represents full capacity used with no reserve.

ELEVATIONS	LOAD/CAPACITY
150'- 95.8'	0.64
95.8'- 47.8'	0.96
47.8'- 32'	0.98
32'- 16'	0.99
16'- 0'	0.84

This monopole has been strengthened with WT6 sections welded directly on the walls of the bottom tubular section of the pole. There are (8) WT6 sections distributed around the pole from the base plate to 16' above ground level. At the 16' elevation, (4) WT6 sections terminate and (4) WT6 sections are extended to 32' above ground level. No further strengthening was observed above this elevation. With the additional capacity of this strengthening, all sections of this pole are within allowable capacity.

B. Foundations

The following lists the magnitude of the reactions at the base of the tower.

REACTIONS	ANALYSIS	PREVIOUS ANALYSIS	% INCREASE
SHEAR	**39.0 kips**	**34.0 kips**	**15%**
DOWNWARD	**45.0 kips**	**33 kips**	**36%**
MOMENT	**3883 kips-ft**	**3375.0 kip-ft**	**15%**

The current analysis reactions exceed the reactions obtained from a previous analysis. The foundation has been previously analyzed by Paul J. Ford and Company (job # 31298-044) on December 16, 1998. This foundation analysis references a soils report by Applied Earth Technologies dated May 1994. However, AFL Telecommunications does not have the soils report of this structure. If this information becomes available to Omnipoint, it should be forwarded to AFL Telecommunications for review.

Based on the information contained in the Paul J. Ford and Company analysis, we performed a pile evaluation under the proposed load and the foundation has been determined to be adequate.

C. Tower Deflections

During extreme wind, the structure will undergo displacements that will affect the performance of the emitting equipment. They are presented for information only and should be forwarded to an RF Engineer.

85 mph with no ice

LOCATION	LATERAL (FT)	TILT (DEGREE)
New Antennas at 113'	1.9	1.7

D. Mounting

The existing platform mount at 113' A.G.L. shall accommodate all new Omnipoint antennas. The new coaxial cables have been considered to be mounted on the outside of the tower.

E. Anchor Bolts and Base Plate

The anchor bolts and the base plate are respectively stressed to 85% and 56% of their structural capacity. The stress calculations are attached in the appendix at the end of this report.

CONCLUSIONS

The analysis of the telecommunication monopole located at Omnipoint site CT-11-077C in Fairfield County, CT was based on information obtained from a previous structural analysis issued by Paul J. Ford and Company (job # 31298-044) on December 16, 1998, and site photographs.

The results of this analysis are based on:

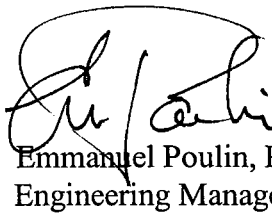
- The current antenna configuration as of January 2003. Future collocations foreseen by Omnipoint or other carriers have not been considered in this analysis.
- All structural members are assumed free of deficiencies.
- Proper tower alignment.
- The structure is plumb and its condition is essentially as erected.

This monopole has been strengthened with WT6 sections welded directly to the walls of the bottom tubular section of the pole. There are (8) WT6 sections distributed around the pole from the base plate to 16' above ground level. At the 16' elevation, (4) WT6 sections terminate and (4) WT6 sections continue to 32' above ground level. No further strengthening was observed above this elevation. With the additional capacity of this strengthening, all sections of this pole are within allowable capacity.

The magnitudes of the current analysis reactions are larger than the design reactions. Therefore, the foundation has been analyzed per the foundation design drawing from a previous analysis issued by Paul J. Ford and Company (job # 31298-044) on December 16, 1998, and has been determined to be adequate. This foundation design references a soils report by Applied Earth Technologies dated May 1994. However, AFL Telecommunications does not have the soils report of this structure. If this information becomes available to Omnipoint, it should be forwarded to AFL Telecommunications for review.

AFL Telecommunications recommends the addition of (6) Quadpole panel antennas with (24) total 1 5/8"∅ external coaxial transmission cables at 113' A.G.L. on the telecommunication monopole located at site CT-11-077C in Fairfield County in Connecticut.

AFL Telecommunications is extremely pleased to support Omnipoint in its infrastructure development. If you have any questions, contact us immediately at (407) 661-1765.



Justin William Hardy, E.I.
Project Engineer

Emmanuel Poulin, P.E.
Engineering Manager

STANDARD PROVISIONS OF ANALYSIS & DISCLAIMER

The analysis performed and the conclusions contained are based only on information obtained from Omnipoint.

In addition, it is assumed that the tower has been properly installed and maintained, including, but not limited to the following:

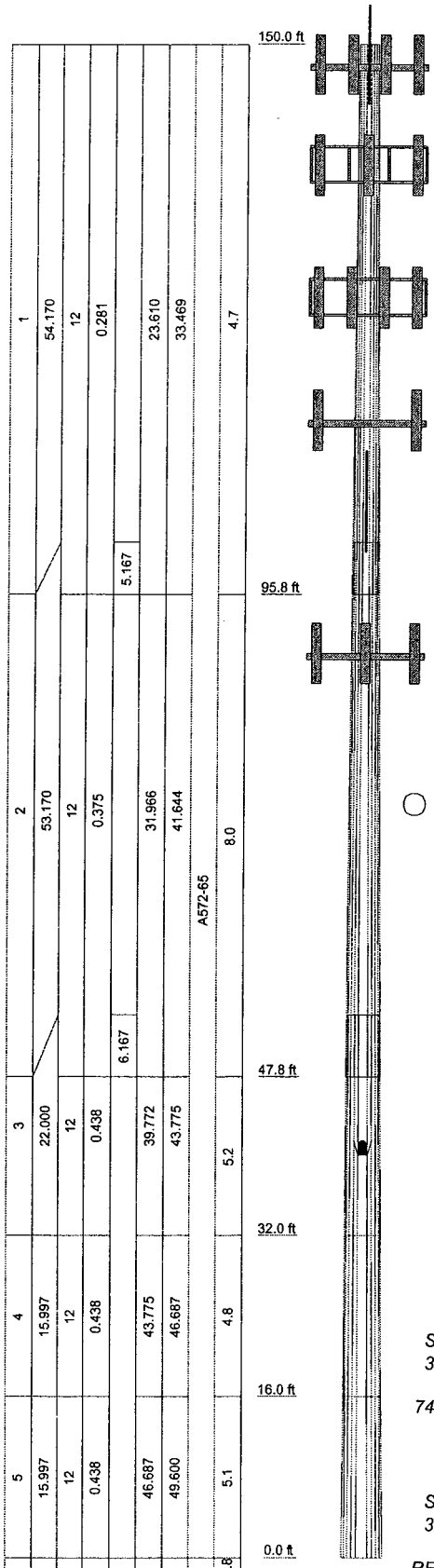
1. Proper vertical and horizontal alignment.
2. Correct bolt tightness.
3. No significant deterioration or damage to any component.
4. The condition of the tower is essentially as originally erected.

Furthermore, the information and conclusions contained in this Report were determined by application of the industry standard engineering and analysis procedures and formulae. AFL Telecommunication assumes no obligations to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised.

APPENDIX

- **Tower Analysis Output**
- **Anchor Bolts and Base Plate Calculations**
- **Foundation Analysis**
- **Previous Analysis**

TOWER ANALYSIS OUTPUT



Section	1	2	3	4	5
Length (ft)	54.170	53.170	22.000	15.997	15.997
Number of Sides	12	12	12	12	12
Thickness (in)	0.281	0.375	0.438	0.438	0.438
Lap Splice (ft)	5.167		6.167		
Top Dia (in)	23.610	31.966	39.772	43.775	46.687
Bot Dia (in)	33.469	41.644	43.775	46.687	49.600
Grade	A572-65				
Weight (K)	4.7	8.0	5.2	4.8	5.1

27.8

AXIAL
45 K

SHEAR
33 K

MOMENT
3366 kip-ft

74 mph WIND - 0.500 in ICE

AXIAL
43 K

SHEAR
39 K

MOMENT
3883 kip-ft

REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DB810KE-XT Omni ("3"x14.5'	149	(2) Quadpole	113
ALP-E-9011 (12@3 Faces)	148	PiROD 13' Low Profile Platform (Monopole)	113
Valmont T-Arm(3)	148		
DB980H90 (9@3 Faces)	138	(3) ASP685	105
Valmont 13' Platformw/Rails	138	PD1142-30	105
(4) ALP 11011-N w/Pipe Mount	125	Pirod 4' Side Mount Standoff (1)	105
(4) ALP 11011-N w/Pipe Mount	125	Pirod 4' Side Mount Standoff (1)	105
(4) ALP 11011-N w/Pipe Mount	125	7184.14 (9@3 Faces)	90
		Valmont T-Arm(3)	90
Valmont 13' Platformw/Rails	125	GPS	40
(2) Quadpole	113	Pirod 2' Side Mount Standoff (1)	40
(2) Quadpole	113		

MATERIAL STRENGTH

GRADE	YIELD	GRADE	YIELD
A572-65	65 ksi		

TOWER DESIGN NOTES

1. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 50 mph wind.
4. TOWER RATING: 109%

AFL TELECOMMUNICATIONS
485 N. KELLER ROAD, SUITE 180
MAITLAND, FL 32751
Phone: (407) 661-1765
FAX: (407) 661-1766

Job: 1356.052		
Project: Fairfield		
Client: VoiceStream NY	Drawn by: EMMANUEL POULIN	App'd:
Code: TIA/EIA-222-F	Date: 01/16/03	Scale: NTS
Path: R:\1356.000 VOICESTREAM NEW YORK\052_FAIRFIELD - MPX44\ENGINEERING\valmont mp 150 Fairfield.er		Dwg No. E-1

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 85 mph.
Nominal ice thickness of 0.500 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 F.
Deflections calculated using a wind speed of 50 mph.
Feedline bundles are checked for encompassing cylinder.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Sub-critical flow will always be used for pole forces.
Stress ratio used in pole design is 1.333.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.000-95.830	54.170	5.167	12	23.610	33.469	0.281	1.000	A572-65 (65 ksi)
L2	95.830-47.827	53.170	6.167	12	31.966	41.644	0.375	1.000	A572-65 (65 ksi)
L3	47.827-31.993	22.000	0.000	12	39.772	43.775	0.438	1.000	A572-65 (65 ksi)
L4	31.993-15.997	15.997	0.000	12	43.775	46.687	0.438	1.000	A572-65 (65 ksi)
L5	15.997-0.000	15.997		12	46.687	49.600	0.438	1.000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.443	21.131	1467.855	8.352	12.230	120.021	2974.272	10.400	5.641	20.052
	34.650	30.061	4226.132	11.881	17.337	243.765	8563.288	14.795	8.283	29.445
L2	34.067	38.146	4859.208	11.310	16.558	293.458	9846.072	18.774	7.830	20.88
	43.113	49.832	10832.905	14.774	21.572	502.184	21950.402	24.526	10.424	27.796
L3	42.336	55.412	10942.730	14.082	20.602	531.158	22172.937	27.272	9.888	22.602
	45.319	61.051	14635.428	15.515	22.675	645.433	29655.345	30.048	10.961	25.054
L4	45.319	61.051	14635.428	15.515	22.675	645.433	29655.345	30.048	10.961	25.054
	48.334	65.155	17789.030	16.557	24.184	735.568	36045.398	32.067	11.742	26.838
L5	48.334	65.155	17789.030	16.557	24.184	735.568	36045.398	32.067	11.742	26.838
	51.350	69.258	21365.928	17.600	25.693	831.592	43293.162	34.087	12.522	28.622

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 150.000-95.830				1	1	1		
L2 95.830-47.827				1	1	1		
L3 47.827-31.993				1	1	1.2		
L4 31.993-15.997				1.18	1	1.39		
L5 15.997-0.000				1.18	1	1.39		

Tapered Pole Section Moduli

Section	Point	Top S_x in^3	Top S_y in^3	Bottom S_x in^3	Bottom S_y in^3
L1 150.000-95.830	1	463.726	124.255	941.834	252.364
	2	169.735	169.735	344.735	344.735
	3	124.255	463.726	252.364	941.834
	4	124.255	463.726	252.364	941.834
	5	169.735	169.735	344.735	344.735
	6	463.726	124.255	941.834	252.364
	7	463.726	124.255	941.834	252.364
	8	169.735	169.735	344.735	344.735
	9	124.255	463.726	252.364	941.834
	10	124.255	463.726	252.364	941.834
	11	169.735	169.735	344.735	344.735
	12	463.726	124.255	941.834	252.364
L2 95.830-47.827	1	1133.837	303.811	1940.289	519.899
	2	415.013	415.013	710.195	710.195
	3	303.811	1133.837	519.899	1940.289
	4	303.811	1133.837	519.899	1940.289
	5	415.013	415.013	710.195	710.195
	6	1133.837	303.811	1940.289	519.899
	7	1133.837	303.811	1940.289	519.899
	8	415.013	415.013	710.195	710.195
	9	303.811	1133.837	519.899	1940.289
	10	303.811	1133.837	519.899	1940.289
	11	415.013	415.013	710.195	710.195
	12	1133.837	303.811	1940.289	519.899
L3 47.827-31.993	1	2052.236	549.895	2493.764	668.202
	2	751.170	751.170	912.781	912.781
	3	549.895	2052.236	668.202	2493.764
	4	549.895	2052.236	668.202	2493.764
	5	751.170	751.170	912.781	912.781
	6	2052.236	549.895	2493.764	668.202
	7	2052.236	549.895	2493.764	668.202
	8	751.170	751.170	912.781	912.781
	9	549.895	2052.236	668.202	2493.764
	10	549.895	2052.236	668.202	2493.764
	11	751.170	751.170	912.781	912.781
	12	2052.236	549.895	2493.764	668.202
L4 31.993-15.997	1	2493.764	668.202	2842.016	761.516
	2	912.781	912.781	1040.250	1040.250
	3	668.202	2493.764	761.516	2842.016
	4	668.202	2493.764	761.516	2842.016

Section	Point	Top S_x in^3	Top S_y in^3	Bottom S_x in^3	Bottom S_y in^3
	5	912.781	912.781	1040.250	1040.250
	6	2493.764	668.202	2842.016	761.516
	7	2493.764	668.202	2842.016	761.516
	8	912.781	912.781	1040.250	1040.250
	9	668.202	2493.764	761.516	2842.016
	10	668.202	2493.764	761.516	2842.016
	11	912.781	912.781	1040.250	1040.250
	12	2493.764	668.202	2842.016	761.516
L5 15.997-0.000	1	2842.016	761.516	3213.025	860.927
	2	1040.250	1040.250	1176.049	1176.049
	3	761.516	2842.016	860.927	3213.025
	4	761.516	2842.016	860.927	3213.025
	5	1040.250	1040.250	1176.049	1176.049
	6	2842.016	761.516	3213.025	860.927
	7	2842.016	761.516	3213.025	860.927
	8	1040.250	1040.250	1176.049	1176.049
	9	761.516	2842.016	860.927	3213.025
	10	761.516	2842.016	860.927	3213.025
	11	1040.250	1040.250	1176.049	1176.049
	12	2842.016	761.516	3213.025	860.927

Feed Line/Linear Appurtenances - Non-Structural

Description	Face	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
7/8	C	No	Inside Pole	149.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1 5/8	C	No	Inside Pole	148.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1 5/8	C	No	Inside Pole	138.000 - 0.000	9	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1 5/8	C	No	Inside Pole	125.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1 5/8	C	No	CaAa (Out Of Face)	113.000 - 0.000	2	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1 5/8	C	No	Inside Pole	113.000 - 0.000	22	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
7/8	C	No	Inside Pole	105.000 - 0.000	3	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001

Description	Face	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1 1/4	C	No	Inside Pole	90.000 - 0.000	9	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1/2	C	No	Inside Pole	40.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
7/8	C	No	Inside Pole	105.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.000-95.830	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	1.628
L2	95.830-47.827	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	2.616
L3	47.827-31.993	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.880
L4	31.993-15.997	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.894
L5	15.997-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.894

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.000-95.830	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.023
L2	95.830-47.827	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.063
L3	47.827-31.993	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.021
L4	31.993-15.997	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.021

Tower Section	Tower Elevation ft	Face	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L5	15.997-0.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.021

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment deg	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DB810KE-XT Omni ("3"x14.5')	C	None		0.000	149.000	No Ice	4.350	4.350	0.035
						1/2" Ice	5.833	5.833	0.066
						1" Ice	7.333	7.333	0.107
						2" Ice	10.383	10.383	0.217
						4" Ice	14.071	14.071	0.556
ALP-E-9011 (12@3 Faces)	C	None		0.000	148.000	No Ice	36.400	36.400	0.240
						1/2" Ice	42.400	42.400	0.530
						1" Ice	48.400	48.400	0.820
						2" Ice	60.400	60.400	1.400
						4" Ice	84.400	84.400	2.560
DB980H90 (9@3 Faces)	C	None		0.000	138.000	No Ice	27.000	27.000	0.077
						1/2" Ice	32.000	32.000	0.258
						1" Ice	37.000	37.000	0.439
						2" Ice	47.000	47.000	0.801
						4" Ice	67.000	67.000	1.525
(4) ALP 11011-N w/Pipe Mount	C	None		0.000	125.000	No Ice	4.434	7.030	0.044
						1/2" Ice	4.898	7.812	0.095
						1" Ice	5.363	8.567	0.155
						2" Ice	6.326	10.130	0.296
						4" Ice	8.377	13.477	0.694
(4) ALP 11011-N w/Pipe Mount	B	None		0.000	125.000	No Ice	4.434	7.030	0.044
						1/2" Ice	4.898	7.812	0.095
						1" Ice	5.363	8.567	0.155
						2" Ice	6.326	10.130	0.296
						4" Ice	8.377	13.477	0.694
(4) ALP 11011-N w/Pipe Mount	A	None		0.000	125.000	No Ice	4.434	7.030	0.044
						1/2" Ice	4.898	7.812	0.095
						1" Ice	5.363	8.567	0.155
						2" Ice	6.326	10.130	0.296
						4" Ice	8.377	13.477	0.694
(2) Quadpole	C	None		0.000	113.000	No Ice	6.419	3.612	0.042
						1/2" Ice	6.882	4.254	0.085
						1" Ice	7.354	4.907	0.138
						2" Ice	8.326	6.262	0.263
						4" Ice	10.391	9.303	0.625
(2) Quadpole	B	None		0.000	113.000	No Ice	6.419	3.612	0.042
						1/2" Ice	6.882	4.254	0.085
						1" Ice	7.354	4.907	0.138
						2" Ice	8.326	6.262	0.263
						4" Ice	10.391	9.303	0.625
(2) Quadpole	A	None		0.000	113.000	No Ice	6.419	3.612	0.042
						1/2" Ice	6.882	4.254	0.085
						1" Ice	7.354	4.907	0.138
						2" Ice	8.326	6.262	0.263
						4" Ice	10.391	9.303	0.625
(3) ASP685	C	None		0.000	105.000	No Ice	3.780	3.780	0.022

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft	deg	ft		ft^2	ft^2	K
						1/2" Ice	5.130	5.130	0.030
						1" Ice	6.480	6.480	0.038
						2" Ice	9.180	9.180	0.054
						4" Ice	14.580	14.580	0.086
PD1142-30	C	None		0.000	105.000	No Ice	0.140	0.140	0.010
						1/2" Ice	1.490	1.490	0.110
						1" Ice	2.840	2.840	0.210
						2" Ice	5.540	5.540	0.410
						4" Ice	10.940	10.940	0.810
7184.14 (9@3 Faces)	C	None		0.000	90.000	No Ice	19.300	19.300	0.087
						1/2" Ice	23.600	23.600	0.219
						1" Ice	27.900	27.900	0.351
						2" Ice	36.500	36.500	0.615
						4" Ice	53.700	53.700	1.143
GPS	C	None		0.000	40.000	No Ice	1.000	1.000	0.010
						1/2" Ice	1.500	1.500	0.015
						1" Ice	2.000	2.000	0.020
						2" Ice	3.000	3.000	0.030
						4" Ice	5.000	5.000	0.050
Valmont T-Arm (3)	C	None		0.000	148.000	No Ice	21.000	21.000	1.008
						1/2" Ice	29.000	29.000	1.236
						1" Ice	37.000	37.000	1.464
						2" Ice	53.000	53.000	1.920
						4" Ice	85.000	85.000	2.832
Valmont 13' Platform w/Rails	C	None		0.000	138.000	No Ice	53.000	53.000	2.000
						1/2" Ice	68.000	68.000	3.000
						1" Ice	83.000	83.000	4.000
						2" Ice	113.000	113.000	6.000
						4" Ice	173.000	173.000	10.000
Valmont 13' Platform w/Rails	C	None		0.000	125.000	No Ice	53.000	53.000	2.000
						1/2" Ice	68.000	68.000	3.000
						1" Ice	83.000	83.000	4.000
						2" Ice	113.000	113.000	6.000
						4" Ice	173.000	173.000	10.000
PiROD 13' Low Profile Platform (Monopole)	C	None		0.000	113.000	No Ice	15.700	15.700	1.300
						1/2" Ice	20.100	20.100	1.765
						1" Ice	24.500	24.500	2.230
						2" Ice	33.300	33.300	3.160
						4" Ice	50.900	50.900	5.020
Pirod 4' Side Mount Standoff (1)	C	None		0.000	105.000	No Ice	2.720	2.720	0.050
						1/2" Ice	4.910	4.910	0.089
						1" Ice	7.100	7.100	0.128
						2" Ice	11.480	11.480	0.206
						4" Ice	20.240	20.240	0.362
Pirod 4' Side Mount Standoff (1)	B	None		0.000	105.000	No Ice	2.720	2.720	0.050
						1/2" Ice	4.910	4.910	0.089
						1" Ice	7.100	7.100	0.128
						2" Ice	11.480	11.480	0.206
						4" Ice	20.240	20.240	0.362
Valmont T-Arm (3)	C	None		0.000	90.000	No Ice	21.000	21.000	1.008
						1/2" Ice	29.000	29.000	1.236
						1" Ice	37.000	37.000	1.464
						2" Ice	53.000	53.000	1.920
						4" Ice	85.000	85.000	2.832
Pirod 2' Side Mount Standoff (1)	C	None		0.000	40.000	No Ice	1.632	1.632	0.030
						1/2" Ice	2.946	2.946	0.053
						1" Ice	4.260	4.260	0.077
						2" Ice	6.888	6.888	0.124
						4" Ice	12.432	12.432	0.217

Tower Pressures - No Ice

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.000-95.830	121.781	1.452	0.027	128.832	A	0.000	128.832	128.832	100.00	0.000	0.000
					B	0.000	128.832		100.00		
					C	0.000	128.832		100.00		
L2 95.830-47.827	71.469	1.247	0.023	149.111	A	0.000	149.111	149.111	100.00	0.000	0.000
					B	0.000	149.111		100.00		
					C	0.000	149.111		100.00		
L3 47.827-31.993	39.820	1.055	0.020	55.858	A	0.000	55.858	55.858	100.00	0.000	0.000
					B	0.000	55.858		100.00		
					C	0.000	55.858		100.00		
L4 31.993-15.997	23.909	1	0.018	60.296	A	0.000	60.296	60.296	100.00	0.000	0.000
					B	0.000	60.296		100.00		
					C	0.000	60.296		100.00		
L5 15.997-0.000	7.918	1	0.018	64.178	A	0.000	64.178	64.178	100.00	0.000	0.000
					B	0.000	64.178		100.00		
					C	0.000	64.178		100.00		

Tower Pressure - With Ice

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.000-95.830	121.781	1.452	0.020	0.500	133.346	A	0.000	133.346	133.346	100.00	0.000	0.0
						B	0.000	133.346		100.00		
						C	0.000	133.346		100.00		
L2 95.830-47.827	71.469	1.247	0.017	0.500	153.112	A	0.000	153.112	153.112	100.00	0.000	0.0
						B	0.000	153.112		100.00		
						C	0.000	153.112		100.00		
L3 47.827-31.993	39.820	1.055	0.015	0.500	57.177	A	0.000	57.177	57.177	100.00	0.000	0.0
						B	0.000	57.177		100.00		
						C	0.000	57.177		100.00		
L4 31.993-15.997	23.909	1	0.014	0.500	61.629	A	0.000	61.629	61.629	100.00	0.000	0.0
						B	0.000	61.629		100.00		
						C	0.000	61.629		100.00		
L5 15.997-0.000	7.918	1	0.014	0.500	65.511	A	0.000	65.511	65.511	100.00	0.000	0.0
						B	0.000	65.511		100.00		
						C	0.000	65.511		100.00		

Tower Pressure - Service

$G_H = 1.690$

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.000-95.830	121.781	1.452	0.009	128.832	A	0.000	128.832	128.832	100.00	0.000	0.000
					B	0.000	128.832		100.00		
					C	0.000	128.832		100.00		
L2 95.830-47.827	71.469	1.247	0.008	149.111	A	0.000	149.111	149.111	100.00	0.000	0.000
					B	0.000	149.111		100.00		
					C	0.000	149.111		100.00		
L3 47.827-31.993	39.820	1.055	0.007	55.858	A	0.000	55.858	55.858	100.00	0.000	0.000
					B	0.000	55.858		100.00		
					C	0.000	55.858		100.00		
L4 31.993-15.997	23.909	1	0.006	60.296	A	0.000	60.296	60.296	100.00	0.000	0.000
					B	0.000	60.296		100.00		
					C	0.000	60.296		100.00		
L5 15.997-0.000	7.918	1	0.006	64.178	A	0.000	64.178	64.178	100.00	0.000	0.000
					B	0.000	64.178		100.00		
					C	0.000	64.178		100.00		

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1 150.000-95.830	1.628	4.718	A	1	1.2	1	1	1	128.832	7.002	0.129	C
			B	1	1.2	1	1	1	128.832			
			C	1	1.2	1	1	1	128.832			
L2 95.830-47.827	2.616	7.959	A	1	1.2	1	1	1	149.111	6.939	0.145	C
			B	1	1.2	1	1	1	149.111			
			C	1	1.2	1	1	1	149.111			
L3 47.827-31.993	0.880	5.231	A	1	1.2	1	1	1	55.858	2.211	0.140	C
			B	1	1.2	1	1	1	55.858			
			C	1	1.2	1	1	1	55.858			
L4 31.993-15.997	0.894	4.775	A	1	1.2	1	1	1	60.296	2.262	0.141	C
			B	1	1.2	1	1	1	60.296			
			C	1	1.2	1	1	1	60.296			
L5 15.997-0.000	0.894	5.085	A	1	1.2	1	1	1	64.178	2.407	0.150	C
			B	1	1.2	1	1	1	64.178			
			C	1	1.2	1	1	1	64.178			
Sum Weight:	6.912	27.767						OTM	1509.749 kip-ft	20.820		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1 150.000-95.830	1.628	4.718	A	1	1.2	1	1	1	128.832	7.002	0.129	C
			B	1	1.2	1	1	1	128.832			
			C	1	1.2	1	1	1	128.832			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L2 95.830-47.827	2.616	7.959	A	1	1.2	1	1	1	149.111	6.939	0.145	C
			B	1	1.2	1	1	1	149.111			
			C	1	1.2	1	1	1	149.111			
L3 47.827-31.993	0.880	5.231	A	1	1.2	1	1	1	55.858	2.211	0.140	C
			B	1	1.2	1	1	1	55.858			
			C	1	1.2	1	1	1	55.858			
L4 31.993-15.997	0.894	4.775	A	1	1.2	1	1	1	60.296	2.262	0.141	C
			B	1	1.2	1	1	1	60.296			
			C	1	1.2	1	1	1	60.296			
L5 15.997-0.000	0.894	5.085	A	1	1.2	1	1	1	64.178	2.407	0.150	C
			B	1	1.2	1	1	1	64.178			
			C	1	1.2	1	1	1	64.178			
Sum Weight:	6.912	27.767						OTM	1509.749 kip-ft	20.820		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1 150.000-95.830	1.628	4.718	A	1	1.2	1	1	1	128.832	7.002	0.129	C
			B	1	1.2	1	1	1	128.832			
			C	1	1.2	1	1	1	128.832			
L2 95.830-47.827	2.616	7.959	A	1	1.2	1	1	1	149.111	6.939	0.145	C
			B	1	1.2	1	1	1	149.111			
			C	1	1.2	1	1	1	149.111			
L3 47.827-31.993	0.880	5.231	A	1	1.2	1	1	1	55.858	2.211	0.140	C
			B	1	1.2	1	1	1	55.858			
			C	1	1.2	1	1	1	55.858			
L4 31.993-15.997	0.894	4.775	A	1	1.2	1	1	1	60.296	2.262	0.141	C
			B	1	1.2	1	1	1	60.296			
			C	1	1.2	1	1	1	60.296			
L5 15.997-0.000	0.894	5.085	A	1	1.2	1	1	1	64.178	2.407	0.150	C
			B	1	1.2	1	1	1	64.178			
			C	1	1.2	1	1	1	64.178			
Sum Weight:	6.912	27.767						OTM	1509.749 kip-ft	20.820		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1 150.000-95.830	0.023	5.703	A	1	1.2	1	1	1	133.346	5.434	0.100	C
			B	1	1.2	1	1	1	133.346			
			C	1	1.2	1	1	1	133.346			
L2 95.830-47.827	0.063	9.094	A	1	1.2	1	1	1	153.112	5.342	0.111	C
			B	1	1.2	1	1	1	153.112			
			C	1	1.2	1	1	1	153.112			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L3 47.827-31.993	0.021	5.656	A	1	1.2	1	1	1	57.177	1.697	0.107	C
			B	1	1.2	1	1	1	57.177			
			C	1	1.2	1	1	1	57.177			
L4 31.993-15.997	0.021	5.233	A	1	1.2	1	1	1	61.629	1.733	0.108	C
			B	1	1.2	1	1	1	61.629			
			C	1	1.2	1	1	1	61.629			
L5 15.997-0.000	0.021	5.572	A	1	1.2	1	1	1	65.511	1.842	0.115	C
			B	1	1.2	1	1	1	65.511			
			C	1	1.2	1	1	1	65.511			
Sum Weight:	0.149	31.258						OTM	1167.065 kip-ft	16.048		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1 150.000-95.830	0.023	5.703	A	1	1.2	1	1	1	133.346	5.434	0.100	C
			B	1	1.2	1	1	1	133.346			
			C	1	1.2	1	1	1	133.346			
L2 95.830-47.827	0.063	9.094	A	1	1.2	1	1	1	153.112	5.342	0.111	C
			B	1	1.2	1	1	1	153.112			
			C	1	1.2	1	1	1	153.112			
L3 47.827-31.993	0.021	5.656	A	1	1.2	1	1	1	57.177	1.697	0.107	C
			B	1	1.2	1	1	1	57.177			
			C	1	1.2	1	1	1	57.177			
L4 31.993-15.997	0.021	5.233	A	1	1.2	1	1	1	61.629	1.733	0.108	C
			B	1	1.2	1	1	1	61.629			
			C	1	1.2	1	1	1	61.629			
L5 15.997-0.000	0.021	5.572	A	1	1.2	1	1	1	65.511	1.842	0.115	C
			B	1	1.2	1	1	1	65.511			
			C	1	1.2	1	1	1	65.511			
Sum Weight:	0.149	31.258						OTM	1167.065 kip-ft	16.048		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1 150.000-95.830	0.023	5.703	A	1	1.2	1	1	1	133.346	5.434	0.100	C
			B	1	1.2	1	1	1	133.346			
			C	1	1.2	1	1	1	133.346			
L2 95.830-47.827	0.063	9.094	A	1	1.2	1	1	1	153.112	5.342	0.111	C
			B	1	1.2	1	1	1	153.112			
			C	1	1.2	1	1	1	153.112			
L3 47.827-31.993	0.021	5.656	A	1	1.2	1	1	1	57.177	1.697	0.107	C
			B	1	1.2	1	1	1	57.177			
			C	1	1.2	1	1	1	57.177			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L4 31.993-15.997	0.021	5.233	A	1	1.2	1	1	1	61.629	1.733	0.108	C
			B	1	1.2	1	1	1	61.629			
			C	1	1.2	1	1	1	61.629			
L5 15.997-0.000	0.021	5.572	A	1	1.2	1	1	1	65.511	1.842	0.115	C
			B	1	1.2	1	1	1	65.511			
			C	1	1.2	1	1	1	65.511			
Sum Weight:	0.149	31.258						OTM	1167.065 kip-ft	16.048		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1 150.000-95.830	1.628	4.718	A	1	1.2	1	1	1	128.832	2.423	0.045	C
			B	1	1.2	1	1	1	128.832			
			C	1	1.2	1	1	1	128.832			
L2 95.830-47.827	2.616	7.959	A	1	1.2	1	1	1	149.111	2.401	0.050	C
			B	1	1.2	1	1	1	149.111			
			C	1	1.2	1	1	1	149.111			
L3 47.827-31.993	0.880	5.231	A	1	1.2	1	1	1	55.858	0.765	0.048	C
			B	1	1.2	1	1	1	55.858			
			C	1	1.2	1	1	1	55.858			
L4 31.993-15.997	0.894	4.775	A	1	1.2	1	1	1	60.296	0.783	0.049	C
			B	1	1.2	1	1	1	60.296			
			C	1	1.2	1	1	1	60.296			
L5 15.997-0.000	0.894	5.085	A	1	1.2	1	1	1	64.178	0.833	0.052	C
			B	1	1.2	1	1	1	64.178			
			C	1	1.2	1	1	1	64.178			
Sum Weight:	6.912	27.767						OTM	522.404 kip-ft	7.204		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1 150.000-95.830	1.628	4.718	A	1	1.2	1	1	1	128.832	2.423	0.045	C
			B	1	1.2	1	1	1	128.832			
			C	1	1.2	1	1	1	128.832			
L2 95.830-47.827	2.616	7.959	A	1	1.2	1	1	1	149.111	2.401	0.050	C
			B	1	1.2	1	1	1	149.111			
			C	1	1.2	1	1	1	149.111			
L3 47.827-31.993	0.880	5.231	A	1	1.2	1	1	1	55.858	0.765	0.048	C
			B	1	1.2	1	1	1	55.858			
			C	1	1.2	1	1	1	55.858			
L4 31.993-15.997	0.894	4.775	A	1	1.2	1	1	1	60.296	0.783	0.049	C
			B	1	1.2	1	1	1	60.296			
			C	1	1.2	1	1	1	60.296			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L5 15.997-0.000	0.894	5.085	A	1	1.2	1	1	1	64.178	0.833	0.052	C
			B	1	1.2	1	1	1	64.178			
			C	1	1.2	1	1	1	64.178			
Sum Weight:	6.912	27.767						OTM	522.404 kip-ft	7.204		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1 150.000-95.830	1.628	4.718	A	1	1.2	1	1	1	128.832	2.423	0.045	C
			B	1	1.2	1	1	1	128.832			
			C	1	1.2	1	1	1	128.832			
L2 95.830-47.827	2.616	7.959	A	1	1.2	1	1	1	149.111	2.401	0.050	C
			B	1	1.2	1	1	1	149.111			
			C	1	1.2	1	1	1	149.111			
L3 47.827-31.993	0.880	5.231	A	1	1.2	1	1	1	55.858	0.765	0.048	C
			B	1	1.2	1	1	1	55.858			
			C	1	1.2	1	1	1	55.858			
L4 31.993-15.997	0.894	4.775	A	1	1.2	1	1	1	60.296	0.783	0.049	C
			B	1	1.2	1	1	1	60.296			
			C	1	1.2	1	1	1	60.296			
L5 15.997-0.000	0.894	5.085	A	1	1.2	1	1	1	64.178	0.833	0.052	C
			B	1	1.2	1	1	1	64.178			
			C	1	1.2	1	1	1	64.178			
Sum Weight:	6.912	27.767						OTM	522.404 kip-ft	7.204		

Force Totals

Load Case	Total Weight K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Total Member Self-Weight	27.767			0.000	0.000	
Wind 0 deg - No Ice	43.430	0.000	-38.739	-3757.180	0.000	0.000
Wind 90 deg - No Ice	43.430	38.739	0.000	0.000	-3757.180	0.000
Wind 180 deg - No Ice	43.430	0.000	38.739	3757.180	0.000	0.000
Member Ice	3.490			0.000	0.000	
Wind 0 deg - Ice	44.811	0.000	-32.568	-3233.351	0.000	0.000
Wind 90 deg - Ice	44.811	32.568	0.000	0.000	-3233.351	0.000
Wind 180 deg - Ice	44.811	0.000	32.568	3233.351	0.000	0.000
Wind 0 deg - Service	43.430	0.000	-13.405	-1300.062	0.000	0.000
Wind 90 deg - Service	43.430	13.405	0.000	0.000	-1300.062	0.000
Wind 180 deg - Service	43.430	0.000	13.405	1300.062	0.000	0.000

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 90 deg - No Ice
4	Dead+Wind 180 deg - No Ice
5	Dead+Ice+Temp
6	Dead+Wind 0 deg+Ice+Temp
7	Dead+Wind 90 deg+Ice+Temp
8	Dead+Wind 180 deg+Ice+Temp
9	Dead+Wind 0 deg - Service
10	Dead+Wind 90 deg - Service
11	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 95.83	Pole	Max Tension	2	0.000	0.000	-0.000
			Max. Compression	5	-16.975	0.000	0.000
			Max. Mx	3	-11.307	-639.261	0.000
			Max. My	2	-11.307	0.000	639.261
			Max. Vy	3	23.470	-639.261	0.000
			Max. Vx	2	-23.470	0.000	639.261
L2	95.83 - 47.8267	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	5	-27.018	0.000	0.000
			Max. Mx	3	-22.766	-1966.350	0.000
			Max. My	2	-22.766	0.000	1966.350
			Max. Vy	3	31.965	-1966.350	0.000
			Max. Vx	2	-31.965	0.000	1966.350
L3	47.8267 - 31.9934	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	5	-33.964	0.000	0.000
			Max. Mx	3	-30.757	-2703.849	0.000
			Max. My	2	-30.757	0.000	2703.849
			Max. Vy	3	34.999	-2703.849	0.000
			Max. Vx	2	-34.999	0.000	2703.849
L4	31.9934 - 15.9967	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	5	-39.217	0.000	0.000
			Max. Mx	3	-36.901	-3278.537	0.000
			Max. My	2	-36.901	0.000	3278.537
			Max. Vy	3	36.889	-3278.537	0.000
			Max. Vx	2	-36.889	0.000	3278.537
L5	15.9967 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	5	-44.811	0.000	0.000
			Max. Mx	3	-43.411	-3883.267	0.000
			Max. My	2	-43.411	0.000	3883.267
			Max. Vy	3	38.756	-3883.267	0.000
			Max. Vx	2	-38.756	0.000	3883.267

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	5	44.811	0.000	0.000

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_x	11	43.430	0.000	-13.403
	Max. H_z	2	43.430	0.000	38.735
	Max. M_x	2	3883.267	0.000	38.735
	Max. M_z	3	3883.267	-38.735	0.000
	Max. Torsion	1	0.000	0.000	0.000
	Min. Vert	3	43.430	-38.735	0.000
	Min. H_x	3	43.430	-38.735	0.000
	Min. H_z	4	43.430	0.000	-38.735
	Min. M_x	4	-3883.267	0.000	-38.735
	Min. M_z	1	0.000	0.000	0.000
	Min. Torsion	1	0.000	0.000	0.000

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	43.430	0.000	0.000	0.000	0.000	0.000
Dead+Wind 0 deg - No Ice	43.430	0.000	-38.735	-3883.267	0.000	0.000
Dead+Wind 90 deg - No Ice	43.430	38.735	0.000	0.000	-3883.267	0.000
Dead+Wind 180 deg - No Ice	43.430	0.000	38.735	3883.267	0.000	0.000
Dead+Ice+Temp	44.811	0.000	0.000	0.000	0.000	0.000
Dead+Wind 0 deg+Ice+Temp	44.811	0.000	-32.568	-3366.392	0.000	0.000
Dead+Wind 90 deg+Ice+Temp	44.811	32.568	0.000	0.000	-3366.392	0.000
Dead+Wind 180 deg+Ice+Temp	44.811	0.000	32.568	3366.392	0.000	0.000
Dead+Wind 0 deg - Service	43.430	0.000	-13.403	-1345.753	0.000	0.000
Dead+Wind 90 deg - Service	43.430	13.403	0.000	0.000	-1345.753	0.000
Dead+Wind 180 deg - Service	43.430	0.000	13.403	1345.753	0.000	0.000

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-43.430	0.000	0.000	43.430	0.000	0.000%
2	0.000	-43.430	-38.739	0.000	43.430	38.735	0.008%
3	38.739	-43.430	0.000	-38.735	43.430	0.000	0.008%
4	0.000	-43.430	38.739	0.000	43.430	-38.735	0.008%
5	0.000	-44.811	0.000	0.000	44.811	0.000	0.000%
6	0.000	-44.811	-32.568	0.000	44.811	32.568	0.000%
7	32.568	-44.811	0.000	-32.568	44.811	0.000	0.000%
8	0.000	-44.811	32.568	0.000	44.811	-32.568	0.000%
9	0.000	-43.430	-13.405	0.000	43.430	13.403	0.004%
10	13.405	-43.430	0.000	-13.403	43.430	0.000	0.004%
11	0.000	-43.430	13.405	0.000	43.430	-13.403	0.004%

Non-Linear Convergence Results

Load Combination.	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	12	0.00000001	0.00011425

3	Yes	12	0.00000001	0.00011425
4	Yes	12	0.00000001	0.00011425
5	Yes	6	0.00000001	0.00000001
6	Yes	15	0.00000001	0.00012084
7	Yes	15	0.00000001	0.00012084
8	Yes	15	0.00000001	0.00012084
9	Yes	12	0.00010288	0.00000001
10	Yes	12	0.00010288	0.00000001
11	Yes	12	0.00010288	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		*deg*	*deg*
L1	150 - 95.83	38.673	9	2.042	0.000
L2	100.997 - 47.8267	18.769	9	1.693	0.000
L3	53.9934 - 31.9934	5.499	9	0.925	0.000
L4	31.9934 - 15.9967	1.939	9	0.580	0.000
L5	15.9967 - 0	0.483	9	0.289	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	*deg*	*deg*	*ft*
149.000	DB810KE-XT Omni ("3"x14.5')	9	38.243	2.038	0.000	39643
148.000	ALP-E-9011 (12@3 Faces)	9	37.812	2.033	0.000	39643
138.000	DB980H90 (9@3 Faces)	9	33.525	1.989	0.000	16518
125.000	(4) ALP 11011-N w/Pipe Mount	9	28.070	1.917	0.000	7927
113.000	(2) Quadpole	9	23.259	1.824	0.000	5355
105.000	(3) ASP685	9	20.224	1.742	0.000	4403
90.000	7184.14 (9@3 Faces)	9	15.020	1.534	0.000	3832
40.000	GPS	9	3.034	0.720	0.000	3364

Maximum Tower Deflections - Design Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		*deg*	*deg*
L1	150 - 95.83	111.373	2	5.884	0.000
L2	100.997 - 47.8267	54.092	2	4.881	0.000
L3	53.9934 - 31.9934	15.860	2	2.668	0.000
L4	31.9934 - 15.9967	5.594	2	1.675	0.000
L5	15.9967 - 0	1.393	2	0.834	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	*deg*	*deg*	*ft*

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt deg	Twist deg	Radius of Curvature ft
149.000	DB810KE-XT Omni ("3"x14.5')	2	110.135	5.871	0.000	14016
148.000	ALP-E-9011 (12@3 Faces)	2	108.896	5.859	0.000	14016
138.000	DB980H90 (9@3 Faces)	2	96.561	5.729	0.000	5839
125.000	(4) ALP 11011-N w/Pipe Mount	2	80.863	5.520	0.000	2800
113.000	(2) Quadpole	2	67.016	5.254	0.000	1889
105.000	(3) ASP685	2	58.281	5.019	0.000	1551
90.000	7184.14 (9@3 Faces)	2	43.294	4.428	0.000	1345
40.000	GPS	2	8.752	2.057	0.000	1170

Compression Checks

Pole Design Data:

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	150 - 95.83	TP33.469x23.61x0.281 H1-3 (1.39 CR) - 4	54.170	0.000	0.0	39.000	29.209	-11.307	1139.160	0.010
L2	95.83 - 47.8267	TP41.644x31.966x0.375 H1-3 (1.45 CR) - 5	53.170	0.000	0.0	39.000	48.477	-22.766	1890.600	0.012
L3	47.8267 - 31.9934	TP43.775x39.772x0.438	22.000	0.000	0.0	39.000	61.051	-30.757	2381.010	0.013
L4	31.9934 - 15.9967	TP46.687x43.775x0.438	15.997	0.000	0.0	39.000	65.155	-36.901	2541.030	0.015
L5	15.9967 - 0	TP49.6x46.687x0.438	15.997	0.000	0.0	39.000	69.258	-43.411	2701.050	0.016

Pole Bending Design Data:

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	150 - 95.83	TP33.469x23.61x0.281	639.261	-33.340	39.000	0.855	0.000	0.000	39.000	0.000
L2	95.83 - 47.8267	TP41.644x31.966x0.375	1966.350	-49.664	39.000	1.273	0.000	0.000	39.000	0.000
L3	47.8267 - 31.9934	TP43.775x39.772x0.438	2703.850	-50.270	39.000	1.289	0.000	0.000	39.000	0.000
L4	31.9934 - 15.9967	TP46.687x43.775x0.438	3278.533	-53.486	39.000	1.371	0.000	0.000	39.000	0.000
L5	15.9967 - 0	TP49.6x46.687x0.438	3883.267	-56.036	39.000	1.437	0.000	0.000	39.000	0.000

Pole Interaction Design Data:

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 95.83	TP33.469x23.61x0.281	0.010	0.855	0.000	0.865 ✓	1.333	H1-3 ✓
L2	95.83 - 47.8267	TP41.644x31.966x0.375	0.012	1.273	0.000	1.285 ✓	1.333	H1-3 ✓
L3	47.8267 - 31.9934	TP43.775x39.772x0.438	0.013	1.289	0.000	1.302 ✓	1.333	H1-3 ✓
L4	31.9934 - 15.9967	TP46.687x43.775x0.438	0.015	1.371	0.000	1.386 ✗	1.333	H1-3 ✗
L5	15.9967 - 0	TP49.6x46.687x0.438	0.016	1.437	0.000	1.453 ✗	1.333	H1-3 ✗

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Controlling Element	% Capacity	Pass Fail
L1	150 - 95.83	Pole	TP33.469x23.61x0.281	1	64.9	Pass
L2	95.83 - 47.8267	Pole	TP41.644x31.966x0.375	2	96.4	Pass
L3	47.8267 - 31.9934	Pole	TP43.775x39.772x0.438	3	97.7	Pass
L4	31.9934 - 15.9967	Pole	TP46.687x43.775x0.438	4	104.0	Fail ✗
L5	15.9967 - 0	Pole	TP49.6x46.687x0.438	5	109.0	Fail ✗
					Summary	
				Pole	109.0	Fail ✗
				RATING =	**109.0**	**Fail ✗**

Program Version 2.0.0.34 - 1/10/2003 File:R:/1356.000 VOICESTREAM NEW YORK/052 FAIRFIELD - MPX44/ENGINEERING/valmont mp 150 Fairfield.eri

AFL Telecommunications

Wireless Services
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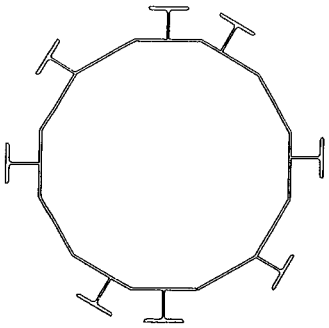
By: J. Hardy	Date: 1/15/03
Checked: C. Stewart	Job #. 1356.052
Subject: Fairfield	Properties at Base of Pole



Properties at Base of Pole (1356.052)
(Note: Properties were obtained by obtaining equivalent areas to compensate for the difference in yield strength between WT and Pole.)

Area: 101.7952 sq in
Perimeter: 454.7420 in
Bounding box: X: -31.1732 -- 31.1768 in
Y: -31.2502 -- 31.0998 in
Centroid: X: 0.0000 in
Y: 0.0000 in
Moments of inertia: X: 37394.7221 sq in sq in
Y: 33691.5019 sq in sq in
Product of inertia: XY: -688.7134 sq in sq in
Radii of gyration: X: 19.1664 in
Y: 18.1927 in
Principal moments (sq in sq in) and X-Y directions about centroid:
I: 33567.5649 along [0.1771 -0.9842]
J: 37518.6590 along [0.9842 0.1771]

Diam of Pole at base	D=49.6"
Distance to extreme fiber	c = (49.6"/2) + 6" = 30.8"
X-sectional area of section	A = 101.8 in2
Moment of Inertia	Iy = 33,691.5 in4
Total Moment at base	M = 46,599 K-In
Total Vertical Load	P = 43.4 K
Total Shear at base	V = 38.8 K
Yield strength of pole	Fy = 65 ksi

Actual Bending Stress in steel

fb = (P/A) + (M x c / Iy) + (V/A)
fb = (43.4 / 101.8) + (46,599 x 30.8 / 33,518.5) + (38.8 / 101.8) = 43.6 ksi

Allowable Bending Stress in steel

Fb = .6 x Fy x 1.33 = .6 x 65 x 1.33 = 51.9 ksi

51.9 ksi > 43.6 ksi

Section is adequate for the new loads

ALCOA AFL Telecommunications

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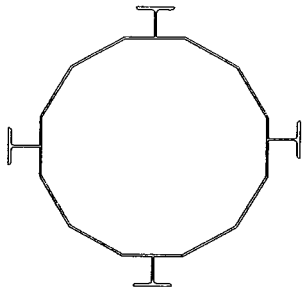
By: C. Stewart	Date: 1/15/03
Checked: E. Poulin	Job #. 1356.052
Subject: Fairfield	Properties at 16' above base of Pole



Properties at 16' above base (1356.052)
(Note: Properties were obtained by obtaining equivalent areas to compensate for the difference in yield strength between WT and Pole.)

Area: 77.4158 sq in
Perimeter: 366.8054 in
Bounding box: X: -29.6850 -- 29.6890 in
Y: -29.7784 -- 29.5956 in
Centroid: X: 0.0000 in
Y: 0.0000 in
Moments of inertia: X: 22990.8931 sq in sq in
Y: 22993.9066 sq in sq in
Product of inertia: XY: 183.0834 sq in sq in
Radii of gyration: X: 17.2331 in
Y: 17.2342 in
Principal moments (sq in sq in) and X-Y directions about centroid:
I: 22809.3103 along [0.7100 0.7042]
J: 23175.4894 along [-0.7042 0.7100]

Diam of Pole at 16' above base	D=46.7"
Distance to extreme fiber	c = (46.7"/2) + 6" = 29.4"
X-sectional area of section	A = 77.4 in2
Moment of Inertia	Iy = 22,809.3 in4
Total Moment at 16' above base	M = 39,348 K-In
Total Vertical Load	P = 36.9 K
Total Shear at 16' above base	V = 36.9 K
Yield strength of pole	Fy = 65 ksi
Actual Bending Stress in steel	fb = (P/A) + (M x c / Iy) + (V/A) fb = (36.9 / 77.4) + (39,348 x 29.4 / 22,809) + (36.9 / 77.4) = 51.7 ksi
Allowable Bending Stress in steel	Fb = .6 x Fy x 1.33 = .6 x 65 x 1.33 = 51.9 ksi
	51.9 ksi > 51.7 ksi

Section is adequate for the new loads

ANCHOR BOLT AND BASE PLATE CALCULATIONS

ALCOA

Project: Fairfield

Job No.: 1356.052

Designed By: J. Hardy

Date: 1-15-03

Checked By: E. Poulin

NON-CLUSTERED ANCHOR BOLTS AND BASE PLATE ANALYSIS

1.0 BASE REACTIONS:

M= Moment at the base

Q= Axial load at the base

$M := \begin{pmatrix} 3366 \\ 3883 \end{pmatrix} \cdot kip \cdot ft$ (from structural analysis)

$Q := \begin{pmatrix} 45 \\ 43 \end{pmatrix} \cdot kip$ (from structural analysis)

2.0 BOLT PARAMETERS:

n= Number of bolts

d= Bolt diameter

D= Circle diameter

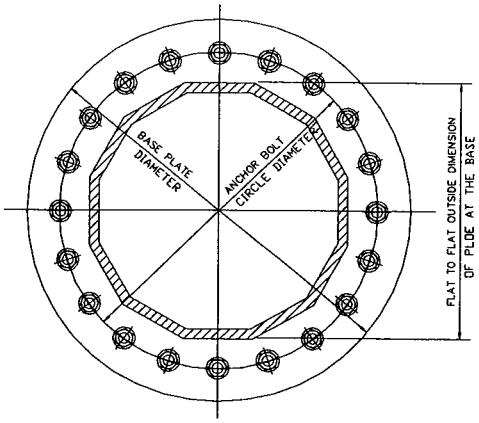
F_b= Yeild strength of bolt

$n := 16$

$D := 57.85 \cdot in$

$F_b := 75 \cdot ksi$

$d := 2.25 \cdot in$



3.0 POLE PARAMETERS:

N= Number of sides

D_p= Pole diameter (flat to flat)

$N := 12$

$D_p := 49.6 \cdot in$

4.0 BASE PLATE PARAMETERS:

D_{plate}= Plate diameter

T= Plate thickness

e_{bolt}= Bolt eccentricity

F_y= Yeild strength of plate

$D_{plate} := 63.85 \cdot in$

$F_y := 60 \cdot ksi$

$T := 2.75 \cdot in$

$e_{bolt} := \frac{(D - D_p)}{2}$ $e_{bolt} = 4.13\ in$

5.0 VERIFY STRESS IN BOLTS:

θ= Angle between bolts

r= Distance from centroid of pole to extreme bolt

I_b= Inertia of one bolt

A_b= Area of one bolt

S= Section modulus of anchor bolts

σ= Maximum stress in bolt

σ_{all}= Maximum stress in bolt

$\theta := \frac{360}{n} \cdot deg$ $r := \frac{D}{2}$

$I_b := \frac{\pi \cdot d^4}{64}$ $A_b := \frac{\pi \cdot d^2}{4}$

$k := ceil\left(\frac{n}{4} - 1\right)$ $\sigma_{all} := 0.6 \cdot F_b \cdot 1.333$

$$S := \frac{\left[n \cdot I_b + A_b \cdot 2 \cdot r^2 \cdot \left(1 + 2 \cdot \sum_{i=1}^{k} \cos(i \cdot \theta)^2 \right) \right]}{r} \qquad S = 921\ in^3$$

$\sigma := \frac{Q}{n \cdot A_b} + \frac{M}{S}$ $\sigma = \begin{pmatrix} 45 \\ 51 \end{pmatrix} ksi$ $\sigma_{all} = 60\ ksi$ $\max\left(\frac{\sigma}{\sigma_{all}}\right) = 85\%$

6.0 VERIFY STRESS IN BASE PLATE:

S_b= Bolt spacing

F_b= Maximum force in bolt

M_{plate}= Moment in plate, free end fixed against rotation

σ_{plate}= Maximum bending stress in plate

σ_{all}= Maximum stress in plate

$S_b := 2 \cdot r \cdot \sin\left(\frac{\theta}{2}\right)$ $S_b = 11\ in$

$F_{bolt} := \sigma \cdot A_b$ $F_{bolt} = \begin{pmatrix} 177 \\ 204 \end{pmatrix} kip$

$S_{plate} := \frac{S_b \cdot T^2}{6}$ $M_{plate} := F_{bolt} \cdot \frac{e_{bolt}}{2}$ $M_{plate} = \begin{pmatrix} 366 \\ 421 \end{pmatrix} kip \cdot in$

$\sigma_{plate} := \frac{M_{plate}}{S_{plate}}$ $\sigma_{plate} = \begin{pmatrix} 26 \\ 30 \end{pmatrix} ksi$ $\sigma_{all} := 0.66 \cdot F_y \cdot 1.333$ $\sigma_{all} = 53\ ksi$ $\max\left(\frac{\sigma_{plate}}{\sigma_{all}}\right) = 56\%$

FOUNDATION ANALYSIS

LPILE Plus for Windows, Version 4.0

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This program is licensed to:

EMMANUEL POULIN
PACIFIC 17

Path to file locations: R:\1356.000 VOICESTREAM NEW YORK\052 FAIRFIELD - MPX44\ENGINEERING\
Name of input data file: Fairfield.lpd
Name of output file: Fairfield.lpo
Name of plot output file: Fairfield.lpp
Name of runtime file: Fairfield.lpr

Time and Date of Analysis

Date: January 17, 2003 Time: 12:57:20

Problem Title

FAIRFIELD - 1356.052

Program Options

Units Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

Analysis Type 3:
- Computation of Nonlinear Bending Stiffness and Ultimate Bending Moment Capacity with Pile Response Computed Using Nonlinear EI

Computation Options:
- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis includes automatic computation of pile-top deflection vs. pile embedment length
- Analysis includes computation of foundation stiffness matrix elements
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:
- Number of pile increments = 156
- Maximum number of iterations allowed = 100
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 1

Pile Structural Properties and Geometry

Pile Length = 312.00 in
Depth of ground surface below top of pile = 60.00 in

Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	0.0000	84.000	2.44392E+06	5542.0000	3120000.000
2	318.0000	84.000	2.44392E+06	5542.0000	3120000.000

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness that the above values of moment of inertia and modulus of are not used for any computations other than total stress due to combined axial loading and bending.

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 60.000 in
Distance from top of pile to bottom of layer = 192.000 in
p-y subgrade modulus k for top of soil layer = 20.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 20.000 lbs/in**3

Layer 2 is weak rock, p-y criteria by Reese, 1997
Distance from top of pile to top of layer = 192.000 in
Distance from top of pile to bottom of layer = 318.000 in
Initial modulus of rock at top of layer = 5.0000E+05 lbs/in**2
Initial modulus of rock at bottom of layer = 5.0000E+05 lbs/in**2

(Depth of lowest layer extends 6.00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Distribution of effective unit weight of soil with depth is defined using 4 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	60.00	.06370
2	192.00	.06370
3	192.00	.06370
4	318.00	.06370

Shear Strength of Soils

Distribution of shear strength parameters with depth defined using 4 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	60.000	.00000	30.00	------	------
2	192.000	.00000	30.00	------	------
3	192.000	278.00000	.00	.00050	50.0
4	318.000	278.00000	.00	.00050	50.0

Notes:

(1) Cohesion = uniaxial compressive strength for rock materials.
(2) Values of E50 are reported for clay strata.
(3) Default values will be generated for E50 when input values are 0.
(4) RQD and k_rm are reported only for weak rock strata.

Static loading criteria was used for computation of p-y curves

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Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Shear force at pile head = 39000.000 lbs
Bending moment at pile head = 46596000.000 in-lbs
Axial load at pile head = 45000.000 lbs

Non-zero moment at pile head for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment)condition.

Computations of Ultimate Moment Capacity and Nonlinear Bending Stiffness

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Pile Description:

The sectional shape is a circular drilled shaft (bored pile).

Outside Diameter = 84.000 In

Material Properties:

Compressive Strength of Concrete = 3.000 Kip/In**2
Yield Stress of Reinforcement = 60. Kip/In**2
Modulus of Elasticity of Reinforcement = 29000. Kip/In**2
Number of Reinforcing Bars = 40
Area of Single Bar = 1.56000 In**2
Number of Rows of Reinforcing Bars = 21
Cover Thickness (edge to bar center) = 4.000 In

Ultimate Axial Squash Load Capacity = 17716.39 Kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement In**2	Distance to Centroidal Axis In
1	1.560000	38.0000
2	3.120000	37.5322
3	3.120000	36.1401
4	3.120000	33.8582
5	3.120000	30.7426
6	3.120000	26.8701
7	3.120000	22.3358
8	3.120000	17.2516
9	3.120000	11.7426
10	3.120000	5.9445
11	3.120000	.0000
12	3.120000	-5.9445
13	3.120000	-11.7426
14	3.120000	-17.2516
15	3.120000	-22.3358
16	3.120000	-26.8701
17	3.120000	-30.7426
18	3.120000	-33.8582
19	3.120000	-36.1401
20	3.120000	-37.5322
21	1.560000	-38.0000

Axial Thrust Force = 45000.00 lbs

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches

8955224.141	8.95522E+12	.00000100	.00004452	44.519
13208309.088	2.64166E+12	.00000500	.00012277	24.553
22977287.485	2.55303E+12	.00000900	.00021569	23.965
32661559.122	2.51243E+12	.00001300	.00030946	23.805
42304644.932	2.48851E+12	.00001700	.00040460	23.800
51766858.586	2.46509E+12	.00002100	.00049980	23.800
61169367.450	2.44677E+12	.00002500	.00059636	23.854
70476907.889	2.43024E+12	.00002900	.00069402	23.932
79677923.815	2.41448E+12	.00003300	.00079280	24.024
88767958.563	2.39913E+12	.00003700	.00089276	24.129
95172713.998	2.32129E+12	.00004100	.00098403	24.001
99677608.802	2.21506E+12	.00004500	.00107088	23.797
103081631.565	2.10371E+12	.00004900	.00115041	23.478
105801608.032	1.99626E+12	.00005300	.00122700	23.151
116654462.406	1.40548E+12	.00008300	.00175559	21.152
120998640.231	1.07078E+12	.00011300	.00224292	19.849
123393352.375	8.62891E+11	.00014300	.00271411	18.980
124517689.784	7.19755E+11	.00017300	.00319936	18.493
124517689.784	6.13388E+11	.00020300	.00369458	18.200
124517689.784	5.34411E+11	.00023300	.00422960	18.153

Ultimate Moment Capacity at a Concrete Strain of 0.003 = 124055.766 In-Kip

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Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Specified shear force at pile head = 39000.000 lbs
Specified bending moment at pile head = 46596000.000 in-lbs
Specified axial load at pile head = 45000.000 lbs

Non-zero moment for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment)condition.

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Flx. Rig. EI lbs-in**2	Soil Res p lbs/in
0.000	.885963	4.66E+07	39000.0	-.005987	808.9	2.48E+12	0.000
2.000	.874027	4.67E+07	39000.0	-.005949	810.2	2.48E+12	0.000
4.000	.862166	4.68E+07	39000.0	-.005911	811.6	2.48E+12	0.000
6.000	.850381	4.68E+07	39000.0	-.005874	812.9	2.48E+12	0.000
8.000	.838671	4.69E+07	39000.0	-.005836	814.3	2.48E+12	0.000
10.000	.827037	4.70E+07	39000.0	-.005798	815.6	2.48E+12	0.000
12.000	.815479	4.71E+07	39000.0	-.005760	817.0	2.48E+12	0.000
14.000	.803997	4.71E+07	39000.0	-.005722	818.3	2.48E+12	0.000
16.000	.792592	4.72E+07	39000.0	-.005684	819.7	2.48E+12	0.000
18.000	.781262	4.73E+07	39000.0	-.005646	821.0	2.48E+12	0.000
20.000	.770009	4.74E+07	39000.0	-.005607	822.4	2.48E+12	0.000
22.000	.758832	4.75E+07	39000.0	-.005569	823.7	2.48E+12	0.000
24.000	.747733	4.75E+07	39000.0	-.005531	825.1	2.48E+12	0.000
26.000	.736709	4.76E+07	39000.0	-.005492	826.4	2.48E+12	0.000
28.000	.725763	4.77E+07	39000.0	-.005454	827.8	2.48E+12	0.000
30.000	.714894	4.78E+07	39000.0	-.005415	829.1	2.48E+12	0.000
32.000	.704102	4.79E+07	39000.0	-.005377	830.5	2.47E+12	0.000
34.000	.693388	4.79E+07	39000.0	-.005338	831.8	2.47E+12	0.000
36.000	.682751	4.80E+07	39000.0	-.005299	833.2	2.47E+12	0.000
38.000	.672191	4.81E+07	39000.0	-.005260	834.5	2.47E+12	0.000
40.000	.661710	4.82E+07	39000.0	-.005221	835.9	2.47E+12	0.000
42.000	.651306	4.82E+07	39000.0	-.005182	837.2	2.47E+12	0.000
44.000	.640980	4.83E+07	39000.0	-.005143	838.6	2.47E+12	0.000
46.000	.630733	4.84E+07	39000.0	-.005104	839.9	2.47E+12	0.000
48.000	.620563	4.85E+07	39000.0	-.005065	841.3	2.47E+12	0.000
50.000	.610472	4.86E+07	39000.0	-.005026	842.6	2.47E+12	0.000
52.000	.600460	4.86E+07	39000.0	-.004987	844.0	2.47E+12	0.000
54.000	.590526	4.87E+07	39000.0	-.004947	845.3	2.47E+12	0.000
56.000	.580671	4.88E+07	39000.0	-.004908	846.7	2.47E+12	0.000
58.000	.570895	4.89E+07	39000.0	-.004868	848.0	2.47E+12	0.000
60.000	.561198	4.90E+07	39000.0	-.004829	849.4	2.47E+12	0.000
62.000	.551580	4.90E+07	38977.9	-.004789	850.7	2.47E+12	-22.063
64.000	.542042	4.91E+07	38912.5	-.004749	852.1	2.47E+12	-43.363
66.000	.532583	4.92E+07	38805.2	-.004710	853.4	2.47E+12	-63.910
68.000	.523204	4.93E+07	38657.6	-.004670	854.7	2.47E+12	-83.713

70.000	.513904	4.93E+07	38471.1	-.004630	856.1	2.47E+12	-102.781
72.000	.504684	4.94E+07	38247.2	-.004590	857.4	2.47E+12	-121.124
74.000	.495544	4.95E+07	37987.3	-.004550	858.7	2.47E+12	-138.752
76.000	.486485	4.96E+07	37692.9	-.004510	860.0	2.47E+12	-155.675
78.000	.477506	4.96E+07	37365.3	-.004470	861.3	2.47E+12	-171.902
80.000	.468607	4.97E+07	37006.0	-.004429	862.6	2.47E+12	-187.443
82.000	.459788	4.98E+07	36616.2	-.004389	863.9	2.47E+12	-202.307
84.000	.451050	4.99E+07	36197.4	-.004349	865.1	2.47E+12	-216.504
86.000	.442393	4.99E+07	35750.9	-.004308	866.4	2.47E+12	-230.045
88.000	.433817	5.00E+07	35277.9	-.004268	867.6	2.47E+12	-242.938
90.000	.425322	5.01E+07	34779.8	-.004227	868.8	2.47E+12	-255.193
92.000	.416908	5.02E+07	34257.8	-.004187	870.0	2.47E+12	-266.821
94.000	.408575	5.02E+07	33713.1	-.004146	871.2	2.47E+12	-277.831
96.000	.400324	5.03E+07	33147.0	-.004105	872.3	2.47E+12	-288.233
98.000	.392154	5.04E+07	32560.8	-.004065	873.5	2.47E+12	-298.037
100.000	.384066	5.04E+07	31955.5	-.004024	874.6	2.47E+12	-307.252
102.000	.376059	5.05E+07	31332.3	-.003983	875.7	2.47E+12	-315.889
104.000	.368134	5.05E+07	30692.5	-.003942	876.8	2.47E+12	-323.958
106.000	.360291	5.06E+07	30037.1	-.003901	877.8	2.47E+12	-331.468
108.000	.352530	5.07E+07	29367.2	-.003860	878.8	2.47E+12	-338.429
110.000	.344851	5.07E+07	28683.9	-.003819	879.8	2.47E+12	-344.851
112.000	.337255	5.08E+07	27988.3	-.003778	880.8	2.47E+12	-350.745
114.000	.329741	5.08E+07	27281.4	-.003737	881.8	2.47E+12	-356.120
116.000	.322309	5.09E+07	26564.3	-.003695	882.7	2.47E+12	-360.986
118.000	.314960	5.09E+07	25838.0	-.003654	883.6	2.47E+12	-365.353
120.000	.307693	5.10E+07	25103.4	-.003613	884.5	2.47E+12	-369.231
122.000	.300509	5.10E+07	24361.5	-.003571	885.3	2.47E+12	-372.631
124.000	.293408	5.11E+07	23613.3	-.003530	886.2	2.47E+12	-375.562
126.000	.286389	5.11E+07	22859.7	-.003488	887.0	2.47E+12	-378.034
128.000	.279454	5.12E+07	22101.7	-.003447	887.8	2.47E+12	-380.057
130.000	.272601	5.12E+07	21340.0	-.003405	888.5	2.47E+12	-381.642
132.000	.265832	5.13E+07	20575.5	-.003364	889.2	2.47E+12	-382.798
134.000	.259146	5.13E+07	19809.2	-.003322	889.9	2.47E+12	-383.535
136.000	.252542	5.14E+07	19041.8	-.003281	890.6	2.47E+12	-383.865
138.000	.246023	5.14E+07	18274.1	-.003239	891.3	2.47E+12	-383.795
140.000	.239586	5.14E+07	17507.0	-.003197	891.9	2.47E+12	-383.338
142.000	.233233	5.15E+07	16741.1	-.003156	892.5	2.47E+12	-382.503
144.000	.226964	5.15E+07	15977.3	-.003114	893.0	2.47E+12	-381.299
146.000	.220778	5.15E+07	15216.3	-.003072	893.6	2.47E+12	-379.738
148.000	.214676	5.16E+07	14458.7	-.003030	894.1	2.47E+12	-377.829
150.000	.208657	5.16E+07	13705.3	-.002988	894.6	2.47E+12	-375.582
152.000	.202722	5.16E+07	12956.7	-.002947	895.0	2.47E+12	-373.008
154.000	.196870	5.16E+07	12213.6	-.002905	895.5	2.47E+12	-370.116
156.000	.191103	5.17E+07	11476.6	-.002863	895.9	2.47E+12	-366.918
158.000	.185419	5.17E+07	10746.2	-.002821	896.3	2.47E+12	-363.422
160.000	.179819	5.17E+07	10023.2	-.002779	896.6	2.47E+12	-359.639
162.000	.174303	5.17E+07	9308.0	-.002737	897.0	2.47E+12	-355.579
164.000	.168871	5.17E+07	8601.1	-.002695	897.3	2.47E+12	-351.252
166.000	.163523	5.18E+07	7903.2	-.002653	897.6	2.47E+12	-346.669
168.000	.158259	5.18E+07	7214.7	-.002611	897.8	2.47E+12	-341.839
170.000	.153079	5.18E+07	6536.1	-.002569	898.1	2.47E+12	-336.773
172.000	.147983	5.18E+07	5867.8	-.002527	898.3	2.47E+12	-331.481
174.000	.142971	5.18E+07	5210.4	-.002485	898.5	2.47E+12	-325.973
176.000	.138043	5.18E+07	4564.1	-.002443	898.7	2.46E+12	-320.259
178.000	.133199	5.18E+07	3929.5	-.002401	898.8	2.46E+12	-314.349
180.000	.128439	5.18E+07	3306.9	-.002359	898.9	2.46E+12	-308.254
182.000	.123763	5.18E+07	2696.7	-.002317	899.0	2.46E+12	-301.983
184.000	.119172	5.18E+07	2099.2	-.002275	899.1	2.46E+12	-295.546
186.000	.114664	5.19E+07	1514.7	-.002233	899.2	2.46E+12	-288.954
188.000	.110241	5.19E+07	943.5	-.002191	899.2	2.46E+12	-282.217
190.000	.105902	5.19E+07	385.9	-.002149	899.3	2.46E+12	-275.345
192.000	.101647	5.19E+07	-9598.5	-.002106	899.3	2.46E+12	-9709.072
194.000	.097476	5.18E+07	-29235.7	-.002064	898.6	2.46E+12	-9928.179
196.000	.093389	5.17E+07	-49303.2	-.002022	897.3	2.47E+12	-10139.304
198.000	.089387	5.16E+07	-69784.8	-.001980	895.2	2.47E+12	-10342.281
200.000	.085468	5.15E+07	-90664.0	-.001939	892.5	2.47E+12	-10536.930
202.000	.081632	5.13E+07	-111924.0	-.001897	889.0	2.47E+12	-10723.055
204.000	.077880	5.10E+07	-133547.5	-.001856	884.8	2.47E+12	-10900.449
206.000	.074210	5.07E+07	-155516.8	-.001814	879.8	2.47E+12	-11068.882
208.000	.070622	5.04E+07	-177813.8	-.001773	874.1	2.47E+12	-11228.105
210.000	.067117	5.00E+07	-200419.8	-.001733	867.6	2.47E+12	-11377.845
212.000	.063692	4.96E+07	-223315.4	-.001692	860.3	2.47E+12	-11517.799
214.000	.060347	4.91E+07	-246480.8	-.001652	852.3	2.47E+12	-11647.634
216.000	.057082	4.86E+07	-269895.5	-.001613	843.4	2.47E+12	-11766.976
218.000	.053896	4.80E+07	-293537.8	-.001574	833.7	2.47E+12	-11875.407
220.000	.050787	4.74E+07	-317385.7	-.001535	823.2	2.48E+12	-11972.456
222.000	.047755	4.68E+07	-341415.7	-.001497	811.9	2.48E+12	-12057.589
224.000	.044798	4.61E+07	-365603.5	-.001460	799.8	2.48E+12	-12130.198
226.000	.041916	4.53E+07	-389923.3	-.001423	786.8	2.48E+12	-12189.584

228.000	.039107	4.45E+07	-414347.8	-.001387	773.0	2.48E+12	-12234.937
230.000	.036369	4.37E+07	-438848.1	-.001351	758.3	2.49E+12	-12265.316
232.000	.033702	4.27E+07	-463393.0	-.001316	742.8	2.49E+12	-12279.614
234.000	.031103	4.18E+07	-487949.1	-.001282	726.4	2.49E+12	-12276.517
236.000	.028572	4.08E+07	-512480.1	-.001249	709.3	2.49E+12	-12254.454
238.000	.026106	3.97E+07	-536946.1	-.001217	691.2	2.49E+12	-12211.514
240.000	.023704	3.87E+07	-561303.0	-.001186	672.4	2.50E+12	-12145.353
242.000	.021363	3.75E+07	-585501.3	-.001155	652.6	2.50E+12	-12053.040
244.000	.019083	3.63E+07	-609485.2	-.001126	632.1	2.50E+12	-11930.848
246.000	.016861	3.51E+07	-633190.0	-.001097	610.7	2.51E+12	-11773.929
248.000	.014694	3.38E+07	-656539.7	-.001070	588.6	2.51E+12	-11575.797
250.000	.012582	3.24E+07	-679443.0	-.001043	565.6	2.51E+12	-11327.480
252.000	.010521	3.11E+07	-701786.5	-.001018	541.9	2.52E+12	-11015.997
254.000	.008509	2.96E+07	-723423.9	-9.94E-04	517.4	2.53E+12	-10621.421
256.000	.006545	2.82E+07	-744155.9	-9.71E-04	492.2	2.53E+12	-10110.527
258.000	.004624	2.67E+07	-763686.9	-9.50E-04	466.2	2.54E+12	-9420.486
260.000	.002746	2.51E+07	-781511.0	-9.29E-04	439.7	2.54E+12	-8403.627
262.000	9.08E-04	2.35E+07	-796395.7	-9.10E-04	412.5	2.55E+12	-6481.109
264.000	-8.94E-04	2.19E+07	-796350.4	-8.92E-04	384.9	2.56E+12	6526.409
266.000	-.002661	2.03E+07	-781108.3	-8.76E-04	357.8	2.58E+12	8715.743
268.000	-.004397	1.88E+07	-762360.5	-8.61E-04	331.2	2.59E+12	10031.986
270.000	-.006104	1.73E+07	-741277.8	-8.51E-04	305.4	5.93E+12	11050.783
272.000	-.007800	1.58E+07	-718306.8	-8.45E-04	280.3	6.92E+12	11920.144
274.000	-.009486	1.44E+07	-693689.4	-8.41E-04	256.0	7.50E+12	12697.293
276.000	-.011164	1.31E+07	-667580.3	-8.38E-04	232.6	7.94E+12	13411.824
278.000	-.012836	1.18E+07	-640087.3	-8.34E-04	210.1	8.30E+12	14081.189
280.000	-.014502	1.05E+07	-611289.5	-8.32E-04	188.6	8.61E+12	14716.579
282.000	-.016163	9.31E+06	-581247.3	-8.30E-04	168.1	8.88E+12	15325.617
284.000	-.017820	8.18E+06	-550008.0	-8.28E-04	148.6	8.96E+12	15913.733
286.000	-.019474	7.11E+06	-517609.3	-8.26E-04	130.3	8.96E+12	16484.921
288.000	-.021124	6.11E+06	-484082.2	-8.24E-04	113.1	8.96E+12	17042.210
290.000	-.022772	5.17E+06	-449452.0	-8.23E-04	97.0041	8.96E+12	17587.956
292.000	-.024417	4.31E+06	-413740.0	-8.22E-04	82.1618	8.96E+12	18124.029
294.000	-.026060	3.52E+06	-376964.1	-8.21E-04	68.5654	8.96E+12	18651.933
296.000	-.027702	2.80E+06	-339139.2	-8.21E-04	56.2511	8.96E+12	19172.897
298.000	-.029342	2.16E+06	-300278.4	-8.20E-04	45.2548	8.96E+12	19687.936
300.000	-.030982	1.60E+06	-260392.6	-8.20E-04	35.6119	8.96E+12	20197.895
302.000	-.032621	1.12E+06	-219491.2	-8.19E-04	27.3574	8.96E+12	20703.485
304.000	-.034259	721906.4	-177582.4	-8.19E-04	20.5261	8.96E+12	21205.310
306.000	-.035897	409226.0	-134673.2	-8.19E-04	15.1526	8.96E+12	21703.880
308.000	-.037535	183361.0	-90769.7	-8.19E-04	11.2710	8.96E+12	22199.635
310.000	-.039173	46294.6	-45877.1	-8.19E-04	8.9154	8.96E+12	22692.951
312.000	-.040810	0.0	0.0	-8.19E-04	8.1198	8.96E+12	23184.152

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness that the above values of total stress due to combined axial stress and bending may not be representative of actual conditions.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

Pile-head deflection	=	.88596264	in
Computed slope at pile head	=	-.00598682	
Maximum bending moment	=	51855102.598	lbs-in
Maximum shear force	=	-796395.716	lbs
Depth of maximum bending moment	=	192.000	in
Depth of maximum shear force	=	262.000	in
Number of iterations	=	26	
Number of zero deflection points	=	1	

Summary of Pile-head Response

Definition of symbols for pile-head boundary conditions:

y = pile-head displacment, in
M = pile-head moment, lbs-in
V = pile-head shear force, lbs

S = pile-head slope, radians
R = rotational stiffness of pile-head, in-lbs/rad

BC Type	Boundary Condition 1	Boundary Condition 2	Axial Load lbs	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
1	V= 39000.000	M= 4.66E+07	45000.0000	.8860	5.186E+07	-7.964E+05

Computed Pile-head Stiffness Matrix Members
K22, K23, K32, K33 for Superstructure

Lateral Load lbs	K22 lbs/in	K23 lbs/Rad	Bending Moment in-lbs	K32 in-lbs/in	K33 in-lbs/Rad
3900.0001	1.01711E+07	1.03047E+09	4.65960E+06	1.11360E+09	1.56565E+11
11740.1698	9.70170E+06	8.73127E+08	1.40268E+07	1.07869E+09	1.39766E+11
18607.7289	9.23328E+06	4.26729E+08	2.22319E+07	1.04302E+09	6.77352E+10
23480.3397	8.95561E+06	3.45102E+08	2.80536E+07	1.02154E+09	5.36394E+10
27259.8302	8.76822E+06	3.15631E+08	3.25692E+07	1.00690E+09	4.90900E+10
30347.8988	8.64386E+06	2.98214E+08	3.62587E+07	9.97129E+08	4.66159E+10
32958.8236	8.53604E+06	2.86414E+08	3.93782E+07	9.88612E+08	4.51356E+10
35220.5095	8.44819E+06	2.77298E+08	4.20804E+07	9.81646E+08	4.39797E+10
37215.4579	8.37459E+06	2.70272E+08	4.44639E+07	9.75789E+08	4.31599E+10
39000.0000	8.31138E+06	2.64735E+08	4.65960E+07	9.70744E+08	4.25779E+10

Pile-head Deflection vs. Pile Length

Boundary Condition Type 1, Shear and Moment

Shear = 39000. lbs
Moment = 46596000. in-lbs
Axial Load = 45000. lbs

Pile Length in	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
312.000	.88596264	51855102.598	-796395.716
296.400	1.44314925	50866283.427	-867993.915
280.800	2.62351949	50298619.595	-882901.301
265.200	5.10305003	50137550.356	-867434.282

The analysis ended normally.

FOUNDATION ANALYSIS
OMNIPOINT - FAIRFIELD
CT-11-077C

REINFORCEMENT:		
Fy=	60	KSI
N=	40	
BAR=	1.38	IN
Fbar= P/N+4M/(N*D)=	6.2	KIP
F#8= A*0.6*Fy=	53.8	KIP

APPLIED REACTIONS:		
DOWNLOAD=	45000	LBS
SHEAR=	39000	LBS
UPLIFT=	0	LBS
MOMENT=	3883000	FT-LBS

PIER GEOMETRY:		
Lembd=	258	IN
Dia=	84	IN

DEPTH X (IN)	DEFLECTION y (IN)	MOMENT M (LBS-IN)	SHEAR V (LBS)	SLOPE S (RAD.)	TOTAL STRESS (PSI)	FLX. RIG. EI (PSI)	SOIL RES. p (LBS/IN)	FORCE (LBS)	PRESSURE (PSI)	ALL. SOIL PRESSURE[1] (PSI)	UNIT WEIGHT[2] (PCF)	PASSIVE COEFFICIENT	A PRESSURE (PSI)	SAFETY FACTOR	
0	0.885963	4.66E+07	39000	-0.005987	808.9	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
2	0.874027	4.67E+07	39000	-0.005949	810.2	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4	0.862166	4.68E+07	39000	-0.005911	811.6	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
6	0.850381	4.68E+07	39000	-0.005874	812.9	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
8	0.838671	4.69E+07	39000	-0.005836	814.3	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10	0.827037	4.70E+07	39000	-0.005798	815.6	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
12	0.815479	4.71E+07	39000	-0.00576	817	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
14	0.803997	4.71E+07	39000	-0.005722	818.3	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
16	0.792592	4.72E+07	39000	-0.005684	819.7	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
18	0.781262	4.73E+07	39000	-0.005646	821	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
20	0.770009	4.74E+07	39000	-0.005607	822.4	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
22	0.758832	4.75E+07	39000	-0.005569	823.7	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
24	0.747733	4.75E+07	39000	-0.005531	825.1	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
26	0.736709	4.76E+07	39000	-0.005492	826.4	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
28	0.725763	4.77E+07	39000	-0.005454	827.8	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
30	0.714894	4.78E+07	39000	-0.005415	829.1	2.48E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
32	0.704102	4.79E+07	39000	-0.005377	830.5	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
34	0.693388	4.79E+07	39000	-0.005338	831.8	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
36	0.682751	4.80E+07	39000	-0.005299	833.2	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
38	0.672191	4.81E+07	39000	-0.00526	834.5	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
40	0.66171	4.82E+07	39000	-0.005221	835.9	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
42	0.651306	4.82E+07	39000	-0.005182	837.2	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
44	0.64098	4.83E+07	39000	-0.005143	838.6	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
46	0.630733	4.84E+07	39000	-0.005104	839.9	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
48	0.620563	4.85E+07	39000	-0.005065	841.3	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
50	0.610472	4.86E+07	39000	-0.005026	842.6	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
52	0.60046	4.86E+07	39000	-0.004987	844	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
54	0.590526	4.87E+07	39000	-0.004947	845.3	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
56	0.580671	4.88E+07	39000	-0.004908	846.7	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
58	0.570895	4.89E+07	39000	-0.004868	848	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
60	0.561198	4.90E+07	39000	-0.004829	849.4	2.47E+12	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
62	0.55158	4.90E+07	38977.9	-0.004789	850.7	2.47E+12	-22.063	-12.2	-0.072	5.3	110	3.00	5.3	73.8	
64	0.542042	4.91E+07	38912.5	-0.004749	852.1	2.47E+12	-43.363	-23.5	-0.140	5.5	110	3.00	5.4	39.6	
66	0.532583	4.92E+07	38805.2	-0.00471	853.4	2.47E+12	-63.91	-34.0	-0.203	5.7	110	3.00	5.5	28.3	
68	0.523204	4.93E+07	38657.6	-0.00467	854.7	2.47E+12	-83.713	-43.8	-0.261	5.9	110	3.00	5.7	22.7	
70	0.513904	4.93E+07	38471.1	-0.00463	856.1	2.47E+12	-102.781	-52.8	-0.314	6.1	110	3.00	5.8	19.4	
72	0.504684	4.94E+07	38247.2	-0.00459	857.4	2.47E+12	-121.124	-61.1	-0.364	6.3	110	3.00	5.9	17.3	
74	0.495544	4.95E+07	37987.3	-0.00455	858.7	2.47E+12	-138.752	-68.8	-0.409	6.5	110	3.00	6.1	15.9	
76	0.486485	4.96E+07	37692.9	-0.00451	860	2.47E+12	-155.675	-75.7	-0.451	6.7	110	3.00	6.2	14.8	
78	0.477506	4.96E+07	37365.3	-0.00447	861.3	2.47E+12	-171.902	-82.1	-0.489	3.0	48	3.00	2.5	6.1	
80	0.468607	4.97E+07	37006	-0.004429	862.6	2.47E+12	-187.443	-87.8	-0.523	3.1	48	3.00	2.5	5.8	
82	0.459788	4.98E+07	36616.2	-0.004389	863.9	2.47E+12	-202.307	-93.0	-0.554	3.1	48	3.00	2.6	5.7	
84	0.45105	4.99E+07	36197.4	-0.004349	865.1	2.47E+12	-216.504	-97.7	-0.581	3.2	48	3.00	2.6	5.5	
86	0.442393	4.99E+07	35750.9	-0.004308	866.4	2.47E+12	-230.045	-101.8	-0.606	3.3	48	3.00	2.7	5.5	
88	0.433817	5.00E+07	35277.9	-0.004268	867.6	2.47E+12	-242.938	-105.4	-0.627	3.4	48	3.00	2.8	5.4	
90	0.425322	5.01E+07	34779.8	-0.004227	868.8	2.47E+12	-255.193	-108.5	-0.646	3.5	48	3.00	2.8	5.4	
92	0.416908	5.02E+07	34257.8	-0.004187	870	2.47E+12	-266.821	-111.2	-0.662	3.6	48	3.00	2.9	5.4	
94	0.408575	5.02E+07	33713.1	-0.004146	871.2	2.47E+12	-277.831	-113.5	-0.676	3.6	48	3.00	3.0	5.4	
96	0.400324	5.03E+07	33147	-0.004105	872.3	2.47E+12	-288.233	-115.4	-0.687	3.7	48	3.00	3.0	5.4	
98	0.392154	5.04E+07	32560.8	-0.004065	873.5	2.47E+12	-298.037	-116.9	-0.696	3.8	48	3.00	3.1	5.5	
100	0.384066	5.04E+07	31955.5	-0.004024	874.6	2.47E+12	-307.252	-118.0	-0.702	3.9	48	3.00	3.2	5.5	
102	0.376059	5.05E+07	31332.3	-0.003983	875.7	2.47E+12	-315.889	-118.8	-0.707	4.0	48	3.00	3.3	5.6	
104	0.368134	5.05E+07	30692.5	-0.003942	876.8	2.47E+12	-323.958	-119.3	-0.710	4.0	48	3.00	3.3	5.7	
106	0.360291	5.06E+07	30037.1	-0.003901	877.8	2.47E+12	-331.468	-119.4	-0.711	4.1	48	3.00	3.4	5.8	
108	0.35253	5.07E+07	29367.2	-0.00386	878.8	2.47E+12	-338.429	-119.3	-0.710	4.2	48	3.00	3.5	5.9	
110	0.344851	5.07E+07	28683.9	-0.003819	879.8	2.47E+12	-344.851	-118.9	-0.708	4.3	48	3.00	3.6	6.1	
112	0.337255	5.08E+07	27988.3	-0.003778	880.8	2.47E+12	-350.745	-118.3	-0.704	4.4	48	3.00	3.7	6.2	
114	0.329741	5.08E+07	27281.4	-0.003737	881.8	2.47E+12	-356.12	-117.4	-0.699	4.5	48	3.00	3.8	6.4	
116	0.322309	5.09E+07	26564.3	-0.003695	882.7	2.47E+12	-360.986	-116.3	-0.693	4.5	48	3.00	3.9	6.6	
118	0.31496	5.09E+07	25838	-0.003654	883.6	2.47E+12	-365.353	-115.1	-0.685	4.6	48	3.00	3.9	6.8	
120	0.307693	5.10E+07	25103.4	-0.003613	884.5	2.47E+12	-369.231	-113.6	-0.676	4.7	48	3.00	4.0	7.0	
122	0.300509	5.10E+07	24361.5	-0.003571	885.3	2.47E+12	-372.631	-112.0	-0.667	4.8	48	3.00	4.1	7.2	
124	0.293408	5.11E+07	23613.3	-0.00353	886.2	2.47E+12	-375.562	-110.2	-0.656	4.9	48	3.00	4.2	7.4	
126	0.286389	5.11E+07	22859.7	-0.003488	887	2.47E+12	-378.034	-108.3	-0.644	5.0	48	3.00	4.3	7.7	
128	0.279454	5.12E+07	22101.7	-0.003447	887.8	2.47E+12	-380.057	-106.2	-0.632	5.0	48	3.00	4.4	8.0	
130	0.272601	5.12E+07	21340	-0.003405	888.5	2.47E+12	-381.642	-104.0	-0.619	5.1	48	3.00	4.5	8.3	
132	0.265832	5.13E+07	20575.5	-0.003364	889.2	2.47E+12	-382.798	-101.8	-0.606	5.2	48	3.00	4.6	8.6	
134	0.259146	5.13E+07	19809.2	-0.003322	889.9	2.47E+12	-383.535	-99.4	-0.592	5.3	48	3.00	4.7	8.9	
136	0.252542	5.14E+07	19041.8	-0.003281	890.6	2.47E+12	-383.865	-96.9	-0.577	5.4	48	3.00	4.8	9.3	
138	0.246023	5.14E+07	18274.1	-0.003239	891.3	2.47E+12	-383.795	-94.4	-0.562	5.5	48	3.00	4.9	9.7	
140	0.239586	5.14E+07	17507	-0.003197	891.9	2.47E+12	-383.338	-91.8	-0.547	5.5	48	3.00	5.0	10.1	
142	0.233233	5.15E+07	16741.1	-0.003156	892.5	2.47E+12	-382.503	-89.2	-0.531	5.6	48	3.00	5.1	10.6	
144	0.226964	5.15E+07	15977.3	-0.003114	893	2.47E+12	-381.299	-86.5	-0.515	5.7	48	3.00	5.2	11.1	
146	0.220778	5.15E+07	15216.3	-0.003072	893.6	2.47E+12	-379.738	-83.8	-0.499	5.8	48	3.00	5.3	11.6	
148	0.214676	5.16E+07	14458.7	-0.00303	894.1	2.47E+12	-377.829	-81.1	-0.483	5.9	48	3.00	5.4	12.2	
150	0.208657	5.16E+07	13705.3	-0.002988	894.6	2.47E+12	-375.582	-78.4	-0.466	6.0	48	3.00	5.5	12.8	
152	0.202722	5.16E+07	12956.7	-0.002947	895	2.47E+12	-373.008	-75.6	-0.450	6.0	48	3.00	5.6	13.4	
154	0.19687	5.16E+07	12213.6	-0.002905	895.5	2.47E+12	-370.116	-72.9	-0.434	6.1	48	3.00	5.7	14.1	
156	0.191103	5.17E+07	11476.6	-0.002863	895.9	2.47E+12	-366.918	-70.1	-0.417	6.2	48	3.00	5.8	14.8	
158	0.185419	5.17E+07	10746.2	-0.002821	896.3	2.47E+12	-363.422	-67.4	-0.401	6.3	48	3.00	5.9	15.7	
160	0.179819	5.17E+07	10023.2	-0.002779	896.6	2.47E+12	-359.639	-64.7	-0.385	6.4	48	3.00	6.0	16.5	
162	0.174303	5.17E+07	9308	-0.002737	897	2.47E+12	-355.579	-62.0	-0.369	6.4	48	3.00	6.1	17.5	
164	0.168871	5.17E+07	8601.1	-0.002695	897.3	2.47E+12	-351.252	-59.3	-0.353	6.5	48	3.00	6.2	18.5	
166	0.163523	5.18E+07	7903.2	-0.002653	897.6	2.47E+12	-346.669	-56.7	-0.337	6.6	48	3.00	6.3	19.6	
168	0.158259	5.18E+07	7214.7	-0.002611	897.8	2.47E+12	-341.839	-54.1	-0.322	6.7	48	3.00	6.4	20.8	
170	0.153079	5.18E+07	6536.1	-0.002569	898.1	2.47E+12	-336.773	-51.6	-0.307	6.8	48	3.00	6.5	22.1	
172	0.147983	5.18E+07	5867.8	-0.002527	898.3	2.47E+12	-331.481	-49.1	-0.292	6.9	48	3.00	6.6	23.5	
174	0.142971	5.18E+07	5210.4	-0.002485	898.5	2.47E+12	-325.973	-46.6	-0.277	6.9	48	3.00	6.7	25.0	
176	0.138043	5.18E+07	4564.1	-0.002443	898.7	2.46E+12	-320.259	-44.2	-0.263	7.0	48	3.00	6.8	26.7	
178	0.133199	5.18E+07	3929.5	-0.002401	898.8	2.46E+12	-314.349	-41.9	-0.249	7.1	48	3.00	6.9	28.5	
180	0.128439	5.18E+07	3306.9	-0.002359	898.9	2.46E+12	-308.254	-39.6	-0.236	7.2	48	3.00	7.0	30.5	
182	0.123763	5.18E+07	2696.7	-0.002317	899	2.46E+12	-301.983	-37.4	-0.222	7.3	48	3.00	7.0	32.7	
184	0.119172	5.18E+07	2099.2	-0.002275	899.1	2.46E+12	-295.546	-35.2	-0.210	7.4	48	3.00	7.1	35.1	
186	0.114664	5.19E+07	1514.7	-0.002233	899.2	2.46E+12	-288.954	-33.1	-0.197	7.4	48	3.00	7.2	37.7	
188	0.110241	5.19E+07	943.5	-0.002191	899.2	2.46E+12	-282.217	-31.1	-0.185	7.5	48	3.00	7.3	40.6	MAX. MOMENT DEV. IN
190	0.105902	5.19E+07	385.9	-0.002149	899.3	2.46E+12	-275.345	-29.2	-0.174	7.6	48	3.00	7.4	43.8	IN THE SHAFT
192	0.101647	5.19E+07	-9598.5	-0.002106	899.3	2.46E+12	-9709.072	-986.9	-5.874	200.0	-	-	194.1	34.0	
194	0.097476	5.18E+07	-29235.7	-0.002064	898.6	2.46E+12	-9928.179	-967.8	-5.760	201.0	-	-	195.2	34.9	
196	0.093389	5.17E+07	-49303.2	-0.002022	897.3	2.47E+12	10139.304	946.9	5.636	202.0	-	-	196.4	35.8	
198	0.089387	5.16E+07	-69784.8	-0.00198	895.2	2.47E+12	10342.281	924.5	5.503	203.0	-	-	197.5	36.9	

FOUNDATION ANALYSIS
OMNIPOINT - FAIRFIELD
CT-11-077C

DEPTH X (IN)	DEFLECTION y (IN)	MOMENT M (LBS-IN)	SHEAR V (LBS)	SLOPE S (RAD.)	TOTAL STRESS (PSI)	FLX. RIG. EI (PSI)	SOIL RES. p (LBS/IN)	FORCE (LBS)	PRESSURE (PSI)	ALL SOIL PRESSURE [1] (PSI)	UNIT WEIGHT [2] (PCF)	PASSIVE COEFFICIENT	Δ PRESSURE (PSI)	SAFETY FACTOR
200	0.085468	5.15E+07	-90664	-0.001939	892.5	2.47E+12	10536.93	900.6	5.361	204.0	-	-	198.6	38.1
202	0.081632	5.13E+07	-111924	-0.001897	889	2.47E+12	10723.055	875.3	5.210	205.0	-	-	199.8	39.3
204	0.07788	5.10E+07	-133547.5	-0.001856	884.8	2.47E+12	10900.449	848.9	5.053	206.0	-	-	200.9	40.8
206	0.07421	5.07E+07	-155516.8	-0.001814	879.8	2.47E+12	11068.882	821.4	4.889	207.0	-	-	202.1	42.3
208	0.070622	5.04E+07	-177813.8	-0.001773	874.1	2.47E+12	11228.105	793.0	4.720	208.0	-	-	203.3	44.1
210	0.067117	5.00E+07	-200419.8	-0.001733	867.6	2.47E+12-	11377.845	763.6	4.546	209.0	-	-	204.5	46.0
212	0.063692	4.96E+07	-223315.4	-0.001692	860.3	2.47E+12-	11517.799	733.6	4.367	210.0	-	-	205.6	48.1
214	0.060347	4.91E+07	-246480.8	-0.001652	852.3	2.47E+12-	11647.634	702.9	4.184	211.0	-	-	206.8	50.4
216	0.057082	4.86E+07	-269895.5	-0.001613	843.4	2.47E+12-	11766.976	671.7	3.998	212.0	-	-	208.0	53.0
218	0.053896	4.80E+07	-293537.8	-0.001574	833.7	2.47E+12-	11875.407	640.0	3.810	213.0	-	-	209.2	55.9
220	0.050787	4.74E+07	-317385.7	-0.001535	823.2	2.48E+12-	11972.456	608.0	3.619	214.0	-	-	210.4	59.1
222	0.047755	4.68E+07	-341415.7	-0.001497	811.9	2.48E+12-	12057.589	575.8	3.427	215.0	-	-	211.6	62.7
224	0.044798	4.61E+07	-365603.5	-0.00146	799.8	2.48E+12-	12130.198	543.4	3.235	216.0	-	-	212.8	66.8
226	0.041916	4.53E+07	-389923.3	-0.001423	786.8	2.48E+12-	12189.584	510.9	3.041	217.0	-	-	214.0	71.4
228	0.039107	4.45E+07	-414347.8	-0.001387	773	2.48E+12-	12234.937	478.5	2.848	218.0	-	-	215.2	76.5
230	0.036369	4.37E+07	-438848.1	-0.001351	758.3	2.49E+12-	12265.316	446.1	2.655	219.0	-	-	216.3	82.5
232	0.033702	4.27E+07	-463393	-0.001316	742.8	2.49E+12-	12279.614	413.8	2.463	220.0	-	-	217.5	89.3
234	0.031103	4.18E+07	-487949.1	-0.001282	726.4	2.49E+12-	12276.517	381.8	2.273	221.0	-	-	218.7	97.2
236	0.028572	4.08E+07	-512480.1	-0.001249	709.3	2.49E+12-	12254.454	350.1	2.084	222.0	-	-	219.9	106.5
238	0.026106	3.97E+07	-536946.1	-0.001217	691.2	2.49E+12-	12211.514	318.8	1.898	223.0	-	-	221.1	117.5
240	0.023704	3.87E+07	-561303	-0.001186	672.4	2.50E+12-	12145.353	287.9	1.714	224.0	-	-	222.3	130.7
242	0.021363	3.75E+07	-585501.3	-0.001155	652.6	2.50E+12-	12053.04	257.5	1.533	225.0	-	-	223.5	146.8
244	0.019083	3.63E+07	-609485.2	-0.001126	632.1	2.50E+12-	11930.848	227.7	1.355	226.0	-	-	224.6	166.8
246	0.016861	3.51E+07	-633190	-0.001097	610.7	2.51E+12-	11773.929	198.5	1.182	227.0	-	-	225.8	192.1
248	0.014694	3.38E+07	-656539.7	-0.00107	588.6	2.51E+12-	11575.797	170.1	1.012	228.0	-	-	227.0	225.2
250	0.012582	3.24E+07	-679443	-0.001043	565.6	2.51E+12-	11327.48	142.5	0.848	229.0	-	-	228.2	269.9
252	0.010521	3.11E+07	-701786.5	-0.001018	541.9	2.52E+12-	11015.997	115.9	0.690	230.0	-	-	229.3	333.4
254	0.008509	2.96E+07	-723423.9	-9.94E-04	517.4	2.53E+12-	10621.421	90.4	0.538	231.0	-	-	230.5	429.4
256	0.006545	2.82E+07	-744155.9	-9.71E-04	492.2	2.53E+12-	10110.527	66.2	0.394	232.0	-	-	231.6	589.0
258	0.004624	2.67E+07	-763686.9	-9.50E-04	466.2	2.54E+12	-9420.486	-43.6	-0.259	233.0	-	-	232.7	898.6
260	0.002746	2.51E+07	-781511	-9.29E-04	439.7	2.54E+12	-8403.627	-23.1	-0.137	234.0	-	-	233.9	1703.6
262	9.08E-04	2.35E+07	-796395.7	-9.10E-04	412.5	2.55E+12	-6481.109	-5.9	-0.035	235.0	-	-	235.0	6708.8
264	-8.94E-04	2.19E+07	-796350.4	-8.92E-04	384.9	2.56E+12	6526.409	5.8	0.035	236.0	-	-	236.0	6795.3
266	-0.002661	2.03E+07	-781108.3	-8.76E-04	357.8	2.58E+12	8715.743	23.2	0.138	237.0	-	-	236.9	1716.8
268	-0.004397	1.88E+07	-762360.5	-8.61E-04	331.2	2.59E+12	10031.986	44.1	0.263	238.0	-	-	237.7	906.4
270	-0.006104	1.73E+07	-741277.8	-8.51E-04	305.4	5.93E+12	11050.783	67.5	0.402	239.0	-	-	238.6	595.3
272	-0.0078	1.58E+07	-718306.8	-8.45E-04	280.3	6.92E+12	11920.144	93.0	0.553	240.0	-	-	239.4	433.7
274	-0.009486	1.44E+07	-693689.4	-8.41E-04	256	7.50E+12	12697.293	120.4	0.717	241.0	-	-	240.3	336.1
276	-0.011164	1.31E+07	-667580.3	-8.38E-04	232.6	7.94E+12	13411.824	149.7	0.891	242.0	-	-	241.1	271.5
278	-0.012836	1.18E+07	-640087.3	-8.34E-04	210.1	8.30E+12	14081.189	180.7	1.076	243.0	-	-	241.9	225.9
280	-0.014502	1.05E+07	-611289.5	-8.32E-04	188.6	8.61E+12	14716.579	213.4	1.270	244.0	-	-	242.7	192.1
282	-0.016163	9.31E+06	-581247.3	-8.30E-04	168.1	8.88E+12	15325.617	247.7	1.474	245.0	-	-	243.5	166.2
284	-0.01782	8.18E+06	-550008	-8.28E-04	148.6	8.96E+12	15913.733	283.6	1.688	246.0	-	-	244.3	145.7
286	-0.019474	7.11E+06	-517609.3	-8.26E-04	130.3	8.96E+12	16484.921	321.0	1.911	247.0	-	-	245.1	129.3
288	-0.021124	6.11E+06	-484082.2	-8.24E-04	113.1	8.96E+12	17042.21	360.0	2.143	248.0	-	-	245.9	115.7
290	-0.022772	5.17E+06	-449452	-8.23E-04	97.0041	8.96E+12	17587.956	400.5	2.384	249.0	-	-	246.6	104.4
292	-0.024417	4.31E+06	-413740	-8.22E-04	82.1618	8.96E+12	18124.029	442.5	2.634	250.0	-	-	247.4	94.9
294	-0.02606	3.52E+06	-376964.1	-8.21E-04	68.5654	8.96E+12	18651.933	486.1	2.893	251.0	-	-	248.1	86.8
296	-0.027702	2.80E+06	-339139.2	-8.21E-04	56.2511	8.96E+12	19172.897	531.1	3.161	252.0	-	-	248.8	79.7
298	-0.029342	2.16E+06	-300278.4	-8.20E-04	45.2548	8.96E+12	19687.936	577.7	3.439	253.0	-	-	249.6	73.6
300	-0.030982	1.60E+06	-260392.6	-8.20E-04	35.6119	8.96E+12	20197.895	625.8	3.725	254.0	-	-	250.3	68.2
302	-0.032621	1.12E+06	-219491.2	-8.19E-04	27.3574	8.96E+12	20703.485	675.4	4.020	255.0	-	-	251.0	63.4
304	-0.034259	721906.4	-177582.4	-8.19E-04	20.5261	8.96E+12	21205.31	726.5	4.324	256.0	-	-	251.7	59.2
306	-0.035897	409226	-134673.2	-8.19E-04	15.1526	8.96E+12	21703.88	779.1	4.638	257.0	-	-	252.4	55.4
308	-0.037535	183361	-90769.7	-8.19E-04	11.271	8.96E+12	22199.635	833.3	4.960	258.0	-	-	253.0	52.0
310	-0.039173	46294.6	-45877.1	-8.19E-04	8.9154	8.96E+12	22692.951	889.0	5.291	259.0	-	-	253.7	48.9
312	-0.04081	0	0	-8.19E-04	8.1198	8.96E+12	23184.152	946.1	5.632	260.0	-	-	254.4	46.2
							TOTAL FORCE	20992	LBS					

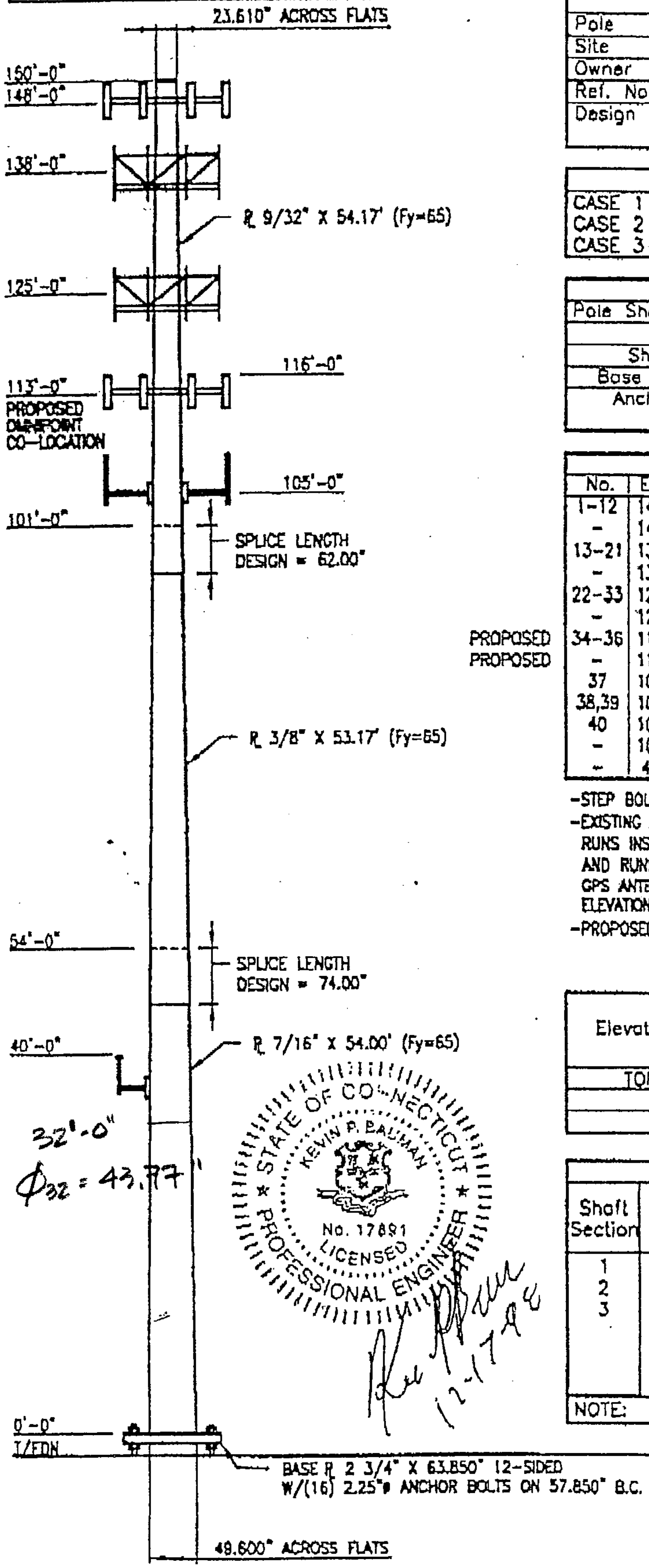
[1] THE ALLOWABLE SOIL PRESSURE IS CALCULATED WITH A SAFETY FACTOR OF 2.0. THE ALLOWABLE PASSIVE EARTH PRESSURE WAS OBTAINED FROM THE FOUNDATION DESIGN BY PAUL J. FORD (JOB # 31208-04 4, DATED 12-16-1998).
[2] THE REPORT STATES THAT THE WATER TABLE IS LOCATED 5.5 FT BELOW SURFACE.

PREVIOUS ANALYSIS

ARCNET
670 N. BEERS ST BLDG.2 HOLMDEL, NJ 07733
PH: (732) 739-3200 FAX: (732) 739-0440

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street, Suite 500, Columbus, Ohio 43215
(614) 221-6679 Fax: (614) 221-0166 www.PJFweb.com

PAUL J. FORD AND COMPANY HAS BEEN PROVIDED WITH THE ORIGINAL VALMONT POLE DRAWINGS, DATED 5-19-1994. IF EXISTING CONDITIONS ARE NOT AS REPRESENTED ON THESE SKETCHES, PJF SHOULD BE CONTACTED IMMEDIATELY TO RE-EVALUATE THE STRUCTURAL INTEGRITY OF THE POLE.



JOB DATA			
Page 1 of 2		Job No.	31298-044
By	RWH	Design No.	ARCNET #A98.506-254B
		Date	
Chk'd By	RWH	Rev. No. 2	Rev. Date 12-16-1998
Pole	150' POLE		
Site	CT-11-077-C:FAIRFIELD FIRE DEPT.; FAIRFIELD, CONNECTICUT		
Owner	NEXTEL		
Ref. No.	VALMONT DRAWING NO. DC17512		
Design	MINIMUM REQUIRED WIND VELOCITY = 85 MPH / 74 MPH + 1/2" RADIAL ICE — ACCORDING TO TIA/EIA-222-F 1996		

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

POLE SPECIFICATIONS	
Pole Shape Type:	12-SIDED POLYGON
Taper:	0.182017 IN/FT
Shaft Steel:	ASTM A572 GRADE 65
Base PL Steel:	ASTM A633 GR. E (60 KSI)
Anchor Bolts:	2 1/4"φ #18J ASTM A615 GRADE 75

ANTENNA LIST

	No.	Elev.	Description
	1-12	148.00	(12) SWEDCOM ALP-9011-N PANEL ANTENNA
	-	148.00	13' T-ARM MOUNTS
	13-21	138.00	(9) DB980H PCS
	-	138.00	13' PLATFORM
	22-33	125.00	(12) SWEDCOM ALP-11011-N
	-	125.00	10' PLATFORM
PROPOSED	34-36	113.00	(3) EMS RR65-19-00DP PCS PANEL
PROPOSED	-	113.00	14' LOW PROFILE PLATFORM
	37	105.00	(1) ASP-685 (UP)
	38,39	105.00	(2) ASP-685 (DOWN)
	40	105.00	(1) 8' OMNI ANTENNA
	-	105.00	(4) 6-FT SIDE ARM MOUNTS
	-	40.00	GPS ANTENNA W/ MOUNT

-STEP BOLTS FULL HEIGHT FROM 9'-6" ABOVE BASE PLATE.
-EXISTING ANTENNA CO-AX RUNS INSIDE OF POLE WITH TWO EXCEPTIONS. SPRINT'S CO-AX RUNS INSIDE OF THE POLE TO THE EXISTING HANDHOLE AT 120.5' ELEVATION THEN EXISTS AND RUNS FROM 120.5' TO 137' ON THE OUTSIDE OF THE POLE. THE CO-AX FOR THE GPS ANTENNA RUNS OUTSIDE OF THE POLE FROM THE BASE OF THE POLE TO THE 40'-0" ELEVATION.
-PROPOSED ANTENNA CO-AX TO RUN OUTSIDE OF POLE.

	85 MPH WIND		50 MPH WIND	
Elevation	Lateral Deflection (inches)	Rotation (sway) (degrees)	Lateral Deflection (inches)	Rotation (sway) (degrees)
TOP	100.8	5.365	34.8	1.856

SHAFT SECTION DATA

Shaft Section	Section Length (feet)	Plate Thickness (in.)	Lap Splice (in.)	Diameter Across Flats (inches) @ Top	@ Bottom
1	54.17	0.2813	62.00	23.610	33.469
2	53.17	0.3750	74.00	31.966	41.644
3	54.00	0.4375		39.771	49.600

NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES

UNFACTORED BASE REACTIONS
MOMENT = 3375 ft-kips
SHEAR = 34 kips
AXIAL = 33 kips

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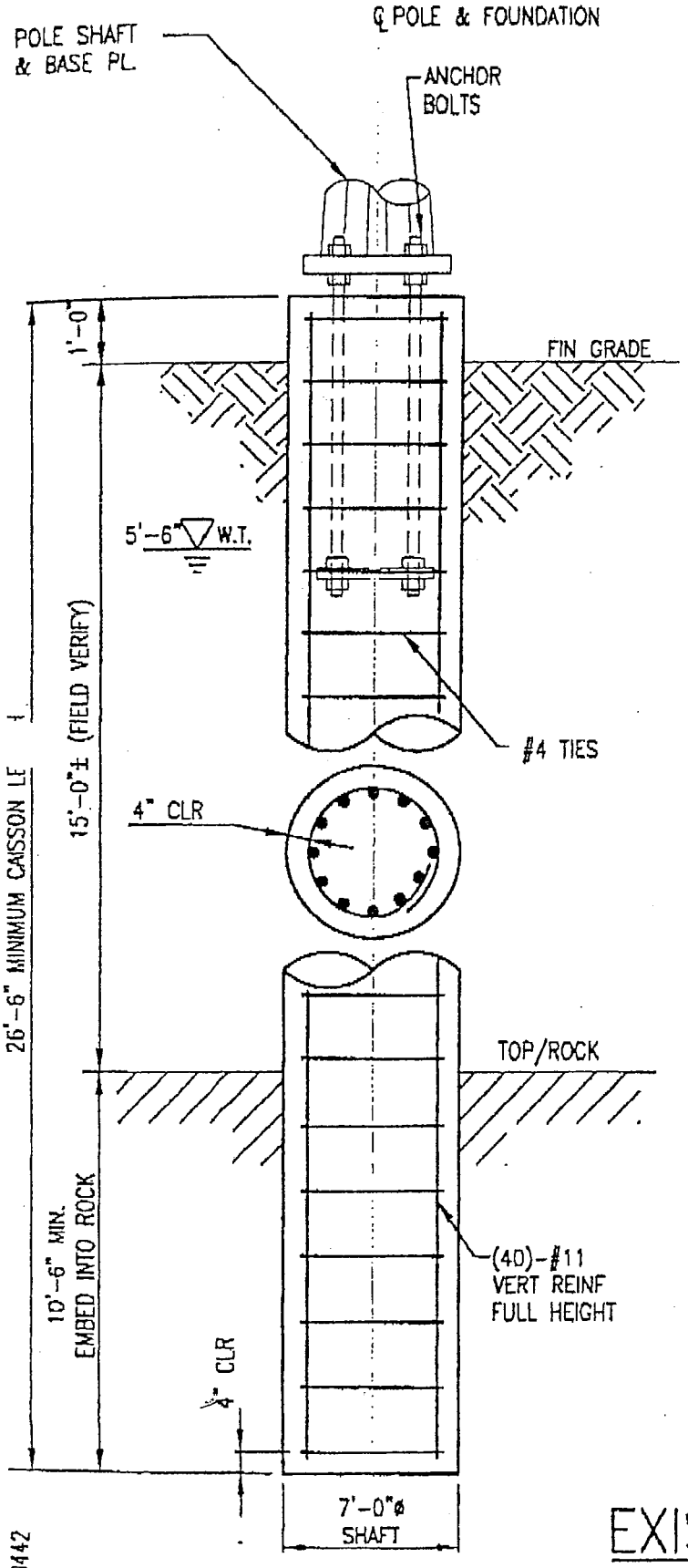


JOB DATA			
Page 2 of 2		Job No.	31298-044
By	RWH	Design No.	
Chk'd By	RWH	Date	
		Rev. No. 2	Rev. Date 12-16-1998
Pole	150' POLE		
Site	CT-11-077-C; FAIRFIELD, CT		
Owner	NEXTEL		
Ref. No.	SAC CALCULATION FOR VALMONT JOB #11634-94		
Design	85 MPH / 75 MPH + 1/2" RADIAL ICE ACCORDING TO TIA/EIA-222-F 1996		

NOTES:

1. EXISTING FOUNDATION ASSUMED TO HAVE BEEN BUILT AS SHOWN ON STRUCTURAL ARCHITECTURAL AND CONSULTING ENGINEERING CALCULATION FOR VALMONT JOB NUMBER 11634-94 WITH ONE EXCEPTION: DIAMETER ASSUMED AT 7'-0" PER ARCNET FIELD OBSERVATION.

2. ALL CONCRETE ASSUMED TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.

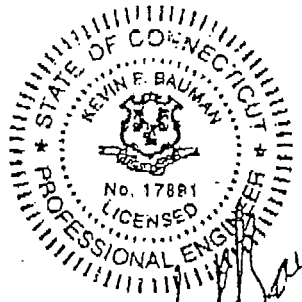
3. REINFORCING STEEL ASSUMED TO CONFORM TO THE REQUIREMENTS OF ASTM A-615 (GRADE 60).

4. SEE PAGE 1 FOR ANCHOR BOLT QUANTITY, SIZE, LENGTH, AND BOLT CIRCLE.

5. EXISTING FOUNDATION DESIGN ANALYZED USING SOIL PARAMETERS FROM GEOTECHNICAL EXPLORATION REPORT
PREPARED BY: APPLIED EARTH TECHNOLOGIES
REPORT NO.: N/A
DATED: MAY 1994

6. GEOTECHNICAL REPORT INDICATES GROUNDWATER WAS ENCOUNTERED AT 5'-6" BELOW GRADE.

7. EXISTING FOUNDATION ANALYZED USING THE FOLLOWING SERVICE LOADS:
MOMENT: 3375 FT-KIPS
SHEAR: 34 KIPS
AXIAL: 33 KIPS



12-17-98

AN980442

EXISTING
CAISSON (DRILLED PIER) FOUNDATION

Exhibit D

Power Density Calculations

PierCon Solutions LLC
Specialists in Wireless Systems

An Analysis of the Radio Frequency Environment in the Vicinity of a Proposed Omnipoint Communications Expansion Installation

CT-11-077
3965 Congress St,
Fairfield, CT

Prepared for

Omnipoint Communications

Prepared by

PierCon Solutions, LLC
September 8, 2003

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CONTENTS

1.0 INTRODUCTION

This report is an analysis of the radio frequency (RF) environment surrounding an existing monopole at 3965 Congress St, Fairfield, CT. The analysis includes contributions from the existing wireless carriers and the proposed expansion of Omnipoint's communications facility. Calculations taken from the latest FCC compliance statement for the 3965 Congress Street site, Engineering data collected by PierCon Solutions and analytical techniques defined by the Federal Communication Commission's Office of Engineering and Technology Bulletin 65 (OET65) were utilized in calculating the RF fields associated with the proposed expansion. Worst-case assumptions were used in the Omnipoint calculations and actual levels will be significantly lower than the corresponding analytical values.

The results of this analysis indicate that the cumulative level of RF energy that the public may be exposed to is below the Federal Communications Commission (FCC) standards for continuous exposure in all normally accessible areas. Specifically, the worst-case power density from the wireless facility at 6 feet above ground level (AGL) is 30.52% of the maximum permissible exposure limit for the general public. Therefore, the resulting calculations at street level are more than 3 times below the FCC limit for continuous exposure to the general public.

2.0 TECHNICAL DATA

The proposed existing Omnipoint communications facility will be expanded to 6 antennas, 2 per sector, with a total of 12 channels per sector. The technical parameters utilized in the analytical study are identified in the tables to follow:

Omnipoint Radio Parameters (Expansion)	
Frequency	1930 MHz
Antenna Centerline Height (AGL)	113 feet
Antenna Type	Directional
Antenna Manufacturer	EMS
Antenna Model	DR65-18-02DP2Q
Antenna Length	54 inches
Antenna Gain	17.3 dBi
Antenna Tilt	2°
Transmit Power / Channel	20 Watts
Total RF Channels After Expansion	12
Total Loss	2 dB
Ground Reflection Factor	.64

Verizon Wireless Parameters	
Frequency	880 MHz
Antenna Centerline Height (AGL)	80 feet
Antenna Type	Directional
Antenna Manufacturer	RFS
Antenna Model	APL866513
Antenna Length	48 inches
Antenna Gain	15.1 dBi
Antenna Tilt	0°
Transmit Power / Channel	20 Watts
Total RF Channels After Expansion	10
Total Loss	2 dB
Ground Reflection Factor	.64

Calculations from Latest FCC Compliance Statement:	
Total % MPE of Existing Installations including present Omnipoint installation	
Total % of FCC Standard	20.09%

3.0 MATHEMATICAL ANALYSIS

The FCC's Office of Engineering and Technology Bulletin 65 (OET65) defines the appropriate formulas for calculating power density exposure levels. The area of interest in relation to the subject site occurs at ground or street level. This area occurs in the far field of the antenna. Therefore, the far-field formula is utilized for the calculations.

The following FCC-defined far-field formula was utilized in calculating the power density levels:

$$S = \frac{(Pnet) * (GRF) * G}{\pi * R^2}$$

Where: S = power density in mW/cm^2
Pnet= Power input to the antenna in mW
GRF = ground reflection factor (0.64)
R = distance from antenna to street or ground level
G = Power gain of the antenna in direction of interest

The FCC mandates that the calculations make conservative assumptions to insure that the calculations result in worst-case results. Transmitters are assumed to operate continuously and at maximum power whereas in reality transmitters operate intermittently. Additionally, these calculations assume that the point of interest is in the main beam of the antenna, at the nearest point to the antenna, where the gain of the antenna is at a maximum and the distance is at minimum. In reality, the point of interest is rarely in the main beam of the antenna.

The tables below indicate the maximum power density levels and maximum % MPE for the general population from the expanded Omnipoint facility calculated at 6' above ground level (AGL), along with the calculations from the existing installations.

Calculations	Maximum Power Density at 6' Above Ground Level (mW/cm^2)	Maximum Permissible Exposure Level at 6' Above Ground Level
Existing Installations excluding Verizon Wireless		20.09%
Verizon Wireless installations	0.0538	9.16%
Proposed Omnipoint Expansion	0.0127	1.27%
Total of FCC limit for maximum exposure		**30.52%**

4.0 CONCLUSION

This report represents PierCon Solutions' analysis of the RF environment in the vicinity of an Omnipoint Communications expansion facility on an existing monopole at 3965 Congress Street, Fairfield, CT. The analysis includes calculated data for the expanded Omnipoint facility along with calculations from the existing installations. Worst-case assumptions were utilized to assure safe side estimates. The calculated data was referenced against the applicable standard depending upon location and access.

The results of the analysis indicate that the maximum level to which the public may be exposed to is below all applicable health and safety limits. Specifically, in all normally accessible areas, the maximum level will be 30.52% or more than 3 times below the safety criteria for continuous exposure of the general public as defined by the FCC.

Based upon the measurements and calculations provided herein, it is the opinion of PierCon Solutions that the subject site will be in full compliance with the FCC regulations as well as the Connecticut Siting Council, ANSI, IEEE and the NCRP.

5.0 TABLE OF MPE EXPOSURE LIMITS

Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

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

(B) Limits for General Population/Uncontrolled Exposure

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

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

NOTE 1: ***Occupational/controlled*** limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: ***General population/uncontrolled*** exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

6.0 REFERENCES

[1] FCC OET Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.

[2] FCC 47 CFR 1.1307 Parts 1, 2, 15, 24 and 97.

[3] FCC OET Bulletin 56, "Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields", Fourth Edition, August 1999.

[4] FCC 47 CFR 1.1310 "Practice and procedure, Radiofrequency radiation exposure limits"

[5] NARDA "Non-Ionizing Radiation Handbook"

[6] Rutgers University, "Management of Electromagnetic Energy Hazards", October 1993.

[7] Telecommunications Act of 1996

[8] *Report and Order*, ET Docket 93-62, FCC 96-326, adopted August 1, 1996, 61 Federal Register 41,006 (1996), 11 FCC Record 15,123 (1997).

[9] "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86 (1986), National Council on Radiation Protection and Measurements (NCRP), Bethesda, MD.

[10] ANSI/IEEE C95.1-1992, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz." Copyright 1992, The Institute of Electrical and Electronics Engineers, Inc., New York, NY.