

**CONNECTICUT SITING COUNCIL
NOTICE OF INTENT TO MODIFY AN EXISTING TOWER FACILITY
EXEMPT MODIFICATION FILING FORM**

Public Utility Environmental Standards Act, Connecticut General Statutes §§ 16-50g - 16-50aa
Regulations of Connecticut State Agencies §§ 16-50j-72(b)(2) and 16-50j-73

EM-AT&T-008-120814

TO BE COMPLETED BY FILER

Date: 7/31/12

Filer Name and Contact Information

Name: Stephanie Wenderoth

Address: Nexlink Global Services; Suite A Building 2

800 Marshall Phelps Road, Windsor, CT 06095

Phone Number: 401.477.2938

Wireless Carrier: AT&T

Tower Owner: AT&T

Tower Site Address: 719 Amity Road, Bethany CT

Municipality and Name of Chief Elected Official Provided A Copy Of This Notice:

Derrylyn Gorski, First Selectman

Description of Exempt Modification (including antenna and equipment changes):

Replace existing Antennas with LTE Antennas, add new conduit, RRUs and surge arrestor.

Attachments

- ☒ Plans
- ☒ Power density calculations if applicable
- ☒ Tower structural report if applicable
- ☒ \$625.00 Filing Fee

If required:

Municipality w/i 2,500' & Name of Chief Elected Official Provided A Copy Of This Notice:

Underlying Property Owner Provided A Copy Of This Notice:

FOR STAFF USE ONLY

- _____ Modification will not result in an increase in tower height
- _____ Modification is within existing site boundaries
- _____ Modification will not increase noise levels at the site boundary by 6 dbA or more, or to levels that exceed State & local criteria
- _____ Modification will meet FCC and DEEP MPE limits
- _____ Modification will not result in significant adverse change in physical or environmental

characteristics of the site

_____ Modification will not impair the structural integrity of the facility as determined by PE
_____ If yes to all of the above, approval of acknowledgement letter

July 31, 2012

VIA UPS Overnight Delivery

Ms. Linda Roberts, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: AT&T Mobility - Notice of Exempt Modification
719 Amity Road, Bethany CT

ORIGINAL

RECEIVED
AUG 14 2012

**CONNECTICUT
SITING COUNCIL**

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of AT&T Mobility ("AT&T"). AT&T is enhancing the capabilities of its wireless system in Connecticut by implementing LTE technology. In order to do so, AT&T will modify antenna and equipment configurations at a number of existing sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the First Selectman of Bethany.

AT&T plans to modify the existing facility at 719 Amity Road, owned by 720 Amity Road Associates Llc (coordinates 41.442742 N, -72.992471 W). Attached are drawings depicting the planned changes, and documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration. Also included is a power density calculation reflecting the modification to AT&T's operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C. S.A. Section 16-50j-1 2(b)(2).

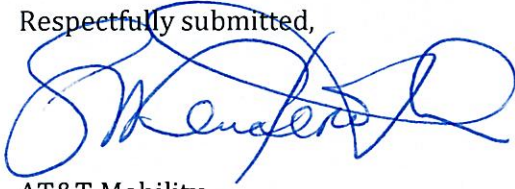
1. The height of the overall structure will be unaffected. The existing antennas will be replaced with in the existing the monopole, Additionally, AT&T will install six (6) RRU's and one (1) surge arrestor, one (1) fiber cable and two (2) DC control cables within the existing monopole.
2. The proposed changes will not extend the site boundaries. AT&T will install additional equipment in the existing equipment shelter. Thus, there will no effect on the site compound.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed change will be negligible.
4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environment as calculated for a mixed frequency site. As indicated in the attached

CT2162

power density calculations, AT&T's operations at the site will result in a power density of 1.7%; the combined site operations will result in a total power density of 28.75%.

Please feel free to call me with any questions or concerns regarding this matter.
Thank you for your consideration.

Respectfully submitted,



AT&T Mobility
Stephanie Wenderoth, Consultant
wenderoths@nexlinkgs.com
401.477.2938

Cc: Derrylyn Gorski
Bethany Town Hall
40 Peck Road
Bethany, Ct 06525



Nexlink Global Services, Inc.
800 Marshall Phelps Road
Windsor, CT 06095

June 5, 2012



B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119

B&T No.: 84427.001

**STRUCTURAL ANALYSIS
150' Monopole Tower**

AT&T DESIGNATION:	Site ID:	61186 (CT2162)
	Site FA:	10035070
	Site Name:	Bethany
	AT&T Project:	MOD LTE W3 012712
ANALYSIS CRITERIA:	Codes:	TIA/EIA-222-F (90 mph fastest mile) IBC 2003 2005 CT Building Code
SITE DATA:		719 Amity Road, Bethany, CT, New Haven County Latitude 41.442742°, Longitude -72.992471° Market MA/RI/VT/NH/ME/CT

Ms. Stephanie Wenderoth,

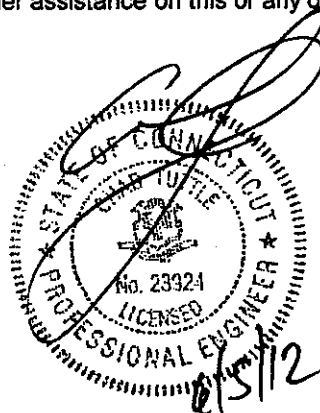
B&T Engineering, Inc. is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	104.7%	Fail
Foundation Ratio with Proposed Equipment:	75.9%	Pass

We at B&T Engineering, Inc. appreciate the opportunity of providing our continuing professional services to you and Nexlink Global Services, Inc.. If you have any questions or need further assistance on this or any other project please give us a call.

Respectfully Submitted by: B&T Engineering, Inc.
Analysis Prepared by: Shardul Kadam, E.I.
Analysis Reviewed by: Chad E. Tuttle, P.E.



ANALYSIS RESULTS:

Table 1 - Section Capacity (Summary)

Component (Tower Section)	% Capacity	Pass/Fail
150 - 118	104.7	Fail
118 - 96.58	84.8	Pass
96.58 - 90	88.7	Pass
90 - 60	99.8	Pass
60 - 47.5	85.2	Pass
47.5 - 30	93.6	Pass
30 - 16.25	98.5	Pass
16.25 - 0	97.5	Pass

Table 2 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass/Fail
1	Anchor Rods	Base	92.5	Pass
1	Base Plate	Base	52.5	Pass
1	Base Foundation	Base	75.9	Pass

Structure Rating (max from all components) =	101.7%
--	--------

Notes:

- 1.) See additional documentation in "Appendix B - Calculations" for calculation supporting the % capacity consumed.
- 2.) Capacities up to 105% are considered acceptable based on analysis methods used.
- 3.) Foundation capacity determined by comparing analysis reactions to original design reactions.

Recommendations:

N/A

ANALYSIS PROCEDURE:

Table 4 - Documents Provided

Document	Description	Date	Source
Tower Data	B&T Engineering Mod Design for AT&T Towers	9/2/2011	On File
Foundation Information	Information Not Available	N/A	N/A
Geotech Report	Information Not Available	N/A	N/A
Loading	Equipment Mod Form	2/3/2012	Siterra
	Previous SA by B&T Engineering, Inc.	2/1/2012	On File
Previous Structural Analysis	B&T Engineering Mod Design for AT&T Towers	9/2/2011	On File

ANALYSIS METHOD:

tnxTower, a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix B.

ASSUMPTIONS:

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with the manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Appendix A of this report.
4. Mount areas and weights are assumed based on photographs provided.
5. Refer to the base level drawing for transmission line distribution.

If any of these assumptions have been made in error, B&T Engineering should be notified to determine the effect on the structural integrity of the tower.

APPENDIX A
TOWER ANALYSIS LOADING

TOWER ANALYSIS LOADING:

Existing / Reserved Loading

Antenna			Mount		Transmission Line		
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type
AT&T Mobility	153	151	3	Kathrein	800-10121	1	Platform w/ Rails
AT&T Mobility	153	151	6	CSS	DUO1417-8686*		
AT&T Mobility	153	151	6	ADC	CG-PDU-SmpWR		
AT&T Mobility	153	151	12	Powerwave	LGP21901		
AT&T Mobility	153	151	3	Kathrein	860-10025		
City	150	156	1	Unknown	12'x3" Omni		
City	150	155	1	Unknown	10' Yagi		
Verizon	140	140	3	Powerwave	P65-15-XL-2	1	2-PK12S-B 12"-8" LP Platfo
Verizon	140	140	3	Andrew	DB845DG88ESX		
Verizon	140	140	3	Ryma	MG D3-800T0		
Sprint	130	130	12	Decibel	DB980F90E-M	3	T-Arms
MetroPCS	120	120	6	Andrew	HBX-6516S-VTM	3	Standoff
MetroPCS	120	120	6	Andrew	ATM200-A20		

* (6) DUO1417-8686 & (6) Powerwave Diplexers to be Removed

Proposed Loading

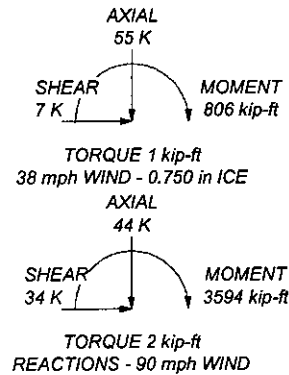
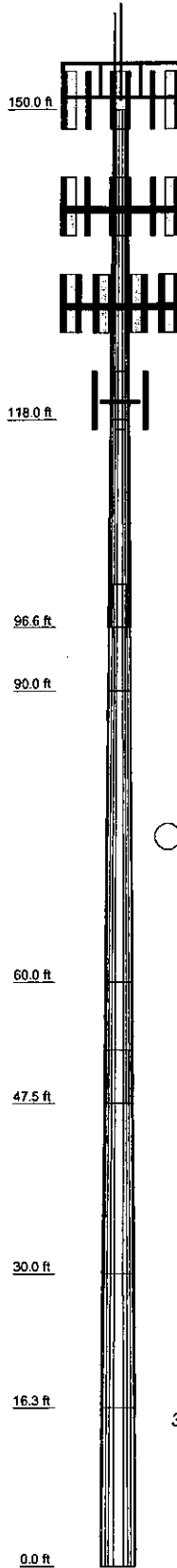
Antenna			Mount		Transmission Line		
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type
AT&T Mobility	153	151	6	KMW	AM-X-CD-16-65-00T	2	
AT&T Mobility	153	151	6	CCI	DTMABP7819VG12A	1	
AT&T Mobility	153	151	6	Erlsson	Unknown		
AT&T Mobility	153	151	1	Raycap	DC6-48-60-18-8F		

Future Loading

Antenna			Mount		Transmission Line		
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type

APPENDIX B
CALCULATIONS

Section	1	2	3	4	5	6	7	8
Length (ft)	32,000	21,420	11,000	30,000	12,500	23,000	13,750	16,250
Number of Sides	12	12	12	12	12	12	12	12
Thickness (in)	0.219	0.474	0.570	0.598	0.658	0.700	0.677	0.695
Socket Length (ft)		4,420			5,500			
Top Dia (in)	17.610	23.610	25.937	28.390	34,000	33,994	38,980	41,560
Bot Dia (in)	23.610	27.610	28.390	34,000	36,340	38,980	41,560	44,600
Grade	A572-65		53.4 ksi	50.2 ksi	51.2 ksi	56.2 ksi	53.1 ksi	53.2 ksi
Weight (K)	1.6	2.8	1.8	6.0	3.1	6.3	4.0	5.2
								30.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12' x 3' Omni (City-E)	156	800 10121 w/ Mount Pipe (ATI-E)	151
10' Yagi (City-E)	155	Lightning Rod (E)	150
Platform Mount [LP 713-1] (ATI-E)	153	6' x 2" Mount Pipe (Verizon-E)	140
6' x 2" Mount Pipe (ATI-E)	153	6' x 2" Mount Pipe (Verizon-E)	140
6' x 2" Mount Pipe (ATI-E)	153	6' x 2" Mount Pipe (Verizon-E)	140
6' x 2" Mount Pipe (ATI-E)	153	(3) MG D3 800TO w/Mount Pipe (Verizon-E)	140
(2) CG-PDU-SmPWR (ATI-E)	151	(3) DB854DG65ESX w/Mount Pipe (Verizon-E)	140
(4) LGP21901 (ATI-E)	151	(3) P65-15-XLH-RR w/Mount Pipe (Verizon-E)	140
(4) LGP21901 (ATI-E)	151	Platform Mount [LP 303-1] (Verizon-E)	140
860 10025 (ATI-E)	151	(4) DB980F90E-M w/Mount Pipe (Sprint-E)	130
860 10025 (ATI-E)	151	(4) DB980F90E-M w/Mount Pipe (Sprint-E)	130
860 10025 (ATI-E)	151	(4) DB980F90E-M w/Mount Pipe (Sprint-E)	130
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	151	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	151
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	151	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	151
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	151	(2) DTMA1819VG12A (ATI-P)	151
(2) DTMA1819VG12A (ATI-P)	151	(2) DTMA1819VG12A (ATI-P)	151
(2) DTMA1819VG12A (ATI-P)	151	(2) DTMA1819VG12A (ATI-P)	151
(2) RRUS-11 (ATI-P)	151	(2) RRUS-11 (ATI-P)	151
(2) RRUS-11 (ATI-P)	151	(2) RRUS-11 (ATI-P)	151
(2) RRUS-11 (ATI-P)	151	(2) RRUS-11 (ATI-P)	151
DC6-48-60-18-8F (ATI-P)	151	800 10121 w/ Mount Pipe (ATI-E)	151
800 10121 w/ Mount Pipe (ATI-E)	151	800 10121 w/ Mount Pipe (ATI-E)	151
(2) CG-PDU-SmPWR (ATI-E)	151	(2) CG-PDU-SmPWR (ATI-E)	151

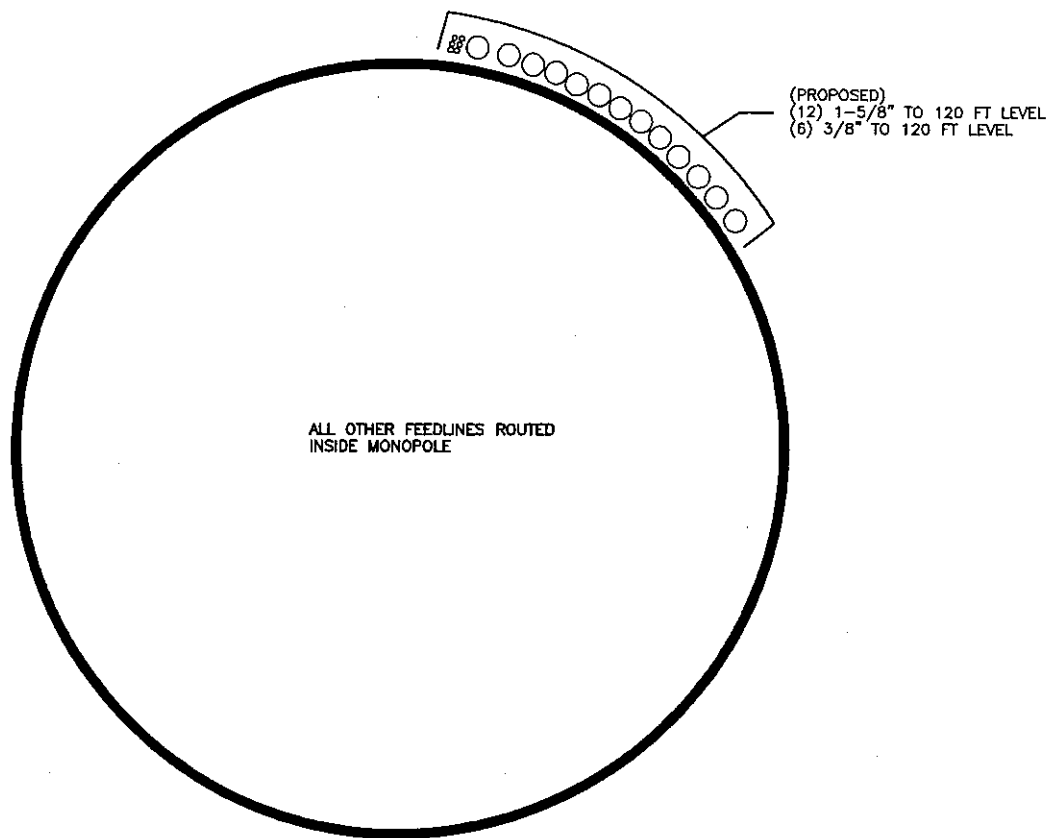
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	56.2 ksi	56 ksi	65 ksi
53.4 ksi	53 ksi	65 ksi	53.1 ksi	53 ksi	65 ksi
50.2 ksi	50 ksi	65 ksi	53.2 ksi	53 ksi	65 ksi
51.2 ksi	51 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 104.7%

 B&T Engineering, Inc. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 587-4630	Job: 84427.001 - BETHANY, CT		
	Project: 150' Valmont Monopole/ AT&T Co-Locate		
	Client: Nexlinkgs	Drawn by: skadam	App'd:
	Code: TIA/EIA-222-F	Date: 06/05/12	Scale: NTS
Path:		Dwg No. E-1	

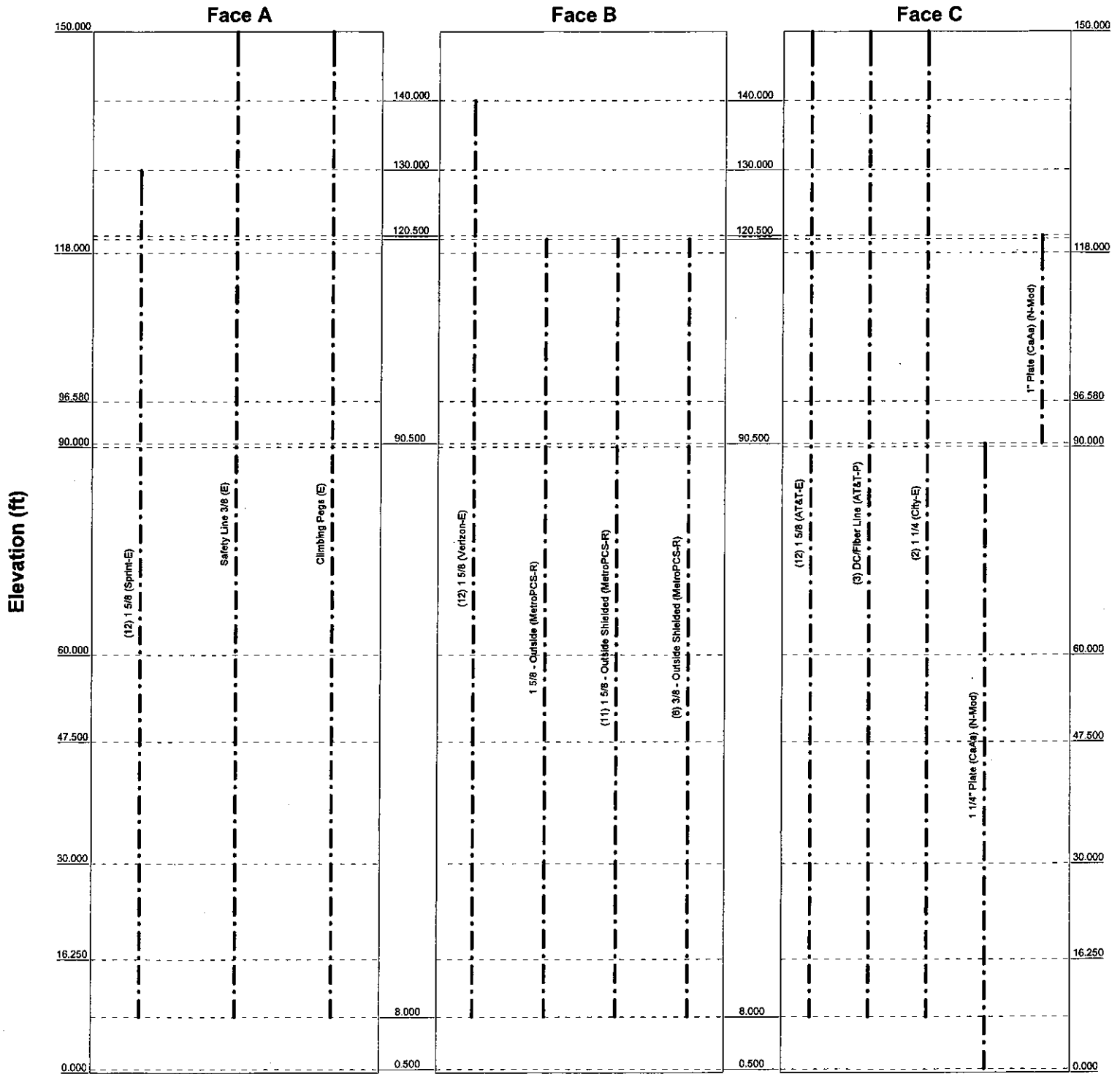


PROJECT NUMBER: 84427

Feedline Distribution Chart

0' - 150'

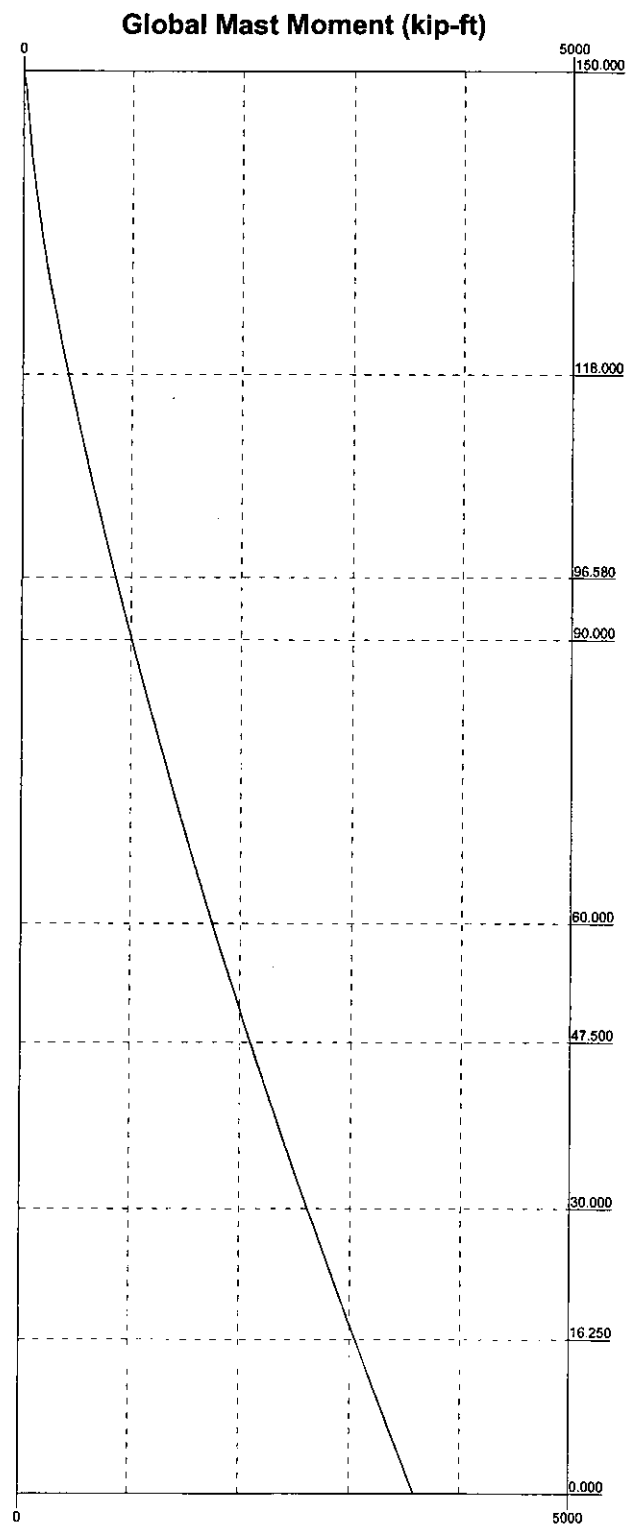
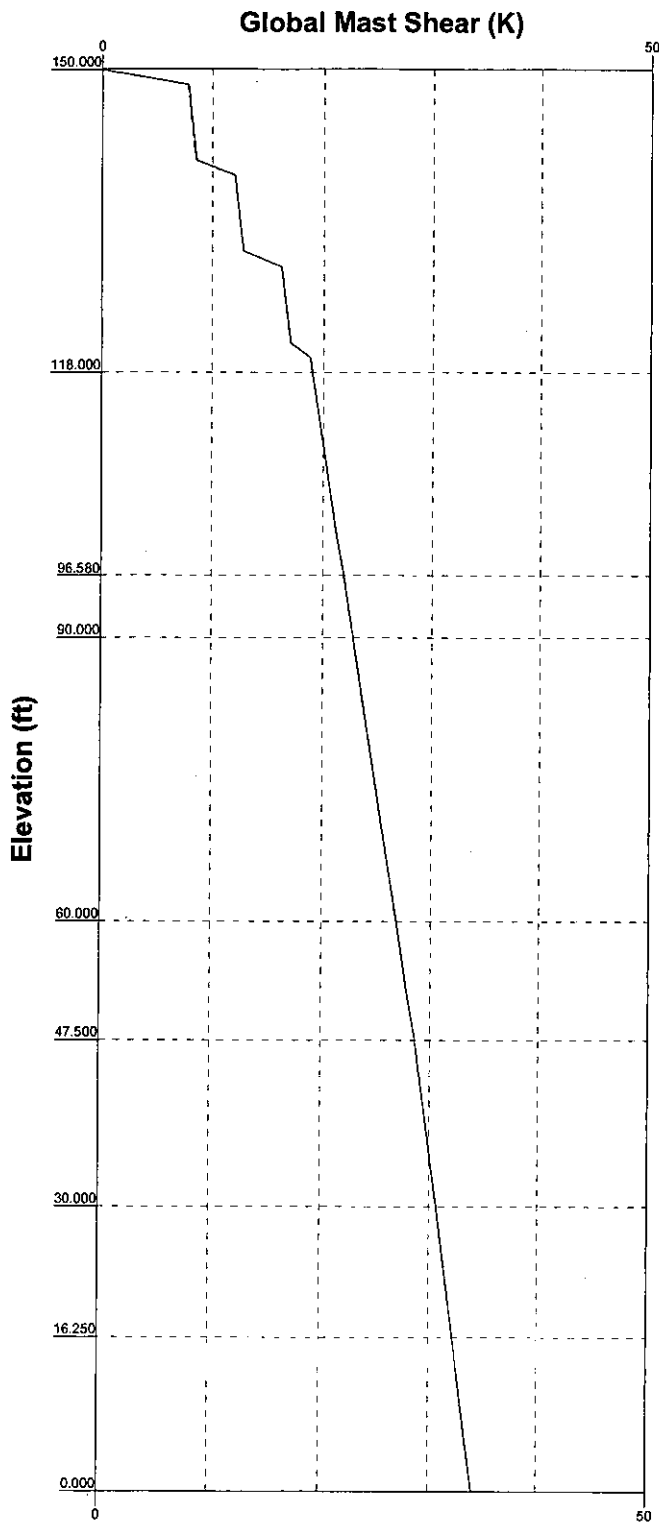
Round Flat App In Face App Out Face Truss Leg

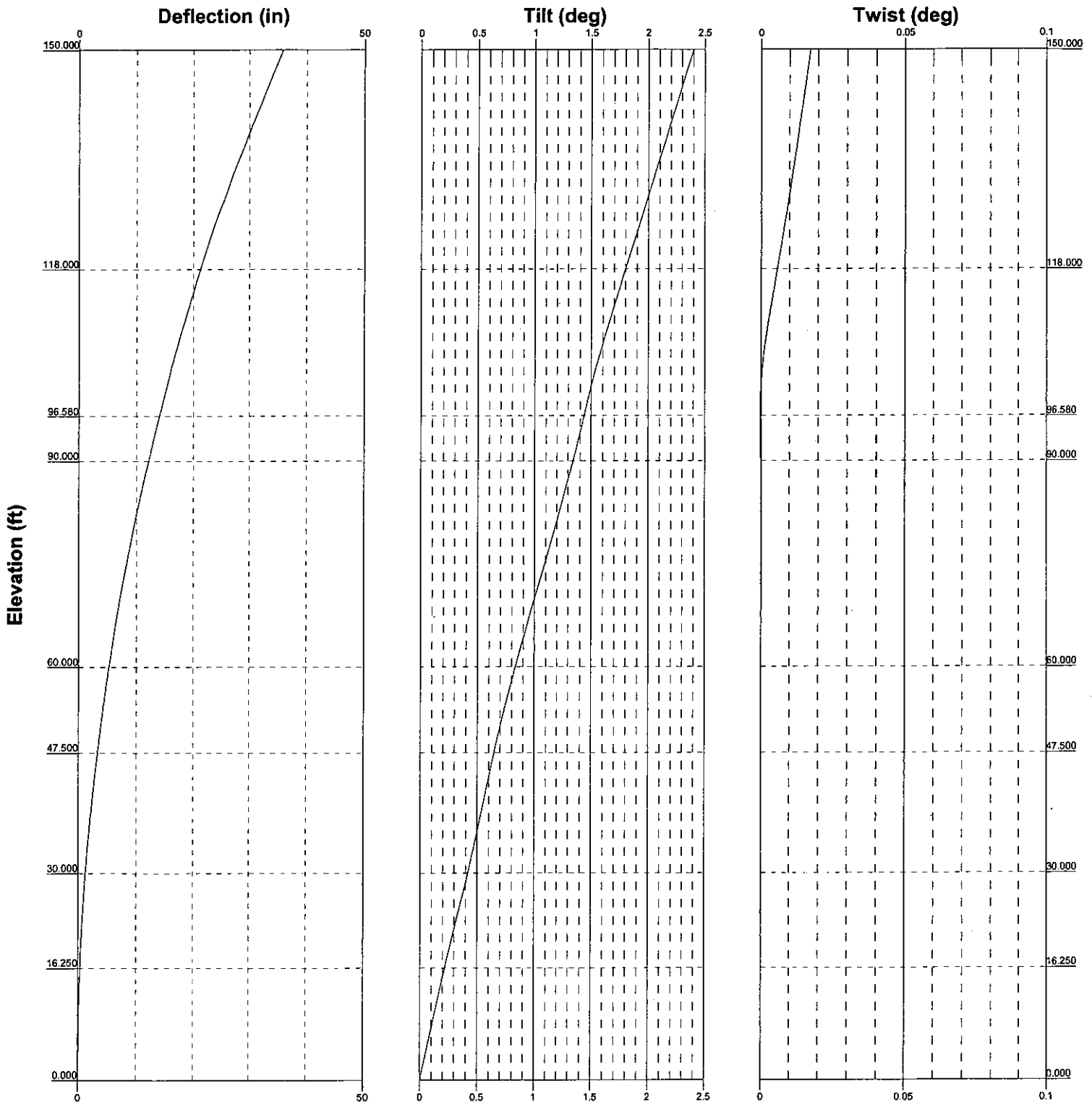


B&T Engineering, Inc.		Job: 84427.001 - BETHANY, CT	
1717 S. Boulder, Suite 300		Project: 150' Valmont Monopole/ AT&T Co-Locate	
Tulsa, OK 74119		Client: Nexlinkgs	Drawn by: skadam
Phone: (918) 587-4630		Code: TIA/EIA-222-F	Date: 06/05/12
FAX: (918) 587-4630		Path:	App'd: NTS
			Dwg No. E-7

—— Vx Vz

—— Mx Mz





B&T Engineering, Inc.		Job: 84427.001 - BETHANY, CT	
1717 S. Boulder, Suite 300		Project: 150' Valmont Monopole/ AT&T Co-Locate	
Tulsa, OK 74119		Client: Nexlinkgs	Drawn by: skadam
Phone: (918) 587-4630		Code: TIA/EIA-222-F	Date: 06/05/12
FAX: (918) 587-4630		Path:	Scale: NTS
			Dwg No. E-5

tnxTower B&T Engineering, Inc. 1717 S.Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 587-4630	Job	84427.001 - BETHANY, CT	Page	1 of 30
	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	16:29:48 06/05/12
	Client	Nexlinkgs	Designed by	skadam

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 90 mph.

Nominal ice thickness of 0.750 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 50 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

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	150.000-118.000	32.000	0.000	12	17.610	23.610	0.219	0.875	A572-65 (65 ksi)
L2	118.000-96.580	21.420	4.420	12	23.610	27.610	0.474	1.896	53.4 ksi (53 ksi)
L3	96.580-90.000	11.000	0.000	12	25.837	28.390	0.570	2.278	50.2 ksi (50 ksi)
L4	90.000-60.000	30.000	0.000	12	28.390	34.000	0.598	2.390	51.2 ksi (51 ksi)
L5	60.000-47.500	12.500	5.500	12	34.000	36.340	0.658	2.632	56.2 ksi (56 ksi)
L6	47.500-30.000	23.000	0.000	12	33.994	38.980	0.700	2.800	53.1 ksi (53 ksi)
L7	30.000-16.250	13.750	0.000	12	38.980	41.560	0.677	2.710	53.2 ksi (53 ksi)
L8	16.250-0.000	16.250		12	41.560	44.600	0.695	2.781	53.4 ksi (53 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	Iu/Q in ²	w in	w/t
L1	18.231	12.253	473.018	6.226	9.122	51.855	958.463	6.030	4.133	18.89
	24.443	16.480	1150.924	8.374	12.230	94.107	2332.084	8.111	5.741	26.239
L2	24.443	35.305	2412.120	8.283	12.230	197.230	4887.610	17.376	5.057	10.672
	28.584	41.409	3891.982	9.715	14.302	272.129	7886.211	20.380	6.129	12.934
L3	27.810	46.343	3776.446	9.046	13.383	282.173	7652.104	22.809	5.398	9.476
	29.391	51.026	5040.828	9.960	14.706	342.773	10214.085	25.113	6.082	10.678

tnxTower B&T Engineering, Inc. 1717 S.Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 587-4630	Job	84427.001 - BETHANY, CT	Page	2 of 30
	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	16:29:48 06/05/12
	Client	Nexlinkgs	Designed by	skadam

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L4	29.391	53.471	5271.844	9.950	14.706	358.482	10682.186	26.317	6.007	10.054
	35.199	64.265	9152.013	11.958	17.612	519.646	18544.460	31.629	7.511	12.57
L5	35.199	70.644	10024.037	11.936	17.612	569.159	20311.416	34.769	7.349	11.168
	37.622	75.602	12286.135	12.774	18.824	652.680	24895.040	37.209	7.976	12.121
L6	36.428	75.056	10619.683	11.919	17.609	603.079	21518.357	36.940	7.234	10.333
	40.355	86.295	16140.400	13.704	20.192	799.361	32704.826	42.472	8.570	12.242
L7	40.355	83.547	15644.864	13.712	20.192	774.819	31700.735	41.119	8.631	12.742
	43.026	89.174	19024.031	14.636	21.528	883.685	38547.844	43.889	9.323	13.762
L8	43.026	91.491	19501.095	14.630	21.528	905.845	39514.505	45.029	9.275	13.339
	46.173	98.297	24185.056	15.718	23.103	1046.845	49005.480	48.379	10.089	14.511

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
L1				1	1	1		
150.000-118.000								
L2				1	1	1		
118.000-96.580								
L3				1	1	1		
96.580-90.000								
L4				1	1	1		
90.000-60.000								
L5				1	1	1		
60.000-47.500								
L6				1	1	1		
47.500-30.000								
L7				1	1	1		
30.000-16.250								
L8				1	1	1		
16.250-0.000								

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight klf
1 5/8 (AT&T-E)	C	No	Inside Pole	150.000 - 8.000	12	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.001 0.001 0.001
DC/Fiber Line (AT&T-P)	C	No	Inside Pole	150.000 - 8.000	3	No Ice 1/2" Ice	0.000 0.000

tnxTower B&T Engineering, Inc. 1717 S.Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 587-4630	Job	84427.001 - BETHANY, CT	Page	3 of 30
	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	16:29:48 06/05/12
	Client	Nexlinkgs	Designed by	skadam

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight klf
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
*** **								
1 1/4 (City-E)	C	No	Inside Pole	150.000 - 8.000	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 (Verizon-E)	B	No	Inside Pole	140.000 - 8.000	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 (Sprint-E)	A	No	Inside Pole	130.000 - 8.000	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 - Outside (MetroPCS-R)	B	No	CaAa (Out Of Face)	120.000 - 8.000	1	No Ice	0.198	0.001
						1/2" Ice	0.298	0.003
						1" Ice	0.398	0.005
						2" Ice	0.598	0.011
						4" Ice	0.998	0.030
1 5/8 - Outside Shielded (MetroPCS-R)	B	No	Inside Pole	120.000 - 8.000	11	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
3/8 - Outside Shielded (MetroPCS-R)	B	No	Inside Pole	120.000 - 8.000	6	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000

Safety Line 3/8 (E)	A	No	Inside Pole	150.000 - 8.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
Climbing Pegs (E)	A	No	Inside Pole	150.000 - 8.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000

1 1/4" Plate (CaAa) (N-Mod)	C	No	CaAa (Out Of Face)	90.500 - 0.500	1	No Ice	0.208	0.000
						1/2" Ice	0.292	0.000
						1" Ice	0.375	0.000
						2" Ice	0.542	0.000
						4" Ice	0.875	0.000
1" Plate (CaAa) (N-Mod)	C	No	CaAa (Out Of Face)	120.500 - 90.500	1	No Ice	0.167	0.000
						1/2" Ice	0.250	0.000
						1" Ice	0.333	0.000
						2" Ice	0.500	0.000
						4" Ice	0.833	0.000

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Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	150.000-118.000	A	0.000	0.000	0.000	0.000	0.170
		B	0.000	0.000	0.000	0.396	0.301
		C	0.000	0.000	0.000	0.417	0.450
L2	118.000-96.580	A	0.000	0.000	0.000	0.000	0.281
		B	0.000	0.000	0.000	4.241	0.546
		C	0.000	0.000	0.000	3.570	0.301
L3	96.580-90.000	A	0.000	0.000	0.000	0.000	0.086
		B	0.000	0.000	0.000	1.303	0.168
		C	0.000	0.000	0.000	1.118	0.093
L4	90.000-60.000	A	0.000	0.000	0.000	0.000	0.393
		B	0.000	0.000	0.000	5.940	0.765
		C	0.000	0.000	0.000	6.250	0.422
L5	60.000-47.500	A	0.000	0.000	0.000	0.000	0.164
		B	0.000	0.000	0.000	2.475	0.319
		C	0.000	0.000	0.000	2.604	0.176
L6	47.500-30.000	A	0.000	0.000	0.000	0.000	0.229
		B	0.000	0.000	0.000	3.465	0.446
		C	0.000	0.000	0.000	3.646	0.246
L7	30.000-16.250	A	0.000	0.000	0.000	0.000	0.180
		B	0.000	0.000	0.000	2.723	0.351
		C	0.000	0.000	0.000	2.865	0.193
L8	16.250-0.000	A	0.000	0.000	0.000	0.000	0.108
		B	0.000	0.000	0.000	1.634	0.210
		C	0.000	0.000	0.000	3.281	0.116

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	150.000-118.000	A	0.887	0.000	0.000	0.000	0.000	0.170
		B		0.000	0.000	0.000	0.751	0.307
		C		0.000	0.000	0.000	0.786	0.450
L2	118.000-96.580	A	0.864	0.000	0.000	0.000	0.000	0.281
		B		0.000	0.000	0.000	7.941	0.612
		C		0.000	0.000	0.000	6.653	0.301
L3	96.580-90.000	A	0.850	0.000	0.000	0.000	0.000	0.086
		B		0.000	0.000	0.000	2.439	0.188
		C		0.000	0.000	0.000	2.065	0.093
L4	90.000-60.000	A	0.827	0.000	0.000	0.000	0.000	0.393
		B		0.000	0.000	0.000	10.902	0.852
		C		0.000	0.000	0.000	10.385	0.422
L5	60.000-47.500	A	0.795	0.000	0.000	0.000	0.000	0.164
		B		0.000	0.000	0.000	4.463	0.353
		C		0.000	0.000	0.000	4.261	0.176
L6	47.500-30.000	A	0.764	0.000	0.000	0.000	0.000	0.229
		B		0.000	0.000	0.000	6.248	0.495
		C		0.000	0.000	0.000	5.965	0.246
L7	30.000-16.250	A	0.750	0.000	0.000	0.000	0.000	0.180
		B		0.000	0.000	0.000	4.785	0.386
		C		0.000	0.000	0.000	4.583	0.193
L8	16.250-0.000	A	0.750	0.000	0.000	0.000	0.000	0.108

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	Client	Nexlinkgs	Designed by	skadam

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
		B		0.000	0.000	0.000	2.871	0.232
		C		0.000	0.000	0.000	5.250	0.116

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	150.000-118.000	-0.001	0.021	-0.001	0.037
L2	118.000-96.580	0.035	0.234	0.056	0.369
L3	96.580-90.000	0.031	0.238	0.054	0.378
L4	90.000-60.000	-0.012	0.264	0.017	0.401
L5	60.000-47.500	-0.012	0.268	0.016	0.408
L6	47.500-30.000	-0.012	0.269	0.017	0.413
L7	30.000-16.250	-0.012	0.272	0.015	0.412
L8	16.250-0.000	-0.123	0.208	-0.165	0.317

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
Lightning Rod (E)	C	From Leg	0.000 0.000 5.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.500 0.750 1.000 1.500 2.500	0.500 0.750 1.000 1.500 2.500	0.100 0.200 0.300 0.500 0.900

800 10121 w/ Mount Pipe (AT&T-E)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.685 6.182 6.676 7.695 9.858	4.600 5.351 6.046 7.526 10.832	0.066 0.112 0.167 0.298 0.675
800 10121 w/ Mount Pipe (AT&T-E)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.685 6.182 6.676 7.695 9.858	4.600 5.351 6.046 7.526 10.832	0.066 0.112 0.167 0.298 0.675
800 10121 w/ Mount Pipe (AT&T-E)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.685 6.182 6.676 7.695 9.858	4.600 5.351 6.046 7.526 10.832	0.066 0.112 0.167 0.298 0.675
(2) CG-PDU-SmPWR (AT&T-E)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.285 1.439 1.601 1.951 2.755	0.319 0.417 0.524 0.764 1.347	0.015 0.023 0.032 0.056 0.136

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	Client	Nexlinkgs	Designed by	skadam

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(2) CG-PDU-SmPWR (AT&T-E)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.285 1.439 1.601 1.951 2.755	0.319 0.417 0.524 0.764 1.347	0.015 0.023 0.032 0.056 0.136
(2) CG-PDU-SmPWR (AT&T-E)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.285 1.439 1.601 1.951 2.755	0.319 0.417 0.524 0.764 1.347	0.015 0.023 0.032 0.056 0.136
(4) LGP21901 (AT&T-E)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.270 0.343 0.425 0.616 1.101	0.184 0.248 0.322 0.494 0.943	0.006 0.008 0.011 0.022 0.066
(4) LGP21901 (AT&T-E)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.270 0.343 0.425 0.616 1.101	0.184 0.248 0.322 0.494 0.943	0.006 0.008 0.011 0.022 0.066
(4) LGP21901 (AT&T-E)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.270 0.343 0.425 0.616 1.101	0.184 0.248 0.322 0.494 0.943	0.006 0.008 0.011 0.022 0.066
860 10025 (AT&T-E)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.163 0.229 0.302 0.476 0.927	0.136 0.199 0.270 0.439 0.879	0.001 0.003 0.005 0.014 0.051
860 10025 (AT&T-E)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.163 0.229 0.302 0.476 0.927	0.136 0.199 0.270 0.439 0.879	0.001 0.003 0.005 0.014 0.051
860 10025 (AT&T-E)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.163 0.229 0.302 0.476 0.927	0.136 0.199 0.270 0.439 0.879	0.001 0.003 0.005 0.014 0.051
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-P)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.136 0.210 0.385 0.874
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-P)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.136 0.210 0.385 0.874
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-P)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.136 0.210 0.385 0.874
(2) DTMA1819VG12A (AT&T-P)	C	From Leg	3.000 0.000	0.000	151.000	No Ice 1/2" Ice	1.154 1.305	0.445 0.563	0.013 0.020

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	Client	Nexlinkgs	Designed by	skadam

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.000			1" Ice	1.464	0.689	0.029
						2" Ice	1.809	0.968	0.054
						4" Ice	2.602	1.629	0.133
(2) DTMA1819VG12A (AT&T-P)	B	From Leg	3.000	0.000	151.000	No Ice	1.154	0.445	0.013
			0.000			1/2" Ice	1.305	0.563	0.020
			0.000			1" Ice	1.464	0.689	0.029
						2" Ice	1.809	0.968	0.054
						4" Ice	2.602	1.629	0.133
(2) DTMA1819VG12A (AT&T-P)	A	From Leg	3.000	0.000	151.000	No Ice	1.154	0.445	0.013
			0.000			1/2" Ice	1.305	0.563	0.020
			0.000			1" Ice	1.464	0.689	0.029
						2" Ice	1.809	0.968	0.054
						4" Ice	2.602	1.629	0.133
(2) RRUS-11 (AT&T-P)	C	From Leg	3.000	0.000	151.000	No Ice	4.424	1.186	0.055
			0.000			1/2" Ice	4.708	1.351	0.081
			0.000			1" Ice	5.001	1.526	0.110
						2" Ice	5.613	1.900	0.179
						4" Ice	6.940	2.753	0.368
(2) RRUS-11 (AT&T-P)	B	From Leg	3.000	0.000	151.000	No Ice	4.424	1.186	0.055
			0.000			1/2" Ice	4.708	1.351	0.081
			0.000			1" Ice	5.001	1.526	0.110
						2" Ice	5.613	1.900	0.179
						4" Ice	6.940	2.753	0.368
(2) RRUS-11 (AT&T-P)	A	From Leg	3.000	0.000	151.000	No Ice	4.424	1.186	0.055
			0.000			1/2" Ice	4.708	1.351	0.081
			0.000			1" Ice	5.001	1.526	0.110
						2" Ice	5.613	1.900	0.179
						4" Ice	6.940	2.753	0.368
DC6-48-60-18-8F (AT&T-P)	A	From Leg	3.000	0.000	151.000	No Ice	2.567	4.317	0.019
			0.000			1/2" Ice	2.798	4.596	0.050
			0.000			1" Ice	3.038	4.885	0.085
						2" Ice	3.543	5.488	0.167
						4" Ice	4.658	6.797	0.383
Platform Mount [LP 713-1] (AT&T-E)	C	None		0.000	153.000	No Ice	31.270	31.270	1.510
						1/2" Ice	39.680	39.680	1.929
						1" Ice	48.090	48.090	2.348
						2" Ice	64.910	64.910	3.186
						4" Ice	98.550	98.550	4.862
6' x 2' Mount Pipe (AT&T-E)	C	From Leg	3.000	0.000	153.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2' Mount Pipe (AT&T-E)	B	From Leg	3.000	0.000	153.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2' Mount Pipe (AT&T-E)	A	From Leg	3.000	0.000	153.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
*** ** *									
12' x 3" Omni (City-E)	A	From Leg	3.000	0.000	156.000	No Ice	3.600	3.600	0.020
			0.000			1/2" Ice	4.833	4.833	0.046
			0.000			1" Ice	6.083	6.083	0.080

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	Client	Nexlinkgs	Designed by	skadam

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
						2" Ice	8.017	8.017	0.172
						4" Ice	11.048	11.048	0.455
10' Yagi	A	From Leg	3.000	0.000	155.000	No Ice	2.000	2.000	0.050
(City-E)			0.000			1/2" Ice	3.020	3.020	0.070
			0.000			1" Ice	4.040	4.040	0.090
						2" Ice	6.080	6.080	0.130
						4" Ice	10.160	10.160	0.210

6' x 2" Mount Pipe	C	From Leg	3.000	0.000	140.000	No Ice	1.425	1.425	0.022
(Verizon-E)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe	B	From Leg	3.000	0.000	140.000	No Ice	1.425	1.425	0.022
(Verizon-E)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe	A	From Leg	3.000	0.000	140.000	No Ice	1.425	1.425	0.022
(Verizon-E)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
(3) MG D3 800TO w/Mount	C	From Leg	3.000	0.000	140.000	No Ice	3.337	2.158	0.018
Pipe			0.000			1/2" Ice	3.676	2.482	0.037
(Verizon-E)			0.000			1" Ice	4.023	2.813	0.061
						2" Ice	4.832	3.498	0.122
						4" Ice	6.570	5.012	0.304
(3) DB854DG65ESX	B	From Leg	3.000	0.000	140.000	No Ice	6.593	4.412	0.044
w/Mount Pipe			0.000			1/2" Ice	7.302	5.449	0.093
(Verizon-E)			0.000			1" Ice	7.894	6.200	0.152
						2" Ice	9.108	7.827	0.292
						4" Ice	11.689	11.299	0.694
(3) P65-15-XLH-RR	A	From Leg	3.000	0.000	140.000	No Ice	6.075	3.903	0.052
w/Mount Pipe			0.000			1/2" Ice	6.635	4.708	0.096
(Verizon-E)			0.000			1" Ice	7.160	5.389	0.149
						2" Ice	8.245	6.836	0.277
						4" Ice	10.555	10.060	0.647
Platform Mount [LP 303-1]	C	None		0.000	140.000	No Ice	14.660	14.660	1.250
(Verizon-E)						1/2" Ice	18.870	18.870	1.481
						1" Ice	23.080	23.080	1.713
						2" Ice	31.500	31.500	2.175
						4" Ice	48.340	48.340	3.101

(4) DB980F90E-M w/Mount	C	From Leg	3.000	0.000	130.000	No Ice	4.371	3.954	0.034
Pipe			0.000			1/2" Ice	4.959	5.045	0.071
(Sprint-E)			0.000			1" Ice	5.471	5.849	0.118
						2" Ice	6.522	7.492	0.235
						4" Ice	8.983	10.977	0.593
(4) DB980F90E-M w/Mount	B	From Leg	3.000	0.000	130.000	No Ice	4.371	3.954	0.034
Pipe			0.000			1/2" Ice	4.959	5.045	0.071
(Sprint-E)			0.000			1" Ice	5.471	5.849	0.118
						2" Ice	6.522	7.492	0.235
						4" Ice	8.983	10.977	0.593
(4) DB980F90E-M w/Mount	A	From Leg	3.000	0.000	130.000	No Ice	4.371	3.954	0.034
Pipe			0.000			1/2" Ice	4.959	5.045	0.071
(Sprint-E)			0.000			1" Ice	5.471	5.849	0.118

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Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 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 - 118	Pole	Max Tension	14	0.000	0.000	-0.000
			Max. Compression	14	-15.149	-0.687	1.304
			Max. Mx	5	-6.814	-422.007	-1.188
			Max. My	2	-6.819	1.451	420.924
			Max. Vy	5	19.019	-422.007	-1.188
			Max. Vx	2	-19.002	1.451	420.924
			Max. Torque	6			2.648
			Max Tension	1	0.000	0.000	0.000
L2	118 - 96.58	Pole	Max. Compression	14	-18.766	-0.758	1.275
			Max. Mx	5	-10.038	-763.969	-2.359
			Max. My	2	-10.042	2.626	762.563
			Max. Vy	5	21.252	-763.969	-2.359

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	96.58 - 90	Pole	Max. Vx	2	-21.234	2.626	762.563
			Max. Torque	6			2.635
			Max. Tension	1	0.000	0.000	0.000
			Max. Compression	14	-22.274	-0.801	1.250
			Max. Mx	5	-13.123	-1006.649	-3.129
			Max. My	2	-13.126	3.394	1005.032
			Max. Vy	5	22.826	-1006.649	-3.129
			Max. Vx	2	-22.809	3.394	1005.032
L4	90 - 60	Pole	Max. Torque	6			2.588
			Max. Tension	1	0.000	0.000	0.000
			Max. Compression	14	-30.946	-0.934	1.173
			Max. Mx	5	-21.157	-1751.180	-5.263
			Max. My	2	-21.159	5.499	1748.978
			Max. Vy	5	26.889	-1751.180	-5.263
			Max. Vx	2	-26.872	5.499	1748.978
			Max. Torque	6			2.572
L5	60 - 47.5	Pole	Max. Tension	1	0.000	0.000	0.000
			Max. Compression	14	-33.300	-0.968	1.153
			Max. Mx	5	-23.370	-1942.473	-5.764
			Max. My	2	-23.372	5.988	1940.133
			Max. Vy	5	27.791	-1942.473	-5.764
			Max. Vx	2	-27.774	5.988	1940.133
			Max. Torque	6			2.485
			Max. Tension	1	0.000	0.000	0.000
L6	47.5 - 30	Pole	Max. Compression	14	-43.314	-1.084	1.086
			Max. Mx	5	-32.688	-2616.081	-7.412
			Max. My	2	-32.689	7.595	2613.290
			Max. Vy	5	30.673	-2616.081	-7.412
			Max. Vx	2	-30.656	7.595	2613.290
			Max. Torque	6			2.449
			Max. Tension	1	0.000	0.000	0.000
			Max. Compression	14	-48.644	-1.156	1.045
L7	30 - 16.25	Pole	Max. Mx	5	-37.769	-3048.299	-8.393
			Max. My	2	-37.770	8.544	3045.239
			Max. Vy	5	32.227	-3048.299	-8.393
			Max. Vx	2	-32.210	8.544	3045.239
			Max. Torque	6			2.401
			Max. Tension	1	0.000	0.000	0.000
			Max. Compression	14	-55.016	-1.202	1.018
			Max. Mx	5	-43.845	-3586.399	-9.532
L8	16.25 - 0	Pole	Max. My	2	-43.845	9.662	3583.046
			Max. Vy	5	34.039	-3586.399	-9.532
			Max. Vx	2	-34.022	9.662	3583.046
			Max. Torque	6			2.363
			Max. Tension	1	0.000	0.000	0.000
			Max. Compression	14	-55.016	-1.202	1.018
			Max. Mx	5	-43.845	-3586.399	-9.532
			Max. My	2	-43.845	9.662	3583.046

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	55.016	-0.000	0.000
	Max. H _x	11	43.857	34.022	0.069
	Max. H _z	2	43.857	0.069	34.006
	Max. M _x	2	3583.046	0.069	34.006
	Max. M _z	5	3586.399	-34.022	-0.069
	Max. Torsion	6	2.317	-29.499	-17.063
	Min. Vert	1	43.857	0.000	0.000

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H _x	5	43.857	-34.022	-0.069
	Min. H _z	8	43.857	-0.069	-34.006
	Min. M _x	8	-3582.080	-0.069	-34.006
	Min. M _z	11	-3585.705	34.022	0.069
	Min. Torsion	12	-2.301	29.499	17.063

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	43.857	0.000	0.000	-0.462	-0.335	-0.000
Dead+Wind 0 deg - No Ice	43.857	-0.069	-34.006	-3583.046	9.662	1.112
Dead+Wind 30 deg - No Ice	43.857	16.952	-29.416	-3098.110	-1784.744	-0.049
Dead+Wind 60 deg - No Ice	43.857	29.430	-16.943	-1783.111	-3101.006	-1.203
Dead+Wind 90 deg - No Ice	43.857	34.022	0.069	9.533	-3586.399	-2.034
Dead+Wind 120 deg - No Ice	43.857	29.499	17.063	1799.445	-3110.918	-2.317
Dead+Wind 150 deg - No Ice	43.857	17.071	29.484	3107.075	-1802.006	-1.973
Dead+Wind 180 deg - No Ice	43.857	0.069	34.006	3582.080	-10.337	-1.100
Dead+Wind 210 deg - No Ice	43.857	-16.952	29.416	3097.139	1784.048	0.064
Dead+Wind 240 deg - No Ice	43.857	-29.430	16.943	1782.159	3100.301	1.205
Dead+Wind 270 deg - No Ice	43.857	-34.022	-0.069	-10.466	3585.705	2.022
Dead+Wind 300 deg - No Ice	43.857	-29.499	-17.063	-1800.380	3110.245	2.301
Dead+Wind 330 deg - No Ice	43.857	-17.071	-29.484	-3108.029	1801.343	1.970
Dead+Ice+Temp	55.016	0.000	-0.000	-1.018	-1.202	-0.000
Dead+Wind 0 deg+Ice+Temp	55.016	-0.006	-7.244	-804.749	-0.334	0.287
Dead+Wind 30 deg+Ice+Temp	55.016	3.620	-6.270	-696.613	-402.991	-0.012
Dead+Wind 60 deg+Ice+Temp	55.016	6.277	-3.616	-402.112	-698.006	-0.308
Dead+Wind 90 deg+Ice+Temp	55.016	7.252	0.006	-0.158	-806.330	-0.521
Dead+Wind 120 deg+Ice+Temp	55.016	6.283	3.627	401.545	-698.937	-0.595
Dead+Wind 150 deg+Ice+Temp	55.016	3.631	6.276	695.361	-404.605	-0.509
Dead+Wind 180 deg+Ice+Temp	55.016	0.006	7.244	802.563	-2.200	-0.287
Dead+Wind 210 deg+Ice+Temp	55.016	-3.620	6.270	694.428	400.455	0.012
Dead+Wind 240 deg+Ice+Temp	55.016	-6.277	3.616	399.928	695.469	0.308
Dead+Wind 270 deg+Ice+Temp	55.016	-7.252	-0.006	-2.024	803.794	0.521
Dead+Wind 300 deg+Ice+Temp	55.016	-6.283	-3.627	-403.727	696.403	0.594
Dead+Wind 330 deg+Ice+Temp	55.016	-3.631	-6.276	-697.544	402.072	0.509
Dead+Wind 0 deg - Service	43.857	-0.021	-10.496	-1108.288	2.742	0.348
Dead+Wind 30 deg - Service	43.857	5.232	-9.079	-958.329	-552.116	-0.018
Dead+Wind 60 deg - Service	43.857	9.083	-5.229	-551.713	-959.129	-0.380
Dead+Wind 90 deg - Service	43.857	10.501	0.021	2.601	-1109.233	-0.640
Dead+Wind 120 deg - Service	43.857	9.105	5.266	556.084	-962.218	-0.728
Dead+Wind 150 deg - Service	43.857	5.269	9.100	960.432	-557.471	-0.621
Dead+Wind 180 deg - Service	43.857	0.021	10.496	1107.300	-3.445	-0.347
Dead+Wind 210 deg - Service	43.857	-5.232	9.079	957.340	551.412	0.019
Dead+Wind 240 deg - Service	43.857	-9.083	5.229	550.727	958.423	0.380
Dead+Wind 270 deg - Service	43.857	-10.501	-0.021	-3.586	1108.528	0.639
Dead+Wind 300 deg - Service	43.857	-9.105	-5.266	-557.069	961.516	0.727
Dead+Wind 330 deg - Service	43.857	-5.269	-9.100	-961.419	556.770	0.621

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Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-43.857	0.000	0.000	43.857	0.000	0.000%
2	-0.069	-43.857	-34.006	0.069	43.857	34.006	0.000%
3	16.952	-43.857	-29.416	-16.952	43.857	29.416	0.000%
4	29.430	-43.857	-16.943	-29.430	43.857	16.943	0.000%
5	34.022	-43.857	0.069	-34.022	43.857	-0.069	0.000%
6	29.499	-43.857	17.063	-29.499	43.857	-17.063	0.000%
7	17.071	-43.857	29.484	-17.071	43.857	-29.484	0.000%
8	0.069	-43.857	34.006	-0.069	43.857	-34.006	0.000%
9	-16.952	-43.857	29.416	16.952	43.857	-29.416	0.000%
10	-29.430	-43.857	16.943	29.430	43.857	-16.943	0.000%
11	-34.022	-43.857	-0.069	34.022	43.857	0.069	0.000%
12	-29.499	-43.857	-17.063	29.499	43.857	17.063	0.000%
13	-17.071	-43.857	-29.484	17.071	43.857	29.484	0.000%
14	0.000	-55.016	0.000	-0.000	55.016	0.000	0.000%
15	-0.006	-55.016	-7.244	0.006	55.016	7.244	0.000%
16	3.620	-55.016	-6.270	-3.620	55.016	6.270	0.000%
17	6.277	-55.016	-3.616	-6.277	55.016	3.616	0.000%
18	7.252	-55.016	0.006	-7.252	55.016	-0.006	0.000%
19	6.283	-55.016	3.627	-6.283	55.016	-3.627	0.000%
20	3.631	-55.016	6.276	-3.631	55.016	-6.276	0.000%
21	0.006	-55.016	7.244	-0.006	55.016	-7.244	0.000%
22	-3.620	-55.016	6.270	3.620	55.016	-6.270	0.000%
23	-6.277	-55.016	3.616	6.277	55.016	-3.616	0.000%
24	-7.252	-55.016	-0.006	7.252	55.016	0.006	0.000%
25	-6.283	-55.016	-3.627	6.283	55.016	3.627	0.000%
26	-3.631	-55.016	-6.276	3.631	55.016	6.276	0.000%
27	-0.021	-43.857	-10.496	0.021	43.857	10.496	0.000%
28	5.232	-43.857	-9.079	-5.232	43.857	9.079	0.000%
29	9.083	-43.857	-5.229	-9.083	43.857	5.229	0.000%
30	10.501	-43.857	0.021	-10.501	43.857	-0.021	0.000%
31	9.105	-43.857	5.266	-9.105	43.857	-5.266	0.000%
32	5.269	-43.857	9.100	-5.269	43.857	-9.100	0.000%
33	0.021	-43.857	10.496	-0.021	43.857	-10.496	0.000%
34	-5.232	-43.857	9.079	5.232	43.857	-9.079	0.000%
35	-9.083	-43.857	5.229	9.083	43.857	-5.229	0.000%
36	-10.501	-43.857	-0.021	10.501	43.857	0.021	0.000%
37	-9.105	-43.857	-5.266	9.105	43.857	5.266	0.000%
38	-5.269	-43.857	-9.100	5.269	43.857	9.100	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00095138
3	Yes	6	0.00000001	0.00005728
4	Yes	6	0.00000001	0.00005888
5	Yes	5	0.00000001	0.00008009
6	Yes	6	0.00000001	0.00005533
7	Yes	6	0.00000001	0.00006000
8	Yes	5	0.00000001	0.00006090
9	Yes	6	0.00000001	0.00005752
10	Yes	6	0.00000001	0.00005602

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11	Yes	5	0.00000001	0.00010609
12	Yes	6	0.00000001	0.00006050
13	Yes	6	0.00000001	0.00005573
14	Yes	4	0.00000001	0.00001817
15	Yes	5	0.00000001	0.00040393
16	Yes	5	0.00000001	0.00049565
17	Yes	5	0.00000001	0.00049909
18	Yes	5	0.00000001	0.00040522
19	Yes	5	0.00000001	0.00049076
20	Yes	5	0.00000001	0.00049796
21	Yes	5	0.00000001	0.00040048
22	Yes	5	0.00000001	0.00048924
23	Yes	5	0.00000001	0.00048740
24	Yes	5	0.00000001	0.00040296
25	Yes	5	0.00000001	0.00050077
26	Yes	5	0.00000001	0.00049200
27	Yes	4	0.00000001	0.00022167
28	Yes	5	0.00000001	0.00010584
29	Yes	5	0.00000001	0.00011182
30	Yes	4	0.00000001	0.00038965
31	Yes	5	0.00000001	0.00010015
32	Yes	5	0.00000001	0.00011628
33	Yes	4	0.00000001	0.00024806
34	Yes	5	0.00000001	0.00010604
35	Yes	5	0.00000001	0.00010102
36	Yes	4	0.00000001	0.00042015
37	Yes	5	0.00000001	0.00011852
38	Yes	5	0.00000001	0.00010143

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 118	35.810	37	2.398	0.016
L2	118 - 96.58	21.221	37	1.797	0.004
L3	101 - 90	15.337	37	1.499	0.003
L4	90 - 60	12.040	31	1.341	0.002
L5	60 - 47.5	5.225	31	0.829	0.001
L6	53 - 30	4.088	31	0.722	0.001
L7	30 - 16.25	1.280	31	0.417	0.000
L8	16.25 - 0	0.368	31	0.218	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
156.000	12' x 3" Omni	37	35.810	2.398	0.016	12178
155.000	10' Yagi	37	35.810	2.398	0.016	12178
153.000	Platform Mount [LP 713-1]	37	35.810	2.398	0.016	12178
151.000	800 10121 w/ Mount Pipe	37	35.810	2.398	0.016	12178
150.000	Lightning Rod	37	35.810	2.398	0.016	12178
140.000	6' x 2" Mount Pipe	37	30.946	2.210	0.011	6089
130.000	(4) DB980F90E-M w/Mount Pipe	37	26.281	2.022	0.008	3043

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Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
120.000	(2) HBX-6516DS-VTM w/Mount Pipe	37	22.010	1.835	0.005	2055

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	150 - 118	115.323	12	7.730	0.050
L2	118 - 96.58	68.458	12	5.801	0.014
L3	101 - 90	49.506	12	4.840	0.009
L4	90 - 60	38.880	6	4.330	0.007
L5	60 - 47.5	16.884	6	2.679	0.003
L6	53 - 30	13.213	6	2.333	0.003
L7	30 - 16.25	4.140	6	1.347	0.001
L8	16.25 - 0	1.190	6	0.706	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
156.000	12' x 3" Omni	12	115.323	7.730	0.050	3903
155.000	10' Yagi	12	115.323	7.730	0.050	3903
153.000	Platform Mount [LP 713-1]	12	115.323	7.730	0.050	3903
151.000	800 10121 w/ Mount Pipe	12	115.323	7.730	0.050	3903
150.000	Lightning Rod	12	115.323	7.730	0.050	3903
140.000	6' x 2" Mount Pipe	12	99.710	7.127	0.036	1950
130.000	(4) DB980F90E-M w/Mount Pipe	12	84.725	6.524	0.024	972
120.000	(2) HBX-6516DS-VTM w/Mount Pipe	12	70.997	5.921	0.015	654

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P/P _a
	ft		ft	ft		ksi	in ²	K	K	
L1	150 - 148.4	TP23.61x17.61x0.219	32.000	0.000	0.0	39.000	12.464	-2.065	486.099	0.004
	148.4 - 146.8	H1-3+VT (1.40 CR) - 1/19				39.000	12.675	-2.163	494.342	0.004
	146.8 - 145.2	H1-3+VT (1.40 CR) - 1/18				39.000	12.887	-2.264	502.586	0.005
	145.2 - 143.6	H1-3+VT (1.40 CR) - 1/17				39.000	13.098	-2.367	510.829	0.005

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	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	16:29:48 06/05/12
	Client	Nexlinkgs	Designed by	skadam

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 $\frac{P}{P_a}$
	143.6 - 142	H1-3+VT (1.40 CR) - 1/16				39.000	13.309	-2.473	519.072	0.005
	142 - 140.4	H1-3+VT (1.40 CR) - 1/15				39.000	13.521	-2.581	527.315	0.005
	140.4 - 138.8	H1-3+VT (1.40 CR) - 1/14				39.000	13.732	-3.938	535.558	0.007
	138.8 - 137.2	H1-3+VT (1.40 CR) - 1/13				39.000	13.944	-4.055	543.801	0.007
	137.2 - 135.6	H1-3+VT (1.40 CR) - 1/12				39.000	14.155	-4.175	552.044	0.008
	135.6 - 134	H1-3+VT (1.40 CR) - 1/11				39.000	14.366	-4.289	560.287	0.008
	134 - 132.4	H1-3+VT (1.40 CR) - 1/10				39.000	14.578	-4.416	568.530	0.008
	132.4 - 130.8	H1-3+VT (1.40 CR) - 1/9				39.000	14.789	-4.546	576.773	0.008
	130.8 - 129.2	H1-3+VT (1.40 CR) - 1/8				39.000	15.000	-5.471	585.016	0.009
	129.2 - 127.6	H1-3+VT (1.40 CR) - 1/7				39.000	15.212	-5.614	593.259	0.009
	127.6 - 126	H1-3+VT (1.40 CR) - 1/6				39.000	15.423	-5.761	601.502	0.010
	126 - 124.4	H1-3+VT (1.40 CR) - 1/5				39.000	15.634	-5.913	609.746	0.010
	124.4 - 122.8	H1-3+VT (1.40 CR) - 1/4				39.000	15.846	-6.068	617.989	0.010
	122.8 - 121.2	H1-3+VT (1.40 CR) - 1/3				39.000	16.057	-6.227	626.232	0.010
	121.2 - 119.6	H1-3+VT (1.40 CR) - 1/2				39.000	16.269	-6.634	634.475	0.010
	119.6 - 118	H1-3+VT (1.40 CR) - 1				39.000	16.480	-6.804	642.718	0.011
L2	118 - 117	H1-3+VT (1.40 CR) - 1				32.040	35.590	-7.001	1140.290	0.006
	117 - 116	TP27.61x23.61x0.474	21.420	0.000	0.0	32.040	35.875	-7.180	1149.420	0.006
	116 - 115					32.040	36.160	-7.360	1158.550	0.006
	115 - 114					32.040	36.445	-7.542	1167.680	0.006
	114 - 113					32.040	36.729	-7.725	1176.810	0.007
	113 - 112					32.040	37.014	-7.909	1185.940	0.007
	112 - 111					32.040	37.299	-8.095	1195.070	0.007
	111 - 110					32.040	37.584	-8.282	1204.200	0.007
	110 - 109					32.040	37.869	-8.471	1213.330	0.007
	109 - 108					32.040	38.154	-8.661	1222.460	0.007
	108 - 107					32.040	38.439	-8.852	1231.590	0.007
	107 - 106					32.040	38.724	-9.045	1240.720	0.007
	106 - 105					32.040	39.009	-9.239	1249.850	0.007
	105 - 104					32.040	39.294	-9.434	1258.980	0.007
	104 - 103					32.040	39.579	-9.631	1268.110	0.008
	103 - 102					32.040	39.864	-9.829	1277.240	0.008
	102 - 101					32.040	40.149	-10.029	1286.370	0.008
	101 - 96.58					32.040	41.409	-5.405	1326.730	0.004
L3	101 - 96.58	TP28.39x25.837x0.57	11.000	0.000	0.0	30.120	48.224	-6.162	1452.520	0.004
	96.58 - 95.4833					30.120	48.691	-11.832	1466.590	0.008
	95.4833 - 94.3867					30.120	49.158	-12.084	1480.650	0.008
	94.3867 - 93.29					30.120	49.625	-12.339	1494.710	0.008
	93.29 - 92.1933					30.120	50.092	-12.596	1508.770	0.008
	92.1933 - 91.0967					30.120	50.559	-12.854	1522.830	0.008
	91.0967 - 90					30.120	51.026	-13.115	1536.900	0.009

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	Client	Nexlinkgs	Designed by	skadam

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
L4	90 - 88.5	TP34x28.39x0.598	30.000	0.000	0.0	30.720	54.011	-13.482	1659.220	0.008
	88.5 - 87					30.720	54.551	-13.856	1675.800	0.008
	87 - 85.5					30.720	55.090	-14.233	1692.380	0.008
	85.5 - 84					30.720	55.630	-14.614	1708.960	0.009
	84 - 82.5					30.720	56.170	-14.998	1725.530	0.009
	82.5 - 81					30.720	56.709	-15.386	1742.110	0.009
	81 - 79.5					30.720	57.249	-15.776	1758.690	0.009
	79.5 - 78					30.720	57.789	-16.170	1775.270	0.009
	78 - 76.5					30.720	58.328	-16.568	1791.850	0.009
	76.5 - 75					30.720	58.868	-16.968	1808.430	0.009
	75 - 73.5					30.720	59.408	-17.372	1825.010	0.010
	73.5 - 72					30.720	59.947	-17.779	1841.580	0.010
	72 - 70.5					30.720	60.487	-18.189	1858.160	0.010
	70.5 - 69					30.720	61.027	-18.602	1874.740	0.010
	69 - 67.5					30.720	61.566	-19.019	1891.320	0.010
	67.5 - 66					30.720	62.106	-19.439	1907.900	0.010
	66 - 64.5					30.720	62.646	-19.862	1924.480	0.010
	64.5 - 63					30.720	63.185	-20.289	1941.060	0.010
	63 - 61.5					30.720	63.725	-20.718	1957.630	0.011
L5	61.5 - 60	TP36.34x34x0.658	12.500	0.000	0.0	30.720	64.265	-21.151	1974.210	0.011
	60 - 59					33.720	71.040	-21.470	2395.480	0.009
	59 - 58					33.720	71.437	-21.782	2408.850	0.009
	58 - 57					33.720	71.834	-22.095	2422.230	0.009
	57 - 56					33.720	72.230	-22.410	2435.600	0.009
	56 - 55					33.720	72.627	-22.727	2448.980	0.009
	55 - 54					33.720	73.023	-23.046	2462.350	0.009
	54 - 53					33.720	73.420	-23.365	2475.730	0.009
L6	53 - 47.5	TP38.98x33.994x0.7	23.000	0.000	0.0	33.720	75.602	-13.145	2549.290	0.005
	53 - 47.5					31.860	77.744	-13.346	2476.910	0.005
	47.5 - 46.4706					31.860	78.247	-26.861	2492.940	0.011
	46.4706 - 45.4412					31.860	78.750	-27.212	2508.970	0.011
	45.4412 - 44.4118					31.860	79.253	-27.564	2524.990	0.011
	44.4118 - 43.3824					31.860	79.756	-27.918	2541.020	0.011
	43.3824 - 42.3529					31.860	80.259	-28.273	2557.050	0.011
	42.3529 - 41.3235					31.860	80.762	-28.631	2573.070	0.011
	41.3235 - 40.2941					31.860	81.265	-28.990	2589.100	0.011
	40.2941 - 39.2647					31.860	81.768	-29.352	2605.130	0.011
	39.2647 - 38.2353					31.860	82.271	-29.715	2621.150	0.011
	38.2353 - 37.2059					31.860	82.774	-30.079	2637.180	0.011
	37.2059 - 36.1765					31.860	83.277	-30.446	2653.210	0.011
	36.1765 - 35.1471					31.860	83.780	-30.815	2669.230	0.012
	35.1471 - 34.1176					31.860	84.283	-31.185	2685.260	0.012
	34.1176 - 33.0882					31.860	84.786	-31.557	2701.290	0.012
	33.0882 - 32.0588					31.860	85.289	-31.931	2717.310	0.012
	32.0588 - 31.0294					31.860	85.792	-32.307	2733.340	0.012

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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 $\frac{P}{P_a}$
L7	31.0294 - 30	TP41.56x38.98x0.677	13.750	0.000	0.0	31.860	86.295	-32.685	2749.370	0.012
	30 - 28.9423					31.920	83.980	-33.065	2680.630	0.012
	28.9423 - 27.8846					31.920	84.412	-33.447	2694.450	0.012
	27.8846 - 26.8269					31.920	84.845	-33.832	2708.260	0.012
	26.8269 - 25.7692					31.920	85.278	-34.218	2722.080	0.013
	25.7692 - 24.7115					31.920	85.711	-34.605	2735.900	0.013
	24.7115 - 23.6538					31.920	86.144	-34.995	2749.720	0.013
	23.6538 - 22.5962					31.920	86.577	-35.386	2763.540	0.013
	22.5962 - 21.5385					31.920	87.010	-35.779	2777.350	0.013
	21.5385 - 20.4808					31.920	87.443	-36.173	2791.170	0.013
	20.4808 - 19.4231					31.920	87.876	-36.569	2804.990	0.013
	19.4231 - 18.3654					31.920	88.309	-36.967	2818.810	0.013
	18.3654 - 17.3077					31.920	88.741	-37.366	2832.630	0.013
	17.3077 - 16.25					31.920	89.174	-37.767	2846.440	0.013
	16.25 - 15.2344					32.040	91.916	-38.136	2944.990	0.013
	15.2344 - 14.2188					32.040	92.341	-38.506	2958.620	0.013
	14.2188 - 13.2031					32.040	92.767	-38.877	2972.250	0.013
	13.2031 - 12.1875					32.040	93.192	-39.249	2985.880	0.013
	12.1875 - 11.1719					32.040	93.618	-39.624	2999.510	0.013
	11.1719 - 10.1563					32.040	94.043	-39.999	3013.130	0.013
L8	10.1563 - 9.14063	TP44.6x41.56x0.695	16.250	0.000	0.0	32.040	94.468	-40.377	3026.760	0.013
	9.14063 - 8.125					32.040	94.894	-40.756	3040.390	0.013
	8.125 - 7.10938					32.040	95.319	-41.136	3054.020	0.013
	7.10938 - 6.09375					32.040	95.744	-41.519	3067.650	0.014
	6.09375 - 5.07813					32.040	96.170	-41.902	3081.280	0.014
	5.07813 - 4.0625					32.040	96.595	-42.288	3094.910	0.014
	4.0625 - 3.04688					32.040	97.021	-42.674	3108.540	0.014
	3.04688 - 2.03125					32.040	97.446	-43.063	3122.170	0.014
	2.03125 - 1.01563					32.040	97.871	-43.453	3135.800	0.014
	1.01563 - 0					32.040	98.297	-43.844	3149.430	0.014

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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 - 148.4	TP23.61x17.61x0.219	25.259	5.648	39.000	0.145	0.000	0.000	39.000	0.000
	148.4 - 146.8		37.848	8.181	39.000	0.210	0.000	0.000	39.000	0.000
	146.8 - 145.2		50.667	10.593	39.000	0.272	0.000	0.000	39.000	0.000
	145.2 - 143.6		63.769	12.903	39.000	0.331	0.000	0.000	39.000	0.000
	143.6 - 142		77.112	15.109	39.000	0.387	0.000	0.000	39.000	0.000
	142 - 140.4		90.700	17.217	39.000	0.441	0.000	0.000	39.000	0.000
	140.4 - 138.8		108.567	19.975	39.000	0.512	0.000	0.000	39.000	0.000
	138.8 - 137.2		127.857	22.813	39.000	0.585	0.000	0.000	39.000	0.000
	137.2 - 135.6		147.394	25.515	39.000	0.654	0.000	0.000	39.000	0.000
	135.6 - 134		167.173	28.089	39.000	0.720	0.000	0.000	39.000	0.000
	134 - 132.4		187.300	30.560	39.000	0.784	0.000	0.000	39.000	0.000
	132.4 - 130.8		207.679	32.919	39.000	0.844	0.000	0.000	39.000	0.000
	130.8 - 129.2		230.959	35.579	39.000	0.912	0.000	0.000	39.000	0.000
	129.2 - 127.6		257.139	38.514	39.000	0.988	0.000	0.000	39.000	0.000
	127.6 - 126		283.572	41.311	39.000	1.059	0.000	0.000	39.000	0.000
	126 - 124.4		310.260	43.979	39.000	1.128	0.000	0.000	39.000	0.000
	124.4 - 122.8		337.203	46.526	39.000	1.193	0.000	0.000	39.000	0.000
	122.8 - 121.2		364.402	48.957	39.000	1.255	0.000	0.000	39.000	0.000
	121.2 - 119.6		392.525	51.368	39.000	1.317	0.000	0.000	39.000	0.000
	119.6 - 118		422.902	53.926	39.000	1.383	0.000	0.000	39.000	0.000
L2	118 - 117	TP27.61x23.61x0.474	442.031	26.461	32.040	0.826	0.000	0.000	32.040	0.000
	117 - 116		461.287	27.173	32.040	0.848	0.000	0.000	32.040	0.000
	116 - 115		480.671	27.866	32.040	0.870	0.000	0.000	32.040	0.000
	115 - 114		500.183	28.541	32.040	0.891	0.000	0.000	32.040	0.000
	114 - 113		519.825	29.199	32.040	0.911	0.000	0.000	32.040	0.000
	113 - 112		539.596	29.840	32.040	0.931	0.000	0.000	32.040	0.000
	112 - 111		559.497	30.465	32.040	0.951	0.000	0.000	32.040	0.000
	111 - 110		579.530	31.075	32.040	0.970	0.000	0.000	32.040	0.000
	110 - 109		599.694	31.669	32.040	0.988	0.000	0.000	32.040	0.000
	109 - 108		619.989	32.249	32.040	1.007	0.000	0.000	32.040	0.000
	108 - 107		640.418	32.815	32.040	1.024	0.000	0.000	32.040	0.000
	107 - 106		660.979	33.368	32.040	1.041	0.000	0.000	32.040	0.000
	106 - 105		681.673	33.907	32.040	1.058	0.000	0.000	32.040	0.000
	105 - 104		702.503	34.433	32.040	1.075	0.000	0.000	32.040	0.000
	104 - 103		723.466	34.948	32.040	1.091	0.000	0.000	32.040	0.000
	103 - 102		744.564	35.450	32.040	1.106	0.000	0.000	32.040	0.000
	102 - 101		765.799	35.941	32.040	1.122	0.000	0.000	32.040	0.000
	101 - 96.58		414.363	18.272	32.040	0.570	0.000	0.000	32.040	0.000
	101 - 96.58		447.119	17.545	30.120	0.582	0.000	0.000	30.120	0.000
L3	96.58 - 95.4833	TP28.39x25.837x0.57	885.683	34.084	30.120	1.132	0.000	0.000	30.120	0.000
	95.4833 - 94.3867		910.042	34.352	30.120	1.140	0.000	0.000	30.120	0.000
	94.3867 - 93.29		934.558	34.610	30.120	1.149	0.000	0.000	30.120	0.000
	93.29 - 92.1933		959.242	34.858	30.120	1.157	0.000	0.000	30.120	0.000
	92.1933 - 91.0967		984.083	35.097	30.120	1.165	0.000	0.000	30.120	0.000
	91.0967 - 90		1009.08	35.327	30.120	1.173	0.000	0.000	30.120	0.000
			3							
			1043.54	34.230	30.720	1.114	0.000	0.000	30.720	0.000
			2							
			1078.30	34.667	30.720	1.128	0.000	0.000	30.720	0.000
L4	88.5 - 87	TP34x28.39x0.598	0							
			1113.34	35.088	30.720	1.142	0.000	0.000	30.720	0.000
			2							
	85.5 - 84		1148.67	35.496	30.720	1.155	0.000	0.000	30.720	0.000

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	Project	150' Valmont Monopole/ AT&T Co-Locate	Date 16:29:48 06/05/12
	Client	Nexlinkgs	Designed by skadam

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 $\frac{f_{by}}{F_{by}}$
	84 - 82.5		1184.30 5	35.890	30.720	1.168	0.000	0.000	30.720	0.000
	82.5 - 81		1220.24 8	36.272	30.720	1.181	0.000	0.000	30.720	0.000
	81 - 79.5		1256.47 2	36.641	30.720	1.193	0.000	0.000	30.720	0.000
	79.5 - 78		1293.00 5	36.999	30.720	1.204	0.000	0.000	30.720	0.000
	78 - 76.5		1329.83 0	37.345	30.720	1.216	0.000	0.000	30.720	0.000
	76.5 - 75		1366.96 3	37.681	30.720	1.227	0.000	0.000	30.720	0.000
	75 - 73.5		1404.40 7	38.006	30.720	1.237	0.000	0.000	30.720	0.000
	73.5 - 72		1442.15 8	38.321	30.720	1.247	0.000	0.000	30.720	0.000
	72 - 70.5		1480.20 8	38.627	30.720	1.257	0.000	0.000	30.720	0.000
	70.5 - 69		1518.56 7	38.924	30.720	1.267	0.000	0.000	30.720	0.000
	69 - 67.5		1557.23 3	39.212	30.720	1.276	0.000	0.000	30.720	0.000
	67.5 - 66		1596.21 7	39.492	30.720	1.286	0.000	0.000	30.720	0.000
	66 - 64.5		1635.50 8	39.764	30.720	1.294	0.000	0.000	30.720	0.000
	64.5 - 63		1675.11 7	40.028	30.720	1.303	0.000	0.000	30.720	0.000
	63 - 61.5		1715.03 3	40.284	30.720	1.311	0.000	0.000	30.720	0.000
	61.5 - 60		1755.27 5	40.534	30.720	1.319	0.000	0.000	30.720	0.000
L5	60 - 59	TP36.34x34x0.658	1782.26 7	37.154	33.720	1.102	0.000	0.000	33.720	0.000
	59 - 58		1809.39 2	37.298	33.720	1.106	0.000	0.000	33.720	0.000
	58 - 57		1836.64 2	37.439	33.720	1.110	0.000	0.000	33.720	0.000
	57 - 56		1864.02 5	37.577	33.720	1.114	0.000	0.000	33.720	0.000
	56 - 55		1891.53 3	37.712	33.720	1.118	0.000	0.000	33.720	0.000
	55 - 54		1919.17 5	37.845	33.720	1.122	0.000	0.000	33.720	0.000
	54 - 53		1946.95 0	37.975	33.720	1.126	0.000	0.000	33.720	0.000
	53 - 47.5		1076.90 8	19.800	33.720	0.587	0.000	0.000	33.720	0.000
L6	53 - 47.5	TP38.98x33.994x0.7	1025.44 2	19.004	31.860	0.596	0.000	0.000	31.860	0.000
	47.5 - 46.4706		2131.92 5	38.999	31.860	1.224	0.000	0.000	31.860	0.000
	46.4706 - 45.4412		2161.61 7	39.034	31.860	1.225	0.000	0.000	31.860	0.000
	45.4412 - 44.4118		2191.43 3	39.066	31.860	1.226	0.000	0.000	31.860	0.000
	44.4118 - 43.3824		2221.37 5	39.097	31.860	1.227	0.000	0.000	31.860	0.000
	43.3824 -		2251.43	39.127	31.860	1.228	0.000	0.000	31.860	0.000

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	Client	Nexlinkgs	Designed by	skadam

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 $\frac{f_{by}}{F_{by}}$
	42.3529		3							
	42.3529 -		2281.61	39.154	31.860	1.229	0.000	0.000	31.860	0.000
	41.3235		7							
	41.3235 -		2311.92	39.180	31.860	1.230	0.000	0.000	31.860	0.000
	40.2941		5							
	40.2941 -		2342.35	39.204	31.860	1.231	0.000	0.000	31.860	0.000
	39.2647		8							
	39.2647 -		2372.90	39.227	31.860	1.231	0.000	0.000	31.860	0.000
	38.2353		8							
	38.2353 -		2403.59	39.248	31.860	1.232	0.000	0.000	31.860	0.000
	37.2059		2							
	37.2059 -		2434.39	39.268	31.860	1.233	0.000	0.000	31.860	0.000
	36.1765		2							
	36.1765 -		2465.31	39.286	31.860	1.233	0.000	0.000	31.860	0.000
	35.1471		7							
	35.1471 -		2496.37	39.303	31.860	1.234	0.000	0.000	31.860	0.000
	34.1176		5							
	34.1176 -		2527.55	39.319	31.860	1.234	0.000	0.000	31.860	0.000
	33.0882		0							
	33.0882 -		2558.85	39.334	31.860	1.235	0.000	0.000	31.860	0.000
	32.0588		8							
	32.0588 -		2590.28	39.347	31.860	1.235	0.000	0.000	31.860	0.000
	31.0294		3							
	31.0294 - 30		2621.84	39.359	31.860	1.235	0.000	0.000	31.860	0.000
			2							
L7	30 - 28.9423	TP41.56x38.98x0.677	2654.40	40.684	31.920	1.275	0.000	0.000	31.920	0.000
			0							
	28.9423 -		2687.07	40.760	31.920	1.277	0.000	0.000	31.920	0.000
	27.8846		5							
	27.8846 -		2719.87	40.834	31.920	1.279	0.000	0.000	31.920	0.000
	26.8269		5							
	26.8269 -		2752.80	40.906	31.920	1.282	0.000	0.000	31.920	0.000
	25.7692		8							
	25.7692 -		2785.85	40.976	31.920	1.284	0.000	0.000	31.920	0.000
	24.7115		8							
	24.7115 -		2819.04	41.045	31.920	1.286	0.000	0.000	31.920	0.000
	23.6538		2							
	23.6538 -		2852.35	41.112	31.920	1.288	0.000	0.000	31.920	0.000
	22.5962		0							
	22.5962 -		2885.78	41.178	31.920	1.290	0.000	0.000	31.920	0.000
	21.5385		3							
	21.5385 -		2919.34	41.242	31.920	1.292	0.000	0.000	31.920	0.000
	20.4808		2							
	20.4808 -		2953.02	41.305	31.920	1.294	0.000	0.000	31.920	0.000
	19.4231		5							
	19.4231 -		2986.84	41.366	31.920	1.296	0.000	0.000	31.920	0.000
	18.3654		2							
	18.3654 -		3020.77	41.425	31.920	1.298	0.000	0.000	31.920	0.000
	17.3077		5							
	17.3077 -		3054.85	41.483	31.920	1.300	0.000	0.000	31.920	0.000
	16.25		0							
L8	16.25 -	TP44.6x41.56x0.695	3087.67	40.523	32.040	1.265	0.000	0.000	32.040	0.000
	15.2344		5							
	15.2344 -		3120.61	40.575	32.040	1.266	0.000	0.000	32.040	0.000
	14.2188		7							
	14.2188 -		3153.67	40.627	32.040	1.268	0.000	0.000	32.040	0.000
	13.2031		5							
	13.2031 -		3186.85	40.677	32.040	1.270	0.000	0.000	32.040	0.000
	12.1875		0							
	12.1875 -		3220.13	40.726	32.040	1.271	0.000	0.000	32.040	0.000

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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 $\frac{f_{by}}{F_{by}}$
	11.1719		3							
	11.1719 -		3253.53	40.774	32.040	1.273	0.000	0.000	32.040	0.000
	10.1563		3							
	10.1563 -		3287.04	40.821	32.040	1.274	0.000	0.000	32.040	0.000
	9.14063		2							
	9.14063 -		3320.67	40.867	32.040	1.276	0.000	0.000	32.040	0.000
	8.125		5							
	8.125 -		3354.41	40.912	32.040	1.277	0.000	0.000	32.040	0.000
	7.10938		7							
	7.10938 -		3388.27	40.955	32.040	1.278	0.000	0.000	32.040	0.000
	6.09375		5							
	6.09375 -		3422.25	40.998	32.040	1.280	0.000	0.000	32.040	0.000
	5.07813		0							
	5.07813 -		3456.34	41.039	32.040	1.281	0.000	0.000	32.040	0.000
	4.0625		2							
	4.0625 -		3490.55	41.080	32.040	1.282	0.000	0.000	32.040	0.000
	3.04688		0							
	3.04688 -		3524.86	41.120	32.040	1.283	0.000	0.000	32.040	0.000
	2.03125		7							
	2.03125 -		3559.30	41.159	32.040	1.285	0.000	0.000	32.040	0.000
	1.01563		8							
	1.01563 - 0		3593.85	41.196	32.040	1.286	0.000	0.000	32.040	0.000
			8							

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	150 - 148.4	TP23.61x17.61x0.219	7.794	0.625	26.000	0.049	1.735	0.183	26.000	0.007
	148.4 - 146.8		7.942	0.627	26.000	0.049	1.735	0.176	26.000	0.007
	146.8 - 145.2		8.114	0.630	26.000	0.049	2.019	0.199	26.000	0.008
	145.2 - 143.6		8.265	0.631	26.000	0.049	2.019	0.192	26.000	0.007
	143.6 - 142		8.417	0.632	26.000	0.049	2.018	0.186	26.000	0.007
	142 - 140.4		8.571	0.634	26.000	0.050	2.018	0.180	26.000	0.007
	140.4 - 138.8		11.982	0.873	26.000	0.068	2.396	0.208	26.000	0.008
	138.8 - 137.2		12.136	0.870	26.000	0.068	2.396	0.201	26.000	0.008
	137.2 - 135.6		12.292	0.868	26.000	0.068	2.395	0.195	26.000	0.008
	135.6 - 134		12.505	0.870	26.000	0.068	2.631	0.208	26.000	0.008
	134 - 132.4		12.662	0.869	26.000	0.068	2.631	0.202	26.000	0.008
	132.4 - 130.8		12.820	0.867	26.000	0.068	2.630	0.197	26.000	0.008
	130.8 - 129.2		16.289	1.086	26.000	0.085	2.629	0.191	26.000	0.007
	129.2 - 127.6		16.448	1.081	26.000	0.084	2.628	0.186	26.000	0.007
	127.6 - 126		16.607	1.077	26.000	0.084	2.627	0.180	26.000	0.007
	126 - 124.4		16.767	1.072	26.000	0.084	2.626	0.176	26.000	0.007
	124.4 - 122.8		16.927	1.068	26.000	0.083	2.625	0.171	26.000	0.007
	122.8 - 121.2		17.088	1.064	26.000	0.083	2.623	0.166	26.000	0.006
	121.2 - 119.6		18.915	1.163	26.000	0.091	2.622	0.162	26.000	0.006
	119.6 - 118		19.076	1.158	26.000	0.090	2.621	0.158	26.000	0.006
L2	118 - 117	TP27.61x23.61x0.474	19.197	0.539	21.360	0.051	2.620	0.073	21.360	0.003
	117 - 116		19.324	0.539	21.360	0.051	2.618	0.072	21.360	0.003
	116 - 115		19.453	0.538	21.360	0.051	2.616	0.071	21.360	0.003
	115 - 114		19.582	0.537	21.360	0.051	2.614	0.070	21.360	0.003
	114 - 113		19.711	0.537	21.360	0.051	2.612	0.069	21.360	0.003
	113 - 112		19.841	0.536	21.360	0.051	2.610	0.067	21.360	0.003
	112 - 111		19.972	0.535	21.360	0.051	2.607	0.066	21.360	0.003

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Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio f _v F _v	Actual T kip-ft	Actual f _a ksi	Allow. F _a ksi	Ratio f _a F _a
	111 - 110		20.103	0.535	21.360	0.051	2.605	0.065	21.360	0.003
	110 - 109		20.235	0.534	21.360	0.051	2.603	0.064	21.360	0.003
	109 - 108		20.367	0.534	21.360	0.051	2.601	0.063	21.360	0.003
	108 - 107		20.500	0.533	21.360	0.051	2.599	0.062	21.360	0.003
	107 - 106		20.634	0.533	21.360	0.051	2.596	0.061	21.360	0.003
	106 - 105		20.768	0.532	21.360	0.051	2.594	0.060	21.360	0.003
	105 - 104		20.902	0.532	21.360	0.051	2.592	0.059	21.360	0.003
	104 - 103		21.037	0.532	21.360	0.051	2.589	0.059	21.360	0.003
	103 - 102		21.173	0.531	21.360	0.051	2.587	0.058	21.360	0.003
	102 - 101		21.309	0.531	21.360	0.050	2.585	0.057	21.360	0.003
L3	101 - 96.58	TP28.39x25.837x0.57	10.742	0.259	21.360	0.025	1.244	0.026	21.360	0.001
	96.58 - 95.4833		11.268	0.234	20.080	0.024	1.338	0.024	20.080	0.001
	95.4833 - 94.3867		22.147	0.455	20.080	0.046	2.573	0.046	20.080	0.002
	94.3867 - 93.29									
	93.29 - 92.1933		22.293	0.453	20.080	0.046	2.570	0.045	20.080	0.002
	92.1933 - 91.0967		22.439	0.452	20.080	0.046	2.568	0.044	20.080	0.002
	91.0967 - 90		22.586	0.451	20.080	0.046	2.565	0.043	20.080	0.002
	90 - 88.5		22.735	0.450	20.080	0.046	2.562	0.043	20.080	0.002
	88.5 - 87									
	87 - 85.5		22.884	0.448	20.080	0.045	2.560	0.042	20.080	0.002
L4	85.5 - 84	TP34x28.39x0.598	23.080	0.427	20.480	0.042	2.557	0.039	20.480	0.002
	84 - 82.5		23.276	0.427	20.480	0.042	2.553	0.038	20.480	0.002
	82.5 - 81		23.472	0.426	20.480	0.042	2.549	0.037	20.480	0.002
	81 - 79.5		23.669	0.425	20.480	0.042	2.545	0.037	20.480	0.002
	79.5 - 78		23.867	0.425	20.480	0.042	2.541	0.036	20.480	0.002
	78 - 76.5		24.066	0.424	20.480	0.042	2.537	0.035	20.480	0.002
	76.5 - 75		24.266	0.424	20.480	0.042	2.532	0.034	20.480	0.002
	75 - 73.5		24.467	0.423	20.480	0.042	2.528	0.034	20.480	0.002
	73.5 - 72		24.669	0.423	20.480	0.042	2.524	0.033	20.480	0.002
	72 - 70.5		24.872	0.422	20.480	0.042	2.519	0.032	20.480	0.002
L5	70.5 - 69	TP36.34x34x0.658	25.075	0.422	20.480	0.042	2.515	0.032	20.480	0.002
	69 - 67.5		25.279	0.422	20.480	0.042	2.511	0.031	20.480	0.002
	67.5 - 66		25.485	0.421	20.480	0.042	2.506	0.031	20.480	0.001
	66 - 64.5		25.691	0.421	20.480	0.042	2.502	0.030	20.480	0.001
	64.5 - 63		25.898	0.421	20.480	0.042	2.497	0.029	20.480	0.001
	63 - 61.5		26.106	0.420	20.480	0.042	2.493	0.029	20.480	0.001
	61.5 - 60		26.315	0.420	20.480	0.042	2.488	0.028	20.480	0.001
	60 - 59		26.525	0.420	20.480	0.042	2.484	0.028	20.480	0.001
	59 - 58		26.735	0.420	20.480	0.042	2.479	0.027	20.480	0.001
	58 - 57		26.947	0.419	20.480	0.042	2.475	0.027	20.480	0.001
L6	57 - 56	TP38.98x33.994x0.7	27.070	0.381	22.480	0.034	2.470	0.024	22.480	0.001
	56 - 55		27.199	0.381	22.480	0.034	2.467	0.024	22.480	0.001
	55 - 54		27.328	0.380	22.480	0.034	2.464	0.023	22.480	0.001
	54 - 53		27.458	0.380	22.480	0.034	2.462	0.023	22.480	0.001
	53 - 47.5		27.588	0.380	22.480	0.034	2.459	0.023	22.480	0.001
	47.5 - 46.4706		27.718	0.380	22.480	0.034	2.456	0.023	22.480	0.001
	46.4706 - 45.4412		27.848	0.379	22.480	0.034	2.453	0.022	22.480	0.001
	45.4412 - 44.4118		14.894	0.197	22.480	0.018	1.258	0.011	22.480	0.000
	44.4118 - 43.3824		13.812	0.178	21.240	0.017	1.191	0.010	21.240	0.000
	43.3824 -		28.803	0.368	21.240	0.035	2.434	0.021	21.240	0.001

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Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f _{vt} ksi	Allow. F _{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	42.3529									
	42.3529 -		29.394	0.364	21.240	0.035	2.421	0.019	21.240	0.001
	41.3235									
	41.3235 -		29.513	0.363	21.240	0.035	2.433	0.019	21.240	0.001
	40.2941									
	40.2941 -		29.633	0.362	21.240	0.035	2.430	0.019	21.240	0.001
	39.2647									
	39.2647 -		29.753	0.362	21.240	0.035	2.427	0.019	21.240	0.001
	38.2353									
	38.2353 -		29.874	0.361	21.240	0.035	2.424	0.019	21.240	0.001
	37.2059									
	37.2059 -		29.995	0.360	21.240	0.034	2.422	0.018	21.240	0.001
	36.1765									
	36.1765 -		30.116	0.359	21.240	0.034	2.419	0.018	21.240	0.001
	35.1471									
	35.1471 -		30.238	0.359	21.240	0.034	2.416	0.018	21.240	0.001
	34.1176									
	34.1176 -		30.361	0.358	21.240	0.034	2.413	0.018	21.240	0.001
	33.0882									
	33.0882 -		30.483	0.357	21.240	0.034	2.410	0.017	21.240	0.001
	32.0588									
	32.0588 -		30.606	0.357	21.240	0.034	2.407	0.017	21.240	0.001
	31.0294									
	31.0294 - 30		30.730	0.356	21.240	0.034	2.404	0.017	21.240	0.001
L7	30 - 28.9423	TP41.56x38.98x0.677	30.849	0.367	21.280	0.035	2.401	0.017	21.280	0.001
	28.9423 -		30.967	0.367	21.280	0.035	2.398	0.017	21.280	0.001
	27.8846									
	27.8846 -		31.086	0.366	21.280	0.035	2.396	0.017	21.280	0.001
	26.8269									
	26.8269 -		31.205	0.366	21.280	0.035	2.393	0.017	21.280	0.001
	25.7692									
	25.7692 -		31.324	0.365	21.280	0.035	2.390	0.016	21.280	0.001
	24.7115									
	24.7115 -		31.443	0.365	21.280	0.035	2.387	0.016	21.280	0.001
	23.6538									
	23.6538 -		31.563	0.365	21.280	0.035	2.384	0.016	21.280	0.001
	22.5962									
	22.5962 -		31.683	0.364	21.280	0.035	2.381	0.016	21.280	0.001
	21.5385									
	21.5385 -		31.802	0.364	21.280	0.035	2.378	0.016	21.280	0.001
	20.4808									
	20.4808 -		31.922	0.363	21.280	0.035	2.375	0.016	21.280	0.001
	19.4231									
	19.4231 -		32.043	0.363	21.280	0.035	2.372	0.015	21.280	0.001
	18.3654									
	18.3654 -		32.163	0.362	21.280	0.035	2.369	0.015	21.280	0.001
	17.3077									
	17.3077 -		32.284	0.362	21.280	0.035	2.366	0.015	21.280	0.001
	16.25									
L8	16.25 -	TP44.6x41.56x0.695	32.395	0.352	21.360	0.034	2.363	0.015	21.360	0.001
	15.2344									
	15.2344 -		32.507	0.352	21.360	0.033	2.360	0.014	21.360	0.001
	14.2188									
	14.2188 -		32.619	0.352	21.360	0.033	2.357	0.014	21.360	0.001
	13.2031									
	13.2031 -		32.731	0.351	21.360	0.033	2.354	0.014	21.360	0.001
	12.1875									
	12.1875 -		32.844	0.351	21.360	0.033	2.352	0.014	21.360	0.001
	11.1719									
	11.1719 -		32.957	0.350	21.360	0.033	2.349	0.014	21.360	0.001

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Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	10.1563									
	10.1563 - 9.14063		33.070	0.350	21.360	0.033	2.346	0.014	21.360	0.001
	9.14063 - 8.125		33.183	0.350	21.360	0.033	2.343	0.014	21.360	0.001
	8.125 - 7.10938		33.296	0.349	21.360	0.033	2.340	0.013	21.360	0.001
	7.10938 - 6.09375		33.410	0.349	21.360	0.033	2.337	0.013	21.360	0.001
	6.09375 - 5.07813		33.523	0.349	21.360	0.033	2.334	0.013	21.360	0.001
	5.07813 - 4.0625		33.637	0.348	21.360	0.033	2.331	0.013	21.360	0.001
	4.0625 - 3.04688		33.751	0.348	21.360	0.033	2.328	0.013	21.360	0.001
	3.04688 - 2.03125		33.865	0.348	21.360	0.033	2.325	0.013	21.360	0.001
	2.03125 - 1.01563		33.980	0.347	21.360	0.033	2.323	0.013	21.360	0.001
	1.01563 - 0		34.094	0.347	21.360	0.033	2.320	0.012	21.360	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P P_o	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_{vt} F_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 148.4	0.004	0.145	0.000	0.049	0.007	0.150	1.333	H1-3+VT ✓
	148.4 - 146.8	0.004	0.210	0.000	0.049	0.007	0.215	1.333	H1-3+VT ✓
	146.8 - 145.2	0.005	0.272	0.000	0.049	0.008	0.277	1.333	H1-3+VT ✓
	145.2 - 143.6	0.005	0.331	0.000	0.049	0.007	0.336	1.333	H1-3+VT ✓
	143.6 - 142	0.005	0.387	0.000	0.049	0.007	0.393	1.333	H1-3+VT ✓
	142 - 140.4	0.005	0.441	0.000	0.050	0.007	0.447	1.333	H1-3+VT ✓
	140.4 - 138.8	0.007	0.512	0.000	0.068	0.008	0.521	1.333	H1-3+VT ✓
	138.8 - 137.2	0.007	0.585	0.000	0.068	0.008	0.594	1.333	H1-3+VT ✓
	137.2 - 135.6	0.008	0.654	0.000	0.068	0.008	0.663	1.333	H1-3+VT ✓
	135.6 - 134	0.008	0.720	0.000	0.068	0.008	0.730	1.333	H1-3+VT ✓
	134 - 132.4	0.008	0.784	0.000	0.068	0.008	0.793	1.333	H1-3+VT ✓
	132.4 - 130.8	0.008	0.844	0.000	0.068	0.008	0.854	1.333	H1-3+VT ✓
	130.8 - 129.2	0.009	0.912	0.000	0.085	0.007	0.924	1.333	H1-3+VT ✓

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Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	129.2 - 127.6	0.009	0.988	0.000	0.084	0.007	✓ 0.999	1.333	H1-3+VT ✓
	127.6 - 126	0.010	1.059	0.000	0.084	0.007	✓ 1.071	1.333	H1-3+VT ✓
	126 - 124.4	0.010	1.128	0.000	0.084	0.007	✓ 1.140	1.333	H1-3+VT ✓
	124.4 - 122.8	0.010	1.193	0.000	0.083	0.007	✓ 1.205	1.333	H1-3+VT ✓
	122.8 - 121.2	0.010	1.255	0.000	0.083	0.006	✓ 1.268	1.333	H1-3+VT ✓
	121.2 - 119.6	0.010	1.317	0.000	0.091	0.006	✓ 1.330	1.333	H1-3+VT ✓
L2	119.6 - 118	0.011	1.383	0.000	0.090	0.006	✓ 1.396 X	1.333	H1-3+VT X
	118 - 117	0.006	0.826	0.000	0.051	0.003	✓ 0.833	1.333	H1-3+VT ✓
	117 - 116	0.006	0.848	0.000	0.051	0.003	✓ 0.855	1.333	H1-3+VT ✓
	116 - 115	0.006	0.870	0.000	0.051	0.003	✓ 0.877	1.333	H1-3+VT ✓
	115 - 114	0.006	0.891	0.000	0.051	0.003	✓ 0.898	1.333	H1-3+VT ✓
	114 - 113	0.007	0.911	0.000	0.051	0.003	✓ 0.919	1.333	H1-3+VT ✓
	113 - 112	0.007	0.931	0.000	0.051	0.003	✓ 0.939	1.333	H1-3+VT ✓
	112 - 111	0.007	0.951	0.000	0.051	0.003	✓ 0.958	1.333	H1-3+VT ✓
	111 - 110	0.007	0.970	0.000	0.051	0.003	✓ 0.978	1.333	H1-3+VT ✓
	110 - 109	0.007	0.988	0.000	0.051	0.003	✓ 0.996	1.333	H1-3+VT ✓
	109 - 108	0.007	1.007	0.000	0.051	0.003	✓ 1.014	1.333	H1-3+VT ✓
	108 - 107	0.007	1.024	0.000	0.051	0.003	✓ 1.032	1.333	H1-3+VT ✓
	107 - 106	0.007	1.041	0.000	0.051	0.003	✓ 1.049	1.333	H1-3+VT ✓
	106 - 105	0.007	1.058	0.000	0.051	0.003	✓ 1.066	1.333	H1-3+VT ✓
	105 - 104	0.007	1.075	0.000	0.051	0.003	✓ 1.083	1.333	H1-3+VT ✓
	104 - 103	0.008	1.091	0.000	0.051	0.003	✓ 1.099	1.333	H1-3+VT ✓
	103 - 102	0.008	1.106	0.000	0.051	0.003	✓ 1.115	1.333	H1-3+VT ✓
	102 - 101	0.008	1.122	0.000	0.050	0.003	✓ 1.130	1.333	H1-3+VT ✓
	101 - 96.58	0.004	0.570	0.000	0.025	0.001	✓ 0.575	1.333	H1-3+VT ✓
L3	101 - 96.58	0.004	0.582	0.000	0.024	0.001	✓ 0.587	1.333	H1-3+VT ✓

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Section No.	Elevation ft	Ratio P	Ratio f_{bx}	Ratio f_{by}	Ratio f_v	Ratio f_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	96.58 - 95.4833	0.008	1.132	0.000	0.046	0.002	1.140	1.333	H1-3+VT ✓
	95.4833 - 94.3867	0.008	1.140	0.000	0.046	0.002	1.149	1.333	H1-3+VT ✓
	94.3867 - 93.29	0.008	1.149	0.000	0.046	0.002	1.158	1.333	H1-3+VT ✓
	93.29 - 92.1933	0.008	1.157	0.000	0.046	0.002	1.166	1.333	H1-3+VT ✓
	92.1933 - 91.0967	0.008	1.165	0.000	0.046	0.002	1.174	1.333	H1-3+VT ✓
	91.0967 - 90	0.009	1.173	0.000	0.045	0.002	1.182	1.333	H1-3+VT ✓
L4	90 - 88.5	0.008	1.114	0.000	0.042	0.002	1.123	1.333	H1-3+VT ✓
	88.5 - 87	0.008	1.128	0.000	0.042	0.002	1.137	1.333	H1-3+VT ✓
	87 - 85.5	0.008	1.142	0.000	0.042	0.002	1.151	1.333	H1-3+VT ✓
	85.5 - 84	0.009	1.155	0.000	0.042	0.002	1.165	1.333	H1-3+VT ✓
	84 - 82.5	0.009	1.168	0.000	0.042	0.002	1.178	1.333	H1-3+VT ✓
	82.5 - 81	0.009	1.181	0.000	0.042	0.002	1.190	1.333	H1-3+VT ✓
	81 - 79.5	0.009	1.193	0.000	0.042	0.002	1.202	1.333	H1-3+VT ✓
	79.5 - 78	0.009	1.204	0.000	0.042	0.002	1.214	1.333	H1-3+VT ✓
	78 - 76.5	0.009	1.216	0.000	0.042	0.002	1.225	1.333	H1-3+VT ✓
	76.5 - 75	0.009	1.227	0.000	0.042	0.002	1.236	1.333	H1-3+VT ✓
	75 - 73.5	0.010	1.237	0.000	0.042	0.002	1.247	1.333	H1-3+VT ✓
	73.5 - 72	0.010	1.247	0.000	0.042	0.002	1.258	1.333	H1-3+VT ✓
	72 - 70.5	0.010	1.257	0.000	0.042	0.001	1.268	1.333	H1-3+VT ✓
	70.5 - 69	0.010	1.267	0.000	0.042	0.001	1.277	1.333	H1-3+VT ✓
	69 - 67.5	0.010	1.276	0.000	0.042	0.001	1.287	1.333	H1-3+VT ✓
	67.5 - 66	0.010	1.286	0.000	0.042	0.001	1.296	1.333	H1-3+VT ✓
	66 - 64.5	0.010	1.294	0.000	0.042	0.001	1.305	1.333	H1-3+VT ✓
	64.5 - 63	0.010	1.303	0.000	0.042	0.001	1.314	1.333	H1-3+VT ✓
	63 - 61.5	0.011	1.311	0.000	0.042	0.001	1.322	1.333	H1-3+VT ✓
	61.5 - 60	0.011	1.319	0.000	0.042	0.001	1.331	1.333	H1-3+VT ✓

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Section No.	Elevation ft	Ratio P P_a	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_{vt} F_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L5	60 - 59	0.009	1.102	0.000	0.034	0.001	1.111	1.333	H1-3+VT ✓
	59 - 58	0.009	1.106	0.000	0.034	0.001	1.115	1.333	H1-3+VT ✓
	58 - 57	0.009	1.110	0.000	0.034	0.001	1.120	1.333	H1-3+VT ✓
	57 - 56	0.009	1.114	0.000	0.034	0.001	1.124	1.333	H1-3+VT ✓
	56 - 55	0.009	1.118	0.000	0.034	0.001	1.128	1.333	H1-3+VT ✓
	55 - 54	0.009	1.122	0.000	0.034	0.001	1.132	1.333	H1-3+VT ✓
	54 - 53	0.009	1.126	0.000	0.034	0.001	1.136	1.333	H1-3+VT ✓
	53 - 47.5	0.005	0.587	0.000	0.018	0.000	0.592	1.333	H1-3+VT ✓
L6	53 - 47.5	0.005	0.596	0.000	0.017	0.000	0.602	1.333	H1-3+VT ✓
	47.5 - 46.4706	0.011	1.224	0.000	0.035	0.001	1.235	1.333	H1-3+VT ✓
	46.4706 - 45.4412	0.011	1.225	0.000	0.035	0.001	1.236	1.333	H1-3+VT ✓
	45.4412 - 44.4118	0.011	1.226	0.000	0.035	0.001	1.237	1.333	H1-3+VT ✓
	44.4118 - 43.3824	0.011	1.227	0.000	0.035	0.001	1.238	1.333	H1-3+VT ✓
	43.3824 - 42.3529	0.011	1.228	0.000	0.035	0.001	1.239	1.333	H1-3+VT ✓
	42.3529 - 41.3235	0.011	1.229	0.000	0.035	0.001	1.240	1.333	H1-3+VT ✓
	41.3235 - 40.2941	0.011	1.230	0.000	0.035	0.001	1.241	1.333	H1-3+VT ✓
	40.2941 - 39.2647	0.011	1.231	0.000	0.035	0.001	1.242	1.333	H1-3+VT ✓
	39.2647 - 38.2353	0.011	1.231	0.000	0.035	0.001	1.243	1.333	H1-3+VT ✓
	38.2353 - 37.2059	0.011	1.232	0.000	0.035	0.001	1.244	1.333	H1-3+VT ✓
	37.2059 - 36.1765	0.011	1.233	0.000	0.034	0.001	1.244	1.333	H1-3+VT ✓
	36.1765 - 35.1471	0.012	1.233	0.000	0.034	0.001	1.245	1.333	H1-3+VT ✓
	35.1471 - 34.1176	0.012	1.234	0.000	0.034	0.001	1.246	1.333	H1-3+VT ✓
	34.1176 - 33.0882	0.012	1.234	0.000	0.034	0.001	1.246	1.333	H1-3+VT ✓
	33.0882 - 32.0588	0.012	1.235	0.000	0.034	0.001	1.247	1.333	H1-3+VT ✓
	32.0588 - 31.0294	0.012	1.235	0.000	0.034	0.001	1.247	1.333	H1-3+VT ✓
	31.0294 - 30	0.012	1.235	0.000	0.034	0.001	1.248	1.333	H1-3+VT ✓

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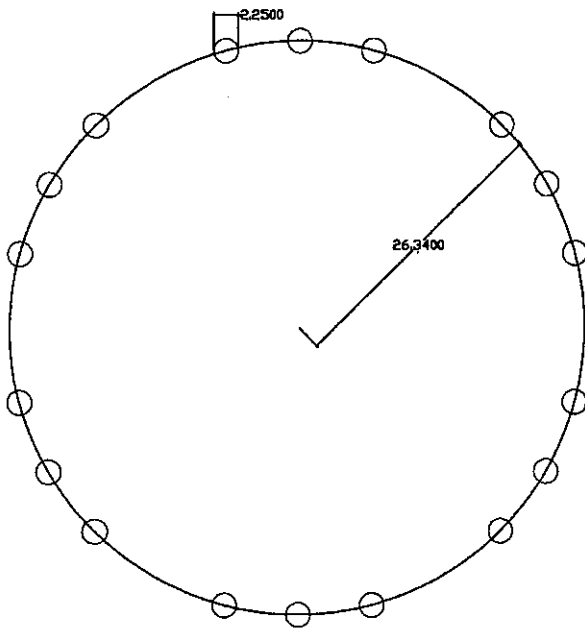
Section No.	Elevation ft	Ratio P P _a	Ratio f _{bx} F _{bx}	Ratio f _{by} F _{by}	Ratio f _v F _v	Ratio f _{vt} F _{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L7	30 - 28.9423	0.012	1.275	0.000	0.035	0.001	1.287	1.333	H1-3+VT ✓
	28.9423 - 27.8846	0.012	1.277	0.000	0.035	0.001	1.290	1.333	H1-3+VT ✓
	27.8846 - 26.8269	0.012	1.279	0.000	0.035	0.001	1.292	1.333	H1-3+VT ✓
	26.8269 - 25.7692	0.013	1.282	0.000	0.035	0.001	1.294	1.333	H1-3+VT ✓
	25.7692 - 24.7115	0.013	1.284	0.000	0.035	0.001	1.297	1.333	H1-3+VT ✓
	24.7115 - 23.6538	0.013	1.286	0.000	0.035	0.001	1.299	1.333	H1-3+VT ✓
	23.6538 - 22.5962	0.013	1.288	0.000	0.035	0.001	1.301	1.333	H1-3+VT ✓
	22.5962 - 21.5385	0.013	1.290	0.000	0.035	0.001	1.303	1.333	H1-3+VT ✓
	21.5385 - 20.4808	0.013	1.292	0.000	0.035	0.001	1.305	1.333	H1-3+VT ✓
	20.4808 - 19.4231	0.013	1.294	0.000	0.035	0.001	1.307	1.333	H1-3+VT ✓
	19.4231 - 18.3654	0.013	1.296	0.000	0.035	0.001	1.309	1.333	H1-3+VT ✓
	18.3654 - 17.3077	0.013	1.298	0.000	0.035	0.001	1.311	1.333	H1-3+VT ✓
	17.3077 - 16.25	0.013	1.300	0.000	0.035	0.001	1.313	1.333	H1-3+VT ✓
L8	16.25 - 15.2344	0.013	1.265	0.000	0.034	0.001	1.278	1.333	H1-3+VT ✓
	15.2344 - 14.2188	0.013	1.266	0.000	0.033	0.001	1.280	1.333	H1-3+VT ✓
	14.2188 - 13.2031	0.013	1.268	0.000	0.033	0.001	1.281	1.333	H1-3+VT ✓
	13.2031 - 12.1875	0.013	1.270	0.000	0.033	0.001	1.283	1.333	H1-3+VT ✓
	12.1875 - 11.1719	0.013	1.271	0.000	0.033	0.001	1.285	1.333	H1-3+VT ✓
	11.1719 - 10.1563	0.013	1.273	0.000	0.033	0.001	1.286	1.333	H1-3+VT ✓
	10.1563 - 9.14063	0.013	1.274	0.000	0.033	0.001	1.288	1.333	H1-3+VT ✓
	9.14063 - 8.125	0.013	1.276	0.000	0.033	0.001	1.289	1.333	H1-3+VT ✓
	8.125 - 7.10938	0.013	1.277	0.000	0.033	0.001	1.291	1.333	H1-3+VT ✓
	7.10938 - 6.09375	0.014	1.278	0.000	0.033	0.001	1.292	1.333	H1-3+VT ✓
	6.09375 - 5.07813	0.014	1.280	0.000	0.033	0.001	1.293	1.333	H1-3+VT ✓
	5.07813 - 4.0625	0.014	1.281	0.000	0.033	0.001	1.295	1.333	H1-3+VT ✓
	4.0625 - 3.04688	0.014	1.282	0.000	0.033	0.001	1.296	1.333	H1-3+VT ✓

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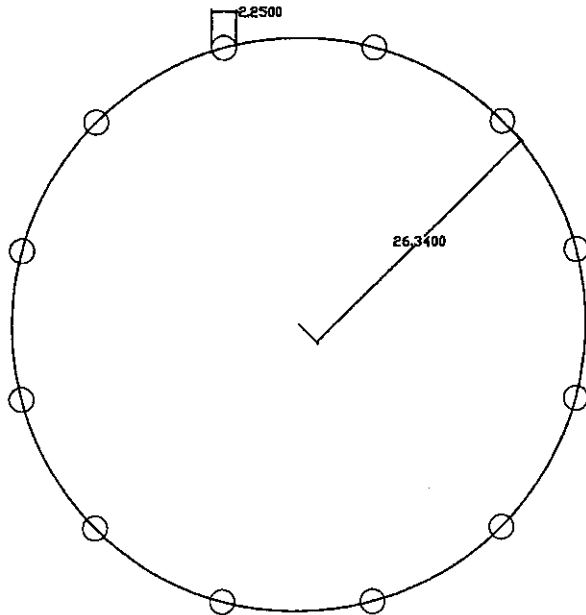
Section No.	Elevation ft	Ratio P	Ratio F _{bx}	Ratio F _{by}	Ratio F _v	Ratio F _{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	3.04688 - 2.03125	0.014	1.283	0.000	0.033	0.001	1.297 ✓	1.333	H1-3+VT ✓
	2.03125 - 1.01563	0.014	1.285	0.000	0.033	0.001	1.299 ✓	1.333	H1-3+VT ✓
	1.01563 - 0	0.014	1.286	0.000	0.033	0.001	1.300 ✓	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
L1	150 - 118	Pole	TP23.61x17.61x0.219	1	-6.804	856.743	104.7	Fail X
L2	118 - 96.58	Pole	TP27.61x23.61x0.474	2	-10.029	1714.731	84.8	Pass
L3	96.58 - 90	Pole	TP28.39x25.837x0.57	3	-13.115	2048.688	88.7	Pass
L4	90 - 60	Pole	TP34x28.39x0.598	4	-21.151	2631.622	99.8	Pass
L5	60 - 47.5	Pole	TP36.34x34x0.658	5	-23.365	3300.148	85.2	Pass
L6	47.5 - 30	Pole	TP38.98x33.994x0.7	6	-32.685	3664.910	93.6	Pass
L7	30 - 16.25	Pole	TP41.56x38.98x0.677	7	-37.767	3794.304	98.5	Pass
L8	16.25 - 0	Pole	TP44.6x41.56x0.695	8	-43.844	4198.190	97.5	Pass
							Summary	
							Pole (L1)	104.7 Fail X
							RATING =	104.7 Fail X



----- REGIONS -----
 Area: 71.5694
 Perimeter: 127.2345
 Bounding Box:
 Lower Bound: X= -26.5675 Y= -27.4650
 Upper Bound: X= 26.5675 Y= 27.4650
 Centroid: X= 0.0000 Y= 0.0000
 Moments of inertia: X= 24849.9151 Y= 24849.9151
 Products of inertia: XY: 0.0000
 Radii of gyration: X= 18.6337 Y= 18.6337



----- REGIONS -----
 Area: 47.7129
 Perimeter: 84.8230
 Bounding Box:
 Lower Bound: X= -26.5675 Y= -26.5675
 Upper Bound: X= 26.5675 Y= 26.5675
 Centroid: X= 0.0000 Y= 0.0000
 Moments of inertia: X= 16566.6100 Y= 16566.610
 Products of inertia: XY: 0.0000
 Radii of gyration: X= 18.6337 Y= 18.6337

$$T_{MAX} \Rightarrow \frac{3594 \times 12 \times 26.34}{24849.9} \times \frac{\pi}{4} \times (2.25)^2 = 181.8 \text{ K}$$

$$T_{ALLOW} = 0.23 \times 150 \times 3.78 \times 1\frac{1}{3} = 262.7 \text{ K} \Rightarrow \text{Unity \%} = \frac{181.8}{262.7} \times 100 = 69.1\%$$

$$M.I (\text{Mod.}) = 24849.9 \text{ in}^4$$

$$M.I (\text{Original}) = 16566.1 \text{ in}^4$$

$$\frac{M.I (\text{Original})}{M.I (\text{Mod.})} = \frac{16566.1}{24849.9} = 0.67$$

$\therefore$ 67% of the total Load will be taken by Original bolts.

Stiffened or Unstiffened, UngROUTED, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#:
Site Name: *Bethany, CT*
App #:
Pole Manufacturer: *Other*

Anchor Rod Data

Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	52.68	in

Plate Data

Diam:	58.67	in
Thick:	2.75	in
Grade:	60	ksi
Single-Rod B-eff:	11.95	in

Stiffener Data (Welding at both sides)

Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	44.6	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor

ASIF: 1.333

Reactions

Moment:	2408	ft-kips
Axial:	29.48	kips
Shear:	22.8	kips

If No stiffeners, Criteria: AISC ASD <-Only Applicable to Unstiffened Cases

Anchor Rod Results

Maximum Rod Tension: 180.4 Kips
Allowable Tension: 195.0 Kips
Anchor Rod Stress Ratio: 92.5% Pass

Rigid

Service, ASD
Fty*ASIF

Base Plate Results

Base Plate Stress: 31.8 ksi
Allowable Plate Stress: 60.0 ksi
Base Plate Stress Ratio: 53.1% Pass

Flexural Check

Rigid

Service ASD
0.75*Fy*ASIF
Y.L. Length:
28.04

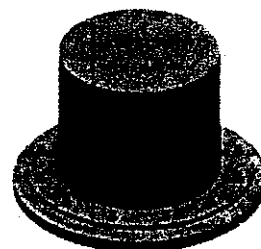
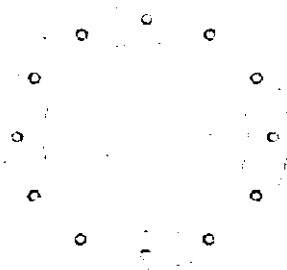
n/a

Stiffener Results

Horizontal Weld : n/a
Vertical Weld: n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2: n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2: n/a
Plate Comp. (AISC Bracket): n/a

Pole Results

Pole Punching Shear Check: n/a



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

(Bearing and Stability Checks) Tool for TIA Rev F or G - Application (MP, SST with unitbase)

Site Data

BU#: Nexlinkgs
Site Name: Bethany, CT
App #: NA

Enter Load Factors Below:

For P (DL)	1.2	<-- Enter Factor
For P,V, and M (WL)	1.35	<-- Enter Factor

Pad & Pier Data

Base PL Dist. Above Pier:	0	in
Pier Dist. Above Grade:	6	in
Pad Bearing Depth, D:	7.5	ft
Pad Thickness, T:	6	ft
Pad Width=Length, L:	25	ft
Pier Cross Section Shape:	Square	<--Pull Down
Enter Pier Side Width:	6	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	36.00	ft^2
Pier Height:	2.00	ft
Soil (above pad) Height:	1.50	ft

Soil Parameters

Unit Weight, γ :	100.0	pcf
Ultimate Bearing Capacity, q_n :	8.00	ksf
Strength Reduct. factor, ϕ :	0.75	
Angle of Friction, Φ :	30.0	degrees
Undrained Shear Strength, C_u :	0.00	ksf
Allowable Bearing: ϕ^*q_n :	6.00	ksf
Passive Pres. Coeff., K_p :	3.00	

Forces/Moments due to Wind and Lateral Soil

Minimum of (ϕ^* Ultimate Pad Passive Force, V_u):	45.9	kips
Pad Force Location Above D:	2.33	ft
ϕ (Passive Pressure Moment):	107.10	ft-kips
Factored O.T. M(WL), "1.6W":	5219.1	ft-kips
Factored OT (MW-Msoil), M1	5112.00	ft-kips

Resistance due to Foundation Gravity

Soil Wedge Projection grade, a:	0.87	ft
Sum of Soil Wedges Wt:	3.75	kips
Soil Wedges ecc, K1:	8.32	ft
Ftg+Soil above Pad wt:	661.7	kips
Unfactored (Total ftg-soil Wt):	665.40	kips
1.2D. No Soil Wedges :	846.78	kips
0.9D. With Soil Wedges :	638.46	kips

Resistance due to Cohesion (Vertical)

$\phi^*(1/2^*C_u)$ (Total Vert. Planes)	0.00	kips
Cohesion Force Eccentricity, K2	0.00	ft

Monopole Base Reaction Forces

TIA Revision:	5.0	<--Pull Down
Unfactored DL Axial, PD:	44.3	kips
Unfactored WL Axial, PW:	0	kips
Unfactored WL Shear, V:	34	kips
Unfactored WL Moment, M:	3594	ft-kips

Load Factor

Shaft Factored Loads

1.20	1.2D+1.6W, Pu:	52.8	kips
0.90	0.9D+1.6W, Pu:	39.6	kips
1.35	Vu:	45.9	kips
	Mu:	4851.9	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(No Soil Wedges) [Reaction+Conc+Soil]	846.78	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	5112.00	ft-kips

Orthogonal Direction:

$$\begin{aligned} \text{ecc1} &= M1/P1 = 6.04 \text{ ft} \\ \text{Orthogonal } q_u &= 2.66 \text{ ksf} \\ q_u/\phi^*q_n \text{ Ratio} &= 44.39\% \text{ Pass} \end{aligned}$$

Diagonal Direction:

$$\begin{aligned} \text{ecc2} &= (0.707M1)/P1 = 4.27 \text{ ft} \\ \text{Diagonal } q_u &= 3.12 \text{ ksf} \\ q_u/\phi^*q_n \text{ Ratio} &= 52.07\% \text{ Pass} \end{aligned}$$

Run <-- Press Upon Completing All Input

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

(w/ Soil Wedges) [Reaction+Conc+Soil]	638.46	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	5083.93	ft-kips

$$\begin{aligned} \text{Orthogonal ecc3} &= M2/P2 = 7.96 \text{ ft} \\ \text{Ortho Non Bearing Length, NBL} &= 15.93 \text{ ft} \\ \text{Orthogonal } q_u &= 2.81 \text{ ksf} \\ \text{Diagonal } q_u &= 3.38 \text{ ksf} \end{aligned}$$

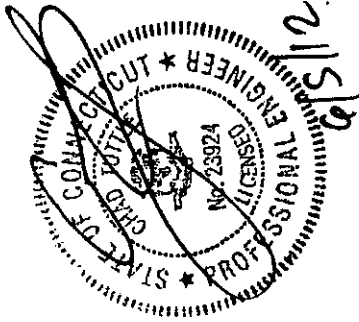
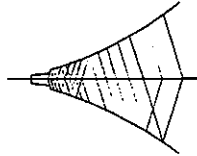
Max Reaction Moment (ft-kips) so that $q_u = \phi^*q_n = 100\%$ Capacity Rating

Actual M:	3594.00		
M Orthogonal:	4734.35	75.91%	Pass
M Diagonal:	4734.35	75.91%	Pass



Letter of Explanation (LOE)
MUST be attached to any Structural Analysis

Site Name Bethany
 Site Number 61186 (CT2162)
 PE of Record Chad E. Tuttle, P.E.



ALL STRUCTURES		Statement in COL A is Correct	from Col A	N/A	Alternate Value / Concept Used	Explanation	Yes	No	N/A	Comments / Reference
Structure Analyzed to F Code		X								
<i>Note: ALL G Analyses MUST be justified. A simple notation of jurisdiction requirement will suffice. F BUILT TOWERS in G Code jurisdictions MUST Have the max. 5" Gage" Test Applied G to be applied OR Y when this is verified. This 5" test applies to "legs for legs" only.</i>										
Guy Tensions Adjusted Within Code to Find Optimum Tension / Minimum Reinforcement (Applies to Guyed Tower Failures Only). Note : AT&T requires a pulse chart for altered Tensions				X						
Antenna Azimuths Inputted Per AT&T Information. NOTE that new antennas should be calculated at 5 degrees to allow flexibility.		X								
All Yield Stresses > = 50 ksi (legs)				X		Monopole: Shaft = 65 ksi				
All Yield Stresses > = 35 ksi (Diagonals and Horizontals)				X		Monopole				
Structures Designated Class II (G Only)				X						
Exposure B Rating Used (Topography)				X						
K value for Slenderness ratio < 1.0				X		Monopole				
Shielding of All Appurtenances Used when Appropriate PER 2.5.9.4 (G Code Only)				X						
0.75 Reduction "Shape" Factor (Figure 2.5) for platform mounts, 0.8 for T-Boom Mounts Used (G Only)				X						
Pipes and round Members have 1.0 Drag Factors. Note if Pipe is attached to flat antennas, these must be considered separately if differing Drag factors are Used			X			In compliance with the TIA-222-F Table 3				
Are Tower Diagonals Designed as "Tension Only"				X		Monopole				

[illegible]



C Squared Systems, LLC
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(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions



CT2162 – Bethany

719 Amity Road, Bethany, CT 06524

(a.k.a. 761 Amity Road)

July 30, 2012

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the monopole tower located at 719 Amity Rd in Bethany, CT. The coordinates of the tower are 41° 26' 33.9" N, 72° 59' 32.9" W.

AT&T is proposing the following modifications:

- 1) Replace six of nine existing dual-band (850/1900 MHz) panel antennas with six multi-band (700/850/1900/2100 MHz) antennas (two per sector).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm²). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

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

3. RF Exposure Prediction Methods

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

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm ²)	Limit	%MPE
Cingular UMTS	151	880	1	500	0.0079	0.5867	1.34%
Cingular GSM	151	880	2	296	0.0093	0.5867	1.59%
Cingular GSM	151	1900	2	427	0.0135	1.0000	1.35%
Verizon	140	1970	3	416	0.0229	1.0000	2.29%
Verizon	140	869	9	289	0.0477	0.5793	8.24%
Verizon	140	757	1	486	0.0089	0.5047	1.77%
MetroPCS	120	2140	3	727	0.0545	1.0000	5.45%
Sprint	130	1962.5	11	357.77	0.0837	1.0000	8.37%
Beth Fire Dept	160	33.54			0.0008	0.2000	0.42%
Beth Hwy Dept	160	155.835			0.0014	0.2000	0.70%
AT&T UMTS	151	880	2	565	0.0018	0.5867	0.30%
AT&T UMTS	151	1900	2	1077	0.0034	1.0000	0.34%
AT&T LTE	151	734	1	1313	0.0021	0.4893	0.42%
AT&T GSM	151	880	1	491	0.0008	0.5867	0.13%
AT&T GSM	151	1900	4	813	0.0051	1.0000	0.51%
						Total	28.95%

Table 1: Carrier Information^{1 2 3}

¹ The existing CSC filing for Cingular should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 7/26/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table. Blank fields in Table 1 indicate omitted information in the CSC database.

² In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

³ Antenna height listed for AT&T is in reference to the B&T Group Structural Modification Report dated 7/19/2012.

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **28.95% of the FCC limit**.

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

6. Statement of Certification

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



Daniel L. Goulet
C Squared Systems, LLC

July 30, 2012

Date

Attachment A: References

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

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

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

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

(A) Limits for Occupational/Controlled Exposure⁴

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

(B) Limits for General Population/Uncontrolled Exposure⁵

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

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

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

⁴ 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.

⁵ General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

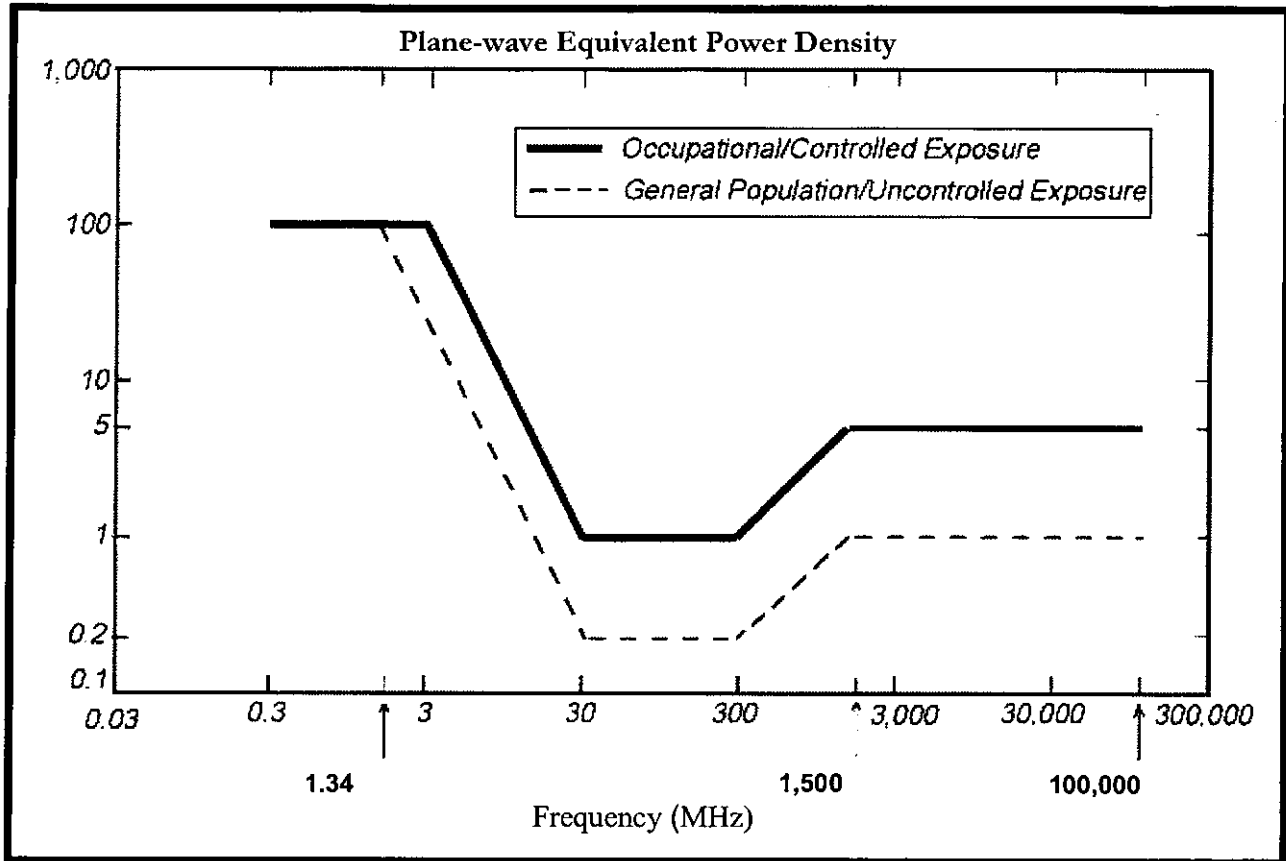
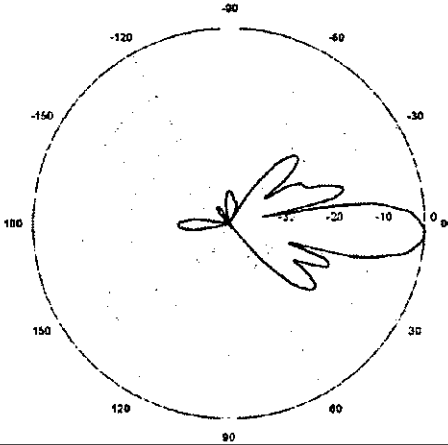
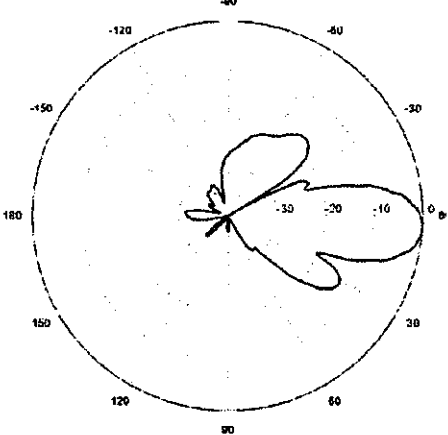
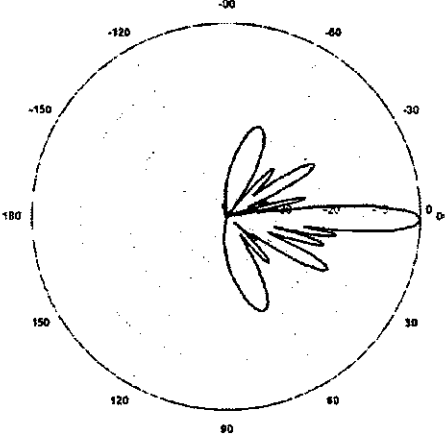


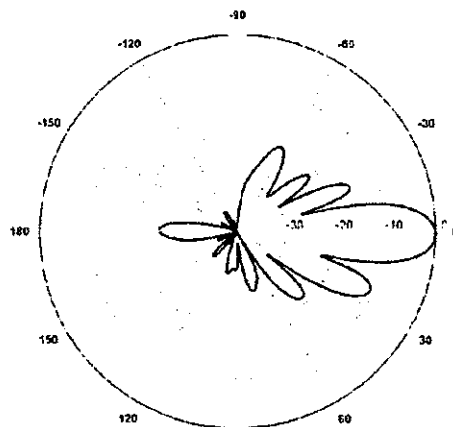
Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

700 MHz Manufacturer: KMW Model #: AM-X-CD-16-65-00T-RET Frequency Band: 698-806 MHz Gain: 13.4 dBd Vertical Beamwidth: 12.3° Horizontal Beamwidth: 65° Polarization: Dual Slant $\pm 45^\circ$ Size L x W x D: 72.0" x 11.8" x 5.9"	 A circular radiation pattern diagram for 700 MHz. The diagram shows a main lobe pointing towards 0 degrees (right) with a peak gain of approximately 13.4 dBd. The horizontal beamwidth is 65 degrees, and the vertical beamwidth is 12.3 degrees. The diagram includes a scale from 0 to 180 degrees and a gain scale from 0 to 30 dBd.
850 MHz GSM Manufacturer: KMW Model #: AM-X-CD-16-65-00T-RET Frequency Band: 824-894 MHz Gain: 13.9 dBd Vertical Beamwidth: 11.5° Horizontal Beamwidth: 63° Polarization: Dual Slant $\pm 45^\circ$ Size L x W x D: 72.0" x 11.8" x 5.9"	 A circular radiation pattern diagram for 850 MHz GSM. The diagram shows a main lobe pointing towards 0 degrees (right) with a peak gain of approximately 13.9 dBd. The horizontal beamwidth is 63 degrees, and the vertical beamwidth is 11.5 degrees. The diagram includes a scale from 0 to 180 degrees and a gain scale from 0 to 30 dBd.
1900 MHz GSM Manufacturer: KMW Model #: AM-X-CD-16-65-00T-RET Frequency Band: 1850-1900 MHz Gain: 15.3 dBd Vertical Beamwidth: 6° Horizontal Beamwidth: 67° Polarization: Dual Slant $\pm 45^\circ$ Size L x W x D: 72.0" x 11.8" x 5.9"	 A circular radiation pattern diagram for 1900 MHz GSM. The diagram shows a main lobe pointing towards 0 degrees (right) with a peak gain of approximately 15.3 dBd. The horizontal beamwidth is 67 degrees, and the vertical beamwidth is 6 degrees. The diagram includes a scale from 0 to 180 degrees and a gain scale from 0 to 30 dBd.

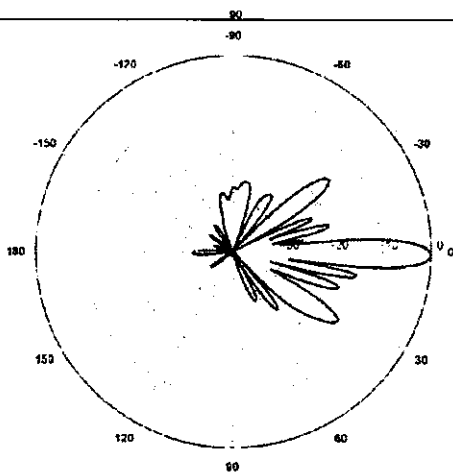
850 MHz UMTS

Manufacturer: Kathrein Scala
 Model #: 80010121
 Frequency Band: 824-896 MHz
 Gain: 11.5 dBd
 Vertical Beamwidth: 14.5°
 Horizontal Beamwidth: 86°
 Polarization: $\pm 45^\circ$
 Size L x W x D: 54.5" x 10.3" x 5.9"



1900 MHz UMTS

Manufacturer: Kathrein Scala
 Model #: 80010121
 Frequency Band: 1850-1990 MHz
 Gain: 14.3 dBd
 Vertical Beamwidth: 6.6°
 Horizontal Beamwidth: 85°
 Polarization: $\pm 45^\circ$
 Size L x W x D: 54.5" x 10.3" x 5.9"





1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2005 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT, INCLUDING THE I/A/EA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS AND SPECIFICATIONS TO ALL OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.

- | | | | |
|--|---|--|-------------------------------------|
| FROM: | 500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT | TO: | 719 AMITY ROAD
BETHANY, CT 06524 |
| Take ramp left for I-91 South
At exit 18, take ramp right for I-691 West toward Meriden / Waterbury
At exit 1, take ramp left for I-84 West toward Waterbury / Danbury
At exit 26, take ramp right for CT-70 toward Cheeshire / Prospect
Turn left onto CT-70 / Waterbury Rd
Turn right onto Summit Rd
Turn left onto CT-69 / Prospect Rd
Keep straight onto New Haven Rd
Keep straight onto CT-69 / New Haven Rd
Bear right onto CT-42 / Cheeshire Rd
Turn left onto CT-42 / CT-63 / Amity Rd / Uitchfield Tpke
Keep straight onto CT-63 / Amity Rd
Arrive at 719 Amity Rd, Town of Bethany, CT 06524 | | 9.1 mi
7.9 mi
2.6 mi
0.3 mi
0.2 mi
3.1 mi
0.4 mi
0.3 mi
2.8 mi
1.2 mi
0.7 mi
1.1 mi | |

A detailed topographic map of the project area. The map shows the project location marked with a black dot and a label 'PROJECT LOCATION'. A benchmark 'BM 723' is also indicated. The map features contour lines representing elevation, with labels such as 650, 700, 750, and 800. Roads are shown as lines, with labels like 'RD 650', 'RD 700', and 'RD 750'. A scale bar at the bottom left indicates distances from 0 to 2,000 feet. The map also shows a river or stream labeled 'Cedar River' and a road labeled 'Litchfield Road'.

1. THE PROPOSED SCOPE OF WORK GENERALLY CONSISTS OF THE INSTALLATION OF ONE (1) LTE ANTENNA PER SECTOR FOR A TOTAL OF (3) LTE ANTENNAS TO THE EXISTING AT&T ANTENNA ARRAY (TO BE RECONFIGURED). AN LTE BASEBAND EQUIPMENT UNIT (RBS) WILL BE INSTALLED WITHIN THE EXISTING AT&T EQUIPMENT SHELTER.
2. ADDITIONALLY, (2) REMOTE RADIO UNITS (RRUs) PER SECTOR WILL BE INSTALLED. THE ANTENNAS WILL BE INSTALLED AT BOTH AT&T RRU AND EQUIPMENT LOCATIONS. REFER TO THESE ACCOMPANYING DRAWINGS FOR FURTHER INFORMATION.

AT&T SITE NUMBER:	CT2162
AT&T SITE NAME:	BETHANY
SITE ADDRESS:	719 AMITY ROAD BETHANY, CT 06524
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEX ENGINEERING, INC. 63-2 NORTH BRAVORD RD. BRAWFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-26'-33.87"N LONGITUDE: 72°-59'-32.9"W GROUND ELEVATION: ±745'AMSL

SHT. NO.	DESCRIPTION	REVISION
T-1	TITLE SHEET	1
N-1	NOTES AND SPECIFICATIONS	1
C-1	PLANS AND ELEVATION	1
C-2	LTE EQUIPMENT DETAILS	1
E-1	ELECTRICAL DETAILS AND NOTES	1
E-2	ELECTRICAL DETAILS	1

[illegible]

DESIGN BASIS

1. DESIGN CRITERIA:

- ### GENERAL NOTES

- ## STRUCTURAL STEEL

- | | |
|--------------|-----|
| DESIGNED BY: | DEB |
| DRAWN BY: | HMR |
| CHK'D BY: | CFC |

[illegible]

	HMR	DEB	DRAWN BY
	FLO	DEB	

1	7/27/12	DATE
0	4/9/12	DATE
REV.		



[203] 488-0580
[203] 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405

www.CentekEng.com

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WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE

CT2162

BETHANY

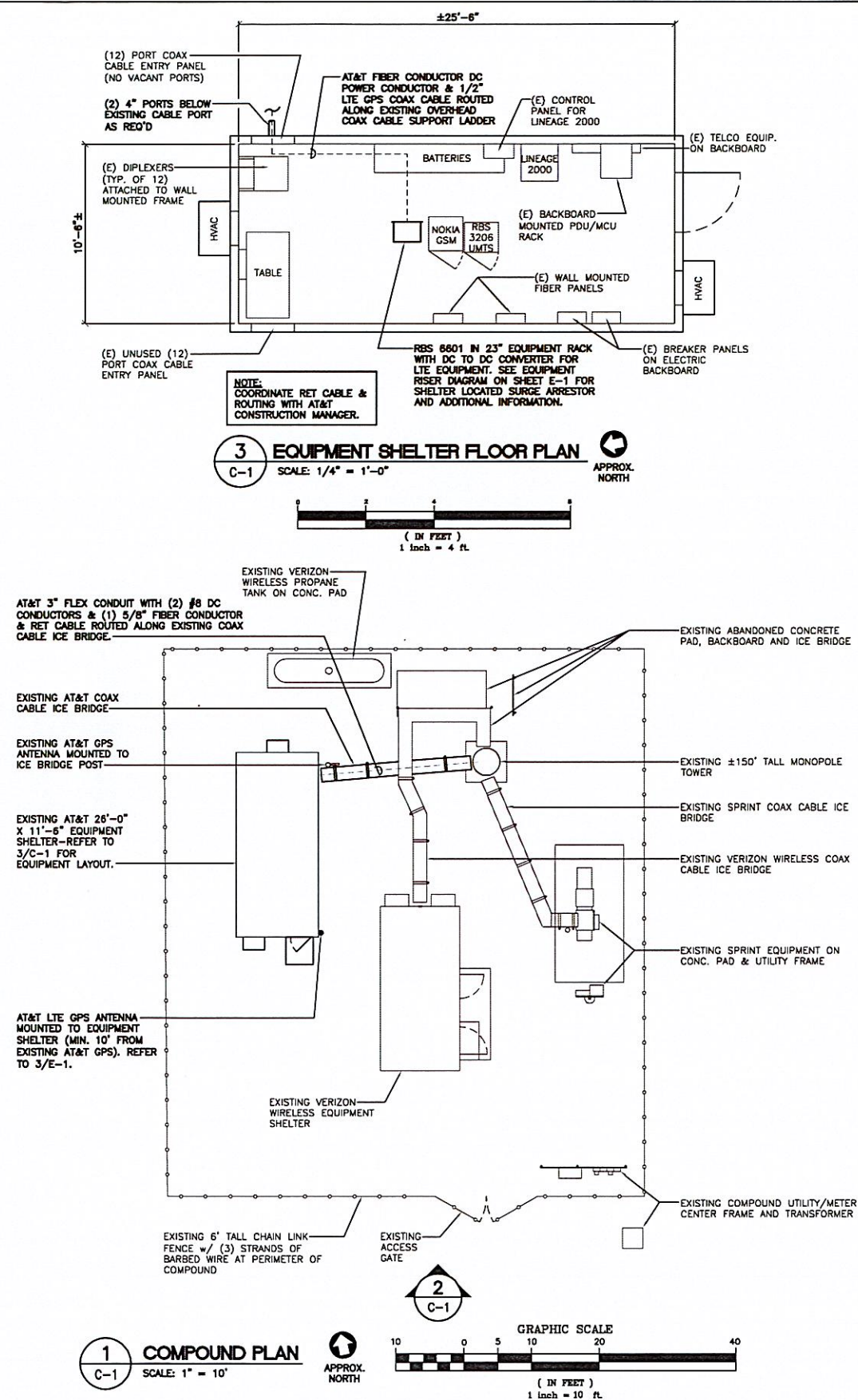
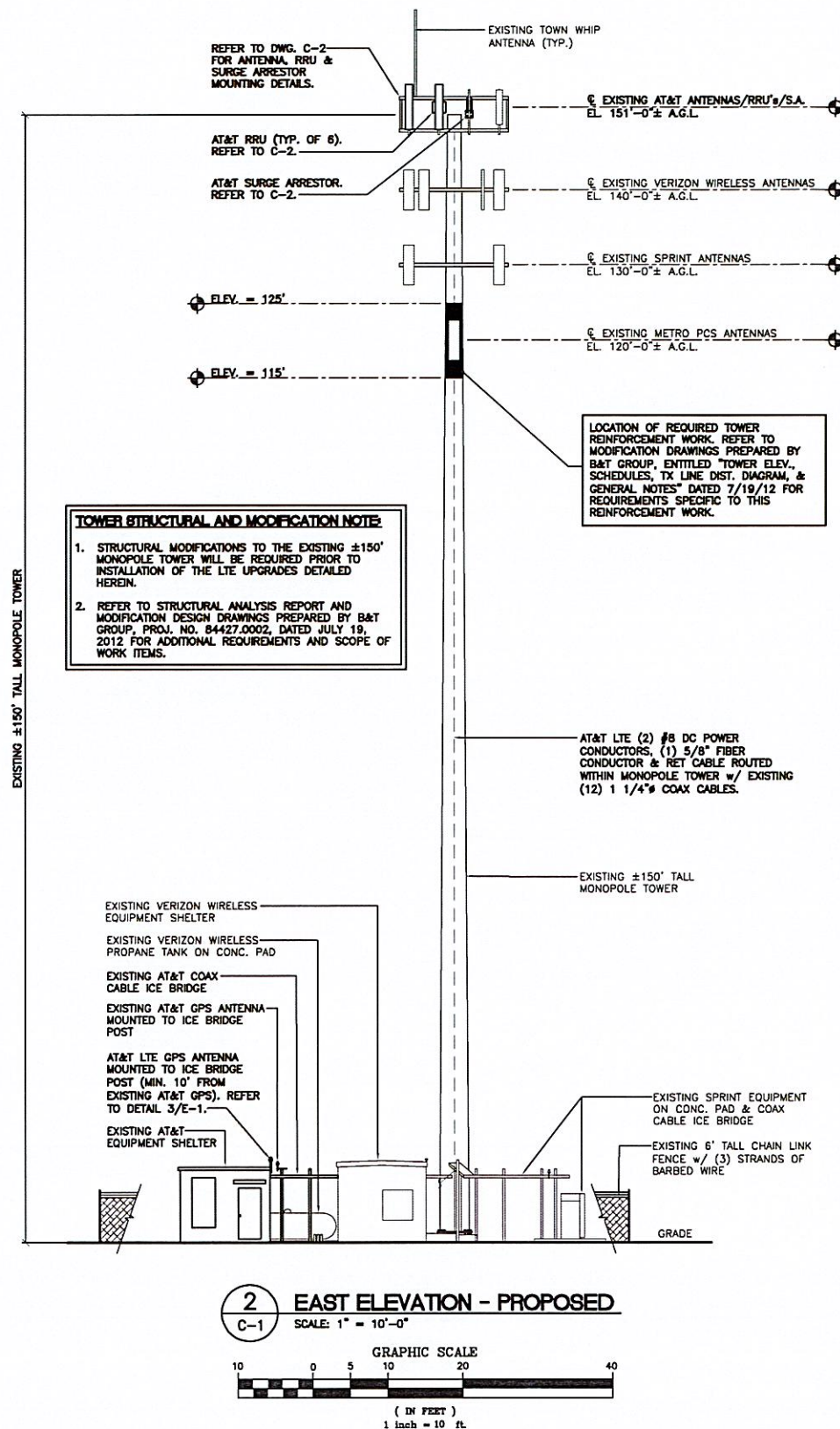
710 ANITY ROAD
BETHANY, CT 06524

DATE:	07/27/12
SCALE:	AS NOTED
JOB NO.	11118.C024

NOTES
AND
SPECIFICATIONS

N-1

Sheet No. 2 of 6



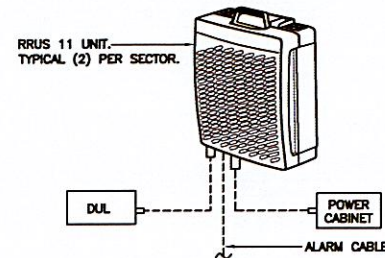
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DRAWN BY:	HMR
CHECKED BY:	CFC
DATE:	07/27/12
SCALE:	AS NOTED
JOB NO.	11118.0024
PLANS AND ELEVATION	
C-1	
Sheet No. 3 of 3	

SURGE ARRESTOR				
SITE TYPE	ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
TOWER	MAKE: RAYCAP (SQUID) MODEL: DCB-48-60-18-BF	(1) PER SITE	TOWER, ADJACENT TO AT&T ANTENNAS AND RRUS	20 LBS. (WITHOUT MOUNT)

NOTES:

- CONTRACTOR TO COORDINATE FINAL SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.
- CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.

6 SURGE ARRESTOR DETAIL
C-2 NOT TO SCALE

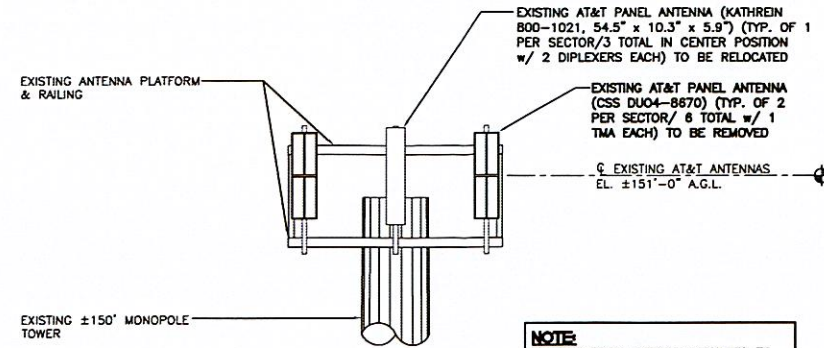


RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 11	17.8"L x 17.3"W x 7.2"D	BAND 4: 44 LBS. BAND 12: 50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. SIDE: 0" MIN.

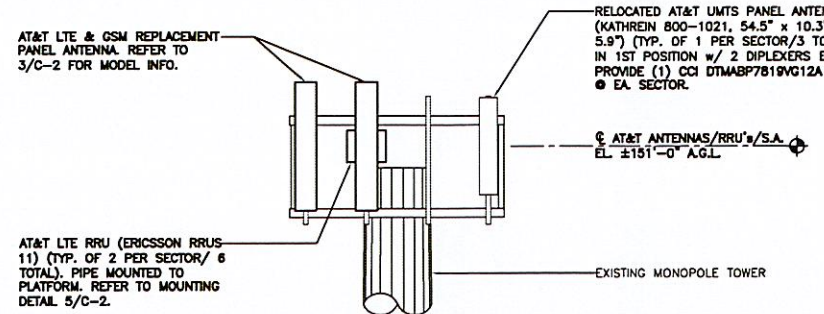
NOTES:

- CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

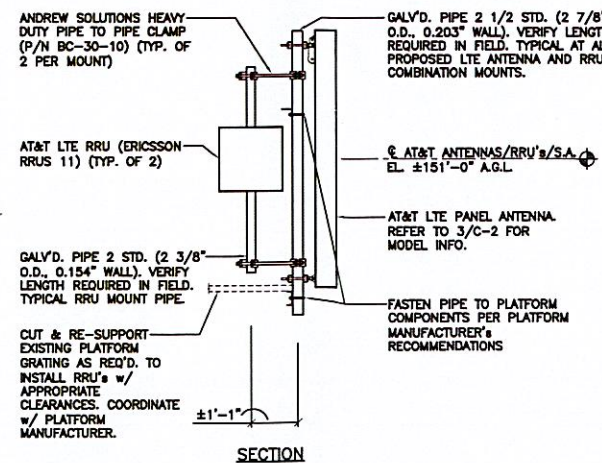
7 RRU DETAIL
C-2 NOT TO SCALE



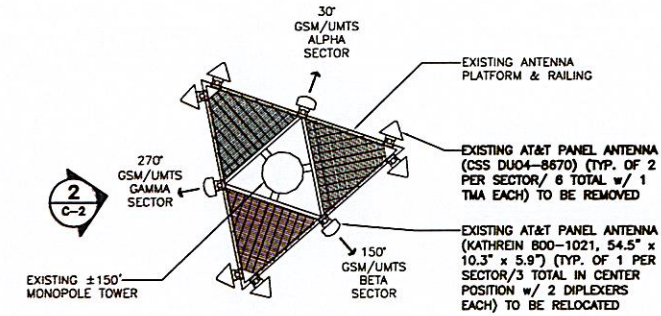
2 EXISTING ANTENNA SECTOR ELEVATION
C-2 SCALE: 1/4" = 1'-0"



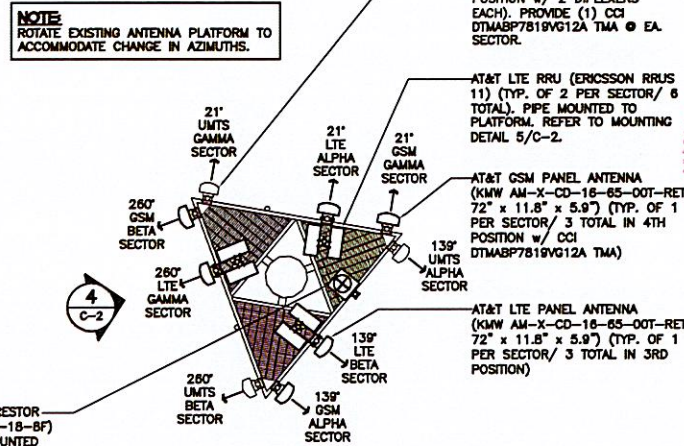
4 PROPOSED ANTENNA SECTOR ELEVATION
C-2 SCALE: 1/4" = 1'-0"



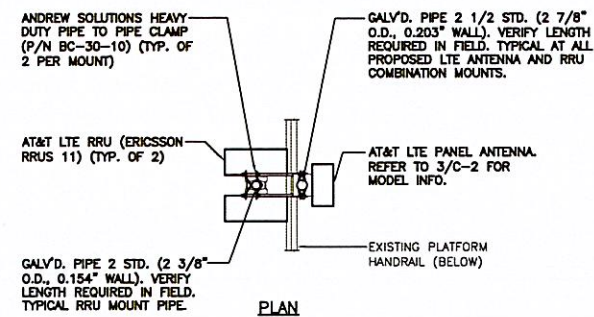
5 LTE ANTENNA/RRU MOUNT DETAILS
C-2 SCALE: 1/2" = 1'-0"



1 EXISTING ANTENNA PLAN
C-2 SCALE: 1/4" = 1'-0"



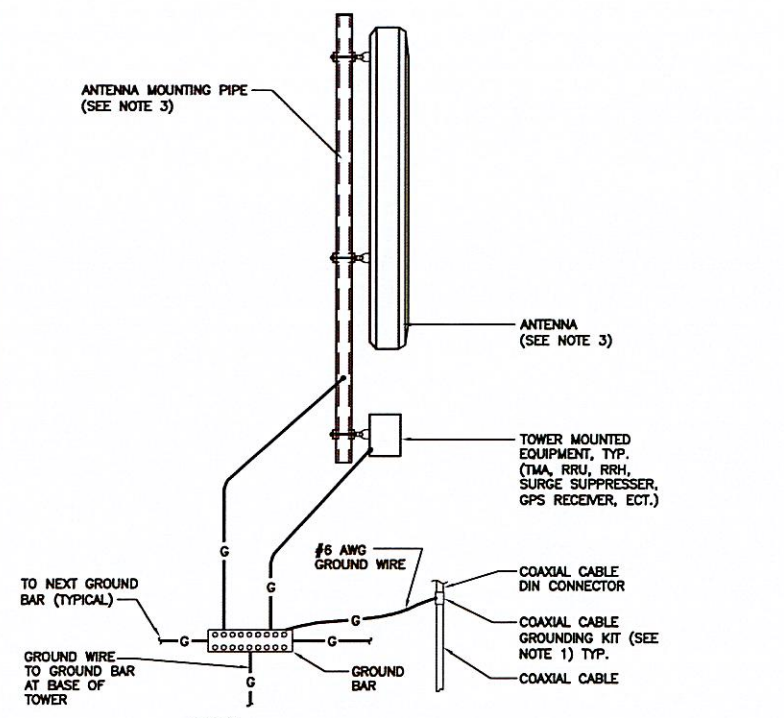
3 PROPOSED ANTENNA PLAN
C-2 SCALE: 1/4" = 1'-0"



DESIGNED BY:	DER
DRAWN BY:	HMR
CHECKED BY:	GFC
DATE:	07/27/12
SCALE:	AS NOTED
JOB NO.	11118.C024
LTE EQUIPMENT DETAILS	
C-2	
Sheet No. 1 of 1	

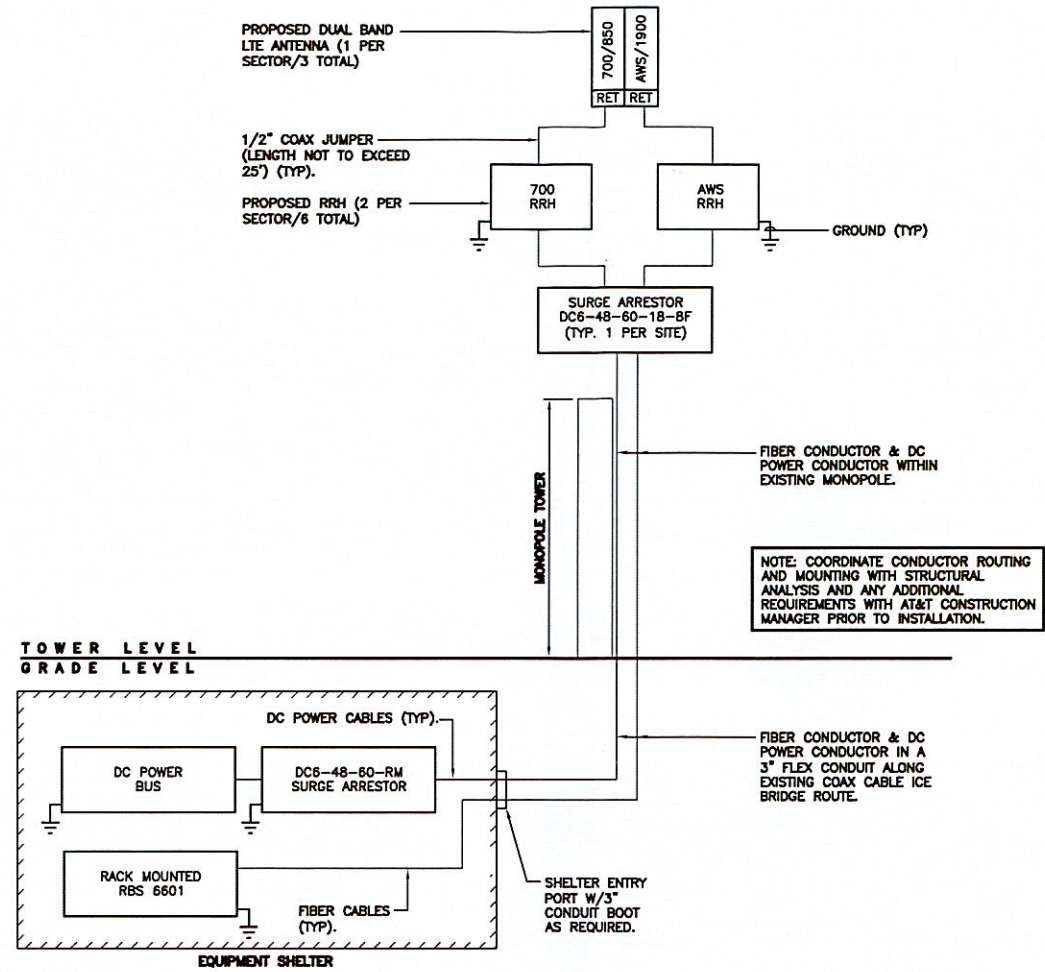
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WIRELESS COMMUNICATIONS FACILITY LITE UPGRADE
CT2162
BETHANY
719 AMITY ROAD
BETHANY, CT 06524

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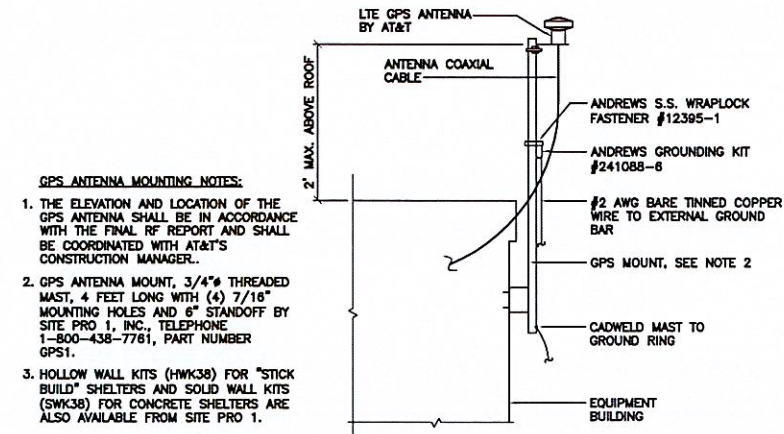
- NOTES:**
1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
 2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
 3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 TYPICAL ANTENNA GROUNDING DETAIL
E-1 NOT TO SCALE



- NOTES:**
1. CONTRACTOR TO CONFIRM ALL PARTS.
 2. INSTALL ALL EQUIPMENT TO MANUFACTURERS RECOMMENDATIONS.

2 LTE SCHEMATIC DIAGRAM
E-1 NOT TO SCALE



- GPS ANTENNA MOUNTING NOTES:**
1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT AND SHALL BE COORDINATED WITH AT&T'S CONSTRUCTION MANAGER.
 2. GPS ANTENNA MOUNT, 3/4\"/>

3 GPS ANTENNA MOUNTING DETAIL
E-1 NOT TO SCALE

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 800 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION.
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

- TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM**
- A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:
- TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.
- THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:
1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
 2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
 3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.
- B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.
- C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.
- D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

DESIGNED BY:	CKD						
DRAWN BY:	TJB						
CHECKED BY:	CKD						
<table border="1"><tr><td>DATE</td><td>7/27/12</td></tr><tr><td>SCALE</td><td>AS NOTED</td></tr><tr><td>JOB NO.</td><td>11118.C024</td></tr></table>		DATE	7/27/12	SCALE	AS NOTED	JOB NO.	11118.C024
DATE	7/27/12						
SCALE	AS NOTED						
JOB NO.	11118.C024						
ELECTRICAL DETAILS AND NOTES							
E-1							
Sheet No. 5 of 6							

AT&T MOBILITY

WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE

CT2162

BETHANY

719 AMITY ROAD
BETHANY, CT 06524

at&t

NE LINK

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800 Marshall Phelps Road
Windsor, CT 06095
July 19, 2012

ORIGINAL

RECEIVED
AUG 17 2012

CONNECTICUT
SITING COUNCIL
Modification Design
150' Monopole



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
B+T No.: 84427.0002

AT&T DESIGNATION:

Site ID: 61186 (CT2162)
Site FA: 10035070
Site Name: Bethany
AT&T Project: MOD LTE W3 012712

ANALYSIS CRITERIA:

Codes: TIA/EIA-222-F (90 mph fastest mile)
IBC 2003
2005 CT Building Code

SITE DATA:

719 Amity Road, Bethany, CT, New Haven County
Latitude 41.442742°, Longitude -72.992471°
Market MA/RI/VT/NH/ME/CT

Dear Ms. Wenderoth

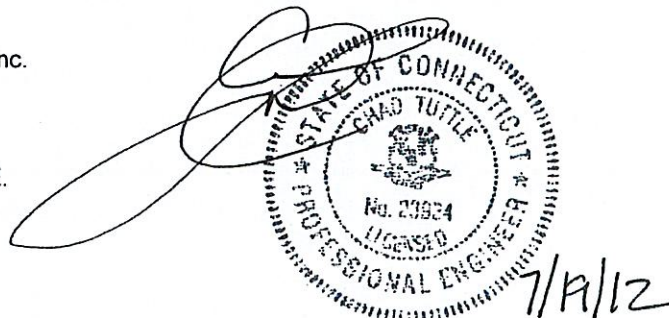
B+T Group is pleased to submit this Structural Modification Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	99.7%	Pass
Foundation Ratio with Proposed Equipment:	75.9%	Pass

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and AT&T Towers. If you have any questions or need further assistance on this or any other project please give us a call.

Respectfully Submitted by: B+T Engineering, Inc.
Analysis Prepared by: Ali Abbaszadeh
Analysis Reviewed by: Chad E. Tuttle, P.E.



ANALYSIS RESULTS:

Table 1 - Section Capacity (Summary) - Modified Tower

Component (Tower Section)	% Capacity	Pass / Fail
TP22.58x17.61x0.219	87.5	Pass
TP23.61x22.58x0.377	76.2	Pass
TP27.61x23.61x0.474	84.5	Pass
TP28.39x25.837x0.57	88.5	Pass
TP34x28.39x0.598	99.7	Pass
TP36.34x34x0.658	85.2	Pass
TP38.98x33.994x0.7	93.6	Pass
TP41.56x38.98x0.677	98.5	Pass
TP44.6x41.56x0.695	97.5	Pass

Table 2 - Tower Component Stresses vs. Capacity - Modified Tower

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	92.5	Pass
1	Base Plate	Base	53.1	Pass
1	Base Foundation	Base	75.9	Pass

Structure Rating (max from all components) =	99.7%
---	--------------

Notes:

- 1) See additional documentation in "Appendix B - Calculations" for calculation supporting the % capacity consumed.
- 2) Capacities up to 105% are considered acceptable based on analysis methods used.
- 3) The percent capacities shown above (excluding foundations) include the 1/3 increase in allowable stresses as allowed by TIA/EIA-222-F.

Recommendations:

- 1) All modifications proposed in this report shall be installed in accordance with the attached drawings (Appendix D) for the determined available structural capacity to be effective.

ANALYSIS PROCEDURE:

Table 4 - Documents Provided

Document	Description	Date	Source
Tower Data	B+T Engineering Mod Design for AT&T Towers	9/2/2011	On File
Foundation Information	Foundation Mapping BTE Management	2/16/2012	On File
Geotech Report	Information Not Available	N/A	N/A
Loading	Equipment Mod Form	2/3/2012	Siterra
	Previous SA by B&T Engineering, Inc.	6/5/2012	On File
Previous Structural Analysis	B&T Engineering Mod Design for AT&T Towers	9/2/2011	On File

ANALYSIS METHOD:

tnxTower, a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix B.

ASSUMPTIONS:

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with the manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Appendix A of this report.
4. Mount areas and weights are assumed based on photographs provided.
5. Refer to the base level drawing for transmission line distribution.

If any of these assumptions have been made in error, B+T Group should be notified to determine the effect on the structural integrity of the tower.

APPENDIX A
TOWER ANALYSIS LOADING

Existing / Reserved Loading

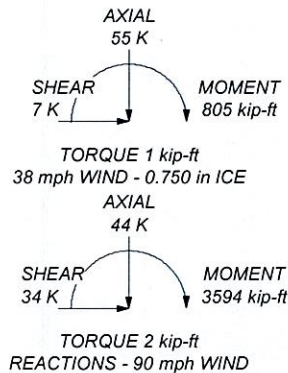
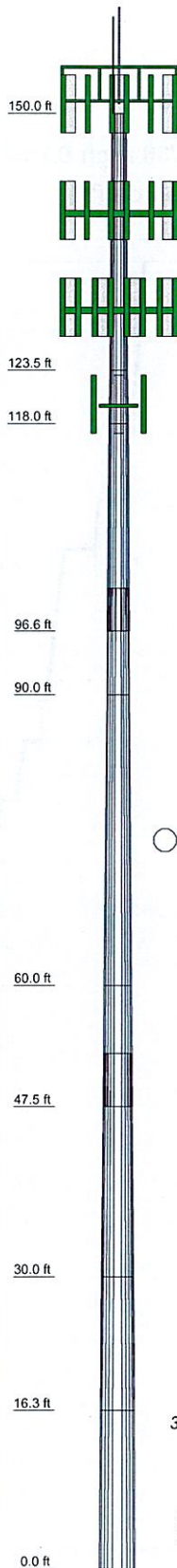
* (6) DUO1417-8686 & (6) Powerwave Diplexers to be Removed

Antenna										Mount		Transmission Line	
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Quantity	Size (in)				
AT&T Mobility	153	151	6	KMW	AM-X-CD-16-65-00T			2					
AT&T Mobility	163	151	6	CCI	DTMABP7819VG12A			1					
AT&T Mobility	183	151	6	Erlsson	Unknown								
AT&T Mobility	163	151	1	Raycap	DC6-48-60-18-8F								

[illegible]

APPENDIX B
CALCULATIONS

Section	1	2	3	4	5	6	7	8	9
Length (ft)	26,500	5,500	21,420	11,000	30,000	12,500	23,000	13,750	16,250
Number of Sides	12	12	12	12	12	12	12	12	12
Thickness (in)	0.219	0.377	0.474	0.570	0.598	0.658	0.700	0.677	0.695
Socket Length (ft)			4.420			5.500			
Top Dia (in)	17,610	22,580	23,610	25,837	28,390	34,000	33,994	38,980	41,560
Bot Dia (in)	22,580	23,610	27,610	28,390	34,000	36,340	38,980	41,560	44,600
Grade	A572-65	52.5 ksi	53.4 ksi	50.2 ksi	51.2 ksi	56.2 ksi	53.1 ksi	53.2 ksi	53.4 ksi
Weight (K)	1.3	0.5	2.8	1.8	6.0	3.1	6.3	4.0	5.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12' x 3" Omni (City-E)	156	800 10121 w/ Mount Pipe (ATI-E)	151
10' Yagi (City-E)	155	Lightning Rod (E)	150
Platform Mount [LP 713-1] (ATI-E)	153	6' x 2" Mount Pipe (Verizon-E)	140
6' x 2" Mount Pipe (ATI-E)	153	6' x 2" Mount Pipe (Verizon-E)	140
6' x 2" Mount Pipe (ATI-E)	153	6' x 2" Mount Pipe (Verizon-E)	140
6' x 2" Mount Pipe (ATI-E)	153	(3) MG D3 800TO w/Mount Pipe (Verizon-E)	140
(2) CG-PDU-SmPWR (ATI-E)	151	(3) DB854DG65ESX w/Mount Pipe (Verizon-E)	140
(4) LGP21901 (ATI-E)	151	(3) P65-15-XLH-RR w/Mount Pipe (Verizon-E)	140
(4) LGP21901 (ATI-E)	151	Platform Mount [LP 303-1] (Verizon-E)	140
860 10025 (ATI-E)	151	(4) DB980F90E-M w/Mount Pipe (Sprint-E)	130
860 10025 (ATI-E)	151	(4) DB980F90E-M w/Mount Pipe (Sprint-E)	130
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	151	(4) DB980F90E-M w/Mount Pipe (Sprint-E)	130
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	151	T-Arm Mount [TA 602-3] (Sprint-E)	130
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	151	(2) HBX-6516DS-VTM w/Mount Pipe (MetroPCS-R)	120
(2) DTMA1819VG12A (ATI-P)	151	(2) HBX-6516DS-VTM w/Mount Pipe (MetroPCS-R)	120
(2) DTMA1819VG12A (ATI-P)	151	(2) HBX-6516DS-VTM w/Mount Pipe (MetroPCS-R)	120
(2) RRUS-11 (ATI-P)	151	(2) ATM200-A20 (MetroPCS-R)	120
(2) RRUS-11 (ATI-P)	151	(2) ATM200-A20 (MetroPCS-R)	120
(2) RRUS-11 (ATI-P)	151	(2) ATM200-A20 (MetroPCS-R)	120
DC6-48-60-18-8F (ATI-P)	151	(2) ATM200-A20 (MetroPCS-R)	120
800 10121 w/ Mount Pipe (ATI-E)	151	Side Arm Mount [SO 103-3] (MetroPCS-R)	120
800 10121 w/ Mount Pipe (ATI-E)	151		
(2) CG-PDU-SmPWR (ATI-E)	151		
(2) CG-PDU-SmPWR (ATI-E)	151		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	51.2 ksi	51 ksi	65 ksi
52.5 ksi	53 ksi	65 ksi	56.2 ksi	56 ksi	65 ksi
53.4 ksi	53 ksi	65 ksi	53.1 ksi	53 ksi	65 ksi
50.2 ksi	50 ksi	65 ksi	53.2 ksi	53 ksi	65 ksi

TOWER DESIGN NOTES

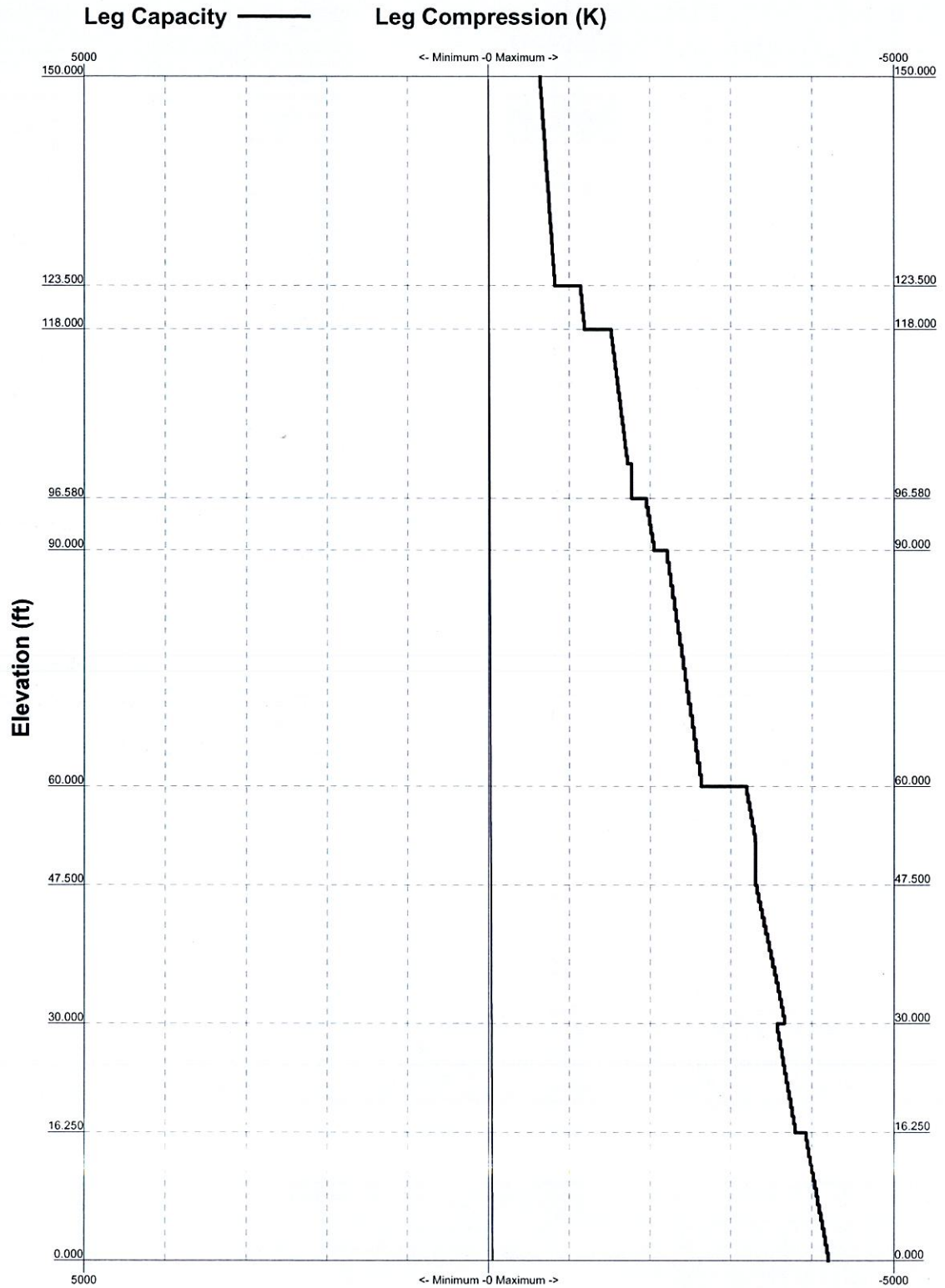
- Tower is located in New Haven County, Connecticut.
- Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
- Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
- Deflections are based upon a 50 mph wind.
- TOWER RATING: 99.7%



BT Engineering
1717 S. Boulder, Suite 300
Tulsa, OK 74145
Phone: (918) 587 - 4630
FAX: (918) 295 - 0265

Job: 84427.002 - BETHANY, CT	Project: 150' Valmont Monopole/ AT&T Co-Locate
Client: Nexlinkgs	Drawn by: A. Abbaszadeh
Code: TIA/EIA-222-F	Date: 07/19/12
Path:	Scale: NTS
	Dwg No. E-1

TIA/EIA-222-F - 90 mph/38 mph 0.750 in Ice

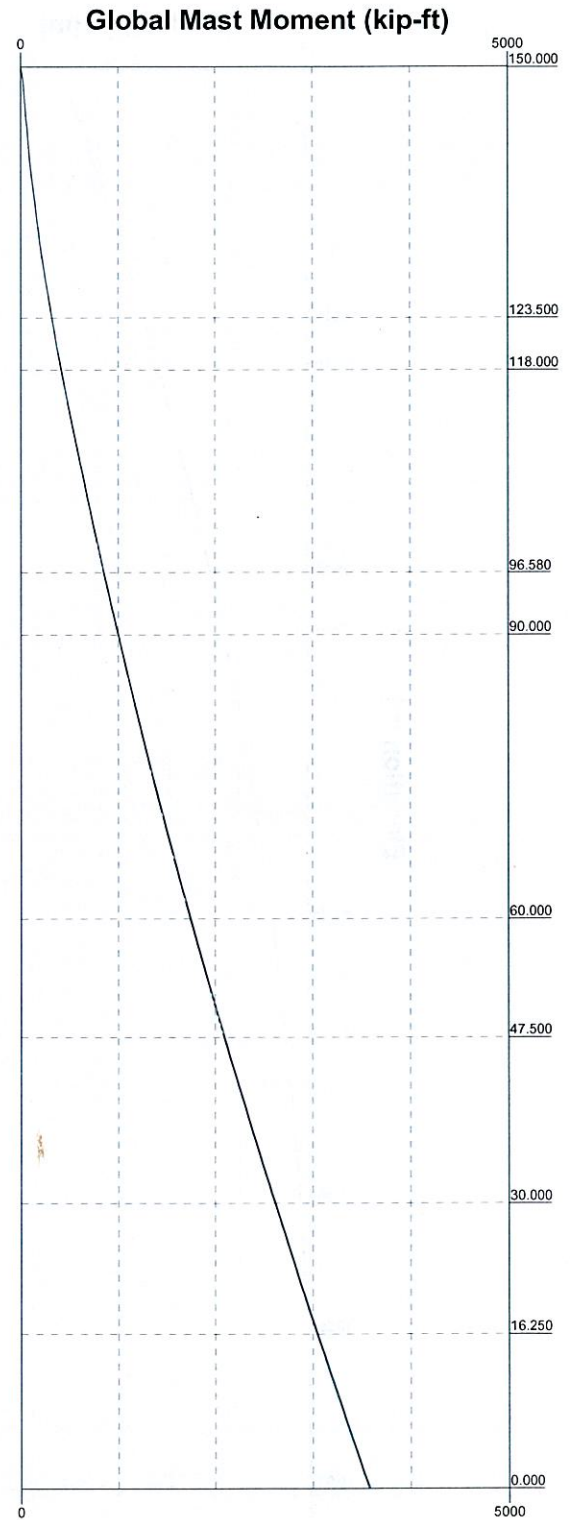
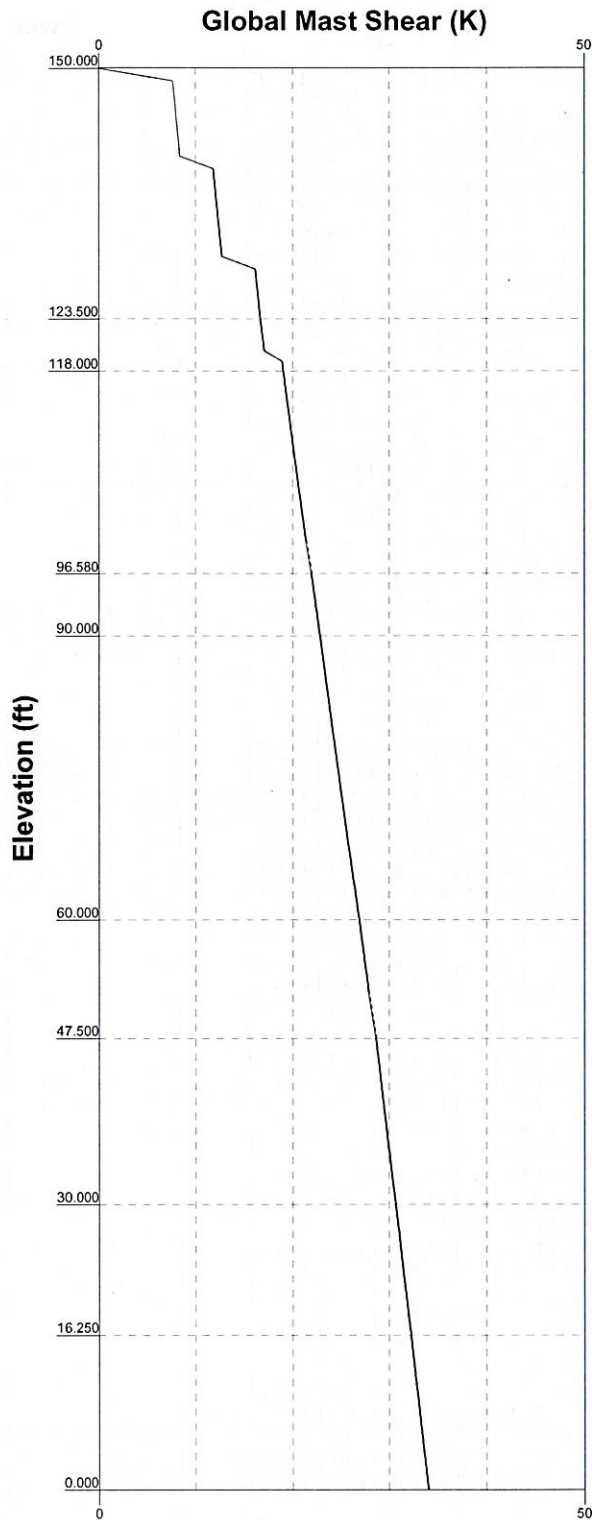


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Job: 84427.002 - BETHANY, CT		
Project: 150' Valmont Monopole/ AT&T Co-Locate		
Client: Nexlinkgs	Drawn by: A. Abbaszadeh	App'd:
Code: TIA/EIA-222-F	Date: 07/19/12	Scale: NTS
Path:		Dwg No. E-3

—— Vx - - - - Vz

—— Mx - - - - Mz



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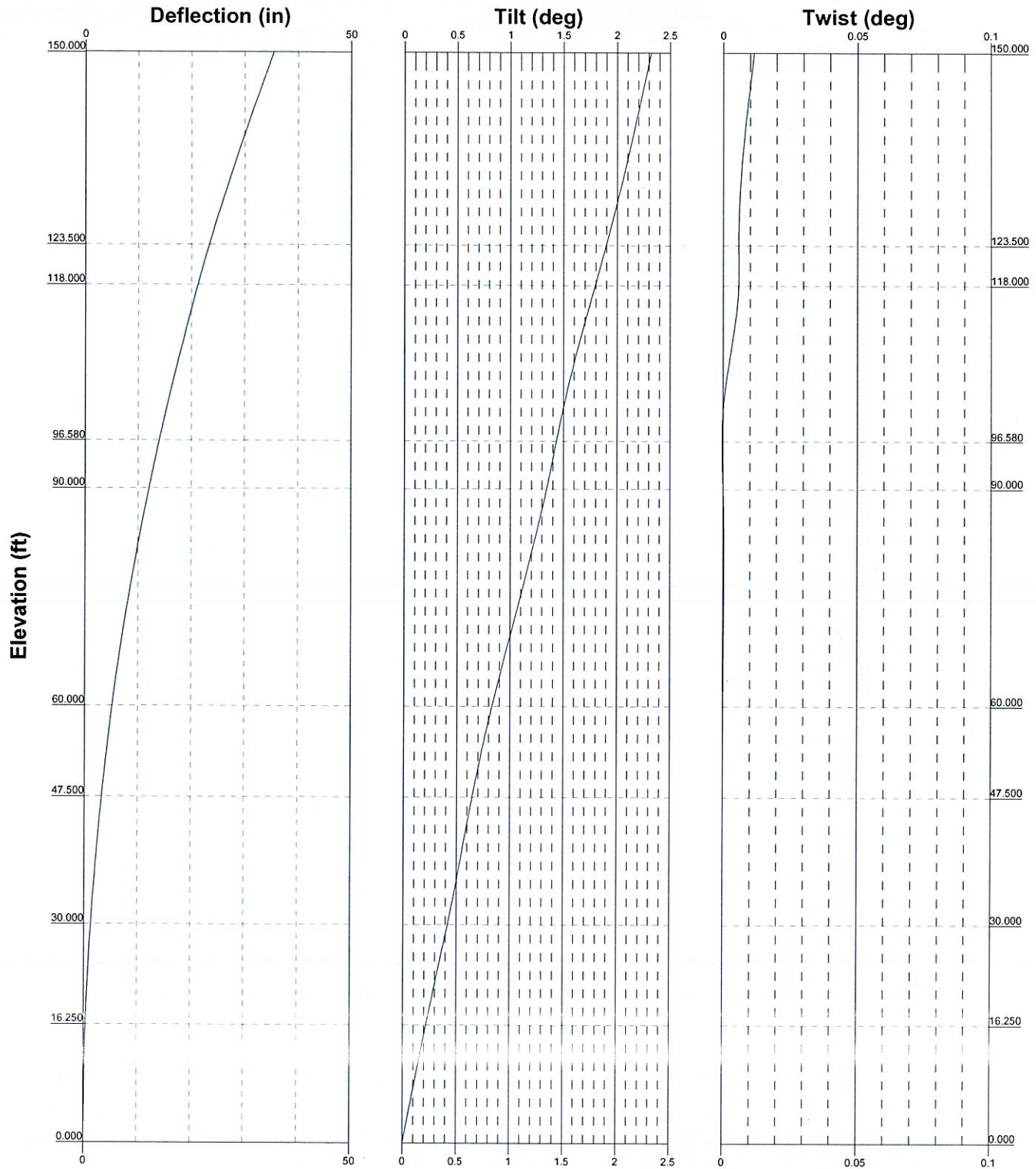
Job: **84427.002 - BETHANY, CT**

Project: **150' Valmont Monopole/ AT&T Co-Locate**

Client: Nexlinkgs Drawn by: A. Abbaszadeh App'd:

Code: TIA/EIA-222-F Date: 07/19/12 Scale: NTS

Path: Dwg No. E-4



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Job: 84427.002 - BETHANY, CT

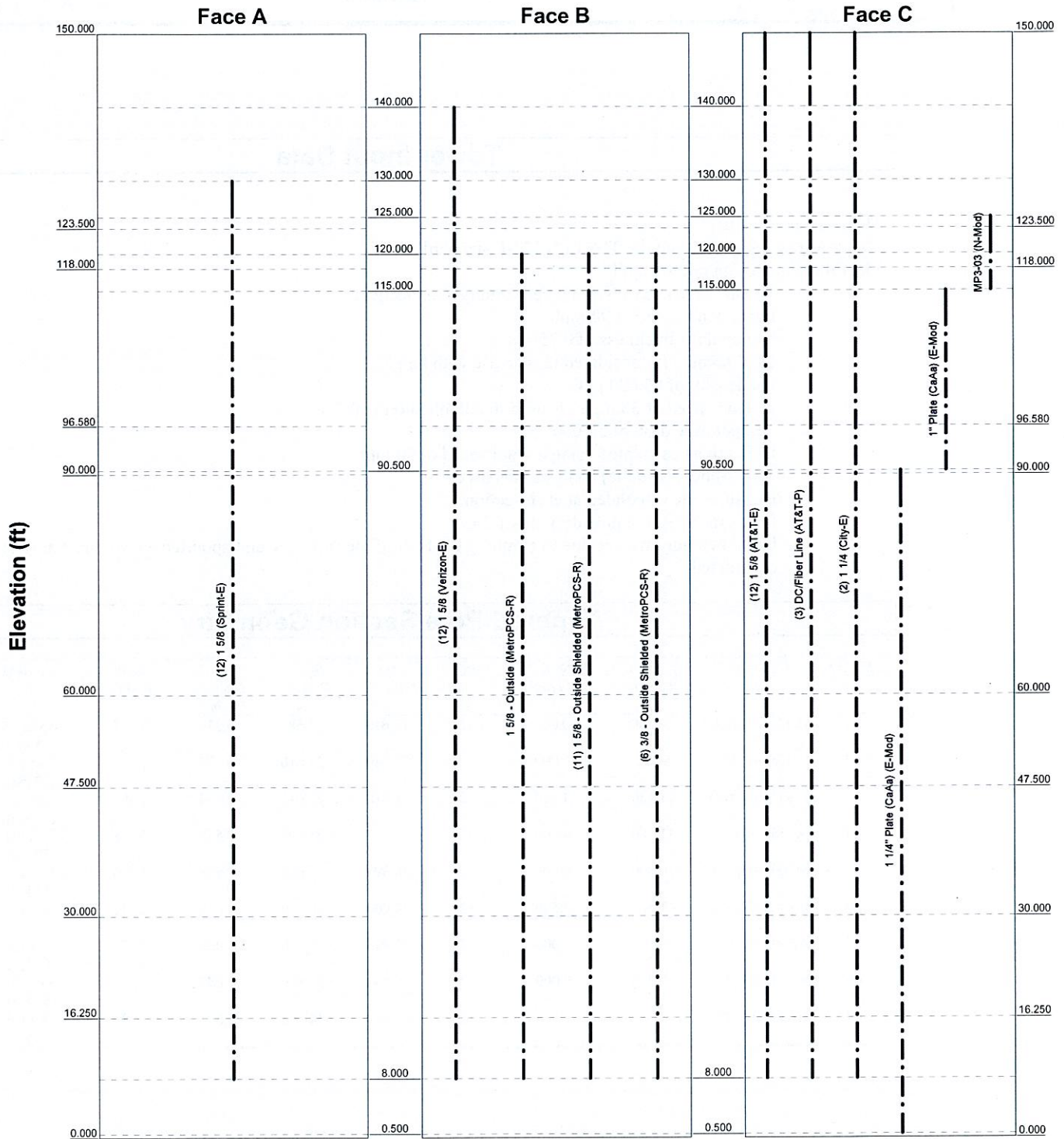
Project: 150' Valmont Monopole/ AT&T Co-Locate

Client: Nexlinkgs	Drawn by: A. Abbaszadeh	App'd:
Code: TIA/EIA-222-F	Date: 07/19/12	Scale: NTS
Path:		Dwg No. E-5

Feedline Distribution Chart

0' - 150'

Round Flat App In Face App Out Face Truss Leg



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	Client	Nexlinkgs	Designed by A. Abbaszadeh

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 90 mph.

Nominal ice thickness of 0.750 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 50 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

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	150.000-123.500	26.500	0.000	12	17.610	22.580	0.219	0.875	A572-65 (65 ksi)
L2	123.500-118.000	5.500	0.000	12	22.580	23.610	0.377	1.508	52.5 ksi (53 ksi)
L3	118.000-96.580	21.420	4.420	12	23.610	27.610	0.474	1.896	53.4 ksi (53 ksi)
L4	96.580-90.000	11.000	0.000	12	25.837	28.390	0.570	2.278	50.2 ksi (50 ksi)
L5	90.000-60.000	30.000	0.000	12	28.390	34.000	0.598	2.390	51.2 ksi (51 ksi)
L6	60.000-47.500	12.500	5.500	12	34.000	36.340	0.658	2.632	56.2 ksi (56 ksi)
L7	47.500-30.000	23.000	0.000	12	33.994	38.980	0.700	2.800	53.1 ksi (53 ksi)
L8	30.000-16.250	13.750	0.000	12	38.980	41.560	0.677	2.710	53.2 ksi (53 ksi)
L9	16.250-0.000	16.250		12	41.560	44.600	0.695	2.781	53.4 ksi (53 ksi)

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

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	18.231	12.253	473.018	6.226	9.122	51.855	958.463	6.030	4.133	18.89
	23.377	15.754	1005.482	8.005	11.696	85.965	2037.380	7.754	5.465	24.977
L2	23.377	26.946	1695.543	7.949	11.696	144.962	3435.630	13.262	5.041	13.376
	24.443	28.196	1942.627	8.317	12.230	158.841	3936.289	13.877	5.317	14.108
L3	24.443	35.305	2412.120	8.283	12.230	197.230	4887.610	17.376	5.057	10.672
	28.584	41.409	3891.982	9.715	14.302	272.129	7886.211	20.380	6.129	12.934
L4	27.810	46.343	3776.446	9.046	13.383	282.173	7652.104	22.809	5.398	9.476
	29.391	51.026	5040.828	9.960	14.706	342.773	10214.085	25.113	6.082	10.678
L5	29.391	53.471	5271.844	9.950	14.706	358.482	10682.186	26.317	6.007	10.054
	35.199	64.265	9152.013	11.958	17.612	519.646	18544.460	31.629	7.511	12.57
L6	35.199	70.644	10024.037	11.936	17.612	569.159	20311.416	34.769	7.349	11.168
	37.622	75.602	12286.135	12.774	18.824	652.680	24895.040	37.209	7.976	12.121
L7	36.428	75.056	10619.683	11.919	17.609	603.079	21518.357	36.940	7.234	10.333
	40.355	86.295	16140.400	13.704	20.192	799.361	32704.826	42.472	8.570	12.242
L8	40.355	83.547	15644.864	13.712	20.192	774.819	31700.735	41.119	8.631	12.742
	43.026	89.174	19024.031	14.636	21.528	883.685	38547.844	43.889	9.323	13.762
L9	43.026	91.491	19501.095	14.630	21.528	905.845	39514.505	45.029	9.275	13.339
	46.173	98.297	24185.056	15.718	23.103	1046.845	49005.480	48.379	10.089	14.511

Tower Elevation	Gusset Area (per face)	Gusset Thickness	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
ft	ft ²	in						
L1				1	1	1		
150.000-123.5								
00								
L2				1	1	1		
123.500-118.0								
00								
L3				1	1	1		
118.000-96.58								
0								
L4				1	1	1		
96.580-90.000								
L5				1	1	1		
90.000-60.000								
L6				1	1	1		
60.000-47.500								
L7				1	1	1		
47.500-30.000								
L8				1	1	1		
30.000-16.250								
L9				1	1	1		
16.250-0.000								

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight klf
1 5/8 (AT&T-E)	C	No	Inside Pole	150.000 - 8.000	12	No Ice 1/2" Ice	0.000 0.000

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _{A,A} ft ² /ft	Weight klf
DC/Fiber Line (AT&T-P)	C	No	Inside Pole	150.000 - 8.000	3	1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
						No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
***** 1 1/4 (City-E)	C	No	Inside Pole	150.000 - 8.000	2	4" Ice	0.000	0.000
						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
***** 1 5/8 (Verizon-E)	B	No	Inside Pole	140.000 - 8.000	12	4" Ice	0.000	0.001
						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
***** 1 5/8 (Sprint-E)	A	No	Inside Pole	130.000 - 8.000	12	4" Ice	0.000	0.001
						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
***** 1 5/8 - Outside (MetroPCS-R)	B	No	CaAa (Out Of Face)	120.000 - 8.000	1	4" Ice	0.000	0.001
						No Ice	0.198	0.001
						1/2" Ice	0.298	0.003
						1" Ice	0.398	0.005
						2" Ice	0.598	0.011
1 5/8 - Outside Shielded (MetroPCS-R)	B	No	Inside Pole	120.000 - 8.000	11	4" Ice	0.998	0.030
						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
3/8 - Outside Shielded (MetroPCS-R)	B	No	Inside Pole	120.000 - 8.000	6	4" Ice	0.000	0.001
						No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
***** ***** 1 1/4" Plate (CaAa) (E-Mod)	C	No	CaAa (Out Of Face)	90.500 - 0.500	1	4" Ice	0.000	0.000
						No Ice	0.208	0.000
						1/2" Ice	0.292	0.000
						1" Ice	0.375	0.000
						2" Ice	0.542	0.000
1" Plate (CaAa) (E-Mod)	C	No	CaAa (Out Of Face)	115.000 - 90.500	1	4" Ice	0.875	0.000
						No Ice	0.167	0.000
						1/2" Ice	0.250	0.000
						1" Ice	0.333	0.000
						2" Ice	0.500	0.000
***** MP3-03 (N-Mod)	C	No	CaAa (Out Of Face)	125.000 - 115.000	1	4" Ice	0.833	0.000
						No Ice	0.262	0.000
						1/2" Ice	0.345	0.000
						1" Ice	0.428	0.000
						2" Ice	0.595	0.000
						4" Ice	0.928	0.000

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Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L1	150.000-123.500	A	0.000	0.000	0.000	0.000	0.081
		B	0.000	0.000	0.000	0.000	0.206
		C	0.000	0.000	0.000	0.393	0.373
L2	123.500-118.000	A	0.000	0.000	0.000	0.000	0.069
		B	0.000	0.000	0.000	0.396	0.095
		C	0.000	0.000	0.000	1.439	0.077
L3	118.000-96.580	A	0.000	0.000	0.000	0.000	0.267
		B	0.000	0.000	0.000	4.241	0.546
		C	0.000	0.000	0.000	3.855	0.301
L4	96.580-90.000	A	0.000	0.000	0.000	0.000	0.082
		B	0.000	0.000	0.000	1.303	0.168
		C	0.000	0.000	0.000	1.118	0.093
L5	90.000-60.000	A	0.000	0.000	0.000	0.000	0.374
		B	0.000	0.000	0.000	5.940	0.765
		C	0.000	0.000	0.000	6.250	0.422
L6	60.000-47.500	A	0.000	0.000	0.000	0.000	0.156
		B	0.000	0.000	0.000	2.475	0.319
		C	0.000	0.000	0.000	2.604	0.176
L7	47.500-30.000	A	0.000	0.000	0.000	0.000	0.218
		B	0.000	0.000	0.000	3.465	0.446
		C	0.000	0.000	0.000	3.646	0.246
L8	30.000-16.250	A	0.000	0.000	0.000	0.000	0.172
		B	0.000	0.000	0.000	2.723	0.351
		C	0.000	0.000	0.000	2.865	0.193
L9	16.250-0.000	A	0.000	0.000	0.000	0.000	0.103
		B	0.000	0.000	0.000	1.634	0.210
		C	0.000	0.000	0.000	3.281	0.116

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L1	150.000-123.500	A	0.889	0.000	0.000	0.000	0.000	0.081
		B		0.000	0.000	0.000	0.000	0.206
		C		0.000	0.000	0.000	0.615	0.373
L2	123.500-118.000	A	0.876	0.000	0.000	0.000	0.000	0.069
		B		0.000	0.000	0.000	0.747	0.101
		C		0.000	0.000	0.000	2.242	0.077
L3	118.000-96.580	A	0.864	0.000	0.000	0.000	0.000	0.267
		B		0.000	0.000	0.000	7.941	0.612
		C		0.000	0.000	0.000	6.938	0.301
L4	96.580-90.000	A	0.850	0.000	0.000	0.000	0.000	0.082
		B		0.000	0.000	0.000	2.439	0.188
		C		0.000	0.000	0.000	2.065	0.093
L5	90.000-60.000	A	0.827	0.000	0.000	0.000	0.000	0.374
		B		0.000	0.000	0.000	10.902	0.852
		C		0.000	0.000	0.000	10.385	0.422
L6	60.000-47.500	A	0.795	0.000	0.000	0.000	0.000	0.156
		B		0.000	0.000	0.000	4.463	0.353
		C		0.000	0.000	0.000	4.261	0.176
L7	47.500-30.000	A	0.764	0.000	0.000	0.000	0.000	0.218
		B		0.000	0.000	0.000	6.248	0.495
		C		0.000	0.000	0.000	5.965	0.246

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L8	30.000-16.250	A	0.750	0.000	0.000	0.000	0.000	0.172
		B		0.000	0.000	0.000	4.785	0.386
		C		0.000	0.000	0.000	4.583	0.193
L9	16.250-0.000	A	0.750	0.000	0.000	0.000	0.000	0.103
		B		0.000	0.000	0.000	2.871	0.232
		C		0.000	0.000	0.000	5.250	0.116

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.000-123.500	-0.021	0.012	-0.031	0.018
L2	123.500-118.000	-0.209	0.214	-0.258	0.301
L3	118.000-96.580	0.021	0.240	0.044	0.374
L4	96.580-90.000	0.031	0.238	0.054	0.378
L5	90.000-60.000	-0.012	0.264	0.017	0.401
L6	60.000-47.500	-0.012	0.268	0.016	0.408
L7	47.500-30.000	-0.012	0.269	0.017	0.413
L8	30.000-16.250	-0.012	0.272	0.015	0.412
L9	16.250-0.000	-0.123	0.208	-0.165	0.317

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
Lightning Rod (E)	C	From Leg	0.000	0.000	150.000	No Ice	0.500	0.500	0.100
			0.000			1/2" Ice	0.750	0.750	0.200
			5.000			1" Ice	1.000	1.000	0.300
						2" Ice	1.500	1.500	0.500
						4" Ice	2.500	2.500	0.900

800 10121 w/ Mount Pipe (AT&T-E)	A	From Leg	3.000	0.000	151.000	No Ice	5.685	4.600	0.066
			0.000			1/2" Ice	6.182	5.351	0.112
			0.000			1" Ice	6.676	6.046	0.167
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675
800 10121 w/ Mount Pipe (AT&T-E)	B	From Leg	3.000	0.000	151.000	No Ice	5.685	4.600	0.066
			0.000			1/2" Ice	6.182	5.351	0.112
			0.000			1" Ice	6.676	6.046	0.167
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675
800 10121 w/ Mount Pipe (AT&T-E)	C	From Leg	3.000	0.000	151.000	No Ice	5.685	4.600	0.066
			0.000			1/2" Ice	6.182	5.351	0.112
			0.000			1" Ice	6.676	6.046	0.167
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675

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	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	11:01:47 07/19/12
	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
(2) CG-PDU-SmPWR (AT&T-E)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.285 1.439 1.601 1.951 2.755	0.319 0.417 0.524 0.764 1.347	0.015 0.023 0.032 0.056 0.136
(2) CG-PDU-SmPWR (AT&T-E)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.285 1.439 1.601 1.951 2.755	0.319 0.417 0.524 0.764 1.347	0.015 0.023 0.032 0.056 0.136
(2) CG-PDU-SmPWR (AT&T-E)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.285 1.439 1.601 1.951 2.755	0.319 0.417 0.524 0.764 1.347	0.015 0.023 0.032 0.056 0.136
(4) LGP21901 (AT&T-E)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.184 0.248 0.322 0.494 0.943	0.006 0.008 0.011 0.022 0.066
(4) LGP21901 (AT&T-E)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.184 0.248 0.322 0.494 0.943	0.006 0.008 0.011 0.022 0.066
(4) LGP21901 (AT&T-E)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.184 0.248 0.322 0.494 0.943	0.006 0.008 0.011 0.022 0.066
860 10025 (AT&T-E)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.163 0.229 0.302 0.476 0.927	0.136 0.199 0.270 0.439 0.879	0.001 0.003 0.005 0.014 0.051
860 10025 (AT&T-E)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.163 0.229 0.302 0.476 0.927	0.136 0.199 0.270 0.439 0.879	0.001 0.003 0.005 0.014 0.051
860 10025 (AT&T-E)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.163 0.229 0.302 0.476 0.927	0.136 0.199 0.270 0.439 0.879	0.001 0.003 0.005 0.014 0.051
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-P)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.136 0.210 0.385 0.874
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-P)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.136 0.210 0.385 0.874
(2) AM-X-CD-16-65-00T-RET	A	From Leg	3.000 0.000	0.000	151.000	No Ice 1/2" Ice	8.498 9.149	6.304 7.479	0.074 0.136

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	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	11:01:47 07/19/12
	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
w/ Mount Pipe (AT&T-P)			0.000			1" Ice	9.767	8.368	0.210
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
(2) DTMA1819VG12A (AT&T-P)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice	1.154	0.445	0.013
						1/2" Ice	1.305	0.563	0.020
						1" Ice	1.464	0.689	0.029
						2" Ice	1.809	0.968	0.054
						4" Ice	2.602	1.629	0.133
(2) DTMA1819VG12A (AT&T-P)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice	1.154	0.445	0.013
						1/2" Ice	1.305	0.563	0.020
						1" Ice	1.464	0.689	0.029
						2" Ice	1.809	0.968	0.054
						4" Ice	2.602	1.629	0.133
(2) DTMA1819VG12A (AT&T-P)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice	1.154	0.445	0.013
						1/2" Ice	1.305	0.563	0.020
						1" Ice	1.464	0.689	0.029
						2" Ice	1.809	0.968	0.054
						4" Ice	2.602	1.629	0.133
(2) RRUS-11 (AT&T-P)	C	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice	4.424	1.628	0.055
						1/2" Ice	4.708	1.838	0.081
						1" Ice	5.001	2.057	0.110
						2" Ice	5.613	2.519	0.179
						4" Ice	6.940	3.549	0.368
(2) RRUS-11 (AT&T-P)	B	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice	4.424	1.628	0.055
						1/2" Ice	4.708	1.838	0.081
						1" Ice	5.001	2.057	0.110
						2" Ice	5.613	2.519	0.179
						4" Ice	6.940	3.549	0.368
(2) RRUS-11 (AT&T-P)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice	4.424	1.628	0.055
						1/2" Ice	4.708	1.838	0.081
						1" Ice	5.001	2.057	0.110
						2" Ice	5.613	2.519	0.179
						4" Ice	6.940	3.549	0.368
DC6-48-60-18-8F (AT&T-P)	A	From Leg	3.000 0.000 0.000	0.000	151.000	No Ice	2.216	2.216	0.020
						1/2" Ice	2.436	2.436	0.039
						1" Ice	2.664	2.664	0.061
						2" Ice	3.146	3.146	0.116
						4" Ice	4.214	4.214	0.268
Platform Mount [LP 713-1] (AT&T-E)	C	None		0.000	153.000	No Ice	31.270	31.270	1.510
						1/2" Ice	39.680	39.680	1.929
						1" Ice	48.090	48.090	2.348
						2" Ice	64.910	64.910	3.186
						4" Ice	98.550	98.550	4.862
6' x 2' Mount Pipe (AT&T-E)	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2' Mount Pipe (AT&T-E)	B	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2' Mount Pipe (AT&T-E)	A	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090

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	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	11:01:47 07/19/12
	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
****						4" Ice	4.702	4.702	0.231
12' x 3" Omni (City-E)	A	From Leg	3.000 0.000 0.000	0.000	156.000	No Ice	3.600	3.600	0.020
						1/2" Ice	4.833	4.833	0.046
						1" Ice	6.083	6.083	0.080
						2" Ice	8.017	8.017	0.172
						4" Ice	11.048	11.048	0.455
10' Yagi (City-E)	A	From Leg	3.000 0.000 0.000	0.000	155.000	No Ice	2.000	2.000	0.050
						1/2" Ice	3.020	3.020	0.070
						1" Ice	4.040	4.040	0.090
						2" Ice	6.080	6.080	0.130
						4" Ice	10.160	10.160	0.210

6' x 2" Mount Pipe (Verizon-E)	C	From Leg	3.000 0.000 0.000	0.000	140.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe (Verizon-E)	B	From Leg	3.000 0.000 0.000	0.000	140.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe (Verizon-E)	A	From Leg	3.000 0.000 0.000	0.000	140.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
(3) MG D3 800TO w/Mount Pipe (Verizon-E)	C	From Leg	3.000 0.000 0.000	0.000	140.000	No Ice	3.337	2.158	0.018
						1/2" Ice	3.676	2.482	0.037
						1" Ice	4.023	2.813	0.061
						2" Ice	4.832	3.498	0.122
						4" Ice	6.570	5.012	0.304
(3) DB854DG65ESX w/Mount Pipe (Verizon-E)	B	From Leg	3.000 0.000 0.000	0.000	140.000	No Ice	6.593	4.412	0.044
						1/2" Ice	7.302	5.449	0.093
						1" Ice	7.894	6.200	0.152
						2" Ice	9.108	7.827	0.292
						4" Ice	11.689	11.299	0.694
(3) P65-15-XLH-RR w/Mount Pipe (Verizon-E)	A	From Leg	3.000 0.000 0.000	0.000	140.000	No Ice	6.075	3.903	0.052
						1/2" Ice	6.635	4.708	0.096
						1" Ice	7.160	5.389	0.149
						2" Ice	8.245	6.836	0.277
						4" Ice	10.555	10.060	0.647
Platform Mount [LP 303-1] (Verizon-E)	C	None		0.000	140.000	No Ice	14.660	14.660	1.250
						1/2" Ice	18.870	18.870	1.481
						1" Ice	23.080	23.080	1.713
						2" Ice	31.500	31.500	2.175
						4" Ice	48.340	48.340	3.101

(4) DB980F90E-M w/Mount Pipe (Sprint-E)	C	From Leg	3.000 0.000 0.000	0.000	130.000	No Ice	4.371	3.954	0.034
						1/2" Ice	4.959	5.045	0.071
						1" Ice	5.471	5.849	0.118
						2" Ice	6.522	7.492	0.235
						4" Ice	8.983	10.977	0.593
(4) DB980F90E-M w/Mount Pipe (Sprint-E)	B	From Leg	3.000 0.000 0.000	0.000	130.000	No Ice	4.371	3.954	0.034
						1/2" Ice	4.959	5.045	0.071
						1" Ice	5.471	5.849	0.118

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	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	11:01:47 07/19/12
	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
(4) DB980F90E-M w/Mount Pipe (Sprint-E)	A	From Leg	3.000 0.000 0.000	0.000	130.000	2" Ice	6.522	7.492	0.235
						4" Ice	8.983	10.977	0.593
						No Ice	4.371	3.954	0.034
						1/2" Ice	4.959	5.045	0.071
						1" Ice	5.471	5.849	0.118
T-Arm Mount [TA 602-3] (Sprint-E)	C	None		0.000	130.000	2" Ice	6.522	7.492	0.235
						4" Ice	8.983	10.977	0.593
						No Ice	11.590	11.590	0.774
						1/2" Ice	15.440	15.440	0.990
						1" Ice	19.290	19.290	1.206
						2" Ice	26.990	26.990	1.639
						4" Ice	42.390	42.390	2.503

(2) HBX-6516DS-VTM w/Mount Pipe (MetroPCS-R)	C	From Leg	2.000 0.000 0.000	0.000	120.000	No Ice	3.768	3.411	0.032
						1/2" Ice	4.244	4.226	0.064
						1" Ice	4.724	4.917	0.106
						2" Ice	5.746	6.350	0.210
						4" Ice	7.927	9.464	0.530
(2) HBX-6516DS-VTM w/Mount Pipe (MetroPCS-R)	B	From Leg	2.000 0.000 0.000	0.000	120.000	No Ice	3.768	3.411	0.032
						1/2" Ice	4.244	4.226	0.064
						1" Ice	4.724	4.917	0.106
						2" Ice	5.746	6.350	0.210
						4" Ice	7.927	9.464	0.530
(2) HBX-6516DS-VTM w/Mount Pipe (MetroPCS-R)	A	From Leg	2.000 0.000 0.000	0.000	120.000	No Ice	3.768	3.411	0.032
						1/2" Ice	4.244	4.226	0.064
						1" Ice	4.724	4.917	0.106
						2" Ice	5.746	6.350	0.210
						4" Ice	7.927	9.464	0.530
(2) ATM200-A20 (MetroPCS-R)	C	From Leg	2.000 0.000 0.000	0.000	120.000	No Ice	0.218	0.163	0.001
						1/2" Ice	0.292	0.233	0.002
						1" Ice	0.375	0.312	0.005
						2" Ice	0.567	0.494	0.015
						4" Ice	1.054	0.964	0.056
(2) ATM200-A20 (MetroPCS-R)	B	From Leg	2.000 0.000 0.000	0.000	120.000	No Ice	0.218	0.163	0.001
						1/2" Ice	0.292	0.233	0.002
						1" Ice	0.375	0.312	0.005
						2" Ice	0.567	0.494	0.015
						4" Ice	1.054	0.964	0.056
(2) ATM200-A20 (MetroPCS-R)	A	From Leg	2.000 0.000 0.000	0.000	120.000	No Ice	0.218	0.163	0.001
						1/2" Ice	0.292	0.233	0.002
						1" Ice	0.375	0.312	0.005
						2" Ice	0.567	0.494	0.015
						4" Ice	1.054	0.964	0.056
Side Arm Mount [SO 103-3] (MetroPCS-R)	C	None		0.000	120.000	No Ice	9.500	9.500	0.224
						1/2" Ice	11.800	11.800	0.317
						1" Ice	14.100	14.100	0.410
						2" Ice	18.700	18.700	0.596
						4" Ice	27.900	27.900	0.968

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	Client	Nexlinkgs	Designed by A. Abbaszadeh

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 123.5	35.348	38	2.323	0.012
L2	123.5 - 118	23.336	38	1.894	0.004
L3	118 - 96.58	21.211	38	1.795	0.004
L4	101 - 90	15.333	38	1.498	0.002
L5	90 - 60	12.038	38	1.340	0.002
L6	60 - 47.5	5.225	38	0.829	0.001
L7	53 - 30	4.088	38	0.722	0.001
L8	30 - 16.25	1.280	38	0.417	0.000
L9	16.25 - 0	0.368	38	0.218	0.000

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
156.000	12' x 3" Omni	38	35.348	2.323	0.012	10662
155.000	10' Yagi	38	35.348	2.323	0.012	10662
153.000	Platform Mount [LP 713-1]	38	35.348	2.323	0.012	10662
151.000	800 10121 w/ Mount Pipe	38	35.348	2.323	0.012	10662
150.000	Lightning Rod	38	35.348	2.323	0.012	10662
140.000	6' x 2" Mount Pipe	38	30.589	2.167	0.009	5330
130.000	(4) DB980F90E-M w/Mount Pipe	38	26.056	2.005	0.006	2664
120.000	(2) HBX-6516DS-VTM w/Mount Pipe	38	21.968	1.831	0.004	2703

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load	Tilt	Twist
	ft	in	Comb.	°	°
L1	150 - 123.5	113.812	13	7.483	0.040
L2	123.5 - 118	75.247	13	6.109	0.014
L3	118 - 96.58	68.411	13	5.791	0.012
L4	101 - 90	49.483	13	4.835	0.007
L5	90 - 60	38.865	13	4.327	0.006
L6	60 - 47.5	16.881	13	2.678	0.003
L7	53 - 30	13.210	13	2.332	0.002
L8	30 - 16.25	4.139	13	1.347	0.001
L9	16.25 - 0	1.190	13	0.705	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
156.000	12' x 3" Omni	13	113.812	7.483	0.040	3425
155.000	10' Yagi	13	113.812	7.483	0.040	3425
153.000	Platform Mount [LP 713-1]	13	113.812	7.483	0.040	3425
151.000	800 10121 w/ Mount Pipe	13	113.812	7.483	0.040	3425
150.000	Lightning Rod	13	113.812	7.483	0.040	3425
140.000	6' x 2" Mount Pipe	13	98.542	6.985	0.028	1711
130.000	(4) DB980F90E-M w/Mount Pipe	13	83.986	6.467	0.019	853
120.000	(2) HBX-6516DS-VTM w/Mount Pipe	13	70.845	5.908	0.013	859

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Compression Checks

Pole Design Data

Section No.	Elevation <i>ft</i>	Size	L <i>ft</i>	L _u <i>ft</i>	Kl/r	F _a <i>ksi</i>	A <i>in²</i>	Actual P K	Allow. P _a K	Ratio P P _a
L1	150 - 148.675	TP22.58x17.61x0.219	26.500	0.000	0.0	39.000	12.428	-2.092	484.684	0.004
	148.675 - 147.35					39.000	12.603	-2.169	491.512	0.004
	147.35 - 146.025					39.000	12.778	-2.247	498.340	0.005
	146.025 - 144.7					39.000	12.953	-2.327	505.168	0.005
	144.7 - 143.375					39.000	13.128	-2.409	511.996	0.005
	143.375 - 142.05					39.000	13.303	-2.492	518.824	0.005
	142.05 - 140.725					39.000	13.478	-2.577	525.652	0.005
	140.725 - 139.4					39.000	13.653	-3.915	532.480	0.007
	139.4 - 138.075					39.000	13.828	-4.006	539.308	0.007
	138.075 - 136.75					39.000	14.004	-4.092	546.136	0.007
	136.75 - 135.425					39.000	14.179	-4.188	552.964	0.008
	135.425 - 134.1					39.000	14.354	-4.286	559.792	0.008
	134.1 - 132.775					39.000	14.529	-4.386	566.621	0.008
	132.775 - 131.45					39.000	14.704	-4.488	573.449	0.008
	131.45 - 130.125					39.000	14.879	-4.592	580.277	0.008
	130.125 - 128.8					39.000	15.054	-5.506	587.105	0.009
	128.8 - 127.475					39.000	15.229	-5.620	593.933	0.009
	127.475 - 126.15					39.000	15.404	-5.737	600.761	0.010
	126.15 - 124.825					39.000	15.579	-5.857	607.589	0.010
	124.825 - 123.5					39.000	15.754	-5.979	614.417	0.010
L2	123.5 - 122.4	TP23.61x22.58x0.377	5.500	0.000	0.0	31.500	27.196	-6.140	856.677	0.007
	122.4 - 121.3					31.500	27.446	-6.295	864.552	0.007
	121.3 - 120.2					31.500	27.696	-6.450	872.427	0.007
	120.2 - 119.1					31.500	27.946	-6.857	880.302	0.008
L3	119.1 - 118	TP27.61x23.61x0.474	21.420	0.000	0.0	31.500	28.196	-7.018	888.177	0.008
	118 - 117					32.040	35.590	-7.198	1140.290	0.006
	117 - 116					32.040	35.875	-7.376	1149.420	0.006
	116 - 115					32.040	36.160	-7.555	1158.550	0.007
	115 - 114					32.040	36.445	-7.736	1167.680	0.007
	114 - 113					32.040	36.729	-7.918	1176.810	0.007
	113 - 112					32.040	37.014	-8.102	1185.940	0.007
	112 - 111					32.040	37.299	-8.287	1195.070	0.007
	111 - 110					32.040	37.584	-8.473	1204.200	0.007
	110 - 109					32.040	37.869	-8.661	1213.330	0.007
	109 - 108					32.040	38.154	-8.850	1222.460	0.007
	108 - 107					32.040	38.439	-9.041	1231.590	0.007
	107 - 106					32.040	38.724	-9.233	1240.720	0.007
	106 - 105					32.040	39.009	-9.427	1249.850	0.008
	105 - 104					32.040	39.294	-9.621	1258.980	0.008
	104 - 103					32.040	39.579	-9.817	1268.110	0.008
	103 - 102					32.040	39.864	-10.015	1277.240	0.008
	102 - 101					32.040	40.149	-10.214	1286.370	0.008

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

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 P P _a
L4	101 - 96.58	TP28.39x25.837x0.57	11.000	0.000	0.0	32.040	41.409	-5.489	1326.730	0.004
	101 - 96.58					30.120	48.224	-6.260	1452.520	0.004
	96.58 - 95.4833					30.120	48.691	-12.013	1466.590	0.008
	95.4833 - 94.3867					30.120	49.158	-12.265	1480.650	0.008
	94.3867 - 93.29					30.120	49.625	-12.519	1494.710	0.008
	93.29 - 92.1933					30.120	50.092	-12.775	1508.770	0.008
	92.1933 - 91.0967					30.120	50.559	-13.032	1522.830	0.009
L5	91.0967 - 90	TP34x28.39x0.598	30.000	0.000	0.0	30.120	51.026	-13.292	1536.900	0.009
	90 - 88.5					30.720	54.011	-13.658	1659.220	0.008
	88.5 - 87					30.720	54.551	-14.031	1675.800	0.008
	87 - 85.5					30.720	55.090	-14.408	1692.380	0.009
	85.5 - 84					30.720	55.630	-14.788	1708.960	0.009
	84 - 82.5					30.720	56.170	-15.171	1725.530	0.009
	82.5 - 81					30.720	56.709	-15.558	1742.110	0.009
	81 - 79.5					30.720	57.249	-15.947	1758.690	0.009
	79.5 - 78					30.720	57.789	-16.340	1775.270	0.009
	78 - 76.5					30.720	58.328	-16.737	1791.850	0.009
	76.5 - 75					30.720	58.868	-17.136	1808.430	0.009
	75 - 73.5					30.720	59.408	-17.539	1825.010	0.010
	73.5 - 72					30.720	59.947	-17.945	1841.580	0.010
	72 - 70.5					30.720	60.487	-18.354	1858.160	0.010
	70.5 - 69					30.720	61.027	-18.767	1874.740	0.010
	69 - 67.5					30.720	61.566	-19.183	1891.320	0.010
	67.5 - 66					30.720	62.106	-19.602	1907.900	0.010
L6	66 - 64.5					30.720	62.646	-20.024	1924.480	0.010
	64.5 - 63					30.720	63.185	-20.450	1941.060	0.011
	63 - 61.5					30.720	63.725	-20.878	1957.630	0.011
	61.5 - 60					30.720	64.265	-21.310	1974.210	0.011
	60 - 59	TP36.34x34x0.658	12.500	0.000	0.0	33.720	71.040	-21.628	2395.480	0.009
	59 - 58					33.720	71.437	-21.939	2408.850	0.009
	58 - 57					33.720	71.834	-22.252	2422.230	0.009
	57 - 56					33.720	72.230	-22.567	2435.600	0.009
	56 - 55					33.720	72.627	-22.883	2448.980	0.009
	55 - 54					33.720	73.023	-23.201	2462.350	0.009
	54 - 53					33.720	73.420	-23.520	2475.730	0.010
L7	53 - 47.5	TP38.98x33.994x0.7	23.000	0.000	0.0	33.720	75.602	-13.219	2549.290	0.005
	53 - 47.5					31.860	77.744	-13.424	2476.910	0.005
	47.5 - 46.4706					31.860	78.247	-27.012	2492.940	0.011
	46.4706 - 45.4412					31.860	78.750	-27.362	2508.970	0.011
	45.4412 - 44.4118					31.860	79.253	-27.713	2524.990	0.011
	44.4118 - 43.3824					31.860	79.756	-28.067	2541.020	0.011
	43.3824 - 42.3529					31.860	80.259	-28.422	2557.050	0.011
	42.3529 - 41.3235					31.860	80.762	-28.779	2573.070	0.011
	41.3235 - 40.2941					31.860	81.265	-29.137	2589.100	0.011
	40.2941 - 39.2647					31.860	81.768	-29.498	2605.130	0.011
	39.2647 - 38.2353					31.860	82.271	-29.860	2621.150	0.011
	38.2353 - 37.2059					31.860	82.774	-30.224	2637.180	0.011
	37.2059 - 36.1765					31.860	83.277	-30.590	2653.210	0.012

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

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 P P _a
L8	36.1765 - 35.1471	TP41.56x38.98x0.677	13.750	0.000	0.0	31.860	83.780	-30.958	2669.230	0.012
	35.1471 - 34.1176					31.860	84.283	-31.328	2685.260	0.012
	34.1176 - 33.0882					31.860	84.786	-31.700	2701.290	0.012
	33.0882 - 32.0588					31.860	85.289	-32.073	2717.310	0.012
	32.0588 - 31.0294					31.860	85.792	-32.448	2733.340	0.012
	31.0294 - 30					31.860	86.295	-32.825	2749.370	0.012
	30 - 28.9423					31.920	83.980	-33.205	2680.630	0.012
	28.9423 - 27.8846					31.920	84.412	-33.587	2694.450	0.012
	27.8846 - 26.8269					31.920	84.845	-33.970	2708.260	0.013
	26.8269 - 25.7692					31.920	85.278	-34.356	2722.080	0.013
	25.7692 - 24.7115					31.920	85.711	-34.743	2735.900	0.013
	24.7115 - 23.6538					31.920	86.144	-35.132	2749.720	0.013
	23.6538 - 22.5962					31.920	86.577	-35.522	2763.540	0.013
	22.5962 - 21.5385					31.920	87.010	-35.914	2777.350	0.013
	21.5385 - 20.4808					31.920	87.443	-36.308	2791.170	0.013
	20.4808 - 19.4231					31.920	87.876	-36.703	2804.990	0.013
	19.4231 - 18.3654					31.920	88.309	-37.100	2818.810	0.013
	18.3654 - 17.3077					31.920	88.741	-37.499	2832.630	0.013
	17.3077 - 16.25					31.920	89.174	-37.900	2846.440	0.013
L9	16.25 - 15.2344	TP44.6x41.56x0.695	16.250	0.000	0.0	32.040	91.916	-38.268	2944.990	0.013
	15.2344 - 14.2188					32.040	92.341	-38.637	2958.620	0.013
	14.2188 - 13.2031					32.040	92.767	-39.008	2972.250	0.013
	13.2031 - 12.1875					32.040	93.192	-39.380	2985.880	0.013
	12.1875 - 11.1719					32.040	93.618	-39.754	2999.510	0.013
	11.1719 - 10.1563					32.040	94.043	-40.130	3013.130	0.013
	10.1563 - 9.14063					32.040	94.468	-40.507	3026.760	0.013
	9.14063 - 8.125					32.040	94.894	-40.886	3040.390	0.013
	8.125 - 7.10938					32.040	95.319	-41.266	3054.020	0.014
	7.10938 - 6.09375					32.040	95.744	-41.648	3067.650	0.014
	6.09375 - 5.07813					32.040	96.170	-42.031	3081.280	0.014
	5.07813 - 4.0625					32.040	96.595	-42.416	3094.910	0.014
	4.0625 - 3.04688					32.040	97.021	-42.803	3108.540	0.014
	3.04688 - 2.03125					32.040	97.446	-43.191	3122.170	0.014

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Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
	2.03125 - 1.01563					32.040	97.871	-43.581	3135.800	0.014
	1.01563 - 0					32.040	98.297	-43.972	3149.430	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio f _{bx} /F _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} /F _{by}
L1	150 - 148.675	TP22.58x17.61x0.219	22.950	5.161	39.000	0.132	0.000	0.000	39.000	0.000
	148.675 - 147.35		33.166	7.252	39.000	0.186	0.000	0.000	39.000	0.000
	147.35 - 146.025		43.541	9.260	39.000	0.237	0.000	0.000	39.000	0.000
	146.025 - 144.7		54.074	13.045	39.000	0.287	0.000	0.000	39.000	0.000
	144.7 - 143.375		64.769	14.832	39.000	0.334	0.000	0.000	39.000	0.000
	143.375 - 142.05		75.626	16.552	39.000	0.380	0.000	0.000	39.000	0.000
	142.05 - 140.725		86.647	18.627	39.000	0.424	0.000	0.000	39.000	0.000
	140.725 - 139.4		100.073	21.015	39.000	0.478	0.000	0.000	39.000	0.000
	139.4 - 138.075		115.835	23.303	39.000	0.539	0.000	0.000	39.000	0.000
	138.075 - 136.75		131.734	25.514	39.000	0.598	0.000	0.000	39.000	0.000
	136.75 - 135.425		147.886	27.640	39.000	0.654	0.000	0.000	39.000	0.000
	135.425 - 134.1		164.207	29.683	39.000	0.709	0.000	0.000	39.000	0.000
	134.1 - 132.775		180.698	31.649	39.000	0.761	0.000	0.000	39.000	0.000
	132.775 - 131.45		197.363	33.541	39.000	0.812	0.000	0.000	39.000	0.000
	131.45 - 130.125		214.199	35.970	39.000	0.860	0.000	0.000	39.000	0.000
	130.125 - 128.8		235.175	38.366	39.000	0.922	0.000	0.000	39.000	0.000
	128.8 - 127.475		256.740	40.670	39.000	0.984	0.000	0.000	39.000	0.000
	127.475 - 126.15		278.480	42.885	39.000	1.100	0.000	0.000	39.000	0.000
	126.15 - 124.825		300.395	45.016	39.000	1.154	0.000	0.000	39.000	0.000
	124.825 - 123.5		322.486	27.705	31.500	0.880	0.000	0.000	31.500	0.000
	123.5 - 122.4		340.973	28.685	31.500	0.911	0.000	0.000	31.500	0.000
	122.4 - 121.3		359.611	29.637	31.500	0.941	0.000	0.000	31.500	0.000
	121.3 - 120.2		378.398	30.677	31.500	0.974	0.000	0.000	31.500	0.000
	120.2 - 119.1		398.835	31.712	31.500	1.007	0.000	0.000	31.500	0.000
L3	119.1 - 118	TP27.61x23.61x0.474	419.757	26.274	32.040	0.820	0.000	0.000	32.040	0.000
	118 - 117		438.911	26.990	32.040	0.842	0.000	0.000	32.040	0.000
	117 - 116		458.191	27.688	32.040	0.864	0.000	0.000	32.040	0.000

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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 $\frac{f_{by}}{F_{by}}$
	115 - 114		497.138	28.367	32.040	0.885	0.000	0.000	32.040	0.000
	114 - 113		516.806	29.029	32.040	0.906	0.000	0.000	32.040	0.000
	113 - 112		536.603	29.674	32.040	0.926	0.000	0.000	32.040	0.000
	112 - 111		556.532	30.304	32.040	0.946	0.000	0.000	32.040	0.000
	111 - 110		576.591	30.917	32.040	0.965	0.000	0.000	32.040	0.000
	110 - 109		596.782	31.515	32.040	0.984	0.000	0.000	32.040	0.000
	109 - 108		617.106	32.099	32.040	1.002	0.000	0.000	32.040	0.000
	108 - 107		637.563	32.669	32.040	1.020	0.000	0.000	32.040	0.000
	107 - 106		658.152	33.225	32.040	1.037	0.000	0.000	32.040	0.000
	106 - 105		678.876	33.768	32.040	1.054	0.000	0.000	32.040	0.000
	105 - 104		699.734	34.298	32.040	1.070	0.000	0.000	32.040	0.000
	104 - 103		720.727	34.815	32.040	1.087	0.000	0.000	32.040	0.000
	103 - 102		741.857	35.321	32.040	1.102	0.000	0.000	32.040	0.000
	102 - 101		763.122	35.815	32.040	1.118	0.000	0.000	32.040	0.000
	101 - 96.58		413.146	18.218	32.040	0.569	0.000	0.000	32.040	0.000
L4	101 - 96.58	TP28.39x25.837x0.57	445.803	17.493	30.120	0.581	0.000	0.000	30.120	0.000
	96.58 - 95.4833		883.183	33.987	30.120	1.128	0.000	0.000	30.120	0.000
	95.4833 - 94.3867		907.583	34.259	30.120	1.137	0.000	0.000	30.120	0.000
	94.3867 - 93.29		932.133	34.520	30.120	1.146	0.000	0.000	30.120	0.000
	93.29 - 92.1933		956.850	34.772	30.120	1.154	0.000	0.000	30.120	0.000
	92.1933 - 91.0967		981.733	35.013	30.120	1.162	0.000	0.000	30.120	0.000
	91.0967 - 90		1006.76	35.246	30.120	1.170	0.000	0.000	30.120	0.000
			7							
L5	90 - 88.5	TP34x28.39x0.598	1041.27	34.156	30.720	1.112	0.000	0.000	30.720	0.000
			5							
	88.5 - 87		1076.07	34.595	30.720	1.126	0.000	0.000	30.720	0.000
			5							
	87 - 85.5		1111.16	35.020	30.720	1.140	0.000	0.000	30.720	0.000
			7							
	85.5 - 84		1146.55	35.430	30.720	1.153	0.000	0.000	30.720	0.000
			0							
	84 - 82.5		1182.23	35.827	30.720	1.166	0.000	0.000	30.720	0.000
			3							
	82.5 - 81		1218.20	36.211	30.720	1.179	0.000	0.000	30.720	0.000
			8							
	81 - 79.5		1254.48	36.583	30.720	1.191	0.000	0.000	30.720	0.000
			3							
	79.5 - 78		1291.05	36.943	30.720	1.203	0.000	0.000	30.720	0.000
			8							
	78 - 76.5		1327.93	37.292	30.720	1.214	0.000	0.000	30.720	0.000
			3							
	76.5 - 75		1365.11	37.629	30.720	1.225	0.000	0.000	30.720	0.000
			7							
	75 - 73.5		1402.60	37.957	30.720	1.236	0.000	0.000	30.720	0.000
			0							
	73.5 - 72		1440.38	38.274	30.720	1.246	0.000	0.000	30.720	0.000
			3							
	72 - 70.5		1478.48	38.582	30.720	1.256	0.000	0.000	30.720	0.000
			3							
	70.5 - 69		1516.88	38.881	30.720	1.266	0.000	0.000	30.720	0.000
			3							
	69 - 67.5		1555.59	39.171	30.720	1.275	0.000	0.000	30.720	0.000
			2							
	67.5 - 66		1594.61	39.452	30.720	1.284	0.000	0.000	30.720	0.000
			7							

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Section No.	Elevation ft	Size	Actual M_s kip-ft	Actual f_{hx} ksi	Allow. F_{hx} ksi	Ratio $\frac{f_{hx}}{F_{hx}}$	Actual M_s kip-ft	Actual f_{hy} ksi	Allow. F_{hy} ksi	Ratio $\frac{f_{hy}}{F_{hy}}$
	66 - 64.5		1633.95 0	39.726	30.720	1.293	0.000	0.000	30.720	0.000
	64.5 - 63		1673.60 0	39.991	30.720	1.302	0.000	0.000	30.720	0.000
	63 - 61.5		1713.55 8	40.250	30.720	1.310	0.000	0.000	30.720	0.000
	61.5 - 60		1753.83 3	40.501	30.720	1.318	0.000	0.000	30.720	0.000
L6	60 - 59	TP36.34x34x0.658	1780.85 8	37.125	33.720	1.101	0.000	0.000	33.720	0.000
	59 - 58		1808.00 8	37.270	33.720	1.105	0.000	0.000	33.720	0.000
	58 - 57		1835.28 3	37.411	33.720	1.109	0.000	0.000	33.720	0.000
	57 - 56		1862.69 2	37.550	33.720	1.114	0.000	0.000	33.720	0.000
	56 - 55		1890.23 3	37.686	33.720	1.118	0.000	0.000	33.720	0.000
	55 - 54		1917.90 0	37.820	33.720	1.122	0.000	0.000	33.720	0.000
	54 - 53		1945.69 2	37.951	33.720	1.125	0.000	0.000	33.720	0.000
	53 - 47.5		1076.33 3	19.789	33.720	0.587	0.000	0.000	33.720	0.000
L7	53 - 47.5	TP38.98x33.994x0.7	1024.90 0	18.994	31.860	0.596	0.000	0.000	31.860	0.000
	47.5 - 46.4706		2130.83 3	38.979	31.860	1.223	0.000	0.000	31.860	0.000
	46.4706 - 45.4412		2160.55 8	39.014	31.860	1.225	0.000	0.000	31.860	0.000
	45.4412 - 44.4118		2190.40 0	39.048	31.860	1.226	0.000	0.000	31.860	0.000
	44.4118 - 43.3824		2220.35 8	39.080	31.860	1.227	0.000	0.000	31.860	0.000
	43.3824 - 42.3529		2250.45 0	39.109	31.860	1.228	0.000	0.000	31.860	0.000
	42.3529 - 41.3235		2280.65 8	39.138	31.860	1.228	0.000	0.000	31.860	0.000
	41.3235 - 40.2941		2310.98 3	39.164	31.860	1.229	0.000	0.000	31.860	0.000
	40.2941 - 39.2647		2341.44 2	39.189	31.860	1.230	0.000	0.000	31.860	0.000
	39.2647 - 38.2353		2372.01 7	39.212	31.860	1.231	0.000	0.000	31.860	0.000
	38.2353 - 37.2059		2402.71 7	39.234	31.860	1.231	0.000	0.000	31.860	0.000
	37.2059 - 36.1765		2433.54 2	39.254	31.860	1.232	0.000	0.000	31.860	0.000
	36.1765 - 35.1471		2464.48 3	39.273	31.860	1.233	0.000	0.000	31.860	0.000
	35.1471 - 34.1176		2495.55 8	39.290	31.860	1.233	0.000	0.000	31.860	0.000
	34.1176 - 33.0882		2526.75 8	39.307	31.860	1.234	0.000	0.000	31.860	0.000
	33.0882 - 32.0588		2558.08 3	39.322	31.860	1.234	0.000	0.000	31.860	0.000
	32.0588 - 31.0294		2589.53 3	39.336	31.860	1.235	0.000	0.000	31.860	0.000
	31.0294 - 30		2621.11 7	39.348	31.860	1.235	0.000	0.000	31.860	0.000

tnxTower

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Client	Nexlinkgs	Designed by	A. Abbaszadeh

Section No.	Elevation	Size	Actual M_x	Actual f_{bx}	Allow. F_{bx}	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y	Actual f_{by}	Allow. F_{by}	Ratio $\frac{f_{by}}{F_{by}}$
	ft		kip-ft	ksi	ksi		kip-ft	ksi	ksi	
L8	30 - 28.9423	TP41.56x38.98x0.677	2653.68	40.673	31.920	1.274	0.000	0.000	31.920	0.000
			3							
	28.9423 -		2686.38	40.749	31.920	1.277	0.000	0.000	31.920	0.000
	27.8846		3							
	27.8846 -		2719.20	40.824	31.920	1.279	0.000	0.000	31.920	0.000
	26.8269		8							
	26.8269 -		2752.15	40.896	31.920	1.281	0.000	0.000	31.920	0.000
	25.7692		8							
	25.7692 -		2785.23	40.967	31.920	1.283	0.000	0.000	31.920	0.000
	24.7115		3							
	24.7115 -		2818.43	41.036	31.920	1.286	0.000	0.000	31.920	0.000
	23.6538		3							
	23.6538 -		2851.75	41.104	31.920	1.288	0.000	0.000	31.920	0.000
	22.5962		8							
	22.5962 -		2885.20	41.170	31.920	1.290	0.000	0.000	31.920	0.000
	21.5385		8							
	21.5385 -		2918.78	41.234	31.920	1.292	0.000	0.000	31.920	0.000
	20.4808		3							
	20.4808 -		2952.49	41.297	31.920	1.294	0.000	0.000	31.920	0.000
	19.4231		2							
	19.4231 -		2986.32	41.358	31.920	1.296	0.000	0.000	31.920	0.000
	18.3654		5							
	18.3654 -		3020.28	41.418	31.920	1.298	0.000	0.000	31.920	0.000
	17.3077		3							
	17.3077 -		3054.36	41.477	31.920	1.299	0.000	0.000	31.920	0.000
	16.25		7							
L9	16.25 -	TP44.6x41.56x0.695	3087.21	40.517	32.040	1.265	0.000	0.000	32.040	0.000
	15.2344		7							
	15.2344 -		3120.18	40.570	32.040	1.266	0.000	0.000	32.040	0.000
	14.2188		3							
	14.2188 -		3153.25	40.621	32.040	1.268	0.000	0.000	32.040	0.000
	13.2031		8							
	13.2031 -		3186.45	40.672	32.040	1.269	0.000	0.000	32.040	0.000
	12.1875		0							
	12.1875 -		3219.75	40.721	32.040	1.271	0.000	0.000	32.040	0.000
	11.1719		0							
	11.1719 -		3253.16	40.770	32.040	1.272	0.000	0.000	32.040	0.000
	10.1563		7							
	10.1563 -		3286.70	40.817	32.040	1.274	0.000	0.000	32.040	0.000
	9.14063		0							
	9.14063 -		3320.35	40.863	32.040	1.275	0.000	0.000	32.040	0.000
	8.125		0							
	8.125 -		3354.11	40.908	32.040	1.277	0.000	0.000	32.040	0.000
	7.10938		7							
	7.10938 -		3387.99	40.952	32.040	1.278	0.000	0.000	32.040	0.000
	6.09375		2							
	6.09375 -		3421.98	40.995	32.040	1.279	0.000	0.000	32.040	0.000
	5.07813		3							
	5.07813 -		3456.09	41.036	32.040	1.281	0.000	0.000	32.040	0.000
	4.0625		2							
	4.0625 -		3490.31	41.077	32.040	1.282	0.000	0.000	32.040	0.000
	3.04688		7							
	3.04688 -		3524.65	41.117	32.040	1.283	0.000	0.000	32.040	0.000
	2.03125		0							
	2.03125 -		3559.10	41.156	32.040	1.285	0.000	0.000	32.040	0.000
	1.01563		8							
	1.01563 - 0		3593.68	41.194	32.040	1.286	0.000	0.000	32.040	0.000
			3							

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	150 - 148.675	TP22.58x17.61x0.219	7.652	0.616	26.000	0.048	0.780	0.083	26.000	0.003
	148.675 - 147.35		7.770	0.617	26.000	0.048	0.780	0.080	26.000	0.003
	147.35 - 146.025		7.890	0.617	26.000	0.048	0.780	0.078	26.000	0.003
	146.025 - 144.7		8.011	0.618	26.000	0.048	0.780	0.076	26.000	0.003
	144.7 - 143.375		8.133	0.620	26.000	0.048	0.779	0.074	26.000	0.003
	143.375 - 142.05		8.257	0.621	26.000	0.049	0.779	0.072	26.000	0.003
	142.05 - 140.725		8.382	0.622	26.000	0.049	0.779	0.070	26.000	0.003
	140.725 - 139.4		11.836	0.867	26.000	0.068	1.136	0.100	26.000	0.004
	139.4 - 138.075		11.961	0.865	26.000	0.068	1.136	0.097	26.000	0.004
	138.075 - 136.75		12.129	0.866	26.000	0.068	1.958	0.163	26.000	0.006
	136.75 - 135.425		12.256	0.864	26.000	0.068	1.957	0.159	26.000	0.006
	135.425 - 134.1		12.385	0.863	26.000	0.067	1.957	0.155	26.000	0.006
	134.1 - 132.775		12.515	0.861	26.000	0.067	1.956	0.151	26.000	0.006
	132.775 - 131.45		12.645	0.860	26.000	0.067	1.956	0.148	26.000	0.006
	131.45 - 130.125		12.777	0.859	26.000	0.067	1.955	0.144	26.000	0.006
	130.125 - 128.8		16.215	1.077	26.000	0.084	1.954	0.141	26.000	0.005
	128.8 - 127.475		16.346	1.073	26.000	0.084	1.954	0.138	26.000	0.005
	127.475 - 126.15		16.479	1.070	26.000	0.084	1.953	0.135	26.000	0.005
	126.15 - 124.825		16.612	1.066	26.000	0.083	1.952	0.131	26.000	0.005
	124.825 - 123.5		16.746	1.063	26.000	0.083	1.951	0.129	26.000	0.005
L2	123.5 - 122.4	TP23.61x22.58x0.377	16.878	0.621	21.000	0.060	1.951	0.074	21.000	0.004
	122.4 - 121.3		17.015	0.620	21.000	0.060	1.948	0.073	21.000	0.003
	121.3 - 120.2		17.153	0.619	21.000	0.060	1.944	0.071	21.000	0.003
	120.2 - 119.1		18.956	0.678	21.000	0.066	1.941	0.070	21.000	0.003
L3	119.1 - 118	TP27.61x23.61x0.474	19.094	0.677	21.000	0.066	1.938	0.069	21.000	0.003
	118 - 117		19.221	0.540	21.360	0.051	1.934	0.054	21.360	0.003
	117 - 116		19.349	0.539	21.360	0.051	1.933	0.053	21.360	0.002
	116 - 115		19.478	0.539	21.360	0.051	1.932	0.052	21.360	0.002
	115 - 114		19.607	0.538	21.360	0.051	1.931	0.051	21.360	0.002
	114 - 113		19.737	0.537	21.360	0.051	1.929	0.051	21.360	0.002
	113 - 112		19.868	0.537	21.360	0.051	1.928	0.050	21.360	0.002
	112 - 111		19.999	0.536	21.360	0.051	1.927	0.049	21.360	0.002
	111 - 110		20.131	0.536	21.360	0.051	1.926	0.048	21.360	0.002
	110 - 109		20.263	0.535	21.360	0.051	1.924	0.047	21.360	0.002
	109 - 108		20.395	0.535	21.360	0.051	1.923	0.047	21.360	0.002
	108 - 107		20.529	0.534	21.360	0.051	1.922	0.046	21.360	0.002
	107 - 106		20.663	0.534	21.360	0.051	1.920	0.045	21.360	0.002

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Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f _{vt} ksi	Allow. F _{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L4	106 - 105	TP28.39x25.837x0.57	20.797	0.533	21.360	0.051	1.919	0.045	21.360	0.002
	105 - 104		20.932	0.533	21.360	0.051	1.918	0.044	21.360	0.002
	104 - 103		21.067	0.532	21.360	0.051	1.916	0.043	21.360	0.002
	103 - 102		21.203	0.532	21.360	0.051	1.915	0.043	21.360	0.002
	102 - 101		21.340	0.532	21.360	0.051	1.914	0.042	21.360	0.002
	101 - 96.58		10.758	0.260	21.360	0.025	0.921	0.019	21.360	0.001
	101 - 96.58		11.285	0.234	20.080	0.024	0.991	0.018	20.080	0.001
	96.58 -		22.180	0.456	20.080	0.046	1.907	0.034	20.080	0.002
	95.4833									
	95.4833 -		22.326	0.454	20.080	0.046	1.905	0.034	20.080	0.002
	94.3867									
	94.3867 -		22.472	0.453	20.080	0.046	1.904	0.033	20.080	0.002
	93.29									
	93.29 -		22.619	0.452	20.080	0.046	1.903	0.032	20.080	0.002
	92.1933									
L5	92.1933 -	TP34x28.39x0.598	22.767	0.450	20.080	0.046	1.901	0.032	20.080	0.002
	91.0967									
	91.0967 - 90		22.916	0.449	20.080	0.045	1.900	0.031	20.080	0.002
	90 - 88.5		23.112	0.428	20.480	0.042	1.899	0.029	20.480	0.001
	88.5 - 87		23.307	0.427	20.480	0.042	1.896	0.028	20.480	0.001
	87 - 85.5		23.503	0.427	20.480	0.042	1.894	0.028	20.480	0.001
	85.5 - 84		23.700	0.426	20.480	0.042	1.891	0.027	20.480	0.001
	84 - 82.5		23.898	0.425	20.480	0.042	1.889	0.027	20.480	0.001
	82.5 - 81		24.097	0.425	20.480	0.042	1.886	0.026	20.480	0.001
	81 - 79.5		24.296	0.424	20.480	0.042	1.883	0.026	20.480	0.001
	79.5 - 78		24.497	0.424	20.480	0.042	1.881	0.025	20.480	0.001
	78 - 76.5		24.698	0.423	20.480	0.042	1.878	0.025	20.480	0.001
	76.5 - 75		24.901	0.423	20.480	0.042	1.875	0.024	20.480	0.001
	75 - 73.5		25.104	0.423	20.480	0.042	1.873	0.024	20.480	0.001
	73.5 - 72		25.308	0.422	20.480	0.042	1.870	0.023	20.480	0.001
L6	72 - 70.5	TP36.34x34x0.658	25.513	0.422	20.480	0.042	1.867	0.023	20.480	0.001
	70.5 - 69		25.719	0.421	20.480	0.042	1.864	0.022	20.480	0.001
	69 - 67.5		25.926	0.421	20.480	0.042	1.862	0.022	20.480	0.001
	67.5 - 66		26.134	0.421	20.480	0.042	1.859	0.022	20.480	0.001
	66 - 64.5		26.342	0.420	20.480	0.042	1.856	0.021	20.480	0.001
	64.5 - 63		26.552	0.420	20.480	0.042	1.853	0.021	20.480	0.001
	63 - 61.5		26.762	0.420	20.480	0.042	1.851	0.020	20.480	0.001
	61.5 - 60		26.973	0.420	20.480	0.042	1.848	0.020	20.480	0.001
	60 - 59		27.096	0.381	22.480	0.034	1.845	0.018	22.480	0.001
	59 - 58		27.225	0.381	22.480	0.034	1.843	0.018	22.480	0.001
	58 - 57		27.354	0.381	22.480	0.034	1.841	0.018	22.480	0.001
	57 - 56		27.484	0.380	22.480	0.034	1.840	0.017	22.480	0.001
	56 - 55		27.613	0.380	22.480	0.034	1.838	0.017	22.480	0.001
	55 - 54		27.744	0.380	22.480	0.034	1.836	0.017	22.480	0.001
	54 - 53		27.874	0.380	22.480	0.034	1.834	0.017	22.480	0.001
L7	53 - 47.5	TP38.98x33.994x0.7	14.906	0.197	22.480	0.018	0.941	0.008	22.480	0.000
	53 - 47.5		13.824	0.178	21.240	0.017	0.892	0.008	21.240	0.000
	47.5 - 46.4706		28.828	0.368	21.240	0.035	1.823	0.016	21.240	0.001
	46.4706 -		28.945	0.368	21.240	0.035	1.821	0.015	21.240	0.001
	45.4412									
	45.4412 -		29.062	0.367	21.240	0.035	1.820	0.015	21.240	0.001
	44.4118									
	44.4118 -		29.180	0.366	21.240	0.035	1.818	0.015	21.240	0.001
	43.3824									
	43.3824 -		29.299	0.365	21.240	0.035	1.816	0.015	21.240	0.001
	42.3529									
	42.3529 -		29.418	0.364	21.240	0.035	1.815	0.015	21.240	0.001
	41.3235									
	41.3235 -		29.537	0.363	21.240	0.035	1.813	0.014	21.240	0.001
	40.2941									

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio f _v / F _v	Actual T kip-ft	Actual f _t ksi	Allow. F _t ksi	Ratio f _t / F _t
L8	40.2941 - 39.2647	TP41.56x38.98x0.677	29.657	0.363	21.240	0.035	1.811	0.014	21.240	0.001
	39.2647 - 38.2353		29.777	0.362	21.240	0.035	1.809	0.014	21.240	0.001
	38.2353 - 37.2059		29.898	0.361	21.240	0.035	1.808	0.014	21.240	0.001
	37.2059 - 36.1765		30.019	0.360	21.240	0.034	1.806	0.014	21.240	0.001
	36.1765 - 35.1471		30.140	0.360	21.240	0.034	1.804	0.013	21.240	0.001
	35.1471 - 34.1176		30.262	0.359	21.240	0.034	1.802	0.013	21.240	0.001
	34.1176 - 33.0882		30.384	0.358	21.240	0.034	1.801	0.013	21.240	0.001
	33.0882 - 32.0588		30.506	0.358	21.240	0.034	1.799	0.013	21.240	0.001
	32.0588 - 31.0294		30.629	0.357	21.240	0.034	1.797	0.013	21.240	0.001
	31.0294 - 30		30.752	0.356	21.240	0.034	1.795	0.013	21.240	0.001
	30 - 28.9423		30.871	0.368	21.280	0.035	1.793	0.013	21.280	0.001
	28.9423 - 27.8846		30.990	0.367	21.280	0.035	1.792	0.013	21.280	0.001
	27.8846 - 26.8269		31.108	0.367	21.280	0.035	1.790	0.013	21.280	0.001
	26.8269 - 25.7692		31.227	0.366	21.280	0.035	1.788	0.012	21.280	0.001
	25.7692 - 24.7115		31.346	0.366	21.280	0.035	1.786	0.012	21.280	0.001
	24.7115 - 23.6538		31.465	0.365	21.280	0.035	1.785	0.012	21.280	0.001
	23.6538 - 22.5962		31.585	0.365	21.280	0.035	1.783	0.012	21.280	0.001
	22.5962 - 21.5385		31.704	0.364	21.280	0.035	1.781	0.012	21.280	0.001
	21.5385 - 20.4808		31.824	0.364	21.280	0.035	1.779	0.012	21.280	0.001
	20.4808 - 19.4231		31.944	0.364	21.280	0.035	1.777	0.012	21.280	0.001
	19.4231 - 18.3654		32.064	0.363	21.280	0.035	1.776	0.012	21.280	0.001
	18.3654 - 17.3077		32.184	0.363	21.280	0.035	1.774	0.011	21.280	0.001
	17.3077 - 16.25		32.305	0.362	21.280	0.035	1.772	0.011	21.280	0.001
	16.25 - 15.2344	TP44.6x41.56x0.695	32.415	0.353	21.360	0.034	1.770	0.011	21.360	0.001
	15.2344 - 14.2188		32.527	0.352	21.360	0.034	1.768	0.011	21.360	0.001
	14.2188 - 13.2031		32.639	0.352	21.360	0.033	1.765	0.011	21.360	0.000
	13.2031 - 12.1875		32.752	0.351	21.360	0.033	1.763	0.011	21.360	0.000
	12.1875 - 11.1719		32.864	0.351	21.360	0.033	1.760	0.010	21.360	0.000
	11.1719 - 10.1563		32.977	0.351	21.360	0.033	1.758	0.010	21.360	0.000
	10.1563 - 9.14063		33.090	0.350	21.360	0.033	1.755	0.010	21.360	0.000
	9.14063 - 8.125		33.203	0.350	21.360	0.033	1.753	0.010	21.360	0.000

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	Client	Nexlinkgs	Designed by	A. Abbaszadeh

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	8.125 - 7.10938		33.316	0.350	21.360	0.033	1.750	0.010	21.360	0.000
	7.10938 - 6.09375		33.430	0.349	21.360	0.033	1.748	0.010	21.360	0.000
	6.09375 - 5.07813		33.543	0.349	21.360	0.033	1.745	0.010	21.360	0.000
	5.07813 - 4.0625		33.657	0.348	21.360	0.033	1.743	0.010	21.360	0.000
	4.0625 - 3.04688		33.771	0.348	21.360	0.033	1.740	0.010	21.360	0.000
	3.04688 - 2.03125		33.885	0.348	21.360	0.033	1.737	0.010	21.360	0.000
	2.03125 - 1.01563		33.999	0.347	21.360	0.033	1.735	0.009	21.360	0.000
	1.01563 - 0		34.114	0.347	21.360	0.033	1.732	0.009	21.360	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P P_a	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_{vt} F_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 148.675	0.004	0.132	0.000	0.048	0.003	0.137	1.333	H1-3+VT ✓
	148.675 - 147.35	0.004	0.186	0.000	0.048	0.003	0.191	1.333	H1-3+VT ✓
	147.35 - 146.025	0.005	0.237	0.000	0.048	0.003	0.243	1.333	H1-3+VT ✓
	146.025 - 144.7	0.005	0.287	0.000	0.048	0.003	0.292	1.333	H1-3+VT ✓
	144.7 - 143.375	0.005	0.334	0.000	0.048	0.003	0.340	1.333	H1-3+VT ✓
	143.375 - 142.05	0.005	0.380	0.000	0.049	0.003	0.386	1.333	H1-3+VT ✓
	142.05 - 140.725	0.005	0.424	0.000	0.049	0.003	0.430	1.333	H1-3+VT ✓
	140.725 - 139.4	0.007	0.478	0.000	0.068	0.004	0.486	1.333	H1-3+VT ✓
	139.4 - 138.075	0.007	0.539	0.000	0.068	0.004	0.548	1.333	H1-3+VT ✓
	138.075 - 136.75	0.007	0.598	0.000	0.068	0.006	0.607	1.333	H1-3+VT ✓
	136.75 - 135.425	0.008	0.654	0.000	0.068	0.006	0.663	1.333	H1-3+VT ✓
	135.425 - 134.1	0.008	0.709	0.000	0.067	0.006	0.718	1.333	H1-3+VT ✓
	134.1 - 132.775	0.008	0.761	0.000	0.067	0.006	0.770	1.333	H1-3+VT ✓
	132.775 - 131.45	0.008	0.812	0.000	0.067	0.006	0.821	1.333	H1-3+VT ✓
	131.45 - 130.125	0.008	0.860	0.000	0.067	0.006	0.869	1.333	H1-3+VT ✓

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Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L2	130.125 - 128.8	0.009	0.922	0.000	0.084	0.005	0.934	1.333	H1-3+VT ✓
	128.8 - 127.475	0.009	0.984	0.000	0.084	0.005	0.995	1.333	H1-3+VT ✓
	127.475 - 126.15	0.010	1.043	0.000	0.084	0.005	1.055	1.333	H1-3+VT ✓
	126.15 - 124.825	0.010	1.100	0.000	0.083	0.005	1.111	1.333	H1-3+VT ✓
	124.825 - 123.5	0.010	1.154	0.000	0.083	0.005	1.166	1.333	H1-3+VT ✓
	123.5 - 122.4	0.007	0.880	0.000	0.060	0.004	0.888	1.333	H1-3+VT ✓
	122.4 - 121.3	0.007	0.911	0.000	0.060	0.003	0.919	1.333	H1-3+VT ✓
	121.3 - 120.2	0.007	0.941	0.000	0.060	0.003	0.949	1.333	H1-3+VT ✓
	120.2 - 119.1	0.008	0.974	0.000	0.066	0.003	0.983	1.333	H1-3+VT ✓
	119.1 - 118	0.008	1.007	0.000	0.066	0.003	1.016	1.333	H1-3+VT ✓
L3	118 - 117	0.006	0.820	0.000	0.051	0.003	0.827	1.333	H1-3+VT ✓
	117 - 116	0.006	0.842	0.000	0.051	0.002	0.850	1.333	H1-3+VT ✓
	116 - 115	0.007	0.864	0.000	0.051	0.002	0.871	1.333	H1-3+VT ✓
	115 - 114	0.007	0.885	0.000	0.051	0.002	0.893	1.333	H1-3+VT ✓
	114 - 113	0.007	0.906	0.000	0.051	0.002	0.914	1.333	H1-3+VT ✓
	113 - 112	0.007	0.926	0.000	0.051	0.002	0.934	1.333	H1-3+VT ✓
	112 - 111	0.007	0.946	0.000	0.051	0.002	0.953	1.333	H1-3+VT ✓
	111 - 110	0.007	0.965	0.000	0.051	0.002	0.973	1.333	H1-3+VT ✓
	110 - 109	0.007	0.984	0.000	0.051	0.002	0.992	1.333	H1-3+VT ✓
	109 - 108	0.007	1.002	0.000	0.051	0.002	1.010	1.333	H1-3+VT ✓
	108 - 107	0.007	1.020	0.000	0.051	0.002	1.028	1.333	H1-3+VT ✓
	107 - 106	0.007	1.037	0.000	0.051	0.002	1.045	1.333	H1-3+VT ✓
	106 - 105	0.008	1.054	0.000	0.051	0.002	1.062	1.333	H1-3+VT ✓
	105 - 104	0.008	1.070	0.000	0.051	0.002	1.079	1.333	H1-3+VT ✓
	104 - 103	0.008	1.087	0.000	0.051	0.002	1.095	1.333	H1-3+VT ✓
	103 - 102	0.008	1.102	0.000	0.051	0.002	1.111	1.333	H1-3+VT ✓

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Section No.	Elevation ft	Ratio P P_a	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_{vt} F_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L4	102 - 101	0.008	1.118	0.000	0.051	0.002	1.126	1.333	H1-3+VT ✓
	101 - 96.58	0.004	0.569	0.000	0.025	0.001	0.573	1.333	H1-3+VT ✓
	101 - 96.58	0.004	0.581	0.000	0.024	0.001	0.585	1.333	H1-3+VT ✓
	96.58 - 95.4833	0.008	1.128	0.000	0.046	0.002	1.137	1.333	H1-3+VT ✓
	95.4833 - 94.3867	0.008	1.137	0.000	0.046	0.002	1.146	1.333	H1-3+VT ✓
	94.3867 - 93.29	0.008	1.146	0.000	0.046	0.002	1.155	1.333	H1-3+VT ✓
	93.29 - 92.1933	0.008	1.154	0.000	0.046	0.002	1.163	1.333	H1-3+VT ✓
	92.1933 - 91.0967	0.009	1.162	0.000	0.046	0.002	1.172	1.333	H1-3+VT ✓
	91.0967 - 90	0.009	1.170	0.000	0.045	0.002	1.179	1.333	H1-3+VT ✓
L5	90 - 88.5	0.008	1.112	0.000	0.042	0.001	1.121	1.333	H1-3+VT ✓
	88.5 - 87	0.008	1.126	0.000	0.042	0.001	1.135	1.333	H1-3+VT ✓
	87 - 85.5	0.009	1.140	0.000	0.042	0.001	1.149	1.333	H1-3+VT ✓
	85.5 - 84	0.009	1.153	0.000	0.042	0.001	1.162	1.333	H1-3+VT ✓
	84 - 82.5	0.009	1.166	0.000	0.042	0.001	1.176	1.333	H1-3+VT ✓
	82.5 - 81	0.009	1.179	0.000	0.042	0.001	1.188	1.333	H1-3+VT ✓
	81 - 79.5	0.009	1.191	0.000	0.042	0.001	1.200	1.333	H1-3+VT ✓
	79.5 - 78	0.009	1.203	0.000	0.042	0.001	1.212	1.333	H1-3+VT ✓
	78 - 76.5	0.009	1.214	0.000	0.042	0.001	1.224	1.333	H1-3+VT ✓
	76.5 - 75	0.009	1.225	0.000	0.042	0.001	1.235	1.333	H1-3+VT ✓
	75 - 73.5	0.010	1.236	0.000	0.042	0.001	1.246	1.333	H1-3+VT ✓
	73.5 - 72	0.010	1.246	0.000	0.042	0.001	1.256	1.333	H1-3+VT ✓
	72 - 70.5	0.010	1.256	0.000	0.042	0.001	1.266	1.333	H1-3+VT ✓
	70.5 - 69	0.010	1.266	0.000	0.042	0.001	1.276	1.333	H1-3+VT ✓
	69 - 67.5	0.010	1.275	0.000	0.042	0.001	1.286	1.333	H1-3+VT ✓
	67.5 - 66	0.010	1.284	0.000	0.042	0.001	1.295	1.333	H1-3+VT ✓
	66 - 64.5	0.010	1.293	0.000	0.042	0.001	1.304	1.333	H1-3+VT ✓

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Section No.	Elevation ft	Ratio P P_a	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_{vt} F_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L6	64.5 - 63	0.011	1.302	0.000	0.042	0.001	1.313	1.333	H1-3+VT ✓
	63 - 61.5	0.011	1.310	0.000	0.042	0.001	1.321	1.333	H1-3+VT ✓
	61.5 - 60	0.011	1.318	0.000	0.042	0.001	1.330	1.333	H1-3+VT ✓
	60 - 59	0.009	1.101	0.000	0.034	0.001	1.110	1.333	H1-3+VT ✓
	59 - 58	0.009	1.105	0.000	0.034	0.001	1.115	1.333	H1-3+VT ✓
	58 - 57	0.009	1.109	0.000	0.034	0.001	1.119	1.333	H1-3+VT ✓
	57 - 56	0.009	1.114	0.000	0.034	0.001	1.123	1.333	H1-3+VT ✓
	56 - 55	0.009	1.118	0.000	0.034	0.001	1.127	1.333	H1-3+VT ✓
	55 - 54	0.009	1.122	0.000	0.034	0.001	1.131	1.333	H1-3+VT ✓
	54 - 53	0.010	1.125	0.000	0.034	0.001	1.135	1.333	H1-3+VT ✓
L7	53 - 47.5	0.005	0.587	0.000	0.018	0.000	0.592	1.333	H1-3+VT ✓
	53 - 47.5	0.005	0.596	0.000	0.017	0.000	0.602	1.333	H1-3+VT ✓
	47.5 - 46.4706	0.011	1.223	0.000	0.035	0.001	1.235	1.333	H1-3+VT ✓
	46.4706 - 45.4412	0.011	1.225	0.000	0.035	0.001	1.236	1.333	H1-3+VT ✓
	45.4412 - 44.4118	0.011	1.226	0.000	0.035	0.001	1.237	1.333	H1-3+VT ✓
	44.4118 - 43.3824	0.011	1.227	0.000	0.035	0.001	1.238	1.333	H1-3+VT ✓
	43.3824 - 42.3529	0.011	1.228	0.000	0.035	0.001	1.239	1.333	H1-3+VT ✓
	42.3529 - 41.3235	0.011	1.228	0.000	0.035	0.001	1.240	1.333	H1-3+VT ✓
	41.3235 - 40.2941	0.011	1.229	0.000	0.035	0.001	1.241	1.333	H1-3+VT ✓
	40.2941 - 39.2647	0.011	1.230	0.000	0.035	0.001	1.242	1.333	H1-3+VT ✓
	39.2647 - 38.2353	0.011	1.231	0.000	0.035	0.001	1.242	1.333	H1-3+VT ✓
	38.2353 - 37.2059	0.011	1.231	0.000	0.035	0.001	1.243	1.333	H1-3+VT ✓
	37.2059 - 36.1765	0.012	1.232	0.000	0.034	0.001	1.244	1.333	H1-3+VT ✓
	36.1765 - 35.1471	0.012	1.233	0.000	0.034	0.001	1.245	1.333	H1-3+VT ✓
	35.1471 - 34.1176	0.012	1.233	0.000	0.034	0.001	1.245	1.333	H1-3+VT ✓
	34.1176 - 33.0882	0.012	1.234	0.000	0.034	0.001	1.246	1.333	H1-3+VT ✓

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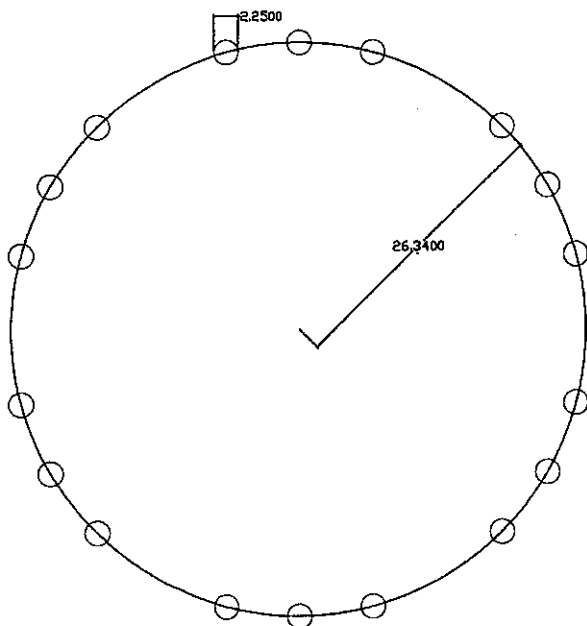
Section No.	Elevation <i>ft</i>	Ratio <i>P</i> <i>P_a</i>	Ratio <i>f_{bx}</i> <i>F_{bx}</i>	Ratio <i>f_{by}</i> <i>F_{by}</i>	Ratio <i>f_v</i> <i>F_v</i>	Ratio <i>f_{vt}</i> <i>F_{vt}</i>	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L8	33.0882 - 32.0588	0.012	1.234	0.000	0.034	0.001	1.246 ✓	1.333	H1-3+VT ✓
	32.0588 - 31.0294	0.012	1.235	0.000	0.034	0.001	1.247 ✓	1.333	H1-3+VT ✓
	31.0294 - 30	0.012	1.235	0.000	0.034	0.001	1.247 ✓	1.333	H1-3+VT ✓
	30 - 28.9423	0.012	1.274	0.000	0.035	0.001	1.287 ✓	1.333	H1-3+VT ✓
	28.9423 - 27.8846	0.012	1.277	0.000	0.035	0.001	1.289 ✓	1.333	H1-3+VT ✓
	27.8846 - 26.8269	0.013	1.279	0.000	0.035	0.001	1.292 ✓	1.333	H1-3+VT ✓
	26.8269 - 25.7692	0.013	1.281	0.000	0.035	0.001	1.294 ✓	1.333	H1-3+VT ✓
	25.7692 - 24.7115	0.013	1.283	0.000	0.035	0.001	1.296 ✓	1.333	H1-3+VT ✓
	24.7115 - 23.6538	0.013	1.286	0.000	0.035	0.001	1.299 ✓	1.333	H1-3+VT ✓
	23.6538 - 22.5962	0.013	1.288	0.000	0.035	0.001	1.301 ✓	1.333	H1-3+VT ✓
	22.5962 - 21.5385	0.013	1.290	0.000	0.035	0.001	1.303 ✓	1.333	H1-3+VT ✓
	21.5385 - 20.4808	0.013	1.292	0.000	0.035	0.001	1.305 ✓	1.333	H1-3+VT ✓
	20.4808 - 19.4231	0.013	1.294	0.000	0.035	0.001	1.307 ✓	1.333	H1-3+VT ✓
	19.4231 - 18.3654	0.013	1.296	0.000	0.035	0.001	1.309 ✓	1.333	H1-3+VT ✓
	18.3654 - 17.3077	0.013	1.298	0.000	0.035	0.001	1.311 ✓	1.333	H1-3+VT ✓
	17.3077 - 16.25	0.013	1.299	0.000	0.035	0.001	1.313 ✓	1.333	H1-3+VT ✓
	16.25 - 15.2344	0.013	1.265	0.000	0.034	0.001	1.278 ✓	1.333	H1-3+VT ✓
	15.2344 - 14.2188	0.013	1.266	0.000	0.034	0.001	1.280 ✓	1.333	H1-3+VT ✓
L9	14.2188 - 13.2031	0.013	1.268	0.000	0.033	0.000	1.281 ✓	1.333	H1-3+VT ✓
	13.2031 - 12.1875	0.013	1.269	0.000	0.033	0.000	1.283 ✓	1.333	H1-3+VT ✓
	12.1875 - 11.1719	0.013	1.271	0.000	0.033	0.000	1.285 ✓	1.333	H1-3+VT ✓
	11.1719 - 10.1563	0.013	1.272	0.000	0.033	0.000	1.286 ✓	1.333	H1-3+VT ✓
	10.1563 - 9.14063	0.013	1.274	0.000	0.033	0.000	1.288 ✓	1.333	H1-3+VT ✓
	9.14063 - 8.125	0.013	1.275	0.000	0.033	0.000	1.289 ✓	1.333	H1-3+VT ✓
	8.125 - 7.10938	0.014	1.277	0.000	0.033	0.000	1.291 ✓	1.333	H1-3+VT ✓
	7.10938 - 6.09375	0.014	1.278	0.000	0.033	0.000	1.292 ✓	1.333	H1-3+VT ✓

tnxTower BT Engineering 1717 S. Boulder, Suite 300 Tulsa, OK 74145 Phone: (918) 587 - 4630 FAX: (918) 295 - 0265	Job	84427.002 - BETHANY, CT	Page	27 of 27
	Project	150' Valmont Monopole/ AT&T Co-Locate	Date	11:01:47 07/19/12
	Client	Nexlinkgs	Designed by	A. Abbaszadeh

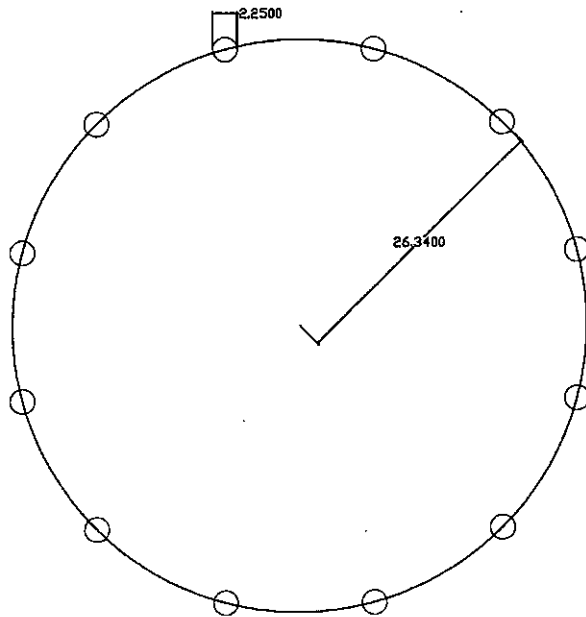
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	6.09375 - 5.07813	0.014	1.279	0.000	0.033	0.000	✓ 1.293	1.333	H1-3+VT ✓
	5.07813 - 4.0625	0.014	1.281	0.000	0.033	0.000	✓ 1.295	1.333	H1-3+VT ✓
	4.0625 - 3.04688	0.014	1.282	0.000	0.033	0.000	✓ 1.296	1.333	H1-3+VT ✓
	3.04688 - 2.03125	0.014	1.283	0.000	0.033	0.000	✓ 1.297	1.333	H1-3+VT ✓
	2.03125 - 1.01563	0.014	1.285	0.000	0.033	0.000	✓ 1.299	1.333	H1-3+VT ✓
	1.01563 - 0	0.014	1.286	0.000	0.033	0.000	✓ 1.300	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
L1	150 - 123.5	Pole	TP22.58x17.61x0.219	1	-5.979	819.018	87.5	Pass
L2	123.5 - 118	Pole	TP23.61x22.58x0.377	2	-7.018	1183.940	76.2	Pass
L3	118 - 96.58	Pole	TP27.61x23.61x0.474	3	-10.214	1714.731	84.5	Pass
L4	96.58 - 90	Pole	TP28.39x25.837x0.57	4	-13.292	2048.688	88.5	Pass
L5	90 - 60	Pole	TP34x28.39x0.598	5	-21.310	2631.622	99.7	Pass
L6	60 - 47.5	Pole	TP36.34x34x0.658	6	-23.520	3300.148	85.2	Pass
L7	47.5 - 30	Pole	TP38.98x33.994x0.7	7	-32.825	3664.910	93.6	Pass
L8	30 - 16.25	Pole	TP41.56x38.98x0.677	8	-37.900	3794.304	98.5	Pass
L9	16.25 - 0	Pole	TP44.6x41.56x0.695	9	-43.972	4198.190	97.5	Pass
							Summary	
							Pole (L5)	99.7 Pass
							RATING =	99.7 Pass



----- REGIONS -----
 Area: 71.5694
 Perimeter: 127.2345
 Bounding Box:
 Lower Bound: X= -26.5675 Y= -27.4650
 Upper Bound: X= 26.5675 Y= 27.4650
 Centroid: X= 0.0000 Y= 0.0000
 Moments of inertia: X= 24849.9151 Y= 24849.9151
 Products of inertia: XY: 0.0000
 Radii of gyration: X= 18.6337 Y= 18.6337



----- REGIONS -----
 Area: 47.7129
 Perimeter: 84.8230
 Bounding Box:
 Lower Bound: X= -26.5675 Y= -26.5675
 Upper Bound: X= 26.5675 Y= 26.5675
 Centroid: X= 0.0000 Y= 0.0000
 Moments of inertia: X= 16566.6100 Y= 16566.610
 Products of inertia: XY: 0.0000
 Radii of gyration: X= 18.6337 Y= 18.6337

$$T_{MAX} \Rightarrow \frac{3594 \times 12 \times 26.34}{24849.9} \times \frac{11}{4} \times (2.25)^2 = 181.8 \text{ K}$$

$$T_{ALLOW} = 0.33 \times 150 \times 3.98 \times 1\frac{1}{3} = 262.7 \text{ K} \quad \Rightarrow \quad \text{Unity \%} = \frac{181.8}{262.7} \times 100 = 69.1\%$$

$$M.I. (\text{Mod.}) = 24849.9 \text{ in}^4$$

$$M.I. (\text{Original}) = 16566.1 \text{ in}^4$$

$$\frac{M.I. (\text{Original})}{M.I. (\text{Mod.})} = \frac{16566.1}{24849.9} = 0.67$$

$\therefore$ 67% of the total Load will be taken by original bolts.

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#:
Site Name: *Bethany, CT*
App #:

Pole Manufacturer: *Other*

Reactions

Moment:	2408	ft-kips
Axial:	29.48	kips
Shear:	22.8	kips

Anchor Rod Data

Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	52.68	in

If No stiffeners, Criteria: **AISC ASD** <-Only Applicable to Unstiffened Cases

Anchor Rod Results

Maximum Rod Tension: 180.4 Kips
Allowable Tension: 195.0 Kips
Anchor Rod Stress Ratio: 92.5% **Pass**

Rigid

Service, ASD
Fty*ASIF

Plate Data

Diam:	58.67	in
Thick:	2.75	in
Grade:	60	ksi
Single-Rod B-eff:	11.95	in

Base Plate Results

Base Plate Stress: 31.8 ksi
Allowable Plate Stress: 60.0 ksi
Base Plate Stress Ratio: 53.1% **Pass**

Flexural Check

Rigid

Service ASD
0.75*Fy*ASIF
Y.L. Length:
28.04

Stiffener Data (Welding at both sides)

Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

Stiffener Results

Horizontal Weld : n/a
Vertical Weld: n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2: n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2: n/a
Plate Comp. (AISC Bracket): n/a

Pole Results

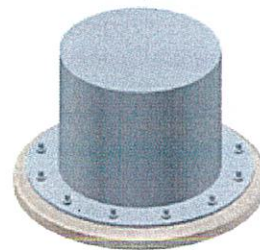
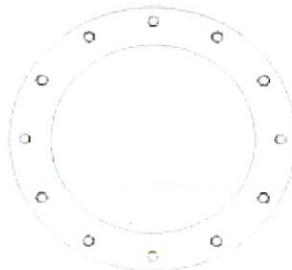
Pole Punching Shear Check: n/a

Pole Data

Diam:	44.6	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor

ASIF: 1.333



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

(Bearing and Stability Checks) Tool for TIA Rev F or G - Application (MP, SST with unitbase)

Site Data

BU#: *Nexlinkgs*
Site Name: *Bethany, CT*
App #: *NA*

Enter Load Factors Below:

For P (DL)	1.2	<---- Enter Factor
For P,V, and M (WL)	1.35	<---- Enter Factor

Pad & Pier Data

Base PL Dist. Above Pier:	0	in
Pier Dist. Above Grade:	6	in
Pad Bearing Depth, D:	7.5	ft
Pad Thickness, T:	6	ft
Pad Width=Length, L:	25	ft
Pier Cross Section Shape:	Square	<--Pull Down
Enter Pier Side Width:	6	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	36.00	ft^2
Pier Height:	2.00	ft
Soil (above pad) Height:	1.50	ft

Soil Parameters

Unit Weight, γ :	100.0	pcf
Ultimate Bearing Capacity, q_n :	8.00	ksf
Strength Reduct. factor, ϕ :	0.75	
Angle of Friction, Φ :	30.0	degrees
Undrained Shear Strength, C_u :	0.00	ksf
Allowable Bearing: ϕ^*q_n :	6.00	ksf
Passive Pres. Coeff., K_p :	3.00	

Forces/Moments due to Wind and Lateral Soil

Minimum of (ϕ^* Ultimate Pad Passive Force, V_u):	45.9	kips
Pad Force Location Above D:	2.33	ft
ϕ (Passive Pressure Moment):	107.10	ft-kips
Factored O.T. M(WL), "1.6W":	5219.1	ft-kips
Factored OT (MW-Msoil), M1	5112.00	ft-kips

Resistance due to Foundation Gravity

Soil Wedge Projection grade, a:	0.87	ft
Sum of Soil Wedges Wt:	3.75	kips
Soil Wedges ecc, K1:	8.32	ft
Ftg+Soil above Pad wt:	661.7	kips
Unfactored (Total ftg-soil Wt):	665.40	kips
1.2D. No Soil Wedges.	847.50	kips
0.9D. With Soil Wedges	639.00	kips

Resistance due to Cohesion (Vertical)

$\phi^*(1/2^*C_u)$ (Total Vert. Planes)	0.00	kips
Cohesion Force Eccentricity, K2	0.00	ft

Monopole Base Reaction Forces

TIA Revision:	F	<--Pull Down
Unfactored DL Axial, PD:	44.6	kips
Unfactored WL Axial, PW:	0	kips
Unfactored WL Shear, V:	34	kips
Unfactored WL Moment, M:	3594	ft-kips

Load Factor Shaft Factored Loads

1.20	1.2D+1.6W, Pu:	53.52	kips
0.90	0.9D+1.6W, Pu:	40.14	kips
1.35	Vu:	45.9	kips
	Mu:	4851.9	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(No Soil Wedges) [Reaction+Conc+Soil]	847.50	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	5112.00	ft-kips

Orthogonal Direction:

$$\begin{aligned} ecc1 &= M1/P1 = 6.03 \text{ ft} \\ \text{Orthogonal } qu &= 2.66 \text{ ksf} \\ qu/\phi^*q_n \text{ Ratio} &= 44.41\% \text{ Pass} \end{aligned}$$

Diagonal Direction:

$$\begin{aligned} ecc2 &= (0.707M1)/P1 = 4.26 \text{ ft} \\ \text{Diagonal } qu &= 3.12 \text{ ksf} \\ qu/\phi^*q_n \text{ Ratio} &= 52.07\% \text{ Pass} \end{aligned}$$

<-- Press Upon Completing All Input

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

(w/ Soil Wedges) [Reaction+Conc+Soil]	639.00	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	5083.93	ft-kips

$$\begin{aligned} \text{Orthogonal } ecc3 &= M2/P2 = 7.96 \text{ ft} \\ \text{Ortho Non Bearing Length, NBL} &= 15.91 \text{ ft} \\ \text{Orthogonal } qu &= 2.81 \text{ ksf} \\ \text{Diagonal } qu &= 3.38 \text{ ksf} \end{aligned}$$

Max Reaction Moment (ft-kips) so that $qu=\phi^*q_n = 100\%$ Capacity Rating

Actual M:	3594.00		
M Orthogonal:	4737.64	75.86%	Pass
M Diagonal:	4737.64	75.86%	Pass

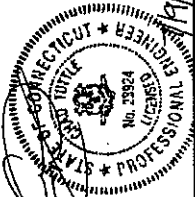
APPENDIX C
TOWER MODIFICATION DRAWINGS



REV	DATE	DESCRIPTION
9	07/19/12	ISSUED FOR CONSTRUCTION

PROJECT NO.	84427.000
PROJECT ENG.	AL/ABSD/ADH
DRAWN BY:	VAT
CHECKED BY:	SSC

B+T ENGINEERING, INC.



IT IS A VIOLATION OF THE PROFESSIONAL ENGINEER ACT TO REPRODUCE OR ALTER THIS DOCUMENT.

BETHANY
61186 (CT2182)
719 AMITY ROAD
BETHANY, CT
EXISTING 150' MONOPOLE

SHEET TITLE
TOWER ELEV. SCHEDULES,
TX LINE DIST. DIAGRAM
AND GENERAL NOTES

SHEET NUMBER:
S1
REVISION:
0

GENERAL NOTES

- 1.1 ALL WORK SHALL COMPLY WITH THE TIA/EIA-222-F STANDARD AS WELL AS ANY OTHER GOVERNING BUILDING CODES.
- 1.2 FIELD WORK WILL BE DONE AROUND EXISTING CABLE. CABLE SHALL BE PROTECTED BY A MINIMUM OF 18" OF CONCRETE THAT NO DAMAGE OCCURS TO THE EXISTING EQUIPMENT OR THE STRUCTURE.
- 1.3 A MINIMUM OF TWO COATS OF ZINCA COLD GALVANIZING COMPOUND (OR APPROVED EQUIVALENT) SHALL BE APPLIED TO ANY FIELD CUTS OF FIELD JOINTS.
- 1.4 ON THE USE OF A GAS TORCH OR WELDER WILL NOT BE PERMITTED ON THE TOWER WITHOUT THE CONSENT OF THE OWNER.
- 1.5 ALL FIELD CONNECTIONS SHALL BE MADE WITH A325X BOLTS, UNO, IN ALL CASES. TEMPORARY BRACING SHALL BE USED TO STABILIZE THE TOWER IS LOCATED. THE ANALYSIS SHALL USE A MINIMUM WIND SPEED OF 45 mph (3-SEC) PER TIA-1019.

FABRICATION

- 2.1 ALL WORK SHALL BE DONE IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
- 2.2 STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

A. STEEL SHAPES AND PLATES, U.N.O. YIELD ASTM SPECS 65/44 A572

- 2.3 ALL NEW MATERIAL INCLUDING STRUCTURAL STEEL AND FASTENERS SHALL BE APPROPRIATELY MARKED AFTER FABRICATION IN ACCORDANCE WITH ASTM A133 OR A133M.
- 2.4 WELDING SHALL MEET AWS/D1.1 STRUCTURAL WELDING CODE (LATEST REVISION). ELECTRODES SHALL BE E80 SERIES.
- 2.5 CONTRACTOR SHALL PROVIDE SHOP FABRICATION DRAWINGS TO B+T GROUP 2 WEEKS PRIOR TO FABRICATION.

KEY NOTES

1. TOWER MODIFICATION I.D.

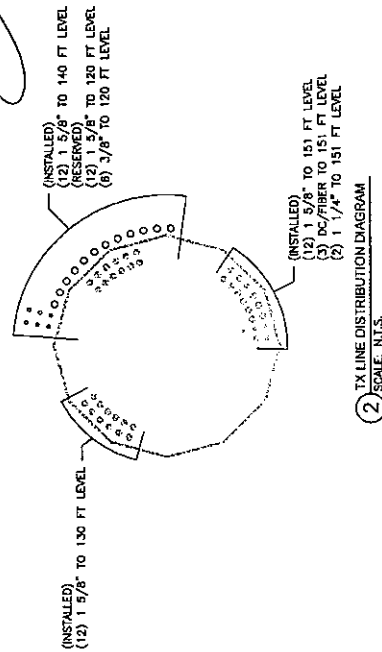
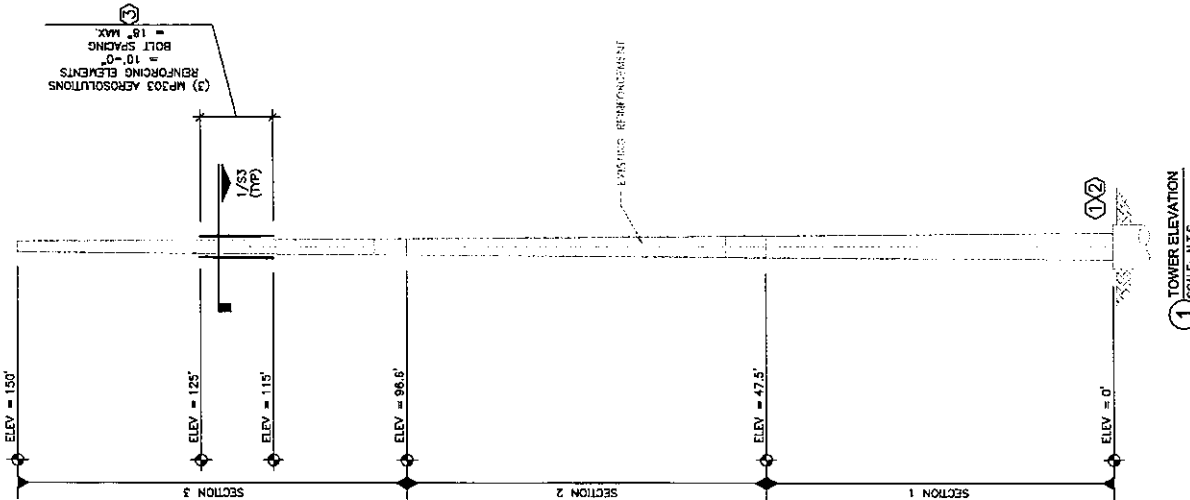
MODIFICATIONS BASED ON STRUCTURAL ANALYSIS FROM B+T ENGINEERING DATED 06/05/12 AND ACCOMPANIED BY ANALYSIS FROM B+T GROUP DATED 07/19/12.

SECTION	NUMBER OF SIDES	THICKNESS	BOTTOM DIAMETER	TOP DIAMETER
1	12	0.375"	44.650"	34.887"
2	12	0.313"	35.340"	26.337"
3	12	0.219"	27.910"	17.810"

ANTENNAS NOT SHOWN FOR CLARITY. EXISTING ANTENNA MOUNTS SHALL BE REMOVED AND ADJUSTED AS REQUIRED FOR INSTALLATION OF SHAFT REINFORCING.

TOWER MODIFICATIONS:

1. CONTRACTOR SHALL BURETT A SITE VISIT TO CHECK CRITICAL DIMENSIONS AND VERIFY UNKNOWN CONDITIONS PRIOR TO STEEL FABRICATION.
2. THE NEW AND EXISTING TRANSMISSION LINES MUST BE DISTRIBUTED AS SHOWN IN THE TX LINE DIST. DIAGRAM RE: DETAIL 2/S1.
3. INSTALL NEW AEROSOLATIONS REINFORCING ELEMENTS RE: SHEET S3.
 - * CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR ALL REMOVE AND REPLACE PROCEDURES.
 - ** MODIFICATIONS SHALL BE COMPLETED PRIOR TO ADDING THE PROPOSED APPURTENANCES.

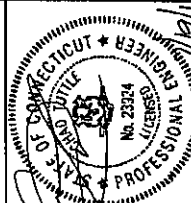




REV	DATE	DESCRIPTION
0	07/17/17	ISSUED FOR CONSTRUCTION

PROJECT NO:	6427.002
PROJECT ENG:	AL/ABASZUBH
DRAWN BY:	VAT
CHECKED BY:	SSC

B+T ENGINEERING, INC.



IT IS A VIOLATION OF LAW FOR ANY PERSON TO REPRODUCE OR TRANSMIT THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF B+T ENGINEERING, INC.

BETHANY
61166 (CT2162)
719 ARMY ROAD
BETHANY, CT
EXISTING 18V
MONOPOLE

SHEET TITLE
MODIFICATION INSPECTION
NOTES AND CHECKLIST

SHEET NUMBER
S2

REVISION
0

GENERAL CONTRACTOR
THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- INSPECTORS, INCLUDING FOUNDATION INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- THE GC SHALL BE RESPONSIBLE FOR ANY COSTS OF DELAYS, INCLUDING TRAVEL AND LODGING, CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF NEXLINK GLOBAL SERVICES, INC. CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.
- IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE ENTIRE PROJECT, INCLUDING DELAYS, TO ENSURE THAT THE MI INSPECTOR IS ON-SITE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON-SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI

THE GC SHALL BE RESPONSIBLE FOR ANY COSTS OF DELAYS, INCLUDING TRAVEL AND LODGING, CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF NEXLINK GLOBAL SERVICES, INC. CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSPECTOR FAILS THE MI (PAILED MI), THE GC SHALL WORK WITH NEXLINK GLOBAL SERVICES, INC. TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH NEXLINK GLOBAL SERVICES, INC.'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.
- THE ADDITIONAL COST INCURRED IN THE SECOND SUPERVISION PROCESS WOULD BE BORNE BY THE GENERAL CONTRACTOR.

MI VERIFICATION INSPECTIONS

NEXLINK GLOBAL SERVICES, INC. RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTIONS ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED AS MARKED BY THE DATE OF AN ACCEPTED "PASSING" OR "PASS AS NOTED" MI REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION MATERIALS
- PHOTOS OF ALL CRITICAL DETAILS
- FOUNDATION MODIFICATIONS
- WELD PREPARATION
- BOLT INSTALLATION AND TORQUE
- WELD COATING
- SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
- PHOTOS OF MODIFIED SECTIONS INDIVIDUALLY INDICATING ELEVATION
- FINAL INFILTED CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

MI CHECKLIST		BRIEF DESCRIPTION
REQUIRED	REPORT ITEM	
PRE-CONSTRUCTION		
X	MI CHECKLIST DRAWING	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
X	EOR APPROVED SHOP DRAWINGS	FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE CONTRACTOR SHALL PROVIDE APPROVED SHOP DRAWINGS TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR CERTIFIED WELD INSPECTION	A VISUAL OBSERVATION BY CMI OF A PORTION OF THE PROPOSED STRUCTURAL MEMBERS IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORT (MTR)	MILL CERTIFICATION SHALL BE PROVIDED FOR ALL STEEL AS SPECIFIED IN THE MODIFICATION DRAWINGS AND THIS DOCUMENTATION SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED WELD INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	NDE REPORT OF MONOPOLE BASE PLATE	A NON-DESTRUCTIVE EXAMINATION OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
CONSTRUCTION		
X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FOUNDATION INSPECTIONS	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	POST INSTALLED ANCHOR ROD VERIFICATION	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED AS SPECIFIED IN THE MODIFICATION DRAWINGS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	BASE PLATE GROUT VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR THAT CERTIFIES THAT THE GROUT WAS INSTALLED AS SPECIFIED IN THE MODIFICATION DRAWINGS FOR INCLUSION IN THE MI REPORT.
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST AS NECESSARY ALL FIELD WELDS. A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	EARTHWORK LIFT AND DENSITY	FOUNDATION SUB-GRANDES SHALL BE INSPECTED AND APPROVED BY A GEOTECHNICAL ENGINEER AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	ON SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED AS SPECIFIED IN THE MODIFICATION DRAWINGS.
N/A	GUY WIRE TENSION REPORT	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT TO THE MI INSPECTOR INDICATING THE TEMPERATURE AND TENSION IN EVERY GUY CABLE AS PART OF PLUMB AND TENSION PROCEDURE FOR INCLUSION IN THE MI REPORT.
X	GC AS-BUILT DOCUMENTS	THE GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE CONTRACT DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD DUE TO FIELD CONDITIONS.
POST-CONSTRUCTION		
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTORS REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING	POST-INSTALLED ANCHOR RODS SHALL BE TESTED IN ACCORDANCE AS SPECIFIED IN THE MODIFICATION DRAWINGS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI WHICH DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
ADDITIONAL TESTING AND INSPECTIONS:		
NOTE: X DENOTES A DOCUMENT REQUIRED FOR THE MI REPORT N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT		

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A CONSTRUCTION OF RECORD. THE MI INSPECTOR SHALL BE RESPONSIBLE FOR OBSERVING THE MODIFICATION CONSTRUCTION, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. THE MI INSPECTOR SHALL OBSERVE THE MODIFICATION CONSTRUCTION AND RECORD THE RESULTS OF THE VISUAL INSPECTION. THE MI INSPECTOR SHALL BE RESPONSIBLE FOR OBSERVING THE MODIFICATION CONSTRUCTION, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AS SOON AS POSSIBLE. THE MI INSPECTOR SHALL BE RESPONSIBLE FOR OBSERVING THE MODIFICATION CONSTRUCTION, AS DESIGNED BY THE ENGINEER OF RECORD (EOR). IF CONTACT INFORMATION IS NOT KNOWN, CONTACT B+T GROUP.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TESTING RESULTS, INCLUDING THE RESULTS OF THE MODIFICATION DESIGN, AND SUBMITTING THE MI REPORT.

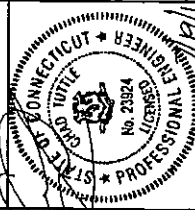
B+T GRP
1717 S. DOUGHER
SUITE 300
MILWAUKEE, WI 53219
PH: (414) 337-4850
www.btg.com



ISSUED FOR:	
REV	DATE DESCRIPTION
0	07/19/12 ISSUED FOR CONSTRUCTION

PROJECT NO:	0427.0002
PROJECT ENG:	AJ ABRAHAM
DRAWN BY:	VAT
CHECKED BY:	SSC

B+T ENGINEERING, INC.



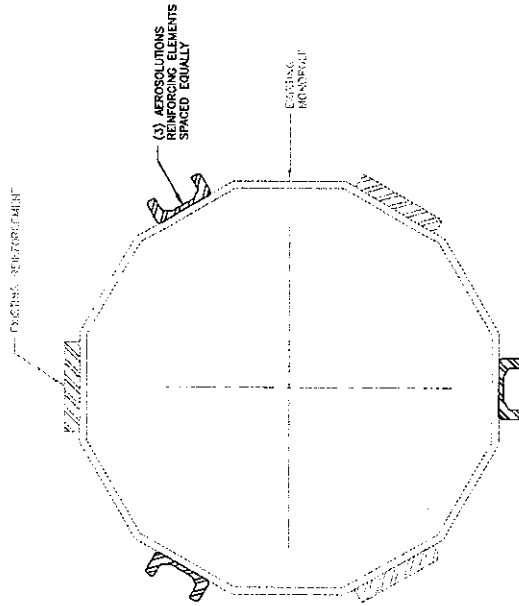
IT IS A VIOLATION OF LAW FOR ANY PERSON
WHOSE NAME IS LISTED ON THIS DRAWING
TO BE A PARTY TO THE PROJECT, IF
HE OR SHE IS NOT A PARTY TO THE PROJECT.

BETHANY
61186 (CT2162)
719 AMITY ROAD
BETHANY, CT
EXISTING 167
MONROE

SHEET TITLE
TOWER SECTION
115-125

SHEET NUMBER
S3

REVISION
0



① TOWER SECTION (115-125)
SCALE: N.T.S.