



May 8th, 2017

Melanie Bachman, Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

**RE: Notice of Exempt Modification – Antenna Swap &
Additional Ground Based Equipment for wireless facility located
at 79 PUTNAM PIKE, KILLINGLY, CONNECTICUT – CT23XC408 (4
41°50'51.65"N, - 71°52'43.16"W)**

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (140-foot level) on an existing (150-foot tower) at the above-referenced address. The tower and property is owned by the Town of Killingly.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace three (3) antennas and add six (6) RET Cables, (6) Diplexers on the tower. Sprint is also proposing to add three (3) ground based remote radio heads (RRH's) and (6) Diplexers to an existing H frame. All the proposed work is contained within the existing fenced area. Please refer to the attached drawings for site plans prepared by Infinigy Engineering.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to SEAN HENDRICKS, TOWN MANAGER of the Town of KILLINGLY. A copy of this letter is also being sent to TOWN OF KILLINGLY, HIGHWAY GARAGE the owner of the property on which the tower is located.

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

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The antennas work is a one-for-one replacement of facility components.
3. The proposed modifications will include the addition of ground base equipment as depicted on the attached drawings; however, the proposed equipment will not require



an extension of the site boundaries.

4. The proposed modifications will not increase noise levels at the facility by six decibels or more.
5. The additional ground based equipment will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b).

If you have any questions or require any additional information regarding this request, please do not hesitate to give me a call at (518) 306-1711 or email me to aperkowski@airosmithdevelopment.com

Kind Regards,

Arthur Perkowski
Airosmith Development Inc.
32 Clinton Street
Saratoga Springs, NY 12866
518-306-1711 desk & fax
518-871-3707 cell
aperkowski@airosmithdevelopment.com

Attachment

CC: SEAN HENDRICKS (Town Manager, Land Owner, Tower Owner, Killingly, CT)

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Total Postage and Fees	\$6.59



Sent **Sean Hendricks, Town Manager**
Street **Killingly Town Hall**
City **172 Main Street, 2nd Floor**
Killingly, CT 06239

Danielson
CT 06239XC4US

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$1.61
Total Postage and Fees	\$7.71



Sent **Crown Castle**
Street **Attn: Maryellen Perrotta**
City **12 Gill Street, Suite 5800**
Woburn, MA 01801

S. Perrotta

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

SPRINT Existing Facility

Site ID: CT23XC408

Killingly
79 Putnam Pike
Killingly, CT 06241

April 24, 2017

EBI Project Number: 6217001785

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	10.54 %



April 24, 2017

SPRINT

Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT23XC408 – Killingly**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **79 Putnam Pike, Killingly, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 850 MHz Band is approximately $567 \mu\text{W}/\text{cm}^2$. The general population exposure limit for the 1900 MHz (PCS) band is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **79 Putnam Pike, Killingly, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) Since the Remote Radio Heads (RRH) radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path the following losses were calculated. 1.23 dB of additional cable loss for all ground mounted 850 MHz Channels and 2.06 dB of additional cable loss for all ground mounted 1900 MHz channels were factored into the calculations used for this analysis. This is based on manufacturers Specifications for 200 feet of 1-5/8" coax cable on each path



- 5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 6) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antennas used in this modeling are the **RFS APXVSP18-C-A20** for transmission in the 850 MHz and 1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antenna mounting height centerlines of the proposed antennas are **140 feet** above ground level (AGL) for **Sector A**, **140 feet** above ground level (AGL) for **Sector B** and **140 feet** above ground level (AGL) for Sector C.
- 9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.



SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	5,346.75	ERP (W):	5,346.75	ERP (W):	5,346.75
Antenna A1 MPE%	1.22 %	Antenna B1 MPE%	1.22 %	Antenna C1 MPE%	1.22 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	1.22 %
AT&T	0.80 %
Verizon Wireless	5.31 %
T-Mobile	1.51 %
Town	1.70 %
Site Total MPE %:	10.54 %

SPRINT Sector A Total:	1.22 %
SPRINT Sector B Total:	1.22 %
SPRINT Sector C Total:	1.22 %
Site Total:	10.54 %

SPRINT _ Max Values per Frequency Band / Technology	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Sprint 850 MHz CDMA	2	494.45	140	1.98	850 MHz	567	0.35%
Sprint 1900 MHz (PCS) CDMA	2	726.31	140	2.91	1900 MHz (PCS)	1000	0.29%
Sprint 1900 MHz (PCS) LTE	2	1,452.62	140	5.82	1900 MHz (PCS)	1000	0.58%
						Total:	1.22%



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	1.22 %
Sector B:	1.22 %
Sector C:	1.22 %
SPRINT Maximum Total (per sector):	1.22 %
Site Total:	10.54 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **10.54 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

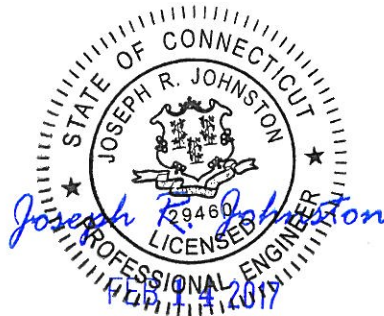
FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Structural Analysis Report

February 14, 2017

Site Name	CT23XC408
Infinigy Job Number	514-000
Client	Airosmith
Proposed Carrier	Sprint
Site Location	79 Putnam Pike, Killingly, CT 06241 41°50'51.7" N NAD83 71°52'46.1" W NAD83
Structure Type	150' Monopole
Structural Usage Ratio	65.5%
Overall Result	Pass

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.



Temitope Olaniyan
Structural Engineer I | INFINIGY

AZ CA CO FL GA MD NC NH NJ NY TX WA

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Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 150' Monopole. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnxTower version 7.0.7.0 tower analysis software.

Supporting Documentation

Construction Drawing:	Infinigy CD Site #CT23XC408, dated February 13, 2017
Previous Analysis	EBI Project #81150114, dated February 17, 2015

Analysis Code Requirements

Wind Speed	101 mph (3-Second Gust,Vasd) / 129 mph (3-Second Gust,Vult)
Wind Speed w/ ice	50 mph (3-Second Gust,Vasd) w/ 1" Ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC
Jurisdictional Code	2016 Connecticut State Building Code
Structure Class	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Temitope Olaniyan
 Structural Engineer I | INFINIGY
 1033 Watervliet Shaker Road, Albany, NY 12205
 (518) 690-0790 | TOlaniyan@infinigy.com | www.infinigy.com

Structural Analysis Report

February 14, 2017

Existing and Reserved Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
153.0	2	4' Omni	Side Arm	(2) 7/8"	--
150.0	3	Commscope LNX-6515DS-VTM	Sector Frame	(12) 1-5/8"	--
	3	EMS RV90-17-02-DP			
140.0	6	Decibel DB980H90E-M	Sector Frame	(6) 1 5/8"	Sprint
130.0	3	Ericsson RRUS-32	Low Profile Platform	(2) 1/2" (13) 1-5/8"	--
	3	Ericsson RRUS-E2			
	3	Surge Suppressor			
	3	TMA			
	3	Powerwave 7700			
	6	Ericsson RRUS-11			
	6	Ericsson RRUS-12			
	6	A2			
	6	Diplexer			
9	CCI HPA-65R-BUU-H8				
119.0	2	4' Omni	Side Arm	(2) 1/2"	--
106.0	6	Ericsson RRUS-11	Low Profile Platform	(12) 1 5/8"	
	12	73"x12"x7" Panel			

To Be Removed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
140.0	6	Decibel DB980H90E-M	Sector Frame	-	Sprint

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
140.0	3	RFS APXVSP18-C-A20	--	(6) RET Cable	Sprint
	6	RFS FD9R6004/1C-3L			

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
153.0	2	4' Omni	Side Arm	(2) 7/8"	--
150.0	3	Commscope LNX-6515DS-VTM	Sector Frame	(12) 1-5/8"	
	3	EMS RV90-17-02-DP			
140.0	3	RFS APXVSP18-C-A20	Sector Frame	(6) RET Cable (6) 1 5/8"	Sprint
	6	RFS FD9R6004/1C-3L			
130.0	3	Ericsson RRUS-32	Low Profile Platform	(2) 1/2" (13) 1-5/8"	--
	3	Ericsson RRUS-E2			
	3	Surge Suppressor			
	3	TMA			
	3	Powerwave 7700			
	6	Ericsson RRUS-11			
	6	Ericsson RRUS-12			
	6	A2			
	6	Diplexer			
9	CCI HPA-65R-BUU-H8				
119.0	2	4' Omni	Side Arm	(2) 1/2"	
106.0	6	Ericsson RRUS-11	Low Profile Platform	(12) 1 5/8"	
	12	73"x12"x7" Panel			

Install proposed coax inside monopole.

Structure Usages

	Summary	
Pole (L6)	65.5	Pass
RATING =	65.5	Pass

Foundation Reactions

Reaction Data	Design Reactions
Moment (kip-ft)	3992.7
Shear (kip)	41.7
Axial (kip)	56.0

Tower base reactions are acceptable through rigorous structural analysis.

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway (°)
140.0	6.566	0.004	0.430

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.

*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.

*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of “like new” and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure’s condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

DESIGNED APPURTENANCE LOADING

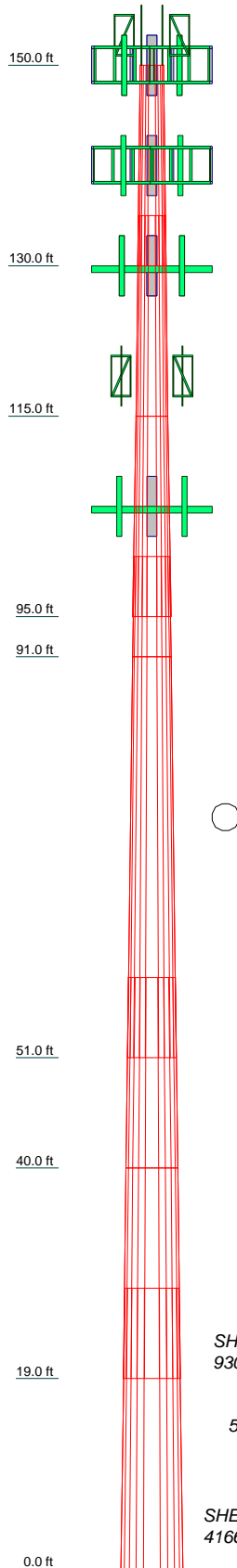
TYPE	ELEVATION	TYPE	ELEVATION
4' Omni	153	(2) RRUS-11	130
4' Omni	153	(2) A2	130
Pipe Side Arm	153	(2) A2	130
Pipe Side Arm	153	(2) A2	130
RV90-17-DP	150	(2) RRUS-12	130
RV90-17-DP	150	(2) RRUS-12	130
RV90-17-DP	150	(2) RRUS-12	130
LNX-6515DS-VTM	150	RRUS- E2	130
LNX-6515DS-VTM	150	RRUS- E2	130
LNX-6515DS-VTM	150	RRUS- E2	130
Angle Sector Frame	150	RRUS- 32	130
Angle Sector Frame	150	RRUS- 32	130
Angle Sector Frame	150	RRUS- 32	130
Angle Sector Frame (Sprint)	140	Angle Low Profile Platform	130
Angle Sector Frame (Sprint)	140	7770.00	130
Angle Sector Frame (Sprint)	140	7770.00	130
APXVSP18-C-A20 (Sprint)	140	7770.00	130
APXVSP18-C-A20 (Sprint)	140	(3) HPA-65R-BUU-H8	130
APXVSP18-C-A20 (Sprint)	140	(3) HPA-65R-BUU-H8	130
(2) FD9R6004/1C-3L	140	(3) HPA-65R-BUU-H8	130
(2) FD9R6004/1C-3L	140	4' Omni	119
(2) FD9R6004/1C-3L	140	4' Omni	119
TMA	130	Pipe Side Arm	119
TMA	130	Pipe Side Arm	119
TMA	130	Angle Side Arm	119
(2) 10" x 5" x 3" Diplexer	130	Angle Low Profile Platform	106
(2) 10" x 5" x 3" Diplexer	130	(4) 73"x12"x7" Panel	106
(2) 10" x 5" x 3" Diplexer	130	(4) 73"x12"x7" Panel	106
20"x18"x8" Surge Protector	130	(2) RRUS-11	106
20"x18"x8" Surge Protector	130	(2) RRUS-11	106
20"x18"x8" Surge Protector	130	(2) RRUS-11	106
(2) RRUS-11	130	(4) 73"x12"x7" Panel	106
(2) RRUS-11	130		106

MATERIAL STRENGTH

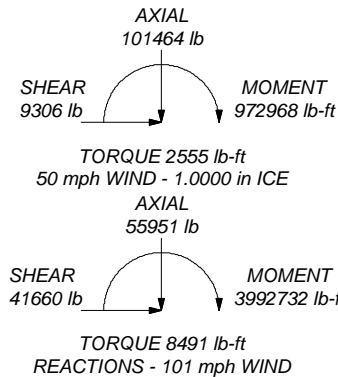
GRADE	Fy	Fu	GRADE	Fy	Fu
A36M-45	45 ksi	60 ksi			

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 65.5%



ALL REACTIONS ARE FACTORED



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	20.00	12	0.2500	5.00	27.8125	34.3125	A36M-45	1688.1
2	20.00	12	0.2500	32.1875	38.6875	38.6875	A36M-45	1927.7
3	20.00	12	0.3125	6.00	38.6875	45.1875	A36M-45	2850.5
4	10.00	12	0.3125	42.6125	45.8125	45.8125	A36M-45	1503.2
5	40.00	12	0.3750	8.00	45.8125	58.8750	A36M-45	8541.3
6	19.00	12	0.3750	55.5125	61.6875	61.6875	A36M-45	4545.5
7	21.00	12	0.4375	9.00	61.6875	68.5000	A36M-45	6508.7
8	28.00	12	0.4375	64.7064	73.8125	73.8125	A36M-45	9237.4
							A36M-45	36802.4

Infinigy Engineering			Job: 514-000
1033 Watervliet Shaker Rd.			Project: CT23XC408
Albany, NY 12205			Client: Sprint
Phone: (518) 690-0790			Drawn by: BDavenport
FAX:			App'd:
			Code: TIA-222-G
			Date: 02/14/17
			Scale: NTS
			Path: C:\Users\BDavenport\Desktop\CT23XC408_OTD.ERI
			Dwg No. E-1

tnxTower Infinigy Engineering 1033 Watervliet Shaker Rd. Albany, NY 12205 Phone: (518) 690-0790 FAX:	Job	514-000	Page	1 of 31
	Project	CT23XC408	Date	16:38:17 02/14/17
	Client	Sprint	Designed by	BDavenport

Tower Input Data

There is a pole section.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Windham County, Connecticut.

Basic wind speed of 101 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity √ Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r √ Retension Guys To Initial Tension Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. √ Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component √ Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression √ All Leg Panels Have Same Allowable Offset Girt At Foundation Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="background-color: #e0e0e0;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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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	150.00-130.00	20.00	5.00	12	27.8125	34.3125	0.2500	1.0000	A36M-45 (45 ksi)
L2	130.00-115.00	20.00	0.00	12	32.1875	38.6875	0.2500	1.0000	A36M-45 (45 ksi)

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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
L3	115.00-95.00	20.00	6.00	12	38.6875	45.1875	0.3125	1.2500	A36M-45 (45 ksi)
L4	95.00-91.00	10.00	0.00	12	42.6125	45.8125	0.3125	1.2500	A36M-45 (45 ksi)
L5	91.00-51.00	40.00	8.00	12	45.8125	58.8750	0.3750	1.5000	A36M-45 (45 ksi)
L6	51.00-40.00	19.00	0.00	12	55.5125	61.6875	0.3750	1.5000	A36M-45 (45 ksi)
L7	40.00-19.00	21.00	9.00	12	61.6875	68.5000	0.4375	1.7500	A36M-45 (45 ksi)
L8	19.00-0.00	28.00		12	64.7054	73.8125	0.4375	1.7500	A36M-45 (45 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	28.7936	22.1878	2151.4817	9.8674	14.4069	149.3372	4359.4852	10.9202	6.7838	27.135
	35.5229	27.4203	4060.7980	12.1944	17.7739	228.4700	8228.2777	13.4954	8.5258	34.103
L2	35.0053	25.7097	3347.2225	11.4336	16.6731	200.7556	6782.3803	12.6535	7.9562	31.825
	40.0522	30.9422	5835.0856	13.7606	20.0401	291.1701	11823.4654	15.2288	9.6982	38.793
L3	40.0522	38.6148	7258.3350	13.7382	20.0401	362.1901	14707.3546	19.0051	9.5307	30.498
	46.7815	45.1555	11606.6056	16.0652	23.4071	495.8578	23518.1297	22.2241	11.2728	36.073
L4	46.1034	42.5644	9721.0448	15.1434	22.0733	440.3988	19697.4723	20.9489	10.5826	33.864
	47.4286	45.7844	12098.3469	16.2890	23.7309	509.8146	24514.5309	22.5337	11.4403	36.609
L5	47.4286	54.8658	14458.2714	16.2666	23.7309	609.2599	29296.3778	27.0033	11.2728	30.061
	60.9519	70.6388	30856.0755	20.9430	30.4973	1011.7658	62522.7744	34.7662	14.7735	39.396
L6	60.1625	66.5785	25835.3472	19.7392	28.7555	898.4497	52349.4177	32.7679	13.8724	36.993
	63.8636	74.0348	35523.8611	21.9499	31.9541	1111.7144	71980.9737	36.4377	15.5273	41.406
L7	63.8636	86.2859	41317.8922	21.9275	31.9541	1293.0378	83721.2515	42.4673	15.3598	35.108
	70.9164	95.8830	56694.8448	24.3664	35.4830	1597.8030	114879.126	47.1907	17.1855	39.281
L8	70.0185	90.5373	47731.0885	23.0079	33.5174	1424.0700	96716.1258	44.5597	16.1685	36.957
	76.4163	103.3670	71033.6649	26.2682	38.2349	1857.8239	143933.463	50.8741	18.6092	42.535

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	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1				1	1	1			
150.00-130.00				1	1	1			
L2				1	1	1			
130.00-115.00				1	1	1			
L3				1	1	1			
115.00-95.00				1	1	1			
L4				1	1	1			
95.00-91.00				1	1	1			
L5				1	1	1			
91.00-51.00				1	1	1			
L6				1	1	1			
51.00-40.00				1	1	1			
L7				1	1	1			
40.00-19.00				1	1	1			
L8				1	1	1			
19.00-0.00				1	1	1			

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Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}		Weight
						ft ² /ft	plf	
0.875	A	No	Inside Pole	150.00 - 7.00	2	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
1.625	A	No	Inside Pole	150.00 - 7.00	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
1.625	A	No	Inside Pole	140.00 - 7.00	6	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
1.625	A	No	Inside Pole	130.00 - 7.00	13	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
0.5	A	No	Inside Pole	130.00 - 7.00	2	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
0.5	A	No	Inside Pole	119.00 - 7.00	2	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
1.625	A	No	Inside Pole	106.00 - 7.00	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
RET Cable	A	No	Inside Pole	140.00 - 7.00	6	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00

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 lb
L1	150.00-130.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	130.00-115.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	115.00-95.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L4	95.00-91.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L5	91.00-51.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L6	51.00-40.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L7	40.00-19.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L8	19.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

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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 lb
L1	150.00-130.00	A	2.310	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	130.00-115.00	A	2.280	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	115.00-95.00	A	2.245	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L4	95.00-91.00	A	2.218	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L5	91.00-51.00	A	2.158	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L6	51.00-40.00	A	2.065	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L7	40.00-19.00	A	1.976	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L8	19.00-0.00	A	1.763	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
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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 lb
4' Omni	B	From Leg	0.00	0.0000	153.00	No Ice	1.00	15.00
			0.00			1/2" Ice	1.25	23.96
			0.00			1" Ice	1.50	35.82
4' Omni	C	From Leg	0.00	0.0000	153.00	No Ice	1.00	15.00
			0.00			1/2" Ice	1.25	23.96
			0.00			1" Ice	1.50	35.82
Pipe Side Arm	B	From Leg	2.00	0.0000	153.00	No Ice	0.46	150.00
			0.00			1/2" Ice	0.62	175.00
			0.00			1" Ice	0.78	200.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz	Lateral			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	lb	
Pipe Side Arm	C	From Leg	2.00	0.0000		153.00	No Ice	0.46	3.55	150.00
			0.00				1/2" Ice	0.62	4.93	175.00
			0.00				1" Ice	0.78	5.89	200.00

RV90-17-DP	A	From Leg	2.00	0.0000		150.00	No Ice	4.36	1.97	18.00
			0.00				1/2" Ice	4.70	2.31	40.42
			0.00				1" Ice	5.06	2.66	67.36
RV90-17-DP	B	From Leg	2.00	0.0000		150.00	No Ice	4.36	1.97	18.00
			0.00				1/2" Ice	4.70	2.31	40.42
			0.00				1" Ice	5.06	2.66	67.36
RV90-17-DP	C	From Leg	2.00	0.0000		150.00	No Ice	4.36	1.97	18.00
			0.00				1/2" Ice	4.70	2.31	40.42
			0.00				1" Ice	5.06	2.66	67.36
LNX-6515DS-VTM	A	From Leg	2.00	0.0000		150.00	No Ice	11.45	7.70	63.00
			0.00				1/2" Ice	12.06	8.29	128.87
			0.00				1" Ice	12.69	8.89	202.41
LNX-6515DS-VTM	B	From Leg	2.00	0.0000		150.00	No Ice	11.45	7.70	63.00
			0.00				1/2" Ice	12.06	8.29	128.87
			0.00				1" Ice	12.69	8.89	202.41
LNX-6515DS-VTM	C	From Leg	2.00	0.0000		150.00	No Ice	11.45	7.70	63.00
			0.00				1/2" Ice	12.06	8.29	128.87
			0.00				1" Ice	12.69	8.89	202.41
Angle Sector Frame	A	From Leg	2.00	0.0000		150.00	No Ice	17.90	8.95	400.00
			0.00				1/2" Ice	22.20	13.00	510.00
			0.00				1" Ice	26.50	17.05	620.00
Angle Sector Frame	B	From Leg	2.00	0.0000		150.00	No Ice	17.90	8.95	400.00
			0.00				1/2" Ice	22.20	13.00	510.00
			0.00				1" Ice	26.50	17.05	620.00
Angle Sector Frame	C	From Leg	2.00	0.0000		150.00	No Ice	17.90	8.95	400.00
			0.00				1/2" Ice	22.20	13.00	510.00
			0.00				1" Ice	26.50	17.05	620.00

Angle Sector Frame (Sprint)	A	From Leg	2.00	0.0000		140.00	No Ice	17.90	8.95	400.00
			0.00				1/2" Ice	22.20	13.00	510.00
			0.00				1" Ice	26.50	17.05	620.00
Angle Sector Frame (Sprint)	B	From Leg	2.00	0.0000		140.00	No Ice	17.90	8.95	400.00
			0.00				1/2" Ice	22.20	13.00	510.00
			0.00				1" Ice	26.50	17.05	620.00
Angle Sector Frame (Sprint)	C	From Leg	2.00	0.0000		140.00	No Ice	17.90	8.95	400.00
			0.00				1/2" Ice	22.20	13.00	510.00
			0.00				1" Ice	26.50	17.05	620.00

7770.00	A	From Leg	2.00	0.0000		130.00	No Ice	5.61	4.12	53.25
			0.00				1/2" Ice	5.99	4.77	99.17
			0.00				1" Ice	6.38	5.43	151.35
7770.00	B	From Leg	2.00	0.0000		130.00	No Ice	5.61	4.12	53.25
			0.00				1/2" Ice	5.99	4.77	99.17
			0.00				1" Ice	6.38	5.43	151.35
7770.00	C	From Leg	2.00	0.0000		130.00	No Ice	5.61	4.12	53.25
			0.00				1/2" Ice	5.99	4.77	99.17
			0.00				1" Ice	6.38	5.43	151.35
(3) HPA-65R-BUU-H8	A	From Leg	2.00	0.0000		130.00	No Ice	9.66	6.45	51.00
			0.00				1/2" Ice	10.13	6.91	113.99
			0.00				1" Ice	10.61	7.38	183.38
(3) HPA-65R-BUU-H8	B	From Leg	2.00	0.0000		130.00	No Ice	9.66	6.45	51.00
			0.00				1/2" Ice	10.13	6.91	113.99
			0.00				1" Ice	10.61	7.38	183.38

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
(3) HPA-65R-BUU-H8	C	From Leg	2.00	0.0000		130.00	No Ice 9.66	6.45	51.00
			0.00				1/2" Ice 10.13	6.91	113.99
			0.00				1" Ice 10.61	7.38	183.38
TMA	A	From Leg	2.00	0.0000		130.00	No Ice 0.72	0.66	20.61
			0.00				1/2" Ice 0.83	0.79	29.38
			0.00				1" Ice 0.95	0.93	40.54
TMA	B	From Leg	2.00	0.0000		130.00	No Ice 0.72	0.66	20.61
			0.00				1/2" Ice 0.83	0.79	29.38
			0.00				1" Ice 0.95	0.93	40.54
TMA	C	From Leg	2.00	0.0000		130.00	No Ice 0.72	0.66	20.61
			0.00				1/2" Ice 0.83	0.79	29.38
			0.00				1" Ice 0.95	0.93	40.54
(2) 10" x 5" x 3" Diplexer	A	From Leg	2.00	0.0000		130.00	No Ice 0.42	0.26	50.00
			0.00				1/2" Ice 0.50	0.33	53.69
			0.00				1" Ice 0.60	0.41	58.75
(2) 10" x 5" x 3" Diplexer	B	From Leg	2.00	0.0000		130.00	No Ice 0.42	0.26	50.00
			0.00				1/2" Ice 0.50	0.33	53.69
			0.00				1" Ice 0.60	0.41	58.75
(2) 10" x 5" x 3" Diplexer	C	From Leg	2.00	0.0000		130.00	No Ice 0.42	0.26	50.00
			0.00				1/2" Ice 0.50	0.33	53.69
			0.00				1" Ice 0.60	0.41	58.75
20"x18"x8" Surge Protector	A	From Leg	2.00	0.0000		130.00	No Ice 3.00	1.33	30.00
			0.00				1/2" Ice 3.21	1.49	53.04
			0.00				1" Ice 3.44	1.66	79.26
20"x18"x8" Surge Protector	B	From Leg	2.00	0.0000		130.00	No Ice 3.00	1.33	30.00
			0.00				1/2" Ice 3.21	1.49	53.04
			0.00				1" Ice 3.44	1.66	79.26
20"x18"x8" Surge Protector	C	From Leg	2.00	0.0000		130.00	No Ice 3.00	1.33	30.00
			0.00				1/2" Ice 3.21	1.49	53.04
			0.00				1" Ice 3.44	1.66	79.26
(2) RRUS-11	A	From Leg	2.00	0.0000		130.00	No Ice 3.79	1.46	55.00
			0.00				1/2" Ice 4.04	1.63	80.77
			0.00				1" Ice 4.29	1.81	109.98
(2) RRUS-11	B	From Leg	2.00	0.0000		130.00	No Ice 3.79	1.46	55.00
			0.00				1/2" Ice 4.04	1.63	80.77
			0.00				1" Ice 4.29	1.81	109.98
(2) RRUS-11	C	From Leg	2.00	0.0000		130.00	No Ice 3.79	1.46	55.00
			0.00				1/2" Ice 4.04	1.63	80.77
			0.00				1" Ice 4.29	1.81	109.98
(2) A2	A	From Leg	2.00	0.0000		130.00	No Ice 1.87	0.00	30.00
			0.00				1/2" Ice 2.20	0.00	0.00
			0.00				1" Ice 2.53	0.00	0.00
(2) A2	B	From Leg	2.00	0.0000		130.00	No Ice 1.87	0.00	30.00
			0.00				1/2" Ice 2.20	0.00	0.00
			0.00				1" Ice 2.53	0.00	0.00
(2) A2	C	From Leg	2.00	0.0000		130.00	No Ice 1.87	0.00	30.00
			0.00				1/2" Ice 2.20	0.00	0.00
			0.00				1" Ice 2.53	0.00	0.00
(2) RRUS-12	A	From Leg	2.00	0.0000		130.00	No Ice 3.15	1.29	50.00
			0.00				1/2" Ice 3.36	1.44	73.22
			0.00				1" Ice 3.59	1.60	99.64
(2) RRUS-12	B	From Leg	2.00	0.0000		130.00	No Ice 3.15	1.29	50.00
			0.00				1/2" Ice 3.36	1.44	73.22
			0.00				1" Ice 3.59	1.60	99.64
(2) RRUS-12	C	From Leg	2.00	0.0000		130.00	No Ice 3.15	1.29	50.00
			0.00				1/2" Ice 3.36	1.44	73.22
			0.00				1" Ice 3.59	1.60	99.64

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
RRUS- E2	A	From Leg	2.00	0.0000	130.00	No Ice	3.40	1.82	76.98
			0.00			1/2" Ice	3.63	2.09	108.45
			0.00			1" Ice	3.86	2.38	144.12
RRUS- E2	B	From Leg	2.00	0.0000	130.00	No Ice	3.40	1.82	76.98
			0.00			1/2" Ice	3.63	2.09	108.45
			0.00			1" Ice	3.86	2.38	144.12
RRUS- E2	C	From Leg	2.00	0.0000	130.00	No Ice	3.40	1.82	76.98
			0.00			1/2" Ice	3.63	2.09	108.45
			0.00			1" Ice	3.86	2.38	144.12
RRUS- 32	A	From Leg	2.00	0.0000	130.00	No Ice	2.69	1.92	67.30
			0.00			1/2" Ice	2.91	2.23	93.17
			0.00			1" Ice	3.14	2.56	123.05
RRUS- 32	B	From Leg	2.00	0.0000	130.00	No Ice	2.69	1.92	67.30
			0.00			1/2" Ice	2.91	2.23	93.17
			0.00			1" Ice	3.14	2.56	123.05
RRUS- 32	C	From Leg	2.00	0.0000	130.00	No Ice	2.69	1.92	67.30
			0.00			1/2" Ice	2.91	2.23	93.17
			0.00			1" Ice	3.14	2.56	123.05
Angle Low Profile Platform	A	From Leg	2.00	0.0000	130.00	No Ice	26.10	26.10	1500.00
			0.00			1/2" Ice	31.60	31.60	1700.00
			0.00			1" Ice	37.10	37.10	1900.00

4' Omni	B	From Leg	2.00	0.0000	119.00	No Ice	1.00	1.00	15.00
			0.00			1/2" Ice	1.25	1.25	23.96
			0.00			1" Ice	1.50	1.50	35.82
4' Omni	C	From Leg	2.00	0.0000	119.00	No Ice	1.00	1.00	15.00
			0.00			1/2" Ice	1.25	1.25	23.96
			0.00			1" Ice	1.50	1.50	35.82
Pipe Side Arm	B	From Leg	2.00	0.0000	119.00	No Ice	0.46	3.55	150.00
			0.00			1/2" Ice	0.62	4.93	175.00
			0.00			1" Ice	0.78	5.89	200.00
Pipe Side Arm	C	From Leg	2.00	0.0000	119.00	No Ice	0.46	3.55	150.00
			0.00			1/2" Ice	0.62	4.93	175.00
			0.00			1" Ice	0.78	5.89	200.00
Angle Side Arm	A	From Leg	2.00	0.0000	119.00	No Ice	0.82	6.23	150.00
			0.00			1/2" Ice	1.10	8.47	230.00
			0.00			1" Ice	1.40	10.20	310.00

(4) 73"x12"x7" Panel	A	From Leg	2.00	0.0000	106.00	No Ice	8.13	4.70	45.00
			0.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
(4) 73"x12"x7" Panel	B	From Leg	2.00	0.0000	106.00	No Ice	8.13	4.70	45.00
			0.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
(4) 73"x12"x7" Panel	C	From Leg	2.00	0.0000	106.00	No Ice	8.13	4.70	45.00
			0.00			1/2" Ice	8.59	5.15	92.28
			0.00			1" Ice	9.05	5.60	145.59
(2) RRUS-11	A	From Leg	2.00	0.0000	106.00	No Ice	3.79	1.46	55.00
			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
(2) RRUS-11	B	From Leg	2.00	0.0000	106.00	No Ice	3.79	1.46	55.00
			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
(2) RRUS-11	C	From Leg	2.00	0.0000	106.00	No Ice	3.79	1.46	55.00
			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
Angle Low Profile Platform	A	From Leg	2.00	0.0000	106.00	No Ice	26.10	26.10	1500.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
			0.00			1/2" Ice	31.60	31.60	1700.00
			0.00			1" Ice	37.10	37.10	1900.00

APXVSP18-C-A20 (Sprint)	A	From Leg	2.00	0.0000	140.00	No Ice	8.02	5.28	57.00
			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
APXVSP18-C-A20 (Sprint)	B	From Leg	2.00	0.0000	140.00	No Ice	8.02	5.28	57.00
			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
APXVSP18-C-A20 (Sprint)	C	From Leg	2.00	0.0000	140.00	No Ice	8.02	5.28	57.00
			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
(2) FD9R6004/1C-3L	A	From Leg	2.00	0.0000	140.00	No Ice	0.31	0.08	2.60
			0.00			1/2" Ice	0.39	0.12	4.90
			0.00			1" Ice	0.47	0.17	8.29
(2) FD9R6004/1C-3L	B	From Leg	2.00	0.0000	140.00	No Ice	0.31	0.08	2.60
			0.00			1/2" Ice	0.39	0.12	4.90
			0.00			1" Ice	0.47	0.17	8.29
(2) FD9R6004/1C-3L	C	From Leg	2.00	0.0000	140.00	No Ice	0.31	0.08	2.60
			0.00			1/2" Ice	0.39	0.12	4.90
			0.00			1" Ice	0.47	0.17	8.29

Tower Pressures - No Ice

$$G_H = 1.100$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1	139.65	1.087	27	53.597	A	0.000	53.597	53.597	100.00	0.000	0.000
150.00-130.00					B	0.000	53.597		100.00	0.000	0.000
					C	0.000	53.597		100.00	0.000	0.000
L2	122.33	1.047	26	46.911	A	0.000	46.911	46.911	100.00	0.000	0.000
130.00-115.00					B	0.000	46.911		100.00	0.000	0.000
					C	0.000	46.911		100.00	0.000	0.000
L3	104.74	1.001	25	72.361	A	0.000	72.361	72.361	100.00	0.000	0.000
115.00-95.00					B	0.000	72.361		100.00	0.000	0.000
					C	0.000	72.361		100.00	0.000	0.000
L4	95.00-91.00	0.968	24	15.589	A	0.000	15.589	15.589	100.00	0.000	0.000
					B	0.000	15.589		100.00	0.000	0.000
					C	0.000	15.589		100.00	0.000	0.000
L5	91.00-51.00	0.895	22	180.634	A	0.000	180.634	180.634	100.00	0.000	0.000
					B	0.000	180.634		100.00	0.000	0.000
					C	0.000	180.634		100.00	0.000	0.000
L6	51.00-40.00	0.789	20	56.845	A	0.000	56.845	56.845	100.00	0.000	0.000
					B	0.000	56.845		100.00	0.000	0.000
					C	0.000	56.845		100.00	0.000	0.000
L7	40.00-19.00	0.7	17	117.933	A	0.000	117.933	117.933	100.00	0.000	0.000
					B	0.000	117.933		100.00	0.000	0.000

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Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L8 19.00-0.00	9.36	0.7	17	115.928	C 0.000 A 0.000 B 0.000 C 0.000	117.933 115.928 115.928 115.928	115.928	100.00 100.00 100.00 100.00	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z psf	t _z in	A _G ft ²	F a c e A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 150.00-130.00	139.65	1.087	7	2.3104	61.298	A 0.000 B 0.000 C 0.000	61.298 61.298 61.298	61.298	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000
L2 130.00-115.00	122.33	1.047	6	2.2800	52.687	A 0.000 B 0.000 C 0.000	52.687 52.687 52.687	52.687	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000
L3 115.00-95.00	104.74	1.001	6	2.2449	79.844	A 0.000 B 0.000 C 0.000	79.844 79.844 79.844	79.844	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000
L4 95.00-91.00	92.99	0.968	6	2.2183	17.085	A 0.000 B 0.000 C 0.000	17.085 17.085 17.085	17.085	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000
L5 91.00-51.00	70.57	0.895	5	2.1580	195.020	A 0.000 B 0.000 C 0.000	195.020 195.020 195.020	195.020	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000
L6 51.00-40.00	45.45	0.789	5	2.0650	60.802	A 0.000 B 0.000 C 0.000	60.802 60.802 60.802	60.802	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000
L7 40.00-19.00	29.32	0.7	4	1.9765	124.850	A 0.000 B 0.000 C 0.000	124.850 124.850 124.850	124.850	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000
L8 19.00-0.00	9.36	0.7	4	1.7632	122.186	A 0.000 B 0.000 C 0.000	122.186 122.186 122.186	122.186	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 150.00-130.00	139.65	1.087	9	53.597	A 0.000 B 0.000 C 0.000	53.597 53.597 53.597	53.597	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000
L2 130.00-115.00	122.33	1.047	8	46.911	A 0.000 B 0.000 C 0.000	46.911 46.911 46.911	46.911	100.00 100.00 100.00	0.000 0.000 0.000	0.000 0.000 0.000

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Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
L3 115.00-95.00	104.74	1.001	8	72.361	A	0.000	72.361	72.361	100.00	0.000	0.000
					B	0.000	72.361		100.00	0.000	0.000
					C	0.000	72.361		100.00	0.000	0.000
L4 95.00-91.00	92.99	0.968	8	15.589	A	0.000	15.589	15.589	100.00	0.000	0.000
					B	0.000	15.589		100.00	0.000	0.000
					C	0.000	15.589		100.00	0.000	0.000
L5 91.00-51.00	70.57	0.895	7	180.634	A	0.000	180.634	180.634	100.00	0.000	0.000
					B	0.000	180.634		100.00	0.000	0.000
					C	0.000	180.634		100.00	0.000	0.000
L6 51.00-40.00	45.45	0.789	6	56.845	A	0.000	56.845	56.845	100.00	0.000	0.000
					B	0.000	56.845		100.00	0.000	0.000
					C	0.000	56.845		100.00	0.000	0.000
L7 40.00-19.00	29.32	0.7	5	117.933	A	0.000	117.933	117.933	100.00	0.000	0.000
					B	0.000	117.933		100.00	0.000	0.000
					C	0.000	117.933		100.00	0.000	0.000
L8 19.00-0.00	9.36	0.7	5	115.928	A	0.000	115.928	115.928	100.00	0.000	0.000
					B	0.000	115.928		100.00	0.000	0.000
					C	0.000	115.928		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 150.00-130.00	0.00	1688.06	A	1	1	27	1	1	53.597	1590.16	79.51	C
			B	1	1		1	1	53.597			
			C	1	1		1	1	53.597			
L2 130.00-115.00	0.00	1927.74	A	1	1	26	1	1	46.911	1340.12	89.34	C
			B	1	1		1	1	46.911			
			C	1	1		1	1	46.911			
L3 115.00-95.00	0.00	2850.52	A	1	1	25	1	1	72.361	1977.49	98.87	C
			B	1	1		1	1	72.361			
			C	1	1		1	1	72.361			
L4 95.00-91.00	0.00	1503.16	A	1	1	24	1	1	15.589	411.76	102.94	C
			B	1	1		1	1	15.589			
			C	1	1		1	1	15.589			
L5 91.00-51.00	0.00	8541.29	A	1	1	22	1	1	180.634	4393.44	109.84	C
			B	1	1		1	1	180.634			
			C	1	1		1	1	180.634			
L6 51.00-40.00	0.00	4545.53	A	1	1	20	1	1	56.845	1223.75	111.25	C
			B	1	1		1	1	56.845			
			C	1	1		1	1	56.845			
L7 40.00-19.00	0.00	6508.75	A	1	1	17	1	1	117.933	2252.84	107.28	C
			B	1	1		1	1	117.933			
			C	1	1		1	1	117.933			
L8 19.00-0.00	0.00	9237.39	A	1	1	17	1	1	115.928	2214.54	116.55	C
			B	1	1		1	1	115.928			
			C	1	1		1	1	115.928			
Sum Weight:	0.00	36802.43						OTM	1083870.1 3 lb-ft	15404.09		

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Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 150.00-130.00	0.00	1688.06	A B C	1 1 1	1 1 1	27	1 1 1	1 1 1	53.597 53.597 53.597	1590.16	79.51	C
L2 130.00-115.00	0.00	1927.74	A B C	1 1 1	1 1 1	26	1 1 1	1 1 1	46.911 46.911 46.911	1340.12	89.34	C
L3 115.00-95.00	0.00	2850.52	A B C	1 1 1	1 1 1	25	1 1 1	1 1 1	72.361 72.361 72.361	1977.49	98.87	C
L4 95.00-91.00	0.00	1503.16	A B C	1 1 1	1 1 1	24	1 1 1	1 1 1	15.589 15.589 15.589	411.76	102.94	C
L5 91.00-51.00	0.00	8541.29	A B C	1 1 1	1 1 1	22	1 1 1	1 1 1	180.634 180.634 180.634	4393.44	109.84	C
L6 51.00-40.00	0.00	4545.53	A B C	1 1 1	1 1 1	20	1 1 1	1 1 1	56.845 56.845 56.845	1223.75	111.25	C
L7 40.00-19.00	0.00	6508.75	A B C	1 1 1	1 1 1	17	1 1 1	1 1 1	117.933 117.933 117.933	2252.84	107.28	C
L8 19.00-0.00	0.00	9237.39	A B C	1 1 1	1 1 1	17	1 1 1	1 1 1	115.928 115.928 115.928	2214.54	116.55	C
Sum Weight:	0.00	36802.43		1	1			OTM	1083870.1 3 lb-ft	15404.09		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 150.00-130.00	0.00	1688.06	A B C	1 1 1	1 1 1	27	1 1 1	1 1 1	53.597 53.597 53.597	1590.16	79.51	C
L2 130.00-115.00	0.00	1927.74	A B C	1 1 1	1 1 1	26	1 1 1	1 1 1	46.911 46.911 46.911	1340.12	89.34	C
L3 115.00-95.00	0.00	2850.52	A B C	1 1 1	1 1 1	25	1 1 1	1 1 1	72.361 72.361 72.361	1977.49	98.87	C
L4 95.00-91.00	0.00	1503.16	A B C	1 1 1	1 1 1	24	1 1 1	1 1 1	15.589 15.589 15.589	411.76	102.94	C
L5 91.00-51.00	0.00	8541.29	A B C	1 1 1	1 1 1	22	1 1 1	1 1 1	180.634 180.634 180.634	4393.44	109.84	C
L6 51.00-40.00	0.00	4545.53	A B C	1 1 1	1 1 1	20	1 1 1	1 1 1	56.845 56.845 56.845	1223.75	111.25	C

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Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L7 40.00-19.00	0.00	6508.75	A	1	1	17	1	1	117.933	2252.84	107.28	C
			B	1	1		1	1	117.933			
			C	1	1		1	1	117.933			
L8 19.00-0.00	0.00	9237.39	A	1	1	17	1	1	115.928	2214.54	116.55	C
			B	1	1		1	1	115.928			
			C	1	1		1	1	115.928			
Sum Weight:	0.00	36802.43						OTM	1083870.1 3 lb-ft	15404.09		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 150.00-130.00	0.00	3619.08	A	1	1.2	7	1	1	61.298	534.84	26.74	C
			B	1	1.2		1	1	61.298			
			C	1	1.2		1	1	61.298			
L2 130.00-115.00	0.00	3577.82	A	1	1.2	6	1	1	52.687	442.64	29.51	C
			B	1	1.2		1	1	52.687			
			C	1	1.2		1	1	52.687			
L3 115.00-95.00	0.00	5334.52	A	1	1.2	6	1	1	79.844	641.70	32.08	C
			B	1	1.2		1	1	79.844			
			C	1	1.2		1	1	79.844			
L4 95.00-91.00	0.00	2029.73	A	1	1.2	6	1	1	17.085	132.72	33.18	C
			B	1	1.2		1	1	17.085			
			C	1	1.2		1	1	17.085			
L5 91.00-51.00	0.00	14432.35	A	1	1.2	5	1	1	195.020	1394.96	34.87	C
			B	1	1.2		1	1	195.020			
			C	1	1.2		1	1	195.020			
L6 51.00-40.00	0.00	6308.10	A	1	1.2	5	1	1	60.802	384.94	34.99	C
			B	1	1.2		1	1	60.802			
			C	1	1.2		1	1	60.802			
L7 40.00-19.00	0.00	9994.70	A	1	1.2	4	1	1	124.850	701.40	33.40	C
			B	1	1.2		1	1	124.850			
			C	1	1.2		1	1	124.850			
L8 19.00-0.00	0.00	12278.29	A	1	1.2	4	1	1	122.186	686.43	36.13	C
			B	1	1.2		1	1	122.186			
			C	1	1.2		1	1	122.186			
Sum Weight:	0.00	57574.58						OTM	351323.34 lb-ft	4919.63		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1	0.00	3619.08	A	1	1.2	7	1	1	61.298	534.84	26.74	C

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Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
150.00-130.00			B	1	1.2		1	1	61.298			
			C	1	1.2		1	1	61.298			
L2	0.00	3577.82	A	1	1.2	6	1	1	52.687	442.64	29.51	C
130.00-115.00			B	1	1.2		1	1	52.687			
			C	1	1.2		1	1	52.687			
L3	0.00	5334.52	A	1	1.2	6	1	1	79.844	641.70	32.08	C
115.00-95.00			B	1	1.2		1	1	79.844			
			C	1	1.2		1	1	79.844			
L4	0.00	2029.73	A	1	1.2	6	1	1	17.085	132.72	33.18	C
95.00-91.00			B	1	1.2		1	1	17.085			
			C	1	1.2		1	1	17.085			
L5	0.00	14432.35	A	1	1.2	5	1	1	195.020	1394.96	34.87	C
91.00-51.00			B	1	1.2		1	1	195.020			
			C	1	1.2		1	1	195.020			
L6	0.00	6308.10	A	1	1.2	5	1	1	60.802	384.94	34.99	C
51.00-40.00			B	1	1.2		1	1	60.802			
			C	1	1.2		1	1	60.802			
L7	0.00	9994.70	A	1	1.2	4	1	1	124.850	701.40	33.40	C
40.00-19.00			B	1	1.2		1	1	124.850			
			C	1	1.2		1	1	124.850			
L8 19.00-0.00	0.00	12278.29	A	1	1.2	4	1	1	122.186	686.43	36.13	C
			B	1	1.2		1	1	122.186			
			C	1	1.2		1	1	122.186			
Sum Weight:	0.00	57574.58						OTM	351323.34 lb-ft	4919.63		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1	0.00	3619.08	A	1	1.2	7	1	1	61.298	534.84	26.74	C
150.00-130.00			B	1	1.2		1	1	61.298			
			C	1	1.2		1	1	61.298			
L2	0.00	3577.82	A	1	1.2	6	1	1	52.687	442.64	29.51	C
130.00-115.00			B	1	1.2		1	1	52.687			
			C	1	1.2		1	1	52.687			
L3	0.00	5334.52	A	1	1.2	6	1	1	79.844	641.70	32.08	C
115.00-95.00			B	1	1.2		1	1	79.844			
			C	1	1.2		1	1	79.844			
L4	0.00	2029.73	A	1	1.2	6	1	1	17.085	132.72	33.18	C
95.00-91.00			B	1	1.2		1	1	17.085			
			C	1	1.2		1	1	17.085			
L5	0.00	14432.35	A	1	1.2	5	1	1	195.020	1394.96	34.87	C
91.00-51.00			B	1	1.2		1	1	195.020			
			C	1	1.2		1	1	195.020			
L6	0.00	6308.10	A	1	1.2	5	1	1	60.802	384.94	34.99	C
51.00-40.00			B	1	1.2		1	1	60.802			
			C	1	1.2		1	1	60.802			
L7	0.00	9994.70	A	1	1.2	4	1	1	124.850	701.40	33.40	C
40.00-19.00			B	1	1.2		1	1	124.850			
			C	1	1.2		1	1	124.850			
L8 19.00-0.00	0.00	12278.29	A	1	1.2	4	1	1	122.186	686.43	36.13	C

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Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
Sum Weight:	0.00	57574.58	B C	1 1	1.2 1.2		1 1	1 1 OTM	122.186 122.186 351323.34 lb-ft	4919.63		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 150.00-130.00	0.00	1688.06	A B C	1 1 1	1 1 1	9	1 1 1	1 1 1	53.597 53.597 53.597	502.11	25.11	C
L2 130.00-115.00	0.00	1927.74	A B C	1 1 1	1 1 1	8	1 1 1	1 1 1	46.911 46.911 46.911	423.15	28.21	C
L3 115.00-95.00	0.00	2850.52	A B C	1 1 1	1 1 1	8	1 1 1	1 1 1	72.361 72.361 72.361	624.41	31.22	C
L4 95.00-91.00	0.00	1503.16	A B C	1 1 1	1 1 1	8	1 1 1	1 1 1	15.589 15.589 15.589	130.02	32.50	C
L5 91.00-51.00	0.00	8541.29	A B C	1 1 1	1 1 1	7	1 1 1	1 1 1	180.634 180.634 180.634	1387.26	34.68	C
L6 51.00-40.00	0.00	4545.53	A B C	1 1 1	1 1 1	6	1 1 1	1 1 1	56.845 56.845 56.845	386.41	35.13	C
L7 40.00-19.00	0.00	6508.75	A B C	1 1 1	1 1 1	5	1 1 1	1 1 1	117.933 117.933 117.933	711.35	33.87	C
L8 19.00-0.00	0.00	9237.39	A B C	1 1 1	1 1 1	5	1 1 1	1 1 1	115.928 115.928 115.928	699.26	36.80	C
Sum Weight:	0.00	36802.43						OTM	342241.23 lb-ft	4863.97		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 150.00-130.00	0.00	1688.06	A B C	1 1 1	1 1 1	9	1 1 1	1 1 1	53.597 53.597 53.597	502.11	25.11	C
L2 130.00-115.00	0.00	1927.74	A B	1 1	1 1	8	1 1	1 1	46.911 46.911	423.15	28.21	C

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Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L3 115.00-95.00	0.00	2850.52	C A B	1 1 1	1 1 1	8	1 1 1	1 1 1	46.911 72.361 72.361	624.41	31.22	C
L4 95.00-91.00	0.00	1503.16	C A B	1 1 1	1 1 1	8	1 1 1	1 1 1	72.361 15.589 15.589	130.02	32.50	C
L5 91.00-51.00	0.00	8541.29	C A B	1 1 1	1 1 1	7	1 1 1	1 1 1	15.589 180.634 180.634	1387.26	34.68	C
L6 51.00-40.00	0.00	4545.53	C A B	1 1 1	1 1 1	6	1 1 1	1 1 1	180.634 56.845 56.845	386.41	35.13	C
L7 40.00-19.00	0.00	6508.75	C A B	1 1 1	1 1 1	5	1 1 1	1 1 1	56.845 117.933 117.933	711.35	33.87	C
L8 19.00-0.00	0.00	9237.39	C A B	1 1 1	1 1 1	5	1 1 1	1 1 1	117.933 115.928 115.928	699.26	36.80	C
Sum Weight:	0.00	36802.43	C	1	1		1	OTM	115.928 342241.23 lb-ft	4863.97		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 150.00-130.00	0.00	1688.06	C A B	1 1 1	1 1 1	9	1 1 1	1 1 1	53.597 53.597 53.597	502.11	25.11	C
L2 130.00-115.00	0.00	1927.74	C A B	1 1 1	1 1 1	8	1 1 1	1 1 1	46.911 46.911 46.911	423.15	28.21	C
L3 115.00-95.00	0.00	2850.52	C A B	1 1 1	1 1 1	8	1 1 1	1 1 1	46.911 72.361 72.361	624.41	31.22	C
L4 95.00-91.00	0.00	1503.16	C A B	1 1 1	1 1 1	8	1 1 1	1 1 1	72.361 15.589 15.589	130.02	32.50	C
L5 91.00-51.00	0.00	8541.29	C A B	1 1 1	1 1 1	7	1 1 1	1 1 1	15.589 180.634 180.634	1387.26	34.68	C
L6 51.00-40.00	0.00	4545.53	C A B	1 1 1	1 1 1	6	1 1 1	1 1 1	180.634 56.845 56.845	386.41	35.13	C
L7 40.00-19.00	0.00	6508.75	C A B	1 1 1	1 1 1	5	1 1 1	1 1 1	56.845 117.933 117.933	711.35	33.87	C
L8 19.00-0.00	0.00	9237.39	C A B	1 1 1	1 1 1	5	1 1 1	1 1 1	117.933 115.928 115.928	699.26	36.80	C
Sum Weight:	0.00	36802.43	C	1	1		1	OTM	115.928 342241.23 lb-ft	4863.97		

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Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Leg Weight	36802.43					
Bracing Weight	0.00					
Total Member Self-Weight	36802.43			-10200.73	0.00	
Total Weight	46625.45			-10200.73	0.00	
Wind 0 deg - No Ice		0.00	-26039.54	-2464141.51	0.00	0.00
Wind 30 deg - No Ice		13005.60	-22550.91	-2135375.79	-1223684.25	-2533.46
Wind 60 deg - No Ice		22526.36	-13019.77	-1237171.12	-2119483.30	-4388.09
Wind 90 deg - No Ice		26011.20	0.00	-10200.73	-2447368.50	-5066.93
Wind 120 deg - No Ice		22526.36	13019.77	1216769.65	-2119483.30	-4388.09
Wind 150 deg - No Ice		13005.60	22550.91	2114974.32	-1223684.25	-2533.46
Wind 180 deg - No Ice		0.00	26039.54	2443740.04	0.00	0.00
Wind 210 deg - No Ice		-13005.60	22550.91	2114974.32	1223684.25	2533.46
Wind 240 deg - No Ice		-22526.36	13019.77	1216769.65	2119483.30	4388.09
Wind 270 deg - No Ice		-26011.20	0.00	-10200.73	2447368.50	5066.93
Wind 300 deg - No Ice		-22526.36	-13019.77	-1237171.12	2119483.30	4388.09
Wind 330 deg - No Ice		-13005.60	-22550.91	-2135375.79	1223684.25	2533.46
Member Ice	20772.16					
Total Weight Ice	88077.11			-15891.45	0.00	
Wind 0 deg - Ice		0.00	-9305.94	-939035.27	0.00	0.00
Wind 30 deg - Ice		4644.23	-8059.18	-815357.45	-459600.86	-1204.48
Wind 60 deg - Ice		8044.05	-4652.97	-477463.36	-796052.05	-2086.21
Wind 90 deg - Ice		9288.47	0.00	-15891.45	-919201.73	-2408.95
Wind 120 deg - Ice		8044.05	4652.97	445680.45	-796052.05	-2086.21
Wind 150 deg - Ice		4644.23	8059.18	783574.54	-459600.86	-1204.48
Wind 180 deg - Ice		0.00	9305.94	907252.36	0.00	0.00
Wind 210 deg - Ice		-4644.23	8059.18	783574.54	459600.86	1204.48
Wind 240 deg - Ice		-8044.05	4652.97	445680.45	796052.05	2086.21
Wind 270 deg - Ice		-9288.47	0.00	-15891.45	919201.73	2408.95
Wind 300 deg - Ice		-8044.05	-4652.97	-477463.36	796052.05	2086.21
Wind 330 deg - Ice		-4644.23	-8059.18	-815357.45	459600.86	1204.48
Total Weight	46625.45			-10200.73	0.00	
Wind 0 deg - Service		0.00	-8222.21	-785053.43	0.00	0.00
Wind 30 deg - Service		4106.63	-7120.64	-681242.86	-386388.72	-799.96
Wind 60 deg - Service		7112.89	-4111.10	-397627.08	-669244.90	-1385.58
Wind 90 deg - Service		8213.26	0.00	-10200.73	-772777.45	-1599.93
Wind 120 deg - Service		7112.89	4111.10	377225.62	-669244.90	-1385.58
Wind 150 deg - Service		4106.63	7120.64	660841.39	-386388.72	-799.96
Wind 180 deg - Service		0.00	8222.21	764651.97	0.00	0.00
Wind 210 deg - Service		-4106.63	7120.64	660841.39	386388.72	799.96
Wind 240 deg - Service		-7112.89	4111.10	377225.62	669244.90	1385.58
Wind 270 deg - Service		-8213.26	0.00	-10200.73	772777.45	1599.93
Wind 300 deg - Service		-7112.89	-4111.10	-397627.08	669244.90	1385.58
Wind 330 deg - Service		-4106.63	-7120.64	-681242.86	386388.72	799.96

Load Combinations

Comb. No.	Description
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<i>Comb. No.</i>	<i>Description</i>
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

<i>Section No.</i>	<i>Elevation ft</i>	<i>Horz. Deflection in</i>	<i>Gov. Load Comb.</i>	<i>Tilt °</i>	<i>Twist °</i>
L1	150 - 130	7.472	39	0.4339	0.0032
L2	135 - 115	6.118	39	0.4255	0.0035
L3	115 - 95	4.412	39	0.3774	0.0027

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L4	101 - 91	3.372	39	0.3299	0.0020
L5	91 - 51	2.706	39	0.3003	0.0017
L6	59 - 40	1.103	39	0.1770	0.0007
L7	40 - 19	0.498	39	0.1173	0.0004
L8	28 - 0	0.254	39	0.0771	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.00	4' Omni	39	7.472	0.4339	0.0032	178129
150.00	RV90-17-DP	39	7.472	0.4339	0.0032	178129
140.00	Angle Sector Frame	39	6.566	0.4302	0.0035	89064
130.00	7770.00	39	5.674	0.4175	0.0034	34192
119.00	4' Omni	39	4.735	0.3901	0.0029	17696
106.00	(4) 73"x12"x7" Panel	39	3.728	0.3464	0.0022	18809

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 130	37.093	2	2.1424	0.0165
L2	135 - 115	30.413	2	2.0964	0.0177
L3	115 - 95	21.996	2	1.8680	0.0136
L4	101 - 91	16.843	2	1.6380	0.0104
L5	91 - 51	13.533	2	1.4947	0.0085
L6	59 - 40	5.530	2	0.8864	0.0035
L7	40 - 19	2.501	2	0.5886	0.0020
L8	28 - 0	1.276	2	0.3873	0.0012

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.00	4' Omni	2	37.093	2.1424	0.0165	35820
150.00	RV90-17-DP	2	37.093	2.1424	0.0165	35820
140.00	Angle Sector Frame	2	32.626	2.1203	0.0177	17910
130.00	7770.00	2	28.227	2.0584	0.0172	7032
119.00	4' Omni	2	23.593	1.9284	0.0146	3694
106.00	(4) 73"x12"x7" Panel	2	18.611	1.7178	0.0114	3922

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Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio
									P _u φP _n
L1	150 - 149	TP34.3125x27.8125x0.25	20.00	150.00	180.3	22.4494	-6116.50	156022.00	0.039
	149 - 148					22.7111	-6305.04	161541.00	0.039
	148 - 147					22.9727	-6494.64	167188.00	0.039
	147 - 146					23.2343	-6685.31	172965.00	0.039
	146 - 145					23.4959	-6877.05	178874.00	0.038
	145 - 144					23.7576	-7069.86	184916.00	0.038
	144 - 143					24.0192	-2634.86	191093.00	0.014
	143 - 142					24.2808	-2729.11	197405.00	0.014
	142 - 141					24.5424	-2824.42	203855.00	0.014
	141 - 140					24.8041	-2920.79	210445.00	0.014
	140 - 139					25.0657	-4599.89	217174.00	0.021
	139 - 138					25.3273	-4698.58	224046.00	0.021
	138 - 137					25.5889	-4798.38	231061.00	0.021
	137 - 136					25.8506	-4899.28	238221.00	0.021
L2	136 - 135	TP38.6875x32.1875x0.25	20.00	150.00	149.8	26.1122	-5001.28	245527.00	0.020
	135 - 130					27.4203	-3047.99	284306.00	0.011
	135 - 130					27.0178	-3014.37	271969.00	0.011
	130 - 129					27.2794	-10495.80	279947.00	0.037
	129 - 128					27.5411	-10605.40	288079.00	0.037
	128 - 127					27.8027	-10716.30	296367.00	0.036
	127 - 126					28.0643	-10828.50	304812.00	0.036
	126 - 125					28.3259	-10941.90	313417.00	0.035
	125 - 124					28.5876	-11056.60	322181.00	0.034
	124 - 123					28.8492	-11172.60	331108.00	0.034
	123 - 122					29.1108	-11289.80	340198.00	0.033
	122 - 121					29.3724	-11408.30	349453.00	0.033
	121 - 120					29.6341	-11528.10	358875.00	0.032
	120 - 119					29.8957	-11649.10	368464.00	0.032
L3	119 - 118	TP45.1875x38.6875x0.3125	20.00	150.00	129.9	30.1573	-12334.20	378222.00	0.033
	118 - 117					30.4189	-12457.90	388151.00	0.032
	117 - 116					30.6806	-12582.80	398253.00	0.032
	116 - 115					30.9422	-12708.90	408528.00	0.031
	115 - 114					38.9419	-12867.40	521194.00	0.025
	114 - 113					39.2689	-13026.80	534436.00	0.024
	113 - 112					39.5959	-13187.70	547900.00	0.024
	112 - 111					39.9230	-13350.10	561588.00	0.024
	111 - 110					40.2500	-13513.90	575502.00	0.023
	110 - 109					40.5770	-13679.20	589644.00	0.023
	109 - 108					40.9041	-13846.00	604016.00	0.023
	108 - 107					41.2311	-14014.20	618620.00	0.023
	107 - 106					41.5581	-14183.90	633457.00	0.022
	106 - 105					41.8852	-17065.90	648529.00	0.026
L4	105 - 104	TP45.8125x42.6125x0.3125	10.00	150.00	113.7	42.2122	-17240.00	663839.00	0.026
	104 - 103					42.5392	-17415.60	679388.00	0.026
	103 - 102					42.8662	-17592.80	695177.00	0.025
	102 - 101					43.1933	-17771.40	711210.00	0.025
	101 - 95					45.1555	-10019.70	811272.00	0.012
L5	101 - 95	TP58.875x45.8125x0.375	40.00	150.00	109.3	44.4964	-9887.56	777540.00	0.013
	95 - 94					44.8184	-20103.20	794370.00	0.025
	94 - 93					45.1404	-20291.70	810516.00	0.025
	93 - 92					45.4624	-20481.70	826632.00	0.025
	92 - 91					45.7844	-20673.20	842714.00	0.025
	91 - 89.3158					55.5299	-21057.20	1049300.00	0.020

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
	89.3158 - 87.6316					56.1940	-21448.30	1084920.00	0.020
	87.6316 - 85.9474					56.8582	-21844.30	1120490.00	0.019
	85.9474 - 84.2632					57.5223	-22245.30	1155990.00	0.019
	84.2632 - 82.5789					58.1864	-22651.20	1191390.00	0.019
	82.5789 - 80.8947					58.8505	-23062.10	1226670.00	0.019
	80.8947 - 79.2105					59.5147	-23477.90	1261800.00	0.019
	79.2105 - 77.5263					60.1788	-23898.70	1296760.00	0.018
	77.5263 - 75.8421					60.8429	-24324.40	1331530.00	0.018
	75.8421 - 74.1579					61.5070	-24755.00	1366100.00	0.018
	74.1579 - 72.4737					62.1712	-25190.50	1400440.00	0.018
	72.4737 - 70.7895					62.8353	-25631.00	1434540.00	0.018
	70.7895 - 69.1053					63.4994	-26076.30	1468370.00	0.018
	69.1053 - 67.4211					64.1635	-26526.60	1501940.00	0.018
	67.4211 - 65.7368					64.8277	-26981.70	1535210.00	0.018
	65.7368 - 64.0526					65.4918	-27441.80	1568190.00	0.017
	64.0526 - 62.3684					66.1559	-27906.80	1600840.00	0.017
	62.3684 - 60.6842					66.8200	-28376.60	1633180.00	0.017
	60.6842 - 59					67.4842	-28851.30	1665170.00	0.017
L6	59 - 51	TP61.6875x55.5125x0.375	19.00	150.00	87.1	70.6387	-16776.10	1812250.00	0.009
	59 - 51					69.7180	-16565.20	1770190.00	0.009
	51 - 50					70.1105	-33653.40	1788210.00	0.019
	50 - 49					70.5029	-33949.70	1806100.00	0.019
	49 - 48					70.8953	-34247.70	1823850.00	0.019
	48 - 47					71.2878	-34547.40	1841460.00	0.019
	47 - 46					71.6802	-34848.80	1858940.00	0.019
	46 - 45					72.0727	-35151.80	1876270.00	0.019
	45 - 44					72.4651	-35456.60	1893470.00	0.019
	44 - 43					72.8575	-35763.10	1910530.00	0.019
	43 - 42					73.2500	-36071.30	1927440.00	0.019
	42 - 41					73.6424	-36381.10	1944210.00	0.019
	41 - 40					74.0348	-36692.70	1960840.00	0.019
L7	40 - 39	TP68.5x61.6875x0.4375	21.00	150.00	81.7	86.7429	-37055.40	2404930.00	0.015
	39 - 38					87.2000	-37419.30	2426920.00	0.015
	38 - 37					87.6570	-37785.10	2448780.00	0.015
	37 - 36					88.1140	-38152.80	2470490.00	0.015
	36 - 35					88.5710	-38522.50	2492070.00	0.015
	35 - 34					89.0280	-38894.10	2513500.00	0.015
	34 - 33					89.4850	-39267.70	2534790.00	0.015
	33 - 32					89.9420	-39643.10	2555930.00	0.016
	32 - 31					90.3990	-40020.50	2576930.00	0.016
	31 - 30					90.8560	-40399.90	2597790.00	0.016
	30 - 29					91.3130	-40781.10	2618490.00	0.016
	29 - 28					91.7700	-41164.40	2639060.00	0.016

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$	
L8	28 - 19	TP73.8125x64.7054x0.4375	28.00	150.00	74.8	95.8830	-24172.90	2817350.00	0.009	
	28 - 19					94.6612	-23861.80	2765660.00	0.009	
	19 - 18					95.1194	-48452.40	2785180.00	0.017	
	18 - 17					95.5776	-48852.20	2804530.00	0.017	
	17 - 16					96.0358	-49253.90	2823730.00	0.017	
	16 - 15					96.4940	-49657.50	2842780.00	0.017	
	15 - 14					96.9522	-50063.10	2861680.00	0.017	
	14 - 13					97.4104	-50470.60	2880420.00	0.018	
	13 - 12					97.8686	-50880.00	2899000.00	0.018	
	12 - 11					98.3268	-51291.40	2917430.00	0.018	
	11 - 10					98.7850	-51704.70	2935700.00	0.018	
	10 - 9					99.2432	-52120.00	2953810.00	0.018	
	9 - 8					99.7014	-52537.20	2971770.00	0.018	
	8 - 7					100.160	-52956.30	2989570.00	0.018	
							0			
	7 - 6					100.618	-53377.40	3007220.00	0.018	
							0			
	6 - 5					101.076	-53800.40	3024700.00	0.018	
							0			
	5 - 4					101.534	-54225.40	3042030.00	0.018	
		0								
4 - 3	101.992	-54652.30	3059200.00	0.018						
		0								
3 - 2	102.451	-55081.10	3076220.00	0.018						
		0								
2 - 1	102.909	-55511.90	3093070.00	0.018						
		0								
1 - 0	103.367	-55944.60	3109770.00	0.018						
		0								

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux}	φM _{ux}	Ratio	M _{uy}	φM _{uy}	Ratio
			lb-ft	lb-ft	$\frac{M_{ux}}{\phi M_{ux}}$	lb-ft	lb-ft	$\frac{M_{uy}}{\phi M_{uy}}$
L1	150 - 149	TP34.3125x27.8125x0.25	2982.10	633313.33	0.005	0.00	633313.33	0.000
	149 - 148		4066.63	645657.50	0.006	0.00	645657.50	0.000
	148 - 147		5177.31	658055.83	0.008	0.00	658055.83	0.000
	147 - 146		6314.41	670506.67	0.009	0.00	670506.67	0.000
	146 - 145		7478.20	683006.67	0.011	0.00	683006.67	0.000
	145 - 144		8668.92	695555.00	0.012	0.00	695555.00	0.000
	144 - 143		28356.17	708148.33	0.040	0.00	708148.33	0.000
	143 - 142		32660.33	720785.83	0.045	0.00	720785.83	0.000
	142 - 141		37092.25	733465.00	0.051	0.00	733465.00	0.000
	141 - 140		41653.33	746183.33	0.056	0.00	746183.33	0.000
	140 - 139		48641.92	758939.17	0.064	0.00	758939.17	0.000
	139 - 138		55762.08	771730.83	0.072	0.00	771730.83	0.000
	138 - 137		63015.33	784555.83	0.080	0.00	784555.83	0.000
	137 - 136		70403.00	797411.67	0.088	0.00	797411.67	0.000
	136 - 135		77926.25	810296.67	0.096	0.00	810296.67	0.000
	135 - 130		60313.58	875091.67	0.069	0.00	875091.67	0.000
	L2		135 - 130	TP38.6875x32.1875x0.25	57362.08	855100.00	0.067	0.00
130 - 129		137958.33	868083.33		0.159	0.00	868083.33	0.000
129 - 128		153328.33	881091.67		0.174	0.00	881091.67	0.000
128 - 127		168835.83	894116.67		0.189	0.00	894116.67	0.000
127 - 126		184483.33	907158.33		0.203	0.00	907158.33	0.000

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Section No.	Elevation ft	Size	M_{ux}	ϕM_{ux}	Ratio	M_{uy}	ϕM_{uy}	Ratio
			lb-ft	lb-ft	$\frac{M_{ux}}{\phi M_{ux}}$	lb-ft	lb-ft	$\frac{M_{uy}}{\phi M_{uy}}$
	126 - 125		200270.00	920208.33	0.218	0.00	920208.33	0.000
	125 - 124		216198.33	933266.67	0.232	0.00	933266.67	0.000
	124 - 123		232268.33	946333.33	0.245	0.00	946333.33	0.000
	123 - 122		248482.50	959408.33	0.259	0.00	959408.33	0.000
	122 - 121		264841.67	972483.33	0.272	0.00	972483.33	0.000
	121 - 120		281346.67	985558.33	0.285	0.00	985558.33	0.000
	120 - 119		297998.33	998641.67	0.298	0.00	998641.67	0.000
	119 - 118		315132.50	1011708.33	0.311	0.00	1011708.33	0.000
	118 - 117		332480.83	1024783.33	0.324	0.00	1024783.33	0.000
	117 - 116		349978.33	1037841.67	0.337	0.00	1037841.67	0.000
	116 - 115		367628.33	1050900.00	0.350	0.00	1050900.00	0.000
L3	115 - 114	TP45.1875x38.6875x0.3125	385427.50	1468691.67	0.262	0.00	1468691.67	0.000
	114 - 113		403375.83	1488641.67	0.271	0.00	1488641.67	0.000
	113 - 112		421475.00	1508633.33	0.279	0.00	1508633.33	0.000
	112 - 111		439724.17	1528666.67	0.288	0.00	1528666.67	0.000
	111 - 110		458125.83	1548750.00	0.296	0.00	1548750.00	0.000
	110 - 109		476680.83	1568858.33	0.304	0.00	1568858.33	0.000
	109 - 108		495390.83	1589008.33	0.312	0.00	1589008.33	0.000
	108 - 107		514255.83	1609191.67	0.320	0.00	1609191.67	0.000
	107 - 106		533277.50	1629400.00	0.327	0.00	1629400.00	0.000
	106 - 105		563662.50	1649641.67	0.342	0.00	1649641.67	0.000
	105 - 104		587484.17	1669916.67	0.352	0.00	1669916.67	0.000
	104 - 103		611465.00	1690208.33	0.362	0.00	1690208.33	0.000
	103 - 102		635605.83	1710525.00	0.372	0.00	1710525.00	0.000
	102 - 101		659908.33	1730866.67	0.381	0.00	1730866.67	0.000
	101 - 95		413814.17	1853216.67	0.223	0.00	1853216.67	0.000
L4	101 - 95	TP45.8125x42.6125x0.3125	395496.67	1812075.00	0.218	0.00	1812075.00	0.000
	95 - 94		834816.67	1832166.67	0.456	0.00	1832166.67	0.000
	94 - 93		860483.33	1852275.00	0.465	0.00	1852275.00	0.000
	93 - 92		886308.33	1872391.67	0.473	0.00	1872391.67	0.000
	92 - 91		912300.00	1892508.33	0.482	0.00	1892508.33	0.000
L5	91 - 89.3158	TP58.875x45.8125x0.375	956441.67	2497991.67	0.383	0.00	2497991.67	0.000
	89.3158 - 87.6316		1001058.33	2546508.33	0.393	0.00	2546508.33	0.000
	87.6316 - 85.9474		1046133.33	2595175.00	0.403	0.00	2595175.00	0.000
	85.9474 - 84.2632		1091683.33	2643983.33	0.413	0.00	2643983.33	0.000
	84.2632 - 82.5789		1137708.33	2692933.33	0.422	0.00	2692933.33	0.000
	82.5789 - 80.8947		1184200.00	2742008.33	0.432	0.00	2742008.33	0.000
	80.8947 - 79.2105		1231175.00	2791200.00	0.441	0.00	2791200.00	0.000
	79.2105 - 77.5263		1278625.00	2840491.67	0.450	0.00	2840491.67	0.000
	77.5263 - 75.8421		1326558.33	2889883.33	0.459	0.00	2889883.33	0.000
	75.8421 - 74.1579		1374975.00	2939358.33	0.468	0.00	2939358.33	0.000
	74.1579 - 72.4737		1423875.00	2988908.33	0.476	0.00	2988908.33	0.000
	72.4737 - 70.7895		1473258.33	3038525.00	0.485	0.00	3038525.00	0.000
	70.7895 - 69.1053		1523133.33	3088191.67	0.493	0.00	3088191.67	0.000
	69.1053 - 67.4211		1573500.00	3137908.33	0.501	0.00	3137908.33	0.000
	67.4211 - 65.7368		1624358.33	3187658.33	0.510	0.00	3187658.33	0.000

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			lb-ft	lb-ft	$\frac{M_{ux}}{\phi M_{ux}}$	lb-ft	lb-ft	$\frac{M_{uy}}{\phi M_{uy}}$
L6	65.7368 - 64.0526	TP61.6875x55.5125x0.375	1675708.33	3237433.33	0.518	0.00	3237433.33	0.000
	64.0526 - 62.3684		1727558.33	3287225.00	0.526	0.00	3287225.00	0.000
	62.3684 - 60.6842		1779900.00	3337016.67	0.533	0.00	3337016.67	0.000
	60.6842 - 59		1832741.67	3386808.33	0.541	0.00	3386808.33	0.000
	59 - 51		1066816.67	3622941.67	0.294	0.00	3622941.67	0.000
	59 - 51		1024133.33	3554125.00	0.288	0.00	3554125.00	0.000
	51 - 50		2124058.33	3583466.67	0.593	0.00	3583466.67	0.000
	50 - 49		2157333.33	3612791.67	0.597	0.00	3612791.67	0.000
	49 - 48		2190775.00	3642100.00	0.602	0.00	3642100.00	0.000
	48 - 47		2224383.33	3671383.33	0.606	0.00	3671383.33	0.000
	47 - 46		2258158.33	3700641.67	0.610	0.00	3700641.67	0.000
	46 - 45		2292108.33	3729875.00	0.615	0.00	3729875.00	0.000
	45 - 44		2326225.00	3759075.00	0.619	0.00	3759075.00	0.000
	44 - 43		2360508.33	3788250.00	0.623	0.00	3788250.00	0.000
L7	43 - 42	TP68.5x61.6875x0.4375	2394966.67	3817383.33	0.627	0.00	3817383.33	0.000
	42 - 41		2429600.00	3846483.33	0.632	0.00	3846483.33	0.000
	41 - 40		2464400.00	3875550.00	0.636	0.00	3875550.00	0.000
	40 - 39		2499366.67	4931275.00	0.507	0.00	4931275.00	0.000
	39 - 38		2534491.67	4971191.67	0.510	0.00	4971191.67	0.000
	38 - 37		2569775.00	5011125.00	0.513	0.00	5011125.00	0.000
	37 - 36		2605216.67	5051066.67	0.516	0.00	5051066.67	0.000
	36 - 35		2640808.33	5091025.00	0.519	0.00	5091025.00	0.000
	35 - 34		2676566.67	5130983.33	0.522	0.00	5130983.33	0.000
	34 - 33		2712483.33	5170958.33	0.525	0.00	5170958.33	0.000
	33 - 32		2748550.00	5210925.00	0.527	0.00	5210925.00	0.000
	32 - 31		2784791.67	5250908.33	0.530	0.00	5250908.33	0.000
	31 - 30		2821183.33	5290883.33	0.533	0.00	5290883.33	0.000
	30 - 29		2857750.00	5330858.33	0.536	0.00	5330858.33	0.000
L8	29 - 28	TP73.8125x64.7054x0.4375	2894466.67	5370833.33	0.539	0.00	5370833.33	0.000
	28 - 19		1648850.00	5730074.67	0.288	0.00	5730074.67	0.000
	28 - 19		1583908.33	5623491.33	0.282	0.00	5623491.33	0.000
	19 - 18		3271225.00	5663483.33	0.578	0.00	5663483.33	0.000
	18 - 17		3309850.00	5703450.00	0.580	0.00	5703450.00	0.000
	17 - 16		3348650.00	5743391.33	0.583	0.00	5743391.33	0.000
	16 - 15		3387608.33	5783308.00	0.586	0.00	5783308.00	0.000
	15 - 14		3426741.67	5823200.00	0.588	0.00	5823200.00	0.000
	14 - 13		3466050.00	5863066.67	0.591	0.00	5863066.67	0.000
	13 - 12		3505516.67	5902891.33	0.594	0.00	5902891.33	0.000
	12 - 11		3545166.67	5942691.33	0.597	0.00	5942691.33	0.000
	11 - 10		3584983.33	5982458.00	0.599	0.00	5982458.00	0.000
	10 - 9		3624966.67	6022183.33	0.602	0.00	6022183.33	0.000
	9 - 8		3665133.33	6061866.67	0.605	0.00	6061866.67	0.000
8 - 7	3705466.67	6101516.67	0.607	0.00	6101516.67	0.000		
7 - 6	3745975.00	6141116.67	0.610	0.00	6141116.67	0.000		
6 - 5	3786658.33	6180674.67	0.613	0.00	6180674.67	0.000		
5 - 4	3827516.67	6220183.33	0.615	0.00	6220183.33	0.000		
4 - 3	3868558.33	6259633.33	0.618	0.00	6259633.33	0.000		
3 - 2	3909766.67	6299041.33	0.621	0.00	6299041.33	0.000		
2 - 1	3951158.33	6338400.00	0.623	0.00	6338400.00	0.000		
1 - 0	3992733.33	6377691.33	0.626	0.00	6377691.33	0.000		

Pole Shear Design Data

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Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio V_u ϕV_n	Actual T_u lb-ft	ϕT_n lb-ft	Ratio T_u ϕT_n
L1	150 - 149	TP34.3125x27.8125x0.25	1072.95	557930.00	0.002	0.00	1284158.33	0.000
	149 - 148		1099.01	562195.00	0.002	0.00	1309191.67	0.000
	148 - 147		1125.36	566409.00	0.002	0.00	1334333.33	0.000
	147 - 146		1151.97	570571.00	0.002	0.00	1359575.00	0.000
	146 - 145		1178.86	574681.00	0.002	0.00	1384925.00	0.000
	145 - 144		1206.02	578740.00	0.002	0.00	1410366.67	0.000
	144 - 143		4240.99	582748.00	0.007	0.00	1435900.00	0.000
	143 - 142		4368.18	586704.00	0.007	0.00	1461525.00	0.000
	142 - 141		4496.71	590608.00	0.008	0.00	1487241.67	0.000
	141 - 140		4626.58	594461.00	0.008	0.00	1513025.00	0.000
	140 - 139		7054.86	598262.00	0.012	0.00	1538891.67	0.000
	139 - 138		7187.29	602012.00	0.012	0.00	1564833.33	0.000
	138 - 137		7321.03	605710.00	0.012	0.00	1590833.33	0.000
	137 - 136		7456.08	609357.00	0.012	0.00	1616900.00	0.000
	136 - 135		7592.44	612952.00	0.012	0.00	1643033.33	0.000
L2	135 - 130	TP38.6875x32.1875x0.25	4420.84	630154.00	0.007	0.00	1774408.33	0.000
	135 - 130		3894.17	624998.00	0.006	0.00	1733866.67	0.000
	130 - 129		15303.90	628363.00	0.024	0.00	1760208.33	0.000
	129 - 128		15441.20	631677.00	0.024	0.00	1786583.33	0.000
	128 - 127		15579.70	634939.00	0.025	0.00	1812991.67	0.000
	127 - 126		15719.40	638150.00	0.025	0.00	1839433.33	0.000
	126 - 125		15860.20	641309.00	0.025	0.00	1865891.67	0.000
	125 - 124		16002.10	644416.00	0.025	0.00	1892375.00	0.000
	124 - 123		16145.10	647472.00	0.025	0.00	1918866.67	0.000
	123 - 122		16289.30	650476.00	0.025	0.00	1945375.00	0.000
	122 - 121		16434.70	653429.00	0.025	0.00	1971891.67	0.000
	121 - 120		16581.20	656330.00	0.025	0.00	1998408.33	0.000
	120 - 119		16728.90	659180.00	0.025	0.00	2024925.00	0.000
	119 - 118		17276.70	661978.00	0.026	0.00	2051433.33	0.000
	118 - 117		17426.50	664725.00	0.026	0.00	2077933.33	0.000
L3	117 - 116	TP45.1875x38.6875x0.3125	17577.40	667420.00	0.026	0.00	2104425.00	0.000
	116 - 115		17729.50	670064.00	0.026	0.00	2130891.67	0.000
	115 - 114		17877.50	931551.00	0.019	0.00	2978041.67	0.000
	114 - 113		18027.00	936279.00	0.019	0.00	3018491.67	0.000
	113 - 112		18177.70	940957.00	0.019	0.00	3059041.67	0.000
	112 - 111		18329.40	945582.00	0.019	0.00	3099666.67	0.000
	111 - 110		18482.30	950156.00	0.019	0.00	3140375.00	0.000
	110 - 109		18636.30	954679.00	0.020	0.00	3181158.33	0.000
	109 - 108		18791.40	959150.00	0.020	0.00	3222008.33	0.000
	108 - 107		18947.60	963570.00	0.020	0.00	3262933.33	0.000
	107 - 106		19105.00	967938.00	0.020	0.00	3303925.00	0.000
	106 - 105		23747.80	972254.00	0.024	0.00	3344966.67	0.000
	105 - 104		23906.50	976519.00	0.024	0.00	3386066.67	0.000
	104 - 103		24066.20	980732.00	0.025	0.00	3427216.67	0.000
	L4		103 - 102	TP45.8125x42.6125x0.3125	24227.00	984894.00	0.025	0.00
102 - 101		24388.90	989004.00		0.025	0.00	3509650.00	0.000
101 - 95		13244.10	1012580.00		0.013	0.00	3757750.00	0.000
101 - 95		12190.80	1004870.00		0.012	0.00	3674316.67	0.000
95 - 94		25592.00	1008670.00		0.025	0.00	3715066.67	0.000
L5	94 - 93	TP58.875x45.8125x0.375	25753.60	1012410.00	0.025	0.00	3755833.33	0.000
	93 - 92		25916.30	1016100.00	0.026	0.00	3796616.67	0.000
	92 - 91		26080.00	1019750.00	0.026	0.00	3837408.33	0.000
	91 - 89.3158		26355.90	1333440.00	0.020	0.00	5065150.00	0.000
	89.3158 - 87.6316		26633.60	1343140.00	0.020	0.00	5163516.67	0.000
	87.6316 - 85.9474		26912.60	1352700.00	0.020	0.00	5262200.00	0.000
	85.9474 - 84.2632		27192.80	1362110.00	0.020	0.00	5361175.00	0.000
	84.2632 -	27474.10	1371370.00	0.020	0.00	5460433.33	0.000	

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	82.5789							
	82.5789 - 80.8947		27756.60	1380480.00	0.020	0.00	5559941.67	0.000
	80.8947 - 79.2105		28040.30	1389440.00	0.020	0.00	5659674.67	0.000
	79.2105 - 77.5263		28325.10	1398260.00	0.020	0.00	5759633.33	0.000
	77.5263 - 75.8421		28611.20	1406930.00	0.020	0.00	5859774.67	0.000
	75.8421 - 74.1579		28898.40	1415450.00	0.020	0.00	5960100.00	0.000
	74.1579 - 72.4737		29186.80	1423830.00	0.020	0.00	6060566.67	0.000
	72.4737 - 70.7895		29476.30	1432050.00	0.021	0.00	6161174.67	0.000
	70.7895 - 69.1053		29767.00	1440130.00	0.021	0.00	6261883.33	0.000
	69.1053 - 67.4211		30058.80	1448060.00	0.021	0.00	6362691.33	0.000
	67.4211 - 65.7368		30351.90	1455850.00	0.021	0.00	6463574.67	0.000
	65.7368 - 64.0526		30646.00	1463490.00	0.021	0.00	6564500.00	0.000
	64.0526 - 62.3684		30941.30	1470970.00	0.021	0.00	6665458.00	0.000
	62.3684 - 60.6842		31237.80	1478320.00	0.021	0.00	6766433.33	0.000
	60.6842 - 59		31535.40	1485510.00	0.021	0.00	6867391.33	0.000
	59 - 51		17218.50	1517660.00	0.011	0.00	7346200.00	0.000
L6	59 - 51	TP61.6875x55.5125x0.375	15831.90	1508620.00	0.010	0.00	7206650.00	0.000
	51 - 50		33203.00	1512510.00	0.022	0.00	7266150.00	0.000
	50 - 49		33369.20	1516350.00	0.022	0.00	7325624.67	0.000
	49 - 48		33536.30	1520130.00	0.022	0.00	7385050.00	0.000
	48 - 47		33704.10	1523870.00	0.022	0.00	7444424.67	0.000
	47 - 46		33872.60	1527550.00	0.022	0.00	7503750.00	0.000
	46 - 45		34042.00	1531180.00	0.022	0.00	7563024.67	0.000
	45 - 44		34212.20	1534760.00	0.022	0.00	7622233.33	0.000
	44 - 43		34383.20	1538290.00	0.022	0.00	7681383.33	0.000
	43 - 42		34554.90	1541760.00	0.022	0.00	7740466.67	0.000
	42 - 41		34727.50	1545190.00	0.022	0.00	7799474.67	0.000
	41 - 40		34900.80	1548560.00	0.023	0.00	7858400.00	0.000
L7	40 - 39	TP68.5x61.6875x0.4375	35055.70	1963940.00	0.018	0.00	9999083.33	0.000
	39 - 38		35212.10	1969390.00	0.018	0.00	10080000.00	0.000
	38 - 37		35369.20	1974790.00	0.018	0.00	10161000.00	0.000
	37 - 36		35527.00	1980130.00	0.018	0.00	10242000.00	0.000
	36 - 35		35685.40	1985430.00	0.018	0.00	10323000.00	0.000
	35 - 34		35844.60	1990670.00	0.018	0.00	10404000.00	0.000
	34 - 33		36004.40	1995860.00	0.018	0.00	10485083.33	0.000
	33 - 32		36164.90	2001000.00	0.018	0.00	10566166.67	0.000
	32 - 31		36326.00	2006090.00	0.018	0.00	10647166.67	0.000
	31 - 30		36487.80	2011130.00	0.018	0.00	10728250.00	0.000
	30 - 29		36650.30	2016110.00	0.018	0.00	10809333.33	0.000
	29 - 28		36813.50	2021050.00	0.018	0.00	10890333.33	0.000
	28 - 19		19977.10	2063150.00	0.010	0.00	11618833.33	0.000
L8	28 - 19	TP73.8125x64.7054x0.4375	18433.20	2051080.00	0.009	0.00	11402666.67	0.000
	19 - 18		38555.50	2055650.00	0.019	0.00	11483749.33	0.000
	18 - 17		38722.70	2060160.00	0.019	0.00	11564833.33	0.000
	17 - 16		38890.60	2064630.00	0.019	0.00	11645833.33	0.000
	16 - 15		39059.10	2069050.00	0.019	0.00	11726749.33	0.000
	15 - 14		39228.30	2073410.00	0.019	0.00	11807666.67	0.000

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Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
	14 - 13		39398.20	2077720.00	0.019	0.00	11888500.00	0.000
	13 - 12		39568.80	2081980.00	0.019	0.00	11969249.33	0.000
	12 - 11		39740.00	2086190.00	0.019	0.00	12049916.00	0.000
	11 - 10		39911.90	2090350.00	0.019	0.00	12130582.67	0.000
	10 - 9		40084.40	2094450.00	0.019	0.00	12211082.67	0.000
	9 - 8		40257.70	2098510.00	0.019	0.00	12291582.67	0.000
	8 - 7		40431.50	2102510.00	0.019	0.00	12372000.00	0.000
	7 - 6		40606.10	2106460.00	0.019	0.00	12452249.33	0.000
	6 - 5		40781.30	2110360.00	0.019	0.00	12532500.00	0.000
	5 - 4		40957.10	2114210.00	0.019	0.00	12612582.67	0.000
	4 - 3		41133.60	2118000.00	0.019	0.00	12692582.67	0.000
	3 - 2		41310.80	2121750.00	0.019	0.00	12772500.00	0.000
	2 - 1		41488.70	2125440.00	0.020	0.00	12852249.33	0.000
	1 - 0		41667.10	2129080.00	0.020	0.00	12932000.00	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 149	0.039	0.005	0.000	0.002	0.000	0.044	1.000	4.8.2 ✓
	149 - 148	0.039	0.006	0.000	0.002	0.000	0.045	1.000	4.8.2 ✓
	148 - 147	0.039	0.008	0.000	0.002	0.000	0.047	1.000	4.8.2 ✓
	147 - 146	0.039	0.009	0.000	0.002	0.000	0.048	1.000	4.8.2 ✓
	146 - 145	0.038	0.011	0.000	0.002	0.000	0.049	1.000	4.8.2 ✓
	145 - 144	0.038	0.012	0.000	0.002	0.000	0.051	1.000	4.8.2 ✓
	144 - 143	0.014	0.040	0.000	0.007	0.000	0.054	1.000	4.8.2 ✓
	143 - 142	0.014	0.045	0.000	0.007	0.000	0.059	1.000	4.8.2 ✓
	142 - 141	0.014	0.051	0.000	0.008	0.000	0.064	1.000	4.8.2 ✓
	141 - 140	0.014	0.056	0.000	0.008	0.000	0.070	1.000	4.8.2 ✓
	140 - 139	0.021	0.064	0.000	0.012	0.000	0.085	1.000	4.8.2 ✓
	139 - 138	0.021	0.072	0.000	0.012	0.000	0.093	1.000	4.8.2 ✓
	138 - 137	0.021	0.080	0.000	0.012	0.000	0.101	1.000	4.8.2 ✓
	137 - 136	0.021	0.088	0.000	0.012	0.000	0.109	1.000	4.8.2 ✓
	136 - 135	0.020	0.096	0.000	0.012	0.000	0.117	1.000	4.8.2 ✓

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Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
	135 - 130	0.011	0.069	0.000	0.007	0.000	0.080	1.000	4.8.2 ✓
L2	135 - 130	0.011	0.067	0.000	0.006	0.000	0.078	1.000	4.8.2 ✓
	130 - 129	0.037	0.159	0.000	0.024	0.000	0.197	1.000	4.8.2 ✓
	129 - 128	0.037	0.174	0.000	0.024	0.000	0.211	1.000	4.8.2 ✓
	128 - 127	0.036	0.189	0.000	0.025	0.000	0.226	1.000	4.8.2 ✓
	127 - 126	0.036	0.203	0.000	0.025	0.000	0.239	1.000	4.8.2 ✓
	126 - 125	0.035	0.218	0.000	0.025	0.000	0.253	1.000	4.8.2 ✓
	125 - 124	0.034	0.232	0.000	0.025	0.000	0.267	1.000	4.8.2 ✓
	124 - 123	0.034	0.245	0.000	0.025	0.000	0.280	1.000	4.8.2 ✓
	123 - 122	0.033	0.259	0.000	0.025	0.000	0.293	1.000	4.8.2 ✓
	122 - 121	0.033	0.272	0.000	0.025	0.000	0.306	1.000	4.8.2 ✓
	121 - 120	0.032	0.285	0.000	0.025	0.000	0.318	1.000	4.8.2 ✓
	120 - 119	0.032	0.298	0.000	0.025	0.000	0.331	1.000	4.8.2 ✓
	119 - 118	0.033	0.311	0.000	0.026	0.000	0.345	1.000	4.8.2 ✓
	118 - 117	0.032	0.324	0.000	0.026	0.000	0.357	1.000	4.8.2 ✓
L3	117 - 116	0.032	0.337	0.000	0.026	0.000	0.370	1.000	4.8.2 ✓
	116 - 115	0.031	0.350	0.000	0.026	0.000	0.382	1.000	4.8.2 ✓
	115 - 114	0.025	0.262	0.000	0.019	0.000	0.287	1.000	4.8.2 ✓
	114 - 113	0.024	0.271	0.000	0.019	0.000	0.296	1.000	4.8.2 ✓
	113 - 112	0.024	0.279	0.000	0.019	0.000	0.304	1.000	4.8.2 ✓
	112 - 111	0.024	0.288	0.000	0.019	0.000	0.312	1.000	4.8.2 ✓
	111 - 110	0.023	0.296	0.000	0.019	0.000	0.320	1.000	4.8.2 ✓
	110 - 109	0.023	0.304	0.000	0.020	0.000	0.327	1.000	4.8.2 ✓
	109 - 108	0.023	0.312	0.000	0.020	0.000	0.335	1.000	4.8.2 ✓
	108 - 107	0.023	0.320	0.000	0.020	0.000	0.343	1.000	4.8.2 ✓
107 - 106	0.022	0.327	0.000	0.020	0.000	0.350	1.000	4.8.2 ✓	

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	Client	Sprint	Designed by	BDavenport

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	106 - 105	0.026	0.342	0.000	0.024	0.000	0.369	1.000	4.8.2 ✓
	105 - 104	0.026	0.352	0.000	0.024	0.000	0.378	1.000	4.8.2 ✓
	104 - 103	0.026	0.362	0.000	0.025	0.000	0.388	1.000	4.8.2 ✓
	103 - 102	0.025	0.372	0.000	0.025	0.000	0.397	1.000	4.8.2 ✓
	102 - 101	0.025	0.381	0.000	0.025	0.000	0.407	1.000	4.8.2 ✓
	101 - 95	0.012	0.223	0.000	0.013	0.000	0.236	1.000	4.8.2 ✓
L4	101 - 95	0.013	0.218	0.000	0.012	0.000	0.231	1.000	4.8.2 ✓
	95 - 94	0.025	0.456	0.000	0.025	0.000	0.482	1.000	4.8.2 ✓
	94 - 93	0.025	0.465	0.000	0.025	0.000	0.490	1.000	4.8.2 ✓
	93 - 92	0.025	0.473	0.000	0.026	0.000	0.499	1.000	4.8.2 ✓
	92 - 91	0.025	0.482	0.000	0.026	0.000	0.507	1.000	4.8.2 ✓
L5	91 - 89.3158	0.020	0.383	0.000	0.020	0.000	0.403	1.000	4.8.2 ✓
	89.3158 - 87.6316	0.020	0.393	0.000	0.020	0.000	0.413	1.000	4.8.2 ✓
	87.6316 - 85.9474	0.019	0.403	0.000	0.020	0.000	0.423	1.000	4.8.2 ✓
	85.9474 - 84.2632	0.019	0.413	0.000	0.020	0.000	0.433	1.000	4.8.2 ✓
	84.2632 - 82.5789	0.019	0.422	0.000	0.020	0.000	0.442	1.000	4.8.2 ✓
	82.5789 - 80.8947	0.019	0.432	0.000	0.020	0.000	0.451	1.000	4.8.2 ✓
	80.8947 - 79.2105	0.019	0.441	0.000	0.020	0.000	0.460	1.000	4.8.2 ✓
	79.2105 - 77.5263	0.018	0.450	0.000	0.020	0.000	0.469	1.000	4.8.2 ✓
	77.5263 - 75.8421	0.018	0.459	0.000	0.020	0.000	0.478	1.000	4.8.2 ✓
	75.8421 - 74.1579	0.018	0.468	0.000	0.020	0.000	0.486	1.000	4.8.2 ✓
	74.1579 - 72.4737	0.018	0.476	0.000	0.020	0.000	0.495	1.000	4.8.2 ✓
	72.4737 - 70.7895	0.018	0.485	0.000	0.021	0.000	0.503	1.000	4.8.2 ✓
	70.7895 - 69.1053	0.018	0.493	0.000	0.021	0.000	0.511	1.000	4.8.2 ✓
	69.1053 - 67.4211	0.018	0.501	0.000	0.021	0.000	0.520	1.000	4.8.2 ✓
	67.4211 - 65.7368	0.018	0.510	0.000	0.021	0.000	0.528	1.000	4.8.2 ✓

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Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	65.7368 - 64.0526	0.017	0.518	0.000	0.021	0.000	0.536	1.000	4.8.2 ✓
	64.0526 - 62.3684	0.017	0.526	0.000	0.021	0.000	0.543	1.000	4.8.2 ✓
	62.3684 - 60.6842	0.017	0.533	0.000	0.021	0.000	0.551	1.000	4.8.2 ✓
	60.6842 - 59	0.017	0.541	0.000	0.021	0.000	0.559	1.000	4.8.2 ✓
	59 - 51	0.009	0.294	0.000	0.011	0.000	0.304	1.000	4.8.2 ✓
L6	59 - 51	0.009	0.288	0.000	0.010	0.000	0.298	1.000	4.8.2 ✓
	51 - 50	0.019	0.593	0.000	0.022	0.000	0.612	1.000	4.8.2 ✓
	50 - 49	0.019	0.597	0.000	0.022	0.000	0.616	1.000	4.8.2 ✓
	49 - 48	0.019	0.602	0.000	0.022	0.000	0.621	1.000	4.8.2 ✓
	48 - 47	0.019	0.606	0.000	0.022	0.000	0.625	1.000	4.8.2 ✓
	47 - 46	0.019	0.610	0.000	0.022	0.000	0.629	1.000	4.8.2 ✓
	46 - 45	0.019	0.615	0.000	0.022	0.000	0.634	1.000	4.8.2 ✓
	45 - 44	0.019	0.619	0.000	0.022	0.000	0.638	1.000	4.8.2 ✓
	44 - 43	0.019	0.623	0.000	0.022	0.000	0.642	1.000	4.8.2 ✓
	43 - 42	0.019	0.627	0.000	0.022	0.000	0.647	1.000	4.8.2 ✓
	42 - 41	0.019	0.632	0.000	0.022	0.000	0.651	1.000	4.8.2 ✓
	41 - 40	0.019	0.636	0.000	0.023	0.000	0.655	1.000	4.8.2 ✓
L7	40 - 39	0.015	0.507	0.000	0.018	0.000	0.523	1.000	4.8.2 ✓
	39 - 38	0.015	0.510	0.000	0.018	0.000	0.526	1.000	4.8.2 ✓
	38 - 37	0.015	0.513	0.000	0.018	0.000	0.529	1.000	4.8.2 ✓
	37 - 36	0.015	0.516	0.000	0.018	0.000	0.532	1.000	4.8.2 ✓
	36 - 35	0.015	0.519	0.000	0.018	0.000	0.535	1.000	4.8.2 ✓
	35 - 34	0.015	0.522	0.000	0.018	0.000	0.537	1.000	4.8.2 ✓
	34 - 33	0.015	0.525	0.000	0.018	0.000	0.540	1.000	4.8.2 ✓
	33 - 32	0.016	0.527	0.000	0.018	0.000	0.543	1.000	4.8.2 ✓
	32 - 31	0.016	0.530	0.000	0.018	0.000	0.546	1.000	4.8.2 ✓

tnxTower

Infinigy Engineering
 1033 Watervliet Shaker Rd.
 Albany, NY 12205
 Phone: (518) 690-0790
 FAX:

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Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
	31 - 30	0.016	0.533	0.000	0.018	0.000	0.549	1.000	4.8.2 ✓
	30 - 29	0.016	0.536	0.000	0.018	0.000	0.552	1.000	4.8.2 ✓
	29 - 28	0.016	0.539	0.000	0.018	0.000	0.555	1.000	4.8.2 ✓
	28 - 19	0.009	0.288	0.000	0.010	0.000	0.296	1.000	4.8.2 ✓
L8	28 - 19	0.009	0.282	0.000	0.009	0.000	0.290	1.000	4.8.2 ✓
	19 - 18	0.017	0.578	0.000	0.019	0.000	0.595	1.000	4.8.2 ✓
	18 - 17	0.017	0.580	0.000	0.019	0.000	0.598	1.000	4.8.2 ✓
	17 - 16	0.017	0.583	0.000	0.019	0.000	0.601	1.000	4.8.2 ✓
	16 - 15	0.017	0.586	0.000	0.019	0.000	0.604	1.000	4.8.2 ✓
	15 - 14	0.017	0.588	0.000	0.019	0.000	0.606	1.000	4.8.2 ✓
	14 - 13	0.018	0.591	0.000	0.019	0.000	0.609	1.000	4.8.2 ✓
	13 - 12	0.018	0.594	0.000	0.019	0.000	0.612	1.000	4.8.2 ✓
	12 - 11	0.018	0.597	0.000	0.019	0.000	0.615	1.000	4.8.2 ✓
	11 - 10	0.018	0.599	0.000	0.019	0.000	0.617	1.000	4.8.2 ✓
	10 - 9	0.018	0.602	0.000	0.019	0.000	0.620	1.000	4.8.2 ✓
	9 - 8	0.018	0.605	0.000	0.019	0.000	0.623	1.000	4.8.2 ✓
	8 - 7	0.018	0.607	0.000	0.019	0.000	0.625	1.000	4.8.2 ✓
	7 - 6	0.018	0.610	0.000	0.019	0.000	0.628	1.000	4.8.2 ✓
	6 - 5	0.018	0.613	0.000	0.019	0.000	0.631	1.000	4.8.2 ✓
	5 - 4	0.018	0.615	0.000	0.019	0.000	0.634	1.000	4.8.2 ✓
	4 - 3	0.018	0.618	0.000	0.019	0.000	0.636	1.000	4.8.2 ✓
	3 - 2	0.018	0.621	0.000	0.019	0.000	0.639	1.000	4.8.2 ✓
	2 - 1	0.018	0.623	0.000	0.020	0.000	0.642	1.000	4.8.2 ✓
	1 - 0	0.018	0.626	0.000	0.020	0.000	0.644	1.000	4.8.2 ✓

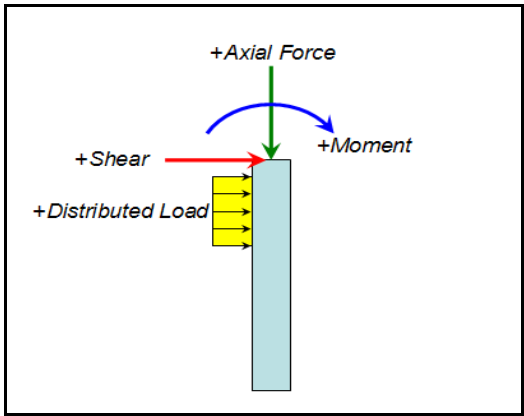
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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail	
L1	150 - 130	Pole	TP34.3125x27.8125x0.25	1	-5001.28	245527.00	11.7	Pass	
L2	130 - 115	Pole	TP38.6875x32.1875x0.25	2	-12708.90	408528.00	38.2	Pass	
L3	115 - 95	Pole	TP45.1875x38.6875x0.3125	3	-17771.40	711210.00	40.7	Pass	
L4	95 - 91	Pole	TP45.8125x42.6125x0.3125	4	-20673.20	842714.00	50.7	Pass	
L5	91 - 51	Pole	TP58.875x45.8125x0.375	5	-28851.30	1665170.00	55.9	Pass	
L6	51 - 40	Pole	TP61.6875x55.5125x0.375	6	-36692.70	1960840.00	65.5	Pass	
L7	40 - 19	Pole	TP68.5x61.6875x0.4375	7	-41164.40	2639060.00	55.5	Pass	
L8	19 - 0	Pole	TP73.8125x64.7054x0.4375	8	-55944.60	3109770.00	64.4	Pass	
							Summary		
							Pole (L6)	65.5	Pass
							RATING =	65.5	Pass

Date:
 Site Name:
 Client:
 Engineering #:
 Analysis/Design:
 Tower Type:

2/14/2017
 CT23XC408
 Sprint
 514-000
 Analysis
 Monopole



Infinigy Engineering PLLC
 Drilled Shaft Calculations
 ACI 318-11
 Ensoft L-Pile 1212.6.37
 Ensoft Shaft 2012.7.8

Loading Data			
TIA Code Revision:	ANSI/TIA-222-G		
Factored Moment:	3992.7	kip-ft	From ATC Tower
Factored Uplift:	0	kips	
Factored Axial:	56	kips	
Factored Shear:	41.7	kips	
Service Moment:	794	kip-ft	
Service Uplift:	0	kips	
Service Axial:	46.6	kips	
Service Shear:	8.2	kips	

Concrete Strength Check			
Bending Reduction Factor:	0.90		
Unfactored Ultimate Moment Capacity:	11172.0	k-ft	From L-Pile
Maximum Moment In Shaft:	833.4	k-ft	
Depth of Maximum Moment in Shaft:	5.76	ft	
Drilled Shaft Strength Usage:	8.29	%	

Soil Stability Check			
Allowable Service Pile Head Deflection:	0.75	in	
Maximum Service Pile Head Deflection:	0.15	in	From L-Pile
Deflection Ratio:	20	%	
Ultimate Pile Head Deflection:	3	in	
Maximum Design Pile Head Deflection:	0.84	in	From L-Pile
Deflection Ratio:	28	%	

LPile Plus for Windows, Version 2012-06.037
 Analysis of Individual Piles and Drilled Shafts
 Subjected to Lateral Loading Using the p-y Method
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Infinigy Engineering, PLLC
 Albany, NY
 Serial Number of Security Device: 148966619
 Company Name Stored in Security Device: Infinigy

Files Used for Analysis
 Path to file locations: C:\Users\Ocalic1\Desktop\
 Name of input data files: CT23XC408.1p6d
 Name of output report file: CT23XC408.1p6o
 Name of plot output file: CT23XC408.1p6p
 Name of runtime message file: CT23XC408.1p6r

Date and Time of Analysis

Date: February 14, 2017 Time: 17:09:31

Problem Title
 Project Name: CT23XC408
 Job Number: 514-009
 Client: Sprint
 Engineer: BD
 Description:

Program Options

Engineering units are US Customary Units: pounds, inches, feet

Basic Program Options:

This analysis computes pile response to lateral loading and will compute nonlinear moment-curvature and nominal moment capacity for section types with nonlinear properties.

Computation Options:
 - Analysis does not use p-y multipliers (individual pile or shaft only)
 - Analysis assumes no shear resistance at pile tip
 - Analysis for fixed-length pile or shaft only
 - No computation of foundation stiffness matrix values
 - Report pile response for full length of pile
 - Analysis assumes no loading by soil movements acting on pile
 - No p-y curves to be computed and reported for user-specified depths

Solution Control Parameters:
 - Number of pile increments = 100
 - Maximum number of iterations allowed = 100
 - Deflection tolerance for convergence = 1.0000E-05 in
 - Maximum allowable deflection = 100.0000 in

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

Pile Structural Properties and Geometry

Total number of pile sections = 1
 Total length of pile = 24.00 ft
 Depth of ground surface below top of pile = 0.00 ft

Pile diameter values used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth x ft	Pile Diameter in
1	0.000000	99.0000000
2	24.000000	99.0000000

Input Structural Properties:

Pile Section No. 1:
 Section Type = Drilled Shaft (Bored Pile)
 Section Length = 24.00000000 ft
 Section Diameter = 99.00000000 in

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
 = 0.000 radians
 Pile Batter Angle = 0.000 degrees
 = 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 6 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 0.0000 ft
 Distance from top of pile to bottom of layer = 5.00000 ft
 Effective unit weight at top of layer = 123.00000 pcf
 Effective unit weight at bottom of layer = 123.00000 pcf
 Friction angle at top of layer = 25.00000 deg.
 Friction angle at bottom of layer = 25.00000 deg.
 Subgrade k at top of layer = 0.0000 pci
 Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 5.00000 ft
 Distance from top of pile to bottom of layer = 8.00000 ft
 Effective unit weight at top of layer = 123.00000 pcf
 Effective unit weight at bottom of layer = 123.00000 pcf
 Friction angle at top of layer = 38.00000 deg.
 Friction angle at bottom of layer = 38.00000 deg.
 Subgrade k at top of layer = 0.0000 pci
 Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 8.00000 ft
 Distance from top of pile to bottom of layer = 11.50000 ft
 Effective unit weight at top of layer = 123.00000 pcf
 Effective unit weight at bottom of layer = 123.00000 pcf
 Friction angle at top of layer = 38.00000 deg.
 Friction angle at bottom of layer = 38.00000 deg.
 Subgrade k at top of layer = 0.0000 pci
 Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 11.50000 ft
 Distance from top of pile to bottom of layer = 15.00000 ft
 Effective unit weight at top of layer = 123.00000 pcf
 Effective unit weight at bottom of layer = 123.00000 pcf
 Friction angle at top of layer = 38.00000 deg.
 Friction angle at bottom of layer = 38.00000 deg.
 Subgrade k at top of layer = 0.0000 pci
 Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 15.00000 ft
 Distance from top of pile to bottom of layer = 18.00000 ft
 Effective unit weight at top of layer = 60.00000 pcf
 Effective unit weight at bottom of layer = 60.00000 pcf
 Friction angle at top of layer = 38.00000 deg.
 Friction angle at bottom of layer = 38.00000 deg.
 Subgrade k at top of layer = 0.0000 pci
 Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 6 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.00000 ft
 Distance from top of pile to bottom of layer = 24.00000 ft
 Effective unit weight at top of layer = 60.00000 pcf
 Effective unit weight at bottom of layer = 60.00000 pcf
 Friction angle at top of layer = 38.00000 deg.
 Friction angle at bottom of layer = 38.00000 deg.
 Subgrade k at top of layer = 0.0000 pci
 Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

(Depth of lowest soil layer extends 0.00 ft below pile tip)

Summary of Soil Properties

Layer	Layer	Effective	Angle of
-------	-------	-----------	----------

Table with 6 columns: Layer Num., Soil Type (p-y Curve Criteria), Depth, Unit Wt. pcf, Friction deg, kpy. Rows 1-6 showing soil properties for sand layers.

Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Table with 7 columns: Load No., Load Type, Condition 1, Condition 2, Axial Thrust Force, lbs, Compute Top y vs. Pile Length, pci. Row 1: V = 8220.00000 lbs, M = 9528504. in-lbs, 46630., No

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head
y = lateral deflection relative to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section = 24.00000000 ft
Shaft Diameter = 99.00000000 in
Concrete Cover Thickness = 3.00000000 in
Number of Reinforcing Bars = 66 bars
Yield Stress of Reinforcing Bars = 60.00000000 ksi
Modulus of Elasticity of Reinforcing Bars = 29000. ksi
Gross Area of Shaft = 7697.68739946 sq. in.
Total Area of Reinforcing Steel = 52.14000000 sq. in.
Area Ratio of Steel Reinforcement = 0.68 percent
Edge-to-Edge Bar Spacing = 3.37575626 in
Maximum Concrete Aggregate Size = 0.75000000 in
Ratio of Bar Spacing to Aggregate Size = 4.50
Offset of Rebar Cage Center from Center of Pile = 0.00000000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As = 29123.262 kips
Tensile Load for Cracking of Concrete = -3354.303 kips
Nominal Axial Tensile Capacity = -3128.400 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Table with 5 columns: Bar Number, Bar Diam. inches, Bar Area sq. in., X inches, Y inches. Rows 1-66 showing bar positions.

NOTE: The positions of the above rebars were computed by LPILE

Minimum spacing between any two bars not equal to zero = 3.37754 inches between Bars 65 and 66

Spacing to aggregate size ratio = 4.50338

Concrete Properties:

Compressive Strength of Concrete = 4.00000000 ksi
Modulus of Elasticity of Concrete = 3604.9965259 ksi
Modulus of Rupture of Concrete = -0.47434161 ksi
Compression Strain at Peak Stress = 0.00188627
Tensile Strain at Fracture of Concrete = -0.00011537
Maximum Coarse Aggregate Size = 0.75000000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Table with 2 columns: Number, Axial Thrust Force kips. Row 1: 1, 46.630

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
V = stress in reinforcing steel has reached yield stress.
T = ACI 318-08 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318-08, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 46.630 kips

Table with 10 columns: Bending Curvature rad/in., Bending Moment in-kip, Bending Stiffness kip-in2, Depth to N Axis in, Max Comp Strain in/in, Max Tens Strain in/in, Max Concrete Stress ksi, Max Steel Stress ksi, Run Msg. Rows 1-66 showing analysis results.

18.960	-0.0167	2513778.	-08839.	-0.000694	0.000	2.131E+13	426.8297	73717.	0.000
19.200	-0.0187	2319667.	-66727.	-0.000694	0.000	2.131E+13	484.4563	74712.	0.000
19.440	-0.0207	2129615.	-65247.	-0.000694	0.000	2.131E+13	543.4398	75706.	0.000
19.680	-0.0227	1944051.	-63595.	-0.000694	0.000	2.131E+13	603.7812	76700.	0.000
19.920	-0.0247	1763494.	-61767.	-0.000693	0.000	2.131E+13	665.4817	77695.	0.000
20.160	-0.0267	1588457.	-59760.	-0.000693	0.000	2.131E+13	728.5424	78689.	0.000
20.400	-0.0287	1419463.	-57569.	-0.000693	0.000	2.131E+13	792.9645	79683.	0.000
20.640	-0.0307	1257046.	-55190.	-0.000693	0.000	2.131E+13	858.7491	80678.	0.000
20.880	-0.0326	1107572.	-52621.	-0.000693	0.000	2.131E+13	925.8976	81672.	0.000
21.120	-0.0346	954137.	-49855.	-0.000692	0.000	2.131E+13	994.4110	82666.	0.000
21.360	-0.0366	814771.	-46891.	-0.000692	0.000	2.131E+13	1064.2907	83661.	0.000
21.600	-0.0386	684232.	-43723.	-0.000692	0.000	2.131E+13	1135.5378	84655.	0.000
21.840	-0.0406	563112.	-40348.	-0.000692	0.000	2.131E+13	1208.1536	85649.	0.000
22.080	-0.0426	452012.	-36762.	-0.000692	0.000	2.131E+13	1282.1391	86644.	0.000
22.320	-0.0446	351548.	-32961.	-0.000692	0.000	2.131E+13	1357.4956	87638.	0.000
22.560	-0.0466	262342.	-28941.	-0.000692	0.000	2.131E+13	1434.2239	88632.	0.000
22.800	-0.0486	185033.	-24698.	-0.000692	0.000	2.131E+13	1512.3250	89627.	0.000
23.040	-0.0506	120268.	-20228.	-0.000692	0.000	2.131E+13	1591.7998	90621.	0.000
23.280	-0.0526	68706.	-15527.	-0.000692	0.000	2.131E+13	1672.6490	91615.	0.000
23.520	-0.0546	31917.	-10592.	-0.000692	0.000	2.131E+13	1754.8731	92610.	0.000
23.760	-0.0566	7884.0158	-5417.1660	-0.000692	0.000	2.131E+13	1838.4727	93604.	0.000
24.000	-0.0586	0.000	0.000	-0.000692	0.000	2.131E+13	1923.4481	47299.	0.000

* This analysis makes computations of pile response using nonlinear moment-curvature relationships. The above values of total stress are computed for combined axial and bending stress in elastic sections and do not equal actual stresses in concrete and steel in the range of nonlinear bending.

Output Summary for Load Case No. 1:

Pile-head deflection = 0.1497112 inches
 Computed slope at pile head = -0.0007806 radians
 Maximum bending moment = 10001083. inch-lbs
 Maximum shear force = -72933. lbs
 Depth of maximum bending moment = 69.1200000 inches below pile head
 Depth of maximum shear force = 204.4800000 inches below pile head
 Number of iterations = 6
 Number of zero deflection points = 1

 Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
 Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
 Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
 Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
 Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

Case No.	Load No.	Pile-head Condition 1	Pile-head Condition 2	Axial Loading	Pile-head Deflection	Maximum Moment in Pile	Maximum Shear in Pile	Pile-head Rotation
		V (lbs) or y(inches)	M or in-lb/rad.	lbs	inches	in-lbs	lbs	radians
1	1	V = 8220.0000	M = 9528504.	46630.	0.14971120	10001083.	-72933.	-0.00078059

The analysis ended normally.

Situs : 79 PUTNAM PIKE

Map ID: 006994

Class: Town of Killingly

Card: 1 of 1

Printed: April 27, 2017

CURRENT OWNER

KILLINGLY TOWN OF-081
HIGHWAY GARAGE
172 MAIN ST
KILLINGLY CT 06239

GENERAL INFORMATION

Living Units 302
Neighborhood 106-42
Alternate Id 34/1
Vol / Pg 2
District GENERAL COMMERCIAL
Zoning EXEMPT
Class

Property Notes

79-GARAGE 105-DOG PND 125-TRAN



Land Information

Type	Size	Influence Factors	Influence %	Value
Primary	AC 3.0000			600,000
Rear	AC 3.7000			5,550

Total Acres: 6.7
Spot:

Location:

Assessment Information

Assessed	Appraised	Cost	Income	Market
Land	423,920	605,600	605,600	0
Building	374,570	535,100	270,700	0
Total	798,490	1,140,700	876,300	0

Manual Override Reason

Value Flag COST APPROACH Base Date of Value 10/01/2013
150' MONOPOLE 115125 Effective Date of Value 10/01/2017

Entrance Information

Date	ID	Entry Code	Source
06/29/16	CLP	Exterior	Asmt Staff
11/25/09	MHB	View ed	Asmt Staff
12/27/06	DH	Complete	Asmt Staff

Permit Information

Date Issued	Number	Price	Purpose	% Complete
10/20/15	23978	285	88 CHET	997
07/01/15	23714	60,000	97 BPP	995
04/09/15	23485	15,000	BLDG	996
12/02/14	23332	1,000	BLDG	997
11/13/14	23297	6,800	81 CELE	996

Sales/Ownership History

Transfer Date	Price	Type	Deed Reference	Deed Type	Grantee
---------------	-------	------	----------------	-----------	---------

Situs : 79 PUTNAM PIKE

Parcel Id: 006994

Class: Town of Killingly

Card: 1 of 1

Printed: April 27, 2017

Building Information

Year Built/Eff Year 1960 /
 Building # 1
 Structure Type Auto Service Garag
 Identical Units 1
 Total Units C
 Grade C
 # Covered Parking
 # Uncovered Parking
 DBA TOWN
 GARAGE&PCS EQU

Building Other Features

Line Type	Meas1	Meas2	# Stops	Ident Units	Line Type	Meas1	Meas2	# Stops	Ident Units
-----------	-------	-------	---------	-------------	-----------	-------	-------	---------	-------------

Interior/Exterior Information

Line	Level	From - To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	01	01	100	11,520	464	Auto Parts/Service	16	Brick Venet	Pre-Engineered Stee	Normal	Hot Water/Stt	None	Normal	3	3
2	M1	M1	100	1,200	120	Multi-Use Office	8	Enclosure	Fire Resistant	Normal	Hot Water/Stt	None	Normal	3	3
3	01	01	100	1,540	158	Auto Parts/Service	16	Brick Venet	Fire Resistant	Normal	Hot Water/Stt	None	None	3	3
4	02	02	100	1,540	158	Support Area	8	Brick Venet	Fire Resistant	Normal	Hot Water/Stt	None	None	3	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	11,520	Auto Parts/Service	45		240,440
2	1,200	Multi-Use Office	45		37,630
3	1,540	Auto Parts/Service	45		53,920
4	1,540	Support Area	45		34,780

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value
1	Asph Pav	1960			1	20,000	C	3	24,000
2	Mas Garage	1960	60	22	1	1,320	C	3	17,950
3	Kennel	2009	18	50	1	900	D	3	5,800
4	Br/St Shed	2014	12	30	1	360	C	3	5,470

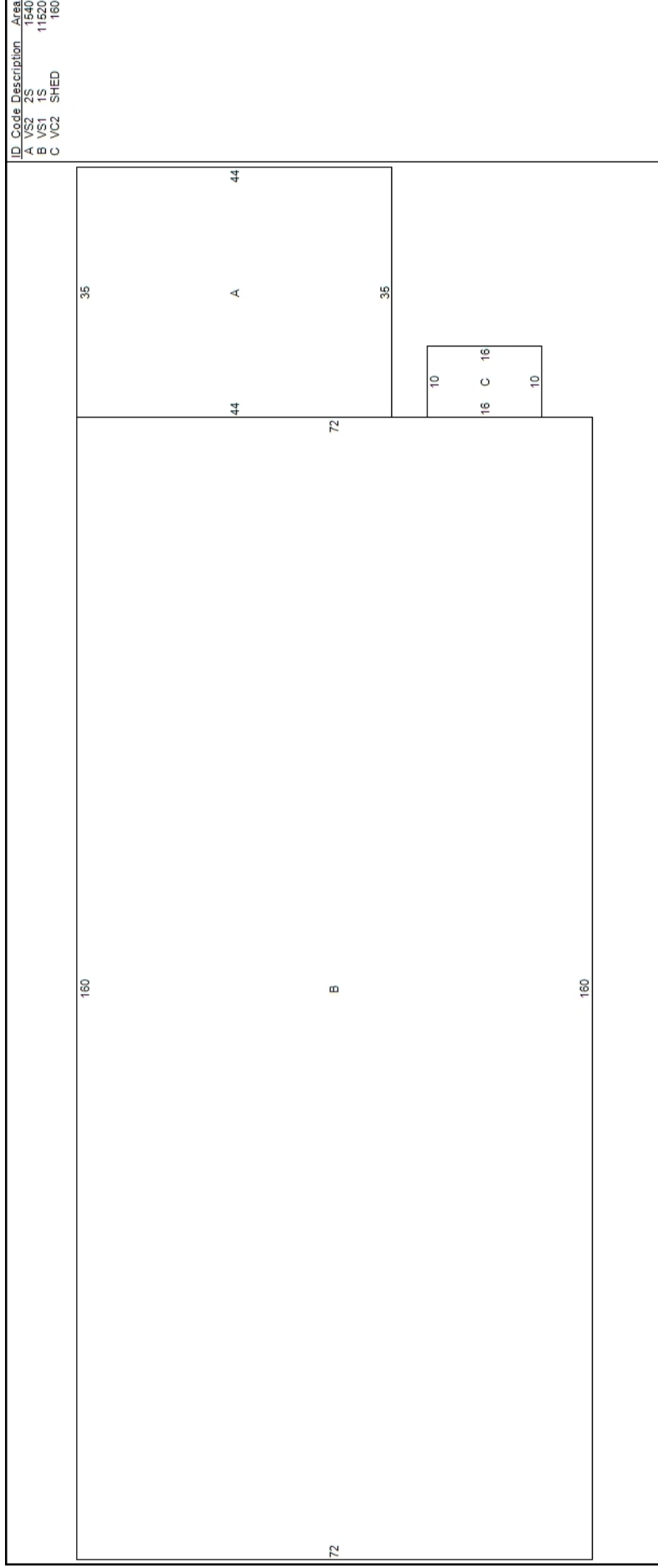
Situs : 79 PUTNAM PIKE

Parcel Id: 006994

Class: Town of Killingly

Card: 1 of 1

Printed: April 27, 2017



Additional Property Photos



Situs : 79 PUTNAM PIKE

Parcel Id: 006994

Class: Town of Killingly

Card: 1 of 1

Printed: April 27, 2017

Income Detail (Includes all Buildings on Parcel)														
Use Mod	Inc	Model	Units	Net Area	Income	Econ	Potential	Vac	Vac	Additional	Effective	Expense	Expense	Net
Grp	Type	Mod			Rate	Adjust	Gross	Model	Adj	Income	Gross	Model	Adj	Operating
			Income			Income			Income			Income		
00	S	001	0	1,540					0					
11	S	001	0	13,060	8.00		104,480	7.5	0	0	96,644	15	14,497	82,147
22	S	001	0	1,200	8.50		10,200	12.5	0	0	8,925	35	3,124	5,801

Apartment Detail - Building 1 of 1									
Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income		
								Total Gross Building Area	15,800
								Replace, Cost New Less Depr	366,770
								Percent Complete	100
								Number of Identical Units	1
								Economic Condition Factor	
								Final Building Value	366,770
								Value per SF	23.21

Notes - Building 1 of 1	
SP #00-755 DOG POUND ADDN	
Income Summary (Includes all Building on Parcel)	
Total Net Income	87,948
Capitalization Rate	0.101000
Sub total	870,770
Residual Land Value	5,550
Final Income Value	876,320
Total Gross Rent Area	14,260
Total Gross Building Area	15,800



Town of Killingly - Highway Garage

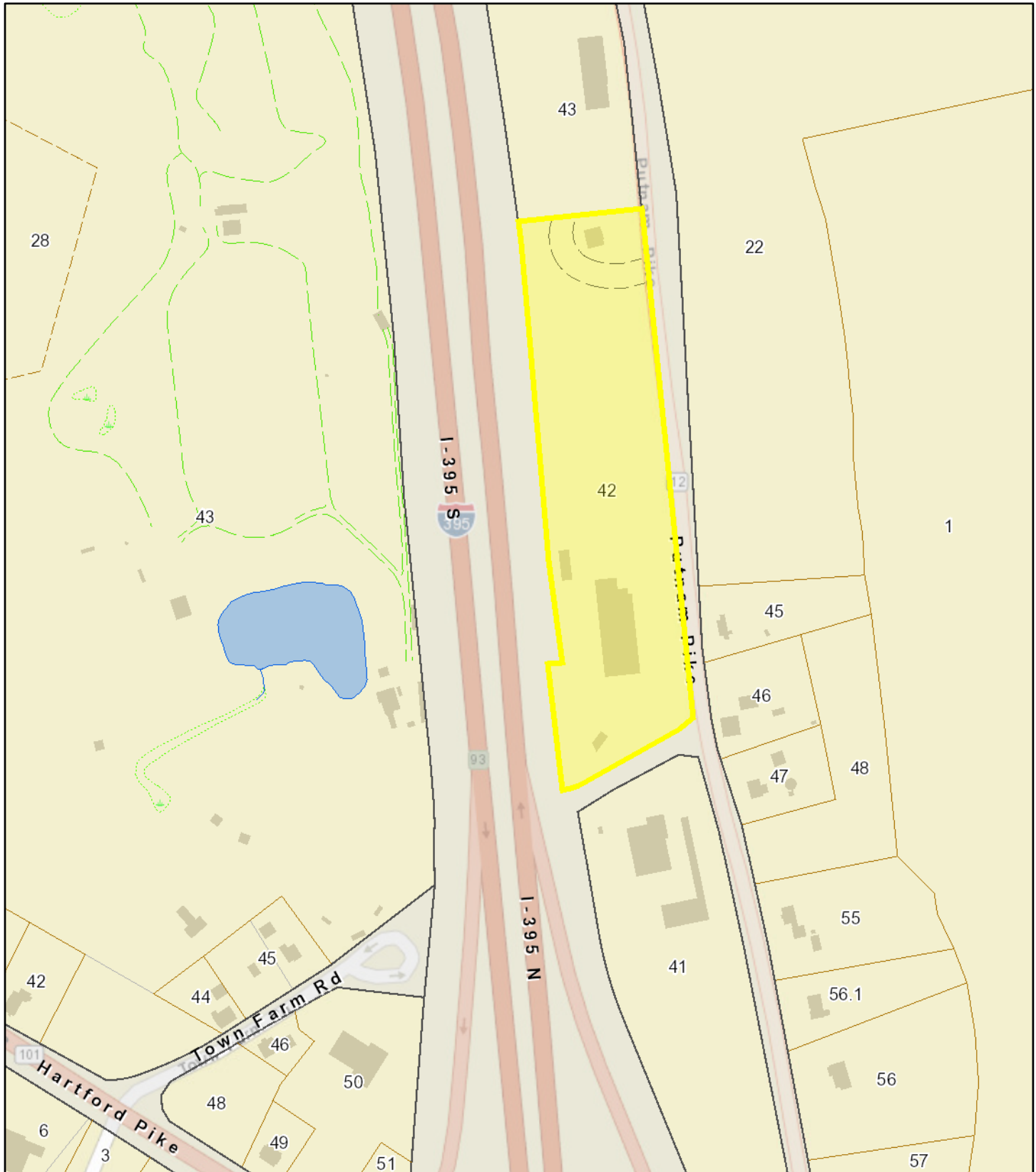
Killingly, CT



May 10, 2017

1 inch = 268 Feet

www.cai-tech.com



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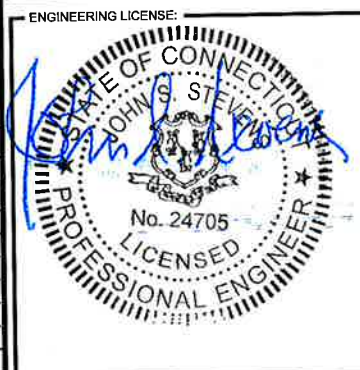


PROJECT: DO ESS GROUND MOUNT OPTION 2
 SITE NAME: KILLINGLY
 SITE CASCADE: CT23XC408
 SITE ADDRESS: 79 PUTNAM PIKE
 KILLINGLY, CT 06241
 SITE TYPE: MONOPOLE TOWER
 MARKET: NORTHERN CONNECTICUT



PLANS PREPARED BY:
INFINIGY
 FROM ZERO TO INFINIGY
 the solutions are endless
 1033 Watervliet Shaker Rd | Albany, NY 12205
 Phone: 518-690-0790 | Fax: 518-690-0793
 www.infinigy.com
 JOB NUMBER 514-000

PROJECT MANAGER:
AIROSMITH
 DEVELOPMENT
 32 CLINTON ST.
 SARATOGA SPRINGS, NY 12866
 OFFICE# (518) 306-3740



DRAWING NOTICE:
 THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF SPRINT AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

REVISIONS:	DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT		02/13/17	JJM	0
ISSUED FOR REVIEW		01/25/17	MPS	A

SITE NAME:
KILLINGLY

SITE NUMBER:
CT23XC408

SITE ADDRESS:
**79 PUTNAM PIKE
 KILLINGLY, CT 06241**

SHEET DESCRIPTION:
**TITLE SHEET
 & PROJECT DATA**

SHEET NUMBER:
T-1

SITE INFORMATION

TOWER OWNER:
 TOWN OF KILLINGLY

LATITUDE (NAD83):
 41° 50' 51.684" N
 41.84769000°

LONGITUDE (NAD83):
 -71° 52' 46.092" W
 -71.87947000°

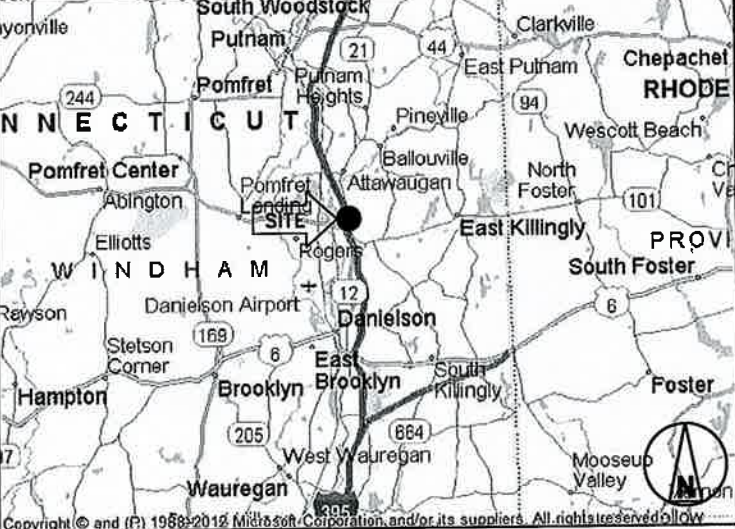
COUNTY:
 WINDHAM

ZONING JURISDICTION:
 TOWN OF KILLINGLY ZONING COMMISSION

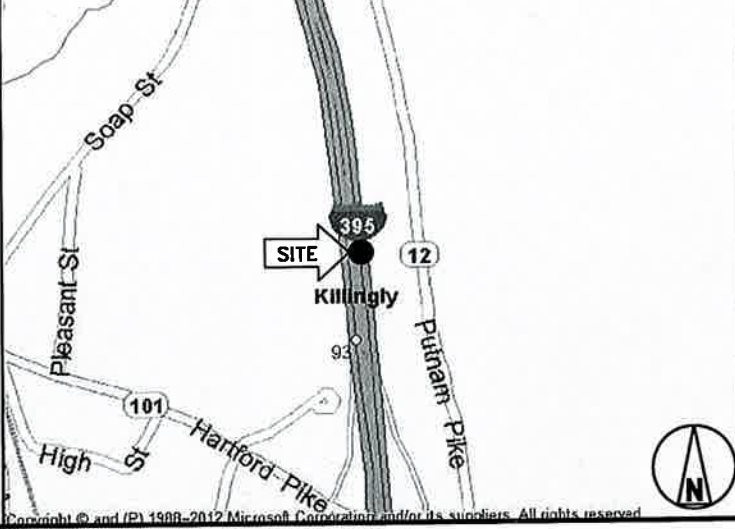
ZONING DISTRICT:
 GC - (GENERAL COMMERCIAL)

PROJECT MANAGER:
 AIROSMITH DEVELOPMENT
 TERRI BURKHOLDER
 (315) 719-2928
 TBURKHOLDER@AIROSMITHDEVELOPMENT.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (6) PANEL ANTENNAS
- INSTALL (3) PANEL ANTENNAS
- INSTALL (6) DIPLEXERS TO TOWER TOP
- INSTALL (6) DIPLEXERS TO EXISTING H-FRAME
- INSTALL (3) RRH'S TO EXISTING H-FRAME
- INSTALL (6) RET CABLES

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

APPLICABLE CODES

- ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
- INTERNATIONAL BUILDING CODE (2012 IBC)
 - TIA-EIA-222-F OR LATEST EDITION
 - NFPA 780 - LIGHTNING PROTECTION CODE
 - 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
 - ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
 - CT BUILDING CODE
 - CITY/COUNTY ORDINANCES

DRAWING INDEX

SHEET NO:	SHEET TITLE	REV
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	OVERALL SITE PLAN	0
A-2	SITE PLAN	0
A-3	TOWER ELEVATION & ANTENNA LAYOUT	0
A-4	ANTENNA LOADING AND COLOR CODING CHART	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	SCENARIO 354 V2.5 SPECIFICATIONS	0
A-7	SCENARIO 354 V2.5 SPECIFICATIONS	0
E-1	ELECTRICAL & GROUNDING PLAN	0



THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 - SCOPE OF WORK

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.
- 1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.
- 1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:
 - A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
 1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
 5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
 4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE - "NEC") AND NFPA 101 (LIFE SAFETY CODE).
 5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
 6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
 7. AMERICAN CONCRETE INSTITUTE (ACI)
 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
 9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
 11. PORTLAND CEMENT ASSOCIATION (PCA)
 12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
 13. BRICK INDUSTRY ASSOCIATION (BIA)
 14. AMERICAN WELDING SOCIETY (AWS)
 15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
 16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
 17. DOOR AND HARDWARE INSTITUTE (DHI)
 18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
 19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

- A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
- B. COMPANY: SPRINT CORPORATION
- C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
- D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
- E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
- F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.
- G. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

- 1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.
- 1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.
- 1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.
- 1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
 - A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.
 - B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.
 - C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.
- 1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.
- 1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED.
- 1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.
- 1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193
- 1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.
- 3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.
- 3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HERewith, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.
- 3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.1 RECEIPT OF MATERIAL AND EQUIPMENT:
 - A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.
 - B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
 1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
 2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
 3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
 4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
 5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
 6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.
- 3.2 DELIVERABLES:
 - A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.
 - B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.
 - C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 - CELL SITE CONSTRUCTION CO.

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.
- 1.3 NOTICE TO PROCEED
 - A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.
 - B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.1 FUNCTIONAL REQUIREMENTS:
 - A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.
 - B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.
 - C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES
 - D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:



PLANS PREPARED BY:

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1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 514-000

PROJECT MANAGER:

AIRSMITH
DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE: (518) 306-3740

ENGINEERING LICENSE:



DRAWING NOTICE:

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REVISIONS:	DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT		02/13/17	JM	0
ISSUED FOR REVIEW		01/25/17	MPS	A

SITE NAME:

KILLINGLY

SITE NUMBER:

CT23XC408

SITE ADDRESS:

**79 PUTNAM PIKE
KILLINGLY, CT 06241**

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER.
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNA AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

- A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
- B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
- C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
 1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
 2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
- D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION
- E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

- A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER
- B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.
 1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
 2. PROJECT PROGRESS REPORTS.
 3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).

5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 - SUBMITTALS & TESTS

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.
- 1.3 SUBMITTALS:
 - A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
 - B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.
 1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
 2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
 3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
 4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
 5. CHEMICAL GROUNDING DESIGN
 - D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
 2. AZIMUTH, DOWN TILT, AND AGL USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
 1. AZIMUTH, DOWN TILT, AGL -- UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWN TILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
 2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
 3. ALL AVAILABLE JURISDICTIONAL INFORMATION
 4. PDF SCAN OF REDLINES PRODUCED IN FIELD

5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASHTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASHTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH, DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS - ANTENNA ALIGNMENT TOOL (AAT)

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JOB NUMBER 514-000

PROJECT MANAGER:

AIRSMITH
DEVELOPMENT
32 CLINTON ST.
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OFFICE: (518) 306-3740

ENGINEERING:



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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	02/13/17	JM	0
ISSUED FOR REVIEW	01/25/17	MPS	A

SITE NAME:

KILLINGLY

SITE NUMBER:

CT23XC408

SITE ADDRESS:

79 PUTNAM PIKE
KILLINGLY, CT 06241

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
 8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
 9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
 10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
 11. ALL AVAILABLE JURISDICTIONAL INFORMATION
 12. PDF SCAN OF REDLINES PRODUCED IN FIELD
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.
- 3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.
- A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.
1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
 2. STRUCTURAL BACKFILL COMPACTION REPORTS.
 3. SITE RESISTANCE TO EARTH TEST.
 4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
 5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
 6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".
- B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;
1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
 2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
 3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS - PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
 4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING - TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
 5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
 6. SITE LAYOUT - PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
 7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
 8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
 9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 - SUBMITTALS & TESTS

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.1 WEEKLY REPORTS:
 - A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.
 - B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.
- 3.2 PROJECT CONFERENCE CALLS:
 - A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.
- 3.3 PROJECT TRACKING IN SMS:
 - A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.
- 3.4 ADDITIONAL REPORTING:
 - A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.
- 3.5 PROJECT PHOTOGRAPHS:
 - A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:
 1. SHELTER AND TOWER OVERVIEW.
 2. TOWER FOUNDATION(S) - FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
 3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
 4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
 5. PHOTOS OF TOWER SECTION STACKING.
 6. CONCRETE TESTING / SAMPLES.
 7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
 8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
 9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.
 10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
 11. COAX CABLE ENTRY INTO SHELTER.
 12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
 13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
 14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
 15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
 16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
 17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
 18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
 19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
 20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
 21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
 22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
 23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
 25. ALL BTS GROUND CONNECTIONS.
 26. ALL GROUND TEST WELLS.
 27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
 28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
 29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
 30. GPS ANTENNAS.
 31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
 32. DOGHOUSE/CABLE EXIT FROM ROOF.
 33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
 34. MASTER BUS BAR.
 35. TELCO BOARD AND NIU.
 36. ELECTRICAL DISTRIBUTION WALL.
 37. CABLE ENTRY WITH SURGE SUPPRESSION.
 38. ENTRANCE TO EQUIPMENT ROOM.
 39. COAX WEATHERPROOFING--TOP AND BOTTOM OF TOWER.
 40. COAX GROUNDING --TOP AND BOTTOM OF TOWER.
 41. ANTENNA AND MAST GROUNDING.
 42. LANDSCAPING - WHERE APPLICABLE.
- 3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

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DEVELOPMENT

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SITE NUMBER:

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KILLINGLY, CT 06241**

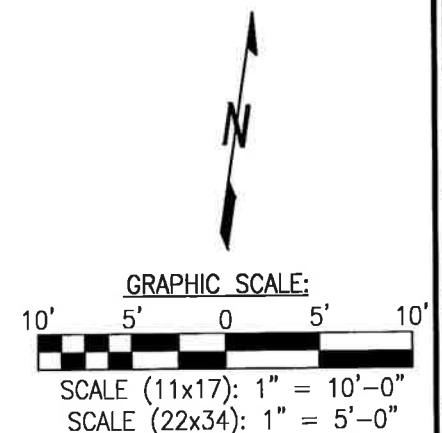
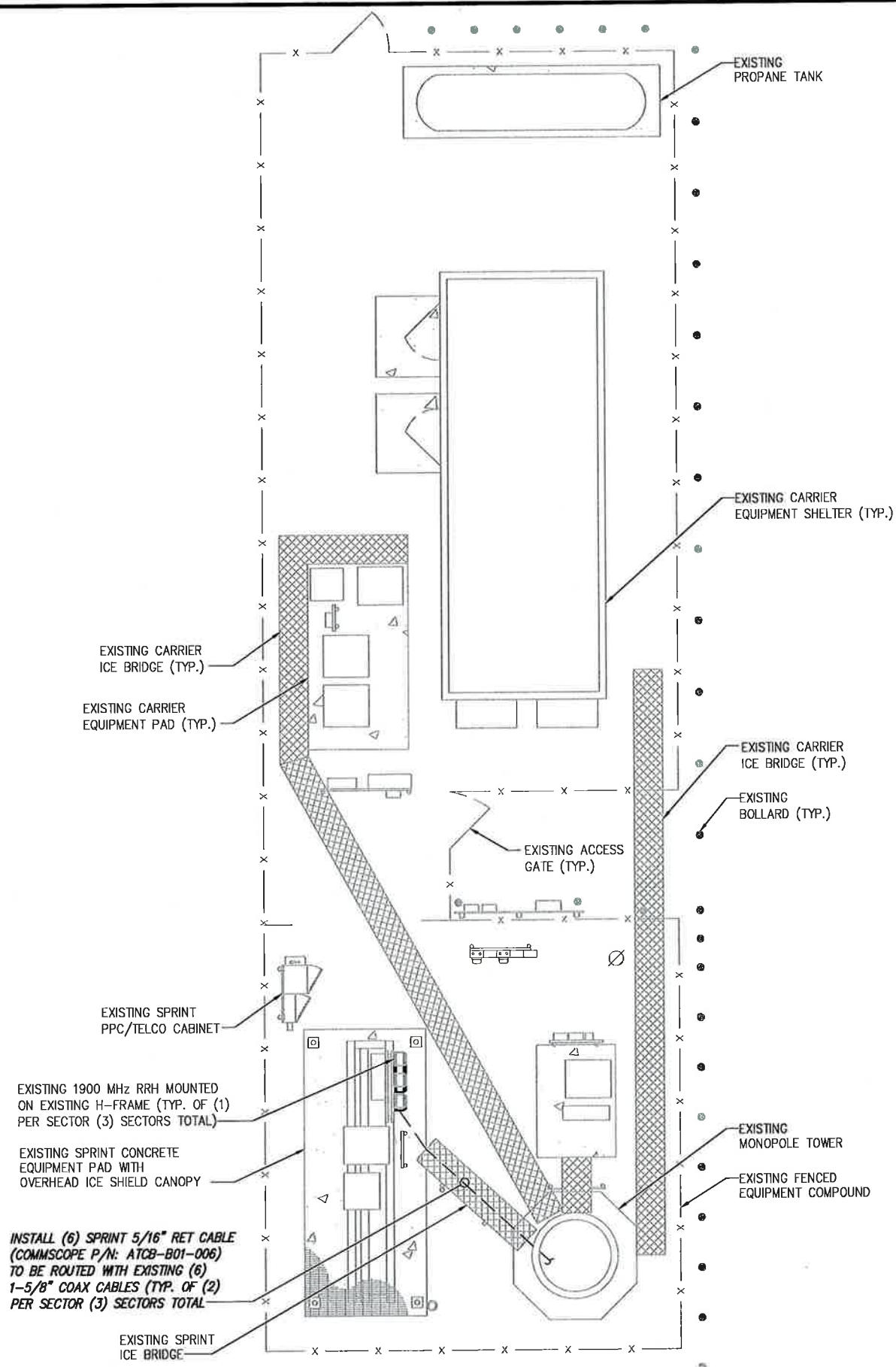
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SHEET NUMBER:

SP-3

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OVERALL SITE PLAN

SCALE: AS NOTED 1

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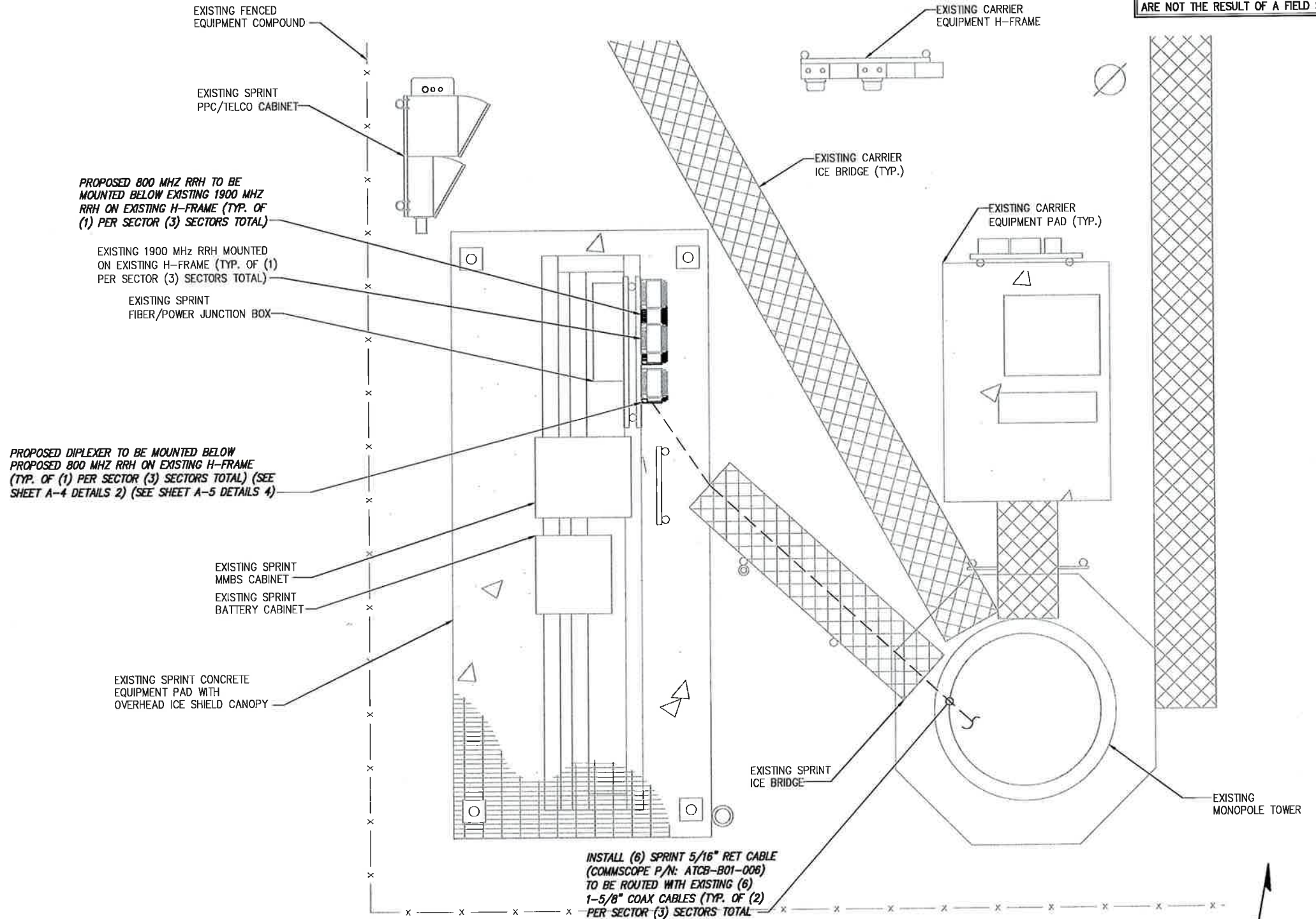
SHEET DESCRIPTION:

OVERALL SITE PLAN

SHEET NUMBER:

A-1

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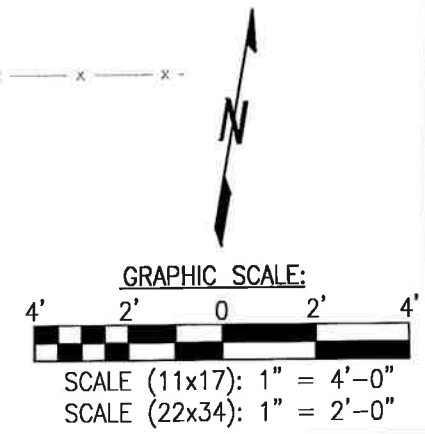
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SHEET DESCRIPTION:

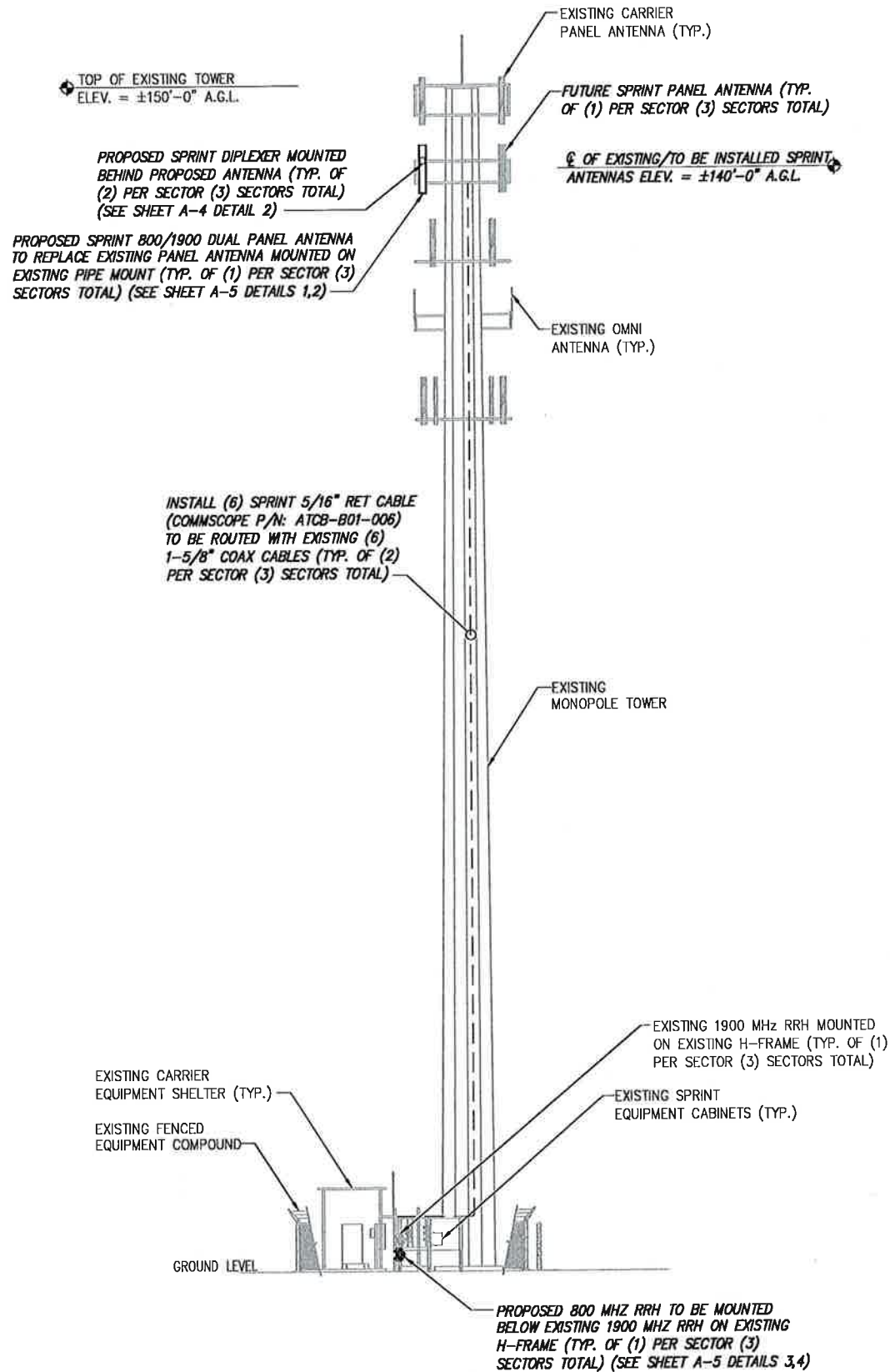
SITE PLAN

SHEET NUMBER:

A-2



STRUCTURAL ANALYSIS NOT COMPLETED AT TIME OF ISSUANCE OF THESE DRAWINGS. THE STRUCTURAL ANALYSIS MUST BE COMPLETED PRIOR TO CONSTRUCTION.

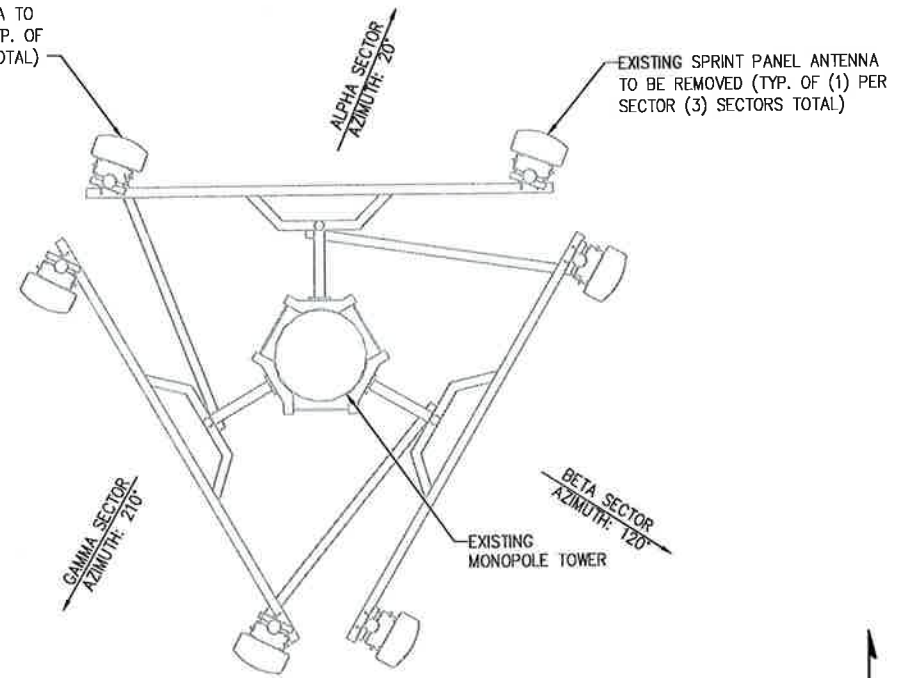


TOWER ELEVATION

NO SCALE

1

EXISTING SPRINT PANEL ANTENNA TO BE REMOVED AND REPLACED (TYP. OF (1) PER SECTOR (3) SECTORS TOTAL)



EXISTING ANTENNA LAYOUT

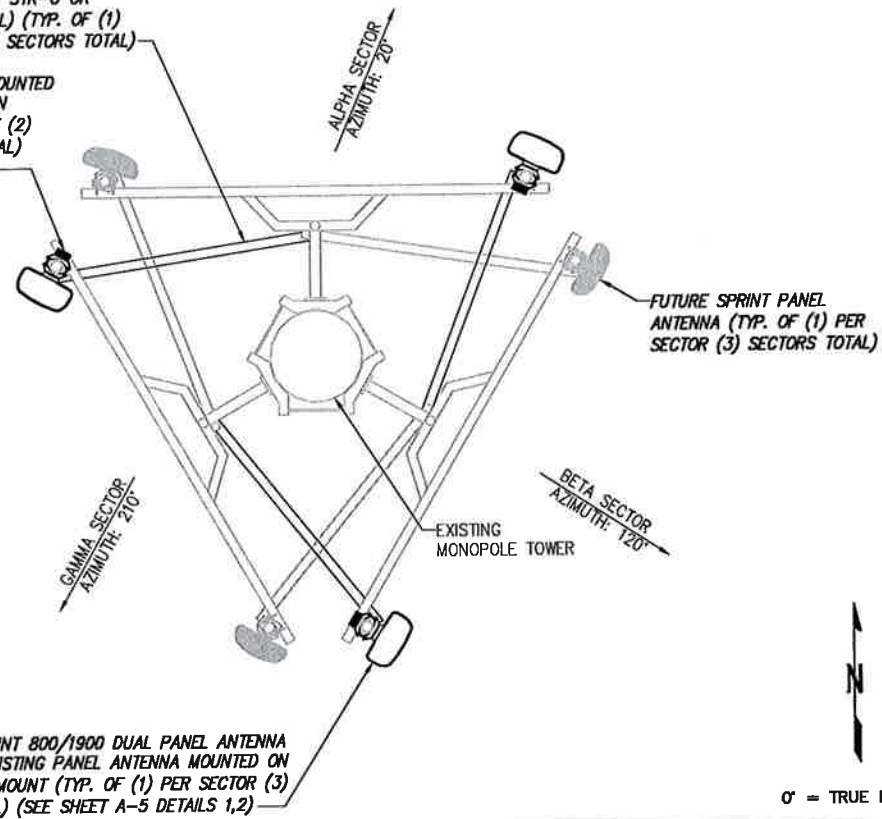
NO SCALE

2

PROPOSED SPRINT STIFF ARM KIT (SITE PROJ P/N: STK-U OR APPROVED EQUAL) (TYP. OF (1) PER SECTOR (3) SECTORS TOTAL)

PROPOSED SPRINT DIPLEXER MOUNTED BEHIND PROPOSED ANTENNA ON EXISTING PIPE MOUNT (TYP. OF (2) PER SECTOR (3) SECTORS TOTAL) (SEE SHEET A-4 DETAIL 2)

PROPOSED SPRINT 800/1900 DUAL PANEL ANTENNA TO REPLACE EXISTING PANEL ANTENNA MOUNTED ON EXISTING PIPE MOUNT (TYP. OF (1) PER SECTOR (3) SECTORS TOTAL) (SEE SHEET A-5 DETAILS 1,2)



PROPOSED ANTENNA LAYOUT

NO SCALE

3

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SHEET DESCRIPTION:

TOWER ELEVATION
& ANTENNA LAYOUT

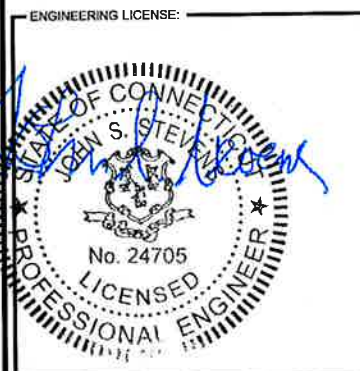
SHEET NUMBER:

A-3



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SHEET DESCRIPTION:
**ANTENNA LOADING &
 COLOR CODING CHARTS**

SHEET NUMBER:
A-4

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	ANTENNA Q HEIGHT	AZIMUTH	RRH	JUNCTION CYLINDERS	CABLE	CABLE LENGTH
ALPHA	FUTURE	---	---	---	---	---	---	---	---
	PROPOSED	800MHZ / 1900MHZ	RFS/CELWAVE APXVSP18-C-A20	140'-0"	20°	(P) GROUND MOUNTED 800 MHZ RRH (E) GROUND MOUNTED 1900 MHZ RRH	---	(2) (P) RET CABLES (2) (E) 1-5/8" COAX	±200' EXISTING
BETA	FUTURE	---	---	---	---	---	---	---	---
	PROPOSED	800MHZ / 1900MHZ	RFS/CELWAVE APXVSP18-C-A20	140'-0"	120°	(P) GROUND MOUNTED 800 MHZ RRH (E) GROUND MOUNTED 1900 MHZ RRH	---	(2) (P) RET CABLES (2) (E) 1-5/8" COAX	±200' EXISTING
GAMMA	FUTURE	---	---	---	---	---	---	---	---
	PROPOSED	800MHZ / 1900MHZ	RFS/CELWAVE APXVSP18-C-A20	140'-0"	210°	(P) GROUND MOUNTED 800 MHZ RRH (E) GROUND MOUNTED 1900 MHZ RRH	---	(2) (P) RET CABLES (2) (E) 1-5/8" COAX	±200' EXISTING

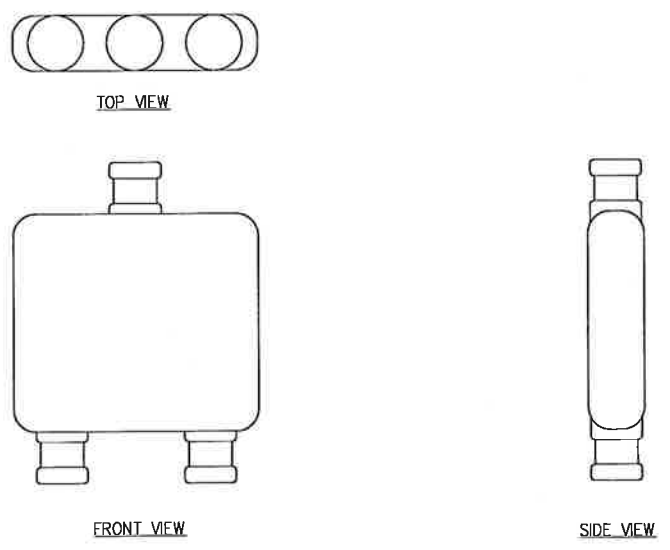
SECTOR	CABLE	FIRST RING	SECOND RING	THIRD RING
1 ALPHA	1	GREEN	NO TAPE	NO TAPE
1	2	BLUE	NO TAPE	NO TAPE
1	3	BROWN	NO TAPE	NO TAPE
1	4	WHITE	NO TAPE	NO TAPE
1	5		NO TAPE	NO TAPE
1	6	SLATE	NO TAPE	NO TAPE
1	7	PURPLE	NO TAPE	NO TAPE
1	8	ORANGE	NO TAPE	NO TAPE
2 BETA	1	GREEN	GREEN	NO TAPE
2	2	BLUE	BLUE	NO TAPE
2	3	BROWN	BROWN	NO TAPE
2	4			NO TAPE
2	5			NO TAPE
2	6	SLATE	SLATE	NO TAPE
2	7	PURPLE	PURPLE	NO TAPE
2	8	ORANGE	ORANGE	NO TAPE
3 GAMMA	1	GREEN	GREEN	GREEN
3	2	BLUE	BLUE	BLUE
3	3	BROWN	BROWN	BROWN
3	4			
3	5			
3	6	SLATE	SLATE	SLATE
3	7	PURPLE	PURPLE	PURPLE
3	8	ORANGE	ORANGE	ORANGE

ANTENNA LOADING CHART

NO SCALE 1

DIPLEXER: RFS/CELWAVE FD9R6004/1C-3L

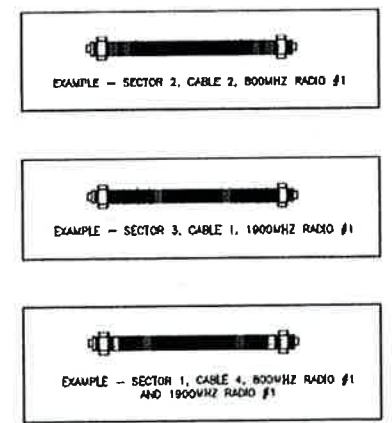
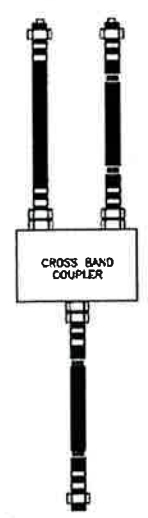
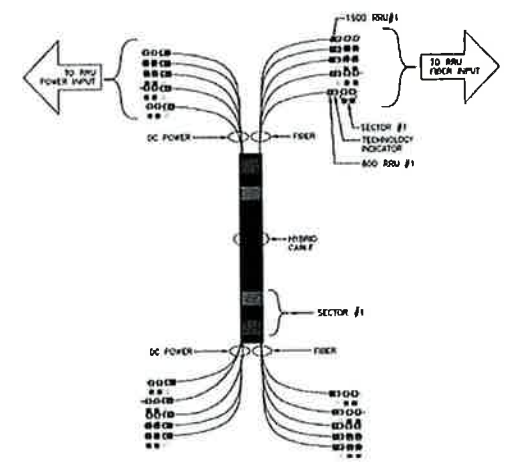
HOUSING: ALUMINUM
 DIMENSIONS, HxWxD.in(mim): 5.8"x6.5"x1.5" (147x164x37mm)
 WEIGHT, kg (lb): 1.2 (2.6 lb)
 CONNECTORS: in-line long-neck 7-16-female



DIPLEXER DETAIL

NO SCALE 2

FREQUENCY	INDICATOR	ID
800#1	YELLOW	
1900#1	YELLOW	RED
1900#2	YELLOW	
RESERVED	YELLOW	
RESERVED	YELLOW	SLATE
RESERVED	YELLOW	
RESERVED	YELLOW	WHITE
1800#1	YELLOW	

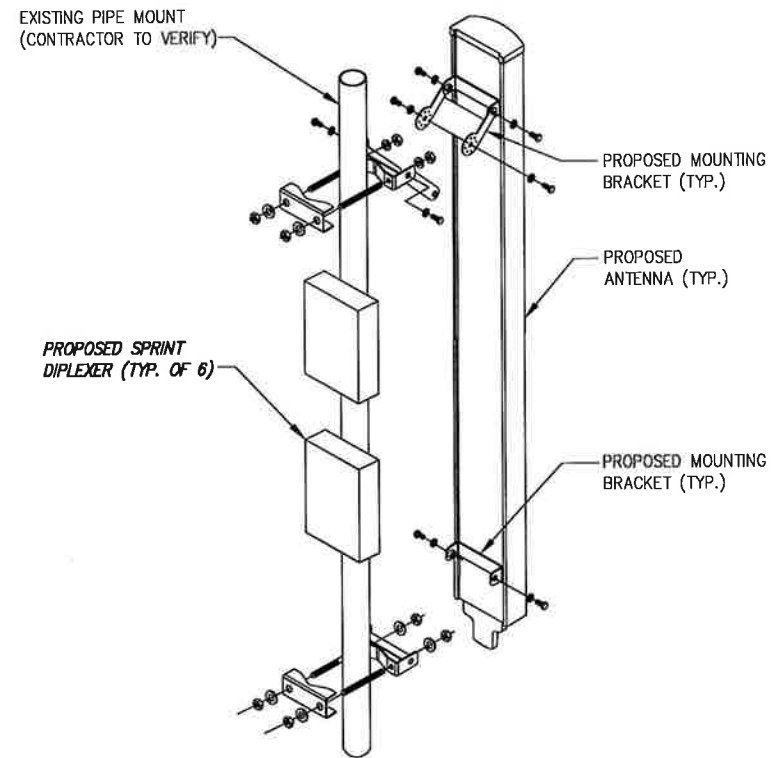
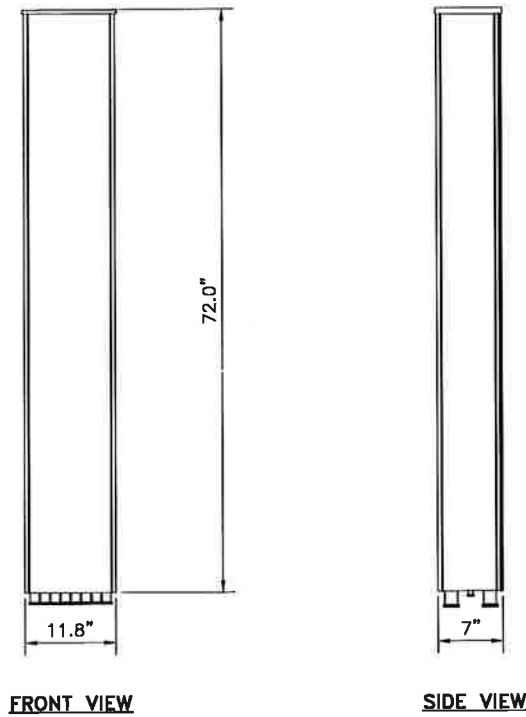


COLOR CODING CHARTS

NO SCALE 3

ANTENNA: RFS/CELWAVE APXVSP18-C-A20

RADOME MATERIAL: ASA
 RADOME COLOR: LIGHT GRAY
 DIMENSIONS, HxWxD.in.(mm): 72.0"x11.8"x7" (1829x302x178mm)
 WEIGHT: 25.8 lbs
 CONNECTORS: (6) 7/16" DIN FEMALE/BOTTOM

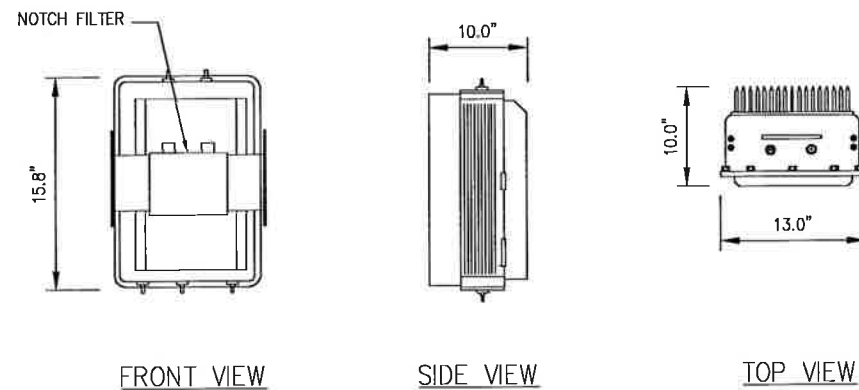


PANEL ANTENNA DETAIL

NO SCALE 1

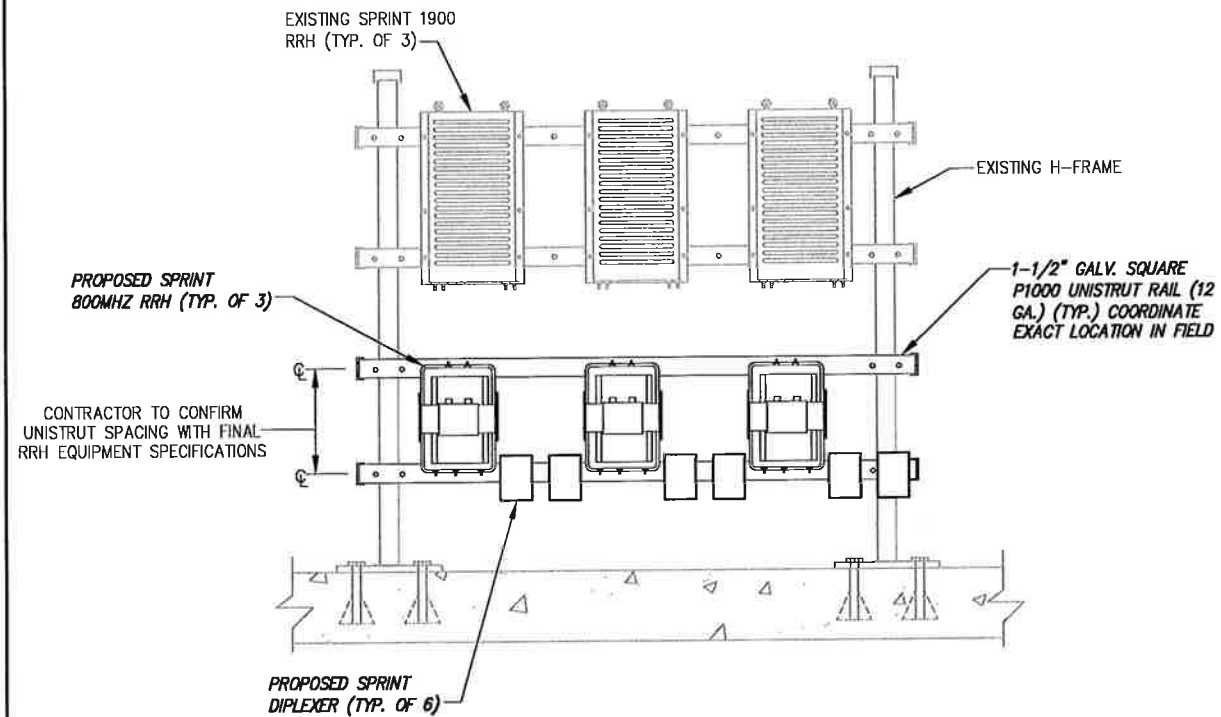
PANEL ANTENNA MOUNTING DETAIL

NO SCALE 2



800 MHz RRH
 (ALU)
 WEIGHT = 53 LBS.

NOTE:
 REFER TO R.F. SYSTEM SCHEDULE FOR EXACT
 RRH SPECIFICATIONS AND QUANTITIES.



RRH DETAIL

NO SCALE 3

RRH MOUNTING DETAILS

NO SCALE 4

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SHEET DESCRIPTION:
**EQUIPMENT
 & MOUNTING DETAILS**

SHEET NUMBER:
A-5



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JOHN S. STEVENS
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LICENSED PROFESSIONAL ENGINEER

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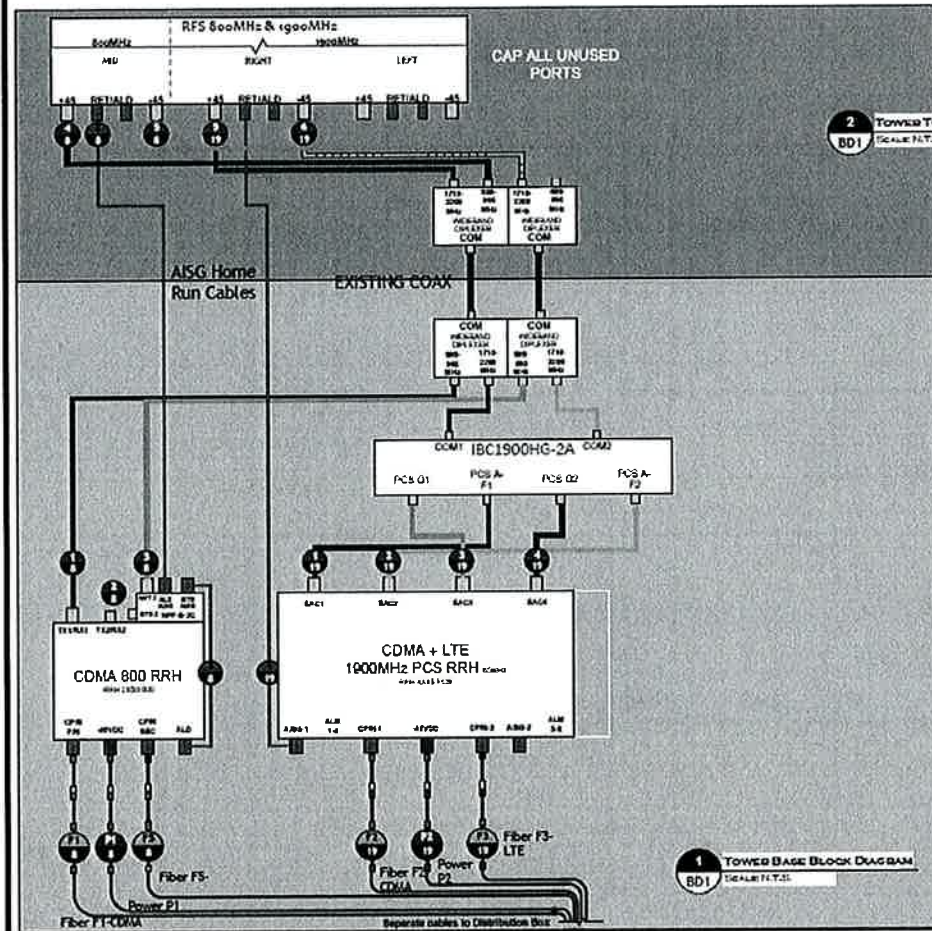
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SHEET DESCRIPTION:
**SCENARIO 354 V2.5
SPECIFICATIONS**

SHEET NUMBER:
A-6



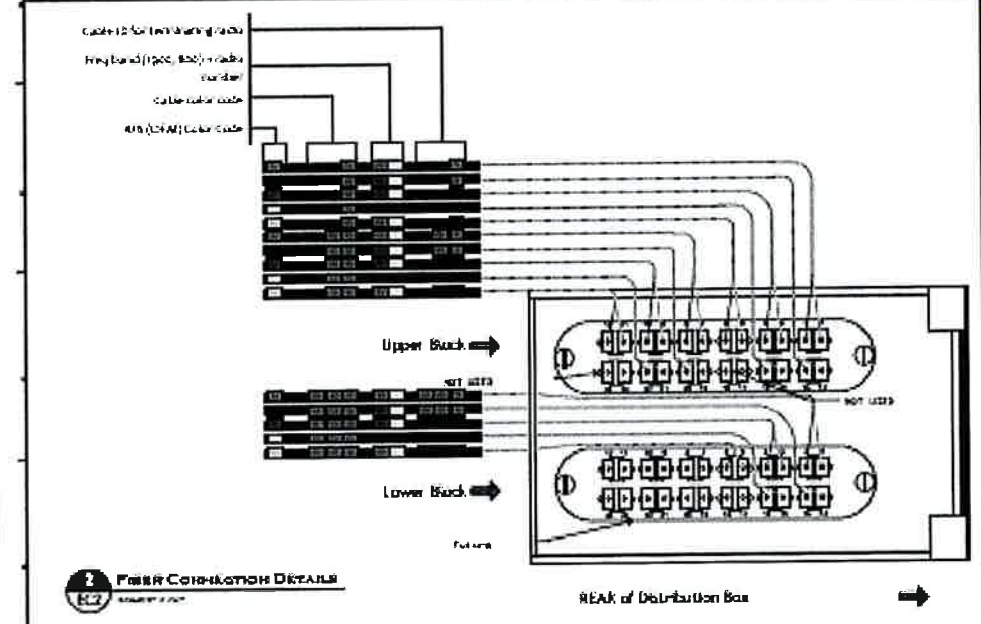
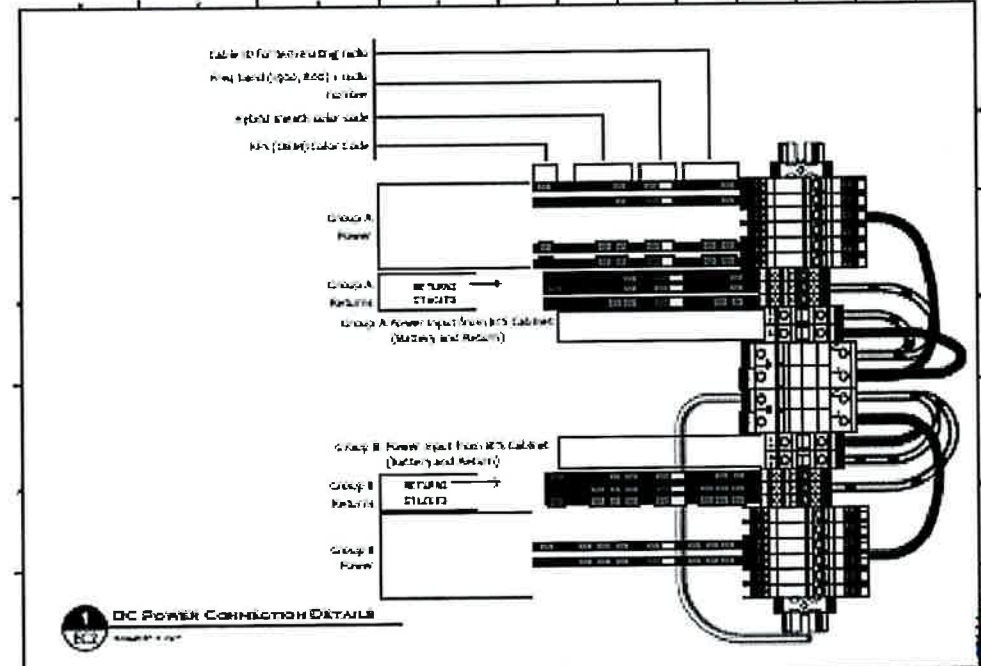
2 TOWER TOP BLOCK DIAGRAM
SCALE: 1:1.25

J. STEVE WALKER
Sprint Network Vision
Alcatel-Lucent

SCENARIO 354_V2.5_VSD

SHEET DESCRIPTION:
GROUND MOUNTED BLOCK DIAGRAM

SHEET NUMBER:
BD1



SCENARIO 354_V2.5_VSD

Sprint NETWORK VISION
Alcatel-Lucent

J. STEVE WALKER
Sprint Network Vision
Alcatel-Lucent

BACK TO TITLE SHEET

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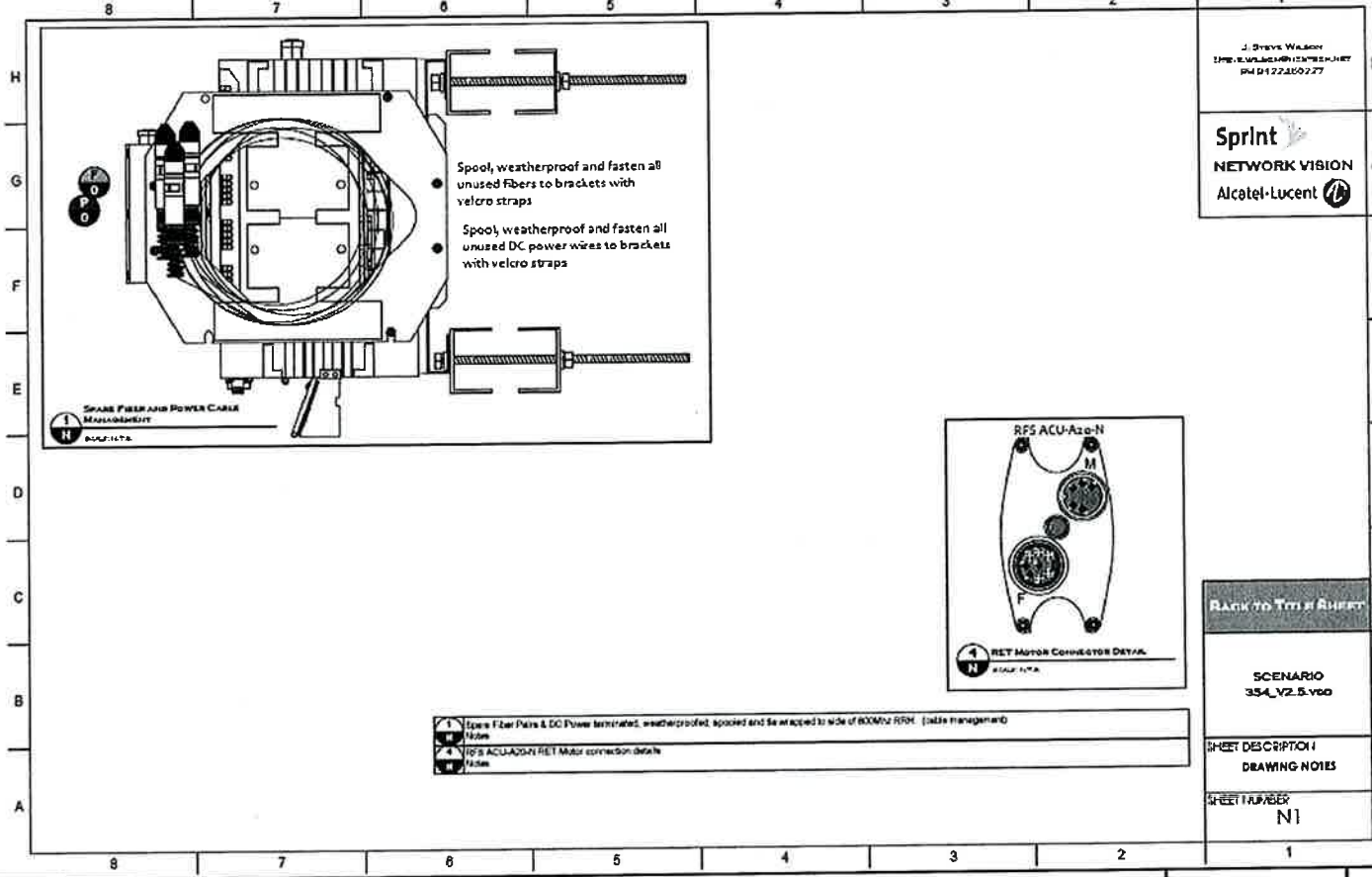
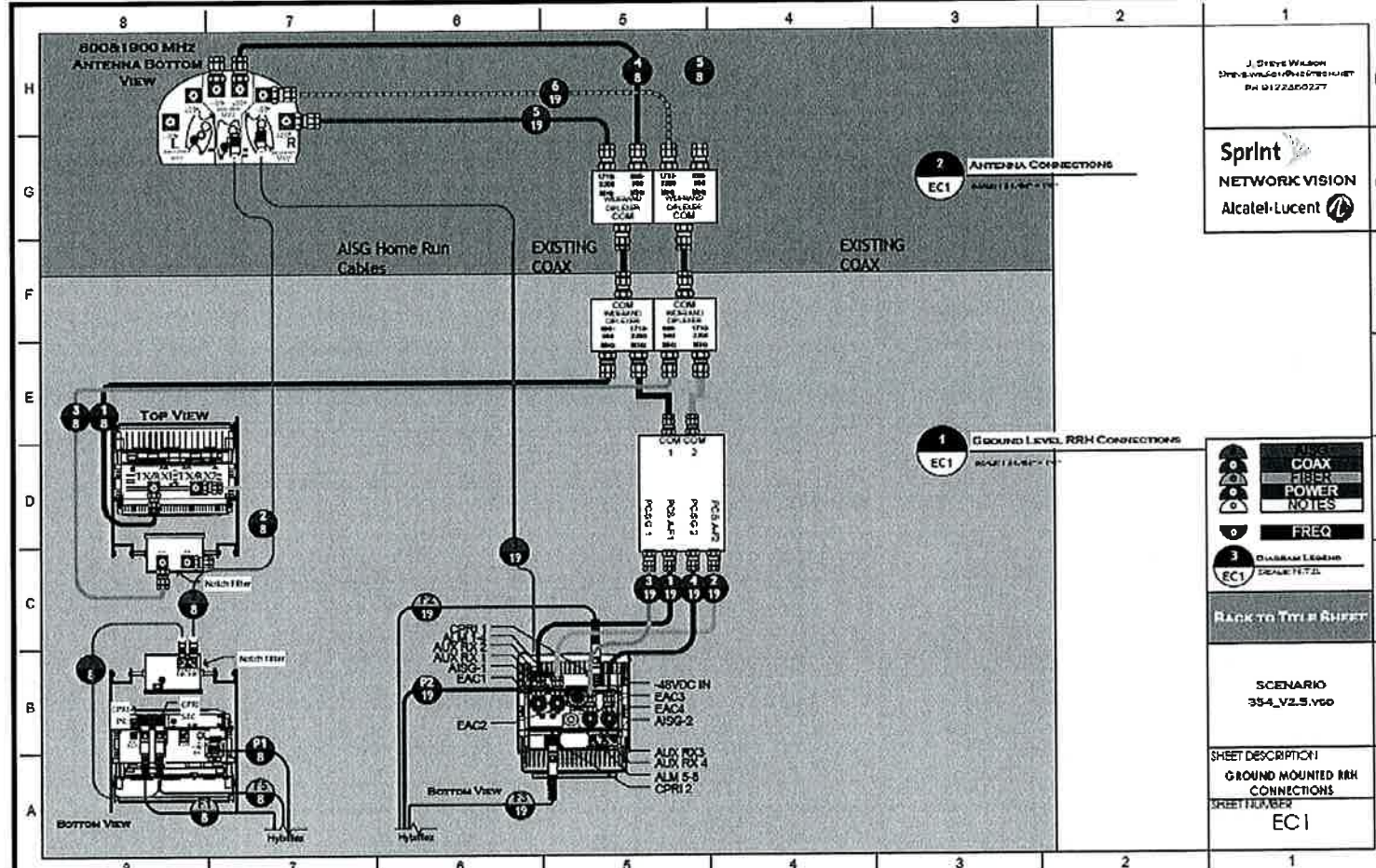
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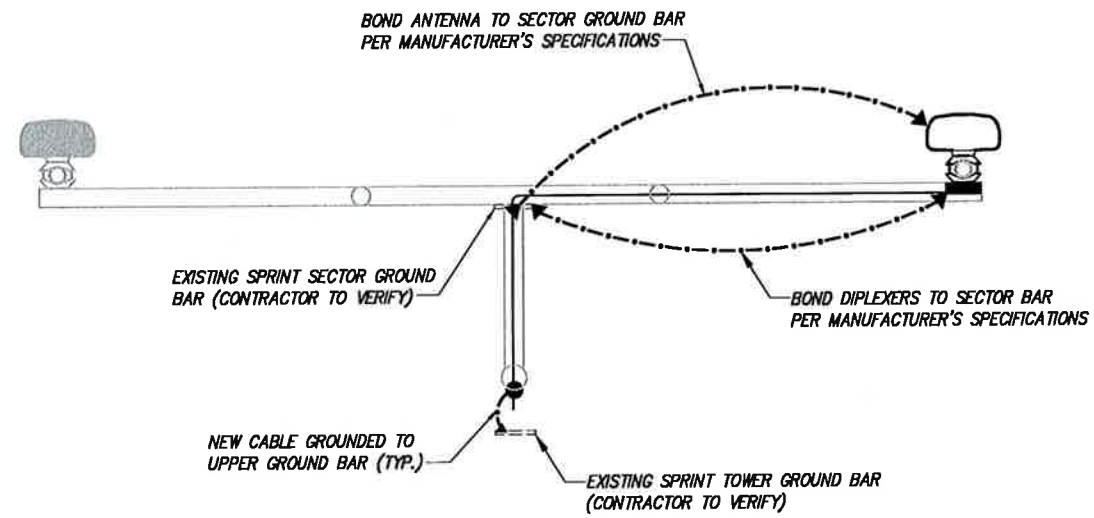
SHEET DESCRIPTION:

**SCENARIO 354 V2.5
SPECIFICATIONS**

SHEET NUMBER:

A-7

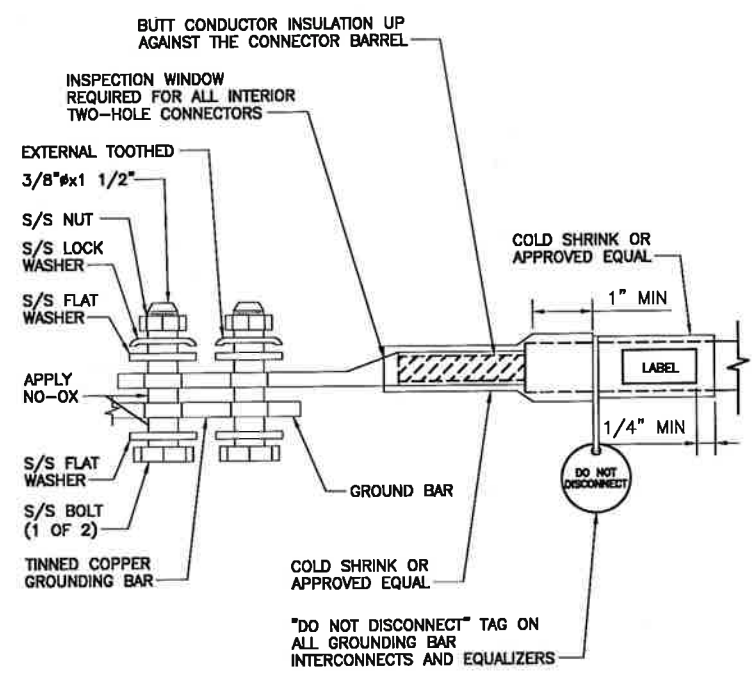




TYPICAL ANTENNA TOP GROUNDING PLAN

NO SCALE

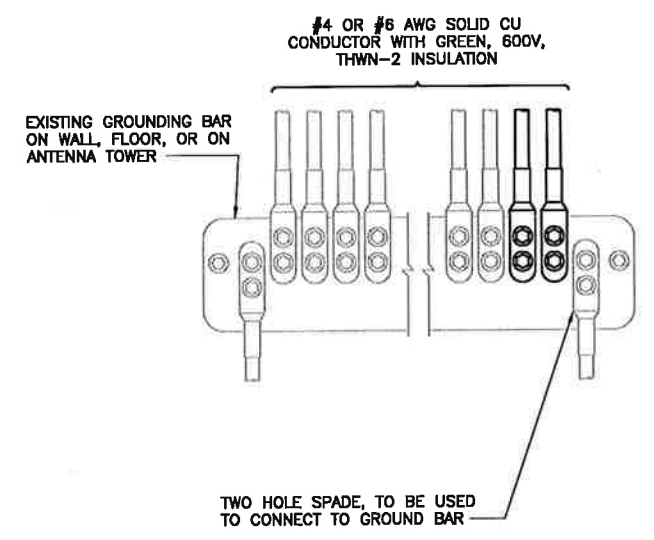
1



TWO HOLE LUG

NO SCALE

2

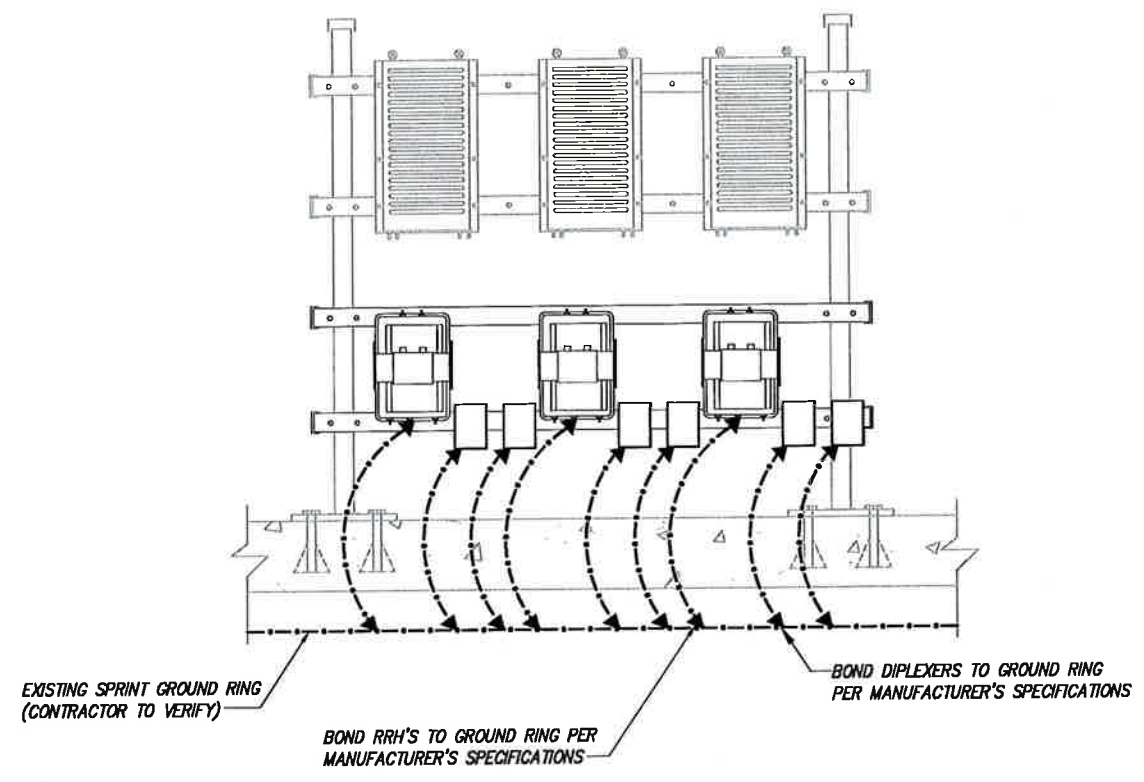


- NOTES**
1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
 2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE

3



TYPICAL RRH GROUNDING PLAN

NO SCALE

4

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SHEET DESCRIPTION:

ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1